Welcome

Welcome to the Tome of Ultimate Mapping. This will be an in-depth adventure through Campaign Cartographer 2 Pro, its add-ons and accessories. The knowledge, hard work, creativity, and dedication of a lot of people went into the creation of this manual. I hope you, the reader and CC2 Pro user, enjoy the results.

Allyn

CREDITS

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Thanks To: The CC2 Pro Users' List, The Colonel and Colin

Special Thanks from Allyn to: Simon for believing, the CC2 Pro Users' List folks for letting me hang around with them, and to John 'Abbott' Csaky for his dedication to the CC2 Pro community

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Contents

A Map of Thain by Ralf Schemmann

A Map of Thain is drawn on an edited parchment template. It uses hand drawn style symbols from Symbol Set 1-Fantasy Overland and outlined text labels as explained in Adding an outline on page 46.

CAMPAIGN CARTOGRAPHER 2 PRO
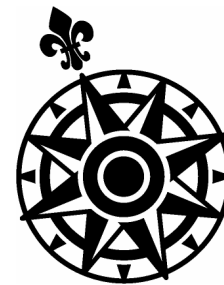
WELCOME

Welcome to Campaign Cartographer 2 Pro, the core of ProFantasy Software Ltd's RPG software. The fact you are reading this means that you have made two wise decisions. First, you have chosen to create your maps with CC2 Pro. Second, you have started to read the manual. Please continue. Whatever you play, CC2 Pro and its add-on products will help you improve the quality of your game.

License Agreement

Use of this software is determined by a license agreement you can view on the CD.

Technical Support

Support is available from the registered users area of the ProFantasy website profantasy.com

CREDITS

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Additional Manual Material: L. Lee Saunders (the Art of Labeling), Morgan Olden (Macros), John Csaky (various advanced tips), Allyn Bowker (Different Styles of Mapping, various tutorials)

Thanks To: The CC Mail List, The Colonel and Colin

Campaign Cartographer2 Pro Introduction

How to use the Tome

While most of the Tome is presented in a tutorial format, each section also stands independently. As an example, take a look at Printing on page 13. Later chapters do assume that you have knowledge of the basics. Items underlined in **bold text** are referring you to the side bar for definitions and additional information. Buttons, dialog box items and menu items are shown in bold text like this: **Perspective Settings** 🔲.

If you've bought CC2 Pro together with other proFantasy products, we thank you. We also recommend that you complete the CC2 Pro tutorial even if you are not interested in creating overland maps of fantasy worlds. The manual is carefully designed to introduce CC2 Pro in easy-to-digest steps.

Clear your Mind...

You may well be used to paint programs. In fact, you may even have tried to create maps with a paint program. If you have, you'll know that they're not always suited to the job. CC2 Pro, on the other hand, is superb at map-making. There is a reason for this difference.

A paint program thinks of a picture as a grid of dots. All it knows about the picture is how big it is (how many dots across and up) and the color of each dot. Once you have drawn a shape it is tricky to change, especially if other shapes have been drawn on top.

CC2 Pro thinks of a picture in a different way. It thinks of a picture as a collection of *entities* (drawing objects), with each entity having a set of *properties* such as color, width, start-point and end-point. This is ideal for map-making, and it gives you many **benefits**.

As you might expect, because CC2 Pro and paint programs think differently, they work differently, too, so clear your mind of any preconceptions you have.

You will find that CC2 Pro is easy to use, but expect it to work differently than a paint program!

Sources of Information

This book leads you through the concepts and techniques used to create maps with CC2 Pro. It starts with the basics, making no assumptions about your knowledge of CC2 Pro.

CC2 Pro's *Quick Start Guide* is available from the Help menu. It takes you through the process of creating a simple map.

CC2 Pro's *help system* contains reference information about every command, an overview of concepts and a large how-to section. If you can't find the answer to a CC2 Pro question in this book, look in the help system.

ProFantasy's website, http://www.profantasy.com, contains downloadable updates, resources, documentation and the latest technical support answers.

What's Pro?

CC2 Pro is based on our original Campaign Cartographer 2, but more powerful and easier to use. We evaluated all the suggestions and negative comments we'd received over the years, and we sought out people who actively disliked CC2. We also asked our experienced users what we could do to speed things up. Based on all this information, we redesigned CC2 Pro to make it easier to learn while enhancing its powers. "More powerful, easier to use" was our mantra. Many of the sections in previous manuals are redundant, and you don't need to know much to create a nice looking map. CC2 Pro's powerful CAD tools are still there, ready for advanced users, but you don't have to touch them to create great maps. For full details of the extra features in CC2 Pro, see the **readme.txt** file that came with CC2 Pro in the **Notes** folder.

Benefits

- You can go back and change the properties of any entity at any time, even after other shapes have been drawn on top.

- A CC2 Pro map has no fiXEd size. If you need more canvas, you simply zoom out.

- When you zoom in, you see clearer definition, not bigger dots.

- Entities are attached to layers. By saying which layers are visible, you can change the visible content to suit a particular purpose.

- The file size is related to the number of objects, not the picture size. A road 1,000 miles long takes up exactly the same memory as a road 1 mile long.

- Objects can be complex, and even trigger actions. For example, a city symbol can be combined with a link object so that when you click on it, the city map opens.

CC2 Pro's Interface

After **installation**, launch CC2 Pro. Most people learn by deciding what they want to do, then working out how to do it. Modern Help systems and software manuals follow this trend, including this one. However, if you are like me, you might learn new things just by asking what these pretty buttons do as well as asking which ones to press. Here's a quick overview of CC2 Pro's window furniture and buttons.

A Status Bar
B File Toolbar
C Symbol Settings
D Overland Toolbar
E Symbol Catalog Window
F Color Bar
G Edit Toolbar
H Edit Single Entities Toolbar
I Command Prompt
J View Window
K Screen Tools Button
L Snap and Lock Buttons
M Scroll Bars
N Modifiers Toolbar
O Draw Toolbar
P Entity Order Toolbar
Q View Toolbar

The Status Bar

Tracking	Color	Width		Line Style	
T: 8522.21973,8223.04590		P:0.000 mm	W: 0.00000	L: SYMBOL DEFINITIO	LS: Solid	FS: Solid
	Pen Thickness		Layer		Fill Style

The Status Bar shows you the current drawing properties (color, line style, etc) for new entities. You can click on any of the indicators to change the current setting. Tracking shows you the current cursor position.

The View Window

This is where you see your drawing. Use the **View** toolbar to control what you see.

The Color Bar

Click here to set the current color. For a wider selection of colors, use the **Color indicator** on the **Status Bar**.

The Command Prompt

Command []:

This is where CC2 Pro asks you for information. It's also where you type requested values such as scales and points. Keep an eye on it.

Toolbars

You can right click on toolbar buttons to see popup menus or secondary options. CC2 Pro's most important commands are found here.

The Screen Tools button

Screen Tools lets you control the appearance your CC2 Pro screen. Here you can move **toolbars**, and hide and show scroll bars as well as the catalog window. You can also choose to have large screen buttons here.

Snap and Lock buttons

Grid	Ortho	Snap	Attach	Locked
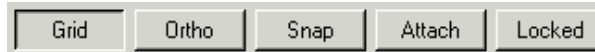
The **Grid** button turns the visual grid on and off. **Snap** causes points to lock to the grid and to significant points between, and **Ortho** locks the cursor vertically or horizontally. A right click on these buttons lets you select another grid setting. The **Attach** causes all clicks in the View Window to snap to significant points on any entity; right click for settings. Lock controls group locking (see sidebar on page 53).

Read Me ~ The Most Important Differences

CC2 Pro is easy to use, but there are a few things that make it different to some other software. If you can grasp these simple concepts early on, you'll find CC2 Pro much easier to learn.

- CC2 Pro expects you to choose an editing function, then select what you want to edit.

  So you would click **Erase**, then click on what you wanted to remove from the drawing, right click, select **Do it**. This is far quicker for mapping than the standard Windows method of select then edit. This is dealt with throughout the tutorial, and is detailed in *Making a Selection* on page 57.

- Right click to complete a command. When a command is complete, click to repeat it. Select another command to cancel the current one.

- The lower left corner of the screen, called the Command Prompt (prompt), is where CC2 Pro asks you for instructions and gives you information about shortcuts. You can type here. Keep an eye on it. If you select a menu item, and nothing appears to happen, look down here and you'll see what CC2 Pro wants.

In CC2 Pro, don't drag the mouse. You get finer control without dragging - left click to start a move, then right click to finish.

The Value of Maps

In the beginning, there were none. Then there were a few, but you had to put up with a world where you could tumble off the edge. Today, maps are super-accurate and so commonplace that you can find one in your local convenience store.

The value of maps clearly depends on the era in which your game is set, and whether it is a fantasy game, or true-to-life.

In our own history, maps have always been incredibly valuable tools used for political and commercial exploitation. In the 16th Century, the Spanish and Portuguese avoided the new print processes and kept to hand drawn maps which were less likely to fall into enemy hands. While modern maps may be accurate in shape, they're only as up-to-date as the last time information was gathered. Printed maps don't show changes such as blown-up bridges, or dynamic information, such as troop movements.

In a fantasy world charted by reticent sages and unforthcoming wizards, maps available to the average adventurer should be sparse and maybe even dangerously inaccurate. A map should be a prize worth having. Players should not be allowed to see a full, accurate map of their own lands, let alone the world, without a long struggle.

The CC2 Pro software you have in your hands is capable of mapping Earth in precise and near infinite detail, even recording abstract details such as mineral locations, ocean currents and population movement.

Copyright issues

You retain the **copyright** in all maps you create with CC2 Pro. You may freely distribute any maps you create, with the following proviso – you may not release maps which, in our opinion, are for the purpose of redistributing CC2 Pro's symbols. Think of your maps as documents, and our symbols as fonts. You can print a document containing Times New Roman font, but you can't give the font file away, or produce a "font book."

Copyright

For more information on symbols and copyrights, see *Symbols and copyright* on page 350.

Analorn Prison by Matthew Lynn*†

Analorn Prison uses hotspots for navigation between sheets as explained in *Using Hotspots to Control Sheets and Layers* on page 118. The prison uses symbols created using the techniques explained in *Creating a symbol* on page 66.

Analorn Prison is available as an example drawing in the **Examples>Tome** folder. A symbol catalog compiled from the drawing is available in the **Symbols>Tome** folder.

CAMPAIGN CARTOGRAPHER 2 PRO

Viewing and Printing

Before we get involved with map creation, let's see what CC2 Pro can do.

This chapter will show you how to navigate your way around CC2 Pro and print maps at different scales

1   Start **CC2 Pro**.

When you installed **CC2 Pro**, you were given the option to add a **CC2 Pro** shortcut to your desktop. If you said *Yes* to this, you can click the **CC2 Pro button** on your main Windows® screen.

The first time you start **CC2 Pro**, you see the CC2 Pro Welcome Screen. Subsequently you'll see the last map you used.

2   On the **File** toolbar click **Open** 📁.

3   You see the **Load Drawing** dialog box.

4   Navigate to CC2 Pro's **Examples\Maps** folder, then click on **Carriad.fcw**. Click the **Open** Button.

5   CC2 Pro asks if you would like to save the changes to your map. Click **No**.

The Carriad example map loads.

Zooming

One of the great things about CC2 Pro is how it lets you "zoom in" to get a close-up view of an area of your map or "zoom out" to see more of the map at a reduced size.

CC2 Pro has six **zoom buttons**, grouped at the top right of the drawing window – the **View** toolbar. There is also a **View** menu, containing more view controlling commands. For now, though, we will only worry about the buttons:

6   Click **Zoom Window** 🔍.

The Command Prompt (at the bottom of the screen) reads zoom window: and the pointer changes to crosshairs.

7   Click (don't drag) at the bottom left of the island called *Munsch*.

The Command Prompt reads Opposite corner:. Now, when you move the mouse you see a box shrink and grow. This is **CC2 Pro** showing you the window to which it will zoom.

8   Put the opposite corner of the window at the top right of the island then click again.

CC2 Pro zooms in to the island. You can carry on zooming in like this as far as you like.

9   Click **Zoom Extents** 🔍 to see the whole map again.

10 Click **Zoom Window** 🔍 and pick a window around *Carag*, the island to the north.

Layers

Maps are built on **layers**. Everything in your drawing is associated with a particular layer. By hiding and showing layers you can change the visible content to suit a particular purpose without having to draw a new version. For example, by putting all secrets on the **SECRET** layer, you can quickly hide them from unauthorized eyes!

11 Click the layer indicator **L: COAST/SEA** on the Status Bar.

| T: 630.00000,760.00000 | ■ | P:0.000 mm | W: 0.00000 | L: COAST/SEA | LS: Solid | FS: Solid |
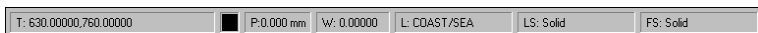
You see the Select Layer dialog box which shows the list of layers used in the map.

Next to each layer name are three small boxes.

- The left box is ticked if the layer is the current layer. In this case the current layer is **COAST/SEA**.
- The middle box contains a small **H** if the layer is hidden. In this case GAME MASTER ONLY is hidden.
- The right box contains a small **F** if layer the layer is frozen (protected).
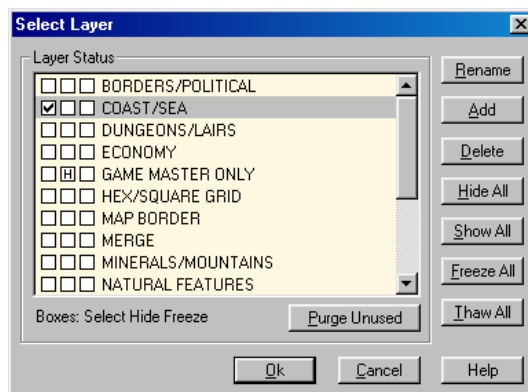
12 Click the small **H** in the box next to **GAME MASTER ONLY**.

The **H** is removed. The layer will now be visible.

13 Click on the **OK** button

The map redraws with the **GAME MASTER ONLY** layer visible. Among other things, you should see an angel and a crown which were not there before. These mark the site of Good and of the location of a Royal Pretender.

Printing

14 CC2 Pro can print **any view** of any map either to *fit the page*, or to a precise scale factor (e.g. 1:72 for miniatures), or *tiled* across more than one sheet of paper. From the **File** toolbar click **Print** 🖨.

You see the **Print Drawing** dialog box, which has five sections – **Printer, View to print, Scaling, Tiling**, and **Options**.
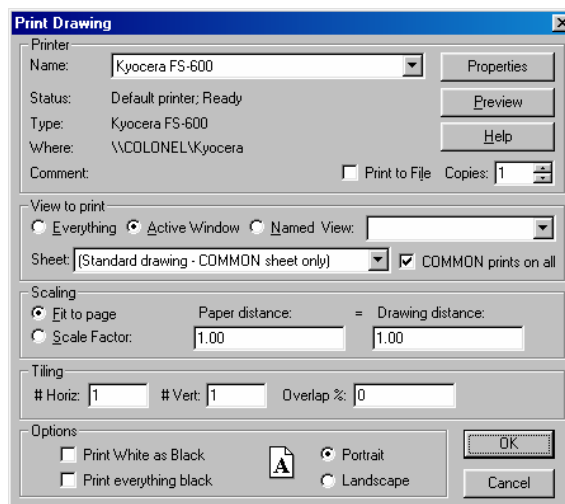
Printing without worrying about the options

The Print dialog box gives you a great deal of control about how the printed map will look; but, with that control, comes options. If you want to print without worrying about the options, these are the settings you want:

View to Print

Everything: The whole map will print, regardless of the current view. To see what CC2 Pro considers is everything, click **Zoom Extents** 🔍.

Active Window: The current view will print.

Named View: From the **View** menu you can save views of a map. If you have previously saved views of the map, they will be listed here.

Sheet: Sheets are an advanced feature of CC2 Pro detailed in CC2 Pro's help system. The normal value is **(Standard drawing – COMMON sheet only).**

Scaling

Fit to page: Scales the selected view to best fit your paper size and orientation.

Scale factor: Paper distance refers to real life distance on your piece of paper. **Drawing distance refers to** distances as measured from the drawing.

To measure distances on the drawing, click **Info menu >> Distance** and then pick two points between which to measure.

Tiling

 # Horiz, # Vert: Sets how many sheets the print will use. A value of **1** in each box gives a 1 page print.

Overlap %: Sets the overlap between sheets. A value of **0** means there is no overlap. To make it easier to stick sheets together, set the overlap to **5%**.

Wall Test by Morgan Olden*

The wall test drawing is just that--a test. It is an example of the Block Wall Edging macro and the CliffFace macro which can be found in the Macro Respoitory at http://www.greycitadel.com/greycitadel/cc2macros.nsf/

Morgan's wall test drawing is included in the **Examples>Tome** folder.

✓ **Printer**   Select a working printer
✓ **View to print**   Everything
✓ **Scaling**   Fit to page
✓ **Tiling**   **# Horiz = 1**, **# Vert = 1**
✓ **Print White as Black** Not checked
✓ **Portrait or Landscape** As appropriate

Then click **OK**.

Printing using the options

15 Select the **View to print**.

Select the **Scaling** you would like. For example, if you use **Info Menu >> Distance** to measure the east-west size of Carag island, you'll find it is approximately 425 units across. If you set the **Paper Distance** to 1" and **Drawing Distance** to 100, the print will be at 100 units to the inch. The printed Carag island would therefore measure 4.25 inches across.

16 Select the number of pages for print **Tiling**.

CC2 Pro can create oversized prints by tiling across more than one sheet of paper. When you select print tiling, it is important to use print preview to check what the drawing will look like or you could find yourself using up many sheets of paper!

More on Printing

Printing to a particular scale and across many pieces of paper is discussed in Printing in DD Proon 348.

Toll-Gate Cottage by Allyn Bowker

Toll-Gate Cottage uses many symbols from Symbol Set 2-Fantasy Floorplans and Symbol Set 3-Modern. The drawing contains edited symbols using the techniques described in *To Edit a*n **existing symbol** on page 71.

The cottage is available in the Profantasy Download Library.

Toll-Gate Cottage

The First Map

CC2 Pro offers a huge number of easy-to-use tools that make drawing a map quick and painless. This chapter will take you step by step through some of these tools to create your first **CC2** Pro map.

While the drawing tools make drawing a map easy, you will sometimes want to use the underlying CAD functions directly. Keep an eye on the notes in the margin in this chapter: they explain some of the basic functions of **CC2** Pro. If you want to finish your first map quickly you can safely ignore them for now. Don't worry if you make **mistakes**.

Start a New Map

1   Start **CC2** Pro, either by clicking its icon on the Windows® desktop, or by selecting **Windows® Start menu** >> **Programs** >> **Campaign Cartographer 2**.

2   On the **File** toolbar click **New** ⬜.

> **CC2** Pro offers you a variety of **templates** on which to base your new map. For now, simply select the third preview (the one with blue background and without compass rose and scale bar).

Parting Land and Sea

We will start by adding a landmass to the map. **CC2** Pro has a landmass tool to make this very easy.

3   From the **Overland** toolbar, click **Landmass** 🔲.

4   Look at the lower left corner of the screen.

> You can see the phrase Fractal Polygon: First point (E – Edit): at the **Command Prompt**.

CC2 Pro is waiting for you to click the first point of a landmass with random nodes.

5   Click somewhere in the blue area.

> Don't drag the mouse, just move it around. Notice that when you move outside of the template, the landmass "locks" inside the border.

6   Click more points to create the outline of a landmass you like.

7   Right-click to complete the landmass.

> The area you outlined fills with a light green, the **default** color for landmasses.

The command prompt now reads Fractal Polygon: First point (E – Edit) **again. The command has auto-repeated**. CC2 Pro is waiting for you to add more landmasses.

Raising Mountains

Next we will add some mountainous regions to the map by drawing some contour lines and adding symbols.

8   From the **Overland** toolbar, click **Contours** ▦.

Because the contour tool does not have a single default setting, CC2 Pro will offer you a variety of styles. Scroll down and select the **Map Contour, Default 10** style.
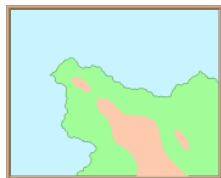
> **9**   Draw the contour the same way you drew the landmass.
>
> This time you are not using a fractal polygon but a smooth one. Notice the difference.
>
> **10**   Add a few more contours for some smaller hilly regions.
>
> After you have finished one contour simply click again to start the next one

---

Mistakes

This chapter is meant to be an easy and quick introduction into CC2 Pro. Please follow it closely to learn the basic drawing tools. If you make a mistake or are not satisfied with a result, simply use the **Undo** ↺ function to go back to an earlier stage.

Templates

Templates predefine a lot of information for the map such as its size, the layers it contains, etc. They are not absolutes, though. You can erase anything on a template and start from scratch if you want to.

Command Prompt

The lower left corner of the screen, called the Command Prompt (prompt), is where CC2 Pro asks you for instructions and gives you information about shortcuts. Keep an eye on it! If you select a menu item and nothing appears to happen, look down here and you'll see what CC2 Pro wants.

Default

The fractal polygon is just the default method for drawing landmasses. You can access others by right-clicking the **Landmass** button. Like most of CC2 Pro's buttons it offers a selection of alternative and/or similar commands on a right-click.

11   Click **Contours** [icon] again.

This time select the **Map Contour, Default 14** setting to draw a gray contour **polygon**.

12   Draw the contour where your higher Mountains will be on the map.

We will now add some symbols to the drawing. Symbols are little predefined drawings that can be added quickly to a map. CC2 Pro contains a lot of these.

13   Click **Symbol Catalog Setting** [icon].

CC2 Pro shows you a list of available symbol catalogs (symbols are organized in catalogs by type). Click **CC2 Filled Mountains**.

CC's catalog window now displays a list of different mountain symbols. You can see all of them by scrolling down the list.

14   Click on a symbol you want to place on the map.

If you now move the cursor into the drawing area you will see it dragging an outline of the symbol you just selected. Simply click on the map where you want it to be and the symbol is placed.

You can continue placing the symbol by clicking again and again, or you can select a new symbol by choosing from the catalog again.
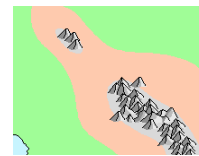
15   Starting from top to bottom **place the symbols** inside your gray contour. Never mind if some of the mountains overlap the contour slightly.

16   Scroll down the catalog list and choose a hill symbol.

Place a scattering of hills over the light brown contours.
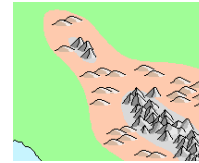
Not All Rivers Flow to the Sea

Now let's add some rivers to our landscape.

17   Click **Rivers** [icon].

The command prompt now reads Fractal Path: First Point (E-Edit): which means **CC2 Pro** is ready to draw the river. Also, the cursor has now a small square around its point called a **pick cursor**.

The pick cursor will notice if an entity is within its square when you click, and attach the river you are drawing to this entity. This is a convenient way to make sure the river connects with the coast or a tributary
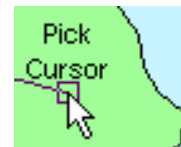
18   With the pick cursor, click on the coastline where a river runs into the sea. From there, draw the river inland to its source. Notice that the **Fractal Path**, like the **Fractal Polygon**, inserts random nodes into your river.
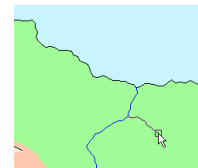
19   Add some more rivers to your map.

Some of them could be tributaries of other rivers and not run directly into the sea.

Polygons

Polygons (polys) will be some of the most common entities you draw in CC2 Pro. There are three types: *Regular*, *Smooth* and *Fractal* Polygons. *Regular* ones have a node (or corner) at each point where you click, *Smooth* polys round out these corners to get a smooth (who would have thought it?) outline, and *Fractal* ones insert random nodes between the ones you click.

Place the Symbols

CC2 Pro's symbols are designed in such a way that they look "right" when placed from north to south, so that the southerly ones cover the base of those behind. This style of map gives the cartographer's impression, not the actual position of each peak. Don't try to add every peak.

Pick Cursor

When CC2 Pro gives you the pick cursor when you are drawing, **Attach** is enabled. You can toggle this mode on and off by clicking the Attach button on the lower right of the screen.

Paths

Paths are another type of common entity in CC2 Pro maps. Like Polygons, they come in Regular, Smooth and Fractal varieties.

Forests and Vegetation

Our land is still pretty bare and lifeless, despite the rivers that run through it. So let's add some forest, fens and meadows.

Symbol Catalog Settings

Symbol Catalog settings are shortcuts that open a new symbol catalog and optionally set suitable properties (layer and color, for example),

Right click on **Symbol Catalog Settings** to see a menu of them, or click to see a visual representation.

20 Click **Symbol Catalog Settings** . Choose **CC2 Filled Vegetation**.
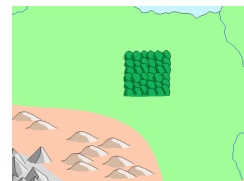
21 Zoom in to a place where your first forest should go. Click the symbol named **D Forest** from the catalog window and place it on the map.
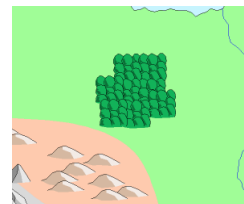
22 Now choose the next smaller symbol from the list (**D Wood**) and place it along the lower edges of our forest.

Adding Forests

You can do pine forests with the appropriate symbols or intermingle deciduous and coniferous trees to create miXEd forests.

Scattering a few single trees or small groups around the map creates a nice look, but don't overdo it. It is easy to clutter a map with symbols, but eXErcising restraint usually creates a more beautiful map.
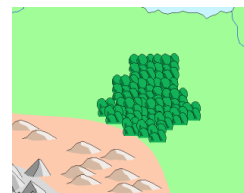
23 Do the same with the symbol **D Copse**.
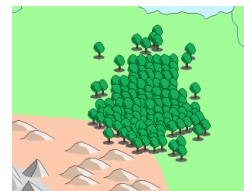
24 Finally place individual tree symbols around the edges of your forest to give it an irregular and finished appearance.

25 **Add as much forest** to your map as you like.

Map Drawing Tools

This powerful tool allows you use customized versions of CC2 Pro's drawing tools for specific requirements. You can choose what drawing method to use, and the properties of the entity you are creating. You can also create a group of related tools (for example, ten river tools with differing widths.) CC2 Pro gives you a wide selection of these custom drawing tools for overland use, and you can add your own.

CC2 Pro gives you shortcuts to some of these tools by using the Overland mapping buttons. Click on a button to start the default tool, right click to see a list of all tools.

26 Click **All Map Drawing Tools** .

This button brings up all the available drawing tools of CC2 Pro including the landmass, contour and river ones we already used.

27 Look for and click the **Map Fens 1** tool.

The command prompt reads Smooth Polygon: First Point: just like when we added contours.

28 Draw some fens into low-lying areas along the river or coasts. They draw the same as the contours, but look different.
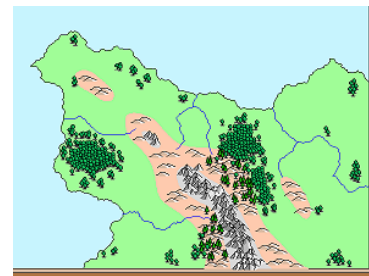
29 Click **All Map Drawing tools** . Click the **Map Meadows 1** tool and add some meadows.

Notice that these polygons also restrict themselves inside the map border.

Populating the World

30 Click **Symbol Catalog Settings** 🔧. Choose **CC2 Filled Structures.** Take a look at the <u>Status Bar.</u>

| 🟩 | P:0.000 mm | W: 0.00000 | L: STRUCTURES | LS: Contour | FS: Solid |

The catalog window displays a list of symbols for cities, towns, etc.

31 Place a selection of structure symbols around your map to represent settlements, fortifications, etc.

32 Click **Default Road** 🏔, then connect some of your structures with roads.

Some Editing

Let's say you want to change some details of the objects you just drew. For example, you might not like the dotted line style of the roads and want to have continuous lines instead. The following example puts you through the basic steps for editing entities. Remember, in CC2 Pro, you choose what you want to do and then what you want to do it to.

Selecting entities for <u>editing</u>

1 Click **Change Line Style** 📊

The command prompt changes to Select entities (0 picked)[Dialog] and the cursor changes into a pick box.

2 With the pick cursor, click on each of your roads. You will see them turn gray, meaning that they have been selected for editing.

If you happen to click on an entity you do not want to edit, press [CTRL] and click it again. If you miss altogether, you will see a window cursor. Anything in that cursor will be selected when you click again. You can cancel the command by right-clicking and choosing **Cancel** from the pop-up menu.

3 Once you have selected all roads, right-click and click <u>**Do it**</u>.

The prompt reads Line Style name [dialog], meaning CC2 Pro expects you to type the name of the new line style or right-click to bring up a dialog.
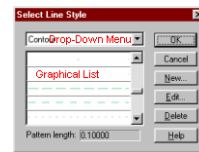
4 Right click and select the line style **Solid** from the graphical list or the drop-down menu.

Click **OK** and you will see that all selected roads now have the new line style.
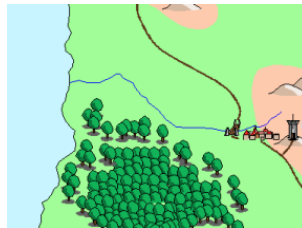
How far is that?

Scale bars and compass roses are typical accessories of historical maps. CC2 Pro offers a variety of predefined styles for these adornments. Because one drawing unit in the overland maps represents one mile, the scale bars will have the correct size by default.

1 Click **Symbol Catalog Settings** 🗔. Click **CC2 Filled Scalebars**.

The catalog window displays a list of scale bars.

2 Select one of the **200 mile** bars and place it in an empty area of your map.

3 Click **Symbol Catalog Settings** 🗔. Choose **CC2 Filled Compass Roses**.

Select the very first symbol from the catalog (named **Logo Rose**). When you drag it around the map, you will notice that it could do with being a bit larger.

4 Hold down the ⟨CTRL⟩ key and move the mouse up. The symbol grows larger. By moving the mouse up and down, scale the compass rose until you are satisfied with its size. Click to place the symbol.

You can **manipulate** the scale and angle of your symbols on the fly, or in a dialog box.

Labeling the Map

Finally the map needs some text to identify the depicted features.

As there are no predefined drawing tools for adding text, we will set the necessary settings ourselves.

| ▇ | P:0.000 mm | W: 0.00000 | L: STRUCTURES | LS: Contour | FS: Solid |

1 Click the *color indicator* on the status bar (the small colored square).

The color dialog comes up. Select **black** (color 0) and click **OK**.

2 Click on the layer indicator (it should read **L:MAP BORDER**).

The layer dialog appears.

3 Scroll down the list of layers until you see the layer named **TEXT LABELS**. Click on the leftmost box beside it so that a small check appears.

4 Click **OK**.

The layer indicator now reads **L:TEXT LABELS**, meaning this is the layer we are currently drawing on.

5 Click **Text Specs** 🆃.

This command changes the current **text settings**.

In the text dialog set the **Height** to **20** and the font to one you would like for your map.

6 Now click **Text** 🅰. Enter the name of a feature on your map and click **OK**.

7 You can now move the text around the map, resize and rotate it by holding down ⟨CTRL⟩ and ⟨SHIFT⟩.

8 Click to repeat the **Text** command. Add more text. Repeat until you are satisfied.

9 Last but not least, think of a title for your map. Place it in the top-left corner of your map.

It doesn't really look like a title at the moment, because it is the same as all the other text. So let us use some editing commands on it to make it stand out.

10 Click **Change Text Specs** 🆃. Click the base of the title text, right-click, choose **Do it**.

The text dialog comes up and you can change the properties of this particular text.

Manipulating Symbols

You can scale a symbol by pressing ⟨CTRL⟩ when you insert it. You can also rotate by holding down the ⟨SHIFT⟩ and ⟨CTRL⟩ key at the same time. Future symbols will remember the last selected scale and rotation.

A right click while placing symbol opens the symbol dialog box which gives you greater control over the appearance of the symbols. You can add independent x and y scales, set a numerical rotation and reset the settings to the default value using **Set Normal. More** will bring you back to placing symbols and **Finished** will stop the whole placement process.

Text Settings

CC2 Pro offers all True Type® fonts that are installed on your system, when you click the **More Fonts** button. Be aware though that others who want to view your map on their computer need the same fonts installed, otherwise they will just see a default font.

11 Type **35** in the **Height** and click **OK**.

   The title probably extends now across the map border.

12 Click **Move, Scale, Rotate** ⬚ to correct this. Select the title text again, right-click, choose **Do it**

13 Move the text so that it is wholly within the map border. Click to finish.

14 Click **Copy** ▦. Place a copy of your title slightly below and to the left, so that the letters overlap. Click **Zoom Window** ⬚ to get a better view if you like.

15 Click **Change Color** ▦ right click and chooseRight-click again and choose **Do it**. Click a suitable color on the color bar on the left of the screen (white or a blue if your title is over water). Click **OK** <u>Prior</u> .

   The copy you just placed is now selected..

16 Right-click again and choose **Do it**. Click a suitable color on the color bar on the left of the screen (white or a blue if your title is over water). Click **OK**

Your map could look something like this:

Final Touches

We are almost done, There are only a few things to do remaining.

You will notice that some entities like contours or mountains overlap the map border slightly. To correct this we need to change the <u>drawing order</u>, bringing the map border to the front of the drawing, so that it hides the overlap.

17 Click **Bring to Front** ⬚. Right-click, then click **Layer**. Right-click, then highlight the layer **MAP BORDER.** Click **OK**. Right-click then click **Do it**.

The map redraws and the map border should now

Prior

Prior is a way of applying multiple editing commands to the same selection. Just start the second editing command, right click and select Prior (or press P) to select the previous entities. You can select prior only when you have first started an editing command

Drawing Order

A CC2 Pro map is simply a list of entities. When the screen updates, the entities are drawn in the order they are encountered in the database. Normally, the database order is the order the entities were added.

You can change the order in which entities are added to the viewing window using the **Entity Order** toolbar buttons

Bring to Front   ⬚

Send to Back   ⬚

Bring in front of   ⬚

Send Behind   ⬚

There is also the useful Sort Symbols in Drawing which redorders symbols from north to south (see page 26)

cover all overlaps.

18 Click **File menu** >> **Save As**, and save your map under a meaningful name.

This is it. You have drawn your first map with CC2 Pro. Feel free to experiment and add to it as you like. The following chapters will expand and upon the basics you learned here and go into more detail.

You can find the example maps for this chapter in the **Tutorials**>**Tome** folder of CC2 Pro.

A Summary of The First Map

If you have simply followed the instructions so far, please go back now and read the margin text in this chapter carefully. They explain a lot of CC2 Pro's basics which will be important for the following chapters. The most central topics of the chapter are summarized here:

CC2 Pro Maps

A CC2 Pro map is a database of **entities** (paths polygons, text, symbols, etc.). They are drawn in the order they appear in the database, later ones overlapping earlier entities. This order can be changed by the entity order commands.

✓ New **maps** are based on **templates** that define certain properties for the map.

✓ At the **command prompt,** CC2 Pro asks for your next instruction and gives information about the current command. Keep an eye on it!

✓ CC2 Pro's drawing tools (like the **landmass** tool) have a default action which is activated by left-clicking on the corresponding button. Right-clicking usually provides a list of alternative actions.

✓ Commands auto-repeat if you left-click after completing one. ESC or right-click cancels the current command.

✓ **Polygons** and **paths** are some of the most commonly drawn entities in CC2 Pro. They come in Regular, Smooth and Fractal varieties.

✓ **Symbols** are predefined small drawings organized into catalogs which can be placed on a map with a simple click.

✓ attach mode (toggled in the lower right corner of the screen) lets you place points exactly on other entities.

✓ Current drawing settings like color, layer fill style, etc. are displayed on the **status bar** atop the drawing window.

✓ To **edit** existing entities you first choose a command and then **select** the entities you want to edit.

✓ There are several **selection methods** the simplest being single picks and selection windows. Further methods will be covered in more detail later.

✓ Symbols can be scaled and rotated during placement by holding down the SHIFT and CTRL keys. Right-clicking opens the symbol dialog box for numerical control.

✓ Current drawing settings (color, layer, etc.) can be changed by clicking on the appropriate **indicators** on the **status bar**.
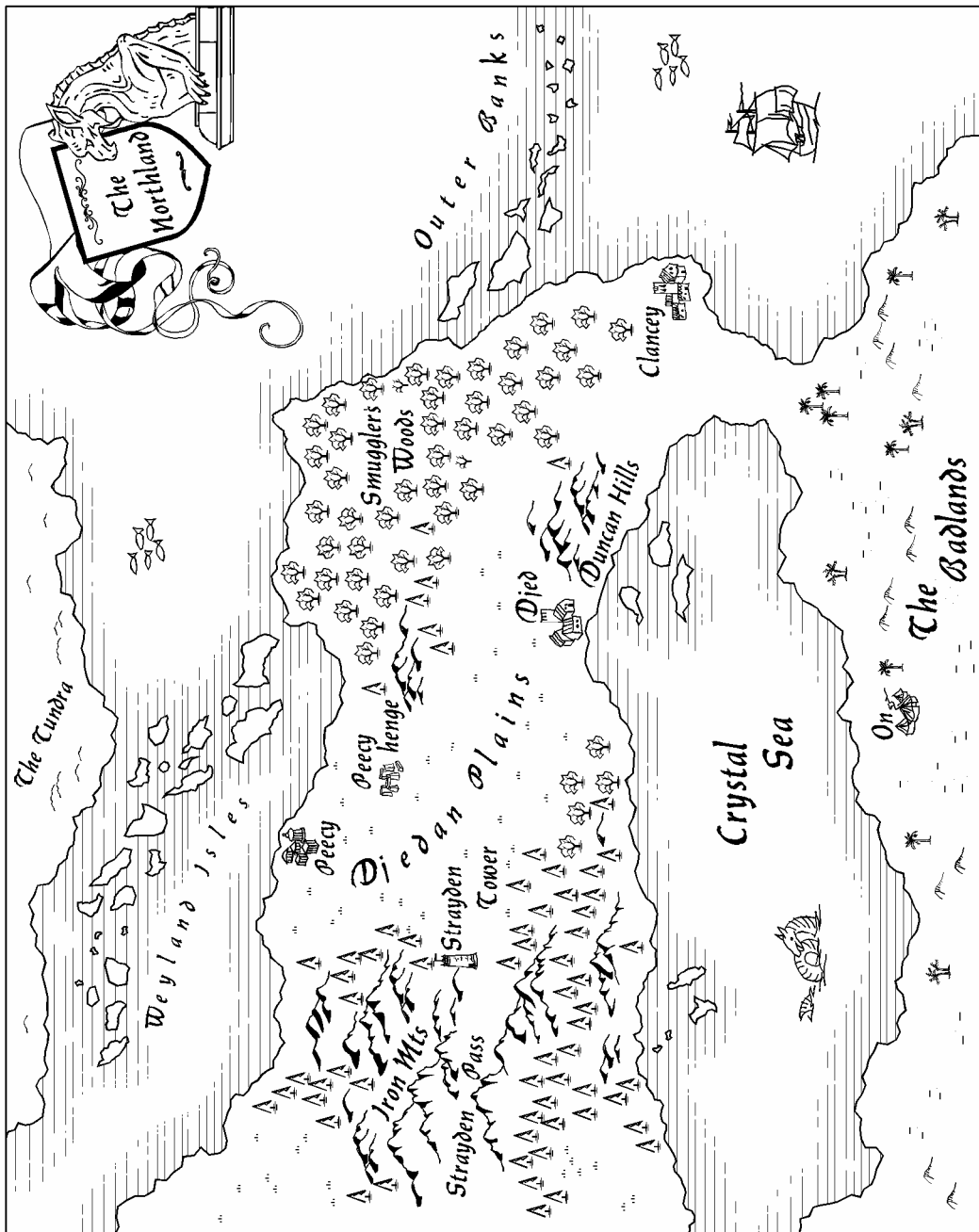
The Northland by Allyn Bowker

The Northland is a B&W illustration drawing using hand drawn symbols from Symbol Set 1-Fantasy Overland. Also used were drawing and symbol editing techniques explained in *Hand Drawn Mapping* on page 98. Some of the cartouche elements are ornaments converted from fonts using the techniques explained in *Converting Fonts to Symbol Catalogs* on page 47. **The Northland** is available in the Profantasy Download Library.

Mapping Land

In this and the following chapters we will take a closer look at CC2 Pro's functions while drawing a new map. This time we will pay close attention to the commands used and the details of their working.

Be sure to review the things you learned in the previous sections. While we will repeat some of the commands introduced there, we will focus on new ways of doing things.

Using a Template

When you start a new map, CC2 Pro presents you with a choice of drawing templates. The template gives the new map pre-defined properties such as fill styles, line styles and layers plus pre-drawn features such as a sized border and a colored background. Some templates are specifically designed for hand-drawn looks, others for scientific looking maps or game boards. If you want to create your own unique map style, you can start with a blank template without any pre-drawn stuff at all.

To start a new drawing based on the current template, right click New **[icon]** then click **New from Current Template.**

Choosing a Drawing Template

1   Click **New** **[icon]**.

You see the **Template** selection window. Template thumbnails are arranged alphabetically for you to browse.

2   Click on the **1000x800 (Sea background).fct** template.

You see a new map. It has a ready-drawn border and a sea blue background. Less obviously, it has also inherited the template's layers, line styles, fill styles, units, grids and current drawing settings. In short, the template has saved you loads of time by correctly presetting all the drawing options.
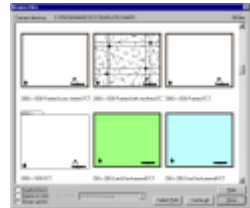
Drawing Closer to Land

In **Chapter 2** we used the default Landmass tool to draw our land area. We will now take a look at different methods.

3   Right-click **Default andmass** **[icon]**.

CC2 Pro lists all drawing tools that have the words **Map** and **Land** in their description (see the tool name filter at the top of the dialog box).

4   Scroll down a bit until you find the tool **Map Land, fractal box**. Click on it.

The dialog box closes and CC2 Pro waits for you to place the first corner of the box we want to draw (look at the command prompt!).

5   Click a spot in the left half of the drawing window.

When you now move the mouse, you will see an outline of the shape we are drawing as it changes with the movement of the mouse. If you left-click again, the current shape will be drawn; but wait a moment. See what the command prompt has to offer. It reads Second Corner - meaning the next click will set the second corner of the fractal box – (Space – Randomize, L/R Arrows – Depth, U/D Arrows – Strength).

Try out the keys the command line shows. Pressing **[K]** will change the outline. It generates a new random appearance each time. The keyboard arrows (**[↓][←][→][↑]**) will change two more settings of the fractal function behind the command. The effects are more gradual. Try it out.

6   Once you are satisfied with the apperance of your landmass, click to complete the command. Right click to stop drawing landmasses.

Using Basic Drawing Tools

CC2 Pro's **Map Drawing Tools** packages a series of CAD commands into one convenient tool for the user. In the above example, the **Landmass** tool sets the color, layer and fill style, draws a green rectangular box, fractalizes the same to give it a jagged appearance and outlines it in black – all with only a few mouse clicks for the user.

While this is convenient and makes drawing maps quick and easy, you can still go beyond the tools by using the **basic commands** yourself. Let's try them out, so that you know what we are talking about.

Let's draw a barren, sandy island near our landmass, without using the tools.

1   Check the status bar. If you need to, change the current layer to **COAST/SEA** and the fill style to **Solid**.

| | P:0.000 mm | W: 0.00000 | L: STRUCTURES | LS: Contour | FS: Solid |
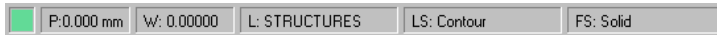
If not, click on the relevant indicators and change them appropriately.

2   Set the **current color** to a light yellow (e.g. color #140).

3   From the Draw toolbar, click **Box** 　then click two points to form a small rectangle near one of the coasts of your landmass.

Notice how the box conforms exactly to our specifications: yellow color, solid fill and no irregular shape or outline. We need to add these features ourselves.

4   Click **Fractalize** 　.

The **Fractalization** dialog comes up. The default settings are fine, so simply click **Ok**.

5   Click on the edge of the yellow rectangle.

You will see that CC2 Pro adds random nodes to the rectangle, giving it a jagged appearance. Click again and even more nodes appear.

6   Finally the outline. Click **Outline** 　.

Click the edge of the small island. Right-click and select **Do it**.

See how we achieved basically the same effect with a lot more work? Usually the drawing tools are the quicker and easier alternative. Still, there will be many times when you want to use the standard commands.

Reshaping Land

You can use certain landmass map drawing tools to edit your existing landmasses. When you click a landmass command, the prompt will include e-Edit. Press 　E 　to change the appearance of an existing landmass. Select a starting point on the existing land, then draw the new outline. Finally, right click and click an end node, and the landmass will be reshaped.

Mountains

While every fantasy world can have its own rules, most people tend to stick with the ideas that rivers run from mountains to the sea, that habitations grow near rivers, and that trees don't grow well on mountaintops. For these reasons, our next step in world building is mountaineering. Well, you know what I mean!

To work on the same map I am using here, open **ML-Map01.fcw** from the CC2 Pro **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

Interesting Moutains

- Place mountains and forests from north to south so that the southerly ones cover the base of those behind.

- This style of map gives the cartographer's impression, not the actual position of each peak. Don't try to add every peak.

- It is very easy to get carried away and add too many mountains, so restrain yourself. If you browse the example maps that come with CC2 Pro, you'll see that the most beautiful use symbols sparingly. This also reduces the time taken for the map to redraw.

1   On the **Overland** toolbar, click **Symbol Catalog Settings** 📇.

Choose the symbol catalog **CC2 Filled Mountain**.

2   **Zoom Window** 🔍 to get a closer view of the island at the center of the map.

3   Click the 3rd mountain in the Catalog Window ⛰.

The mountain symbol attaches to the cursor and moves around the screen as you move the mouse.

4   Click to place the symbol in the northern part of the island.

The symbol is added to the map. The same symbol is still attached to the cursor, ready to be placed again.

5   Place the next symbol to the right and slightly below the first.

6   By choosing and placing symbols, build an **interesting range** of mountains. If you make a mistake with a symbol, correct it using **Undo** ↺.

Changing the order that symbols are drawn

It should be added to Murphy's Law that, no matter how carefully you plan your mountain ranges, the last peak always needs to go *right in the middle!*

To continue from my example, load **ML-Map02.fcw** from CC2 Pro's **Tutorial**>**Tome**>**Maps**>**MappingLand** folder.

1   Click the great big Great Peak symbol ⛰ and place it in the middle of the mountain range.

The mountain looks out of place because as the last entity we placed, it is drawn last above the other mountains. It needs to be behind the southerly mountains.

2   Click **Sort Symbols in Map** on the **Symbols** menu.

The Command Prompt reads Select entities (0 picked):.

3   Click on an edge of each mountain symbol.

As you click on each symbol, it is **added** to the selection. When all are selected, right-click then select **Do It** from the Selection popup menu.
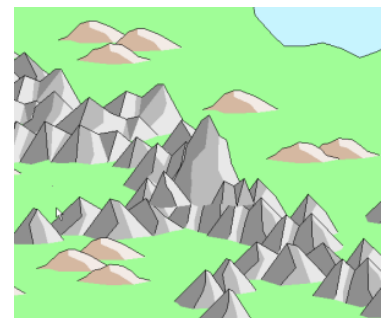
Adding and Removing

If you select something wrong accidentally, deselect it by pressing CTRL while clicking on the same entity again.

Reordering Symbols using Bring to Front

Sort Symbols in Map reorders symbols from North to South. This usually fixes things, but if you are using particularly tall symbols you might find errors. You can use manual reordering to fix this.

4 **Undo** ⟳ the **Sort Symbols in Map**.

5 On the **Entity Order** toolbar click **Bring to Front** 🔲.

    The Command Prompt reads Select entities (0 picked):.

6 Click on each of the mountains south of the Great Peak.

7 Right-click then select **Do It** from the Selection popup menu.

    The mountains are reordered.

Mountains with a background

As an artistic touch, it looks very effective to set mountains off with a colored background.

In Chapter 3, we used contours to give the mountain range some background and definition. This time we will add a smooth polygon via the command of the same name to add some variety to your mapping skills.

8 Click the **Color** indicator on the Status Bar and change the current color to **44** (light brown).

9 On the **Draw** toolbar, click **Smooth Poly** 🔵.

    The Command Prompt reads 1st point: and the cursor changes to crosshairs.

In keeping with the 3D effect of the mountains, the background looks best if it's slightly clipped by the mountain tops, but is well clear of the bases.

10 Click points to create a region enclosing the mountains. When the region is almost complete, right click to close the shape and complete the command.

    The smooth polygon is drawn in the current color and fill style. It was created after the mountains, so it is currently in front of them.

Bring in Front of and Send Behind

We need to move the brown background behind the mountains. To do this we will use **Bring in front of** to bring them in front of a reference entity of our choice.

Bring to Front and **Send to Back** move entities to the very front or the very back of the drawing. If we were to use **Send to Back** on the mountain background, it would go behind everything, including the green of the island and the sea blue background.

Bring in front of and **Send Behind** are much more subtle. By **picking a reference entity**, you say exactly how deep in the drawing the entities will be placed.

11 Click **Bring in front of** 🔲.

    The Command Prompt reads Move above entity: and the cursor changes to a pick box.

CC2 Pro is waiting for you to pick the reference entity in front of which the mountain background will be moved.

12 Click on the edge of the island.

    The Command Prompt reads Select entities (0 picked):.

13 Click on the edge of the brown mountain background then **Do it**.

    The smooth polygon is now behind the mountains.

The island is already behind all the mountains. By putting the smooth poly right in front of the island, we sandwiched the former between the latter and the mountains.
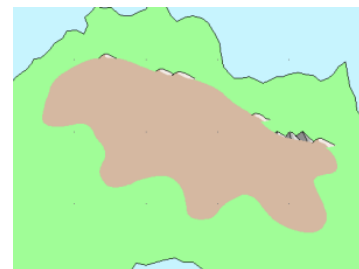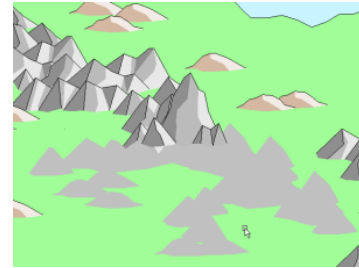
Picking a Reference Entity

Always keep your overall map in mind when ordering entities. Sometimes putting something in the right place is just an issue of finding another entity that is already in the right place, and using **Bring in front** of or **Send behind** on it.

Cropping mountains to the map border

We already have land that extends beyond the map border, so it's just as likely that we'll have mountain ranges that do the same. We already know how to cope with this from our first map, so we will do this quickly.

To use my map, open **ML-Map03.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps.MappingLand** folder. If you want to work on your own map, place a mountain range in the SW corner of the map, so that a few symbols overlap the border slightly.
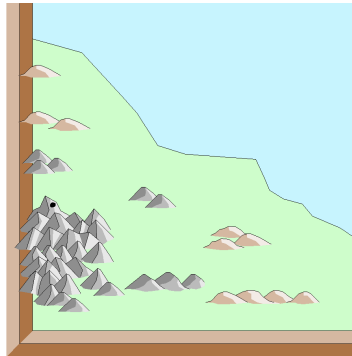
1 **Zoom Window** on the land in the northeast corner.

2 Click **Front**.

The Command Prompt reads Select entities (0 picked):.

3 Right click to bring up the selection dialog, click on **Layer** and right click again. The layer dialog box appears.

Look for the layer called **MAP BORDER** and click on the name so that it is highlighted. Don't click within the small boxes. Doing so would change the layer's status.
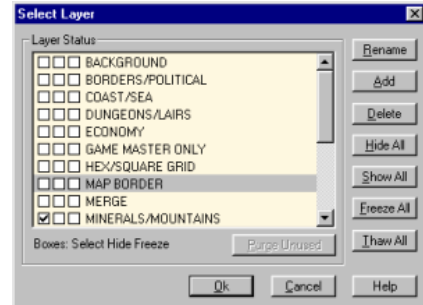
4 Click **OK**, right click and select **Do it**.

The map border is brought to the front of the drawing, hiding any bits of mountain outside the viewable map area.

Create a Map Background drawing tool

You drew the previous map background using Smooth Poly. We could do this again, but to save time in the long run we'll make our own custom drawing tool to reuse.

1 Click **Map Drawing Tools**.

You can see a list of all the Map drawing tools. Note that the **Tool Name Filter** has **Map*** in it,

2 Click **Advanced**>>.

This dialog box allows you to modify or add drawing tool.

3 From the **Custom tool name** list, select **Map Contour Default 01**,

We are using this contour drawing tool as the basis for our new style.

4 Click **New**. Type **Map Mountain Background**.

5 All the settings are correct except for the **Properties**.

6 Click **Properties**, then click the color indicator and set it to light brown (44). Click **OK**.

7 Pull down the **Layer** list, then select **MINERALS/MOUNTAINS**.
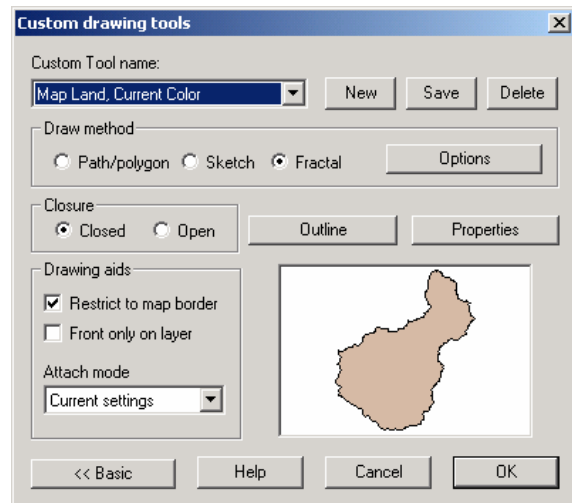
8   Click **Save**.

    The new <u>**drawing tool**</u> is ready to go.

9   Click points to create a smooth path that skirts the mountains. Click outside the map borders and the corner to lock the entity, then right click to end the command.

As before, we need to put the brown background behind the mountain symbols.

10   Click **Bring in front of** .

    The Command Prompt reads Move above entity: and the cursor changes to a pick box.

11   Click on the coast to select it as the reference entity.

    The Command Prompt reads Select entities (0 picked):.

12   Click the edge of the mountain background, right-click then **Do It**.

13   The mountain background is moved just in front of the coast, which is behind the mountains.
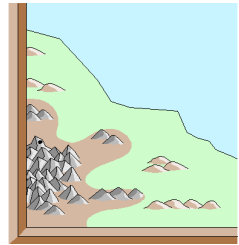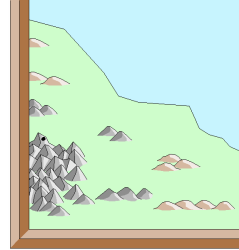
Closure: Choose either a closed shape like a lake, or an open one like a road.

Properties: Choose the color, fill style and other properties of the tool. You can use the current properties on the status bar instead of a particular properties.

Outline: Choose the properties of the tool's outline, if any.

Restrict to map border: If on, this forces the entity to stay within the border of the map. It only works on rectangular templates.

Front only on layer: Sends the entity to the top of the layer it is on, but behind any other entities.

Attach Mode: Choose whether the tool snaps to significant points on other entities, for example **Map Rivers** lock onto other entities such as the coast.
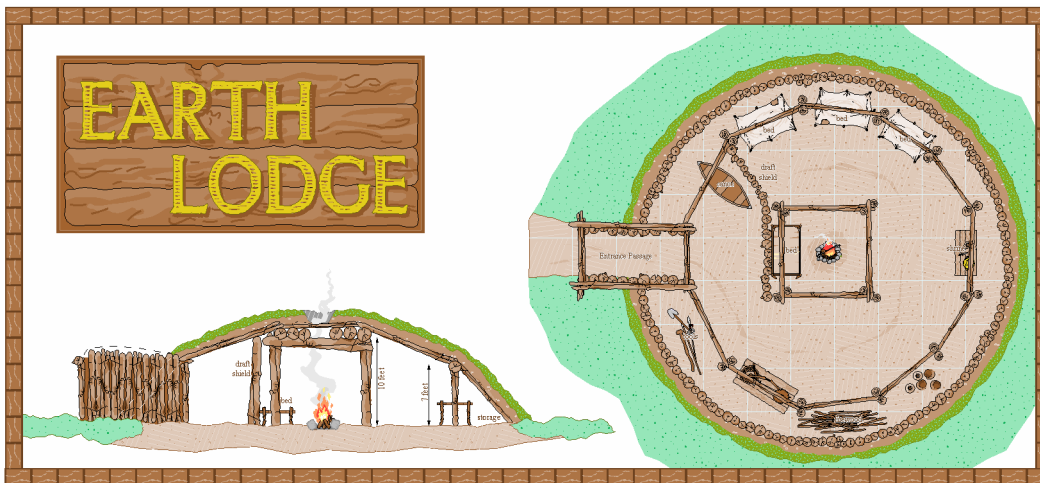
Earth Lodge by Allyn Bowker*

Earth Lodge was created using symbols from Symbol Set 2-Fantasy Floorplans. It also contains symbols edited from their origin versions using the techniques explained in *To Edit a*n **existing symbol** on page 71. Earth Lodge is available to view in the **Example>Tome** folder.

Rivers, Settlements and Roads

High ground forces air to rise and cool, coaxing it into sharing the life-giving moisture it carries. Combine this with prevailing winds, proximity to water, temperature and other climatic considerations and you can easily devise plausible rainfall and river patterns.

Once on the ground, water's downwards journey remains shaped by terrain. Where land falls steeply, water falls straight and frantic. Where land falls gently, water follows as sedately as Old Father Thames. If a rock blocks its progress, a river will stop or turn for now at least.

Life is opportunistic. Settlements will form anywhere a buck can be made, but most frequently at sites of opportunity and safety. A habitable region which is rich in resources (be they mineral, marine, or agricultural) will be keenly prized and, perhaps even fought over. Prosperity is usually the result of a natural advantage, such as a rare local commodity, a position on a trading route or an easily defended location.

Let me cease my pseudo-socio-geographic rambling and hasten to my point... before drawing rivers, settlements or roads, take a step back and think about the factors that influence them. Your maps will benefit.

A simple, meandering river

We will draw the rivers on the island in the center of the map. I have arbitrarily decided that the west of the island is very dry, while the east benefits from plenty of water flowing off the mountains.

To use my map, open **ML-Map04.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

Current Settings

The color is now **dark blue**, the line style **RIVER**, the layer is **WATER/RIVERS** and the Command Prompt reads Smooth Path: First Point:

1   **Zoom Window** 🔍 on the central island.

2   Right-click **Default River** 🏞. Choose **Map River**.

   CC2 Pro changes the **current settings** ready for drawing waterways then starts drawing using a smooth path.

Default Drawing Tool

You can change the appearance of the default drawing tool for any button.

- Right click the tool which default you want to change.

Click **Advanced>>**.

From the **Custom Tool list** choose the default setting you want to change, eg **Map River, Default.**

- Change the settings for that tool.

Click **Save**. You've changed the default.

The **default river drawing tool** is **Fractal Path**. This isn't suitable for our needs, so we've chosen a smooth path because this river is slow and meandering.
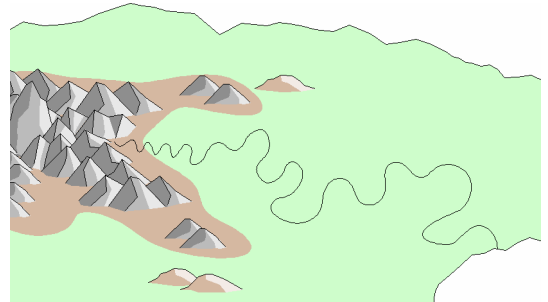
3   Click to place the first point at the eastern edge of the mountains.

   The Command Prompt reads Next point:.

4   Click nodes to create a river that meanders towards the coast.

   At first the river should bend frequently. As the river nears the sea, the bends should gradually become larger and gentler.

As you add nodes, you see a straight-line frame and the resultant smooth path. The frame is for information only and does not display after the command ends.

5   Where the river meets the sea, click on the coast to attach the last node precisely to the coastline. Right click to end the command.

Attach Button

Like many other drawing tools, the river tools turn **Attach** on, so that your river will snap to other rivers and the coast. You can press **Attach** at any time to disable this feature. CC2 use the current **Attach** setting (usually **Nearest Point On**) to determine which significant point the river locks to. Right click Attach to change the setting to **Nearest Point On** if it has been changed.

Note that the **Attach** button [Attach] is depressed, and the cursor appears as a square

Adding tributary rivers

Most drawing tools repeat automatically, ready for you to start drawing again. This makes it easy for you to draw a series of rivers, roads, or other map entities.

6   Look at the Command prompt now. What does it say?

   If things are going to plan, the Command prompt should read Smooth Path: First Point:.

7 **Zoom Window** 🔍 on the top section of the river and add a tributary from the north.
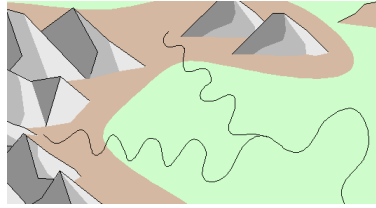
8 Right-click twice to stop drawing rivers.

Rivers that get wider

It is common to show large rivers growing as they approach the sea. To do this we will make use of the Line Width setting which, until now, has been sitting unused and unloved on the Status Bar.

The main river is a single entity so, if we were to change its width now, the whole length of the river would be changed. For a gradual increase we need to split the main river into sections, then change the width section-by-section.

To use my map, open **ML-Map05.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

1 On the **Single Entities** toolbar, click **Split** ✖.

The Command Prompt reads Entity to split: and the cursor becomes a pick box.

2 Click the main river.

The river is highlighted in gray to show it is selected. The Command Prompt reads Split entity at point: and the cursor becomes crosshairs.

3 Place the crosshairs approximately halfway down the river, then click to create the split.

The command ends and the Command Prompt reverts to Command [SPLIT]:

There is no visible difference, but the river is now two separate smooth paths, meeting at the point where you created the split.

4 Left click to **repeat the command**.

Split repeats (the last split was successful command, so it is the default command).

5 Select the lower end of the river.

The half that you selected is highlighted (proof that the other end is now a separate entity) and the Command Prompt reads Split entity at point:.

6 Split this river section into two approximately equal parts.

7 Left click to repeat **Split**, do the same to the top section.

The river is now in four parts, each seamlessly meeting its neighbors.

8 On the **Edit** toolbar, click **Change Line Width** 🖼.

The Command Prompt reads Select entities (0 picked):.

9 Click the section of river nearest the sea, then right click and **Do It**.

The Command Prompt reads New line width [0.0000]:.

10 **Type 1** then press ⌨ENTER.

As you type, the numbers appear on the Command prompt. When you press ⌨ENTER the command completes. The bottom section of the river is now wider.

Whenever CC2 Pro asks for a value, such as line width, you can type the answer. What you type is displayed on the Command Prompt.

11 Left click to repeat **Change Line Width** on the next two river sections, typing values of **0.666** and **0.333** respectively (the section at the head of the river does not need changing).
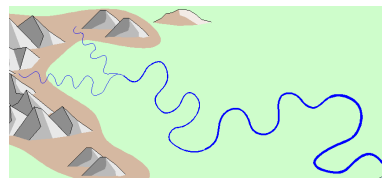
Repeat the Command

When you have finished a command, you can repeat it by clicking the mouse. The current command is shown in brackets at the prompt.

Typing at the Prompt

The prompt sometimes asks for distances. To enter a distance, you can type a value, or click with the mouse two points the correct width apart.

You can also type coordinates instead of selecting them with a mouse click.

Your river should now look something like this:

Add more rivers to complete the island's waterways.

Structures

Well, everyone needs somewhere to live.

CC2 Pro has shortcut buttons to its catalogs. Now is the time to reveal the toolbar!

12 If you can't see the **Symbol Settings** toolbar, click **Screen Tools** ⬛, then set the Symbol toolbar setting check box until the arrow points upwards.

13 Click **Structures** ⬛. Click **CC2 Filled Structures**.

> CC2 Pro changes the current settings ready for adding buildings. The Catalog Window fills with CC2 Pro's selection of structures symbols.

14 Click on the **City 2** symbol ⬛.

> The symbol attaches to the cursor.

15 Click to **place the symbol** where the main river meets the sea.

16 Scroll down the Catalog Window and click on a village symbol.

> The symbol at the cursor changes from the city to the village.

17 Click to place the village at the base of the mountains.

18 Selecting from the Catalog Window, place more structures.

Roads and tracks

To use my map, open **ML-Map06.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

1 On the **Overland toolbar**, click **Road** ⬛.

> The Command Prompt reads 1st point:.

2 Click points to build a road from the main city to its nearest neighbor. Right click to complete the road.

If the road crosses a river, there is no need to break the road. We will add bridges afterwards. Remember, at any time you can use the zoom buttons to get a better view of the area you are mapping.

3 Draw any other **roads** appropriate for your map.

Modified for Precision

When you are asked for a point, you can use a modifier to snap the point to a significant point relative to another entity. You can When you are asked for a pointYou use CC2 Pro's modifier buttons – **Endpoint**, **Midpoint**, **On**, **Intersection**, **Perpendicular** and **Center**. There are also many more on the **Snaps** menu. Modifiers are like a one-time use of the **Attach** button.

Placing Symbols

The symbol is placed where you click. The same symbol continues to be available from the cursor. While holding a symbol on your cursor, you may use the Zoom features to move around the map without dropping your symbol.

toolbar settings

When you click **Road**, CC2 Pro changes the current settings for drawing roads to **brown** and line style to **Road** (dashed). Starting with a path, the road will be drawn in a brown, dashed line.

Roads

Because it's not usual for roads to end exactly on rivers or coastlines, the default road does not snap to them. However, you can do individual one-time snaps called modifiers.

Modifiers all work the same way:

Whenever **CC2 Pro** asks you for a point, you can click a modifier button, then pick the entity on which you want the modifier to work.

For example, when **CC2 Pro** asks for a 1st Point:, you can click **On** ✎, then pick the entity on which you want the point. **CC2 Pro** will place the point precisely on the entity. You cannot achieve the same accuracy by eye.

Where two roads join, click modifier buttons such as **Endpoint** ✎ and **On** ✎ then click on the junction to make the junction precise.

With all modifiers, if you click a point that is not over an entity, **CC2 Pro** cancels the modifier and the **Command Prompt** returns to Next point:. To restart the modifier, you must click its button again.
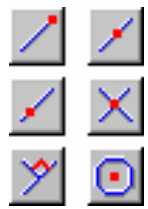
Reshaping rivers and roads

The basic shapes behind rivers and roads are paths, smooth paths, polygons and smooth polygons. When you create these shapes, you click to place the nodes that define them.

You can reshape these shapes after they have been drawn by editing their nodes. These buttons are found on the **Edit Single Entities**. toolbar at the lower left of **CC2 Pro**'s window.

Bridges

Bridges are optional. It is normally very obvious where they are!

4 **Zoom Window** to where an east-west road crosses a river.

5 Scroll down the Catalog Window and pick the

Bridge, E/W 🌉.

> The bridge attaches to the cursor, canceling the path command (which was ready to draw a road after you clicked the **Road** button).
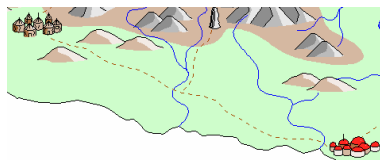
6 Place the bridge at the river crossing.

7 Place any other **bridges** your map requires.

Excuse me CC2 Pro, how far is it to… ?

When you want information or measurements from your map, look under **CC2 Pro**'s **Info** menu. It is a treasure trove of useful information.

8 Select **Info menu** >> **Length along**.

> The Command Prompt reads Select entity: and the cursor changes to a pick box.

9 Click on a road.

> The road is highlighted in gray and the Command Prompt reads From point on entity [entire entity]:.

10 **Either** right click to accept the default [entire entity] **or** click two points along the road.

> You see a dialog box containing the real-world **distance**, in miles, between the two points:

Distance = 133.59361

OK
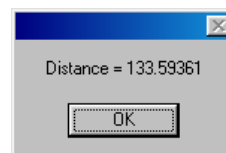
Edit Single Entities

Delete Node Click ▷ then the node you want to remove.

Insert Node. Click ⊕ then select a point on the road, river or coast. A node is created, moving as you move the cursor. Position the node where you want it, then click to place it.

Node Edit. Click ⤢ then the node to move. Move the cursor until the node is positioned correctly, the press the left button.

Smoothed paths have a frame which shows the points you selected. When editing smooth paths, you may find it easier to make the frame visible first using **Options menu >> Drawing Aids >> Toggle Frames or** CTRL F .

Bridges

In addition to the Bridge, E/W, structures symbol catalog also contains Bridge, N/S and broken versions of the same.

Distances

Keep this feature in mind when you draw roads. Using sensible start and end points makes it very easy to measure distances later on. For distances as the crow flies, use **Info menu >> Distance** and click two points to measure between.

Forests and Vegetation

There are many ways that you can represent forests in CC2 Pro. The method you choose will depend on the style of map that you like, and how fast your computer is. Some forest styles redraw much faster than others.

Forest outlines

For the purpose of this tutorial, I have used separate chapters for each type of map feature. In reality, the different map features are very interrelated, with roads, rivers and structures affecting the shape of **forests**, and vice versa.

To use my map, open **ML-Map07.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

11 Click **Vegetation** 🌳.

> CC2 Pro changes the current settings for drawing vegetation. Click **CC2 Filled Vegetation**. The **Catalog Window** fills with CC2 Pro's selection of tree symbols.
>
> The current layer is **VEGETATION**, fill style is **Solid** and color **mid green** (90).

12 Click **Smooth Poly** 🔵.

> The Command Prompt reads 1st point:

13 Place nodes to create the boundary of a forested area in the southeast of the island. Right click to complete the polygon and end the command.

14 Click to repeat **Smooth Poly** and add any other forests you want on your island.

> Now you know where the forests are, you would normally go on to draw the other map features then return to add the finishing touches to the forests.

15 Use **Front** 🔴 on any rivers and roads hidden by the new forests.
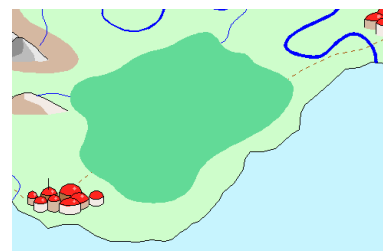
> If you draw roads and rivers after the forest boundaries, you wouldn't need to do this.

Forgotten Realms® style forests

This is the style of forest used we used in Wizards of the Coast's *The Forgotten Realms® Interactive Atlas*.

These forests look great, are quick to draw and use relatively few entities so they don't make excessive demands of your processor.

To use my map, open **ML-Map08.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

Using Fractalize

1   Click **Fractalize** 〰.

> CC2 Pro can add random detail to paths, polygons and similar entities in CC2 Pro.
>
> You see the **Fractalize** dialog box.
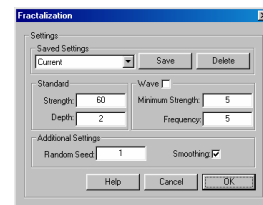
Forgotten Realms® is a registered trademark of Wizards of the Coast, Inc

2   Click to place a tick in the box next to **Smoothing**.

    The original forest boundary is smooth, so the fractal needs to be smoothed, too.

3   <u>Set</u> the **Strength** between **50** and **70** and the **Depth** to **2**.

4   Click **OK**.

    The Command Prompt reads Select polyline:.

5   Click on the boundary of the southeastern forest.

    The **fractalization** is applied, creating a more detailed and wavy outline.

6   Use the **Delete Node** button to remove any bends you don't like.

7   Click **Outline in Black**.

    The Command Prompt reads Select entities (0 picked):.

8   Select the forest then right click and **Do It**.

    The forest is outlined. The next step is to add interior detail.

9   Click the black box on the color bar.

    The black box is now outlined, showing it is the current color.

10 Use **Smooth Path** to draw broken rings inside the forest that approximately mimic the forest boundary.

    The inner detail looks best if in bands that are roughly evenly spaced and not too dense. Like mountain symbols, it is tempting to add a lot of detail, but keep in mind how the map will look when zoomed out.

Remember, after each **Smooth Path** you can click to repeat the same command.

Symbol Forests

These forests are built with blocks of symbols placed from north to south, much like mountains. As before, CC2 Pro makes it easy to add hundreds of symbols, but please resist the urge. Too many symbols not only spoils a map, it also makes it hard work for your PC to process and your printer to print.

11 **Zoom Window** on the northeastern forest.

12 Click **Vegetation**.

    The drawing settings for vegetation are restored (we had, for example, changed the current color to black).

13 Place the 3rd tree symbol from the Catalog Window at the very north of the forest.
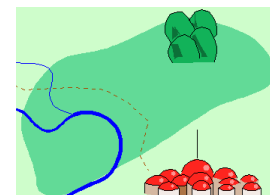
Working towards the south, place more of the same symbol until they will not fit without overwriting a road or river.

14 Change current symbol to the next smaller treetop ⛰ and, still working towards the south, use it to fill the remaining gaps.

Leave a generous margin at the boundary, rivers and roads.

15 Change symbol to the individual tree 🌳.

Still working from north to south, place this symbol along south edges.

16 Use the same method to add trees south of the river.
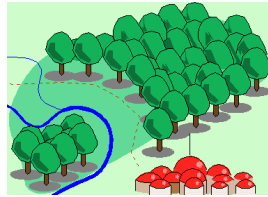
This area is so small that it will only require two or three single treetops with a few individual trees at the front.
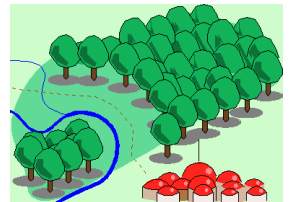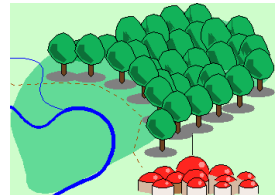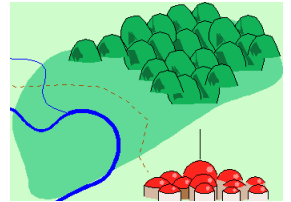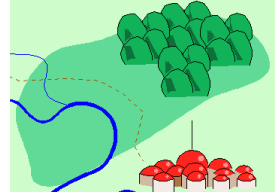
17 Using **Node Edit** 🔧, reshape the river, road or both so it fits the finished forest.

18 Using either of the two forest styles, complete the remaining areas which require **trees**.
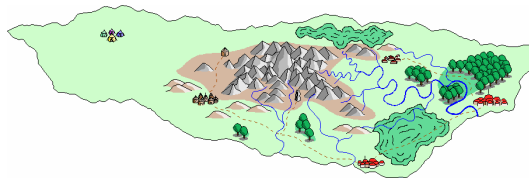
Trees

Other tree types

CC2 Pro's selection of tree symbols also provides for pine, jungle and miXEd forests. Scroll down the Catalog Window to see the selection.

Scattered individual trees

If your style is to use symbol trees, it can look very effective to have single trees scattered around the map. For example, in the highlands, you may have a smattering of pine trees.

Marsh, swamp and wasteland

CC2 Pro has the ability to fill a closed polygon with a repeating symbol. Filling mountains and forests in this way looks too repetitive, but for simple symbols, such as marsh and wasteland, it works very well.

To use my map, open **ML-Map09.fcw** from CC2 Pro's **Tutorials>Tome>Maps>MappingLand** folder.

1 **Zoom Window** 🔍 on the eastern base of the mountains.

2 Click **Vegetation** 🌳.
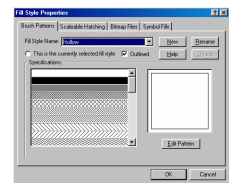
3   Click the **FS: Solid** fill style indicator on the Status Bar.

You see the **Fill Style Properties** dialog box.

4   Click the **Symbol Fills** tab.

You see the page of dialog box relating to symbol fills.

5   From the drop down list **Fill Style Name**, select **Marsh Symbol**, then click **OK**.

The fill style indicator on the Status Bar now says **Marsh Symbol**.
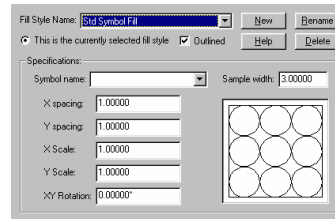
6   Click **Smooth Poly** and <u>**draw an area**</u> of marsh where the rivers meet at the base of the mountains.

Marsh, swamp and wasteland with a background

The Map Drawing Tools feature lets you add these vegetation symbols with a pre-configured, colored background.

To use my map, open **ML-Map10.fcw** from CC2 Pro's **Tutorials>Tome>Maps>MappingLand** folder.

1   Click **Overland menu** >> **Area Fills** >> **Swamp**.

The prompt reads Smooth Polygon: First point:

2   Create a marshy region to the south of the mountains where the two rivers meet.

Drawing tools uses two entities to create the swamp--a solid-filled background and a symbol filled foreground. These are two separate entities, so they must be manipulated individually. The Draw Tools options for these settings gives the Outline entity a symbol fill style like the one used in the example above.

3   Click **Map Drawing Tools** , then **Advanced**>>. Click **Outline**.

The dialog box shows that the outline is created with an extra entity.

4   Click **Properties**.

You can see that the outline has a width of **0** and a fill style of Swamp Symbol. Outlines don't have to be filled black lines – you can use it to create filled areas to sit on top of solid filled entities.

If you wanted to, you could change the fill style to a new symbol fill style, then create a new drawing tool.

Labeling your maps

Call me radical, but I think maps need labels. They not only tell you what's where, which is always helpful, but they also add finesse - something maps should have in abundance.

Text labels

The key to good text labels is to keep them simple and consistent. For example, when labeling rivers I always use blue Arial font, and the same font height throughout.

Labels don't have a shortcut button so, before adding the labels, you must manually select the appropriate color and current layer.

To use my map, open **ML-Map11.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

1   Click the layer indicator **L: VEGETATION** on the Status Bar.

You see the **Select Layer** dialog box.

The current layer is marked by a tick in the leftmost box next to it. In the dialog box above, the current layer is **VEGETATION**.
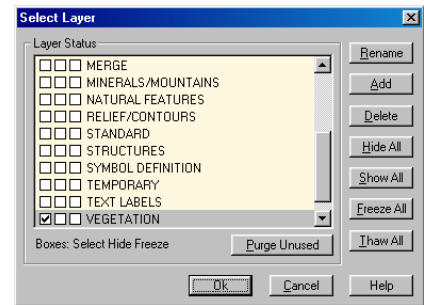
2   Click the leftmost box next to **TEXT LABELS** then **OK** to close the dialog box.

☐☐☐ TEMPORARY
☑☐☐ TEXT LABELS
☐☐☐ VEGETATION

The current layer is now **TEXT LABELS**.

3   Click the black box on the color bar.

Black is now the current color in the Status Bar. It will contrast well with the green and blue background colors.

4   Click **Text Specs** T.

5   Click **Text** A.

You see the Enter Text dialog box.

6   In the text box, type a name for the island, such as **LAG BLOSS**.

7   Click **Properties**.

You see the **Text Specs** dialog box.
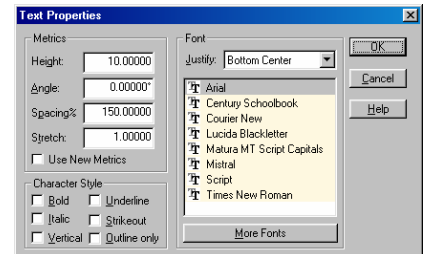
8   Change to the following settings, then click **OK** to return to the Text Entry dialog box:

✓   **Height**   16
✓   **Stretch**   2
✓   **Character Style**   Bold
✓   **Font**   Times New Roman

9   Click **OK** to start placing the text.

The text **LAG BLOSS** is attached to the cursor. It is 16 units high, stretched to double normal width and in Times New Roman bold.

Text Properties

Height: Text height is measured in map units (not point size). Normal size text is approximately 1% of the map height. This map is 800 miles tall, so normal text height is 8-10 units. CC2 Pro uses the nearest point size of text to display text at the current zoom level and text height.

Angle: Is the rotation angle of the text. The default angle is 0° to the horizontal. Positive numbers are counterclockwise (anticlockwise).

Spacing: The distance between the baselines of consecutive rows of text, given as a percentage of the Height: The default value is 150% which, if text is 10 high, gives baselines 15 units apart and a 5 unit space between rows.

Stretch: Sets the proportion of the text. A value of 2 would produce text that is twice as wide as normal.

Font: Allows you to set the text justification and to choose from the list of fonts already defined in the drawing. To add more fonts to the drawing, click **More Fonts**.

10 Click to place the text north of the island.

LAG BLOSS
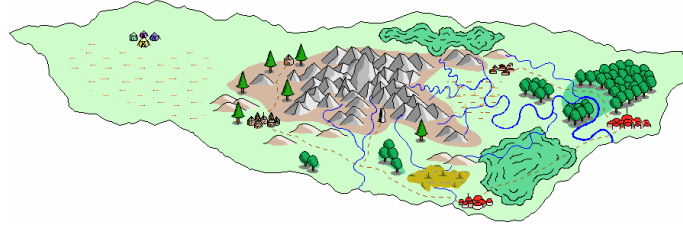
Changing text properties on the fly

The Text Specs dialog box lets you type in any text height and angle. However, instead of trying to think in numbers, you can very easily set the text height, angle and **justification** as you are placing it.

As an example, we will label the main *River Gemima*, after the duck that discovered it!

11 Change the current color to **blue**.

12 **Zoom Window** over the main river.

13 Click **Text** [A], type **R. Gemima** in the dialog box and then click **OK**.

> The text is attached to the cursor and the Command Prompt reads Place (Shift=15°Rot, Shift+Ctrl=Rot, Ctrl=Scale, Keystroke) [below prior]:.
> The font has gone back to the default – more on that in a moment.
> You now have the **options**, as per the Command Prompt.

14 Using [CTRL] to resize and [CTRL] + [SHIFT] to freely rotate, get the label exactly how you want, then click to place it.

Setting the default text properties for the map

When you added R. Gemima you found that the text properties had reverted to their default settings instead of the ones you used for LAG BLOSS. This is because you changed the LAG BLOSS settings by clicking the **Properties** button.

To change the map's default text properties, click **Text Specs** [T]. This brings up the Text Specs dialog box but, because you clicked its button instead of **Properties**, the settings you choose will become the default.

Reusing the properties with KEEP

Keep sets the current drawing settings to match the properties of an entity you select. If you use **Keep** on a piece of text, CC2 Pro will change all the text properties (color, line style, fill style, etc.) to match that text.

15 From the Edit toolbar, click **Keep** [KEEP].

> The Command Prompt reads Like entity:.

16 Click on any road *(yes road, not text)*.

> The command ends.

17 Look at the Status Bar.

> CC2 Pro has set the current drawing properties to match the road.

	P:0.000 mm	W: 0.00000	L: STRUCTURES	LS: Road	FS: Solid

Text Justification

TOP
MID
BOT
TEXT
LEFT   CENTER   RIGHT
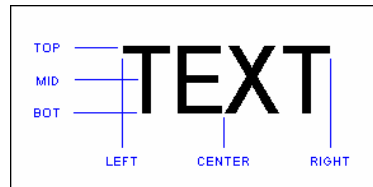
Text Placement Options

Press [SHIFT] while slowly moving the mouse. The text rotates in 15° increments.

Press [SHIFT] and [CTRL] together while slowly moving the mouse. The text rotates freely.

Press [CTRL] while slowly moving the mouse. The text height changes.

Type a number followed by [ENTER]. The text height becomes the number you entered.,

Press [↓], [↑], [→] or [←]. The text rotates to horizontal or vertical.

[T]op, [M]iddle or [B]ottom justification.

[L]eft, [C]enter or [R]ight justification.

[+] and [-] increment and decrement the first number in the text (if it contains a number).

The current color is **brown**, the layer is **STRUCTURES** and the line style is **Road**.

18 Click **Keep** [KEEP] and now select the baseline of the R. Gemima label.

| ■ | P:0.000 mm | W: 0.00000 | L: TEXT LABELS | LS: Vegetation | FS: Solid |

CC2 Pro has kept the color, layer, line style and fill style of the text.

Using **Keep** you can come back to river labeling at any time and recreate exactly the same text settings, in a single click.

Draw Like

The Draw Like feature lets you choose a piece of text (or other entity) and immediately start drawing a **similar entity**.

19 Right-click **Keep** [KEEP], then select **Draw Like** from the menu.

The prompt reads Pick master entity:

20 Click the baseline of the R. Gemima label.

CC2 Pro is ready for you to draw text in exactly the same style.

Outlined text

In some situations text labels are more legible if they are **outlined**. For example, text over a dark green forest is hard to read if drawn in plain black, but stands out very well if outlined with white.

21 Click the layer indicator **L: TEXT LABELS** on the Status Bar.

You see the Select Layer dialog box.

22 Click the **Add** button, enter **TEXT OUTLINES** as the new layer name, then click **OK**.

TEXT OUTLINES is added to the list of layers in the map.

23 Click **OK** to close the dialog box.

(Note, by adding a layer you have not changed the current layer setting – it is still **TEXT LABELS**.)

24 Click **Text Specs** [T] and change the following properties:

✓   **Times New Roman** font.
✓   **10 height**
✓   **0** angle

25 Change the current color to **black**.

26 **Zoom Window** [🔍] over one of the Forgotten Realms style forests.

27 Click **Text** [A], then type **Willardwood** in the dialog box. Click **OK**.

The text is attached to the cursor.

Using [CTRL] + [SHIFT], rotate the text into position, then click to place it.

28 Press [CTRL] [C] for clipboard copy, [P] for **Prior** then [D] for **Do It**.

The text is selected and the Command Prompt reads Clipboard origin [0,0]:.

29 Right click to accept the [0,0] default.

The text is now in the clipboard, with an origin of **0,0**.

30 Click **Edit menu** >> **Paste** for clipboard paste then click **OK** to close the **Insert Part** dialog box.

The Command Prompt reads Insert at:.

Similar Entity

Draw Like can't always duplicate the method by which you create an entity. It can't tell a fractal entity from a sketched one. It can't reproduce the two entities created with a drawing tool with the **Outline** option on. It's still useful, however, for text, roads, rivers, and even symbols.

Outlined

Outlined text actually involves two text entities: the base text and an outline only copy of the text. It is a good idea to use a separate layer for text outlines; first so they can be hidden if necessary; second so they don't interfere with text searches.

Black Text

The solid version of the label goes behind the outline, so we will draw it first, then create a copy of it in exactly the same place. Selecting by **Prior**, we will change the properties of the copied text to make it outlined

31 Type **0,0** then press `ENTER`.

A copy of the text is **pasted** precisely over the original.

32 Right click to stop pasting more copies of the text.

33 Click **Change Text Specs** 🅣.

The Command Prompt reads Select entities (0 picked):.

34 Press `P` for **Prior** then `D` for **Do It**.

You see the Text Specs dialog box ready to change the properties of the pasted text.

35 Click the **Outline only** setting, then click **OK**.

The copy text is now outline only. The outline, however, is still black and on the **TEXT LABELS** layer. At first it looks like the text is white with a black outline. If you redraw, you'll find this is post-edit clutter.

36 **Change Color** 🎨 selecting by `P` for **Prior** then `D` for **Do It**.

The Command Prompt reads New entity color [dialog]:.

37 **Either** right click to accept the default [dialog], **or** click the white box on the Color Bar, **or** type 15 (the color number for white).

The text Willardwood is now black outlined in white. You may need to click **Redraw** 🔄 to refresh the screen and see the proper effect.

38 **Change Layer** 📑 selecting by `P` for **Prior** then `D` for **Do It**.

The Command Prompt reads Layer name [dialog]:.

39 **Either** right click for [dialog] and select layer **TEXT OUTLINES**
Or type **TEXT OUTLINES** then press `ENTER`.

The outline text is now on the new **TEXT OUTLINES** layer.

Multi-line text

1 Click **Text Specs** T and set these text properties:
- ✓ **Times New Roman** font.
- ✓ **30 height**
- ✓ **0** angle
- ✓ **Bold** character style.

2 Click **Text** A.

3 In the Text Entry dialog box, click the **Multi-line** option.

The text box grows to accept more than one line of text.

4 Enter a multi-line title for the map such as
   South Lagyuru
   and Lag Bloss island
then click **OK**.

5 Press `T` then `L` for top-left justification.

6 Click to place the title in the top left corner of the map.

South Lagyuru
and Lag Bloss island

7 Right click to repeat **Text**, type **(pre cataclysm)** and then click **OK**.

The default value shown on the Command Prompt is [below prior].

Default Text Placement

If you right click when you are placing text, it will be placed under existing text. The space between baselines is 150% of the text height, as set by **Spacing** in the **Text Properties** dialog box

Explode

Explode breaks selected entities into more primitive entities. In this case, multi-line text is broken into single line text. Paths are exploded into many line segments, as are ellipses. For more information see Explode in CC2 Pro's Help index.

You can also explode text characters to make entities to which you can apply text effects. Right click **Text** and click **Explode Text** to do this. See *Multipoly text* on page 91 for an example.

Change Text Properties

You have the option of changing only the text properties you click on, or changing everything. The settings you see in the **Change Text Properties** dialog box are the current text properties.

To make one piece of text have the same properties as another, click **Keep**, then the first piece of text. Click **Change Text Properties**, select the text to change then set the **Change Everything** option.

Search Path

What does **#*.FCW** mean?

searches the folder where CC2 Pro is installed.

$ searches the folder where the current map is located.

* means all.
.FCW is CC2 Pro's file type.

#*.FCW therefore means search all FCW files in CC2 Pro's folder and **$*.FCW** means search all FCW files in the folder of the current map.

---

8 Right click to accept the default.

The new **text** is placed under the last entry.

Editing text

After text has been added to a drawing, you can change its content with **Edit**.

On the **Single Entities** toolbar, click **Edit** EDIT.

The Command Prompt reads Select entity:.

9 Click on the baseline of the "**(pre cataclysm)**" text.

You see the Edit Text dialog box.

10 Replace "pre" with **post**, then click **OK**.

The map text is updated. No doubt the island's population will be grateful for this change. Little do they know. *Bwa-ha-ha!!!*

Changing text properties

You can change the style of existing text with **Change Text Specs**.

In this example, we will reduce the text height of the text line "and Lag Bloss island". The only complication is that, because the text was drawn as multi-line, the change would normally affect "South Lagyuru" as well.

To change one line of multi-line text, you must first **Explode** it. *Kaboom.*

11 From the **Edit** toolbar, click **Explode** 💥.

The Command Prompt reads Select entities (0 picked):.

12 Click on the baseline of either "South Lagyuru" or "and Lag Bloss island".

The two lines of text are selected with the one click (evidence that they are one entity).

13 Right click, then pick **Do It** from the popup menu.

There is no visible difference in the map, but the selection is now two separate lines of text.

14 Use **Change Text Specs** 🅣 on the "and Lag Bloss island" and "(post cataclysm)" lines of text to change their **Height** to **25**.

> **South Lagyuru**
> and Lag Bloss island
> (post cataclysm)

Searching files for text

CC2 Pro has the ability to search files for text.

15 On the File toolbar, click **Find in Files** 🔍.

You see the Search Files for Text dialog box:

16 Under **Search path**, select **#*.FCW**.

17 Make sure **Include Subfolders** is clicked.

This means CC2 Pro will search all folders under CC2 Pro's folder.

18 In **Search for this text** type **Revu**.

19 Make sure **Map Notes, Text Entities** and **Frozen Layers** are ticked.

These are the areas in each map where CC2 Pro will search.
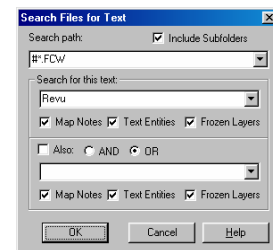
20 If you wanted to search for two keywords, tick the **Also** box and enter the required values.

Or will find files that contain either *Keyword 1* **or** *Keyword 2*, or both.

And will find files that contain both *Keyword 1* **and** *Keyword 2*.

21 Click **OK**.

CC2 Pro searches all maps in all subfolders under your **CC2 Pro** folder for the text "Revu". The search may take some time, but returns with the Bookmarks dialog box.

You can see a collection of files. You could save these files as a **bookmark**.

22 Highlight **ML-Map 13.FCW** then click **Open Selected Entry**.

This map is similar to the one you were working on, except I've sneaked in some special features.
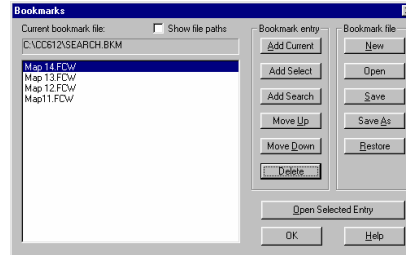
Zoom to Text

CC2 Pro found the **ML-Map 13** file because it contains the text "Revu", but where is it?

23 Select **View menu** >> **Zoom** then select **to Text**.

You see the **Zoom to Text** dialog box.
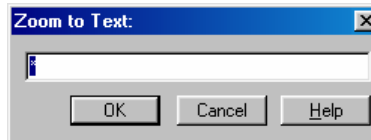
24 Type in **Revu** as the text to find, then click **OK**.

CC2 Pro zooms to *Revu's Knob*, a standing stone marking his grave.

25 Click **Zoom Out** to get a clearer view of where this feature is in relation to the rest of the map.

26 Repeat **Zoom to Text**, this time typing **R.*** as the text to find.

There is more than one match, so CC2 Pro lists the matched text:
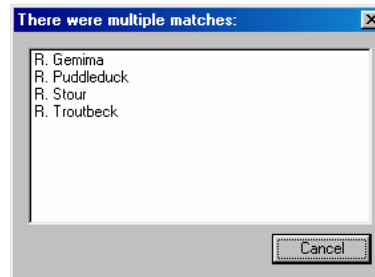
27 Click on **R. Gemima**.

CC2 Pro zooms to the location of the **R. Gemima** text.

How Text is Displayed in CC2 Pro

CC2 Pro uses standard Windows fonts for text. These fonts can be both TrueType® and non-TrueType®. You set the font style and height and pick the insertion point for each line or paragraph of Text. It is the job of Windows to actually draw this text on the screen. CC2 Pro chooses at the nearest point size that matches the text height, and instructs Windows to draw the text. The text will grow from the insertion point (justification point) after placement.

- If the text being placed is left justified, it grows from left to right.
- If the text is right justified, it grows from right to left.
- If text is center justified, it grows from the center outward equally in both directions.

When you zoom in on a drawing there are more pixels to display the text, and when you zoom out there are less pixels to display the text. We have no control over where the end of the text opposite the insertion point will be drawn by Windows. All CAD programs which use Windows text have similar problems.

Text extending to the right over the top of an entity

If you have an entity at the right end of a piece of text such as an arrow, circle, etc., and don't want the text to invade over it, make the text right justified so it grows from the right (the insertion point) back to the Left.

Text inside of a rectangular box extending past its right edge

If you place text inside of a rectangular box, make the text center justified and place it in the center of the box so that it grows from the center out equally in both directions. You may need to adjust this until you get satisfactory results.

Text displaying off the right edge of the screen or sheet when printing.

Sometimes the right end of a piece of Windows text appears off screen after a Zoom Extents. Also, when printing the drawing using "Fit to page" the right end of some text prints off the right edge of the sheet. To prevent this, make this Text right justified because this insertion point (the right end of the Text) is known by CC2 Pro and will calculate the Zoom Extents properly for the display and for printing. You can also artificially create an invisible boundary by drawing a box around your drawing that includes ample correction space for the text length variations. An invisible entity to the right such as a line or point will also work since it helps determine the drawing extents.

How to make the boundary invisible for printing? Make it the same color as the background. You may need to adjust this until you get satisfactory results.

If you really need absolute accuracy, use **Explode Text** (**Text** context menu) (see **Multipoly text** on page 91), which ensures that the text will look perfect at all levels of zoom.

The Art of Labeling

One of the subtle things that makes a map aesthetically pleasing is the use of text in a map. The choice of font and its positioning is vital for that professional look.

Fonts

With so many **True Type®** fonts that either came with your computer or you downloaded off the internet, it is hard to decide which font to use where. No matter how many you have though, there are only three basic kinds of fonts: Serif, San Serif and Decorative.

Serif fonts are the fonts that have the little extras called serifs attached to them to make the letters seem to join together. A good example of this is Times New Roman.

San serif fonts are fonts without the serifs attached. San serif fonts are blocky looking by comparison, and many studies have shown that they are harder to read. The most common day to day uses of san serif fonts are for captions, headlines and for computer displays that are too granular to display the serifs correctly.

Decorative fonts are non-standard fonts that are created to add flair and beauty to the printed word or add unique symbols and flourishes. The beauty of these decorative fonts is also their biggest flaw. Adding so much extraneous line work to each character detracts from its readability. Today, most decorative fonts are used sparingly, and mostly as accents.

Though modern cartographers agree with the restricted use of decorative fonts, the use of serif verses san serif fonts seems to have been turned around. The reasons for this are many. Normal printing is done on a plain background whereas text on a map contends with every other element on the map, possibly even elements directly underneath the text. Map text sometimes must be stretched to fill an area and the serifs that once helped the readability of the text now disrupts it. For these reasons and more, you should use a san serif font in the body of your map and restrict the use of serif fonts to titles and legends. The exception to this is if you want to produce a map in the style of earlier cartographers who hand-labeled their maps with curled copperplate handwriting.

True Type Fonts

If you want your maps to look the same on other people's computers, you need to do one of the following:

Make sure that the other people have licensed copies the fonts you use, or use fonts that are freely distributable.

Right click **Text** and click **Text Explode** to convert your text into CC2 entities.

Use fonts that are present on every Windows system.

Windows® 95: Arial, Courier New, Modern, MS Sans Serif, MS Serif, Symbol, Times New Roman, Wingdings

Windows® 98: Arial, Book Antiqua, Calisto MT, Copperplate Gothic, Courier New, Century Gothic, Impact, Lucida Handwriting, Lucida Sans, Marlett, Matisse ITC, News Gothic MT, OCR A Extended, Symbol, Tempus Sans ITC, Tahoma, Times New Roman, Verdana, Webdings and Wingdings

Windows® XP/2000: Arial, Batang, Book Antiqua, Bookman Old Style, Calisto MT, Copperplate Gothic, Courier New, Century Gothic, Comic Sans, Garamond , Haettenschweiler, Impact, Lucida Handwriting, Lucida Sans, Map Symbols, Marlett, Matisse ITC, Monotype Corsiva, News Gothic MT, OCR A Extended, Symbol, Tempus Sans ITC, Tahoma, Times New Roman, Trebuchet, Verdana, Webdings, Wingdings, Wingdings 2 and Windings 3

Windows® is a registered trademark of Microsoft, Inc.

Placing text

Knowing which type of font is best to use is only part of the battle. Knowing where to put the text is just as important. There are three types of elements on a map that you can label with your text: *Points*, *Lines* and *Areas*.

Points are the easiest to understand because they comprise of almost all the text on a given map. Cities are points, mountains are points, as are any other distinct locations. Through case studies, cartographers have determined some of the best placements of a label for a point. Just like the real world though, there is no single correct place for your label and even the better places are not always available. Here is a diagram showing the available placement areas in order from better to worse:

```
┌──────────────────3│ │1──────────────────┐
└──────────────────┘ └──────────────────┘
┌──────────────────6│ ● │5──────────────────┐
└──────────────────┘   └──────────────────┘
┌──────────────────4│ │2──────────────────┐
└──────────────────┘ └──────────────────┘
```
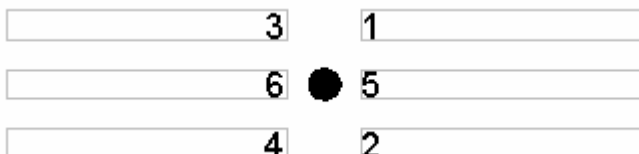
Use an appropriate text justification for the placement position – for example, position one would be Bottom Left, position 6, Mid Right.

The ideal label **placement** is the highest value placement point that does not cross or cover any of the other entities on the map. Whenever you cross another element, the two distinct entities become entangled and both lose some of their value to the map-reader. The best way to overcome this flaw is one of the cartographers little tricks, called *blotting*.

Blotting

To blot out a section of an entity, the cartographer draws over a part of the lesser prominent entity's border with the color that comprises the body of the lesser element since the body color is usually a much lighter color than that used for the border. In essence the cartographer is hiding the border of the lesser element so that the element with a greater importance is clearer to the map-reader.

In the following example you can see the trick of blotting out a coastline to allow for the labeling of a city. In this example the label of the city is clearly more important than the tiny bit of coastline that has been covered. I did this by simply attaching a new smooth path with a thickness higher than the coastline, to the coastline just above the label.
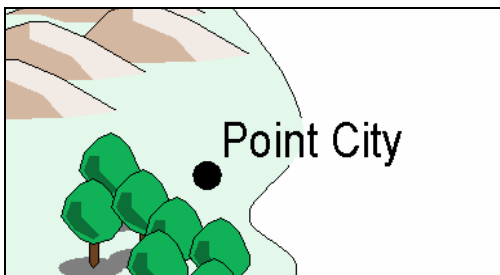
Every so often I reattached the blotting line to the coastline until I reached a point just below the label. After bringing the label to the front of the map, not only is it now much easier to read but much more professional looking, as well. Do not limit yourself to just blotting out a single line, though. If you needed to perform a more complicated labeling, such as the name of a forest, you can draw a polygon slightly larger than the label in roughly the same shape as the label. This is much easier than trying to blot out the edge of every tree underneath the label. By coloring it the primary color of the forest, you've allowed the label to be clearly viewed while still maintaining the continuity of the forest. Blotting is a very powerful tool in adding to the readability and to the visual beauty of your maps so experiment and have fun.

Placement

Since this is a nearly impossible thing to do most of the time, try to cover the least prominent element.

Adding an outline

As an alternative to blotting the landscape directly, you can add an outline to the text, usually in white.

1 Click **Copy** ⊞. Select all the text you want to outline.

2 Type **0,0** at the Copy from and Copy to points. Right click to finish the copy command.

3 Click **Change Text Specs** 🔲, right click **Prior**, right click **Do It**.

4 Check the **Outline Only** check box, **OK**.

5 Click **Change Color** 🔲 right click **Prior**, right click **Do It**. Click white on the color bar.

You now have a **one-pixel wide outline** on your text.

Labeling lines

The second type of element you will need to label is the line. A line can represent a river, a border, a railroad or any other man-made or natural fixture of the landscape. A few rules of thumb aid the cartographer in labeling lines. Minimize the number of curves, never label upside-down and label vertical lines on the left.

To minimize the number of curves, look for a section of the line that is either fairly straight over the length that will be labeled or one that is the most continuous in its curve. It looks much better to label a river where it makes a graceful half circle or a lazy 'S' than the area where is looks like a readout from a heart-monitor. A label on the outside of a curve is better than a label on the inside of a curve because it is easier to read text where the individual characters are crowded at their base instead of at their top.

You never want to place a label where the text will appear upside-down since it is almost impossible to read upside down text. labels on a line need not conform to the line a hundred percent. The label needs to only follow the line enough to clearly show that the label does in fact belong to the line. This allows the cartographer to gloss over problem areas like the one in the example seen here.

Labeling Areas

The last elements you will need to label on your map are areas. Areas come in two flavors, bounded and unbounded. A *bounded* area is an area of fixed size on a map, like a county or state. The most common *unbounded* areas on maps are large bodies of water, such as oceans and seas. Unbounded areas are simply labeled like a point but bounded areas are a special case.

When labeling a bounded area the label needs to lay claim to the entire area. To do that, the label needs to stretch from one side of the area to the other. This can be done in two different ways. The easier but incorrect way to label an area is for the cartographer to simply increase the font size of the label to fill the area. This is a poor choice because the size of the font should be constant for the same type of entity throughout the map. The area may not now be able to contain the label from top to bottom and the now huge letters will obscure many important details within the area on the map.

The better and correct solution is to **stretch** the label from one side of an area to the other by adding distance between the individual characters in the label. In this way the entire area will be claimed by the label without the label dominating the area. This will also help keep the font size constant between like entities.

With correct placement of your text you've eliminated nearly all the possible problems associated with text on your map.

Text Color and Style

The only remaining question is what font effects are used where. Font effects consist of the color and style you use.

Modern cartographers use black for all labels except for water labels. River, lake and ocean labels should be a dark blue. Other colors, such as red, should only be used to denote special entities or unique locations. Correct use of the color should be listed in the map's key. Font

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One-Pixel Wide Outline

You can't change its width on the map, but you can use **Edit menu >> Change Properties >> Pen Thickness** to change its thickness.

Pen thickness is the display and printing width for entities – it is independent of drawing scale, or current zoom level. Specify or change the desired pen width by clicking directly on the indicator. CC2 displays the Pen Thickness dialog, which lets you specify paper scale thickness and mm/inch units.

Stretch

You can do this by increasing the **Stretch** setting under **Text Properties**, or, less elegantly, put one or more space characters between each letter of the label.

Text Properties	
Metrics	
Height:	10.00000
Angle:	0.00000°
Spacing%:	150.00000
Stretch:	1.00000
☐ Use New Metrics	
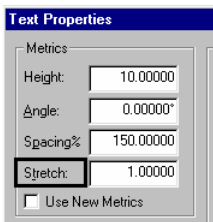
styles on the other hand have very limited use. The only style used is Italic. Professional cartographers use italics solely to label bodies of water. However, old style decorative maps make greater use of such features, and underlining is an unobtrusive way of picking out the most important of a particular type of feature.

Advanced Text Features

CC2 Pro has a number of other powerful **text features** found by right clicking **Text** $\boxed{A}$. You can find and replace text in a drawing, convert text fonts into symbol libraries, export text from the drawing and add text around a curve.

We're going to look at converting text fonts to symbol libraries.

Converting Fonts to Symbol Catalogs

Font to Symbols (Multipoly) is a little gem of a command that I use quite frequently. It converts a True Type font into CC2 pro symbols.

Why would we do that? Fonts in the way of wingdings, webdings, and dingfonts are treasure troves of symbols and map decorations. In their font existence, they lurch between points when we zoom; but if we convert them to symbols, they will zoom smoothly.

We'll be working in the CC2 Pro Map Menu. 🖼️

1   Click **New Map** 🗋 then scroll down and select **Blank Map Catalog.FCT**.

2   In the View menu, select **View-Window Color**. Type **255** $\boxed{\text{ENTER}}$.

3   Click black on the color bar.

4   In the **Tools** menu, scroll to **Set Properties** then select **Text**. Click **More Fonts**. On the **System Fonts** tab, scroll down then select **WingDings2**. Click **OK**. Make sure WingDings2 is highlighted, then click **OK**.

5   Right click **Text** $\boxed{A}$ then select **Font to Symbols (multipoly)**. Type **WD2** $\boxed{\text{ENTER}}$.

6   In the **Symbols** menu, select **Symbol Manager**.
     Not all the spaces will contain a converted symbol. WD2_30, WD2_31, and WD2_32 are blanks. Highlight each of those blank spaces then click **Delete**. Click **OK**.

7   In the Symbols menu, select **Symbol Manager**. Click **Save as Catalog**. Type **WingDings2**, then click **OK**.
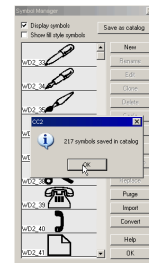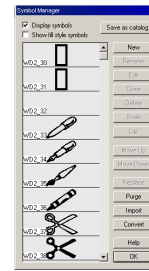
For all intents and purposes, we could be done. The Wingdings catalog is now a set of symbols for you to use.

However, this raw conversion makes symbols that are full of smooth paths (splines) . If you are just going to use one or two symbols with smooth paths in your map, you won't notice; but if you use several of them and you have a slow computer, you'll have long redraws.

Let's assume you'd like to use a symbol out of this new catalog quite a bit. We want to get rid of the smooth paths so the symbol doesn't flicker when we select it from the symbol display window and cause long redraw issues when our map refreshes.

1   Click **Open** 📂 then open the drop down menu for **Files of Type**. Select **CC2 FSC Symbol Catalog**. Navigate to the **WingDings2.FSC**. Select it, then click **Open**.

2   In the Symbols menu, select **Symbol Manager**. Scroll down to **WD2_97**. Select the symbol, then click **Edit**. Open a new window.

3   In the Info menu, select **Count All**.
     See all those smooth paths (Splines)?

Let's get rid of them.

Close the **Count** window.

Explode

Yes, we exploded that entity twice on purpose--first, to knock it down from a symbol to a multipoly; and second, to knock it down from a multipoly to its basic elements which are lines.

Line to Path

Yes, we clicked twice for each line on purpose. With the first click, we select a string of LINEs to convert to a path. We left click again to accept that selection. Watch your command line. Had we right clicked on the second step, we would have canceled the command.

4   Click **Explode** 🗡 then select the symbol. Right click, **Do it**. Right click, then select Repeat previous command. Right click, then select **All**. Right click, **Do it**.

If you look at **Count All** now, you'll see that all of our smooth paths are gone. We now have 500+ lines. Let's turn this back into a multipoly.

5   Right click **Explode** 🗡 then select **Line to Path**. Click on the outer line of the symbol, then click again. Click on the inner line, then click again.

If you look at **Count All** now, you'll see instead of 500+ lines, we now have 2 paths.

6   Right click **Explode** 🗡 then select **Path to Poly**. Right click, then select **All**. Right click, **Do it**.

7   Click **Multipoly** 🔲 then right click. Select **All**, then right click, **Do it**.

8   Click **Change Fill Style** 🎨 then right click. Select **All**, then right click, Do it. Right click, then on the Brush Patterns tabs, select **Solid**. Click **OK**.

If you look at **Count All** now, you'll see we have 2 polygons in a multipoly. It looks just like the symbol we started with but with no SPLINEs.

9   Close the Edit window. Click **Yes** to save changes on exit.

10 Click **Save** 💾

You won't have to do this to all the symbols converted from fonts. You'll just need to do it to the ones that you want to use frequently and that are loaded with SPLINEs.
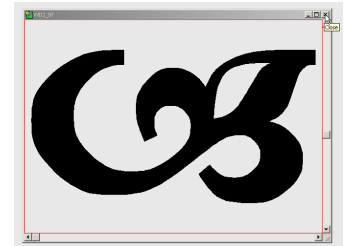
Tower Bridge
Street Level (1st Floor)

Gentry Tower

Men-At-Arms Tower

To Upper Class Ward

To Lower Class Ward

River Level

Street Level

Winch Level

Bunk Level

Storage Level

Roof Level

Hide GM Notes

Seargent Tower

Ruined Tower

Caer Bruin
Mountain Retreat of Clan CarConnag
1791 Imperial

Forest

Cliff Face

Stable

Horses

Storehouse

Great Hall

Nomads Tent

Granary

Cattle

Palisade

Gate

Moat

Sheep Pastures

Scale in Feet

Sheep Pastures

Tower Bridge by Steve Davies*

Tower Bridge uses hotspots for sheet navigation as explained in *Using Hotspots to Control Sheets and Layers* on page 118. New symbols were created for the drawing using techniques in *Creating a symbol* on page 66. An explanation of the techniques used to create the **Tower Bridge** drawing is available in **Examples>Tome>TowerBridgeNotes.doc**. The drawing itself is available to view in the **Examples>Tome folder**.

Caer Bruin by Ralf Schemmann*

New symbols were created for **Caer Bruin** using techniques explained in *Creating Perspective Symbols* on page 466. The buildings are drawn using the techniques explained in *House Creation* on page 462. The fences and hedges are projected versions of standard CD Pro/DD Pro symbols using the techniques explained in *Creating Solids from Projected Shapes* on page 460. Simple extrusion and copy commands created the palisades and little wooden platforms on the rockface.
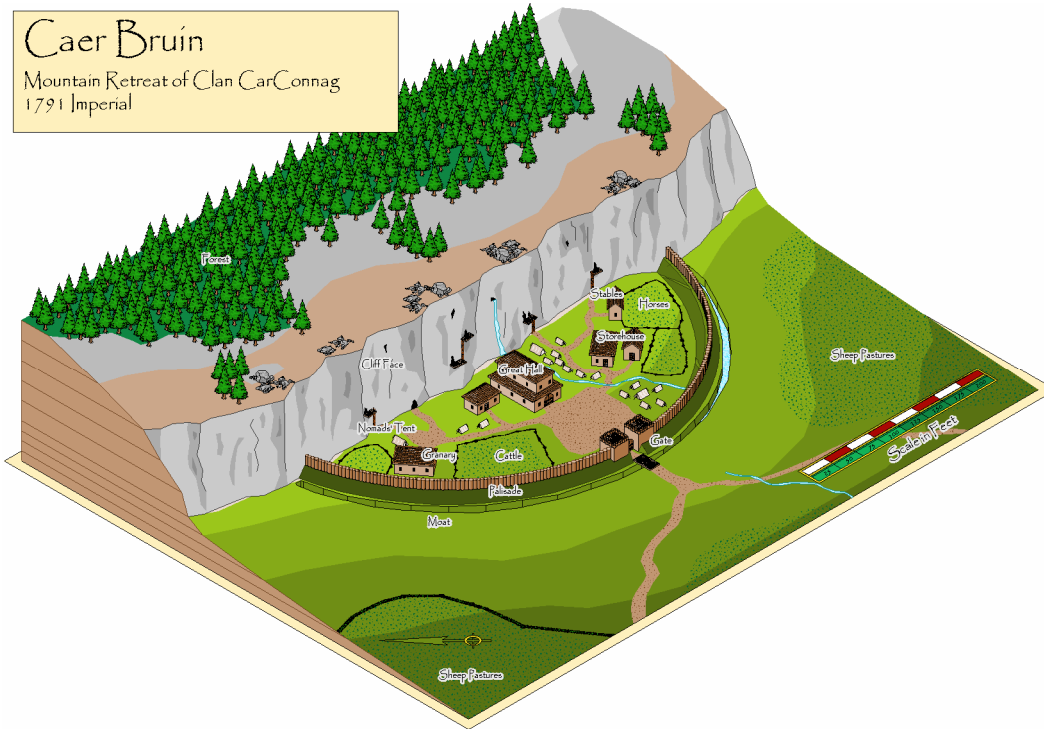
Both **Tower Bridge** and **Caer Bruin** are available to view in the **Examples>Tome** folder.

Finishing Touches

The essential finishing touches to any map are a scale bar to show how large is the map and a compass rose pointing to north. Further embellishments you might like to add are a grid, navigation lines, decorative ornaments and, perhaps, even a few there-be-monsters. For the purposes of this **tutorial**, I'll assume you're going the whole hog.

Inserting a Scale Bar and Compass Rose

CC2 Pro includes symbol catalogs with compass roses and scale bars suitable for any maps.

To use my map, open **ML-Map 13.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

1   Right click **Symbol Style Toggle** and choose **Filled**.

2   Click **Symbol Catalog Settings**. Scroll down and choose **CC2 Filled Scale Bars**.
        In the symbol catalog window, you can see some scale bars.

You don't know which scale bar will fit your drawing, so you'll need to find the map's approximate width.

3   Select **Info menu**>> **Distance** and choose the lower left and lower right corners.
        It's about **1000** miles across.

4   Scroll down then click on the first **200-mile-long scalebar.** Right click, and ensure that the scale is **1** and rotation **0**.
        There is no need to rotate the scale bar, and you definitely don't want to scale it (a scaled scale bar is pretty useless).

5   Click green on the color bar.

6   Click **Symbol Catalog Settings**. Scroll down and choose **CC2 Filled Compass Roses**.
        Note that some of the symbols have a garish green background, because the current color on the color bar is green.

7   Click white on the color bar.
        Note that the green symbols have turned white.

Some parts of CC2 Pro's symbols have a varicolor element. They take on the current color.

8   Click on the second compass rose down. Right click and type in an angle of **15** degrees.
        North isn't straight up the screen in this example.

9   Click **Endpoint**.
        We want to make sure that the compass rose lines up with the center of the scale bar.

10   Click in the middle of the scale bar, at the point shown.

     The compass rose is inserted. Its center point is precisely at the endpoint in the middle of the scale bar. Now it needs to be moved vertically.

Scale in Miles
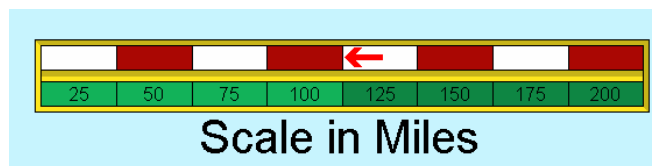
11 Right click **Ortho**. Ensure that **Ortho** and **Cursor Snap** are set on.

The Command Prompt still reads Insert at[dialog]:.

Scale in Miles
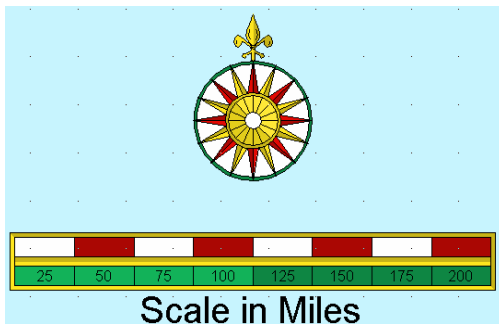
12 Click **Move, Scale, Rotate** [icon], selecting the compass rose by P then D, then click a start and an end point so that it is above the scale bar.

Before you clicked **Move, Scale, Rotate**, the CC2 Pro was still ready to insert compass roses. When you clicked a new command, the previous one was cancelled. There's no need to complete commands by right clicking – you can just choose a new one.

Grid overlays

CC2 Pro can generate hex and square grid overlays of any size and spacing. Before adding a grid overlay, it is a good idea to create a layer for it so the overlay can be easily hidden when not wanted.

A square grid overlay

13 Click the Layer indicator **L: Vegetation**. Click **HEX/SQUARE** then click the tick box to set it as the current layer.

14 Click the color indicator on the Status Bar and set the current color to a dark gray.

15 Click the Line Style indicator **LS: Solid** on the Status Bar then click a dashed line style.

16 Select **Draw menu** >> **Square Grid**.

The Command Prompt reads Square grid spacing [10.00]:.

The distance across our map is 1000 miles, so a grid spacing of 10 would create a very fine grid.

17 Type **50** as the grid spacing, then press ENTER .

The Command Prompt reads First corner of square grid [0,0] and the cursor becomes crosshairs.

18 Right click to accept the [0,0] **default origin.**

The first corner is fixed. As you move the mouse, the grid grows and shrinks from that fixed point.

The Command Prompt reads Second corner of square grid:.

If you cast your mind back to the very start of this map, we based it on a 1000 x 800 mile template.

19 **Either** type **1000,800** followed by ENTER ,

or depress **Snap,** then click at the top right corner of the map.

The grid is drawn on the current layer in the current color and line style.

Hex grid

Hex grids are used more often than square grids on overland maps and have many more options. For this reason, CC2 Pro's Hex Grid command not only gets its own button, it also gets a dialog box to control its appearance.

Ortho

Ortho forces the next point you click to be either vertical or horizontal from the last.
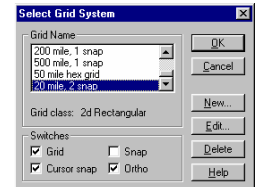
Cursor Snap

Cursor Snap forces the cursor to lock to snap points if snap is on, horizontally or vertically if Ortho is on. In this example without **Cursor Snap** the cursor would move freely but jump to the nearest allowed point at the time you clicked.

Default Origin

The lower left corner inside any map border on all CC2 Pro's original map templates is located at 0,0.

Hex Grid Dialog box

Grid Alignment:
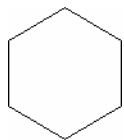
Vertical
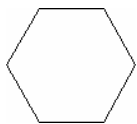
Horizontal

Grid Labeling: If you tick **Insert Labeling** then CC2 Pro will add a number label to each cell. You can set the start numbers in the **First X Label and First Y Label** boXEs. The label consists of two parts, a column and a row label (e.g. AA01). Lettering counts up A through Z then AA-AZ then BA, etc.

Grid Size: The distance between parallel sides of each hex. Set a number appropriate to the map size.

Even columns are higher: Causes the top of the second column to be higher than the top of the first column.
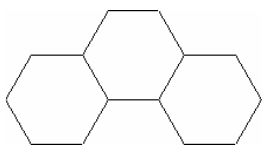
Set hex grid: Changes the grid and snap snaps so that you can snap to important parts of the hex overlay.

Snap to border: Provides additional snap points at the midpoints of hex edges.

Set hex grid: Changes the grid and snap so that you can snap to important parts of the hex overlay., the center of the hex, the midpoint of each side and the vertices (corners)

---

20 Click **Hex Grid** .

You see **the Hex Grid dialog box**.

21 Select the options you want, then click **OK**.

The Command Prompt reads First corner of hex grid: and the cursor becomes crosshairs.

22 Click **Endpoint** .

The Command Prompt reads Entity:. **CC2 Pro** is waiting for you to select the entity whose endpoint you want to use.

Endpoint attaches the point to the nearest endpoint of the entity you select.

With all modifiers, if you click a point that is not over an entity, CC2 Pro cancels the modifier and the Command Prompt returns to Next point:. To restart the modifier, you must click its button again.

23 Select the bottom left corner of the map.

The point is attached precisely to the endpoint of the border, right in the corner of the map.

The Command Prompt reads Second corner of hex grid:. As you move the cursor, the hex grid shrinks and grows.

24 Click to place the top right corner, using the Endpoint modifier again.

The hex grid is drawn and labeled as you specified.
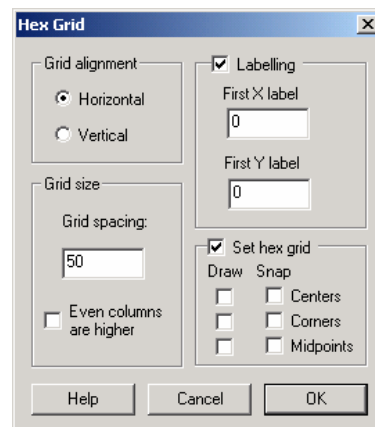
Navigation lines

Navigation lines (navlines) were used on early maps to give sailors waypoints and bearings when traveling relatively short distances. They only appear over bodies of water. They give a map an authentic historical look. If you prefer purely functional maps, you'll probably want to do without them.

Navlines from a Template

If you know from the outset that you would like navlines on your map, the simplest method is to select a template that includes them before creating the map.

Click **New** , then select **1000 x 800 (with navlines).FCT** then click **OK**.

CC2 Pro asks if you would like to save the changes to your existing map, which you do.

The new map includes navlines on the **NAVIGATION LINES** layer. At any time you can hide the navlines by clicking the layer indicator on the Status Bar and hiding the layer.

You can, of course, edit or add to the navlines.

Adding your own navlines

Navigation lines are also available as a CC2 Pro file to be added to any drawing then trimmed.

To use my map, open **ML-Map14.fcw** from CC2 Pro's **Tutorials>Tome>Maps>MappingLand** folder.

25 Click the layer indicator on the Status Bar, then add a new layer called **NAVIGATION LINES**. Set it as the current layer.

The layer indicator on the Status Bar should read **NAVIGATION LINES**.

26 Select **Tools menu** >> **Options** >> **FCW/FCT/FSC** and ensure that <u>**Group Parts on Insertion**</u> is unchecked.

27 Select **Edit menu** >> **Insert File.** Ensure the <u>**Embed in Drawing**</u> option is set then pick **Navigation lines (200 mile diameter)** from CC2 Pro's **Parts\Maps** folder.

> You see the <u>**insert file**</u> dialog box.

28 Place two copies of the navline part, then right click to stop inserting parts.

29 On the **Edit Single Entities** toolbar click **Trim to Entity** ☰ .

> The Command Prompt reads Select entity to trim to:.
> CC2 Pro wants you to select a boundary entity to which other entities are shortened or lengthened. In this case, it's a <u>**map border**</u>.

30 Select the inside edge of the western map border.

> The edge you selected is highlighted and the prompt reads select entity to trim:.

31 For both parts, <u>**click on all the navlines**</u> that you think will intercept the western map border.

32 When you've trimmed all the lines that intersect the western map border, right click to cancel the command.

33 Click to repeat the **Trim to Entity** command, this time trimming to the northern map border.

34 Repeat the same process for the southern and eastern borders.

> Now all that we need do is put the navlines behind the land.
> The current drawing order is sea, then land, land features, and finally navlines. The simplest method is to bring the navlines just in front of the sea background. In this position they will show over the water, but behind the land and anything drawn on the land.
> To select the sea background without picking the border, you must first hide the **MAP BORDER** layer.

35 Click the layer indicator on the Status Bar and then tick the middle box next to <u>**hide the MAP BORDER**</u>.

36 Hide the **HEX/SQUARE GRID** layer, too. Click **OK** to close the dialog box.

> The brown border is now hidden, enabling you to see the edge of the blue sea background box. We hid the **HEX/SQUARE GRID** layer because it has a line on it, enabling you to trim to when the map border is hidden, but you don't want to send your navlines behind that.

37 Use **Bring in front** of ⊞ to bring the navlines in front of the blue sea background.

> You can select the navlines **either** by clicking on each one, **or** with two selection windows, **or** by layer **NAVIGATION LINES**.

38 Click the layer indicator and show the **MAP BORDER** layer by clicking the **H** next to it.

Does your map look like mine? See **ML-Map15.FCW** in the **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

Other Finishing Touches

There are lots more ways to decorate a map.

- www.profantasy.com contains a library of maps and parts contributed by other CC2 Pro users. For example, L. Lee Saunders contributed the beautiful shield and ship that I used to complete **ML-Map16.fcw**. You insert these parts in exactly the same way as the scale bar and compass rose. Map library contributions (current at the time of printing) are also included on the CC2 Pro CD-ROM.
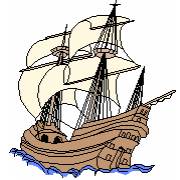
- Click **Coast/Sea** to load CC2 Pro's sea symbols. These include sea monsters, tidal rips and jagged rocks.

Wave	Waves	Whirlpool	Rock at Se	ocks at Se	Waterfall	hip, Raider	Ship
Reef	Lighthouse	thouse at S	Geyser	Anchor	ea Monster	ea Monster	ea Monster

- Click **Borders/Political** to load CC2 Pro's symbols associated with land:

Chaos	Law	Balance	Good	Evil	warves (Ax	Elves (Bow
Druid	Horse	Coins	Gem	Crown	Arrow	Battle Site
Magic Circle	Pentagram	Snowflakes	Shield 1	Shield 2	Shield 4	Ribbon

- Using **Save As** with the **Files of Type** set as **Selected CC2 Pro Entities**, you can create your own parts from anything you have drawn in CC2 Pro. You might even consider contributing them to the map library!

Edewin's Hut by Grimur Fjeldsted*

Edewin's Hut is created using drawing tools and symbols included in the Perspectives Pro add-on to CC2 Pro.

Edewin's Hut is available to view in the **Examples>Tome** folder.

Kuslik
Stadt am Yaquirmund

Stadtplan
Stadtviertel
Gebäudefunktionen

100 Schritt

Kuslik (city view)by Ralf Schemmann

Kuslik is a drawing done using the City Designer add-on to CC2 Pro. It uses hotpots for layer management as explained in *Using Hotspots to Control Sheets and Layers* on page 118. It also demonstrates CD Pro's index feature as explained in *Indexes* on page 216.

Look for **Kuslik** in its borough view on page 120 and its building function view on page 167. Navigation between the views is a simple click on the appropriate hotspot.

Editing in CC2 Pro

We've covered many of CC2 Pro's editing functions in previous chapters, but this chapter gives you all the options available.

Editing many entities at once

Keep	KEEP	LIKE	Like
Undo	↩		Change - color
Erase			Change - layer
Rotate	↻		Change - fill style
Move, Scale, Rotate			Change - line style
Copy			Change - line width
Scale			Change - text properties
Explode		→{	Fractalize

The **Edit** toolbar contains all the commands that work on a selection of many entities. When you edit in CC2 Pro, you must choose what you want to do, then select the entities to which to apply your action.

If you've worked through the tutorials, you'll already be familiar with this. Entity selection is covered in full in the next section. Some of the **Edit** buttons are self-explanatory. The rest are covered below.

If you **right click** on any Edit button, you'll see a selection of related commands for more specialized purposes. The more important of these are mentioned below. You can find full details in the Help file. Look up the menu entry in the Index. Some commands have popup menu equivalents called non-visual. If you are editing very large numbers of entities, or want to type precise values at the command prompt, use these.

Keep. Click on an entity to set the current properties the same as the selected entity.

Like, When you are using a Change command, you can click on an existing entity. For example, if you wanted to change color, you could change entities to match the color of a clicked on line using **Like**.

Undo. Undoes previous commands. Right click for Redo and Redo All. The number of times you can undo depends on when the drawing was last saved, and can be affected by Autosave.

Rotate. Gives you a fine degree of control over rotation, and lets you align your selection to a straight edge.
- Press SHIFT and move the mouse to rotate in increments of 15º
- Type a value in degrees for a fixed rotation.

Move, Scale, Rotate. The most widely used editing command. You can control the scale, rotation and position of your selection. If you just want to scale or rotate, right click to complete the command.
- Press CTRL and move the mouse to rescale.
- Press SHIFT and CTRL together while slowly moving the mouse to rotate freely.
- Press SHIFT and move the mouse to rotate in increments of 15º

Copy in Drawing. This copies the selection immediately, unlike **Copy to Clipboard** then **Paste**, which is a two-stage operation. on the right click popup menu. Each copy is treated as a separate command for Undo.
- Press CTRL and move the mouse to rescale the copy.
- Press SHIFT and CTRL together while slowly moving the mouse to rotate the copy freely.
- Press SHIFT and move the mouse to rotate the copy in increments of 15º

Scale. Resizes the selected entities.
- Press CTRL and move the mouse to scale X and Y independently.

- Press ⬚SHIFT to move the scale reference point – this controls the sensitivity of the scale to your mouse movements.

Explode breaks entities down into simpler components. For example, a path is broken down into a series of lines. Right click options allow you to convert the other way. For example, **Line to Path**, **Path to Poly** and **Combine Paths**.

Change commands. These change the properties of a selection. When asked for the new property, you can **either** type in a value, click **Like** LIKE when **or** right click to select from a dialog box. **Change Properties** is a right-click option which gives you additional change choices. Use this if you want to change more than one property of a selection.

Fractalize adds extra nodes to paths and polygons. See Using Fractalize on page 34 for more details.

Making a Selection

Most **Edit** toolbar commands work on any number of entities. When you start a multiple entity editing command, you will see the following prompt Select entities (0 picked):

- **Click on an entity's edge** to select it.
- If you don't click an entity's edge, you will start a window. Move the cursor, then click again. All entities with edges inside or touched by the window will be selected.
- Press ⬚CTRL while selecting to remove entities,
- or right click to bring up the Selection popup menu:

The Selection popup menu

This menu allows you to add and subtract entities from your selection.

A**ll** selects all entities, including **Groups**, in the map, except those on hidden or frozen layers

P**rior** selects the entities you have just drawn or edited. The prior entities are forgotten as soon as you make another selection so this option is only available the when you first see the selection cursor.

C**olor**, L**ayer**, **Line** S**tyle** and F**ill Style** select all entities with the property you specify. After clicking one of these you can type the value or right click to select it from the relevant dialog box.

Entity T**ype** lets you select entities by their type, for example Text or Circle. After clicking this you see a dialog box in which you **place ticks** next to the entity types you want to select.

Tag #. If you use **Info menu** >> **List** on an entity, one of the details CC2 Pro lists is the entity's unique Tag #. You can type this number to select a particular entity again and again.

Combining Selections

CC2 Pro lets you select entities in a number of ways, You can also combine selections, for example, the first selection can be all the red entities, then the next Solid fill style. You can use **Or**, **And** and **Not** to combine selection criteria.

When you choose a combining method, the ticks from your previous selection will be remembered, so you may need to deselect them.

Do It
Cancel
Combine ▸
All
Prior
Window
Color
Layer
Entity Type
More ▸

And (Both) / ✓ Or / Not

Line Style / Fill Style / Entity Tag #

Combining selections using:	Has the following logical effect:
[O]r (the default)	Adds the next selection to the current selection. Entities that meet any of the criteria are selected. For example, select "Color Red OR Type Text" selects entities that are "red or text".
And ([B]oth)	Only entities that meet all the criteria are selected. For example, selecting "Color Red AND Type Text" selects entities that are "red and text".
[N]ot	Entities that meet the criteria are **r**emoved. For example, select "Color Red NOT Type Text" selects entities that are "red but not text".

CC2 Pro will let you carry on adding and removing entities from the selection, **highlighting** them in grey until you right click then click [D]o It.

An Example of Selections

39 Open **ML-Map 15.fcw** from CC2 Pro's **Tutorials**>**Tome**>**Maps**>**MappingLand** folder.

We will change the line style of the solid navigation lines in the map. We could easily pick the lines by clicking on them but, for the sake of learning, we'll select them their properties instead.

The navigation lines were drawn on the **NAVIGATION LINES** layer.

40 Click **Change Line Style**.

The Command Prompt reads Select entities:.

41 Right click and pick **Layer**.

The Command Prompt reads Layer name [dialog]:.

42 Right click then select the **NAVIGATION LINES** layer.

43 Right click then pick **And (Both)**.

The Command Prompt still reads Select entities (32 picked):.

44 Right click to bring up the Selection popup menu.

The **And (Both)** option is now ticked. Future selections will be *and'ed* with the existing selection.
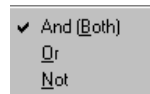
45 Right click then click **Line Style**.

The Command Prompt reads Line style name [dialog]:.

46 Click **Like** LIKE then select one of the solid navlines.

Now everything that is **both** on the **NAVIGATION LINES** layer **and** has **Solid** line style is selected. The lines with a dashed style are dropped from the selection.

Press [D] or right click then click **Do it**. Complete the command as normal, selecting a new line style for the selected lines from the dialog box.

Another example: overlapping entities

The inside edge of a map border has at least four **overlapping entities**:

- There is the blue box of the sea or grass background,
- the brown polygon of the border,
- the black outline to the border,

Highlighting

The *marking color* is the color that CC2 Pro uses to indicate selected entities for various commands. The default color is a light gray (16). You can change the marking color to a less-used color that may stand out better.

Type **MCOLOR** at the Command Prompt.

Right Click to select the Color Dialog and select a bright color that you will not be using in your Drawing.

Magenta (6) is often available and stands out well against most other colors.

Like

If you don't know what layer something is on, or what color or style it is, you can click **Like** and then click on the entity, instead of selecting the property yourself.

Overlapping Entities

If you want to find out what is in a stack of entities, on the **Info** menu, click **List.** This will tell you the properties of all the entities.

✓ And (Both)
Or
Not

- and underneath the lot, a green line which, right at the back of the drawing which lets you **Trim to Entity** to the edge of the map.

If you wanted to change the color of the black outline from black to blue you couldn't select it with a click alone, as this would pick all four entities under the click. Instead, you have to make use of a difference between the properties of the four entities. In this case, the outline is the only one of the four which is black.

47 Click **Change Color** 🔳 then pick the map border at a place where there's no land to further complicate the selection.

>   The Command Prompt reads Select entities (4 picked):.

All four entities are selected. You only want the one that is both currently selected and black.

48 Press B (and) C (color) 0 (black) ENTER D (**Do it**).

>   The entities that you clicked on which are also color 0 (black) are selected.

49 Complete the command as normal.

If two entities are overlapped and *completely* identical, usually as a result of a incorrect copy, you can't use their properties to pick them apart. There is, however, a **trick** you can use:

Editing Individual Entities

Whenever you use an edit or copy command, **CC2 Pro** needs you to select the entities to use. The tools we've looked at so far work on any number of entities, others on individually selected items. Generally, commands on the **Edit** toolbar work on a selection of entities, while those on the **Single Entities** toolbar work on individually clicked entities. It's easy to tell by watching the Command Prompt, you can see what your options are. For example:

✓   EDIT **Edit** only affects one entity at a time. The Command Prompt reads Select entity: and you have no option except to click on an entity. If your click misses, the command will end.

✓   ✖ **Trim to Intersection** trims two entities to their intersection. The Command Prompt reads 1st entity: then 2nd entity:. At each prompt you have no option except to click on each an entity. If your click misses, the command will end.

✓   ⧉ **Copy** will copy any number of entities. The Command Prompt reads Select entities (0 picked):. This tells you that you can select more than one entity, which means you can be selective!
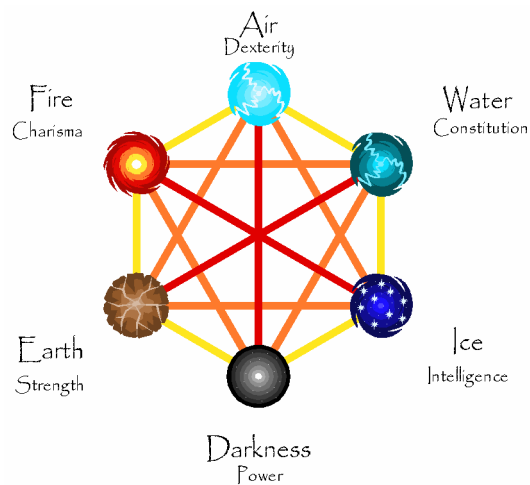
Using Templates

You will have realized by now that **CC2 Pro** is a huge program. The manual to this point has shown you the essentials you need to create great maps, while resisting the urge to plunge into technical detail. There is a lot more to **CC2 Pro**!

From here on we'll look at techniques and methods which, while nonessential, give you more options and flexibility with your map making.

Modifying and creating templates

Whenever you start a new drawing you can choose a template on which to base your map. A template is simply a blank map, which is built to a suitable starting point for new maps, then **saved as a template**.

To modify an existing template

1   Click **Open** 📂 .

   You see the **File Manager** dialog box.

2   Select **Campaign Cartographer FCT Template** from the **Files of Type** list.

3   Change to CC2 Pro's **Templates** folder, then to the subfolder for the type of template you want. Click on the template file to edit. Choose a template which is near in size to the one you wish to edit.

4   Make any **changes** to the template.

5   Add or edit any pre-drawn entities you want. For example, you might want to add a color contour bar, an extra drawing window or a scale bar. You could erase the existing **map border** and draw a new one. If the map border is significantly larger or smaller, you might need to re-scale the symbol fill styles.

6   Click **Save** to save the changes.

The next time you open a file, the default file type will be **Campaign Cartographer FCT Template**. To see your other files, reselect the **.FCW** file type.

To create a new template from scratch

1   Click **Open** 📂 .

   You see the **File Manager** dialog box.

2   Select **Campaign Cartographer FCT Template** from the **Files of Type** list.

3   Double-click **blank.fct**.

   CC2 Pro opens a blank map template.

4   Add or remove entities, fill styles, line styles, layers, as you wish.

5   Add a **Map Border** to the **MAP BORDER** layer.

6   Add a **background entity** to the **BACKGROUND** layer.

7   Save the template with a new name.

To set the background color, select **View menu** >> **Background Color**.

Creating a decorative Coat of Arms

Templates can have special functions. For example, some templates are pre-configured for symbol creation, others for metric scale. This example shows the use of another specialized template designed to create heraldic devices. Our heraldic symbols are based on a mixed bag of historical examples. We make no pretence to follow any rules of heraldry in these examples. (It's for fantasy games, right?)

Saving a Template

Whatever has been drawn or defined when the map is saved as a template will be created in any new maps based on that template.

Templates have an .fct extension. They are the same as any normal drawing except for their extension.

Changing a Template

You can change anything you like, such as pre-defined fill styles, line styles, layers, fonts and grid systems; the current color, fill style, line style and line width; and settings for **Grid, Snap** and **Cursor nap**.

Map Border

The Map Border is an important element. Without a Map Border, CC2 Pro's drawing tools will not work as we expect them to. If you erase the old Map Border, be sure to draw a new one at the size you desire on the **MAP BORDER** layer.

The map border should have four line entites drawn to make the inner boundary, then any other entities on top.

Background Entity

The Background entity is usually the base layer and color for your map. For example, a map with a lot of water could have a blue background. A Background entity isn't absolutely necessary, but without it, your **Change Background Color** macro will fail should you try and run it.

Campaign Cartographer 2 FCW Drawing
Campaign Cartographer 2 FCT Template
Campaign Cartographer 2 FSC Symbol Catalog
AutoCAD DWG File
AutoCAD DXF File
EasyCAD ECW 4.50+ Drawing
CC-DOS FCD Ver 1.0+ Drawing

The Shields heraldic template

1 Click **New** ☐ Click Select Path. Navigate to the **Tutorials**>**Tome**>**Other** folder. Click **Open**. Click <u>**Shield.fct**</u>.

2 Click **Catalog** [⌗] at the top of the <u>**Catalog Window**</u> then select **Charges.fsc** from CC2 Pro's **Symbols\Other** folder.

> The Charges symbol catalog loads in the Catalog Window. The symbols in the top half of the list are all black.

3 Select another color from the color bar.

> The charges change color to match the new current color. This type of symbol is known as a *varicolor* symbol.

4 Move the cursor over the Catalog Window and right click.

> The Catalog Window is shown as a full page, so you can see all the Charges at once. Right click again to get back to the normal list.
>
> Some of the Charges do not have the color you selected - these symbols are *Proper*, meaning they maintain their own natural color.

Copying the shields

The **Shields** template is set up to allow you to copy shields from the lower drawing window into the upper drawing window, change their properties, then add heraldic symbols from the symbol catalog.

5 Click **Copy** [⌗].

> The Command Prompt reads Select entities (0 picked):.

6 <u>**Select**</u> the white shield in the bottom left, then right click and **Do It**.

> The Command Prompt reads Copy from point:.

7 Move the mouse around.

> The **Grid** and **Snap** buttons are depressed (how they were saved in the Shields template), so the cursor is forced to *snap* to grid points. Since the shields were positioned on grid points, it is easy to select them precisely.

8 Click on the middle of the selected shield.

> The Command Prompt reads Place:. CC2 Pro wants to know where to put the copy.

9 Move the mouse into the upper drawing window and click in the middle of this window.

> The white shield is copied to where you clicked.

10 Right click to stop copying.

11 Click **Change Color** [⌗], selecting by **Prior** then **Do It**.

> The Command Prompt reads New entity color [dialog]:.

12 Click **Like** [LIKE].

> The Command Prompt reads entity:.
>
> Select the edge of the sky blue tincture box.
>
> The copied shield is now sky blue.

During a change command, **Like** sets the property of an entity (e.g. layer, color or line style) equal to the same property of an existing entity that you select.

About the shields

The bottom window contains two types of shield. Those on the left are made of multipolies.
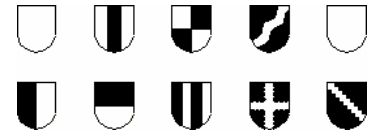
The two in boxes are composites, made up of many squares or diamonds. By changing the color of individual squares, you can create your own patterns. The shields on the right are examples of what you make.
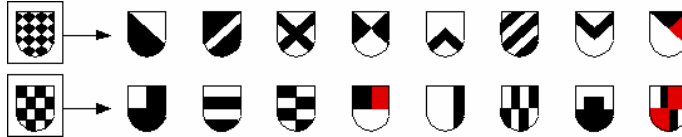
Adding the Charges

Now you've got a blank shield to work with, it's time to add the Charges from the Catalog Window.

We will place two Leopards, one above the other, using **Keep** to set their color. To fit the Leopards in the shield, we will need to change their size while placing them.

13 Click **Keep** then the edge of the gold colored box (top left tincture).

CC2 Pro sets the current color to match. The varicolor symbols in the Catalog Window also change color.

14 Depress **Snap** button to disable **Snap**.

15 Scroll down the Catalog Window and select the Leopard symbol.

The Leopard symbol attaches to the cursor. It is currently too big for two of them to fit in the shield.

16 Press ⌈CTRL⌋ while slowly moving the mouse towards you.

As you do, the symbol gets smaller. If you move the mouse away from you, the symbol gets bigger. Don't place the Leopard yet.

17 Right click.

You see the Symbol Parameters dialog box.

The values shown in the **X and Y Scale** are the result of **resizing the symbol** via the ⌈CTRL⌋ key.
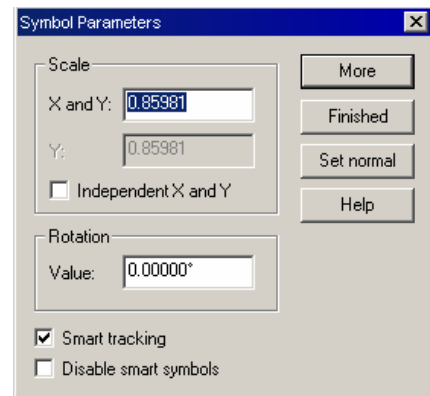
18 Type in an **X and Y Scale** value of **0.8** then click **More**.

The symbol is now 0.8 of its original size.

19 Click to place the first Leopard in the upper half of the shield.

One copy of the symbol is placed where you clicked. The same symbol is still attached to the cursor, ready to be placed again.

20 Click to depress the **Ortho** button.

The cursor is now constrained to moving horizontally or vertically from the last point you used. In this case, it is the insertion point for the first leopard. **Ortho** will ensure that the second leopard is placed directly below the first.

21 Place the second Leopard below the first.

Resizing the Symbol

To set different **X** and **Y** values, check the **Independent X and Y** box and then enter the Scale values onto each line.

If you lose track of the symbol scale, right click to bring up the Symbol Parameters dialog box then click **Set Normal.** This resets the **X and Y Scale** to **1** and the **Rotation** to **0**.

Symbol Parameters dialog box:

- Scale
  - X and Y: 0.85981
  - Y: 0.85981
  - ☐ Independent X and Y
- Rotation
  - Value: 0.00000°
- ☑ Smart tracking
- ☐ Disable smart symbols

Buttons: More, Finished, Set normal, Help
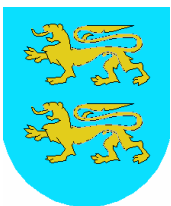
22 Right click to bring up the Symbol Parameters dialog box and then click **Finished** to complete the symbols.

A summary of Using Templates...

These are the new facts and concepts introduced during this chapter.

✓ Templates are pre-defined drawings on which you can base your new maps.

✓ **CC2** includes templates for a wide variety of applications, including heraldry and starship design.

✓ Templates are found in the Templates folder of **CC2** Pro, subdivided by their application.

✓ Templates for different applications are divided by size.

✓ You can create your own templates by modifying an existing template.

✓ You can create your own templates by starting with a blank and adding entities and elements of your choice,

Deacon Light

Design by Morgan Olden © 2001

Deacon Light by Morgan Olden

Deacon Light uses hotspots for navigation. For more information on hotspots, see *Hotspots* on page 118.

Deacon Light is available in the Profantasy Download Library.

Symbol Management and Creation

This chapter explains how to choose sets of symbols and insert symbols into your drawings. It also shows you how to create symbols of your own using.

If you still can't find the symbol you want, you can create your own. Anything drawn in CC2 Pro can be converted into a symbol.

Choosing symbols catalogs

CC2 Pro's symbols are divided by type into CC2 Pro drawings called **catalogs** and stored in CC2 Pro's **Symbols** folder with a descriptive name. In addition to CC2 Pro's pre-drawn symbols, there are extensive symbol libraries included with Dungeon Designer Pro, City Designer Pro, Symbol Set 1 – Fantasy Overland, Symbol Set 2 – Fantasy Floorplans, Symbol Set 3 - Modern and free libraries downloadable from www.profantasy.com. Some sample CD Pro and DD Pro symbols are available by right clicking their buttons on the File toolbar.

Using the Symbol Catalog Settings buttons

Right click **Symbol Catalog Settings** ⬚ to see the most common symbol settings, or left click to see CC2 Pro's complete list of symbols in the current style.

Using the Symbol Toolbar shortcuts

You can load the most frequently used catalogs, such as **Vegetation**, **Mountains** and **Structures**, by clicking their buttons on the Symbol toolbar. If there is more than one matching catalog in the current style (for example **Vegetation 1** and **Vegetation 2 in the CC2 Filled style**), both are displayed; click one to open it.

Swapping between Symbol Styles

CC2 Pro's symbol catalogs come in two basic styles, **CC2 Filled** and **CC2 Line**, and you can toggle between these styles using the **Symbol Style Toggle** ⬚. Right click to see a list of styles, left click to toggle to the next style.

Inserting Symbols from the Catalog Window

The symbol catalog window is where CC2 Pro displays symbols ready for insertion.

To choose a symbol

Click on a symbol to select it for insertion. Right-click anywhere on the Symbol Catalog to expand to a wide-screen page-at-a-time view. This is helpful for large catalogs. To shrink the full-screen back to a single column display, right-click again anywhere on the expanded catalog. In either display mode (single column or full screen), use the vertical scroll bar to see additional symbols.

Right-click

Sidebar

Symbol Catalog

Symbol catalog files store collections of symbols. They are saved in CC2 Pro's Symbols folder with a .FSC file extension. You can save any file as a symbol catalog, or create symbols catalogs by exporting symbols from the current drawing with the Symbol Manager.

Load symbol catalogs into the Catalog Window by clicking the ⬚ button or by clicking a Symbol Setting button.

Symbol catalog files are no different to normal fcw files other than they only contain symbols.

Symbol toolbar

If you can't see this toolbar click the **Screen Tools** button ⬚ and click in the Symbol toolbar check box until it is pointing up – ⬚ Symbol Toolbar.

To see a list of symbols already in the drawing

Click **Drawing** ⬚. This displays all the **symbols already added** to the drawing, in the order they were added. Click Catalog ⬚ to see the symbols in the catalog.

To insert a symbol

When you've selected your symbol, you will see a ghost image of the symbol attached to your cursor. You can:

- Press `CTRL` then move the mouse up and down to rescale the symbol cursor.
- Press `CTRL` `SHIFT` and move the mouse around to rotate the symbol cursor
- Press the arrow keys to align the symbol vertically or horizontally
- Right-click to type in an exact scale and rotation. If you want a different X and Y scale, check the **Independent X and Y** box and then enter the values separately. Click **Set Normal** to set the scale at 1 and no rotation. When you've changed the settings click **More** to add more of that symbol. CC2 Pro **remembers these settings** between symbol selections.
- Click to place it in the drawing.

To finish inserting symbols

When you've added enough of a particular symbol, you can click another symbol in the Catalog Window and begin placing your new selection. To stop inserting symbols, you can click another CC2 Pro command. Selecting a command will drop the symbol off your cursor. You can also right click, then click **Finished** to stop inserting symbols.

What happens when you use a symbol

The first time you select a particular symbol from the Catalog Window, CC2 Pro invisibly adds its **symbol definition** to the map. You can see these definitions by depressing the **Drawing** button. Thereafter, whenever you place the same symbol, CC2 Pro simply adds a reference to the definition at the location you picked.

This is very efficient because each reference only has to know its location, color, layer, scale, rotation and the name of the symbol it refers to. For the rest, it refers back to the symbol definition.

The pre-drawn "City 1" symbol contains 53 entities and occupies 3.67 k of memory. However, 10 "City 1" symbols in a map only occupy 4.97 k, not the 36.7 k you might expect. This is because each symbol reference only takes 0.13 k (10 x 0.13 + the original 3.67 = 4.97).

How symbols use layers

So long as you think of symbols as two separate bits - the definition and the reference - this is very straightforward.

Each reference is on a layer. If that layer is hidden, the whole reference is hidden.

The entities within a symbol definition are also on layers. If any of those layers are hidden, the affected entities are hidden in all references to the symbol. By convention, the **SYMBOL DEFINITION** layer is always visible, so you can safely draw entities on this layer if you want the symbol's visibility to depend solely on the visibility of the reference layer.

Symbols Added n the Drawing

The first set of symbols displayed are those used in symbol fill styles that were defined in the template.

Remembering Settings

CC2 will hold these Symbol Parameter settings for all symbol selections and placements made from here forward until you change it. If the change in scale was just for a single symbol, don't forget to right click to bring up Symbol Parameters to reset the scale when you select the next symbol.

Symbol Definition

The definition is the set of entities that CC2 Pro stores in an invisible section of the current drawing file. The **Symbol Reference** is a visible copy of the definition, which you can insert throughout the drawing.

Example layer usage in an Infantry symbol definition:	And if the symbol is inserted on the FRENCH layer, this is how the symbol reference displays with various layers hidden:
The Infantry symbol is defined using the following layers A crossed-box drawn on the INFANTRY layer: plus a Data label on the DATA layer: Data Gives a symbol definition for a typical Infantry symbol: Data When the symbol is used in a map, this symbol definition is invisibly added to the map, creating any necessary layers.	Symbol reference with all layers visible: Data
	With the DATA layer hidden but FRENCH and INFANTRY visible: The Data label is hidden.
	With the INFANTRY layer hidden but FRENCH and DATA visible: Data The infantry symbol is hidden.
	With the FRENCH layer hidden but INFANTRY and DATA visible: The layer on which the reference was inserted is hidden, so the whole reference is hidden.

Creating a symbol

I want to focus on the concepts of symbols, rather than a complex shape, so we will draw a simple Infantry symbol, suitable for wargame maps. Your symbols can be as complicated as you like.

We will create the infantry symbol so it has a background drawn in the current color when inserted. This will make it easy to distinguish between the infantry of each army.

Using CC2 Pro's Drawing commands

Up to now, you've been using CC2 Pro's drawing tools and symbols to create your maps. However, these won't do when you are creating symbols. You need CC2 Pro's selection of powerful **drawing buttons** for this. These add the basic shapes you need to build up the more complex symbols.

1   Start a new map based on the **1000 x 800 Framed** template..

2   Set the current layer depending on how you want the next entities you draw to behave when the new symbol is inserted.

3   In this case, click the **Layer** indicator, add a new layer called **INFANTRY** and set it as the current layer.

4   Insert a single mountain symbol into the map.

   The mountain gives us something with which to compare the size of the new symbol. It won't be included in the symbol.

Drawing buttons

Draw commands differ from the Map Drawing Tools commands in that they always use the properties currently set on the status bar rather than preset values. This gives you greater flexibility – but you have to keep your eye on the status bar a lot more, and use the Change buttons when you need to correct things

1000x800

CC2 Pro symbols are defined so that, with a symbol scale of 1, they are correctly sized for a 1000 x 800 mile map. You should therefore create overland symbols on this map size.

5 Change the other drawing settings as follows:

- ✓ **Line Width**   **2**
- ✓ **Fill Style**   **Solid**
- ✓ **Color**   **Black**

6 Draw a **Box** 🔲, its first corner on a grid point near the mountain, its second corner **@40,25**.

Measuring 40 units across and 25 up, the box is approximately twice as big as the single mountain.

7 Draw two lines forming a cross in the box.

To place these lines precisely, either enable **Attach** and set it to **Nearest endpoint**, or use the **Endpoint** modifier.

Varicolor entities that change color on insertion

This basic infantry symbol, a crossed box, is now drawn. To identify different armies, we will add a varicolor box in the back ground which, when the symbol is inserted, is drawn in the current color.

This symbol is simple, so it only has one varicolor entity. In your own symbols, you can have as many varicolor entities as you want.

Continued from previous instructions…

8 Change the **Line Width** setting to **0**.

9 Draw a **Box** 🔲 over the symbol.

The line width is now 0, so the center of the box is filled. The previous box has a non-zero line width, so the fill style was applied to the box outline.

The box completely obscures the rest of the symbol.

10 Click **Symbols menu** >> **Make Varicolor**.

The Command Prompt reads Select entities:.

11 Select the last box by **Prior**, then **Do It**.

The box is now varicolor. It is currently white but, when the symbol is inserted, it will be drawn in the current color. It still obscures the rest of the window.

12 Click **Send to Back** 🔳, again selecting by **Prior** then **Do It**.

The background box is now behind the rest of the symbol.

Adding attributes

Attributes are pieces of textual information attached to symbols. If a symbol includes attributes then, every time it is inserted, you will be prompted with dialog boxes asking for the values.

You can use **Symbols menu** >> **Extract Attributes** to list all attributes in a map and save it in a text file for use with other applications.

Continued from previous instructions…

13 Click **Text Specs** 🅣 and make the default **text settings Arial** font, justified **bottom-left**, height **6** and stretch **1**.

14 Select **Symbols menu** >> **Define Attribute**.

You see the Text Attribute dialog box.

Tag text is the name of the attribute that will be displayed with extracted information.

Prompt text is the dialog box prompt you will see when inserting the symbol.

Tick **Hidden** if you don't want the **attribute** to display next to the symbol.

Tick **Constant** to fix the attribute's value to the default.

Tick **Display Tag** if you want the attribute label to display, instead of the value.

15 Set the values in the dialog box as follows, then click **OK**.

✓	**Tag text**	Infantry, range
✓	**Prompt text**	Attack range:
✓	**Default value**	3
✓	**Tick boxes**	All clear

The Command Prompt reads Location:. The text is using the default text properties, which is why we set them before adding the attribute.

16 Place the attribute at the bottom right corner of the symbol.

Infantry, range

Adding control points

Control points create "smart symbols" which work intelligently with other straight-edged CC2 Pro entities in that both the symbol and the entity are aware of each other during insertion. This awareness allows the entity to automatically create cuts to accommodate the symbol, or have the symbol align or scale itself to fit cleanly.

Continued from previous instructions…

17 Click **Symbols menu** >> **Add Control Points**.

The Command Prompt reads 1st point: and then Next point:. The **positioning** of these two points is important.

18 Using **Midpoint**, place the control points at the points shown:

1 2
Infantry, range

You see the Control Points Effects dialog box:
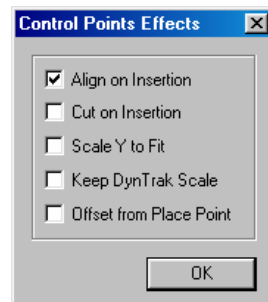
Align on Insertion means the symbol will auto-rotate to align with straight edges underneath the cursor.

Cut on Insertion means the symbol will automatically break any linear entity on which it is inserted. The break will occur at the control points.

Scale Y to Fit forces the smart symbol to resize in the "vertical" direction relative to the width of the line under the cursor. At the same time, the symbol's X scale becomes 1 – irrespective of the current symbol scale. **Scale Y to Fit** only takes effect when inserting into entities with width > 0.

Keep DynTrack Scale is used in conjunction with **Scale Y to Fit**. It forces the X scale to stay at the current symbol scale, changing the proportions of the symbol.

Offset from Place Point inserts the symbol parallel to the initial placement point and orientation. The exact placement is visually determined from the dynamic cursor. This overrides the **Cut on Insertion** check box option (i.e., offset symbols will not cut the locating entity).

19 Click **Align on Insertion** only, then click **OK**.

The <u>control vector</u> is drawn.

Defining the symbol

The symbol you have drawn contains varicolor entities, attributes and Smart Symbol control points. It's a pretty busy symbol, so you can see why I wanted to keep the shape simple!

Your symbols can be as complex or simple as you like. Symbols do not have to include control points, nor do they have to have varicolor entities and nor do they need attributes. All they absolutely need is a few entities. The rest is up to you.

Once you've created all the entities you want in your symbol, you combine them as a symbol definition.

Continued from previous instructions…

20 Select **Symbols menu** >> **Define Symbol**.

The Command Prompt reads Symbol name:.

21 Type **Infantry** then press ENTER .

The Command Prompt reads Symbol <u>origin</u>:.

22 Use the **Intersection** modifier ✕ to select the middle of the cross.

The Command Prompt reads Select entities (0 picked):.

23 Select the infantry shape, including the control points and attributes then **Do It**.

The symbol disappears! Don't worry though, it is now defined in the map as a symbol.

Click the **Drawing** button 🖼️ at the top of the Catalog Window.

The Catalog Window displays the symbols used or defined in the current drawing. The list includes any symbols placed in the drawing, any symbols used by symbol fill styles and, at the bottom, our new Infantry symbol!

Depending on the current color, the symbol probably looks like a black blob

24 Select another current color instead of black.

Oh the joy of varicolor!

Using the Symbol Manager

The Symbol Manager lets you define, clone, edit, delete, export, import and manipulate symbol definitions and references.

Making new symbols available as a catalog

You can export symbols from your maps to create new catalog files. The symbol you made can form the basis of a new catalog

Continued from previous instructions…

25 Click **Symbols menu** >> **Symbol Manager**.

You can see a list of symbols, used in the template's symbol fill styles.

26 Select all the symbols other than the infantry symbol you have created, by clicking each in turn while holding CTRL down.

27 Click the **Delete** button.

All the other symbols in the drawing are deleted.

Control Vector

It will not display in the inserted symbol. To edit the control point settings, use **Edit** and click on the control vector.

Symbol Origin

The symbol origin will be the insertion point for copies of the symbol. The point you choose depends on how you will normally pick the point to place the symbol. For the infantry symbol, I would pick the intersection of the cross.

28 Click **Save As Catalog.** Type **military** and add the new catalog to the **Symbols\Other** folder.

Cloning and editing symbols

You can easily edit the symbol definitions in any catalog or map. After you have edited a symbol, any references to it (in the current map) will show the edited definition. If you want a new symbol similar to an existing one, you can clone the existing symbol then edit it.

1   Click **Open** 📂 then select **military.fsc** from CC2 Pro's **Symbols\Tutorials** folder or you may use the catalog created in the previous section that was saved to the **Symbols\Other** folder. (You may need to set the file type back to CC2 Pro FCW drawing.)

  The tutorial catalog loads.

2   Click **Symbols menu** >> **Symbol Manager.** Click on the **Infantry** symbol to highlight it.

3   Click the **Clone** button. Type **Armor** as the name for the new symbol.

  CC2 Pro has created a copy of the symbol with the new name.

4   Click the **Edit** button. Click two points in the view area to form an editing window for the new symbol.

  We are going to erase the diagonal lines and replace them with the standard armor symbol.

Snap

To draw the shape accurately and symmetrically, we'll make use of CC2 Pro's snap grid. This makes your mouse clicks snap on to a predefined grid.

5   Click **Erase** ✏️. Click the two crossing lines, right click, **Do it**.

6   Click **Info menu** >> **Distance**. Click points at each end of the symbols.

  The symbol is sixty miles across, so a grid with <u>snap</u> points about 5 miles across would do the trick.

7   Right-click the <u>Snap</u> button. As you can see, there isn't a suitable grid, so we'll add one.

8   Click the **Edit** button. Type the values in as shown. Click **OK**.
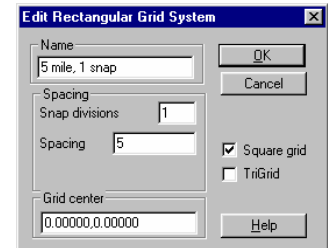
9   The color, line style and fill style should all be set up correctly in the example, but for this exercise, click the indicators on the Status Bar to ensure that the following are correctly set:

  ✓ **Color** is **Black**
  ✓ **Line** style is **Solid**
  ✓ **Fill** Style is **Hollow**

Arc

The standard arc is a 3-point bulge – that is you draw the ends, then stretch the arc to the position you require.

10 Click **Line** ✏️. Click points 1 and 2 as shown in the diagram (the line is 4 grid points from the left and right edges.) Right click to finish this line, then click to repeat the line command.
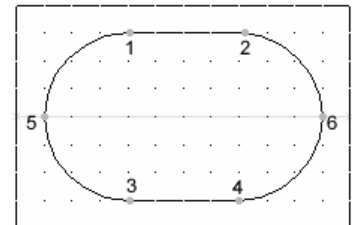
11 Add another line, clicking points 3 and 4. Right click.

12 Click **Arc** 🖊️. Click point 1, then point 3, then point 5. Click to repeat then click points

2, then 4, then 6.

13 Click **Edit** . Click on the base line of the Infantry, Range text attribute. Change the **Tag Text** to read **Armor, Range**, and the **Default Value** to **5**.

14 Click **Change Layer** , right-click **All**, right-click, **Do it**. Right click to see the Layer dialog, click **Add**, type **Armor**. Click **OK**.

15 Close the window by clicking the , save changes, then close the Symbol Manager. Save the drawing.

   Your symbol catalog has been updated.

Symbol Manager Summary

The Symbol Manager lets you control all aspects of symbol design and catalog manipulation. It lists all the symbols in the current drawing, including those used to make symbol fill styles.

To see the Symbol Manager, click **Symbol Manager** on the **Symbols menu**.

Select **Show Fill Style** symbols if you want to see all the symbol definitions included in symbol fill styles.

Select **Display Symbols** to see a visual display of the symbol definitions.

To save the **symbol list** as a catalog, select symbols with CTRL SHIFT and the mouse, then **Save as Catalog**.

To create a new symbol definition with **New**.

1 Type a name for new symbol.

2 Click two points to form a drawing window.

3 Add CC2 Pro entities.

4 Close the window.

To **Rename** an existing symbol

1 Select the symbol you wish to rename in the symbol list

2 Click the **Rename** button.

3 Type a unique new name.

To Edit an existing symbol

1 Click two points to form a drawing window.

   Use CC2 Pro's drawing and editing commands to change the symbol..

2 **Close** the window

Clone an existing symbol. Creates a copy of an existing symbol definition with a new name. Usually, this copy is then edited.

Delete an existing symbol definition, or selection of symbol definitions. It will remove all the symbol references from the drawing, too, so be careful.

Scale an existing symbol definition, or selection of symbol definitions. This affects all existing symbol references, and any you add in the future. Use **Symbols menu** >> **Scale Symbols In Map** to scale existing references without changing the definitions.

List the entities in a symbol definition. Click to save the list as a text file or print it.

Move Up and **Move Down** the order in which symbol definitions are displayed in the catalog window.

Symbol List

If **Show symbol fill style** symbols is not selected fill style symbols will not be included.

Move Up and Down

If you have Character Artist Pro, you can use the Catalog menu utilities to rename and reorder you symbols in a text editor. See **Rename and Reorder** on page 186

This is much quicker than using Move Up and Move Down to reorder symbols, particularly if you have a disorganized catalog.

Replace all references in the drawing to one symbol definition with another. It does not affect symbol definitions.

Purge all unused symbol definitions from the drawing, saving space.

Import symbol definitions from another file. Click the **Files of Type** list to choose drawing type from which to import symbols, usually another drawing (FCW) or catalog (FSC)

Convert a selection of existing CC2 Pro files into symbol definitions in the current drawing.

Managing Symbol Catalogs

You can always access symbol catalogs directly by clicking the **Catalog** button, but CC2 Pro offers you a much easier way to manage your catalogs with Symbol Catalog Settings. You can use these to set the layer and other properties for catalogs, and also swap between different styles of symbols

You've already used these without needing to know their intricacies. This section explains how to add your own symbol catalogs to those available.

Swapping between styles

CC2 Pro comes with two styles of symbols, CC2 Filled and CC2 Lined. Each CC2 Filled catalog has an equivalent CC2 Lined catalog. If you have additional symbol sets, you will see additional styles.

1   In CC2 Pro, rather than an add-on, click **Symbol Catalog Settings**.
     You can see a list of catalogs.

2   Scroll down the list.
     Notice that all the settings start with "CC2 Filled"

3   Click **Symbol Style Toggle**. Click **Symbol Catalog Settings** again.
     The symbols are not filled, and the settings start with **CC2 Line**.

4   Type **co** into the **Catalog Settings Filter**, then click **Find Now**.
     CC2 Pro lists only those settings that include the letters **co**.

5   Click **Advanced**.
     Note that the Master **Filter** is **CC2 Line**.

6   Type * in the Master filter then click **Find Now**. Scroll down the list.
     You can see all the available settings, including those for add-ons if you have them installed. This includes CC2 Pro Monochrome symbols.

7   Right click **Symbol Style Toggle**. On the **popup** menu you can see the various styles available. Click **CC2 Filled**.
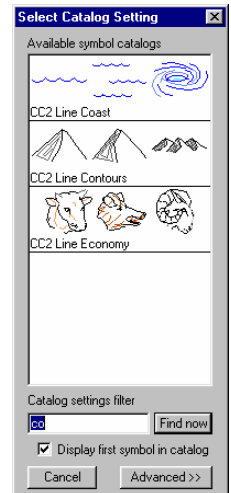
When you click a symbol button, CC2 Pro just sets the Catalog settings filter, and either opens the catalog or displays a choice of catalogs if there is more than one match. For example, if you have CC2 Filled style set, and you click Vegetation, you get a choice of Vegetation 1 and Vegetation 2. CC2 Pro remembers the current filter, and when you swap styles, opens the catalog in the new style. Because there may only be one matching catalog, CC2 Pro strips off any trailing numbers, or comma and their trailing text.

Symbol Catalog Settings Properties

Symbol Settings don't just open a catalog. They can also set appropriate properties for the catalog. These properties are persistent.

8   Click each of the symbol buttons in turn. Notice that the layer changes for each one.

9   Click **Symbol Catalog Settings**. Click **Advanced**. Scroll down the list of symbols and click **CC2 Filled Heraldic Charges**.

Symbol Style Toggle

This swaps between any installed symbol styles, opening the catalog, if there is only one matching, or displaying the choices in that style if there are more than one.

Filters

First, CC2 Pro applies the Master Filter, which is used to define CC2 Pro's styles, then it applies the Catalog Settings Filter to show only appropriate settings.

For example, if you have selected CC2 Filled as the current style, and you click Symbol Catalog Settings the filter displays all catalog settings whose names begin "CC2 Filled". (The Catalog Settings filter is * in this example)

If you choose a particular symbol catalog setting button, the catalog setting filter is set appropropriately. Let's say the current symbol style is CC2 Filled. You select Coast/Sea. The catalog settings filter is Coast. There is only one catalog setting which matches the filter (CC2 Filled Coast), so it is opened automatically.

Where there is more than one matching catalog setting (try CC2 Filled Vegetation), you'll get a choice.

Pop Up Menu

This popup menu is especially useful if you have additional CC2 Pro symbol sets installed.

10   Click the **Properties**.

Use **Current Properties Throughout** is set – this means that when you select this setting it just opens up a catalog, it does not set properties.

Click **OK**. Click **CC2 Filled GM only**, (the setting above), then click **Properties**.

- ✓ **Color** is set to the current color
- ✓ **Width** is set to the current width
- ✓ **Fill style** is set to **Solid**
- ✓ **Line style** is set to **Solid**
- ✓ **Layer** is set to **GM Only**
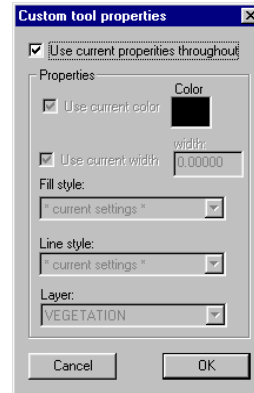
Adding a new setting

Adding a new catalog setting is easy. Let's add the military catalog we made earlier.

11   Click **Symbol Catalog Settings** 🖼. Click **Advanced**. Click **New**.

CC2 Pro is asking for a name for the **new setting**.

12   Type **CC2 Filled Military**. Click **OK**. Click Browse. Double Click the **Symbols/Other** folder. Double click **military.fsc**.

13   Click **Properties**. Uncheck **Use Current Properties Throughout**. Set the properties as follows:

- ✓ **Color** is set to the 135.
- ✓ **Width** is set to the current width
- ✓ **Fill style** is set to **Solid**
- ✓ **Line style** is set to **Border**
- ✓ **Layer** is set to **BORDERS/POLITICAL**

Military is a varicolor catalog, so setting the color to gold reminds you of this when you open this setting. **BORDERS/POLITICAL** seems to be the best layer, but you could add a **MILITARY** layer and change the setting to this. If a layer or other property does not exist in the current drawing, this setting appears blank, and it is not set.

14   Click **OK**. Click **Save**.

15   Click **New**, type **CC2 Line Military**, **OK, OK**.

This has added an identical symbol setting for the CC2 Line symbol style.

The text equivalent of the Symbol Settings command is **DRAWICONM**. Press ENTER , then type the Catalog Settings filter. This is most useful when designing menus.

Shaded Varicolor Symbols

Shaded varicolor is an easy way to have custom symbols for your drawings. As we've seen, varicolor takes a single color that you've selected in the color palette and applies it to entities in a symbol. shaded varicolor allows us to take, not only one color, but a range of shades of a color and apply them to a symbol.

Creating an SVC Symbol

Let's create a shaded varicolor symbol and we'll see how this works.

1   From the **CC2Pro** menu 📒, click **New** 🗋 then scroll down the list and select **Blank Map Catalog.FCT**.

New Setting

If your symbol setting doesn't really fall into either category (filled or line) it's better to save a setting for both styles, so that it shows up when you toggle between styles.

Blank Templates

A blank template isn't one in which we've simply erased the visible entities. A blank template has no symbols pre-added to it such as symbol fills. By starting with a blank template, we can create symbols and catalogs without clutter.

Blank templates can be identified by the dark green view color.

2   For ease in demonstrating, I'm going to change the view color. From the **View** menu, select **View Window Color**. Type **255** then ENTER .

The key to shaded varicolor is the layers. What we're going to do is create layers that will define how many shades away from a base color we want the entities to be. Our base color will be the **VARICOLOR0** layer. Let's create that first.

3   Click the **Layers** indicator L: SYMBOL DEFINITIO , then click **Purge Unused**. Click **Add**. Type **VARICOLOR 0**, then click **OK**. Select **VARICOLOR 0** as the current layer, then click **OK**.

We're going to pick bold colors for our symbol construction. That will make this demonstration easier to follow, Don't be concerned about the colors, though. Our symbol, when it is placed in a drawing, will have nice shading.

4   Set your indicator bar to match this

	P:0.000 mm	W: 0.00000	L: VARICOLOR0	LS: Solid	FS: Solid

We're going to make a simple marker to demonstrate the shaded varicolor.

5   Click **Circle** ⊙. Type **20,20** ENTER then type **40,40** ENTER . Click **Zoom Extents** 🔍 to find your circle.

6   Click the **Layers** indicator L: VARICOLOR0 , then click **Add**. Type **VARICOLOR+2**, then click **OK**. Select **VARICOLOR+2** as the current layer, then click **OK**.

7   Set your indicator bar to match this

	P:0.000 mm	W: 0.00000	L: VARICOLOR+2	LS: Solid	FS: Solid

Color: 151, L: VARICOLOR+2, LS: Solid, FS: Solid

8   Click **Circle** ⊙. Press ENTER to accept the starting values of 20,20 then type **30,30** ENTER .

We now have a red bull's eye on a yellow circle. The color is not important. What is important is what layer each entity is on.

9   Click the **Layers** indicator L: VARICOLOR+2 , then click **Add**. Type **VARICOLOR-2**, then click **OK**. Select **VARICOLOR-2** as the current layer, then click **OK**.

10   Set your indicator bar to match this

	P:0.000 mm	W: 0.00000	L: VARICOLOR-2	LS: Solid	FS: Solid

Color: 109, L: VARICOLOR-2, LS: Solid, FS: Solid

11   Click **Box** ☐. Type **-10,-10** ENTER then type **50,50** ENTER .

12   Click **Send to Back** 🔁 then right click. Select **Prior**, then right click, **Do It**.

13   Set your indicator bar to match this

	P:0.000 mm	W: 0.00000	L: SYMBOL DEFINITIO	LS: Solid	FS: Solid

Color: 0, L: SYMBOL DEFINITION, LS: Solid, FS: Solid

14   Click **Box** ☐. Type **-15,-15** ENTER then type **55,55** ENTER .

15   Click **Send to Back** 🔁 then right click. Select **Prior**, then right click, **Do It**.

Now we have a marker. We need to define it as a symbol.

16   Type **DEFSYMD** ENTER

Select all entities that make up our new symbol. In the Define New Symbol window, select **Center, Middle** for the origin. In the Name box, type in a **name** appropriate for your symbol. Click **OK**.

17 From the Symbols menu, select **Symbol Manager**.

18 Select our marker symbol, then click **Edit**.

Open an Edit window.

19 From the **Symbol** menu, select **Add Symbol Info**.

In **General Options**, click to put a check in the **Varicolor Symbol** box, then click **OK**.

20 Close the Edit window and save on exit.

21 From the **Symbols** menu, select **Symbol Manager**.

Click **Save As Catalog**. Type in an appropriate name for your catalog, then click **Save**.
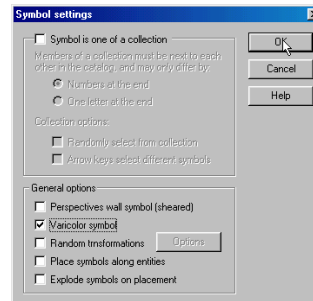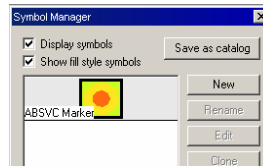
When our new marker is **added** to a drawing, it will take the selected color, two steps lighter as a highlight and two steps darker as a base and apply them in our symbol.

Notes for Shaded Varicolor Symbol Creation

✓ When creating shaded varicolor symbols, the colors you use for the shades aren't important. The important construction components are the **layers** on which you put each entity.

✓ All entities, including outlines that are not part of the shaded varicolor need to be on the **SYMBOL DEFINITION** layer. Entities on the varicolor layers will change color according to the current color selected.

✓ The Symbol Settings varicolor tickbox must be checked for each symbol in order for the shaded varicolor to work correctly in the drawings.

Converting an Existing Symbol to Shaded Varicolor

Now that we've seen how easy shaded varicolor is to work with, let's take a symbol out of an existing symbol catalog and convert it.

Before we alter any catalogs, we'll make a copy of it and use the copy as our working catalog. Go into *Windows*® Explorer and navigate to **CC2**>**Symbols**>**Maps**>**Filled**>**Relics.fsc**. Make a copy of it. Mine is named **Copy of Relics.fsc**.

1 Click **Open** 📂. In **Files of Type**, open the drop down menu and select **CC2 FSC Symbol Catalog**, then navigate to our newly made **Copy of Relics.fsc**. Select the catalog, then click **Open**.

2 In the **Symbols** menu, select **Symbol Manager**.

3 Scroll down to **Shield 4**, Select **Shield 4**, then click **Edit**. Open an Edit window.

Before we can make this symbol into a shaded varicolor symbol, we need to identify the colors.
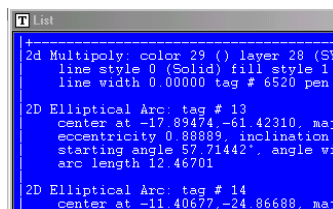
Name

Symbol names need to be unique within the same drawing. Instead of naming the symbol Marker, try to be a little descriptive. For example, you can use your initials as the name Prefix and then be a little descriptive, such as SVCMarker. Being attentive when naming your symbols will reduce the likelihood of encountering an identically named symbol.

When you successfully define a symbol it will disappear – this is normal! It means CC2 Pro has moved the symbol into the Symbol Definition area of the drawing

Added

When you place a shaded varicolor symbol in a new color, a symbol definition is added to the drawing called <symbol name> C<color number> All the colors are added to a new drawing layers called **VARICOLOR**. For example, if you placed a varicolor shaded symbol called Bed, and the current color was 168, a new definition called Bed C168 would appear at the bottom of the drawing symbol list.

Layers

CC2 Pro looks at the layers in the symbol and displaces the color according to the layers. The main color used for the **VARICOLOR** layer will be the current color. The other colors in the scheme will be selected from either side of the color on the color palette. If there is no sufficiently dark color, black will be substituted, if no light color then white will be used. When you use colors 0 to 30, the shaded colors will be displaced from the nearest matching color on the palette.

4   In the **Info** menu, select **List**. Right click. Select **All**, then right click, **Do It**.

If you scroll through the List, you'll find that the colors used are **0** (black), **29** (beige), **134**, **137**, and **138** (golds), and **168** (red). We want to leave the black, beige, and red entities alone. The entities that are gold will be made into shaded varicolor.

5   Click **Change Layer** 🖫 then select all the entities that make up the shield. Right click, then scroll down to **Combine**. Select **And** then right click. Select **Color**. Type **134** `ENTER` then right click, **Do It**. Click the **Layer** indicator `L: GAME MASTER ONI`, then click **Add**. Type **VARICOLOR-3**, then Click **OK**. Select **VARICOLOR-3** as the current layer, then click **OK**.

That moved all the entities that are color 134 onto the **VARICOLOR-3** layer. Let's move the other gold entities now.

6   Right click to repeat **Change Layer** then select all the entities that make up the shield. Right click, then scroll down to **Combine**. Select **And** then right click. Select **Color**. Type **137** `ENTER` then right click, **Do It**. Click the **Layer** indicator `L: VARICOLOR-3`, then click **Add**. Type **VARICOLOR0**, then Click **OK**. Select **VARICOLOR0** as the current layer, then click **OK.**

7   Right click to repeat **Change Layer** then select all the entities that make up the shield. Right click, then scroll down to **Combine**. Select **And** then right click. Select **Color**. Type **138** `ENTER` then right click, **Do It**. Click the **Layer** indicator `L: VARICOLOR0`, then click **Add**. Type **VARICOLOR+1**, then Click **OK**. Select **VARICOLOR+1** as the current layer, then click **OK.**

All the gold entities have been **moved** to their respective layers, but in order for the varicolor layers to work, we still need to set the varicolor bit. Let's do that now.

8   From the **Symbol** menu, select **Add Symbol Info**.
     In **General Options**, click to put a check in the **Varicolor Symbol** box, then click **OK**.

9   Close the Edit window and save on exit.

10 Click **Save**.

When you open the **Copy of Relics.fsc** in the Symbol Display column, you'll see the color square in the corner of the Shield 4 window. This designates it as a shaded varicolor symbol.

Notes on Editing Existing Symbol for Shaded Varicolor

✓   Any time you edit a symbol catalog, it is always a good idea to make a copy of the original catalog and then use the copy as your working catalog.

✓   Use **List** to find the color of all the entities that you want to convert to shades, then move those entities to the respective shaded varicolor **layers**.

Symbol Settings - Add Symbol Info

While doing the shaded varicolor symbols, we touched briefly on features in the symbol settings window. Let's explore more of those features.

One of a Collection

Symbols put into a collection will be grouped together in expandable clusters in the Symbol Display window. This works well when you have to navigate large catalogs of related symbols. Let's open that **Copy of Relics** catalog we made in the shaded varicolor section and see how these collections work.

1   Click **Open** 📂. In **Files of Type**, open the drop down menu and select **CC2 FSC Symbol Catalog**, then

---
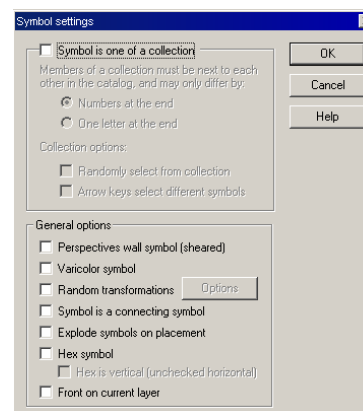
Moved

All the entities we didn't move will remain on the **SYMBOL DEFINITION** layer. Those entities will remain the color that they are now.

SVC Layers

These are all valid varicolor layer names:

VARICOLOR-4

VARICOLOR-0

VARICOLOR+0

VARICOLOR0

VARICOLOR3

VARICOLOR+3

Add Symbol Info

Each individual symbol definition can have its own symbol settings. The symbol settings must be set in a symbol editing window, for example when you use New or Edit in the Symbol Manager (see page 71).

navigate to our **Copy of Relics.fsc**. Select the catalog, then click **Open**.

2   In the **Symbols** menu, select **Symbol Manager**.

3   Scroll down to **Shield 1**, Select **Shield 1**, then click **Edit**. Open an Edit window.

4   From the **Symbol** menu, select **Add Symbol Info**.

> Click to put a check in the **Symbol is one of a Collection** box. Put a bullet in the circle for **Numbers at the End**, then click **OK**.

5   Close the Edit window and save on exit.

We started a collection with that shield symbol. Let's add the other two shields to the collection.

6   In the **Symbols** menu, select **Symbol Manager**.

7   Scroll down to **Shield 2**, Select **Shield 2**, then click **Edit**. Open an Edit window.

8   From the **Symbol** menu, select **Add Symbol Info**.

> Click to put a check in the **Symbol is one of a Collection** box. Put a bullet in the circle for **Numbers at the End**, then click **OK**.

9   Close the Edit window and save on exit.

10   In the **Symbols** menu, select **Symbol Manager**.

11   Scroll down to **Shield 4**, Select **Shield 4**, then click **Edit**. Open an Edit window.

12   From the **Symbol** menu, select **Add Symbol Info**.

> Click to put a check in the **Symbol is one of a Collection** box. Put a bullet in the circle for **Numbers at the End**, Leave the check in the varicolor symbol box. Click **OK**.

13   Close the Edit window and save on exit.

14   Click **Save** .

When you open **Copy of Relics.fsc** in the Symbol Display window, you'll see a + in the corner of the first shield. Clicking on the + will expand the collection.

Note that the numbers at the end of the symbol names were not sequential. The base name of the symbol must be the same--in our case, all our symbols were named Shield. The collection simply looks for a number at the end of the name. We could do the same thing with letters at the end of the symbol name instead of number. If we have more than 9 Shields, we can name them Shield a, Shield b, Shield c, etc. and put the bullet in the circle for **One letter at the end**.

Collection Options

- **Randomly select from a collection**: With this option bulleted, symbols will be randomly selected out of the collection during placement. This feature works well, for example, for placing different trees to make more visually interesting forest without having to scroll through the catalog and manually select each different tree symbol.
- **Arrow keys select different symbols**: With this option bulleted, symbols from a collection can be selected by scrolling through them using the arrow keys. This feature works well for selecting symbols out of Perspectives Pro symbol catalogs.

Perspectives Pro Wall Shearing

This option is only set for Perspectives Pro wall symbols. It causes the symbols to shear (project) when they align to a wall so they align correctly in the Perspectives Pro isometric view.

Random Transformations

Symbols set with this bit selected and the Options entered will place consecutively with random offset, rotate, scale, mirror or sheer properties.
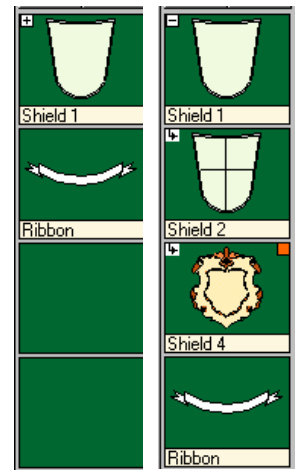
Symbols

If you have many symbols to define, you can copy the symbol information between each symbol definition via the clipboard. When you are editing the symbol definition and have added the symbol information, on the Edit menu, click Copy. Select by type XP entity (this will select the symbol info entity). When you edit the next symbol, paste at 0,0.

Offset: By selecting this feature and entering values, the symbol will randomly offset within its parameters on consecutive placements.

Rotate; By selecting this feature and entering values, the symbol will randomly rotate within its parameters on consecutive placements.
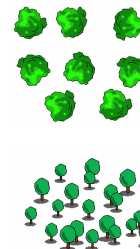
Scale: By selecting this feature and entering values, the symbol will randomly scale within its parameters on consecutive placements.
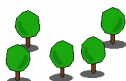
Mirror: By selecting this feature, the symbol will randomly mirror itself on consecutive placements.

Sheer: By selecting this feature and entering values, the symbol will randomly sheer within its parameters on consecutive placements.
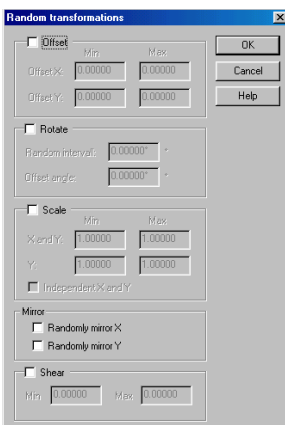
Symbol is a connecting symbol

Symbols set with this bit will allow you to drag them along in a path. By using specifically constructed symbol catalogs, symbols can be placed in straight or curving patterns to create walls, rooms and corridors as easily as drawing a path.
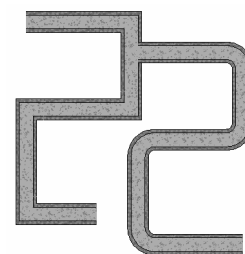
Explode symbols on placement

When symbols are set with this bit, they will automatically be exploded on placement.

Hex Symbol

Symbols set with this bit will allow easy placement in a hex grid.
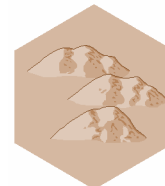
Front on current layer

When symbols are set with this bit, they will front on the current layer.

Advanced Symbol Creation

Some of the innovative features added to CC2 Pro utilize advanced symbols. Some of these features were touched upon in *Symbol Settings - Add Symbol Info* on page 76. Let's explore them in more depth here.

Creating Connecting symbols

Now that you understand the **fundamentals** of creating symbols in CC2 Pro, we will discuss creating connecting symbols. **Connecting symbols** join together to create a seamless chain. These symbols are extraordinarily versatile and, with them, we are able to rapidly create highly detailed roads, rivers, railways, battlements, boundaries, buildings, etc. The list of potential uses is endless.

Naming the symbols

Straight symbols are named with the **symbol's root name** followed by a number in sequence (e.g. "symbol 1", "symbol 2", etc).

Bend symbols are named to include the

Fundamentals

Creating connecting symbols is an advanced feature of CC2 Pro. These instructions assume you have a good grasp of CC2 Pro.

Connecting Symbols

You can identify connecting symbols in the symbol catalog because they have a small C in the top-right corner of each symbol.
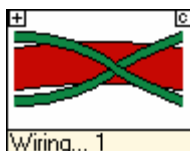
Symbol's Root Name

Even if there's only one straight symbol, the number must be present. Sometimes the length is included in the name as well. See **Symbol Length** below.

angle of bend and the length of the bend arm within square brackets with each value separated by a colon. If there's more than one symbol for the same angle and length, a number goes after the brackets. The bend angle is measured anticlockwise from 3 o'clock. The **symbol shown** here could be named "dash dot [45:10]".

Symbol origin

Symbols flow from left to right. For straight symbols, the symbol origin is the leftmost point (normally the midpoint of the left hand edge). For bend symbols, the symbol origin is the center of the angle.
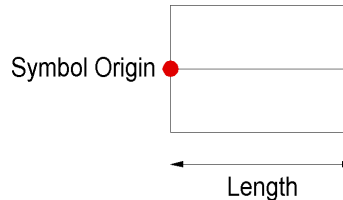
Symbol length

Unless the length is included in the symbol name, CC2 Pro finds the length of a straight symbol from its x extents (its maximum horizontal width). There **must** be a straight symbol with a length equal to the shortest bend length. So, for our dash dot symbol, there must be a **straight symbol** length 10. If bend symbols have different arm lengths, there must also be straight symbols equal to each difference in length. In that same vein, if you have bend lengths of 2.5 and 3.25 (a very bad idea), you'd need straight lengths 2.5 and 0.75.

Other symbol lengths are optional, but knowing how CC2 Pro chooses and uses symbol lengths is useful to creating efficient symbol sets. CC2 Pro uses a variant of the Greedy algorithm for choosing symbols. At each choice, it picks the longest symbol that will fit. By defining symbol collections carefully you can give them the Greedy Choice property, which means the first choice will always be the most efficient. By choosing lengths badly you can give CC2 Pro a much harder time. You'll still get a string of connected symbol, but CC2 Pro end up using more symbols than it if you choose lengths wisely.

Building a straight section using a Greedy Choice set of symbols

This set has symbols with **lengths** 100, 50, 20, 10, 5, 2 and 1. (Same as coin values because, oddly enough, most banks use Greedy Choice to decide coin values.)

When you click points to make a straight section, at each choice CC2 Pro picks the longest symbol that will fit. For example, a 196' straight section would use 100 + 50 + 20 + 20 + 5 + 1. This is the most efficient possible choice. CC2 Pro then randomizes the order in which symbols are used, so this example may come out: 5 + 50 + 100 + 20 + 1 + 20.

Building a straight section using a Bad Choice set of symbols

A Bad Choice set may be necessary for other design considerations, such as pipe bends that have to be 2.5 long to fit a corridor. In a Bad Choice set, the greedy choice might not work first time around. If this happens, CC2 Pro goes back removing big pieces until a smaller one can be placed. For example, if you had a tube catalog with pieces 5, 2.5 and 1 long, and you draw a length of 14 the algorithm will:

Take 5 (rest is 9)
Take 5 (rest is 4)
Take 2.5 (rest is 1.5)
Take 1 (rest is 0.5 – doesn't work)
Remove 5 (rest is 5.5)
Take 2.5 (rest is 3)
Take 2.5 (rest is 0.5 – doesn't work)
Remove 5 (rest is 5.5)
Take 2.5 (rest is 3)

Symbol Origin ●   Length

Symbol Shown

If there were two similar symbols, they would be "dash dot [45:10] 1" and "dash dot [45:10] 2"

Straight Symbol

If this symbol is missing, the usual symptom is that the first and last segments do not draw.

Lengths

The shortest length defines the cursor snap. In this example, the cursor snap will be 1.

Result

Notice that the result is much shorter lengths, and not as efficient as it could be; but we get the job done.

Take 2.5 (rest is **0.5** – doesn't work)

Remove 2.5 (rest is 3)

Take 1 (rest is 2)

Take 1 (rest is 1)

Take 1 (rest is 0 - hurray)

You get 2.5+2.5+2.5+2.5+1+1+1+1 as a **result**.

Drawing a straight symbol with a seamless connection

Seamlessly

The easiest way to draw precisely is to use the grid and CC2 Pro's precision drawing tools.

Some symbols, e.g. a railway track, need to join **seamlessly**. For this to happen, the rails must meet each edge of the symbol at the same vertical (y) point.

15 Pick a garish color, such as purple (color #7) and then draw a construction line from (**0,0**) to the desired symbol width, e.g. **@10,0**.

16 Draw a construction line, midpoint (**0,0**), for the left hand edge of the symbol.

17 Use construction lines to mark the position on the left-hand edge of any features that connect from symbol to symbol.

Wiggly line starts here

(0,0)

Mirror Line

Use **Ortho** to easily make the mirror vertical.
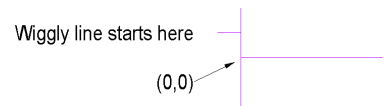
Mirror line

18 Create the right hand edge by mirror copying the left hand edge (complete with construction lines). The **mirror line** is a vertical line, starting at the midpoint of the symbol width.
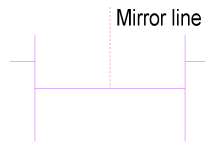
19 Add the detail. No matter how complicated the detail is, the symbol will connect seamlessly provided that it meets each edge at the same vertical point.

Drawing a bend symbol with a seamless connection

As with straight symbols, the key to getting this right is good construction lines and mirroring the edges so they connect correctly.

20 Draw a construction line from (**0,0**) to the left-hand edge of the symbol, e.g. **@ -10,0** (that's @ minus 10, 0).

21 Draw a construction line for the left hand edge of the symbol.

22 Use construction lines to mark the position on the left-hand edge of any features that connect from symbol to symbol.

23 Create the right hand side by mirror copying the left side with a mirror line that bisects the angle. The bisecting angle is

Wiggly line starts here

(0,0)

105°

Wiggly line starts here

(0,0)

30°

Second

< is CC2 Pro's notation to say "an angle and length follows". In the case of a mirror line, the length is unimportant provided it is not zero. 10 just trips off the fingers.
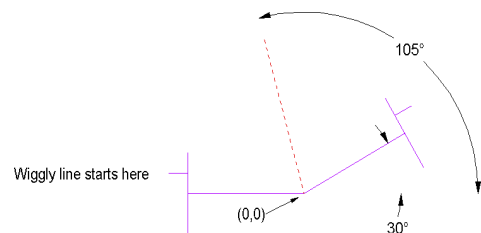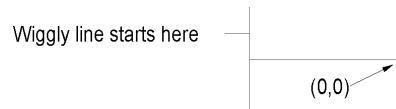
simply 90 + half the bend angle so, for a 30 degree bend, this is 90 + 15 = 105 degrees. To input this mirror line, type **0,0** for the first point, then **<105,10** for the **second**.

24 If the symbol is for a smooth curve section, e.g. a road or a railway, it is usually better for the curve to encompass the whole symbol. This allows different bend angles to join smoothly. To draw these curves accurately you need to know its **center**.

25 To draw the arcs, right-click the **Arc** and then choose **Center, Start and End** method. Draw anticlockwise.

Variable bend angles

If a symbol set has no bends defined, it is assumed that it can bend by any angle at any node. An example would be telegraph wires, where the wire goes from pole to pole, and can bend any amount at any pole. So the simplest connecting set could be "Telegraph 1".

It is also possible to define a bend symbol that works at any angle. An example use would be a castle tower, where the castle walls can join the tower at any angle. These are **named**: Symbol Name[*:length]. A 20' radius tower, for example, could be Tower[*:20].

You can combine variable and fixed angle symbols in the same set. If the tower set included Tower[90:20], and you drew a bend *exactly* 90 degrees (e.g. via the grid), the [90:20] symbol would be used. If your bend was 90.5 degrees, the [*:20] symbol would be used.

Completing the symbol

It's normally a good idea to draw the entire connecting set of symbols side-by-side. This allows you to copy and reuse existing detail easily and to check for correct tiling, color matching, etc. Once the set is complete they can be defined similar to regular symbols, but with the addition of the connected Symbol Info bit.

26 Erase any construction lines

27 For each symbol use **Define Symbol** from the **Symbols** menu. Type the symbol name (using the rules above), then pick the symbol origin (mid-left edge of a straight symbol or the bend point of a bend symbol) and finally pick the entities for the symbol.

28 Use the **Symbol Manager** to edit each symbol and set it up as a connecting symbol. Do this by clicking **Edit** and then pick points for an edit window.

29 Click **Add Symbol Info…** from the **Symbols** menu and then select the **options** **Symbol is one of a collection** and **Symbol is a connecting symbol**.

30 **Save** on exit. After all the symbols have had the **Info** bits added, **Save** the catalog.

Gaps and Overlaps

If you want a gap between symbols, you have to fake the width of the symbol to be greater than it actually is. There are two easy ways to do this.

- You can add (non-drawing) control points to the desired width with no options set.

- You can force the symbol width by adding it to the symbol name in square brackets. An example name using forced length is: TestSym[70]4. You can then draw the symbol

symbol origin

Center

Find the center from the intersection of the two end pieces. Mark this point with a circle so you can easily snap to it (**F4** is snap to center point).

Named

The * indicates any angle, the length can be 0 or greater.

Options

Do not select "Randomly select from collection" as this interferes with CC2 Pro's calculations to decide which symbol to use.

however you like (wider than **70**, and/or using negative x values), and it will insert as if it is **70** wide.

If you want overlapping symbols, i.e. where the second symbol starts before the end of the first, you have to use option 2, the named width.

Hex Symbols

Hex symbols allow you to create maps with solid filled hexes quickly and easily. Currently only Cosmographer utilizes hex symbols, but you can make **your own** for any genre you wish.

To create hex symbols

1   Open a blank template such as Map Blank Catalog.FCT.

2   Click **Hex Grid** ☼. Check the **Set Hex Grid** option and then select **Centers**, **Corners**, and **Midpoints**. Draw a grid large enough to provide you with enough hexes to draw each of the intended symbols.

3   Freeze the **HEX/SQUARE Grid** layer, and then make the **SYMBOL DEFINITION** layer current

4   Zoom into a single hex. Create a symbol which fills the entire hex. You may **add symbols** from existing catalogs in the center of the hex if you wish.

5   Draw all the hex symbols you wish to have in the catalog.

6   Once all the symbols have been drawn and their elements placed on the **appropriate layers**, click the **Layers** indicator, then click **Purge Unused** to purge the unused layers from the drawing.

7   From the **Symbols** menu select **Define Symbols** to **define each symbol** in turn. Use a middle, center origin.
    Repeat to define all the symbols on your template.

8   From the **Symbols** menu, open **Symbol Manager**. Select a symbol, then click **Edit**. Click two points to open an edit window.

9   From the **Symbols** menu, select **Add Symbol Info**. Check the **Hex symbol** bit.

10 Close the edit window and save on exit.
    Repeat steps 8 and 9 for all symbols in your catalog.

11 From the **Symbols** menu, open **Symbol Manager**. Select **Save as Catalog**. Name your catalog appropriately and then **Save**.
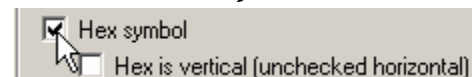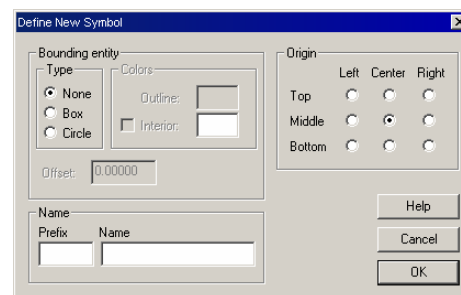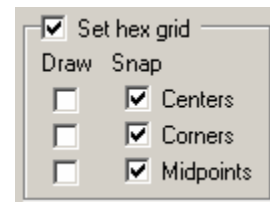
Creating symbols for your Random Dungeon Generator

The **Random Dungeon Generator** uses specially created **tile sets** stored in symbol catalogs in CC2 Pro's **Symbols\Dungeons\Random** folder. Symbol catalogs stored in this folder will be available to choose in **Random Generator Options**.

Symbol creation guidelines

The dungeon is built by combining 6 symbols that are restricted to 5' tiles. The symbol names in the selected catalog have to end with one of the following text strings to identify its purpose to CC2 Pro:

Your Own

This tutorial assumes you have a good, basic understanding of CC2 Pro and the concepts for symbol creation. If you need more instruction, see *Creating a symbol* on page 66.

Add Symbols

If you add existing symbols, be sure to **Explode** them and then **Purge** them from the **Symbol Manager** before you define your new hex symbols.

Appropriate Layers

Most symbols will have all their parts on the **SYMBOL DEFINITION** layer. Shaded Varicolor symbols require special layers. For information on Shaded Varicolor symbols, see *Shaded Varicolor Symbols* on page 73.

Define each Symbol

You may use **Define Symbol** in the **Symbol** menu to define your hex symbols. I prefer to use **Define Symbols** when working with catalogs of like symbols since it simplifies the process.

Random Dungeon Generator

For more information on this feature to create quick and easy random layouts, see *Random Dungeon Generator* on page 310 .

If you don't have DD Pro, you can download it from the ProFantasy Software's Map Lab at http://www.profantasy.com/library/lab.asp.

Tile Sets

While creating RDG symbols is not necessarily an advanced feature of CC2 Pro, it requires precision drawing and attention to naming conventions. These instructions assume you have a good grasp of CC2 Pro. For help in drawing and defining symbols, see *Creating a symbol* on page 66.

CORR – an east-west corridor section, origin: mid left

CEND – an eastern dead-end – that is, surrounded by walls except on the west, origin: mid left

REDGE – a tile with a single wall on the left, origin: mid left

RC1 – a north-east corner piece, origin: mid left

RC3 – a diagonal piece with the lower left filled, and a wall from NW SE, origin: mid left

ROOM – a square with no walls, origin: mid left

The name can be followed by a space then a number if there is more than one of each <u>**symbol type**</u>.

Optional Shading

You can optionally add a separate symbol with shading on top of each floor tile. To do this, create symbols which contain the text string:
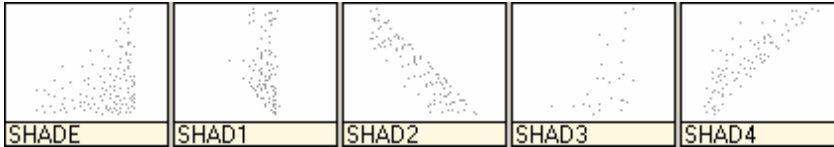
SHADE

SHAD1

SHAD2

SHAD3

SHAD4

The SHADE symbol is placed on top of all square tiles and the rest are used for the different rotations of the RC3-tile.

Symbol Type

If there are more than one symbol for each type a symbol is randomly picked for each placement. Up to 16 symbols can be assigned for each type.

The Wider Campaign

CC2 Pro includes tools and symbols for adding buildings, rooms and corridors. These are cut-down version of what you will find in City Designer Pro and Dungeon Designer Pro, but powerful nonetheless. If you have DD Pro or CD Pro, it's probably worthwhile doing these tutorials, but note that there are many more options in the add-ons than those presented here.

This chapter also covers some more advanced precision drawing features of **CC2** Pro, all of which will make you a faster, better mapper.

Adding Caves, Rooms and Corridors

If your rooms are rectangular, there is a simple way to create rooms and corridors. **CC2** Pro has built in drawing tools and other commands to make it easy to create floorplans.

Dungeon Drawing tools

CC2 Pro includes a couple of pre-configured drawing tools like the overland mapping drawing tools to help you create floorplans and cave systems.

1   **Right-click** DD Pro 📟, click **New Dungeon**, then select **500' x 400' (Tanned Background.fct)**

2   Click light gray on the color bar – the one above white. This will be the color for your cave and rooms.

3   Right-click **DD Pro**, click **Dungeon Drawing Tools.** Click **Dungeon Cave**.
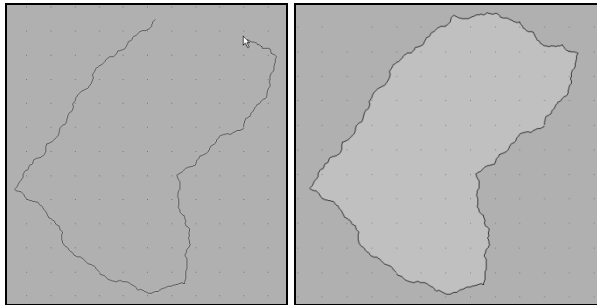
4   Click a few points to create a cave. Right click to complete the cave.

   Notice that the prompt reads Fractal Polygon: First Point (E-Edit)**:**

5   Press E . This lets you add to or subtract from an existing cave. Pick a starting point on the cave you've drawn, and add a passage way. You can also click inside the cave to subtract from it.
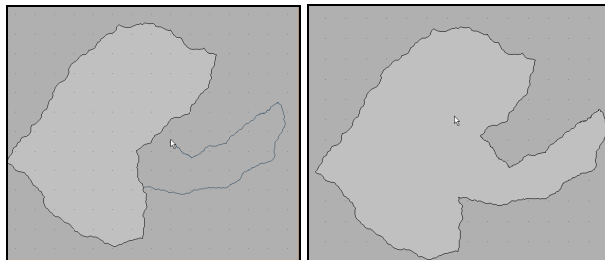
6   When you've nearly closed the passageway, right click, move the mouse around to the node you want, then left click.

   Clever, eh?

7   Right click **DD Pro**, click **Room (cut down version)**.

8   Click **OK**. Depress **Snap**. Add a dungeon room by clicking two points. Add more rooms, then right click to finish.

9   Right click **DD Pro**, click **Corridor (cut down version)**. Type in a suitable **corridor** width.

The prompt reads Corridor Start point: (C-Connect to wall):

10 Press ⊂ then click on the wall of one of your rooms. Draw more corridor **points**. Press ⊂ and select a final end for your corridor.

Adding doors

11 Right-click **DD Pro** [DD2], click **Dungeon Symbols (examples)**.

The symbol catalog loads. It contains sufficient symbols to draw a simple dungeon. The Dungeon Designer Pro add-on contains fully colored symbols for every occasion.

12 Scroll down the Catalog Window and pick the door symbol from the bottom of the list.

A door appears at the cursor.

13 Place the doors in the middle of a wall.

To **place the doors** easily, right click on the **Grid** button and select a more frequent grid setting such as **5' grid, 5 snap**.

Rotating and aligning symbols

14 Choose a single door from the catalog then press the ↓ → ↑ and ← arrow keys.

As you press each key, the door rotates:

← and → makes the symbol align with horizontal walls.

↓ and ↑ makes the symbol align with vertical walls.

Use CTRL SHIFT to rotate the symbol to align to other angles.

Now move the symbol over your walls – the symbol aligns to the walls for you. This symbol is a **smart symbol** – the reason you added control points in the example on page 68.

Other dungeon symbols

Add other dungeon symbols in the usual manner. Note that you will hardly ever have to change the symbol scale, as chairs, tables and doors tend to remain the same size.

Creating urban areas

CC2 Pro also has mapping templates for basic city design. For better cities, use City Designer Pro which includes more than 1500 symbols and automated city building via the House Builder and Street Builder dialog boxes.

City roads

1   Right-click **CD Pro** [CD2], click **New City** then pick **1000' x 800'.fct**.

This is a blank drawing template for a medium sized village or small town.

Drawing Units

CC2 Pro has a number of **drawing unit** options. These are available under **File menu** >> **Drawing Properties** >> **Units**. You can have inches, feet, millimeters, meters or custom format. The tracking units can also vary, so you can track to the nearest millimeter, meter, etc. Units should be defined on templates, rather than after the drawing is started. If you use meters rather than feet, you should use the metric templates or convert imperial city and dungeon templates and change the units and tracking to meters.

Cut Down Version

Your choice is limited to background color in the CC2 Pro version. You can click Dungeon Designer Options to see what you get in DD Pro.

Corridors

Corridors can connect to rooms rather than vice versa, so it's best to create rooms first, then add connecting corridors. Corridors can connect to other corridors, too.

Points

DD Pro lets you vary the width of your corridors, and gives you a visual clue to show where your corridor will appear, as well as the options you see in the **Dungeon Designer Options** on the **Corridor (cut down version)** dialog.

Optional Door Placement

Instead of using the grid, you could enable the **Attach** button, with the Attach Mode set to **Nearest Point On**. This makes doors lock on to the walls when you insert them.

Drawing Units

CC2 Pro's campaign scale maps are created at 1 inch = 1 mile. Urban areas and floorplans are created at true scale (1' in the drawing is 1' in real life.) So if you insert a dungeon into a map, it would be vastly bigger.

2 Right click **CD Pro**. Click **City Draw Tools**. Depress **Snap**. Click **City Road, Default**.

3 Click points to make a curved road. Add more curved roads. Right click to finish each road, then a final right click to finish.

> There's only one city road tool in CC2 Pro; you could add others, or use a useful little trick.

4 Click **Keep** ⟦KEEP⟧. Click in the middle of a road.

> Note that the Status Bar shows the properties of the road, brown, layer Road, etc.

5 Use CC2 Pro's standard drawing tools to create more <u>**roads**</u>. You can change the width at any time by clicking the **Line Width** indicator.

> ✓ Use **Line** ⟦/⟧ to draw straight roads.
>
> ✓ Use **Path** ⟦S⟧ to draw roads with corners.
>
> ✓ Use **Smooth Path** ⟦S⟧ to create curved roads.

6 Right-click **Keep** ⟦KEEP⟧. Click **Draw Like.**

> The prompt reads Pick Master Entity

7 Choose the center of any of the roads.

> CC2 Pro is now ready to draw a road of the same type.

Adding building symbols

You can add buildings to your map using CC2 Pro's building feature, or add one of the many symbols provided.

Continued from previous example.

8 Right-click **CD Pro**, click **City Symbols (examples)**.

> You can see a set of urban symbols.

9 Select a house symbol from the Catalog Window then **Zoom Window** close to an angled road.

10 Select a new current layer (say **Residents 1**)

11 Press ⟦CTRL⟧ and ⟦SHIFT⟧ while moving the mouse to <u>**align**</u> the building with the road, then release the keys.

12 Move the mouse slightly so that the building can re-establish itself at the cursor. Move the building into position along side the road and place the symbol.

13 Choose another symbol. It is at the angle you chose last time (and thus parallel to the same road). Insert this symbol.
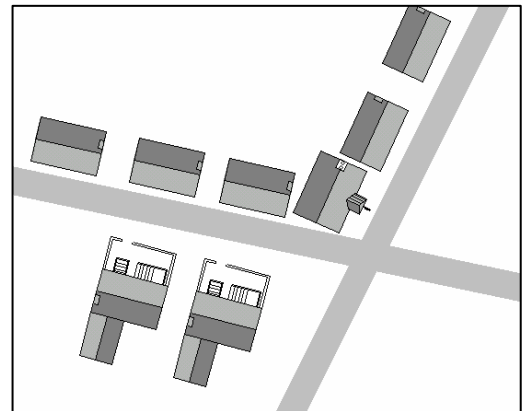
You can easily rotate the building through 180° (parallel to the other side of the road) by right clicking and adding (or subtracting) 180° from the **Rotation** angle.

14 Continue inserting symbols parallel to this road on this side. Change the color and layer as appropriate.

Adding buildings with the Building command

CC2 Pro has a cut down version of City Designer Pro's building command. It's good for many basic urban applications.

Drawing Roads

Don't let roads made from paths or smooth paths cross themselves - the fill styles becomes transparent where solid entities cross themselves. CC2 Pro cannot calculate the intersections of self-intersecting entities.

Aligning Symbols

If roads are angled due north or east, you can use the arrow keys ⟦↑⟧ ⟦↓⟧ ⟦→⟧ and ⟦←⟧ to change the symbols angle.

It is possible to get the angle exactly right by using **Info menu >> List** on a straight road and making a note of the **BEARING**. You can then type this value into the **Rotation** angle box when inserting city symbols.

With curved roads, use **Draw menu >> Lines >> Perpendicular** to draw some lines attached to the curved road. Look at their bearing angle, and subtract 90° to get the correct angle.

15 Right click **CD Pro**. Click **Building (Cut down version).**

16 Click **Modern Red** then **Insert**.

17 Click three points to make the building.

The prompt reads First House Point (S=Swap colors, E=Extension)

18 Press ⎡S⎤ three times.

You'll see that the color scheme changes. You can make sure all the dark roof areas point in the same direction.

19 Press ⎡E⎤, then select a point inside the house.

   The prompt reads House edge.

You can add extensions directly to a house in mid-command.

20 Click a point on the adjacent house edge.

21 Click a point for the end of the extension, then its **width**.
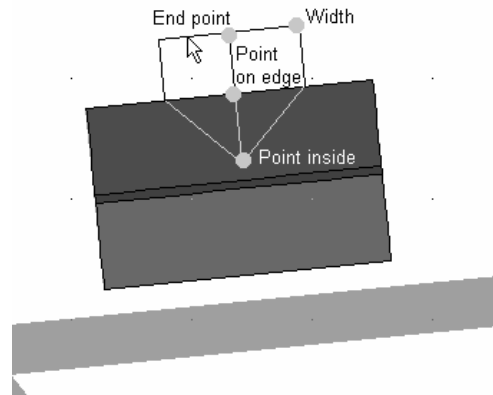
Precision drawing

For most overland maps, you only need to be precise when drawing up to the map border or when creating multipolies that require perfect joins. Apart from that, it generally doesn't matter whether a tree is here or slightly to the left of here.

When drawing close up, however, precision starts becoming important. House corners normally want to be square. 10' wide passages want to be 10' wide, not 12'. Iris doors on a starship want to be symmetrical, not buckled.

This section does not make use of **CC2 Pro-Pro**'s built-in floorplans and building commands – they supplement them, but it's an excellent study in **CC2 Pro**'s powerful tools which will improve your mapping skills.

CC2 Pro can be as precise as you want to be. You can:
- ✓ Place points precisely by using snap and the grid.
- ✓ Place points precisely on an existing entity by using a modifier such as Endpoint, On or Midpoint.
- ✓ Place points precisely on an existing entity by using attach mode
- ✓ Place points by eye by clicking at the desired location.
- ✓ Place points precisely by typing an **x,y** coordinate. At all times the cursor coordinate is shown on the Status Bar.
- ✓ Place points precisely by typing a coordinate relative to the last point used. Relative coordinates start with @. For example, **@2,3** means _at_ 2 across and three up from the last point.
- ✓ Place points precisely by typing an angular coordinate relative to the last point used. Relative angular coordinates start with <. For example, <**30,3** means "3 units away at an angle of 30°". 0° is east, 90° is north.

The drawing grid

One of your main aids in precision drawing is the Grid. It can be turned on and off in seconds using the 2 buttons at the bottom of the drawing window – **Grid** and **Snap** Related, but different, is **Ortho**.

Grid – When enabled, **Grid** shows a black dot at each grid point. These dots are for your reference only, and do not appear in print-outs.

Snap – Between each grid dot is a number of invisible "snap points" (set in the Grid dialog box). When **Snap** is enabled, CC2 Pro locks any points you place by eye to the nearest snap

point. **CC2** Pro ignores snap when you are selecting entities for editing or specifying points with typed coordinates or modifiers. The grid does not have to be visible for **Snap** to work.

Cursor Snap –forces the cursor to move between allowed co-ordinates only. If **Snap** is disabled then all coordinates are allowed, so the cursor moves smoothly. However, if **Snap** is enabled, only snap points are allowed so the cursor appears to jump as it moves. Right click on **Snap** to access **Cursor Snap**.

Ortho forces the next point you click to be horizontal or vertical from the last. It is particularly useful for drawing straight-line shapes, but not suitable for curves.

Selecting a grid system

All **CC2** Pro templates have a selection of pre-defined grids. To change the current grid setting, right click on the **Grid** button. (You can change the grid settings in the middle of another command without canceling that command.) You see the Select Grid System **dialog box.**
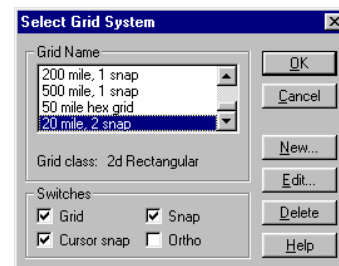
Each grid is named with the **grid spacing** (the spacing of the dots) and the snap frequency. **20 mile, 2 snap** has dots every 20 miles and snap points 10 miles (2 snap points per grid point).

Select a grid system by clicking on it in the list of grid names, then clicking **OK**.

The switches let you change the current button settings from the dialog box.

The buttons to the right of the dialog box let you edit grid systems and create your own.

Attach Mode

Although snap helps you connect things, you don't always want to draw on snap points. Modifiers such as **Endpoint** and **Midpoint** lock the next point to an exact point on an existing reference entity. Each time you want to place a modified point, you have to click a modifier button first- until now.

At the bottom right of the drawing window is the **Attach** button. Click it to enable Attach Mode, right click it to change its settings:
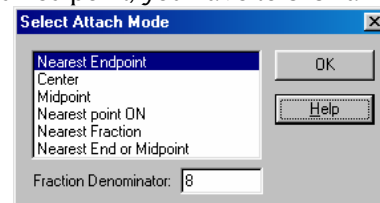
Placing points when **Attach Mode** is enabled is exactly the same as placing them normally except, if you click on an existing entity, the new point is precisely attached to that entity.

Drawing a floorplan precisely

Even the smallest overland map template is set up to draw in terms of miles. Unless you're mapping the Taj Mahal, the first thing you must do is select a smaller scale template.

Templates for other map types are in subfolders of **Templates**.

1   Right-click **DD Pro** [DD2], click **New Dungeon**, then select **500' x 400' (Tanned Background.fct)**

This template is based on Imperial units of **feet and inches**. Dungeon templates also have some custom bitmap fill patterns for wood, water and other likely dungeon features.

2   Click the **Line Width** indicator **W: 0"** on the Status Bar.

3   Set the Line with for new entities to **1** then click **OK**.

    The walls will have a real width of 1 foot.

4   Click **Path** [S].

    The Command Prompt reads 1st point:.

Grid Spacing

When you zoom out, CC2 Pro displays more drawing area and hence more grid points. If you zoom out far enough, the grid density will become too great to be useful, at which point the grid no longer displays. Similarly, if you zoom in far enough, all snap points will be outside the drawing window, so you won't be able to select points with the cursor.

As you zoom in and out, you may wish to change the current grid.

Attach Mode

The only Attach Mode that is not also a modifier is **Nearest Fraction**, for which you type in a **Fractional Denominator**. CC2 Pro will lock to that fraction along a selected entity. For example, type 5 and CC2 Pro will lock to the nearest 20% along an entity.

Feet and Inches

The symbol **'** is for feet and **"** is for inches. One inch is approx. 25.4 mm. There are 12 inches in 1 foot.

5 Type **100,100** then press ENTER . *(Absolute co-ordinate)*

As you type, the numbers appear on the Command Prompt. When you press ENTER the path is started at co-ordinate 100,100.

6 Type **@0,30** then press ENTER . *(Relative co-ordinate)*

The next path segment is drawn relative to the last position you used (could be the last position used by the previous command). In this case it is draw at (@)0 across and 30 up.

7 Type **@20,0** then press ENTER . *(Relative co-ordinate)*

The next path segment is drawn 20 across and 0 up. You should now have the beginning of an outline, exactly like this:
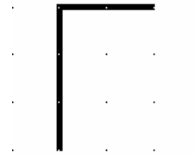
The **tracking indicator** at the top of the screen shows you the current cursor position in terms of drawing units.

> T: 75'-0",200'-0"

8 Click **Arc** .

Starting a new command cancels the last. The path ends and the arc begins. The Command Prompt reads 1st point:.

9 Depress the **Snap** button.

CC2 Pro saves the **Snap**, **Cursor Snap** and **Ortho** button status with each drawing and template, so you can choose suitable presets.

10 Slowly move the mouse.

If you watch closely as you move the mouse, you can see the cursor jump between snap points.

11 Right click on the **Grid** button.

You see the Select Grid System dialog box:

The current grid system is **10' grid, 2 snap**. This means there are grid points shown every 10 feet and 2 snap points between them – so the snap points are every 5'.

You can change grid settings at any time, even in mid-command.
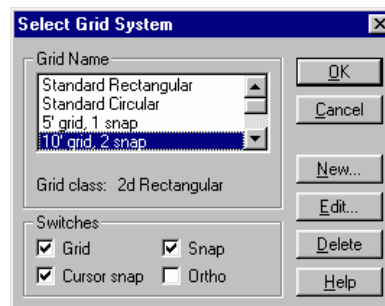
12 Click the arc's first point on the last point of the path.

The grid is enabled, so you were able to pick exactly the same point again. No matter how far you zoom in, the arc and path will meet.

13 Place the arc's second point 3 grid dots east of the first.

As well as typing coordinates, you can size objects exactly by counting grid points. This span will be 30 feet across.

The two endpoints of the arc have been placed. Now, as you move the cursor, you see how the arc will look when you place the last point.
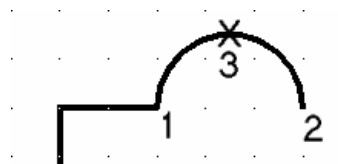
14 Make the arc a perfect semicircle by clicking as shown.
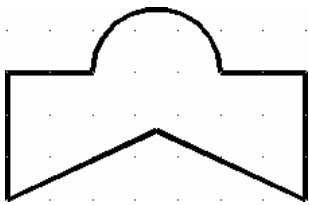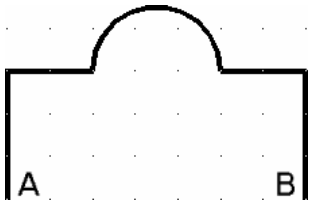
15 Draw a **Path** which mirrors the first. Right click to end it.

16   Draw another **Path** , and click its 1st point at point A .

   The Command Prompt reads Next point:.

17 Type <**25,20** then press ENTER . *(Relative angular co-ordinate)*

   The line is drawn at an angle of 30° and a length of 20 feet.

18 Right click to end the last path, then draw a new one, 1st point at B.

   The Command Prompt reads Next point:.

19 Type <**155,20** then press ENTER . *(Relative angular co-ordinate)*

   The line is drawn at an angle of 150° and a length of 20 feet. (Remember, 0° is east
   and 90° is north so 135° is northwest.)

20 Click **Trim to Intersection** .

   The Command Prompt reads 1st entity to trim:.

21 Select the 25° path.

   The Command Prompt reads 2nd entity to trim:.

22 Select the 155° path.

   The two paths are trimmed to their intersection.

For the sake of practice, I want you to now select points with Attach enabled instead of the
grid.

23   Disable **Grid** and **Snap**.

24   Click to enable the **Attach** button.

25   Right click the **Attach** button and select the **Nearest Endpoint** attach mode.

26   Start a **Path** . For its first point, click on the arc – near, but not on, an endpoint.

   The first point is attached to the nearest endpoint.

27   Click near the end of the trimmed join.

   The next point is attached precisely to the endpoint of the join.

28   Click near the other end of the arc, then right click to end the path.

   You now have a building wall-plan like shown here.
   Unconventional, I know, but I like it.

Extracting information

CC2 Pro's info menu can tell you useful information about your maps. You can find the
distance along roads. You can find areas of landmasses and terrain. Using **List**, you can also
get the details about any entity you select.

The most useful of these functions is Length Along. Use this to find the exact distance
between locations on a road, then add the distance to the map using **TEXT**.

Multipolies

Multipolies are a way of combining different connected entities into a single shape so they
can be filled. In the example shown here, a straight-edged path is combined with a smooth
path.

Nearest Endpoint

Any points you click over an
existing entity will be modified to
the nearest endpoint of that entity.

Multipolies can actually combine many and various entities to create very complex shapes, even including cutouts. Multipolies must be drawn absolutely precisely with snaps or Attach enabled, or the fill will "leak" out of the gaps.

1   Open **Multipoly.fcw** from CC2 Pro's **Tutorials/Tome/Other** folder.

    You see an outline that I drew using many entities and entity types. I made them very multicolored to help you see each entity.

    The resultant shape is certainly complex. Perhaps Mr. Rorschach would call it Dazed Clown.
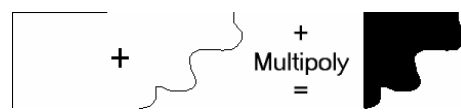
2   On the **Draw** toolbar, click **Multipoly** 🔲, select all the entities, then **Do It**.

    The entities are **combined** as a single shape. The circle, ellipse and smooth polygon in the middle are treated as cutouts.

Editing multipolies

If you try an edit command, such as **Edit** EDIT, on the multipoly, you will find it doesn't work. In order to edit a multipoly, you first have to **Explode** it. *Bang*.

3   Click **Edit** EDIT and select the multipoly.

    The command stops and nothing happens. A multipoly can not be edited.

4   Click **Explode** 💥, select the multipoly then **Do It**.

    The multipoly reverts to its original entities. Each entity remembers its original color, layer, etc.

5   Now try the **Edit** EDIT again.

    This time it works. Make any changes you want, then redo the multipoly.

Multipoly text

As if the Dazed Clown isn't enough, how about this:

6   Use **Text** 🅰 to add a line of text such as **Not bad, eh?**.

    Make the text any size, font, style and color that you like.

7   Right click **Text** 🅰, then click **Explode Text.** Click the baseline of your text and **Do It**.

    There is little visible difference to the text, but it has now been converted from font to a multipoly.

8   Click **Explode** 💥, select the multipoly text then **Do It**.

    Multipoly text, exploded so it can be edited, then put in the hands of CC2 Pro fro manipulation.

Why use multipoly text

Unlike CC2 Pro's other entity types, True Type® (TT) fonts are not infinitely scaleable. Due to the way TT fonts are defined, they can only display and print in whole *point sizes* (a way of measuring text height), and this causes a small problem.

Imagine text in a title box. At one level of zoom CC2 Pro needs a point size of 7 to display the text. 7 is a whole size, so the font obliges.

Now imagine zooming in by a factor of 1.5. CC2 Pro can scale the title box by 1.5, no problem. The text, however, needs to be 1.5 x 7 = 10.5 points. Unfortunately, the font can't do this – it can only do 10 or 11.

CC2 Pro uses the closest available size but, since the text and the box have scaled by different amounts, their relative proportions change.

In the illustration, the gap between the ends of the text and the box change. This is because the font couldn't precisely reproduce the change in zoom.

Exploding text into multipolies means that the TT font is replaced by native CC2 Pro entities, which allow near infinite zoom. It also lets you alter the text design, to create logos and the like. The down side of multipoly text is that drawing size increases, and the text can no longer be found by text searching.

If you explode your text, you also have the advantage of drawing portability – others who do not have the font installed will be able to see your drawings.

Tips for defining a multipoly

The multipoly is a powerful tool that can combine several dissimilar entities and unconnected polygons into one fillable object. Multipoly combines existing entities into one defined object. With a little planning and patience, multipoly can shorten the time needed to create various combinations of entities. There are additional methods to combine different entities to become a fillable polygon (see under *Explode* on page 57). Multipoly is the only one that will work with all entities and multipoly allows multiple unconnected polygons to be fillable as if all were one object. (Square Fill for Dungeon Floors of several rooms and Map Grids for land and offshore islands are two examples.) Use the following guidelines when defining a multipoly.

- Include only 0 line width entities when defining a multipoly. The purpose of a multipoly is to create fillable shapes, and only 0 line width entities are fillable.
- The current properties will be the defined multipoly attributes regardless of the individual Entity attributes used to define the multipoly.
- If you define a multipoly with the Hollow fill style, you will need to have the 'Outlined' box checked in the Fill Style Dialog to allow the multipoly to be visible.
- All entities will revert to their original attributes when the multipoly is exploded, regardless what changes were made to the multipoly after it was defined. This is the reason you do not want to Move or Copy a multipoly to different layers.
- All entities must be joined together for each complete polygon, with no gaps or overlaps, before you define the multipoly. Failure to do this will cause the fill to leak out. Use **Endpoint** or enable attach mode set to endpoint to connect the different entities that will be used in the definition of the multipoly.
- If the entities are already drawn, use **Node Edit** to move the endpoint of one entity and connect it to the endpoint of another using the **Endpoint** . Alternatively, **Trim to Intersection** will work with most entities to create a precision connection.
- Don't use smoothed entities that have been trimmed when defining a multipoly. If you must trim a smooth entity, use **Edit** EDIT, change the Smoothing setting to No Smoothing, trim, and then use Edit to change the Entity to the desired Smoothing before defining the multipoly.
- Entities in a multipoly and the multipoly itself should all be on the same layer. A multipoly should not be defined on the **MERGE** Layer, as this is used for defining bitmap symbols (see *Bitmap, creating symbols from* in the Help index)

Text in a title box

The same text, Zoomed In by 1.5

Text in a title box

- Do not use **Outline** 🖼️ on a defined multipoly. It is the same as making a copy of the multipoly. Copy the multipoly, use **Explode** 💥 on it, change the color to black and use the entities as the outline.

From regional map to local map

If you have decided to map your world from the top down, you should start by creating an overview map showing only major detail, such as mountain ranges and the greatest rivers. This section shows you how to take an area of the map and create a new larger-scale map from it.

1   Open 📂 **WS-scale01.fcw** from CC2 Pro's **Tutorial/Tome/Maps/WorldScale** folder.

    You see an early map of a new campaign world.

2   Click **Edit menu** >> **Copy**. Select the top landmass by window, making sure you grab all the entities that are on the landmass. Right click, Do it.
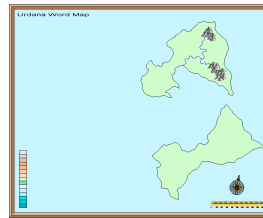
    The command prompt reads Clipboard origin[0,0].

3   Click roughly in the center of the landmass.

The section we want to use out of what we've copied is about 2000x1600 – use **Info menu** >> **Distance** to check this if you like.

Pasting into a new template

Now that you've got your map section, you'll need to start a blank map into which you can paste the continent.

4   Click **New** 🗋, the click **2000 x 1600 (Sea Background).fct**.

5   Right-click **Copy** ⧉, click **Paste (non-visual)**. Keep the scale at 1 and the rotation at 0.

    The prompt reads: Insert at:

6   Click in the upper left corner of the new template.

    The landmass is **pasted** into the drawing.
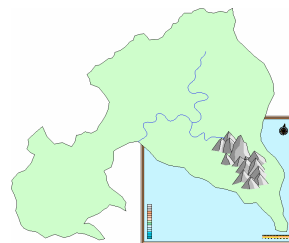
Cropping the land

When you copy a section of one map into another, the copy often needs cropping to the new map's border. This illustration shows a landmass that has been copied down from a larger map. The coast and rivers also need cropping.

The land consists of two polygons, an outline and a solid filled one. You could edit them using **Insert Node**, **Delete Node** and **Node Edit** but, for this many nodes, doing them one by one is not very efficient.

Polygons and paths are very closely related. In fact, a polygon is simply a closed path. Knowing this, you can easily put CC2 Pro's trim commands to use on polygons.

If you make errors following this example, use **Undo** ↩️ to fix them.

1   Open **WS-scale02.fcw** from CC2 Pro's **Tutorial/Tome/Maps/WorldScale** folder.

    The continent has been pasted in from a world-scale map. The land needs cropping to the map border, but the first thing to do is get rid of the black coast outline. We want to edit one entity, not two!

2 **Erase** the coast outline, selecting it by clicking its edge (which gets the green coast as well) → **And (Both)** → **Color** → 0 (black) → **Do It**.

> You are left with only the green landmass to edit. Now to convert it to a path.

3 Click **Break** ✖.

> The Command Prompt reads Entity to break:.

4 Click the land on the part that you want to keep.

> The Command Prompt reads Break starts at point:.

5 Click the start and end points approximately as shown.

> The land is broken, becoming a light green path. CC2 Pro knew which section to keep from where you clicked to select the land.
>
> Before trimming the path to the border, let's change its color to one that's easy to see against the blue.
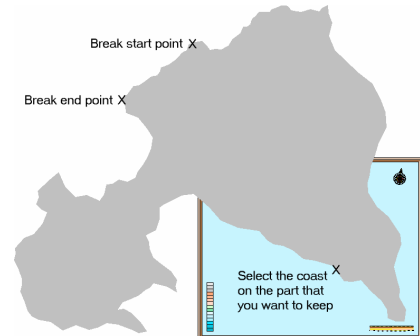
6 **Change Color** 🔧, selecting by **Prior** then **Do It**, to black.

7 Click **Trim** ✖.

> The Command Prompt reads Entity to trim:.

8 Click the land path on the part that you want to keep.

> The Command Prompt reads Trim to point [pick point]:.

9 Click **Trim to Intersection** ✖ to **pick** the trim point.

> The Command Prompt reads Intersection or 1st entity:.

10 For the 1st entity, click on the coastline.

> The Command Prompt reads 2nd entity:.

11 Click the inside edge of the north map border.

> The path is trimmed to its intersection with the border.

12 **Trim** ✖ the coastline to where it crosses the west border.

> As before, to select the intersection explicitly pick the coastline, then the border (doing it the other way round doesn't work, because the first click is over two entities).
>
> The coastline is now cropped to the border.

13 **Fractalize** 📐 the coastline to add detail.

> I suggest a **Depth** of **3** and **Strength** of **30**.

14 Click **Edit** EDIT, then click the coastline.

> You see the **Edit dialog box**.
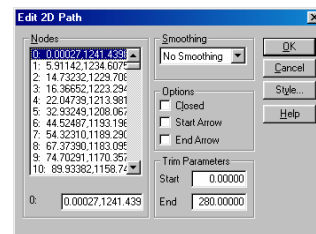
15 Click to enable the **Closed** setting then click **OK**.
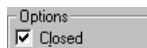
> The path is now closed, making it a polygon and allowing its solid fill style to apply. Now we need to add a node in the corner.
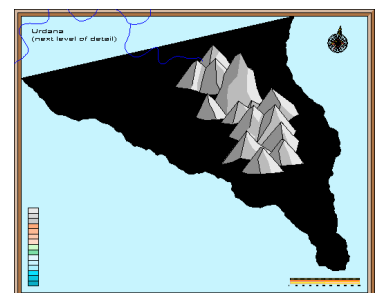
Pick Trim Points

CC2 Pro can usually find the intersection you want from a single click over it, which is why the first Command prompt is Intersection or 1st entity:.

However, in some cases the site of the intersection can be confused by other entities in the same place, so you have to separately pick the two entities that intersect. This is the case with this intersection.

If you click on top of the intersection, the first entity CC2 Pro finds is the brown border polygon and the second is the black internal edge of the border. These entities are parallel so CC2 Pro fails to find an intersection.

Edit dialog box

The Edit dialog box varies depending on what entity type you are editing.

16 Use **Insert Node** [icon] to add a corner node in the straight edge. Use the **Endpoint** modifier to locate the new node in the map corner.

> The coastline has been cropped to the border.

17 **Change Color** [icon], selecting by **Prior** then **Do It**, to color **110**.

18 Use **Outline in Black** [icon] to draw the black coastline. **Redraw** [icon] to see the changes.

Cropping the rivers and roads

This example only has rivers. If you had roads, you would treat them in exactly the same way.

It is debatable whether it is better to draw over the existing rivers and roads with greater detail, use fractalize or to crop the existing ones and edit them to add detail.

For the sake of practice, we'll crop the existing rivers.

Continued from previous example…

19 Use **Split** [icon] to divide the river into separate entities. Click on the split points shown in the diagram.

20 Click **Trim to Entity** [icon] then select the point marked **Entity to trim to 1** in the diagram. Click points 1, 2 and 3 to trim the rivers to the west border.
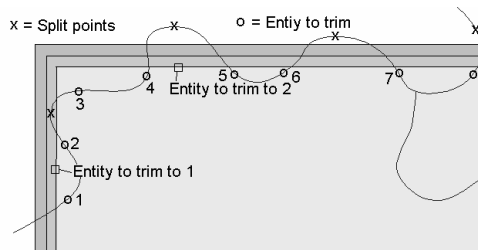
21 Right click to cancel, left click to repeat. Click the **Entity to trim to 2** point in the diagram. Click points 4 to 8 in the diagram.

What's next

After you cropped the edges you need to resize the symbols, and add an outline to your continent.

22 Click **Symbols menu** >> **Scale Symbols in map**. Select all the mountains, **Do It**.

23 The original map was about 5 times taller than this section, so type in **0.2** – a scale of 20% current size.

Adding detail

You've now got the basis for your small-scale map. At this stage, you can add more detailed river and road networks, fill in the gaps between the mountains, add forests and new communities. If you open **WS-scale03.fcw** from CC2 Pro's **Tutorial/Tome/Maps/WorldScale** folder, you'll see what we have started.

When you finish, you can take a section of this map in just the same way and create an even smaller scale map.

Construction Lines

Construction lines are temporary lines you to help with the placement of symbols or as guides for a complex group of entities such as city walls and roads or text around a curve. Before you start placing symbols for mountains or forests, it sometimes useful to use construction lines to indicate the direction and range of those terrain features. A single line can be used to indicate the ridge line of a mountain range or a simple polygon can set the range for a forest. When these symbols have been placed, you can erase the construction lines.

24 Add a layer named **Construction Line** and make it the current layer.

25 **Draw paths** in a little-used color to represent the ridge-line for each mountain range.

Drawing Paths

If you keep one construction line in the drawing, you can use **Draw Like** (see page 40) from the **Like** [LIKE] popup menu to make more without having to change settings

26 Place the desired symbols to represent the mountains and foothills. Keep the line representing the ridge running along the center of your symbol groups.

When you are done placing the symbols you can remove the construction lines selecting by **Layer**. The same method can be used for various entities and the use of polygons will help with the placement of forests, swamps, and other groups of entities.

Church of the Holy Redeemer by Allyn Bowker

This drawing utilizes:

- sheets. For information on sheets and layers, see *Exploring Sheets and Layers on pa*ge 264.

- hotspots for navigation between sheets. For information on Hotspots, see page 118.

- symbols converted from fonts using the techniques explained in *Converting Fonts to Symbol Catalogs* on page 47.

- edited symbols using techniques explained in *To Edit an existing symbol* on page 71.

Church of the Holy Redeemer
Parish Rectory and Hall
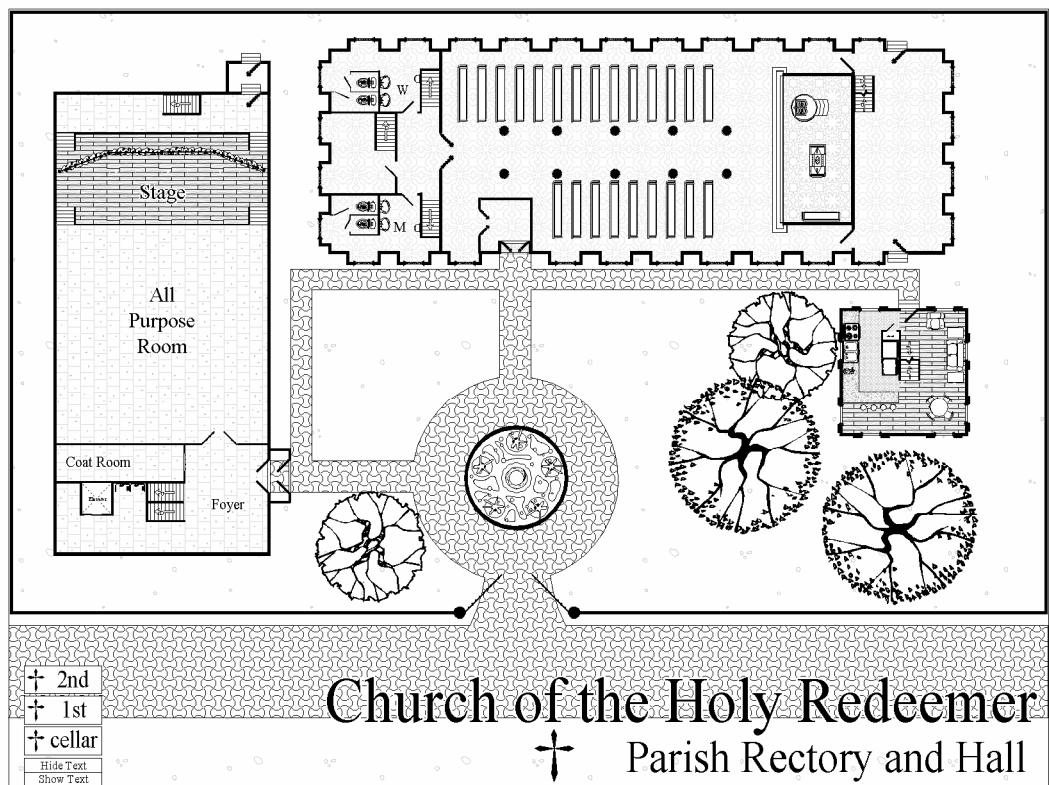
The Known Oceans by Allyn Bowker

The Known Oceans is an FT export into CC2 Pro. It uses bitmap fill techniques similar to those demonstrated in the Hand Drawn tutorial found on page 98.

Also used are font ornaments converted to symbols as demonstrated in *Converting Fonts to Symbol Catalogs* on page 47.

Different Styles of Mapping

CC2 Pro is a drawing tool. It doesn't just do colored polygons. It is capable of all sorts of mapping styles. The only limitation is the imagination of the user. Let's spark the imagination and look at other styles of mapping.

Hand Drawn Mapping

The term 'hand drawn' encompasses a wide variety of styles. Some of them are very colorful. Portolan maps (mariner navigation charts) were usually rather boldly colored since the map had to be read, in many cases, below deck and in the dark with only candlelight to see by. We're not going to strain our eyes that much, though. We are going to leave color behind and create a map using parchment (bitmaps), a single inkwell (one color), and our trusty pen (CC2 Pro's drawing tools and symbols).

You're welcome to follow along with your own choice of bitmaps. However, if you want to view the **tutorial** examples as they were created, you'll need to download the bitmaps to your **CC2>Bitmaps>Tiles** folder. The files are available from the registered users' area of the ProFantasy website. Login at http://profantasy.com/service/entrance.asp. I will use 3 bitmaps, one each in three different light values—a light, a medium, and a dark version of the same parchment file.

Let's begin.

Setting Up the Template

1   Click **New Map** 🗋 then scroll down and select 125x100.FCT.

2   Click the **Layers** indicator `L: SYMBOL DEFINITIO` then select **BACKGROUND** as the current layer. Click **Thaw All** and then click **OK**.

3   Click **Erase** then select the compass rose. Select the description box and its text at the top of the template. Right click, **Do It**.

4   Click the **Layers** indicator `L: BACKGROUND`. Keep **BACKGROUND** as the current layer. Click **Freeze All**, then click **OK**.

5   Click **Erase** then select right click. Select **All**. Right click, **Do It**.

6   Click the **Fill Style** indicator `FS: Solid` then select the **Bitmap Files** tab.
     Click **New**, then type **Parchment Lt** into the New Fill Style Name field. Click **OK**.
     Click **Find**, then navigate to your **CC2>Bitmaps>Tiles** folder and select the Parchment-Lt.bmp. Click **Open**. Uncheck the **Outlined** box, then click **OK**.

7   Click **Box** 🔲 then draw a box a little bigger than the map borders.

8   Click the **Layers** indicator `L: BACKGROUND` then select **MAP BORDER** as the current layer. Click **Freeze All**, then click **OK**.

9   Click **Bring to Front** 🔲 then right click. Select **All** then right click, **Do It**. (HandDrawnMap001.FCW)
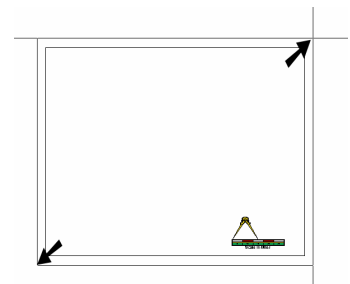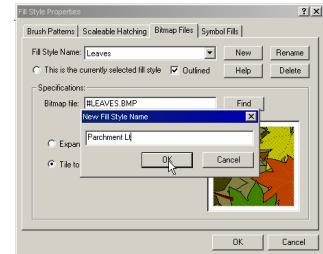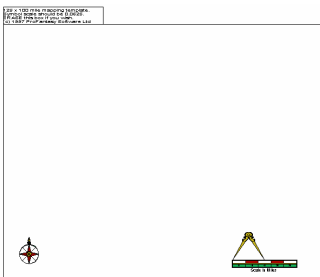
That scale bar is not going to work with our map. Let's make a new one before we erase it.

10 Click the **Layers** indicator L: MAP BORDER then click **Add**. Type **SCALEBAR**, then click **OK**. Select **SCALEBAR** as the current layer, then click **OK**.

11 Select Color 0 (Black) on the color bar.

12 Click the **Fill Style** indicator FS: Parchment Lt then select the **Brush Patterns** tab. Select **Solid**, then click **OK**.

13 Click **Ortho** Ortho

14 Click **Line** then draw a line tracing the length of the scale bar. Draw a small hatch line tracing each end of the scale bar.

15 Click **Erase** then select the original scale bar. Right click, **Do it**.

16 Click **Change Width** then select the lines that make up our new scale bar. Right click, **Do it**. Then type **.2** ENTER.

17 Click **Text** then type **25 Miles**. Click **Properties**. Set the properties as:
      Height – 2.00

      Angle – 000
      Spacing% - 150.00
      Stretch – 2.00
      Check Character Style - Italic
      Select Times New Roman
      Click **OK**.
      Place the text centered on the scale bar
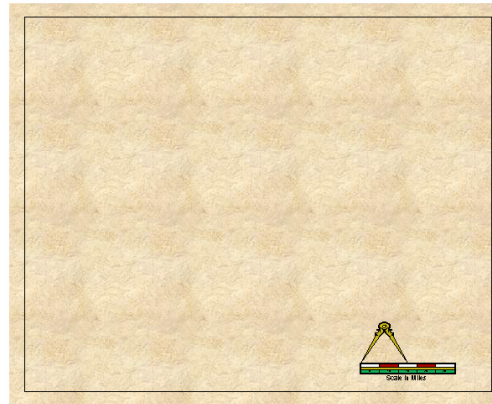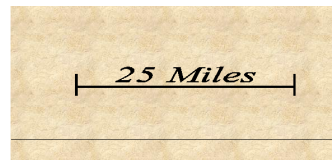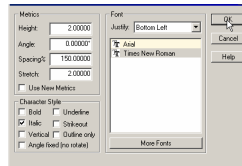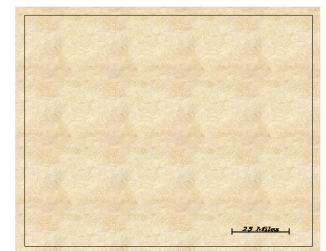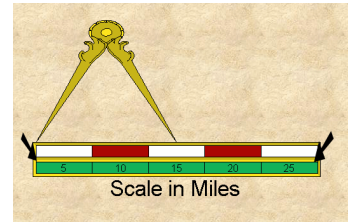
18 Right click on **Explode** then select **Explode Text** from the menu. Select the text we just placed on the scale bar. Right click, **Do It**.

19 From the **Tools** menu, scroll down to **Groups**, then select **Ungroup** from the menu. Select the text we placed on the scale bar. Right click, **Do it**.

20 In the **File** menu, select **Save As**. Type a name for your map, then click **Save**. (HandDrawnMap002.FCW)

Starting to Draw

21 Click **Ortho** Ortho to unselect it.

22 Click the **Layers** indicator L: SCALEBAR, then click **Add**. Type **LAND**, then click **OK**. Select **LAND** as the current layer, then click **OK**.

I'm going to draw a piece of a mainland and a few islands. One of the techniques being emphasized in this tutorial is the depiction of shallow water. When you draw your landmasses, make sure you have plenty of coast line.

23 In the **Overland** menu, select **Landmass**. In the Select Drawing Tool window, select **Advanced**. In the Custom Tool name box, open the drop down menu and select **Map Land, Current Color**. Click **Properties**.
      Click to put a checkmark in the selection box for **Use Current Properties Throughout**. Click **OK**. Click **Outline**. Click to put a bullet in the circle for **No Outline**. Click **OK**.

HandDrawnMap001.FCW

Scale in Miles

25 Miles

HandDrawnMap002.FCW

Groups

The exploded font becomes a Grouped set of multipolys. Grouped entities don't act as we expect them to in some situations. For instance, Grouped entities will not freeze when we freeze their layer. We'll Ungroup them. If we need to Group them later to move the scalebar, we can.

Click **Save** on exit.

24 Click the **Line Width** indicator. `W: 0.00000` Type **.5** then click **OK**. Draw a landmass and a few islands.
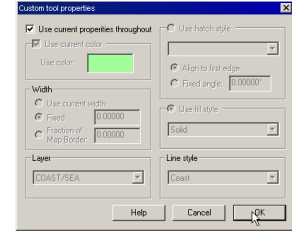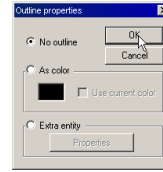
25 Click **Save** 💾 (HandDrawnMap003.FCW)

Creating Water

26 Click the **Layers** indicator `L: LAND` then select **COAST/SEA** as the current layer. Click **OK**.

27 Click the **Fill Style** indicator `FS: Solid` then select the **Bitmap Files** tab.
Click **New**, then type **Parchment Dark** into the New Fill Style Name field. Click **OK**.
Click **Find**, then navigate to your **CC2**>**Bitmaps**>**Tiles** folder and select the Parchment-Dark.bmp. Click **Open**. Uncheck the **Outlined** box, then click **OK**.

28 Click the **Line Width** indicator `W: 0.50000`, then type **0**. Click **OK**.

29 In the **Overland** menu, select **Landmass**. Select **Map Land, Current Color**.
This is going to be our most shallow water. Using the Map Land tool, draw a poly that contains the coast line and the islands.

30 Click the **Layers** indicator `L: COAST/SEA` then select **HEX/SQUARE GRID** as the current layer. Click **OK**.

31 Click the **Fill Style** indicator `FS: Parchment Dark` then select the **Brush Patterns** tab. Select **Solid**, then click **OK**.

32 In the **Draw** menu, select **Symbols Along**. Change the escarpment settings to
Symbols Currently Available in Map: select esc line endpoint 31
Distance: 1
Symbol Angle: Perpendicular (middle option), check the Invert Symbol box
% Chance: 100
Symbol Scaling: Default
Symbol Scale and Location: set all percentages to 500
Click **OK**, then click the right side Map Border line.
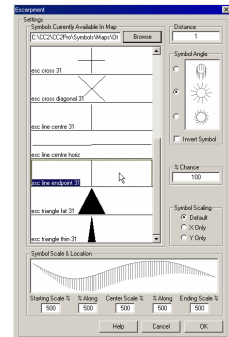
33 Click the **Layers** indicator `L: HEX/SQUARE GRID` then click **Freeze All**. Click to uncheck the Freeze box for the **SYMBOL DEFINITION** layer. Click **OK**.

34 Click **Explode** 🧨 then right click. Select **All**. Right click, **Do it**.

35 Click **Change Layer** 🖼 then right click. Select **Prior**. Right click, **Do It**. Right click. With **HEX/SQUARE GRID** set as the current layer, click **OK**.

36 Click **Save** 💾 (HandDrawnMap004.FCW)
In order to trim those water lines, we need to make a reference line.

37 Click color 2 (Red) on the color bar.

38 Click **Fractalize** 〽. Change the Fractalization settings to
Strength: 30
Depth: 5
Click **OK**.
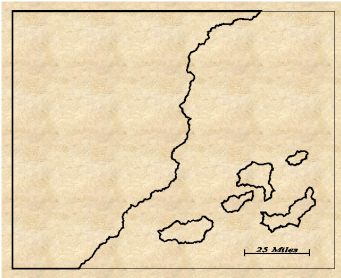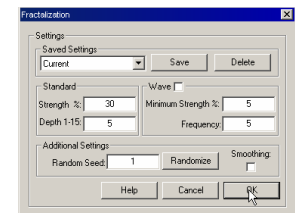
HandDrawnMap003.FCW
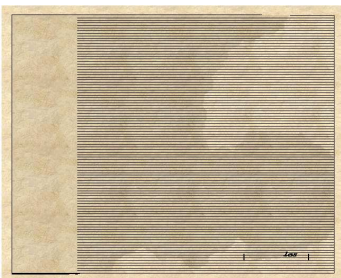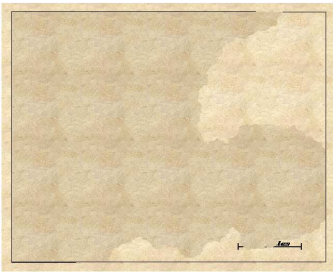
HandDrawnMap004.FCW

39 Click **Fractal Path** ⟨⟩ then draw a path or **paths** where we want the next deeper contours of water to be.

40 Click the **Layers** indicator `L: HEX/SQUARE GRID` then select **LAND** as the current layer. Click **Freeze All**, then click **OK**.

41 Click **Front** ⬓. Right click, select **All**. Right click, **Do it**.

42 Click color **0** (Black) on the color bar.

43 Click **Save** 💾 (HandDrawnMap005.FCW)
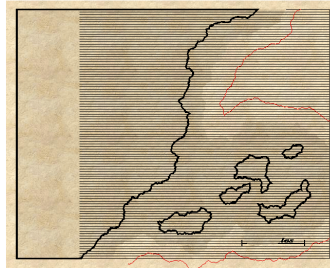
We're going to use **Break** and **Trim To** to trim the water lines. If the water line goes uninterrupted from the reference line straight to the edge, we can use **Trim To**. If the water line goes from the reference line and is crossed by the reference line again before it reaches the edge, we'll have to use **Break**.

44 Click the **Layers** indicator `L: LAND` then select **HEX/SQUARE GRID** as the current layer.

45 Click **Trim To** ▤ then select a red reference line. Trim all the lines that go uninterrupted from the reference line to the map border.

46 Click **Break** ✂ then cut away the section of our water lines that are recrossed by the reference line.

47 Click **Save** 💾 (HandDrawnMap006.FCW)

48 Click the **Layers** indicator `L: HEX/SQUARE GRID` then create a new layer named **OUTLINE**. Select **OUTLINE** as the current layer. Click **Freeze All**, then click to unfreeze the **LAND** layer.

49 Right click **Copy** ⧉ then select **Copy to Layer**. Right click, select **All**. Right click, **Do it**. Right click, click **OK**.

50 Click the **Layers** indicator `L: OUTLINE` then select **LAND** as the current layer. Click **Freeze All** and click **Hide All**.

51 Click **Change Line Width** 📏 then right click, select **All**. Right click, **Do it**. Type **0** `ENTER`.

52 Click **Change Fill Style** 🎨 then right click, select **Prior**. Right click, **Do it**. Right click, then select the **Bitmap Fills** tab. Select **Parchment Lt**, then click **OK**.

53 Click the **Layers** indicator `L: LAND` then click **Show All** and click **Thaw All**.

54 Click **Erase** ✏ then select the two reference lines we drew to trim the water lines. Right click, **Do it**.

55 Click the **Layers** indicator `L: LAND` then select **SCALEBAR** as the current layer. Click **Freeze All**.

56 Click **Front** ⬓. Right click, select **All**. Right click, **Do it**.

57 Click the **Layers** indicator `L: SCALEBAR` then click **Thaw All**.

58 Click **Save** 💾 (HandDrawnMap007.FCW)
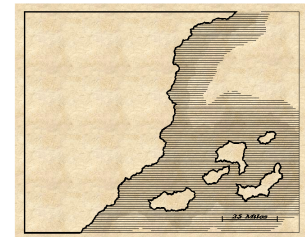
Now we're going to feather the ends of those lines.

HandDrawnMap006.FCW

HandDrawnMap007.FCW
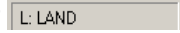
59 Click **Break.** ⚔ One at a time, select each water line and take small bites out of the ends.

The gaps should be small and random to feather the ends of each line.

60 Click **Save** 💾 (HandDrawnMap008.FCW)

HandDrawnMap008.FCW

Working the Land

61 Click **Catalog** [icon] then navigate to **Symbols**>**Maps**>**Handdrawn**>**Mountains.FSC**.

62 Click the **Layers** indicator `L: LAND` then select **MINERALS/MOUNTAINS** as the current layer. Click to uncheck the Freeze box for the **SYMBOL DEFINITION** then click **OK**.

63 Select a symbol from the Mountains catalog. I selected **HD Hills 9** as my first symbol. While holding the symbol, right click. In the Scale X and Y field, type **.25** then click **More**.

Place the symbol on the map. Use that symbol and a few others to make a nice little mountain range. I'm going to stay away from the spiky mountain range symbols and stick to single mountains and hills to make my range.

Once we've finished placing the mountain and hills symbols, we can make it look better. The lines of the symbols are too narrow for the look of the map. We're going to fix that.

Maps>Handdrawn

If you don't have Symbol Set 1 (SS1), you won't have these Handdrawn catalogs. Use symbols out of the Maps>Line>Mountains.FSC instead.

64 In the **Symbols** menu, select **Symbol Manager**. Click to highlight the first mountain symbol, and then click **Edit**.
Open a new window.

65 Click **Change Width** [icon] then right click. Select **All**, then right click, **Do it**. Type **2.** `ENTER`. Close the Edit window. Click **Yes** to keep changes on exit.

Repeat steps 65 and 66 for each of your mountain symbols in the Symbol Manager, then click **OK** to exit the Symbol Manager

66 Click **Save** 💾 (HandDrawnMap09.FCW)

Rivers and Roads

I'm not going to do rivers and roads in this tutorial. Those are covered elsewhere in the manual. When you do them in this style of map, just remember to stick with the single ink color and differentiate between rivers and roads with different line styles.

Adding Vegetation

67 Click **Catalog** [icon] then navigate to **Symbols**>**Maps**>**Line**>**Vegetation. FSC**.
Out of the catalog, click on each of **Pine Fill Tree**, **Jungle Fill Tree**, **Jungle Copse**, **Jungle Wood**, **Shrub**, and **Meadow**. Don't place them in the drawing. Just click on them for now. They are added as definitions to the drawing.

68 In the **Symbols menu**, select **Symbol Manager**. Click to check the box for **Show Fill Style Symbols**.

For each of the Vegetation symbols we selected in step 68, perform steps 69 thru 73

HandDrawnMap009.FCW

69 Select a symbol, then click **Edit**. Open a new Edit window.

70 Click **Change Color** 🔳 then right click. Select **All**. Right click, **Do It**. Select black on the color bar.

71 Click **Change Line Width** 🟦 then right click. Select **All** then right click, **Do it**. For the Tree-Jungle symbols, type **1.** ENTER . For the meadow and shrub symbols type **.5** ENTER .

72 Click **Change Fill Style** 🔳 then right click. Select **All** then right click, **Do it**. Right click. On the **Brush Patterns** tab, select **Solid**. Click **OK**.

73 Close the Edit window. Click **Yes** to keep changes on exit.

74 Click **OK** to close the **Symbol Manager**.

75 Click the **Layers** indicator L: MINERALS/MOUNT then select **VEGETATION** as the current layer. Click **OK**.

76 Click **Drawing** 🖼️ then scroll down the catalog to the vegetation symbols we edited. Add some trees and some vegetation symbols to the map.

77 Click **Save** 💾 (HandDrawnMap010.FCW)

Labels

I'm not going to do too much labeling on this map. Adding text is covered elsewhere in the manual so I'm just going to add a title label to demonstrate a technique. To keep the tutorial simple, I'm using Times New Roman, but you can use a fancier font.

78 Click the **Layers** indicator L: VEGETATION then click **Add**. Type **TEXT**, then click **OK**. Click **Add**, then type **TEXT SHADE**. Click **OK**. Select **TEXT** as the current layer, then click **Freeze All**. Click **OK**.

79 Click **Text** 🅰 then type **OUR REALM**. Click **Properties**. Set your text properties to:

Height: **6.0**

Angle: **0**

Spacing%: **150.0**

Stretch: **2.0**

In Character Style, click to check Bold and Italic

Click **OK**, then click **OK**. Place the text on the map. I've placed mine in the upper right area of the map.
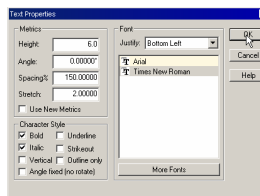
80 Right click **Explode** 💥 then select **Explode Text**. Select the **OUR REALM** text. Right click, **Do it**.

81 In the **tools** menu, scroll down to **Groups**, then select **Ungroup**. Select the **OUR REALM** text. Right click, **Do it**.

82 Right click **Copy** 🔲 then select **Copy to Layer**. Right click then select **All**. Right click, **Do it**. Right click then select the **TEXT SHADE** layer.
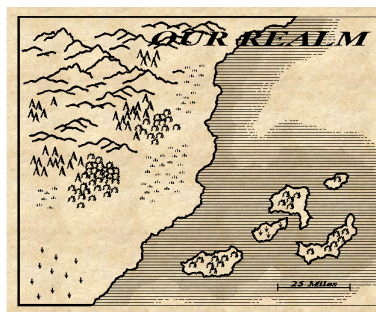
83 Click the **Layers** indicator L: TEXT SHADE then select **TEXT** as the current layer. Click **Freeze All**, then click to put a check in the Hide box for the **TEXT SHADE** layer. Click **OK**.

84 Click the **Fill Style** indicator FS: Solid then select the **Bitmap Files** tab. Click **New**. Type **Parchment Med**, then click **OK**. Click **Find**, then navigate to your **CC2**>**Bitmaps**>**Tiles** folder. Select **Parchment-Med.bmp**. Click **Open**. Click to check the **Outline** box, then click **OK**.

85 Click **Change Fill Style** 🔳 then right click. Select **All**, then right click, **Do It**. Right click, then click **OK**. (HandDrawnMap011.FCW)
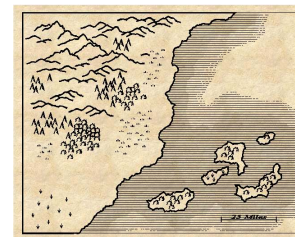
HandDrawnMap010.FCW

HandDrawnMap011.FCW
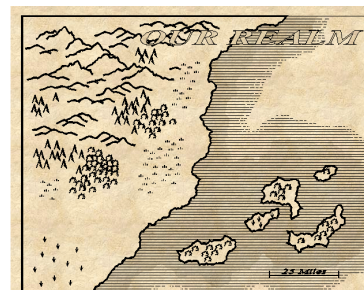
86 Click **Bring to Front** ⬜ then right click. Select **All**, then right click, **Do it**.

87 Click the **Layers** indicator `L: TEXT` then select **TEXT SHADE** as the current layer. Click **Freeze All**, then click **OK**.

88 Click **Move** ⬚ then right click. Select **All**, then right click, **Do it**. Click near the title text entities to pick them up. Move the entities just a little to the right and a little down. Once they are in position, click again to put them down.

89 Click **Catalog** 📁 then navigate to **Symbols>Maps>Other>Compass Roses.FSC**.

90 Select **Compass Rose 12 31**. While holding the symbol, right click. In the Scale X and Y field, type **.125** then click **More**. Set the compass pointer on the map. I put mine in the lower right corner.

91 Click **Save** 💾 (HandDrawnMap012.FCW)
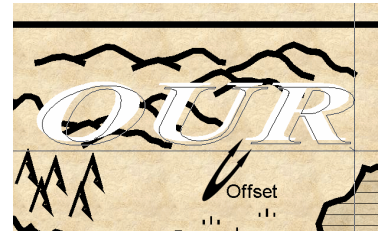
In Conclusion

The term Hand Drawn covers a lot of different styles of maps. This is just one, and what we've done here is certainly not the only way to create these effects.

In this tutorial, we've looked at a few techniques that can be used to give hand drawn maps some visual interest. To add city or town symbols, you'd use the same techniques that we used for the vegetation by editing existing symbols to suit the map style.

Here are a few points that I'd like you to come away with:

- If you do a hand drawn map on parchment, start with a nice parchment bitmap.
- A pen has thickness. If you do a hand drawn map, you should consider giving the lines a width greater than **0**. That includes the symbol lines.
- Don't be afraid to edit existing symbols to suit you. Explore all those hand drawn and line symbols. Don't just look at what they are. Look at what you can make them.
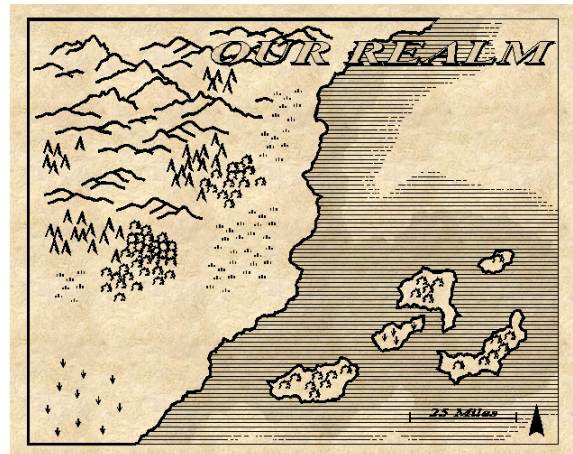
HandDrawnMap012.FCW

Forgotten Realms®

Most of us that are familiar with **CC2** are also familiar with Forgotten Realms®. Earlier in this manual, we explored a technique for creating forests similar to those used in the Forgotten Realms® Interactive Atlas. Styles change over time, and we have new terrain features in a similar style to those produced for Wizards of the Coast's 3rd Edition Forgotten Realms® setting. In this **tutorial**, we will explore the new style of forests as well as the top down views of the hills and mountains.

Forests

These forests are quick and easy, and they look nice. If you installed the manual's **download pack**, you already have the drawings tools to make the forests.

Open an Overland template. I'm using a small one (63X50) for this demonstration. All the
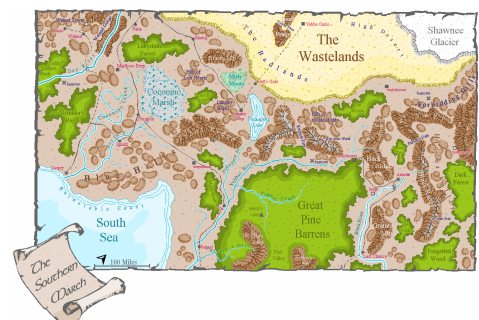
steps in this tutorial can be followed collectively on **FR-Forests01.FCW** in the **Tutorials\Tome\Maps\FRStyle** folder.

1   Click **Map rawing Tools** 🔧 then scroll to the <u>**Map FR Forest 1**</u> tool. Select the tool then draw a forest base.

2   Right click to bring up the Drawing Tools window again. Scroll to <u>**Map**</u>

   <u>**FR Forest 2**</u>. Select the tool then draw the next shade. Stay inside the outline of the forest base, but don't try to copy the base.

3   Right click to bring up the Drawing Tools window again. Scroll to <u>**Map**</u> <u>**FR Forest 3**</u>. Select the tool then draw the highlight shade. Stay inside the outline of the second shade, but don't try to copy it.

We could be done now. That is a pretty nice looking forest, but just a couple more steps will make it a great looking forest.

4   Right click **Copy** 📑 then select **Copy to Layer**. Select just the forest base, **Do It**, then add a layer named **FILL**. Select **FILL** as the current layer, then click **OK**.

We're going to <u>**import a catalog**</u> to our drawing. The catalog was installed with the download pack that gave us the drawing tools. It will be from this catalog that we get our fill style for the forest.

5   From the **Symbols** menu, select **Symbol Manager**. Click **Import**. In the **Files of Type** box, select **Campaign Cartographer 2 FSC Symbol Catalog**. Navigate to the **Symbols**>**Tutorials** folder and select the **SouthernMarch Catalog.FSC**. Click **Open**, then click **OK**.

6   In the **Select Layers** window, click **Freeze All** to freeze everything but the **FILL** layer.

7   Click **Change Fill Style** 🟥 then select the forest entity that was just copied. Right click, **Do It**. In the **Fill Style** window, click **New**. Type **FOREST FILL**, then click **OK**. In the **Symbol Fill** box, open the drop down menu, Scroll down and then select the symbol **Forest Fill**. For the **X** and **Y spacing**, enter **4** and in the **X** and **Y scale**, enter **.1**. Click **OK**.

8   Set the current color to 113, then right click **Outline** 🖌. Select **Outline in current color**, then select the fill. Right click, **Do It**.

Mountains

Those top-down view mountains are almost as easy. Let's do one. We'll build the mountain right on the drawing like we did the forest.

Open an Overland template. I'm using a small one (63X50) for this demonstration. All the steps in this tutorial can be followed collectively on **FR-Mountains01.FCW** in the **Tutorials\Tome\Maps\FRStyle** folder.

1   In the **Select Layers** window, create a new layer called **SKETCH**. Select **SKETCH** as the current layer.

2   Select a bright color as the current color. I picked 6 (fuchsia).

We're going to draw the spine of our mountain. This will be the guide for our mountain shape. Let's do a Y shaped mountain ridge.

3   Click **Fractalize** 〰 then set **Strength %** to **20** and **Depth** to **3**.

4   C lick **Fractal Path** 〰 then <u>**draw**</u> a Y.

5 Change the current fill style to **Hollow**.

6 Click **Fractal Poly** then draw the outer perimeter of the mountain base. Touch the tips of our spine paths. This will be the basic shape for our mountain.

7 In the **Select Layer** window, create 3 new layers. Name them **MT BASE**, **MT LIGHT**, and **MT SPINE**.
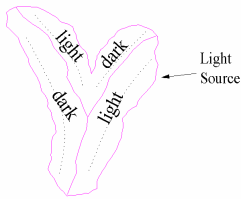
Let's take a moment to look at our mountain shape. Our mountain will have a light side and a dark side so we need to decide from which direction our light is coming. I picked the right side. That will lay out our highlight and shade as shown here.

We need to add a path to divide the light and dark areas in the crotch of the Y.

8 Click **Fractal Path** then draw that path.

Now we can start building our mountain.

9 Right click **Copy** then select **Copy to Layer**. Select the base shape of the mountain that we drew in step 6 then copy it to the **MT BASE** layer.

10 Open the **Select Layer** window. With **MT BASE** selected as the current layer, **Freeze All** and **Hide All** other layers.
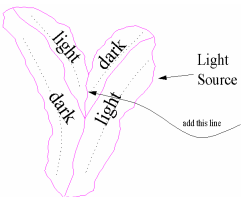
11 Click **Change Color** then select the mountain base entity. Select color **41**.

12 Click **Change Fill Style** then select the mountain base entity. Select **Solid**.

13 Open the **Select Layer** window. Select **SKETCH** as the current layer. **Freeze All** and **Hide All** the rest of the layers.

14 Right click **Copy** then select **Copy to Layer**. Select all the sketch entities then copy them to the **MT LIGHT** layer.

15 Open the **Select Layer** window. With **MT LIGHT** as the current layer. **Freeze All** and **Hide All** for rest of the layers.

What we need to do is create polys for the highlight areas of our mountain. To do that, we'll cut away the parts we don't want. Let's look again at our mountain skeleton.

We want to cut away the dark areas and keep the light areas.
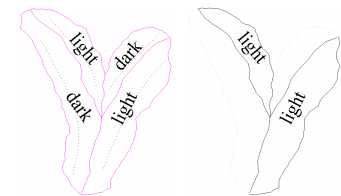
16 Click **Split** then select the base path. Split the path where indicated.
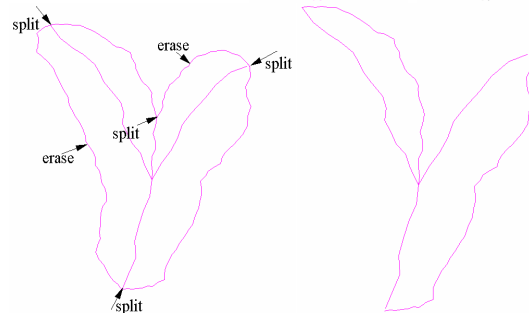
17 Click **Erase** then erase the paths indicated.

Does it look strange? That's okay. It'll come together. We're going to make two polys here.

18 Click **Change Fill Style** then select the paths we have left. Change them to **Solid**.

19 Right click **Explode** then select **Combine Paths**. Click on a path. Watch what greys out and then click a second path that will connect to it. Do that until you have combined the paths into two shapes.

20 Right click **Explode** then select **Path to Poly**. Select both shapes.

21 Click **Change Color** then select both shapes. Change the color to **42**.

Combine Paths

This doesn't have to be a tricky command. Watch your command prompt. Click the first path, click the second path, and then if needed, toggle between F and S to find the two nodes you want connected. When it looks correct, left click to complete the action.

22 Open the **Select Layer** window. Select **SKETCH** as the current layer. **Freeze All** and **Hide All** for the rest of the layers.

23 Right click **Explode** 💥 then select **Copy to Layer**. Select the Y and the path we drew in the crotch. Copy them to the **MT SPINE** layer.

24 Open the **Select Layer** window. With **MT SPINE** selected as the current layer, **Freeze All** and **Hide All** other layers.

25 Click **Change Fill Style** 🔲 then select the paths we just copied. Change them to **Solid**.

26 Click **Change Color** 🔲 then select the paths. Change them to color **36**.

27 Click **Change Line Width** 🔲 then select the paths. Change the line width to **.2**.

28 Open the **Select Layer** window. **Show All** and **Thaw All**.

29 Open the **Line Width Settings** window. Change the current line width to **.15**.

We need to draw the down sloping contour lines.

30 Click the color indicator then select color 36 (dark brown).

31 Click **Fractal Path** ⚡ then <u>draw contour lines</u> from the spines down to the base.

32 Click **Erase** ✏️ then select all the entities that make up our mountain. Right click, scroll down to **Combine** then select **And**. Right click, then select **Color**. Select fuchsia (or whichever bright color you made your skeleton). Right click, **Do it**.

Hills

Just like the mountains, we'll make a single hill to demonstrate the style. We can then apply the technique to hills in a variety of shapes and sizes.

Open an Overland template. I'm using a small one (63X50) for this demonstration. All the steps in this tutorial can be followed collectively on **FR-Hills01.FCW** in the **Tutorials\Tome\Maps\FRStyle** folder.

1 Select a bright color to work in. I like to use color 6 (fuchsia)

2 Click the **Layers** indicator, then create new layers named **SKETCH**, **HILLS**, **HILL FILL**, and **HILL SHADING**. Select **SKETCH** as the current layer.

3 Click the **Fill Style** indicator, then set the fill to **Hollow**.

4 Right click on **Circle** 🔵 then select **Ellipse**. Draw an ellipse. I've put a 5x5 box around mine so you can judge size.
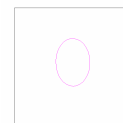
Our hill will have a shaded side like our mountain did. It will be simple shading to give it dimension.

5 Click **Fractalize** ⚡ then set the **Strength** to **20** and the **Depth** to **2**.

6 Click **Fractal Path** ⚡ then draw a path on our ellipse to section off the shaded side.

7 Click **Explode** 💥 then select our ellipse. **Do it**.

8 Right click **Explode** 💥, then select **Line to Path**. Select the ellipse (which is no longer an <u>ellipse</u>), then left click to end the command. Our ellipse is now an oval path.

9   Right click **Copy** then select **Copy to Layer**. Select our oval path then copy it to the **HILLS** layer.

10   Click the **Layers** indicator. With **HILLS** as the current layer, click both **Freeze All** and **Hide All**.

11   Right click **Explode** then select **Path to Poly**. Select the oval path,

12   Click **Change Fill Style**, then select the oval. Change the oval to **Solid**.

13   Click **Change Color** then select the oval. Change the oval to color **43**.

14   Click the **Layers** indicator, then select **SKETCH** as the current layer. Click both **Freeze All** and **Hide All**.

15   Right click **Copy** then select **Copy to Layer**. Select our oval path and fractal path then copy them to the **HILLS SHADING** layer.

16   Click the **Layers** indicator. With **HILLS SHADING** as the current layer, click both **Freeze All** and **Hide All**.

17   Click **Split** then split the oval near where it is crossed by the fractal path.

18   Click **Erase** then erase the path that we split out of the oval.

19   Use **Trim To** to neaten up those intersections that we created when we split the oval.

20   Right click **Explode** then select **Combine Paths**. Combine the paths into a crescent for our hill shading.

21   Click **Change Fill Style** then select the crescent. Change the oval to **Solid**.

22   Right click **Explode** then select **Path to Poly**. Select the crescent.

23   Click **Change Color** then select the crescent. Change the crescent to color **42**.

24   Click the **Layers** indicator. Select **HILLS FILL** as the current layer then click **Show All**.

25   Click the **Fill Style** indicator, then set the fill to **Solid**.

26   Click the **Line Width indicator**. Change the current line width to **.06**.

We need to draw the down sloping contour lines.

27   Click the color indicator then select color 38 (med brown).

28   Click **Fractal Path** then **draw contour lines** around the base of our hill.

29   Click the **Layer** indicator, then click **Thaw All**.

30   Click **Erase** then select all the entities that make up our hill. Right click, scroll down to **Combine** then select **And**. Right click, then select **Color**. Select fuchsia (or whichever bright color you made your skeleton). Right click, **Do it**.

When you do hills like this in your map, keep in mind that you don't have to create many of them. One each of an oval one, a round one and a kidney shaped one could meet all your needs. By copying the hills and scaling them slightly larger or smaller, you can drop several into your drawing

Rivers

I'm not going to spend time doing rivers. I'll give this to you in a nutshell.

Follow the instructions for creating the river as demonstrated in the tutorials in Rivers, Settlements and Roads starting on page 30. Once you have a completed river network, use

Draw Contour Lines

These are a little different than the mountains. Just make little hatch lines around the base of the hill. Don't worry about making them perfect. They don't have to be evenly spaced nor do they have to exactly start or end in perfect alignment.

split

erase

Copy to Layer to copy all your rivers to another layer, such as **RIVER FILL**. Freeze the original river layer, then **Change Color** and **Change Line Width**, making the fill river darker and narrower than your original river. This gives you easy two-tone rivers.

John Speed Style

We're not going to reproduce a **John Speed** map in CC2 Pro, but we can carry elements from his maps over to ours.

Inspired by John Speed's map of Cornwall, this CC2 Pro version is heavily decorated with ornamental symbols created from fonts using the technique demonstrated in the section Converting Fonts to Symbol Catalogs on page 47.

What we're going to do is create the colored land borders that are typical of a Speed map. To follow along with the tutorial, open the drawing **Speed001.FCW** found in the **Tutorials/Tome/Maps/Speed** folder.

1   Click the **Layers** indicator, then select **SKETCH** as the current layer. Click **Freeze All**, then click **OK**.

Let's make a colored border on the area of land indicated here with a Y.

2   Right click **Copy** then select **Copy to Layer**. Select the color #6 sketch lines that outline the area marked with a Y. Create a new layer named **OUTLINE YELLOW**, then copy the entities to it.

3   Click the **Layers** indicator, with the **OUTLINE YELLOW** layer as the current layer, click **Freeze All** and **Hide All**.

4   Click **Trim** then cut away the sections of coastline until we're left with the paths that will make our colored border.

5   Click **Fractalize** then set the **Strength** to **20** and the **Depth** to **3**.

6   Click **Fractal Path** then draw a path inside our sketch lines. This will be the width of the color border.

7   Click **Trim to Intersect** then clean up the intersections where the paths cross.

8   Right click **Explode** then select **Combine Paths**. Combine all the paths that will make up our border. **Do it**.

9   Right click **Explode** then select **Path to Poly**. Select our newly combined path. **Do it**.

10   Click **Change Color** then select our border entity. Change it to color 143.

11   Click the **Layers** indicator, then click **Show All**. (Speed002.FCW)

That was a quick, easy color border. If you want to practice more, open **Speed003.FCW** found in the **Tutorials/Tome/Maps/Speed** folder. Follow the same technique and draw the red and blue borders on either side of our yellow area. An example with all the colored borders can be found in **Speed004.FCW**.

To follow along as we put the colored border on the main landmass, open **Speed005.FCW** and let's finish this.
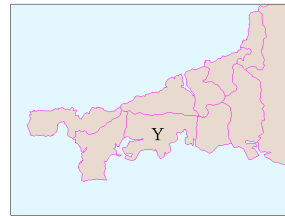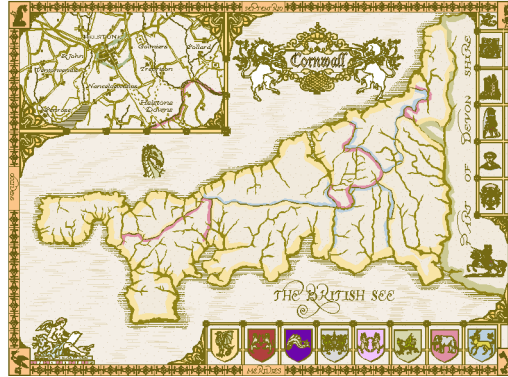
1   Click the **Layers** indicator, then select **SKETCH** as the current layer. Click **Freeze All**, then click **OK**.

2   Right click **Copy** then select **Copy to Layer**. Select the color #6 sketch outline of the landmass. Create a new layer named **OUTLINE GOLD** then copy the entity to that layer.

3   Click the **Layers** indicator, with the **OUTLINE GOLD** layer as the current layer, click **Freeze All** and **Hide All**.

4   Click **Trim** then cut away the tails of coastline at the Cornwall boundaries.

5   Click **Fractal Path** then draw a path inside our sketch line.

6   Right click **Explode** then select **Combine Paths**. Combine all the paths that will make up our border. **Do it**.

7   Right click **Explode** then select **Path to Poly**. Select our newly combined path. **Do it**.

8   Click **Change Color** then select our border entity. Change it to color 139.

9   Click the **Layers** indicator, then click **Show All**. Select **SKETCH** as the current layer, then click **Freeze All**.

10 Click **Bring to Front** then right click. Select **All**.

11 Click **Change Color** then right click. Select **Prior**. Change to color 38.
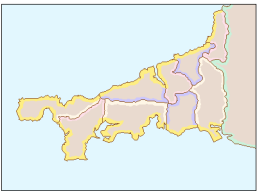
This certainly isn't the only way to create these colored borders reminiscent of the old Speed maps, but perhaps it will spur some ideas for you.

Cornwall by Allyn Bowker

This map was constructed using the techniques described in the previous section.
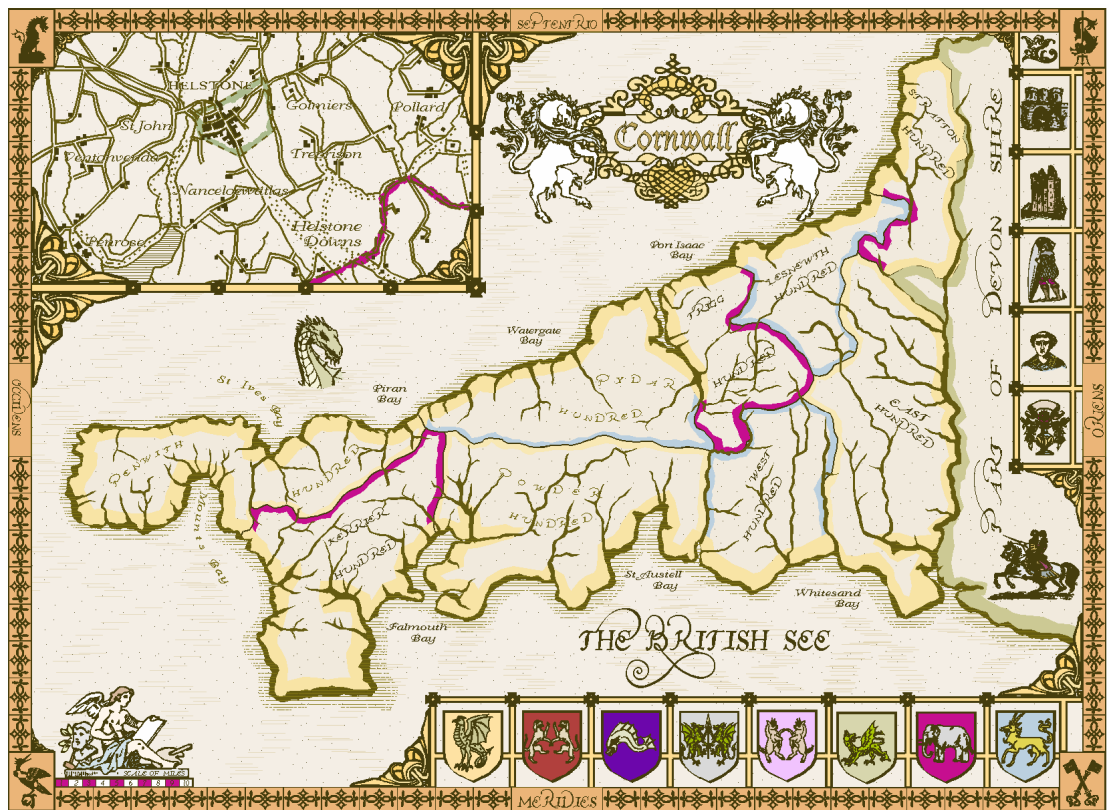
The map labels visible include: Angel Hills, Verica, Angel Creek, Kyth, Cara Creek, Cara, Seven Falls, Forrest of Sarroes, Dorf, Buhen River, Izamine, Petaro Plains, Petaro barrows, Petaro, Pine Barrens, Bren, henge, Aife Medoes, Aldea, Black Forrest, Aife, Brigantia, Wer Loyk, Opi barrows, Seosaimhin, Zeph, Upland Steppe, Chasetts Tract, Gayto, Ashlar, Ashlar Hills, Dun barrows, Loyk Bian, Beziabo, Bian Dam, Bian R., henge, Allur, Ubiay barrows, Ario, Chylon, mudflats, Og, Bruemet

The River Gwenfrew
circa 986 agw
100 miles
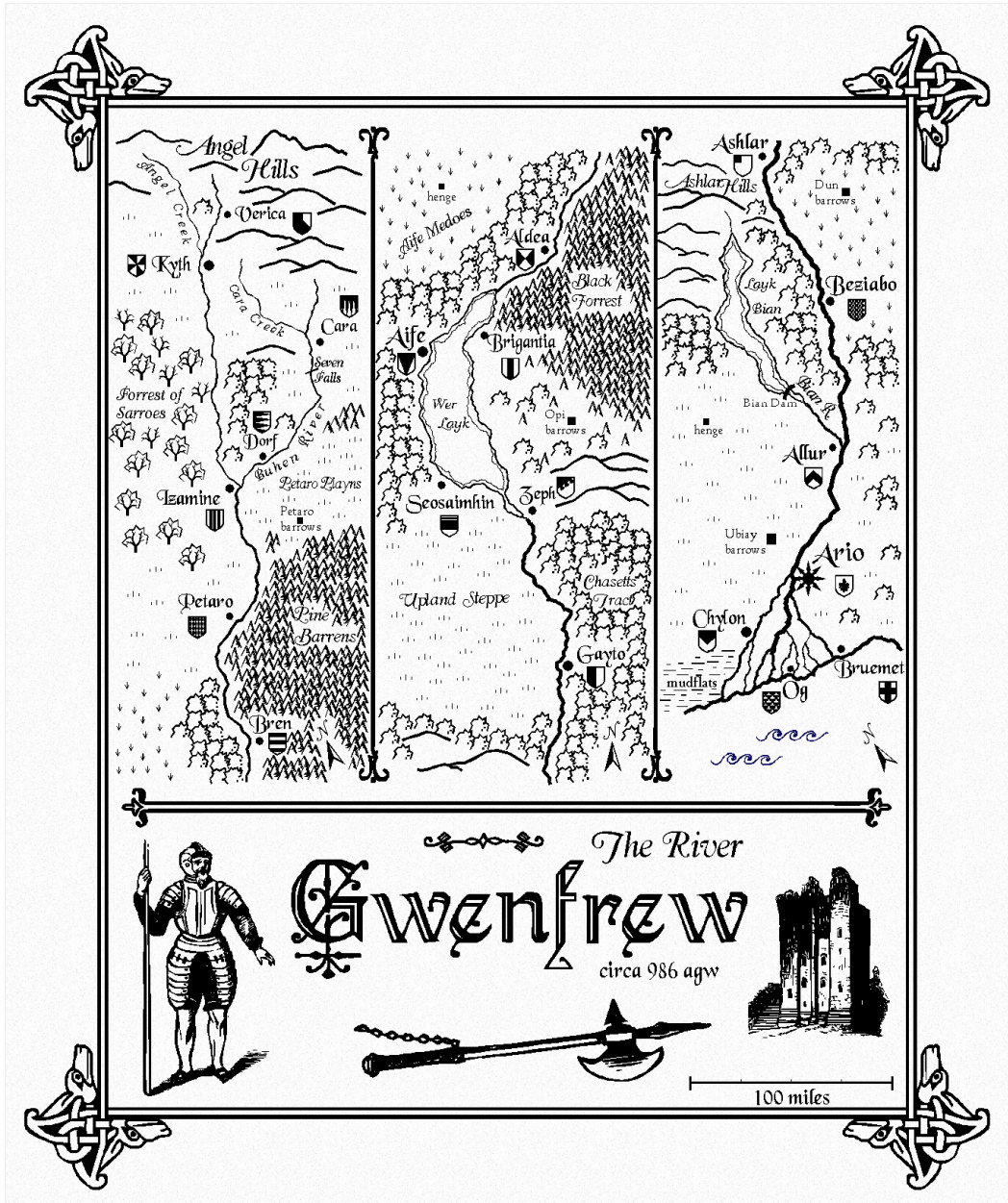
The River Gwenfrew by Allyn Bowker

The Gwenfrew River uses many of the same symbol editing techniques demonstrated in the vegetation section of the Hand Drawn tutorial found on page 102.

Also used are font ornaments converted to symbols as demonstrated in *Converting Fonts to Symbol Catalogs* on page 47.

Import, Export and Insert Files

CC2 Pro allows you to import and insert a wide variety of vector based file formats and export to even more. CC2 Pro can't convert raster (pixilated) images for import, but you can place such images in your drawings

Using bitmaps or scans in drawings

CC2 Pro maps can include bitmap images, such as scans, clipart or pictures downloaded from the web. The image can either be permanent fixtures in the drawing or, more likely, a temporary entity to trace over. The bitmaps can be included in the CC2 Pro file, or kept in their original files.

Inserting a bitmap picture

In this example, we will insert a hand drawn painted image of some mountains to be traced over and converted to a symbol. Before inserting the bitmap, we will select an overland mapping template and insert a mountain symbol so we can correctly size the inserted bitmap.

<div class="sidebar">

Paint Programs

If you don't already have a paint program (sometimes called a photo editor), shareware versions are often included on the cover disc of PC magazines. Alternatively, you can download shareware software from the web. For *Paint Shop Pro®* go to www.jasc.com.

</div>

1   If the original image is not a Windows® .BMP bitmap, open it in a **paint program** such as Jasc's *Paint Shop Pro* and, using Save As, convert it to Windows® .BMP format.

2   Click **New** 📄 to start a fresh map based on a 1000 x 800 mile template.

3   Click **File menu** >> **Save As** and give the map a name in the **Tutorials** folder.

    If you don't, the picture won't display until the map is reloaded.

4   Click **Mountains** 🗻 button and insert two or three mountain symbols in the map.

5   Select **Edit menu** >> **Insert File**. Use the following options.
- ✓ Click Embed in Drawing
- ✓ Unclick Outline Bitmap.

6   Select **Mountains.bmp** from CC2 Pro's **Tutorial/Tome** folder.

<div class="sidebar">

Size

The picture retains the aspect ratio of the original bitmap, but you can force it to distort by pressing SHIFT.

</div>

7   Place opposite corners of a box, nearly the same **size** as the symbol mountain range. Disable **Snap** to place the corners freely.

8   The picture size will probably be slightly wrong. Use **Move. Scale, Rotate** 🔲 on the **Prior** selection to let you visually resize the picture. Just press CTRL while moving the mouse.

9   You can now zoom in and trace over the scanned mountains.

Tracing over a scanned map

Before inserting the scanned map you need to determine the real world dimensions of the scanned area and select an appropriate template.

Earth, for example, has an equatorial circumference of approximately 25,000 miles. To insert a scanned worldview of Earth you must therefore start with a map measuring at least 25,000 miles east-west.

The example bitmap we will use was taken from Fractal Terrains Pro – created by ProFantasy, capable of building complete, factually generated landmasses. For argument sake, I am saying the circumference of the random world is 9,830 miles. A small but dense planet.

1   Click **New** 🗋 to start a fresh map based on a 10000 x 8000 mile template.

This template is large enough to fit the whole random world.

2   Save it with the name **Random** in the CC2 Pro **Tutorials** folder.

3   Click the Layer indicator, add a new layer **BITMAP** and make it the current layer.

4   Select **Edit menu** >> **Insert File** and select **Random.bmp** from CC2 Pro's **Tutorial/Tome** folder. Use the following options.

   ✓   Unclick **Embed in Drawing**
   ✓   Click **Relative Path**
   ✓   Unclick **Outline Bitmap**.

The Command Prompt reads 1st corner:.

5   Type **0,0** then press ENTER.

The Command Prompt reads Opposite corner:.

At this point you could just click a new point. CC2 Pro maintains the aspect ratio (shape) of the bitmap. Press SHIFT if you want to distort the bitmap. In this example, we want the bitmap to be an exact size.

6   Type **1,4838** then press ENTER.

The bitmap image of the planet is **_inserted_**.

7   You can now trace over the map as normal. When you're done, either hide or **_delete_** the **BITMAP** layer.

When you insert your hand drawn campaign maps, be sure to use the correct sized template, and scale the maps to right size.

Inserting other files into CC2 Pro

In addition to bitmaps, you can also place text files, CC2 Pro files, and AutoCAD DWG and DXF into CC2 Pro. Here is a summary of all the options.

Files of Type

Insertable Files: Shows all files of a type that can be inserted.

CC2 Pro FCW or **FCT Drawing:** Inserts a CC2 Pro drawing. When you have selected your drawing, click an insertion point. Click more insertion points to continue adding files, or right click to end. See the Command Prompt for scaling and rotation options. Inserted files can be treated as single entities (grouped) or as a set of new entities. Click **Tools menu** >> **Options** >> **FCW, FSC, FCT** to change this setting.

CC2 Pro FSC Symbol Catalog: Insert all the symbol definitions from the selected file, letting you know how many definitions have been added. Click **Symbol Manager** on the **Symbol** menu to see the symbols now in the current drawing.

AutoCAD® DWG or **AutoCAD® DXF file:** Inserts a vector AutoCAD® file. When you have selected your drawing, click an insertion point. Click more insertion points to continue adding files, or right click. Look at the Prompt for scaling and rotation options.

BMP Bitmap Inserts a bitmap image, perhaps one you have scanned, into the drawing. After you have selected the bitmap, click a corner for the bitmap. The cursor locks to the ratio of the bitmap you are inserting: press SHIFT if you do not want to maintain the image's aspect ratio.

TXT Text File Inserts a text file. Click an insertion point. The text will have the current text properties. Large text files may be truncated.

Embed in drawing: If this option is set, the file you are inserting will become part of the current drawing. You can edit it just as you can any other entities. If the option is not set, the file is inserted as a reference – you need to open the file that is referenced in order to change its appearance.

Insert

The source bitmap is 1150 x 566 pixels. A little calculation reveals that if 1150 scales up to 9830 then 566 scales up to 4838. There is, however, no need to work this out. Just get the Y-coordinate correct – CC2 Pro ignores the X-coordinate.

Delete

If you want to delete the **BITMAP** layer, you'll first have to erase the bitmap. CC2 Pro won't let you delete layers which have entities on them.

Portable

The inserted file is referred to by its position relative to the current file. We recommend you keep bitmaps and other reference files in the same folder as the map into which they are inserted, and use the relative path option.

Import AutoCAD®

Files imported from AutoCAD® will need some work changing colors, fill styles and line styles before they look right. If you find that shapes won't fill, use Path to Poly from the Explode right click popup menu to make them fillable shapes first.

Standard file

FCW files contain information such as fill styles, line styles, layers, views and symbol definitions. They can be saved in a compressed or uncompressed format. We recommend compressed unless you have a slow computer.

Create an FCT

If you want to add new fill styles and line styles to your drawings, it is best to add them to templates.

New CC2 Pro file

For example you could save all the continents from your world map to separate files, ready to be inserted into a new map. When you've chosen a file name, selected **OK**. CC2 Pro will ask you to select entities and a lower left corner for the file.

Relative path: If you are not using the **embed in drawing** option, **Relative path** ensures that your drawings are **portable** to other computers.

Outline Bitmaps: Select this option if you would like a visible outline on inserted bitmaps

Importing into CC2 Pro

CC2 Pro lets you **import AutoCAD®** DWG or AutoCAD® DXF files and CC-DOS files. Click **File menu** >> **Open** and click Files of Type to choose a file type.

Exporting maps from CC2 Pro

CC2 Pro can also export pictures in a variety of formats. The most popular choices are bitmap and PNG, which can both be pasted into documents or published on the web. You can also save maps in DXF and DWG vector files, although these file formats do not support all CC2 Pro entity types.

Save As

The **Save as type** list on the **Save As** dialog box lets you save the whole map in a number of file formats. Each has options which you can access from the **Options** button on the dialog box, or by **Tools menu** >> **Options**.

Campaign Cartographer 2 FCW Drawing is CC2 Pro's **standard file** format.

Campaign Cartographer 2 FCT Template is the same as an FCW file except you can only use **SAVE AS** to **create an FCT** (template) file. Templates are what CC2 Pro looks for when you click **New**.

Campaign Cartographer 2 Symbol Catalog files same as an FCW file, but they are used to store symbol definitions. It is these files you select from when you use the **Catalog** button or **Symbol Settings**. By convention, these are given a forest green (color 13) background and saved with the main window minimized.

Selected Entities FCW This lets you save entities in the current drawing to a **new CC2 Pro file**.

BMP Bitmap file is a Windows® bitmap file. Bitmap files are measured in pixels across and up. Options are width and height in pixels, color depth (24 bit or 8 bit) and **Unused Area**:

✓ If you select **Normal**, the final image will be exactly the same width and height as the bitmap size. Any additional entities in the map will be added to the final image.

✓ If you select **Crop** the final image size will have the same ratio as the selected entities or map. The image will have a lower height or width.

✓ If you select **Blank** the final image will be exactly the same width and height as the bitmap size. Any area outside the selected entities will be blanked out.

JPEG file saves your file as a raster-based bitmap file, ready for the web. JPEG files are small, but lose definition. Options are width and height, **Unused Area** and **Quality**. **Quality** controls the appearance and size of the JPEG. Lower quality JPEGs open more quickly and have a smaller file size, but have less data. If **Progressive** is ticked, the image will open with increasing resolution in a web browser, rather than all at once.

PNG file saves your file as a raster-based bitmap file, ready for the web. PNG has no loss of definition like JPEGs do. The options are width and height in pixels, compression (fast loading versus small file) and **Unused Area**.
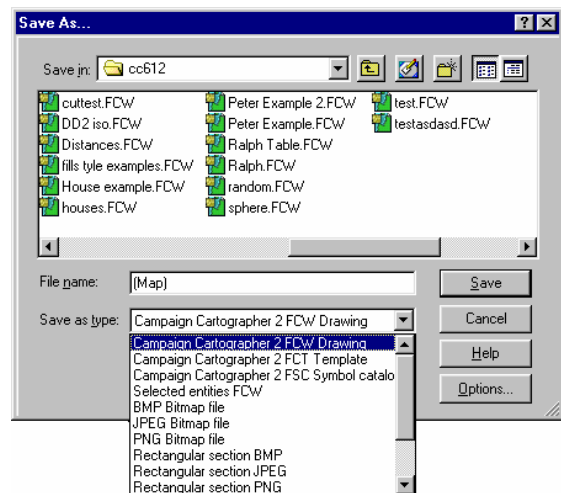
Rectangular Sections (bitmap, PNG and JPG) let you export a rectangle of your map at any resolution into a raster based file format. The options are the same as for saving the entire drawing. When you've selected a file name, click two points forming a rectangle to export the file

Enhanced Metafile EMF is a Windows enhanced metafile. Options are X and Y size, and Paint Background color. We recommend a large width and height for better resolution. A good option to import vector data into Microsoft Word®

AutoCAD® DXF files are the standard way of exchanging vector information. CC2 Pro can export or import these files up to version R2000.

AutoCAD® DWG files are AutoCAD®'s native file format. Version R2000 is supported.

All text in drawing lets you export all text labels in the drawing. The options allow you to control the ordering of the text file.

Saving whole maps as bitmaps for the Internet

Internet browsers recognize PNG, BMP, GIF and JPG files formats. A useful technique to give very good image quality is to create images at greater than the desired size, then use a paint program to *resample* it (reduce its size). The resample process smoothes out rough edges, giving a very clean image and fine detail.

Let's say you want a 640 by 480 image for the web.

1   Select **File menu** >> **Save As**.

2   Select **BMP Bitmap File** from the **Save as type** list box.

3   Click **Options** and type **800** in the **Horizontal Pixels** and **600** in the **Vertical Pixels**. Select **24-bit** color depth.

4   Select a suitable directory and name, click **OK**.

    The bitmap is saved with the size and color options you chose. Those options remain default until you change them.

5   Open the same bitmap in a paint program, perform any cropping, then resample it to 640 by 480. Use **Save As** to save it as a type supported on the Internet, such as PNG, GIF or JPG.

    In Paint Shop Pro® you can get even better results by sharpening the resampled image.

Exporting and Importing with the clipboard

CC2 Pro stores clipboard information in three formats. When you paste the information, the application you are pasting into will choose the format it understands. For example, if you paste into another CC2 Pro map, it will paste as normal CC2 Pro entities; if you paste into Microsoft® Paint, it will appear as a bitmap.

Exporting from CC2 Pro

You can use the clipboard to copy selected entities to other applications.

1   Press CTRL + C . **Select** the entities you want to appear in the image.

2   Open the application you want to paste the bitmap into. Press CTRL + V (or select Paste from the application's Edit menu).

    If the application supports bitmaps, you will see the entities you selected. The resolution is the bitmap is set from **Tools menu** >> **Options**.

    It is likely that you will need to crop the image.

Selected Entities

Remember, entities on frozen layers will not be selected.

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Importing into CC2 Pro using the clipboard

Use `CTRL` + `V` or click **Edit menu** >> **Paste** to insert entities from the Windows clipboard.

CC2 Pro entities from other drawings are pasted into the current drawing just as you might expect. If you have **Tools menu** >> **Options** >> **FCW, FSC, FCT** >> **Group Files** on Insertion ticked, the pasted entities will be treated as a single entity, until you ungroup them with **Tools menu** >> **Groups** >> **Ungroup**.

Text from other applications is inserted with the current text properties. Very large chunks of text will be truncated.

Bitmaps are inserted as a bitmap embedded into the drawing, just as if you had inserted a bitmap file. Choose two points to define the extents of the bitmap. The bitmaps aspect ratio is maintained unless you press `SHIFT` while selecting the second point.

Linking files and maps together

Maps can contain any number of **hotspots** which, when clicked on, perform an action such as opening another file. There is no limit to how many hotspots a map can have, nor to what types of file you can **link** – so long as a file type is recognized by Windows®, CC2 Pro can open it. If a hotspot links to another file as opposed to performing CC2 Pro commands, we call it a hyperlink.

Hyperlinks are usually invisible, so it is helpful to somehow mark where they are. You can use a convention such as a red dot on cities that are linked, a different font or capitalization, or mark the location with a symbol. The **Links** symbol catalog in CC2 Pro's **Symbols\Other** folder contains a suitable selection.

Linking maps to other maps

3 **Open** 📂 **WS- scale01.fcw** from CC2 Pro's **Tutorial/Tome/Maps/WorldScale** folder.

You see an early map of a new campaign world.

4 On the **File** toolbar, click **Link with Map** 📇.

You see the Select File dialog box.

5 Select **WS-scale03.fcw** from the **Tutorial/Tome/Maps/WorldScale** folder, then click **OK**.

The Command Prompt reads Hotspot window:.

6 Click opposite corners of a window around the southeast corner of the northern continent.

The hyperlink window is drawn. Under the window is the hotspot command text LOADM $continent smoothed.FCW;

The window and command text are visible because when you add a hotspot all hotspots are **shown** (at the next redraw), so they can be edited.

7 Click the **Layer** indicator, and add a new layer called **Map Links**. Set it current.

You can hide this layer later for printing.

8 Set the color to purple (7) and the fill style to Hollow.

9 Click **Box** 🔲 then click points on opposite corners of the hyperlink box.

10 Select **View menu** >> **Hide Hyperlinks**.

The hotspots are hidden.

Hotspots

For more information on hotspots see Hotspots on page 118

Linking Maps

As your campaign atlas grows, link each map with its neighbors and any larger or smaller scale maps of the same area. This way you can navigate your entire world without ever having to remember a file name.

You can see more on this topic in **Linking Maps and Information** on page 348
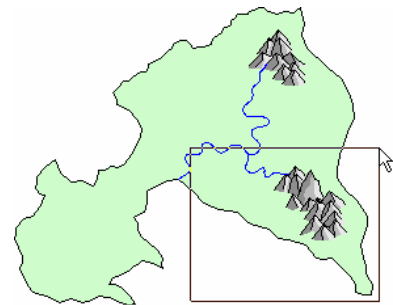
Shown Hotspots

Because hyperlinks are usually hidden, it's a good idea to mark areas where you have them.

Cursor

When the cursor is over the area, it becomes a pointing finger.

11 Move the **cursor** over the hotspot area.

12 Click over the hyperlinked area.

CC2 Pro is about to load another map, so it asks if you want to save the changes. I suggest you do. The new map loads. You can now get to this map from the other, simply by clicking over the hotspot.

Add a parent link

Finally, we recommend that you link this child map back to its parent. A link over the compass rose is a good way to do this – and you don't need to mark where it is, either.

1 Click **Link with Map** . Select **WS-scale01.fcw** from the **Tutorial/Tome/Maps/WorldScale** folder, then click **OK**.

2 Click points to enclose the center of the compass rose. Save the map.

3 Click the compass rose to take you back to the parent map.

Linking maps to other Windows® documents

Continued from previous tutorial…

4 From the **File** toolbar, click **Link with File** .

You see the Select File dialog box allowing you to pick the file from anywhere on your system.

5 Select **Urdana.txt** from CC2 Pro's **Tutorial/Tome** folder.

The Command Prompt reads Hotspot window:.

6 Click opposite corners of a window around the map title.

7 Select **View menu** >> **Hide Hyperlinks**.

The hotspots are hidden.

8 Move the cursor over the new hotspot area and click.

The text **file** opens.

If Windows® can not view the file type, clicking the hotspot will have no action. If you want to learn how to associate a program with a file type see "associating file types with programs" in the Windows® help index.

Other types of hotspots

What a hotspot does is defined by the command text you see below the hotspot window. When you add a link to another file, **CC2 Pro** creates the hotspot text automatically. To perform other actions you need to use **Tools menu** >> **Macros** >> **Make Hotspot** and create the command text yourself.

In brief, the hotspot text is exactly what you would type at the Command Prompt to achieve the result you want. For example, if you typed **NOTES;** in the Hotspot box, the hotspot would show the **MAP NOTES** dialog box. You can add any of the text equivalents of the commands listed in the Macro Command reference.

Editing hotspot links

9 Select **View menu** >> **Show Hyperlinks**.

This lets you see the hotspots so you can edit them.

10 Click **Edit** and select the edge of a hotspot window.

You see the Edit dialog box containing the command text that the hotspot executes.

11 Change the text as required.

To make links portable between different computers, which may have **CC2 Pro** installed in different folders, link text can include the following special characters:

Files

This file could just have easily been a spreadsheet, word-processor document, Internet html document, sound file or any other registered file type.

means the folder where **CC2 Pro** is installed.

$ means the folder where the current map is located.

The command text LOADM $continent smoothed.FCW; means

LOADM	=	**CC2** Pro text equivalent of Load map
$	=	The same folder as the current map
Continent smoothed.fcw	=	The file to load.

Hotspots

To make real use of **hotspots**, you'll need to know a little about the **text equivalents** of CC2 Pro's commands. Anything a button or menu entry can do, you can include in a hotspot, and we even provide a catalog of buttons to make your link. The **Links** catalog is found in **Symbols\Other** folder.

Using Hotspots to Open Symbol Catalogs

SYMICONM opens a symbol catalog setting by **name**. Click Symbol Catalog Settings to see the various setting names you can choose from. Note that the first part of the name (eg **CC2** Filled) is a name filter – you should not include this.

This example would link to the Borders symbol setting: SYMICONM;Borders*;

Using Hotspots to Activate Drawing Tools

DRAWTOOLSM starts a drawing tool by its name. For example, you could put a hotspot over each color of a contour key to start drawing in that style. For example, lets say you put in a contour bar (**use Edit** >> **Insert File** >> **Maps** >> **Contour bar**). You could add a hotspot over each square as follows:

DRAWTOOLSM;Map Contour, Default 01;

Then, just click in the contour square to start adding contours.

Using Hotspots to Control Sheets and Layers

Hotspots can be used to hide and show layers or sheets. For example, if you had a drawing with five decks on different layers, you could have five buttons with hotspot text as follows.

For deck 1:

```
LAYER DECK1
HIDE DECK2
HIDE DECK3
HIDE DECK4
HIDE DECK5;
```

Each layer would have an entity on it acting as a button or arrow to show the current deck status. For decks on different sheets rather than layers, follow this example for Deck 1:

```
SAUTOHIDEON SSET DECK1
SSHOWNAME;
```

This makes sure all but the current sheet **hide** automatically, sets the current sheet to Deck 1 and displays the sheet name on the status bar.

Using Hotspots to add information to a number of Maps

You can click hotspots manually, but you can also do it from the command line. This means you can add a hotspot on every map in the same place, and have a macro activate it. The following **example** is from **Source Maps: Castles!**

In each castle map, a link opens an appropriate information file. There is a button on the toolbar called **INFO** which activates a hotspot at –0.25, -0.25. This is a macro built into **CC2** Pro. It looks like this:

```
MACRO INFO
RDOFF
SHOW HIDDEN LINKS
RDON ACT -0.25,-0.25
ENDM
```

Hotspots

Creating hotspot macros is a hefty subject, covered extensively in CC2 Pro's help file.

Text Equivalents

In CC2 Pro you can type a command name instead of selecting a button or menu entry.. As you type, you will see them appear at the command prompt.

A complete list of commands is found in Command Reference on page 134. If the command you seek cannot be used in a macro, check Macro Command Reference on page 152, or look in the Help index. You can also try this trick: while in CC2, trigger the command you want to use via the buttons, or the menus. When the command is done, look at the command line. In brackets, you will see the text equivalent of the command you just used. This works for most of

Name

You can see a list of drawing tool names by clicking **Drawing Tools** .

You can also use this approach to make player-appropriate maps, economic maps, etc, by hiding and showing layers. Always make sure that you don't try to hide the current layer.

Example

The ACT command launches a hotspot at the specified location. To add the link to the info file, you can either manually add a link using **Link with File**, at the coordinates -.5,-.5,0,0 and place it on the **HIDDEN LINKS** layer, or use the following macro:

```
MACRO LINKI
GFNO iname
IFERR 1ilink
GL comm OPENDOC
APND comm fname
APND comm;
GO 2ilink
:1ilink
EXITM
:2ilink
GOLAYER HIDDEN LINKS
ACTIONM comm.
 -.5,-5;0,0;
ENDM
```

This places a link to the selected file in the correct place on the map. When you use **INFO**, it will show the info file to which you have linked.

Examples of Hotspot Use in ProFantasy Maps

In **CC2** Pro, look at the files in **Examples\Links** folder. Here you'll find linked together files with buttons. Each file has an arrow pointing at the correct level. These are simple map links. If you have Character Artist Pro, click **New** then select the **Counter Monster** template. You'll need to erase the buttons themselves. **Edit** at one of the lower buttons to look at the hotspot text. These lines set the current symbol x and y scale, by placing a dummy symbol already in the drawing, then removing it with **UNDO**.

SYMBOL;button;0.7;0.65;-100,-100;

UNDO

If you have Dioramas Pro, look at any template. On these, you'll find hotspots for printing at a specific scale. Note **PRINTSM**.

PRINTSM;22.50000,157.50000;15.00000mm;5';8.00000;

If you have City Designer Pro, open a city map, then click **Create Index**. Place the index then do **View** >> **Show Hyperlinks**. Each link is just a **Zoom Window** to the location of the text. For example: ZWIN;100,230;150,240;

Ensuring Portability

To ensure your drawings are portable you need to take the following steps:

- Store the file and all necessary support files in their own folder or subfolders.
- Ensure that the person to whom you are exporting has the same fonts as you (see the list of default Windows fonts in the text box on page 44) and use Explode Text on any font the target system does not have (see page 91).
- When you insert a bitmap or non-embedded **CC2** Pro file using Insert File, do it from the same folder you are keeping the drawing. Make sure "Use relative path" is checked. Save the drawing in that folder before you insert file references, so that CC2 Pro can work out the relatve path.
- Likewise, if you have added any bitmap fill styles, make sure that the bitmap file path is defined in relative terms (eg if you are using the file mybitmap.bmp and you have saved it in a subfolder of the drawing folder called Tilesmake sure the fill path in the fill style

dialog box reads $Tiles\mybitmap.bmp. Alternatively, put the bitmap tile file in a subfolder.

- To export the drawing, zip the file up including the path details and support files. Do not redistribute copyright material, including ProFantasy's copyright material in this process, for example, if you have DD Pro, you can't include any bitmaps from there.

Kuslik (borough view) by Ralf Schemmann

Kuslik is a drawing done using the City Designer add-on to CC2 Pro. It uses hotpots for layer management as explained in *Using Hotspots to Control Sheets and Layers* on page 118. It also demonstrates CD Pro's index feature as explained in *Indexes* on page 216.

Look for **Kuslik** in its city view on page 55 and its building function view on page 167. Navigation between the views is a simple click on the appropriate hotspot.

1 Ratssaal und Archiv	C06
2 Rathaus/ Steueramt	C07
3 Schuldturm/ Stadtverlies	B07
4 Stadtgarde	C07
5 Stall/ Kutschenhaus	D07
6 Rondratempel	D06
7 Praiostempel	D05
8 Altes Herzogsschloß	C05
9 Traviatempel	D06
10 Magierakademie "Halle der Antimagie"	B06
11 Magierakademie "Halle der Metamorphosen"	G06
12 Residenz der Fürstin	G10
13 Hesindetempel "Hallen der Weisheit"	H06
14 Efferdtempel	F07
15 Rahjatempel	H07
16 Seesöldnergilde "Zum Schwarzen Säbel"	E01
17 Perainetempel	A03
18 Tabors Schmiede	D05
19 Hafenmeisterei	E03
20 Magisches Theater	G08
21 Hafenbefestigung	E01
22 Arbeitsvermittlung	C02
23 Redaktion "Kusliker Kurier"	E06
24 Königlich Kusliker Karosserie	D04
25 Halle der schönen Künste	F07
26 Kontor Wilman & ter Gruchen	F03
27 Kontor Stoerrebrandt	E02
28 Das Terdilion-Haus	G01
29 Kontor Bramstetter	F05
30 Taverne "Androschs Anker"	D05
31 Xiechops Taverne	B04
32 Schänke "Hohe Trutz"	A04
33 Taverne "Zum Tanzenden Bären"	D04
34 Harikas Kräuter, Tinkturen und aromatische Getränke	A03
35 Garküche	E05
36 Hotel "Zum Springenden Delphin"	F07
37 Taverne "Kieloben"	G05
38 Taverne "Zum Wilden Stier"	B05
39 Schankstube "Zum Offenen Tor"	E11
40 Schankstube "Neue Wehr"	F12
41 Taverne "Roter Meerdrachen"	I04
42 Taverne "Zum Schnabel"	E04
43 Taverne "Die Quelle"	G07
44 Bordell "Das Schwarze Einhorn und die Weiße Jungfrau"	B06
45 Schänke "Meeresschaum"	H01
46 Kneipe "Ferdoker Magister"	D07
47 Schänke "Beleman"	C08
48 Bankhaus Bosparan	D06
49 Institut der Arkanen Analysen	F05
50 Loge der Avesfreunde	H07
51 Camera Obscura	H08
52 Beilunker Reiter	E08
53 Postendienst Pertakis	F07
54 Großer Markt	D09
55 Handelsbank ya Strozza	D09
56 CAC-Creditanstalt	D09
57 Villa Weyringer	C08
58 Loge St. Geron	C09
59 Loge Harbaliom Bosparani	C08
60 Kontor Terdilion	G05
61 Kontor Weyringer vom Berg	D05
62 Nordlandbank	D03
63 Grangorer Darlehensbank	D03
64 Haus der Efferdbrüder	D04
65 Schänke "Zum Edlen Kavalier"	H05
66 Schauspieltheater	F09
67 Krämer und Schiffsausstatter Allavera	D03
68 Wohnhaus Mercurio Allavera	B07
69 Villa Pechstein	D10

Stadtplan
Stadtviertel
Gebäudefunktionen

Jian Tei

North-South Scale
in Miles   0   125   250   500

Map Labels

Sea of Restless Waters

Sea of Spirits

Hinan Zhil

Hie
Black Jade Mountains

30°N

Kinzhou
Nanchou

Jade Bay

Lin Tau

Kaotang
▲ Mt. Shien

Par Tan

Katei Nang

Inner Provinces

Chen Shu

Lopang

Jijing

40°N

Bay of the Four winds

Mt. Jiungur

Henang

Chou Zhan

The Barbarian Sea

Katei Ro

Katei Guan
Iye

50°N

Eiyama

Gea Tor Mountains

Outer Provinces

Katei Haikur
Kadoji

Namamura

Katei Uruma

60°N

The Silent Forests

The Horse Plains

170°E   160°E   150°E   140°E   130°E

Ran Tor Pa
Golden Canal

Jian Tei by Ralf Schemmann

In this map, Ralf uses very basic techniques but with a superb result. **Jian Tei** is a section of a larger world view of Jhendor that can be seen on page 157. To explore the techniques used to pluck a small section out of a larger view drawing, refer to *From regional map to local map* on page 93.

Ralf also notes that to have his dashed and dotted lines scale correctly, he edits the existing line styles with the option "Paper Scale" unchecked.

Menus and Macros

An Introduction to Macros

Do you ever find yourself performing the same commands, over and over again? I do. When I'm creating a new drawing, I like to sketch out the general shapes first, which sets up the basic layout of my drawing. I do this with width 0 black lines, on a layer called **Temporary**. As the drawing progresses, I am constantly going back to these shapes, editing, adding and deleting. I use the shapes as a guide for the final polished drawing.

However, every time I want to make some additions to my sketches, there are a number of things I have to do first: set the active drawing color to black, set line width to 0, set line style to **Solid**, set fill style to **Hollow**, and set the layer to **Temporary**. This can seriously slow down the drawing process! What I need is a short cut; one command that would do these five things for me. What I need is a macro. (Discerning readers may remember that the **Keep** button allows you to extract properties from an existing entity, but in some cases this macro will be quicker.)

A macro is simply a collection of commands. Since every CC2 Pro command has a text command line equivalent, CC2 Pro macros are nothing more complicated than lines of text. Each line starts with a command, and is followed by the information that is required by that particular command. Macros are not very complicated to make, and can be of enormous help in eliminating repetitive sequences of commands. In essence, macros are custom commands, tailor made for you!

How to make a macro

I have often found that the best way to learn is by example. So, using the situation I described above, let's go though the process of solving this problem with a new macro.

First of all, you need to know where the macros are kept. CC2Pro stores all its **macros** in a single text file, **fcw32.mac** in the CC2 folder. If you want your macros to be available to you all the time, this is where they need to go. All you need is a text editor like Notepad. Create a new text file called **mymacros.mac**, save it in the CC2 folder, and start editing.

Once you have your macro file open, start typing! Begin with `MACRO MyMacro`. This marks the start of your macro, and it also gives your macro a name you can type at the prompt. Now, we start adding commands.

Macro equivalents of CC2 Pro commands

At this point, you may ask, "well, yes, but how do I know what commands I need?" Admittedly, most of us use the buttons or the menu options in CC2 Pro, but it is possible to type the command at the Command Prompt to do the same tasks. Each menu command has a text equivalent you can type. Once we **find the text equiva,lents**, we can create our macro.

Now we should know what commands we need. We want to change the current color (that would be the `COLOR` command). Then, we want to set the current line width (that's `LWIDTH`). Next, we set the current line style (`LSTYLE`) and the current fill style (`FSTYLE`). Finally we need to set the current layer (that's right: you guessed it: `LAYER`). Now all we have to do is throw those commands into the text file, save it up, and we're done, right? Well not quite...

Each of these commands needs some information to complete it. Figuring out what information is required is fairly straightforward, too. You can check the Help file, the Macro Command Reference, or you can try another trick. Again from **CC2 Pro**, type your command into the command line, then press ENTER. CC2 Pro will actually tell you what it needs next at the prompt. Just keep typing info (don't use the mouse), using ENTER to separate your values if more than one piece of information is required. Be sure to pay close attention to every keystroke you use, because this is exactly what we are going to type into the macro.

OK, now we have data to go along with our commands. Change active color to black (0 is the numeric value equivalent), change line width to 0, change the line style to **Solid** and the

---

Macro files

You can make our own macro file to store your macros in while you are testing them; it's a good idea not to mess around with the **fcw32.mac** file until your macros are working flawlessly.

Finding text equivalents

A complete list of commands is found in Command Reference on page 136. If the command you seek cannot be used in a macro, check Macro Command Reference on page 154, or look in the Help index. You can also try this trick: while in CC2 Pro, trigger the command you want to use via the buttons, or the menus. When the command is done, look at the command line. In brackets, you will see the text equivalent of the command you just used. This works for most of the drawing commands (**LINE** and **POLY**, etc.) but not on the clicks on the Status bar.

With the exception of commands which get file names from the user, not command which has dialog box will work in a macro.

fill style to **Hollow**. The layer will be changed to **Temporary**. You can throw this into the macro now:

```
MACRO MyMacro
COLOR 0
LWIDTH 0
LSTYLE Solid
FSTYLE Hollow
LAYER Temporary
ENDM
```

Note that we finish off the macro with the `ENDM` command. Also, make sure you leave a blank line after this `ENDM` command.

That's it. Save the file, and click **Tools menu** >> **Macros** >> **Load Macros.** Select your file, then click **Open**. Now, in **CC2 Pro**, change the color, line width, layer etc. to other values, just as if you had been drawing a bunch of other stuff. Let's test the macro. Type **mymacro** at the prompt, and hit ENTER . As if by magic, your drawing settings should change! Aren't macros grand?

Add your macros to CC2 Pro's standard macros

When you are happy that your macros are working, simply copy them from your macro file, and paste them into the beginning of fcw32.mac using a text editor. Save the file. When you start **CC2 Pro**, the new macros will be ready to use.

An advanced macro example

One of the most useful ways to learn about macros is to analyze what others have done. Here is a working macro with each line described in detail. The macro is called `STAIRCASE`, and it draws a rudimentary staircase, following the contours of an object that the user selects. You'll need to understand very basic programming concepts to get this macro. It also uses a few concepts described only in the Help index:

✓ The **Percent modifier** – snaps a point to a percentage along an entity.

✓ **Relative Polar coordinates** – sets a point at a specified angle and distance from the current reference point.

✓ The **Reference Point modifier** – sets the reference point.

The macro has four sections, each with its own distinct purpose. We'll start by defining those sections, which will give an overview of how the macro generally works. Then, we'll look at each line of the macro, one by one.

You can find this macro in the file **test.mac** in the **Tutorials/Tome** folder.

First, here's the macro, divided into its four logical sections:

```
--------------------Section 1--------------------------
MACRO STAIRCASE
ECOFF
SELSAVE
LWIDTH 0;LSTYLE solid;FSTYLE solid
GV varStepWidth 10
GV varStepWidth ^DEnter the stairway width: (10)
GV varStepDepth 1
GV varStepDepth ^DEnter the step spacing (1):
GE varEntity ^DSelect object to draw the staircase along:
IFERR MacroDone
--------------------Section 2-------------------------
GLEN varEntityLen varEntity
GN varStepNum varEntityLen/varStepDepth
GV varUnit 100/varStepNum
GV varCurStep 0
GP varP1 % 0 varEntity
GBRNG varB1 varP1 % .01 varEntity
LINE ref varP1 <varB1+90,(varStepWidth/2) ref varP1 <varB1-
90,(varStepWidth/2);
```

Section 1

The macro starts by setting up the necessary drawing settings, and prompting the user for required information. The user provides values for the staircase width, and the step depth. The user also picks an entity to use as a guide, to draw the stairs along.

Section 2

Calculations are made on the data that was provided by the user. Here, the macro determines other values that it will need, and it draws the first stair step.

Section 3

This section is looped; each stair step is drawn in turn. Once all the steps are drawn, the loop quits, and the macro continues.

Section 4

The final elements of the staircase are drawn, and the macro cleans up a few CC2 configuration changes it made.

GV

The `GV` command requires two pieces of input--first the variable name to be assigned; and second, the value itself. In the previous macro line, we assigned the variable a fiXEd value of 10. In this line, we prompt the user to enter a value by using the '^D' command. This allows the user to enter a value at the CC2 Pro prompt. Note that all the text that follows the '^D', up until the first line break, is passed to the prompt. In this case, the prompt text is Enter the stairway width: [10]. The 10 in brackets just lets the user know that a default value of 10 will be used if they choose not to enter any data by right-clicking or hitting ENTER.

Variables

Notice that all the variables in this macro start with the characters **var**. This is not a requirement; indeed, your variables can be called just about anything, as long as they do not conflict with any command names, or contain restricted characters. However, this practice helps to identify variables amongst the other code, and also helps to ensure that your variable names are unique.

```
-------------------Section 3--------------------------
:Loop
GV varCurStep varCurStep+1
GP varP1 % (varCurStep*varUnit) varEntity
GBRNG varB1 varP1 % (varCurStep*varUnit)-.01 varEntity
LINE ref varP1 <varB1-90,(varStepWidth/2) ref varP1
<varB1+90,(varStepWidth/2);
IFP varStepNum-varCurStep Loop
-------------------Section 4--------------------------
SELBYP
OFFSETCPY (varStepWidth/2) varEntity ref varP1 <varB1+90,1
OFFSETCPY (varStepWidth/2) varEntity ref varP1 <varB1-90,1
:MacroDone
SELREST
ECON
ENDM
```

Line by Line Macro Deconstruction

`MACRO STAIRCASE`

All macros start with a 'MACRO' statement. This defines the name of the macro, and the start of the macro code. Be sure to use a name CC2 Pro doesn't already use, or your command will replace it!

`ECOFF`

This turns off the command line 'echo'; in other words, you won't see all the commands of the macro flashing by on the command line as you run the macro. This makes the macro run cleaner and faster, but if the macro fails halfway through, you will have to manually enter the 'ECON' command to start seeing what you type at the command line. You should add this line only after you have tested your macro.

`SELSAVE`

Save the current selection method for CC2 Pro (see **Tools menu** >> **Options**). We will be changing the select mode in this macro, so we use this command to save the user's current setting first. We can restore it at the end of the macro.

`LWIDTH 0;LSTYLE solid;FSTYLE solid`

Set up the drawing properties to use in this macro. Line width of **0**, line style of **Solid**, and a fill style of **Solid**. Macro commands are usually separated by new lines (i.e. one command per line), but you can also separate many commands by a semicolon.

`GV varStepWidth 10`

Here, we define a real variable `varStepWidth`. By giving this **variable** a starting value, we assure that the variable will have a value, even if the user fails to give it one in the following line.

`GV` `varStepWidth ^DEnter the stairway width[10]:`

Prompt the user for a value for the `varStepWidth` variable. This variable holds the value for the overall width of the staircase.

`GV varStepDepth 1`

As with the previous variable, we define a default value.

`GV varStepDepth ^DEnter the step spacing[1]:`

The `varStepDepth` variable defines the desired distance between steps. The actual distance used in the macro will be slightly different, because we will modify this value so that a whole number of steps will be drawn so that there will be no fraction of a step left at the end of the staircase. This calculation comes later.

`GE varEntity ^DSelect object to draw the staircase along:`

The Get Entity command `GE` gets a point from the user with a selection pick box – it's asking for an entity. In this case, the object that we need is the guide entity that we will use to define the path of the staircase. The macro will draw the stairs along the length of the entity that is selected. A line, smooth path, or arc would be good choices as a guide entity, but it is up to the user to pick an object to use

`IFERR MacroDone`

This line does a bit of error checking. Basically, if the user does not pick an object in the previous line (either by right clicking, or clicking in empty space), **CC2** Pro sets an internal error flag. The `IFERR` command checks for this flag. If it finds that a selection error has occurred, the flow of the macro branches to the `MacroDone` label. This mean the macro execution jumps to the line immediately after the given **label** (see the end of the macro).

`GLEN varEntityLen varEntity`

This line, and two that follow, contain a series of calculations that determine the actual step depth that will be used based on the total length of the selected entity. First, the `GLEN` command gets the overall length of the entity `varEntity`, and stores it in `varEntityLen`.

`GN varStepNum varEntityLen/varStepDepth`

Now that we know how long the guide entity is, we need to determine the number of steps that will fit along its length. To do this, we divide the total length by the depth of one step. This gives us the number of steps that will be needed. Since we don't want any fractions of steps, we need to round this number to the nearest whole number. This is easily achieved by using the Get Number command `GN` rather than the `GV` command. This automatically rounds the input value to a whole number by removing anything after the decimal point. We assign this rounded value to the variable `varStepNum`.

`GV varUnit 100/varStepNum`

This step is tricky. Since we will be using the **Percent Along** modifier to get points along the entity, and since the spacing of these points is defined by a distance, we need to express the step depth as the equivalent percentage of the total length. We do this by dividing the number of percent in a whole length (**100**) by the number of steps. This gives us a **percentage value** for one step, assigned to `varUnit`.

`GV varCurStep 0`

Set up a counter variable. This will keep track of how many times we have gone through the loop.

`GP` `varP1 % 0 varEntity`

Get the first drawing point. This will be where the first step LINE will be drawn, and is at the **0**% mark of the guide entity.

`GBRNG varB1 varP1 % .01 varEntity`

Now we set up to draw the first step line. First, we need an angle at which to draw the line. This angle should be perpendicular to the entity, but since this entity could be curved, we should say that the **angle** must be perpendicular to the entity at the point the LINE will intersect.

We draw this first line while we are outside of the loop because of the way we obtain angles inside the loop--by getting a point just before the current point. This technique would not work for the first point (**0**%) because there can be no point at less than **0**%. That's why we get the angle in this line of the macro by getting a point just a little **beyond** our starting point.

`LINE ref varP1 <varB1+90,(varStepWidth/2) ref varP1 <varB1-90,(varStepWidth/2);`

Draw a line entity using the **LINE** command. The **LINE** command requires a series of points, with a semicolon (;) to finish the line. In this line of the macro, we provide the

Breaking it down

ref varP1
<varB1+90,(varStepWidth/2) REF is the reference modifier (see Reference Point in the Help index), this code sets the current reference point to varP1. The second part sets a point at angle (varB1+90) and distance (varStepWidth/2) from the reference point.

varB1 is the angle parallel to the entity, so varB1 plus 90º, is perpendicular to the angle of the entity.

varStepWidth/2 is equal to half of the value of varStepWidth, which is the desired width for the staircase.

Notice that the other point is derived the same way, except we subtract 90º from the angle instead of adding, so that the second point is on the other side of the guide entity.

command with two points, using the current point on the entity as a reference. The two points are `ref varP1 <varB1+90,(varStepWidth/2)` and `ref varP1 <varB1-90,(varStepWidth/2)`. This may look complicated, but it makes sense when you **break it down**.

`:Loop`

This line is a label; it marks the start of our loop.

With the lines that follow, remember that each line will not just execute once, but rather multiple times, with certain variables changing for each iteration.

`GV varCurStep varCurStep+1`

This is an example of a variable that will change for each loop iteration. The counter variable `varCurStep` is incremented by 1, preparing us to draw the next step.

`GP varP1 % (varCurStep*varUnit) varEntity`

Get a point on the entity that will be the reference for the current step. `varP1` will hold a point that is a percentage along `varEntity` equal to the percentage of a single step `varUnit` multiplied by the number of steps we have drawn `varCurStep`.

`GBRNG varB1 varP1 % (varCurStep*varUnit)-.01 varEntity`

Just like we did for the first line entity before the loop, we get the angle of the guide entity at the point of the reference point. This time, however, we get a second point that is slightly **behind** the reference, rather than ahead. We do this so that when we finally arrive at the last step to be drawn (at 100% of the entity), we do not try to get a point that is 100.01% along the entity.

`LINE REF varP1 <varB1-90,(varStepWidth/2) REF varP1 <varB1+90,(varStepWidth/2);`

Draw a line using the same technique that we used for the first line we drew before the loop. This time, since the reference angle is derived in the opposite direction (a point before the reference, not after), we **subtract** 90º from the **first** point rather than the second. This way, all our lines will be drawn the same way in the same relative direction. In this macro, this does not make much difference, but it is an important lesson to remember for other macros that may be more demanding.

`IFP varStepNum-varCurStep Loop`

Here is the end of our loop. The `IFP` statement tests for a positive value. If `varStepNum-varCurStep` is positive (which it would be until the current step number equals the total number of steps), the macro will branch back to the `Loop` label, starting the loop again.

`SELBYP`

After drawing all the step LINEs, we just need to draw some edges for the staircase. We do this by creating offset copies of the guide entity. First, this line changes the select by setting to previous, meaning that any time a command needs an entity to act upon, it will automatically use the last entity to have been selected, prior to the command. In this case, the last entity to have been selected is our guide entity.

`OFFSETCPY (varStepWidth/2) varEntity REF varP1 <varB1+90,1`

input

In this case, we provide the command with: varStepWidth/2 (half of the total width of the staircase), varEntity (the guide entity), and REF varP1 <varB1+90,1 (a point on one side of the entity, using the last value for varP1 (100% along the entity) as a reference, the last value for varB1 plus 90º as an angle, and an arbitrary value of 1

`OFFSETCPY` requires three pieces of **input**--the distance of the offset, the entity to be copied, and a point that indicates on which side of the original entity to copy

`OFFSETCPY (varStepWidth/2) varEntity ref varP1 <varB1-90,1`

Creates another offset copy, this time on the other side of the guide entity.

`:MacroDone`

Another label. This one marks a place to which the macro can jump if the user fails to select an entity. See the 10th line of this macro.

`SELREST`

This will restore the 'select by' settings that were in place before this macro ran. Otherwise, the user of this macro would find that suddenly every command that requires an entity (like **ERASE**, etc) would automatically act upon the last selected entity (such as the last entity to be drawn).

`ECON`

Turn on the echo feature of the command line. The macro is over, and now the user will be able to see text that is entered at the command line.

`ENDM`

Add a couple of blank lines here, and that's it. We're done.

Hints for good macro making

- Every macro must start with the `MACRO` statement, and end with an `ENDM` statement.
- Be sure to separate each macro from its neighbors with a blank line or two.
- Make sure you leave an extra couple of blank lines at the end of your macro file.
- Spaces count! Check your macro for double spaces or spaces at the end of lines. Both are not good.
- If your macro doesn't do what you think it should do, try typing your macro commands one by one into the command line. This way, you can see how CC2 Pro is reacting to your commands.

More information on macro making

The CC2 Pro help file contains plenty of information on the various macro commands available to you. Check out the Alphabetical List of Macro Commands; very useful! There's also a great spreadsheet on the CD in the Documents folder, or available on our website.

On the web, there are many resources that can help; here are two:

CC2-Macro Mailing List: A discussion forum for CC2 Pro macro enthusiasts; beginners and experts alike. This is a great place to ask your macro related questions, and get some friendly advice.

http://groups.yahoo.com/group/CC2-Macros/

CC2 Macro Repository: A collection of macros for CC2 Pro, by various authors. Learn from the masters by dissecting and analyzing their macros, or just pick up some cool tools to aid in your drawings.

http://www.greycitadel.com/greycitadel/cc2macros.nsf

Macro drawing tools

Drawing tools offer you a new way of accessing **macros**. These can be used, for example, to create text styles, add custom grids, or even start a new map from scratch.

To select a macro tool

1 In the **Tools** menu, scroll down to **Macros** and then select **Macro Tools** from the side menu.

2 Click the macro tool you wish to use.
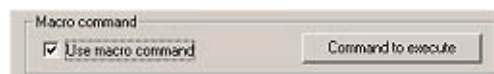
To edit an existing macro tool:

1 In the **Tools** menu, scroll down to **Macros** and then select **Macro Tools** from the side menu.

2 Click **Advanced**.

3 Open the drop down menu for **Custom Tool name**, then scroll down the list to select a tool starting with the word Macro.
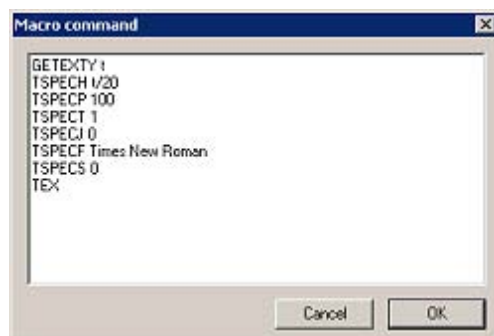
Macros

Macros are an advanced feature of CC2 Pro. These instructions assume you have a good grasp of CC2 Pro and an understanding of Macros.

For more information on Macros, see *Menus and Macros* on page 122.

4   Click **Command to Execute**.

5   Edit the macro command, then click **OK** to exit.

To create a new macro tool

1   In the **Tools** menu, scroll down to **Macros** and then select **Macro Tools** from the side menu.

2   Click **Advanced**.

3   Click **New**.

4   Type in a name starting with the word Macro, then click **OK**.

5   Click to put a check in the **Macro Command** tick box.

6   Click **Command to Execute**.

7   Enter your macro command then click **OK** to exit.

8   Add an **illustration** for the macro if you want to.

Macro command tips

- You can create the macro just as you usually do in the fcw32.mac text file, then call it by name from the **Command to Execute** box. If you need your macro to branch, this is the only way to do it.
- Alternatively, you can type the macro commands directly into the box, just as if you were writing a **script**.
- If you create a macro tool which adds symbols, you might want to set the symbol scale proportional to the map size. You can do this with **SYMBOLOPT**.
- If you create a macro tool which adds text you might want to set the text scale proportional to the map size. Edit the macro tool **Macro Text Heading 1** to see how this is done.
- The macro tools are stored as files in CC2 Pro's System folder. If you want, you can add a drawing with the same name, and it will display when you select Macro Tools

CC2 Pro Menu Creation

CC2 Pro's menus and toolbars are stored in simple plain text files. Every add-on has its own menu file, and you can easily **customize** them for your own purposes.

Creating or customizing the CC2 Pro menu is easy—all you need is a plain text editor like Notepad. CC2 Pro lets you change the number, order, title, and function of any menu item You can change the arrangement of the existing commands, add your own default values to streamline their operation, or add your own macro commands, symbols, and parts. When you start **CC2 Pro**, it loads pull-down menus from a standard menu file named **fcw32.mnu**.

Open fcw32.mnu with your plain text editor. The menu file is divided into two sections. The first section controls the appearance of toolbars; the second controls the menus themselves.

Toolbars

You can create your own buttons and add them to any of the eight toolbars. You are allowed to place up to 48 **buttons on each bar**. The definitions for the tool bar buttons are included at the beginning of the current menu file.

Toolbar names

The first section of the file looks like this and determines the name of each toolbar:

```
#199,Right toolbar 1:
#99,Right toolbar 2:
#399,Left toolbar 1:
#299,Left toolbar 2:
#499,File toolbar:
#599,Symbol toolbar:
```

Illustration

If you want to illustrate the macro, create a drawing with the same name as the macro tool in the System folder of CC2 Pro. This can be a CC2 Pro drawing, or a bitmap.

Script

Scripts are just text files with a series of CC2 Pro commands in. They are often used to add lots of entities exported from other programs in CC2 Pro.

SYMBOLOPT

For an explanation of **SYMBOLOPT**, see the Help files>> Index tab section **Scripts** and then select **Understanding Scripts**.

Customize

Chris Conboy has produced a menu editor with a visual interface which might make menu design easier. You can find Chris' editor at http://www.ageofgods.com/ibd/

fcw32.mnu

Make a back up of **fcw32.mnu** before you start. If you use a word processing program to edit the file, be sure to save it as a regular text file.

Buttons on each bar

If they don't fit in the window, they won't show, but no harm will be done.

The following position ranges are assigned to each different toolbar:

Starting from:	Ending at:	toolbar
0	47	Right toolbar 2
100	147	Right toolbar 1
200	247	Left toolbar2
300	347	Left toolbar 1
400	447	File toolbar
500	547	Custom 2 Left
600	647	Custom 3 Right
700	747	Custom 4 Right

Toolbar Buttons

Tool bar button entries look like this:

#n,**buttonname**:[tool tip text]{right-click command;}left-click command;

As an example to work with, let's look at the Zoom Window button.

```
#100,CC2ZWIN:[Zoom Window]{~|CMENU SYSTEM\ZOOMS.mnc;}~ZWIN;
```

n is the button position. In the example, the button is the first on the Right toolbar 1.

You can also create your own buttons. Create a 16x16 bitmap file. Place the *.bmp* file in your **CC2 Pro** working directory or a subfolder. If you want a large version, include a 24 by 24 version with the same name with 24 added at the end (eg filename24.bmp).

For example, if you made your own Zoom Window button called zwin.bmp and saved it in the CC2 Pro System folder, you would enter a lineas follows. Use # to represent your CC2 Pro folder.

```
#100,#system\zwin.bmp:[Zoom Window]{~|CMENU SYSTEM\ZOOMS.mnc;}~ZWIN;
```

Tool tip text is the text you want to appear in the little yellow box when you move your mouse across the button.

The **left-click command** is the text-equivalent of any **CC2 Pro** command listed at the end of the help file entry for that command. It is preceded by a **|** character to cancel the previous command or by a **~** if it is a transparent command (zooms, etc)

The curly brackets {} and their contents are optional, they control what happens when you **right click** on the button

For example:

```
#321,#mybitmap.bmp:[Offset Chain]{|OFFSET1;}|OFFSET;
```

This adds a button to the end of the **left toolbar1**. Because this example skips position #320, and there are 20 buttons (occupying positions #300-19), the new button is separated by a gap from the other buttons. The bitmap file *mybitmap.bmp*, located in the working CC2 Pro directory, is displayed. Moving the mouse over the button displays the tool tip "Offset Chain". Clicking the button invokes the Offset Chain command. Right clicking over the button gives you Offset One. You can also make a menu pop up on a right mouse click using CMENU (see **Accessing context menus** on page 132)

Transparent Button

A **transparent** command can be used in the middle of another command. To make a button transparent, use a "~" (tilde) as the first character of the command's text. This same procedure can also be applied to custom menu commands.

Button name

Buttons name is either a built-in button, or a bitmap file name. There is a list of built-in button names in CC2 Pro's Notes folder.
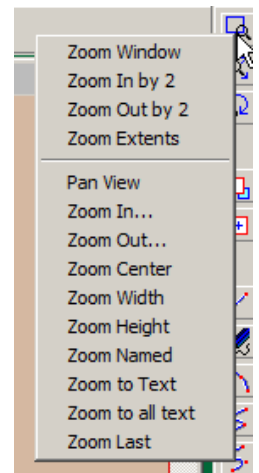
Transparent

A transparent command does not cancel the current command, nor does it auto-repeat. Zoom commands are a good example of this functionality.

The Escape character

If you add a | character before your menu entry, it cancels the previous command. You can combine this with the tilde character, giving a command that cancels the previous command but does not auto-repeat.

Add-ons

Each add-on, if installed, has its own menu file which is loaded when you click any of the add-on buttons. If you want changes to be included in every menu, you'll need to edit all the files.

Product	Menu file name
Character Artist Pro	ca.mnu
CC2 Pro	fcw32.mnu
Cosmographer	cosmog.mnu
DD Pro	dungeon.mnu
CD Pro	city.mnu
Dioramas Pro	dioramas.mnu
Perspectives Pro	cc2per.mnu
Source Maps: Castles	smc.mnu
Symbol Set 3: Modern	ss3.mnu
World War II Interactive Atlas	wwii.mnu

Swapping

If you are creating a custom menu, be sure to include these entries just as they are from the fcw32.menu file.

Symbol Settings

SYICONMR resets the current symbol settings filter to *.

SYMICONFLOAD loads one of the available master symbol settings. Select Master Filter Settings on the Symbols menu and click Load to see these.

Menu File

If the menu item includes no menu data (just a label followed by a colon), CC2 Pro uses it as a menu title (one of the words like File and Draw that appears in the menu bar at the top of your screen).

Swapping Between Menu

There are special commands for **swapping** between menus. For example, to swap to **CC2 Pro** from any other add-on, you use this line:

```
418,CC2:[Map Menu]{|CMENU
SYSTEM\MAP.mnc;}|SYMICONMR;SYMICONFLOAD CC2;MENUDM #FCW32.MNU;
```

If your menu does not need pasticular **symbol settings**, then use the MENUDM command alone. For example, if your menu was called custom..mnu, you would load it using:

```
429,#mybitmap.bmp:[Custom Menu] |MENUDM #FCW32.MNU;
```

Because loading a menu replaces the existing menu table in memory, **CC2 Pro** ignores everything in a menu item after MENUDM <filename.mnu>.

Menu Entries

Each line in the **menu file** follows this basic syntax:

- A label (the word or words you see in the pull-down menu);
- A colon (:) separator between the label and the data;
- Optional data, which can be a command or series of commands and/or parameters (responses to prompts).

Creating Sub-Menus

To create a sub-menu (sometimes called "sidebar menus" or "daughter menus"), end the label with the greater than (>) sign, then precede each item in the sub-menu with at least one space. For example:

```
Lines>:
 Line:|LINE;
```

```
    Double Lines:|DBLN;
```

Creating Menu Commands

When you select a command from a menu, CC2 Pro interprets the menu data exactly as if you had typed it at the keyboard. For example, to use the **SCALE COPY** command, you could type SCLCPY then press ⎆ENTER⎆. In the menu file, the **SCALE COPY** command looks like this:

```
Scaled Copies:|SCLCPY;
```

Scaled Copies is the menu label. **CC2 Pro** automatically scales the width of the menu to the longest label. To improve readability, you may pad the label entry with spaces to visually align menu items.

The colon (:) is the menu separator. It tells **CC2 Pro** where the menu label ends and the menu data begins.

The <u>**vertical bar**</u> (|) in a menu acts like ⎆ESC⎆ to cancel commands still in progress when the menu item is selected.

The tilde (~) is used before transparent commands

SCLCPY is the actual CC2 Pro command. It does not have to be capitalized, but doing so makes reading the menu file easier.

The semicolon (;) at the end of the line, is a delimiter. It tells **CC2 Pro** that you have finished typing a command or response. Enter, the spacebar, and the semicolon are all delimiters— they mean exactly the same thing to **CC2 Pro**. However, **CC2 Pro** ignores ENTER in a menu file. For maximum readability, use spaces or semicolons between commands and semicolons at the end of a menu item.

You can use your own macros as commands in menus.

Separator Line

If you wish to add a separator line in any pull-down or sub-menu, add the following line where you wish it to appear (using a number of dashes and a colon):

```
------------:
```

Accelerator Keys

To define an accelerator key equivalent for a command, use the TAB key as the unique delimiter. Accelerator keys do not work while a menu is pulled down. A few examples:

`Save[TAB]^S:SAVE;`	Displays	Save	CTRL+S
`Line[TAB]F12:LINE;`	Displays	Line	F12
`Point[TAB]CF9:POINT;`	Displays	Point	CTRL+F9
`Box[TAB]SF11:BOX;`	Displays	Box	SHIFT+F11
`Path[TAB}SCF8:PATH;`	Displays	Path	SHIFT+CTRL+F8

Note that when defining CONTROL key <u>**shortcuts**</u> with letters, you must use the caret character (^) to indicate the CTRL key. For example, to create a CTRL+R shortcut for REDRAW, modify the menu entry as follows:

```
Redraw    ^R:|REDRAW;
```

Keep in mind that you must use the TAB key to separate Redraw and ^R .

Context menus

When you right click on most buttons, you will see a popup menu with relevant commands. For example, if you click on **Symbol Catalog Settings**, you see a list of the available catalogs. You can change these context menus or add new ones. Context menus can also be used on left button clicks, hotspots or even menu entries.

A right button click between commands also offers a popup menu, which you can edit or disable.

Accessing context menus

The command CMENU opens a context menu. You can use it just as you can any other command. CC2 Pro's default context menus are found in the **System** folder. They are plain text files with the suffix mnc. They follow all the rules for menu entries, except that sidebar menus are not permitted.

Make a context menu appear when you right click toolbar buttons

When you edit a menu file, you'll see entries like this:

```
#309,CC2ROTATE:[Rotate]{|CMENU SYSTEM\rotate.mnc;}|ROT;
```

When you right click on the **Rotate** button }, you see the rotate menu **rotate.mnc** in the **System** folder. To change the appearance of the menu, edit this file. Currently it looks like this:

```
&Rotate :|ROT;
&Non-visual Rotate:|ROTATE;
Rotate &Align:|ROTALN;
Rotated &Copies:|ROTCPY;
--------:
&Cursor Options...:|DYNOPT;
```

Change the **entries** just as you would for any menu, then save the file. In the above example, you could make a new mnc file called myrotate.mnc and change the line in the fcw32.mnu file to read:

```
#309,CC2ROTATE:[Rotate]{|CMENU SYSTEM\myrotate.mnc;}|ROT;
```

Make context menu appear when you left click on a toolbar button

This isn't standard **CC2 Pro** interface practice, but you can add a context menu to a left click on a toolbar button. For example:

```
#309,CC2ROTATE:[Rotate context menu]{|ROT;}|CMENU
SYSTEM\rotate.mnc;
```

Add a context menu to a hotspot

You can make a context menu appear when you click an area of a map. For example you could have entries which hide or show certain layers, or open a parent map. Click **Tools** > **Macros** > **Hotspots** and click the corners of the hotspot. Add a line such as this:

```
CMENU #SYSTEM\mymenu.mnc;
```

The lines in this context menu are likely to point at macro commands defined specifically for the map in which it is included.

The right click context menu

Between commands, when you right click, your see the right-click context menu. This is the CC2 Pro default. To make the **default action** of a right button click an autorepeat, click **Tools** > **Options** then select **Right click repeats previous command**

To change the commands on the right click context menu, edit the file rclick.mnc in the System folder with a plain text editor. It looks like this:

```
Repeat last command:!1
------:
Zoom Window:~ZWIN;
Zoom Extents:~ZEXT;
Zoom In:~ZIN2;
Zoom Out:ZOUT2;
------:
Undo:UNDO;
Erase:|ERASE;
Move, Scale Rotate:|MOV;
```

You could add your favorite command to the end of the list.
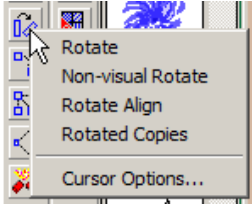
Entries

You can also create new context menus, and add them to buttons. Save them in the CC2 Pro System folder as plain text files with the suffix mnc.

Default Action

When you left click between commands, CC2 Pro repeats the last command. When you right click between commands, CC2 Pro's default behavior is to show a context menu with frequently used commands as well as the option to repeat the last command. You can change this behavior.
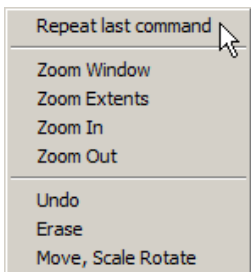
Editing menus from a menu entry

Rather than opening and closing context menus in Notepad directly, you can add a line to end of your context menu as follows:

```
Edit menu: |RUNAPP NOTEPAD system\filename.mnc;
```

where filename is the filename of the context menu in which you want to add this line. Select this menu entry, and the menu will appear in Notepad, ready to edit. When you've made changes and exited, right click the appropriate button to see the changed menu..

You could also add this entry to a complete menu system, but you'd have to remember to reload the menu each time you saved and made changes to.

Adding symbol catalog buttons

You might want to to add symbol buttons to an existing menu file, or even your own menu file.

Let's say you've created a symbol catalog with symbols which match the **CC2 Filled** style. The catalog is called minerals.fsc. First, select **Symbol Settings** from the **Symbols** menu and click **Advanced**. Create a new style called CC2 Filled Minerals with appropriate settings. Just so something appears when the user selects the **CC2 Line** symbol style, create another setting pointing at the same catalog called CC2 Line Minerals. Create a 16x16 bitmap called minerals.bmp and put it in the **System** folder.

The menu entry you need to add to fcw32.mnu will look like this:

```
#512,#System\minerals.fsc:[Minerals]||SYMICONM;Minerals;
```

This will appear after Water/Rivers on the symbol tool bar. If you are not using symbol styles, you can add a button which just adds a link to the specific catalog file:

```
#512,#System\minerals.fsc:[Minerals]||CATALOG
Symbols\Maps\Minerals.fsc;
```

Special Menu Commands

Your menu files contain a number specially formatted entries that appear similar to this:

```
!2,4:|;
```

This is an example of a **menu marker**. What it does is allow **CC2 Pro** program libraries to assert a menu presence. Typically, menu markers are not something you would ordinarily edit, but you might with to move them around.

The first digit is the unique marker id #, and the 2nd is the item offset (the number of items added to the submenu above this one). All surrounding punctuation is mandatory.

For example, the File History (recently used file list) that appears in the File menu is implemented through internal code. The file list appears in the menu due to the presence of the appropriate marker in the fcw32.mnu file:

```
!1,0:|;
```

The file history possesses the id #1. If this line were deleted from the fcw32.mnu file, the SAVE history would no longer appear.

Move
Non-visual Move
Scale
Rotate
Mirror
Connect
Stretch
Non-visual Stretch

Cursor Options…

Edit menu
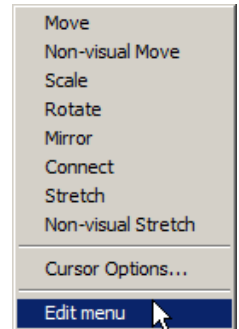
Menu markers

The menu markers in a standard CC2 Pro menu are Autosave, File History, the tick marks for Toggle Frames and Toggle crosshairs, and the Repeat Last Command line in the right click context menu.

CC2 Pro Command Reference

This table gives you a list of all **CC2 Pro's** commands except those used specifically in macros.

- ✓ **Command** gives you the command name found on the **CC2 Pro's** menus, the name that appears when you hover the mouse over a button (tool tip text) or on a right click popup menu. Type the command into **CC2 Pro's** Help Index or Find list to get more details on the command.
- ✓ **Where**? Lets you know which menu, popup menu or toolbar to find the command. Right click on the button to access a popup menu. For example, a 2-point circle can be accessed by right clicking the Circle button ⊙ on the Draw toolbar. Text Only means that the command should be typed at the Command prompt.
- ✓ The **Text Equivalent** is what you type at the Command prompt to use the command.
- ✓ **Use In Macro** If the command is useable in a macro, then Yes, otherwise No. If the command is itself a macro, it says Macro. Note that all commands are useable as the last line in a macro. The next section on page 152 lists macro commands.

Command	Description	Where?	Text Equivalent	Use in Macro
2 Point Circle	2 Point Circle	Draw toolbar, Circle popup	CIR2	Yes
3 Point Circle	3 Point Circle	Draw toolbar, Circle popup	CIR3	Yes
About CC2 Pro…	Display version number	Help menu	VER	No
Add Control Points	Add control point for symbol alignment	Symbols menu	CTRLP	No
Add Symbol Info	Sets properties of symbol definitions.	Symbol menu >> Add Symbol Info	SYMINFO	No
Align Grid	Align Grids to selected point	Snaps menu	AGRID	Yes
All Map Drawing Tools	Shows all map drawing tools	Overland menu	DRAWTOOLSM;=MAP*	No
All Map Symbol Settings…	Display all catalog settings for the current style	Overland menu	SYMICONM*	No
All symbols, no layer	Opens the All symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;All*	No
Angle To	Angle to selected entity	Snaps menu	ANG	Yes
Arc	Add arc of current default type set using Arc…	Draw toolbar	ARCI	No
Arc with arrow	Arc w/ Arrowhead to end	Draw toolbar, Arc popup	ARCA	Yes
Arc with arrow to start	Arc w/ Arrowhead from start	Text only	ARCAS	Yes
Arc with double arrow	Arc with arrowheads at both ends	Draw toolbar, Arc popup	ARCDA	Yes
Arc, Center, Start, End	Center, Start, End Arc	Draw toolbar, Arc popup	ARCS	Yes
Arc, Chained	Same as CARC	Draw toolbar, Arc popup	CARCD	Yes
Arc, Start, Bulge and End	Start, Middle and End Arc	Draw toolbar, Arc popup	ARC3	Yes
Arc, Start, End and Bulge	Start, End and Bulge Arc	Draw toolbar, Arc popup	ARCB	Yes
Arc, Wedge	Wedge (multipoly)	Draw toolbar, Arc popup	ARCW	No
Arc…	Add a chosen arc type, optionally set default for Arc	Draw menu	ARCD	No
Area	Area display, calc	Info menu	AREA	No
Arrow Style	Arrowhead style	Tools menu >> Set Properties	ASTYLE	No

Command	Description	Where?	Text Equivalent	Use in Macro
Arrowhead toggle	Toggles arrowhead on selected entity	Text only	AHEAD	Yes
Attach mode	Select Attach mode	Attach button, right click	ATCHMODE	Yes
Attach mode off	Attach mode off	Text only	ATCHOFF	Yes
Attach mode on	Attach mode on	Text only	ATCHON	Yes
Autosave	Set autosave options	File menu	ASAVE	No
Back	Draw selection behind others (send to start of drawing database)	Edit menu >> Entity Order	BACK	Yes
Bearing	Bearing display	Info menu	BEARING	No
Bearing	Same as BEARING	Text only	BRNG	No
Bearing	Snaps cursor a Specific bearing	Snaps menu	BRNG	Yes
Bezier curve	Bezier Curve	Draw menu >> Path...	BEZ	Yes
Body of Water	Display Water area fill drawing tools	Overland menu	DRAWTOOLSM;Map Water*	No
Borders	Display Border area fill drawing tools	Overland menu	DRAWTOOLSM;Map Border*	No
Borders/Political	Opens the Borders symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Borders*	No
Box	Box	Draw menu >> Polygon...	BOX	Yes
Break	Break a gap in entity	Edit menu >> Trims	BREAK	Yes
Bring In Front of	Move selection in display list after selected entity	Edit menu >> Entity Order	ABOVE	Yes
Browse	Browses the current folder	File toolbar, Open popup	BROWSEC	No
Browse Template	Browse for template, use for new drawing	Text only	BROWSET	No
Building (cut-down version)	Cut-down version of CD Pro House command for CC2 Pro	File toolbar, CD Pro popup	HOUSECC2 Pro	No
Building Options (cut-down version)	Options for cut down CC2 Pro House command	File toolbar, CD Pro popup	HOUSECC2 ProOPT	No
Calculate	Calculate expression	Text only	CALC	No
Catalog window off	Turns catalog window off	Text only	CATOFF	Yes
Catalog window on	Turns catalog window on	Text only	CATON	Yes
CC2 Pro Dioramas Pro	Displays "No CCD installed" dialog	Add-Ons menu	NODIORAMAS	Yes
CD Pro Examples maps	Displays CD Pro example files	File toolbar, CD Pro popup	BROWSE;#EXAMPLES\CITIES	No
CD Pro Information	Displays CD Pro help information	File toolbar, CD Pro popup	HELPN 16000	No
Center	Snaps to the center of a selected entity	Snaps menu	CEN	Yes
Center and Point On	Center and Point On Circle	Draw menu >> Circle...	CIRP	Yes
Chained Arc	Chained Arcs	Draw toolbar, Arc popup	CARC	Yes
Chamfer and Trim	Creates a beveled corner between two entities, deletes old corner	Draw menu	TCHAM	Yes
Chamfer only	Creates a beveled corner between two entities, keeps corner	Edit menu >> Trims	CHAM	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Chamfer only	Creates a beveled corner between two entities, keeps corner. Same as CHAM	Text only	CHAMFER	Yes
Change 2nd Color	Change 2nd (interior) color of selection. Use CHANGE	Edit menu >> Change	CHANGEC2	Yes
Change background color	Changes the map (not the view window) background color. This is a macro.	Edit menu	CHANGEBC	Yes
Change Color	Change color of selection	Edit toolbar	CHANGEC	Yes
Change Fill Style	Change fill style of selection	Edit toolbar	CHANGEFS	Yes
Change Layer	Change Layer of selection	Edit toolbar	CHANGEL	Yes
Change Line Style	Change line width of selection	Edit toolbar	CHANGELS	Yes
Change Line Width	Change Line style of selection	Edit toolbar	CHANGELW	Yes
Change pen thickness	Change pen thickness (actual printed width) of selection 0-2.54mm. Use CHANGE	Edit menu >> Change	CHANGEPT	Yes
Change properties	Change properties of selected entities, choose property to change from dialog	Edit menu	CHANGE	No
Change SymDef Color	Change the color of all entities in all symbol references. Can't be undone	Text only	CHANGESC	Yes
Change SymDef Layer	Change the layer of all entities in all symbol references to selected layer. Can't be undone	Text only	CHANGESL	Yes
Change SymDef to Varicolor	Change the color of all entities in all symbol references to varicolor. Can't be undone	Text only	CHANGESCBB	Yes
Change Text	Change all text in selection to new string.	Edit menu >> Change	CHANGETX	No
Change Text	Change all text in selection to new string. Same As CHANGETX	Text only	CHANGEX	No
Change Text Specs	Change Text Specs	Edit toolbar	CHANGET	No
Character Artist Pro	Displays "No CA installed" dialog	Add-Ons menu	NOCHARACTERARTIST	Yes
Character Artist Pro Examples...	Displays Character Artist Pro example files	File toolbar, Character Artist Pro popup	BROWSE;#EXAMPLES\CHARACTERS	No
Character Artist Pro Information	Displays Character Artist Pro intro help topic	File toolbar, Character Artist popup	HELPN 16003	Yes
Circle	Add circle of current default type set using Circle...	Draw toolbar	CIRCLEI	No
Circle Tangent to 2 Circles	Circle Tangent to 2 Circles	Text only	CIRTAN2	Yes
Circle Tangent to 3 Circles	Circle Tangent to 3 Circles	Text only	CIRTAN3	Yes
Circle...	Add a chosen circle type, optionally set default for Circle	Draw menu	CIRCLED	No
Circular Array	Circular Array	Edit toolbar, Copy popup	CARY	Yes
Circular Part Array	Create a circular array out of selected CC2 Pro file	Text only	CPARY	No
City Designer Pro	Displays "No CD Pro installed" dialog	Add-Ons menu	NOCITY	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
City Draw Tools	Displays CC2 Pro-only city drawing tools	File toolbar, CD Pro popup	DRAWTOOLSM;city*	No
City Symbols (examples)	Opens cut-down CC2 Pro city symbols	File toolbar, CD Pro popup	CATALOG #SYMBOLS\CITIES\CITIES_CC2 Pro.FSC	No
Clear Macros	Clear all macros from menu. Be careful not to save over existing macros.	Text only	CLEARM	No
Clipboard Options	Clipboard options. Use Global Options.	Text only	CLIPOPT	No
Clone Symbol Definition	Makes a copy of a symbol definition in the drawing with a new name (use Symbol Manager)	Symbols menu >> Symbol Manager	CLONESYM	No
Coast/Sea	Opens the Coast symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Coast*	No
Color	Sets current drawing color, straight to dialog box	Tools menu >> Set Properties	COLORDLG	No
Combine Paths	Combines two paths	Edit menu >> Transform	CMB	No
Configure XPs	View plug in information	Text only	XPCFG	No
Connect	Scale, move and rotate selection so that two points in the selection are in different locations	Edit menu >> Reshape	CONNECT	Yes
Connect copy	Scale, copies and rotate selection so that two points in the selection are in different locations	Text only	CONNECTC	Yes
Contours	Display Contour area fill drawing tools	Overland menu	DRAWTOOLSM;Map Contour*	No
Convert drawings to symbols	Makes symbol definitions from files in selected folder. Use SYMMGR	Symbols menu >> Symbol Manager	LDSYMDEF	Yes
Coordinate	Displays coordinate of selected point	Info menu	ID	No
Copy	Copy to Clipboard (^C)	Edit menu	CLIPCOPY	Yes
Copy in drawing	dynamic copy	Edit menu	COP	No
Copy Text	Copy an edited version of text	Text only	TEXCOPY	No
Copy to Sheet	Copy entities to another sheet	Tools menu >> Sheets	COPYSHT	No
Correct fill styles	Removes legacy fill style from template	Text only	CFS	Yes
Corridor (cut down version)	Cut-down corridor command for CC2 Pro -macro version	Text only	CORRIDORCC2 ProM	Yes
Corridor (cut-down macro version)	Cut-down version of DD Pro corridor command for CC2 Pro	File toolbar, DD Pro popup	CORRIDORCC2 Pro	No
Count	Displays number and type of all entities in drawing	Info menu	COUNT	No
Count All...	Displays number and type of selected entities	Info menu	COUNTA	No
Crosshairs off	Switch crosshair cursor off	Text only	XHOFF	Yes
Crosshairs on	Switch crosshair cursor on	Text only	XHON	Yes
Current command help	Displays help on current command (F1)	Text only	HELPCON	Yes
Current layer	Sets current layer. Fails in macro if layer not present - use GOLAYER to add a layer	Text only	LAYER	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Cursor Options	Dynamic edit command options	Tools menu >> Options >>Editing Options	DYNOPT	No
Cursor snap off	Turn cursor snap on	Text only	CSNAPOFF	Yes
Cursor snap on	Turn cursor snap off	Text only	CSNAPON	Yes
Curve with Arrow	Draws an entity which curves outside a chain of nodes with an arrow at the start	Draw toolbar, Smooth Path popup	SPLINEA	Yes
Curve with Double Arrow	Draws an entity which curves outside a chain of nodes with an arrow at both ends	Draw toolbar, Smooth Path popup	SPLINEDA	Yes
Custom Drawing Tools	Display all drawing tools for selection	Draw menu	DRAWTOOLSM;*	No
Cut	Cut to Clipboard (^X)	Edit menu	CLIPCUT	Yes
DD Pro Examples maps	Displays DD Pro example files	File toolbar, DD Pro popup	BROWSE;#EXAMPLES\DUNGEONS	No
DD Pro Information	Displays DD Pro help information	File toolbar, DD Pro popup	HELPN 16001	Yes
Default Body of Water	Adds a new default body of water using Drawing Tools	Overland toolbar	DRAWTOOLSM;Map Water, Default*	No
Default Border	Adds a new default Border using Drawing Tools	Overland toolbar	DRAWTOOLSM;Map Border, Default*	No
Default Contourline	Display the default contour drawing tools	Overland toolbar	DRAWTOOLSM;Map Contour Default*	No
Default Landmass	Adds a new default landmass using Drawing Tools	Overland toolbar, Default Landmass	DRAWTOOLSM;Map Land, Default*	No
Default menu (macro version)	Opens a new menu file, sets as default menu, macro version	Text only	MENUDM	No
Default menu...	Opens a new menu file, sets as default menu	Text only	MENUD	No
Default River	Adds a new default River using Drawing Tools	Overland toolbar	DRAWTOOLSM;Map River, Default*	No
Default Road	Adds a new default Road using Drawing Tools	Overland toolbar	DRAWTOOLSM;Map Road, Default*	No
Define Attributes	Define Symbol Attribute (information to attach to a drawing)	Symbols menu	ATTRIB	No
Define Symbol	Defines a symbol from selection	Symbols menu	DEFSYM	Yes
Define Symbol (Advanced)	Creates a symbol definition from selection with lots of dialog box options for origin, background.	Text only	DEFSYMD	No
Degrees On	Snaps to a specified angle around an arc or circle	Snaps menu	DEG	Yes
Delete duplicates	Deletes duplicates from selected entities	Text only	DELDUPS	Yes
Delete files	Deletes selected files	Text only	DELETE	No
Delete Node	Deletes node nearest to selection point	Edit menu >> Single Entities	DELNODE	Yes
Delete sheet	Delete named sheet	Text only	DELSHT	Yes
Delete Symbol Definition	Deletes a symbol definition. Use SYMMGR.	Symbols menu >> Symbol Manager	DELSYM	No
Desktop color	Change CC2 Pro desktop color	Text only	DSKCOLOR	Yes
Diameter and Center	Diameter and Center Circle	Draw menu >> Circle...	CIRD	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Dioramas Pro Examples...	Displays DioramasPro example files	File toolbar, Dioramas popup	BROWSE;#EXAMPLES\DIORAMAS	No
Dioramas Pro Information	Displays Dioramas Pro intro help topic	File toolbar, Dioramas popup	HELPN 16002	Yes
Discard drawing	Discards all edits and starts new drawing based on current template with same name	Text only	DISCARD	No
Distance Along	Displays distance between two points.	Info menu	DISTANCE	No
Distance Along	Displays distance between two points. Same as DISTANCE.	Text only	DIST	No
Distance Along	Shows bearing and distance - can be copied to clipboard	Text only	DIST2	No
Distance Along	Snaps to a specified distance along selected entity.	Snaps menu	DIST	Yes
Distance format	Units Distance format code	Text only	DISTFMT	Yes
Donut	Creates Donut-shape from two concentric circles made into a multipoly.	Draw menu >> Circle...	DONUT	Yes
Double Line	Chain of parallel lines	Draw menu >> Line...	DBLN	Yes
Draw Like	Draw using selected entity as pattern	Draw menu	DRAWLIKE	No
Draw Like Options	Set drawing methods for Draw Like	Draw menu	DRAWLIKEOPT	No
Drawing color map	Use drawing's line width - color map	Text only	DWGCMAP	Yes
Drawing Tools	Use, create or edit custom drawing tools	Text only	DRAWTOOLSD	No
Drawing Tools (macro and menu version)	Use drawing tool by name (will display dialog box if Tool Name matches more than one option)	Text only	DRAWTOOLSM	Yes
Dungeon Designer Pro	Displays "No DD Pro installed" dialog	Add-Ons menu	NODUNGEON	Yes
Dungeon Draw Tools	Displays CC2 Pro-only dungeon drawing tools	File toolbar, DD Pro popup	DRAWTOOLSM;Dungeon*	No
Dungeon Symbols (examples)	Opens cut-down CC2 Pro dungeon symbols	File toolbar, DD Pro popup	CATALOG #SYMBOLS\DUNGEONS\DUNGEONS_CC2 Pro.FSC	Yes
Dungeons/Lairs	Opens the Dungeon symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Dungeon*	No
Dynamic Edit	Move, add and delete nodes	Edit menu >> Single Entities	DYNEDIT	No
Dynamic Pan	Dynamic pan of drawing	Text only	DYNPAN	No
Edit and move text	Edit and move selected text entity	Text only	TEXEDIT	No
Edit Bookmarks	Edit bookmarks	Tools menu >> Bookmarks	BOOKMARK	No
Edit grid	Edit a rectangular grid system	Text only	EGRID	No
Edit macros...	Edits macro definition. CC2 Pro's are very large - use NOTEPAD to edit fcw32.mac, then use Load Macros when you've saved the file	Tools menu >> Macros	EDITMAC	No
Edit Symbol Definition	Edits a symbol definition. Use SYMMGR.	Symbols menu >> Symbol Manager	EDSYMDEF	No

Command	Description	Where?	Text Equivalent	Use in Macro
Edit Text	Lets you edit text in selection, one piece at a time	Edit menu >> Edit Text	TED	No
Ellipse	Ellipse, Center and Axis Points	Draw menu >> Circle...	ELIPP	Yes
Ellipse, Center and Inclination	Ellipse, Center and Inclination	Text only	ELIPI	Yes
Ellipse, Circle at Angle to Window	Ellipse, Circle at Angle to Window	Text only	ELIPC	Yes
Elliptical Arc	Elliptical Arc	Draw menu	ELIPA	Yes
End session	Quits CC2 Pro , saves automatically	Text only	END	Yes
Endpoint	Locks to endpoint of selected entity	Snaps menu	EPT	Yes
Erase	Deletes selection	Edit menu	ERASE	Yes
Exit	Quits CC2 Pro with option to save (same as QUIT)	File menu	EXIT	No
Exit	Quits CC2 Pro with option to save. Same as EXIT	Text only	QUIT	No
Explode	Converts selection to more primitive components	Edit menu >> Transform	EXPLODE	Yes
Explode Text	Explodes text into a group of splines and paths	Edit menu >> Edit Text	TEXPLODEMP	Yes
Explode Text	Explodes text into a multipoly of splines and paths	Edit toolbar, Explode popup	TEXPLODE	Yes
Export Text	Exports text in selection to a text file	File toolbar, Save popup	TEXPORT	No
Extract Attributes	Displays text listing of symbol attributes in the drawing	Symbols menu	EXTRACT	No
Farmland	Display Farm area fill drawing tools	Overland menu >> Area fills	DRAWTOOLSM;Map Farm*	No
Fens	Display Fens area fill drawing tools	Overland menu >> Area fills	DRAWTOOLSM;Map Fens*	No
File	Convert multiple CC2 Pro drawings to other formats	File toolbar, Save button popup	CONVF	No
Fill Style (macro version)	Set fill style for new entities	Text only	FSTYLE	Yes
Fill Style...	Set fill style for new entities, dialog option	Tools menu >> Set Properties	FSTYLEDLG	No
Filled... (symbol style)	Displays matching CC2 Filled catalogs	Overland toolbar, Symbol Style popup	Filled:SYMICONFSET;1;	No
Fillet and Trim	Same as FIL	Edit menu >> Trims	FILLET	Yes
Fillet and Trim	Creates a curved corner, between two entities, removes old corner	Edit menu >> Trims	TFIL	Yes
Fillet Only	Creates a curved corner, between two entities, keeps old corner	Edit menu >> Trims	FIL	Yes
Find and Replace	Replaces text in selected entities	Edit menu >> Edit Text	TREPLACE	No
Find Text	Finds text. Alternative to Zoom Text	Text only	TFIND	No
Flip	Flip between last Undo and Redo	Edit toolbar, Undo popup	FLIP	Yes
Forest	Display Forest area fill drawing tools	Overland menu >> Area fills	DRAWTOOLSM;Map Forest*	No
Fractal Path	Draws straight-edged entity with chain of fractalised nodes	Draw toolbar	FPATH	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Fractal Polygon	Draws a closed, fillable, straight-edged entity with chain of fractalised nodes	Draw menu >> Polygon...	FPOLY	Yes
Fractalize	Fractalizes an existing shape	Edit menu >> Reshape	FRX	No
Freehand Options	segment length for Freehand Sketch	Text only	FREEHANDOPT	Yes
Freehand Sketch	Draws a freehand (sketched) path	Draw menu >> Path	FREEHAND	No
Freeze all	Make named layer uneditable	Text only	FREEZEA	Yes
Freeze layer	Makes all but the current layer uneditable	Text only	FREEZE	Yes
Freeze layer by filter	Freeze layers that match text filter	Text only	FREEZEF	Yes
Front	Draw selection in front of others (send to end of drawing database)	Edit menu >> Entity Order	FRONT	Yes
Get Random	sets variable to random number 0 to 1. Multiply by N and use GN to get a number between 0 and N	Text only	RANDOM	Yes
Get Symbol Scale	Get current symbol scale	Text only	GETSYMSCALE	No
Global Layer Settings	Global layer settings, overriding drawing layer settings	Tools menu >> Options	GLS	No
GM Only	Opens the GM Only symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;GM Only*	No
Grid angle	Sets angle of current angled grid. Fails in macro if current grid not Angled Grid	Text only	GRIDANG	Yes
Group	Makes selection behave as a single entity	Tools menu >> Groups	GROUP	Yes
Grouping off for insert	Turn off grouping on par insert.	Tools >> Options >> FCW, FSC, FCT	NOPARGRPS	Yes
Grouping on for insert	Turn on grouping on par insert.	Tools >> Options >> FCW, FSC, FCT	PARGRPS	Yes
Help	Displays help for CC2 Pro	Help menu	HELP	Yes
Help on help	Displays Windows how to use Help.	Text only	HELPHELP	Yes
Help on ID	Help on specific id number. Macro fails on incorrect help id.	Text only	HELPN	Yes
Hex Grid...	Draws a hexagonal grid	Draw menu	HEXGRID	Yes
Hide all layers	Hide all but the current layer	Text only	HIDEA	Yes
Hide Hyperlinks	Hides hotspots	View menu	ACTHIDE	Yes
Hide layer	Hides a Specific layer. Macro fails if layer not in drawing	Text only	HIDE	Yes
Hide layers by filter	Hide layers that match text filter	Text only	HIDEF	Yes
Hide Sheet	Hide named sheet	Text only	HIDESHT	Yes
House (cut-down version) (macro version)	Cut-down version of CD Pro House command for CC2 Pro - macro version (House type 10 is an extension, all the rest are the basic house)	Text only	HOUSECC2 ProM	Yes
Import/Export Settings	Export CC2 Pro registry settings	Tools menu	REGEXPORT	No
increment text	Increments numbers in selected text	Text only	TINC	Yes
Index files	Creates an index file of all the text in the cc2 files in a folder for use with Find Text In Files	Text only	INDEX	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Insert CC2 Pro Drawing	Insert CC2 Pro file with file preview	Edit menu >> Insert File	BROWSEPART	No
Insert CC2 Pro Drawing	Insert CC2 Pro file selected using file browser.	Text only	FILEPART	No
Insert Drawing	inserts a drawing into the current drawing. Use INSERT	Text only	PAR	No
Insert Drawing (macro version)	Insert drawing file into current drawing. Use INSERT or PARS	Text only	PART	No
Insert Drawing, same scale	Insert a drawing into the current drawing using previous scale	Text only	PARS	No
Insert File...	Insert any file compatible with CC2 Pro	Edit menu >> Insert File	INSERT	No
Insert Node	Adds a node on selected entity with nodes	Edit menu >> Single Entity	INSNODE	Yes
Insert rectangular array	Insert drawing file as rectangular array	Text only	PARY	No
Insert Reference	Insert CC2 Pro drawing as a reference.	Edit menu >> Insert File (embed off)	XREF	No
Insert Symbols	Insert symbol with thumbnail dialog. Use the Catalog window with the Drawing button depressed instead	Text only	INSSYMD	No
Insert Symbols from Drawing	Inserts symbol definitions from selected file. Use SYMMGR	Symbols menu >> Symbol Manager	INSSDEF	No
Insert Text File	Insert text file	Edit menu >> Insert File	TFILE	No
Intersection	Snaps to intersection of selected entity. Fails in macro if you use two point selection, and the first point contains two entities	Snaps menu	INT	Yes
JPEG and PNG Options	controls JPEG and PNG export options	File menu >> Open >> Options	JPEGOPT	No
Keep	Sets the current properties to be those of the selected entities	Tools menu >> Set Properties	KEEP	Yes
Keep text height and angle	Keeps previous text height and angle for use with TEXT. Use TEX	Text only	KEEPTHA	Yes
Landmass	Display landmass area fill drawing tools	Overland menu	DRAWTOOLSM;Map Land*	No
Layer Copy	Copies selection to chosen layer.	Edit toolbar, Copy popup	LAYERCPY	Yes
Layer...	Display layer dialog box	Tools menu >> Set Properties	LAYERDLG	No
Length	Displays length of part or entire entity	Info menu	LENGTH	No
Like	Sets a property of selection to that of selected entity. Use with Change Fill Style, Line Style, Layer, Color	Edit toolbar	LIKE	Yes
Like	Sets property for next drawn entity only to that of selected entity	Edit toolbar, Like	LIKE	Yes
Line	Add line of current default type set in Line...	Draw toolbar	LINEI	No

Command	Description	Where?	Text Equivalent	Use in Macro
Line	Draws lines (chain of separate line entities.) with an arrow head. If there is more than one in the chain, its usually better to use PATH	Draw menu >> Line...	LINE	Yes
Line Style...	Set line style for new entities, dialog option	Tools menu >> Set Properties	LSTYLEDLG	No
Line to Path	convert chain of lines to path. xyAccept can be any point - it just a left button click.	Edit toolbar, Explode popup	LTP	No
Line Width (macro version)	Set line width for new entities	Text only	LWIDTH	Yes
Line Width...	Set line width for new entities, dialog option	Tools menu >> Set Properties	LWIDTHD	No
Line with Arrow	Line chain with an arrow at the start of each line	Draw menu >> Line...	LINEA	Yes
Line with Double Arrow	Line chain with arrows at the ends of each line	Draw menu >> Line...	LINEDA	Yes
Line, Perpendicular	Draws lines perpendicular to a selected entity	Draw menu >> Line...	LNPRP	Yes
Line, Perpendicular at length	Draws lines of a fixed length perpendicular to a selected entity	Draw menu >> Line...	LNPRPL	Yes
Line... (symbol style)	Displays matching CC2 Line catalogs	Overland toolbar, Symbol Style popup	Line:SYMICONFSET;2;	No
Lines...	Add a chosen line type, optionally set default for Line	Draw menu	LINED	No
Link with CR2 Encounter	Adds an AD&D Core Rules 2 hyperlink	Tools menu >> Hyperlink	LINKE	Yes
Link with File	Add file hyperlink	Tools menu >> Hyperlink	LINKF	Yes
Link with Map	Add map hyperlink	Tools menu >> Hyperlink	LINKM	Yes
List	Displays a text list of properties and geometry of selected entitles	Info menu	LIST	No
List layers	Displays a text list of all layers in the drawing	Text only	LISTLYR	No
List symbol definitions	Displays a text of properties and geometry of entities in a symbol definition	Symbols menu >> Symbol Manager	LISTSYM	No
List variables	Displays a text list of macro variables	Text only	LISTVARS	No
Load color map	Changes the line width-color mapping to a custom file	Text only	LOADCMAP	Yes
Load macros...	Loads new macros into memory from file	Tools menu >> Macros	LOADMAC	No
Load master filters	Loads a set of master filters by name (used when swapping between Add-Ons menu)	Text only	SYMICONFLOAD	No
Lock Groups	Turns group locking off	Tools menu >> Groups	LOCKOFF	Yes
Lock Text Angle	Sets the text angle for new text to align to an entity	Edit menu >> Edit Text	LOCKTEXT	Yes, but won't take parameters
Make Hotspot	Creates hotspot with attached commands	Tools menu >> Macros	ACTION	No

Command	Description	Where?	Text Equivalent	Use in Macro
Make Hotspot (macro version)	Creates a rectangular hotspot with attached commands (macro version)	Text only	ACTIONM	Yes
Make Varicolor	Change selections color to the symbol reference color (varicolor)	Symbols menu	CHGCBB	Yes
Map notes...	Edit, view, and delete notes	File menu >> Drawing Properties	NOTES	No
Marsh	Display Marsh area fill drawing tools	Overland menu >> Area fills	DRAWTOOLSM;Map Marsh*	No
Master Settings Filters	Symbol Settings master filter controls	Symbols menu	SYMICONFOPT	No
Meadow	Display Meadow area fill drawing tools	Overland menu >> Area fills	DRAWTOOLSM;Map Meadow*	No
Menu...	Opens a new menu file	Tools menu	MENU	No
Midpoint	Snaps to midpoint of selected entity	Snaps menu	MID	Yes
Minerals/Mountains	Opens the Mountains symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Mountains*	No
Mirror	Mirrors selection about two selected points	Edit menu >> Reshape	MIRROR	Yes
Mirror Copy	Creates a copy mirrored about two selected points	Edit toolbar, Copy popup	MIRCPY	Yes
Move Origin	Set 0,0 point in drawing	View menu	ORIGIN	Yes
Move to Sheet	Moves selection to another sheet	Tools menu >> Sheets	MOVESHT	No
Move, Scale, Rotate	Move, scale, rotate selection using a visual cursor. Use MOVE in macro.	Edit menu	MOV	No
Multiline Text	Multiline text	Text only	TEXML	No
Multiple drawing control	Multiple drawing control	Text only	MDCTL	No
Multipoly	Combines selection into one entity that can be filled.	Draw menu	MPOLY2	Yes
Multipoly	Combines selection into one entity that can be filled. Same as MPOLY2.	Text only	MPOLY	Yes
Name Window	Saves a view	View menu >> Windows	SVNAME	No
Natural Features	Opens the Natural symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Natural*	No
Nearest Point On	Snap to point on selected entity	Snaps menu	ON	Yes
Network	Creates a network	Text only	NET	Yes
Network Add	Adds to a network, or starts a new one	Text only	NETADD	Yes
Network Center	Sets the net insertion point to center	Text only	NETCENTER	Yes
Network change node width	Change width of selected node on a net	Text only	NETWIDS	Yes
Network change span width	Change width of selected span on a net	Text only	NETWIDE	Yes
Network change width	Changes width of selected net	Text only	NETWIDA	Yes
Network Cut	Cut a section from a network	Text only	NETCUT	Yes
Network Left	Sets the net insertion point to left	Text only	NETLEFT	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Network Offset	Makes copies of a network with different width but same location	Text only	NETOFST	Yes
Network Rectangle	Creates or adds a rectangular network	Text only	NETRECT	Yes
Network Remove span	Removes a span from a network	Text only	NETRMV	Yes
Network Right	Sets the net insertion point to right	Text only	NETRIGHT	Yes
Network width	Sets width for nets, optionally add a new net	Text only	NETWID	Yes
New City...	Start a new city based on the selected template	File toolbar, CD Pro popup	BROWSET;#TEMPLATES\CITIES	No
New Dungeon...	Start a new dungeon based on the selected template	File toolbar, DD Pro popup	BROWSET;#TEMPLATES\DUNGEONS	No
New from current template	Starts a new drawing based on current template.	File toolbar, New popup	NEW	Yes
New Window	Opens a new drawing window	View menu >> Windows	NEWW	No
New...	Starts a new drawing based on the selected map template.	File menu	BROWSET;#TEMPLATES\MAPS	No
Non-visual Copy	Non-visual copy	Edit toolbar, Copy popup	COPY	Yes
Non-visual Move	Moves selection, no visual cursor	Edit toolbar, Move popup	MOVE	Yes
Non-visual Paste	Paste clipboard into drawing	Edit toolbar, Copy popup	PASTE	No
Non-visual Rotate	Rotate selection, no visual cursor	Edit toolbar, Rotate popup	ROTATE	Yes
Non-visual Scale	Scales selection, no visual cursor	Edit toolbar, Scale	SCALE	Yes
Non-visual ScaleXY	Scales selection different xy, no visual cursor	Edit toolbar, Scale	SCALEXY	Yes
Non-visual Stretch	Moves selected nodes of selection	Edit menu >> Reshape	STRETCH	Yes
Number	Adds a series of number labels to the drawing	Draw menu	NUMBER	Yes
Numeric Edit	Changes numerical or text properties of selected entities	Edit menu >> Single Entities	EDIT	No
Offset Chain	Creates an offset of a selected entity or chain in the current properties	Draw menu >> Offset...	OFFSET	Yes
Offset Copy	Creates an offset copy of a selected entity or chain in the current properties	Draw menu >> Offset...	OFFSETCPY	Yes
Offset Default	Add offset of current default type set using Offset...	Text only	OFFSETI	No
Offset One Entity	Creates an offset of a selected entity in the current properties	Draw menu >> Offset...	OFFSET1	Yes
Offset...	Add a chosen offset type, optionally set default for Offset	Draw menu	OFFSETD	No
Open (no preview)	Open file with no preview.	File toolbar, Open popup	OPEN	No
Open Current Bookmark	Opens current bookmark file	Text only	OPENBC	Yes
Open drawing	Open file with no preview. Same as OPEN.	Text only	LOAD	No

Command	Description	Where?	Text Equivalent	Use in Macro
Open Next Bookmark	Opens next bookmark file	Tools menu >> Bookmarks	OPENBN	Yes
Open Next Drawing	Open next drawing in file history	File menu >> Recently Used Files	OPENND	Yes
Open Overlay file	Open overlay file	Text only	OPENOVL	No
Open Previous Bookmark	Opens previous bookmark file	Tools menu >> Bookmarks	OPENBP	Yes
Open Previous Drawing	Open previous drawing in file history	File menu >> Recently Used Files	OPENPD	Yes
Open reference	Open reference drawing	Text only	OPENREF	No
Open Registered File	Opens a registered file of any type	Text only	OPENDOC	Yes
Open separate	Open separate drawing	Text only	OPENSEP	No
Open symbol setting	Opens saved symbol setting using filter combined with current master filter. (may display dialog box if more than one matching setting)	Text only	SYMICONM	Yes
Open...	Open file with file browser and previewer.	File menu	FILE	No
Options	CC2 Pro Options	Tools menu	GLOBALOPT	No
Ortho	Toggle orthogonal locking	Ortho button	ORTHT	Yes
Outline in Black	Add an outline to an object in black	Text only	OUTLINEB	Yes
Outline in Current Color	Add an outline to an object in the current color	Draw menu	OUTLINE	Yes
Pan	Move drawing window in direction and distance specified by two points	View menu >> Zooms	PAN	Yes
Parabolic Curve	Draws an entity which curves outside a chain of nodes	Draw toolbar, Smooth Poly popup	PSPLINE	Yes
Parabolic Polygon	Draws a fillable, closed entity which curves inside a chain of nodes	Draw menu >> Polygon...	SPOLY	Yes
Parabolic Polygon	Draws a closed, fillable entity which curves outside a chain of nodes	Draw toolbar, Smooth Path popup	PSPOLY	Yes
Parallel to	Snap cursor parallel to selected entity	Snaps menu	PRL	Yes
Paste	Dynamic clipboard insertion. Use PARTM if possible.	Edit menu	CLIPINS	Yes
Path	Add path of current default type set in Path...	Draw toolbar	PATHI	No
Path	Draws a straight-edged entity with chain of nodes	Draw menu >> Path...	PATH	Yes
Path to Poly	Converts selected paths to polygons	Edit toolbar, Explode popup	CLOSEPATH	Yes
Path with Arrow	Draws a straight-edged entity with chain of nodes, arrow at both ends	Draw menu >> Path...	PATHA	Yes
Path with Double Arrow	Draws a straight-edged entity with chain of nodes, arrow at one end	Draw menu >> Path...	PATHDA	Yes
Path...	Add a chosen path type, optionally set default for Path	Draw menu	PATHD	No

Command	Description	Where?	Text Equivalent	Use in Macro
Pen Thickness...	Set pen thickness for new entities	Tools menu >> Set Properties	PTHICK	No
Percent Along	Percentage along selected entity	Snaps menu	%	Yes
Perpendicular to	Snap cursor perpendicular to selected entity	Snaps menu	PRP	Yes
Pick Aperture	Set aperture of pick box in pixels	Tools menu >> Options	PICKA	Yes
Point	Draws points	Draw menu	POINT	Yes
Polygon	Add poly of current default type set in Poly...	Draw toolbar	POLYI	No
Polygon	Draws a straight-edged, closed, fillable entity with chain of nodes	Draw menu >> Polygon...	POLY	Yes
Polygon...	Draw a chosen polygon type, optionally set default for Polygon	Draw menu	POLYD	No
Popup menu	Displays a popup context menu at the cursor	Text only	CMENU	No
Print...	Prints current drawing	File menu	PRINT	No
Printer Setup	Sets up printer	Tools menu >> Print...	PRINTSU	No
Prompt test color	Prompt text color	Text only	PCOLOR	Yes
Properties	Edit properties of single entities	Edit menu >> Single Entities	PEDIT	No
Protect...	Protects drawing	File menu >> Drawing Properties	PROTECT	No
Purge Fonts	Removes unused fonts from the text options in drawing	Tools menu >> Set Properties >> Text	FONTPURGE	Yes
Purge Symbol Definitions	Removes unused symbol definitions from the drawing	Symbols menu >> Symbol Manager	PURGESYM	No
Quick Help	Displays help	Text only	QHELP	Yes
Quick Start Guide	Resizes CC2 Pro window, displays Quick Start Guide	Help menu	RESIZE;OPENDOC GUIDE.HLP;	No
Radius and Center	Radius and Center Circle	Draw menu >> Circle...	CIRR	Yes
Random Dungeon	Creates a random floorplan with the current settings	Dungeon>>Random	DUNGEON	Yes
Random Dungeon Options	Sets the options for random dungeon creation	Dungeon>>Random Options	DUNGEONOPT	No
Rectangular Array	Creates an array from a selection	Edit toolbar, Copy popup	REPEAT	Yes
Redo	Redo last Undo	File menu >> Drawing Properties	REDO	Yes
Redo All	Redo all Undos	Edit toolbar, Undo popup	REDOA	Yes
Redraw	Redraw the screen	View menu	REDRAW	Yes
Ref. Point	Select reference	Snaps menu	REF	Yes
Regular Polygon	Draws regular polygon	Draw menu >> Polygon...	RPOLY	Yes
Relief/Contours	Opens the Contour symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Contour*	No
Remove nodes	Reduce number of nodes	Edit menu >> Reshape	REDN	Yes
Rename drawing	Renames the current drawing without saving it	Text only	RENAME	No
Rename Symbol Definition	Rename symbol reference. Use SYMMGR	Symbols menu >> Symbol Manager	RENSYM	No

Command	Description	Where?	Text Equivalent	Use in Macro
Repeat drawing tool	Repeat last Draw Tools command. May display dialog box	Text only	DRAWTOOLSP	Yes
Reset Filter	Sets current symbol settings filter to * (used when swapping between Add-Ons menu)	Text only	SYMICONMR	Yes
Resize window	Resizes CC2 Pro window for help to be displayed	Text only	RESIZE	Yes
Restore drawing	Reloads current drawing, discarding changes	Text only	RESTORE	No
Reverse Path	Reverses node order of paths. Useful with Combine Paths and Text Along a Curve	Text only	FLP	No
Right click menu	Displays the current right click popup context menu at the cursor	Text only	CMENUR	No
Rivers	Display River area fill drawing tools	Overland menu	DRAWTOOLSM;Map River*	No
Roads	Display Road area fill drawing tools	Overland menu	DRAWTOOLSM;Map Road*	No
Rotated copies	Rotate copy of selection, no visual cursor	Edit toolbar, Rotate popup	ROTCPY	Yes
Room (cut down macro version)	Cut-down room command for CC2 Pro -macro version	Text only	ROOMCC2 ProM	Yes
Room (cut down version)	Cut-down version of DD Pro room command for CC2 Pro	File toolbar, DD Pro popup	ROOMCC2 Pro	No
Rotate	Dynamic rotate. Use ROTATE in macro.	Edit menu >> Reshape	ROT	No
Rotate Align	Rotate and align selection, no visual cursor	Text only	ROTALN	Yes
Run executable	Launches an executable file by name	Text only	RUNAPP	Yes
Same X	Snaps to Same X as reference point.	Snaps menu	SAMEX	Yes
Same X	Snaps to Same X as reference point. Same as SAMEX.	Text only	HORZ	Yes
Same Y	Snaps to Same Y as reference point.	Snaps menu	SAMEY	Yes
Same Y	Snaps to Same Y as reference point.	Text only	VERT	Yes
Save	Saves current file	File menu	SAVE	Yes
Save All	Saves All open drawings	Text only	SAVEALL	Yes
Save As (macro version)	Saves current file as fcw. Overwrites existing files. Macro version.	Text only	SAVEASM	Yes
Save As (old version)	Saves current file. Use Save As...	Text only	SAVEAS	No
Save As...	Saves current file, or exports to other file formats, saves map sections	File menu	EXPORT	No
Save color map	Saves current line width - color mappings	Text only	SAVECMAP	Yes
Save custom palette	Saves the current palette as the custom palette	Tools menu >> Set Properties >> Color	SAVEPAL	Yes
Save File Options	Save as options for FILE (use GLOBALOPT)	Text only	FILEOPT	No
Save Macros	Saves current macros	Tools menu >> Macros	SAVEMAC	No

Command	Description	Where?	Text Equivalent	Use in Macro
Save map section	exports view to JPEG, PNG or BMP	File menu >> Save As >> Rectangular section	WBS	No
Scale	Dynamic scale	Edit menu >> Reshape	SCA	No
Scale Copy	Scales a copy of a selection, no visual cursor	Edit toolbar, Copy popup	SCLCPY	Yes
Scale Symbol Definitions	rescales symbol definitions about their origin. Can't be undone. Use SYMMGR.	Symbols menu >> Symbol Manager	CHANGESS	Yes
Scale Symbols in Map	Scales selected symbol references about their insertion point	Symbols menu	SCASREF	Yes
Scale X Off	Turn off only X scaling of objects	Text only	SCAXOFF	Yes
Scale Y Off	Turn on only Y scaling of objects	Text only	SCAXON	Yes
Screen Tools	Manage CC2 Pro's screen tools	View menu	TOOLS	No
Script	Runs CC2 Pro text-only commands stored in a text file	Tools menu >> Macros	SCRIPT	No
Search files for text...	Creates bookmark list of files with Specific text	Tools menu	SEARCH	No
Select	selects an entity stored in a variable using STORE	Text only	SELECT	Yes
Select Grid	Select grid system	Snaps menu	SGRID	No
Select Template	Sets the current template for New	File toolbar, New popup	TEMPLATE	No
Selection color	Set color to mark selected entities	Text only	MCOLOR	Yes
Send Behind...	Move selection in display list before selected entity	Edit menu >> Entity Order	BELOW	Yes
Set and add layer	Set current layer, adding the layer if it does not exist	Text only	GOLAYER	Yes
Set default browse folder	Set default browse directory	Text only	BROWSEP	No
Sheet	Sheet manager	Tools menu >> Sheets	SHEET	No
Sheet Symbol Origin	sets the origin for all visible sheets	Text Only	SHTSYMORG	No
Show extents	Displays XY extents of current drawing	Text only	EXTENTS	No
Show Filtered Layers	Show layers that match text filter	Text only	SHOWF	Yes
Show Hyperlinks	Shows hotspots	View menu	ACTVIS	Yes
Show Sheets by filter	Shows sheets matching a text wild card	Text only	SHOWSHFT	Yes
Shrubland	Display Shrubland area fill drawing tools	Overland menu >> Area fills	DRAWTOOLSM;Map Shrubland*	No
Smooth Path	Draws an entity which curves inside a chain of nodes	Draw menu >> Path...	SPLINE	Yes
Smooth to Straight	converts path/poly to smooth path/poly	Edit menu >> Transform	CTS	Yes
Snap Toggle	Toggle snap value	Snap button	SNAPT	Yes
Sort Symbols in map	Changes drawing order of selected symbols. Used for mountains, etc.	Symbols menu	SYMSORT	Yes
Split	Splits an entity in two	Edit menu >> Trims	SPLIT	Yes
Square Grid	Draws a square grid	Draw menu	SQGRD	Yes
Straight to Smooth	converts smooth path/poly to path/poly	Edit menu >> Transform	STC	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Stretch	Dynamic stretch	Edit toolbar, Move popup	STR	No
Structures	Opens the Structures symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Structures*	No
Swamp	Display Swamp area fill drawing tools	Overland menu >> Area fills	DRAWTOOLSM;Map Swamp*	No
Symbol	Insert Symbol Reference in current drawing by name	Text only	SYMBOL	Yes
Symbol Manager	Symbol manager	Symbols menu	SYMMGR	No
Symbol rename and reorder	Rename and Reorder symbols	Text only	RNSYM	No
Symbol Settings	Symbol Catalog Settings - Opens symbol catalog and optionally sets properties	Symbols menu	SYMICOND	No
Symbol Style Toggle	Move to next style of symbol catalog setting, if one matches the current filter	Overland menu	SYMICONFNEXT	No
Symbols Along...	Draws symbols along selected entity	Draw menu	ESC	No
Tablet calibration	Calibrate an installed digitizing tablet	Text only	TABCAL	No
Tablet configuration	Configure an installed digitizing tablet	Text only	TABCFG	No
Tablet off	De-activate an installed digitizing tablet	Text only	TABOFF	Yes
Tablet on	Activate an installed digitizing tablet	Text only	TABON	Yes
Tangent to	Snaps to tangent	Snaps menu	TAN	Yes
Tangent to two entities	Draws the tangent between two selected entities	Draw menu >> Line...	TANGENT	Yes
Technical Support	Gives help info on technical support	Help menu	TECH	Yes
Text	Use TEX.	Text only	TEXT	No
Text (visual, macro version)	Macro version of TEX (Text) command, but TEXTM is better	Text only	TEXM	Yes
Text along a curve	Wrap text to path or curve	Draw menu	ATTC	No
Text around Arc	Draws curved text then optionally stretches it	Text only	TEXTARC	No
Text...	Adds text with rotation, scaling justification and property options. Use TEXTM in macros	Draw menu	TEX	No
Text...	Text Specs dialog box	Tools menu >> Set Properties	TSPEC	No
Tip of the Day	Shows tip of the day	Help menu	TIPS	No
Toggle Attach mode	Toggle attach mode	Attach button	ATCHT	Yes
Toggle Crosshairs	Toggle crosshairs display	Tools menu >> Drawing Aids	XHTOG	Yes
Toggle Frames	Toggles state of frame used on smooth entities	Tools menu >> Drawing Aids	FRAMETOG	Yes
Toggle Grid	Toggles grid state	Grid button	GRIDT	Yes
Toggle group locking	Toggles group locking	Text only	LOCKT	Yes
Trim	Trim entity	Edit menu >> Trims	TRIM	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Trim Inside	Trim to inside of one or two entities	Edit menu >> Trims	TRIMIE	Yes
Trim Outside	Trim to outside of one or two entities. Select section to keep	Edit menu >> Trims	TRIMOE	Yes
Trim to Intersection	Trim to intersection	Edit menu >> Trims	TRIMINT	Yes
Trim to Intersection	Trim to specified entity	Edit menu >> Trims	TRIMTO	Yes
Trim to Length	Trim to specified length	Edit menu >> Trims	TRIML	Yes
Undo	Undoes previous non-nestable command	Edit menu	UNDO	Yes
Ungroup	Ungroup selection	Tools menu >> Groups	UNGROUP	Yes
Units...	Set inches per drawing unit	File menu >> Drawing Properties	UNITS	No
Unlock Groups	Turns group locking on	Tools menu >> Groups	LOCKON	Yes
Vegetation	Opens the Vegetation symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Vegetation*	No
Version info	Version info. Same as VER.	Text only	ABOUT	No
View Sets (macro version)	Manage view sets	View menu >> Windows	VSET	No
View Sets...	View set macro version	Text only	VSETM	Yes
View-Window Color	Sets view window color	View menu	BKGND	Yes
Water/Rivers	Opens the Water symbol setting in current style	Overland menu >> Symbol Settings	SYMICONM;Water*	No
Write map section	Save selected entities as a CC2 Pro file	File menu >> Save As >> Selected Entities	WRITE	No
Write map section (macro version)	Save selected entities as a CC2 Pro file by name	Text only	WRITEM	Yes
Write Part	Create Part. Same as WRITE	Text only	CPART	No
Zoom Center	Zoom Center view	View menu >> Zooms	ZCEN	Yes
Zoom Extents	Zoom Extents view	View menu >> Zooms	ZEXT	Yes
Zoom Height	Zoom Height view	View, Any popup	ZHGT	Yes
Zoom In	Zoom In view	View menu >> Zooms	ZIN	Yes
Zoom Last	Zoom Last view	View menu >> Zooms	ZLAST	Yes
Zoom Named	Zoom Name View	View menu >> Zooms	ZNAME	No
Zoom Named (macro version)	Zoom Name (macro version)	Text only	ZNAMEM	Yes
Zoom Out	Zoom Out view	View menu >> Zooms	ZOUT	Yes
Zoom Text	Zoom to Text string	Text only	ZTEXT	Yes
Zoom to All Text	Shows a list of all text, click to zoom to the text	View, Any popup	ZTEXTA	No
Zoom to Text	Zoom Text (dialog box version)	View menu >> Zooms	ZTEXTD	No
Zoom Width	Zoom Width view	Text only	ZWID	Yes
Zoom Window	Zoom Window view. Same as ZWIN.	Text only	ZWIN2	Yes
Zoom Window	Zoom Window view	View menu >> Zooms	ZWIN	Yes

CC2 Pro Macro Command Reference

This table gives you a list of all **CC2 Pro's** macro-specific commands. The other commands useable in macros are listed in the previous section.

Syntax

The syntax column shows how you should construct your macro commands. If in doubt, type the text equivalent of the command at the keyboard and see what the prompts say.

Delimiters are represented by a semicolon. A delimiter is just like pressing ⎡ENTER⎤ at the command prompt, or pressing the right button. Syntax strings ending in a semicolon require an extra delimiter. For example, PATH requires you to press ⎡ENTER⎤ twice to finish it. Commands which require repeated input are shown with an ellipsis, for example xy1;…;xyN;

Some macro commands work on a current selection of entities. This is represented by [selection]. Right click options (in a macro, two consecutive delimiters) are denoted in square brackets.

(real.expression) is an arithmetic expression. Values stored by these functions are formatted as numeric with 9 decimal places. They can contain variable names defined above, the math operators (+ - * / ( )), and units operators (' ," ,cm ,mm ,m ,km)

Alternative inputs are separated by a /. For example, xyPoint/rDistance means that you can put a point or a real number in the macro. Where an alternative has more than one prompt, it is put in round brackets ()

Some commands such as HIDEF can have text filters. These are string variables, but * represents any string (including spaces) ? represents any character. The filter is assumed to have a * at the beginning, unless you add an =.

Each type of data has a different prefix:

Data type	Prefix	Info
File name	f	Use $ in a macro to represent the current folder; # to represent the CC2 Pro folder. Include the suffix.
Point	xy	xyEntity means that CC2 Pro expects a point on an entity.
Distance	d	Distance can either be a real number, or two points. CC2 Pro calculates and uses the distance between the points.
String	s	Strings must be delimited by an ENTER in a macro
Real number	r	A decimal number, entered as xxx.yyy
Integer	n	A whole number. nColor is a number from 0-255 representing a color.
Variable	v	A variable. This can be followed by any of the other prefixes, for example vfOpen would be a file name variable. Variables are set using the various Get commands.

Example

The syntax for **Circular Part Array** (macro version) is:

fPart[prior];rScale[prior];rRotate[prior];Spokes[Prior];nRings[Prior];
ArrayCenter[Prior];xyPartOrigin;rAngle[Even];dBetweenRings

The text in your macro might be:

CPARYM;#mypart.fcw;;;5;5;0,0;0,0;;5

In the example, **CC2 Pro** inserts the file **mypart.fcw** from your **CC2 Pro** folder, using the same scale and rotation as before (if this is the first time, it uses the default values 1 and 0), with 5 spokes, 5 rings, centered at **0,0** with an origin at **0,0**, an even angle between the rings, which are 5 units apart. Try typing it at the command prompt, remembering to press ⎡ENTER⎤ where you see a semicolon, and after the last argument.

Command	Description	Text Equivalent	Syntax
Actuate	Activates a hotspot	ACT	xyHotspotLocation

Command	Description	Text Equivalent	Syntax
Arrow Height	Arrowhead height	ASTYLEH	dHeight
Arrow Style	Arrowhead style	ASTYLEL	dLength
Begin Macro	Begin Macro Definition	MACRO	vMacroName (can't be used on command line)
Catalog	Load a symbol catalog file into the catalog window	CATALOG	fCatalog
Circular Part Array (macro version)	Insert CC2 Pro file by name as circular array	CPARYM	fPart[prior];rScale[prior]; rRotate[prior];Spokes[Prior];nRings[Prior];ArrayCenter [Prior];xyPartOrigin;rAngle [Even];dBetweenRings
Clear Macros	Clear all macros from menu. Be careful not to save over existing macros.	CLEARM	
Color (macro version)	Sets current drawing color by number	COLOR	nColor[dialog]
Concatenate variables	Concatenate variables. Add spaces for delimiters	APND	vsPrefix;sToAdd
Debug on	Turn on macro debug mode	STEP	
Decimal places	Set Units decimal places code	SETDECP	nDecimalPlaces[Prior]
Define Attributes (macro version)	Define symbol attribute macro version	ATTRIBM	sTagText;sPromptText;sValueText;xyLocation
Deselect entities	de-selects all selected entities (see STORE)	DESELECT	
Display Sheet Name	displays the current sheet name on the status bar	SSHOWNAME	
End macro definition	End macro definition	ENDM	
Exit all macros	Exit all macros from within a macro	EXITAM	
Exit macro	Exit the current macro	EXITM	
Export Text (macro version)	Exports text in selection to a text file. Macro version	TEXPORTM	[selection]
Fractalize (macro version)	Adds extra random nodes to a shape.	FRXM	xyPathEntity1;rDepth;rStrength;(xyPathEntity2;… xyPathEntityN)
Frame Off	Turns guiding frame used on smooth entities off	FRAMEOFF	
Frame On	Turns guiding frame used on smooth entities on	FRAMEON	
Get file name with preview	Get file name variable with dialog box for macro	FILEM	vfFileName ^D
Get angle	Stores an angle	GA	vrAngle;rAngle/(xyBrng1;xyBrng2)
Get angle	Stores an angle	GBRNG	vrAngle;rAngle/(xyBrng1;xyBrng2)
Get arccos	Stores arccos	GACOS	vrAngle;rCos
Get arcsin	Stores arcsin	GASIN	vrAngle;rSin
Get arctan	Stores arctan	GATAN	vrAngle;rTan
Get color	Stores a color number. Works with dialog box option. Sets error flag if dialog box cancelled.	GCOL	vnColor;nColor[dialog]
Get cosine	Stores cosine of angle	GCOS	vrCos;rAngle/(xyBrng1;xyBrng2)
Get Drawing Name	get the current drawing name as a macro variable	GETDWGNAME	
Get distance	Stores a distance. Same as GDIST	GD	vdDist;dDist
Get distance	Stores a distance.	GDIST	vdDist;dDist
Get Entity	Stores a point, using a pick box. Sets the error flag if no entity is selected.	GE	vxyEntity;xyEntity

Command	Description	Text Equivalent	Syntax
Get Extents-height	Get drawing height	GETEXTY	vrHeight
Get Extents-high rt pt	Get high right point of drawing	GETEXTH	vxyHighright
Get Extents-low left pt	Get low left point of drawing	GETEXTL	vxyLowleft
Get Extents - width	Get Drawing width	GETEXTX	vrWidth
Get Filename (Open)	Stores a user-chosen file name using Open dialog. No ^D required	GFNO	fAny
Get Filename (Save)	Stores a user-chosen file name (using Save dialog). No ^D required	GFNS	fAny
Get Filename Wildcard (Open)	Stores a user-chosen file name using * or ? Pattern. Uses Open file dialog. No ^D required	GFNOP	fAny;sPattern
Get Filename Wildcard (Save)	Stores a user-chosen file name using * or ? Pattern (using Save dialog). No ^D required	GFNSP	fAny;sPattern
Get file name with preview	Get file name variable with dialog box for macro	FILEM	vfFileName ^D
Get Integer	Stores an integer - will convert a real to an integer by stripping off section after floating point	GN	vnNum;nNum/rReal
Get Length	Stores length of object	GLEN	vrLength;xyEntity
Get Point	Stores a point	GP	vxyPoint;xyPoint
Get Real	Stores real (floating-point) value	GV	vrReal;rReal
Get Reference	Get reference entity (on frozen layers)	GR	vxyPoint;xyRef
Get relative filename	Stores relative file path name. # represents CC2 Pro folder; $, current folder.	GRFN	vfRelative;fAbsolute
Get Sine	Stores sine of angle	GSIN	vrSin;rAngle/ (xyBrng1;xyBrng2)
Get String	Stores a line of text	GL	vsText;sText
Get Tangent	Stores tangent of angle	GTAN	vrTan;rAngle/ (xyBrng1;xyBrng2)
Get Unbroken String	Stores string - delimiters finish command (space, semicolon, enter)	GW	vsWord;sWord
Get X coord	Stores X coordinate of a point	GETX	vrX;xyPoint
Get Y coord	Stores Y coordinate of a point	GETY	vrY;xyPoint
Go label	Go to macro label	GO	sLabel
Go label	Go to macro label. Same as GO	GOTO	sLabel
Grid off	Turns visual grid off	GRIDOFF	
Grid On	Turns visual grid on	GRIDON	
Grid Value	Sets distance between grid points	GRIDV	dGap[prior]
Hide Sheet	hides sheet by selected entity	SHIDEP	
Hide Sheet by filter	Hides sheets matching a text wild card	HIDESHTF	sSheetnamefilter
If defined label	Branch if variable is already defined.	IFDEF	vVariable sLabel
If Error label	Branch if error flag is set (right click or escape)	IFERR	sLabel
If negative	Branch if real.expression < 0	IFN	(real expression) sLabel
If positive	Branch if real.expression > 0	IFP	(real expression) sLabel
If Zero	Branch if real.expression = 0	IFZ	(real expression) sLabel
Insert Drawing, non-visual	Insert part by name	PARTM	fDrawing;rScale[prior]; rRotate[prior];xy1;…;xyN;

Command	Description	Text Equivalent	Syntax
Insert rectangular array (macro version)	Insert drawing file by name as rectangular array	PARYM	fName;nColumns[prior]; nRows[prior];xyOrigin;xy2
Insert Symbols (macro version)	Insert symbol by name	INSSYM	sSymbol;rScaleX[prior]; rScaleY[prior];rRotate; xy1;...xyN;
Insert Text File (macro version)	Insert text file by name	TFILEM	fText;xyPosition [below prior]
Layer	Sets the current layer. Same as LAYER	SETLAYER	sLayer[dialog]
Line style (macro version)	Set linestyle for new entities	LSTYLE	sLineStyle[dialog]
Line to Path (macro version)	convert chain of lines to path (macro version)	LTPM	xyLineChain
Load macros (menu version)	Load macro file, menu or macro version	LOADMACM	fMacros
Master Settings Filters (macro version)	Define Symbol Settings master filter (macro)	SYMICONFOPTM	nFilters;s1[empty]; ...sN[Empty];
Menu (macro version)	Load Menu file by name	MENUM	fMenuFile
Message dialog box	Displays message in macro	MSGBOX	sTitle;sBox1;...;sBoxN;
Open drawing (macro version)	Open file, macro version	LOADM	fLoad
Ortho lock off	Turn orthogonal locking off	ORTHOFF	
Ortho lock on	Turn orthogonal locking on	ORTHON	
Pause for input	Pause for user input in macro	^D	sPromptText
Pause macro	Halt macro execution for n seconds, wait for keypress	PAUSE	rSeconds
Prompt Echo Off	Suppress echo of the command prompt	ECOFF	
Prompt Echo On	Restores echo of the Command prompt	ECON	
Redraw restored	Suppress automatic screen redraws	RDON	
Redraw suppressed	Restore automatic screen redraws	RDOFF	
Remove File Extension	remove the extension from a file name	NOEXTENSION	
Restore Drawing Settings	restores the current drawing settings	GETSETTINGS	
Restore selection method	Restore saved selection method saved using SELSAVE	SELREST	
Save as DXF	Saves current file as DXF.	SAVEDXF	
Save settings	Save current drawing settings	SAVESETTINGS	
Save Macros (macro version)	Saves current macros by file name	SAVEMACM	
Save selection method	Save selection method. Restore with SELREST	SELSAVE	
Save variables	Save variable values in a script file	SAVEVARS	fScript
Script (macro version)	Run a script file by name	SCRIPTM	fScript
Select by 1 Each pick	Select entities by single each pick	SELBY1	
Select by All	Select entities by All	SELBYA	
Select by Color	Select entities by Color	SELBYC	

Command	Description	Text Equivalent	Syntax
Select by Dialog or popup	Select entities by Dialog	SELBYD	
Select by Layer	Select entities by Layer	SELBYL	
Select by Multiple Each	Select entities by Each picks	SELBYE	
Select by Prior+A465	Select entities by Prior selection	SELBYP	
Sets Hide Off	Sets "hide all but current sheet" off	SAUTOHIDEOFF	
Sets Hide On	sets "hide all but current sheet" on	SAUTOHIDEON	
Select Template (macro version)	Set current template by name	TEMPLATEM	
Set Sheet by name	sets current sheet name by name	SSET	
Set Sheet by entity	sets sheet by selected entity	SSETP	
Set Sheet macro	sets the current sheet into a macro variable (you could restore it later with SSET)	SGETNAME	
Set fraction rounding	Set Units fraction rounding code	SETFRAC	nCode[Prior]
Set Master Filter (macro version)	Set Symbol Settings master filter (macro)	SYMICONFSET	nMaster
Show All Layers	Shows all layers	SHOWA	
Show Layer	Shows the named layer	SHOW	sLayer[dialog]
Show Sheet	Show named sheet	SHOWSHT	sSheet
Snap off	Turns snap off	SNAPOFF	
Snap on	Turns snap on	SNAPON	
Snap Value	Set snap points between each grid point	SNAPV	nDivisions[Prior]
Store entity	sets a variable to a selected entity	STORE	vnEntity;xyEntity
Straight to Smooth (macro version)	converts smooth path/poly to path/poly (macro version)	STCM	[selection]
Text (macro version)	Adds text, macro version	TEXTM	sText;xyPosition [below prior]
Text Angle	Set text angle	TSPECA	rAngle[prior]
Text Font	Set text font by name	TSPECF	sFont
Text Height	Set text height	TSPECH	dHeight
Text Justification	Set text justification	TSPECJ	nCode
Text Spacing	Set text spacing	TSPECP	rSpacing[prior]
Text Stretch	Set text stretch factor	TSPECT	rStretch
Text Style	Set text style	TSPECS	nFlags
Thaw All layers	Thaw All layers	THAWA	
Thaw filtered layers	Thaws layers that match text filter	THAWF	sLayerFilter
Thaw layer	Thaw layer	THAW	sLayer[dialog]
Units (macro version)	Set inches per drawing unit, macro version	UNITM	
Window	Select entities by Window	SELBYW	
Yes or No dialog box	Display Yes/No message box. Sets error flag on No.	ASKBOX	sTitle;sBox1;...;sBoxN;

CHARACTER ARTIST PRO ™

Character Artist Pro Introduction

Welcome to Character Artist Pro (CA Pro). CA Pro is an add-on product for **CC2** Pro that enables **you** to create attractive full-length portraits of the characters and humanoid monsters in your game. The portraits can then be exported for use with character sheets, added to **CC2** Pro drawings, made into counters, or card stand-up figures. CA Pro also includes symbols for a wide range of monsters, treasure and magical effects.

Finally, CA Pro includes advanced utilities for creating and editing symbol catalogs. These are detailed in *Advanced* on page 180.

Installing CA Pro

Place the CA Pro compact disc into your CD-ROM drive. On most computers there will be a few seconds of whirring, then you will see a window showing the contents of the CD. If this doesn't happen, double-click "My Computer", then on the letter for your CD-ROM drive.

To install CA Pro, double-click **Setup** 🖥️, then follow the on-screen instructions.

During the installation you will be asked to give your name, company and CA Pro Serial number. Your unique serial number is in the back of the manual or was emailed to you.

Once you have completed the installation, start CC2 Pro. On the **File toolbar**, click **CA** 🗗.

Latest Information

To be sure of getting the latest version of all of our software, please go to our web site www.profantasy.com.

Frequently Used Clicks

Before you start creating character portraits, here's an overview of CA Pro's most popular commands.

Sex Toggle	⚥ 👤	Race catalog
Torso catalog	🛡️ 👤	Head catalog
Left Arm catalog	🖐️ 🖐️	Right Arm catalog
Leg catalog	🦵 🧍	Two-handed catalog
Other catalog	💰 👹	Monster catalog
Silhouette	🧍 🧍	Mirror Silhouette
Previous Sheet	↩️ ↪️	Next Sheet

The CA Pro Bar

Toggle Sex ⚥ changes the currently selected body part catalog for the current race to that of the other sex. For example, if you have the **male human leg** catalog opened, a click will open the **female human leg** catalog. Click again to revert to the other sex. Right click to choose from a shortcut menu.

Toggle Race 👥 changes selected body part catalog for the current sex to the next on the list: Human, Dwarf, Elf, Gnome, Half Elf, Halfling, Half Orc. Click again to move to the next race on the list. For example, if you had the **Female Half-Orc Torso** catalog opened, a click would open the **Female Human Torso** catalog. Right click to choose from a shortcut menu.

Symbol catalog buttons open a new **catalog** of the current race and sex in the symbol catalog window. For example, if you had the **female Human Left Leg** catalog open, and you clicked **Torso** 👕, the **Female Human Torso** catalog would open. Right click on **Left Arm** 🖐 or **Right arm** 🖐 to see the different poses available, or click to toggle through them.

Other symbols

Along with body parts, CA Pro also contains lots of other useful symbol libraries. There are monsters, weapons, magical effects, and treasure available as square counters, hex counters or without constraint. They can enhance existing CC2 Pro or DD Pro designs.

The **Symbol Catalog** toolbar gives you access to the symbols. Click for the free-standing catalogs, or right click to get the other catalogs.
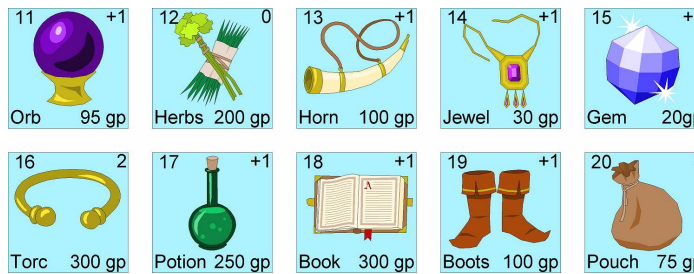
The Character Menu

The Character menu includes all of CA Pro's tools, as well as additional commands to open CA Pro's extra symbol catalogs. You can also change the color scheme of symbols, and the outline colors of entities. Click *Character menu* in the Help index for more details

The Catalog Menu

The Catalog Menu contains new symbol and sheet control commands.

Character Artist Pro introduces a new concept for editing symbols. **Symdefs to Sheets** converts every symbol in the catalog into a separate named sheet and **Sheets to Symdefs** converts those sheets back into symbols.

When the symbols are in their sheet form you can use CC2 Pro's edit commands to change many symbol definitions at the same time. You can change color schemes or resize the whole catalog.
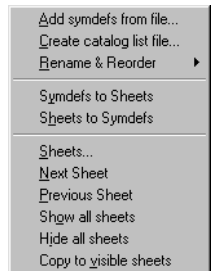
A little CC2 Pro review

You need to have a reasonable command of CC2 Pro before you start CA Pro. If you are new to ProFantasy's software, we suggest that you do the first few chapters of the CC2 Pro tutorial before creating your character portraits.

Starting Commands

To start a new command, for example "copy", you can

- ✓ click command's button
- ✓ select it from the menu
- ✓ for some commands, use a hot-key (e.g. CTRL C)

✓   type the command at the Command Prompt

You know a command has been accepted because the Command Prompt will change to tell you what CA Pro needs next.

Cancelling Commands

Cancelling Commands

Starting a command will usually cancel any other command that was in progress. Some commands (e.g. endpoint and zooms) are designed to work inside another command and do not cancel the previous command.

To stop a command in mid process, choose a new command. The Command Prompt will instantly revert to Command:.

Ending Commands

All CC2 Pro editing commands require that you choose the command, then the entities you want to affect.

Auto-Repeating Commands

If you want to repeat the previous command, you do not have to reselect its button. Click the left mouse button to repeat the last command.

Changing View

To get a better view of what you are working on, you can *zoom* in or out at any time, even in the middle of another command.

Jhendor, Topographical by Ralf Schemmann*

The color scheme in the **Jhendor, Topographical** map is inspired by a modern atlas and is available as a scheme choice in FT Pro. Ralf did this amazing work before FT Pro was released. It is available as an example map in the **Examples>Tome** folder.

JHENDOR, TOPOGRAPHICAL

Copyright 2000 by Ralf Schemmann
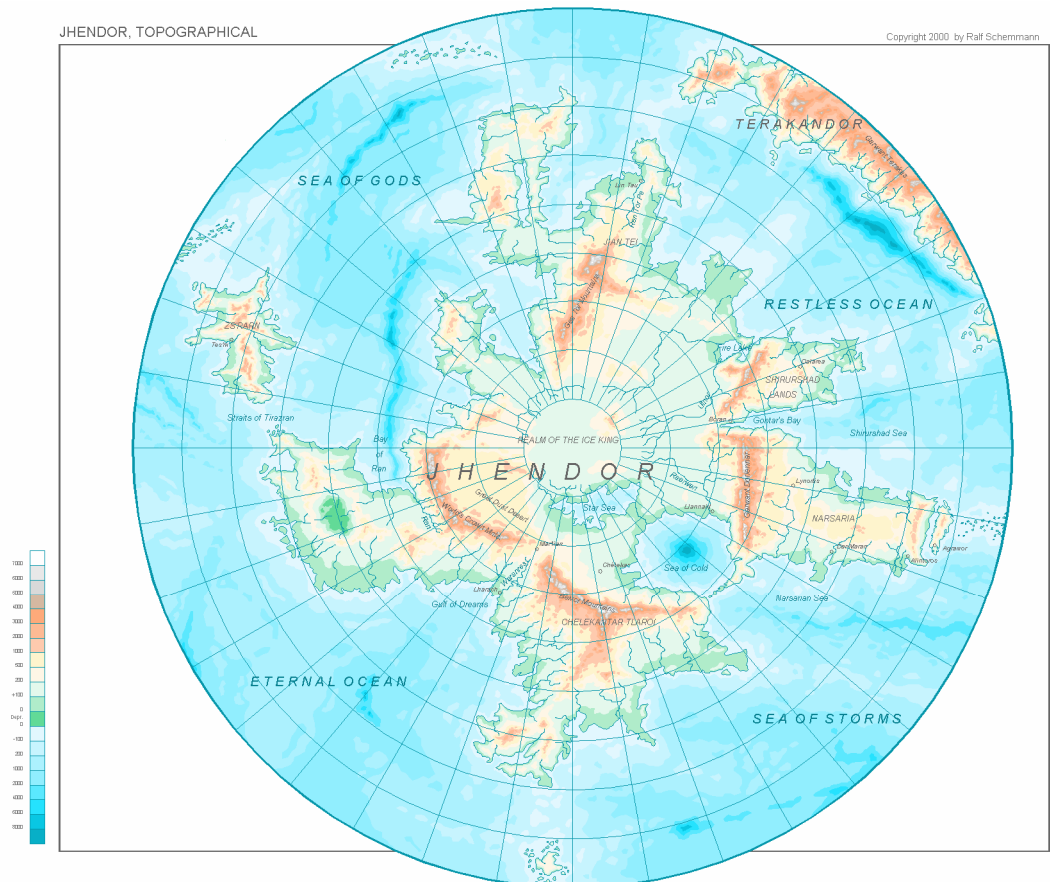
Bronze Age Stone Circle
based on Stonehenge, England
ca. 3000 to 1600BC

Slaughter Stone

Sarsen Stones

Standing Stone

Blue Stones

Burial Holes

Altar Stone
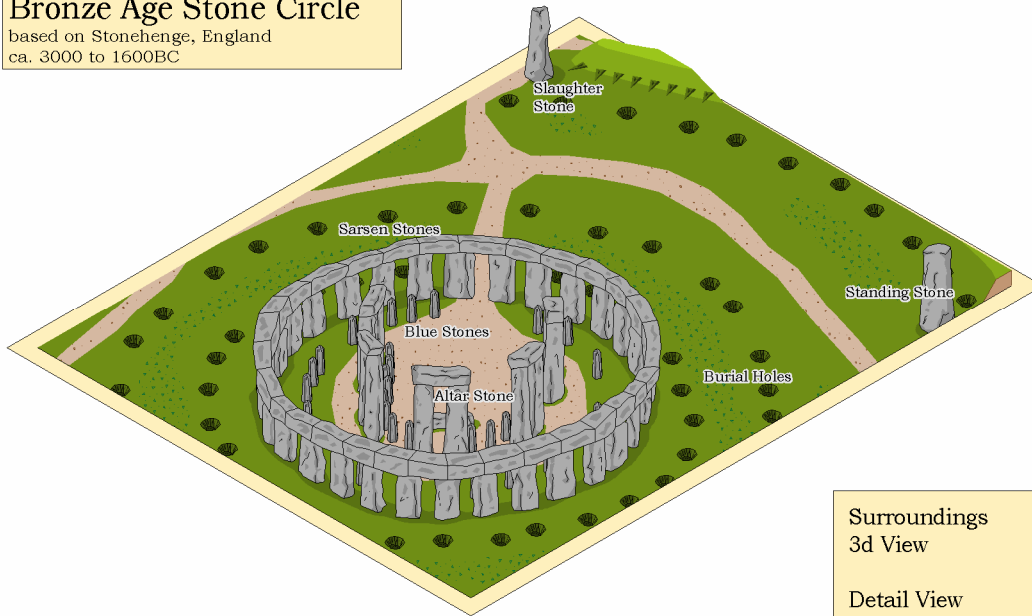
Surroundings
3d View

Detail View

Bronze Age Stone Circle by Ralf Schemmann

Bronze Age Stone Circle is a sample drawing from the upcoming product, Source Maps: Temples, Tombs and Catacombs.

Gaia Looking World

Hex Scale in km

UWP: E777898-8

1 hex = 555 km (345 mi)
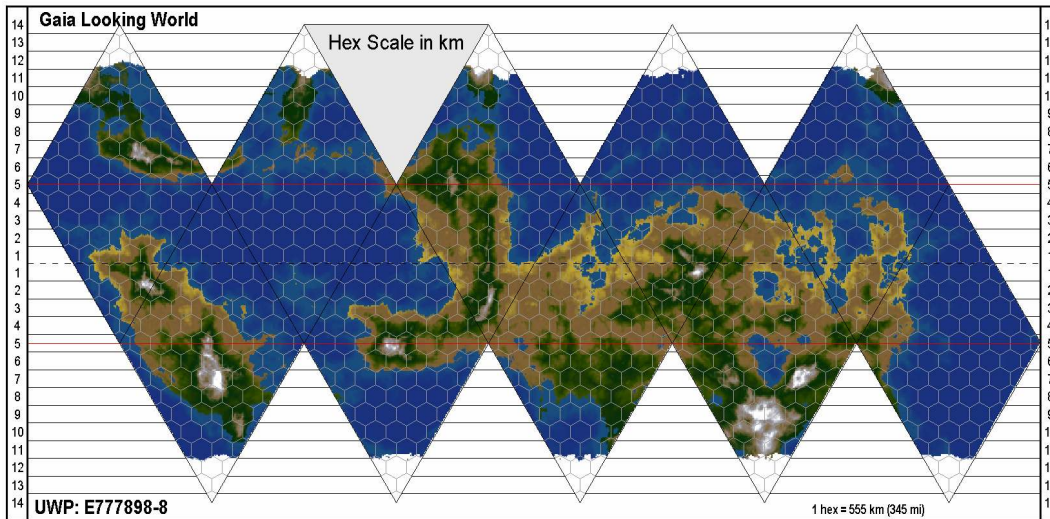
Gaia Looking World by Dr Erin Smale*

This drawing is a Gaia View export from FT Pro onto an icosahedral Cosmographer Pro template. Information on exporting FT Pro drawings to CC2 can be found in *Exporting to CC2 Pro* on page 404. The creator has included notes on how the drawing was created. Look in the **Examples>Tome>GaiaView** folder for GaiaLookingWorldNotes.doc. This image doesn't do the drawing justice. Be sure to view the example FCW drawing also in the **Examples>Tome >GaiaView** folder.

CHARACTER ARTIST PRO

The Five-Minute Portrait

The basic features of CA Pro are incredibly easy to use. In this chapter, you'll learn how to choose the race and sex of your character, add body parts and clothes and select custom colors.

Starting the portrait

1 Click **New** ☐. Click Portrait, Human, Elf, Half-Elf, Orc.fct

2 On the File menu click **Save As** Change folder to My Designs\Characters. In the **File Name** box type **Five Minute** then click **Save**.

Choosing the Race and Sex

CA Pro has very many catalogs, with male and female versions of different **races** . Dwarf, Elf, Gnome, Half Elf, Halfling, Half-Orc and Human. Later you'll find out how to design humanoid monsters, too. Rather than have you use the Catalog button to choose your catalog, we've given you some easy shortcuts to choose the exact catalog you want.

3 Right click **Toggle Race** 🔛. Click **Elf**.

4 Click **Toggle Sex** ♂.

  Click to get the **Elf Male** catalog in the window, if it's not already there.

Placing Symbols

This is very easy. You don't even have to aim, because of the templates' **snap settings**. Just click symbol from the catalog window, move the mouse to the drawing window, then click.

5 Click **Other** 👝.

6 Click the ⊞ on the **EMO Body 1** symbol.

  This expands the **symbol collection**.

7 Click the **EMO Body 2** symbol.

8 Move the mouse into the drawing window.

9 Click to place the symbol.
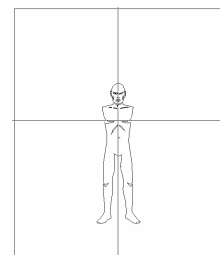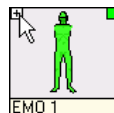
That's how simple it is! All you need to do now is click body part catalogs one at a time and add symbols in the correct order until you've created a character portrait.

Eye color

10 Click **Zoom Window** 🔍. Click two points around the eyes.

  Notice that the eyes are light green – the same as the current color. The eyes are a **varicolor symbol**.
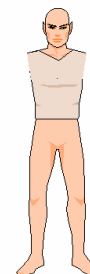
Adding Clothes

Clothes that match body parts are found in the catalogs for each body part, for example sleeves are found in the Arms catalogs. Add clothes for each body part after you have inserted the body part.

11 Click **Torso** 🧍. Scroll down the list until you see the **EMT Shirt Tan 1** symbol in the **catalog window** (the first tan-colored item on the list.)

  Note that you don't have to cancel the previous symbol selection; selecting a new symbol does that.

12 Click the symbol, then click in the window

13 Click **Legs** 🦵. Scroll down the list until you see the first trousers on the list **EML Pants Tan 1**. Place these.

14 Scroll down the list until you see **EML Brown Boots 1**. Click the ⊞ on the symbol and then select **EML Brown Boots 3**. Place these.

15 Click **Other** 🎒. Click the first belt and place it.

Adding Arms and Weapons

The **Arm buttons** lets you select arms positions, weapons and sleeves for your character.

16 Right-click **Right Arm** 🗡️, then click **Right Arm, Hand Up, Elbow Down**.

17 Click the ⊞ on the **EMAR4 Closed 1** symbol.

18 Choose the second arm on the list – **EMAR4 Closed 2**. Place it.

> Notice how the hand is clasped, as if threatening – or holding a weapon.

19 Scroll down the catalog window. Add the first sleeve you see – **EM4 Sleeve Tan 1**.

20 Scroll down the list until you see the weapons. Add **EMAR 4 Rapier**

21 Right click **Left Arm** 🖌️. Click **Left arm out at side.**

22 Click the ⊞ by the **EMALi Open 1** symbol, then select **EMAL1 Open 2 symbol**. Place it.

23 Place the **EMAL Open Ring** symbol on the arm you just placed.
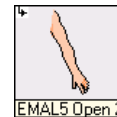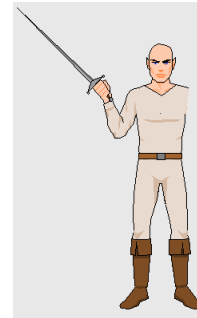
Using Varicolor Symbols

You controlled the color the eyes of your character. What about symbols with different shades of the same color, like skin or hair? Well, CC2 Pro varicolor symbols can add shades of the current color for you.

24 Click **Head** 🧑.

> The Head catalog also contains hair, helmets and hats.

25 Scroll down to the **EMH Hair Vari 1** symbol. Notice the colored square in the top left corner, displaying the current color – it shows that this symbol is varicolored.

26 Select colors from the color bar.

> Notice how the colors of the hair in the catalog window change.

27 Click the color indicator on the status bar and select color 131.

28 Click and place the **EMH Hair Vari 1** symbol. The hair is placed with the new color.
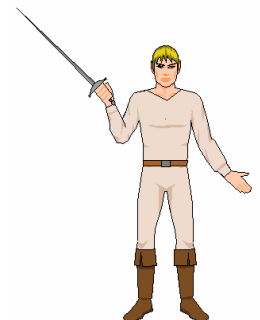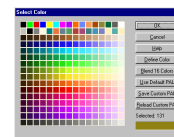
A More Detailed Example

Now that you can create a basic character portrait, we'll show you have to correct your mistakes using CC2 Pro's re-ordering buttons and create custom skin tones and colors for clothes.

Using varicolors for skin and eyes

1   Click **New** 🗋. Click **Portrait, Dwarf, Gnome Halfling.fct**

2   Set the race to **Halfling** and the sex to **Female** using **Race Toggle** 🧍 and **Sex Toggle** ⚢.

3   Click **Head catalog** 🧑

4   Click the Color indicator, and choose color 100.

5   Click then place the <u>**varicolor head**</u>, **HfFH Head 1**.

6   Now choose another color from the color bar for the eyes.

7   Click **HfF Eyes Vari** symbol and place it.

8   Click **Torso** 👕, set the color to 100 and place the varicolor torso, **HfFT Torso 1**.

9   Click **Legs** 🦵. Add the varicolor legs, **HfFL Legs 1**.

10   Right-click **2-arm** 💪, click **Left arm down, right arm up** then add the varicolor arms, **HfF2H Arms 1**.
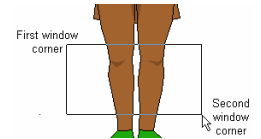
Adding clothes and reordering

You might already be able to see a problem emerging with this figure. When you insert torso garments over this figure, they will obscure the left arm. CC2 Pro lets change the drawing order of entities so that you can correct problems like this easily.

11   Click the color indicator and choose color 38.

12   Click the ⊞ on the **HfH2 Sleeve Vari 1** symbol, then select **HfH2 Sleeve Vari 3**. Place it.

13   Click **Torso** 👕, scroll down then click **HfF Tunic Vari** symbol .

You can see that a problem has arisen. The tunic has obscured her arm. You'll need to sort out the <u>**drawing order**</u>.

14   Click **Front** ⧉. Click the arms and sleeves, **Do it**.

Front ⧉ brings the selected entities to the top of the drawing.

15   **Click Legs** 🦵. Place the first varicolored pants symbols.

They have been placed, but they obscure the tunic.

16   Click **Back** ⧉.

The prompt reads select entities [0 picked]:

17   Click a point just above and to the left of the knees, then just below and to the right. Right click, **Do it**.

The legs and trousers have been selected and sent to the back

18   Click **Other** 🧳 and add the brown pouch with the shoulder strap, **HfFO Brown S Pouch**

Varicolor Head

The varicolor head has no eyes. All the other heads have varicolor eyes. If you are using the varicolor head, you'll need to add varicolor eyes afterwards.

Drawing Order

Sometimes you might add a weapon after an arm, or legs after trousers. This can cause the characters body parts to be drawn on the screen in the wrong order. CC2 Pro's entities appear on the screen in the order you added them to the drawing. So entities drawn later will appear "on top" of ones added earlier. You can use CC2 Pro's reordering buttons to change the drawing order.

You may have to use the **Redraw** 🔄 to see the effects of your reordering.

First window corner

Second window corner

1. Next add a belt, **HfFO Brown Belt 3**. Finally add the golden ankh symbol, **HfFO Amulet Holy**.

> The pouch is behind the belt. It needs to be brought in front of the belt, whilst remaining behind the ankh.

19 Click **Bring in front of** 🔲

> The **prompt** reads Move above entity:

20 Zoom in and select a point on the edge of the belt, being careful not to select part of the tunic accidentally.

> The prompt reads select entities [0 picked]:

21 Click the pouch, **Do it**.

> The pouch is now on top of the belt.

Now we'll add some hair, shoes (or halfling foot hair) and a weapon and she's all dressed up and ready to go!

22 Click **Head** 👤 to find hair, **Legs** 🦵 to find shoes. Weapons are found the same catalog as the arms you have chosen. In this case click Right-click **2-arm** 🖐 click **Left arm up, right arm down** then add the **HfF2H Staff Quarter**.

Reordering tips

- Symbols in the catalog are usually listed in the order that they should be placed. For example, in the adjacent diagram, you place the **Thigh** piece first and the **Armor** piece last.

- If you have a simple correction to make, click **Front** 🔳 to bring obscured pieces to the front of the drawing.

- If you want to sandwich a new feature between two existing ones, place it, then click **Send Behind** 🔳 or **Bring in front of** 🔳 to place it in the correct order.
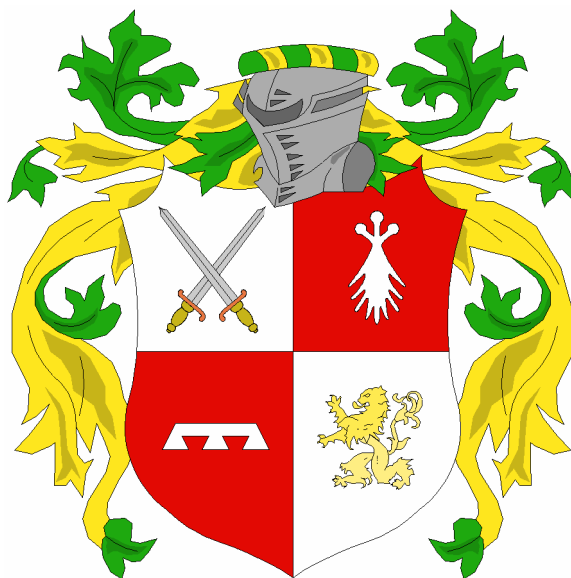
Shield by Linda Kekumu*

The **Shield** can be viewed in the **Examples>Tome** folder.

Reshaping Your Portrait

Once you've completed your figure, you might want to change the scale and proportions, to give a little variation between races. Be sure to do this only when you have **finished your portrait**, as it is more difficult to change a figure once you've rescaled it.

If you aren't following on from the previous section, click **Open** 📂. Select **Tutorials\Tome\CharacterArtist\Reshaping/CA-Reshape01.fcw**

Rescaling Visually

Finished your Portrait

If you are going to reshape your portrait, we recommend that you keep the original. Make any later changes on the original then redo the reshaping.

1   Click **Scale** ▣. Click two points to make a window around the entire figure, **Do it**.

The prompt reads Scale origin: CC2 Pro is asking for a point around which to scale the figure.

2   Click the snap point in the middle of the figure's chest.

3   You don't want the scale to be restricted by snap points, so click the **Snap** button to turn snap off.
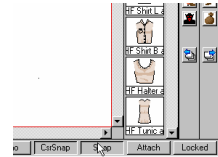
4   Click a point in between the character's knees. Move the mouse up and down.

The prompt reads Scale to (Shift = change ref, Ctrl = independent X/Y):

The dynamic cursor of the figure scales up and down. Note the red indicator in the top left of the screen showing you the scale.

X and Y Directions

If you click **Ortho** button (near the **Snap** button) when you are scaling in the X and Y directions, you can control the X and Y scale independently.
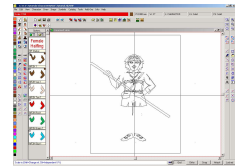
5   Press **CTRL** and move the mouse around.

The figure scales in both the **X and Y directions**.

6   When you are happy with the appearance of the figure, click the left button.

Unless you are making a giant, usually only a small cursor movement is required. It's often helpful to scale next to another example of the same race.

Rescaling non-visually

If you want a precise scale factor, you can use CC2 Pro's non-visual editing commands.

1   Click **Open** 📂. Select **Tutorials\Tome\CharacterArtist\Reshaping/CA-Reshape01.fcw**

2   Right-click **Scale** ▣, click **Non-visual Scale XY**.

3   Click two points to enclose the entire figure in a window, **Do it**.

The prompt reads **Scale X** by [1.00]:

Scale X

CC2 Pro is asking for the horizontal scale factor; 1 means no change, 2 would mean twice as wide and 0.5 half as wide.

If you type in a negative number, the character will become a mirror image.

4   Type in **1.1** then press ⌨ENTER.

The prompt reads Scale Y by [1.00]: We are going to make her taller, and wider, but more wide than tall.

5   Type in **1.05** then press ⌨ENTER.

The figure will be 10% taller and 5% wider.

The prompt reads Scale center:

6   Click the snap point in the middle of the figure's chest.

The figure has been scaled.

1 Ratssaal und Archiv C06
2 Rathaus/ Steueramt C07
3 Schuldturm/ Stadtverlies B07
4 Stadtgarde C07
5 Stall/ Kutschenhaus D07
6 Rondratempel D06
7 Praiostempel D05
8 Altes Herzogschloß C05
9 Traviatempel D06
10 Magierakademie "Halle der Antimagie" B06
11 Magierakademie "Halle der Metamorphosen" G06
12 Residenz der Fürstin G10
13 Hesindetempel "Hallen der Weisheit" H06
14 Efferdtempel F07
15 Rahjatempel H07
16 Seesöldnergilde "Zum Schwarzen Säbel" E01
17 Perainetempel A03
18 Tabors Schmiede D05
19 Hafenmeisterei E03
20 Magisches Theater G08
21 Hafenbefestigung E01
22 Arbeitsvermittlung C02
23 Redaktion "Kusliker Kurier" E06
24 Königlich Kusliker Karosserie D04
25 Halle der schönen Künste F07
26 Kontor Wilman & ter Gruchen F03
27 Kontor Stoerrebrandt E02
28 Das Terdilion-Haus G01
29 Kontor Bramstetter F05
30 Taverne "Androschs Anker" D05
31 Xiechops Taverne B04
32 Schänke "Hohe Trutz" A04
33 Taverne "Zum Tanzenden Bären" D04
34 Harikas Kräuter, Tinkturen und aromatische Getränke ... A03
35 Garküche E05
36 Hotel "Zum Springenden Delphin" F07
37 Taverne "Kieloben" G05
38 Taverne "Zum Wilden Stier" B05
39 Schankstube "Zum Offenen Tor" E11
40 Schankstube "Neue Wehr" F12
41 Taverne "Roter Meerdrachen" I04
42 Taverne "Zum Schnabel" E04
43 Taverne "Die Quelle" G07
44 Bordell "Das Schwarze Einhorn und die Weiße Jungfrau" H01
45 Schänke "Meeresschaum" H01
46 Kneipe "Ferdoker Magister" D07
47 Schänke "Beleman" C08
48 Bankhaus Bosparan D06
49 Institut der Arkanen Analysen F05
50 Loge der Avesfreunde H07
51 Camera Obscura H08
52 Beilunker Reiter E08
53 Postendienst Pertakis F07
54 Großer Markt D09
55 Handelsbank ya Strozza D09
56 CAC-Creditanstalt D06
57 Villa Weyringer C08
58 Loge St. Geron C09
59 Loge Harbaliom Bosparani C08
60 Kontor Terdilion G05
61 Kontor Weyringer vom Berg D05
62 Nordlandbank D03
63 Grangorer Darlehensbank D03
64 Haus der Efferdbrüder D04
65 Schänke "Zum Edlen Kavalier" H05
66 Schauspieltheater F09
67 Krämer und Schiffsausstatter Allavera D03
68 Wohnhaus Mercurio Allavera B07
69 Villa Pechstein D10

Kuslik (building function view)
by Ralf Schemmann

Kuslik is a drawing done using the City Designer add-on to CC2 Pro. It uses hotpots for layer management as explained in *Using Hotspots to Control Sheets and Layers* on page 118. It also demonstrates CD Pro's index feature as explained in *Indexes* on page 216.

Look for **Kuslik** in its city view on page 55 and its borough view on page 120. Navigation between the views is a simple click on the appropriate hotspot.

Stadtplan
Stadtviertel
Gebäudefunktionen

- ■ Handwerker, Werkstatt
- ■ Verwaltung, Regierung
- ▢ Gilde, Verein
- ■ Wohnhaus, Villa
- ■ Gasthaus, Taverne, Bordell
- ■ Magierakademie, Institut
- ■ Kaufmann, Händler, Bank
- ■ Militär, Stadtverteidigung
- ■ Öffentliches Gebäude
- ■ Tempel, Schrein
- ▢ Unbestimmt

Creating Humanoid Monsters

You can use CA Pro to create humanoid monsters ranging from kobolds to snake creatures. There are two monster catalogs, one male and one female all designed to fit on the basic human torso. Combine the monster pieces with the human pieces, reshape and you've got some pretty nifty foes for your player's characters.

Using the pre-defined template

There are two methods of creating humanoid monsters. The first is to design them at human size, then scale them afterwards, the second is to use a specially designed template that sets the scale and even the suggested varicolors for you. We'll use this method first.

1   Click **New** ☐. Click **Portrait Monster.fct**

> You can see a template with buttons by the side, each one for a monster type.

2   Click **Monster** ♟.

> You can see the monster catalog. This consists of various symbols, many varicolored, that can be combined with human pieces.

3   If the **Male Monster** catalog isn't visible, click **Toggle Sex** ♀.

4   On the template, click the **Tabaxi** button.

> An arrow points at the Tabaxi button. The color has been set to a light tan (the suggested light varicolor for this creature)

5   Scroll down the monster catalog until you see the Tabaxi head. Click it. Right click, just to see the **scale**.

6   Choose **More** then place the head.

7   Click legs and place them.

The head and the legs are the only two symbols specifically for Tabaxi; the rest of the figure needs to be made from other symbols. Other monsters have more body parts. Scroll down the list to see.

8   Click **Torso** ♟, scroll down and place the varicolor torso.

9   Right click **Right arm** ✎. Click **Hand up, Elbow Out**.

10   Click then place the light varicolor arm, **HMAR6 Closed 1**.

11   Scroll down and place the **HMAR6 Spear** symbol.

12   Right click **Left Arm** ✎. Click **Left arm at side**.

13   Add the varicolor arm with the open hand, **HMAL2 Open 1**.

14   Click **Monster** ♟.

15   Click color 24 (dark red) on the color bar.

16   Select and place the first loincloth symbol **MM Loin Ragged 1**

> Your Tabaxi is **finished**.

Using the Standard Template

If you prefer, you can create your monster at human scale, then scale it after you've finished. Start a blank character, and create the monster at human scale.

When you have completely finished creating the monster, reshape it to the correct size. Right click **Scale** ◀▯ then click **Non-visual Scale XY**.

Type in X and Y scale factors using the suggested values from the table below.
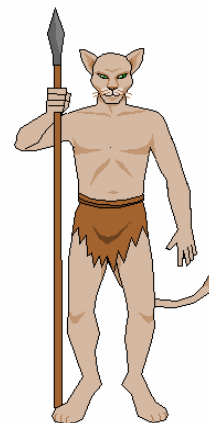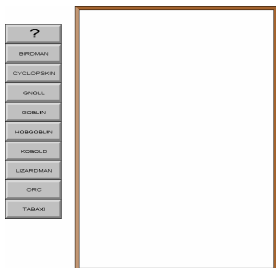
Finished

You can hide the buttons on the Monster scale template by clicking the layer indicator `L: CHARACTER` then hiding the **BUTTON** layer.

Remember, when you have finished creating your monster portraits, you should reset the symbol scale to 1 before creating a new portrait. Click a **symbol**, right click, click **Set Normal**, then click **Finished** to do this.

Creature Type	X scale	Y scale	Dark varicolor	Light varicolor	Notes
Birdman	.9	.9	38	41	Add the wings first
Cyclopskin	1.25	1.2	Use normal skin tones	Use normal skin tones	Use Cyclopskin head
Gnoll	1.1	1.15	42	44	Use Gnoll head
Goblin	0.7	0.65	84	86	Use Goblin head
Hobgoblin	1.1	1.05	161	164	Use Hobgoblin head
Kobold	0.5	0.5	146	148	Use Kobold head
Lizardman	1.15	1.15	82	84	Use Lizardman head, legs and torso.
Orc	1	0.95	144	147	Use Orc head
Tabaxi	1	0.95	42	44	Use Tabaxi head and legs

The Keep of Lord Rufus
in Hommlet

Scale in Feet
0 10   50   100

Designed and Rendered by Morgan Olden

Key

1. Courtyard
2. Lower Hall
3. Chapel to St. Cuthbert
4. Clergy Quarters
5. Badger Barracks
6. Upper Hall
7. Badger Mess Hall
8. Captain's Quarters
9. Lieutenant's Quarters
10. Lord Rufus' Private Suite
11. Meeting Hall
12. Prison Cells
13. Cellar
14. Crypt
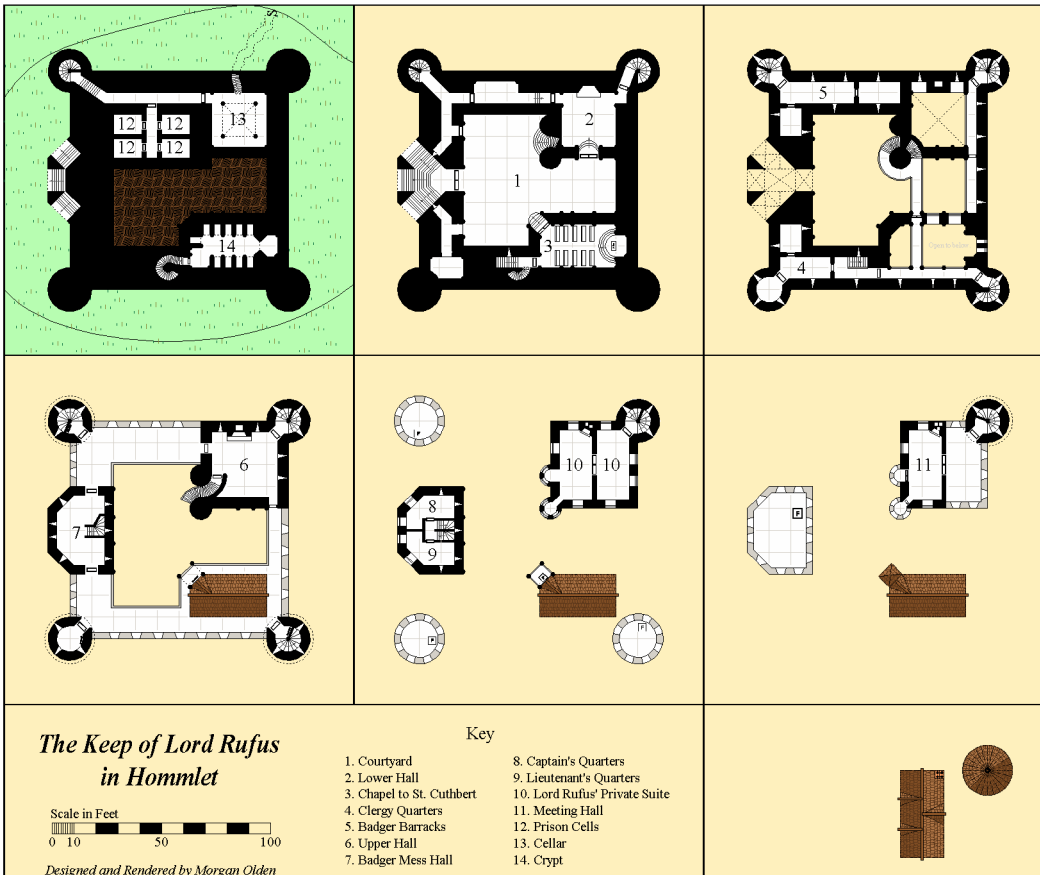
The Keep of Lord Rufus by Morgan Olden

The Keep of Lord Rufus is available in the Profantasy Download Library.

Finishing Touches

You can use CC2 Pro's power to customize your characters so that no two are alike. Many examples of this are given in the example drawing found in the drawing Examples\Characters\Creative Use Ideas.fcw.

Making a Silhouette

CA Pro has two ways for making your portraits into solid black shapes. These can then be used as **silhouettes**, or as shadows for your figure. The silhouettes can also be used to represent the back of your figures when used to make stand up card figures.

Silhouettes

Silhouettes are often used on counters for use with board games. They are cleaner than full color images, especially if when you are printing them very small.

1   Open **Tutorials\Tome\CharacterArtist\Finishing\CA-Silhouette01.FCW**.

2   Click **Silhouette** 🔳.

 The prompt reads select entities [0 picked]:

3   Click two points to select the portrait using a window, **Do it**.

The portrait is converted into a silhouette.

Making a shadow

1   Open **Tutorials\Tome\CharacterArtist\Finishing\CA-Silhouette01.FCW**

 This is an elf portrait. Notice that there is a small shadow disk in place from the **Other** catalog.

2   Click **Mirror Silhouette** 🔳.

 The prompt reads select entities [0 picked]:

Snap

Turning **Snap** off makes it easier to add the mirror line for the silhouette.

3   Turn **Snap** off.

 The shadow will come from the feet.

4   Click points to select the portrait in a window, **Do it**.

 The prompt reads Start of mirror line:

The basic shadow shape is a silhouette of the figure mirrored about the feet.

5   Zoom in to an area that includes both feet.

6   Click **Endpoint** ◢

 The prompt reads entity:

7   Click the lowest node on the figure's right foot.

 The prompt reads end of mirror line:

8   Depress the **Ortho** button

9   Click a point to the side of the first point.

 A mirrored silhouette is created.

10   Click **Change Color** 🔳. Select the shadow by **Prior**, **Do it**. Right click then click color 14 (dark grey)

11   Right click **Scale** 🔳 then click **Non-visual Scale XY**. Select by **Prior**, **Do it.**

12   Type in value of **1** for X and **0.1** for Y. The scale center is between the character's feet.

 Your character now has a shadow.

Using Custom Parts

We'll follow a couple of these examples to show you the versatility of CA Pro.

1   Open **Tutorials\Tome\CharacterArtist\Finishing\CA-Custom01.fcw**.

2   Select male dwarf right arm catalog illustrated.

    You know how to do this now, right?

3   Scroll down the catalog list until you see the first light tan colored sleeve then place it

4   Scroll down the list and place one of the right arm armor sections.

5   Click the correct left arm catalog and place the arm symbol illustrated

    The prompt reads end of mirror line:

6   Scroll down the catalog list until you see the first light tan colored sleeve then place it

7   Scroll down the list and place the left arm armor section that matches the right arm.

8   Turn **Snap** off.

9   On the **Symbol Catalog** toolbar, Click **Weapons** ⚔.

10 Click the bardiche symbol, press | CTRL | and move the mouse until the bardiche is more Dwarf size.

11 Press | SHIFT | + | CTRL | and move the mouse to rotate it as in the picture.

12 Click correct left arm catalog, scroll down then click, but don't place, the first bare hand symbol you see.

13 Right-click, click **Normal**, then click **More**. Turn **Snap** on. Place the symbol.

14 Click **Right Arm** 🗡 until you see the correct right arm catalog, scroll down, then click the first bare hand symbol you see.

15 Press | SHIFT | + | CTRL | and move the mouse to rotate it as in the picture.

    The finished figure has arm positions that are not available in the standard catalogs.

Customising a Portrait

You can change the appearance of elements within character portraits using CC2 Pro's drawing commands, changing expressions, or adding new items.

1   Open **Tutorials\Tome\CharacterArtist\Finishing\CA-Custom02.fcw**

    You can see two versions of a dwarf character; the one on the left has had some additional finishing touches to give personality

2   Click **Explode** 💥, click the head symbol on the right-hand figure. Don't include the beard.

3   Click **Bring In Front of** 🔲, click edge of the shield, select by **Prior, Do it**.

    The head is in the correct order in the drawing.

4   Select the **Dwarven Head** catalog, scroll down and choose the **Smile** symbol, place it.

5   Click **Zoom Window** 🔍 to zoom into the face. Right-click **Scale** 📏 then click **Mirror** to turn the smile into a frown, clicking the mirror line points above.

6   Click **Zoom Out** 🔍 again and click **Move** 📋. Select an eyebrow, **Do it.**

7   Choose a move from point. Hold down | CTRL | and | SHIFT | and move the mouse to get a suitably jaunty angle for the eyebrow, then release | CTRL | and | SHIFT |.

Weapons

This catalog contains weapons that are designed for us on dungeon maps, or for custom characters like this one. They won't automatically fit into position.
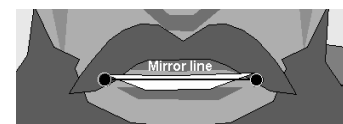
Explode

Explode takes an entities and converts it into simpler entities. These entities are added to the drawing on top of everything else. In this case, the head is converted from a symbol into its constituent parts, which are added at to the drawing – the front of the drawing.

8   On the color bar, click color 11 (Tan.) Click **Line** ✎ to give the character some body hair, just like in the picture on the left.

The Highlands by Ralf Schemmann*

The Highlands uses symbols from Symbol Set 1-Fantasy Overland. This drawing can be viewed in the **Examples>Tome** folder.
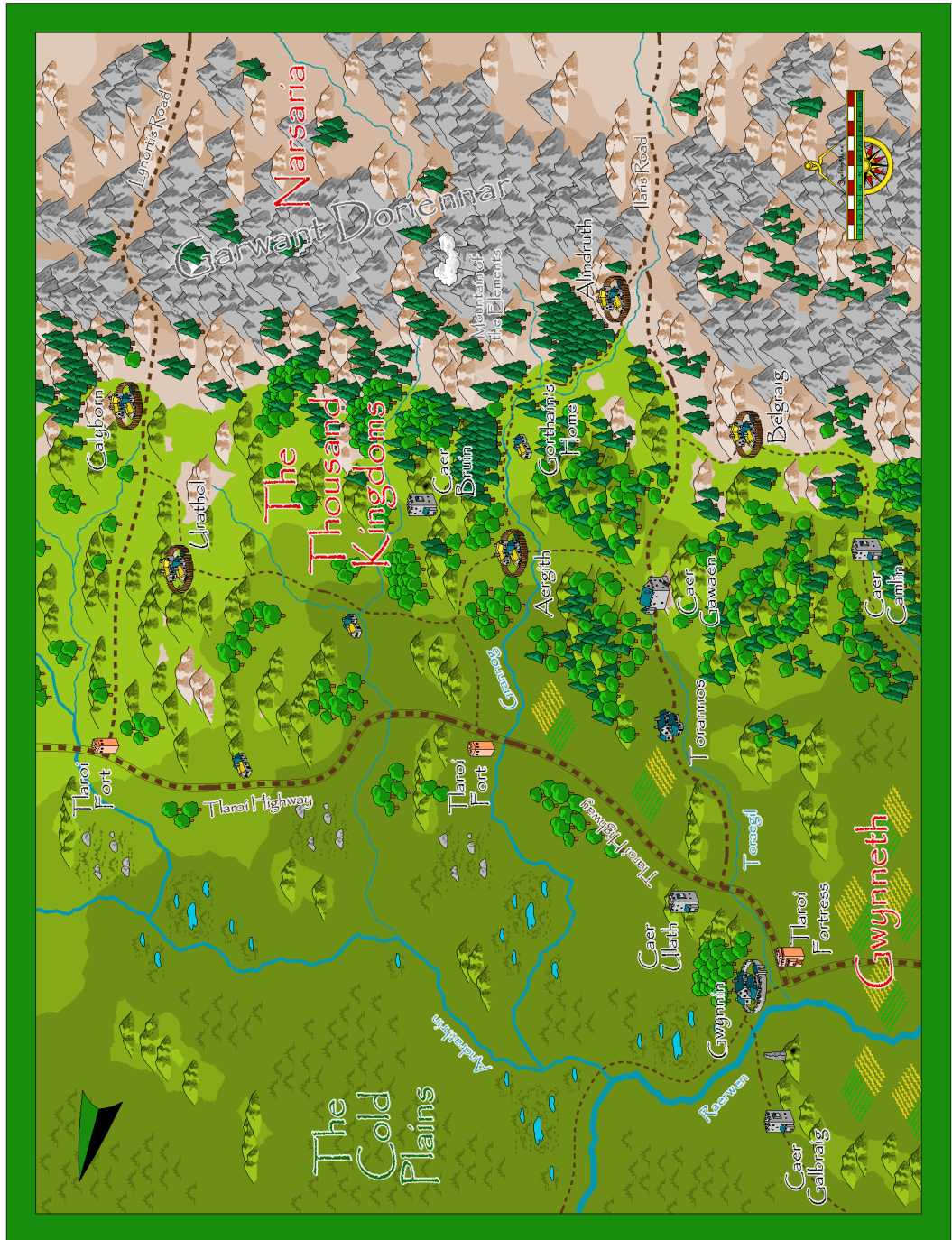
Point Est by S. Domas

Point Est is available in the Profantasy Download Library.

Point Est

Fromelz, royaume de Timms

Tracé par les Maîtres Cartographes
de Iropi Ontor

Creating Stand-Up Figures and Counters

Your characters can also be used to create stand up card figures or counters for use with Dioramas Pro, DD Pro, or with miniatures. These can be created on specially designed templates, or else from characters you have already made. We'll show you how to do both.

Creating card figures from existing characters

You can simply copy and paste figures you have created into a suitable card figure template. This example assumes that you want to paste lots of figures onto one template.

Templates

The card figure templates are designed so that you can print out as many characters as possible on one sheet of paper. The 25mm in the template name means that 25mm is equal to the height of a human-sized figure at this scale. See **Miniature Scale** in the Help index for more information on what the various template sizes mean.

CA Pro has many more templates than those available from the New button – right click New to see decorative portrait backgrounds and all the counter and card stand-ups available.

1   On the **File** menu click **New Card Figure** >> **Human, Elf, Orc.** Click the **HEHH 25mm Characters.fct** template.

2   Start **CC2 Pro** again so that it is running twice. Arrange the two windows so that you can easily cut and paste between them.

3   In the new window, open **Tutorials\Tome\CharacterArtist\StandUp\CA-Standup01.fcw.**

4   On the **Edit** menu click **Copy**, or press CTRL + C.

5   Click points to select the character (not the border) in a window, **Do it**.
     You can't see the prompt, because CC2 Pro's window is not wide enough, but you can see the cursor. You are being asked for the clipboard origin.

6   Click the **Snap** point in the middle of the ogre's chest
     The ogre has now been copied to the clipboard.

7   Click the title bar of the other copy of **CC2 Pro** to make it the current application.

Add More Figures

There are also buttons on the templates you can click to add figures. After you've added a single figure such as this ogre, you can click **Copy Full Sheet of Same Character** to copy the ogre to every available slot.
Hide the **BUTTON** layer before you print the sheet.

8   Press CTRL + V to paste, select **OK** on the dialog box, click the red cross in the top left corner of the miniature template.
     The figure is placed.

9   Right click to stop pasting.

10 To **add more figures** to this template, switch to the other **CC2 Pro** window, open up the drawing with the new figure, then copy and paste again.
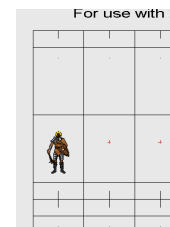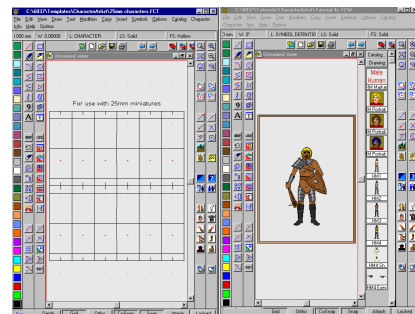
Creating card figures from scratch

If you are not continuing from the previous example, open **Tutorials\Tome\CharacterArtist\Standup\CA-Standup02.fcw** and go to step 2.

Usual Manner

Don't forget that there are other figures on the template when you are editing; don't select by **All** unless you really mean it!

1   Close down the CC2 Pro with the figure in it, leaving the one with the ogre figure intact.

2   Click Zoom Window and click two points to zoom into the empty figure template next to the second ogre

3   Create your figure in the **usual manner**.

4   When you've finished, zoom to the next blank stand and start your next portrait.
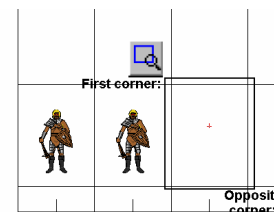
Adding backs to card figures with Mirror Silhouette

You can create rear views of characters in silhouette to make the backs of card figures. You can add backs to individual characters, or else do a whole batch at once.

1 Open **Tutorials\Tome\CharacterArtist\Standup\CA-Custom03.fcw**.

2 Click **Mirror Silhouette** 📱.

The prompt reads select entities [0 picked]:

3 Click two points to select the entire top row of figures using a window, **Do it**.

The prompt reads Start of mirror line: The card figure borders are not selected because they are on a frozen layer.

4 Click **Endpoint** ✐, then the **Mirror line Start** illustrated below.

5 Click **Endpoint** ✐, then the **Mirror line end** illustrated above,

You've added shadow to all the figures.

Endpoint

As an alternative to using **Endpoint** modifier, you can try **Attach**. This is like having a modifier turned on all the time. Depress the **Attach** button then right click it and select **Nearest Endpoint**. Remember to turn **Attach** off when you have finished using it,
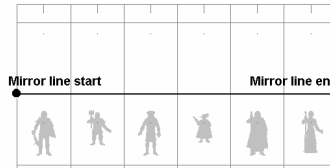
Printing and assembling card figures

The card figure templates are set up to include the correct printer settings for the miniature scale you have chosen. Figures can be printed onto paper or card. We find 200gsm card works fine, but please check your printer manufacturer's guidelines before printing on card.

6 Click **Print** 🖨. Note the **settings**.

7 Click **Preview**. If everything looks fine, select **OK**.
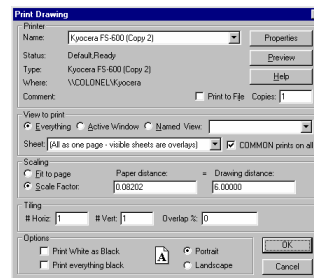
8 Take a craft knife following manufacturer's instructions, or use scissors and cut as illustrated

9 Fold each figure as illustrated.

10 Stick the base pieces together using paper glue or clear sticky tape to give you your counter.

Settings

The paper distance is set so that 25mm on the paper equals 6 feet in the drawing. (25mm is 0.08202 feet) If you want to customize your templates, you can type in the scale factor easily – for this drawing just type **25mm** in the Paper Distance and **6'** in the drawing distance; CC2 Pro will convert the numbers for you. CC2 Pro also recognizes **m** for meters.
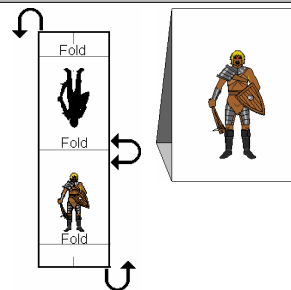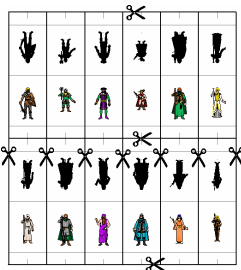
Creating Counters

CC2 Pro also includes templates for counters. These counters can be used for wargaming, in place of card figures, or directly on dungeon or overland maps. You can insert portraits into the counter templates just as you did with the card figures, but with one additional step; you need to scale the figure after it has been placed by about **0.85** so that it fits on the counter.

A Summary of Customizing Portraits

Creating humanoid monsters

There are two monster catalogs, one male and one female all designed to fit on the basic human torso.

To start designing monsters, click **Monster** 👹. Click **Toggle Sex** ⚥ to choose the sex of the monster. When you select the monster catalog, CA Pro stays in "monster mode" until you click **Toggle Race** 📇.

1   Click **New** 📄. Click **Portrait Monster.fct**

2   Click one of the on-screen buttons to choose a monster type.

3   Insert the appropriate symbols from the **Monster** catalog. Usually there is just a head, occasionally more.

4   Click body part catalog buttons, adding the varicolor symbolsRemember to set the symbol scale to **Normal** when you have finished creating monsters, as CC2 Pro remembers it between drawings.

Alternative method

If you prefer, you can create your monster at human scale by combining human and monster parts, then click **Scale** when you've finished.

Silhouettes

To create a silhouette of your figure click **Silhouette**.

Shadows

You can create a shadow for your figure by clicking **Other** then placing an appropriate shadow symbol from the **Other** catalog. Alternatively:

Click **Mirror silhouette**. Choose a mirror line along the feet.

On the **Edit** menu click **Non-visual** >> **Scale XY** to scale the shadow.
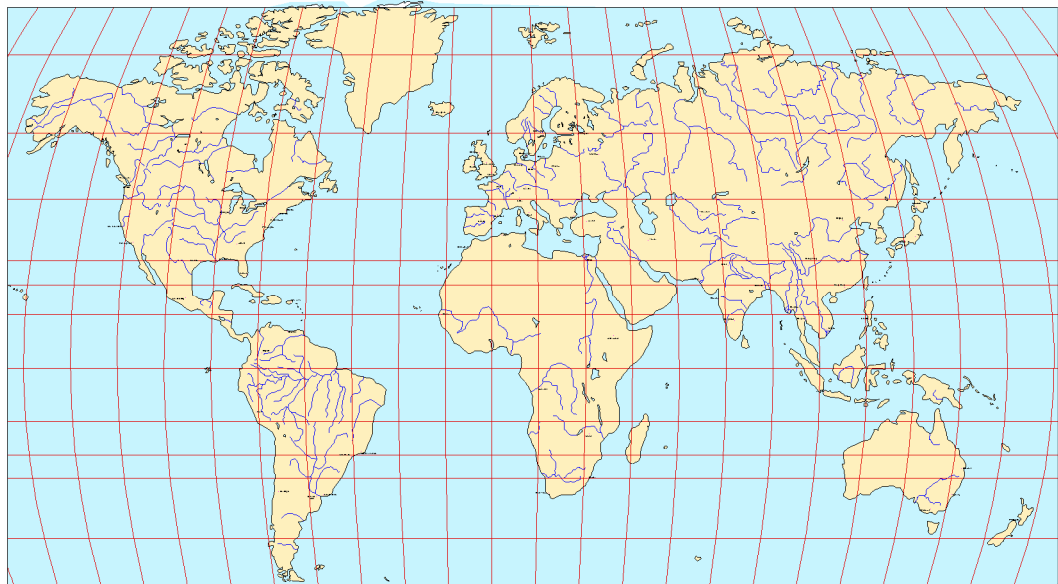
World Map from Profantasy

This world map is available in the Profantasy Download Library.

Herebin's Neighborhood

Ground Floor

INTERIOR SCALE

FEET

5   10   20
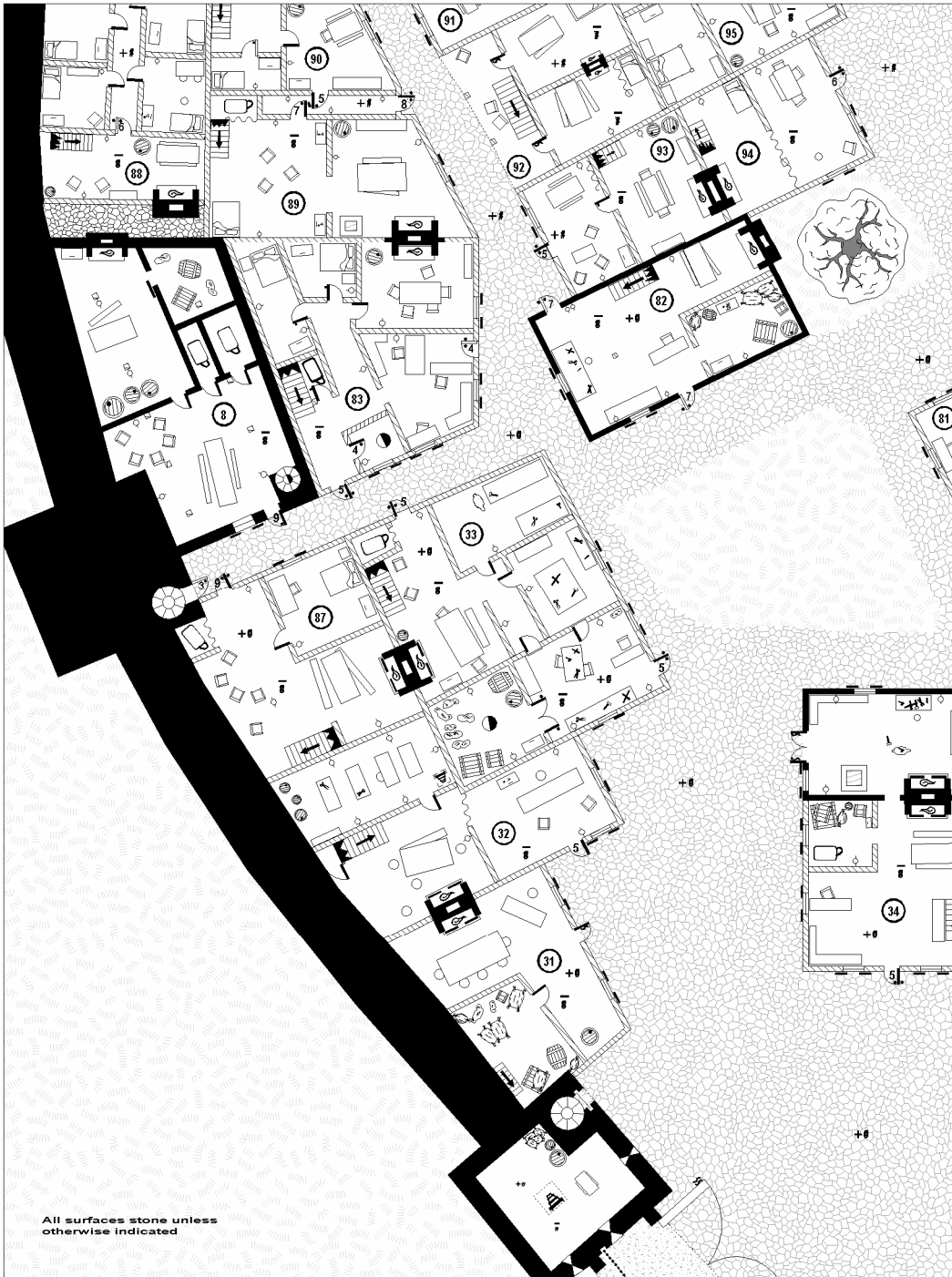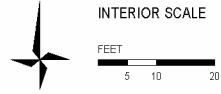
Herebin's Neighborhood by Ken Snellings*

Herebin's Neighborhood was drawn using the Mappa Harnica toolkit. The drawing can be viewed in the **Examples>Tome** folder.

For more information on the Mappa Harnica Toolkit, visit http://www.thechmp.com/MappaHarnica/.

All surfaces stone unless otherwise indicated

Using Your Character Portraits

So you've made your character portraits, now what can you do with them? Well, obviously you can print them out from **CC2 Pro**, but you can also add them to counters, make stand-up card figures, put them on character sheets or even make symbol libraries from them.

Adding your portrait to a character sheet

Via the clipboard

The clipboard is a quick and painless way of exporting your images, but lacks fine control; it doesn't crop the images for you, for example.

1   Open **Tutorials\Tome\CharacterArtist\Character\CA-Character01.fcw.**

2   On the **Tools** menu click **Clipboard** >> **Options** >> **EMF**. Click values in the illustration.

3   Click the **Layer** indicator then hide the **Frame** layer.

   Most character sheets have a frame for your portrait already.

4   Press `CTRL` `C`, select **All, Do it**.

   The prompt reads clipboard origin[0,0]:

5   Click the lower left corner of the image.

6   Start **Word**® and open **Dying Earth.doc**.

7   Click in text box at the top right and press `CTRL` `V`.

   The character portrait is inserted in EMF format.

8   You may need to use Word®'s picture re-sizing and cropping facilities, but here's not the place to describe that!

By saving the entire drawing to a JPEG, or PNG file

CC2 Pro lets you export the entire drawing as a high-resolution JPEG, BMP or PNG file. You can use any of these formats on the web or pasted into you character sheets. See *Import, Export and Inserton* page 112 of the **CC2 Pro** section of the manual.

By saving an area of the drawing to a JPEG or PNG file

 You can save a section of the drawing as a JPEG, PNG or BMP resolution to a file. Instructions are given on page 114 of the **CC2 Pro** manual.

Summary of Using Portraits - Creating card stand up figures

Converting existing portraits

1   Start a new drawing based on one of the templates in the **Templates\CharacterArtist\CardFigures** folder.

2   Start another instance of **CC2 Pro**.

Word

If you don't have Word, use another word processor. Most word processors have an option to insert a graphic.

3 Open the first drawing you want to make into a card figure.

4 On the **Edit** menu click **Copy**. Select the figure.

5 Click the snap point in the character's chest.

6 Switch to the other instance of **CC2 Pro**, and paste the figure into the template.

7 Repeat for each character.

From scratch

1 Start a new drawing based on one of the templates in the **Templates\CharacterArtist\CardFigures** folder.

2 Zoom in to a blank area and start creating your figure.

Adding backs to card figures

1 Click **Mirror Silhouette** ![icon], then click figure.

2 Click two points to make a mirror line as shown in the diagram. Click **Endpoint** ![icon] before each point to ensure accuracy.
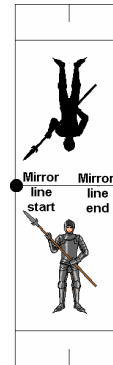
Tower Castle
based on Ballymalis Castle, Ireland
16th century

Tower Castle by Ralf Schemmann

Tower Castle is a drawing out of Source Maps: Castles! For more info on Castles!, see page 480.
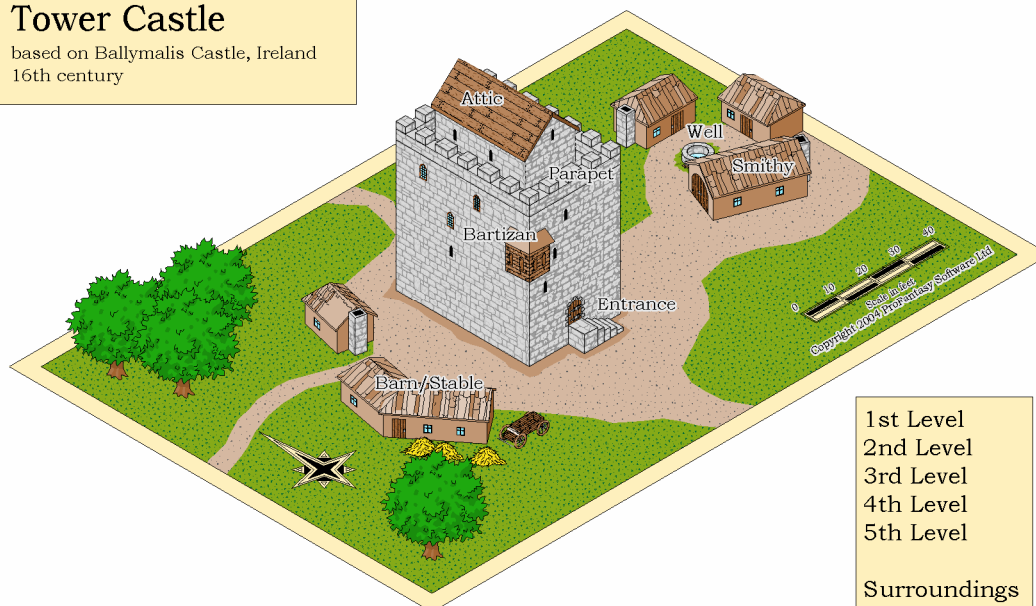
1st Level
2nd Level
3rd Level
4th Level
5th Level

Surroundings

Advanced Catalog Features

In order to create Character Artist Pro, we added some new features that make it easy to manipulate entire symbol catalogs at once. We've added these catalog utilities to CA Pro to make it easy for you to edit and manipulate symbol catalogs, too. This chapter shows you how to use the new catalog utilities and add your own symbols to the CA Pro catalogs.

All Dressed Up

In this section we will be creating a sash symbol for the **Human Male** catalog. Later we will clone the symbol to produce a variety of colors, add the symbols to the Human catalog and make proportional versions for the other racial catalogs.

For step by step diagrams of this section, open **Tutorials\Tome\CharacterArtist\CA Tutorial 5a.fcw**.

Designing the symbol

CA blank.fsc is a special, blank catalog for making new Character Artist Pro symbols. It is very important to use a blank catalog when making new symbols and catalogs so you don't end up with unwanted symbol fills in the new catalogs.

1   On the **File** menu click **Open**. Click the drop down list and choose **CC2 FSC Symbol catalog**, select **CA blank.fsc** from the **Symbols\CharacterArtist** folder.

2   Right click **Race** , click **Human**. Right click **Sex** , click **Male**.

3   Click **Other** .
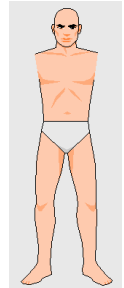
4   Click and place **HMO Body 2**. You might have to click the ⊞ on **HMO Body 1** and expand the collection to find **HMO Body 2**.

5   Click **Explode** . Click the symbol you just placed, right click, select **Do it.**

> We need to erase all but the solid filled area of skin. The skin is color 157 (you could click **List** on the **Info** menu to discover this.)

Guideline

It is easier to see what you are doing and ultimately more accurate to draw your entities with Hollow fillstyle and a bright color first, then change their color and fill later.

6   Click **Erase** . **All**, **Not**, **Color** select color 157, **Do it**.

> Remember to right-click to see the entity selection menu.

7   Click **Change Color** . Click the figure and choose color #6 (magneta).

8   Click **Fill Style** . Change the fill style to Hollow.

To make sure that the sash fits on the standard Human Male, we've insert **HMO Body 1**, exploded it, and we will use it as a **guideline**. We've used this rather garish color to make it easier to see the outline, and we use Hollow so that a fill style doesn't obscure what's underneath.

9   Turn **Snap** off

10   Set **SHADING** as the current layer, the fill style to Hollow, color to #1 green and line width to zero.

Drawng the Sash

Avoid using Smooth Paths and Poly in your symbols as they cause a longer redraw. Use Paths, Polys and Arcs instead.

11   Right click **Attach**. Click **Nearest point ON**. Click **Attach Enabled**. Click **Poly** . Click points to **draw the sash** and ring.

You'll need one polygon for the top sash section, one for the ring and another for the lower sash section.

12   Click **Fill Style** . Change the fill style to Solid.

13   Change the color of the sash and ring to color **0** (black)

> Right Click, select **Prior**, Right Click, **Do it** , Right Click, select black #0.

14 Click **Change Color** [icon]. Click figure and choose color of #6 (magneta).

15 On the **Character** menu, click **Change outline color To selected color**. Click the 2 pieces of the sash, **Do it,** select color 47.

16 Repeat for the ring selecting color 133.

17 Click **Poly** [icon]. Set the fill style to Solid, the color to 45 (tan) and the line width to zero. Draw shading on the sash.

18 Select color 135 for the ring highlight, draw it with the Poly.

Our shading and highlights are usually 2 color tones lighter or darker than the original color

19 Click Path [icon], set **OUTLINE** as the current layer, choose color **0** black and add a partial **outline** to the shading where it touches the edge of the sash and ring.

20 Turn **Snap** back on, set **SYMBOL DEFINTION** as the current layer then on the **Symbols** menu, click **Define Symbol** from the menu. Enter the **symbol's name** as **Sash 2A**, choose the origin where the cursor snaps, click sash and ring **Not** color 6 (magenta), **Do it.**.

21 On the **File menu, click Save As. Type Sash.fsc.**

Congratulations! You've just completed the first sash symbol.

Creating color variants of symbols

In this next section we will clone the sash symbol to create several different colored sash symbols for addition to the **Human Male Other** catalog.

For step-by-step diagrams of this section, open **Tutorials\Tome\CharacterArtist\Tutorial 5b.fcw**.

1 If you aren't following on from the last section, open **CA Tutorial 5c.fcw.**

2 On the **Symbols** menu, click **Symbol Manager**. Click **Sash 2a**, then click **Clone.**

We are going to make copies of **Sash 2a** with different names to make a set of matching symbols for the catalog.

3 Type a new name for the symbol, in this case **Sash 2B**

The Command Prompt reads New window corner:

You are being asked to define the corner of a new drawing window in which you can edit the new symbol.

4 Click in the drawing area

The Command Prompt says Opposite corner:

5 Click again in the drawing area.

6 CC2 Pro now displays a clone of Sash 2a.

7 We need to change the colors of the sash to match the other symbols in the catalog.

8 Click **Change Color** [icon] and change color 45 to color 165.

9 On the **Character** menu click **Change outline color** >> **To selected color**, pick the 2 pieces of the sash and change them to color 167.

10 Click **Close** [icon] on the symbol editing window and choose **Yes** when asked if you want to save the changes.
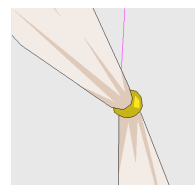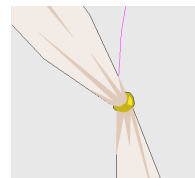
Selected Color

An individual entity in CC2 Pro can display an outline as well as an interior color. Whether the outline is displayed or not is determined by the Outline setting for the current fill style in the Fill Style Properties dialog box. Usually the outline and interior color are the same, however to help make symbols redraw very fast you can use two different colors in a single entity. When you use CC2 Pro's "select by color" editing option, it is the outline color that CC2 Pro is using to find entities.

Outline

Because we made use of the dual color properties, we cannot FRONT the black outline as we would just be fronting the whole sash. We need to add a partial Black outline to the shading entities

Symbol Name

Each CC2 Pro symbol must have its own unique name. Check other catalogs to make sure you are not using a duplicate name. When you successfully define a symbol it will disappear – this is normal! It means CC2 Pro has moved the symbol into the Symbol Definition area of the drawing
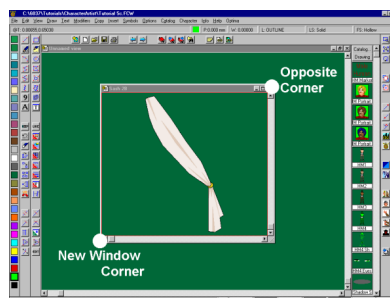
11 Repeat the above steps to clone additional symbols according to this chart:

Symbol Name	Light Color	Dark Color
Sash 2C	#85	#87
Sash 2D	#71	#69
Sash 2E	#241	#244

12 On the **File** menu click **Save As** and give the name **Sash.fsc**

But I Wanted Chartreuse!

CA Pro symbols, like any other CC2 Pro symbol, have the ability to change color according to the currently selected color on the toolbar. These shaded varicolor symbols add versatility to our catalogs. In order to create a shaded varicolor symbol of our sash, we can refer to the section **Converting an Existing Symbol to Shaded Varicolor** on page 75.

Rename and Reorder

In this section we will add the new sash symbols to the **Human Male Other** catalog, rename them and quickly place them into the correct order in the catalog.

1 On the **File** menu click **Open**. Click **Symbols\CharacterArtist\HumanMaleOthers.fsc**

2 On the **File** menu click **Save As**, and make a back up of this file.

3 On the **Catalog** menu click **Add Symdefs from file**. Select **Tutorials\Tome\CharacterArtist\Tutorial 5b.fcw**.

> This is identical to the file you completed in the last section. It contains symbol definitions of sashes.

4 On the **Catalog** menu click **Rename and Reorder** >> **Create Symdef name file**. Type **Sash** and press ENTER

5 Open the newly created file in a text editor such as Notepad® or Word® You can use the text editor to either **rename symbols or re-order** them, *not both*.

6 Cut and paste the symbol names starting **Sash 2** and place the symbols below the Sash symbol names.

7 Make sure you save the file in plain text format with the same name when you are done.

8 On the **Catalog** menu click **Rename and Reorder** >> **Import reordered symdefs name file** then select the list file.

> All the symbol definitions will be moved around to reflect your new order.

9 On the **File** menu click **Save**.

10 Now make another symbol list file, and use your word processor to rename all the **Sash 2** symbols to **HM** **Sash 2** symbols.

Pint-Sized Symbols

Character Artist Pro has several different fantasy racial catalogs, all of which are different sizes. In this section we will outline the steps needed to make and add the **Sash 2** symbol to each of the racial catalogs. Each race has different proportions, and you'll need to scale your sashes to match these proportions.

Please refer to the above section if you need help with cloning, renaming or re-ordering.

1 On the **File** menu click **Open**. Click **Symbols\CharacterArtist\BodyParts\DwarfMaleOther.fsc**

2 On the **File** menu click **Save As**, and make a back up of this file.

Rename or Reorder

You can only rename or re-order symbols, you can't do both at the same time! CC2 Pro will not know to which symbols to apply which names. Be very careful and don't forget what you are doing because it makes a heck of a mess of your catalog if you get it miXEd up.

HM

HM stands for human male. All symbol names have a prefix denoting the race and sex that the symbol is used for. When you insert your own symbols, you should always add the correct prefix, as all symbols must have a unique name.

3   On the **Catalog** menu click **Add Symdefs from file.** Click **Tutorials\Tome\CharacterArtist\Tutorial 5b.fcw**.

4   On the **Catalog** menu, click <u>**Symdefs to Sheets**</u>

5   On the **Catalog** menu, click >> **Hide All Sheets**

We are going to work on just the Sash symbols.

6   On the **Catalog** menu, click **Sheets**, uncheck the Autohide button and unselect all of the Sash symbols at the bottom of the sheet list.

7   Right click **Scale** , click **Non-Visual ScaleXY**. Type an X scale of **.95** and a Y scale of **.80**, type **0,0** as the scale origin.

These values are correct for a dwarf figure.

8   Select **Catalog** Menu >> **Sheets to Symdefs**

We are turning the sheets back into symbols

So, we've selectively scaled all the Sash symbols we've inserted, whilst leaving the rest of the catalog intact.

9   On the **Catalog** menu click **Rename and Reorder** >> **Create Symdef name file**. Type **DMothers.LST** for the file name.

10 Give the file an appropriate name (e.g. **DMothers.LST**), open it up in a word processor.

11 Male Dwarf catalog symbols names start DM, so rename all the Sash 2 symbols to include this prefix. In Word® you would click **Replace**, and type **Sash** in the Find box and **DM Sash** in the replace box. Save the file as a plain text file with the file extension LST.

12 On the **Catalog** menu click **Rename and Reorder** >>**Import renamed symdefs**

13 Click the list file. Click **Save** .

14 Choose **Catalog** Menu >> **Rename and Reorder** >> **Create Symdef name file.**

15 Give the file an appropriate name, open it up in a word processor and this time re-order the symbols, move them to the spot in the list below the Sash symbols. Save as a plain text file with the file extension LST.

16 On the **Catalog** menu click **Rename and Reorder** >>**Import renamed symdefs**

17 Click the list file. Click **Save** .

18 Start a new drawing and place a **Dwarf Torso** and the new sash symbol to make sure they are correctly aligned. If they are not you will need to move the origin for the sash symbol.

Repeat for each <u>**male catalog**</u> using the following chart for the correct dimensions, use **0,0** as the origin. All scaling is based on the Human Male:

Race	Arms (X/Y)	Torsos (X/Y)	Heads (X/Y)	Legs (X/Y)
Human (H)	1/1	1/1	1/1	1/1
Half Orc (HO)	1.05/1.05	1.05/1.05	1.05/1.05	1.05/1.05
Elf (E)	.85/.90	.85/.90	.90/.95	.85/.90
Half Elf (HE)	.8925/.945	.8925/.945	.945/.9975	.8925/.945
Gnome (G)	.75/.60	.75/.60	.80/.75	.75/.60
Halfling (Hf)	.75/.60	.75/.60	.80/.75	.75/.60
Dwarf (D)	.95/.80	.95/.80	.95/.90	.95/.65

Text Attributes

Tag Text: Here you enter the label for each attribute you wish to define. The tag text is fiXEd for each attribute, though it may hold a variable or constant. An example would be "Name:" This is used when you use the Symbols Menu >> Extract Attributes facility.

Prompt Text: Here you type the prompt you wish to see when inserting the symbol. The prompt should ask for appropriate value data. An example would be "Enter the Character's Name:"

Default value: Here you type the default text value that will be assigned to the tag or leave it blank. If you do not want to be able to modify this value, click Constant checkbox.

Hidden: Usually unchecked. Check to hide display of the tag. Use if the tag does not need to be seen in the drawing, or if there are too many tags to draw neatly or legibly.

Constant: Usually unchecked. Check to assign a constant value to the tag. The default value can not be changed upon insertion. This fiXEs the value.

Display Tag: Check to display the tag label instead of the value assigned to it. For example, display **Special** instead of **Breath**, only **+2 weapons do damage**

My Symbols Need an Attitude

Attributes are information that you attach to symbols. When you insert the symbol, **CC2** Pro will ask for this information and include it as text on the counter. In this section we will make a 5' counter with attributes.

1 Open **Attributes.fcw** in the **Tutorials\Tome\CharacterArtist\Attributes** folder.

2 Choose **Symbols** Menu>>**Make Varicolor**, select color 1 (green), **Do it.**

> When you have defined the counter as a symbol, the background should be in the current color.

3 Right click the **Grid** button. Click **Standard Rectangular** grid.

4 Click **Text Specs** T. Choose Arial as the font, **.4** as the font size and Justify as Top Left. Select **OK**.

5 On the **Symbols** Menu, click **Define Attribute**

> The following text box will appear:

6 In the **Tag text** and **Prompt text** boxes enter **Name**, leave the **Default** value blank.
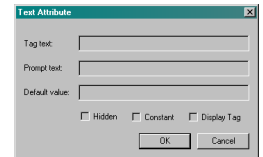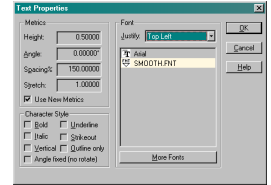
> The prompt reads Location:

Because the **Attribute** is text, we need to set up the text properties. We will place the **Name** attribute in the upper, left corner of the counter, so we have set the text justification to Top Left.

7 Click grid point below and to the right of the top left corner.

8 Set the justification as in the diagram and repeat the above steps for each Attribute you want to add. In each case the tag text and prompt text are as in the diagram. You can enter a default value if you wish.

9 Click **Grid** button and choose the **5' Grid, 2 snap** setting.

10 On the **Symbol** menu, click **Define Symbol**. Select counter and attributes as a symbol, **Do it**. Click a symbol origin in the center of the counter.

11 On the **File** Menu click **Save As**. Give the file the name **Attribute.fsc**

12 Click **Drawing** button.

13 Place the attribute counter. Type in appropriate values.

You now have a counter symbol onto which you can place any character portrait you like.
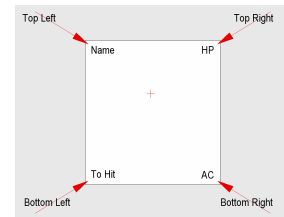
Creating a set of symbols from scratch

Now that you have mastered the basics and know a bit about making CA Pro symbols it is time to try something a bit more ambitious. Our next goal is to design a wardrobe for an elf warrior. Bearing in mind the thousands of readily available symbols, we want to draw as few new symbols as possible and ensure that the new symbols work well with the old. Here are the steps to develop a set of interlocking lamellar armor to be worn over Elven robes and chain mail.

Add a blank figure

To start we will add a manikin to use as a "sewing model":

1 On the **File** menu, click **New**, then **Portrait** then click the **HEHH Character Plain** template.

2 Click color #6 (magenta) on the color bar.

3 Right click **Toggle Race** 🧍 then click **Elf**, right click **Toggle Sex** ⚥ then click **Male** then click **Other** 💰. to select the **ElfMaleOthers** symbol catalog

4 Click then place the **EMO Body 5** symbol in the middle of the drawing

Creating a model for the new symbol

It's easier to adapt existing symbols than to create symbols from scratch, so we'll insert some existing color

5 Click the color indicator, then color #51 (dark blue).

6 Click **Torso** 👕 then place the varicolor **EMT Robe Vari** symbol on the torso.

7 Next, place the **EMT Chest Chain Mail** shirt on our warrior.

Click **Right Arm** 🖐 then place all the **Sleeve Chain Mail** sleeves on the elf. Toggle through all the right arm catalogs to select the sleeves. When we draw the pauldron (a piece of armor covering the shoulder at the junction of the body piece and arm piece), we will draw it to overlap all of these arms. Click **Left Arm** 🖐 then **add** all the **Sleeve Chain Mail** sleeves on the elf. Toggle through all the left arm catalogs to add the sleeves to the warrior.
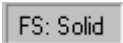
8 Click color #1 (spring green) on the color bar.

9 Click **Other** 💰.

10 Place an **EMO Hood Up Vari** and an **EMO Hood Down Vari** on the elf.

11 Click **Back** 🔳, then send these two symbols behind the manikin.

12 Click **Leg Catalog** 👢 then place a pair of **EML Pants Vari1**, **EML Pants Vari 2**, and **EML Pants Vari 3** on top of everything else.

You now have a five-armed elf wearing multiple pairs of pants and a robe - oh my! Save your work.

Drawing the symbol

We now have everything in place to create the **EM Lamellar Hauberk** symbol. Note that overlapping symbols are drawn to realistically cover and expose underlying symbols. Your new symbols need to be drawn in a similar fashion.

13 Click on **Snap** button to deselect the snap feature. Click **Fill Style** `FS: Solid` then set the fill style to **Hollow**. Click color #7 (purple) on the color bar.

> We are going to draw an outline of the hauberk to cover the chain mail, remain under the cloak, and overlap the various pants and robe.

14 Click **Polygon** 🔲 and start drawing the hauberk just below the center of the chain mail's collar. Select the polygon's vertices to expose the chain mail's collar.

15 Overlap the shoulders while staying below the top of the cloaks. Since this armor is worn with underlying chain mail, draw the hauberk to expose the area where the sleeve meets the torso.

16 While staying to the exterior of the torso (chain mail, robe, and pants), follow the fall of the chain mail to the waist.

17 Flare the hauberk out to overlap the upper hips (and the pants), round off the bottom and bring the hauberk to a raised center just above the crotch of the pants. Reverse the process to draw the other half of the hauberk.

18 Save your work.
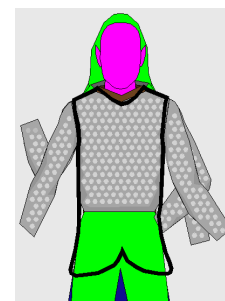
Adding Arms and Legs

To ensure that the armor fits under a cloak and that it works with various sleeve and pant combinations we will add a variety of limbs and clothing pieces.

Now we will create the interweaved lamellar plates that form the hauberk by drawing a series of intersecting paths and deleting hidden features.

19 First, click **Erase** and delete everything but the hauberk outline and chain mail shirt. Click the **Color** indicator and select color #131 (bronze)

20 Draw a line connecting the peaked bottom of the collar to the peaked region of the bottom hem. We will use this as the approximate centerline to overlap the lamellar plates.

21 Click **Path** . Click **On** . Click the edge of the hauberk just below the left sleeve. Draw a path (use two or three intermediate points) sloping to the right upper shoulder and end the path on the upper edge of the hauberk. The path should intersect approximately one-third the width of the shoulder from the collar and form a lamellar plate of even width across the chest.

22 Now repeat **Path** from just below the right sleeve to the upper left shoulder. At the point where the two plates intersect, click **On** to place a path point on the intersecting line. This point should be about at the intersection of the vertical line.

23 Click **Explode** and click the second line you made. Click **Erase** and delete the section of the line that passes under the top lamellar plate. You should now have a pair of crossed diagonal lamellar plates.

24 Repeat the process for each pair of plates. Remember to add a path point at each intersection with an overlapping plate. As you proceed, some plates may pass under multiple plates. For these lines you do not have to add a path point at each intersection. Instead only place a path point at where the plate goes under and reappears. Proceed in this fashion until all the plates are drawn.

25 Click **Erase** and delete centerline. Save your work.

Filling in the Armor

Now we will go back and add more detail to the armor.

26 Click the **Color** indicator then click color #133 (gold).

27 Click **Erase** and delete the chain mail shirt and the hauberk's outline leaving the network of intersecting plates (paths). Now use **Polygon** to carefully redraw it with a slight curve at the end of each lamellar plate.

28 Click the **Color** indicator then click color #135 (deep yellow). Use **Polygon** to draw irregular **highlights** on each lamellar plate segment to show reflected light and indicate the curvature of the segment.

29 Right click **Outline** then click **Outline in Black** select the Hauberk.

30 On the **Symbol** menu, click **Define Symbol** and give it the name **EM Lamellar Hauberk**. Click **Zoom Extents** . Depress the **Snap** button; the symbol origin should be the center snap point.

Creating the pauldron

At this point you should have a blank template. Now we'll draw the elf with the new symbol so you can work on the pauldrons and gauntlets.

31 Click the Color indicator and choose color #51 (a deep blue).

32 Change to the **ElfMaleTorsos** catalog and place the **EMT Chest Chain Mail** hauberk on our warrior.

Highlights

Assuming the light is coming from the left side of the elf (your right). The highlights should be irregular and are best drawn as triangles with the wider ends towards the elf's left side.

186

33 Change to the male elf arm catalogs. Place all the **Sleeve Chain Mail** sleeves on the elf. Toggle through the arm catalogs to find all the sleeves. When we draw the pauldron, we will draw it to overlap both of these arms.

34 Click the **Drawing** button and place the newly created **EM Lamellar Hauberk** on the elf.

35 Place an **EMO Hood Up Vari** and an **EMO Hood Down Vari** on the elf.

36 Click **Back** 🔲 and send these two symbols behind the rest of the symbols.

37 Click the **Color** indicator then click color #6 (pink). Click the **Fill Style** indicator and set the fill style to **Hollow**.

38 Referring to the drawing shown here, click **Polygon** 🔲 and draw a pauldron outline over the elf's left shoulder and arms. Make sure you cover up the underlying hauberk and stay below the edges of the cloaks.

39 Click **Erase** 🖊 and delete everything but the pauldron outline to avoid interference during the next step.

40 Click the **Color** indicator then click color #131 (bronze). Right click the **Attach** button and click **Nearest point On** and **Attach Enabled**.

41 Click **Path** 🔲 and draw a series of overlapping lamellar plates from the bottom to the top of the pauldron.

42 Click **Properties Edit** 🔲 and set the fill style of the pauldron to Solid.

43 Right click **Outline** 🔲 then click **Outline in Black**, select by **Prior**.

44 Click the **Color** indicator then click color #135 (deep yellow).

45 Use **Polygon** 🔲 to draw irregular highlights on each lamellar plate segment to show reflected light and indicate the curvature of the segment.

46 Right click **Copy** 🔲, click **Mirror Copy**, click a mirror line start point on the center of the drawing, click **Zoom Out** 🔲 and click a mirror line end point above it.

　　This will form the right pauldron.

47 Click **Explode** 🔲, select the mirrored copy. and use the symbol tools to define it as a new symbol, **EM Lamellar Pauldron R**.
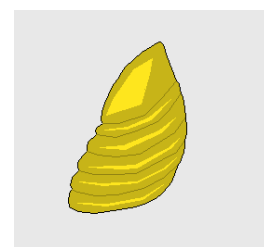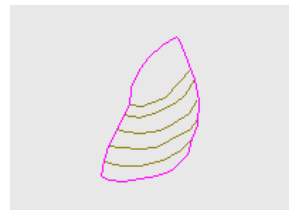
Creating the Gauntlets

Following the same approach for the pauldron, draw Lamellar Gauntlets. This time we'll just give hints.

1 Add the **EMAL Closed Glove Chain Mail** from the **ElfMaleArmsL2** catalog as a guide area.

2 The colors you need to use are color #133 for the armor, color #131 for the internal paths, and 135 for the highlights. The solid area needs to be outlined in black.

Pauldron outline

Attach

With Attach on, the drawing cursor will lock to any entity you click near.

3   When you have defined the glove, you'll need to follow the same method make a gauntlet for each of the open and closed hands in each of the arm positions.

Here is our elf with a full set of accoutrements.

Buzzard's Cove by Allyn Bowker

Buzzard's Cove uses a distinctive calligraphy coastline created using a font. It also uses symbols out of Symbol Set 1-Fantasy Overland.

Nora's Tower

Cost to build: @74,400gp
Note: Construction costs assume reinforced masonry.

Staff:
1 apprentice/cohort
1 Servant
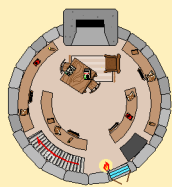
5th Floor
- Library #2
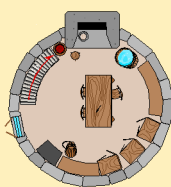
2nd Floor
- Kitchen
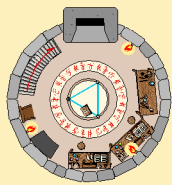
6th Floor
- Magic Laboratory
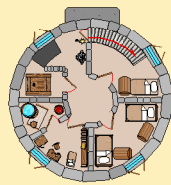
3rd Floor
- Living Quarters
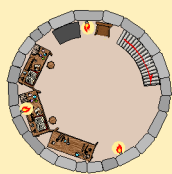
7th Floor
- Alchemists Laboratory
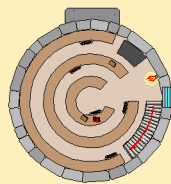
4th Floor
- Library #1

The Roof

Main Floor
- Common Room

Lamp of continual light
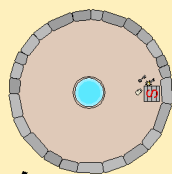
Courtyard
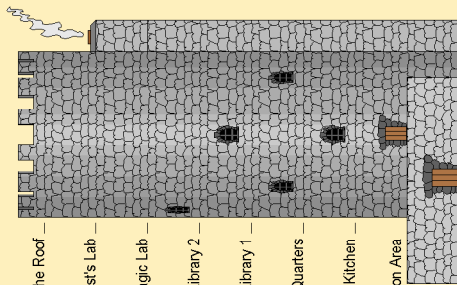
Small Stables

The Roof
Alchemist's Lab
Magic Lab
Library 2
Library 1
Living Quarters
Kitchen
Common Area
Courtyard

80 ft.
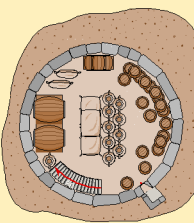
Cellar - Lvl 1
- Storage
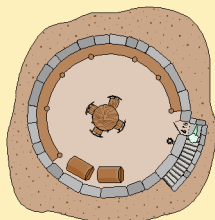
Cellar - Lvl 2
- Secret Vault

Scale in Feet
250' x 200'
Nora's Tower
Drawn by: Tony Marker
http://www.breminor.com
awmarker@rcn.com
© 2001, 2002 Anthony W. Marker

Nora's Tower by Tony Marker

Nora's Tower is available in the Profantasy Download Library.

CA Pro Command Reference

This table gives you a list of all Character Artist Pro commands

- ✓ **Command** gives you the command name found on the CA Pro Character and Catalog menus, the name that appears when you hover the mouse over a button (tool tip text) or on a right click popup menu. Type the command into CC2 Pro's Help Index or Find list to get more details on the command.
- ✓ **Where?** Lets you know which menu, popup menu or toolbar to find the command. CA's toolbar layout is shown on page 158. Right click on the button to access a popup menu. For example, **Dwarf** can be accessed by right clicking the **Race** button 🖼 on the **Draw** toolbar.
- ✓ The **Text Equivalent** is what you type at the Command prompt to use the command.
- ✓ **Use In Macro** If the command is useable in a macro, then **Yes**, otherwise **No**. Note that all commands are useable as the last line in a macro. SETCOLOR and GETCOLOR are macros in themselves, and can be used within macros on a single line with no prompts.

Command	Description	Where?	Text Equivalent	Use in Macro
Add symdefs from file	Inserts all symbol definitions from a selected file	Character menu >> Change outline color	INSSDEF	no
Copy to visible sheets	Places a copy of the selected entities on every visible sheet in the current drawing	Catalog menu	COPYVIS	yes
Create catalog list file	Create a new drawing with symbols from current drawing listed in it	Catalog menu >> Rename and Reorder	SYMOUT	no
Create symdef name file	Create symbol definition file with list of symbol definition names	Catalog menu >> Rename and Reorder	SYMLST	no
Hide all sheets	Hides all but the current sheet	Catalog menu >> Rename and Reorder	SHIDEA	yes
Import renamed symdefs	Renames symbols based on symbol definition file	Catalog menu >> Rename and Reorder	SYMRENAME	no
Import reordered symdefs	Reorders symbols based on symbol definition file	Catalog menu >> Rename and Reorder	SYMORDER	no
Interior only, Increment color	Changes the coloring of selection by increasing or decreasing the color numbers of selected entities. Affects only interior color.	Character toolbar >> Magic popup	CINC2	yes
Magic catalog, Free standing	Open free standing magic catalog	Catalog menu	CATALOG #symbols\CharacterArtist\Free\Magic.fsc	no
Magic catalog, Horizontal hex counters	Open horizontal hex counters magic catalog	Character toolbar	CATALOG #symbols\CharacterArtist\counters\CountersMagicHH.fsc	no
Magic catalog, Square counters	Open square counters magic catalog	Character toolbar	CATALOG #symbols\CharacterArtist\counters\CountersMagic.fsc	no
Magic catalog, Vertical hex counters	Open vertical hex counters magic catalog	Character toolbar >> Magic popup	CATALOG #symbols\CharacterArtist\counters\CountersMagicHV.fsc	no
Mirror Silhouette	Creates a mirrored silhouette from selection	Character toolbar >> Magic popup	MIRSIL	yes
Monsters catalog, Free standing	Open free standing monsters catalog	Character toolbar	CATALOG #symbols\CharacterArtist\Free\Monsters.fsc	no

Command	Description	Where?	Text Equivalent	Use in Macro
Monsters catalog, Horizontal hex counters	Open horizontal hex counters monsters catalog	Character toolbar >> Next sheet popup	CATALOG #symbols\CharacterArtist\counters\CountersMonstersHH.fsc	no
Monsters catalog, Horizontal hex counters with attributes	Open horizontal hex counters with attributes monsters catalog	Character toolbar >> Next sheet popup	CATALOG #symbols\CharacterArtist\counters\CountersMonstersAttHH.fsc	no
Monsters catalog, Square counters	Open square counters monsters catalog	Character toolbar >> Next sheet popup	CATALOG #symbols\CharacterArtist\counters\CountersMonsters.fsc	no
Monsters catalog, Square counters with attributes	Open square counters with attributes monsters catalog	Character toolbar >> Next sheet popup	CATALOG #symbols\CharacterArtist\counters\CountersMonstersAtt.fsc	no
Monsters catalog, Vertical hex counters	Open vertical hex counters monsters catalog	File toolbar, New popup	CATALOG #symbols\CharacterArtist\counters\CountersMonstersHV.fsc	no
Monsters catalog, Vertical hex counters with attributes	Open vertical hex counters with attributes monsters catalog	File toolbar, New popup	CATALOG #symbols\CharacterArtist\counters\CountersMonstersAttHV.fsc	no
New card figure, Dwarf, Gnome Halfling	Starts a new card figure for a Dwarf, Gnome or Halfling	File toolbar, New popup	BROWSET;#TEMPLATES\CharacterArtist\CardFigures\DwarfGnomeHalfling;	no
New card figure, Human, Elf, Orc	Starts a new card figure for a Human for an Elf or Orc	File toolbar, New popup	BROWSET;#TEMPLATES\CharacterArtist\CardFigures\HumanElfOrc;	no
New card figure, Monster	Starts a new card figure for a Monster	File toolbar, New popup	BROWSET;#TEMPLATES\CharacterArtist\CardFigures\Monsters;	no
New counter, Sheet	Starts a new sheet of counters	File toolbar, New popup	BROWSET;#TEMPLATES\CharacterArtist\Counters\Sheet	no
New counter, Single	Starts a new single counter	File toolbar, New popup	BROWSET;#TEMPLATES\CharacterArtist\Counters\Single	no
New portrait, Dwarf, Gnome or Halfling	Starts a new portrait for a Dwarf for a Gnome or Halfling	File toolbar, New popup	BROWSET;#TEMPLATES\CharacterArtist\Portraits\DwarfGnomeHalfling	no
New portrait, Human, Elf or Orc	Starts a new portrait for a Human, Elf or Orc	Symbol toolbar	BROWSET;#TEMPLATES\CharacterArtist\Portraits\HumanElfOrc;	no

Command	Description	Where?	Text Equivalent	Use in Macro
New portrait, Monster	Starts a new portrait for a Monster	Symbol toobar >> Magic popup	BROWSET;#TEMPLATES\CharacterArtist\Portraits\Monsters;	no
Next sheet	Set next sheet current	Symbol toobar >> Magic popup	SNEXT	yes
Outline and Interior, Increment color	Changes the coloring of selection by increasing or decreasing the color numbers of selected entities.	Symbol toobar >> Magic popup	CINC	yes
Previous sheet	Set previoius sheet current	Symbol toolbar	SPREV	yes
Set varicolors	Sets the dark and light varicolors	Symbol toobar >> Monsters popup	SETCOLOR	yes
Sheets to Symdefs	Converts each sheet into a symbol definition named after the sheet	Symbol toobar >> Monsters popup	SHTTOSYM	yes
Sheets...	Sheet management	Symbol toobar >> Monsters popup	SHEET	no
Show all sheets	Shows all sheets	Symbol toobar >> Monsters popup	SSHOWA	yes
Silhouette	Creates a silhouette from selection	Symbol toobar >> Monsters popup	SIL	yes
Symdef to Sheets	Converts each symbol definition into a sheet named after the symbol	Symbol toobar >> Monsters popup	SYMTOSHT	yes
To match interior, change outline color	Makes outline color (1st color) of selection same as interior color (2nd color)	Symbol toolbar	UNOUTLINE	yes
To selected color, change outline color	Changes outline color (first color only) of selection	Symbol toobar >> Treasure popup	OUTLINE2	yes
To selected color, change outline color	Changes outline color (first color only) of selection	Symbol toobar >> Treasure popup	OUTLINE2	yes
Toggle varicolors	Swaps between dark and light varicolors	Symbol toobar >> Treasure popup	COLORTOG	yes
Treasure catalog, Free standing	Open free standing treasure catalog	Symbol toolbar	CATALOG #symbols\CharacterArtist\Free\Treasure.fsc	no
Treasure catalog, Horizontal hex counters	Open horizontal hex counters treasure catalog	Symbol toobar >> Weapons popup	CATALOG #symbols\CharacterArtist\counters\CountersTreasureHH.fsc	no
Treasure catalog, Square counters	Open square counters treasure catalog	Symbol toobar >> Weapons popup	CATALOG #symbols\CharacterArtist\counters\CountersTreasure.fsc	no
Treasure catalog, Vertical hex counters	Open vertical hex counters treasure catalog	Symbol toobar >> Weapons popup	CATALOG #symbols\CharacterArtist\counters\CountersTreasureHV.fsc	no
Weapons catalog, Free standing	Open free standing weapons catalog	Character menu >> increment color	CATALOG #symbols\CharacterArtist\Free\Weapons.fsc	no
Weapons catalog, Horizontal hex counters	Open horizontal hex counters weapons catalog	Character menu >> increment color	CATALOG #symbols\CharacterArtist\counters\CountersWeaponsHH.fsc	no
Weapons catalog, Square counters	Open square counters weapons catalog	Character menu >> Change outline color	CATALOG #symbols\CharacterArtist\counters\CountersWeapons.fsc	no

Command	Description	Where?	Text Equivalent	Use in Macro
Weapons catalog, Vertical hex counters	Open vertical hex counters weapons catalog	Character menu >> Change outline color	CATALOG #symbols\CharacterArtist\counters\CountersWeaponsHV.fsc	no
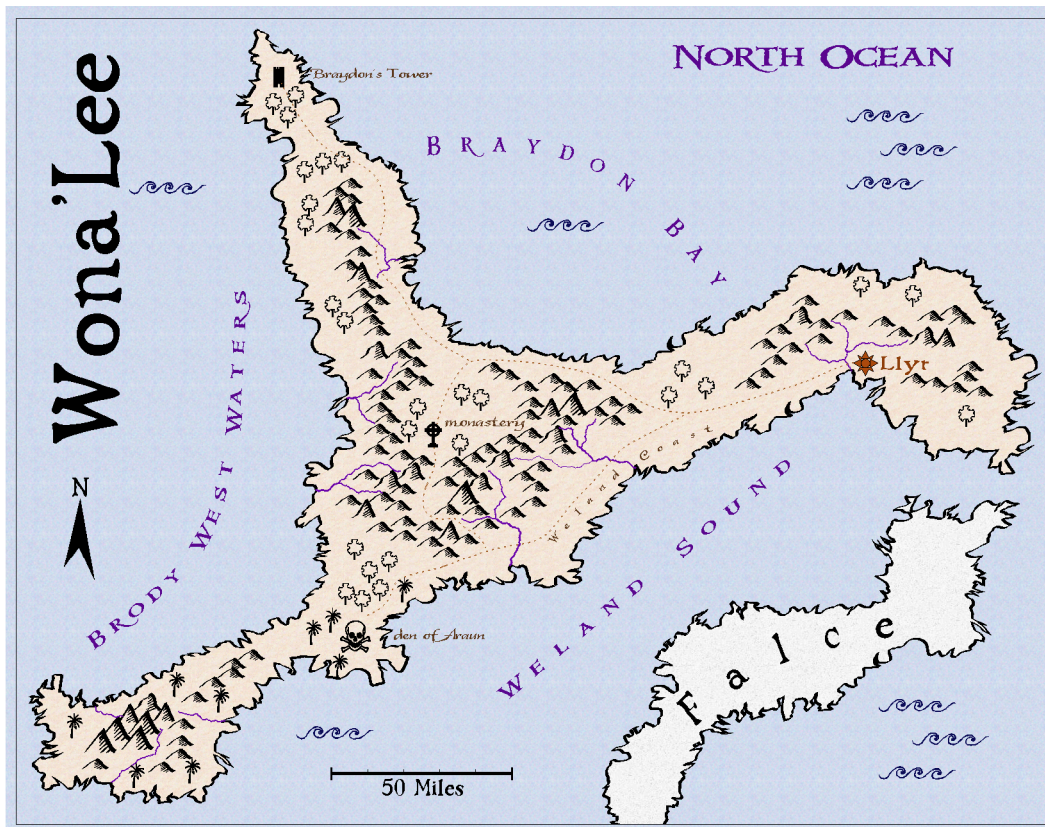
Wona'Lee by Allyn Bowker

Wona'Lee has a distinctive calligraphy coastline created using a font.

Ancestharrow by Grimur Fjeldsted*

Ancestharrow can be viewed in the **Examples>Tome** folder.

CITY DESIGNER PRO ™

ADDITIONAL CITY DESIGNER PRO CREDITS

City Designer Pro: Mark Fulford, Simon Rogers
Symbols: Ralph Horsley, Tito Leati, Linda Kekumu, L. Lee Saunders

Manual: Simon Rogers

Additional Material: Tony Marker, Morgan Olden
Programming: Peter Olsson

City Designer Pro Introduction

City Designer Pro (**CD Pro**) is an add-on for CC2 Pro that allows you to create urban areas from all genres. It has a huge range of smart symbols (over 1,500) ranging from primitive to futuristic and fantastical. It has features to add custom buildings and even whole streets. A powerful index function lets you add a hyperlinked, alphabetical list of text in any map.

At the individual building level

✓ You can create custom shaped buildings in many pre-set styles. The styles include shading, which can be swapped around on the fly, roof hatching (such as Thatching) and custom roof edges.

✓ Add your own building styles with combinations of colors, roof edges, hatching, roof overlap and other features.

✓ Add frills such as dormers, chimneys and extensions to the pre-defined symbols and custom buildings.

✓ CC2 Pro's city symbols and frills are "smart". Buildings will align themselves to roads then offset from the road. Staircases lock to building edges, dormers to roofs.

At the street level

✓ Road networks are very easy to create.

✓ CD Pro will create random streets using a large set of parameters that you control. Select from all the house styles you have defined at the building level.

✓ CD Pro has grids that you can align with roads, making house creation along roads very easy.

Demographic information

✓ CD Pro will add an easily controlled labeled grid to you map.

✓ CC2 Pro will extract text such as street names and add it to the map with its grid coordinates. Click on the label to zoom to the text.

✓ CD Pro will color your building symbols so that if you hide the correct layers, you can see what all the buildings are for. This information can be concealed from your players; while maintaining the beautiful appearance of you map.

What you need to know to use City Designer Pro

This manual assumes that you understand the basics of using CC2 Pro. In particular you need to know:

✓ How to start, save and print maps.

✓ How to add entities to a drawing.

✓ How to choose entities for editing (entity selection).

✓ What properties are (color, line width etc) and how to set them for new entities and change them for existing entities.

✓ How to insert symbols.

✓ How to use layers.

✓ How to use grid, snap and attach modes.

Installing City Designer Pro

Place the CD Pro compact disc into your CD-ROM drive. On most computers there will be a few seconds of whirring, then you will see a window showing the contents of the CD. If this doesn't happen, double-click on "My Computer", then on the icon for your CD-ROM drive.

To **install CD Pro**, double-click on the **Setup** icon, then follow the on-screen instructions.

Please make sure that if you are adding CD Pro to an existing CC2 Pro install, that you run the Universal Update after the CD Pro setup is complete.

Starting City Designer Pro

After you have installed CD Pro, start **CC2 Pro** and click on the CD Pro button [CD2] on the **File** toolbar. You can see a new set of buttons (the **City** toolbar) and a new menu.

The City toolbar

These buttons are usually found on the left of the **CC2 Pro** screen. If you can't see them, select the **Screen ools** button ➡ and ensure that Left toolbar 1 and 2 are ticked. Most of CD Pro's features are accessible from the toolbar.

Draws a house		Draws a road
Draws a random street		Sets the random street options
Adds a labeled grid overlay		Adds an A to Z street index
Colors buildings by their layer		City drawing tools
Symbol settings		Toggle symbol style
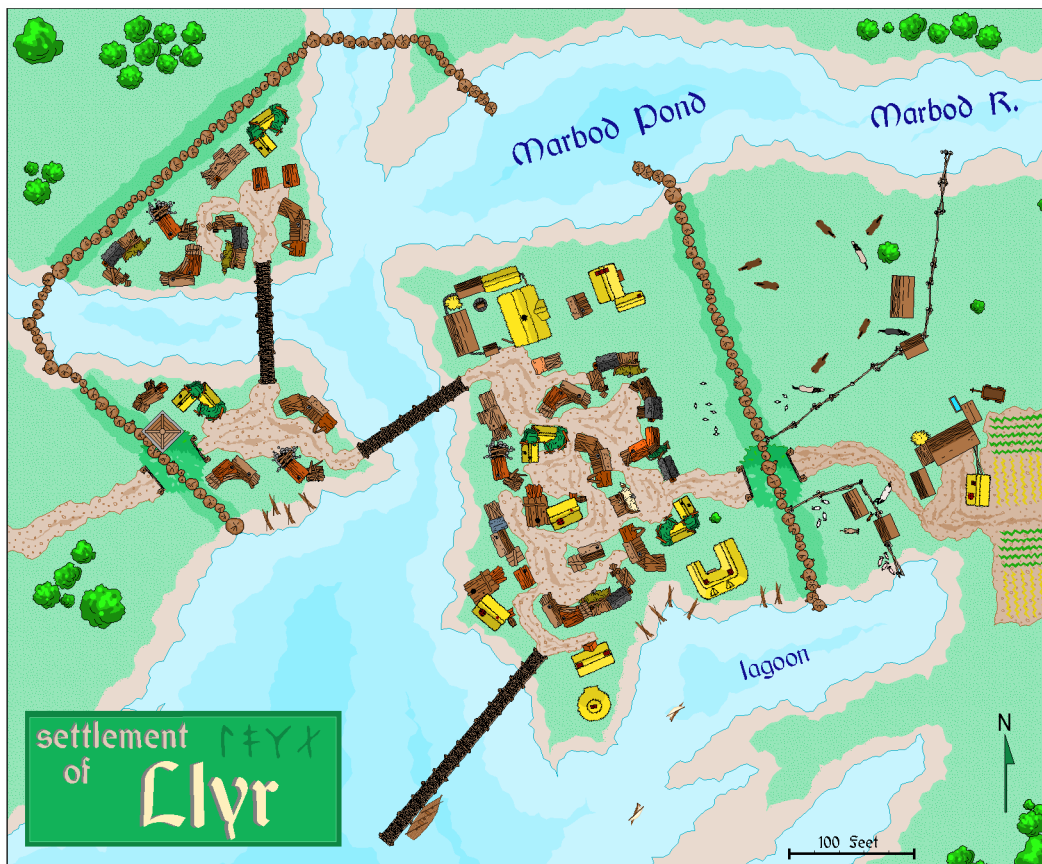
Settlement of Llyr by Allyn Bowker

Llyr is created with City Designer2 and uses some symbols from Symbol Set 1-Fantasy Overland and Symbol Set 2-FantasyFloorplans.

CITY DESIGNER PRO

Roads and Streets

CD Pro uses drawing tools to add paths or smooth paths to your drawing to represent roads. You can add any entities you want to represent roads, but CD Pro has short cuts to make it easier.
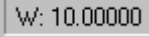
1   Click **New** ☐. Click **1000 x 800.fct**.

2   Click **Road** ▯. This adds the default **road**, a 10-foot wide curve.

>   Click a start point, then one or more points to create a road. Right click to stop adding points. Make sure the road does not overlap itself.

Custom roads

CD Pro provides more than one road drawing tool.

3   Click the **Line Width** indicator `W: 10.00000` and type **5, OK**.

>   You've set the current width to 5 feet.

4   Right click **Default Road** ▯.

>   You can see a number of samples, all named, which show you other available road drawing tools. You are given a choice of widths and a "current width" option, as well as a straight road.

5   Click **Road, Straight Current Width**, last on the list.

>   You are ready to draw a 5-foot wide, straight road.

6   Click points to make a straight road. Right click to finish the road. Click points to make a second road.

You can even create your own road drawing tools. Let's make a drawing tool with which we can create roads made from a polygon instead of a path.

1   From the **City** menu, select **Roads** then select **Advanced>>**.

2   Click **New** then type in a name. I'm going to use **City Road, White Black Outline**. Click **OK**.

>   Set the options to match these:

3   Click **Options**, then select **Straight**. Click **OK**.

4   Click **Outline**, then select **As Color** and **Black**. Click **OK**.

5   Click **Properties**, then select Use Color **White**, width **Fixed 0**, layer **Roads**, use fill style **Solid**, and line style **Solid**. Click **OK**.

6   Click **Save**, then click **OK**.

Now when you draw with your new road tool, you will be drawing the roads as **polygons instead of paths**.

Other road-like areas

You can add squares and other

straight-edged solid filled areas by right clicking **Default Road** , then clicking **City Road, Filled Area**. Click points to create a paved area. Right click to close the area.

In a similar fashion, you can create roads by, not drawing the roads themselves, but by drawing the plots of land between the roads. Set the background color to the color you want the roads, and then use the **Area Fills** to create the plots of land

Another way to add Roads it to use Networks.

Networks

Networks (text command **NET**) are a new type of CC2 Pro entity. Each network span has an intelligent relationship with other spans. They can also intelligently interact with symbols that have been designed to work with networks.

These abilities make the construction of architectural drawings extremely fast and easy. They are can also be used for walls, roads and rivers.

Understanding Networks

A network, in some ways, is like a smart path. A path is a series of connected nodes, as is a network. Additional segments can be added to a network in almost any direction or length, and attached at almost any point.

The great advantage of networks is that intersections are automatically cleaned up. When you create corners, T-intersections, or four way intersections, no tedious and repetitive breaking or trimming is required. CC2 Pro's brain does it all for you.

Note, too, that networks have thickness. The width is assigned to each span at each of its two nodes. This allows different segments within the same network to have different thickness. Also, a segment can have a different thickness at each end of its span.

Since each network is a single entity, it can be assigned only one line style and fill style. Other entity properties, such as color, layer, etc., follow suit.

Drawing Networks

There are three basic methods of creating spans within the network:

✓   New Network, using the Network command (**NET**)

Each use of the network command creates a new network. You can draw spans individually, or in a connected series.

✓   Added spans, using the Add to command (**NETADD**)

Use the **NETADD** command to add new spans to an existing network. Added spans will associate themselves to the selected network, so all intersection and corner cleanups will occur automatically.

✓   Rectangles, using the Rectangle command (**NETRECT**)

Rectangles are a special constructive subset of networks. When you select a rectangle, you use a command similar to the BOX command to create a rectangular, ortho-locked, 4-node closed network. Rectangles can be added to an existing network, or drawn separately.

Adding City Symbols

Opening catalogs

You can also access City catalogs by clicking on the Catalog button [icon] then choosing a file from the Symbols/Cities folder.

City symbol catalogs

Default/ Miscellaneous

Fantasy/Hovel

Igloos/Nomads

Modern Blue/Grey/Red/Vari

Vehicles/Roads

Gothic/Thatched

Classical/Middle East

Orc/Halfling/Elf

Skyscrapers/Modern

Futuristic/Cyberpunk/Moon

Aligning to the Road

Arrow cursor on north side of road.
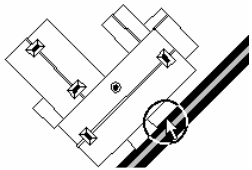
Arrow cursor on south side of road.

You can select **city symbol catalogs** by clicking on the city symbol toolbar buttons.

The buttons open CD Pro's new symbol catalogs and set an appropriate house setting (see page 206). Each button can **open** more than one catalog. Left click on the button a second or third time to open new catalogs, or right click the button to see a shortcut menu. For example click **Orcs/Halflings/Elves** [icon] to open the **Orcs** catalog, click again for the **Halflings** catalog and once more for the **Elves** catalog. Clicking again takes you back to Orcs. You can also right click a button to access context menus for each catalog.

Smart Symbols

City Designer Pro makes use of *smart symbols.* Smart symbols align to roads and then offset from them, making sure that your houses are placed accurately without much effort.

To enable smart symbols: Right click when inserting a symbol and uncheck **Disable SmartSym**.

To enable smart tracking: When smart symbols are in operation, CC2 Pro must check to see if the symbol cursor is over another entity. This can take some time if you have a large drawing. If you find that the symbols are moving too slowly, you can disable the automatic alignment of the smart symbol cursor. To enable, right click when inserting and check **Smart Tracking**.

Adding a smart symbol aligned to a road

1 Click the layer indicator and choose a layer on which to add your smart symbol. This should be one of the BLDNG layers.

2 Right click a button on the Symbol toolbar and click a catalog.

3 Click a building symbol in the catalog window. Move the building over the map. Notice that whenever a building crosses a road it **aligns** to it.

4 Choose a road and hover the building over the road. As you move the cursor slightly away from the center of the road, the building "flips" to that side of the road.

5 Click to establish the position along the road.

The prompt reads Offset from place point [40]:.

As you move the cursor, the building now moves perpendicular to the road on a cursor.

6 Click a point, type in a distance, or press the right button to accept the default distance.
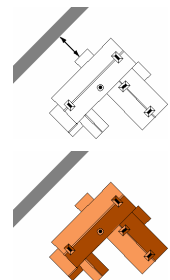
Click a point then slide the symbol perpendicular to the road.

7 Click another symbol. Select a point on the road again, making sure that the cursor is on the same side as before. Right click. The symbol is placed an identical distance from the road.

Adding symbols without automatic aligning

As an alternative to automatically aligning symbols, you can align them manually then place them by eye.

1 Disable smart symbols and the smart symbol cursor by clicking a symbol, right clicking then setting the options as below.

Symbols will no longer automatically align to other entities.

☐ Smart Tracking ☑ Disable SmartSym
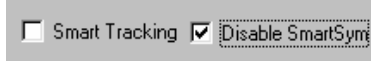
2 *(Optional)*On the **City menu, click Lock symbol angle**. Choose a straight road to which you want to align the symbols.

The symbol angle is now locked in the direction of the road.

3 Start **placing symbols**.

The House Builder

Although CD Pro has over 1,500 symbols, buildings come in all sorts of shapes and sizes – more than any number of symbols can cover. CD Pro's House Builder lets you create a variety of custom-shaped buildings in a selection of styles. You can also add extensions to individual houses or connections, which join houses together. You can combine symbols and Houses on the same map. When you click a city symbol button, CD Pro sets an appropriate house setting to go with it.

Click **House** ▮ to start adding houses to your drawing, or right click to add any house shape in the current style.

The House dialog box

When you click **House**, you see the House dialog box. All the settings are saved between houses.

House shape: Controls the footprint of the building and gives you an idea of how the house will look. Select one option from here, or alternatively choose and extension or connection.

Extra: These shapes are for drawing an extension or connection to an existing house or symbol, instead of a whole new house.

Group building: Check this option if you would like your building to be treated a single entity (recommended).

Roof Type: Choose an option here to determine the appearance of the building's roof.

House settings: (List) Choose a pre-defined setting from this list to determine the color, hatching, shading and roof edge characteristics of you buildings. When you select a catalog button, it chooses an appropriate House Setting for you.

House Settings: (Button) Click the **House settings** button to edit house settings and add new ones.

Insert: Starts a new building with the current house dialog box settings.

House Shapes

The House dialog box gives you nine base house shapes which allow you to create a wide **variety of building** outlines.

▤ **House Shape 1 (Rectangular)**

This simple shape is the basis for most houses.

Select 3 points to produce a rectangular house at any angle. The first two points are the long edge of the dark side of the house. The third point defines the depth of the house.
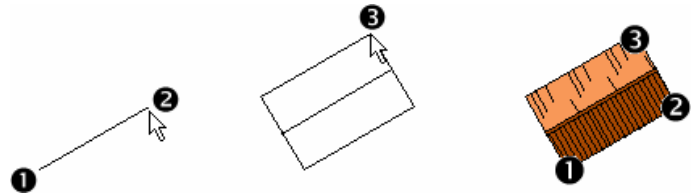
▤ **House Shape 2 (Regular L)**

This shape produces L-shaped houses with the same width for both sections.

Variety of Buildings

If these shapes aren't enough, you can expand on any shape with extensions and connections to neighboring buildings.

The current house shape is remembered between houses.
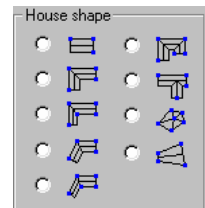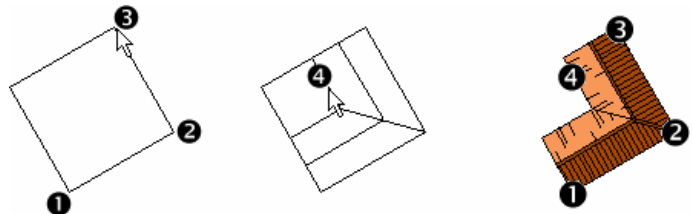
The first two points are the outside edge of the first section, the third point forms a rectangular cursor in which the L is enclosed; the final point sets the inside corner of the L.

House Shape 3 (Irregular L)

This shapes produce and L-shaped **house** with the option for a different width for each section.

As with House Shape 2, the first three points define the outside of the L. The fourth and fifth points define the width of the two sections.
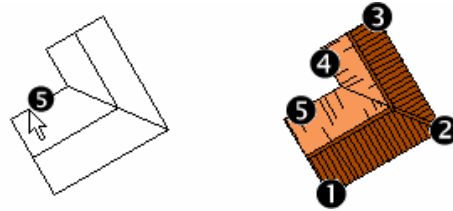
House Shape 4 (Regular V)

This shape produces V-shaped houses with the same width for both sections. You draw it just like a Regular L, except the angle between the roofs isn't locked to 90°.
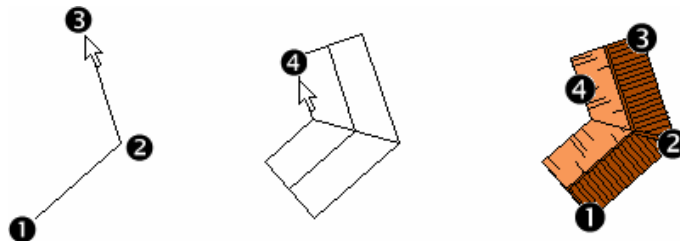
The first two points are the outside edge of the first section; the third point is the third point of the outside of the V. The fourth point selects the inside of the V.

House Shape 5 (Irregular V)

This shape produces V-shaped houses with the option for a different width for each section.

As with the Regular V-shaped house, the first three points define the outside of the V. The fourth and fifth define the width of the two roof sections.
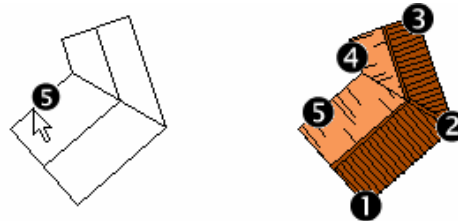
House Shape 6 (Irregular U)

This shape produces a U-shaped house.

The first four points define the outside of the U, the fifth point defines the width of all the roof sections.
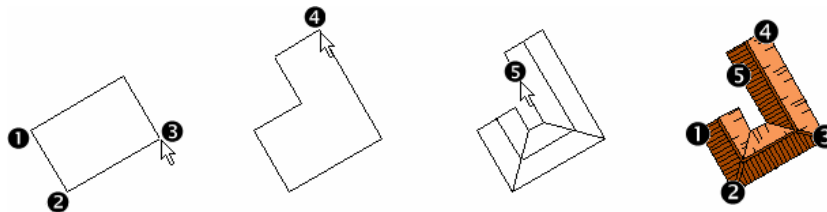
House Shape 7 (Irregular T)

This shape produces a T-shaped house. The first two points describe the length of the T's top bar; the third determines the width of the roofs, the last point the position of the upright.
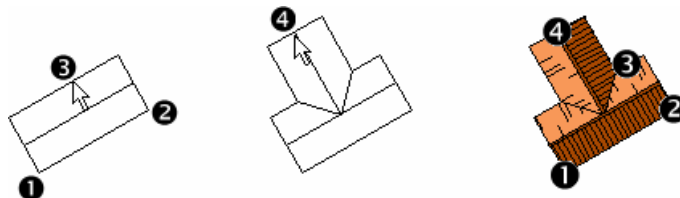
House Layers

The houses created with the **House Builder** are automatically drawn with entities on 4 different layers—Current Layer, **STRUCTURES (SHADING)**, **STRUCTURES (OUTLINE)**, and **STRUCTURES (FILL STYLE)**.

House layers and colors shouldn't be changed through regular editing commands. Always use the editing features in the **City** menu. More on that later.

House Shape 8 (Many sided)

This shape produces a polygonal house with as many sides as you like. It is particularly useful for orc huts or nearly round buildings.

Place as many points as you want to determine the outside edges of the house. When the outline is complete, right click then select the roof vertex. This shape is unaffected by roof types other than flat roof.

House Shape 9 (Four-sided)

This produces an irregular four-sided house with no constraints. The first two points are the long edge of the dark side of the house. The third and fourth points determine the other two corners of the house.
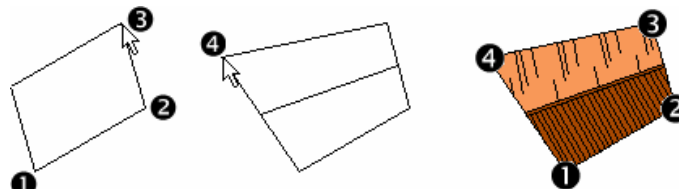
Roof Types

There are four **Roof types** in the House dialog box to control the appearance of the roof inside the building's boundaries.

The current roof type is remembered between houses.

Roof Type 1 (Gabled)

The first type creates houses with a sloping roof, which has *gables*. A gable is the angled section in a wall between roof sections. This roof type affects all house shapes apart from the many-sided roof.
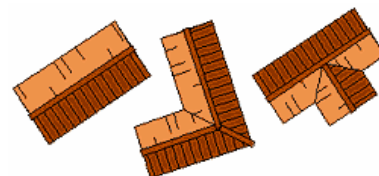
Roof Type 2 (Hip Roof)

This creates a roof with a *hip* roof instead of a gabled roof. A hip roof is one that slopes up from a wall on all sides, rather than having a gable. The angle of the hip is determined by the current Roof Options for this type on the House Settings dialog box..
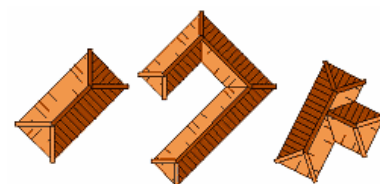
Roof Type 3 (Central Point)

This only affects the basic house shape (shape 1) and the four-sided irregular house type (shape 8). It creates a roof that slopes up on four sides to a central point. Other house shapes give a Hip Roof.
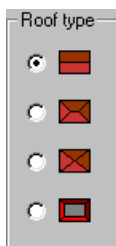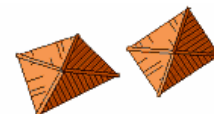
Roof Type 4 (Flat Roof)

This creates a house with hip roof edges sloping up to a flat area. It works with all house shapes. The color of the roof is controlled by the **Flat Roof Color** of the current house setting. The distance between the edge of the roof and the flat area is controlled by the **Roof Options** for this type in the current house settings. This can be used to make Arabic-style buildings, skyscrapers and houses with roof gardens.

Matching the roof type of symbols

When you add houses to the drawing, you usually want to match them to symbols from the catalog. The House dialog box contains pre-defined house settings to help you match the symbols' appearance, and these are set automatically when you click a **symbol button**.. However, you should also check that you are matching the roof type as well. For example, the **Modern Blue** catalog uses hip roofs, so you should set the roof type to **Hip Roof** before inserting the symbols. The **House setting** name might suggest a particular **Roof type**, for example, with the **Mastaba (use flat roof)** house setting you should use a use a flat roof (the bottom roof type).

To add a house

1   Click the Layer indicator and choose a drawing layer. This should be one of the **BLDNG** layers.

2   Click **House** .

3   Select a **House shape**.

4   Select a suitable **House setting**.

5   Select a **Roof type**.

6   Click **Insert**.

> The prompt reads First house point:.

7   Select the first corner of the house. You will be asked for more points until the house is complete. The exact number of points depends on the house shape. The first two points always define a long edge along the dark side of the roof.

> When the house is complete, the prompt reads First house point (S=Swap colors, E=Extension, C=Connection):.

8   At this point you can:

*   Press ⏏S a number of times to swap the colors around. The number of combinations depends on the current House Settings;
*   Press ⏏E to add an extension to the house,
*   Press ⏏C to connect the house with another house
*   Select a point to start a new house of the same type.
*   Right click to finish.

Align Houses with Roads using Grid Angle

CD Pro's symbols automatically align to roads. You also have that option with houses. By changing the angle of CC2 Pro's grid you can draw houses precisely along roads.

Usually, CC2 Pro's grid is aligned horizontally and vertically. CD Pro adds the option to angle the grid to make it easy to draw buildings parallel to roads when snap is on.

Symbol Button

The house setting for each catalog are:

Catalog	House Setting
Default	Default
Miscellaneous	Hovel Dark Wood
Fantasy	Fantasy Orange
Hovel	Hovel Dark Wood
Igloo	Ice House
Nomad Tents	Tent
Modern Blue	Modern Blue
Mordern Grey	Modern Grey
Modern Red	Modern Red
Modern Vari	Modern Red
Vehicles	Parking lot (use flat roof)
Roads	Parking lot (use flat roof)
Thatched	Thatched
Gothic	Gothic (all roof ridges)
Classic	Classical Red
Mediterranean	Mastaba (use flat roof)
Orc Huts	Orc Hut
Halfling	Halfling addition
Elven	Elven addition
Skyscraper	Skyscr brown
Modern	Modern Red
Modern Red	Future Grey
Cyberpunk	Cyber purple (flat roof)
Moonbase	Moon large wall (flat roof)

You can change the appearance of these settings either by editing the house setting (see page) or by change the values in the fcw32.mac file with a text editor. Just do a Find on the House Setting name, and replace it with a new one.

Angling the grid

1 On the **City menu, click Grid Angle**.

> The prompt reads Angle or select entity:.

2 You can:

> **Either** type an angle for the grid alignment. The command finishes.
>
> **Or** click a point. If the point is on an entity, CD Pro will snap to it. The Command Prompt reads bearing to:.

3 Click a second point. If the point is on an entity, CD Pro will snap to it.

> The grid is now aligned.

An example

The most common use for this command is to make the grid lie parallel to a road, then draw houses along the road.

1 Right click on the **Grid** button, choose an angled grid such as **20' angled, 1 snap**.

2 On the **City** menu, click **Grid Angle** then click two points on a straight road.

> The grid now runs parallel to the road.

3 On the **Snaps** menu, click **Align Grid**.

4 Click a point, click **On** ![icon] then click on the center of the road.

5 Right-click the Grid button and enable **Grid**, **Snap** and **CsrSnap**.

6 Pick a grid with snap points suitable for the size and type of houses you are drawing. A grid with snap points every 5' is about normal. For primitive, higgledy-piggledy buildings, a 1' snap would be better.

7 Click **House** ![icon] and draw a house along the edge of the road.

To change the layer of a house

Because houses span many layers, changing the layer of a House using **Change Layer** will prevent certain of CD Pro's features working. Always click on the **City** menu then click **Change House Layer** instead.

House Settings

House Settings are pre-defined sets of roof hatching, roof edges colors, and other parameters that determine the "look" of a building. You can choose from one of the pre-defined settings on the
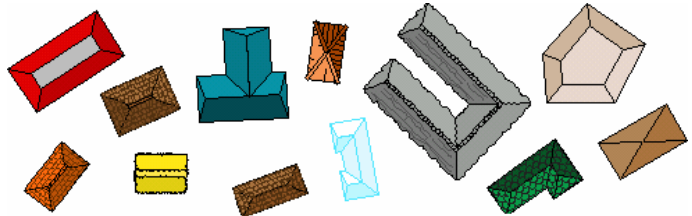
House dialog box, or create your own styles. This section tells you how to choose settings; you can design your own.

Getting to the house settings

To choose a pre-defined house setting, select one from the scroll box on the House dialog box.

When you click a catalog button, a suitable **house setting** is selected for you.

Angling Grids

Only CD Pro's pre-defined angular grids may be aligned. All CD Pro maps include angular grids. You can add angular grids to any map.

If you try to align a non-angular grid, a message box says "The currently selected grid is not an angular grid".

Align Grid

This moves the grid so that a grid point is on a selected point. This way you can move the grid so that the fronts of your houses are the correct distance from the road.

House Setting

To edit an existing house setting, or add a new one, either select House Settings from the City menu, or select the House Settings button from the House dialog box.

House Settings features

✓   You can export or import your house settings to share them with another user.

✓   You can change the coloration of the house setting, using two or three colors for shading, one for the flat roof type, and others for the hatch coloration and roof edges.

✓   You can include a hatch pattern, irregular roof edges and roof ridges. These are either the default, or can be defined in special "House Style" files.

✓   You can control the width, number, overlap and coloration of roof ridges.

✓   You can control the angle of the Hip Roof shape.

✓   You can control the distance from the edge of the Flat Roof style.

House Settings dialog box

This section gives an overview of the house setting dialog box; each area is described in more detail in the sections following.

The House Settings dialog box is where you edit house settings and add new ones. You can change colors in the dialog box by clicking on the colored box then selecting a new color. If you select color 31, this will appear as the current color when a house is inserted. When you have finished editing the settings, remember to select the **Save** button.
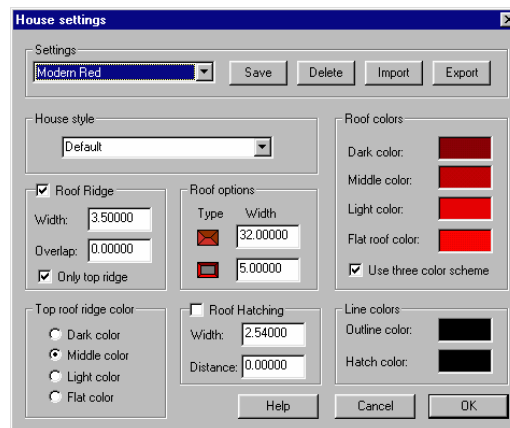
Settings: Pull down the list to edit a new house setting.

Save: Saves the current settings. Type a name or leave the default (current) value, click **OK**.

Import: Imports another user's saved house style settings and files. Choose an HSS file, then select overwrite options.

Delete: Deletes the current house saved setting.

export: Exports all your house settings and house style files to an HSS file. Other users can then import it.

House Style: Pull this list down to select a House Style file from the **Symbols\Cities\House Styles** folder. If you want straight edged and ridged houses, select **Default**.

House stylesdetermine:

✓   The appearance of the edge of the outline of a building (straight, jagged, wobbly)

✓   The style of the roof ridge (rectangular, a single block, like Thatched, or a row of tiles like Gothic)

✓   The appearance of the internal lines of a house (straight, jagged, wobbly)

✓   The Roof Hatching style, which can be different for the Flat Roof area and the Medium, Dark and Light colored areas of the roof.

Roof Ridge: The roof ridge is a repeating shape that runs along the internal roof boundaries. You can exclude a roof ridge altogether, or have only a top roof ridge. When created with the Default house style, roof ridges are filled rectangles. Other house styles have different roof ridges.

If you want a roof ridge, select the **Roof Ridge** check box; otherwise uncheck it and don't worry about the other roof ridge options. If you only want a top ridge, select the **Only top ridge** tick box.

The current House Style also controls the appearance of roof ridges.

Roof Ridge: Width: Type a value in the **Width** box to specify your the width of your roof ridge.

Roof ridge width
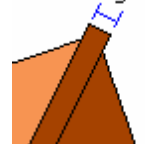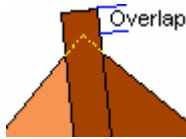
Roof Ridge: Overlap: Type a value in the **Overlap** box to specify the overlap of your roof ridge.

Top roof ridge color: The color of the top roof ridge. The colors refer those in the in the **Roof Colors** area.

Roof Options:These specify the appearance of houses when a Hip Roof or Flat Roof type is selected.

 Width sets the angle of the slope. It is measured as a percentage of the roof half-width. 100 gives an angle of 45°.

 Flat Roof Width is the offset of the flat roof from the roof edge.

Roof Colors

Buildings created with the House dialog box have a wide variety of color options, selected from the **Roof Color** and **Line Color** group boxes.

Change any colors by clicking on a colored area on the dialog box, selecting a color from the color dialog box, then choosing **OK**.

If you choose to **Use three color scheme**, the roof shading will include all three colors. The **Flat roof color** is only relevant if you are using the flat roof type.
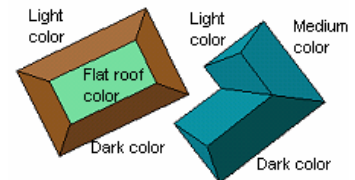
As well as controlling the solid filled areas, you can also control the outlines.

Line Colors: Outline color is the color of a building's edges and internal lines.

Line Colors: Hatch color is the color of any roof hatching found in the current house style.

Roof Hatching

Houses can optionally have fill patterns on top of the solid roof colors. The style of the roof hatching depends on the currently selected House Style. You can have different roof hatching for the Dark, Middle and Light and Flat Roof areas of the roof.

Roof hatching is best confined to small maps, as it increases the size of maps considerably.

Roof Hatching: Width. For the Default house style, this controls the gap between each hatch line. For other styles, it is a scale for the hatch pattern, usually 1.

Roof Hatching: Distance. This is the distance between the roof outline and the hatch pattern. This is usually 0. It does not affect the Default fill pattern.

Creating House Settings

It is very easy to create House Settings. You can then save these and then re-use them in a later session.

Most House Settings are based on the Default house style, which is hard-coded into CD Pro. It creates straight-edged houses with an optional simple hatching pattern.

To create a basic house setting from scratch

All the options for house setting creation are covered in **House Settings** on page 206.

1   Right-click **House** . Click **House Settings**.

     You see the House Settings dialog box.
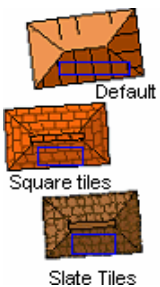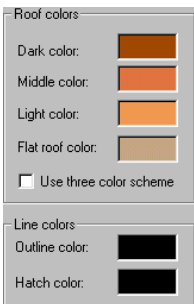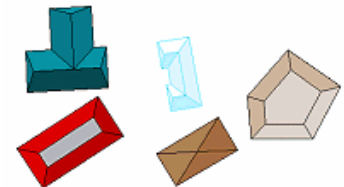
House Settings

You can test your new House Setting at anytime during this process, select **OK**, then insert a house. Make changes, remembering to save each time.

2   Pull down the **Settings** list and choose a style similar to the one you are making. Select **Save** and choose a new name.

3   Pull down the **House Styles** list and select a house style. Most often, this will be **Default**.

4   Choose your **Roof Colors**.

5   Choose your **Roof Ridge** options and colors.

6   Enable **Roof Hatching** if you want it.

7   Select the **Save** button.

Extras - Extensions and Connections
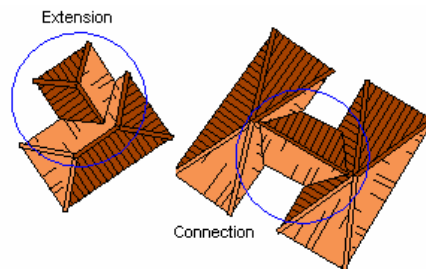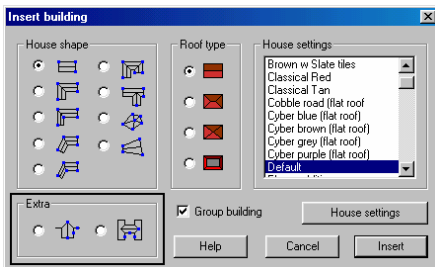
Extensions and connections are special house shapes that extend a house or connect two parallel houses together. They can be added to houses or symbols. They can be used to create house shapes not included in the standard shapes such as H-shaped and Cross-shaped houses.

To start an Extra from the dialog box

1   Click the **House**.

2   Click either **Extension** or **Connection**.

3   Choose a **Roof Type** and **House Setting** to match the house you wish to extend.

4   Click **Insert**.

To add an extra just after adding a house

1   Add the house using the house dialog box.

2   When the prompt reads: First house point (S=Swap colors, E=Extension, C=Connection):

3   Press E to add an extension in the current style and C to connect two houses.

Adding Extensions

Any house or house symbol with a non-curved edge may have an extension added to it.

1   First start the Extension, either from the House dialog box or with E just after adding a house.

2   Click a point within the house where you would like the "point" of the extension to appear.

3   With the pick box, click a point on the house edge.

4   Use the mouse and cursor to increase and decrease the length of the extension. If you want you can press SHIFT and move the mouse to slide the extension along the roof edge. When you are ready, select a point by left clicking.
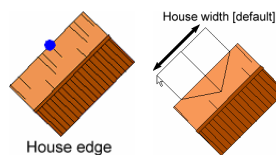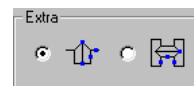
Extension end point
(Shift = slide)   e

House Colors

The actual colors used depend on the roof colors in the current House Settings. The Medium color is optional and depends on whether the 3 color scheme tick box is checked in the current House Settings.

5   Click a point to determine the extension width, or right click to accept the default width

6   You can now right click to finish the extension, press $\boxed{S}$ to swap the colors, press $\boxed{E}$ to start an extension, or press $\boxed{C}$ to start a connection.

Connecting houses

Houses may be connected with a stretch of roof called a connection. Only houses that are relatively close together with parallel roofs can be connected correctly.

1   First start the connection, either from the House dialog box or with $\boxed{C}$ just after adding a house.

2   At the Point within house prompt click a point inside the roof of the first house (marked ❶).

3   At the House edge prompt, click the edge of the first house, nearest the second house (marked ❷).

4   At the Next house edge prompt, click the edge of the second house (marked ❸).

5   At the House width[default] prompt, either click another point, right click to choose the default width (previous) or type in a width.

   The connection is drawn.

Swapping colors

CD Pro houses sloping roofs can have up to three colors. The position of these colors can be "swapped" in mid House command to make sure that the shading looks correct. The **colors** are called the Dark, Medium and Light colors.

When you first draw a house, the first edge you select is the long edge of the darkest side of the house.

3-color scheme example

1   Click **House** 🔴. Choose a **Modern Blue** House Setting (which uses a three-color scheme) with the settings shown at right.

2   Click points to make a house until you see the following prompt:

First house point (S=Swap colors, E=Extension, C=Connection):

scheme changes. Press $\boxed{S}$ again a few times.

   The house shading cycles through four permutations.

2-color scheme example

1   Start a house with the dialog settings as in the previous example, but use the **Classical Red** house setting.

3   Press $\boxed{S}$. See how the color

Initial appearance   first swap

second swap   third swap
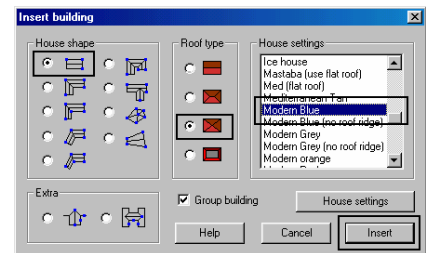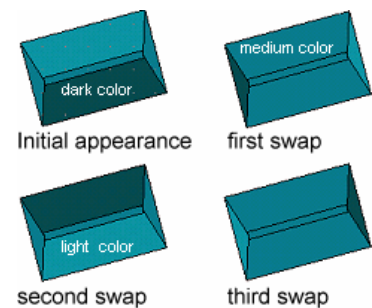
2 At the **swap** prompt, press the `S` key a few times.

Masts & Yards

Mainmast 37 mm
Foremast 35 mm
Aftmast 33 mm
Main and Fore Yard 40mm
Aft Yard 34 mm

Wolfship 1
Oars A, Oars B, Ram A, Ram B, Crow's Nest, Crow's Nest B, Aftcastle B, Aftcastle D, Aftcastle C, Aftcastle A, Hull C, Hull A, Hull B, Forecastle A, Forecastle B

Wolfship 2
Oars A, Oars B, Ram A, Ram B, Crow's Nest A, Crow's Nest B, Aftcastle B, Aftcastle D, Aftcastle C, Aftcastle A, Hull C, Hull A, Hull B, Forecastle A, Forecastle B

Wolfship 3
Oars A, Oars B, Ram A, Ram B, Crow's Nest A, Crow's Nest B, Aftcastle B, Aftcastle D, Aftcastle C, Aftcastle A, Hull C, Hull A, Hull B, Forecastle A, Forecastle B

Oars
Crow's Nest 3x
Ram
Hull
Aftcastle
Forecastle

CITY DESIGNER PRO
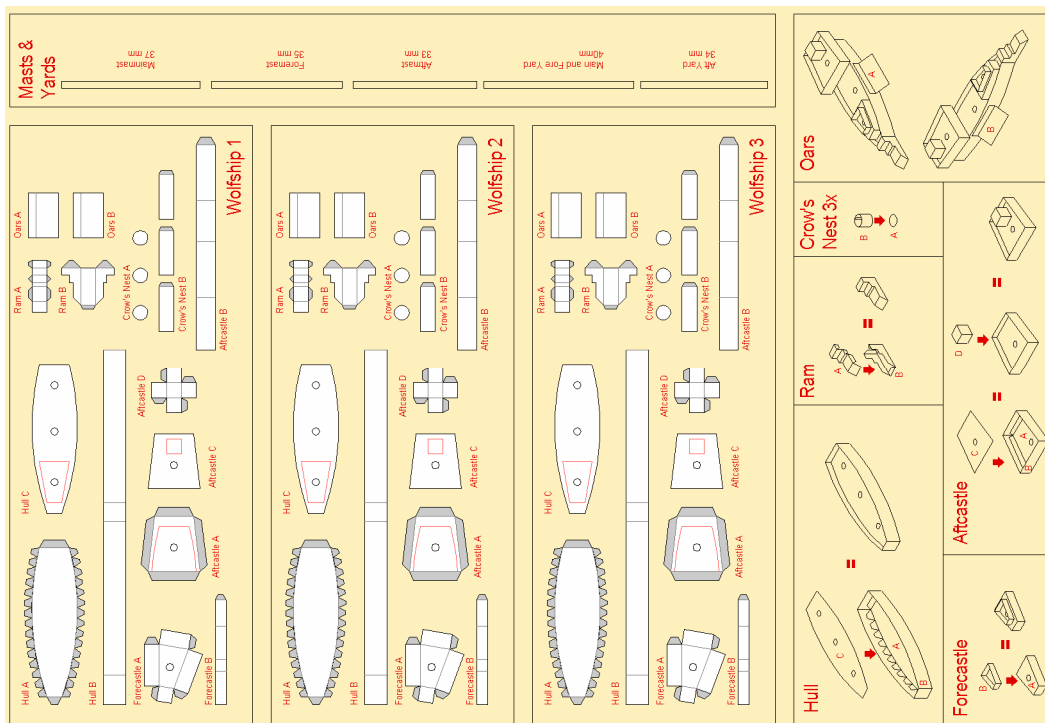
Adding Random Streets

Random Street adds a row of buildings to your city. These can be placed in a straight line or along a straight or curved roads. The exact appearance of the road is random, but you can control the parameters from the **Random Street Options** dialog box.

To add a random street

1 Click **Random Street** 🔳.

 The prompt reads First end of street and you can see a pick box.

2 Select the center of a road. If you miss, you will be able to add a street in a straight line, not along a road.

 The prompt reads Pick start position [nearest endpoint]:.

3 **Either** right click to start the street near the endpoint or the entity you selected **or else** click a point on the entity where you want the street to start.

 The prompt reads Second end of street:. You can see a dynamic cursor that shows you what the street could look like.

4 Move the mouse up and down the street, noticing that each time you get a slightly different selection of building types.

5 When you are happy with the layout, click to select an endpoint.

 The prompt reads First end of street: again.

Slide the mouse up and down to see different random streets.
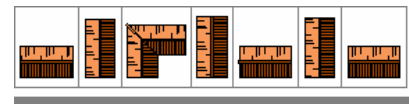
Random Street Options

Random Street Options 🔳 controls the appearance of streets created with the Random Street command. **Settings** here are saved between sessions.

House Shapes This group box determines the percentage of each type of house shape along the road. Type in percentage values starting from the top and going down the list.

Houses On This sets the side of the road that the houses appear on when you use the Random Street command. **Left side, Right side** and **Both sides** are obvious, **Selected side** allows you to choose the side when creating the street.

House width, House length Type in a maximum and then a minimum value to give a range for the size of random houses. The minimum value for length should be greater than the maximum value for width. These settings are overridden if you select the **Same Size** option.

House length   House width

Distance between houses Type values here to give a range for the distance between the houses in your street. If you want a terrace, type **0** in both the maximum and minimum.

Roof Type. Click which roof type you would like for the houses in the street.

Sidebar:

Street Options

Once you've made the street you can add, remove and edit houses as normal.

House Settings

Note that certain settings will produce impossible houses in your street.

Distance between houses
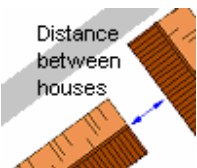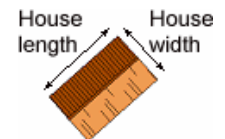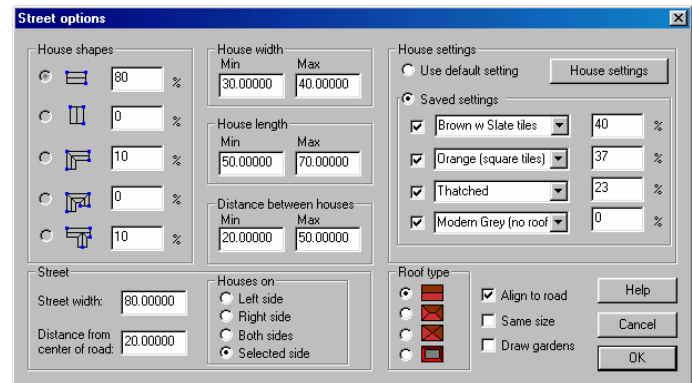
House Settings button. Takes you to the House Settings dialog box where you can change and add to the available house settings.

Use Current Settings radio button. If you set this option, the appearance of all the houses for the random street will be determined by the current house setting, otherwise, the **Saved Settings** will be used.

Saved Settings radio button. If this radio button is checked, the appearance of all the houses for the random street will be determined by the settings in the pull down lists and their percentages.

Saved Settings pull down lists. Check the check box for each house setting that you would like included in your street. Pull down the list to select the type. Type in percentages from top to bottom.

Align to road Select this check box if you would like the roadside faces of the houses to be equidistant from the road.

Same size. Check the **Same Size** button if you would like identical sized and shaped houses. The house will have random styles if the **Saved Settings** button is set. They will be the average width, length and distance apart of the current settings.

Draw Gardens Check this if you would like boundaries around each house delineating each house's property.

Street width and **Distance from center of road** Type in values here. The Street Width should be greater than the maximum House Width or House Length settings.
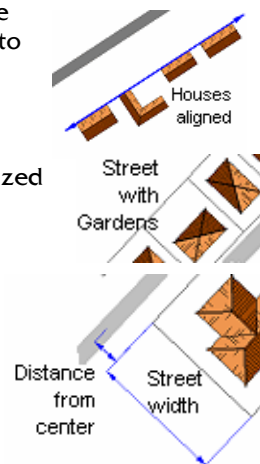
Same Size

If Same size is set, the House Shapes percentages are ignored - use the House Shapes radio button to determine what shape of house to use.

Random Street Options examples

When you want to use Random Streets, you first have to decide the **look** of the whole town. This will vary according to what era, symbol catalogs and house settings you use.

The easiest way to learn to use the Random Street options is to experiment, but here are a couple of examples to get you started.

Example 1 – A modern well-to-do street

This is a new development with blue roofs. They don't have roof ridges, the houses are spacious and individual, detached with large gardens.
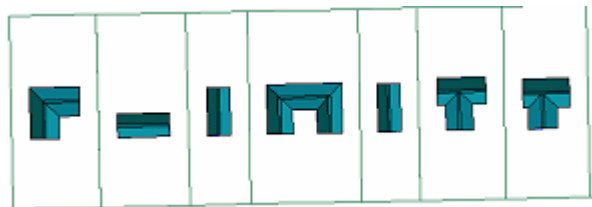
1   Click **Random Street Options**
     .

     You see the Street Options
     dialog box.

2   We are only going to have one **House Setting** along this street, so click the **Use default setting**. This means that only the current House Settings will be used.

3   Click the **House Settings** button then pull down the **House Settings** list, choose **Modern Blue** and then select **OK**.

4   The houses in the example street are individual and are not all aligned. They have gardens. Select the **Draw gardens** option, deselect **Align to road** and **Same Size**.

5   They have hip roofs so click ❌, the second roof type on the list.

6   The houses' shapes vary. Starting at the top of the **House Shapes**, type in **20**, **10**, **25**, **25** and **20**.

How it Looks

If your streets are fairly uniform, you should put less variation in house dimensions, styles and types.

7 The gap between each house is large but fairly constant. Type **50** in the **Maximum** distance and **45** in the **Minimum**.

8 Click **Houses on** to **Both sides**.

9 The **House Length** varies between **60** and **70**, the **Width** between **30** and **40**.

10 These houses have reasonable sized gardens, so set the **Street width** to **250**. The **Distance from the center of road** is **30**.

11 Click **Random Street** ▦. Click two points to make the street.

Example 2 ~ a row of tightly packed village houses

In this example we have a small town which is built primarily of brown tiled buildings. A few have been retiled in the latest fashionable orange clay, and a few are still old-fashioned thatched cottages. The buildings are small and close together

1 Click **Random Street Options** ▦.

2 In House Settings, click **Saved Settings**.

3 There are three styles of houses, so check the first three check boxes in the **Saved Settings** group box.

4 Pull down the settings in turn, choosing **Brown (random Tiles)**, **Orange (Square Tiles)** and **Thatched**.

5 Type in **70**, **20** and **10** for the percentages of each type of house.

6 Deselect **Draw gardens** and **Same Size**. Select **Align to road**.

7 There aren't many fancy designs in this street so the **House shapes** percentages from top to bottom are **80**, **0**, **10**, **0**, and **10**.

8 These are small houses. The **Minimum width** is **15** and the **Maximum 20**. The **Minimum length** is **20** and **Maximum 30**. (The minimum length should be greater than the maximum width).

9 The **Distance between houses varies** between **0** and **10** feet.

10 The **Street width** is **35** (it should be greater than the maximum length) and the **Distance from the center of the road** is **10** feet. Set **Houses On** to **Both sides**.

11 Click **Random Street** ▦. Add a very short street, maybe three or four houses on each side of the road. This can take some time to calculate, although it redraws quickly enough after the first time.

Adding Frills to Buildings

At the end each catalog, CD Pro has some symbols that are designed to make buildings more interesting and complex. These include conservatories, dormer windows, smoke, chimneys, and roof holes. These come in three varieties:
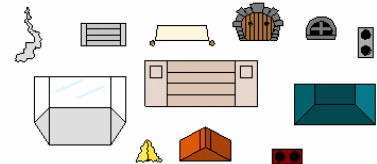
✓ The first, like round chimneys or smoke are just normal symbols. They don't align to buildings because they don't need to. Just place them as you would any CC2 Pro symbol.

Random Street

To add a little more random flavor, you may wish to move the houses slight towards or away from the road for more variation.

Random?

To get a street of houses with identical dimensions, click the **Same Size** option. If you want terraced houses, set the **Maximum** and **Minimum Distance between houses** to **0**. If you want them to be identical houses, check the **Current Settings** radio button.

- ✓ The second are extensions like conservatories, stairs or garages. They align to the **edges of buildings**. Just slide them round the building and place them when you are ready.
- ✓ The third are roof features like dormer windows align to the edge of the roof, then offset inside.

Example 1 – A conservatory

1 Right click **Modern Blue/Grey/Red** 🔲, click **Modern Blue**.

2 Click a building symbol and add it to the drawing.

3 Scroll down the symbol catalog and pick the **Mod Conservatory** symbol. Move it over the edge of the blue building.

    Notice how it aligns to the outside as your cursor moves just outside the edge.

4 Place the conservatory.
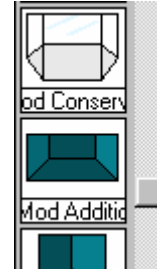
Example 2 – a dormer window

Continued from the previous instructions…

5 Click the **Mod Dormer 1** symbol ▲.

6 Move it over the edge of the blue building.

    Notice how it aligns to the inside of the building.

7 Place the dormer.

    The prompt reads Offset from place point [40]:.The frill now moves perpendicular to the roof edge on a cursor.

8 Click a point, type in a distance, or right click to accept the default distance. When you add the next dormer, use the default distance.

Building Edges

Some of CD Pro's building types such as Halfling dwellings and Thatched have non-straight outlines. If you move a frill over one of these outlines, the smart symbol aligns to the complex outline, making it flicker all over the place. However, we have added a simple outline to these building types just inside the main edge. It is called a frill track. It is usually hidden by the solid filled roof, but smart symbols will usually lock to it because it is below the jagged outline. If you have difficulty placing smart symbols, zoom out a little or hide the **STRUCTURES (SHADING)** and **STRUCTURES (COLOR)** layers before placing frills.

Wizard's Lair by Matthew Lynn

Wizard's Lair contains symbols created by Matthew using the techniques similar to those found in *Creating a symbol* on page 66 and *Shaded Varicolor Symbols* on page 73.

See **Wizard's Lair** in the **Examples>Tome** folder.

Adding Information

When you've added your houses and decorated your buildings, you will probably want to add **text labels** to your drawing. Select a suitable layer and add text in the usual way. After this, you can add a reference grid and finally an index of the street names or other text in your drawing.

Text Labels

To review instructions for adding text labels, see page 44.

Grid overlays

A grid overlay is a grid of squares, optionally labeled along the axes or in each cell. This acts as a reference, enabling you to locate buildings easily. It has the current properties (color, layer, etc). You need to add a grid overlay in order to add an index of street names.

Grid Overlay dialog box

Click the **Grid Overlay** to add the grid overlay.

Grid Spacing-This is the size of each square.

Place Labels: Along edges-Places labels along the axes of the grid overlay.

Place Labels: In each cell-Each square will include a label if you check this option.

First X label-This is the first number or letter for the horizontal axes. You can start at any letter or number. Letters count up A-Z, then AA-AZ etc.

First Y label-This is the first number or letter for the vertical axes. You can start at any letter or number. Letters count up A-Z, then AA-AZ etc.

To add a grid overlay

1   Click **Text Specs** [T]. Type a suitable text height.

2   Set the current layer, color and line style by clicking their indicators on the Status Bar.

3   Click the **Add Grid Overlay**. Click the dialog box options.

    The prompt reads First corner of square grid[0,0]:.

4   Right click to start the grid at **0,0** (the bottom left), or click a point with the mouse.

    The prompt reads Second corner of square grid:.

5   Click a point for the top left corner of the overlay.

Indexes

After you have added a grid overlay to act as a reference, you might want to add an index of street names to your drawing.

Create Index adds an alphabetical index of text to your map. This consists of text that you have selected, arranged in alphabetical order with the Grid Overlay

coordinates next to them. Clicking on the entries in the index zooms you to the appropriate place in the map.

To create an index

1   Add a **Grid Overlay** if there isn't one present.

2   Click **Text Specs** 🆃. Type a suitable **text height**.

3   Set the current layer, color and line style by clicking their indicators on the Status Bar.

4   Click **Create Index** ⊞ then select the text you wish to add to the index (don't select the grid overlay).

You can see a box, which shows you the boundaries of the index text.

5   Click to place it **on the map**.

Create index tips

✓   The index is useful both on paper and on the screen. The coordinates let you know where to look on a print; the automatic zooming lets you zoom to the text.

✓   You can have your index always visible by giving it a window of its own. On the **View Menu, click Window then New Window**. Create an index-shaped window and, in this window, zoom into the index text. On the **Tools** menu, click Options, then >> **Preferences** and make sure that **Maximized view windows cover other windows** is not checked. Finally, left click on the top edge of the main window. You can now left click on any entry and CD Pro will zoom to the text in the main window.

✓   When you update your map with new text, you will have to update the Index, too. Erase the current index and add a new one.

✓   The index is a group (see *Group* in the Help index). If you want to move the text around within it, you must ungroup it first.

Grid Overlay

If there is no grid overlay present, you get a message box which requests that you add one.

Text Height

The height will depend on the amount of text in the drawing. Start with 1% of the height of the template, and redo the command if it doesn't look right.

If you have an exceptionally large amount of text, the index may be very long. You may need to break it into more than one column. To do this, place the index, then use **Tools >> Ungroup** on the index. Move chunks of text to form multiple columns.

On the Map

Move the mouse over the index – you will see the finger cursor. Click on any entry to zoom to that entry.
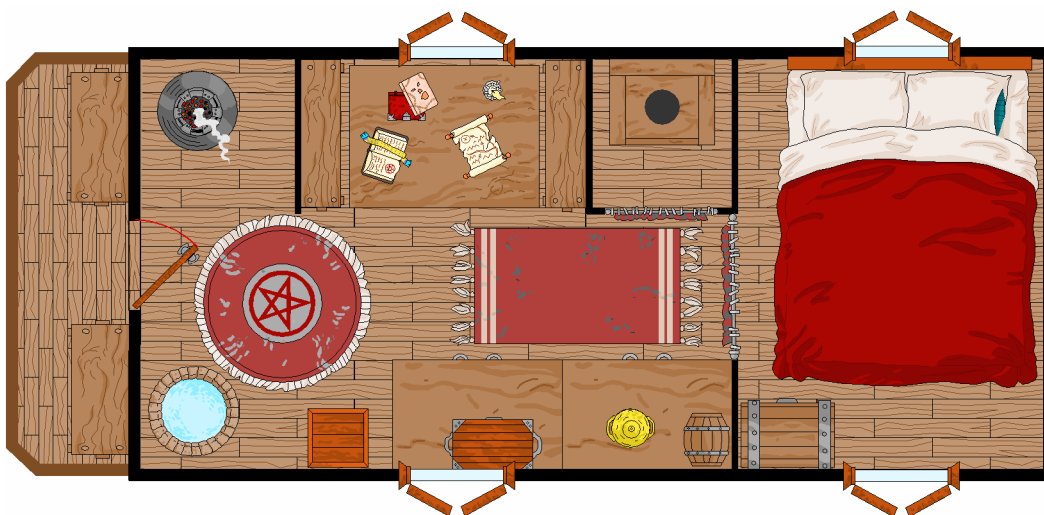
Gypsy Vardo by Allyn Bowker

The **Gypsy Vardo** uses symbols from Symbol Set 2-Fantasy Floorplans.

Demographic Information

Every building, whether a symbol or House, can have a solid color. This color is usually hidden. On the **City** menu, click **Layers** then **All BLDNGS with Color**, to see the color information. When you first insert a symbol or house, its color is the current color. However, CD Pro can automatically **change the color** according to which layer you have placed your house.

Change house layer

If you haven't placed your buildings or houses on the correct layer to start with, you should use **Change House Layer** to set a suitable layer for them.

Change House Layer changes the demographic layer of buildings. The buildings can be symbols or those created with the House command. It should be used in preference to **Change Layer**.

Symbols: Change house layer changes the symbol reference's layer, leaving the symbol definition intact.

Houses: Change house layer changes the layer of the solid colored entity that is used for demographic information. The other layers are left intact.

Color Buildings

Color Buildings lets you add a solid color that can be hidden to your buildings. The color is set according to the building's layer. The buildings can be created with the various CD Pro Symbol Catalogs that are available, or with the HOUSE command. You can also use it as a way of coloring everything in your drawing on a particular layer, not just houses

Color Buildings is a way of adding demographic information to your maps. For example, you could make all the buildings on the **BLDNG (RELIGIOUS)** layer one color, and all those on the **BLDNG (GM)** layer another. All this information can be hidden from players.

The layers that are affected and the colors that are set are saved with the drawing; CD Pro's templates have a suitable set of options saved with the drawing.

To color your buildings

1   If your buildings are not on the correct layers (the **BLDNG** layers), On the **City** menu, click **Change house layer** to correct this.

Select **Color Buildings** 🖼.

    You can see a dialog box with various layers and colors. These are the default settings.

2   Select the **Change Now** button.

3   To see the effect of your efforts, on the **City** menu click **Layers** then **All BLDNGs with Color**. This hides all the roof tops and lets you see what color the buildings are.

The Color Buildings dialog box

To get this dialog box click **Color Buildings** 🖼 or **City Menu** >> **Color Buildings**.

Add: Adds a selected layer in the drawing to the list of layers that can be colored.

Add All Adds all the layers in the drawing to the list of layers that can be colored.

Remove Removes - a selected layer in the drawing to the list of layers that can be colored
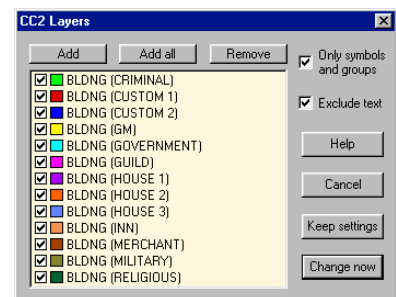
Only symbols and groups: Select this option if you only want your houses and buildings to be affected, not other entities.

Exclude Text-Check this option if do not want the text in your drawing to be colored. Note that this only has an effect if the **Only symbols and groups** option is not selected.

Keep Settings-This keeps any changes you have made to the current Color Layer settings and closed the dialog box.

Change Now This changes the color of entities in the drawing according to the options in this dialog box.

Include Layer check box-This includes the checked layer as one to be colored.

Color boxes-These show the color that entities on each layer will be changed to, if the check box is ticked. Click on this and choose a color from the color dialog box to select a color for the selected layer.

Layer name-This lists all the <u>layers</u> that can be included in the layer coloration.

Layers

If no layers appear in this dialog box, it means that you are not using a city template. If you are drawing a city, we suggest that you cut and paste the drawing into a new drawing based on a city template. Otherwise, just use Add and Add All to add the layers you would like affected.

The Grist Mill by Linda Kekumu†

The Grist Mill uses hotspots for navigation between sheets as explained in *Using Hotspots to Control Sheets and Layers* on page 118. Several symbols were created for the drawing using the techniques in *Creating a symbol* on page 66.

The Grist Mill is available in the Profantasy Download Library. The custom symbols created for this drawing are in the symbols_lmk.FSC in the **Symbols>Tome** folder.

City Designer Pro

Building a City from Scratch

One of the most challenging and at the same time satisfying activities I can think of is **creating a city** map from scratch. There are numerous decisions to make before you even start such a map if you want it to be a work that will withstand scrutiny. For instance, do you want your map to reflect an historical city in the Middle Ages, or do you want it to reflect an altered reality that can accommodate high technology, magic or fantastic creatures? Answering these basic questions will save time when you create your map.

While the techniques in the chapter can be applied to cities with any technological level, the focus will be on building fantasy cities of a medieval nature.

Asking Questions that will impact On Your Design

Questions, you say, questions? You probably just want to dive and in and get started. It's going to take you many hours to draw the city of your dreams, why waste time on questions? You already have a perfect picture of it in your head, right? All you need to do is "get it down on paper." After all, you aren't writing a *story*!

Well, you certainly *can* rely on an internal picture of your city, but you might be surprised at how many holes that picture has once you start drawing. Let's examine the idea of creating a story. City maps, perhaps more than any other kind of map you can create with **CC2 Pro** software, *is* creating a story--a visual story. You are creating an environment where people and creatures live and interact. Just like in other forms of fiction where the author needs to know a great deal more background detail about his characters and settings than she will actually put into the story, the fantasy cartographer needs to know about the background factors that influence his map. Otherwise, your map is more likely to end up either inconsistent or flat and lifeless. This process of background creation need not be an exhaustive or onerous task. You can spend anywhere from a few minutes to a few hours on it. Either way, thinking through a few simple questions can dramatically impact your end result. And while you are probably right – you *will* be able to answer most of these will little thought – sometimes just asking yourself a question will spark a brilliant idea that might otherwise never have occurred to you.

Who are the city's inhabitants?

"Who" is really two questions: "Who founded the city?" and "Who inhabits the city now?" The answers to these questions need not be the same. For instance, a fantasy city might have been built by the Ancient Ones, a mysterious race lost to time, but now could be inhabited by humans and elves. Why are these questions important? Well, the original builders of the city would have constructed it with their own techniques and uses in mind. However, current residents will likely put their own fingerprints on the city, adding different architectures and buildings to suit their own lifestyles. Knowing who built a city and who lives in it can be immensely useful in determining a city's structure and flavor. Of course, having the city built by a race other than its current residents suggests the next question.

What is the city's history?

How long ago was the city created? Are the structures ancient monoliths to a bygone age? Are they built of freshly cut timber? There can easily be more than one answer to this question as well. For instance, your city could have an old section and a new section. Each of these areas might have entirely different structures; different types of buildings, layout of roads, population densities, etc. The point is, the age of the city or its component parts, will determine possible layers as well. For instance, either new or old cities might have subterranean sewers or even roads, but they could likely be very different in character.

What is the city's purpose?

The next question you need to answer is, why is your city located here? What is its purpose? Is it built at the convenient intersection of trade routes? Was it built to defend some strategic terrain? Perhaps it was built as the capital of a vast empire. Whatever you decide, this purpose will have an impact on your city's layout.

For instance, a city built for defense might have a very dense population entirely behind walls, while a city built for commerce might be wide and open and made of tents. A capital city might have been constructed to show off the cultural and artistic sensibilities and accomplishments of the builders with broad thoroughfares and many museums, like Washington D.C. Or, it might have been built for defense like Tokyo where finding a straight street or even a street sign is nigh impossible. Considering the purpose of the city early on should give you a good handle on its possible structures.

What is the lay of the land?

Cities almost always (at least when using my approach) start with geography. The immediate terrain on which the city will sit will have one of the most direct impacts on the city's structure. This is more than just thinking about elevation and water. It is also about building materials and techniques. For instance, a city built in the mountains will be very different from one built on a river delta at the mouth of a huge river.

While there are many fantastic settings for cities even without leaving the bounds of what is possible (look at the Aztec cities on the mountain tops of South America, for instance), fantasy settings can get even more elaborate. When we introduce elements of fantasy, suddenly cities can float over vast seas of methane or move about on thousands of legs.

What is the city's climate?

Closely related to the immediate geography of a city is the climate of the region where the city is located. A city built in a dry climate is likely to have a much different type of architecture than would a city built in a rain forest. How would the city's inhabitants have adjusted the city to accommodate the climate? Would they have built low dark houses of mud or stone with thick walls to dissipate heat? Would they have constructed buildings with few windows or doors to conserve heat? Knowing the city's climate can have subtle or dramatic impacts on the city's design, but asking the question is the first step to understanding many of the routines of the people who call it home.

How do magic or technology affect the city?

Perhaps one of the most important factors that will affect the structure of your map is the level of technology in the city. Technology impacts everything from building height, to roads, to the types of buildings. In short, nearly every aspect of a city will be influenced by the society's technological level. For instance, just think about the impact of gunpowder on cities in Europe. Eventually, technology made the use of city walls obsolete.

Despite the predominance of walls around cities in the fantasy genre, the same holds true for fantasy worlds where magic replaces, or at least supplements, technology. We like to put walls around cities. Perhaps there is romance in the notion that walls and towers rise above the cities populace in a protective embrace. However, in a world where powerful magic is available, walls may well be superfluous. Or not. The effect of magic on city design is something you will have to decide. The point is, it behooves you to consider the effects of magic and technology on your structures.

What about other potential technological or magical impacts on cities? How might some other **factors impact** the design of your city?

The list is anything *but* exhaustive. However, it should be enough to spark your own ideas. If you have a good idea of the types of technology or magic that are available to your citizens, then it will be easier to design a city that makes use of those tools in a sensible, consistent way.

What are the social and political structures – laws, customs and government?

The social and political structures of the town's populace are also likely to influence the design of your city. For instance, a military government is much more likely to fortify and divide a city into defensible quarters than is a government based on consensus. A city based on and run by religious organizations would very likely have a different layout emphasizing holy sites and non-secular buildings.

Lay of the Land

Geographic questions are critical. They will have a direct impact on your city when it comes time to start the actual drawing. Having answered it, you will already have an idea of elevations, inclines, the availability of water, and other critical questions that can guide you in drawing city's setting.

Impact Factors

Platforms in city squares that allow the citizenry to teleport around the city

Unmanned carriages that carry people around town at any hour of the day or night

Devices that automatically produce food or dispose of waste

Robots or golems that are used for building construction or to keep the peace

Streetlamps

Indoor plumbing

Climate control

Likewise, laws and customs will also have their own impact. A society that condones the use of slaves will have towns that may well be different. Consider Rome and the Coliseum. Societies that value sports or other communal events will need to have structures that support that kind of activity while societies that value privacy or learning might have very different architectural needs. Think about how your society impacts the place it calls home; and if it has been around for awhile, think of how this may have changed over time.

What is the calendar?

The city's calendar and the various holidays it recognizes may or many not have an impact on your city's structure. However, consider how cities like Mecca or Jerusalem are impacted by the influx of pilgrims and visitors on a regular basis. Those are cities that are heavily impacted by temporal cycles. Think of all the services and businesses that no doubt exist to service these occasions; or perhaps your citizens celebrate a high holy day once a year or even once a decade. Maybe there is a temple that exists in a prominent or obscure location to serve this occasional function. Your city too, might reflect such influences.

What services are available?

Consider how something simple like having trash collection and dependable law enforcement can change a city; or how about health care--a city with a hospital, especially if it were central to the city's identity, could completely change the city's layout. How are messages delivered? Do citizens use runners, magic, carrier pigeons, or some other more mundane means like walking? Any of these services might require buildings or other structures that would be noticeable in your city.

What are the primary businesses and means of logistics?

The businesses that are in the city will be, in large measure, dependent upon where the city is located. For instance, you'll not likely find a large fishing or merchant marine presence in a land-locked city. The businesses found in coastal cities will differ substantially from those located deep in the mountains and this will in turn have a impact on the city's design. For instance, even in a city that has a harbor with access to a large body of water, the prominence of businesses associated with that harbor can vary widely. Perhaps the Sea Merchants are the ruling class. If so, the harbor district is likely to be much wealthier. On the other hand, perhaps sailors and merchants that range the seas are considered the lowest casts of society. In that case, your harbor area is likely to be rougher, smaller and perhaps walled off in some fashion from the rest of the city.

Cities that are located at a crossroads (land or water) are likely to be arranged differently to make the most of the advantages that each location has to offer. For instance, a city located at meeting of two main roads might have a grand bazaar or market located at their junction.

Wherever you decide to locate your city, you will need to think about how the city supplies itself with everything from food to jewels for the ruler's crown. Unless the city is entirely self sufficient (unlikely), there must be some way for goods to enter and depart the city. In many cases, this will mean they are manually transported. If so, then there are likely stables, hotels, stockyards, and other obvious facilities to service the people who do the transporting.

What are the artistic trends?

Artistic trends in a city may or may not make themselves noticeable in the city's design. For instance, a city that makes use of gargoyles on all the buildings would not be noticeable at the city level though it might well when you get down to the building level. However, a city that placed an emphasis on rooftop gardens would certainly have a unique design. You would likely see many flat-roofed buildings even where gardens did not exist. Perhaps there are large art-filled plazas where people can mingle; or perhaps the society places no value on art at all, in which case the buildings might be plain and closely spaced. However your society views art, just ask the simple question, "How will this affect the city's appearance?"

Businesses

Take a close look at where you have decided to locate your city. Ask what businesses are likely to thrive there, how goods come and go, and how these factors may impact the city's design.

Preparation: a final word

These questions are far from the whole story when it comes to developing the background for a city. As we have seen, a city is, itself, the manifestation of the story of those who call it home. If you take just a little time to answer the above simple questions, you will be well on your way to having a much better understanding of your city and the people who live in it. In the short run, it might make no difference at all. In the long run, however, it could very well bring some life to your city that it would never have otherwise known.

Tutorial: Building a City From Scratch

Now that you have an idea of what your city is all about, let's look at how you can create a map of that city. Putting together a city map can be a real challenge. The vast numbers of elements that make up a city mean that you will be juggling more layers than you would on an overland map, and quite possibly many more symbols as well. Getting all these elements to come out in a pleasing whole at the end of the process is a trick. Let's take a look at some ideas for getting past some of the major hurtles.

This tutorial will take you through one process for creating a **city** with a focus on effectively managing your symbols, layers and other map elements.

Stage 1: Deciding what to show

Before you start your drawing, there are two decisions you need to make.

First, you need to decide how much of your city you want to show. Do you want to show:

Only a section of the city

Just the area within the city's walls
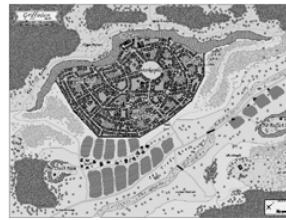
The city and some of the surrounding countryside

Stage 2: creating the setting ~ elevation and water

Now that you've decided on the factors that will influence your city, let's put those decisions to the test. Our first job will be creating a background and developing the natural setting for your city. We will look at:

Drawing a background

Exploring options for depicting elevation

Depicting Cliffs

Adding water as a driver to city design

Drawing a background

The first step to drawing a background is selecting a background color. This is particularly important if you are going to use contours with different colors to depict elevation changes. In choosing an elevation color for the background, it can simplify things later if you select a) the color of lowest elevation, or b) the color of the elevation that will have the largest area showing on the finished map.

1   Click **New** 🗋 then select a template for your city.

2   Right click **Change Color** 🎨. Click **Change map background color**.

3 For the purposes of this tutorial we will choose <u>color</u> 46 since our city will be in the foothills of some mountains, so right click then click color 46.

Depicting elevation

Three simple ways to depict elevation changes in your city are to use:

Contour lines with written elevation labels

Contour areas with different colors

A combination of contour areas and lines

Each of these has benefits and drawbacks. Contour lines with labels work well for rural areas but labels tend to get lost in the visual clutter of cities with lots of symbols. Using contour areas that signify change through the use of colors has the benefit of not needing labels but offers readers less exact information. My preference is to use this second somewhat simpler method, relying on the colors to show change.

Generally when adding contours using areas of different color, it seems to work best if you lighten the colors as the elevation increases but this isn't a hard and fast rule. In fact, we're going to break it almost immediately in this tutorial.

Let's add some contours to the map above to create a valley.

4 Click **CC2** to return to overland mapping tools.
Click **Contours** [icon]. Click **Map Contour, Default 09**. Add two areas as in the pictures below.

5 Now add another couple of <u>contours</u> for the next higher level of elevation. In this case, a slightly darker color seems to work best for the next level but play around with the colors until you find something that makes visual sense to you.

6 Click **Outline in Black** [icon] then select the new elevation areas.

Depicting cliffs

You should be starting to get the hang of how you can draw incremental changes in elevation. What about something more dramatic like cliffs and bluffs?

Drawing cliffs is simple but can be a bit on the tedious side if you want them to come out well. Here's my preferred method.

7 Create a layer called **CLIFFS**.

8 Select one of the middle brown colors (color 42 seems to work well).

9 Now draw a solid **polygon** that starts along one of the contour lines.
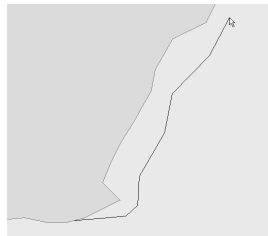
10 Outline the new cliff face in black.

With the cliff area complete, now let's give the cliff some definition by putting in some lines to indicate an elevation drop.

11 Select a dark gray color (color 246 works well).
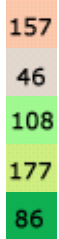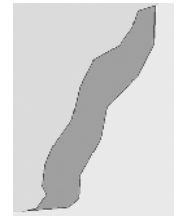
Colors

Some useful background colors are:

Arid climates: Colors 155 or 157 or some other orange, yellow or light brown

Mountains or highlands: Colors 46 or some other gray, orange, or light brown.

Plains or grasslands: Colors 108 to 111.

Forests: Color 86 or some other mid-level green.

Contours

Polygons vs. Smooth Polygons

The standard overland mapping contours use smooth polygons to create contours. These redraw more slowly than paths. You should consider using polygons if this is an issue, or if you prefer a rougher look.

12 Click the **Freehand Sketch** 🖌️.

13 Start drawing lines from the highest edge of the cliff downward.

14 Continue drawing these lines (this is the tedious part) until you have the entire cliff face filled in.
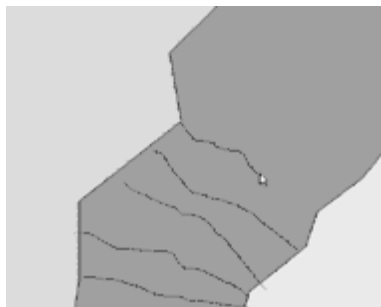
Adding water as a driver to city design

Now that our upward elevations are complete, let's look at putting in some water. In this case, you are going to put in a river that passes near the city but not through it.

15 Click **Polygon** 🔲 to add a river bed to the **CONTOUR** layer (use color 42)

16 Click to repeat the **polygon**, then add the river itself to the **WATER** layer with any light blue color. Remember to keep the river entirely with the boundaries of the riverbed except where the river meets the edge of your map.

17 Add highlights to the river in a darker blue color.

Stage 3: Adding vegetation

What you have at this point is a river valley in the foothills or highlands. You may or may not have cliffs and bluffs. Your setting is just about ready for your city. However, before we start adding the elements of civilization, let's add any major areas of vegetation that might be around the city. In this case, our map will show enough of the surrounding area that this could be some significant coverage.

We're going to add some **forested areas** around the city both to provide its citizens with some natural resources as well as to make the geography a little less stark. We'll also add some areas of thick brush, again to break up the landscape a little and to make the map seem more "real."

18 Change to the **VEGETATION** layer.

19 Select a mid-tone green (I recommend color 90).

Create several filled polygons. Create bulges and concavities in the forest edge to give the impression of a naturally emerging forest border.

20 Outline your **wooded areas** in black.

21 Click the **Freehand Sketch** 🖌️ and draw numerous lines along those edges of the wooded area that *not* adjacent to a map border.

22 In order to add some grass and brush, you can use some of the symbols that from the overland map catalogs. The **Grassland** symbol is particularly useful for adding a bit more depth to your map. Be careful not to overdo it. Just a few of these symbols go a long way

Stage 4: Creating the skeleton – the road network

You now have a place – a "where" for your city – that will govern to a large extent how your city will lay out. Roads, second only to the geography itself, will guide your placement of structures. You may have a small town that only has a few dirt tracks, or perhaps you'll have a
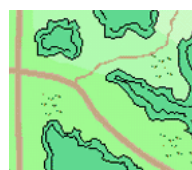
Forest Areas

For basic forests (similar to the ones found on the Wizards of the Coast *Forgotten Realms®* *Interactive Atlas* CD) we can do this pretty quickly.

For more information on Forgottem Realms styled forests, see page 34 and page 104.

Wooded Areas

Expanding Forest Beyond the Map's Borders

If you take some of your forest polygons to the edge of the map you will give your wooded areas the illusion that they continue on beyond the map's borders. Create enough of these polygons to give the impression of wooded areas around your city.

The benefit of creating forests and wooded areas with this method is that they put very little strain on your system's resources and redraw extremely quickly

major city with roads ranging from expensive pavement or cobblestones to gravel. Whatever the case, you will need to think about the **traffic patterns** in the city.

Let's look at:

- ✓ Outlining the main area of the town
- ✓ Placing main thoroughfares
- ✓ Laying secondary roads
- ✓ Adding paths and trails
- ✓ Creating open spaces and markets

Outlining the main area of the town

The next task is to outline the shape of the town. We will do this before we add the roads because we want to have a sense of where the city proper will be.

23 Create a layer called **CITY OUTLINE** and make that the active layer.

24 Select a mid to light brown (color 43 often works well).

25 Draw a filled polygon in the shape of the final city along the line the city wall will take. Make sure to overlap where the outline meets the cliffs.
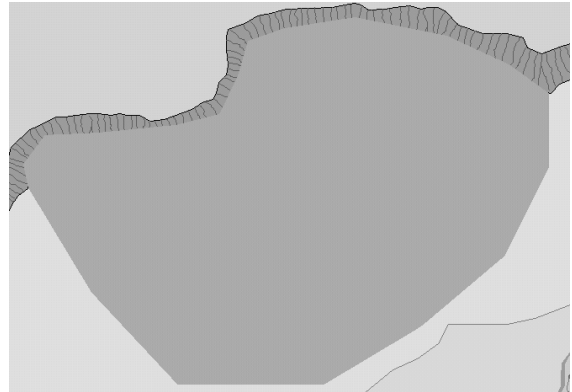
26 Click **Send Behind** to send this city outline behind the cliffs.

Placing main thoroughfares

Now that you have the city outline in place, it's time to make travel to and from the city possible. We're laying the road network now, while the map is uncluttered because it will be much easier to work with.

Before we begin to draw the roads, let's go back to a couple of the questions you answered earlier; "What is the city's purpose?" and "Who built the city?" If your city was built by a race or culture that valued order, you might lay your streets out in orderly squares oriented North and South, East and West. However, if a military ruler who feared invasion built your city, then the streets might form a winding maze, nearly incomprehensible to anyone but permanent inhabitants. Think about who built the city and why and let this guide your street layout.

Let's put the primary roads in first.

27 Set your line width to 25. Since this is a main road, we want it to be 25 feet wide but you can vary this to suit your own tastes.

28 Right click **Road** then click **City Road, Straight Current Width** to draw a road roughly paralleling the river from the lower left map border to the upper right map border.

29 Draw another path perpendicular to this first road leading to what will be the main city gate. Stop this path at the edge of the city outline.

30 When you've finished the road, click to repeat the command, then click **Advanced**>>.

We are going to create a road drawing tool which adds roads in the current color to your design

31 Pull down the **Custom Tool Name** list then click **City Road, Straight Current Width**

We are going to base the new design on an existing one.

Traffic Patterns

What are the most heavily traveled routes? Those are the routes that will require easy travel. Remember, most societies are going to build travel infrastructure to enhance ease and speed of travel. Keep this in mind as you are deciding where and how extensive is each type of road.
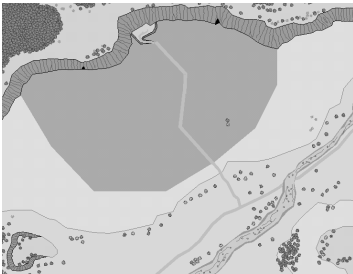
32   Click **New**. Type **City Road, Straight Current Width CC.**

33   Click **Properties**, click **Use current color**. Click **Save**.

34   Set the color to color 252. We're shifting from a dirt road outside the city to a paved road inside the city.

35   Click **OK** then continue the path with this new color through the city to what will eventually be the main city keep against the cliff wall.

Laying secondary roads

Now let's create the secondary roads, the ones that will service the outlining farms and that will make up the main network of roads within the city. An important point to remember with all roads, but particularly ones of a utilitarian nature, is that people are lazy and building roads are expensive. They're not likely to build a road around something if they can go straight to it.

Let's put in those roads now.

36   Set the line width to 12 or 15.

37   Right click **Road** 🛣 then click **City Road, Straight Current Width CC.** Draw a network of roads outside the city. These are roads that would be big enough to support cart traffic.

38   Change your color to a very light brown (try color 203). We need these roads to show up against the brown of the city outline.

39   Now create a similar network of secondary roads inside the city outline.

Now your map should look something roughly like the image shown here.

Adding paths and trails

Finally, we want to add some foot trails around the city that show less frequent routes of travel.

40   Set the line width to 7.

41   Set your color back to whatever color you used for the roads outside the city.

42   Set the line style to a dash of some sort (I find the Fence or Contour line styles work well for **paths**).

Creating open spaces and markets

The last skeletal elements we need to add are open common spaces within the city. These are usually markets but might also be athletic or military fields or areas with any number of other uses.

43   Right click **Road** 🛣 then click **City Road, Filled Area**. Add a market place as shown in the diagram.

Stage 5: Creating the primary structures – walls, landmarks and special purpose buildings

With the framework of roads now in place, you can think about placing those main structural elements that will define much of the city's character. These include any city towers and walls, landmarks (such as freestanding towers, statues, arches, etc.), and prominent buildings.

Creating a wall around your city

With the CD Pro CurtainWall macro described on page 232, creating a wall around your city is simplicity itself.

44 Change to the **WALL** layer.

45 Use the **CurtainWall** macro command to construct the wall on top of the outline of the city way from the cliff so that the wall obscures the outline. I recommend using the macro that will put a tower at each angle change.

46 Once the wall is complete, freeze all the other layers and group all of the wall elements together. You will be glad you did this later on if you have to move the wall above or below certain elements.

Adding landmarks

Next add **landmarks** such as statues, ruins, arches, etc. Perhaps your market is lined with statues of the city's founders, or huge stone sphinxes flank your city-gate. I recommend putting these, like the other elements of our city, on a separate layer.

Adding prominent buildings

Now we're getting to the meat of it, aren't we? We've finally made it to the point of adding actual **buildings**. These buildings might be of any type that is either important to you, the cartographer, or to the inhabitants of the city.

Another choice to be made is whether each type of building needs to be on its own layer or, if you have only a few, they all can be placed together on a single layer. In our case we have only a few buildings.

Since we'll be using **HOUSE** tool to create custom-shaped buildings, there are a couple of ways to add prominent buildings so that they stand out.

Perhaps the simplest way is to use city symbols. The greater level of detail and different colors of these symbols will make them stand out from those we create with the **HOUSE** tool.

A second alternative is to use the **House** for both normal and prominent buildings but to select a different roof color for each.
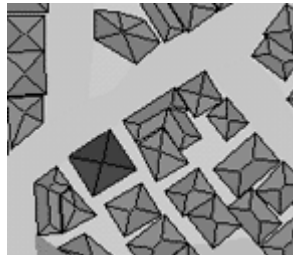
For our purposes, symbols will do. Place your prominent structures in locations that make sense for them. For instance, if you are placing a merchant house, it's likely to be near a main road so that its transportation needs are more easily accommodated. Tanneries and other less desirable businesses are likely to be in poorer sections of the city and/or near important resources like water.

Stage 6: Filling in the spaces ~ houses, houses and more houses

Now you are ready to start filling in the buildings where your population lives their daily lives. These will be the houses. While modern cities or rich neighborhoods might have space around individual houses, in medieval towns and cities (at least those with walls), **space** was at a premium.

Let's take a look at how you can use the placement of houses to create character within your cities.

Placing buildings in crowded cities

So, we already know that space inside a city wall is at a premium. How do we create something that looks authentic, or that, at least satisfies the fantasy genre?

I prefer **House** to create buildings of different shapes to fill the space pretty closely. Pack the houses in tightly; leaving, of course, a wall that allows access to the building from outside, and let the spaces between the buildings become the narrow alleyways of the city.

Landmarks

Again, it behooves you to re-examine the answers you came up with the questions posed earlier in this chapter. For instance, if humans built your city in the artic circle, then it is unlikely to have many, if any, outdoor meeting places. It could be that your builders had no use for artwork at all. Perhaps the city is a monument to the race and is full to the brim with statues, open courts with artwork and ancient buildings. Anything goes, just try to remain consistent with your original intent.

Buildings

They could include such structures as:

Military buildings

Bridges

Merchant Buildings

Religious Buildings

Docks

Freestanding Towers

Castles

Government Buildings

Again, this list is not exclusive; you may well have other types of buildings that you feel need to be called out from the map as well.

Space

Walls were, as a rule, very expensive to build and whoever was financing the construction would want protect the most important areas with the shortest possible length. Therefore, it was common to find as many buildings as possible crammed into the safe space within a city's walls.

47 Change to the layer where you want these buildings to reside.

48 Click **House** [X].

49 Choose a housing style of your liking. Using "Classical Tan" will give you good buildings without putting much of a drain on **system resources**.

50 Go to it. Start laying down those **buildings**. However, as you do, there are a couple of things that are good to keep in mind:

As you zoom in to work on individual blocks of houses, do a check every now and then with your **distance** function to make sure the houses are staying in the habitable range. It's easy to loose perspective and start drawing buildings that are either too big, or too small. Buildings with 15 to 40 foot frontages on a street seem to work well.

There can be logical blocks of houses even between streets that are separated by alleys formed by the blocks themselves.

Mix in shapes and sizes that are appropriate to your grand plan and don't allow yourself to start building bigger and bigger houses just so you can finish more quickly. If you need a break, take one. This can be a tedious process but the end result is rewarding.

Placing buildings with some space

Some cities don't cram as many houses into the available space either by luck or from planning, and this is the case with the city we're building. We're going to place houses along the streets, but we're going to leave plenty of room in the center of the blocks for agricultural plots. The end result should look something like the image shown here.

Stage 7: Adding agricultural elements – farms and fields

Rare is the city, especially in a fantasy or middle ages model, which can survive without being surrounded by farms and agriculture. The amount of cultivated land required to sustain urban areas is actually quite staggering. In homage to this principle, it adds a touch of realism if you show cultivated areas outside (and sometimes inside) your city. You can use filled polygons, or symbols from the Overland catalogs to add these areas.

Stage 8: Adding finishing touches – labels, legends and keys

Finishing touches these may be, but some of them are critical to the usability of your map, especially if others are going to use it without your help interpreting it.

Now let's add the final elements:
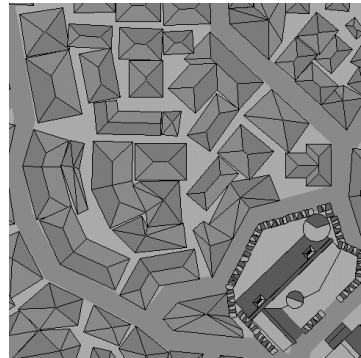
Labels

Creating text outlines is covered elsewhere in the manual and so will not be covered here. Refer back to page 44 for review.

Legends

Most maps can do without a legend, however if you choose to construction one, you are better off doing it off to the side of your map and on a layer of its own. Make good use of the **Grid** and **Snap** functions to make sure your elements line up.

If you draw all of your cities in a similar style, consider adding the legend to your templates, or saving it as a symbol to save redrawing.

labels

a legend

a key, and

a scale and compass rose

Adding labels

Labels are optional but important elements because they bring life to your map by showing that someone lives there. **Labels**, or place names, reflect the people that live in a city as well as provide information and are well worth the effort to add.

While you can sometimes get away with adding labels to streets without adding an outline to the text, outlines are essential for text that is going to overlay buildings.

Adding a legend

A legend is important for those maps that use obscure symbols or colors, need exact interpretation of details such as elevation, or that must be understood without the aid of outside interpretation.

If you are intending to do a **legend** and know this from the start, make allowances in the area of the map when you create it to allow the legend to be place on the map without blocking anything critical.

Adding a key

A key is a means of identifying specific elements on a map, usually by numbered labels. If you choose to include a key, make sure that it is the absolute last element you add to the map. The reason for this is twofold. First, if you create it before your map is finished, you will forever be going back to make changes to the key. Second, keeping the numbers on top of the map is a nuisance if you create them too early in the mapmaking process. You'll save yourself some work if you save this until last.

Shown here are some examples of numbering techniques. You can do numbers with or without backgrounds but I have found that if you have more than ten you may be better off using backgrounds for readability reasons.

The key itself is, like the legend, most easily constructed off to the side; on its own layer and with use of the **Grid** and **Snap** functions. An example of one type of key is shown here.
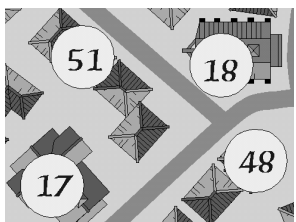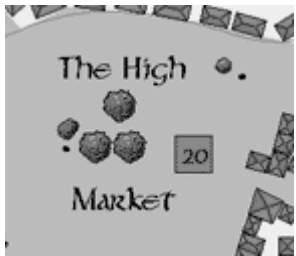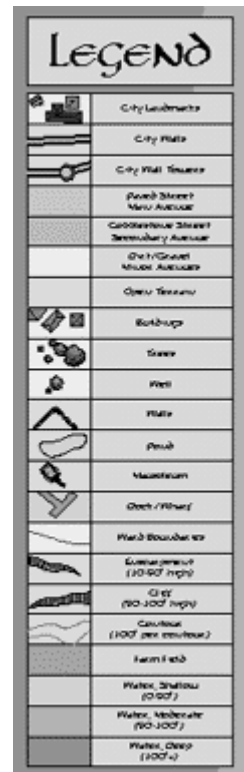
Scales and compass roses

Let me make final plea for our last two elements. In my mind, no map is complete without a scale and compass rose. Even if you have no room, no patience, or no inclination to add any of the other elements in this final stage of mapping, please find a space for these to elements on your maps. They are small quick additions that make a HUGE difference in how readable your maps are in the final analysis.

Key

The Gates
1. The North Gate
2. The East Gate
3. Herald's Gate
4. Fish Gate
5. South Gate
6. King's Gate
7. Traitor Gate
8. Queen's Gate
9. Three Sisters Gate

The City
10. North Barracks
11. Blue Gauntlet Headquarters
12. North Watch Tower

39. Radell's Hovel
40. The Red Roof Tavern (Brothel)
41. Kirtigan's Tavern
42. Temple of Ismago
43. Old Castle - 8th Legion Headquarters
44. Castle Ward Barracks
45. Castle Ward Stables
46. Light House Tavern
47. Ladamirr and Son's Shipping
48. Harbor Master's House
49. Golden Son Inn
50. Rambling House

Before we go, let's take a look at our **final** map, below.

Griffinton by Tony Marker

Detailed in this section. It can be downloaded from breminor.com

Further reading on cities

If you need some insight to city design or understanding how cities work, the following books may be helpful:

Medieval Towns (Schofield and Vince: ISBN 0-8264-6130-1

Medieval Town Plans (Hindle: ISBN 0-7478-0065-0)

Life in a Medieval City (Gies and Gies: ISBN 0-06-090880-7)

Life in a Medieval Village (Gies and Gies: ISBN 0-06-092046-7)

The Ancient City (Connolly: ISBN 0-19-521582-6

Medieval Demographics Made Easy: (S John Ross) http://www.io.com/~sjohn/demog.htm

A CD Pro Macro

With every type and style of map, there is ample opportunity to automate certain drawing processes with **CC2 Pro**. City maps are no exception. The elements of an average city map can provide much inspiration for macros--random tree placement, drawing escarpments or palisades, perhaps even generating a random block of houses. Perennial favorites are the 'CityWall' series of macros. These macros provide automation for producing a drawing of a fortified wall. Presented here is an overview of the latest incarnation of this idea--the more appropriately named **CurtainWall macro**.

This chapter uses the 'CurtainWall' macro as a springboard for discussing some advanced macro techniques. If you have not already done so, I would recommend reading the chapter on macros in the **CC2 Pro** section starting on page 122. That chapter covers the basics of macro creation, and provides the groundwork for the ideas discussed here.

Anatomy of the CurtainWall

The CurtainWall macro draws a crenellated wall of a style very similar to some of the symbols included with CD Pro. The final wall compliments those symbols, and should look perfectly matched when combined on a city map. Like most **CC2 Pro** drawings, the curtain wall is actually composed of a series of simple entities. The basic wall and parapet are connected 4-sided polygons, and the crenellation is composed of rows of thick line elements, with 3-node paths for the corners (see Figure 1)
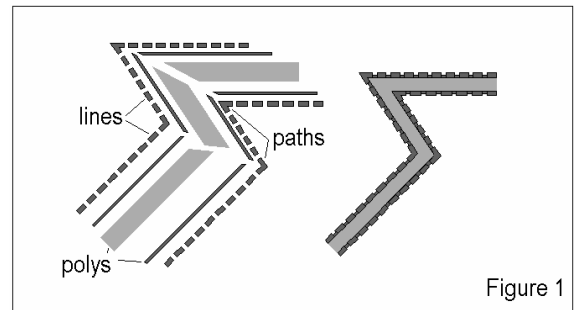
Figure 1

This examination of the base elements of the final macro output emphasizes one of the most important part of macro writing--start with the art. Before the first line of code, you must know what the final drawing will look like. Moreover, you must be able to visualize, not just the simplest method of assembling that drawing, but also the most appropriate method considering the user's input. In this case, the easiest way to create this design would be to draw three paths--one wide, light coloured path to form the entire base of the wall, and two darker, narrow paths on either side of the first to form the basis of the parapet. Short lengths of line and path entities would complete the crenellation.

However, this method would be problematic in the context of a macro. Since the layout of the wall is dictated by the points chosen by the user, you would not have all the points necessary to draw the paths until the user is finished selecting. In addition, since we would never know exactly how many points the user will select, it becomes very difficult to store all these points until the end. Therefore, we must draw each segment as the user defines it; and to do this, we can't use a path.

This is why polygons are used. We can draw a polygon for each segment that the user defines, beveling the ends of each one so the next one will join seamlessly. Of course, this presents a whole new problem: since the user is selecting the center line of the wall, how to we determine the outer corners? To do this, we must think back to our Geometry classes; or if you have not yet had the pleasure, you're about to get a crash course!

Trig Identities and CC2 Pro

The easiest way to understand the problem we're facing here is to play with the Double Line drawing tool in CC2 Pro (**DBLN**). Notice, as you select each point, two lines are being drawn on either side of the path you are tracing. Also notice that, the greater the angle between the segments that you draw, the greater the distance is between the two corners of the two paths being drawn (see Figure 2).
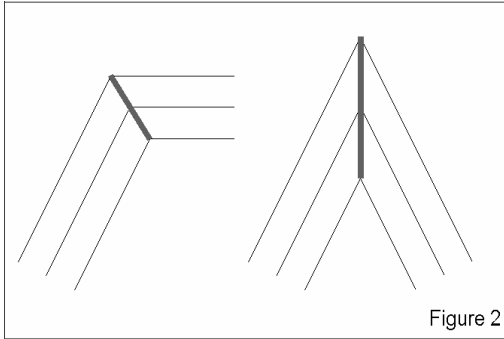
Figure 2

In the case of our macro, we only know a few pieces of information. We know the points that the user selects. Therefore, we know the angles between them. CC2 Pro will let us determine this with the 'get bearing' command (**GBRNG**). Also, we know the desired width of the final wall. Using this data, we must calculate the position of the two outer points that define the beveled end of each segment.

As it happens, this is just enough information. We can use the central point selected by the user as a reference point to determine the outer points. All we need is the bearing (the angle) and the distance to that point from our reference. Then we can use the 'bearing angle' modifier to get the point:

```
GP (new point) REF (reference point) <(angle),(distance)
```

So, our goal is to obtain these two unknown values: angle and distance to the corner point. The angle value is easy. We know the bearings of the segments on either side of the reference point, and we can see by observation that the bearing from the reference to the corner point is halfway between the two segment angles. So, by averaging the two segment angles, we can calculate the angle to the corner point.

```
(Bearing1+Bearing2)/2 + 90  = (angle to left side corner)
(Bearing1+Bearing2)/2 - 90  = (angle to right side corner)
```

Now all we need is the distance from the reference point to the corner points. As we have seen this distance is related to the angles of the two segments. To understand exactly how they are related, we look to a **trigonometric** identity.

The equation (or 'identity') that we will use is well known. (see Figure 3)

$1 / \cos(A) = c / b$

or

$1 / \cos(A) \times b = c$

or, in macro terms,

```
GCOS varCOSA (angle from
reference to corner)
GV varDISTC 1/varCOSA*varDISTB
```

That's generally how it works. If you look again at the diagram of the wall's parts (Figure 1), you will note that we actually require three corner points on each side.

corner points
reference point
c
b
angle C
Figure 3

This will define the end points for the two parapet polygons, and the one wall polygon. We can use the same method as above to determine all of these points, simply by using the same angles, with a different figure for the width (`varDISTB`).

With these points known, drawing the wall entities becomes an easier matter. The three polygons of each segment are drawn with single commands each, as are the two paths that create the corner crenellation. The line entities that form the straight lengths of crenellation are drawn with a loop very similar to the one used by the Staircase macro detailed in the CC2 Pro section on page 123.

Macro Etiquette

Sometimes, just creating the finished product is not enough. Tools like macros are not only judged by their functionality, but also by their user friendliness. The CurtainWall macro contains several features that make it more polite to the user.
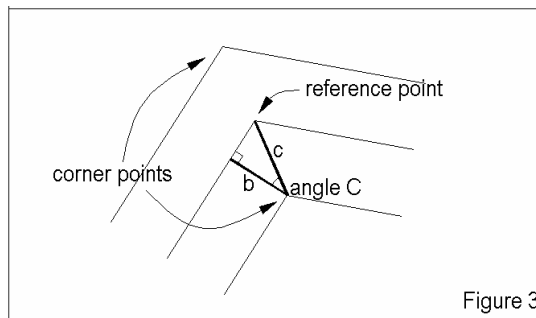
Trigonometry

Trigonometry is the mathematics of triangles, and the relationship between the angles and sides of said triangles. By using trig functions like 'sine', 'cosine' and 'tangent', we can create equations to relate these variables. While a full explanation of these functions is a little out of the scope of this manual, let it simply be said that trig functions can be applied to a number in a similar manner as you would a 'square root' or the like. For more information on trigonometry, refer to a textbook, or a web site such as http://www.math2.org

Restored Drawing Settings

During the execution of a macro, many of CC2 Pro's drawing setting can become altered. In order to draw the required entities, a macro will often need to change the current drawing colour, line width, fill style etc. Then, when the macro is complete, these setting are left in a state different than when the macro started. From a user perspective, this can become quite annoying. However, with a little bit of effort, we can design our macro to restore all of CC2 Pro's drawing settings to the way they were before the macro started.

There are two techniques we can use to save, and then restore drawing settings. First of all, we can use the **SELSAV**E and **SELREST** commands that respectively save, and restore CC2 Pro's 'select by' setting. Since our macro will change this setting, it's only polite to put it back the way we found it.

To save all the other setting, we must use a more complicated procedure. Every entity in a drawing contains a full set of the drawing settings that were active when it was drawn. For example, a simple **LINE** entity contains many properties, including Color, 2nd Color, Line Width, Line Style, Fill Style, and Layer .

If we draw an entity at the start of the macro, before we change any settings, we know that this entity's properties will be the same as all the active drawing setting. In essence, we have saved these settings.

In our macro, we do not have to draw anything large to save the drawing settings. A single point entity will do. So that it doesn't get in the way, our macro will draw a point that will (hopefully!) be far away from the used drawing area. Coordinates (**10001,10001**) should be far enough. Then, when the macro is finished, we can use the CC2 Pro command Keep on that point. KEEP is a command that changes all the current drawing setting to be like a selected entity; exactly what we are looking for. Once we have restored the drawing settings, the last step is to delete the point we placed. Here are the relevant macro lines:

```
SELSAVE
POINT 10001,10001;
...(rest of the macro)...
SELBY1
KEEP 10001,10001
ERASE 10001,10001
SELREST
```

Grouping Entities

When the CurtainWall macro has finished running, it will have created a large number of entities, which together form the fortified wall. Consider what would happen if the user made a mistake and placed the wall in the wrong place, or used the wrong settings? The user would now have to delete all of these individual entities to erase the wall. If the wall is overlapping other existing entities, the user must be careful not to delete those in the process! Wouldn't it be nice if the macro produced a single, 'wall' entity?

Well, we can do the next best thing and group all of the parts of the wall together. This way, the wall can be selected as a single entity. The trick is, how can the macro select all of the parts of the wall, in order to **GROUP** them? One way is to use the 'select by layer' method. If we draw all the wall entities on their own layer, then we can select them all for GROUPing using the **SELBYL** setting. When we are done, we can move the finished wall back to the original layer. We know which layer that is, because we saved it in a point, remember? (see above) So, here are the steps we need to take:

✓   Save setting using **SELSAVE** and a **POINT**

✓   Run the rest of the macro. All the entities drawn will be on our temporary layer.

✓   **GROUP** all the entities on this temporary layer.

✓   Move the Grouped entity to the user's original layer. We do this with the LIKE modifier, which we apply to an entity which is on the original layer (i.e. our setting saving POINT)

✓   Restore all setting.

Layer

Change the current layer to one that you think will not be used by any user. (i.e. 'Macro Construction'). We want to be sure that this layer is empty, so we choose a layer name that is unlikely to be used by anyone else. Since this layer will probably not exist on the user's map, we use the **GOLAYER** command, which creates a new layer if it doesn't find one by that name.

In terms of the macro, here are the relevant lines:

```
SELSAVE
POINT 10001,10001;
GOLAYER MacroConstruction
...(rest of the macro)...
SELBYL
CHANGEL MacroConstruction
LIKE
10001,10001
SELBYP
GROUP
SELBY1
KEEP 10001,10001
ERASE 10001,10001
SELREST
```

To group the entities, we first change the 'select by' method to 'select by layer'. We issue the 'change layer' command (CHANGEL); since we are selected by layer, CHANGEL asks for a layer name, which we provide (MacroConstruction). Now CHANGEL wants to know what layer to change the selected entities to: we tell it to change to a layer LIKE the entity at coordinates (10001,10001). Next we change the 'select by' method to 'prior', which selects the last entity you worked on. In this way, the GROUP command automatically works on all of our wall entities. Then, we restore the settings, and we're done!

Saving the Macro Parameters

Since the 'CurtainWall' macro is fairly complex, it stands to reason that there will be a fair number of user definable parameters that can be selected. This is a good thing. It allows users to tweak the look of the wall to suit their map. The parameters for the 'CurtainWall' macro are Dark stone color, Light stone color, Wall width, Right side crenellation, and Left side crenellation

Macro parameters are a great feature, but there is a down side. It can become a little tiresome if you have to enter these parameters each and every time you run the macro. However, there is a way that we can save these parameters. This way, the user only has to answer one question: 'Use the previous settings?' If yes, the previous settings apply. If no, then the user is prompted for new parameters. The key to this feature is the **SAVEVARS** command.

In our macro, before we prompt the user for parameter values, we run a specific script (i.e. 'CurtainWall-vars.scr'), in case it was saved during a previous macro execution. If the script is present, it will load all the variables we need, including a special one that we put there just for testing purposes. If this test variable is defined, then we give the user the option to skip the parameters section and use the saved values. If the test variable is not there, then the user has probably never used this macro before, and we automatically prompt for parameters. After we prompt the user for parameter values, we issue the **SAVEVARS** command, and save all variable values to the 'CurtainWall-vars.scr' script.

Here's the order of operations:

- Load the 'CurtainWall-vars.scr' script.
- If the 'test' variable is set (i.e. the script was there), then give the user the option to accept the saved values. If they choose to skip, then we're done. If not, or if the 'test variable is not defined (i.e. no script present), then continue.
- Set up default values for all the parameters. This suggests to the user possible values that will result in a good looking wall, and it ensures that all of our variables actually do have values, regardless if the user sets them or not.
- Prompt the user for the parameter values, indicating what the defaults are.
- Set the 'test' variable.
- Save all variables to the script file 'CurtainWall-vars.scr'

SAVEVARS

This command creates a script file that contains the values for all variables that are currently in memory. If you run the script, it resets all of the variables to the values that it contains. In essence, SAVEVARS creates a snapshot of all of the currently defined variables, and running the resulting script restores CC2 Pro to the variables and values contained in that snapshot.

In terms of the script, here are the relevant lines:

```
SCRIPTM #CurtainWall-vars.scr
IFDEF varCurtainWallVarsOK DoneVarCheck
:DefineVars
GV varWW 10
GV varRCren 1
GV varLCren 1
GV varColDS 14
GV varColLS 251
GCOL varColDS ^DDark stone colour? (14)
GCOL varColLS ^DLight stone colour? (251)
GV varWW ^DWall width (10)
GV varRCren ^DRight side crenellation? (1=yes, 0=no)
GV varLCren ^DLeft side crenellation? (1=yes, 0=no)
GW varCurtainWallVarsOK OK
SAVEVARS CurtainWall-vars
GO MacroStart
:DoneVarCheck
GV varUseDefault 1
GV varUseDefault ^DUse saved settings? (1=yes - default - click) (0=no)
IFZ varUseDefault DefineVars
:MacroStart
```

The macro runs the 'CurtainWall-vars' script which, if present, loads all the necessary variables into memory. If the 'test' variable (varCurtainWallVarsOK) is defined (use the **IFDEF** function to test this), jump to the 'DoneVarCheck'. If not, then continue defining the variables. We assign default values to the five variables, then prompt the user to re-define them if desired. Then we save the variables using the **SAVEVARS** command. Now we're done, so we jump to the start of the macro ('MacroStart' label).

If the variables were already set, then we end up at the 'DoneVarCheck' section. Here we prompt the user, asking if they would like to use the saved settings. If yes, then we are done, and the macro continues. If no, then we jump to the 'DefineVars' section, as described above.

The Complete 'CurtainWall' Macro

This chapter has discussed some of the more complex aspects of the 'CurtainWall' <u>macro</u>. Of course, there is much more to it; but with this basic understanding of its form, and its more complicated features, you should be able to piece the rest of it together.

Macros

Take a look at the macro repository (http://www.greycitadel.com/greycitadel/cc2macros.nsf) for more ideas and examples.

Light Fixture symbol by Allyn Bowker

This a detail view of a Light Fixture symbol created for use in Dungeon Designer Pro. It is part of a symbol catalog that is available for download from the Download Library. Search the library for "symbol challenge 2003" to pull up this and other catalogs contributed by CC2 Users' Group members.
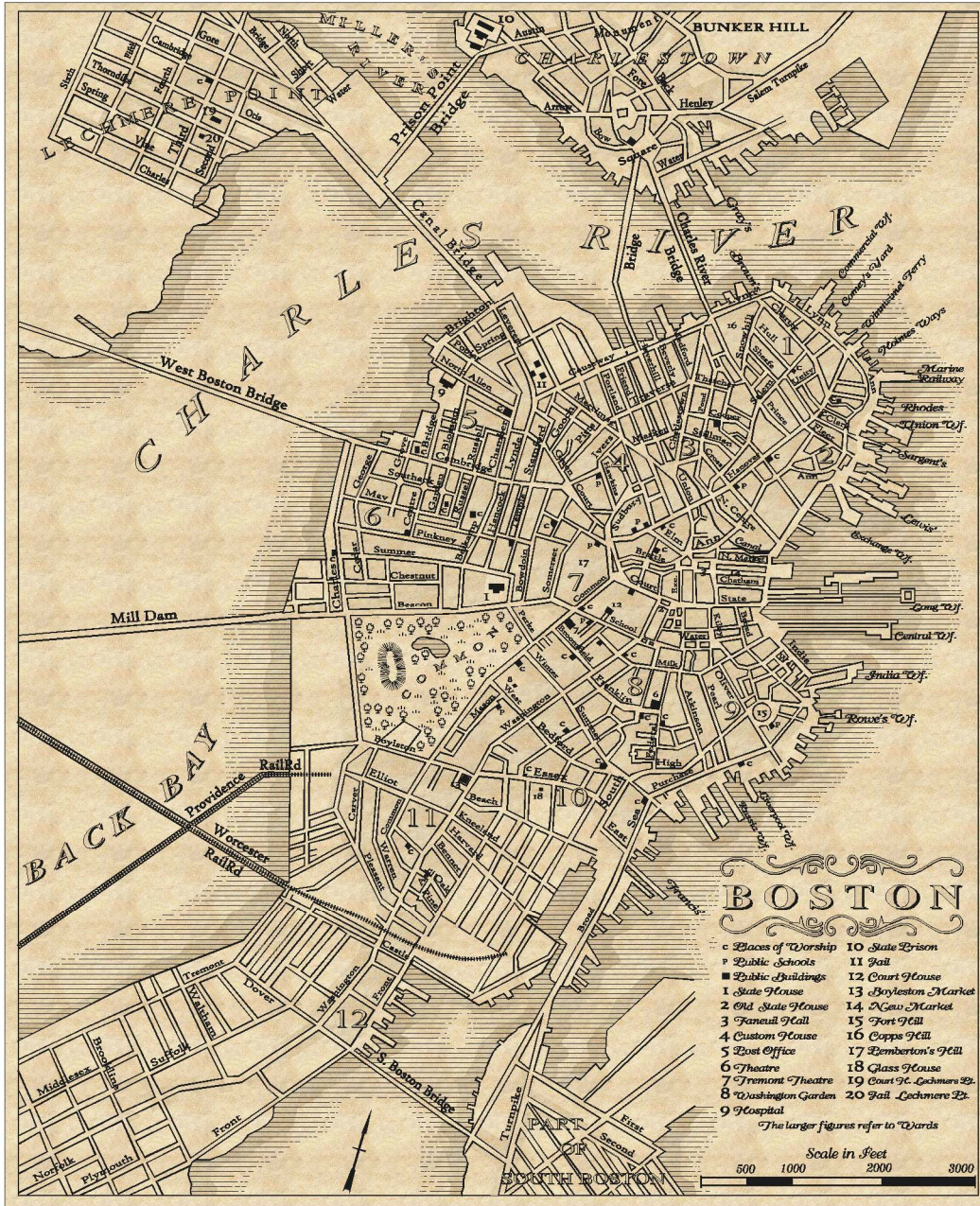
Boston 1842 by Allyn Bowker

The Boston drawing uses bitmap fill techniques, shallow water hatching, symbol editing techniques and text effects that can all be found in *Hand Drawn Mapping* on page 98. It also uses map decorations created from fonts as described in *Converting Fonts to Symbol Catalogs* on page 47.

Boston 1842 is available in the Profantasy Download Library

Advanced Features

Layers

City Designer Pro templates have lots of pre-defined layers to make it easy for you to create your urban areas. The demographic information is stored on the various **BLDNG** layers, the rest of the house components on the various **STRUCTURES** layers. Because CD Pro uses multi-layered buildings, it has its own **Change house layer** command on the **City** menu.

BLDNG layers Use these to add your house and city symbols if you want your maps to contain demographic information. Click **Color buildings** 🔲 to add the demographic information.

STRUCTURES layers These are used to contain the various parts of houses added using symbols and created using the HOUSE command.

STRUCTURES (COLOR) Used by house symbols only. Show it if you want to see demographic information.

STRUCTURES (FILL STYLE)-Used for roof hatching in symbols and Houses. Hide this for a faster redraw.

STRUCTURES (SHADING)-Contains the solid filled area of roofs. Hide this to see demographics.

STRUCTURES (OUTLINE)-Shows a line outline of the building.

CD Pro Symbols

When you place a symbol, what you see is a reference to the symbol in the drawing. This reference is placed on the current layer. If you start an editing command, any selection by layer will include symbols you have placed on that layer. If you hide the layer, all symbols on that layer will be hidden, even those parts of the symbol on other, visible layers.

In addition, however, symbol definitions contain entities that have layers. If you hide these layers, those parts of the symbol will be hidden in any references in the drawing as well.

CD Pro symbols are drawn on various layers, shown below.
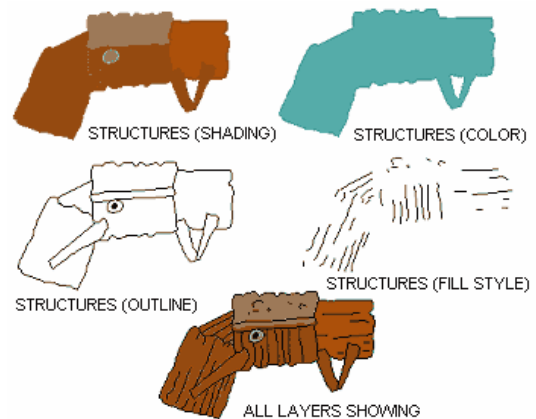
STRUCTURES (SHADING)   STRUCTURES (COLOR)

STRUCTURES (OUTLINE)   STRUCTURES (FILL STYLE)

ALL LAYERS SHOWING

CD Pro Houses

Houses created with **House** 🟥 share most of their layers with CD Pro symbols. There are two important differences. When you draw a house, there is a solid filled area placed on the current layer in the current **color** that is used for demographic information. This is instead of the **STRUCTURES (COLOR)** layer used in symbols.

Changing the layer of buildings

Because CD Pro's Houses are multi-layered, a normal change layer would just change the layer of all the entities in the house. CD Pro has a special command called **Change House Layer** that specifically allows you to change the layer of the demographic information in your houses. It also works on CD Pro symbols. Rather than **Change layer**, on the **City** menu, click **Change house layer** to change the layer.

Controlling layers

Layers can be controlled from the layers dialog box, but CD Pro gives you a few shortcuts that might help. These are found on the **Layers submenu** of the **City** menu.

All BLDNGs with shading

This shows all the entities on the various **BLDNG** layers. It also shows the roof shading of the buildings, obscuring the demographic information added with **Color buildings**. These produce maps for your players.

All BLDNGs with color

This shows all the entities on the various **BLDNG** layers. It also hides the roof shading of the buildings, showing the demographic information added with **Color buildings**. If the current layer is the **STRUCTURES (COLORS)** layer, it remains visible.

Hide all BLDNGs

This hides all the **BLDNG** and **STRUCTURES** layers. If the current layer is a **STRUCTURES** or **BLDNG** layer, it remains visible.

Creating an angular grid

In order to use CD Pro's **Grid Angle** feature, the current grid needs to be an angular grid. CD Pro's templates include many **angular grids**, but you may wish to edit these or create your own.

To create an angular grid

1   Right click on the **Grid** button.

2   Click **New** then click **Angular Grid, Continue**. Choose your options from the dialog box. The **Rotation from the XY plane** should be **0**.

To edit an angular grid

1   Right click on the **Grid** button.

2   Click the grid you want to edit then click **Edit**. Choose your options from the dialog box.

City Symbols

Creating building symbols

Creating city symbols requires knowledge of symbol creation and editing. See **Symbol Management** on page 64 for more details.

STRUCTURES (OUTLINE) layer

Create an outline.

STRUCTURES (SHADING) layer

Divide the outline up into polygons

Copy the outline then erase internal detail

then add color and solid fill to make the roof shading

STRUCTURES (COLOR) layer

Add a solid fill style and make the area Color of SymRef

STRUCTURES (FILL STYLE) layer

Finally add fill style.

Drawing the outline

1   Start a drawing based on the blank template in CC2 Pro's **Cities/Symbols** folder.

2   On the **Symbols** menu, click **Symbol Manager**. Click **New** to start a new symbol.

3   Draw the outline of your building on the **STRUCTURES (OUTLINE)** layer. Use a black, hollow polygon if possible. Use **Grid** and **Snap** to make sure that everything is closed precisely.

If you are using complex outline, like Thatched, you will have to draw a simple shape (**Frill Track**) inside the main shape. This will enable building frills to "lock" to the building. It should be sent to the back of the drawing.

Drawing the solid area

Each symbol has a solid silhouette used by the **Color buildings** command to give each building a color according to its layer. You need to add this to your symbol.

4   Copy the outline you just drew and change its layer to the **STRUCTURES (COLOR)** layer. Change the fill style of the copy to Solid.

5   If you are using an outline consisting of more than one entity, you will have to use multipoly then change the layer of the multipoly to the **STRUCTURES (COLOR)** layer.

6   On the **Symbols** menu, click **Change to SymColor** and select the filled area. This changes the color of this area so that when you insert the symbol, this layer appears in the current color.

Add the Shading

7   Set the layer to the **STRUCTURES (SHADING)** layer. Add the roof shading over the outline using one or more polygons.

8   If necessary, use multipolies created from the outline with any internal lines added to make complex shaded areas.

Add Roof Hatching

9   Set the layer to **STRUCTURES (FILL STYLE)**. Add any roof hatching, such as tiles.

Arranging the layers

The layers should be arranged in the following order:

> **STRUCTURES (COLOR)** at the back
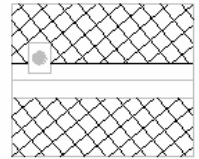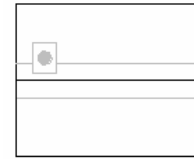
Frill Track

This is an outline placed just inside the edge of buildings with complex outlines to allow frills and extensions to attach correctly to the edge of such buildings.
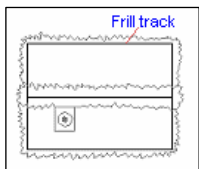
Frill track

STRUCTURES (SHADING) next

STRUCTURES (OUTLINE) next (except any frill track)

STRUCTURES (FILL STYLE) last.

Finally, if you have drawn a complex outline, you will have to send the frill track to the back. Use **Front** and **Back** to order the layers.

10 Rotate the building so that the side that would face the road is facing down on the screen.

11 On the **Symbols** menu, click **Control Points** .

Control Points

This entity type is found in symbol definitions – add them from the **Symbols** menu. **Control Points** are used to control the "smart" behavior of symbols.

12 Select **Align on Insertion**, **Keep DynTrack Scale**, and **Offset from Place point**. The other options should be unchecked.

13 Close the window and save the symbol definition.

Creating frill symbols

As well as creating house symbols, you can also create your own **building frills**. They are drawn just as you would draw for buildings, but they have slightly different control points.

Draw the frill using the method described for creating building symbols, up to the point that you define the symbols.

Defining simple frills

1 On the **Symbols** menu, click **Symbol Manager.** click **New** to start a new symbol.

2 Draw the frill symbol.

3 Align the frill so that it is facing the direction you would like it to face on a city. For example, smoke would go up the screen.

4 On the **View** menu, click **Origin** and choose an appropriate point for the symbol origin (e.g. for a round chimney, the center of the chimney, for smoke, at the base).

X = symbol origin

Defining frills that go outside buildings

Symbols such as conservatories or awnings need to align to the outside of buildings, but unlike building symbols, they don't need to offset. Once you've placed them, they stay put.

X = symbol origin
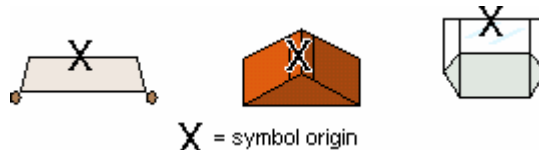
5 On the **Symbols** menu, click **Symbol Manager.** click **New** to start a new symbol.

6 Align the symbol so that the part that faces the building edge goes up the screen.

7 On the **Symbols** menu, click **Add Control Points** . These are drawn from right to left along the edge of the symbol that will align with the building.

8 Select the **Align on Insertion** and **Keep DynTrack Scale** options. Uncheck the others. These control points align to other entities, but should not offset.

Second point   First point

Control points

Control Points

Symbols with control points added can optionally:

- Align to entities (all smart symbols).
- Cut gaps in entities (e.g. doors, windows).
- Offset from entities (buildings offsetting from roads).
- Scale Y to fit (Windows can expand to the width of walls).
- Keep the current symbol scale or ignore it.

Building Frills

Symbols such a round chimneys (which look the same no matter which way they are aligned) and smoke (which shouldn't align, as they should not be rotated) should be defined without any control points.

9 Define the origin as the center of the control points.

Defining frills that go inside buildings

Place symbols such as roof windows and square chimneys by selecting a roof edge then offsetting the symbol inside the building.

10 Align the symbol so that the side that faces the roof edge is facing down the screen.

11 On the **Symbols** menu, click **Control Points**. These should run from left to right along horizontal edge at the bottom of the screen.

12 Select the **Align on Insertion**, **Keep DynTrack Scale** and **Offset from place point** options. Deselect the others. These <u>control points</u> align to other entities and then offset.

Making a symbol from a House

Symbols and houses are created in different ways, and have some layer differences, but its not that hard to use the **HOUSE** command to make a symbol that you can use again. Most of the work has been done for you.

Creating a symbol from a new house

This is far easier than defining a symbol from a house in an existing drawing.

1 Start a drawing based on the blank template in the **Cities/Symbols** folder.

2 Set the current layer to **STRUCTURES (COLOR)**.

3 Using **House** , Draw the house, adding extensions. On the **Tools** menu, click **Groups**, **Ungroup** and ungroup the house.

4 Add any frill symbols that you want then click **Explode** and select them.

5 On the **Symbols** menu, click **Change to SymColor**, selecting by Layer, **STRUCTURES (COLOR)**. This adds the demographic information.

See Defining the Symbol (below) to see how to define the symbol.

Creating a symbol from an existing house

1 Copy the house to the clipboard. Paste it into a new drawing based on the blank template in the **Cities/Symbols** folder.

2 On the **Tools** menu, click **Groups**, **Ungroup** and ungroup the house. Do this again. (The house may be grouped twice because you have inserted it from the clipboard).

3 On the **Info** menu, click **List** and choose the edge of the house. The first item listed must be changed to the **STRUCTURES (COLOR)** layer. Usually, it can be selected by layer.

4 On the **Symbols** menu, click **Change to SymColor**, selecting by Layer, **STRUCTURES (COLOR)**. This adds the demographic information.

Defining the symbol

1 On the **Symbols** Menu, click **Control Points**. For the first control point, select the bottom left corner of the symbol's extents. For the second control point, select the bottom right corner of the symbol's extents.

2 Select **Align on Insertion**, **Keep DynTrack Scale**, and **Offset from Place point**. The other options should be deselected.

3 On the **Symbols** menu, click **Define Symbol**. Type a name then select an origin point in the midpoint of the control point you just added.

X = symbol origin

First point   Second point
Control points

Control Points

There are other possibilities. For example, you might want a vehicle symbol where the control point faced up the middle of vehicle, so that it could align to the road. Maybe this could be offset too so that it could be placed on one side of the road.

4 On the **Symbols** menu, click **Save As Catalog**.

The Lands of *Darkdown*

Santepa

Gannet

Dragon Tooth Mts

Barlow Glen

castle ruins

Crystal Cave

miner's shack

Dragon Lair (cave)

Derry's Hat

old watch tower

Wilton

Ong's Hollow

Druid Tor

henge ruins

North Road

old watch tower

Great Darkdown Moor

Molsen's Mill

Thanu

Jarron's Tower

Tove-in-the-dale

Pandar's cottage

Haunted Glen

Aldenthorpe

Darkdown Barrows

gallow hill

Nattytender

Paulie

Darkdown

Tetta

Oak Barrens

Shellet

North Tower

South Tower

Mill Pond

Delight

Izamine

Pinkerton Mill

Bon Pride

Barstow Bridge

Miriam

Darkdown River

Ponch

Oleander

Lake Miriam

waystation

old watch tower

Hidden Springs

Barstow Road

Olde Andover

Port Isimoor

South Road

Carty's Woods

Sutton's Ferry

Andover

Spangler Marsh

Ulrich Barrows

Andover Road

Spangler

10 Miles

waystation

Barstow

● thorp
○ hamlet
◉ village
◎ town
■ site
□ fortification
◪ ruin

Darkdown by Allyn Bowker

Darkdown uses many of the same symbol editing techniques demonstrated in the vegetation section of the Hand Drawn tutorial found on page 102.

Also used are font ornaments converted to symbols as demonstrated in *Converting Fonts to Symbol Catalogs* on page 47.

Creating House Styles

CD Pro comes with many **pre-defined house styles**, but if this isn't enough you can define your own.

Starting a new house style

All the House Styles are defined in CC2 Pro files stored in the **Symbols\Citites\House Styles** folder. By adding entities to a file in this folder, you can create your own house styles. You can open **blank.fcw** from the **Symbols\Cities\House Styles** folder to start a new House Style drawing. You could also open an existing, similar house style file, save it under a new name and work on that instead.

This drawing has many layers. Adding entities to these layers has a different effect on the house style. If you don't add anything to a particular layer, then CD Pro uses the default style. For example, if you add nothing to the **ROOF EDGE** layers, you will get straight roof edges.

Defining a roof edge

CD Pro makes Roof edges by repeating a 5-foot section, then **adding and scaling** a 1-foot section. These sections must be made from continuous lines or paths.

1   The current layer is **ROOF EDGE 5**. **Snap** is on. Select **Path**.

2   Start the path at **0,0**. At this stage you can turn **Snap** off if you want an irregular house edge.

3   Continue the path, staying below the gray line (Y axis) until you near 5,0.

4   At this point, either turn **Snap** on and select the grid point at 5,0 or type **5,0** and press `ENTER`.

5   Set the layer to **ROOF EDGE 1**. Optionally, hide **ROOF EDGE 5**. Start a **Path** at **0,0** draw below the gray line and end up at 1,0.
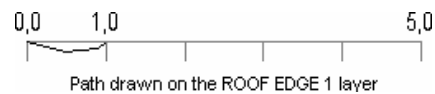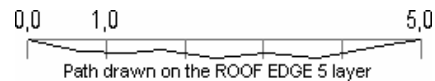
Defining the Roof External section

The Roof External section determines the appearance of the short ends of gabled building types and the edge of the roof ridge (unless you have draw on the **ROOF RIDGE** layer, too). This allows you to create houses with solid roof ridges, such as Thatched. These are drawn in exactly the same way as roof edges, with a 5' section on the **ROOF EXTERNAL 5** layer and a 1' section on the **ROOF EXTERNAL** layer.

Defining the Roof Internal section

The Roof Internal section determines the appearance of the internal lines of the building These are drawn in exactly the same way as roof edges, with a 5' section on **ROOF INTERNAL 5** layer and a 1' section on the **ROOF INTERNAL 1** layer.

Defining the Roof Ridge

If you want a roof ridge that consists of repeating sections (like roof tiles, slates or whatever), draw it in two sections, a 5' section on the **ROOF RIDGE 5** layer and a 1' section on the **ROOF RIDGE 1** layer. These must be drawn with polygons.

Pre-defined House Styles

The Default house style is hard-coded into CD Pro. It produces house with straight edges, rectangular roof edges and a simple fill stvle.

Adding and Scaling sections

For example, if you drew a 33-foot long roof, CD Pro would join 6 of the 5' sections and add 3 of the 1' sections. The 5' section is drawn on the **ROOF EDGE 5** layer, the 1' section on the **ROOF EDGE 1** layer. If you don't draw anything on these layers, CD Pro defaults to a straight edge.

0,0   1,0   5,0

Path drawn on the ROOF EDGE 5 layer

0,0   1,0   5,0

Path drawn on the ROOF EDGE 1 layer

0,0   1,0   5,0

5 polygons drawn on the ROOF RIDGE 5 layer

6 Make the **ROOF RIDGE 5** layer current. Draw a series of polygons or boxes, starting at **0,0** and ending at **5,0**.

7 Make the **ROOF RIDGE 1** layer current. Draw a series of polygons or boxes, starting at **0,0** and ending at **1,0**.

2 polygons drawn on the ROOF RIDGE 1 layer
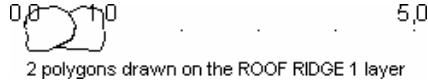
Defining the Roof Hatching

Roof hatching is the fill pattern found on roofs. Each different area of the roof can have a different hatching pattern. If you don't add anything to the roof hatching layers, you won't get roof hatching. CD Pro starts at **0,0** and puts whatever is there in the lower left corner of the area to be hatched. It then works right, adding and trimming entities that fall within the roof boundaries.

The pattern does not tile. This prevents huge roofs being added to drawings accidentally.

The easiest way to see how to draw roof hatching is to look at the examples in the **Symbols\Cities\House Styles** folder.

Hatching can be drawn using any entities that can be trimmed, but we recommend that you avoid ellipses and very complex shapes, as they will take a long time to trim when you insert a house using this house style.

✓ Draw on the **HATCHING (DARK)** layer for the hatch pattern for the Dark colored roof areas,

✓ Draw on the **HATCHING (MEDIUM)** layer for the hatch pattern for the Medium colored roof areas,

✓ Draw on the **HATCHING (LIGHT)** layer for the hatch pattern for the Dark colored roof areas.

✓ Draw on the **HATCHING (FLAT ROOF)** layer for the hatch pattern for the Flat Roof areas.

Just set the appropriate layer then add entities.
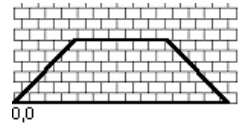
CD2 applies the roof shape to the HATCHING (DARK) area
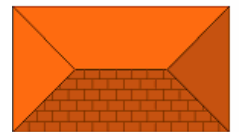
The result on an Orange Square Tile house.

Cold Iron

Cold Iron by Linda Kekumu†

Cold Iron is a DD Pro drawing. It uses hotspots for sheet navigation as described in *Using Hotspots to Control Sheets and Layers* on page 118. Linda created custom symbols for the drawing using the techniques described in *Creating a symbol* on page 66. She also used symbols out of Symbol Set 2-Fantasy Floorplans.

Cold Iron is available in the Profantasy Download Library. Linda has given us a catalog of her custom symbols used in the drawing. This catalog, **Symbols_lmk.FSC** can be found in the **Symbols>Tome** folder.

Alphabetical List of CD Pro Commands

This table gives you a list of all CD Pro's commands except those used specifically in macros.

✓ **Command** gives you the command name found on the CD Pro's menus, the name that appears when you hover the mouse over a button (tool tip text) or on a right click popup menu. Type the command into CD Pro's Help Index or Find list to get more details on the command.

✓ **Where?** Lets you know which menu, popup menu or toolbar to find the command. CD Pro's toolbar layout is shown on page 9. Right click on the button to access a popup menu

✓ The **Text Equivalent** is what you type at the Command prompt to use the command.

✓ **Use In Macro** If the command is useable in a macro, then **Yes**, otherwise **No**. Note that all commands are useable as the last line in a macro. The next section on page 250 lists macro commands with parameters.

Command	Description	Where?	Text Equivalent	Use in Macro
2-Point Circle	2 Point Circle	Draw toolbar, Circle popup	CIR2	Yes
Add city layers	Adds the city designer layers to a template which does not have them	City Menu	PARTM #system\citypart;1;0;-1000,-1000;;RDOFF;UNDO;RDON;	Yes
Add Grid Overlay	Adds a grid labeled along its axes. Used with Create Index to locate streets	City toolbar	ADDGRID	No
All	Displays matching standard style city catalogs	City toolbar, Symbol Style toggle	SYMICONFSET;1	No
All BLDNGs with color	Shows all demographic information layers	City menu >> Layers	SC	Yes
All BLDNGs with shading	Shows all BLDNG layers, with roof shading obscuring demographic info	City menu >> Layers	SB	Yes
All city drawing tools	Displays all city drawing tools for selection	City menu	DRAWTOOLSM;City*	No
All City Drawing Tools…	Display all city drawing tools	City menu	DRAWTOOLSM;=City*	No
Change House Layer	Change the demographic information layer for symbols and buildings	City Menu	CHANGEHL	Yes
City Road	Displays the city road drawing tools for selection	City menu	DRAWTOOLSM;City Road*	No
Classic	Opens the Classic symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Classic*	No
Classical	Opens the Classical catalog	Symbols toolbar, Classical/Middle East popup	GN cat7 1;CATICON7	Yes
Classical/Middle East	Toggle between Classical and Middle East catalogs	Symbols toolbar	CATICON7	Yes
Color layers	Sets the color for selected layers in a drawing for demographic information.	City toolbar	CCL	No
Connection	Connects two buildings with the current style and roof type	City toolbar, House popup	HOUSEM;11	Yes
Create Index	Adds a index of selected text with coordinates. Click on an entry to zoom to it.	City menu	GAZ	Yes
Cyberpunk	Opens the Cyberpunk catalog	Symbols toolbar, Futuristic/Cyberpunk/Moon popup	GN cat10 2;CATICON10	Yes
Cyberpunk	Opens the Cyberpunk symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Cyberpunk*	No
Default	Opens the Default catalog	Symbols toolbar, Default/Miscellaneous popup	GN cat1 1;CATICON1	Yes
Default Road	Adds a new default road using	City toolbar	DRAWTOOLSM;City Road, Default*	No

Command	Description	Where?	Text Equivalent	Use in Macro
	Drawing Tools			
Default...	Opens the Default symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Default*	No
Default/Miscellaneous	Toggle between Default and Miscellaneous catalogs	Symbols toolbar	CATICON1	Yes
Earth	Display Earth area fill drawing tools	City menu >> Area fills	DRAWTOOLSM;Earth*	No
Elf	Opens the Elf catalog	Symbols toolbar, Orc/Halfling/Elf popup	GN cat8 3;CATICON8	Yes
Elven Treehouses	Opens the Elven Treehouses symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Elven Treehouses*	No
Extension	Adds an extension to a building with the current style and roof type	City toolbar, House popup	HOUSEM;10	Yes
Fantasy	Opens the Fantasy catalog	Symbols toolbar, Fantasy/Hovel popup	GN cat2 1;CATICON2	Yes
Fantasy	Opens the Fantasy symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Fantasy*	No
Fantasy/Hovel	Toggle between Fantasy and Hovel catalogs	Symbols toolbar	CATICON2	Yes
Futuristic	Opens the Futuristic catalog	Symbols toolbar, Futuristic/Cyberpunk/Moon popup	GN cat10 1;CATICON10	Yes
Futuristic/Cyberpunk/Moon	Toggle between Futuristic, Cyberpunk and Moon catalogs	Symbols toolbar	CATICON10	Yes
Gothic	Opens the Gothic catalog	Symbols toolbar, Thatched/Gothic popup	GN cat6 2;CATICON6	Yes
Gothic	Opens the Gothic symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Gothic*	No
Grass	Display Grass area fill drawing tools	City menu >> Area fills	DRAWTOOLSM;Grass*	No
Grid Angle	Aligns the drawing grid to a specified angle, bearing between two points or selected entity such as a road	City menu	GRIDANG	Yes
Halfling	Opens the Halfling catalog	Symbols toolbar, Orc/Halfling/Elf popup	GN cat8 2;CATICON8	Yes
Halfling Burrows	Opens the Halfling Burrows symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Halfling Burrows*	No
Hide all BLDNGs	Hides all BLDNGS layers and the structures layer	City menu >> Layers	HB	Yes
House	Adds a building with a selected roof type, shape and style	City menu	HOUSE	No
House (Macro version)	Adds a building with the selected roof shape	Text only	HOUSEM	Yes
House Irregular 4-sided	Adds an irregular four-sided building with the current style and roof type	City toolbar, House popup	HOUSEM;9	Yes
House Irregular L	Adds an irregular L-shaped building with the current style and roof type	City toolbar, House popup	HOUSEM;3	Yes
House Irregular T	Adds an irregular T-shaped building with the current style and roof type	City toolbar, House popup	HOUSEM;7	Yes
House Irregular U	Adds an irregular U-shaped building with the current style and roof type	City toolbar, House popup	HOUSEM;6	Yes
House Irregular V	Adds an irregular V-shaped building with the current style and roof type	City toolbar, House popup	HOUSEM;5	Yes
House Many-sided	Adds an irregular many-sided building	City toolbar, House popup	HOUSEM;8	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
	with the current style and roof type			
House Regular L	Adds a regular L-shaped building with the current style and roof type	City toolbar, House popup	HOUSEM;2	Yes
House Regular V	Adds a regular V-shaped building with the current style and roof type	City toolbar, House popup	HOUSEM;4	Yes
House settings	Select or define house styles	City menu	HOUSEOPT	No
House, current style	Adds a house in the default shape	City toolbar, House popup	HOUSEM;	Yes
House, Rectangular	Adds a rectangular building with the current style and roof type	City toolbar, House popup	HOUSEM;1	Yes
Hovel	Opens the Miscellaneous catalog	Symbols toolbar, Fantasy/Hovel popup	GN cat2 2;CATICON2;	Yes
Hovel	Opens the Hovel symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Hovel*	No
Igloo	Opens the Igloo catalog	Symbols toolbar, Igloo/Nomad popup	GN cat3 1;CATICON3	Yes
Igloo	Opens the Igloo symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Igloo*	No
Igloo/Nomad	Toggle between Igloo and Nomad catalogs	Symbols toolbar	CATICON3	Yes
Lock Symbol Angle	Sets the default symbol angle to align to a selected edge	City menu	LOCKANG	Yes, macro
Mediterranean	Opens the Mediterranean symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Mediterranean*	No
Middle East	Opens the Middle East catalog	Symbols toolbar, Classical/Middle East popup	GN cat7 2;CATICON7	Yes
Miscellaneous	Opens the Miscellaneous catalog	Symbols toolbar, Default/Miscellaneous popup	GN cat1 2;CATICON1	Yes
Modern	Opens the Modern catalog	Symbols toolbar, Skyscrapers/Modern popup	GN cat9 2;CATICON9	Yes
Modern Blue	Opens the Modern Blue catalog	Symbols toolbar, Modern Blue/Grey/Red popup	GN cat4 1;CATICON4	Yes
Modern Blue/Grey/Red	Toggle between Modern Blue, Grey and Red catalogs	Symbols toolbar	CATICON4	Yes
Modern Grey	Opens the Modern Grey catalog	Symbols toolbar, Modern Blue/Grey/Red popup	GN cat4 2;CATICON4	Yes
Modern Red	Opens the Modern Red catalog	Symbols toolbar, Modern Blue/Grey/Red popup	GN cat4 3;CATICON4	Yes
Modern...	Opens the Modern symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Modern*	No
Monochrome	Displays matching monochrome style city catalogs	City toolbar, Symbol Style toggle	SYMICONFSET;2	No
Moon	Opens the Moon catalog	Symbols toolbar, Futuristic/Cyberpunk/Moon popup	GN cat10 3;CATICON10	Yes
Moonbase	Opens the Moonbase symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Moonbase*	No
Nomad	Opens the Nomad catalog	Symbols toolbar, Igloo/Nomad popup	GN cat3 2;CATICON3	Yes
Nomad Tents	Opens the Nomad Tents symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Nomad Tents*	No
Orc	Opens the Orc catalog	Symbols toolbar, Orc/Halfling/Elf popup	GN cat8 1;CATICON8	Yes

Command	Description	Where?	Text Equivalent	Use in Macro
Orc Huts	Opens the Orc Huts symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Orc Huts*	No
Orc/Halfling/Elf	Toggle between Orc, Halfling and Elf catalogs	Symbols toolbar	CATICON8	Yes
Random Street	Adds a random length of buildings to an existing road, or on their own.	City menu	STREET	Yes
Roads	Opens the Roads catalog	Symbols toolbar, Vehicles/Roads popup	GN cat5 2;CATICON5	Yes
Roads	Opens the Roads symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Roads*	No
Skyscraper	Opens the Skyscraper symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Skyscraper*	No
Skyscrapers	Opens the Skyscrapers catalog	Symbols toolbar, Orc/Halfling/Elf popup	GN cat9 1;CATICON9	Yes
Skyscrapers/Modern	Toggle between Skyscrapers and Modern catalogs	Symbols toolbar	CATICON9	Yes
Street Options	Random Street options	City menu	STREETOPT	No
Thatched	Opens the Thatched catalog	Symbols toolbar, Thatched/Gothic popup	GN cat6 1;CATICON6	Yes
Thatched	Opens the Thatched symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Thatched*	No
Thatched/Gothic	Toggle between Thatched and Gothic catalogs	Symbols toolbar	CATICON6	Yes
Tiled City Blocks	Opens the Tiled City Blocks symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Tiled City Blocks*	No
Trees, People, Street	Opens the Trees symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Trees*	No
Vehicles	Opens the Vehicles catalog	Symbols toolbar, Vehicles/Roads popup	GN cat5 1;CATICON5	Yes
Vehicles	Opens the Vehicles symbol setting in the current style	City menu >> Symbol Settings	SYMICONM;Vehicles*	No
Vehicles/Roads	Toggle between Vehicles and Roads catalogs	Symbols toolbar	CATICON5	Yes
Water	Display Water area fill drawing tools	City menu >> Area fills	DRAWTOOLSM;Water*	No

CD Pro Macro Command Reference

This table includes CD Pro commands useable in macros that have one or more macro parameters. Macro-friendly commands that work straight off are not included (see the previous table above for those commands). For example, in the previous table, Thatched/Gothic has a text equivalent of CATICON6. You could put this in a macro and it would function with no parameters. The macro version of the House command has many variations of syntax and is detailed here.

For more information on macros, and you how might use this table, see page 122 in the **CC2 Pro** section.

Command	Description	Text Equivalent	Syntax
Change House Layer	Change the demographic information layer for symbols and buildings	CHANGEHL	[selection];sLayer[dialog]
Connection	Connects two buildings with the current style and roof type	HOUSEM;11	xyInHouse;xyEdge1;xyEdge2;xyWidth[default];
Create Index	Adds a index of selected text with coordinates. Click on an entry to zoom to it.	GAZ	[selection];pIndexPosition
Extension	Adds an extension to a building with the current style and roof type	HOUSEM;10	xyInHouse;xyEdge;xyEnd;xyWidth[default];
Grid Angle	Aligns the drawing grid to a specified angle, bearing between two points or selected entity such as a road	GRIDANG	rAngle/xyEntity/(xyBearing1;xyBearing2)
House (Macro version)	Adds a building with the selected roof shape	HOUSEM	[nHouseShape] (See individual house types for syntax)
House Irregular 4-sided	Adds an irregular four-sided building with the current style and roof type	HOUSEM;9	xy1stCnr1;xy2ndCnr1;xy3rdCnr1;xy4thCnr1
House Irregular L	Adds an irregular L-shaped building with the current style and roof type	HOUSEM;3	xy1stCnr1;xy2ndCnr1;xy3rdCnr1;xy4thCnr1;xy5thCnr1;
House Irregular T	Adds an irregular T-shaped building with the current style and roof type	HOUSEM;7	xy1stCnr1;xy2ndCnr1;xy3rdCnr1;xy4thCnr1;
House Irregular U	Adds an irregular U-shaped building with the current style and roof type	HOUSEM;6	xy1stCnr1;xy2ndCnr1;xy3rdCnr1;xy4thCnr1;xy5thCnr;
House Irregular V	Adds an irregular V-shaped building with the current style and roof type	HOUSEM;5	xy1stCnr1;xy2ndCnr1;xy3rdCnr1;xy4thCnr1;xy5thCnr1;
House Many-sided	Adds an irregular many-sided building with the current style and roof type	HOUSEM;8	xy1stCnr1...xyNthCnr1;xyCenter1;
House Regular L	Adds a regular L-shaped building with the current style and roof type	HOUSEM;2	xy1stCnr1;xy2ndCnr1;xy3rdCnr1;xy4thCnr1
House Regular V	Adds a regular V-shaped building with the current style and roof type	HOUSEM;4	xy1stCnr1;xy2ndCnr1;xy3rdCnr1;xy4thCnr1;
House, Rectangular	Adds a rectangular building with the current style and roof type	HOUSEM;1	xy1stCorner1;xy2ndCorner1;xy3rdCorner1
Random Street	Adds a random length of buildings to an existing road, or on their own.	STREET	xyEnd1;xyEnd2;

COSMOGRAPHER

WELCOME

Cosmographer Pro is an add-on for ProFantasy Software's Campaign Cartographer 2 Pro. Use it to create space sectors, planetary surfaces, starports and starship deckplans.

COSMOGRAPHER

Cosmographer Introduction

Getting Started

The information and tutorials contained in Cosmographer Pro assumes a basic knowledge of CC2 Pro. If you have not familiarized yourself with CC2 Pro, doing so before you start Cosmographer Pro will be beneficial.

Toolbar

The Cosmographer toolbar icons are usually found on the left of the interface screen. If you can't see them, select **Tools** ➔ then ensure that **Left toolbar 1** and **2** are ticked.

Symbol Catalogs

⊞ Passageways

⬆ Up and Down

▭ Wall Features

◉ Command Stations

⚙ Engineering Systems

✳ Weapon Systems

⬕ Pipes and Cables

▭ Furniture

✚ Medical Systems

▥ Cargo

▥ Personal Items

▯ Space Geomorphs

◉ Overland

▭ Transport Network

▯ Buildings

⚠ Hazards

✳ Cosmic Bodies

◉ Traveller

Welcome to space. Cosmographer Pro from Profantasy Software helps you map space sectors, planetary surfaces, starports and starship deckplans. It supports **Traveller®** and all other game systems set in space.

With Cosmographer Pro you can **get started**:

- Creating detailed textured surfaces for hull and decks

- Combining all decks in single map using sheets.

- Utilizing connecting symbols which allow easy point-to-point drawing of complex passages, routes, machinery, etc.

Getting to Cosmographer Pro

You can swap from CC2 Pro or any add-on to Cosmographer Pro by clicking the Cosmographer button on CC2 Pro's File toolbar.

Starting a New Drawing

1 Click **New** ▯

Cosmographer displays a context menu of the different types of templates on which you can start your drawing.

> Cosmographer Deckplan...
> Cosmographer Local Overland...
> Cosmographer Planetary...
> Cosmographer Sector...
> New from current template
> Select Template
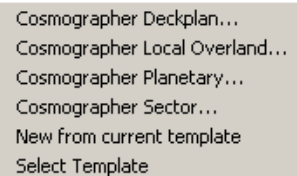
2 Choose a template based on the type of drawing you wish to create.

The Cosmographer Toolbar

The Cosmographer **toolbar** includes almost all the features you need to create your maps, charts and drawings.

Left click on a button to choose the most commonly used option; right click on a button to see a selection of other tools. For example, right click on **Sector Tools** ◉ to see a menu with other tools such as **Sector Borders**, **Sector Vari**, and **Sector X-Boat**.

Draw Hull	Overland Natural Features Tools
Deck Plan	Overland Man Made Tools
Apply Fill to Selection	Sector Tools
Engineering Systems	All Cosmographer Tools
Symbol Catalog Settings	Symbol Style Options
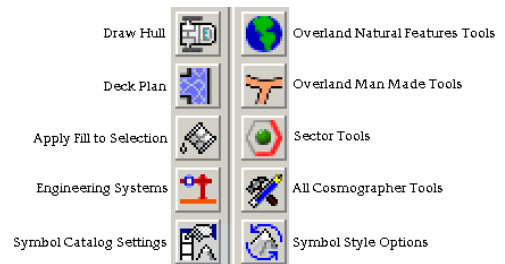
Symbol Toolbar

Click each catalog button to pull up either the **symbol catalog** or the **Select Catalog Settings** dialog for each category.

WALESKA

ASKIA

ASK

LISRADNIKA

DIE WEISED BERGE

WALESKA

OSTROW

HYPERBOREA

STJERN

WARNA

SCHANDOMIR

TORÛN

SCHOSKO

STJERN

POLJAKOV

SWAROGLAV

WARNA

DER FORST
VON
BIALOWICZA

Meilen

0   120   240

RADOLPHUS VON SCHEMARAN, KARTOGRAPH ZU SIGENIA IN NEMEDIEN
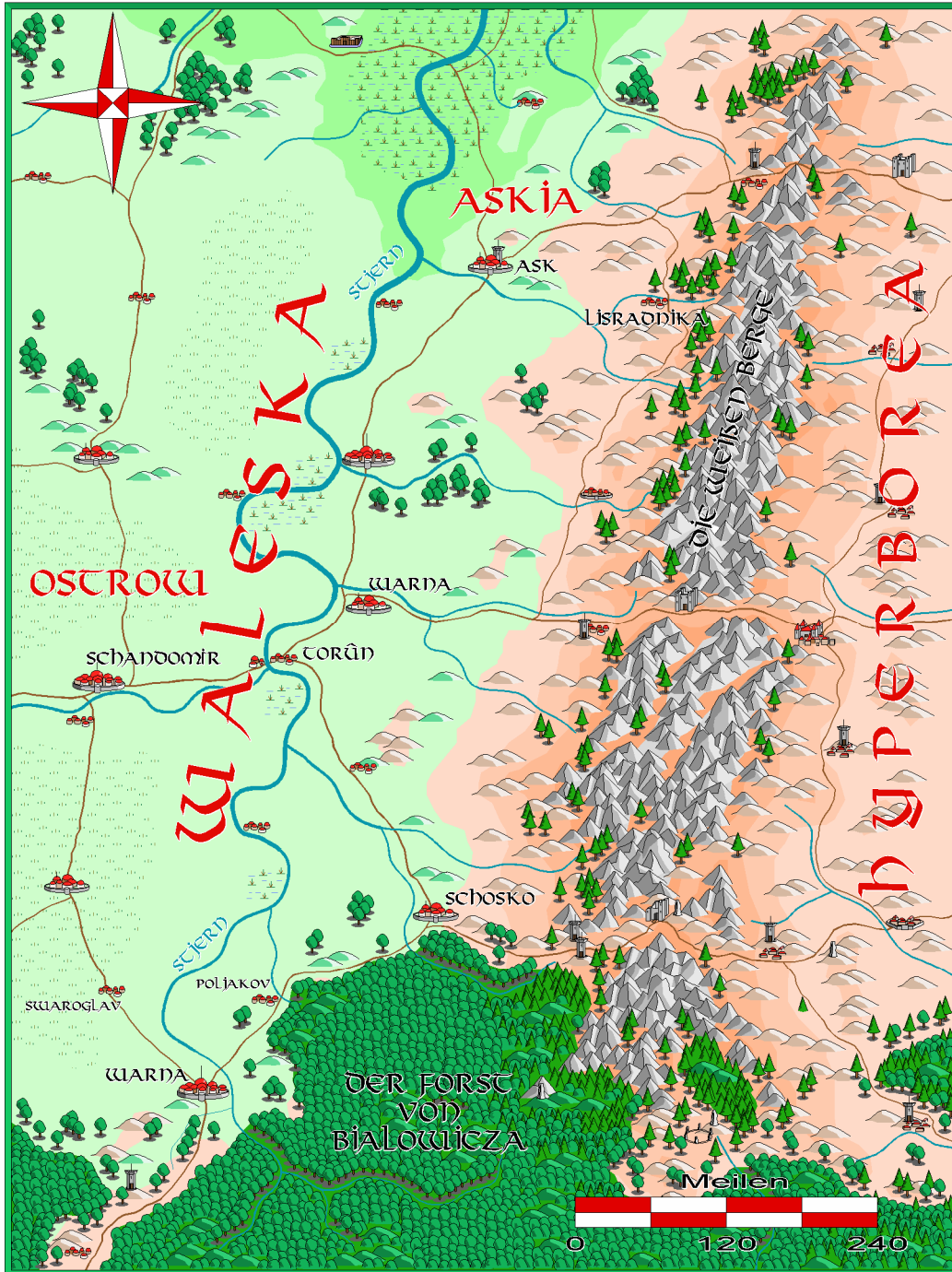
Waleska by Ralf Schemmann

Waleska is made with symbols from CC2 Pro's standard symbol catalogs. The drawing is available in the Profantasy Download Library

CosmoGRAPHER

Creating a Deckplan from Scratch

The tutorial examples referred to here can be found in the **Tutorials**>>**Essentials**>>**Cosmographer** folder.

Deckplan templates
 include:

- **Ship name**: Click to edit.

- **Grid**: Click grid sample to swap between grid modes. Hide grid layers to loose grid altogether.

- **Stats block**: Edit or delete this.

- **Sheets for each deck**: Click the deck selectors at the bottom to select working sheet. It is normal to draw Hull outline first, as this encloses everything else

Snap

If the grid makes things hard to see, turn it off via **Cosmographer Menu >> Grid >> Hide**. To show the grid, use C**osmographer >> Grid >> Show** then click the grid scale indicator to pick the grid style. Turning off the grid will not affect **Snap**.

Hull Drawing Tools

Most hull drawing tools are varicolor, meaning they adopt the current color. Many tools have a pattern. This will line up with the first edge you add. You can use this to control the rotation of the pattern.

Texture

Hull texture slows redraw and can interfere with selections and placing symbols. Use **Cosmographer Menu >> Textures** to hide textures when they're not needed. Hiding textures hides them in the tools preview too.

Draw Around..

To make all the corners properly trimmed, start in the middle of a straight run rather than in a corner, then work all the way around.

1   Click **New** 📄

     Select **Cosmographer** <u>Deckplan</u>.

2   Choose something small for our shuttlecraft, such as the 100 'x 100' template. (ShuttleE01.FCW)

Hull

3   To make sure you are on the **HULL** sheet, click '**HULL**' at the bottom of the template, or go to **Cosmographer Menu >> Active Deck >> Hull**.

4   Ensure <u>**Snap**</u> is enabled.

First, we will add a center line. This is useful in that we only have to build one half of a ship's hull.

5   Right click **Draw Hull** 🖥 then select **Construction Lines**. Notice the layer has changed to **TEMP**.

6   Draw a vertical straight line in the middle of the drawing. Make it five squares in length. (ShuttleE02.FCW)

7   Continue to use the **Construction Lines** drawing tool to draw the left side of the shuttlecraft. Make sure that the starting point and the ending point are on the center line.

You can see the shape I chose for my shuttle by referring to ShuttleE03.FCW.

8   Right click **Copy** 🔀. Choose **Mirror Copy** from the list. Select the left side of the hull then right click, **Do it**.

9   With **Snap** on, click the top of the center line, then click the bottom of the center line. The left side of the hull will be mirrored across this line.

It's starting to look vaguely like a shuttle now. (ShuttleE04.FCW)

10   Set the color to a darkish grey. I used #249.

11   Right click **Draw Hull** 🖥 then select **hull drawing tool** Hull, **Surface 01** as the <u>texture</u> for the shuttle. Trace around your shuttle, using the construction lines as a guide. (ShuttleE05.FCW)

12   Set the color to black.

13   Right click **Draw Hull** 🖥 then select **Hull, Outline**. <u>Draw around</u> the whole hull. (ShuttleE06.FCW)

14   Let's give the hull a few frills. Change to color 77, then right click **Draw Hull** 🖥. Choose **Hull, Glass**. Draw a front window at the front of the shuttle.

15   Let's add some engines. Click **Engineering Systems** ⚙ then scroll down the list of symbols to **Ion Engine 1**. Click the + sign in the corner of the **Ion Engine 1** display window to open the Ion Engine collection.

16   Select **Ion Engine 1** and **Ion Engine 2**, placing each in turn, on the shuttle.
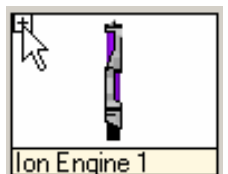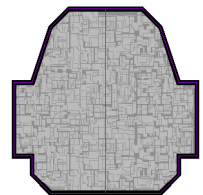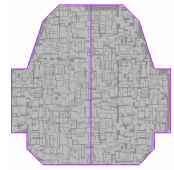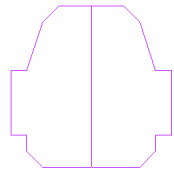
17 Click **Send to Back** , then select the engines we just placed. Right click, Do it. (ShuttleE07.FCW)

Interior deckplan

18 **Pick a deck** to work on from the indicator at the bottom of the map.

19 Click the color indicator, then select color 22. This will be the floor color.

20 Right click **Deckplan** then select **Surface 01**. Follow the outline of the **floorplan** for the deck. (ShuttleE08.FCW)
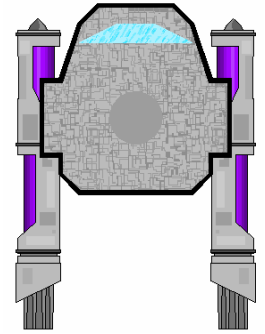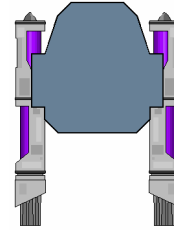
21 Select color black on the colorbar.

22 Right click **Deckplan** then select **Bulkhead 1'**. Outline the floor of the shuttle, then draw any **interior** partitions. (ShuttleE09.FCW)

23 Someone needs to be able to pilot our shuttlecraft, so select **Command Stations** . Pick a **Recessed Console**. Use the arrow key to rotate it 270° then place two at the front of the shuttle.
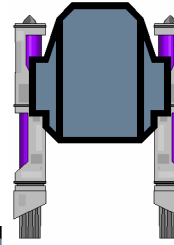
24 The pilots need a place to sit, so pick an **Operator Chair** from the same symbol catalog. Use the arrow key to rotate the symbols 90° then place one in front of each console.
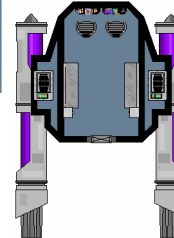
25 Decorate the rest of the interior. I selected some benches to line the walls, a couple of equipment lockers at the aft (rearward) side of those, and finally topped it off with an aft-mounted hatch symbol. (ShuttleE10.FCW)

26 From the **Cosmographer** menu, show any grids and textures you have hidden.

27 Click the title header, then name your shuttlecraft. Add any statistics you wish, or delete the stat box. (ShuttleE11.FCW)
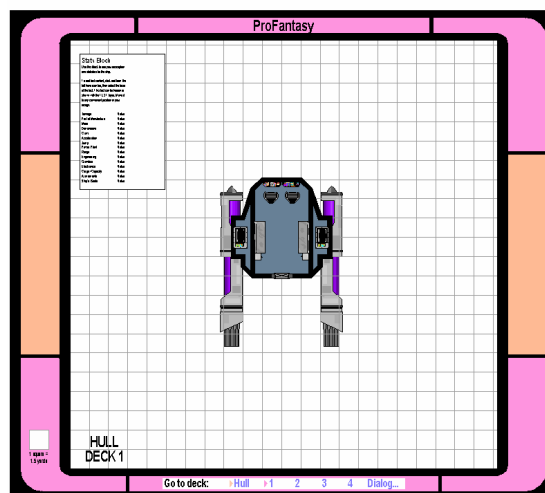
Pick a Deck

The hull remains visible because it is useful to see the outline it provides. You can turn off the hull at any time by clicking **Dialog** and then clicking the H in the box next to **Hull**.

Floorplan

The Deck Surfaces tools are for making prettier deckplans. You need to outline these with hand-drawn bulkheads. Use **Cosmographer Menu >> Textures >> Hide Deck Textures** when they're not needed.

Interiors

To work on interiors, it is often preferable to drop to a lower snap value. Go to **Snaps > Grid Settings** then edit the one that appears. Change the # of snaps to 4 or 8. Any factor of 2 works best here (2, 4, 8, 16, etc).

Other cool deckplan tools

COSMOGRAPHER

Connecting Symbols

You can spot connecting symbols because they have a "C" in the symbol window.
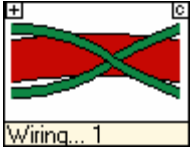
Connecting deck symbols are generally based around a 5' grid, so enable 5' grid before using.

Where appropriate, there are end pieces and "join" junction symbols before or after the connecting symbol.

Cosmographer Pro introduces **Connecting symbols**. These are symbols that automatically join together to create complex objects.

Passageways catalog contains connecting deck symbols for ramps, access-ways, walkways, corridors, railings. Corridors come in two varieties – curved or square bends.

Pipes and cables catalog contains pipes, cables, bulkhead fittings.

Weapons contains torpedo and missile tubes.

Changing fill style

Use **Apply fill to selection** to change the fill of existing textured style. Make sure textures are visible or it won't work as expected.

Engineering tools

Use Engineering Systems to show data networks, power grids, etc.

Ari's Neighborhood by Allyn Bowker

Ari's Neighborhood was created using City Designer 2 city tile symbols that were edited from their original version using the techniques described in *Converting an Existing Symbol to Shaded Varicolor* on page 75.

SS Brilliant
Hornet Class Explorer
Barnard's Star Shipyards

Upper Deck

Lower Deck

Command
Cargo
Medical
Airlock

Corridor
Engineering
Fuel Tank
Living Space

= 1.5 meters

SS Brilliant by Kevin Thomas

The **SS Brilliant** is an example drawing included in the Cosmographer Pro add-on.

COSMOGRAPHER
PRO

Overland Hex Maps

The new Hex symbols are a great tool for drawing the surface of your planets, and make it very easy to produce a fantastic looking map in this style.

The tutorial examples referred to here can be found in the **Tutorials**>>**Essentials**>>**Cosmographer** folder.

1　Click **New** 📄 then select **Cosmographer Planetary**.

2　Select **Regional Template (Traveller).FCT** (OverlandHexE01.FCW)

3　Click **Overland** 🟢 then select **Cosmog Overland**.

4　Scroll down the catalog list to **Plains 1**. Select the **Plains 1** <u>hex symbol</u>.

5　**Draw** some continents and islands then click **Redraw** 🔵 to see how your work is progressing. (OverlandHexE02.FCW) With hex symbols you can drag the mouse, leaving a trail of hexes, overwriting any other symbols in that hex.
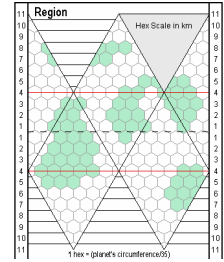
6　Scroll further through the catalog list then select **Water 1**. Go around the coast of your continents and islands to make shallow water. (OverlandHexE03.FCW)
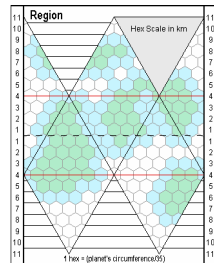
7　Select **Water 2** then go around the shallow water to create deeper water. (OverlandHexE04.FCW)
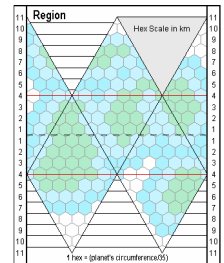
8　Place **Arctic** hex symbols at the top and bottom points of your map if it is cold enough to have polar arctic zones. (OverlandHexE05.FCW)

9　Place the **Water 3** hex throughout the rest of the map in any unoccupied hexes to depict the deepest water. (OverlandHexE06.FCW)
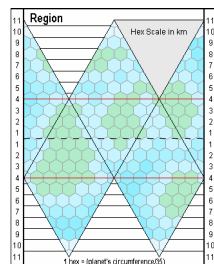
You have a functional planet now, but it's a little plain. Ok, bad pun. Let's turn those plains into something more interesting.

10　Select a mountain symbol then add some mountains. Select a hills symbol then put some hills around those mountains. (OverlandHexE07.FCW)

11　Let's add some terrain and vegetation. If you have a big land mass along the equator, add some jungles around that area. Add some **D Forests**, and maybe **D Forest Hills** symbols near the hills and mountains. Don't forget up at the colder regions there might be **C Forests** and elsewhere maybe a couple of deserts would be nice.　(OverlandHexE08.FCW)

12　Select **Hx City** Symbol. Pick a spot for the city then place the symbol there. **Upon placement**, the **Attributes** box opens. Type in the name of the city, then click **OK**.(OverlandHexE10.FCW)

Hex Symbol

Because of the Snap feature enabled on the template, the hex symbol held on the cursor might seem invisible when held over the template. Click in the desired hex to place the symbol there.

Draw

You can hold down the mouse button and 'paint' your hexagon symbols. If you hit the edge of one of the regional triangles, be sure to place one of the same hexes on the opposite side. Any symbols that hit a 'partial hex' will be obscured by the borders of the map upon re draw.

Upon Placement

Prior to UU8, these symbols used **Explode on Placement** rather than **Attributes**. For a UU prior to UU8, follow these steps in place of step 12 in the tutorial:

- Select **City Name**, then place it in the same hex. The symbol <u>explodes</u> automatically on placement. (OverlandHexE09.FCW)

- Click **Edit** then select the text for the newly placed World Name. Type in your planet name, then click **OK**

Exploding the symbol reduces it back to its original entities. The **City Symbol**, once exploded, is now a circle and text that can be edited.

Attributes

For more information on Attributes, see *Adding attributes* on page 67.

Create your own hex symbols

You can create your own hex symbols. Open **hex.fsc** in the Symbols\Cosmographer\Planetary folder using Open from the File menu as a reference, and see **Hex Symbols** on page 78 for more details.

Row of Shops by Peter Vernon*

This drawing is based on a building that has been excavated by Texas A&M University at a site in Port Royal, Jamaica. **Row of Shops** uses hotspots for sheet navigation as explained in *Using Hotspots to Control Sheets and Layers* on page 118. **Row of Shops** is available to view in the **Examples>Tome** folder.

COSMOGRAPHER

Creating Traveller® Sector Maps

This is going to be quick and easy. With the templates in Cosmographer Pro, sector maps are a snap. I've already started one on a Subsector Parsec Hex.FCT. All examples for this tutorial can be found in the **Tutorials**>**Essentials**>**Cosmographer** folder.

1 Open SectorE01.FCW.

2 Click **Traveller** [icon] to open the symbol catalog.

3 Select the symbol **World 1**, then place it in one of the open <u>hexes</u>.

4 Select **World Name 1**, then place it in the same hex. **Upon placement**, the **Attributes** box opens. Type the name of the planet, then click **OK**. (SectorE02.FCW)

5 Scroll through the catalog and add any other symbols to the hex that you think are appropriate to the planet. (SectorE03.FCW)

6 Right click **Sector Tools** [icon] then select **Border**. Draw any borders that are appropriate to your map. (SectorE04.FCW)

7 Right click **Sector Tools** [icon] then select **X Boat**. Draw in the X Boat route or routes appropriate to your map. (SectorE05.FCW)

8 Click **Edit** [EDIT] then select the text in the title box of the map. Type in your sector information, then click **OK**. (SectorE06.FCW)
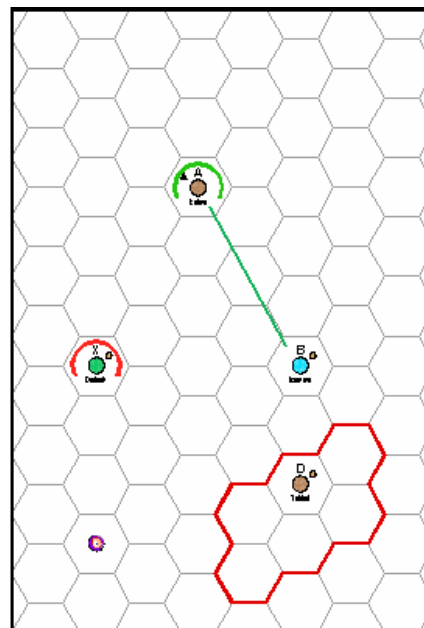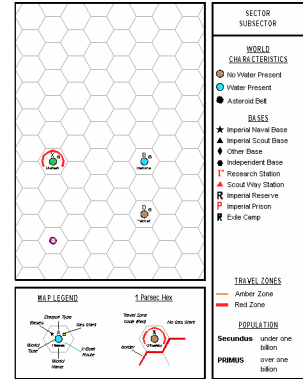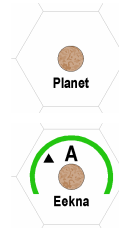
Malvin by Ralf Schemmann*

Malvin was created using Character Artist Pro. This drawing is available in the **Examples>Tome** folder.

COSMOGRAPHER

Creating a Local Overland Map

The drawing tools and templates provided on Cosmographer Pro make it easy to create attractive overland maps.

All examples for this tutorial can be found in the **Tutorials**>**Essentials**>**Cosmographer** folder.

1   Click **New** 🗋 and select **Cosmographer Local Overland**.

2   Select **Imperial 1 x 1 mile.FCT** (OverlandLocalE01.FCW)

Let's create some **contours**.

3   Right click **Overland Natural Features Tools** 🌍 then select **Contour 1**. <u>Draw</u> a low elevation contour that will begin to define the valley that will hold our lake.
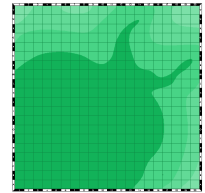
4   Right click **Overland Natural Features Tools** 🌍 then select **Contour 2**. Draw a mid-elevation contour.

5   Right click **Overland Natural Features Tools** 🌍 then select **Contour 3**. Let's draw a high elevation contour. (OverlandLocalE02.FCW)
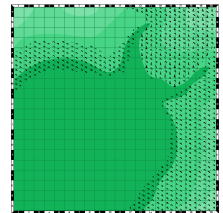
6   Let's plant some forests. We're going to draw them in just like we did with the contours.

7   Right click **Overland Natural Features Tools** 🌍 then select **Deciduous Woods**. Draw woods around what will be our lake. I also used some **Mixed Wood**. You can go wild and put in any forests that suit you. (OverlandLocalE03.FCW)
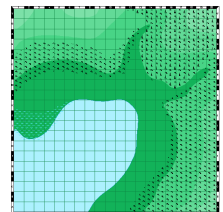
Now let's put some water in our lake.

8   Right click **Overland Natural Features Tools** 🌍 then select **Water Lake**. Draw in a <u>lake</u> that sits down in our valley. I also put in a marsh because my secluded lake needs a dark side. (OverlandLocalE04.FCW)

We need a way to get to our lake. Let's put in some roads.

9   Right click **Overland Man Made Tools** ⊤ then select **Route, Secondary 2**. This will be the paved road that brings us close to the lake.

10   Right click **Overland Man Made Tools** ⊤ then select **Route, Minor**. Start this road at the paved road and then run it down into the valley to skirt passed the lake.

We can get to the lake now, but what are we going to the lake for? I'm going to put in a few buildings.

11   Right click **Overland Man Made Tools** ⊤ then select **Building Default**. Draw in a few **buildings** clustered along the road near the lake. (OverlandLocalE05.FCW)

My secluded lake is done now except for text labels. I'm going to let you label the map yourself. If you need help, refer to The Art of Labeling on page 44.
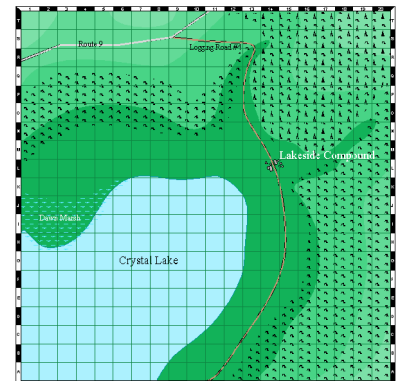
Contours

Notice when we select the contour tools, the layer automatically changes to **RELIEF/CONTOURS**.

Draw

The drawing tools feature Restrict to Border behavior. The entities drawn with the tools will confine themselves within the boundaries of the template. When the entity is drawn to the border, click outside the template frame to 'lock' the edges.

Lake

Did you notice that the current layer automatically changed to **WATER/RIVERS** when we selected the **Water Lake** tool?

Buildings

When we selected the **Building Default** tool, the current layer automatically changed to **STRUCTURES**.
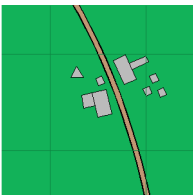
COMMUNITY LAW CENTRE
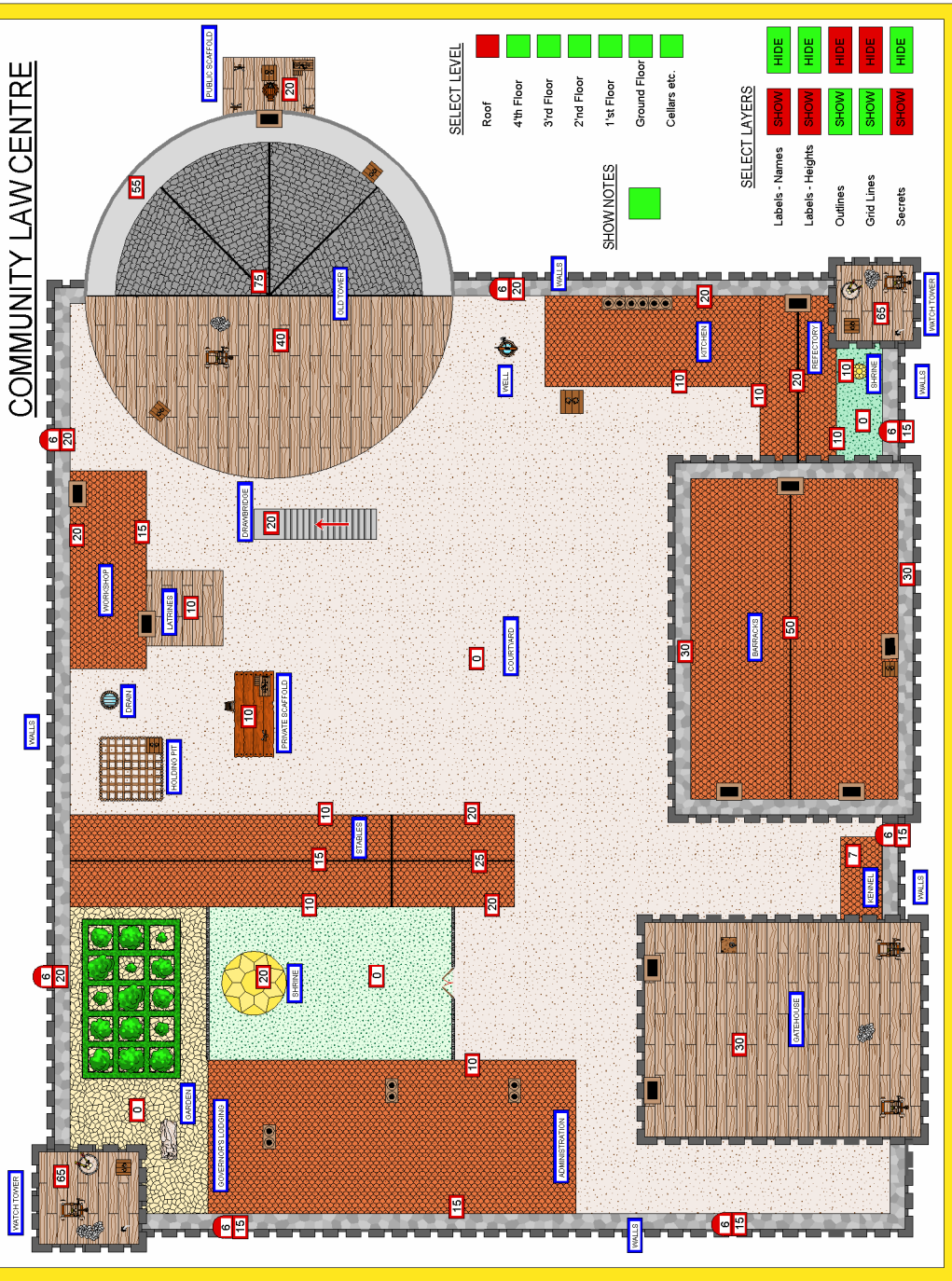
SELECT LEVEL

Roof
4th Floor
3rd Floor
2nd Floor
1st Floor
Ground Floor
Cellars etc.

SHOW NOTES

SELECT LAYERS

HIDE HIDE HIDE HIDE HIDE
SHOW SHOW SHOW SHOW SHOW

Labels - Names
Labels - Heights
Outlines
Grid Lines
Secrets

PUBLIC SCAFFOLD
OLD TOWER
WELL
KITCHEN
REFECTORY
SHRINE
WALLS
WATCH TOWER
DRAWBRIDGE
WORKSHOP
LATRINES
DRAIN
PRIVATE SCAFFOLD
BUILDING PIT
COURTYARD
BARRACKS
WALLS
STABLES
KENNEL
WALLS
SHRINE
GARDEN
GOVERNOR'S LODGING
ADMINISTRATION
GATEHOUSE
WATCH TOWER
WALLS

Community Law Centre by Stuart Hunter

Community Law Centre uses hotspots to navigate sheets and layers as explained in *Using Hotspots to Control Sheets and Layers* on page 118.

The **Community Law Centre** can be viewed in the Profantasy Download Library.

Exploring Sheets and Layers

Cosmographer allows you to have multiple decks of a starship on a single template. Each deck is stored on its own sheet.

Let's look at sheets and layers since the Cosmographer templates use them so handily.

Layers

Layers are simply a convenient way for the user to associate different entities. Think of **Layers as groupings**, or categories.

1   Click **Open** 📂 then browse to the **Examples>Maps** folder of CC2 Pro. Select **Jaw Peninsular.FCW**.

2   Click the **Layer** indicator `L: COAST/SEA` then select **VEGETATION** as the current layer. Click **Hide All**, then **click the H** next to **SYMBOL DEFINITION** to remove it. Click **OK**.

All you see now are the symbols and text that have been placed on the **VEGETATION** layer.

So how is this different from sheets? Well, layers do not affect the order in which entities are drawn on the screen. Entities appear in the order were added to the map regardless of **which layer** they are on.
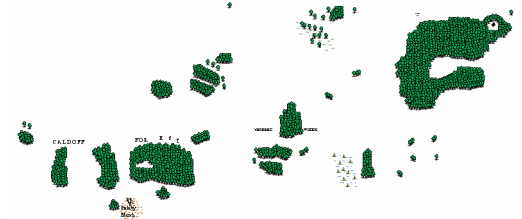
Sheets

In order to begin to understand sheets, we can imagein a book with transparent pages. In the book, the transparent pages have a specific order. The slices of the picture that are printed on each page are revealed according to the order of the pages. Hold that thought as we explore sheets.

1   Click **CC2** 🗔 then click **New** 🗋. Select the template **1000x800 (Sea Background, uses sheets)**.

2   In the **Tools** menu, scroll down to **Sheets** and then select **Sheets** from the side menu.
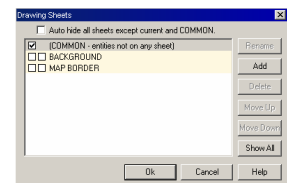
What you see are the **sheets** currently created in the template. Select **BACKGROUND** as the current sheet, then click **OK**.

3   Click the **Layer** indicator `L: BACKGROUND`. Click **Thaw All** then click **Show All**. Click **OK**.
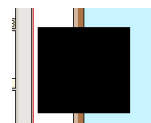
4   Click **Box** 🔲 then draw a box that overlaps the edge of the template.

5   Click **Redraw** 🔄.
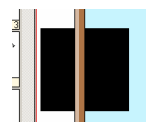
Note that the box we just drew jumped behind the map frame. Why did it do that? If you said sheet order, you're correct. Let's look at that behavior.

6   In the **Info** menu, select **List**. Select the edge of the map frame, then right click, **Do It**.

7   In the **Tools** menu, scroll down to **Sheets** and then on the side menu select **Move to Sheet**. Select the box we drew, then right click, **Do It**. Right click again then select the **MAP BORDER** sheet. Click **OK**.

8   Click **Redraw** ⟳.

The box is now on top of the map frame. The box is the last entity added to the drawing so by moving it to the **MAP BORDER** sheet, it is now on top of the map frame.
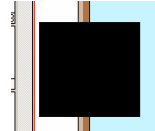
How do Layers and Sheets go together?

Each sheet in the drawing can include entites on **any layer**.

Each entity you add to the drawing will be marked with the current layer and placed on the currently selected sheet. Sheets will force a **specific order**, and they have special **navigation** features are available to make using sheets easier.
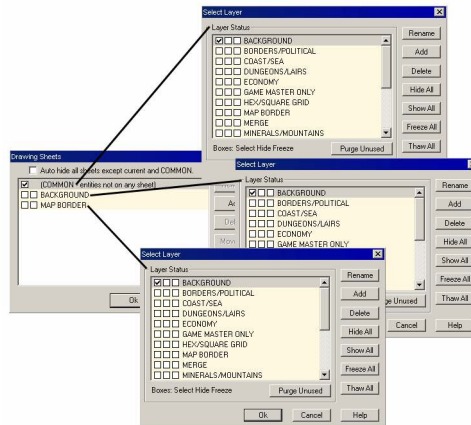
List

The first line on the **List** display tells us that the map frame is on the **MAP BORDER** sheet. We know from the **Drawing Sheets** dialog that the **MAP BORDER** sheet is above the **BACKGROUND** sheet so anything we draw on the **BACKGROUND** sheet, even though it is the last thing added to the drawing, will be below all entities on the **MAP BORDER** sheet.

Any Layer

This includes layers that you add to the drawing. By opening the **Layers** dialog window and adding a new layer, you have added that layer to all sheets, present and future, in that drawing.

Specific Order

Just like the pages of the anatomy book. we can't turn and reveal page 3 until we turn and reveal page 2.

Navigation

CC2 Pro has options for navigating between the sheets of a drawing, allowing you to select and hide sheets as is appropriate for your map. For more information, refer to page 118.

The Rock in Greenbryr by Tony Marker

The Rock is drawn with the Mappa Harnica toolkit. The drawing is available in the Profantasy Download Library.

For more information on the Mappa Harnica Toolkit, visit http://www.thechmp.com/MappaHarnica/.

Starship Design

Now that we can draw them, let's explore a little about **Starship design**.

Design Considerations

Technology is your first consideration. Is this a low-tech ship, or a high-tech ship? Low-tech ships have switches and levers to control them, high-tech ships seem 'godlike' in their technology by comparison (talking computers, console interfaces that can change on demand, etc).
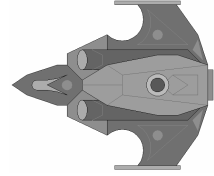
Second consideration should be purpose of the craft. Is it a Safari ship for sport-hunters? A military vessel? Luxury yacht? Cargo transport? Passenger liner? Ore carrier? Thinking about this issue will help determine placement of your decks and rooms within the ship.

Starships are usually compartmentalized because of the threat of the hostile environment outside the bulkhead. If one section loses integrity, you don't want your whole day ruined by everything going into a vacuum. High-tech ships usually accomplish this by force fields. Lower-tech ships accomplish this by iris valves or hatches. Hatches provide a better long-term seal, but iris valves can close quicker in the event of explosive decompression.
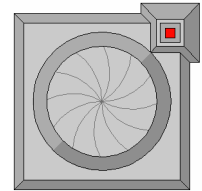
Command and Control

First and foremost, our boat needs some means of controlling it. Even if the control of the craft is done solely by computer, there needs to be a place where the 'brains' of the operation rests. I like to think that computers are better order-takers than order-givers, so I like to put humans in control of the ship. They need instrumentation for plotting courses, for piloting the craft, for interfacing with the various systems and subsystems of the ship. Standing up all the time to do that would get pretty old (and might be against interstellar OSHA standards!), so your bridge should offer the minimum comforts of a couple of chairs at the very least. A nearby head is also desirable - if someone has to go to the loo during combat, you don't want them to have to run all the way to the back of the ship and waste precious time.
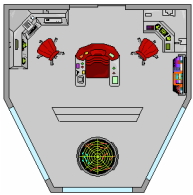
Even if you do not have a military structure among your crew, someone is still in charge of making the decisions regarding the welfare and safety of the ship. It's usually a good idea to put a place to afford this person some privacy nearby. This is the Captain's quarters, or the Captain's ready room.
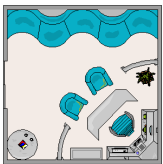
Also near the bridge of the ship would be some way of defending it, should the ship (heaven forbid) take on boarders who intend harm to passengers or crew. You'll often see weapons lockers near the bridge for this very purpose. Put them behind a sealed door, because you don't want passengers getting any wild ideas, now, do you? Sometimes weapons lockers are near the airlocks, because if someone is going to board you, that is where the battle is going to begin.
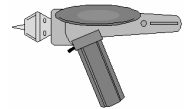
Near the bridge should also be a place for conferences. A good captain listens to his crew, and will often call conferences before making decisions that are not split-second in nature.

Life Support

Life support is important. This is a nebulous term, however, but to me it means 'all functions of a starship necessary for the health and welfare of its crew'. While this includes bits of machinery for things like atmospheric scrubbing, waste reclamation and water treatment, it also includes relatively comfortable crew quarters, crew recreational facilities, mess halls, and a place to go for medical needs like a sickbay or infirmary. Space is a big place, and journeys across it are usually long and boring. So maintaining mental health is just as important as physical health. Give the crew some place to put up their feet and have a good
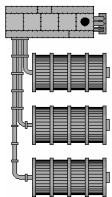
time--perhaps a small arboretum (very helpful in atmospheric scrubbing), or perhaps a game room.

How much space you dedicate to this is up to you. Quarters can be as cramped as four to a room, or as spacious as one-crewman-per room. How many people it takes to operate your ship is entirely up to your imagination, though, as there are no hard and fast rules. High-tech ships would tend to be more spacious for crew comfort, and low-tech ships would be a little more cramped. Speed is also a factor here - the ships in **Star Wars**® make jumps across the galaxy in great time, and have little need for quarters, while ships in the *Traveller*® universe take a week to make a jump. Space stations tend to have a lot more crew/visitor accommodations and recreational facilities.

Your 'sickbay' could be as complicated as a large room filled with medical equipment, a surgical bay, stasis units, and beds for the weak and weary, or could be as simple as a closet that offers nothing more than Perma-Skin strips for healing the boo-boos incurred while fighting hostile aliens.

Some ships have passenger facilities, for ferrying people from point A to point B (for a price). They can be as luxurious as you need them to be, or as primitive as a few cryogenic berths tucked in a cargo bay.

Computers

Your boat needs a brain. Traveling through space is a mathematically expensive task, and computers help ease the burden on the crew by providing them with a means of doing complicated mathematical computations in a short amount of time. They also hold library data for information about places and people and history. In lower-tech ships these would likely be near the bridge section, but in higher tech ships they would likely be 'buried' for protection or spread out across several networked nodes for even greater protection and backup. Nothing will spoil your day-cycle on a ship like a broken computer. Computers need interfaces, whether it is a single-person interface or interface panels strewn across the deck plan, unless of course it is purely a vocalized-driven AI-like interface.

Sensors

Ships need to know where they are going, so an array of various sensors is required unless the pilots are flying by sight alone. These help detect planetary bodies, suns, other ships or other navigational hazards. Some machinery near the nose of the ship is good for this, but for a 'full' view, sensors should be distributed around the entire structure. There should be a location for analysis of sensor data. This could be a console station or two on the bridge for high tech ships, all the way up to an entire room for low-tech ships. Sensors are usually tied to the main computer in some way, and are occasionally located near it.
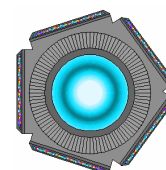
Weapons

Space is a dangerous place. It's like the open seas of the 1700's - a very large, open area with little law to keep the peace. Piracy can be a big problem, especially along the borders of empires, so ships have to have a means of defending themselves should they run afoul of interstellar malfeasance. These are usually technologically dependent, but they come in two varieties: beam weapons, and missile **weapons**. Missile weapons will have a magazine room next to the launcher for storing munitions.

How much space is dedicated to this task is technology and purpose dependent. A military vessel will be bristling with armaments, where a yacht might have minimal defenses.

Cargo

Space on your ship needs to be dedicated to moving goods around and storing goods necessary for the voyage. How much is entirely dependent on the function of the craft. If it is designed to be a cargo transport, a lot of space needs to be relegated to this function. If it is a luxury yacht that ferries passengers, some space needs to be relegated to carrying their luggage (enough for Joan Collins on safari). An exploration craft will need some to carry goods for the crew, as well as bring back samples of what they might find. Cargo areas are
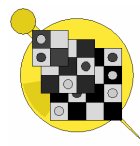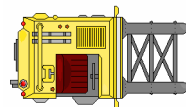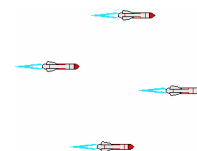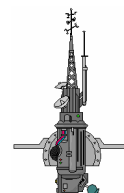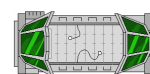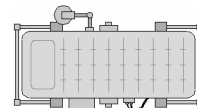
Weapons

A beam weapon discharges a blast of regulated energy (laser, phaser, black-death ray, etc). A missile weapon lobs a ball of energy (photon torpedoes, quantum torpedoes, black-death plasma ball, etc) or literally a guided rocket packed with an explosive warhead at the target.
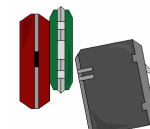
usually on the lower decks of a ship so that ramps can be lowered and cargo can be ferried in and out with ease.

Labs

All good ships have someone who is Much Smarter Than You on board. These are the scientists who know how warp field theory works, and are constantly digging around in soil for the next Neat Alien Thing. They're the ones that run into the middle of a firefight to get a sample of a plant. They're the scientists, and they need some place to analyze their wondrous finds. So give them a laboratory where they can explore their scientific breakthroughs. How much space is dependent upon technology and purpose of the craft. An exploration-type vessel would have more than a few, while a military ship might only have a closet dedicated to this task. They can be as specialized or as generic as necessary. Astrophysics labs, biological labs, xeno-biological labs, etc, would all likely be on board a larger ship.
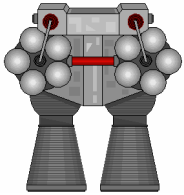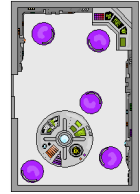
Engineering

If the computers are the brain of a ship, Engineering is its heart and muscle. It's also a rather broad-based term, however, as it includes just about any part of the ship that is electrical or mechanical in nature. It is where power is generated and stored, and how the ship gets from point A to point B.

You need to know how your ship moves. Is it a warp drive? Folded-space jump drive? Hyperspace drive? Ion drive? Thruster drive? Perhaps a combination of several of these. You don't need to know the intricate physics behind your propulsion system; you just need to set aside some space, put some machinery there, and be able to identify it for what it is.

Ships also need fuel. Low-tech ships tend to require a lot of space for fuel. Higher-tech ships make their own (a la Matter/Antimatter reactions, fusion, etc). Space stations need a *lot* of fuel on-hand in order to **refuel** passing starships.

If your ship has artificial gravity, there needs to be something in place that generates it.

Engineering should have its own separate control room. It is here that the engineering geeks gather around the technology to solve problems with it. The chief engineer should likely have his own office from which to conduct his mechanical affairs.

If a ship is low-tech, likely they would have several machine shops on board in order to fabricate spare parts. A higher-tech ship (such as one with replicators) would have an area designed for this task, but it'd likely be smaller in nature because the parts can just appear out of thin-air instead of having to be tooled by hand. Some sort of storage area should also be present for parts that tend to fail more regularly than others.

Starships need some form of access points to get at the machinery, whether it is panels on the walls, removable deck plates, or crawlway access-tubes. Give your engineers a way to get to the machines they may need to repair.

Airlocks

Your ship needs an airlock, or a means of getting on and off the ship. Repairs might need to be made in deep space, or you might want to dock with a space-station. Placement of the airlock is important in terms of traffic. You do not want, for instance, your airlock to dump VIPs into the engineering room. It should be attached to a 'common area' of the ship, or perhaps near the cargo bays. Even high-tech ships that have matter-transporters have airlocks. Near the airlocks are usually storage areas where you can find environmental suits in case an EVA ever becomes necessary.

Escape Pods

If there is a critical emergency, a ship sometimes must be abandoned. Be sure to allocate some space within your design for this function. It could be as simple as a pod ejection system, or as complicated as having designated staterooms seal-up and eject into space.

Refuel

Some ships refuel from passing stars or gas giants -- such ships would need, in addition to the external scoops for that fuel, a pass-through section for refining and processing.

Shuttle bay

Larger ships and ships that are not streamlined enough to enter an atmosphere will often have a shuttle bay for moving people and cargo from one place to another. Shuttle bays usually are 2-3 decks in height as necessary for maneuverability of the shuttles that are coming and going.

Special Effects

There are many other things that a ship could have in its arsenal of tricks, such as tractor beams, grappling hooks, cloaking devices, Bussard ram scoops, deflection arrays, subspace communication grids, holographic fun generators, shield generators, solar sails, etc. All of these are dependent on the tech level of the ship, and should be placed using the imagination as a guide.
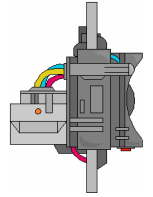
Conclusion

With these guidelines you should be able to construct a pretty 'reasonable' starship or space station. However, these are not the laws of physics - feel free to bend or break them as you see fit and let your science fiction imagination run wild.

Further Reading about the Space genre

The material here will help you create your space settings, but what about the specifics of the environment itself? The short list of books that follow are a few of the many books available that can help with the understanding of space, space environments and building space related settings.

World-Building (Science Fiction Writing), Stephen L. Gillett, Writer's Digest Books, ISBN 0898797071 (recommended as a 'must have' from our users' list folks)

Starlist 2000, Richard Dibon-Smith, John Wiley & Sons, ISBN 0471558958

The Writer's Guide To Creating A Science Fiction Universe, George Ochoa & Jeffery Osier, Writer's Digest Books, ISBN 0898795362

Guide to Stars and Planets, Ian Ridpath and Wil Tirion, ISBN 0-00-219067-2

COSMOGRAPHER
PRO
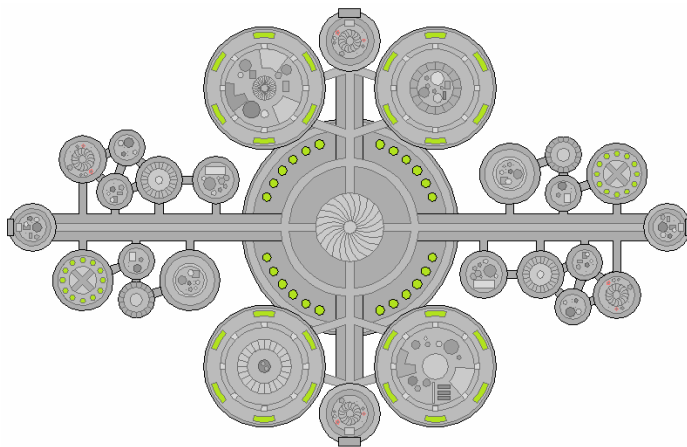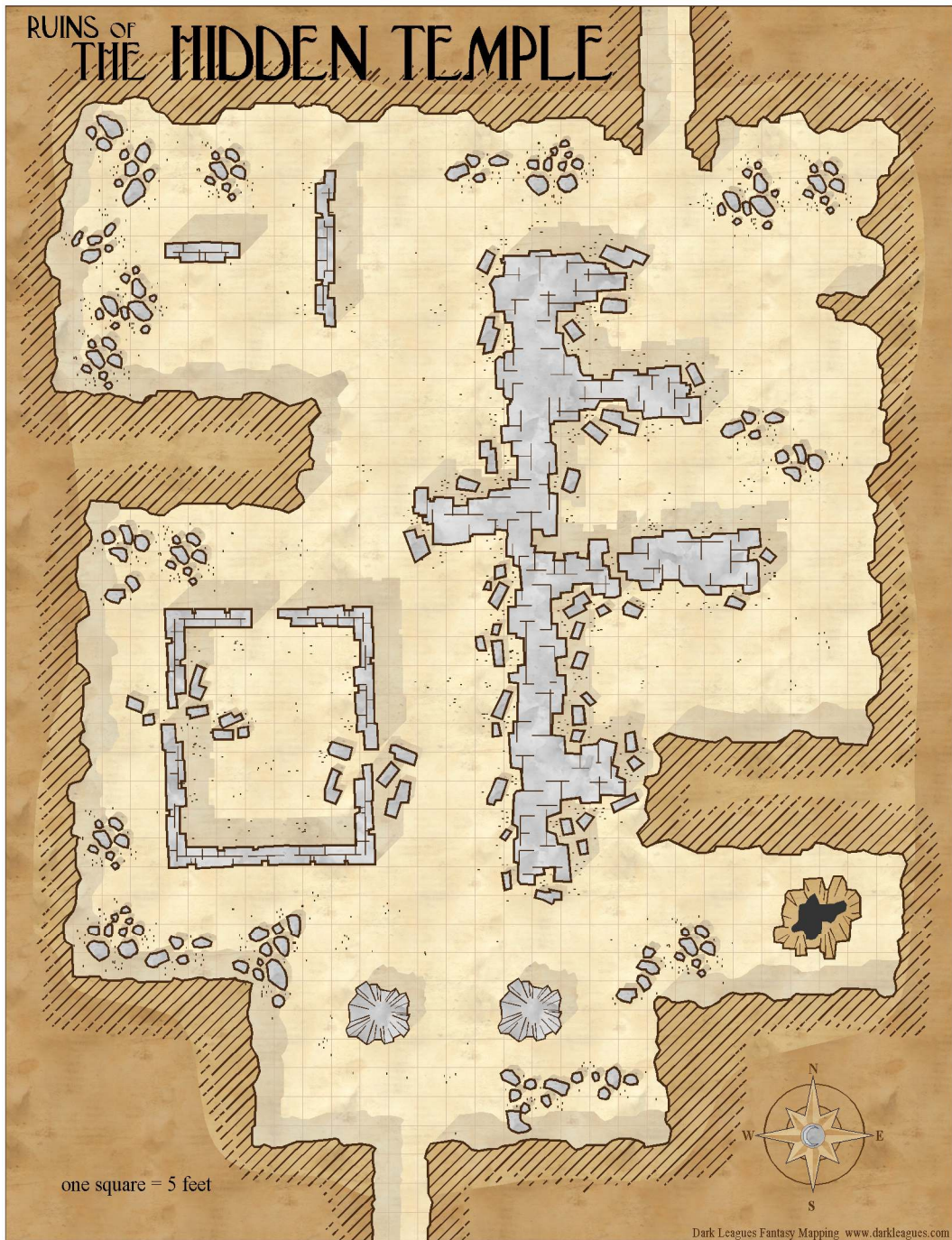
Ruins of the Hidden Temple by Allyn Bowker

The **Hidden Temple** uses bitmap fill styles.

RUINS OF
THE HIDDEN TEMPLE

one square = 5 feet

Dark Leagues Fantasy Mapping www.darkleagues.com

DIORAMAS

Dioramas Pro Introduction

Welcome to Dioramas Pro (Dio Pro). This section introduces the Dioramas Pro commands, and shows you how to use them to create three-dimensional fold-up structures to enhance your gaming experience. Additionally, the example drawings provided with your Dioramas Pro installation are explained, and advice is given on the craft of cardboard engineering.

Other Sources of Information

CC2 Pro's Help System. When you are using CC2 Pro / Dioramas Pro you can get in-depth information by pressing [F1], or by selecting Help from CC2 Pro's Help menu.

Web Based Tech Support. ProFantasy's web site www.profantasy.com has a comprehensive technical support section and details about e-mailing for help.

The CC2 Pro mail-list. This is a very active e-mail discussion group to help new users and discuss all things map related. To subscribe, follow the instructions at the ProFantasy Software web site, www.profantasy.com

Starting Dioramas Pro

Once you have completed the **installation**, start **CC2** Pro. The screen looks the same as before, but with one vital change... Nestled in the middle of the File toolbar is the **Dioramas** button.

If you can't see the **Dioramas** button, Click **Tools** button, then click next to **File toolbar**.

Latest Information

To find out about any additions to Dioramas Pro since this manual was written, double-Click **Readme** icon on the CD.

Maps from previous versions

Maps created in older versions of CC2 Pro may exhibit strange behavior with layers and symbols. To fix this, load each old map, type **CS**, press [ENTER] and then save the map.

The Dioramas Pro toolbar

Click **Dioramas** . The menu changes to include a new **Dioramas Pro** heading, and the bottom of the right hand toolbar is overtaken by new

Dioramas Pro Options			Change Panel Fill Style
Rectangular Panel			Polygonal Panel
Convert To Panel			Panel Multipoly
Add Tab			Geomorph Tab
Fold Line			Cut Line
Wall Net			Multi-Wall Net

The Dioramas Pro symbol toolbar

There are three symbol catalogs available in Dioramas Pro. To use these click on the **buttons** on the **Symbols toolbar**.

Earlsdale by Grimur Fjeldsted

Earlsdale uses basic CC2 Pro drawing techniques and symbols from Symbol Set 1 - Fantasy Overland.

Earlsdale is available from the Profantasy Download Library.

DIORAMAS

Dioramas Pro Geomorphs

Dioramas Pro provides a library pre-drawn **geomorphic diorama pieces** that can simply be opened, modified to your own specifications by adding fill styles and symbols, and then printed out for final assembly. Users familiar with Dungeon Designer Pro (DD Pro) will recognize these pieces as being 3D versions of DD Pro's dungeon geomorphs.

The geomorphic dungeon pieces also support a unique plug-in system. When constructed, each geomorphic piece consists of two or more separate pieces: a floor base, and one or more wall pieces. The floor bases possess fold-over plugs to which wall pieces may be pushed into place. In play, the system allows greater flexibility such that geomorph pieces may be mixed and matched at will, and walls may simply be removed to allow better access to miniatures and battle situations if required.

Dioramas Pro provides two sets of geomorph pieces: a blank set, in template form, allowing you to create geomorphic pieces for your dungeons; and a set of completed geomorphs that serve as both examples for the production of your own Dioramas Pro drawings, and as "fire and forget" pieces - that is, they may simply be opened and printed, ready for use, with a little editing.

Creating a new drawing using Dioramas Pro geomorphs

If you want to create a floorplan from plug in sections, adding your own fill styles and symbols, follow these instructions. Completed geomorph examples are found in the **Examples\Dioramas\Geomorphs** folder.

1　Start **CC2 Pro**, either by clicking its icon on the Windows® desktop, or by selecting **Windows® Start Menu** >> **Programs** >> **Campaign Cartographer 2**.

2　Click **File menu** >> **New** >> **Geomorphs...**

　　　You can see a selection of templates for full of geomorph pieces.

3　Choose the required geomorph template.

4　Click **File menu** >>**Save As**. Type in an appropriate name for your Geomorph and **Save**.

Adding symbols to Geomorph pieces

Dioramas Pro provides a symbol catalog of features such as doors, windows, shutters, and curtains that can be added to any Dioramas Pro drawing.

5　Click **Wall Features** 🚪.

　　　The Dioramas Pro Wall Features symbol catalog will open in the Symbol Catalog window.

6　Click the required **symbol**, and place it within the drawing at the appropriate location.

Changing the fill styles of Dioramas Pro Geomorphs

The Dioramas Pro geomorphs start out plain white. You will probably want to add fill style and color to them.

7　Click **Change Panel Fill** 🔲

8　Select the panels you wish to change. Right-click when you have selected all required panels.

　　　You see the Change Panel Style dialog box:

　　　The currently selected panel foreground fill style is **Hollow** and black, and the currently selected background fill style is **Solid** and white.

9　Use the **Foreground** drop-list to select the required

---

foreground fill style.

10   To change the color of the foreground fill style, click on the box showing the current foreground color (directly to the right of the **Foreground** fill style list).

The standard CC2 Pro Select Color dialog box will appear. Click on the color you want, and press **OK**.

11   Repeat the above steps to change the background fill style and color.

A certain amount of experimentation is necessary to achieve your desired results. As a guide, you can look at the provided Dioramas Pro example files, and the Dioramas Pro Fill Styles palette drawing, which are located in the **Examples\Dioramas** folder and sub-folders.

Other Geomorph tips and tricks

As you peruse the geomorph templates and examples, you will notice that some geomorph pieces are divided across more than one page, and other pages contain more than one geomorph piece. Do not be afraid to move the pieces around - or even delete them from the drawing - to achieve the result you desire.

The geomorphs are designed to be flexible to allow you to swap pieces and move them around. Just because a particular wall section normally "belongs" to a particular geomorph piece, does not mean you cannot use that wall section to plug into a base piece to which it is not normally associated.

Finally, keep all of the geomorph pieces you assemble! Because they are generic in design, a store of pieces will allow you to build rooms, corridors, and so forth as you require during play. Thus there is thus no need to print and assemble separate pieces for every location in a given dungeon, and pieces you assemble for one dungeon may work just as well for delving through a different labyrinth entirely. This philosophy also applies to pieces you create yourself - keep them; your scalpel and printer will thank you in the long run!

Fill Styles

Foreground fills consist of symbol fills (e.g., **Slate Fill**), while Background fills consist of a **Solid** color fill, or one of the available bitmap fills.

The actual color used by a bitmap fill style is dependent on the bitmap itself, not on the selected background fill color.
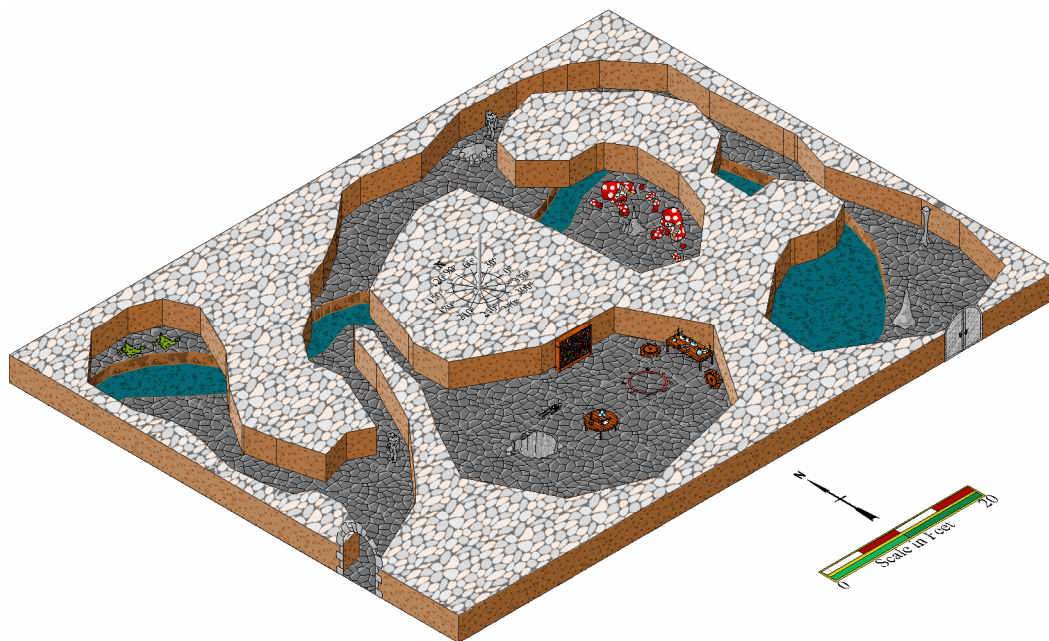
Cave Workshop by Mark Warreb

This is a Perspectives Pro drawing using basic Per drawing tools and standard symbols. **Cave Workshop** is available to view in the Profantasy Download Library.

DIORAMAS

Creating Dioramas

You don't have to create your dioramas from the pre-defined pieces described in the previous chapter. You can start from scratch and use the tools provided to make a wide range of shapes.

Starting a new blank diorama

1   Click **New** 📄 . Click **Dioramas.FCT**.

2   Save the blank diorama under a new name.

Features of the Dioramas Pro template

The Dioramas Pro template comprises eight pages, each 45'×35', allowing you to draw several diorama pieces within a single drawing.

Each of the template's pages provide additional functionality, in the form of a scale bar, a set of instant print buttons, and a set of page buttons.

The **instant print buttons** provide an easy method to print your Dioramas Pro drawings at a scale correct for the miniature scale you are designing for.

The **page buttons** permit easy navigation around your Dioramas Pro drawing. The page on which you are currently working will be indicated by a red page button. Pressing one of the blue buttons will take you to the indicated page number within your Dioramas Pro drawing.

The **scale bar** provides a double-check when printing a Dioramas Pro drawing to scale. When printed, the actual distance between the left-hand edge of the bar to the relevant miniature scale notch should be 2" (51mm). For example, the entire bar should measure 2" in length when printing to 15mm miniature scale.

A completed example of the following tutorial can be found by opening **Steps Example.FCW** in your **Examples\Dioramas** folder. For convenience, all of the steps involved in the example are illustrated within the same drawing on separate pages.

Planning (the complexities of avoidance)

Sometimes, diorama drawings can be difficult to work through from a cold start. It is often worthwhile to quickly sketch the piece you intend to build. This helps prevent the discovery that your drawing is impossible to construct or that it is not possible to draw the piece you want. Sketching will help you visualize the piece you are drawing. It is a good idea to draw such sketches, and any other construction lines you draw, in an easily selected color, such as red, to ease their removal once you have finished with them.

For the purpose of this example, we will be creating a simple stair section, with 5' exaggerated steps to allow easy placement of miniatures. To help us, we might **sketch** the intended piece thus:
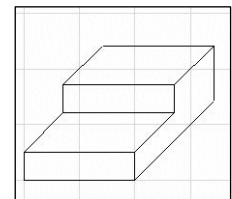
Drawing panels

When drawing your dioramas object, think of the object in terms of a series of two-dimensional blocks with each block comprising an area between the corners of the 3D shape. Our stair example comprises eight such blocks - the front of the lower step, the top of the lower step, the front of the upper step, the top of the upper step, the back of the stairs object, its base, and two sides.

Instant Print Buttons

When you click on one of these buttons, Dioramas Pro will ask you whether you want to print. If you answer "Yes" to this prompt, the current page (not the entire drawing) will be printed, at the miniature scale indicated by the instant print button that was activated. For example, pressing the **15mm** instant print button will print the current page correct for use with 15mm scale miniatures.

Sketches

Note that such sketches do not need to be either proportionally accurate or to scale, nor do you have to use CC2 Pro to construct them. The idea is to simply provide an aid for visualization of the object to be drawn - a hasty scribble on a piece of scrap paper will serve just as well.

The easiest method of converting a 3D object into a flat-pack dioramas drawing is to draw each of these blocks individually such that they join each other where they will be folded to create the final piece. This method also allows greater flexibility when it comes to selecting fill styles. The most conservative method is to draw all of the blocks as a single object, or panel, and then add in fold lines as necessary to divide this object into the separate blocks it represents.

We will start by drawing the stairs as eight individual panels, beginning with the front of the lower step.

1   Click **Dioramas Options**

The Dioramas Pro Options dialog box will appear:

It is here that you set the currently used Dioramas Pro drawing options. For now, we wish to change the **Panels** options to reflect a vertical wall panel. Change **Foreground** to Slate Fill, foreground **Color** to black (color 0), **Background** to Solid, and background **Color** to a light gray (color 252).
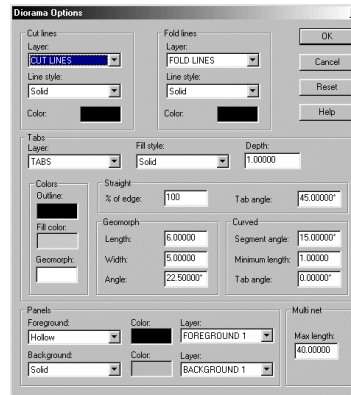
2   Click **Rectangular Panel** , and draw a rectangle 10' wide and 2.5' tall.
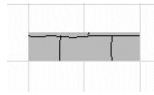
3   Now go back to the **Dioramas Options** and change the **Foreground** to **Paving 31 Symbol**.

4   Draw another polygon using the **Rectangular Panel** , this time making it 10' wide by 5' tall.

5   Copy both of the panels you have drawn once, so you now have two 10'×5' polygons, and two 10'×2.5' polygons.

6   Arrange these four polygons so they form a chain.
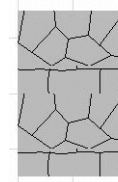
7   Now we'll draw the back panel for the stairs. Go back to the **Dioramas Options** , and change the **Foreground** back to "Slate Fill".

8   Draw a rectangular panel, making this one 10' wide and 5' tall.

The back panel needs to be tall enough to accommodate the height of both steps. Since each step is 2.5' tall, the back panel needs to be 5' tall.

9   Click **Dioramas Options** , and change the **Foreground** to **Slate Fill 90**.

Because the side-panels we are about to draw need to be at a right-angle to the panels we have already drawn, the fill style used must also be **aligned** to a right-angle from the panels we have already drawn to ensure the final drawing looks right when assembled.

10   To draw the side panel, imagine that you are looking at the stairs from the side. Click **Polygon Panel** , and start the panel by selecting the **Endpoint** , and clicking to select the top right corner of the panel representing the top of the uppermost step. Use **Endpoint** again to select the bottom right corner of the same panel.

11   To get the point necessary for the step down, type in the **coordinates**. Type **@2.5,0** at the command line and press ENTER . Continue this method to place the remaining points-- **@0,-5** to get to the end of the lower step, **@2.5,0** for the vertical lower step, and **@0,10** for the remaining necessary point. Right click to complete the panel.

DIORAMAS PRO

Mirrored Copies

CC2 Pro possesses many different copy commands which are of much use when creating Dioramas drawings. Two of the most useful for Dioramas drawings are **Mirrored Copies** and **Rotated Copies**..

Fold Lines

By default, both cut and fold lines appear as black, solid lines. You can change the style used for cut and fold lines by clicking on the **Dioramas Options**, and setting Line Style options accordingly.

Using + or - keys

When the + key is pressed, the number of tabs Dioramas Pro will draw along the selected edge will increase (you will see the outline tabs increase in number). Similarly, pressing the - key will decrease the number of tabs to be drawn, to a minimum of a single tab. This is useful when creating particularly complex or delicate objects - an increased number of tabs will, for certain objects, make assembly of the object easier to achieve, at the sacrifice of making it harder to cut out.

Tab Width

The maximum width of a tab is dependent on the panel to which it will be glued. The tab cannot be of greater width than this panel, and it is recommended that the tab is smaller than this. If more than one tab is to be glued to a single panel, you must also consider the area required to accommodate all such tabs when deciding the width to use. It is a trade-off between making the tab as large as possible to ease construction, and ensuring that the tabs will not interfere with any other part of the object.

continued on the next page

12 Click **Copy Menu** >> **Mirrored Copies**, click the panel we have just drawn, and choose a vertical mirror line that starts at the center of one of the rectangular panel's sides, and ends at the center of another.

13 Click on the **Dioramas Options** [icon] again, and change **Foreground** fill style to Hollow, **Background** fill style to Solid, and background **Color** to white.

> We are about to draw a base for our step object. Because the base will not be in view when the final object is used, there is no need to waste printer ink on drawing unnecessary color fill.

14 Draw a 10'×10' rectangle, attached to the back wall panel of the drawing.

> The base panel needs to accommodate both the width of the object, and the combined heights of the panels that will eventually form the horizontal planes of the steps. Since we have drawn each step 5' tall, and there are two steps, the height of the base panel needs to be 10'.
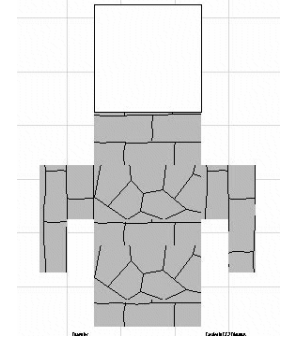
Fold and cut lines

Fold and cut lines are used to guide the constructor of a dioramas object. Their specific use is self-explanatory.

To draw fold lines, click **Fold Lines** [icon], and draw the line in as you would normally draw a line object. Similarly, click the **Cut Lines** [icon] to draw cut lines.

15 Click **Fold Lines** [icon], and draw from the top left to the top right of the lower step's vertical panel.

16 Repeat this process for all of the panel intersections.

Glue tabs

Glue tabs are used within the final assembly of a Dioramas Pro object, being the points at which folded panels are attached to each other. As with all Dioramas Pro drawing functions, tab style drawing options may be set through the **Dioramas Options** dialog.

17 Click **Add Tab** [icon].

> Dioramas Pro will now begin the tab drawing process, and the command prompt reads First point (or edge).

18 Select the long edge of one of the step side panels.

> An outline of the tab to be drawn appears attached to the panel edge selected. By moving the cursor, you will notice the outline extend or contract, from the panel edge to the current cursor position. The command prompt changes to read prompt Set width [default width](+,- adjust tab count).

At this point, you can either left-click to complete the drawing of the tab, type a value at the command prompt to specifically set the width of the tab (this will draw the tab and complete the command), or press the + or - keys on the numeric keypad of your keyboard.

With the cursor positioned so that the outline tab appears outside of the panel it is to be attached to, type 1 at the command prompt, and press ENTER.

> Dioramas Pro will draw the tab, with a **width** of 1' from the edge of the panel.

19 Repeat the process for the remaining four edges of the side panel and for the lower edge of the panel representing the vertical front of the lower step.

20 Right-click **Copy** 🔲, then select **Mirrored Copies** selecting a mirror line running vertically through the center of the steps object, to copy the side panel tabs we have drawn across to the opposite side panel.

Complex objects

The steps object we have drawn in the above example is relatively simple. Of course, Dioramas Pro possesses the functionality to allow you to draw structures with greater complexity than this!

As with any Dioramas Pro object, it is often very helpful to quickly sketch the desired result. This is especially true with complex objects. Remember that these sketches only need to provide guidance. Accuracy is not important, as long as the sketch provides a useful visualization guide.

You should always, as far as possible, draw panels at 45° increments. This is because the Dioramas Pro fill styles only support 45° angles. If part of your object must be at another angle, consider drawing that part as a separate object to be attached to the final assembly. Of course, this general rule does not apply to panels that will either have no symbol fill style, or those making use of fill styles that, by default, work at any angle.
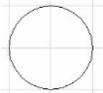
Finally, spend a little time to think about that which you are about to draw. A couple of minutes spent in cogitation can often save painful hours spent seeking and correcting errors later.

Circles and tubes

True circular and tubular objects are almost impossible to achieve in cardboard engineering, unless said circle or tube is the be-all and end-all of the object you are creating. As soon as you require something to be attached to a circle or tube, by way of glue tabs, the practicality of such objects breaks down.

It is better, then, to draw circular and tubular objects as standard polygons; the more sides possessed by such polygons, the more circular they will appear. Obviously, the practicalities of assembly forego drawing polygons with a huge number of sides. The trick is to create a polygon that represents the object you desire as closely as possible without making assembly impossible.

The following process will guide you through the steps necessary to create a closed tube object (e.g., a circular tower). The steps are illustrated within the **Circles and tubes.FCW** drawing, located within your **Examples\Dioramas** folder.

1 Draw a circle of the desired radius.

2 Click **Add Tabs** 🖊.

3 Click the edge of the circle.

> The outline tabs will appear around the circle. Note that we are using the tabs here to ultimately guide the drawing of our circle representing polygon. We will eventually delete these tabs, along with the circle, so the usual tab drawing guidelines do not apply.

4 Press the ⊞ or ⊟ keypad keys until the desired number of tabs appear.

> For the example, I have opted to represent the tube with a 14-sided polygon. Thus, I have used the ⊞ and ⊟ keys until 14 tabs have appeared surrounding the circle.

5 Click outside the circle to complete tab drawing.

6 Click **Erase** 🖊 then delete the circle.

7 Click the **Attach** button, so it appears depressed.
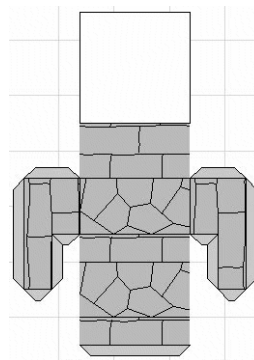
Where you have the option of placing a tab on one of two panels that will ultimately mate, always choose the narrower of the two panels on which to draw the tab. This will allow you to make the tab as large as possible.

Attach

The Attach button forces CC2 Pro to use function similar to that supplied by the modifiers (Endpoint, On, etc.) with every click. The major difference between the two being that, where the modifiers will not place a point if you do not click upon an object they can act upon, use of the attach mode will allow such point placement (the point, in this case, will be placed normally).

To set the specific attach mode used, right-click over the Attach button, and select the required mode from the list that appears.
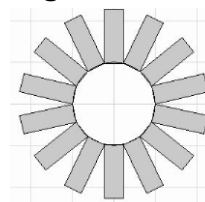
For our purposes, we require the **Nearest Endpoint** attach mode. It is a good idea to right-click on the **Attach** button now to check that this is indeed the currently selected mode.

8   Click **Polygonal Panel** , then draw a panel by clicking on the points at which the tabs meet.

> Do not click on any point more than once. When you reach the last point around the "circle" before the first point you placed is reached, completing the panel command by right-clicking and selecting Do It from the menu that appears will close the polygon between these points.
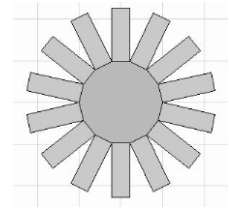
9   Erase all of the tab entities.

10   Use **Info Menu** >> **Distance** to measure the distance along one side of the panel you have just drawn. Make a note of the distance **CC2 Pro** reports.

> Keeping the **Attach** button down at this point allows the Distance command to be used easily - just click on two adjacent corners of the panel. My example polygon is 2.2252' per side.

11   Click the **Attach** button.

> Turns attach mode off. We don't need it anymore.

12   Click **Rectangular Panel** , then click within the drawing to start a new panel.

> This rectangular panel will form the tube.

13   Type **@14*2.2252,0** at the command prompt.

> This will place the second point of our tube panel a horizontal distance from the first point clicked equal to the combined "circumference" of our circle representing polygon. We can let **CC2 Pro** **calculate** this for us.

14   Click at a point above or below those already placed to complete the tube panel at the desired height.

15   Click **Fold Lines** .

16   Click **Modifiers Menu** >> **% Along**.

17   At the command prompt, type **100/14**.

> This is another instance of allowing **CC2 Pro** to do the hard math for us. We wish to draw our fold line so that it is 1/14th of the distance along the tube panel, or 100% divided by 14. The "14" in this equation should be replaced by the number of sides possessed by your circle representing polygon, if different.

18   Click on one of the long edges of the tube panel.

19   Repeat steps 16 through 18, this time clicking on the opposite edge of the tube panel.

20   Click **Copy** , then select the fold line just drawn.

21   Click **Endpoint** modifier, then click on the closest top corner to the fold line just drawn.

22   Click **Endpoint** modifier again. This time click on the original fold line, close to its upper end.

23   Continue placing fold line copies by using the **Endpoint** modifier. When you place the copied line, click on the last fold line copy placed close to its upper end. Repeat until all necessary fold lines have been placed (13 in total, or however many your design requires).
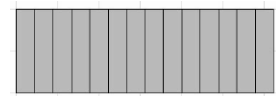
24 Click **Add Tab** ◣.

25 Select one of the long sides of the tube panel to start the tab.

26 Use the ⊞ keypad key to increase the number of tabs drawn to 14 (or however many your design requires).

27 Type **1** at the command prompt, then press ⌷ENTER⌷ to complete the tab command.

28 Right click **Copy** ⊞, then select **Mirrored Copies**. Copy the tabs to the opposite side of the tube panel.

29 Click **Add Tab** ◣, then draw a 1' wide tab along one of the short sides of the tube panel.

30 Copy the polygon representing our circle to gain a base for the cylinder.
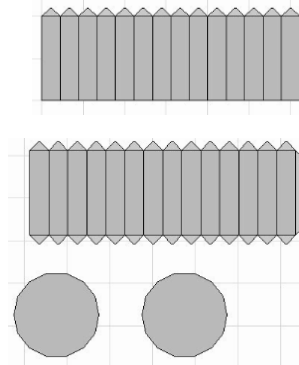
Multi-page objects

Although it is desirable to keep Dioramas Pro objects to one page as far as possible, particularly large and/or complex objects may require more than a single page.

For most drawings, it is simply a case of placing different component parts upon different pages (e.g., placing corridor wall sections on a different page than their base pieces). However, there may be times when a single piece is too large to fit within a single page. When this problem occurs, break the intended drawing into more than one logical component (breaking a long wall section into two wall sections is more logical than, for example, breaking a single wall section in half lengthways). Keep in mind how easy it would be to **re-join** the pieces upon assembly, avoiding breaks that would cause unnecessary complications.

Adding symbols

Dioramas Pro provides two symbol catalogs, which can be used to add life and detail to your Dioramas Pro designs. Both catalogs can be found within your **Symbols\Dioramas** folder.

Dioramas Wall Features contains symbols that can be added to walls, buildings, etc., including doors, windows, shutters, torch brackets, curtains, and so forth. These symbols are simply placed within a given drawing where necessary.

Dioramas Symbols contains pre-fabricated parts that, when assembled, form common items of furniture, dungeon dressing, etc. The best way to use these is to place those required for a given construction on a separate Dioramas Pro page (or, if available, within blank areas of pages that have already been used for drawing). Once printed, these symbols are assembled just as any other Dioramas Pro drawing.

Dioramas Castles contains symbols useful for creating 3D castle parts.

Drawing buildings

All of the techniques we have learned thus far can be put forward into drawing buildings of any type, from the simplest cottage to the most complex fortress.

1 Open **Example Buildings.FCW**. You'll find it in your **Examples\Dioramas** folder.

The three relatively simple buildings contained within this drawing have all been drawn using techniques we have already discussed. Since the chapel in the example drawing comprises the most complexity, the following tutorial will guide you through the steps necessary to draw that particular building.

2 Draw a 10' square blank (that is, black hollow foreground, white solid background) panel using the **Rectangular Panel** .

3   Change the **Panel Options** ▣ to **Foreground** Roof Slate Symbol, **Background** Slate.

4   Draw a regular triangular panel using the **Polygonal Panel** ⬙, with its base against the lower edge of the blank panel, of height 15'.

5   Change the panel options to **Foreground Roof Slate 90** symbol.

6   Draw another triangle, of the same dimensions, with its base against the right edge of the blank panel.

7   Draw in the remaining two steeple roof sections, using **Roof Slate 270** symbol foreground fill for the left-hand side, and **Roof Slate 180** for the topmost side.

8   Click **Add Tab** ✎, then **place** one tab along one side of each of the four spire roof panels, such that the tabs alternate.

9   Change to another page by pressing one of the blue page buttons.

10   Change the **Panel Options** ▣ to **Foreground** Slate Fill, **Background** Dark Sandstone.

11   Draw a **Rectangular Panel** ▧, 10' wide and 25' high. Position this panel towards the left edge of the page.

12   Draw a second rectangular panel, this one being 30' wide, and 17.5' high. Position this panel immediately to the right of the panel you drew in step (10).

13   Draw another rectangular panel, this one being 10' wide and 7.5' high. Position this panel so that its lower left corner is attached to the upper left corner of the large panel drawn in step (11), and its upper left corner is attached to the upper right corner of the panel drawn in step (10).

14   Click **Add Tab** ✎, then place tabs along the left hand and topmost edges of the panel drawn in step (10), the right hand edge of that drawn in step (11), and the topmost edge of that drawn in step (12).

15   Draw a 20' long horizontal line away from the panels already drawn.
     This is a **construction line**.

16   Add a tab to the line you've just drawn, so that the tab faces upwards.

17   Delete the construction line.

18   Move the tab drawn in step (15), so that its lower right corner is attached to the upper right corner of the panel drawn in step (11).

19   Click **Fold Lines** ⬥, then add a fold line along the leftmost edge of the small panel drawn in step (12).

20   Click **Cut Lines** ⬥, then add a cut line along the lower edge of the small panel drawn in step (12).

21   Select **Copy Menu >> Mirrored Copies**, then copy the panels drawn in steps (10) and (11) through a vertical mirror line.

22   Click **Move** ⬒, then right-click to bring up the selection menu. Choose **Prior**.
     This will select the mirrored copies we have just created.

23   Place the selected panels onto a blank page within the current Dioramas Pro drawing.

24   Use **Add Tab** ✎ to add tabs to the upper and right edges of the tall, narrow panel just placed, and to the upper and left edges of the shorter, long panel.

25   Change to a blank page by clicking on one of the blue page buttons.

26 Click on the **Rectangular Panel** ⬛, then draw a panel that is 25' tall, and 10' wide.

27 Click on the **Polygonal Panel** ⬛.

28 Left-click to place the starting point of our new panel. It is advisable to place this point close to the bottom of the page's grid.

29 To place the next point, type **@0,17.5** at the command prompt, and press ⌷ENTER⌷.

30 Type **@5,5** then press ⌷ENTER⌷ to place the third point.

31 Type **@5,-5** then press ⌷ENTER⌷ to place the fourth point.

32 The fifth point is placed by typing **@0,-17.5**, then pressing ⌷ENTER⌷.

33 Right-click to close the panel.

34 Use **Add Tab** ⬛ to add tabs to the upper edge of the rectangular panel, and to each of the sloped edges of the polygonal panel.

35 Change to a blank page by pressing one of the blue page buttons.

36 Change panel options to **Foreground** Roof Slate Symbol, and **Background** Slate.

37 Draw a rectangular polygon that is 30.5' wide, and 7.57107' tall.
Those measurements were arrived at by **precise calculations**.

38 Copy the previous rectangle, so that the copy's top right corner is attached to the original rectangle's lower right corner.

39 Click **Change Panel Fill Style** ⬛, then select the copy you've just made. Right-click and select **Do It** to confirm your selection.

40 Change the **Foreground** fill style to **Roof Slate 180** symbol.

41 Change to a blank page, by pressing one of the blue page buttons.

42 Change the panel options to **Foreground** Slate Fill, **Background** Dark Sandstone.

43 Draw a polygonal panel by repeating steps (26) through (32).
Alternatively, copy the panel you've already drawn using those steps to the page you are now working on.

44 Click **Rectangular Panel** ⬛, then draw a panel that is 5' wide and 17.5' tall. Draw the panel so that it is directly adjacent, and in line with, the polygonal panel.

45 Select **Copy Menu** >> **Mirrored Copies**, then copy the rectangular panel across using a mirror line that vertically bisects the polygonal panel.

46 Click **Add Tabs** ⬛, and place tabs along all external sides of the panels with the exception of their bases.

47 Change panel options to **Foreground** Roof Slate Symbol, and **Background** Slate.

48 Click **Polygonal Panel** ⬛. Click to start drawing, then use the following point co-ordinates (remember to follow each co-ordinate pair with ⌷ENTER⌷): **@10.5,0 @0,7.57107 @-5.14645,0**. Right-click to complete the panel.
Those values were **arrived at** by precise calculations.

49 Select **Copy Menu** >> **Mirrored Copies**, then copy the panel just drawn over a mirror line extending horizontally across its lower edge.

Precise Calculations

The height of the roof panels (7.57107' in the example) was calculated using Pythagoras' Theorem, and adding a 6" gutter overhang. For a complete explanation of this calculation, refer to End Panel Calculation on page 284.

Arrived At

The values listed in the example for the relative co-ordinates of the extension roof panel were calculated using common trigonometry. For a complete explanation of this calculation, refer to the Roof Extension Calculation on page 284.

50 Click **Change Panel Fill** , then select the panel copy. Right-click then select **Do It** to confirm selection.

51 Change the **Foreground** fill style to **Roof Slate 180** symbol.

52 Go back to all components of the chapel you have drawn, and add wall feature symbols as desired.

By using the processes learned here, buildings of virtually any complexity may be created. To add even more spice to a building, consider adding beams, wall sections using different panel fill styles, and any other desired frills. You might, for example, wish to draw chimneys to add to your building. These can easily be drawn using the skills you have learned over the course of these tutorials.

Mathematical Revision: Pythagoras and trigonometry.

End Panel Calculation – from the preceding page

Consider this diagram, depicting a portion of a house end panel. .

Pythagoras states that the square of the hypotenuse is equal to the sum of the squares of the other two sides, thus: $H^2 = A^2 + O^2$ or $H = \sqrt{A^2 + O^2}$

For the example, this equates to: $\sqrt{5^2 + 5^2} = 1.07107$. Adding on the gutter overhang we require (6", or 0.5'), the total height we need for the roof panel is gained.

The length of the hypotenuse, H, is the minimum height of a single roof panel needed to marry properly with the sloping edge of the house wall panel. In most cases, it is simpler to use CC2 Pro's **Info Menu** >> **Distance** command, using the **Endpoint** modifier to snap the points measured between to the ends of the sloped side, to gain this distance. This is, however, not always convenient, and it is in these cases that Pythagoras can be an invaluable tool.

In other situations, even Pythagoras may not provide the necessary solution. If we cannot measure side H (or it is inconvenient to do so), and side A or side O are equally problematical, it may be useful to make use of common trigonometric formulae, such that

$H = \dfrac{A}{Cos(a)}$ and $H = \dfrac{O}{Sin(a)}$. Angle a can be measured by using **Info Menu** >> **Bearing Angle**, and using the **Endpoint** modifier to pick up both ends of the sloping side. Most calculators (including that included with the Windows® operating system) provide buttons to automatically calculate angle sines (sin) and cosines (cos). For our example (given that a is 45°, and lengths A and O are both 5'): $\dfrac{5}{Cos(45)} = 7.07107$ and $\dfrac{5}{Sin(45)} = 7.07107$

In summary, if using CC2 Pro's measurement functionality is inconvenient for whatever reason, use Pythagoras to calculate H if A and O are both known.

If O is unknown, but side A and angle a are known, calculate H by dividing side A by the cosine of angle a.

If A is unknown, but side O and angle a are known, calculate H by dividing side O by the sine of angle a.

Roof Extension Calculation – from the preceding page.

The values listed in the example for the relative co-ordinates of the extension roof panel were calculated using common trigonometry. Namely, the one standard trigonometric formula we have not yet discussed, that for the tangent of an angle: $Tan(a) = \dfrac{O}{A}$
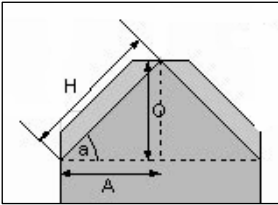
Consider this diagram, which represents one panel of an extension roof net.

To draw this panel without including a gutter overhang is a simple task. Starting from the extreme left-hand point, we would simply use:

A horizontal co-ordinate (A) representing the sum of the distance the extension juts into the house (A'') and the distance it juts out from the house (D). This would be @10,0 in the example, since A'' and D are both 5' in length).

A vertical co-ordinate (B) equal to the length of the sloped side of the extension's front wall (calculated as per standard panels - see Mathematical Revision: Pythagoras and Trigonometry above). This calculates to @0,7.07107 for our example.

A negative horizontal co-ordinate (D) equal to the distance the extension juts out from the house. This is @-5,0 in the example.

Right-click to close the panel, which will automatically create side H.

However, if we desire a gutter overhang, things get a little more complicated. In this case, our co-ordinates would be (again, starting from the extreme left-hand point):

A horizontal co-ordinate (A+A') representing the sum of the distance the extension juts into the house (A''), the distance it juts away from the house (D), and the required frontal overhang (A'). The co-ordinate used for the example, using a 6" overhang, is thus @10.5,0.

A vertical co-ordinate (B+B') equal to the length of the sloped side of the extension's front wall (B), plus the required side-wall overhang (B'). For our example, this is @0,7.57107.

A negative horizontal co-ordinate (D') equal the distance the extension juts away from the house (D), plus the required frontal overhang (A'), less the base of a triangle of height equal to the side overhang distance (B'), and the resultant extension of the sloped edge of the extension roof panel (D''). Our example requires a co-ordinate equal to @-5.14645,0,

calculated using the formula: $D' = D + A' - \left(\dfrac{B' \times A''}{B} \right)$

Right-click to complete the panel, which will automatically draw in the side H+H'.

This co-ordinate formula used for D' is derived using trigonometry. To calculate D'', we must apply the tangent formula twice: first to calculate the value of the tangent of angle a, and second to use this value to calculate the length of D''.

First, from the diagram: $Tan(a) = \dfrac{B}{A''}$ and second: $D'' = \dfrac{B'}{Tan(a)}$

To avoid dealing with messy tangent values, we can combine these two equations to gain:
$D'' = \dfrac{B' \times A''}{B}$ and, to simplify further, we can combine this into a single equation that can be

used to calculate D': $D' = D + A' - \left(\dfrac{B' \times A''}{B} \right)$

Using the above theory and formulae, any roof overhang may be calculated, including those for roof sections that overhang the front and sides by different amounts.
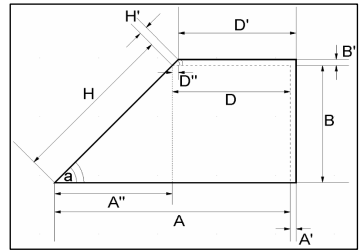
DIORAMAS PRO

Printing and Construction

So, you have drawn your Dioramas Pro masterpiece, or simply opened one of the example drawings and now you wish to construct the model described therein. What now? How do you make sure the printed model suits the miniatures you are using? On what should the model be printed to make sure it does not collapse the first time an ogre steps onto it? Take heart - these questions are about to be answered.

Miniature scales

There are several standard scales used for role-playing and wargaming miniatures, which determine two characteristics--the rough height of a miniature depicting a normal human being, and the ground scale used when utilizing such miniatures in play.

The **rough height** of a standard miniature is directly determined by that miniature's scale, in that (for example) a 25mm scale figure depicting a normal human being will roughly stand 25mm tall.

The relationship between miniature scale and **ground scale** is largely down to the specific game being played. For most role-playing games where an individual miniature represents a single character, the scale of the miniature determines a ground distance of 5 feet Imperial, or two meters metric.

Wargames offer slightly different ground scaling options. Since most wargames make use of men-to-miniature ratios (usually one miniature is representative of ten individuals, (this scale may be different depending on game system used, and the total number of combatants involved), ground scale can likewise be adjusted to suit. Drawing example from TSR's *BattleSystem™* wargame, at 25mm miniature scale one inch is taken to represent 10 yards - our 4'×2' table can thus show an area equal to 1,400'×720'. At 15mm miniature scale, where $^9/_{16}$" represent 10 yards under this system, our table can show an area of 2,560'×1,280'. By adjusting men-to-miniature ratios, selecting a reasonable miniature scale, and deriving a logical ground scale, any battlefield may be represented by the space available for play. To give a rough idea of the import of such selections, the battle of Agincourt took place over an area of roughly 1,700×2,050 yards, and involved around 40,000 individual combatants. To show this battle using a scale of 1"=10 yards, at a men-to-miniature ratio of 10:1, you would require 4,000 miniatures, and a playing area 14'×17'. By adjusting the miniature and ground scales, and men-to-miniature ratio, the battle would become much easier to represent, and a lot more manageable for game play.

The following summarizes common miniature scales, ground scales for 1:1 men-to-miniature ratios, and CC2 Pro print scale options to achieve correctly scaled counters, CC-Dioramas Pro output, and elevation view character representations. In all cases, miniature scale is representative of 6' in elevation.

Miniature Scale	Ground Scale (representing 5' distances)	Counter/CC-Dioramas Paper Distance	Character Elevations			
			Drawing Distance	Paper Distance	Drawing Distance	
3mm*	$^1/_8$"	1	480	1	576	
6mm*	$^1/_4$"	1	240	1	288	
15mm	$^9/_{16}$"	1	106.667	1	128	
20mm	$^{13}/_{16}$"	1	73.846	1	88.615	
25mm	1"	1	60	1	72	
28mm	$1^1/_{16}$"	1	56.47	1	67.765	
30mm	$1^3/_{16}$"	1	50.526	1	60.632	

* These scales are usually only used when depicting large scale battles on small play areas. Although **CC2 Pro** possesses the capability to print counters, **characters**, and diorama pieces at these scales, you may find resultant outputs difficult to use effectively.

Ground Scale

It is often the case that the nearest manageable Imperial unit to the miniature's scale is used as representing 5 feet ground distance, such that (for example) a 25mm miniature scale heralds a 1 inch to 5 feet ground scale. Certain games condense ground scales for miniature use in outdoor settings - *Traveller®*, for instance, suggests a 2 meter grid for indoor play, and a 10 meter grid for outdoor play. Similarly, *Dungeons & Dragons®* suggests a 5' grid for indoor play, and a 5 yard (15') grid for outdoor play. Basically, this condensing allows the depiction of the larger fields of combat available within outdoor settings, without requiring huge amounts of floor or table space, while retaining the tactical picture miniature use provides. To provide an example, a 4'×2' table, using a scale of 1"=5', could depict an area up to 240'×120'. At 1"=5 yards, the available ground area that may be depicted on the same table becomes 720'×360'

Characters

For those wishing the ability to produce inexpensive, customized cardboard counters and miniatures, ProFantasy provides *Character Artist Pro* - an add-on for CC2 Pro consisting of over 17,000 symbols allowing quick and easy production of an almost infinite variety of character portraits and gaming counters.

Tools of the trade

Before you begin to assemble your Dioramas Pro models, you will need certain tools in order to facilitate your efforts. A wise adage to heed states that the ease of a task is directly related to the tools used. Loosen a bolt with a hammer, and expect the worst!

The following tools are recommended:

A steel ruler

A sharp scalpel or craft knife

A thick, sturdy piece of card, or a cutting board

Paperclips

The "right kind" of glue

For those poised with scissors and that plastic ruler left over from your school days, some explanation may be necessary:

Why a steel ruler?

Simply because scalpels find it harder to cut through steel than they do through wood or plastic. Using a steel ruler as a cutting guide will ensure your cuts are straight and accurate, rather than irregular and embedded with ruler-shavings.

Why a scalpel?

The two most common cutting devices - guillotines (paper cutting machines) and scissors - possess two blades, off-set from each other. They cut via a combination of their sharp edges, and the interaction between the two blades. Thus, the cuts they make are not as accurate as would be desired, and they tend to bend the paper as they cut.

By using a scalpel or a craft knife, you can ensure accuracy by cutting in one, smooth motion along the edge of your steel ruler. Because scalpels have only one blade, and the manner in which they cut is entirely down to their sharp edge, the inherent problems shown with scissors and guillotines are negated.

Whichever sharp tool you choose must be used **responsibly** and with great care.

Why a cutting board?

Basically, because your partner or parent would not thank you for leaving scalpel cut marks on the dining table. Remember, when you are cutting things, the scalpel must cut *through* the paper. It is also desirable to use a cutting board because they are designed to possess a certain amount of give - your cuts will be more accurate if you can cut into whatever you are resting your Dioramas Pro print-out upon.

Fairly thick card works well as a substitute cutting board. All you need to remember is that the cutting surface needs to be as flat as possible - if you are disassembling a box to produce a cutting board, use a single panel of the box. Do not create your cutting board across a corner fold-line.

If you plan to do a lot of cutting, you might want to consider purchasing a small rotary cutter pad (or if someone in your household sews, there may already be one about). Designed to be used with rotary cutters, they can be used equally as well with scalpels. They provide a firm, flat surface; and they are durable and self healing.

What are the paperclips for?

Virtually anything you find use for them. They can be used to hold your drawing still while cutting it, to "peg up" cut-out parts to avoid losing them, and to hold glued parts together while the glue dries.

When using paperclips on your model, try and use as large a clip as possible, and open the clip out a little before use. Basically, you need to engineer the clip to provide as loose a grip as is necessary to effectively meet its purpose. Too tight, and the clip may bend, distort, or otherwise mar your model.

Use scalpels responsibly

Warning: Scalpels that are capable of cutting through card are also quite capable of cutting through *you*, too. Always take care when using scalpels, and *never* cut towards any part of your body. If you are the slightest bit unsure as to your ability to use a scalpel, swallow your pride and ask a parent, guardian, or responsible friend to do the cutting for you, or to supervise your own cutting activities.

Always place your scalpel in a safe place, with the blade's guard in place, when not using the tool.

Scalpels are not toys. They can be dangerous if used irresponsibly.

A sticky subject...

The "right kind" of glue varies, depending on the purpose to which you wish to set your model. Some glues provide stronger bonds than others. Some glues provide bonds that last longer than others. Other glues simply do not stick cardboard at all. Whichever glue is used, it must be used **responsibly**.

So what is best? Well, through trial, tribulation, and decades of research, here are some glue-related pros and cons:

Stick glue (the solid stuff that comes in a wind-up, wind-down "lipstick" holder) provides one of the quickest bonding times. However, you do need to make sure it is dry before applying weight to your model (about an hour should do). Stick glue also becomes brittle over time, so it should not be used if you wish some kind of permanence to your models.

Mounting glue (the stuff that comes in spray-cans) provides a very quick fix. It also has the advantage of allowing you to re-position glued panels several times, with a relatively low loss of sticking power. However, it does not provide much in the way of strength, nor does it provide permanent bonds.

Brown water-based paper glue is quite effective for producing strong, permanent bonds. However, since such glues are usually water-based, glue should be applied conservatively to avoid turning your model into paper maché.

PVC, or white, glue provides the best bonds as far as strength and permanence. Since it is not water-based, it also avoids the problem of risking soggy models. On the down side, PVC glue does tend to take some time to dry properly - it is advisable to leave a model to dry for at least a day before using it.

Polystyrene and other "thin" glues are the ones normally used for quick household repairs, and those used to assemble plastic model kits. These glues should not be used for cardboard construction, since they tend to soak into the card itself (leaving very little on the surface of the card to which to actually stick anything), and become quite brittle when dry (good for sticking rigid surfaces to each other, but not so good when gluing flexible surfaces such as card).

Stick-backed plastic tape also deserves a mention. You can get forms of this that are virtually invisible when applied to objects. Bonds using tape are both strong and reasonably permanent, so they are good for speedy assembling if you don't mind having the taped bonds visible.

Printing dioramas pages

The first step in constructing your model is to print it out. This can be achieved in one of two ways.

You can use the **instant print buttons** provided on the Dioramas Pro drawing pages; or

Select **File Menu** >> **Print**, and manually set the printing options you require (e.g., scaling)

To use the instant print buttons, simply click on the button showing the miniature scale you wish to print to. You will be prompted to confirm whether you actually want to print or not.

| 15mm | 20mm | 25mm | 28mm | 30mm |
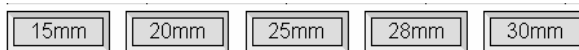
Instant print buttons on the Dioramas Pro drawing page

Paper & card

When you choose the paper or card upon which to print your Dioramas Pro drawing, you must take into account two factors. First, the material needs to be strong enough so that your models will not collapse when you place miniatures upon them. Second, the material needs to be flexible enough to not impede construction.

Unfortunately, that which provides strength (thick card) is too unwieldy for the type of construction we require for our Dioramas Pro models; and, in any case, most printers will not accept card of such thickness.

Instant Print Buttons

The instant print buttons provide for the five most common miniature scales used within role-playing and war-games. The section on *Miniature Scales*, above, further discusses CC2 Pro print scale settings.

For use with metal (or substitute metal) miniatures, we have found that 160gsm (approximately 90-110lb) card provides the perfect trade-off solution between printability, **strength**, and ease of construction.

Printer ink & smudging

Some printers have the unfortunate tendency to print pages that are easily smudged - which, of course, is a disadvantage for Dioramas Pro purposes. While most printed pages can avoid the smudging issue by simply allowing the ink time to set and dry, some inks are still prone to smudging even then.

So how to avoid having your masterpiece ruined by great smudge smears obliterating the detail? Several options are open to you, but the ones we have found to work best involve priming, or varnishing, the surface of your print before you begin construction.

The cheapest method of priming a drawing uses common garden spray furniture polish. Because such polish tends to be quite wet (and thus has the potential to turn your print into mush), you need to be very conservative with its application. Lightly spray the printed page with the polish from a distance of approximately 18" to 2', then leave the page for a couple of hours to allow the polish to dry. If you don't allow the polish to dry, you will find the smudging problems are increased, rather than eliminated.

The best, but more expensive, method uses acrylic matte transparent **model varnish**, which can be purchased from most hobby and modeling stores. Again, apply the varnish conservatively and wait until it is fully dry before beginning construction.

Constructing dioramas objects

Once you have printed the pages necessary to make your model, and primed them, if necessary, you can begin construction.

Remember that patience is a virtue - the more patience you display during the construction of your model, the better that model will be.

Cutting out the pieces

Remember to avoid injuring yourself in the process of cutting your model out. Not only will the result be painful, big red splodges will also ruin the hard work you have achieved thus far.

1 Place your steel ruler parallel to a **cut line** in your drawing, slightly below that line.

2 Holding the ruler firmly in place, draw the scalpel along the cut line in one smooth motion, applying just enough pressure to wholly pierce the drawing.

3 Repeat the process for all cut lines within the drawing.

Scoring fold lines

Just because you are not applying pressure to the scalpel during this process, do not relax your vigilance to avoid being cut yourself. Scalpels are still sharp, and will still be quite capable of damaging you regardless of how much force is being applied.

4 Place your steel ruler parallel to a fold line in your drawing, slightly below that line.

5 Holding the ruler firmly in place, draw the scalpel along the fold line in one smooth motion, applying only light pressure so as to avoid wholly piercing the drawing.

   All you really need to do when scoring is to break the upper surface of the card. Usually, simply holding the scalpel steady, applying no pressure at all, will achieve this, since the weight of the scalpel itself will already be applying adequate pressure to the blade.

6 Repeat the process for all fold lines within the drawing.

7 Replace the guard for your scalpel's blade, and place the scalpel in a safe place.

Aligning Joins

It is a good idea to use two rulers, steel or otherwise, here, placing one ruler "inside" the join, and the other outside so that it overhangs the tab/corner join. The join alignment can then be achieved accurately by pushing the rulers together over the join.

Hold the Tab

Weak paper masking or medical tape, of a type that will not damage your model by pulling the ink away from the card when it is removed, can often provide better stability than a paperclip. The advantage of using paperclips is that they are generally cheaper, and can be re-used.

Let it Dry

Note that it is *always* better to leave each individual joint made for a single piece to dry before moving on to the next one. While this does extend the time required to assemble the model somewhat, the final results will be better for it. Always remember, patience! Also, for multi-part constructions, you can always move on to another section of the model while waiting for one section to dry.

Gluing tabs

8   Fold the tab back along its fold line.

9   Apply glue to the tab, avoiding placing glue on any other part of the piece other than the tab.

10   Attach the tab to the surface to which it marries.

11   Place the model on a flat surface such that the tab is vertically aligned to the surface, and place your ruler next to it.

12   Push the model lightly down to make sure the lower portion of the tab/corner join is **aligned** properly.

13   Push the model lightly into your ruler to make sure the vertical plane of the tab/corner join is aligned properly.

14   Once the joint is aligned properly, put a paperclip over it to **hold the tab** in place.

15   Leave the model to **dry**.

16   Repeat as necessary until all joints have been glued, and your model is completed!

Take the completed model to your gaming session, and amaze your fellow players with the enhanced visualization it provides.

Mounting Models

Models can be made into more permanent, stronger structures by mounting them onto baseboards of modeling board, stiff cardboard, oil painting board, balsa wood, or plywood. Of course, doing so precludes the use of your assembled model pieces in the more modular or geomorphic methods so far discussed. Once the model is mounted, you can further decorate the baseboard with other scenery modeling pieces, such as those available from most model and craft stores.

You can also reinforce Dioramas Pro pieces with board and so forth to give them added strength and durability should you wish them to withstand the rigors of many play sessions. For example, you could insert blocks of balsa wood, cut to size, inside wall pieces to reinforce them. If you follow this method for geomorph walls to use with the plug-in tabs, remember to leave room for the tabs!

KASSERINE PASS

1943

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Kasserine Pass by Ian Malcomson

Kasserine Pass is a map out of the World War II Interactive Atlas. For more information on the WWIA, see page 490.

DIORAMAS
PRO

Example: One Star Inn

This section will take you through the steps to convert a building symbol to a working three-dimensional model. When you complete this section, you will have reviewed most of the practical information in this manual, and learned a few tricks about making more complex models.
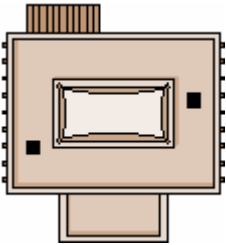
Getting Started

1   Start a new diorama (**File** >> **New** >> **Blank diorama**)

2   Right click **City** ![CD2 icon], then select **City Symbols, (Examples)** and insert the symbol we are converting.

3   Click **Med House 16** symbol and place it in the file anywhere to the side of the template. We will use that as our model for the exercise.

Overview

We are going to complete five broad steps to convert this overhead view of a Mediterranean house into a wonderful inn.

Planning. There are a lot of decisions to be made before we ever start drawing.

Panel Layout--Each broad panel of the building will be drawn

Test Assembly--You do not have to include this step, but it will save you a lot of rework on any complex project

Detailing--Putting in all the details that make the building appear real.

Final Assembly--We will not spend any time on assembly in this chapter, but by following the suggestions in Chapter 5, you will have a beautiful inn.

Planning

The first step in building any model must be some thought about what the model will look like and how it will be used. A little work here can spare you a lot of rework and frustration later. Since we are starting with a symbol, we also need to spend some time looking at the symbol to determine style. The decisions we must make are **style, modularity and strength**.

Ultimately all of these decisions come together to determine how the Diorama should be laid out. This may look like a lot of work, but it really isn't – most of it you will know immediately once you begin.

Let's look at the symbol we are converting:

Style: The flat roof, light color and overall style of the symbol look like dried brick or adobe, possibly a building from Asia Minor or Central America. Stylistically, we will build this with solid-color walls for stucco and some wood for bracing and window beams. We will use some of the wooden symbols from the Dioramas Pro library, but windows will be open.

The symbol shows rows of bumps on the right and left side – they look like the ends of beams used to support a ceiling or roof. For simplicity we will show those on the proper walls but not try to have them extend beyond the wall the way a real beam would.

We will interpret the rectangular extension at the bottom of the symbol to be the top of a porch or veranda, and the stairs at the back probably go from the bottom floor to the top floor. The building overall will be two stories in height. For visual interest, we will have the second floor overhang the first floor by 2.5 feet on the other three sides, but simplify construction by keeping the back flat. For use with miniatures, we will simplify the outdoor stairs into a few steps, each of which is 5 feet wide.

The symbol in the middle of the roof looks like a tent, maybe over poorer sleeping areas, so we will depict it as a slightly raised area, covered with a cloth hanging from the four corners. The black squares on the roof could be for light, a chimney for an oven, or a ladder to the roof. For this model, we will just leave them as dark squares on the roof.

Overall, the building should look like a poorer residence or an inn in a middle-eastern town. We will name it the "One Star Inn".

Modularity: This building is not very large, so storage of the finished building should not be a particular issue. On the other hand, players might want to be able to lift the second floor off the first, or lift off the roof to get access. For either of those, the building should be constructed as separate pieces, one per floor. For simplicity, we will assume that this building will be used for exterior work, and will not construct it to come apart. This will allow us to strengthen the building by using one piece for the back of both stories and allow us to glue both stories together to make it rigid.

Strength: The building is 40 feet by 30 feet in size, which will cover about 2/3 of one 8½" x 11" (A4) piece of paper when printed at 25mm scale. At this size, as long as the roof has bent tabs on it (which stiffen the cardstock), it should be strong enough for normal use. If you need something sturdier, you could glue one or more vertical pieces across each floor to support the roof or floor above.

When the planning is complete, a quick sketch can help solidify the plan, and make the layout easier. For a complex model, quickly drawing side elevations on paper can make the planning easier. A quick isometric sketch can also be completed in **CC2 Pro**.
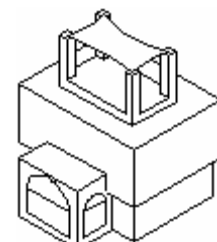
Panel Layout

I like to start with the base of the building, to give me something to build on, but for the One Star Inn we have the most information about the roof, so we will start with that. Bring up the diorama file into which you put the Med House 16. We need to draw a panel that is the right color, texture, and size for the roof:

1. Click **Diorama Options** 🔲. Set the **Panel Foreground** to **Dust Grey Symbol** and the **Background** to a light tan (color 45). This will match the roof of the symbol, and by adding the Dust Grey symbol in the foreground, we will have a little texture in the wall.

2. Get the dimensions of the roof of the symbol, **Med House 16** using the **Distance** Command (**Info**>>**Distance**). Click a point on the top left corner, and another on the top right of the symbol. The distance is 40 feet. Click to repeat the command and measure the right side, close to 30 feet.

3. Click **Rectangular Panel** 🔷. Click points to create a panel 40 feet by 30 feet for the building roof. When it is time to assemble the building, we will print this twice – once for the roof and once for the bottom of the upper floor.

Now go to the second page of the template and create a Rectangular Panel that is 35 feet x 27.5 feet. There is an overhang of 2.5 feet on the building, and this will be the smaller cross section of the bottom floor of the building.

Note that we have not placed any of the **tabs** or details on the panels.

We will create all of the walls on pages 3-6 of the template. To save space and paper, page 3 will have one copy of the lower and upper floor side walls that must be printed twice. The bottom floor we will make 12.5 feet high, and the upper floor we will make 17.5 feet high (to include space for the joists that stick out of the sides).

4. We will make the walls slightly lighter than the roof. Click **Diorama Options** 🔲. Change the Panel Background color to a lighter tan (color 46) for the outer wall. Leave the foreground texture the same as the roof to reflect the same building materials being used.

5. Since the top of the roof is 30 feet wide, make one **Rectangular Panel** 🔷, 30 feet x 17.5 feet for the upper side wall. Click a point for one corner then type **@30,17.5**. These are **relative coordinates**. If you align the panel with its long side on the page vertically, you will be able to put a second panel on the same page that is 27.5 feet x 12.5 feet, for the lower floor. This will be for the side of the lower level – it is 2.5 feet narrower to allow for the front overhang of the building. Leave at least 5 feet between the panels so that you will be able to add tabs as needed.

6 A nice detail is to include an extra textured tab at the top of all upper walls that can be folded over to form the printed inside of the parapet. To create this, add a **Rectangular Panel** , along the top of the second floor panel (the 17.5 foot tall one) on this page. Use the endpoint modifiers to set the length equal to the panel you just completed, then use relative coordinates (type **@2.5,0**) to make it 2.5 feet high.

7 On the 4th page of the template, place the two long walls of the two floors, one above the other. Each panel is a **Rectangular Panel** , the lower story is 35 feet x 12.5 feet (it is shorter by 5 feet to allow for a 2.5 foot overhang on each side); the upper story is 40 feet x 17.5 feet. Remember to leave room between the panels to allow for tabs and the special parapet fold-over panel (5 feet should be enough).

8 The 5th page will be used for the back of the Inn. Since at the back of the Inn, both the bottom and top floor walls are flush with each other, we will use a single panel for the back. We need a 35-foot wide first floor and a 40-foot wide second floor. You could just copy the two panels you placed on the previous page, and center them one above the each other. Instead for practice we will use the **Polygonal Panel**. Click **Polygonal Panel** . Click a first point, then use the following relative commands to complete the panel (just type them in as written below):

Edit Rectangular Grid System dialog box:
- Name: 2.5 feet, 1 snap
- OK
- Cancel
- Spacing
- Snap divisions: 1
- Spacing: 2.50000
- ☑ Square grid
- ☐ TriGrid
- Grid center: 0.00000,0.00000
- Help

@35,0   (this forms the bottom)

@0,12.5 (this forms the side of the bottom)

@2.5,0 (the overhang)

@0,17.5 (the side of the upper floor)

@-40,0 (the top of the upper floor)

@0-17.5 (reversing our way down the other side)

@2.5,0 (the second overhang)

Right click to complete the command.

When finished with this panel, all of the walls for the main inn should be complete.

On the 6th page we will place the walls for the veranda. The veranda is just a square box that sits in front of the rest of the house, but there are a few things to consider. To save space, we will make it without a back, and the sidepieces need to have a notch cut out to allow for the overhang for the top floor over the bottom floor. The front of the veranda is a simple rectangular panel 20 feet x 17.5 feet.

9 Click **Rectangular Panel** . Create a 20-foot by 17.5-foot panel, aligned so that the 20-foot side goes up the page. This will be the front of the veranda.

10 Below the front, create the side wall of the veranda, which will be 12.5 feet by 12.5 feet with a notch cut out of the top corner for the Inn wall overhang. Click **Polygonal Panel** . We will start on the lower left corner of the veranda front panel and use relative coordinates:

11 Click **(Snaps>>Endpoint),** or use F5, and select the lower left corner of the veranda front. This will ensure that the new panel will be attached to the old panel

@17.5,0

@0,-10

@-5,0

@0,-2.5

@-12.5,0
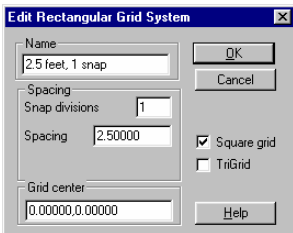
Right Click to complete the command.

12 Create a mirror copy of the panel you just completed. Right click **Copy** ⊞ and select **Mirrored Copies**. Select the panel you just created, and **Do It**. Create a vertical mirror line to its right and complete the command. If necessary, move the new panel to an open space on the page.

13 Create the roof for the veranda. When you print this page twice, the second copy can be used as the veranda base. Click **Rectangular Panel** ▦. Create a panel that is 20 feet by 10 feet.

14 If desired, create a fold-over panel at the top of all of the veranda walls. The fold-over should be a **Rectangular Panel** ▦ that is 2.5 feet wide and runs the length of the wall. Adding fold lines later will be easier if you use two panels for the top of the two attached sides, rather than a single long panel.

15 When done, the veranda will look like this. We will return and add the fold lines and tabs in a minute.
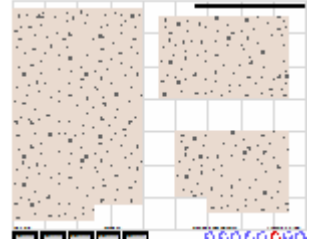
There are two special pieces that need to be laid out on the last two sheets of the Diorama. The first is the rooftop sleeping area. We will create walls for two sides of it, then print it twice. Rather than create narrow tubes to match the symbol, we will make upright square pillars to hold the tent.

The long sides of the platform are 22.5 feet long, the shorter sides are 12.5 feet long, and all uprights are 12.5 feet tall.

16 Click **Polygonal Panel** ▧ to draw the sides of the room, again using relative coordinates, starting with the longer wall.

Click a first point in the lower left corner of page 7

@22.5,0

@0,12.5

@-2.5,0

@0,-10

@-17.5,0

@0,10

@-2.5,0

Right click to complete the command.

17 Place another **Polygonal Panel** ▧ next to it that is only 12.5 feet long, but it similar in all other respects. Using relative coordinates:

(Snaps>>Endpoint) to connect this panel to the previous one.

@12.5,0

@0,12.5

@-2.5,0

@0,-10

@-7.5,0

@0,10

@-2.5,0

Right Click to complete the panel
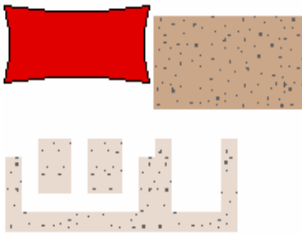
18 At the top of each of the shorter side pillars, add **Rectangular Panel** 🔲 each of which is 2.5 feet on a side. These will form the tops of the uprights.

19 For the cloth at the top of the roof area, **copy the cloth** from the original symbol, **Med House 16**.. Place it on page 7 wherever it will best fit.

20 Also put in a Rectangular Panel for the top and bottom of the sleeping area. The rectangle should be 22.5 feet x 12.5 feet

When this step is finished, your page 6 should look something like shown at left.

The final set of panels to include is a set of stairs, similar to the one you made earlier in the tutorial. Here the stairs need to rise 15 feet and run 15 feet, with steps for miniatures every 5 feet. Create the sides of the stairs using the current option settings for panels, then change the panel options to Foreground **Board L 90** symbol, and background color 42 to complete the trends and risers of the stairs.

Before we are done with the panels, there are several additional features to make assembly easier.

21 Click **Add Tab** ✏️ to add tabs to all of the panels at the appropriate place. The most important thing to remember is to ensure you have a tab for each place two panels connect, and to ensure that the tabs correctly overlap. The easiest way to ensure this is to have a **rule for tab placement**.

When placing tabs on the sides of the upper walls, do not use the tab default to place the tabs. You do not want tabs to cover the fold-over panel at the top of the upper walls, so we must leave the top 2.5 of the panel free of tabs (in addition to leaving the 2.5 foot fold-over flap clear). Instead of selecting the edge of the panel to which the tab should be attached, instead select a point away from any other object. A freestanding tab will begin. Use relative coordinates to make it 15 feet long (instead of the full wall height of 17.5 feet). Then copy the tab to the appropriate wall locations (one front panel, one side panel and the back panel).

22 Make another shorter tab to place on the side and front of the veranda panels.

23 Once the tabs are in place, click **Fold Lines** 🔽 to place fold lines at each juncture between top-floor panels and the special fold-over parapet panel. Use the endpoint modifier to ensure that the line connects to each end accurately.

24 Click **Fold Lines** 🔽 then draw the fold lines between the front and sides of the top-floor sleeping area, and between the front and the side of the veranda.

Congratulations, you have now completed the panel layout. If you wish, while the structure of the panels is still clear in your mind, you might want to go back and **label each panel**. When you are done, the first 6 pages of your diorama should look like the diagram on the following page:

Copy the Cloth

You will need to explode the symbol, then copy the cloth from the symbol to the proper page of the diorama. When you copy the cloth, increase its size by 10-25% to allow provide an overlap to allow you to glue it to the uprights

Rule for Tab PLacement

My default approach is to put tabs on all edges of the roof and floor (this helps to strengthen them and ensure that they are flat), and to put tabs on the right side of each wall.

Labeling Panels

You can either label the panels on the page next to each one, or put its label on a tab on each piece.

Test Assembly

If this were a new model that you were creating from scratch, it would be a good idea to print a small version of the model now and try to assemble it. Changes to the panel layouts are much easier to make now, before additional details are added to each panel. Anyone can omit parts or misjudge something. **Test fit** the model before a lot of work has gone into detailing the panels.

Detailing

The details of the building are what make it unique and bring it to life. Right now this Inn looks like a light brown cardboard box, hardly better than you could create freehand. We

Test fit

To illustrate the importance of this test fitting, when this model was put together for the first time, we identified the following issues (all corrected now):

- We needed two copies of the top roof (the upper floor needed a floor) – somehow we had missed that
- We mis-sized one of the upper walls.
- The tabs and the parapet folds overlapped, so the tabs were visible on the inside of the parapet.
- We forgot the stairs at the back. Really, it's quit easy to forget a critical piece.
- The 'cheap sleeping' area on the roof looked too short, so we lengthened the uprights by 2.5 feet

now have the opportunity to bring the building to life. Here are the steps I took, but you can do something different if you want a different look for your building. Changing the details is also a great way to take one stock building and use it in multiple places.

25 Bring the roof details over to the roof. You can just copy the two black squares from the original symbol (set your reference point at the corner of the building using the endpoint modifier to ensure the squares on the model are in the same location as the symbol). I changed these to dark gray rather than black to fit the muted tones of the model.

> Many buildings sit on solid foundations of a different material, and adding them to the building can make it look much more realistic. The easiest way to do this is by adding panels.

26 Click **Diorama Options** ▣. Select a **Paving Stone Fill** foreground and medium gray for the background (color 253). Click **Rectangular Panel** ▨ then go to each panel that will sit on the ground (all bottom story wall panels, the ones that are 12.5 feet high) and add a 2.5 feet wide panel across the bottom width of the wall. Do the same for the Veranda wall sections. In all, there should be 5 places where you do this: One side wall that is printed twice, one front wall, one back wall, one piece that is the front and side of the veranda, and one side wall for the veranda.

27 The original symbol showed the ends of the ceiling beams emerging from the walls on the sides and on the veranda. For simplicity, we will add these as brown squares on the appropriate wall panels. The beams in the original symbol are 0.6 feet, so make a single box that size. We are going to make multiple copies of the box, putting them along the bottom of the upper wall side panel, and along the top of the veranda front panel. I placed them 2.5 feet from the bottom of the side wall, and 3 feet apart. The easiest way to do this is using relative coordinates. Place the first box, then use **@0,3** to place each successive box 3 feet above the previous one.

28 Doors come next. Click **Wall Features** ▦ then select appropriate doors. I placed a reinforced curved door in the middle of the front panel of the building, just at the top of the stone foundation panel. This is the front door. I placed two doors in the back wall, one at the top of where the stairs will go--15 feet above the base of the panel, and flush with the side of the bottom floor. The other I placed just above the foundation, between 15 and 20 feet from the right wall. One the stair is in place, these two doors will be at the top and bottom of the outdoor stairway.

Finally, we have windows to place. You can easily select from the many beautiful symbols in the Wall Features Catalog, but I chose to have something more rustic, and in keeping with the construction of a poor building in a hot climate. I made windows with no glass, and very little framing.

29 To make a similar window, make a light gray (color 251) solid box that is 3 feet x 4.8 feet. Make a copy of that and change the color to dark gray (color 244), and scale it to 85% the size of the previous box. Now, using the Center Snap, move the middle of the dark box on top of the middle of the light box.

> You now have a basic empty window.

To create the header board, you can use a polygonal panel with a brown background (I used color 46) and **Board S Symbol** for the foreground. It is easiest to draw it away from the other parts of the window and move it to the final location.

Click **Polygonal Panel** ▨. Click your first point, then move 3.5 feet to the right (it should be slightly wider than your window), now go up 1 feet and to the right 0.2 feet (this gives you a little visual interest to the header), the next point is to the left 3.7 feet (to allow for the overlap again) and right click to finish the polygon. You should now have a board that is slightly longer across the top than the bottom. Move the panel that you just made to the middle of the top of the rest of the window

You should now have a window that you can place anywhere you want it. Some of the
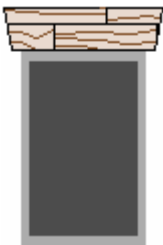
panels are laid out vertically, and for these you may need to change the fill in the window header foreground from **Board S Symbol** to **Board S 90 Symbol** to keep the grain of the windows correctly lined up. In placing windows, try to keep the windows on one floor lined up, and avoid placing them where they will be covered by the back staircase or front veranda.

30 The final detailing step is to provide openings into the veranda. I did this by creating a white box that is 7.5 feet high and 5 feet narrower than the panel, centered along the top of the foundation of each veranda wall panel, like this:
To make the tops of the openings rounded, place a solid white ellipse across the top of each opening, centered on the middle of the top of the opening, with major axis the width of the opening. You can then select the height of the arch to include. Remember to allow space for the tabs in the veranda roof to attach to the wall.
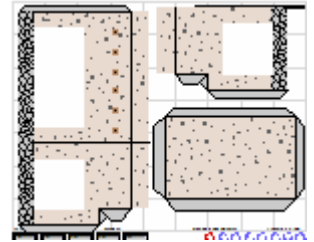
Once you are done with the basic model, there are always significant additional changes or upgrades that can be made. Here are some of the ones you should consider:
✓ Change the color of the roof tent to add a splash of color to a drab building
✓ Add wall sconces by the front door
✓ Add a sign or flag at the front of the building
✓ Change the tent supports on the roof to cylinders, or something smaller
✓ Add interior detail
✓ Add dirt to the model using an overlay layer. Weathering can make the model look much more realistic.
✓ Make the top-layer parapet 1 foot wide to match the symbol.

I am sure other ideas will suggest themselves to you as you build this, and other models.

Dioramas Pro Command Reference

For details of the meaning of the syntax, see the CC2 Pro section on page 152.

The only macro-specific commands are those for printing (Print Window, Print Center, Print Named.) They are used by the printing hotspots on the Dioramas templates. One of their parameters is a number (nFlags) which can be set as follows. Add the numbers for multiple effects. For example, 4+1=5 would be portrait, all black.

> **0**=landscape (the default)
>
> **1**=portrait
>
> **2**=Print white as black
>
> **4**=print all black
>
> **8**=ask to confirm before printing (with a message box)

Command	Description	Where?	Text Equivalent	Syntax	Use in Macro
Castle symbols	Displays the Castle wall symbols	Symbols toolbar	CATALOG #symbols\dioramas\Castles.fsc		Yes
Change Panel Fill Style	Changes the properties of selected panels	Dioramas Pro toolbar	CPANEL		No
Convert to panel	Converts any closed entity to a dioramas panel	Dioramas Pro toolbar	PANELCHANGE		Yes
Cut line	Adds line to be cut along to a panel	Dioramas Pro toolbar	CUTLINE	xy1;xy2;...;xyN;	Yes
Dioramas Pro Options	Diorama Pro options for panels, tabs, lines, etc.	Dioramas Pro toolbar	TABOPT		No
Dioramas Pro symbols	Displays the diorama net symbols (furniture etc)	Symbols toolbar	CATALOG #symbols\dioramas\Dioramas symbols.fsc;		Yes
Fold line	Adds a line for scoring and folding panels	Dioramas Pro toolbar	FOLDLINE	xy1;xy2;...;xyN;	Yes
Geomorph tab	Draws fold-over plug-in tabs of the type used by the Dioramas Pro geomorph pieces.	DioramasPro toolbar	GTAB	(xy1st;xy2nd)/xyEdgeOfEntity; xySide	Yes
Multipoly panel	Creates a single panel by combining separate closed shapes (eg a donut shape made from two circles)	Dioramas Pro toolbar	PMPOLY2		Yes
Multi-wall net	Converts a path entity to complete 3D wall nets	Dioramas Pro toolbar	WMNET	xyPathToConvert;dWallHeight[prior];dWallWidth[width of path];xyLowerLeftForNets	Yes
Polygonal Panel	Adds a polygonal dioramas panel	Dioramas Pro toolbar	PANELPOLY	xy1;xy2;...;xyN;	Yes
Print Center (macro command)	Prints a view at the given center and specified scale	Text only	PRINTSM	xyViewCen;dPaper;dDrawing;n Flags[0]	Yes
Print Named (macro command)	Prints the specified named view or active window to fit the paper	Text only	PRINTNM	sViewname;nFlags[0];	Yes

Command	Description	Where?	Text Equivalent	Syntax	Use in Macro
Print Window (macro command)	Prints the active window view, to fit the paper	Text only	PRINTWM	xyWindowCorner1[Active Window];(xyWindowCorner2);nFlags[0];	Yes
Rectangular Panel	Adds a rectangular interior panel	Dioramas Pro toolbar	PANEL	xy1stCorner;xy2ndCorner	Yes
Tab	Adds a tab for gluing diorama panels	Dioramas Pro toolbar	TAB	(xy1st;xy2nd)/xyEdgeOfEntity;dWidth[prior]	Yes
Wall Features symbols	Displays the generic wall features symbols	Symbols toolbar	CATALOG #symbols\dioramas\dioramas wall features.fsc		Yes
Wall net	Add a net for a 3D walls with panels, tabs and fold lines	Dioramas Pro toolbar	WALLNET	xy1stEnd;xy2ndEnd;dHeight;dWidth	Yes

Little Ursted by Leo Sutherland

Little Ursted is available in the Profantasy Download Library.

Hermach by Colin Beaver

Hermach is available in the Profantasy Download Library.
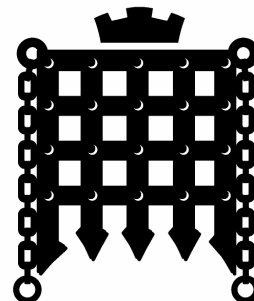
A section of Hermakhaz (post Malachy)

DUNGEON DESIGNER PRO ™

ADDITIONAL DD PRO CREDITS

Software: Simon Rogers, Mark Fulford
Symbols: Simon Rogers, Tito Leati
Example Maps: Mark Fulford, Tito Leati, Simon Rogers
User's Guide: Mark Fulford, Simon Rogers, Ian R. Malcomson, Morgan Olden (Macro chapter)
Help System: Simon Rogers

Dungeon Designer Pro Introduction

Welcome to Dungeon Designer Pro (DD Pro). Within this book, we will explore the creation of dungeons using the various functions, symbols, and other niceties provided by DD Pro Proand its parent software package, Campaign Cartographer 2 Pro (**CC2 Pro**).

What's In A Name?

The word "dungeon" conjures up in many the image of a labyrinthine network of tunnels and rooms, populated by ferocious creatures that guard fabulous treasures. Despite its name, this is not the only type of environment DD Pro can map. Where **CC2 Pro**'s main focus is towards outdoor maps of various types, including alien landscapes and undersea realms, DD Pro can likewise be applied to a multitude of different interior locales from labyrinths, to castle and keep floorplans as well as factory floors and space station layouts to that humble inn where the mighty kick off their travel-worn boots to relax over a beer or two between adventures.

You should also realize that the methods described here are not the be-all and end-all of DD Pro. With experience often comes the knowledge that the methods which example these functions are not the most "correct" or "expedient" way to achieve a specific map - certainly not from the point of view of an individual user. So, take them as what they are meant to be - a mere introduction to the world of DD Pro dungeon mapping - and remember that the only person that can ultimately tell you how a map *should* be drawn is **you**.

Other Sources of Information

CC2 Pro's Help System. When you are using CC2 Pro / DD Pro you can get in-depth information by pressing F1, or by selecting Help from **CC2 Pro**'s Help menu.

Web Based Tech Support. ProFantasy's web site www.profantasy.com has a comprehensive technical support section and details about e-mailing for help.

The CC2 Pro mail-list. This is a very active e-mail discussion group to help new users and discuss all things map related. To subscribe follow the instructions at the ProFantasy Software web site, www.profantasy.com

Starting DD Pro

Once you have completed the **installation**, start **CC2 Pro**. The screen looks the same as before, but with one vital change--the **DD Pro** button on the **File toolbar** will now let you access a host of new buttons and menus

Frequently Used Clicks

Before you start proper dungeon designing, meet some techniques and new buttons that you will be frequently using in the business of designing dungeons.

The DD Pro toolbar

To see the DD Pro toolbar, click **DD Pro** [icon] on the **File** toolbar. The menu changes to include a new **Dungeon** heading.

Add Room	[icon] [icon]	Add Corridor
Center Justified Door Break	[icon] [icon]	Draw Wall
Toggle Fill Style	[icon] [icon]	Secret layer
Lock Symbol Angle	[icon] [icon]	Dungeon drawing tools
Dungeon symbol settings	[icon] [icon]	Toggle symbol style

Settings Toggle Buttons

The Dungeon toolbar contains three convenient toggles that can be used to quickly change the current settings to some of those commonly used when drawing dungeons. These are:

Solid / Hollow Fill Style

Click this button to toggle the current fill style between Hollow and Solid.

Right Click button to choose from a selection of dungeon fill styles.

Secret Layer

Click this button to set the current layer to **SECRET**. Everything subsequently drawn will be on the **SECRET** layer, until the current layer is changed by clicking on the *Layer* section of the Settings Bar, or by using another DD Pro command which alters the current layer setting.

The DD Pro Symbol Toolbar

The **DD Pro Symbol Catalog toolbar** is usually found under the **File** toolbar.

Click on a button to open a catalog in the current symbol style and settings, or select from catalogs which match the selection criteria.

DD Pro Symbol Catalog toolbar

If you can't see the toolbar, click **Tools** button, then click next to **Symbol Catalog** toolbar.

	Caves
	Containers and Treasures
	Debris
	Elemental Magic
	Furniture
	Simple
	Temples and Statues
	Dungeon Geomorph
	Traps
	Up and Down
	Wall Features
	Weapons
	Walls
	Shirmish Characters

Your First Floorplan

DD Pro's functions allow virtually any level of complexity in the maps you draw, but often simplicity is key. To this end, DD Pro provides methods of quickly producing good-looking and functional dungeon maps without having to delve into the more advanced features of the system.

So, buckle yourself in, and let's see if we can knock up a simple dungeon in less than ten minutes.

First steps

1   Click **DD Pro** [DD2] on the **File** toolbar to see the **DD Pro** and **DD Pro Symbol** toolbars.

2   Click **New** 🗋

You will see a selection of DD Pro templates.

3   Click **DD Pro 250' x 200'.FCT**

You now have a new, blank map based on the template you selected, ready for you to draw on.

4   Right click **Grid** button to see that the grid setting is **5' Grid, 1 Snap**, and the grid is enabled. The current color is black.

The entrance room

Your blank template is ready to be filled with rooms and corridors.

5   Click **Zoom In** 🔍

6   Click **Add Room** ⊞

The **Add Room dialog** appears.

For now, retain the default settings as they appear by pressing **OK**.

7   Draw a 30 feet by 30 feet square room.

Because we have opted to **draw a square room**, the Add Room command expects placement of two corners along one side..
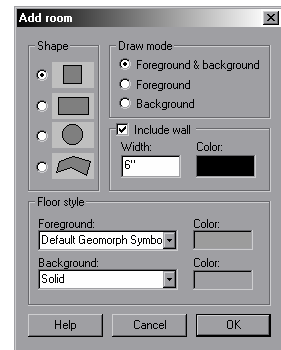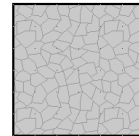
Another room

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 01.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

8   Right click **Add Room** ⊞

This time, when the Add Room dialog appears, select the rectangular room shape.

9   Draw a rectangular room to the north and east of the entrance.

This time, DD Pro needs placement of three out of the four corners of the rectangular room.
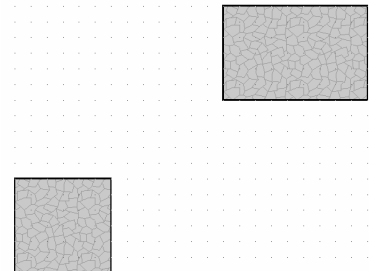
A corridor

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 02.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

Zoom In

It is often useful to zoom in to the section of a map being worked on, simply because it is thus easier to see what is being drawn.

Add Room Dialog

This dialog allows you to set options for the room to be drawn, including its basic shape (square, rectangle, circle, or polygon), drawing mode (foreground & background, foreground only, background only), whether to include a wall or not and properties for the wall if drawn, and the fill styles and colors to be used for the room's foreground and background.

Drawinig a Square Room

To get a 30 feet by 30 feet room, either place the second corner point six snap points (one snap point being 5' in the template we are using) directly up, down, left, or right from the first, or use a vertical or horizontal relative coordinate (e.g., **@30,0** to place a point 30 feet along, and nothing up).

10 Click the drawing's scroll bars to center a bit more of the blank drawing to work on.

11 Click **Add Corridor** ⊞. Retain the default settings by pressing **OK**.

> The prompt reads Corridor start point (B connect to wall, C connect no break):

12 Press [c].

> You see a dynamic cursor with one end anchored to the nearest room or corridor. Move the mouse around the drawing window. The dynamic cursor anchor moves to the nearest room or corridor.

13 Once the dynamic cursor anchor appears at the point on the room you wish to start your corridor, click to place the first corridor point.

14 Click to place a corner in the corridor, so that it heads towards the rectangular room.

> Note how DD Pro automatically connects the corridor for you.

15 Press [B], then move the mouse until the cursor anchor appears at the desired location on the second room. Click to place this point, then right-click to end the command.
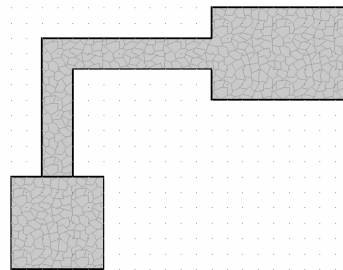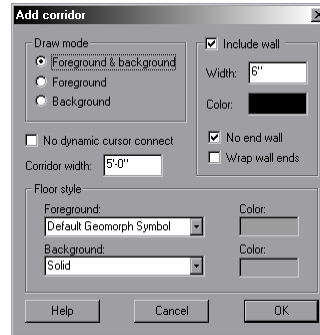
More rooms

Because you can connect corridors to rooms and other corridors (using the [B] and [c] keys as we have explored), but not rooms to corridors, it is a good idea to draw in your dungeon's rooms first, before adding any corridors.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 03.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

16 Right-click **Add Room** ⊞ to place more rooms into the dungeon.

> Feel free to experiment with the different room shapes, fill styles, etc. You don't need to stick to the rooms we've drawn here.
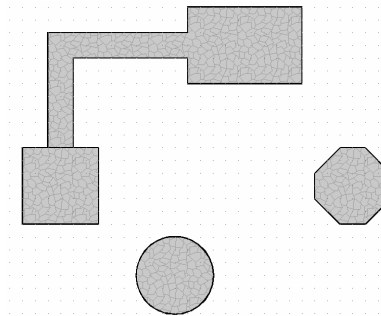
More corridors...

So far, we have touched on the basic uses of the **Add Corridor** command - simply drawing a section of corridor that turns a corner. The command does possess a set of options that can be used while you are drawing a corridor.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 04.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

17 **Right click** Add Corridor ⊞

This time we are going to add a corridor that connects to our entrance room by "breaking" that room's wall.

18 Before placing the first point in the corridor, press [B].

> This activates the "Connect to wall" option of the **Add Corridor** command.

Add Corridor

This dialog allows you to set options for drawing corridors, much in the same way as the Add Room dialog does for rooms

Press [c]

Pressing [c] tells DD Pro that the next point to be placed connects to another room or corridor. When the connection is made, DD Pro ensures that the walls at the connection are dealt with properly. Otherwise, the corridor section drawn will overlap the room's wall.

If you have drawn any overlapping corridor sections, you can correct them by bringing the necessary wall section in front of the corridor. See Entity Order in the Help index for information on bringing entities to the front of a drawing.

Press [B]

Pressing [B] tells DD Pro that the next point to be placed connects to another room or corridor, much in the same way as pressing [c] does. This time, however, DD Pro will break the wall the corridor is attached to, connecting wall sections as necessary.

Right Click

Right clicking **Add Corridor** starts a corridor with the current settings.

Adjust width

You will notice a preview outline of the next corridor section which changes as the mouse is moved to reflect a new corridor width. DD Pro will automatically slope the walls of the corridor section to create a gradual change from one width to the next

DD Pro Layers

When using the Add Room or Add Corridor commands, the entities that make up the rooms and corridors are put on specific layers.

Walls are drawn to the **WALLS** layer

Background floor entities, which are usually solid-filled, are drawn to the **BACKGROUND (FLOOR 1)** layer.

Foreground floor entities, which are usually of a patterned symbol fill (e.g., the "**Paving 31** Symbol" fill style used in the above example) are drawn to the **BACKGROUND (FLOOR 2)** layer.

Because the process creates standard entities, they can be manipulated in exactly the same way as if they were drawn manually. For example, if you wish to change the wall widths to 1', all you need to do is use the Change Line Width command to alter the wall entities to suit. You do not need to re-draw rooms and corridors using the **Add** commands if you wish to change the styles used when originally drawn.

19 Move the mouse so that the cursor anchor appears along the east wall of the entrance room, then click to place the first point of the corridor here.

20 Press $\boxed{\text{c}}$, then move the mouse so that the cursor anchor appears on the western wall of the octagonal room. Click to place the corridor's final point here.

21 Click to repeat the corridor command.

Now we'll add a corridor that leads from the second room, increases in width, and then intersects with the eastern corridor we've just drawn.

22 Press $\boxed{\text{c}}$ to create a non-breaking connection, then click to place the first point of the new corridor along the southern wall of the second room.

23 Place a second point just down from the southern room.

24 Holding the $\boxed{\text{CTRL}}$ key down, move the mouse to **adjust** the corridor's width before placing the third point.

25 After placing the third point, press $\boxed{\text{B}}$.

As before, this activates the wall-breaking connection.

26 Place the fourth point of the corridor on the northern wall of the eastern corridor that connects to the entrance room.
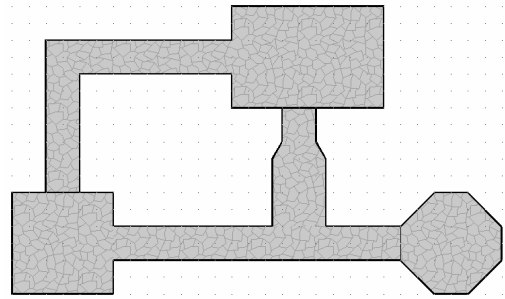
Completing the dungeon

More corridor and room sections can be added to the dungeon to complete the complex. Take the opportunity to explore the **Add Room** and **Add Corridor** commands by experimenting with them to finish the dungeon's basic layout.

If you'd like to see what we did, open **DD Pro Tutorial 05.FCW**.

The **Add Room** and **Add Corridor** commands automatically draw several entities on specific **DD Pro layers** depending on the options selected and the points placed.

Using different room and corridor styles

As we have touched on already, the **Add Room** and **Add Corridor** commands can draw on the full range of DD Pro colors and fill styles. In this tutorial, we shall explore this capability, and will show that a dungeon does not have to stick to the same style throughout.**Error! Bookmark not defined.**

1 Click **New** $\boxed{\text{□}}$. Click **DD Pro 250' x 200'.FCT**

2 Click **Add Room** $\boxed{\text{⊞}}$

3 In the Foreground drop-list, select **Pebbles Brown Symbol**.

4 Click color box to the right of the Background drop-list.

You see the CC2 Pro color dialog box.

5 Click color 44 (a light brown), then click **OK**.

The Background color box changes to reflect the new selection.

6 Click polygon shape radio button (the lowermost of the available shapes), and press **OK**.

The Command Prompt reads First corner:

7 Click in the drawing to create an irregular-shaped room. Right-click to complete the room once you have placed all of the desired points.

The new room will be drawn with the colors and styles we have selected.
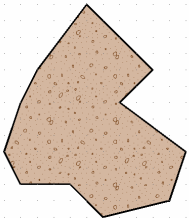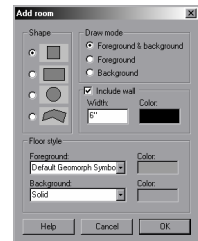
8 Click **Add Room** 🔳

The Add Room dialog box appears.

9 Change the Foreground to **Paving 31 Symbol**. This is a **varicolor symbol fill**.

10 Click Foreground color box, and select color 40 (a mid-brown) from the dialog box that appears. Press **OK** to return to the Add Room dialog.

11 Click circular room shape radio button, and press **OK**.

The command line reads Center point:

12 Click to the east of the irregular room to place the center of the circular room.

The command line reads Point on circle [or radius][SHIFT - move center]:

13 Either type a radius for the circular room, and press ENTER , or click to place an edge point for the circle.

A circular room will be drawn, using the settings we have chosen.

If you placed the center of the circle too close to the irregular room, hold down SHIFT and move the mouse before entering a radius or clicking to place the circle's edge. This will allow you to reposition the circular room.

14 Click **Add Corridor** ⌗

The Add Corridor dialog box appears.

15 Change the Foreground and Background settings, in the same way as we changed the settings in the Add Room dialog, so that:

Foreground is **Paving 31 Symbol**

Foreground color is 250 (a medium gray)

Background is **Solid**

Background color is 254 (a light gray)

16 Press **OK** to start drawing the corridor.

17 Press B , then move the mouse so that the cursor anchor appears along the irregular room.

18 Click to start the corridor.

19 Click to place further points along the corridor.

Press B , then move the mouse so that the cursor anchor appears along the circular room.

20 Click to place the last point of the corridor.

The corridor will be drawn, **breaking into the walls** of both rooms.
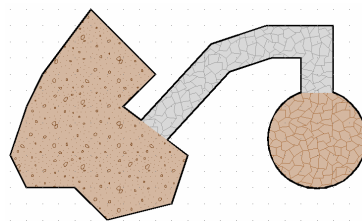
Changing room and corridor styles

Because the **Add Room** and **Add Corridor** commands place the various dungeon components (foreground, background, and walls) on different layers, it is an easy task to change colors, fill styles, etc. even after a dungeon has been drawn.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 06.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.**Error! Bookmark not defined.**

1 Click **Change Fill Style** 🔳

The Command Prompt reads Select entities [0 picked]

We wish to change the fill style of the irregular room's foreground.

Varicolor Symbol Fill

Fill styles identified with a "31" (e.g., **Paving 31 Symbol**, **Rock 31 Symbol**, etc.) use what is known as "symbol color" instead of absolute set colors. This means that the symbol, when placed, will use the current color to draw that fill style.

Varicolor is not the same as shaded varicolor. Varicolor (designated by the 31 in the symbol name) uses a single color—the current color chosen. Shaded varicolor uses a range of shades of the current color.

For more information in shaded varicolor, see the section *Shaded Varicolor Symbols* on page 73.

Breaking into Walls

Notice that, even though the rooms and the corridor use different colors and fill styles, the room and corridor connections still work perfectly!

Remember that dungeons drawn with the **Add Room** and **Add Corridor** commands comprise standard CC2 Pro entities. They are thus subject to all of the functions that can normally be used by entities of their type.

Random Dungeon Generator

The Random Dungeon generator was kindly provided by ProFantasy Software's lead programmer Peter Olsson as freeware, and we have integrated it in DD Pro. We've also included some catalogs (MC0-1 and Morgan) provided by Master Mapper Morgan Olden and added some extras. If you don't have DD Pro, you can download a version from the ProFantasy Software's Map Lab at http://www.profantasy.com/library/lab.asp.

Symbol Catalog

To create your own random tile sets, see *Creating symbols for your Random Dungeon Generator* on page 82.

Percentages

Fill ratio: This determines what proportion of the selected rectangle is filled with random tiles.

Percentage Straight: A percentage weighting the tiles towards angled corridors.

Percentage Angled: A percentage weighting the random tiles towards straight corridors.

Dungeon Options are best tested by trial and error. It's easy to generate lots of random sections until you are happy.

---

2 Click edge of the irregular room.

   The whole of the irregular room will be selected. Since we only need to select the foreground portion of the room, we need to eliminate the background and wall entities from our selection.

3 Right-click to bring up the **selection criteria menu**. Select **Combine**, then click **And.** Right-click again to bring the menu back, and select **Layer**. Right-click to bring up the Select Layer dialog box.

4 Click **BACKGROUND (FLOOR 2)** layer, then press **OK**.

   The wall and floor entities are de-selected, leaving only the foreground.

   We've selected those entities which are both part of the room and on the **BACKGROUND (FLOOR 2)** layer.

5 Right-click, and select **Do It**. The command line reads Fill style name [dialog]:

6 Right-click. You see the Fill Style Properties dialog box

7 Click **Symbol Fills** tab.

8 Change the Fill Style Name to **Dust Brown Symbol**, and press **OK**.

   The foreground style of the irregular room has changed.

To see our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 07.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.**Error! Bookmark not defined.**

Using the Random Dungeon Generator

The **Random Dungeon Generator** lets you create randomly generated dungeon and cave sections with simple clicks of the mouse. The random generator can also be used to create woodland, water or anything else which suits the random algorithm.

Create a random dungeon

1 Start a new map based on a Dungeon Designer Pro template. For this example, I chose the 200'x150' template.

2 In the **Dungeon** menu, select **Random Dungeon Options**.

3 Open the drop down menu to choose a suitable **symbol catalog**. For this example, I've chosen the catalog named Morgan. Select your Fill, Straight and Angled corridor **percentages**.

4 Click **Create Now**.

5 On the template, click two points to form a rectangle. The area defined by those two points will now contain the dungeon. Press the space bar to rerandomize the pattern. Once you are happy with the displayed pattern, right click to accept the current layout.

6 Now that you have set your options, you can create more dungeon sections in the same style using **Random Dungeon** in the **Dungeon** menu.

Tol Aphadrim-Nedi Gal by Francois Gervais

This was Francois' first CC2 map. He used many CC2 standard symbols and a few symbols from the Forgotten Realms ® Interactive Atlas. **Tol Aphadrim-Nedi Gal** can be viewed in the Profantasy Download Library.
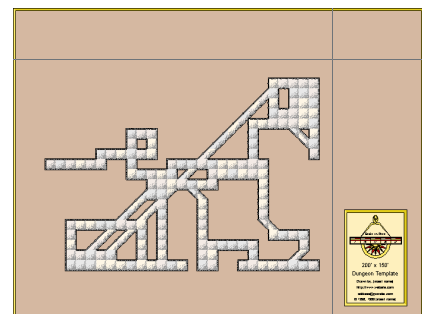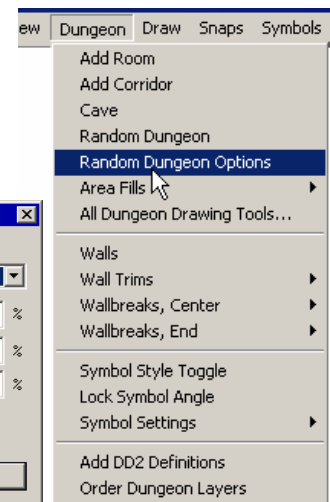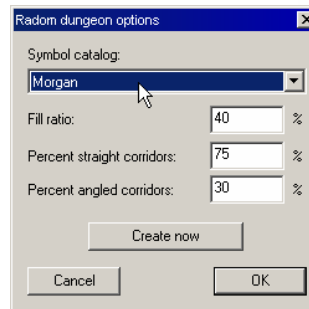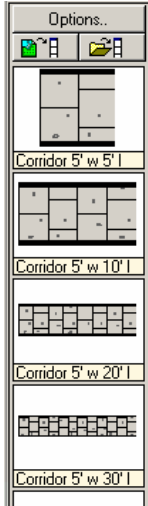
The Geomorph Dungeon

Add Room and **Add Corridor** provide an easy and flexible method to quickly draw dungeons. DD Pro also provides a set of geomorph symbols, depicting various corridor and room sections, that can be used instead of, or in combination with, those commands.

The basic geomorph dungeon

To create a simple dungeon using DD Pro's geomorph symbols:

1 Click **New** [ ]. Click **DD Pro 250' x 200'.FCT** to open it.

2 In the **File** menu, select **Save As**. Change the destination folder to **My Designs\Dungeons**. In the File Name box type **Second Dungeon**, then click **Save**.

   You see a blank dungeon template, ready for you to draw on. The grid setting is **Dungeon Geomorph**, and Grid and Snap are enabled. The current color is gray.

3 Click **Zoom In** [ ]

4 Click **Dungeon Geomorph** symbol [ ]

   The Dungeon Geomorph symbol catalog will appear in the Catalog Window.

5 Scroll down the Catalog Window and Click first crossroads symbol

   The symbol attaches to the cursor, and will move around the screen as you move the mouse.
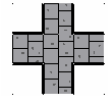
6 Place the crossroads symbol into the map

7 Scroll back up the Catalog Window, and find the symbol **Corridor 5' w 20' l**. Place this next to the crossroads so that the symbols touch. **Snap** will align them for you.
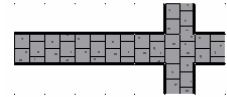
8 Scroll down the catalog, and locate the symbol **Room 5' Corner 1**. Place this symbol just to the left, and 10' up from the straight corridor piece just added.

   This symbol is to form the first corner of a room.
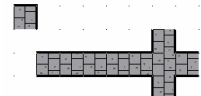
9 Scroll down the catalog, and locate the symbol **Room 5' Edge**.

10 Press the [←] **arrow key.Error! Bookmark not defined.**

We need a room edge symbol that has a wall to the right so we can put in the easternmost extents of the room. Because the **Room 5' Edge** symbol is drawn so that its wall is to the left, we must rotate the symbol so that the wall is where we need it to be.

11 Place three of the rotated edge symbols down from the room corner.
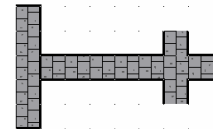
12 Find the **Room 5' Corner 1** symbol again. Press the [↓] arrow key to rotate it, and place it at the bottom of the edge symbols just drawn to complete the room's easternmost wall.

Figure 1

13 Using the arrow keys, and the room edge and corner symbols, complete the outer wall of the room.

14 Find the **Room 5' Tile** symbol, and place it several times within the room to fill up the gap.
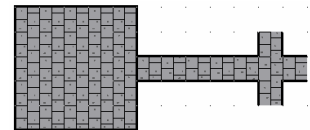
Snap

Because the grid snap settings we are using are specifically designed with the dungeon geomorph symbols in mind, placing the corridor section correctly is an easy task. Just get close, and **Snap** will align the pieces for you.

For more information on Snap and Grid, see page 10

Arrow Keys

The [←] arrow key will effectively rotate a symbol so that it is turned through 180°. The other four arrow keys have a similar effect, with the [↑] key rotating through 90°, the [↓] key rotating through 270°, and the [→] key resetting rotation back to 0°. You may wish to press these keys now, to see the effect they have.

Note that when an arrow key is used to rotate a symbol, all subsequent symbols will retain the rotation angle until it is changed or reset.

More geomorph techniques

The basic method of "pick up symbol, rotate as necessary, drop it in place" described above forms the basic principle of geomorph use. If you scroll through the Dungeon Geomorph symbol catalog, you will find various corridor and room shapes that can be used in exactly the same method as we've already discussed to add to the dungeon. Try adding some more geomorph pieces to the dungeon - don't worry if your dungeon does not end up the same as the one shown here!
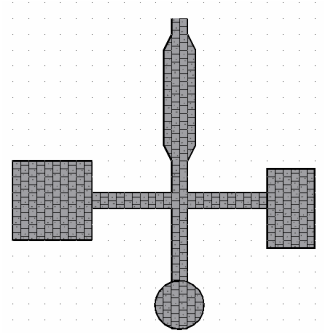
Symbol manipulation

Geomorphs are symbols, so they can be manipulated just as any other symbol. This is useful for producing room shapes based on the geomorph symbols, creating angled corridors, etc.

For example, if we wished to place an elliptical room at the northern end of our drawing, we might follow the following procedure.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 08.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

1   Locate the **Room Circle 15'** symbol in the Dungeon Geomorphs catalog, and click on it.

The symbol attaches to the cursor.

2   Right-click with the mouse.**Error! Bookmark not defined.**

The **Symbol Parameters** dialog box appears.

3   Click to check the **Independent X and Y** box, then in the **X** scale box, type **5** and in the **Y** scale box, type **2**.

4   Click **More**.

The symbol is now an ellipse, 75' across and 30' high.

5   Place the symbol at the end of the north corridor.

Notice that the width of the room's wall has been scaled too, and is now too wide in comparison with the rest of the dungeon. We will fix this problem in the next section.
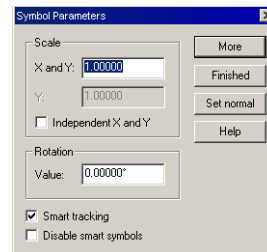
Exploding the symbols

Because symbols sometimes behave in an undesired way when scaling (for example, the wall thickness problem evident in our last example), and because it is sometimes desirable to change some other aspect of a symbol-drawn map, symbols can be *exploded* into their constituent parts. These parts can then be edited in the same way as any other standard entity.

For example, if we wished to change the wall thickness of our elliptical room to suit the rest of the dungeon:

6   Click **Explode** 💥. Select the northern elliptical room. Right-click, then select **Do It**.

7   Click **Change Line Width** 📏 .Right-click, then select **Prior**. Right-click, then select **And**. Right-click, select **Layer**. Right-click to bring up the Layers dialog, then click on **WALLS**. Press **OK**.

The only entity left selected should be the elliptical room's wall.

8   Right-click, then select **Do It**.

9   Type **6"** then press ⎄ENTER

The line width of the room's wall will now be 6", the same as all of the other walls in the dungeon.

Because the geomorph symbols were drawn using the standard DD Pro layers, the entities that make up a symbol, once **exploded**, will retain their respective layers.

The **Explode** command, as we have seen, is very useful when it comes to manipulating symbols, but it also opens up a pitfall ready to swallow you if you do not take care - especially when your drawing consists of a number of different drawing styles.

To avoid exploding things you do not wish to, remember that CC2 Pro's selection criteria menu is but a right-click away. Perhaps the most useful criteria to use in hybrid method dungeons is to use **Entity Type** >> **Symbol Reference**. This can be used to filter out entities that are not symbols (e.g., **Add Room**, **Add Corridor**, and freehand dungeon sections) when you wish to explode geomorph symbols.

Other Geomorph tips and tricks

Changing the geomorph map's background color

By default, geomorph maps have a coffee colored background. To change the background color, click **Change Color** , select the entities to change by layer **BACKGROUND**, then pick a new color.

Changing the background color of geomorph symbols

When you place a geomorph it uses the current color as its background. To change the background color after a geomorph has been placed, use **Change Color** on the whole tile. Only the background color will change. If you have exploded the geomorphs, change color, selecting by layer **BACKGROUND (FLOOR 1)**

Changing the fill style of geomorph symbols

Once exploded, the fill style, used to depict paving etc., of geomorphs can be changed. To do this, Click **Change Fill Style** , select the entities to change by layer **BACKGROUND (FLOOR 2)**, right-click to bring up the Fill Style dialog, and select a new fill style.

Exploded Symbols

Note that once a symbol has been exploded, it is no longer a symbol. It has been broken down into its separate entities. Geomorph entities are left on their own layers.

The layers used are:

- Walls are drawn to the **WALLS** layer

- Background, solid-fill floor entities are drawn to the **BACKGROUND (FLOOR 1)** layer.

- Foreground, symbol-filled floor entities are drawn to the **BACKGROUND (FLOOR 2)** layer.

Sword & Vine cartouche by Allyn Bowker

This a detail view of the **Sword &Vine** cartouche created for use in CC2 Pro. It is part of a symbol catalog that is available for download from the Download Library. Search the library for "symbol challenge 2002" to pull up this and other catalogs contributed by CC2 Users' Group members.

SERLBY

COMMON MAP

Households: 19 (including 2 off map)
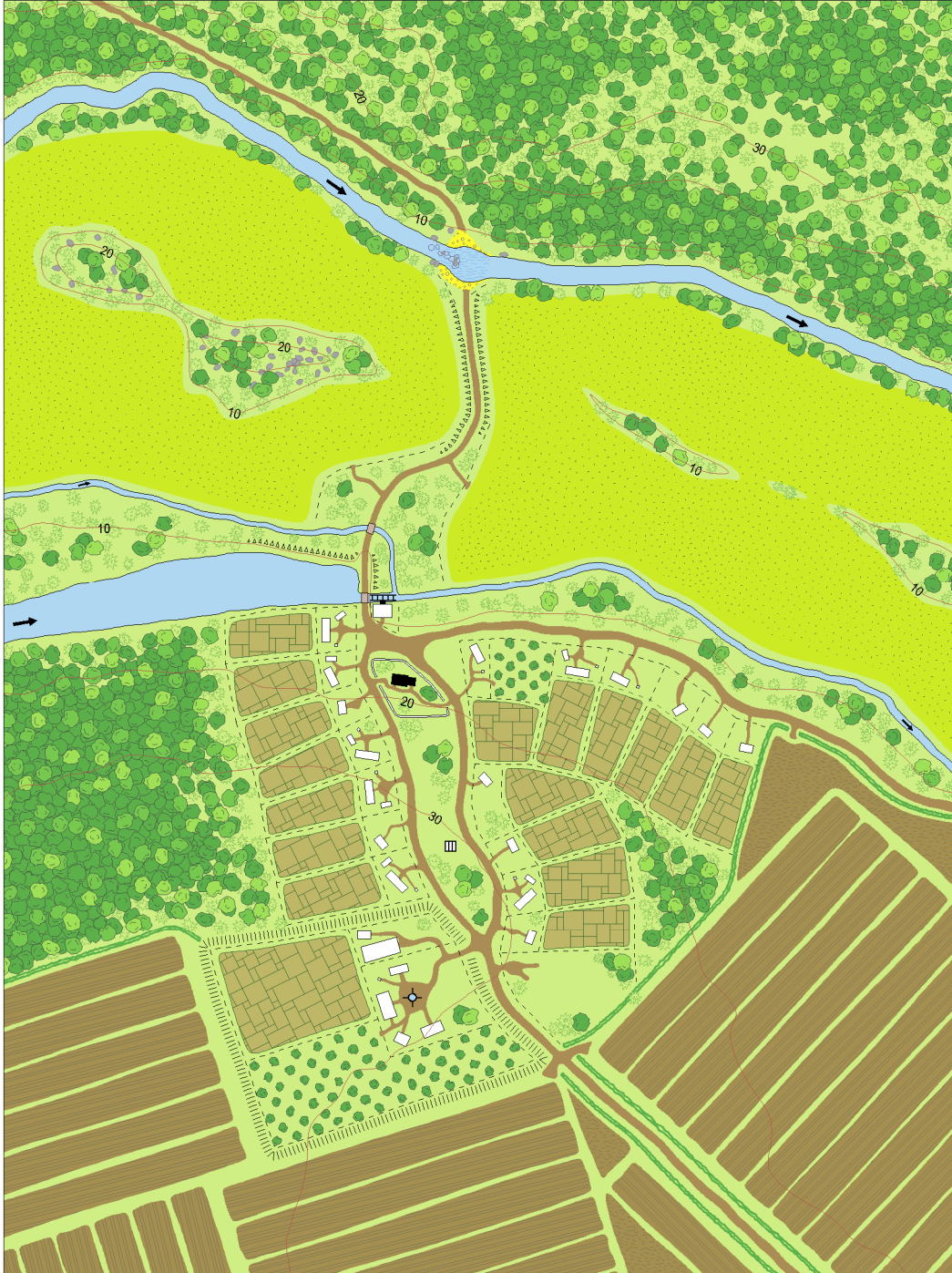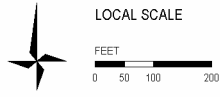
Serlby by Christopher Golden

This is a speculative map that depicts the village of Serlby located in the northwestern Nottinghamshire, England as it might have appeared at the end of the twelfth century. Christopher drew it in the Harnic style using the Mappa Harnica Toolkit.

Serlby can be viewed in the Profantasy Download Library.

For more information on the Mappa Harnica Toolkit, visit http://www.thechmp.com/MappaHarnica/.

Freehand Dungeons

Using the **Add Room** and **Add Corridor** commands, provide a quick method of drawing dungeons. You can also use geomorphs for very speedy dungeon creation. **CC2** Pro also has custom drawing tools enabling you to add specialized entities to your drawings. DD Pro includes some more of these designed for floorplan creation. You can add caves, freehand look rooms, and water features with a few mouse clicks. Finally, you have the option of using CC2 Pro's basic drawing commands which make for a greater range of possibilities, perhaps at the expense of a little speed. This chapter goes over the basics of drawing tools, then shows you an example freehand dungeon.

Using Dungeon Drawing Tools

CC2 Pro offers you prepackaged drawing tools with predetermined layers, fill styles, colors and other properties. These can be used to create a wide range of map features. Drawing tools are described on page 25 of the CC2 Pro section, and pages 28 shows you how to create one of your own.

1   Click **New** ⬜. Click **DD Pro 250' x 200'.FCT**

2   Select **File menu** >> **Save As.** Change folder to **My Designs\Dungeons**. In the File Name box type **Third Dungeon**, then click **Save**.

Drawing a Cave

DD Pro has three pre-defined cave drawing tools that use fractals to create a suitably ragged edge.

3   Click the color indicator then select color 251.

4   Click **Drawing Tools** 🪄.

The Tool name filter is **Dungeon*,** meaning that all tools with names starting "Dungeon" appear.

5   Click **Dungeon Cave, 10' grid**. Click points to create a cave. Right click to complete the first cave.

> Note that the prompt reads Fractal Polygon: First point (E to Edit)

You can adjust the shape of an existing cave, adding new corridors or subtracting sections, just as you can with lakes.

6   Press E then click a point on the first cave you drew.

> The prompt reads Pick Start Node.

7   Click a point on the edge of your existing cave, then further points, until you have nearly reconnected to the first cave. Right click.

> The prompt reads Pick end node to connect to.

The cursor has locked to the original cave so that you can choose a final point on an existing part of the cave.

8   Click a final node on the cave.

The cave has been reshaped with your new section.

Other drawing tools

There are many other drawing tools. You can draw rooms with fractal edges, giving a hand drawn look, grassy areas, and lava. Drawing tools can use either fixed properties such as fill

Start node
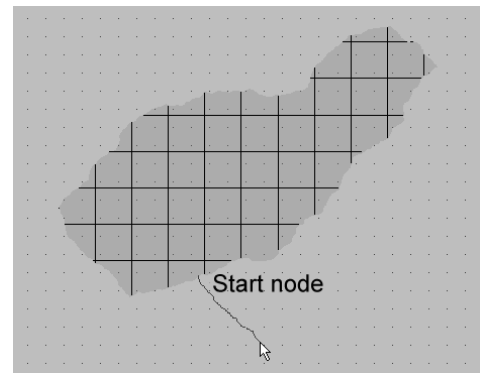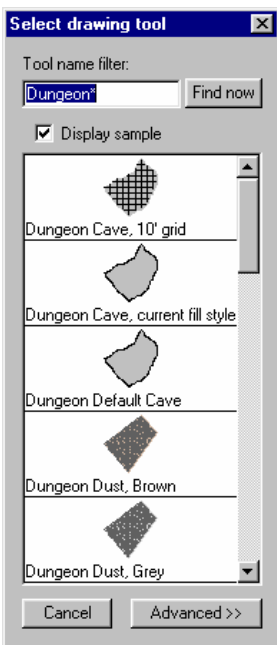
style or color, or use the current settings. For example, the Default Wall drawing tool draws solid filled walls in the current width. If you right click on **Drawing Tools** 🪄, you'll see all the tools available in CC2 Pro and all add-ons, and you can add appropriate ones to the current drawing, for example **Map Water**, **Fractal Box** or **Map River**.

Drawing Freehand

You can use CC2 Pro's basic drawing commands to create any shape you like. This section shows you how to create a floorplan using only these. This can be an advantage when you can't achieve what you want using DD Pro's commands

1   Click **New** 🗋. Click **DD Pro 250' x 200'.FCT**

2   Select **File menu** >> **Save As**. Change folder to **My Designs\Dungeons**. In the File Name box type **Fourth Dungeon**, then click **Save**.

Drawing the dungeon's outer walls

The easiest way to draw a dungeon is to first draw in its outer walls, and then fill in extra details afterwards.

Walls are usually drawn using paths, but lines, splines, circles, arcs, and polygons are just as good if the situation requires. By keeping a few basic tips in mind, **drawing walls** can be relatively painless.

To make it easier for you to follow our dungeon, a sketched guide template is provided. To use this, do **File menu** >> **Open**, then select **DD Pro Tutorial 09.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

3   Click **Toggle Fill Style** ◪ until the fill style is **Solid**.

4   Click the **Line Width** indicator and type **1'0"**.

5   Right-click the **Grid** button and set the grid to **10' Grid, 2 Snap**.

6   Click **Draw Wall** 🧱

   Draw Wall starts the default Wall drawing tool. You can right click on **Draw Wall** to see other available wall tools.

7   Click points to form the outer wall of one section of the dungeon.

8   Using the same method, draw the remaining regular outer walls of the dungeon.
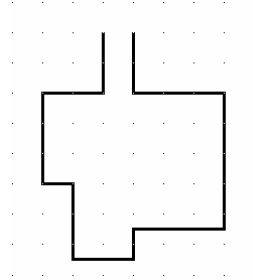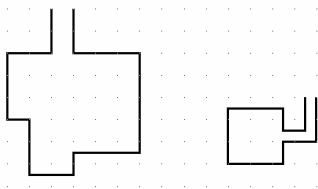
Irregular dungeon walls

Not every dungeon has nice, regular walls. Sometimes it is necessary to draw rough, irregular walls to depict caves, for example. In the dungeon, we are drawing an irregular tunnel to connect the two sections drawn thus far as well as a cave section existing just to the south. There are two basic methods for drawing irregular walls, and we'll explore both here.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 10.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

Drawing Walls

When drawing walls....

Less is better. The fewer entities taken to draw a dungeon's walls, the easier it is to manipulate and edit the map.

Don't start at a corner. If using paths to draw a wall, don't start drawing the wall at a corner. If you start drawing the wall at a gap, a wall's corners will look after themselves.

Avoid unnecessary breaks. It is easier to break a hole in a wall (e.g., for a door) than it is to trim two wall entities around such a gap.

Snap Grid

At any time, even in the middle of another command, you can select a new grid setting by right-clicking the **Grid** button at the bottom right of CC2 Pro's Window.

Grids are named after the spacing of the dots that form the grid, and the number of snap points between each dot. For example, the grid selected above has a grid dot every 10', but a snap point every 5'.

If the **Snap** button is down, then things drawn will automatically snap to the nearest snap point.

Irregular Walls

Drawing irregular walls using the **Draw Wall** command, or by simply using paths, can occasionally be tedious, particularly if a large cavern is to be drawn.

Fortunately, CC2 Pro provides an answer that speeds the process up and reduces the number of mouse clicks required. This comes in the form of the **Fractilise** command.

To use this method, draw in the to-be-irregular walls using the process described above, but only place a few points to sketch the general shape of the wall required. Once this has been done, Click **Fractilise** , and select the wall drawn. CC2 Pro will then place more points along the wall to give it that irregular look. Another option is to use the **Fractal Path** to draw the wall instead of the **Draw Wall** command.

Drawing Smooth Paths

The advantage of this method is that fewer mouse clicks are required to create a nice, irregular effect. The disadvantage is that smooth paths are not as easily manipulated once drawn as regular paths are.

You can make irregular sections drawn using the **Smooth Path** look even better by adding more points. If you wish to use commands such as **Fractilise** on a smooth path, or you wish to convert a previously drawn regular path to a smooth path or vice versa, click **Edit** **EDIT** , select the path in question, and then change the Smoothing option to suit.

Things that Suit You

One of the greatest aspects of the CC2 Pro family is choice. There are no real "wrong" or "right" ways of doing things - only matters of preference. Not only does CC2 Pro provide many different methods and styles for you to use and explore, it also leaves the final decisions to you.

---

9   Click **Zoom Window** , and zoom in to the central section between the two dungeon areas drawn.

10   Click **Wall**

11   Click the wall of the left-hand dungeon section to place the first point.

12   Click the **Snap** button to turn snap off.

> Drawing snap is no longer on, so entities drawn will not be forced to snap points.

13   Draw a rough wall towards the right hand dungeon section.

> You do not need to be accurate here. Draw the wall using a number of mouse clicks, shaking the mouse as you do so to create an **irregular wall** effect.

14   Just before reaching the right section's wall, Click **Snap** button to turn snap on, and place the final point on the right section's wall. Right click to end the command.

15   Right-click to repeat the **Wall** command, and draw the tunnel's second wall by repeating the above process.

16   Click **Zoom Window** , and zoom in to the southern portion of the map.

17   Click **Smooth Path** .

> When **drawing smooth paths**, CC2 Pro takes the points drawn and calculates a curved, rather than straight, connection between them.

18   Before drawing, make sure that the **Snap** button is pressed down.

19   Sketch the outline of the cavern section, from one point on the map border to another. Right-click to complete the command when finished.

> Your dungeon should now look something like shown here.
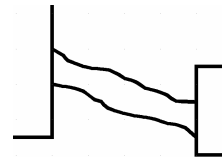
Completing the walls

Now that our floor and grid entities are in place, we can complete the dungeon's walls.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 11.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

20   Click **Draw Wall**

21   Draw in the remainder of the dungeon's walls.

> You should end up with something like shown here.

22   Select **File menu** >> **Save** to save your work.

The processes described in this chapter (and, indeed, this whole manual) represent *a* way of doing things, but by no means *the* way. You might think that a thick wall around a cavern section is not required, since no structured wall is present there. The colors and fills styles used might not appeal to you. As you gain experience with the functions provided by CC2 Pro and DD Pro, you might find other ways of doing **things that suit you** better than those shown herein.
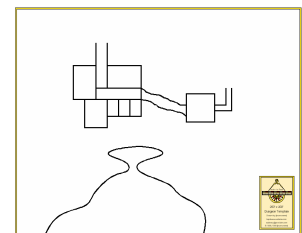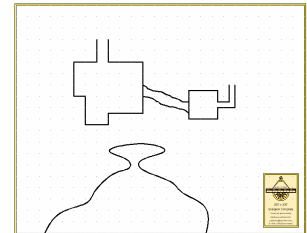
Combining Methods

So far, we have discussed three quite different ways of drawing dungeon maps - using the **Add Room** and **Add Corridor** commands, geomorphs, and freehand. Although each method

can be used alone to produce some stunning results, it is also possible to produce maps using two or three methods in combination.

Just how such a combined method map could be formed is not as complex an issue as it may first appear. All three methods make use of three distinct layers for basic dungeon drawing - **WALLS**, **BACKGROUND (FLOOR 1)**, and **BACKGROUND (FLOOR 2)**. Although adding grid entities has only been discussed for freehand drawings, the methods used there are equally applicable to dungeons drawn using the **Add...** commands, and to geomorph dungeons once geomorph symbols have been exploded.

You may wish to use geomorph symbols for your corridors, add in rooms using the **Add Room** command, and then draw a connecting cavern network freehand. Or perhaps you prefer using the **Add Corridor** command over the geomorphs.

The fact is none of the processes discussed are absolutely unto themselves. Experiment, go wild, and above all have fun!

Remember that a little thought now can save a lot of pain later!
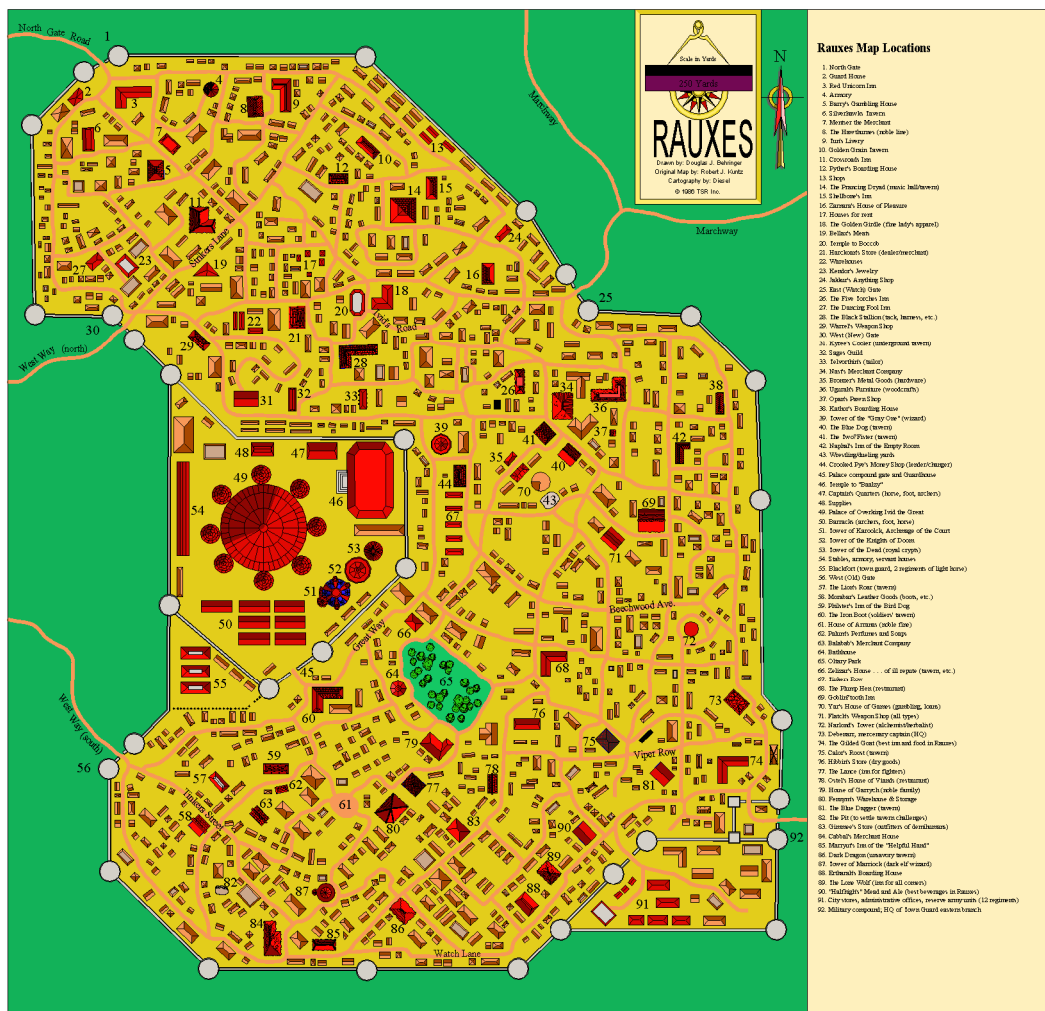
Rauxes by Douglas J. Behringer

Rauxes is available in the Profantasy Download Library.

Adding Symbols

Catalogs Settings

As with the **Draw Wall** command, DD Pro's symbol buttons do more than just load a particular symbol catalog. This process saves time, and ensures the default DD Pro layering structure (e.g., "all doors go on the **WALL FEATURES** layer") is held. This is not because symbols from a given catalog *must* be placed on a given layer, but that doing so is convenient and

Turning Snap Off

Snap often interferes with smart symbol interaction (see below). When using smart symbols, it is better to switch snap off.

Smart Symbols

Many of the symbols provided with DD Pro are "smart". That is, they interact with the drawing in some way. As we have seen, one way in which smart symbols interact is by aligning themselves to entities in the drawing. We will see later how they can scale themselves, break holes in other entities to accommodate themselves, etc.

To turn off smart symbols, right-click at any time you have a symbol attached to your cursor. The Symbol Parameters dialog box will appear. Click to check in the **Disable SmartSym** box, and press **More**.

Whichever method of dungeon drawing is used, sooner or later you'll want to place symbols into the map to show doors, stairs, furniture, etc. To this end, DD Pro provides a number of new symbols for you to play with.

As with **CC2 Pro**, symbols are stored in catalogs. You can access symbol catalogs by clicking on the various symbol buttons on the DD Pro symbols toolbar, or by loading them manually by clicking on the **Catalog** button above the Catalog Window. You can also access symbols that have already been placed within the drawing by clicking on the **Drawing** button.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 12.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

## Doors and Windows

The DD Pro **Symbol Catalog toolbar** is usually found under the **File** toolbar.

1 Click **Wall Features** . You are given a choice of three catalogs. Choose **DD Pro Filled Wall Features, Control Points**. Note that the Layers indicator has changed according to the **catalog settings**.

You will notice that the doors and windows in this catalog have blocks of color behind them. These blocks are drawn using "symbol color", in the same way as the floor backgrounds of the Dungeon Geomorph symbols are. Click on a few of the colors along CC2 Pro's color bar, and notice that these blocks change according to the color selected.

2 Click the color box then select color 15 (white). This color is the same color used for the solid filled floor.

3 Click **Zoom Window** , then zoom in to the portion of the dungeon where you wish to place a door.

4 Click **Snap** button to **turn snap off**.

5 Click first open door symbol going down the Catalog Window.

The symbol attaches to the cursor, and will move around the screen as you move the mouse.

6 Move the cursor across a vertical wall section.

Notice how the symbol automatically aligns itself to the vertical wall as it moves across it. It does this because it is a **"smart" symbol** - it interacts with the drawing by aligning itself to the entities it is moved across.

Sometimes, having a symbol interact with a drawing can be unwanted, particularly when placing especially complex symbols, or using dynamic or explicit symbol scaling. Because of this, the smart symbol interaction can be switched off, forcing smart symbols to behave in the same way as normal ones

Smart symbols will not interact with the drawing until you reverse this process, or you start a new CC2 Pro session.

7 Click to place the door symbol on a wall as desired.

The color block underneath the door symbol obscures the wall where the symbol is placed, giving an "open" look.
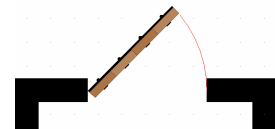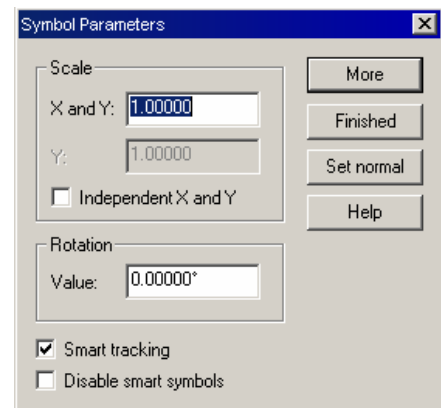
8   Press [ESC] to stop inserting doors.

Doors and windows can be placed into the drawing by repeating the above steps.

It is possible that the above method does not suit a particular map. For example, if adding an exterior door to a building, the block will overlap into the area outside the building, which may look a bit scruffy. Below are some alternative methods you might like to try out.

Cutting doors and windows

Instead of placing a color block over the wall to obscure it, a catalog of smart wall features symbols is provided that literally cut into walls, removing the portion of the wall below them.

9   Click the **Catalog** button, then find **Wall Features Cutting.FSC**.

The selected catalog will load into the Catalog Window. Notice that it contains the same symbols as the previous catalog, but without the color blocks.

10   Click the first open door symbol in the catalog.

The symbol will attach to the cursor, and will move as you move the mouse. Because these symbols are also smart, they will align to entities in the drawing as they move over them.

11   Click to place the door symbol on a wall as desired.

Notice this time that the wall below the symbol is cut out to accommodate the doorway. That's why these are called **cutting symbols**.

Non-cutting, non-obscuring doors and windows

Sometimes, the obscuring block or cutting methods are not desired. DD Pro provides a catalog of doors and windows that do neither.

12   Click **Catalog** button, and locate **Wall Features with control points.FSC**.

The selected catalog will load into the Catalog Window. Notice that it contains the same symbols as the previous catalog.

13   Click first open door symbol in the catalog.

The symbol will attach to the cursor, and will move as you move the mouse. Because these symbols are also smart, they will align to entities in the drawing as they move over them.

14   Click to place the door symbol on a wall as desired.

This time, the door symbol will neither obscure the wall, nor cut it to accommodate the doorway.
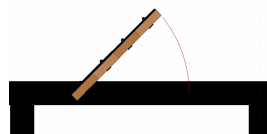
Choosing the symbol catalog to use

Which method to use is, as ever, your choice. You may even opt to use a combination of methods in a single drawing, placing some doors that obscure the walls below them, some that cut, some that align themselves to walls (especially useful for angled wall sections), and some that don't. To aid you in your decision, consider the following.

The *advantages* of using wall obscuring doors over cutting doors are:

✓   There are no tell-tale gaps when secret doors are hidden
✓   They are very easy to place, even at complex junctions
✓   When erased, they don't leave the problem of a broken wall to solve behind them

The *disadvantages* of using them are:

✓   The obscuring mask may be visible against textured backgrounds
✓   The mask may not be wide enough for very thick walls
✓   The mask may hide something it is not supposed to

Cutting Symbols

Note that while smart symbols will align to other symbols, they will not cut into them. This is worth keeping in mind when adding symbols to a dungeon drawn using the Dungeon Geomorphs symbols. If you wish to use cutting doors and windows with Dungeon Geomorphs, you must first explode the geomorphs.

Secret Doors

Secret doors are identified with a red letter **S**.

Select Layer dialog box

To the left of each layer's name are three boXEs.

Clicking in the left-hand box will cause a tick to appear there. Only one layer may have a tick here at any one time. This indicates the layer in current use.

Clicking in the central box will cause a letter **H** to appear. This indicates that all entities on the layer are hidden, and will not appear on the screen, nor will they print. This can be set for all layers but the current (ticked) one by pressing the **Hide All** button, and removed by pressing the **Show All** button. Clicking on a box already containing an **H** will clear it. Clicking in the right-hand box will cause a letter **F** to appear. This indicates that the layer is frozen. Entities on a frozen layer may not be erased or otherwise altered. Certain functions (such as smart symbol alignment) will still work with a frozen layer. This can be set for all layers but the by pressing the **Freeze All** button, and removed by pressing the **Thaw All** button. Clicking on a box already containing an **F** will clear it, and thaw the layer.

Once all desired layer settings have been placed, clicking **OK** will keep the settings, and apply them to the drawing. Clicking **Cancel** will ignore the settings, reverting them to the state they were at before the Select Layer dialog was used.

To complete this section...

Using whichever method is desired, add doors as shown.

Secret Doors

Now we'll add a couple of secret doors, one at each end of the tunnel. Because I want to be able to hide the doors completely, I'll use the obscuring method rather than the cutting method of adding doors.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 13.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

1   Click **Wall Features** 🔲. Choose **DD Pro Filled Wall Features, Control Points**.

2   Click **Secret Layer** 🖌️

    You can see in the Status Bar that the current layer has changed to **SECRET**. Anything drawn now will be on the **SECRET** layer, until we choose another layer.

3   Click first __secret door__ in the Catalog Window.

4   Move the secret door to the wall where the tunnel meets this section of the dungeon.

    The secret door symbol is smart, so it will align to the wall.

5   Click to place the secret door at the tunnel entrance.

6   Repeat steps 4 and 5 to add a secret door at the other end of the tunnel.
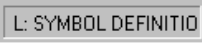
7   Press ⎋ to stop inserting symbols.
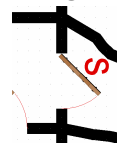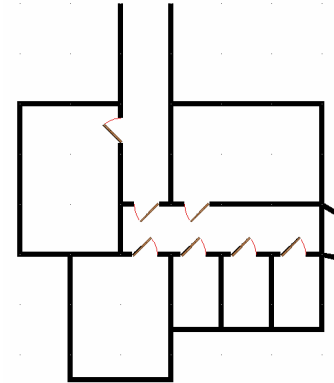
Hiding Secrets

The advantage of placing secret doors (and other secret things) on a separate layer, apart from the convenience of keeping entities of a particular nature together, comes when producing player handouts or using your DD Pro dungeon on-screen to show players the environment their characters are exploring. You can hide the **SECRET** layer, withdrawing all secrets from view, while leaving the things you want the players to see evident.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 14.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

1   Click the **Layer** indicator `L: SYMBOL DEFINITIO` on the status bar.

    The **Select Layer dialog box** appears.

2   Click left-hand box for any layer other than **SECRET**.

    Because we have just been working on the **SECRET** layer, it will be the one currently having a tick next to it. Because we wish to hide the **SECRET** layer, and the current layer cannot be hidden, we need to select another current layer.

3   Click middle box next to the **SECRET** layer.

    An **H** appears in the box, indicating that the **SECRET** layer is hidden.

4   Press **OK** to keep the layer settings changes.

    We are returned to our drawing, but this time our secret doors cannot be seen. They have become hidden, along with the **SECRET** layer on which we put them.

5   To show the secret doors again, reverse the process, this time clearing the **H** from the **SECRET** layer's central box.
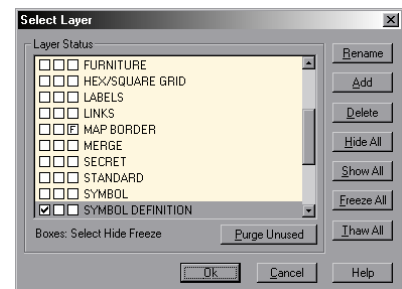
Stairs

Our dungeon has two entrances, and each is accessible by a flight of stairs. Here we are going to place these stairs into the drawing. However, since one entrance is 10' wide, and the other is only 5' wide, we will need to scale our stair symbols to suit.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 14.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

6 Click **Snap** button to depress it and turn snap on.

7 Click **Up and Down** symbol

> The current layer is set to **UP AND DOWN**, and the Catalog Window fills with symbols from **Up and Down.FSC**.

8 Scroll down the catalog window, locate the **Stairs B 10 Up** symbol then click on it.

> The stairs symbol attaches itself to the cursor.

9 Click **Zoom Window** then zoom into the northern entrance to the easternmost dungeon section.

10 Press ↑.

> The stairs symbol we have selected is normally aligned east to west. We need it to be aligned north to south to fit the entrance.

11 Right-click.

> You see the Symbol Parameters dialog box.

12 Click to put a check in the **Independent X and Y** box and then change the **Y scale** value to **2**. Click **More**.

> You are back to placing the symbol, which is now 10' wide and 10' long - the right size to fill our entrance.

13 Click to place the stairs at the end of the entrance passageway.

14 Scroll down the Catalog Window, then click **Stairs G 10 Up** symbol.
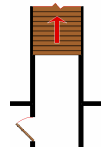
> The new symbol becomes attached to the cursor. It has inherited the parameters we've already set, i.e., it is rotated to vertical and is twice its normal width.

15 While holding the symbol, right-click.

> You see the Symbol Parameters dialog box, then **change the Y scale** value to **1**.
>
> The stairs for the right-hand dungeon entrance need to be 5' wide, which happens to be the same as the symbol's original width.
>
> Press the **More** button.

16 Right-Click **Grid** button, and select **5' Grid, 2 Snap**.

17 Click **Zoom Window** then zoom in to the easternmost dungeon entrance.

18 Click to place the stairs at the entrance.

Re-ordering layers

You will notice that the stairs symbols just placed overlap the dungeon's walls which looks a bit messy. We could fix this by fronting the WALLS layer, using the **Bring to Front** . However, this will also cause the walls to be placed in front of the doors we have drawn.

Stairs B 10 Up

Stairs symbols are named after their color, length, and direction. For example, **Stairs B 10 Up** indicates that the stairs are brown, extend for 10', and lead upwards.

Scale

Because the stairs symbol we have selected is only 5' wide, and the entrance is 10' wide, we need to scale the symbol to fit.

Looking at the symbol, you might think that using the Y scale parameter would extend the length of the stairs, rather than its width, since the symbol is aligned north to south. However, symbols are scaled with respect to their original alignment, regardless of actual rotation. Thus, because the symbol was originally aligned east to west, it is the Y scale parameter we need to change its width.

Change Y Scale

We could set the Y scale back to 1 by pressing the **Set Normal** button. However, we want to retain the vertical orientation of the stairs. The **Set Normal** button sets **X and Y** scale to 1, but it also sets **Rotation** to 0°.

5' Grid, 2 Snap

Because this entrance is only 5' wide, using the **10' Grid, 2 Snap** setting will not allow alignment of the stairs to the center of the entrance. Using the **5' Grid, 2 Snap** will allow this.

Changing the grid settings in the middle of a command will not cancel the command in progress.

DD Pro introduces a command that will automatically re-order layers to suit. This command generally works with default layer use (e.g., doors on the **WALL FEATURES** layer; walls on the **WALLS** layer; etc.), so some manual fronting may be necessary in unusual situations.

19 Select **Dungeon menu** >> **Order Dungeon Layers**.

> The objects in the drawing are fronted according to which layer they are on. The walls are now correctly in front of the stairs.

Traps Error! Bookmark not defined.

No dungeon would be complete without a handful of fiendish devices to protect it. Our dungeon is no exception.

DD Pro provides a number of mechanical and magical traps to catch the unwary adventurer. By default, these are placed on the **TRAPS** layer which, in the same way as we have already shown with the **SECRET** layer, can be hidden when producing maps to show the ignorant....

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 15.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

1 Click **Traps**

> The current layer is set to **TRAPS**, and the Catalog Window fills with symbols from **Traps.FSC**.

2 Zoom to the corridor down from the easternmost stairs.

The builders of this dungeon don't like people wandering down the staircase willy-nilly. So, they've put a fire trap to catch intruders using this entrance.

3 Click **Fire Blast** symbol

> The new symbol is attached to the cursor.

4 **Press** ⬆.

5 Right-click.

> You see the Symbol Parameters dialog box. Change the **X and Y** scale parameter to **0.5**, then press the **More** button.
> The fire trap symbol was too big to fit into the corridor, so we've had to scale it down.

6 Place the fire trap at the end of the corridor.

> We now have a fire trap at the bottom of the stairs, ready to char any unwanted intruders.

7 Zoom into the western dungeon section.

> The fire trap is not the only fiendish device here.

8 Click Spring Spear symbol

> The Spring Spear symbol replaces the Fire Blast as the current symbol attached to our cursor, but it is half-size because of the parameters we set for the fire trap.

9 Right-click to bring up the Symbol Parameters dialog box. Press the **Set Normal** button, then the **More** button.

10 Press ⬆.

> This restores the vertical alignment we need.

11 Right-Click **Grid** button, then select **1' Grid, 2 Snap**.

12 Place the spear trap so that the arrow portion of the symbol, which shows the direction in which the trap attacks, protrudes from the wall.

> The corridor now harbors a short, sharp shock.
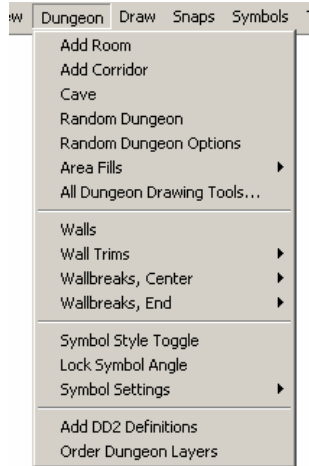
Press ⬆

Because the symbol is normally aligned horizontally, and we want it to point vertically towards the staircase, we need to rotate it.

---
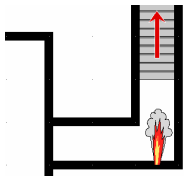
1 Grid, 2 Snap

We are going to place the spear trap within a section of wall, so we need to change to a grid setting that will allow this.
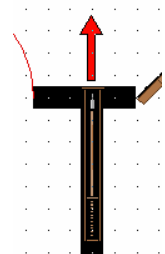
13 Press ⌜ESC⌝.

This ends symbol placement.

Room Contents

Now we can add more symbols to our dungeon to show the contents of each room. This can be done by following the general processes we have already covered, but here's a reminder of the things we can do:

To...	Do...
Select a new symbol catalog, and automatically change the current layer to suit.	Click one of the symbol s on the DD Pro bar: 🦇🟥🏔️🪑☪️⚔️🟦☥🚪🪜🏃
Select a new symbol catalog without changing the current layer.	Click **Catalog** button, and locate the desired symbol catalog.
Change the currently selected symbol.	Click on another symbol in the Catalog Window.
Change the currently selected symbol to one already within the drawing.	Press the **Drawing** button, and select the desired symbol.
Rotate to N, S, E, or W.	Press the ⬆️, ⬇️, ➡️, or ⬅️ keys.
Dynamically rotate a symbol by eye.	Hold down ⌜CTRL⌝ and ⌜SHIFT⌝, and move the mouse.
Dynamically scale by eye.	Hold down ⌜CTRL⌝, and move the mouse.
Rotate or resize precisely.	Right-click to display the Symbol Parameters dialog box, then type the new settings desired.
Reset symbol scale and rotation to normal.	Right-click to display the Symbol Parameters dialog box, then press the **Set Normal** button.
Continue placing symbols from the Symbol Parameters dialog box.	Press the **More** button.
Stop placing symbols.	Click a button or menu entry, or press the ⌜ESC⌝ key

Non-wall symbols

To decide which symbols to place in which rooms, the specific purpose of each room needs to be determined. Here are the purposes to which I've put them.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 16.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

14 Cellar contents.

The crates, sacks, urns, barrels, and buckets are in the **Containers and Treasure** 🟥 catalog. The well is in **Elemental and Magic** ☪️ catalog.

15 Torture Chamber Contents.

The lab table is in **Furniture** 🪑. The brazier is in **Elemental and Magic** ☪️.

The rack is in **Weapons** ⚔️. The pit is in **Traps** 🟦.

16 Cell contents.

The bed is in **Furniture** 🪑. The bucket is in **Containers and Treasure** 🟥.
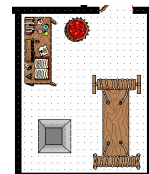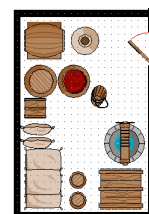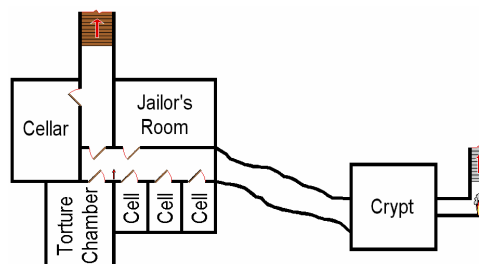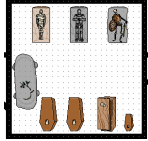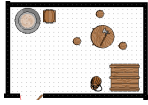
17 Jailor's Room contents

The table and stools are in **Furniture** 🪑. The crate, barrel, bucket, and cauldron are in **Containers and Treasures** 🟥. The axe on the table is in **Weapons** ⚔.

18 Crypt contents.

The coffins and altar are in **Temples and Statues** ✝.

To get the half-size coffin, right-click and set **X and Y** scale to **0.5**.

Text Labels

You can insert **text labels** into a map to provide information, keys, etc. Different fonts can be used to give a map a particular feel. If you don't have the specific fonts used in this example, don't worry. It doesn't matter; use any fonts you wish. To give my map an olde worlde feel, I'm going to use an Old English font.

To keep with the default DD Pro layers, text should be placed on the **TEXT LABELS** layer.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 17.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

1 Set the current color to black.

2 Click **Text Specs** [T]

You see the Text Specs dialog box.

3 Change the **Height** to **3'0"**.

4 Press the **More Fonts** button.

You see the **Add New Font** Properties dialog box.

5 Scroll down the list of available fonts, and click the one desired.

6 Click **OK** to add the selected font to the drawing.

You see the Text Specs dialog box again, but this time the font we wish to use is available.

7 Click the desired font.

8 Click **OK**.

You are returned to the drawing. The height that will be used for text has been set to 3'0", and the font to Old English or whichever font you selected.

9 Click the **Layer** indicator [L: SYMBOL DEFINITIO].

You see the Select Layer dialog box.

10 Scroll down to the **TEXT LABELS** layer, then click on its leftmost button to make it the current layer, and click **OK**.

11 Click **Text** [A]

You see the Edit Text dialog box.

12 Type in **Cellar**, then press **OK**.

You are returned to the drawing, and the text **Cellar** is attached to the cursor.

13 Click to place the text near to the cellar.

14 Right-click to repeat the last command, and add text labels for the remaining rooms and any **other items**.

15 Click **Text Specs** [T], and change **Height** to **4'8"**.
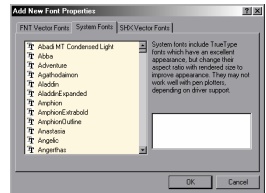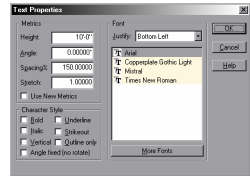
Add New Font

Because the font I wish to use is not yet available to the drawing, I need to use this dialog to add it in.

Other Items

Because the stairs lead *somewhere*, we can add labels to indicate precisely where. Add a text label reading **To Temple** above the stairs to the crypt, and one reading **To Courtyard** above the one leading to the cellar and jail cells.

16 Add **Underneath Castle Dumour** as a title to the map.
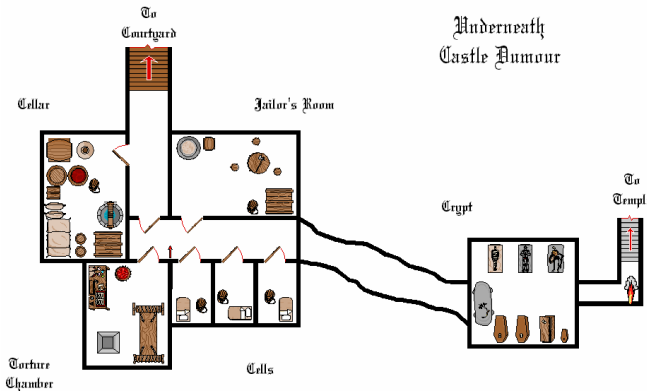
Arrows

Sometimes, the nature of a map, and the symbols placed within it, prevent text labels being placed so it is absolutely clear what they are indicating. In this case, arrows can be used to make things clearer.

Arrows have other uses too. We have already used three symbols (stairs and a trap) that use arrows to show direction, to name but one further example.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 12.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

17 Click the **Line Width** indicator `W: 1'-0"` and type **0** to set the line width to **0**.

18 Right click **Smooth Path** , click **Curve with Arrow**.

> The **command line** reads 1st point:.
> Notice that there are other arrow options available on the menu: lines, paths, and arcs.

19 Click to place the first point within the cellar, then draw the remainder of the smooth path so that it approaches the **Cellar** text label.

> You only need to place a few points between the cellar and its label. Right-click to end the command. At this point, you'll notice that the arrowhead is too small to be seen.

20 Click **Tools menu** >> **Set Properties** >> **Arrow Style**.

> You see the **Arrowhead Style** dialog box.

21 In the **Length** box, type **2'**.

22 In the **Height** box, type **1'**.

23 Press **OK**.

The arrowhead can now be seen.

24 Right-click to repeat the last command, and add the remaining arrows.
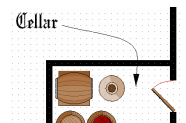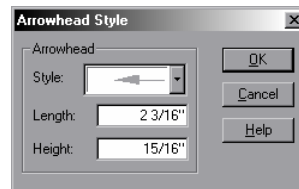
Number Labels

Number labels are most often used in conjunction with a written description or key which describes the location.

We will use CC2 Pro's **Number Label** command to add labels to each room in the dungeon. The command is quick to use and,

because it automatically increments the number label, it helps prevent duplication.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 13.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.
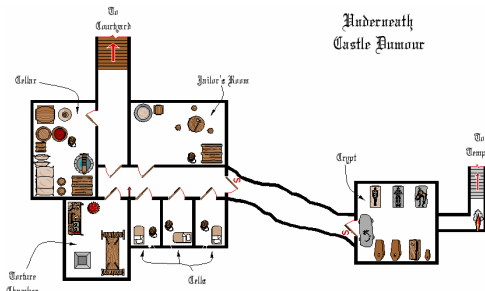
Number Label

If you use **Number Label** again in the same mapping session, the suggested start number will be the next one in sequence from the last number label placed.

To use a different start number, type in a value instead of right-clicking to accept the suggested one

25 Click **Text Specs** ⊤ to set current text height to **3'**.

>   The **Number Label** command uses the current text specifications. Make any other changes you wish to use (font, etc.), then press **OK**.

26 Set the current color to black.

27 Set the current layer to **TEXT LABELS**.

28 Click **Number Label** 9

>   The Command Prompt reads Number [1]:

29 Right-click to accept the suggested value (1).

>   The Command Prompt reads Text Position:

30 Click just below the staircase heading up to the courtyard.

>   The number 1 is placed. Notice that the text attached to the cursor has now changed to **2**.

31 Continue to click to place each desired number label.

32 Press ESC to **finish the command**.

Finish the Command
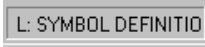
Do not finish the command using a right-click, because DD Pro will automatically place another text label below the last one you placed.

Entering your details into the Drawing Title box

Maps based on DD Pro's drawing templates have a scale bar and title box in the bottom right hand corner. You can edit the information contained within the box to reflect your map.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 20.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

33 Zoom in to the **Drawing Title box**..

Drawing Title Box

The title box is on the **MAP BORDER** layer. This is normally frozen to protect it from accidental editing.

Before we can change the information in the box, we need to thaw the **MAP BORDER layer**.

34 Click the Layer indicator L: SYMBOL DEFINITIO .

35 Find the **MAP BORDER** layer, and click in the rightmost of the three boxes to clear the **F**. Press **OK** to accept the change.

>   The **MAP BORDER** layer is now thawed, ready for editing.

36 Click **Edit** EDIT , then select the baseline of the text 250' x 200'.

37 Type **Underneath** over the old text, and press **OK**.

38 Right-click to repeat the **Edit** command, and change the other text lines.

39 Click the Layer indicator L: SYMBOL DEFINITIO , then freeze the **MAP BORDER** layer.
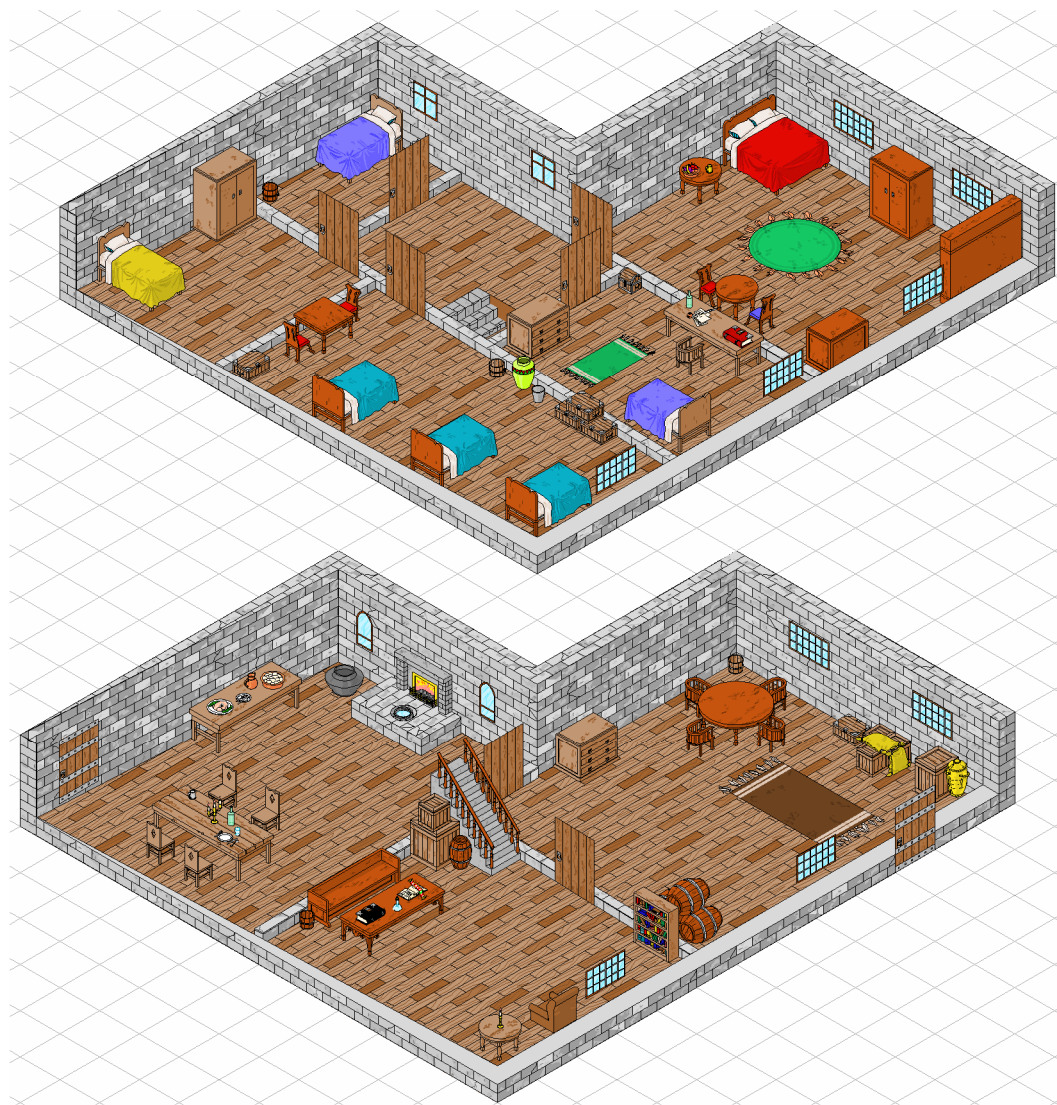
Adventurer's Guild by Grimur Fjeldsted*

Adventurer's Guild is a Perspectives Pro drawing using basic Per drawing functions and standard symbols. The **Adventurer's Guild** can be viewed in the **Examples>Tome** folder.

Special Effects

Dungeon maps can be enhanced by adding in various things beyond walls, doors, and other symbols. In this and subsequent chapters, we'll discuss how you might:

- ✓ Add solid-filled backgrounds
- ✓ Add backgrounds using a fill style
- ✓ Create complex walls
- ✓ Make custom staircases
- ✓ Link maps to other maps
- ✓ Move up and down dungeon levels
- ✓ Link maps to information
- ✓ Customize symbols

When you reach the end of this manual, you still will not have explored every single feature of DD Pro, for that would require something much larger than the document you are currently holding. However, you should know enough to begin exploring and experimenting on your own. More techniques and commands are discussed in the help system, and there are regular tips and tricks postings at our website, www.profantasy.com.

As we continue…

By now, you should be familiar enough with the basic functions of DD Pro. So we're going to forego basic **command instructions** from here on. Remember that CC2 Pro's help system contains details for all CC2 Pro and DD Pro commands.

But, above all....

Always keep one eye on the Command Prompt!

Solid Backgrounds

Adding a **background** to your rooms can take it from looking perfectly good (as it does now) to being absolutely stunning.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 21.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

Creating floor backgrounds from wall paths

1   Click **Copy** ⊞, right click, click **Copy to Layer.**.

2   Select by layer, then choose the **WALLS** layer.

3   Right-click and select **Do It**.

4   Right click to bring up the Layers dialog again. This time, click on **BACKGROUND (FLOOR 1)** and press **OK**.

    There are now two copies of each wall selection in the drawing, one on the **WALLS** layer, and one on the **BACKGROUND (FLOOR 1)** layer.

5   Make **BACKGROUND (FLOOR 1)** the current layer, and hide all other layers. Press **OK** to return to the drawing.

6   Delete all of the internal walls, leaving only those that extend around the perimeter of the cavern and dungeon sections.

7   Zoom in to the tunnel section and the walls to which it connects.

8   Click **Break** ⊠ then select the left-hand dungeon path at a point away from the tunnel.

    The **Break** command recognizes the point clicked to be on the section that must be kept. Thus, if we selected the dungeon path at a point between the two tunnel walls,

Command Instructions

Instead of leading you through common processes one click at a time, we shall say things like "bring the **WALLS** layer to the front", or "change the color of the polygon to black".

Also, we will rarely tell you to zoom in and out. It is assumed that if you need a better view of an object being drawn or an area of the map being worked on, you know that you can change zoom at any time.

If you forget how a command works, or what to do next, remember to look at the Command Prompt. It will be saying what CC2 Pro needs next.

Background

This only applies if you've been creating a freehand dungeon; if you've used **Add Room**, **Add Corridor** or geomorphs, your rooms will already have decent-looking floors.
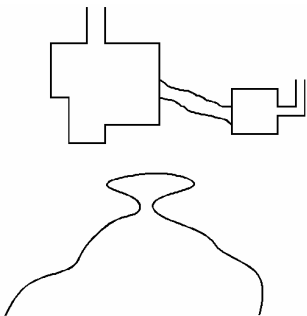
we would be left with just that section after performing the **Break** command, which is not what we need!

Click **Intersection** ⨉ to select the **modifier**, then click point where one of the tunnel walls meets the selected dungeon wall..

9   Repeat steps 8 to 11 for the other tunnel wall.

   The regular dungeon wall will break across the section where it intersects with the tunnel.

10   Repeat the process to break the right-hand dungeon wall across the tunnel.

   You should end up with something like shown here.

11   Click **Edit menu** >> **Transform** >> **Combine Paths**.

12   Click one of the wall paths, and then another that intersects it with which you want to **combine paths**.

13   Press the F and/or S keys until the join between the two selected paths is free from strange connecting lines.

14   Click to complete the command.

15   Repeat the **Combine** command until all paths in the dungeon section have been connected.

   Where there are gaps in the paths (e.g., in the northernmost portion of the left-hand section), the **Combine** command will automatically create a connection across the gap.

   You should end up with something like shown here.

16   Click **Edit** EDIT

17   Select the dungeon section.

   The Edit 2D Path dialog will appear.

18   Check the **Closed** box, then press **OK**.

   This will convert our path entity into a closed polygon.

19   Click **Change Line Width** , and change the line width of the polygon to **0**.

   The line width of the floor polygon will be set to zero, giving a solid filled entity like shown here.

20   Click **Change Color** , then change the color of the polygon to a light gray (color 252).

Floors from combined entities

The above process works if only paths are used, since the **Combine** command cannot join together entities that are not paths. To create floors from a combination of entities requires use of the **Multipoly** command.

To use our version, do **File menu** >> **Open**, then select **DD Pro Tutorial 22.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.
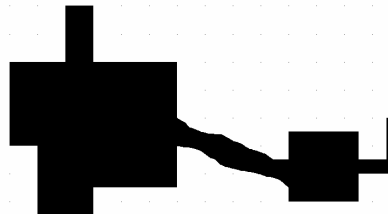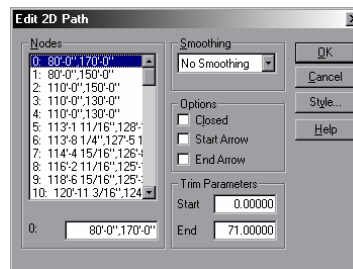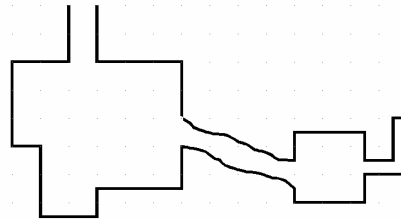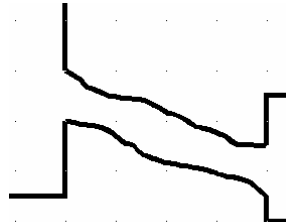
Modifier

We could use the **Endpoint** modifier , and select the tunnel path to gain our first break point. However, because the tunnel path is irregular, and the **Endpoint** modifier applies to the nearest point on a path (not the end of the path itself), there is a danger of selecting the wrong point to start our break. If both the tunnel and the wall were regular, then the **Endpoint** modifier would be a better choice

Combine Paths

The **Combine** command is a very useful tool. It is used to join two paths together, resulting in a single path.

If the paths to be combined do not meet exactly, CC2 Pro adds in a connection. This is where the strange connecting lines that may appear are coming from. Even when two paths do meet, CC2 Pro may attempt to connect the ends of the selected paths. To solve this problem, the **Combine** command allows the user to "flip" the ends of the paths involved, forcing CC2 Pro to re-calculate the connection. Pressing the F key will flip the first path's ends, and pressing the S key will flip the second path. It is often easier to press the F and S keys in succession until the right connection is achieved, rather than to calculate which specific path needs to be flipped.

21 Use the following drawing settings:

Current layer	**BACKGROUND (FLOOR 1)**
Fill style	**Solid**
Line width	**0'0"**

All layers hidden except the current one.

22 Click **Line** [icon], then use the **Endpoint** [icon] to draw a line from one end of the cavern wall spline to the other.

23 Click **Multipoly** [icon]

24 Select the cavern's smooth path, and the line just drawn.

25 Right-click then select **Do It**.

   You should end up with something like shown here.

26 **Change the color** of the multipoly to light gray (color 252).
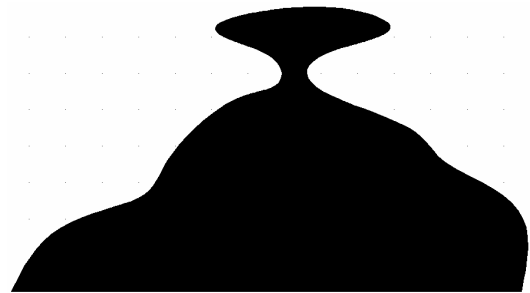
Map backgrounds using simple rectangles

Now we can add a colored background to the entire map.

Most DD Pro templates have a colored background already – to change the background color, just right click **Change Color** [icon], click **Change Background Color**.

27 Change to these drawing settings:

Current layer	**BACKGROUND**
Fill style	**Solid**
Line width	**0'0"**
Color	**Mid-brown (color 42)**

Show all layers

28 Click **Box** [icon], then draw a box that fills the map border.

29 Select **Dungeon menu >> Order Dungeon Layers**.

   The whole map now has a brown colored background.

Symbol Filled Backgrounds

Symbol filled **backgrounds** can be used on their own instead of the solid filled backgrounds discussed above, or in concert with solid backgrounds to give a distinctive effect.

To use our version, do **File menu >> Open**, then select **DD Pro Tutorial 23.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

Symbol filled floors

1 Show all layers.

2 Select **Copy menu >> Copy To Layer**, then copy all of the entities from **BACKGROUND (FLOOR 1)** to **BACKGROUND (FLOOR 2)**.

3 Change the fill style of the entities on the **BACKGROUND (FLOOR 2)** layer to **Paving 31**.

4 Change the color of the **BACKGROUND (FLOOR 2)** entities to a darker gray than that used for the solid fill floors (e.g., color 247).

5 Select **Dungeon menu >> Order Dungeon Layers**.

Change Color

If you have used any obscuring mask doors and windows in the map, they will show up against the new floor color. Use the **Change Color** [icon] to change these symbols to suit the color of the floor.

Backgrounds

Creating symbol filled backgrounds to be used on their own uses a similar process to that described for solid filled backgrounds, except that the desired symbol fill is used in place of solid

Symbol filled map backgrounds

6 Click **Copy** [icon] right click and select the **BACKGROUND** layer, **Do it**, type in **0,0** at the Copy from: prompt and **0,0** at the Copy to: prompt.

   This copies the **BACKGROUND** rectangle on top of itself.

7 Selecting the **BACKGROUND** copy by **Prior**, change its fill style to **Dust Brown Symbol**.

8 Click **Front** [icon], select by **Prior**, bring the symbol filled polygon to the front.

9 Select **Dungeon menu** >> **Order Dungeon Layers**.

   Underneath Castle Dumour should now look something like shown here.

   To see the completed example, open **DD Pro Tutorial 24.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

These methods can be used to create all manner of **effects**. The processes are the same, with just a little added imagination.
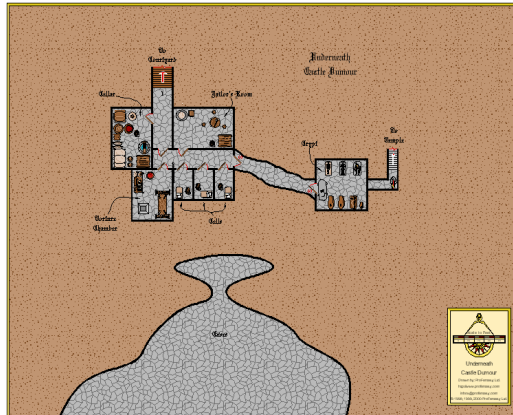
Wall Breaks

Wall breaks let you break a hole of a specified size in a dungeon wall. There are two kinds, **Wall Break End** where you select one end of the break then an endpoint, and **Wall Break Center** where you select the center. This example shows a center justified wall break.

1 Open the drawing **DD Pro Tutorial 25.FCW** from CC2 Pro's **Tutorials\Dungeons** folder.

2 Click the Layer indicator and freeze all the **BACKGROUND** layers.

3 Erase the door into the Jail area.

4 Click **Redraw** [icon].

5 Click **Door Break** [icon].

   The Command Prompt reads Select entity:.

6 Click the wall at the center of the new door.

   A 5' wide hole is made in the wall, centered on the point you clicked.

7 Click **Catalog** then open the **Wall Features.FSC** catalog.

8 Click a door symbol then place it in the wall break.

   Change the grid settings or use the **Endpoint** [icon] modifier to help you locate the door accurately.
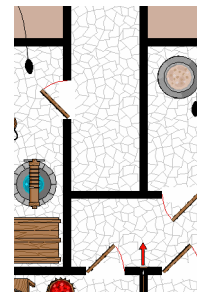
Creating Unusual Doors

The **Wall Features**

catalog contains various symbols that combine with doors to say more about their type or nature.

1 Start a new DD Pro drawing.

2 Using the grid, draw a horizontal wall of any thickness.

3 Click **Wall Features** then click the second wall features catalog.

4   Set the **color** to white (for the background masks).

5   Select any door and place it on the wall.

6   **Zoom Window** on the area around the door.

7   Scroll down the catalog window past the doors.

 You see some red arrows, a skull and two keys. Applied to doors, these have specific **meanings**.

8   Select the **Locked** (key) symbol.

9   Place the **key** on the same grid point that you used for the door.

10   Do the same with the skull and red arrow.

 Each symbol takes up its own slot. The result is a one way, locked and trapped door.
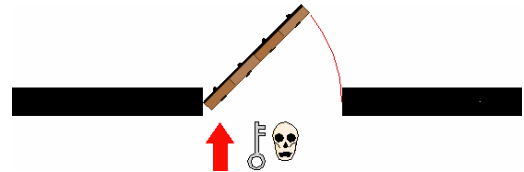
Adding Peep Holes and Arrow Slits

So, you've got those pesky, meddling PC's trapped in the room with no exit. Now all you've got to do is teach them a lesson.

1   Start a new DD Pro drawing.

2   Click **Wall Width** to set the line width to **1'0"**.

3   Using the grid, draw a horizontal wall.

4   Click **Wall Features** .

5   Set the current color to white (or to the current floor color if it isn't white).

6   Scroll down the catalog window then click **Peep Eye** symbol.

7   Place the **Peep Eye** in the wall.

8   Scroll down the Catalog Window then click gray **Arrow G 1'** symbol.

DD Pro's arrow slits expand to fit the width of the wall tin which they are placed. This is yet another of those smart symbol functions.

9   Place the arrow slit on the wall.
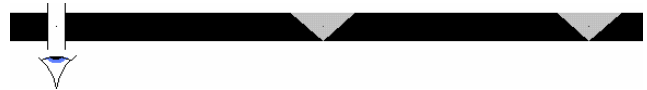
Rooms at an Angle

Everything we have drawn so far has been nicely aligned to a grid. This has made it easy to draw square corners and parallel walls.

 Drawing at rooms an angle is slightly harder because we can not make so much use of the grid. A way of avoiding this difficulty is to draw the room square to the grid, then rotate it into position as the last action. If the crypt on our dungeon should have been at an angle, this is what to do:

1   Open **DD Pro Tutorial 25.FCW**

2   Click **Rotate** .

 The Command Prompt reads Select entities (0 picked):.

3   Click two points to form a window around the crypt and passage, then **Do It**.

 The Command Prompt reads Rotate by Angle:.

4   Type in **30** then press ENTER .

 The Command Prompt reads Rotate center:.

5 Click point **A** at the left end of the bottom passage wall.

> Changing the grid setting back to **10' Grid, 2 Snap** makes this easy.
>
> The crypt and passage rotate by 30° anti-clockwise. The point you selected as the "rotate center" does not move.
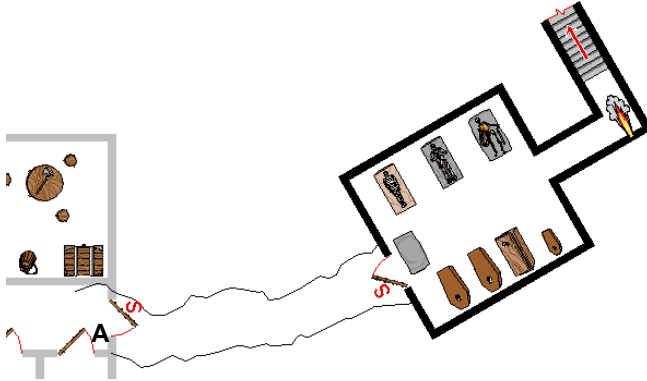
6 **Trim** [icon] the top passage wall where it joins the jail.

Symbols aligned to another entity

Your Wall Features symbols align to walls automatically; when you want another kind of symbol to line up exactly with another object in the drawing, use **Lock Symbol Angle**.

To use our version, do **File menu** >> **Open** >> **Angle 2.FCW**

7 Click **Lock Symbol Angle** [icon].

> The Command Prompt reads Select straight edge:.

8 Click left end of the fire blast wall to set **symbol angle**.

9 Pick the **Sconce** symbol from the end of the **Wall Features** catalog.

> You see the **Sconce** symbol attached to the cursor, rotated to the same angle as the wall.

10 Right-click **Attach** button (at the bottom of the screen).

> You see the Select Attach Mode dialog box.

11 Click **Nearest point ON** then **OK**.

12 Click **Attach** button to enable **attach mode**.
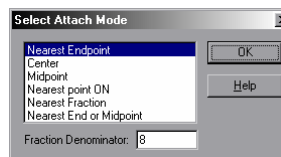
13 Place sconces along the wall.

> All you have to do is click close to the point you want the sconce on the wall. The **Nearest point ON** attach mode then locates the sconce precisely **aligned to the wall**.

Text at an Angle

When you want to align text to a straight line, use **Lock Text Angle** to set the angle precisely.

To use our version, do **File menu** >> **Open** >> **Angle 3.FCW**

14 Click **Edit menu** >> **Edit Text**>> **Lock Text Angle**.

> The Command Prompt reads Select straight edge:.

15 Click the left end of the fire blast wall.

> The command ends. The new text angle is set.

Symbol Angle

DD Pro sets the angle for new symbols equal to the angle of the wall, measured from the end you selected. Selecting the other end of the wall would reverse the symbol angle.

Attach Mode

When enabled, buttons appear depressed.

Aligned to the Wall

Smart symbols align automatically to walls, but other symbols such as furniture don't. **Lock symbol angle** is useful in this case; it lets you align a chest of draws to a wall, for example.

16 Click **Text** A and then enter some text.

As you place the text, you see it is aligned to the wall.

Like **Lock Symbol Angle**, the angle is measured from the end you select. If you select the other end of the line, the text angle is reversed.

The Tiles catalog

The **Tiles** catalog is used to create boundaries of various kinds including walls, fences and hedges. It is used in a very similar way to the **Dungeon Geomorphs**.

Tiles can be used to make houses and exterior floorplans as well as interior dungeon walls. Extra catalogs are released at our web site www.profantasy.com

1 Start a new DD Pro drawing.

2 Click **Catalog** button then load the **Tiles.FSC** catalog from CC2 Pro's **Symbols\Dungeons\Filled** folder.

3 Right-click **Grid**, then select the **Dungeon Geomorph** grid setting.

Using Tile symbols

4 Select tiles from the catalog window and place them on your map.

Use the arrow keys to rotate each tile into position.

Complex walls

(with lots of practical use of CC2 Pro's editing tools)

Real walls can have varied thickness and can contain passageways, or even rooms. In this example, we will use a wide selection of CC2 Pro's drawing tools to create an unusual and detailed outline for a cathedral wall. Once the wall outline is ready, we will **multipoly** it to create a single, filled wall.
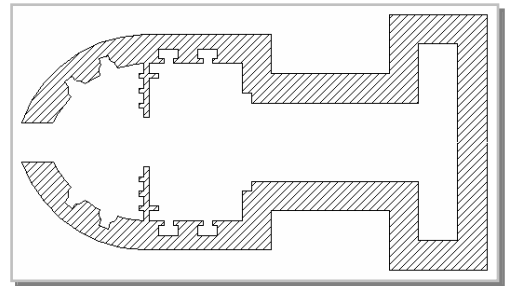
1 Start a new DD Pro drawing called **Cathedral.FCW**

2 Make sure the following settings are current:

Fill style (FS)	**Hollow**
Line width (W)	**0'-0"**
Layer	**WALLS**
Color	Dark Gray
Grid	**10' Grid, 2 Snap**

3 Use **Path** to draw the internal walls for the top half of the three rectangular chambers.

We will add the fine detail later. For now, just get the basic shape right. In my example, the east-west range for these walls is 160'. The north-south range is 50' (that's for the top half).
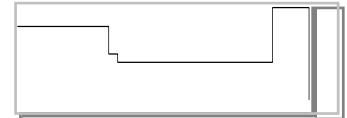
4 Click **Arc** then draw a curved section at the left end of the wall.

5 Click **Draw menu** >> **Offsets** >> **Offset Chain**.

The **Command Prompt** reads Distance:.

6 Enter a value of **15'**.

The **Command Prompt** reads Chain entity:.

1st point
3rd point
2nd point

Multipoly

When creating multipolys, accuracy is essential. If there are gaps or overlaps in the outline then the fill style will escape from the multipoly and bleed over the screen.

Whenever you are trimming or breaking for a multipoly, ensure accuracy by working to the grid or using a modifier (see the **Modifiers menu**).
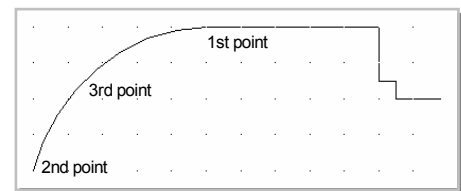
Arc

Arc uses the start point, end point and a third point to create the arc. In this case, place the start point where the straight wall ends; the end point on the building's centerline; the third point so it gives a smooth curve to continue the wall

7 Pick either the arc or the straight wall.

   CC2 Pro selects both the arc and path. It has selected the whole chain. The Command Prompt reads Pick a side:.

8 Click outside of the existing wall.

   CC2 Pro creates a copy of the wall, offset by 15 feet.

9 Use **Node Edit** to move the "notch" in the external wall into the normal corner position (in effect removing the notch).

If the walls are black, instead of gray, you might find that they do not display on the white background while you are moving the node.
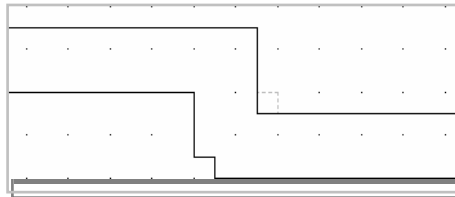
10 Use **Path** to draw an alcove in the wall (as shown here).

   Changing the grid setting to **5' Grid, 2 Snap** will make this easy.
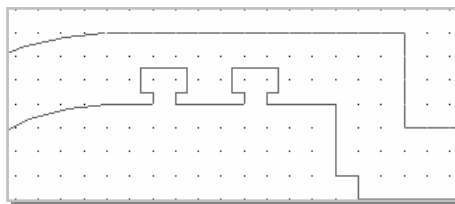
11 **Copy** the alcove to make a second one next to the first.

12 **Break** holes in the main wall at the entrance of each alcove.

13 Use **Line** to draw a horizontal wall across the end of the curves, 20' above the centerline.
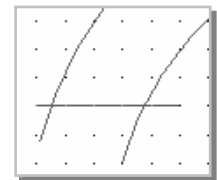
14 **Trim to Intersect** on the curves and new wall to clean up the wall end.

15 Draw a **Circle** next to the existing alcove. Place the circle's center at the point where the arc and straight wall meet.
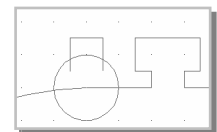
16 Use **Path** to add three sides of a small square at the top of the circle.

17 Use **Trim to Entity** to trim the path ends to the circle.

18 Make a **Break** in the circle to join it with the square walls.

   Use the **Endpoint** modifier F5 to select the break's start and end accurately.
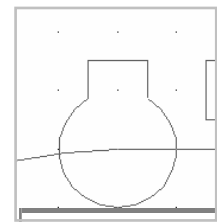
19 Right-click **Copy** then **Rotated Copies**.

   The Command Prompt reads Select entities (0 picked):.

20 Select both the circle and path, then **Do It**.

   The Command Prompt reads Rotate by Angle:.

21 Type in **20** then press ENTER .

   The Command Prompt reads Rotate center:. We want to put these alcoves along the arced wall, so the center of the arced wall must be the center of rotation.

22 Click **Center** then click the arc.

   A copy of the circular alcove is created **20** degrees around from the original version.

23 Right-click to repeat **Rotated Copies** command.

   The Command Prompt reads Select entities (0 picked):.

24 Select by **Prior**, then **Do It**.

   The Command Prompt reads Rotate by Angle [20.00000]:. The default value is the last rotation angle you used.

337

25 Right-click to accept the last value.

> The Command Prompt reads Rotate center []:. The default value is the last center point you used.

26 Right-click to accept the last value.

> A second copy of the alcove is added to the map, **20 degrees** further around.

Circular Alcove

The first alcove was easy to draw because it was square to the grid. Now that you have created the rotated copies, its purpose has been served . It's a tough life being an alcove.

27 Click **Erase** 🔳 then remove the first **circular alcove**.

28 Click **Break** ✖ then break holes in the main arc to take the circular alcoves. Use the **Intersection** modifier F6 to select the break points accurately.

29 Click **Break** ✖ then remove the alcove arcs where they protrude into the room.

30 Click **Path** 〰 then draw the outline of a thinner, buttressed internal wall.

> Start the wall at the point where the arced and straight wall meet. Work around anti-clockwise, so the endpoint is also on the straight wall.

31 Click **Trim** ✕ then shorten the straight wall.

32 Right-click **Copy** 🔳 then click **Mirrored Copies**.

> The Command Prompt reads Select entities (0 picked):.

33 Click a window around the walls, then **Do it**.

> The Command Prompt reads Mirror line start:.

34 Click at the bottom end of the rightmost wall.

> The Command Prompt reads Mirror line end: and you see a rubber band line showing where the mirror line will be.

Mirror Line

35 Click so the mirror line is horizontal.

> It doesn't matter how long the mirror line is; provided it is at the correct angle and distance from the original version, the copy will be positioned correctly.

36 Set the fill-style to **Solid** and the color to **black**.

37 Click **Multipoly** 🔲, then combine all the walls into one polygon.

> The walls fill in black, but there is an error. If you zoom in where the straight and curved wall sections meet, the fill style is escaping. **This is a sure indication that there is an inaccurate join.**

Precision Errors

Anything which involves calculating the intersection point of the line and arc may have the same precision error. Using the endpoint or grid point doesn't require a calculation, and therefore has no precision error.

38 Click **Undo** ↩.

> The walls return to how they were.

Gap here

39 Zoom very close on where the straight and curved wall sections meet.

> Sure enough, there is a small gap. This is the result of tiny **precision errors** which creep in.

40 Click **Trim** ✕ and trim the arc to the endpoint of the straight section.

> You see the gap close.

If you trim the line to the arc, you will find that the line is no longer horizontal – it is the arc's endpoint that is slightly out of place.

41 Repeat the **Trim** on the mirrored version.

42 Click **Multipoly** 🔲 to combine the walls again.

>This time the walls should multipoly neatly into solid black walls.

43 Click **Change Fill Style** 🔳 on the walls then select <u>**Wide right hatch**</u> from the **Brush Patterns** tab.

If you want a line-only version of the walls again, perhaps to use as the outline to a fill-style, copy the multipoly to the side of the map then explode it. The multipoly will revert to lines, each with their original color and fill-style.

Ironically, although drawing complex walls like this is a more involved process than drawing standard walls, creating background floors for complex walls is simplicity itself. All that needs to be done is to copy the wall to the desired **BACKGROUND** layer, explode this copy, delete the outer section, and multipoly what remains.

Custom stairs

Multipoly is not only useful for background floors and complex walls. Its ability to combine entities of different types also extends beyond simply combining different types of entities to form a single block.

Here, we will create a custom staircase, one which leads around the edge of a circular tower. We will draw it so that its visual style matches the stairs found in DD Pro's **Up and Down** symbol catalog.

1 Start a new drawing.

2 Click **Circle** 🔵, then draw a black, hollow circle on the **UP AND DOWN** layer.

>This circle represents the outer edge of a tower. Had we drawn the tower, you could use **Copy menu** >> **Copy to Layer** to create a copy of the tower's outer wall edge on the **UP AND DOWN** layer.

3 Right-click **Line** ✏️, then click **Perpendicular at Length** to draw three lines, each 5' long, perpendicular to the circle. Place the outermost lines approximately 15' away from each other around the circle's circumference, with the third line somewhere between them.

4 Click **Break** ✖️ to break the circle so that an arc between the two perpendicular lines is all that remains.

5 Click **Arc** 🔲, then add an arc from the end of one of the outer lines to the end of the other outer line, placing the third point at the end of the middle line.

6 Click **Erase** 🧽 then delete the middle line.

>This forms the outline of our staircase.

7 Click **Copy** 🔲, then set the copy of the outline off to one side.

>Concentrate - here comes the science part!

8 Right-click **Copy** 🔲, click **Rotated Copies**, and select the topmost line comprising the outline copy.

>The Command Prompt reads Rotate By Angle [90]:

>The angle we need to copy by is equal to 360° multiplied by the fraction of the tower's circumference 1' represents, since we are copying the line to create 1' steps.

Don't panic - the process is worked out for you below. If you don't care for mathematics, skip to the last part. If you do, the following shows from where the number crunching comes.

Math people start here: We need to calculate the ratio between 1' and the entire circumference of the tower's outer wall (against which our staircase is to rest). We know that:

$$Circumference = Diameter \times \pi$$

We also know that: $\pi \approx \dfrac{22}{7}$

And:

$$Diameter = 2 \times Radius$$

$$\alpha = 360 \times \dfrac{Arc}{Circumference}$$

And the final value we require is:

Where *Arc* is the required arc distance, in this case 1'.

$$\alpha = 360 \times \dfrac{Arc \times 7}{44 \times Radius}$$

A simple piece of formula substitution, and we get:

Non-math people start here: Because CC2 Pro can perform calculations for us, all we need to do is enter the numbers, and let CC2 Pro do the actual work.

Radius

You can quickly find out the radius required by using **Info menu >> List**, or the **Edit** EDIT , on the staircase's short arc. The 1 used in the formula, representing the arc length desired, is, of course, superfluous. But I've left it in so you can see where to put an arc length value in the formula should you wish to use it for another purpose.

Press ENTER

Pressing ENTER twice will keep the default values for rotation angle and center, which we have already set in the above steps.

Default Angle

Because we have already performed a **Rotated Copies** command, CC2 Pro now shows the angle calculated in 9 as its default. Pressing ENTER will accept this.

If you chose to use **Rotated Copies** in step 14, you will need to enter the angle again.

---

9 Type **360*1*7/(44*radius)**, substituting *radius* for the actual **radius** of the tower's outer wall.

The Command Prompt now reads Rotate center [0,0]:

10 Use the **Center** modifier ⊙ to select the center of either arc used in the staircase.

11 Right-click to repeat the last command, select by **Prior**, and **press** ENTER twice.

This will add another 1' step line to our staircase.

12 Repeat step 11 until the next line to be drawn would be outside the staircase's outline.

These lines will form the basis for our steps.

13 Click **Copy** ,then make a copy of the steps off to one side of the template.

14 Right-click **Line** , then click **Perpendicular at Length** to draw a 5' long line, perpendicular to the staircase's outer (long) edge, with an endpoint 9" along the inner (short) arc.

We could alternatively use **Copy menu >> Rotated Copies**, and use the formula discussed in steps 8 and 9 on an arc length of 9".

15 Right-click **Copy** , then click **Rotated Copies**, selecting the line just drawn, and pressing ENTER to keep the **default angle.**

16 Right-click to repeat the command, select by **Prior**, and press ENTER twice. Repeat until every step line has a paired line 3" away.

17 Click **Break** to break up the arcs between each pair of lines.

18 Use **Multipoly** 🔲 to **multipoly** all of the step shading arcs and lines together.

19 Click **Multipoly** 🔲 to multipoly the copy of the step outline we made in step 7.

20 Change the color of the outline multipoly to light gray (color 253). Change the color of the steps multipoly to dark gray (color 248).

21 Use fronting to bring the steps multipoly in front of the outline multipoly, and the copy made in step 13 in front of all.

22 Move the steps multipoly and the step 13 copy on top of the outline multipoly. This can be accomplished using the **Drag** 🔲, and by using the **Center** modifier 🔘 to set From and To points at the center of the various arcs.

We now have one custom-built tower staircase.

Of course, you can add arrows to the staircase to show direction, or duplicate any of the other effects displayed by DD Pro's stairs symbols.

The principles used above can be applied to many other situations. Tables that sit neatly into arced corners; raised stages and daises; grand staircases.... The possibilities go on and on.
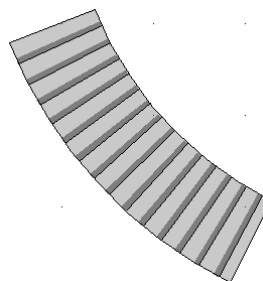
Multi-leveled dungeons and buildings

In theory we could use different layers for each level, and hide or show layers depending on which dungeon level we want to see. This sounds like a good idea but, in practice, leads to unwieldy maps that are of little use to anyone.

The best, easiest and safest way of separating levels is into different map files. These can easily be linked together, and each will be of manageable size.

We will save our existing Castle Dumour masterpiece as a new map, then erase everything that isn't needed above ground. To select the unwanted bits we will use CC2 Pro's ability to combine selection criteria. We will work with keystrokes instead of mouse-clicks.

To use our version, do **File menu** >> **Open** >> **Tutorials\Dungeons\DD Pro Tutorial 26.FCW**

1 Use **Save As** to save the map as **Above Dumour.FCW**

This will be the basis of the above ground map. We will erase everything except the stairs, grid and external walls. These features may have an effect on what goes on above them.

2 Click **Erase** 🖊.

The Command Prompt reads Select entities (0 picked):.

3 Press Ⓐ (instead of selecting **All** from the submenu).

The whole map goes gray. Everything that is not on a frozen or hidden layer is selected. The Command Prompt still reads Select entities:.

4 Press Ⓝ (instead of selecting **Not** from the submenu).

Now anything we pick will be removed from the selection.

5 Press Ⓛ (instead of selecting **Layer** from the submenu).

The Command Prompt reads Layer name [dialog]:.

6 Press ⏎ ENTER to accept the suggested option (dialog box).

You see the Select Layer dialog box.

7 Click **WALLS** then **OK**.

Anything on the **WALLS** layer is deselected. The Command Prompt still reads Select entities:.

8 Press ⌊L⌋ (instead of selecting **Layer** from the submenu).

9 Press ⌊ENTER⌋ to accept the suggested option (dialog box).

You see the Select Layer dialog box.

10 Click **UP/DOWN** then **OK**.

Anything on the **UP/DOWN** layer is deselected (the **Not** from step 4 is persistent. It will continue until we end the command or change it to **And or Or**).

11 Press ⌊D⌋ (instead of selecting **Do It** from the submenu).

12 Click **Redraw** ⟳.

13 Erase the internal walls and cave.

Only the grid overlay, stairs and external walls remain. You would use these to locate features above ground.

Summary of selection keystrokes

Written out step by step, this selection looks more long-winded than it actually is. Think of it as initial letters with an ⌊ENTER⌋ for each dialog.

Select	All	Not	Layer	WALLS	Not	Layer	UP/DOWN
Keystroke	A	N	L	ENTER	N	L	ENTER

(The second ⌊N⌋ is not strictly necessary because **And**, **Or** and **Not** are persistent, but it is included here for illustrative purpose.)

And, Or, and Not

Or (the default)-Entities that meet any of the criteria are selected. For example, select "Color Red OR Type Text" selects entities that are "red or text".

And (Both)-Entities that meet all the criteria are selected. For example, selecting "Color Red AND Type Text" selects entities that are "red and text".

Not-Entities that meet the criteria are deselected. For example, select "Color Red NOT Type Text" selects entities that are "red but not text".
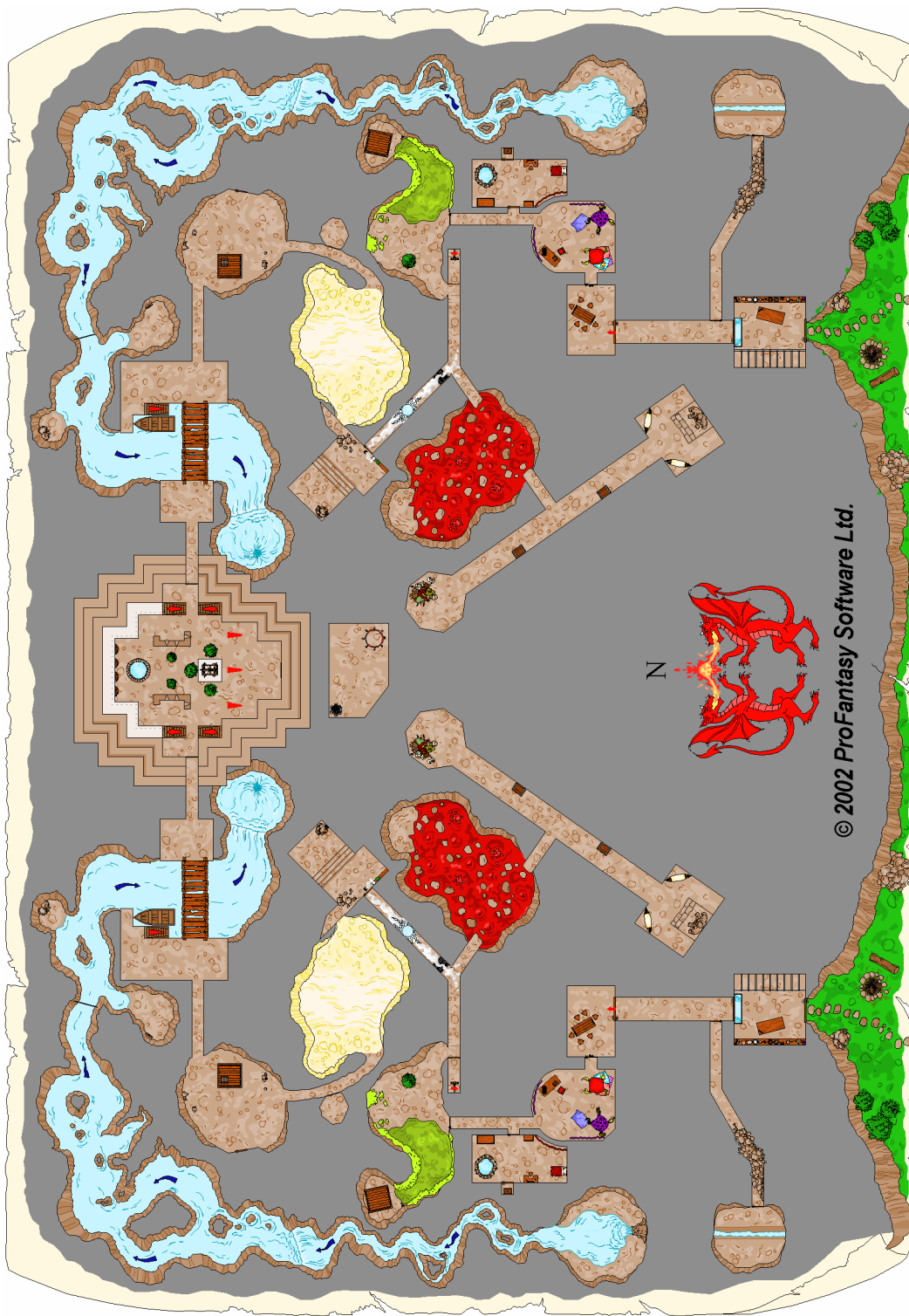
Two Party Dungeon by Linda Kekumu*†

Two Party Dungeon uses many symbols from Symbol Set 2-Fantasy Floorplans. Linda also created several symbols for the drawing using the techniques explained in *Creating a symbol* on page 66. The drawing also contains links to adventure documents as explained on page 117 in *Linking maps to other Windows® documents*.

View **Two Party Dungeon** in the **Examples>Tome>TwoParty** folder. The symbol catalog of symbols created for this drawing are also available in the **Symbols>Tome>PF symbols.FSC**..

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Linking Maps and Information

Linking dungeon levels and maps

Adding clickable links to your maps takes them from being standalone guides to an interwoven Campaign Atlas. At the site of each link we will add buttons to remind us of the locations where we can click.

There is no limit to the number of links a map can have.

1   In **CC2 Pro**, Open **Jaw Peninsular** from CC2 Pro's **Examples\Maps** folder.

  If you haven't got this map, use any other campaign scale map.

2   Zoom in on the lower left corner of the map.

  You can see some hills labeled "Dales of Loff".

3   Click **Symbol Catalog Settings** 🪄, **CC2 Filled Structures.** Add a Manse symbol next to the hills.
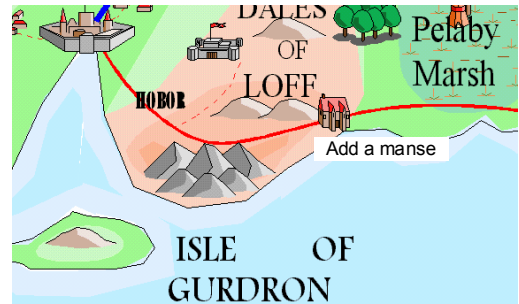
4   Click **Link with Map** 🔗.

  You see the Select File dialog box.

5   Click **Elementalist Outdoors** from the **Examples\Dungeons** folder then click **OK**.

  The Command Prompt reads Hotspot window:.

6   Click two corners of a box tightly around the manse.

  You see a line of very large text appear. This text is **CC2** Pro's **internal commands** for the link.

7   Click **View menu** >> **Hide Hyperlinks**.

  The link text is no longer visible.

8   Click **Zoom Extents** 🔍 then save the map.

9   Open **Elementalist Outdoors** from the **Examples\Dungeons** folder.

10   Click the layer indicator and set the current layer to **LINKS**.

11   Click the **Catalog** button and load **Links.FSC** from CC2 Pro's **Symbols\Other** folder.

12   Place the **Door link symbol** next to the main entrance.

13   Place the **Dungeon** link symbol next to the cave entrance.

14   Link the door symbol with **Elementalist Floorplans** in the **Examples\Dungeons** folder.

15   Link the dungeon symbol with **Elementalist Caves** in the **Examples\Dungeons** folder.

16   Select **Info menu** >> **Hide Hotspots.**

17   Open **Elementalist Floorplans**, saving the changes to the current drawing.

18   Add link symbols next to the entrance and downwards stairs of the ground floor.

19   Link the stairs to **Elementalist Underground**.

Internal Commands

If you understand CC2 Pro's script language, you can use **Edit** ᴇᴅɪᴛ to change it, then click on the edge of the box.

Link Symbol

The link symbol reminds us that a link exists and shows us where to click. It has no actual affect on the way the link operates and is entirely optional. You can hide the link buttons by hiding the **LINK** layer.

Alternatively you can represent links with hollow boXEs of an unusual color or text underling.

If you always link doors, stairs and other such areas, you will not need to label the links.
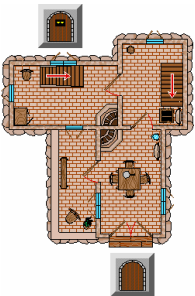
20 Link the door to **Elementalist Outside**.

21 Select **View menu >> Hide Hyperlinks**.

22 Open **Elementalist Underground**, saving the changes to the current drawing.

23 Add a **Dungeon** link symbol at the end of the South passageway.

24 Link the dungeon symbol to **Elementalist Caves**.

25 Add a **Door** link symbol next to the stairs in the store room.

26 Link the symbol to **Elementalist Floorplans**.

27 Open **Elementalist Caves**, saving changes to the current drawing.

28 Add link symbols at the end of the South passageway and at the sea cave.

29 Link the passageway to **Elementalist Underground**.

30 Link the sea cave to **Elementalist Outside**.

31 Click **View menu >> Hide Hyperlinks**.

32 Save the changes.

To use a link, just move the mouse pointer over the link then click.
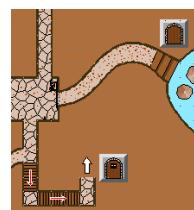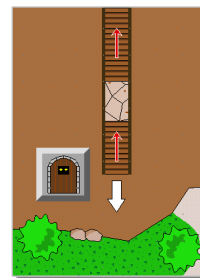
Linking with files and information

Aside from linking to other drawings, you can **link files or documents**, too. In this example, we will add two links to the Elementalist Caves map. The first will link a pile of treasure to a text file of the treasure list; the second will link the mage's desk and her character sheet (in Internet html format, created using TSR's AD&D® Core Rules 2).

Linking to other file types works exactly the same way.

1 Open **Elementalist Caves.FCW**

2 Click **Link with File** 🔗.

You see the **Select File** dialog box.

3 Click **Treasure.txt** from the **Tutorials** folder, then click **OK**.

The Command Prompt reads Hotspot window:.

4 Click two corners of a box around the pile of gold.

You see the large internal commands text appear next to the treasure.

5 Right-click to repeat **Link with File**.

6 Add a link to **Zodac.html**, also in the **Tutorials\Dungeons** folder, placing the hotspot around the mage's desk.

7 Click **View menu >> Hide Hyperlinks**.

8 Click either of the link sites.

The linked file loads in the appropriate program.

Sharing linked maps with other users

Each link created contains the name and full location of a file on your computer. When you share maps with other users, they may well use a different set of folder names than you. If the map is placed on their computer using a different folder, the link will not work.

There is an answer. If you keep all of the linked files in the same folder, they will work for other users, as long as they do the same. Link with maps puts in a relative link.

DUNGEON DESIGNER PRO

Edit Text

To edit normal text, you click the text's baseline. Link text is a special case. To select link text, click the edge of the hotspot.

Character

The # character means "whatever folder CC2 Pro is running from". With the # replacing the absolute folder name, it doesn't matter where CC2 Pro is installed on the other system; provided it has a Tutorials subfolder containing **Tutorial 1.FCW**, the link will work.

 CC2 Pro also uses the $ character to represent the current folder, for example if the current map was **c:\temp\current.fcw, $next.fcw** would be **c:\temp\next.fcw**.

In the following steps we will create a link. We will then edit the link to point to a map "under" the CC2 Pro folder, instead of in one specific place. As long as the other user keeps the linked maps together in a CC2 Pro subfolder, they will work.

1   Start a new DD Pro map then save it with the name **Link Demo**.

2   Use **Info menu** >> **Link with Map** to add a link to **Tutorial 1** in CC2 Pro's **Tutorials** folder. Place the link hotspot near the left border.

  You see the link box and text appear.

3   Click **Edit** EDIT.

  The Command Prompt reads Entity to edit:.

4   Click edge of the link box.

  You see the **Edit Text** dialog box containing the phrase:

  LOADM C:\Cc2\Tutorials\Tutorial 1.FCW;

  The first word, **LOADM**, is CC2 Pro's text-only command to load a map. The remainder of the phrase is the location of the file on your computer.

5   Replace C:\Cc2\ with a **# character**.

  The text should now read: LOADM #Tutorials\Tutorial 1.FCW;

6   Click **OK** to apply the change.

Treasure Map by Mark Warren

Treasure Map can be viewed in the Profantasy Download Library.
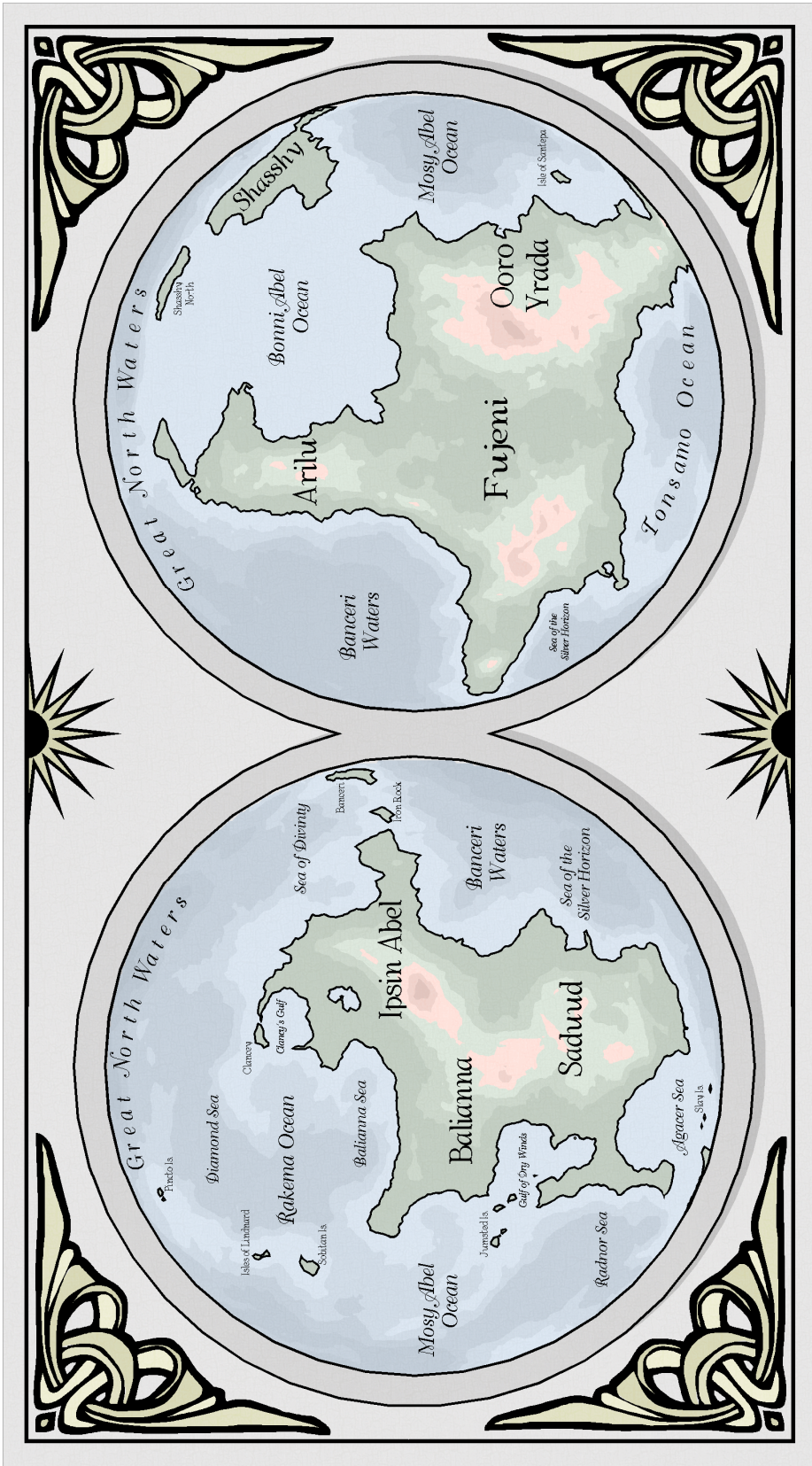
Old Map by Allyn Bowker

This map is made with FT Pro exports in CC2 Pro as explained in *Exporting to CC2 Pro* on page 404. It also uses ornaments converted to symbols as explained in *Converting Fonts to Symbol Catalogs* on page 47.

DUNGEON DESIGNER PRO

Printing in DD Pro

CC2 Pro can print any view of any map at any scale. This chapter describes the printing options relevant to DD Pro.

Print part of the map to precise scale

7   Click **Info menu** >> **Distance** to **measure the distance** between two points.

8   Zoom in on the part of the map you want to print.

   The center of your view will be the center of the printed page.

9   Click **File menu** >> **Print**.

   You see the Print Drawing dialog box.

10   In the **View to print** section click **Active Window**.

11   In the **Scaling** section, click **Scale Factor**.

12   In the **Drawing distance** box enter a distance that relates to the units and size of the map. For example, **10'**.

13   In the **Paper distance** box, designate how big the **Drawing Distance** you entered should print on paper.

14   Click **Print Preview** to check that your print will look OK.

15   Click **OK**.

   The map prints at the exact scale you gave.
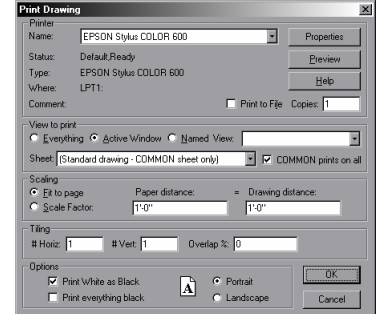
Printing to scale across many pieces of paper

You can print your maps to scale across many pieces of paper; however **CC2 Pro** does not automatically calculate the number of pieces of paper you need. You can use print preview for this (or a bit of mental arithmetic)

1   Open **Elementalist Caves** from the **Examples\Dungeons**.folder.

   This map is 250' across (I used **Info** >> **Distance** to discover this). We'll print the whole thing out at 1" on the paper = 5' in the drawing.

2   Click **File menu** >> **Print**. then set the options as shown here.

   I've made a guess at the number of sheets across and up (2 and 2), and I've set Landscape/Portrait to Landscape (to match the shape of the drawing.

3   Select **Print Preview**.

   You can see an image of how the current settings would print. My printer's paper size won't fit the whole drawing on four sheets, it require a lot more paper.

4   Increase the number of sheets across and up, and **Print Preview** again.

   By trial and error, I get 5 sheets horizontally by 6 vertically.

You can see now why this doesn't happen automatically – that's 30 sheets of paper! You don't have to print in this example, of course.
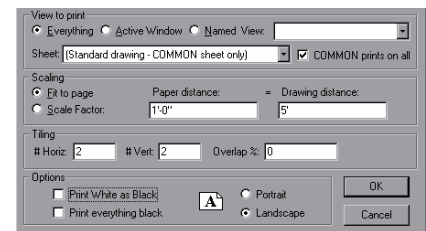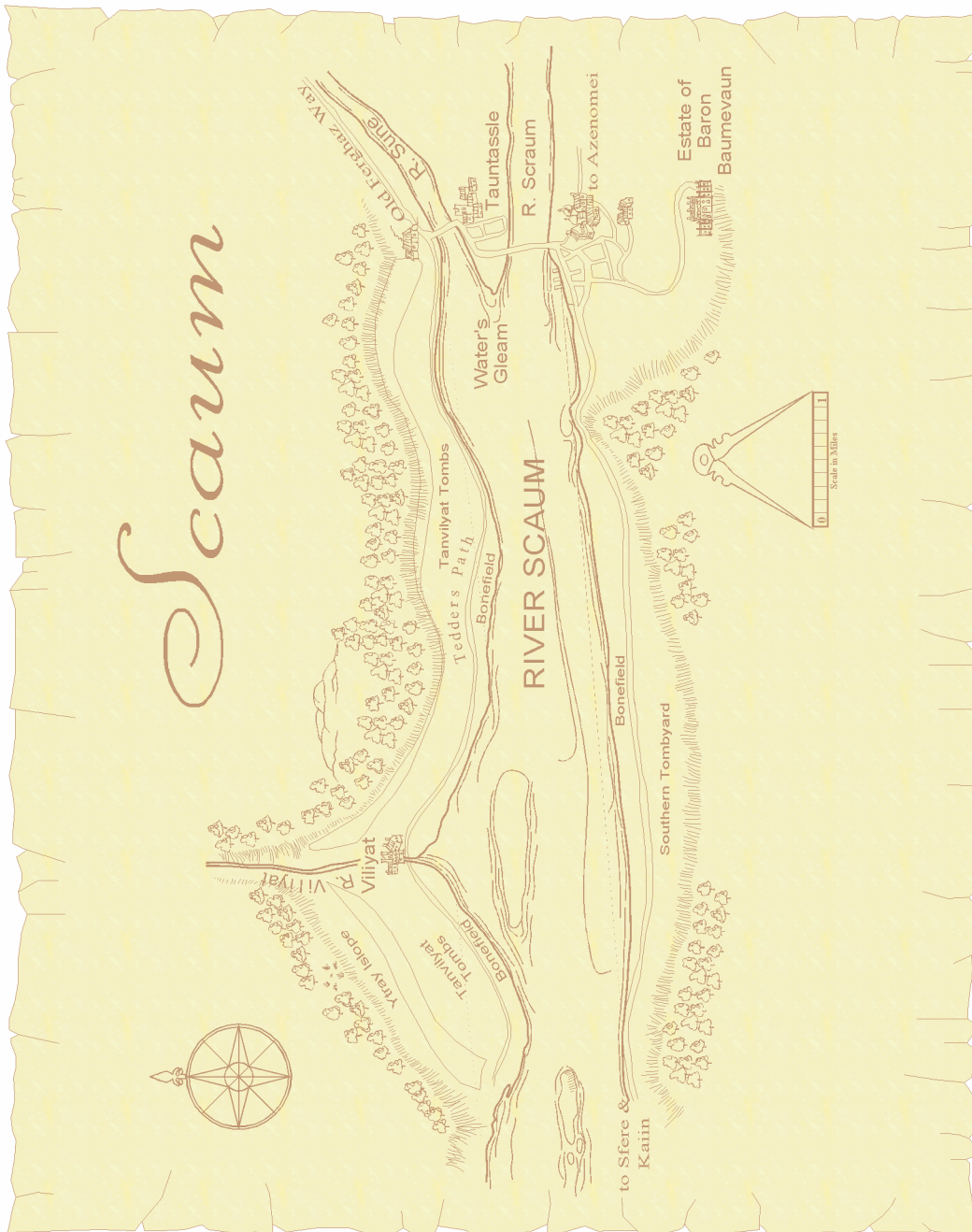
Scaum Valley by Colin Beaver

Scaum Valley uses symbols from the Handdrawn catalogs of Symbol Set 1-Fantasy Overland. View **Scaum Valley** in the Profantasy Download Library.

Customizing Symbols

How symbols work with layers

The rules

A symbol definition is like container. It is one entity, but it can contain any number of other entities.

When you define a symbol, the definition capsule is created on the current layer, but the entities within the definition stay on their existing layers.

When you click on a symbol in the Catalog Window, **CC2 Pro** copies the *definition* to the current drawing. The definition is copied to the same layer that it was originally created on. If that layer does not already exist, it is created.

When you place the symbol in the drawing, **CC2 Pro** adds a *reference* to the definition (it doesn't make a whole new copy of the symbol's entities). The reference is placed on the current layer.

If a symbol *reference* is on a hidden layer, that reference is hidden (but references to the same symbol on visible layers remain visible).

If entities *within* a symbol definition are on a hidden layer, then those entities will be hidden in all references to that symbol.

What this means in practice

Make sure that all symbols are drawn *and* defined on the **SYMBOL DEFINITION** layer, unless specific purpose requires otherwise (e.g., the Dungeon Geomorph symbols make use of the **WALLS** and **BACKGROUND (FLOOR #)** layers; this type of thing should be the exception rather than the norm). The visibility of each symbol then only depends on:

✓ Whether the **SYMBOL DEFINITION** layer is visible, and
✓ Whether the layer on which that the symbol was placed is visible.

Symbols and copyright

Error! Bookmark not defined. Any symbols that you create from scratch are your own. You are free to do whatever you want with them.

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Creating Symbols
(a marvelous, mechanical mouse organ)

Anything you can draw can be converted into a symbol. Here, we will take an existing organ symbol, explode it so that it can be changed, add a mechanism, and then define the modified organ as a new symbol (we won't bother drawing the rodent).

Copyright

For more information on maps and copyrights, see Copyright issues on page 11

Explode

This organ is no longer a symbol; the symbol reference has been replaced by lines, arcs, boXEs, etc. (which can be edited).

It is bad practice for one symbol to include another symbol. You can use an existing symbol in a new symbol, but explode it before defining the new symbol.

1   Start a new DD Pro map.

2   Click **Furniture** ▯ and insert the **Pipe Organ** symbol.

3   **Zoom Window** on the organ, so it fills the screen.

4   Click **Edit menu** >> **Explode** and <u>explode</u> the **Pipe Organ**.

5   Click **Erase** ▱ then get rid of the organ seat.

6   Click **Traps** ▣ then scroll down the Catalog Window to the cogs and winch.

7   <u>Add a winch</u> and two cogs as shown here.

    In my version, I right-clicked and set the symbol scale factor to **0.5**.
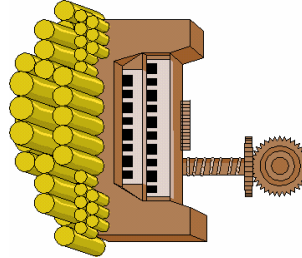
8   Explode the winch and cogs.

9   Click **Symbols menu** >> **Define Symbol**.

    The Command Prompt reads Symbol name:.

10 Type **Mechanical Organ** then press ⌷ENTER⌷.

    The Command Prompt reads Symbol origin:. The point you choose will be the insertion point of the new symbol.

11 Click at the middle of the organ's left edge.

    The Command Prompt reads Select entities (0 picked):.

12 Click a window around the symbol, then **Do It**.

    The drawing disappears. It is now a <u>**symbol definition**</u>.

13 In the **File** menu, click on **Save As** then save the map as **Organ Symbol.fsc**

    Note you are saving it as a <u>**symbol catalog**</u>.

Adding symbols from a drawing to a catalog

We will save the drawing that contains the symbols we want to add as a catalog, so it can be opened in the Catalog Window. Then we will load the catalog we want to receive the symbols in the main Drawing Window. Clicking the symbol in the Catalog Window will then copy across the symbol definition. Finally, we save the changes.

1   Click **File** >> **Open** then select **Furniture.fsc** *(file type CC FSC Symbol Catalog)* from the **Symbols\Dungeons\Filled** folder.

The catalog has a green background. By convention, we save symbol catalogs with a green background to remind us when we are working on one.

2   Click the **Catalog** button then open **Organ Symbol.fsc**.

3   Insert the Organ symbol into the drawing window anywhere. Erase it.

    You've added the symbol definition to the current catalog.

4   Click **Symbols** >> **Symbol Manager**, uncheck **Display Symbols** then scroll down the list. Click on the organ symbol at the bottom of the list.

5   Click **Move Up** then move the symbol until it is below the previous organ symbol.

6   Save the drawing.

    You've added your symbol to an existing catalog.

Creating Smart Symbols

Smart symbols are created in exactly the same way as other symbols, with the addition of control points. Control points are a special CC2 Pro entity type that shows a symbol how to behave when inserted. This section shows you how to make an existing symbol smart.

1 Select **File menu** >> **Open**, pull down Files of Type, choose Campaign Cartographer 2 Symbol Catalog.

2 Choose **blank.fsc** from the **Symbols\Dungeons** folder.

3 Click **Furniture** 🪑.

> We are going to create a bench that aligns with walls.

4 Insert a **Bench** symbol.

5 Select the **Drawing button** (next to the **Catalog** button)

> You can see the **Bench** symbol in the Catalog Window.

6 Click **Symbols menu** >>**Symbol Manager**. Click the bench then select **Clone**. Type **Bench 2**.

> The Command Prompt reads New Window Corner

7 Select a point in the lower left of the screen,

> The Command Prompt reads Opposite Corner.

8 Select a point above and to the right of the first corner.

> The bench is now ready to be edited.

9 Right click the **Grid** button, click **Standard Rectangular**. Select **Symbols menu** >> **Add Control Points**.

> The Command Prompt reads 1st point

10 Select a point at the top and to the left of the symbol.

> The Command Prompt reads 2nd point

11 Select a point at the bottom and to the left of the symbol.

> The Control Point Effects dialog box appears.

12 In this case, we'll have the bench **Align On Insertion** and **Keep Dyn Trak Scale**.

> You can see the control points in your symbol.

13 Close the window and keep the changes.

14 Draw a 1' wide wall across the drawing. Select the **Bench 2** symbol from the Catalog Window. Move it over the wall.

> The symbol aligns to the wall.

If you want to change the behavior of the smart symbol, use **Symbols menu** >> **Edit Symbol**, then select the Bench 2 symbol. You can change the control points properties using **Edit** EDIT.

Drawing Button

The **Drawing** button shows you what symbol definitions are in the current drawing, not those in the current symbol catalog.

Clone

Clone Symbol adds a copy of an existing symbol definition with a new name then lets you edit it in a new drawing window. The 0,0 point of the new window is the origin of the symbol

Control Points

The placement of the control points shows the symbol which way to align. The bench needs to align along a wall, and by default, the symbol goes on the right side of a wall.

For more information on Control Points, see *Adding control points on page 68*
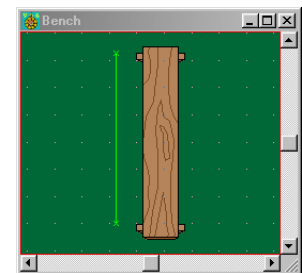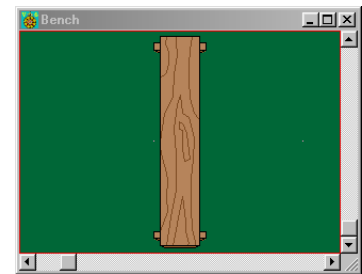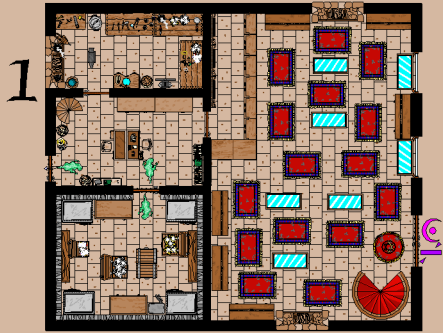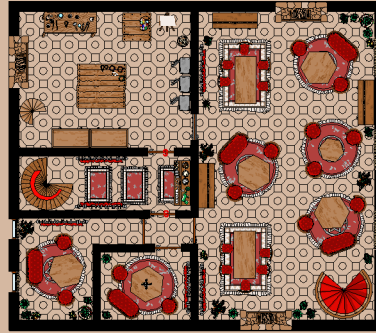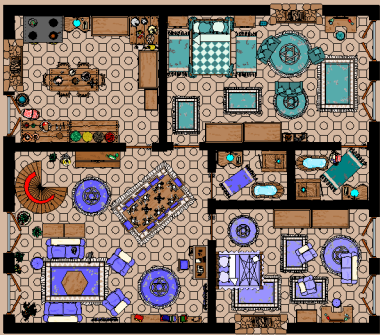
Lady's Best Friend

1) Main Floor, Showroom, Vault, Craftroom
2) Second Floor, Private Showrooms, Design Room
3) Third Floor, Living Quarters

N

Private Residence
Spike & Callisto
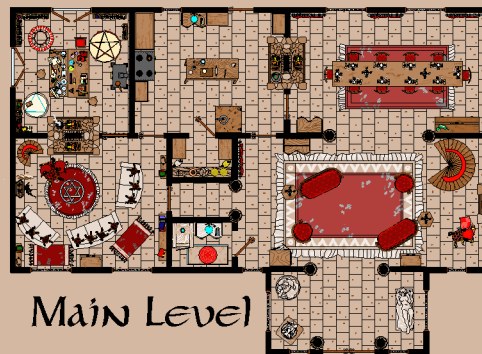
N

Upper Level

Cellar

Main Level

Lady's Best Friend and Spike's House by Sheila J. Lester

These drawings are available in the Profantasy Download Library

Macro Example

DD Pro presents a unique opportunity to **macro writers**. With dungeon floorplans, the mapping scale is comparatively larger than overland or city maps, and therefore DD Pro maps can contain much more 'real world' detail. Just look at the symbols provided for dressing your dungeons: tables and chairs, weapons and treasure, even bits of trash for the floor. The expectations for detail within the dungeon are high, and so too are the expectations for detail in the dungeons themselves. The depiction of walls, caves and the other physical elements of a dungeon design can be given the same attention to detail as the dungeon dressings. This is where macros can play a part.

CliffFace Macro Deconstruction

The **CliffFace** macro is an example of this kind of attention. Instead of using a jagged line to depict a cliff drop-off, or the wall of a natural cave, this macro will create an 'artistic' rendering of a broken, stone cliff face. The macro uses a 'guide' entity to trace the cliff along; a line, curve or smooth path will do. There are a few advanced macro features at work here: the user can configure the macro, accepting customized settings for the colors used, and the general dimensions of the drawing. These settings are even remembered from session to session. This macro also demonstrates two important uses of the RANDOM macro command: modifying the position of points to obtain a random placement, and using random variables to make decisions.

Presented below is a section by section breakdown of the inner workings of the CliffFace macro.

```MACRO CliffFace```
 ```ecoff```
 ```rdoff```
 ```point 10001,10001;```
 ```golayer MacroConstruction```
	Standard beginning to a macro: turn off the command line echo and the screen redraw. Drop a point in an out-of-the-way place; we will use this at the end for restoring the user's drawing settings by way of the KEEP command. Last, go to the 'MacroConstruction' layer; we'll move the finish drawing to the current layer once we're done, using that point we dropped and the LIKE command.

```scriptm #vars-```
 ```CliffFace.scr```
 ```ifdef mcoCliffFaceVarsOK```
 ```mcoDoneVarCheck```
 ```:mcoDefineVars```
 ```gv mcoCol1 250```
 ```gv mcoCol2 251```
 ```gv mcoCol3 252```
 ```gv mcoCOut 0```
 ```gcol mcoCol1 ^DColor 1:```
 ```(250)```
 ```gcol mcoCol2 ^DColor 2:```
 ```(251)```
 ```gcol mcoCol3 ^DColor 3:```
 ```(252)```
 ```gcol mcoCOut ^DOutline```
 ```color: (0)```
 ```gv mcoCW 6```
 ```gv mcoCW ^DCliff Width:```
 ```(6)```
 ```gv mcoCW mcoCW/2```
	This section sets up the variables we will need during the execution of the macro. First we load a script which holds the values that were used last time the macro ran. If this script file exists, it will load, amongst others, a variable called 'mcoCliffFaceVarsOK'. After attempting to load the script file, we check to see if this 'mcoCliffFaceVarsOK' variable exists (IFDEF command), which indicates whether we have our set of predefined variables in memory or not. If we do, then the macro asks the user if they would like to use the saved values. If so, the macro skips the rest of this section and continues. If the user does not want to use the saved setting, or if the settings are not in memory at all, then the macro proceeds to prompt the user for all the necessary variable values. Note that we first set a default value before asking the user. This is not only good manners, but it also saves us from potential problems if the user chooses not to enter any values at the prompts.

```
gv mcoVA .5
gv mcoVA ^DWidth
variance: (.5)
gv mcoSL 10
gv mcoSL ^DSegment
length: (10)
gw mcoCliffFaceVarsOK OK
savevars #vars-CliffFace
go mcoStart
:mcoDoneVarCheck
gv mcoUseDefault 1
gv mcoUseDefault ^DUse
saved settings? (1=yes -
default - click) (0=no)
ifz mcoUseDefault
mcoDefineVars
```

```
:mcoStart
ge mcoentity ^DSelect
object to draw a
cliff/cave wall along:
iferr mcodone
gdist mcoentitylen % 0
mcoentity % .1 mcoentity
gv mcoentitylen
mcoentitylen*1000
gv mcounit
100/mcoentitylen
gv mcoCur 0
gp mcoP1 % 0 mcoentity
gbrng mcoB1 mcoP1 % .01
mcoentity
RANDOM mcoR1
RANDOM mcoR2
gp mcoPa ref mcoP1
<mcoB1+90,((mcoR1-
.5)*(mcoCW*mcoVA))+mcoCW
gp mcoPa2 mcoPa
gp mcoPb ref mcoP1
<mcoB1-90,((mcoR2-
.5)*(mcoCW*mcoVA))+mcoCW
gp mcoPb2 mcoPb
color 0
lwidth 0
fstyle solid
selbyp
```

Here's where the real work begins. Since the macro is going to 'crawl' alone a guide entity, we are going to have to use a loop. But first, there are a few things we have to do. That is what this sections does.

To start with, we need to get the guide entity. We prompt the user for the object to use as a guide, checking afterward (with the IFERR statement) if they really clicked on something. If they did not, the script jumps to the end (see below). If they did select something, then we need to get a few bits of information before we proceed with the loop.

We need the overall length of the entity. We could use the **GLEN command** to determine this, but for various reasons that I won't go into here, there is a less accurate, but more stable way of getting this value, even on curvy entities. We can approximate the length of an entity by measuring a very small part of it, then extrapolating that distance alone the entire entity. We get two points: one at the 0% mark, and the second at the .1% mark. Even very curvy entities will probably have very little curving if you look a small segment, only 1/1000th of the total length.

GLEN command

Get Length. Stores the length of an object.

Since we will be crawling along this entity using the '% Along' modifier, we now need to know how to express our linear distances as a percentage of the entities total length. We'll do this by determining the percentage for 1 unit (by dividing 100% by the overall length), then later we can use this value ('mcoUnit') to multiply with other distances to calculate their relative percentage.

Next we set up our first 4 reference points, ready for entering into the **loop**. mcoPa and mcoPb are two corners of the poly that makes up a segment of the drawing. mcoPa2 and mcoPb2 are used for the 'chip' polys that can be added to the drawing. More on that later.

Note that we are using two random values to set these points up. This means that the exact position of these points will be different each time the macro is run, even it is run on the exact same guide entity. Random values are the best way to add some variation to macro generated drawings.

Last, we set up our starting drawing settings: color, line width and style, and select mode 'Previous'.

Loop

Once we start the loop, these points will be recalculated each time we repeat, but for the first time though we must set them up manually.

```
:mcoLOOP1
```
Now, we start the loop.

Each time through the loop (or 'iteration'), the macro draws one segment of the cliff wall. As you can see by the macro deconstruction diagram, each segment consists of a 4 sided polygon, randomly colored, and the possibility of a second 'chip' poly on the edge of the segment, simulating a broken corner.

Figuring out where are all the points of these polys will go is not a simple task.

```
RANDOM mcoR1
RANDOM mcoR2
RANDOM mcoR3
RANDOM mcoR4
RANDOM mcoR5
```
Grab some random values; we will use these from modifying the position of points, and for making random decisions.

```
gv mcoCur
mcoCur+(((mcoR1*mcoSL)+(mcoSL*.3))*mcoUnit)
ifn 100-mcoCur mcoDONELOOP1
```
As we crawl along the guide entity, we use a marker to keep track of where we are. The variable 'mcoCur' holds this position, expressed as a percentage of the total length.

At the beginning of the loop, we advance this marker by adding a calculated value to itself. The amount to advance the marker is based on the user setting for the Segment Length. This value is varied by up to 30% more, or up to 70% less by multiplying the 'mcoSL' variable with a random value (from 0 to 1), then adding a fixed 30% of the Segment Length. Finally, we convert the value to a percentage of the total guide entity length by multiplying with 'mcoUnit', calculated earlier. As the macro continues, you will notice this technique for modifying values used often.

After advancing the counter, we check to see if it is now larger than 100. (remember, this part of the macro will be executed over and over again) If so, then we have reached then end of the guide entity (over 100% along the guide), then we quit the loop by jumping to the end of it. See the section 'DONELOOP1' below.

```
gbrng mcoB1 mcoP1
% mcoCur+.01
mcoentity
gp mcoP1 % mcoCur
mcoentity
```
Using our newly advanced position marker, we calculate the bearing (mcoB1) of the guide entity at the position of the marker. We also establish two points on the guide, 'mcoP1' and 'mcoP2', slightly offset from each other. Again, we use a random value to calculate these points.

```
gp mcoP2 ref
mcoP1 <mcoB1-
180,(mcoR2*3)

ifn mcoR3-.5
mcoControl1

gp mcoP2 % mcoCur
mcoentity

gp mcoP1 ref
mcoP2 <mcoB1-
180,(mcoR2*3)
```

Swap the Two Points

Why do we do this? We need these two points to later establish the two end points of the segment poly. By offsetting these points, we create a segment end that is not necessarily perpendicular to the guide entity.

We also make a 'random' decision here: after setting P1 and P2, 50% chance we leave them alone, 50% chance we **<u>swap the two points</u>**. We occasionally swap the points so that P1 is not always further along than P2, thus preventing the end of the segment from slanting the same way every time.

```
:mcoControl1

gp mcoPc ref mcoP1 <mcoB1-90,((mcoR4-
.5)*(mcoCW*mcoVA))+mcoCW

gp mcoPd ref mcoP2 <mcoB1+90,((mcoR5-
.5)*(mcoCW*mcoVA))+mcoCW
```

Here we get the segment endpoints (Pc and Pd). We use P1 and P2 as references, obtaining points at an angle perpendicular to the guide (at that point, using the bearing B1 we calculated earlier), and a distance based on the user preferences for the cliff width, modified by random values.

```
poly mcoPa mcoPb mcoPc mcoPd;
```

Finally, we draw the poly. Points mcoPa and mcoPb are left over from the last iteration of the loop (or set manually before the loop begins, depending on if this the first time through). Pa and Pb are set at the end of the loop, and are essentially points Pc and Pd from the previous iteration. This way, each segment joins with the preceding one.

```
RANDOM mcoR1

changec2 mcoCol1

ifn mcoR1-.3 mcoColBreak1

changec2 mcoCol2

ifn mcoR1-.6 mcoColBreak1

changec2 mcoCol3

:mcoColBreak1
```

Another random decision. This time, we are setting the color of the poly we just created. We change it to Color 1, then test a random variable to see if it is less than .3 (mcoR1-.3). If so (30% chance), then jump to the end of this section (ColBreak1). If not, we continue, changing the

color again, this time to Color 2. And again, we test: if the same random variable is less than .6 (**30%** chance, since we know that it is more then .3), then we jump to ColBreak 1. If we are still here (**40%** chance) then we change the color one final time to Color 3. By testing a single random variable for different value ranges, we cause the macro to perform any number of possible outcomes.

```
RANDOM mcoRTEST
ifn mcoRTEST-.8 mcoBreak2

gbrng mcoBbc mcoPb mcoPc
gdist mcoDbc mcoPb mcoPc
gbrng mcoBba mcoPb mcoPa
gdist mcoDba mcoPb mcoPa
RANDOM mcoR1
RANDOM mcoR2
poly ref mcoPb
<mcoBba,(mcoDba*mcoR1*.5)+(mcoDba*.3) mcoPb2 mcoPb
ref mcoPb
<mcoBbc,((mcoDbc*mcoR2*.3)+(mcoDbc*.1))*(mcoCW/10);

RANDOM mcoR1
changec2 mcoCol1
ifn mcoR1-.3 mcoColBreak2
changec2 mcoCol2
ifn mcoR1-.6 mcoColBreak2
changec2 mcoCol3
:mcoColBreak2
go mcoBreak3
```

Random decision: do we draw a 'chip' on one side of this segment (**20%**), on the other side (**20%**), or no chip at all (**60%**) for this segment.

If the first test fails (**20%**), we draw the 'chip' here. We get points around the left end of the segment, and draw a poly to represent the 'chip'. Then we set the color of that poly using the same random method described above. Last, we jump to the end of the 'chip' drawing section (Break 3, below).

If the test is true (**80%**) then we jump to the next section.

```
:mcoBreak2
ifn mcoRTEST-.6 mcoBreak3
gbrng mcoBad mcoPa mcoPd
gdist mcoDad mcoPa mcoPd
gbrng mcoBab mcoPa mcoPb
gdist mcoDab mcoPa mcoPb
RANDOM mcoR1
RANDOM mcoR2
poly ref mcoPa
<mcoBab,(mcoDab*mcoR1*.5)+(mcoDab*.3) mcoPa2 mcoPa
```

Just like the section above, we test the random variable. If the test passes (**60%**), then jump to the end of the section. If not (**20%**), then draw the chip as above, only on the right end of the segment. Then set the color, as before.

```
ref mcoPa
<mcoBad,((mcoDad*mcoR2*.3)+(mcoDad*.1))*(mcoCW/10);
RANDOM mcoR1
changec2 mcoCol1
ifn mcoR1-.3 mcoBreak3
changec2 mcoCol2
ifn mcoR1-.6 mcoBreak3
changec2 mcoCol3
```

```
:mcoBreak3
gbrng mcoBda mcoPd mcoPa
gdist mcoDda mcoPd mcoPa
gbrng mcoBcb mcoPc mcoPb
gdist mcoDcb mcoPc mcoPb
RANDOM mcoR1
gp mcoPa2 ref mcoPd
<mcoBda,((mcoDda*mcoR1*.3)+(mcoDda*.1))*(mcoCW/10)
gp mcoPb2 ref mcoPc
<mcoBcb,((mcoDcb*mcoR1*.3)+(mcoDcb*.1))*(mcoCW/10)
```

This section is tricky. Here we are preparing for the next time through the loop. You may have noticed that in the 'chip' drawing sections above, we make reference to some points: mcoPa2 and mcoPb2. These points are based on the previous segment of the drawing, so here we set up the points in case the next segment needs them for drawing 'chips'.

When you create loops like this one, often your macro will need information from the previous iterations of the loop. In those cases, you need to plan ahead, and set up variables like these to carry those values into the next loop.

```
gp mcoPa mcoPd
gp mcoPb mcoPc
go mcoLOOP1
```

Our loop is almost done. We want the ends of the drawing segments to match each other, so we set up the first two points of the next segment poly (Pa and Pb) to be the same as the last two points from this segment.

Now, we go back to the beginning of the loop.

```
:mcoDONELOOP1


gp mcoP1 % 100 mcoentity
gp mcoPc ref mcoP1 <mcoB1-90,((mcoR4-
.5)*(mcoCW*mcoVA))+mcoCW
```

Here is where we go when the loop is done. But the macro is not over; there is still work to be done. Just because our guide marker has advanced beyond the end of the guide entity, it

```
gp mcoPd ref mcoP1 <mcoB1+90,((mcoR5-
.5)*(mcoCW*mcoVA))+mcoCW
poly mcoPa mcoPb mcoPc mcoPd;

RANDOM mcoR1
changec2 mcoCol1
ifn mcoR1-.3 mcodone
changec2 mcoCol2
ifn mcoR1-.6 mcodone
changec2 mcoCol3
```

doesn't mean that the last segment reaches to the end of the guide. The last segment is still short. We have to now draw a single segment to complete the gap between the end of the last segment from the loops, and the end of the guide.

We calculate the two end points Pc and Pd using the end of the guide as a reference, and draw the poly. The color is set in the same way as all the other times.

```
:mcodone
selby1
keep 10001,10001
selbyl
changel MacroConstruction
like
10001,10001
selbyp
group
selby1
erase 10001,10001
selrest
rdon
econ
ENDM
```

Now, all that is left to do is clean up.

The KEEP command sets CC2 Pro's drawing settings to the same as the point we dropped at the beginning of the macro. Next, we move everything on the 'MacroConstruction' layer to the same layer as the point (the same layer that the user was on when the macro began). Then we group everything that we just moved.

Finally, delete the point, restore the 'select by' method that was set before the macro started, and turn on screen redraw and command line echo. And that's it.

Grenia by Steven Kohler

Grenia is available in the Profantasy Download Library.

Thenerba Wastes

Kolinar Mountain Bands

Tiyieka Swamp

Tiyieka Forest

Sheftaa Mountains

Kolinar Mountain Range

Silent Wood

Rheaneann Sea

Panikhan Forest

Mount Silfai

Isle of the Loathakhan

Gulf of Fhen

Sea of Merchena

Mount Ferhan

Cahaskha Forest

0   50

Grenia

DD Pro Command Reference

This table gives you a list of all DD Pro's commands except those used specifically in macros.

- ✓ **Command** gives you the command name found on the CD Pro's menus, the name that appears when you hover the mouse over a button (tool tip text) or on a right click popup menu. Type the command into DD Pro's Help Index or Find list to get more details on the command.
- ✓ **Where?** Lets you know which menu, popup menu or toolbar to find the command. DD Pro's toolbar layout is shown on page 304. Right click on the button to access a popup menu
- ✓ The **Text Equivalent** is what you type at the Command prompt to use the command.
- ✓ **Use In Macro** If the command is useable in a macro, then **Yes**, otherwise **No**. Note that all commands are useable as the last line in a macro. The next section lists macro commands with parameters.

Command	Description	Where?	Text Equivalent	Use in Macro
Add Corridor	Draws a corridor in a choice of styles	Dungeon toolbar	CORRIDOR	No
Add Corridor (current)	Draws a corridor with the current settings	Dungeon toolbar, Add Corridor right click	CORRIDORM	Yes
Add DD Pro Definitions	Makes a template into a DD Pro template	Dungeon menu	PARTM #system\walldefs;1;0;-1000,-1000;;RDOFF;UNDO;RDON;	Yes
Add Room	Draws a room in a choice of styles and shapes	Dungeon toolbar	ROOM	No
Add Room (Circular)	Add circular room	Dungeon toolbar, Add Room popup	ROOMM;3	Yes
Add Room (macro version)	Add room macro command	Text only	ROOMM	Yes
Add Room (Polygonal)	Add polygonal room	Dungeon toolbar, Add Room popup	ROOMM;4	Yes
Add Room (Rectangular)	Add rectangular room	Dungeon toolbar, Add Room popup	ROOMM;2	Yes
Add Room (Square)	Add square room	Dungeon toolbar, Add Room popup	ROOMM;1	Yes
All dungeon drawing tools	Displays all dungeon drawing tools	Dungeon toolbar	DRAWTOOLSM;=Dungeon*	No
Cave	Opens the cave symbol setting in current symbol style	Symbol toolbar	SYMICONM;Cave*;	No
Containers and Treasure	Opens the Container and Treasure symbol setting in current symbol style	Symbol toolbar	SYMICONM;Containers and Treasure*;	No
Debris	Opens the Debris symbol setting in current symbol style	Symbol toolbar	SYMICONM;Debris*;	No
Dungeon Geomorph	Opens the geomorph symbol setting in current symbol style	Symbol toolbar	SYMICONM;Geomorphs*;	No
Dust	Display Dust drawing tools	Dungeon menu >> Area fills	DRAWTOOLSM;Dungeon Dust*;	No
Elemental and magic	Opens the Elemental and Magic symbol setting in current symbol style	Symbol toolbar	SYMICONM;Elemental and Magic*;	No
Floors	Display Floor drawing tools	Dungeon menu >> Area fills	DRAWTOOLSM;Dungeon Floor*;	No

Command	Description	Where?	Text Equivalent	Use in Macro
Furniture	Opens the furniture symbol setting in current symbol style	Symbol toolbar	SYMICONM;Furniture*;	No
Grass	Display Grass drawing tools	Dungeon menu >> Area fills	DRAWTOOLSM;Dungeon Grass*;	No
Lava	Display Lava drawing tools	Dungeon menu >> Area fills	DRAWTOOLSM;Dungeon Lava*;	No
Lock symbol angle	Sets the current symbol angle	Dungeon toolbar	LOCKANG	Yes, no parameters
Mud, Hot	Display Mud, Hot drawing tools	Dungeon menu >> Area fills	DRAWTOOLSM;Dungeon Mud, Hot*;	No
Order Dungeon Layers	Reorders all entities by layer	Dungeon menu	ORDERDL	Yes
Pebbles	Display Pebbles drawing tools	Dungeon menu >> Area fills	DRAWTOOLSM;Dungeon Pebbles*;	No
Secret layer	Sets the Secret layer current	Dungeon toolbar	GOLAYER Secret	Yes
Simple	Opens the simple symbol setting in current symbol style	Symbol toolbar	SYMICONM;Simple*;	No
Temples and Statues	Opens the Temples and Statues symbol setting in current symbol style	Symbol toolbar	SYMICONM;Temples and Statues*;	No
Toggle fill style	Toggle between solid and hollow fill style	Dungeon toolbar	FILLTOG	Yes, no parameters
Traps	Opens the traps symbol setting in current symbol style	Symbol toolbar	SYMICONM;Traps*;	No
Up and Down	Opens the up and down symbol setting in current symbol style	Symbol toolbar	SYMICONM;Up and Down*;	No
Wall	Displays dungeon wall drawing tools	Dungeon toolbar, Wall right click	DRAWTOOLSM;Dungeon Wall*;	No
Wall (Default)	Draws the default dungeon wall	Dungeon toolbar	DRAWTOOLSM;Dungeon Wall, Default*	No
Wall Features	Opens the wall features symbol setting in current symbol style	Symbol toolbar	SYMICONM;Wall Features*;	No
Wallbreak	Breaks a hole in a wall, 5' center	Dungeon toolbar	GV wd 5';WBCW	Yes, no parameters
Wallbreaks, Center, 10' wide	Breaks a hole in a wall, centered on insertion point, 10' wide	Dungeon menu >> Wallbreaks, center	GV wd 10;WBCW	Yes, no parameters
Wallbreaks, Center, 3' wide	Breaks a hole in a wall, centered on insertion point, 3' wide	Dungeon menu >> Wallbreaks, center	GV wd 3;WBCW	Yes, no parameters
Wallbreaks, Center, 5' wide	Breaks a hole in a wall, centered on insertion point, 5' wide	Dungeon menu >> Wallbreaks, center	GV wd 5;WBCW	Yes, no parameters
Wallbreaks, Center, User width	Breaks a hole in a wall, centered on insertion point, user defined width	Dungeon menu >> Wallbreaks, center	WBC	Yes, no parameters
Wallbreaks, End, 10' wide	Breaks a hole in a wall, insertion point at end, 10'	Dungeon menu >> Wallbreaks, End	GV wd 10;WBEW	Yes, no parameters

Command	Description	Where?	Text Equivalent	Use in Macro
	wide			
Wallbreaks, End, 3' wide	Breaks a hole in a wall, insertion point at end, 3' wide	Dungeon menu >> Wallbreaks, End	GV wd 3;WBEW	Yes, no parameters
Wallbreaks, End, 5' wide	Breaks a hole in a wall, insertion point at end, 5' wide	Dungeon menu >> Wallbreaks, End	GV wd 5;WBEW	Yes, no parameters
Wallbreaks, End, User width	Breaks a hole in a wall, insertion point at end, user defined width	Dungeon menu >> Wallbreaks, End	WBE	Yes, no parameters
Walls	Opens the walls symbol setting in current symbol style	Symbol toolbar	SYMICONM;Walls*;	No
Water	Display Water drawing tools drawing tools	Dungeon menu >> Area fills	DRAWTOOLSM;Dungeon Water*;	No
Weapons	Opens the weapons symbol setting in current symbol style	Symbol toolbar	SYMICONM;Weapons*;	No

Ardraena by Mike Schmitz

Ardraena can be viewed in theProfantasy Download Library.

The
Estrella d'Oro
a three-mast carrack
from Orsamanca

Overall Length: 33,5 m
Beam: 9,0 m
Depth (upper deck - keel): 8,0 m
Average Draft (loaded): 5,0 m
Height (mainmast above waterline): 27,0 m

Poop Deck

Quarter Deck

1 - Bridge
2 - Officers' mess
3 - Navigator's cabin

Forecastle

Main Deck

4 - Ammunition room
5 - Chippy's room
6 - Upper deck

7 - Steering house
8 - Valuables chamber
9 - Armory
10 - Captain's cabin

Middle Deck

11 - Forepeak
12 - Crew's quarters
13 - Passenger cabin (4)
14 - Passenger cabin (1)
15 - Passenger cabin (1)

16 - Passenger cabin (2)
17 - Capstan room
18 - Provisions
19 - Provisions
20 - Crew's mess

Cargo Deck

21 - Cable locker
22 - Main cargo room
23 - After cargo room
24 - Detention room

Lower Deck

25 - Provisions
26 - Galley
27 - Lower cargo room
28 - After lower cargo room

29 - Bilge

Cross Section

The Estrella d'Oro by Peter Laubender

The Estrella d'Oro is available in the Profantasy Download Library

DD Pro Macro Command Reference

This table includes DD Pro commands useable in macros that have one or more macro parameters. Macro-friendly commands that work straight off are not included; see the table above for those commands. For example, in the previous table, Thatched/Gothic has a text equivalent of CATICON6. You could put this in a macro and it would function with no parameters. The macro version of the House command has many variations of syntax and is detailed here.

For more information on macros, and you how might use this table, see page 152.

Command	Description	Text Equivalent	Syntax
Add Room (Square)	Add a square room with the current settings	ROOMM;1	1;xy1stCnr1;xy2ndCnr1;...; xy1stCnrN;xy2ndCnrN;
Add Room (Rectangular)	Add rectangular room with the current settings	ROOMM;2	2;xy1stCnr1;xy2ndCnr1;xy3rdCnr1;...;xy1stCnrN;xy2ndCnrN;xy3rdCnrN
Add Room (Circular)	Add circular room with the current settings	ROOMM;3	3;xyCenter1;xyEdge1;...; xyCenterN;xyEdgeN;
Add Room (Polygonal)	Add polygonal room with the current settings	ROOMM;4	4;xy1stCnr1;xy2ndCnr1;...; xyNthCnr1;...;; xy1stCnrN;xy2ndCnrN;...;xyNthCnrN
Add Room (macro version)	Add room with the current settings macro command	ROOMM	ROOMM;nRoomType; (see Add Room (*) entries for individual syntax)
Add Corridor (current)	Draws a corridor with the current settings	CORRIDORM	xy1;xy2;...;xyN;
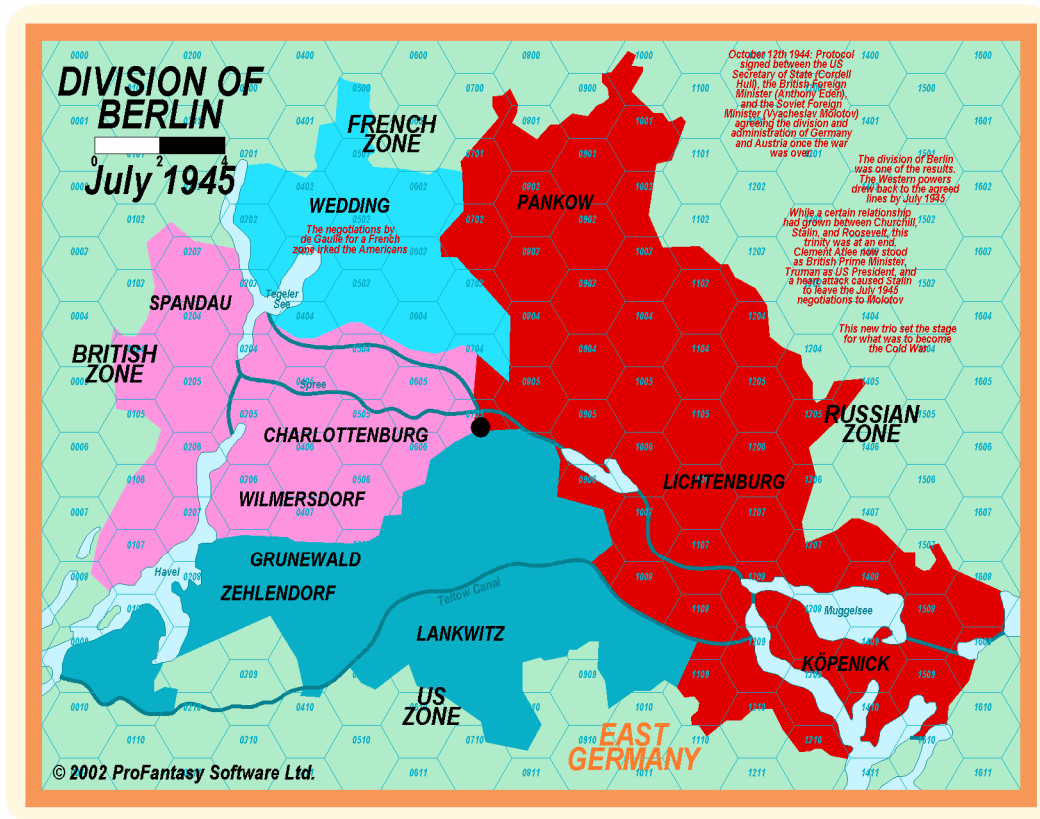
Division of Berlin, July 1945 by Ian Malcomson

Division of Berlin is a map out of the World War II Interactive Atlas. For more information on the WWIA, see page 490.

FRACTAL TERRAINS PRO

Fractal Terrains Pro Introduction

Welcome to Fractal Terrains Pro (FT Pro). This book contains step-by-step examples that show you how to create pseudo-realistic worlds, quickly and easily, that can be exported for further enhancement into CC2 Pro. While CC2 Pro is not required to make use of FT Pro, the two when used together, can produce some startling results. Complete the tutorials, and you will be creating your own worlds in minutes.

Other Sources of Information

FT Pro's Help System. When you are using FT Pro you can get in-depth information by pressing F1, or by selecting Help from FT Pro's Help menu.

Web Based Tech Support. ProFantasy's web site www.profantasy.com has a comprehensive technical support section and details about e-mailing for help.

The CC2 mail-list. This is a very active e-mail discussion group to help new users and discuss all things map related. To subscribe follow the instructions at the ProFantasy Software web site, www.profantasy.com

Installing FT Pro

Place the FT Pro compact disc into your CD-ROM drive. On most computers there will be a few seconds of whirring, then you will see a window showing the contents of the CD. If this doesn't happen, double-click on "My Computer", then on the for your CD-ROM drive.

To **install** FT Pro, double-click on **Setup** 🖥️, then follow the on-screen instructions.

Starting FT Pro

Once you have completed the installation, start FT Pro. You can do this by double-clicking on the FT Pro icon on your computer's desktop, or by locating FT Pro within your Windows® Start menu.

FT Pro will attempt to load the file you were working on when it was last closed. If you did not manage to close FT Pro down cleanly when last used (e.g., your system crashed, or FT Pro stopped responding due to errors in a binary file you were attempting to import), you may experience problems starting FT Pro as it might be attempting to read data from a corrupt file.

If you do experience such problems, it is recommended that you start FT Pro by double-clicking on a FT Pro file that is known to function normally (either one of your own files, or one of the example files provided on your FT Pro CD will suffice) from Windows® Explorer. Holding down the Shift key while starting FT Pro will prevent it from loading the last saved file and from reloading the window position information.

Latest Information

To find out about any additions to FT Pro since this manual was written, double-click the **Readme** on the CD.

The FT Pro CD

It is worthwhile exploring your FT Pro CD beyond the installation setup files. You will discover examples of worlds created with the software, as well as real-world data that can be used with FT Pro to produce realistic maps based the geography of Earth and Mars. Also included is the latest version of *Wilbur*, a fairly comprehensive fractal world generation tool that possesses a less advanced CC2 Pro export capability. While FT Pro is ideal for quick generation of worlds, shielding you somewhat from the fractal theory the software uses, **Wilbur** is an excellent tool for those wishing to explore this theory to greater depth.

Install

During the installation you will be asked to give your name, company and FT Pro Serial number. Your unique serial number is in the back of the manual or it was emailed to you. If the company box is blank, you will have to enter something, even if it is only one character!

Wilbur

For more information about Wilbur and real-world data, please refer to the "Readme" and "Credits and Thanks" text files on the CD, respectively. Documentation for Wilbur is also provided.
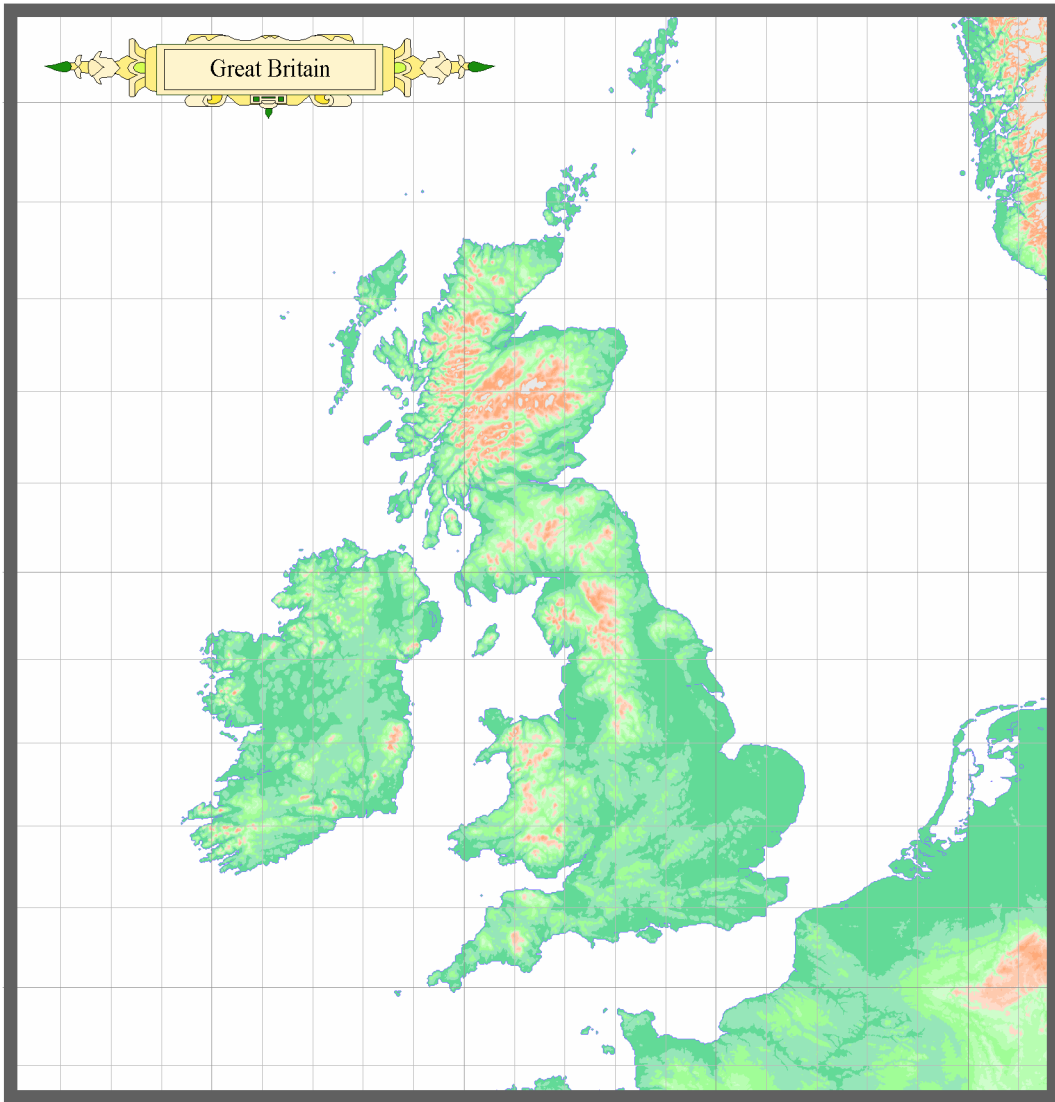
Great Britain

Great Britain by Colin Beaver

Great Britain is a detailed relief map of Britain exported from the real world data included with Fractal Terrains. Using real world data is explained in *Creating Worlds from Real World Data* on page 410.

Great Britain is available in the Profantasy Download Library.

Your First World

FT Pro can be as simple or as complex as you wish it to be. For your first world, we shall explore only the important points. The reference section forming the bulk of this section explains some of the more complex capabilities of the software.

The first step in creating a world is, obviously, to start FT Pro. Double-click the FT Pro icon on your computer's desktop. You will be presented with several windows that comprise FT Pro's main screen.
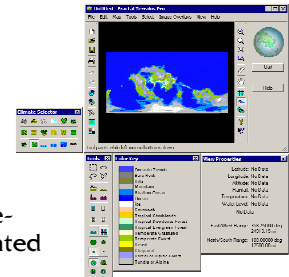
To create a new world:

On the **File** menu, click **New**.

> You see the **Select World Type** dialog box.
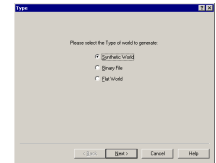
For now, we shall create a synthetic (random) world. Tutorials covering flat worlds and those created using binary files can be found later in this section.

1 Ensure that the **Synthetic World** radio button is checked, and click **Next**.

> You see the **Synthetic World** dialog box.
>
> This dialog contains the basic settings used to generate a world. These parameters are similar to those found in the **World Settings** property page on the **Map** menu.
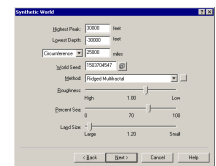
2 Click **Next**.

> You see a dialog box summarizing the world settings you have chosen and providing some reminders as to where the main world and coloring settings can be changed.
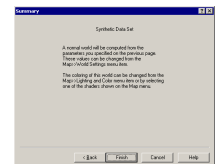
3 Click **Finish** to complete your world.

FT Pro will spend a few moments calculating, and will then draw the world into the main screen.

Congratulations! You have just created your first world.

Ulder

Legend:
1. The Lucky Mermaid
2. The Golden Pocket
3. Ilsa's Boarding House
4. The Chapel
5. The Observatory
6. Sword's Keep
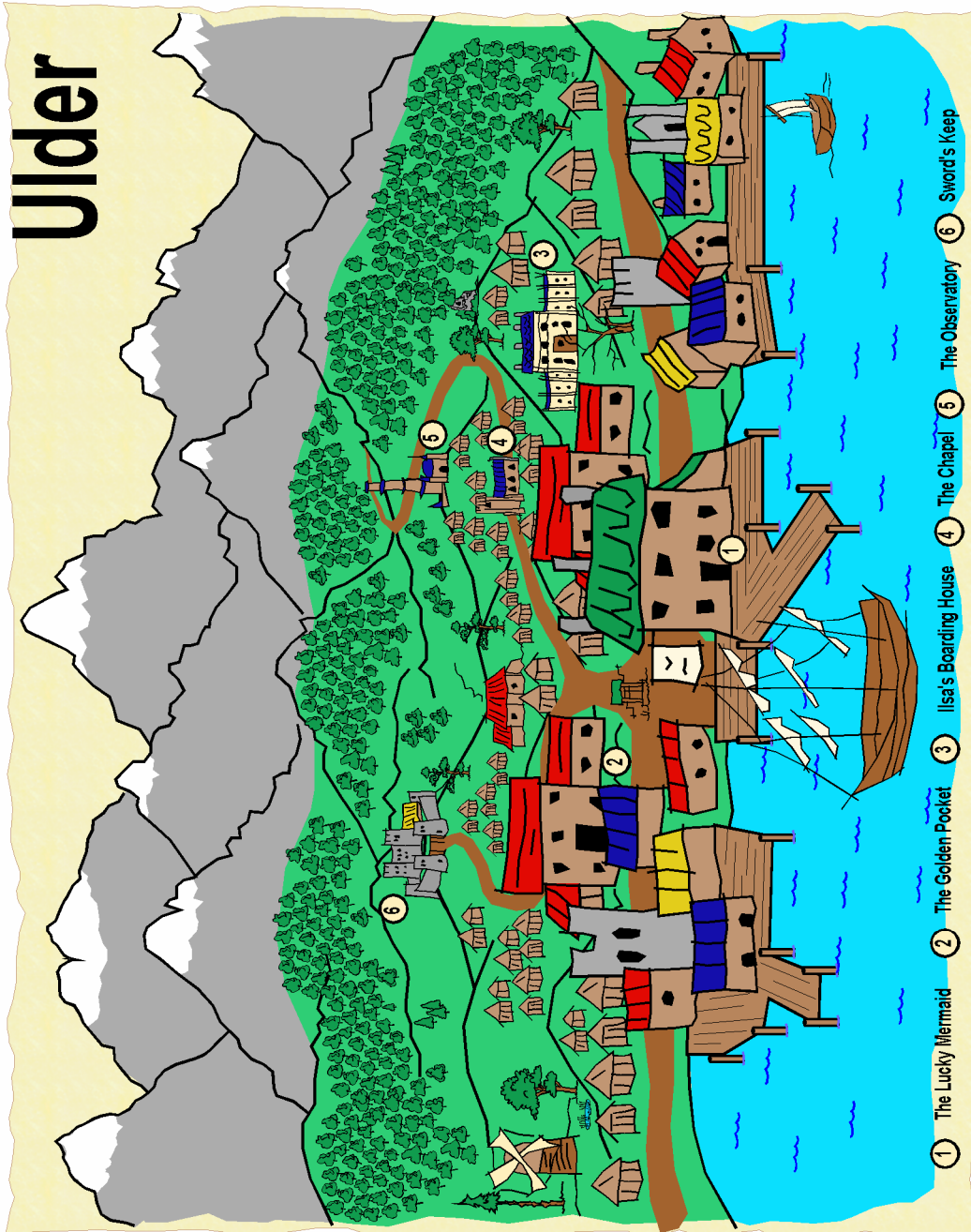
Ulder by Chris Heismann

Ulder uses many hand drawn symbols from Symbol Set 1-Fantasy Overland. Chris also made symbols for the drawing using the techniques explained in *Creating a symbol* on page 66.

Ulber is available in the Profantasy Download Library.

Navigating the World

FT Pro possesses functionality allowing you to move about your world, and to zoom into and out of areas within it. It is a good idea to become familiar with these various functions, as they will be useful when you come to edit and otherwise play with your new creation.

Zooming In and Out

To change the zoomed view of your world:

✓ Click **Zoom In** 🔍 to change the view so that it is zoomed in by a factor of two.

✓ Click **Zoom Out** 🔍 to change the view so that it is zoomed out by a factor of two.

✓ Click **Zoom Extents** 🔍 to change the view so that the entire world fits within the display window.

✓ Click **Zoom Window** 🔍, then click a point, move the mouse, click another point forming a box. The view will change to show a zoomed view of the area within that box.

Moving around on the main map

You can change the viewed world area at the current zoom level by either panning, or by rotating the small globe in the upper right hand corner of the main FT Pro window.

To pan the current view:

Click **Pan** 🖐.

The mouse pointer will change to show a hand.

1 Click and hold the mouse button down within the world view.

The mouse pointer will appear to "grab".

2 Move the mouse in the desired pan direction.

The world view will move with the mouse. Notice that, as you move the mouse around, the small globe will appear to rotate in the desired direction.

3 When the desired view appears, release the mouse button.

FT Pro will re-draw the world to show the new view.

Holding down SHIFT while using the pan tool will change the map center of **projection** rather than the offset parameters.

Moving around using the Globe.

The small **globe** may also be rotated directly to achieve the view you desire.

Click and hold the mouse button down within the world view.

The mouse pointer will appear to "grab".

4 Move the mouse in the desired pan direction.

The world view will move with the mouse. Notice that, as you move the mouse around, the small globe will appear to rotate in the desired direction.

5 When the desired view appears, release the mouse button.

FT will re-draw the world to show the new view.

Named Views

You can create named views for your world. When a named view is created, map projection, scale, and position are stored within it. Named views can be used for world navigation and to export sections of worlds. They are especially useful for outputting consistent images of the same portions of a world using different settings and during different FT Pro sessions.

Projection

For more information on projections see *Map Projections* on page 439.

Globe

Using the globe can be useful at times, especially when editing. Note that if the map center has been offset from 0,0 using the pan tool or the Map Projection dialog, moving the globe may not exactly position the central part of the main map at the same part as the center of the globe.

Creating named views

1 Right-click within FT Pro's main screen.

You see the **Context menu**.

2 Click **Add View**.

You see the **Enter View Name** dialog box.

3 Enter a **view name** for your view, then click **OK**.
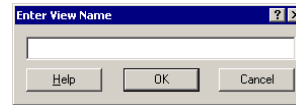
The View management commands are available from the View menu as well as from the context menu.

Using named views

Once you have created named views for your world, you can access them via the **Context** menu. The **Show View Window** command opens the **View Management** dialog box.
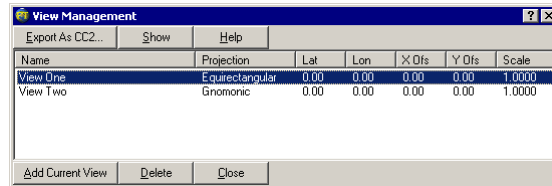
Multiple named views can be selected by holding down [CTRL] while clicking to select, and selecting names individually, or holding down [SHIFT] to select a range of view names.

✓ **Show** will change the current world view to reflect the settings stored within the selected named view. Double-clicking on a named view's list entry has the same effect.

✓ **Add Current View** will add the current world view as a named view. This function works in the same way as the **Context menu** >> **Add View** command.

✓ **Delete** will remove the selected named views.

✓ **Export As CC2** exports the currently selected named views as CC2 Pro and/or JPEG files:

✓ Checking the **Generate CC2 Files** box will export the selected named views as CC2 Pro maps. When checked, FT Pro will prompt for selection of an existing CC2 Pro **export file**.

✓ Checking the **Generate JPEG Files** box will export the selected named views as JPEG images. The **JPEG Size** entry is used to determine the width of the exported JPEG images.

✓ **Output Directory** allows selection of the directory in which the exported files will be saved. If no directory is specified, then the current one will be used.

✓ Exported named views carry file names that reflect their view names. If you wish to use named views for export, you should take care to use only names that are valid Windows® file names, and back up or change the names of existing images and maps that may be affected.

World Settings

The World Settings property sheet replaces the World Settings dialog as well as the Advanced World Settings dialog from FT1. This property sheet has the advantage that it will remain open while you change settings and apply them to your worlds.

Selection

World Setting definitions may be stored on disk and recalled later from the **Selections** property page. Loading a world setting will not apply the setting to your world until the **Apply** button is clicked.
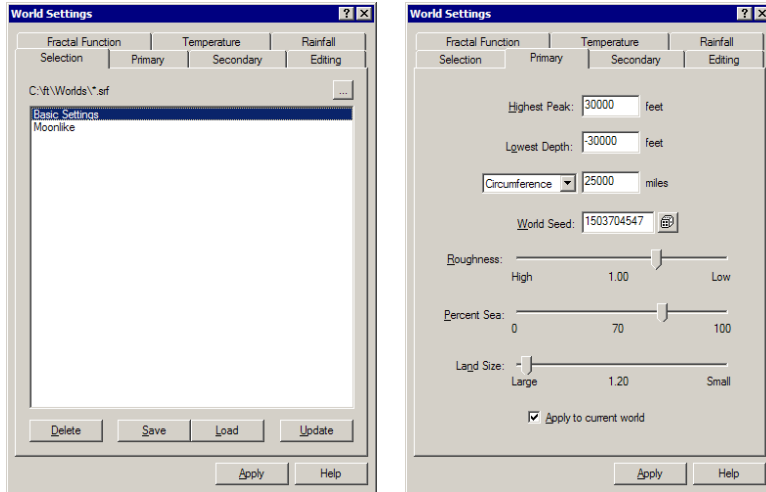
Primary

The Primary settings page contains the main settings that control the appearance of your world. As with all pages on this property sheet, changes will not take effect on your world until you click the Apply button.

Highest Peak sets the maximum altitude for the world. Sometimes the generated world may exceed this value by a small percentage, but it usually keeps within bounds.

Lowest Depth sets the lowest point in the ocean. Sometimes the generated world may exceed this value by a small percentage, but it usually keeps within bounds.

Circumference (or **Diameter**) sets the size of the world. If circumference is selected, the value is the distance around the world at the equator. If it's diameter, the value is the distance through the north and south poles. All worlds are assumed to be perfectly spherical, not an oblate spheroid like the earth.

World Seed is the world number to generate. It sets the random number seed for the internal generators. Values for this seed can range from negative 2,147,483,648 to positive 2,147,483,647. The button next to the seed with a die on it selects a random see value when pressed.

The **Roughness** slider controls the level of roughness in a surface. This value is roughly the fractal dimension of the surface. The sequence below shows how Roughness affects the surface from high (0.01) to low (1.49).

0.01	0.38	0.75	1.13	1.49
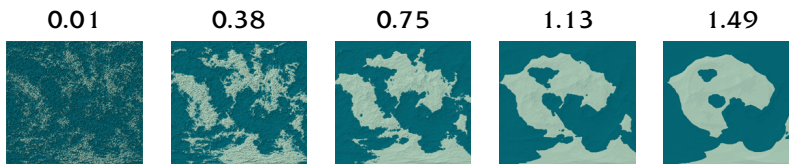
The Percent Sea slider sets the rough amount of sea that will be found on the map. While the system may not always generate exactly the right amount of ocean, it will often be fairly close.

The Land Size slider sets the size of the land masses. The sequence below shows how changing the setting changes the landmass size.

If checked, **Apply to Current World** will apply any changes in the world parameters to the current world, preserving any terrain editing. If unchecked, all editing will be lost.

Secondary

The Secondary settings page contains minor settings that control the appearance of your world. As with all pages on this property sheet, changes will not take effect on your world until you click the **Apply** button.

Raw height Field

A raw height field gets its data only from a linear interpolation of the offset channel; it ignores any fractal data or scaling. Using this option and an equirectangular projection makes FT Pro perform like a traditional height field tool.

Continental Shelves

The pair of images below shows how a world appears with and without continental shelves. Note how turning on Continental Shelves can reduce the relative altitudes of some parts of the map.

With Continental Shelves   **Without Continental Shelves**

Raw Height Fields

FT Pro usually operates with editing data being used to adjust a preexisting fractal function. The offset and roughness editing values are interpolated using a cubic spline and composited with the fractal function to yield a final result. Using the **Burn Into Surface** tool in version 1 would allow the fractal function to be placed evaluated and placed into the offset channel, resulting in an effect similar to a raw height field. However, the fractal function could be added back into the surface by using the roughness tools. **The Raw Height Field** option always ignores the roughness data and fractal function, performing a simple linear interpolation of the offset channel. This option gives a result closer in appearance to

traditional height field editing tools while retaining many of the features of FT Pro such as map projections.
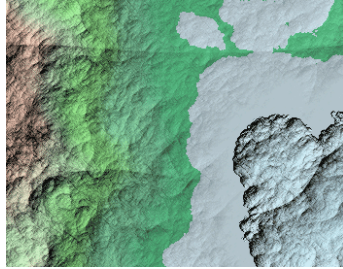
Basic FT Pro result | After Burn Into Surface | After Raw Height Field checked
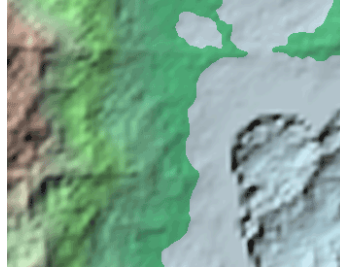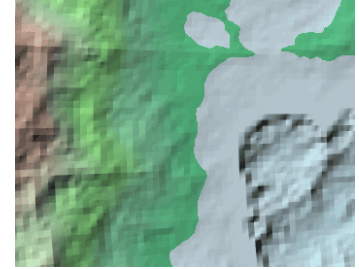
Using the raw height field option prevents creation of excessive detail and prevents excessive smoothing due to the cubic interpolation. These features can be useful for output to external programs such as ray tracers.

Llannaid

Llannaid

Map Key

1 Castle Llannaid
2 The Main Gate
3 The Farmers' Gate
4 The Hunt Gate
5 Danmar Gate
6 Temple of Suen
7 Temple of Lkesson
8 Market Square

9 The Crown Inn
10 The Warden's House
11 Harbourmaster's Office
12 Temple of Olku
13 Temple of Nuamur

14 Shrine of Ulan
15 Tavern "Imric's"
16 Tavern "Klan and Telos"
17 Pearls' Grotto Inn
18 Lighthouse

19 Celura
20 Iladits
21 Stormrider
22 Pride of Lynorlis
23 The Outside Inn

Oldbrook

The Harbour

Llannaid by Ralf Schemmann

Llannaid is available in the
Profantasy Download Library.

Viewing World Information
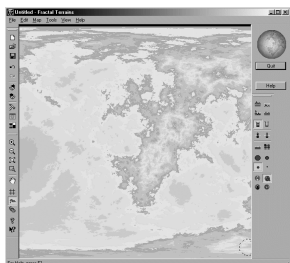
From what we have explored thus far, we know that FT Pro can calculate and show height contours for a world. The clever little beastie does not stop at that, however.

When a world is created, FT Pro will automatically determine its climate, temperature, and rainfall, as well as its general geography. While these calculations are based more on theory than any "true to life" scenario (for example, viewing the climate for your world will very likely reveal huge expanses of forestland - such factors as deforestation and axe-wielding settlers are not figured in the climate calculations), they can be very useful when it comes to adding the finishing touches. As we shall see later, any of these factors that do not suit your concept can easily be changed.
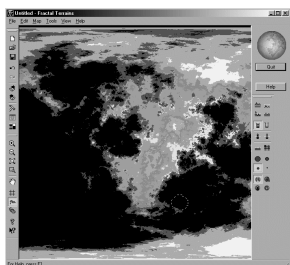
✓ Click **Show Altitudes** 🅐 to show your world's height contours and general geography (this is the default view).

✓ Click **Show Climate** 🌍 to show the climate zones FT Pro has calculated for your world.

✓ Click **Show Temperature** 🌡 to show the temperature zones FT Pro has calculated for your world.

✓ Click **Show Rainfall** 💧 to show precipitation levels FT Pro has calculated for your world.

For each of these views, different colors are used to indicate the different values FT Pro has calculated. The colors and their associated values are shown within the **Color Key** window. When you change the view mode, the Color Key window will change accordingly.

Color Key	Color Key	Color Key	Color Key
30000 ft	Shallow Ocean	149 F	98 in/yr
23333 ft	Ocean	128 F	87 in/yr
16667 ft	Ice	107 F	77 in/yr
10000 ft	Savannah	86 F	66 in/yr
3333 ft	Tropical Shrublands	65 F	55 in/yr
-3333 ft	Tropical Deciduous Forest	44 F	44 in/yr
-10000 ft	Tropical Evergreen Forest	23 F	33 in/yr
-16667 ft	Temperate Grassland	2 F	22 in/yr
-23333 ft	Temperate Forest	-19 F	11 in/yr
-30000 ft	Desert	-40 F	-0 in/yr
	Chaparral		
	Boreal or Alpine Forest		
	Tundra or Alpine		

You can also measure linear distances across a world. Click **Distance** 📏, and then click both ends of the linear distance you wish to measure. FT Pro will report the measurement.

Color to Altitude Conversion

Many data sets are available on the Internet that provide color-coded altitudes. In addition, many CC2 Pro files are created with colors representing contours. To make it easier to import that data into FT Pro, the **color to altitude** conversion tool was created. This tool allows you to define colors, associate altitudes with those colors, and then convert the colors in the displayed overlays into altitudes in the offset channel.

The first step is to create a set of colors and assign altitudes to those colors. To ease this task, FT Pro provides the **Color to Altitude** window shown here. The main portion of this dialog shows the list of color items. Double-clicking on an item has the same effect as selecting that item and clicking the **Edit** button.

Editing color items

Clicking on the **Color** area brings up the color picker dialog to select a color.
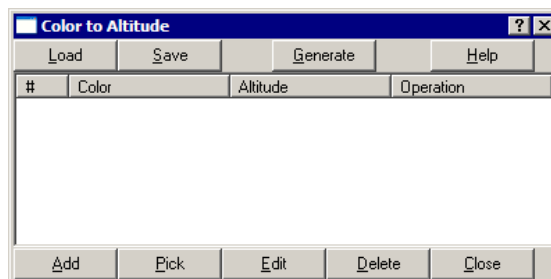
Color to Altitude Options

- **Load** will load a saved set of conversion data from disk.

- **Save** will save the current set of conversion data to a file on disk.

- **Generate** will perform the listed color to altitude conversions on the displayed image overlays.
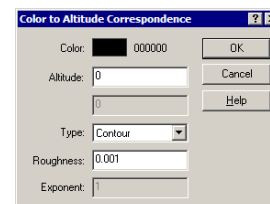
Altitude specifies the altitude of the color selected above.

Type is the operation that will be performed on this color.

Roughness is the value that will be placed in the roughness channel for the color operation.

Exponent is the amount of non-linearity introduced into the peaks and basins. Values less than 1 will lead to rounded tops, while values greater than 1 will lead to more pointed tops.

- **Help** shows the help topic for this dialog.

- **Add** adds a color to altitude correspondence using the Color to Altitude Correspondence dialog (see below).

- **Pick** adds a color to altitude correspondence by changing the tool to a dropper and allowing a color on the main display window to be picked. After you have clicked on the main image to pick a color, the Color to Altitude Correspondence dialog will appear to finish the add operation (see below).

- **Edit** brings up the Color to Altitude Correspondence dialog, loaded with data for the currently-selected item.

- **Delete** removes the currently-selected item from the list.

- **Close** dismisses this window.
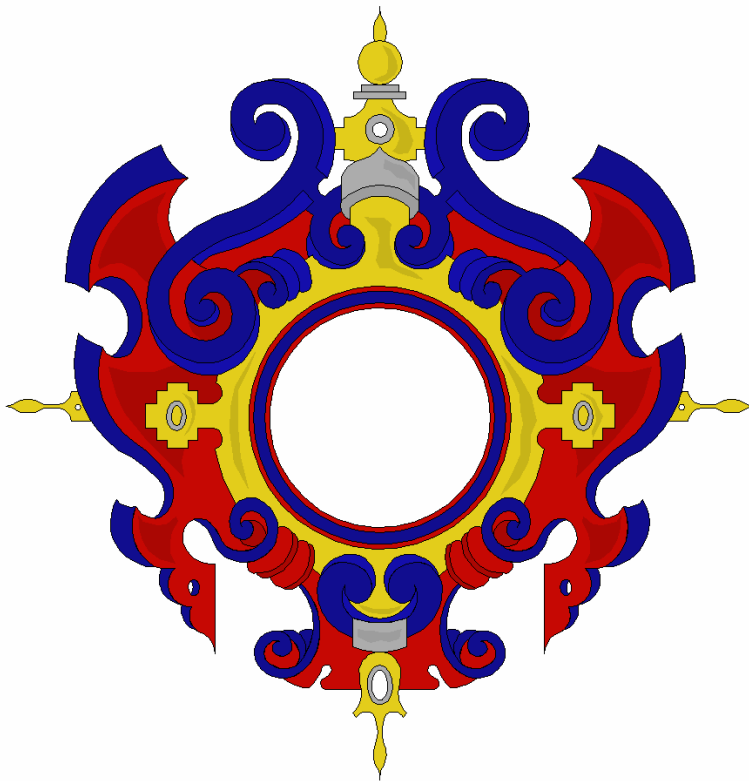
Cartouche by Linda Kekumu*

Linda's cartouche is available in the **Examples>Tome** folder.

Lighting and Color

In FT 1.X, the Lighting and Color information was stored on a set of dialog boxes, as was the **World Settings** information. These dialogs had the unfortunate feature that they would need to be dismissed before the changes made could be observed. In FT Pro, this information is stored in a pair of property sheets, so you can make lots of changes, then see the effect in one go.

The Lighting and Color property sheet replaces the Color and Lighting dialog as well as the Advanced color and lighting dialog from FT. This property sheet has the advantage that it will remain open while you change color settings and apply them to your worlds.

Select Coloring Scheme

Coloring schemes may be stored on disk and recalled later. FT Pro offers a preview of the coloring schemes before loading. Selecting a coloring scheme from the list will display a quick preview on the right-hand side of the property page. This scheme is not loaded into the rest of the property sheet until the **Load** button is clicked.

Intensity

The intensity property page controls the appearance of the shading that is modulated with the coloring data. The data on this property page will not be applied to the world until the **Apply** button is checked.

Select Color Scheme settings

- The **...** button will change the directory where the definition files are stored. The current directory is shown to the left of this button.
- The **list** area shows the settings available in this directory.
- The **color** area to the right of the list shows a preview of the altitude data from the currently selected color scheme.
- **Delete** removes the currently selected color scheme.
- **Save** saves the current color data from the property sheet to disk. You will be presented with a dialog asking for the name of the scheme. This name may contain any characters allowable for a file name.
- Load loads the currently selected color scheme into the property sheet. This color scheme will not be applied to your world until the **Apply** button is clicked.
- **Update** will save the current data in the property sheet into a file with the same name as the currently-selected scheme in the list.

Intensity settings

- The Light Direction group controls the direction of the lighting.
- Azimuth is the compass direction of the lighting in degrees clockwise from up. It may also be controlled via the horizontal slider in the Light Direction group.
- Elevation is the altitude direction of the lighting in degrees above the horizon. 0 is horizontal, while 90 is straight down from above. This value may also be controlled via the vertical slider in the Light Direction group.
- Vertical Exaggeration is a measure of the intensity of the lighting effect. Smaller values will yield a less pronounced shading effect, while larger values will yield a much darker and dramatic image.
- The Shadows slider controls the amount of the lighting effect applied to the world display. Setting the slider all the way to None will turn off the shading effect.

Altitude

The Altitude property page controls the coloring of the surface when the **Show Altitude** display option is checked in the **Map** menu. As with all pages on this property sheet, changes made will not be applied to the world until the Apply button is clicked.

Temperature

The **Temperature** property page controls the coloring of the surface when the Show Temperature display option is checked in the Map menu. As with all pages on this property sheet, changes made will not be applied to the world until the **Apply** button is clicked.

The **Load** button will load a coloring file into the list.

The **Save** button will save the current coloring definition to a coloring file.

The **Default** button loads the program default color list back into the property page.

Highest Temperature is a color picker that sets the coloring for the highest defined temperature and above. Changing this color will redo the color list to smoothly interpolate the CC2 Pro colors between Highest **Temperature** and **Lowest Temperature**.

Lowest Temperature is a color picker that sets the coloring for the lowest defined temperature and below. Changing this color will redo the color list to smoothly interpolate the CC2 Pro colors between Highest **Temperature** and **Lowest Temperature**.

Individual colors may be set on the color list by moving the cursor over that color and clicking the left mouse button. Select a color from the color picker that appears and click OK. The color will now be set.

Rainfall Settings

- The Load button will load a coloring file into the list.

- The Save button will save the current coloring definition to a coloring file.

- The Default button loads the program default color list back into the property page.

- **Highest Rain** is a color picker that sets the coloring for the highest defined rainfall and above. Changing this color will redo the color list to smoothly interpolate the CC2 colors between Highest **Rain** and **Lowest Rain**.

- **Lowest Rain** is a color picker that sets the coloring for the lowest defined rainfall and below. Changing this color will redo the color list to smoothly interpolate the CC2 colors between Highest **Rain** and **Lowest Rain**.

- Individual colors may be set on the color list by moving the cursor over that color and clicking the left mouse button. Select a color from the color picker that appears and click OK. The color will now be set.

Climate settings

- The main portion of the page is occupied by the data list. This list contains the names of climates and the RGB values of their associated colors.

- The **Load** button will load a coloring file into the list.

- The **Save** button will save the current coloring definition to a coloring file.

- The **Default** button loads the program default color list back into the property page.

- The **Edit** button will bring up the color picker for the currently-selected climate type. Double-clicking on a list element will have the same effect.

Rainfall

The **Rainfall** property page controls the coloring of the surface when the Show Rainfall display option is checked in the Map menu. As with all pages on this property sheet, changes made will not be applied to the world until the Apply button is clicked.

Climate

The **Climate** property page controls the coloring of the surface when the Show Climate display option is checked in the Map menu. As with all pages on this property sheet, changes made will not be applied to the world until the Apply button is clicked.
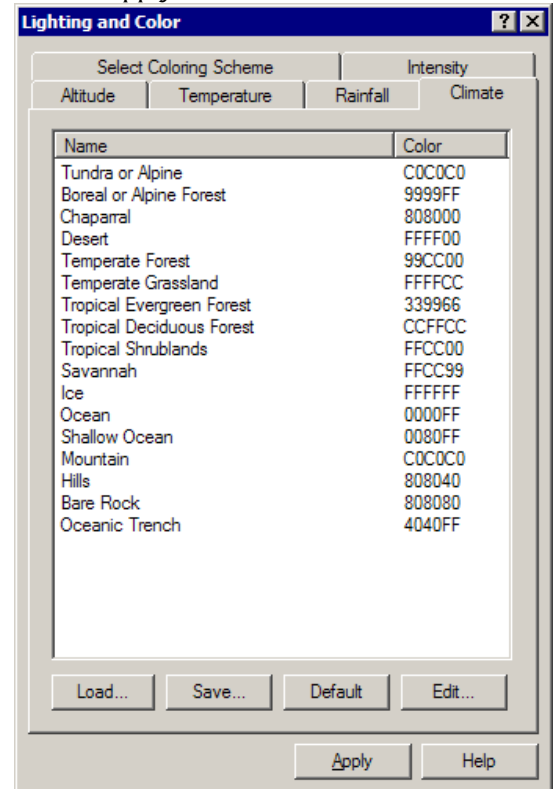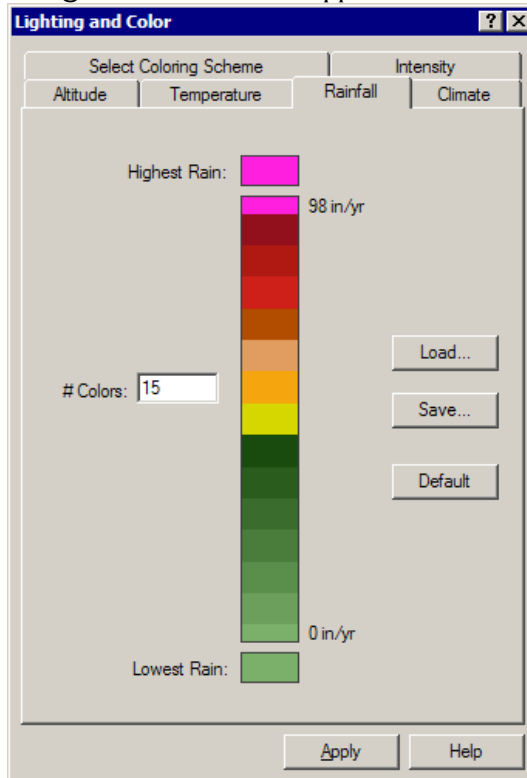
Concentric Castle, First level
based on Beaumaris Castle, Wales
1295 AD

17

4

5

8

12

13

16

6

14

11

9

7

15

3

10

2

1

18

0   25   50   75   100

Scale in feet
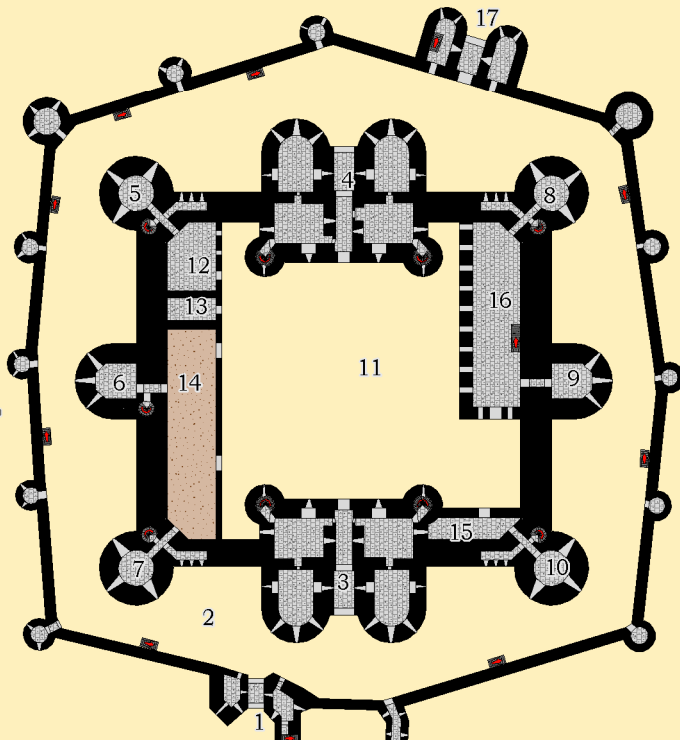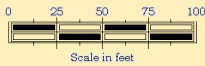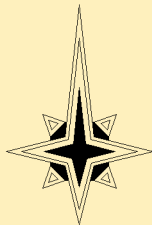
2nd Level
3rd Level

Surroundings
3d View

1 Gate Next the Sea
2 Outer Ward
3 Southern Gatehouse
4 Northern Gatehouse
5 North-West Tower
6 Middle Tower
7 South-West Tower
8 North-East Tower
9 Chapel Tower

10 South-East Tower
11 Inner Ward
12 Kitchen
13 Storage
14 Stables
15 Granary
16 Great Hall
17 Llanfaes Gate
18 Gunners' Tower

Copyright 2004 ProFantasy Software L

Concentric Castle by Ralf Schemmann

This castle floorplan and many more are included in Sourcemaps: Castles!

World Projections

Displaying a globe on a flat surface poses a problem. Over the years, several different methods of achieving this have been devised. Such methods produce flat-map views, or projections, of the globe. FT Pro has the capability to display your world using many of these.

To change the projection used to display your world:

Click **Change Projection** ![icon].

You see the **Map Projection** dialog box.

1   Click one of the listed map projections.

The preview of the world will change to reflect the selected projection.

2   Keep cycling through the available **map projections** until you find one that you like.

3   Press **OK**.

The view of your world will be updated to reflect the new projection.
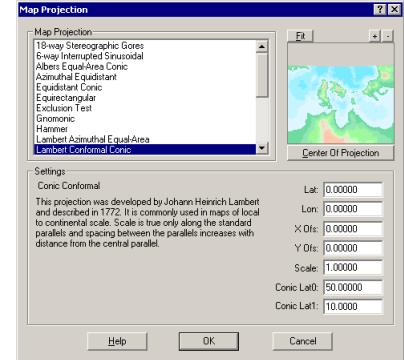
The **Map Projection** dialog has three basic sets of parameters:

✓   **Projection Center**, represented by the values Lat (latitude) and Lon (longitude), defines the central point for the projection display;

✓   **View Offset** (represented by XOfs and YOfs) defines the offset from the projection center to the center of the area of interest. View Offsets can be used to center a view to a particular latitude and longitude co-ordinate. To calculate the values required to do this when showing the Equirectangular projection, use the following formulae:

$$XOfs = \frac{-longitude}{180} \qquad\qquad YOfs = \frac{-latitude}{180}$$

For example, to center the view to longitude -117, latitude 35 the values used would be 0.65 (XOfs) and -0.19444 (YOfs). This trick works *only* for the equirectangular projection. Other projections have more complex formulae.

✓   **Scale**, expressed as a zoom ratio (e.g., a Scale of 1 will display the entire world, 0.5 will zoom in by a factor of ×2, 4 will zoom out by a factor of ×$^1/_4$, and so on).

✓   **Conic Parameters**, represented by Conic Lat0 and Conic Lat1, give the two standard parallels for conic projections. Most projections (that is, the non-conic ones) do not use these parameters.

Gwynnin

Population 4,500

1 The King's Tower
2 Marketplace
3 Temple of Saer
4 The Last Inn
5 Debtors' Tower
6 The King's Inn
7 Temple of Liesson
8 Garrison
9 The Mill
10 Nomads' Camps
11 Glade of Ereis
12 Beggars' Quarter

13 The Plains Gate
14 Fields
15 Fortified Bridge
16 Tlaroi Fields
17 Tlaroi Fortress

Toraegil

Raerwen

Scale in Feet

0 100 200 300 400

Gwynnin by Ralf Schemmann

Gwynnin is available in the Profantasy Download Library.

Grid Options

- **Add** brings up the Grid Settings dialog (see below) to allow a new grid to be created.

- **Edit** brings up the Grid Settings dialog with the currently-selected grid info shown in the dialog.

- **Delete** removes the currently-selected grid.

- **Load** loads a grid definition file from disk.

- **Save** saved a grid definition file to disk.

- **Show** shows the currently-selected grid on the displayed image.

- **Hide** hides the currently-selected grid on the displayed image.

- **Up** moves the grid up in the drawing order.

- **Down** moves the grid down in the drawing order.

- **Latitude Polar Endcaps** is a global setting that will prevent grids from approaching to within the inidcated number of degrees of the poles. This setting is a holdover from version 1.X. It can be simulated by setting each grid to a smaller display area.

- **Subdivision** level is the basic subdivision level. This setting is a holdover from version 1.X. Enabling Adaptive Grid Resolution is usually a better solution than increasing this value.

- **Adaptive Grid Resolution** enables the adaptive grid resolution setting. This operation will use as many subdivisions as are required to yield a smoothly-curving gridline.

Grids

FT Pro supports as many grids as you would like to define, as opposed to version 1.x, which supported only a maximum of two grids.
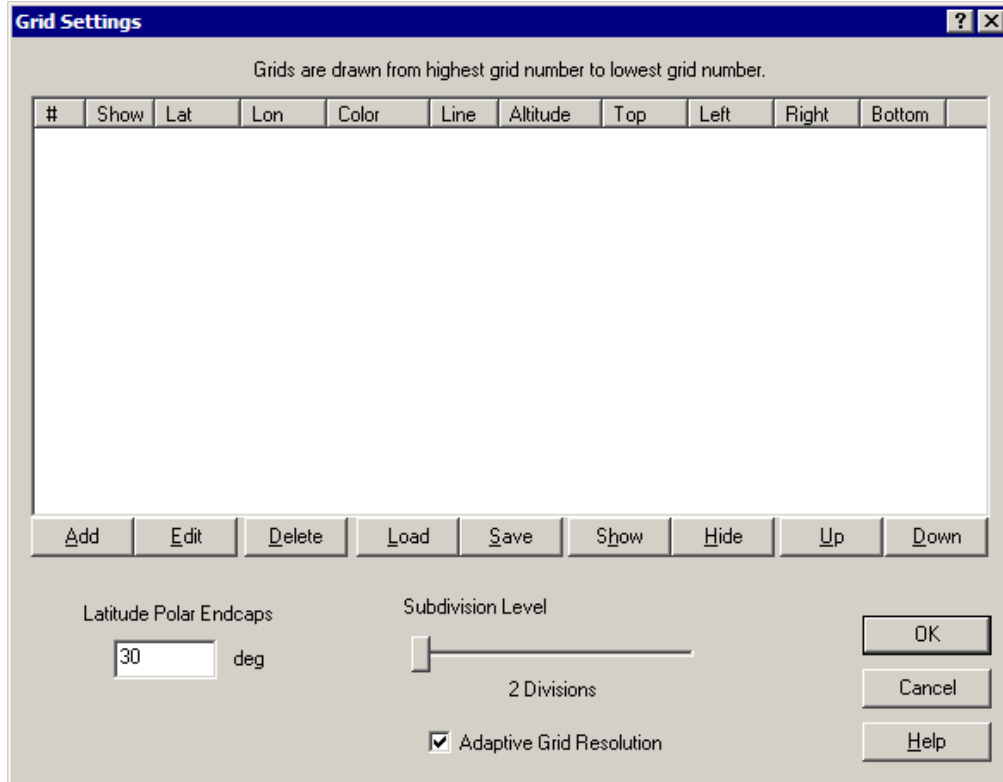
The main area shows any defined grids. The columns in this area are:

Column	Description
#	shows the grid number. Grids are drawn with the highest number at the top of the drawn grids (drawn from lowest number to highest).
Show	indicates if the grid is visible. This value may be changed by selecting the grid record and using the Show and Hide buttons or by editing the grid record and using the Visible checkbox.
Lat	The latitude spacing of the grid
Lon	The longitude spacing of the grid
Color	The color of the grid being displayed. The color is represented as a hex RGB value.
Line	The thickness of the line. This value ranges from 0 to 2.54 mm (1 to 10 pixels onscreen).
Altitude	The altitude at which the grid will be displayed. This value is only relevant for CC2 Pro output, when it will indicate at what altitude the grid should be drawn.
Top	The top edge (largest latitude) at which the grid is defined.
Left	The left edge (smallest longitude) at which the grid is defined.
Right	The right edge (largest longitude) at which the grid is defined.
Bottom	The bottom edge (smallest latitude) at which the grid is defined.

Editing Grid Settings

Click on any grid setting then click Edit to change that **setting**.

To add a grid to your world:

1 Click Grid Settings ⊞.

> You will see the **Grid Settings** dialog box.

2 Click the Add button to bring up the Grid Edit dialog. It is named Grid Settings like the main dialog, but don't let that confuse you.

3 Click the **Color** box.

> You will see the CC2 Pro **Color Picker** dialog box.

4 Click red (color 2) picker box then press **OK**.

> The **Color** box will change to reflect your choice.

5 Check the **Enable Grid** box the press **OK**.

> The main **Grid Settings** dialog will show your new grid.

6 Click **OK**.

> The world will re-draw to reflect your grid settings.
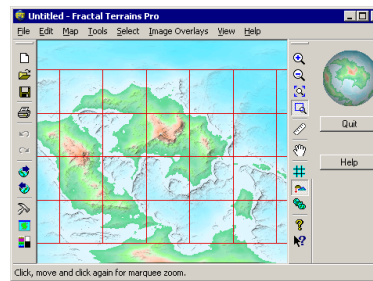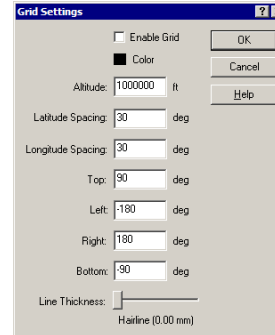
Edit Grid Settings

- Enable Grid indicates if the grid is visible.

- Color is the color of the grid being displayed. Click on the color spot to bring up the color picker.

- Altitude is the altitude at which the grid will be displayed. This value is only relevant for CC2 output, when it will indicate at what altitude the grid should be drawn.

- Latitude Spacing is the latitude spacing of the grid

- Longitude Spacing is the longitude spacing of the grid

- Top is the top edge (largest latitude) at which the grid is defined.

- Left is the left edge (smallest longitude) at which the grid is defined.

- Right is the right edge (largest longitude) at which the grid is defined.

- Bottom is the bottom edge (smallest latitude) at which the grid is defined.

- Line Thickness is the thickness of the line. This value ranges from 0 to 2.54 mm (1 to 10 pixels onscreen).

Simple Create Mode

- **Mountain Peak Height** is the value of the highest mountain peak in the world.

- **Mountain Base Height** is the height of the base of all mountains. Mountains start at the base and grow upward to the peak value.

- **Hill Peak Height** is the value of the highest Hill peak in the world.

- **Hill Base Height** is the height of the base of all Hills. Hills start at the base and grow upward to the peak value.

- **Sea Level** is always fiXEd at 0 altitude.

- **Shallow sea depth** is the depth of areas marked as Shallow Ocean. This area is approximately the continental depth.

- **Abyssal Plain Depth** is the depth of the average low parts of the ocean.

- **Trench depth** is the depth of the lowest parts of the ocean. The trench extends from just below the abyssal plain depth to the trench depth in a manner similar to mountains extending from the maintain base height to the mountain peak height.

- **Quality settings** brings up the **Simple Create Quality Settings** dialog, which allows control over the quality of the output image vs. the time it takes to compute the world.

Quality Settings

- Image resolution is the resolution of the world computation. Smaller values go faster, but yield a much chunkier result.

- Per-Sample Quality is the number of samples taken per point during the deterracing operation. Larger values yield slower computations, but can result in fewer artifacts.

Simple Create Mode is a simplified way to create a world with the exact contours that you define. The process is to paint areas you want on your world (land, sea, mountains, hills) and then using the **Simple Create Settings**, tell FT Pro to go to work. It's that simple. The operation has three major phases: setup (FT Pro makes a workspace for you to do your drawing), drawing (you draw the land you're interested in), and Execution (FT Pro does the works of setting up the surface.

Setup

Use **Tools>Actions>Set Up Simple Create Mode**. That's it. FT Pro will give you a message telling you what to do at that point and to remind you what to do next.

When you click **OK**, FT Pro will create your layer and make certain that the climates toolbar is visible.
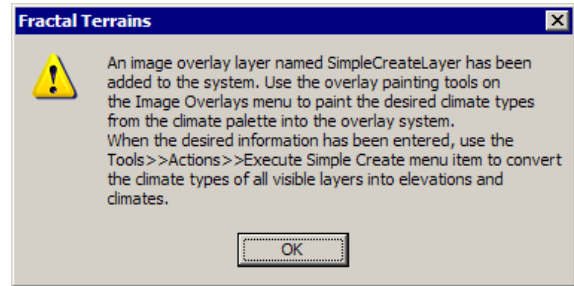
Drawing

Use **Image Overlays>>Overlay Paint Tool** to load the paint tool. When painting, it is often easiest to paint in the following order:

1. Abyssal Plain to lay down the basic lowest sea level
2. Shallow Ocean and Deep Ocean to bound the lowest and highest sea areas.
3. Climate types other than mountains and hills.
4. Mountains and Hills.

It is very important that at least some of each category above is painted on the map.

An example painted world map is shown below:

Execution

After painting the areas of your world map, you must tell FT Pro a little about the height values that you would like to use to create the elevations. The dialog you use to tell FT Pro about

the setup is shown here.

Quality Settings

Quality settings brings up the **Simple Create Quality Settings** dialog, which allows control over the quality of the output image vs. the time it takes to __compute__ the world.
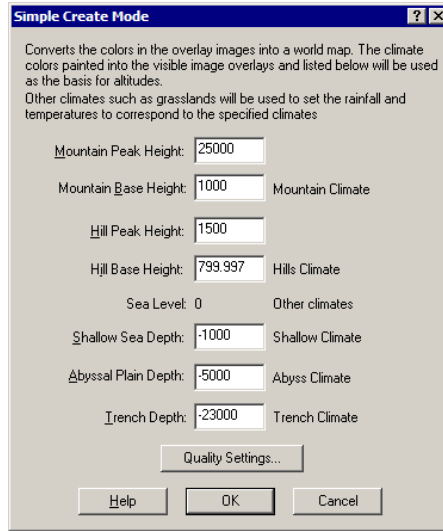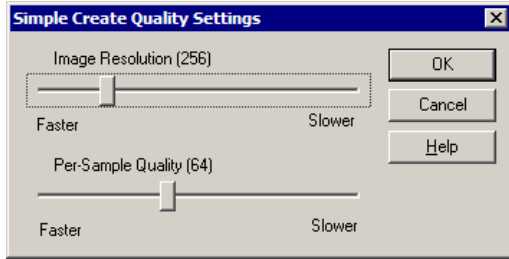
The results for the map example above is shown here (the vertical exaggeration has been increased to 12 in the lighting for this image to show more details):

Editing Your World
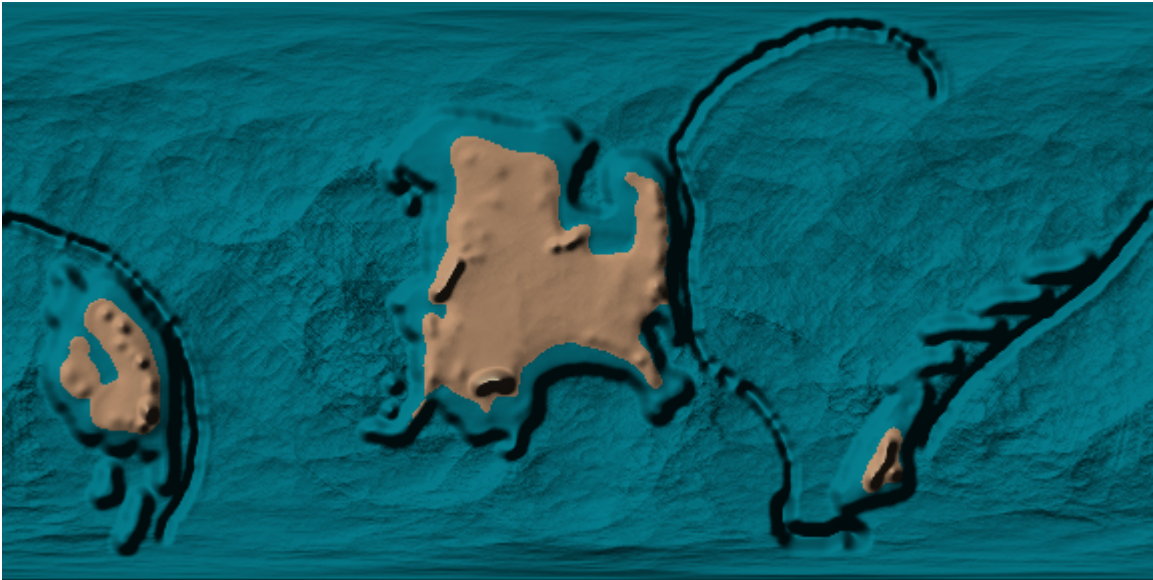
Editing Settings

- The **Editing Size** group sets the resolution at which editing will be accomplished.

- **Small**, **Medium**, and **Large** set 256, 512, and 1024 samples horizontally, respectively.

- **Resolution and Memory** indicate how big each sample will be at the equator and how much memory the editing surface will require. Specifying an editing resolution that takes much more than a sixth of the machine's physical memory size can result in poor performance during editing.

- **Custom** sets a custom editing size in case one of the preset size settings isn't to your liking. It has a maximum value of 8190, giving a maximum editing detail of roughly 5 miles at a cost of potentially 900 MB of memory.

- **Allow Prescale Offset** allows for better control over editing continental shelves at the cost of additional memory and the use of irregular values for editing.

Fractal Function settings

- The **Parms** button controls the fractal-specific settings. These provide a little extra fine control over certain aspects of the fractal functions.

- The **Flip Fractal Function** checkboXEs allow the function to be inverted vertically and/or horizontally.

- If **Automatically Compute Parms** is checked (the default), then FT Pro will automatically place the center of your world and the radii of your world in accordance with its internal algorithm. If unchecked, you have direct control over these values. However, taking control of the radii values means that the Land Size slider on the Primary page will no longer work. There is no reason for most users to edit these values directly, but editing them gives you an extra few hundred trillion worlds.

The **Editing settings** page controls how detailed user editing can be. As with all pages on this property sheet, changes will not take effect on your world until you click the Apply button.

Fractal Function

The **Fractal Function** page controls the basic function used to create worlds. Different functions have different properties and appearance. As with all pages on this property sheet, changes will not take effect on your world until you click the **Apply** button.

Method

The method drop list selects the basic computation method used for FT Pro. FT2 includes two new fractal types compatible with the program Wilbur. These new types do not suffer from an unfortunate optimization in FT 1 that caused strange stripes to appear in certain areas of a world.

Ridged Multifractal
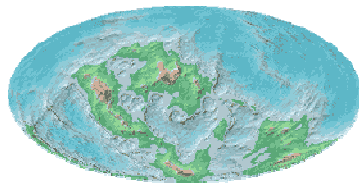
Brownian Noise
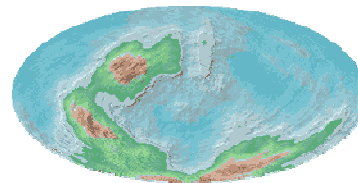
Wilbur fBm
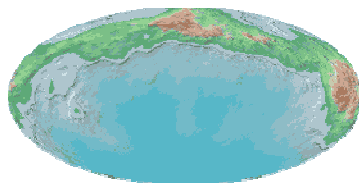
Wilbur Ridged Multifractal
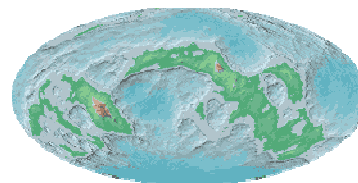
Temperature

The Temperature settings page controls the temperature climate model operations. As with all pages on this property sheet, changes will not take effect on your world until you click the **Apply** button.
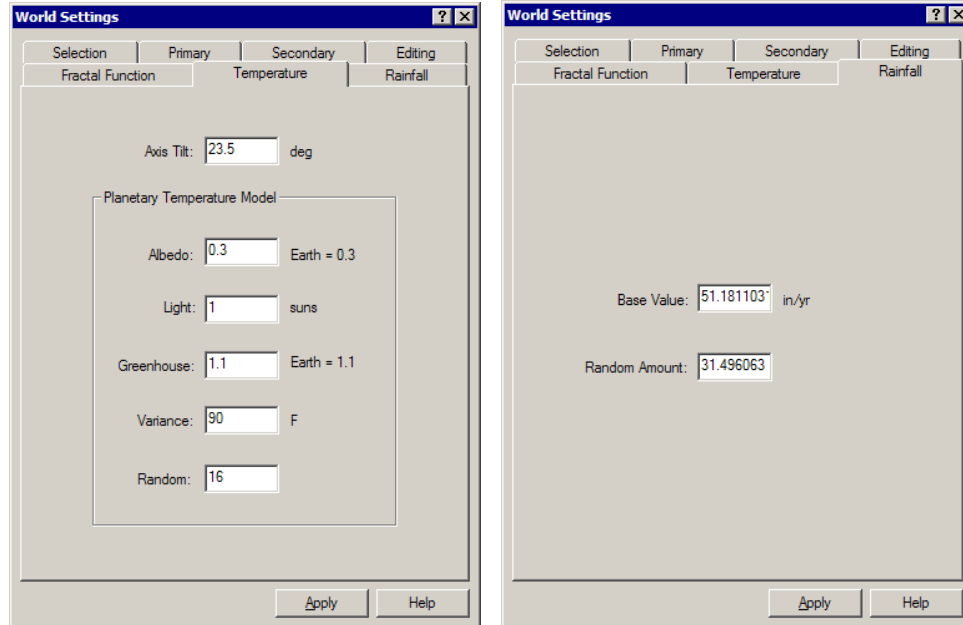
Rainfall

The **Rainfall settings** page controls the rainfall climate model operations. As with all pages on this property sheet, changes will not take effect on your world until you click the Apply button.

The Editing Tools

FT Pro possesses ten editing tools, all of which are available via the View>Tool Palette. The tools are:

✓   **Raise** increases the altitude of the painted area.

✓   **Lower** decreases the altitude of the painted area.

✓   **Rougher** increases the height variation (roughness) of the painted area.

✓   **Smoother** decreases the height variation (roughness) of the painted area.

✓   **Wetter** increases the level of rainfall within the painted area.

✓   **Drier** decreases the level of rainfall within the painted area.

✓   **Warmer** increases the temperature of the painted area.

✓   **Colder** decreases the temperature of the painted area.

✓   **Water Level** will adjust the painted area so that its water level is set at a given altitude. All terrain of an altitude lower than that set for the **Water Level** tool will be adjusted to depict water. Higher altitude terrain will not be affected. You can dynamically select the altitude to be used by this tool by holding SHIFT down while Clicking within the world map on an area of the desired altitude.

✓   **Paint Climate** will replace the current climate of the area painted with that chosen from the **Climate Selector** toolbar.

The area of effect of the tools may be modified using other s shown on the tool palette:

Temperature

- **Axis Tilt** specifies the axial tilt of the planet, which affects the temperature distribution of the world. A planet with an axis tilt of 0 will have no seasonal temperature variations, while a planet with an axial tilt of 90 will have average yearly temperatures at the pole greater than at the equator.

- **Albedo** is the amount of reflectance that the world has (sum of all factors including clouds, land, and sea); an earthlike world will have a value near 0.3.

- **Light** indicates the amount of sunlight at all wavelengths reaching the planet in terms of solar radiation units (the Sun = 1).

- **Greenhouse** indicates the greenhouse warming effect due to atmospheric effects; Earth has a value of approximately 1.1 (warms the planet). Values less than 1 have a cooling effect, values greater than 1.0 have a warming effect.

- **Variance** is a factor that determines how much the temperature varies from the equator to the poles. Earth has roughly a 90 degree Fahrenheit variance value.

- **Random** is the amount that a random field will be scaled by to give local temperature disturbances.

Rainfall Settings

- **Base** is the global amount of rainfall

- **Random** is a scaling factor that adjusts a fractal field that adds to the Base value to give the final result.

✓ **Extra-Large Tool**, ⬤, will change the size of the paint area to that set for the Extra-Large (XL) brush size in the Tool Settings dialog.

✓ **Large Tool**, ◉, will change the size of the paint area to that set for the Large (LG) brush size.

✓ **Small Tool**, ◦, will change the size of the paint area to that set for the Small (SM) brush size.

✓ **Extra-Small Tool**, ·, will change the size of the paint area to that set for the Extra-Small (XS) brush size.

Edit

Editing tools only affect the current selection. If you haven't selected any particular region of your map, then the tool will affect any area it touches. For more on selection, see *Selection Functions* on page 393.

Your edit will be "painted" onto the world as you move the cursor. Since FT Pro needs to calculate edits in order to apply them, it is a good idea to move the mouse slowly to ensure that the edit is applied to the whole region desired.

Using the Editing Tools

FT Pro's editing functions are all performed in basically the same way. To edit your world:

1 Click the button representing the editing function you wish to use.

The mouse cursor will change to show a paintbrush surrounded by a dashed circle. The circle indicates the area that will be affected by your edit.

2 Move the mouse to the region you wish to edit within your world.

3 Click and hold the mouse button down.

4 Move the mouse across the area you wish to **edit**.

5 Once you have painted all of the desired area, release the mouse button.
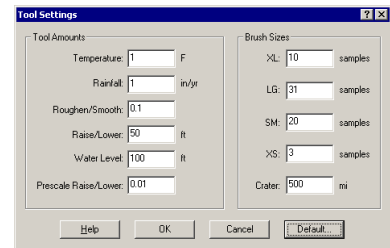
Changing the Editing Tools

You can set the extent to which edits are applied by clicking on the **Tool Options** 📏. The Tool Settings dialog box will appear, in which you can specifically set values used by the editing functions.

Note that the editing tools may have no discernable effect when using low tool settings values at high zoom levels.

Also note that there is a peculiarity in the way brush sizes are set in FT Pro. The software requires that sizes, internally, should be odd values. As a result, it adjusts user-entered values, as per:

Entered Value	Actual Size of Brush
0-1	0
2-3	1
4-5	3
6-7	5
8-9	7
10-11	9
32-33	31
64-65	63

Climate Painting

The **Paint Climate** 🟪 is used to change the climate settings for an area painted. To use this tool, you must first select the type of climate you wish to paint from the Climate Selector toolbar. Fifteen **climate types** are available

Global Painting

The **Raise**, **Lower**, **Rougher**, **Smoother**, **Warmer**, **Colder**, **Wetter**, and **Drier** tools may be applied globally (i.e., so that they affect the entire world (or current selection) in one fell swoop) by holding SHIFT down, and clicking on the desired tool.

Climate Types

- 🏔 Mountains
- 🏕 Hills
- 🪨 Bare Rock
- 🧊 Ice
- 🌳 Tropical Deciduous Forest
- 🌿 Tropical Evergreen Forest
- 🌱 Tropical Shrublands
- 🌾 Savannah
- 🌲 Temperate Forest
- 🟨 Desert
- 🟩 Chaparral
- 🟩 Temperate Grassland
- 🌲 Boreal or Alpine Forest
- 🌿 Tundra
- **No** No Climate

Selection Functions

FT Pro provides a number of selection tools that can be used to mask portions of a world. When a selection mask is applied, all edits will only affect currently selected portions of a world. For example, if you paint a climate to the world, areas outside the current selection will not have their climates changed, even if the climate-painting tool overlaps the selection border.

When global painting, edits will be applied to all areas within the selection, and areas outside the selection will remain untouched.

Basic Selection Functions

Three basic functions are accessed from the **Select** menu. These are:

✓ **All** selects the entire world

✓ **Deselect** deselects all current selections

✓ **Inverse** inverts the current selection, so that everything currently selected is now de-selected, and everything that was outside the current selection becomes selected

Selection Tools

Four tools are provided which allow selection by shape. These tools can be found on the **Selection Tools** toolbar. Use **View menu** >> **Selection Tools** to display this toolbar.

✓ Click **Select Rectangle** ⬚ to create a rectangular selection. Click in the main window to place the rectangle's first corner, move the mouse, then Click again to place the opposite corner when the preview displays the rectangle desired

✓ Click **Select Ellipse** ⬭ to create an elliptical selection. Click in the main window to start the selection, move the mouse, then click again to complete when the preview displays the ellipse required

✓ Click **Select Freehand** ⬚ to manually draw a selection mask. Click in the main window to start the selection. Draw the required selection by moving the mouse. Once the desired selection has been outlined, click to complete

✓ Click **Select Polygon** ⬚ to create a polygonal selection. Click in the main window to start the selection, then click to place further points as desired. To complete the selection, either triple-click (effectively clicking once to place the final point, then double-clicking in the same location to complete), or press ENTER .

Range Selection Functions

The **Select** menu

provides four functions that are used to select portions of the world that conform to given parameters. With the exception of the **Climate Range** function, these tools prompt for the range required via a dialog box. The **Altitude Range Selection** dialog is shown to serve as an example.

✓ **Low** and **High** form the range to be processed by the selection. For example, entering **0** in the **Low** box, and **500** in the **High** box when selecting by **Altitude Range** will consider all portions of the map that fall between 0' and 500' in altitude. Units differ for each range selection function differ (e.g., **Temperature Range** expects values in °F).

✓ The first drop-list determines how the selection relates to the given range: **Between** considers all portions between the **Low** and **High** values; **Not Between** considers those outside (either lower or higher) the given range; **Above** considers those portions of the world that are higher in respective value than the provided **High** value; and **Below** considers those portions that fall below the **Low** value.

✓ The lower drop-list determines how the selection is to be used: **Replace Selection** will clear the current selection, creating a new one based on the parameters given; **Add to Selection** will retain the current selection, adding to it according to the given parameters; **Subtract from Selection** will remove those portions conforming to the given parameters from the current selection.

Selection Tools

These selection tools can also be used to add to or subtract from the current selection. Holding down SHIFT when completing the selection will add the area to the current selection, and holding down CTRL will remove the area drawn from the current selection.
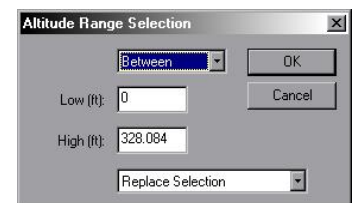
The four range selection functions are:

✓ **Altitude Range** selects by altitude, in feet (or meters)

✓ **Temperature Range** selects by temperature, in °F (°C)

✓ **Rainfall Range** selects by rainfall, in inches per year (or cm)

✓ **Climate Range** selects by climate. This opens a dialog box (shown below) which lists all of the climates FT Pro recognizes. Click boxes to the left of the listed climates to place or clear tick marks. A tick indicates that all regions conforming to that climate will be selected. Selecting by **Climate Range** always replaces the current selection
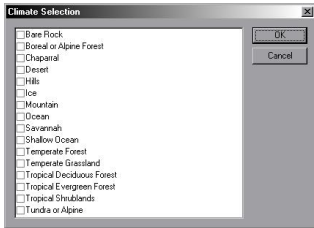
Selection Mask Modification

The current selection mask can be further modified:

✓ **Binarize** will "harden" the selection, so that each pixel is either fully selected or fully deselected. You will be prompted for a threshold value which will determine which pixels remain selected, and which will be deselected, depending on their current selection status. The range of this threshold is from 1 to 255. A value of 1 will fully select all pixels in the current selection, regardless of their partially selected state; a value of 255 will only consider those pixels that are already fully selected; a value of 127 will consider those pixels that are currently from 50% to 100% selected; and so on. Binarized selections cannot have partially selected pixels.

✓ **Feather** will "soften" the selection mask, blurring it around the edges. You will be prompted to enter the amount by which the selection is to be smoothed. Feathered selections can have partially selected pixels.

✓ **Modify** >> **Expand** will increase the size of the current selection by one pixel in all directions.

✓ **Modify** >> **Contract** will decrease the size of the current selection by one pixel in all directions.

Selection Mask Files

You can save selections for use in the future as selection mask files. A selection mask file is an 8-bit grayscale bitmap image that is the same size as the resolution set in **World Settings** >> **Advanced** >> **Editing Setup**. The grayscale color of each pixel is determined by the amount of the pixel currently selected: fully selected pixels will have an 8-bit grayscale value of 255 (white); fully deselected pixels will have a value of 0 (black); partially selected pixels will be defined by shades of gray, depending on their selection status.

✓ Save Selection will save the current selection as a bitmap file

✓ Load Selection will prompt for the selection mask file to use, and will then apply that to the current world

Mound

The **Mound** function takes parameters you provide, then adjusts the altitude values within a selection accordingly. It is useful for creating mountains, plateaus, etc.

To use the **Mound** function:

Use the selection functions and tools to select the area you wish to be affected.

1 Select **Tools menu** >> **Mound**.

You see the **Mound Settings** dialog box.

2 Enter the parameters as required then press **OK**.

The **Mound** function will be applied to the selection.
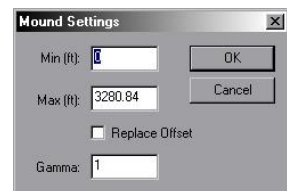
Deterrace

The deterrace tool will smooth out flat areas in the editing surfaces, interpolating between adjacent values. This tools is designed to keep as much information as possible while still

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Mound Settings

Min (ft): is the value that will be applied to the edge of the selection, in feet (or meters).

Max (ft): is the value that will be applied to the center of the selection, in feet (or meters).

If **Replace Offset** is checked, the current values of the selection will be replaced by the **Mound** function. If unchecked, the **Mound** function will add to the current values.

Gamma indicates the linearity of the mound's slope. A value of 1.0 will produce a mound with fairly shallow-sloping sides. Values less than 1.0 will provide flatter tops and steeper sides. Values greater than 1.0 will produce shallower sides and more pointed center ridges.

giving reasonable results. It takes as a parameter the number of samples to compute for each interpolated point. Larger values take longer to calculate but yield better results:

Raw terraced data	Deterrace, value = 64	Deterrace, value = 5
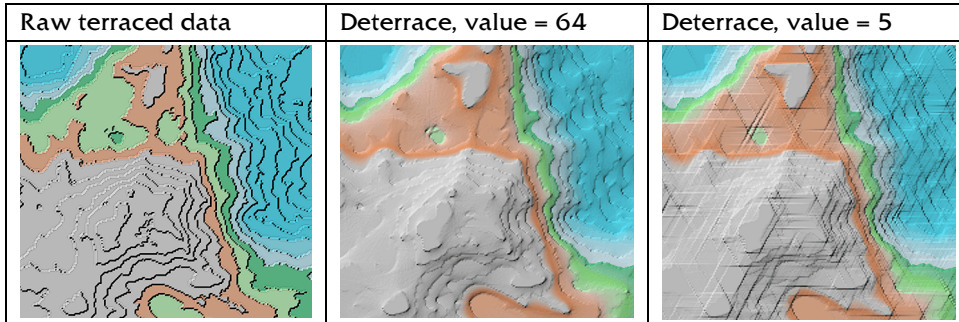
Global Noise

Many operations give a result that is too smooth to look good. The noise tool generates random values and adds them to the surface. Invoking the tool produces the following dialog:
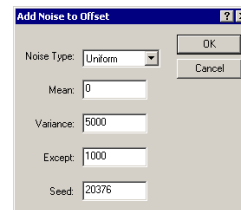
Raw terraced data	Uniform Noise	Gaussian Noise
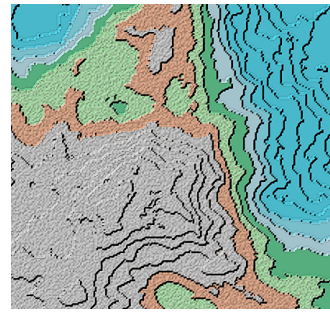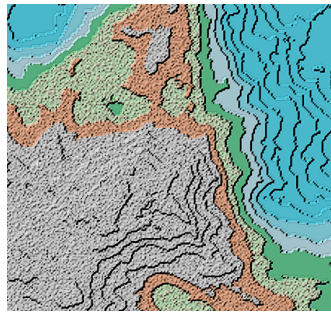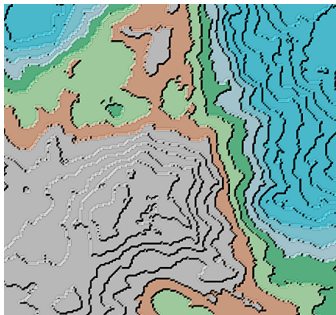
Basin Fill

The algorithms used in FT Pro result in little hollows at all levels of detail. In real worlds, these hollows tend to be filled with sediments deposited by rivers. To offer a first approximation to this process that runs in a reasonable amount of time, the **Basin Fill tool** is provided.

Raw Data	BasinFilled Data

In the following images, note how the rivers routed on unfilled basins tend to have straight segments. These segments are caused by the internal basin-fill process in the river-finding algorithm, which doesn't impart the same level of roughness as the Basin Fill algorithm. This roughness forces the rivers to wander a bit, giving a more realistic appearance.

Rivers routed on raw data
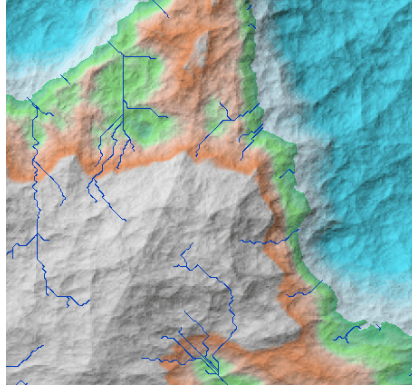
Rivers routed on filled data
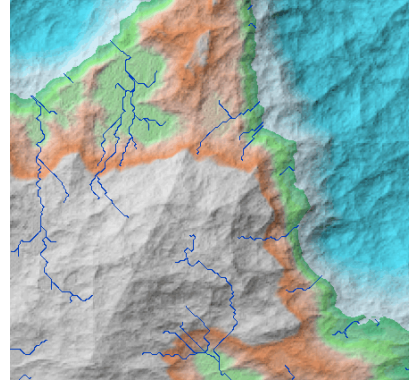
Expand Land

During development of some of the processing algorithms, a small coding mistake resulted in a process that caused the land areas to expand at relatively low altitude. This process conveniently results in low areas at sea level, much like continents here on earth tend to have. The expanded land tends to be a bit rough and probably would benefit from a light application of the global smoothing tool. Also, this action fills in basins in the same manner as the basin fill tool.

Raw data
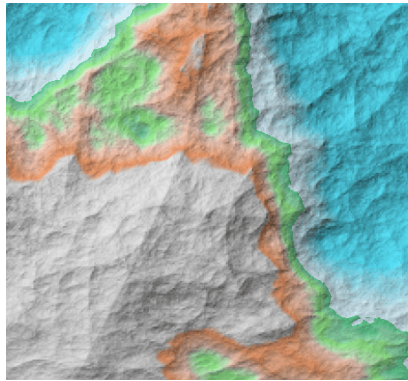
Expanded land, value = 16
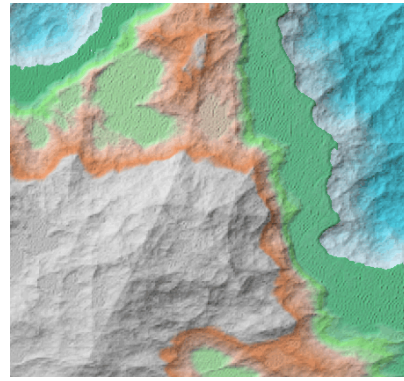
Filling basins with lakes

Using **Fill Basins as Lakes** after using the **Fill Basins** command can result in strange square lakes.

Fill Basins as Lakes

The **Fill Basins as Lakes** operation fills basins, but it fills them using the water channel rather than the offset channel. This operation therefore gives the effect of **filling basins with lakes**. Unfortunately, the fractal surfaces have small basins at all levels of detail. Using this operation with a fine editing grid can result in little lakes all over the world. Also, because rivers stop when they hit water, these little lakes can make river routing difficult.

Raw Data
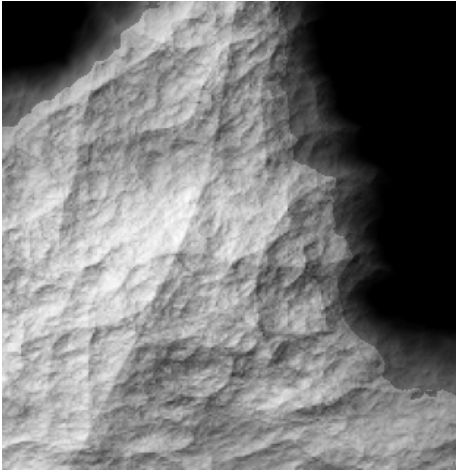
Lakes in basins
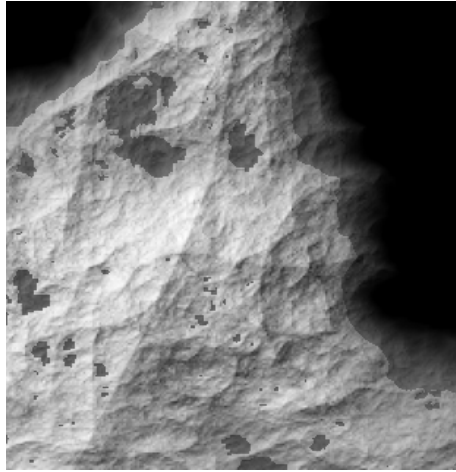
Changing Color And Lighting Settings

At any time, you can change the current color and lighting settings used for your world. To do so:

1   Click **Lighting and Color** 🎨.

You see the **Lighting and Color** dialog box.

2   Alter color and lighting options to those desired.

This is performed in the same way as you did when creating your world (see page **Error! Bookmark not defined.**).

3   Press **OK** to apply the changes.

FT Pro will re-draw the world to reflect the new color and lighting settings.

Changing World Settings

You can change the currently used world settings. Note that, for synthetic worlds, changing world settings can alter the world. It is suggested that you save your world before changing its settings.

To change world settings:

1   Click **World Settings** 🔄.

You see the **World Settings** dialog box.

2   Alter the world settings to those desired. Make sure that **Apply to Current World** is checked if you don't want to lose any edits.

This is performed in the same way as you did when creating your world (see page 374).

3   Click **OK** to apply the changes.

FT Pro will re-draw the world to reflect the new world-settings if the **Apply to Current World** box was checked. Otherwise, the settings will be applied in blanket fashion.

Crater Tool

The crater tool available from **Tools**>>**Paint Crater** places a single <u>crater</u> at the cursor position. The outline shown around the cursor shows two circles: the center circle shows the area occupied by the bowl and the area between the inner and outer circle is the outer sloping area. Click the left mouse button to place a crater.

Crater

The size of the crater can be set using the **Crater** setting on the **Tool>>Settings** dialog or by using the mouse wheel on your mouse if it is so equipped.

Planetary Bombardment Options

- **Total Craters** is the number of craters to be placed. More craters will result in longer eXEcution times.

- **Largest Crater** is the diameter of the largest crater to be placed.

- **Smallest Crater** is the diameter of the smallest crater to be placed.

- **Smooth** by indicates a smoothing value to be applied after the number of craters specified.

- **Distribution Exponent** describes the proportion of smaller craters to larger ones. Values larger than 1 will favor smaller craters, while values less than one will favor larger craters. Typical cratered worlds such as Mars display an exponent around 50.

- The **Draw from largest to smallest** checkbox controls which craters will be drawn first. If unchecked, larger craters can be drawn on top of smaller ones, resulting on obliteration of the smaller craters previously drawn in the same area. When using the smoothing option it is best to leave this option unchecked.

Equations

Prior versions worked according to equation:

Altitude = Offset(lat,lon) + Roughness(lat,lon)* Shelf(Scale(Fractal(lat,lon)))

Basically, the raw fractal function was scaled by a conversion factor to get the user's desired altitude range and the adjusted for continental shelf (if required). This result was scaled by the roughness factor and then the offset value was added to it. With FT Pro, a pre-scale offset has been added. The equation now has the option to read:

Altitude = Offset(lat,lon) + Roughness(lat,lon)* Shelf(Scale(Fractal(lat,lon)+ Prescale(lat,lon)))

Planetary Bombardment

In contrast to the Crater Tool which only places a single crater at a time, the Planetary Bombardment tool allows multiple craters to be placed. Selecting the **Tools**>>**Actions**>>**Planetary Bombardment** menu item brings up the following dialog to control the **bombardment**:
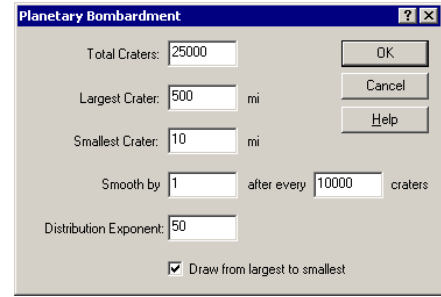
When used with a selection, this tool will place craters over the entire world surface, but only those parts of the crater that overlap the selection will show. This means that if you select a small area and specify 1000 craters, those 1000 craters will be spread over the entire world, not just over the selected area.

Before Bombardment
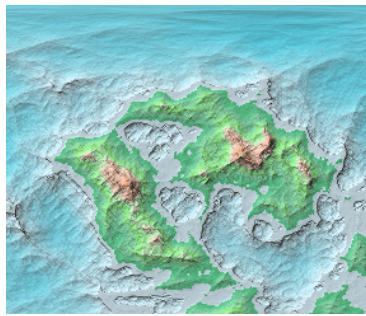
After Bombardment
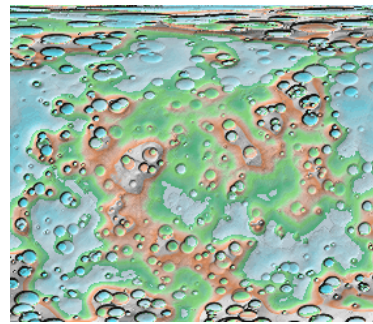
Pre-Scale Offset Editing

FT Pro now has a pre-scale offset tool. This has a profound impact on the system operations. – changing the **equations** by which FT Pro works. When enabled via the Editing page of the World Settings property sheet, surfaces now consume an additional 18% memory above and beyond the prior amounts. Due to this increase in data size, systems with limited memory may experience a significant slowdown. However, the results of the tool can be very nice to see. Continental shelf results can now appear as expected when raising or lowering land. Roughness tools can now work regardless of the initial altitude of the land. The biggest problem with the prescale offset is that many of the more obtuse processing in FT Pro does not work with prescale offsets. In addition, the editing values are applied before initial scaling and so there is not an obvious connection between the editing value and the results. The images below show an example of the difference between the prescale offset editing tool and the regular offset painting tool and how editing the roughness values affects the two types of data differently:

Original Data

Regular Offset Editing

Prescale Offset Editing

Roughness editing only

Regular Offset + Roughness Editing

Prescale Offset + Roughness Editing

Roughness images were painted with a roughen/smooth value of 0.1

Regular Offset images were painted with a raise/lower value of 50 feet.
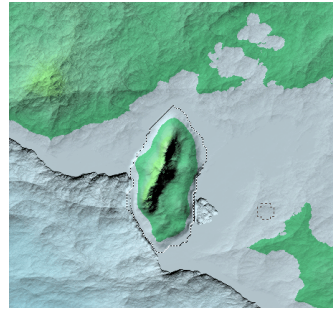
Prescale Offset images were painted with a prescale raise/lower value of 0.002.

Notice how the Prescale offset editing has raised the continental shelf levels, while the regular offset editing kept the original continental shelf level but raised that edge into a peculiar crusty ridge running around the island. The roughness editing of an area that started below sea level caused the regular offset data to push back below sea level, while the prescale offset data was roughened in a manner that might be expected. However, note that the values used are very different.

User Interface Niceties

- All tool dialogs now have an option to reset to the default values.
- All tools provide a message on the status bar to indicate what they can do.
- All tools are now available from menu as well as the toolbars.

Quick Commands

- **Ctrl+arrow** moves the map center of projection in the indicated direction.
- **Arrow keys** pan 10% of the projection size in the direction indicated.
- **+** and **–** Keys zoom in and out.
- **Mouse wheel** resizes tools during operations.
- **Pan** operation available at any time by holding down the **Space** bar.

New Color Option

Holding down the SHIFT key when selecting a color will bring up the Windows color picker instead of the **CC2 Pro** color picker.

Saving and Exporting

Once you have edited your world so that everything matches your desires, you may now wish to export it to an image file, a series of image files, or even to a Virtual Reality Modeling Language model.

Saving Your World

FT Pro can save your world directly to four different file formats, these being:

✓ FT Pro native format (FTW)
✓ Bitmap image format (BMP)
✓ JPEG image format (JPG)
✓ Wilbur format (MDR)
✓ Special MDR (MDR)

You should always save your world in FT Pro's own format, especially if you intend to use FT Pro to further edit and refine it.

To save your world:

1 Select **File menu** >> **Save As**, or click **Save As** 💾.

You will see the **Save As** dialog box.

2 Type a name for your world in the **File Name** box.

3 Select the **format** you desire from the **Save as type** drop-list.

4 Click **Save** button.

Exporting An Icosahedral Projection

Icosahedral projections are commonly used to depict worlds within science fiction role-playing games. Basically, an icosahedral projection takes the form of a flat-view exploded 20-sided shape.

To save your world as an icosahedral projection:

1 Select **File menu** >> **Export World** >> **Icosahedral**.

You will see the icosahedral Save As dialog box.

2 Change the **Width** value if desired.

The higher the **Width** setting, the larger the output file will be.

3 Click **Background Color** button.

You will see the standard Windows® color palette.

4 Choose the color you wish to use for the output file's background and click on **OK**.

The background color is used to fill the rectangular space within the image that is not occupied by the icosahedral projection.

5 Type a name for the file in the **File Name** box.

6 Select the desired file format from the drop-list.

Bitmap and JPEG formats are available for icosahedral export.

7 Click **Save** button.

FT Pro will calculate and create the icosahedral image file.

This icosahedral projection is a simple linear transformation of an equirectangular map as shown here.

Formats

The BMP, JPEG, and Wilbur (MDR) formats all save the current display image as either a color map or as a height field readable by Wilbur. These formats have limits on the size of an image that can be saved. The Special MDR format, on the other hand, has no limit on the size of the output image and always outputs its information using a simple Equirectangular projection. This format is very useful when exporting a high resolution image from FT Pro to use as a binary image within FT Pro or as an input file within Wilbur.

Exporting To Multiple Image Files

FT Pro can output your world to several image files, each comprising a smaller, tiled section of the map. It is often useful to do this, since attempting to depict a detailed world map within a single image can result in an unmanageably huge file.

To export your world to several image files:

1   Select **File menu** >> **Export World** >> **Multiple Files**.

> You will see the **Multiple Image Export** dialog box.

2   Check the **Generate JPEG files** box. Ensure that the **Generate CC2 Files** box is unchecked (this we shall cover later).

> You can create HTML files linked to the generated JPEG images if you so desire by checking the **Generate HTML files** box. FT Pro will generate hypertext links and navigation buttons linking the generated HTML files together.

3   Change the **Map Levels** and **Map Level Info** settings to those desired.

> **Map Level Info** is set as per:

✓   **Map Level:** The map level to which the information row pertains.

✓   **Files Wide:** The number of files used to depict the world's horizontal axis at this level.

✓   **Files High:** The number of files used to depict the world's vertical axis at this level. The total number of maps that will be produced for the level is equal to the Files Wide value multiplied by the Files High value (i.e., a level set to 5 files wide by 2 files high will produce 10 images).

✓   **Percentage Overlap:** The extent to which each file of a given level overlaps with those adjacent to it.

✓   **Image Resolution:** The pixel resolution of the resultant images. The higher this value is, the larger the resultant files will be.

✓   **Per-Level CC2:** When this item is checked, the button at each level can be used set the CC2 Pro settings that are used for export for that image file level.

4   To choose a location for the output files, Click the directory selection button [...] to select the directory. If a directory name is entered that does not exist, that directory will be created.

5   Click on **OK** to start the export.

> FT Pro will generate the **files** to the specifications you have set, and an overview file depicting the entire world. *This process may take some time*, depending on the number and nature of levels you have chosen.

Exporting A Spin View

A spin view is a series of image files that depict the globe in a period of rotation. These files may be then combined to form a rotating globe animation.

To export your world to a spin view:

1   Select **File menu** >> **Export World** >> **Spin View**.

> You will see the **Spin View Export** dialog box.

2   Set up the export parameters desired.

> For spin view exports, the parameters are:

✓   **Size**: The size of each frame in pixels. The higher this value is, the larger the output files will be.
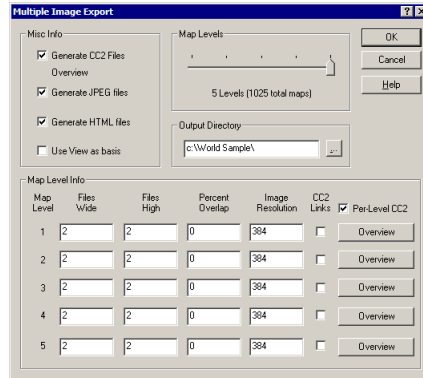
Map Levels

The **Map Levels** option is used to determine the number of image sets that will be created.

Map Level Info

The **Map Level Info** settings determines the form those levels take. Each map level set will comprise a number of images that tile together to form the whole world. For example, if two map levels are chosen, you will gain two separate depictions of the world, each comprising a set of image files.

Files

The files will have a filename consisting of a letter and a number. The letter refers to the map level (the overview map will be "A", level one will be "B", and so on). The number refers to the row and column of the map's tile.

Spin View Export

FT does not export directly to a GIF-based spin view animation because of the additional licensing costs involved. There are several software packages that allow individual files, such as those created by FT's spin view export function, to be tied together in a single animation file, including :

Photoshop Elements®, from Adobe® (www.adobe.com)

Animation Shop®, from Jasc® (www.jasc.com)

Ulead® *GIF Animator™*, from Ulead® (www.ulead.com)
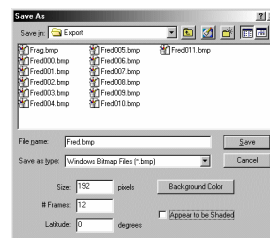
Appear Shaded

Unchecked
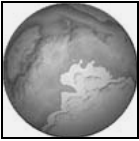
Checked

✓ **# Frames**: The number of images that will be created. Each image depicts the world at a different stage in its period of rotation. If used for animation, the higher this value is the smoother the resultant animation will be.

✓ **Latitude**: The degree of latitude that will form the center point of the rotational view.

✓ **Appear to be Shaded**: Check this box if you wish the views to **appear shaded**.

3 Type a name for the file in the **File Name** box.

4 Select the desired file format from the drop-list.

Bitmap and JPEG formats are available for **spin view export**.

5 Click **Save** button.

FT Pro will calculate and create the spin view image files. Each file will consist of the selected filename, plus a numerical suffix indicating where in the rotational sequence the file occurs.

Exporting To VRML

VRML (Virtual Reality Modeling Language) is a modeling language that can be used to depict interactive 3D objects and environments. To use a VRML file, you will need a viewer capable of understanding the language (there are many such viewers available, including plug-ins for Internet browsers).

To export your world to a VRML file:

1 Select **File menu** >> **Export World** >> **VRML**.

You will see the **VRML Save As** dialog box.

2 Set the desired width for the output file.

The greater the width, the higher the resolution of the resultant model, but also the larger the file size.

3 Type a name for the file in the **File Name** box.

4 Click **Save** button.

FT Pro will calculate and create the VRML file. To view the file, open it with a VRML viewer.
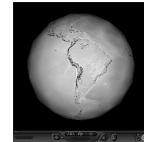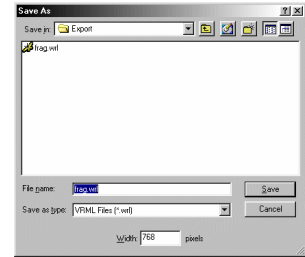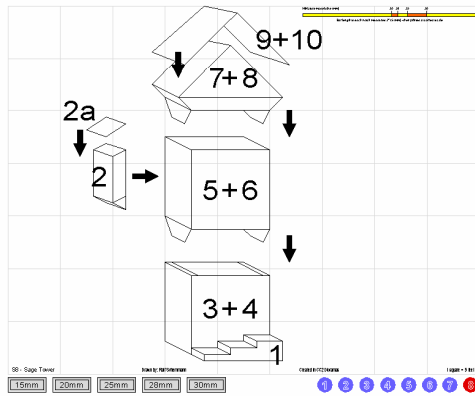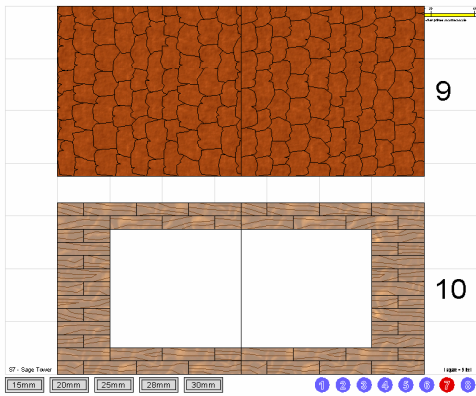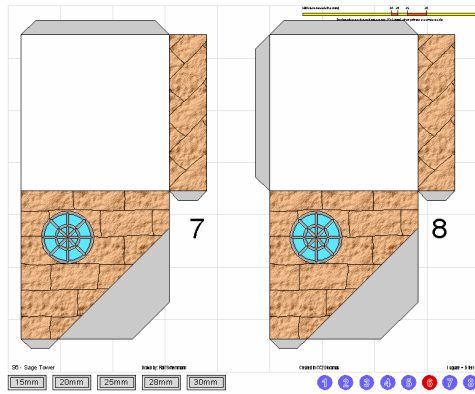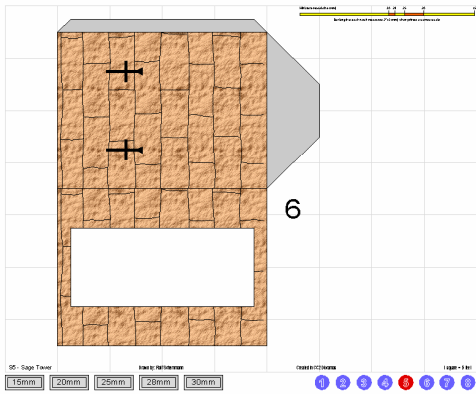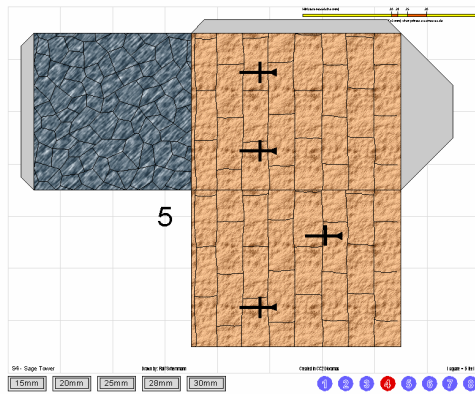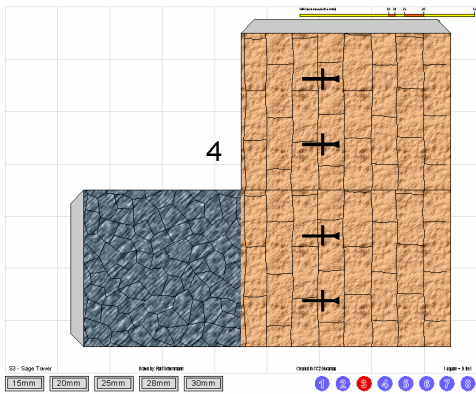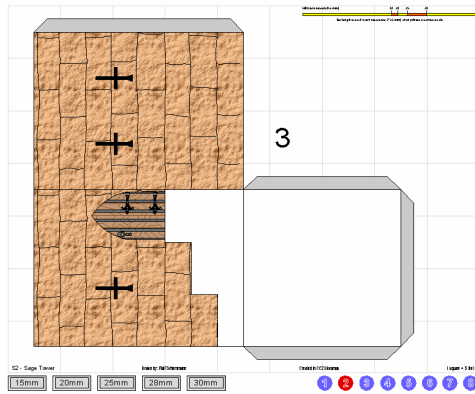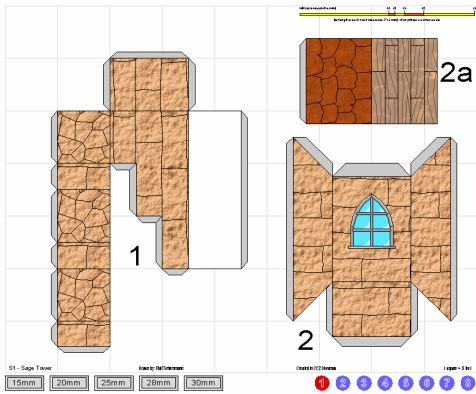
Sage's Tower by Ralf Schemmann

Sage's Tower is a Dioramas drawing modeled after a symbol of the same name in Symbol Set 1-Fantasy Overland. **Sage's Tower** is available in the Profantasy Download Library.

Exporting to CC2 Pro

CC2 Pro is a powerful cartographical tool that can be used to further enhance and manipulate your world. Before you can do so, you must first export the world to one or more CC2 Pro map files.

FT Pro To CC2 Pro Export Options

Whenever you export worlds from FT Pro to CC2 Pro maps, you will be presented with a series of options that will determine what will comprise the resultant CC2 Pro map file. Once you have determined these options, they may be saved for future use. You must create and save options before you can use them to export to CC2 Pro files.

When you must choose CC2 Pro export options, you will see the **CC2 Export** dialog box.

Available export settings files will appear in the list. Other features of the dialog box are:
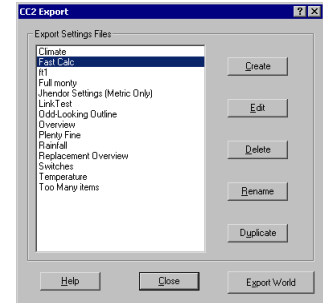
✓ **Create**: Clicking on this button will start the **CC2 Export Filter** wizard (see below).

✓ **Edit**: This will start the **CC2 Export Filter** wizard, using the currently selected export options file. Changes you make to the settings during the course of the wizard will be saved to this file.

✓ **Delete**: Deletes the currently selected export file.

✓ **Rename**: Allows you to rename the currently selected export file.

✓ **Duplicate**: This creates a duplicate of the currently selected export file. The duplicate file will default to a "Copy of.." filename. You can then use the Rename function to change this.

✓ **Export World**: This will export the current world, using the options set within the currently selected export file.

To create a new CC2 Pro export file:

1 Click **Create**.

You will see the **CC2 Export Filter** wizard's introductory dialog box.

2 Check the **export options** you require.

3 Click **Next**, and choose the settings you desire for contour output.
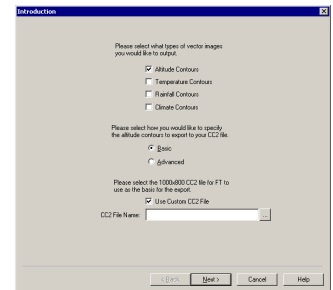
If you opted for Basic contour options, you will be presented with the Basic Contour Settings dialog box.

✓ **Draw Filled Contour**: Selecting this option will create solid-filled contour entities.

✓ **Draw Contour Outline**: Selecting this option will draw an outline around each contour.

✓ **Contour Outline Color**: Clicking on this color box will bring up the CC2 Pro Color Picker, from which you may select the color to use for contour outlines.

✓ **Line Style**: Change this option to use a different line style for contour outlines.

✓ **Draw Coast Outline**: Selecting this option will draw an outline around the world's coasts.

✓ **Coastline Outline Color**: Clicking on this color box will bring up the CC2 Pro Color Picker, from which you may select the color to use for coastal outlines.
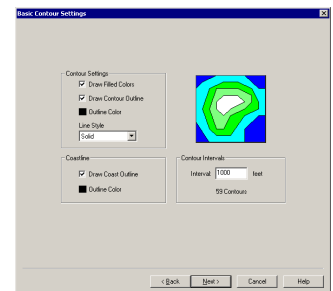
Export Options

The checkboXEs indicate which parts of the FT Pro world data you wish to export to CC2. Each information level will be written to a separate CC2 drawing layer.

The **Basic/Advanced** radio button option is used to determine the options you will be presented with respect to contour output. The **Basic** option will provide a simple set of options. If you need to use non-standard contours, contour labeling, etc., then choose the **Advanced** option.

The **Use Custom CC2 File** checkbox is used to specify a custom CC2 template. When checked, the **CC2 File Name** edit box can be used to enter the name of an existing CC2 file or click directory selection button ⌐..⌐ to select a CC2 file. The CC2 file must be saved in non-compressed form

✓ **Contour Intervals**: This setting will determine <u>**how many contours**</u> will be drawn, and the altitude represented by each. The lower this is, the higher the number of altitude contours that will be produced.

The thumbnail view will provide a simple overview of the options you have selected.

If you opted for Advanced contour options, you will be presented with the **Advanced Contour Settings** dialog box.

Contour Attributes > **Fill** options are:

✓ **Filled**: Selecting this option will create contours with a solid fill style.

✓ **Match Altitude Color**: Select this option to use the colors set for this world when creating the CC2 Pro file. Uncheck it to choose another color.

✓ **Fill Color**: If **Match Altitude Color** is not selected, then you can click on this color box to choose the contour color you wish to use.

Contour Attributes > **Outline** options are:

✓ **Outline**: Check this to produce contour outlines in the resultant **CC2** Pro map.

✓ **Match Altitude Color**: Uncheck this box to use a color other than those set for the world when creating contour outlines.

✓ **Outline Color**: If **Match Altitude Color** is not selected, you can click on this color box to set outline color.

✓ **Line Width**: Adjust this slider bar to achieve the line width you wish to use for contour outlines in the CC2 Pro map.

✓ **Line Style**: Choose a line style for contour outlines from this drop list.

Contour Attributes > **Contour Label** options are:

✓ **Show Label**: Select this box to produce a text label for each contour. For very rough worlds, this may cause your CC2 Pro output to be smothered in text.

✓ **Label Position**: Use this drop list to set the desired position for contour labels, in relation to the contours.

The **List Management** section allows you to define which contours will be drawn in the CC2 Pro map. The options here affect the **Defined Contours** list:

✓ **Lowest**: This value defines the lowest height for which a contour will be created. Negative values refer to sea depth contours.

✓ **Highest**: This value defines the highest height for which a contour will be created.

✓ **Interval**: This value sets the height intervals at which contours will be created between the highest and lowest settings.

✓ **Add**: Clicking on this button will create a contour list within the **Defined Contours** section based on your chosen settings.

✓ **Remove**: Clicking on this button will remove the whole **Defined Contours** list.

The **Defined Contours** section will display the contours currently set for the export. You can manipulate the list using the **List Management** section, or by selecting one or more contours from the list and then clicking on **Edit** or **Delete**:

✓ Clicking on the **Edit** button will allow you to individually set **Contour Attributes** (see above) for the selected contours.

✓ Clicking on the **Delete** button will remove the selected contours from the list.

The **Explicit Coastline** options are:

✓ **Draw**: Select this box to include a coastline outline with the map.

✓ **Color**: Click on this color box to select the color you wish to use for the coastline.

✓ **Thickness**: Use this slider bar to select the line thickness you wish to use for the coastline.

4 Click **Next**, and select the detail level options you wish to use.

You will see the **Detail Level** dialog box.
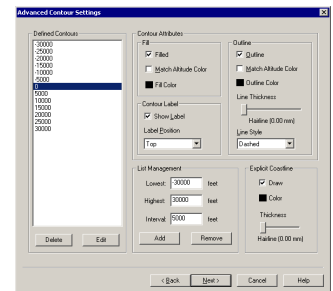
How Many Contours

A word of advice and warning: The more contours you define, the larger the CC2 Pro output file will be. The potential exists to produce very large output files indeed. The larger a file, the longer CC2 Pro will take to load and redraw the map. Depending on your system's resources, CC2 Pro may not even be able to open the file in question. We have discovered that a 500MHz machine with 128Mb RAM and a 32Mb graphics card takes around half an hour to load and draw a world map exported from FT Pro of around 50Mb. To be reasonably useable, you should aim to produce output files of 10Mb or less. If this does not provide the level of contour detail you require, consider using the Multiple File export function to split your world up across more than one CC2 Pro map.
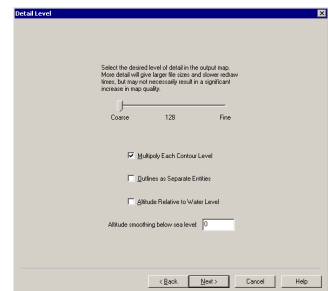
✓ The slider bar is used to set the level of detail within the resultant **CC2 Pro** map. Coarse maps may appear blocky when zoomed in, and are suitable for world overviews. Fine maps will appear more realistic, but will create larger sized files and are thus only suitable for local area views (created using the Multiple Files export, see below).

✓ **Multipoly Each Contour Level**: Selecting this option will multipoly all contours of a given level together into a single entity. This will provide greater accuracy, but will slow down load and re-draw times.

✓ **Outlines as Separate Entities**: By selecting this option, the solid-fill and outlined contour components will be separated into individual entities. If this is unchecked, contour outlines will be created by using the second color functionality of **CC2 Pro** - contour and outline will be defined within a single entity. Since entities that use this function are selected by their outline colors, this can cause problems when editing a map (in effect, all contours with the same outline color will be treated as if they were the same overall color). Checking **Outlines as Separate Entities** will eliminate this problem, but will double the number of contour entities created, thus slowing re-draw and load times down and increasing the output file size.

✓ **Altitude Relative to Water Level**: By selecting this option, the altitude of exports will be calculated relative to the water level user editing layer. If unchecked, all contours will be computed relative to **0** altitude, not the currently-set sea level. If user-drawn lakes are to appear in the **CC2 Pro** output, this item must be checked.

5   Click **Next**, and select other items you wish to include in your map.

> You will see the **Other Items** dialog box.
>
> The items selected here will be drawn into the **CC2 Pro** map. The possible items are:.
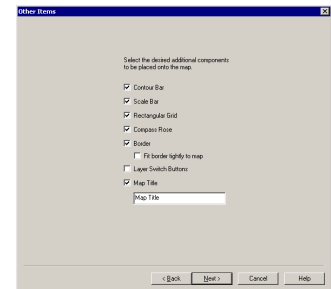
Contour bars show the meaning of individual colors for a given information set. A separate contour bar will be added for each information level you have chosen to create.

Scale bars show actual distances represented by a smaller, scaled distances on a map.

If you opt to include a **grid**, you will be presented with the **Grid Settings** dialog box. The grid will be drawn to the settings you choose.

A **compass rose** shows in which direction north lies. When outputting multiple, linked maps, the compass rose will include links to other files created. Clicking on one of the compass points will load the map that lies in the selected direction at the current map's level. Clicking in the center of the rose will load the next lowest level map.

Selecting the **Border** check box will produce a map border in the output file. The **Fit border tightly to map** checkbox can be used to ensure that there is no white space visible between the exported map and the border.

Layer switch buttons allow you to navigate easily between the different information levels you have selected to create, along with their respective scale bars. Click on "A" for Altitude, "T" for Temperature, "C" for Climate, and "R" for Rainfall.

The **Title** check box will produce a cartouche containing text entered into the edit box.

6   Click **Finish**.

> The Finish button may actually appear on the Grid Settings dialog box if you have opted to include a grid. If so, click **Next** to go to the Grid Settings dialog, choose the options you wish, and then click **Finish**.

7   Enter a name for your **CC2 Pro** export file, and click **OK**.

> You will be returned to the **CC2 Pro** Export dialog box.
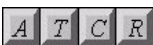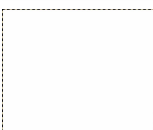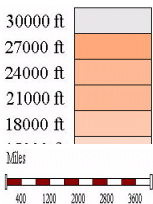
8   To export your world to CC2 Pro, select the export file you wish to use and click **Export World**.

> FT Pro will now calculate and create the CC2 Pro file (or files) to your chosen specifications. Note that this may take some time, depending on the options you have set in the CC2 Pro export file.

Exporting To A Single CC2 Pro Map

To export your world to a single CC2 Pro file:

1   Choose **File menu** >> **Save CC2 File**.

> You will see the CC2 Pro Export dialog box.

2   Select the desired export file, or create a new one, and press **Export World**.

> You will see the **Save As** dialog box.

3   Give the file a name, and press **Save**.
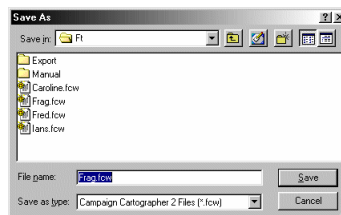
> FT Pro will now create your CC2 Pro file.

This command saves the **current FT Pro view** to CC2 Pro.

Exporting To Multiple CC2 Pro Maps

Just as you can export worlds to multiple tiled image files, you can export them to multiple CC2 Pro maps. The procedure is virtually the same as that for multiple image exports:

1   Choose **File menu** >> **Export World** >> **Multiple Files**.

> The **Multiple Image Export** dialog box will appear.

2   Click to check the **Generate CC2 Files box**.

3   Set map level options as desired.

> These are the same as per multiple image file export (see above). However, one further **Map Level Info** option becomes available. Check the **CC2 Links** box to compass rose and map links between the generated maps.

4   Type the name of an existing directory to which the map files will be written in the **Output Directory** box, or click **directory selection** button ... to select the directory from a dialog box.

5   Click on **OK** to start the export.

Standard CC2 Pro layers for FT Pro exports

When FT Pro exports a map to CC2 Pro, it places entities on particular layers:

Entities	Layer	Entities	Layer
Climate contours	CLIMATE	Climate contour bar	CBAR CLIMATE
Rainfall contours	RAINFALL	Rainfall contour bar	CBAR RAINFALL
Temp. contours	TEMPERATURE	Temp. contour bar	CBAR TEMPERATURE
Altitude contours	RELIEF/CONTOURS	Climate contour bar	CBAR CLIMATE
Contour outlines	CONTOUR OUTLINES	Map title	MAP BORDER
Altitude labels	RELIEF/CONTOURS	Map border	SCALE BAR
Coast outline	COAST/SEA	Layer buttons	MAP BORDER
Grid	HEX/SQUARE GRID	Compass rose	MAP BORDER
Scale bar	SCALE BAR	Links	MAP LINKS

Current FT Pro View

Thus, to produce a CC2 Pro map covering a small area of your world, just zoom into the area required and follow the steps above. To ensure that the same view can be exported during different FT Pro sessions be certain to use the Named View features available from the View menu.

Box

You can also check the JPEG and HTML options to simultaneously export your map to all three formats.

Export

FT Pro will generate map files to the specifications you have set, and an overview map depicting the entire world. As with multiple image exports, this process may take some time depending on the CC2 Pro export options set.

Importing Field Height from CC2 Pro maps

Planning and backing up Your CC2 Pro Map

Decide where you want your map to exist on the world. Note that all overlays are imported into FT in the __equirectangular projection__.

Back up your CC2 Pro map before making *any* changes.

CC2 Pro Map Preparation

Equirectanular Projection

Because of the equirectangular project, there will be some distortion in the polar regions for whole-world maps.

1   In CC2 Pro, modify your drawing so that each contour level is a single color with no border. If you used the map contour drawing tools, this requirement is already met.

2   Remove or hide any items from the map that are not contours.

Export from CC2 Pro

3   In CC2 Pro, Use **File**>>**Save As** to export this image as a BMP Bitmap file.

Reading an Overlay in FT Pro

4   In FT Pro, Use **Image Overlays**>>**Show Overlay Window** to bring up the overlay window.

5   Click **Add** to bring up the **Edit Image Overlay** Window.

6   Click **Import Color Image** and select the BMP file you saved from CC2 Pro.

Color

Repeat the step 10 for as many colors as you wish to convert.

7   Enter the top, left, right, and bottom edges of the map. For a whole-world image, use Top = -90, left = -180, right = 180, and bottom = 90 (BMP images are upside-down).

8   Click **OK** to show the overlay on the main window.

Associating colors and altitudes.

9   Use **Image Overlays**>>**Color to Altitude** conversion to bring up the **Color to Altitude** window.

10   Click the **Pick** button and select a __color__ on the overlay in the main window. The **Color to Altitude Correspondence** window will appear. Enter the altitude for this color and click **OK**. This information will appear in the **Color to Altitude** window.

Generating the altitudes.

8-bit Grayscale Bitmap

The bitmap should range from black (grayscale color value 0) for regions which are wholly water-filled, to white for regions that are wholly inland. Using only black and white is possible, which will result in fairly chunky coastlines which can later be edited within FT Pro for a nicer effect.

The image size should be twice as wide as it is high (in pixels), and its dimensions should be divisible by 4. As a suggested recommendation, an image size of 1024×512 works well.

You should also bear in mind that this process uses an equirectangular projection, so land distortions should be accounted for.

11   Click the Generate button on the **Color to Altitude** window to create altitudes at your current editing resolution.

12   On the **Image Overlays** window, select your overlay and click Hide to reveal the altitudes generated.

13   Importing maps using Selection Mask Files

This process can be used to import continental shapes from existing maps that have been drawn using CC2 Pro or a paint program. It is not as precise, in terms of contours, as the method detailed above, but it is much easier to use.

1   Create an __8-bit grayscale bitmap__ of your world.

2   Start FT Pro.

If you have the **Reload last world file on startup** preference option set, you may wish to start a new synthetic world before proceeding.

3 Change the **World Settings** 🌐 >> **Advanced** >> **Editing Setup** so that the size (shown in the **Custom edit box**) equals the width of your grayscale bitmap.

4 Uncheck the **Continental Shelves** box, and press **OK**.

5 Enter 5000 in the **Highest Peak** box, and -20000 for the **Lowest Depth**, then press OK.

6 Select **Tools menu** >> **Global Set** >> **Land Offset**, and use a value of -5000 to bring the land below the sea.

7 Select **Select menu** >> **Load Selection**, and choose the grayscale **bitmap** you have created for your world.

8 If desired, smooth the edges of the selection by using **Select menu** >> **Feather**.

A value of 1.0 or less will produce good results.

9 If additional land roughness is desired, select **Tools menu** >> **Global Set** >> **Land Roughness** with a value of 3 to 8.

10 Select **Tools menu** >> **Global Set** >> **Altitude**, with a value of 0.

Your continents will now be roughly at sea level.

11 Select **Tools menu** >> **Global Smooth**, using a value of 5 to eliminate some of the extremes of roughness in the landscape.

12 Raise the land to bring most of the continents above sea level.

13 Edit the world to place **mountain ranges** and other features.

Edit box

If you're using the recommended 1024×512 image size, selecting the **Large Editing Setup** will provide this. Otherwise, you may have to choose **Custom**, and manually enter the required value.

Bitmap

The bitmap will be loaded as a selection mask. You will now see your continents outlined on the world by selection boXEs.

Mountain Ranges

Using the **Tools menu >> Mound** function with **Min/Max** values of 0/3000, a **Gamma** of around 4, and **Replace Offset** unchecked, with mountain range areas sketched out using the **Select Freehand** tool 🔲 can produce some good mountain range effects.
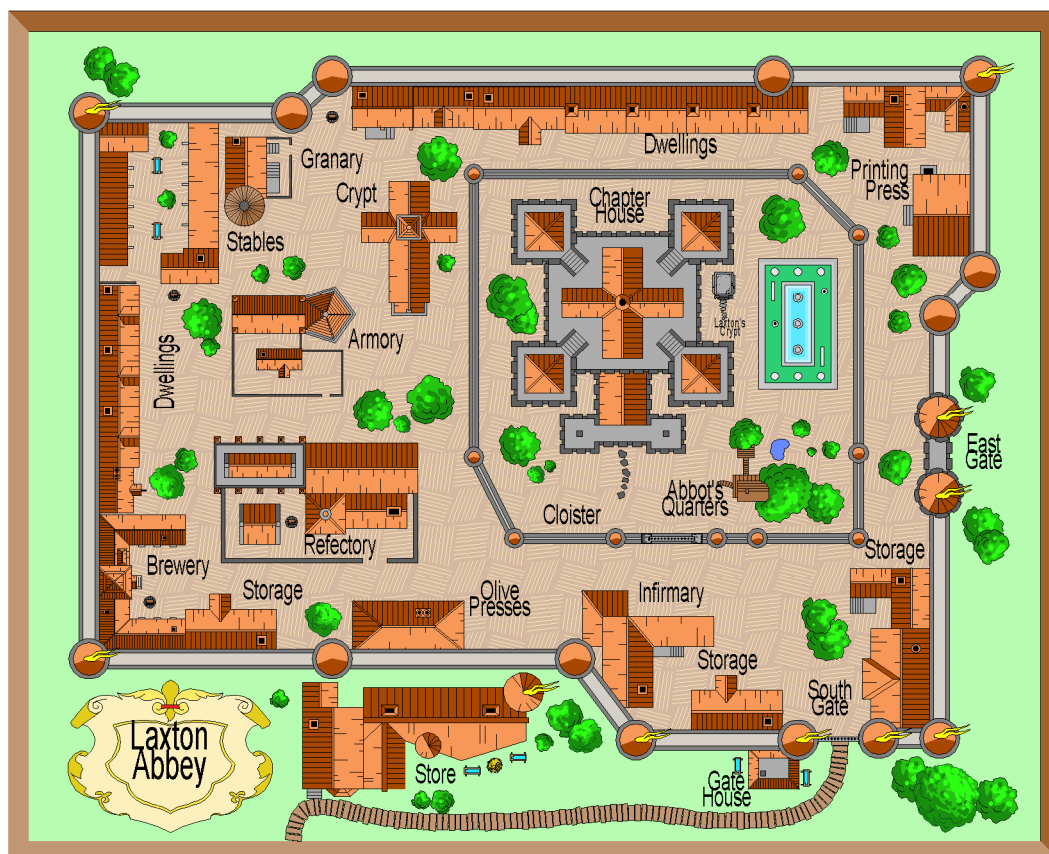
Laxton Abbey by Ross Henton

Laxton Abbey is available in the Profantasy Download Library.

Creating Worlds from Real World Data

As well as being able to create worlds from scratch, FT Pro has the ability to import **binary data files** that define sections of terrain. You will find examples of such files from the GTOPO30 real-world data sets that you can import into FT Pro to produce maps based on Earth.

To create a world from a binary file:

1   Select **File Menu** >> **New**.

You see the **Select World Type** dialog box.
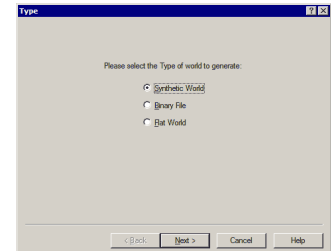
2   Check the **Binary File** radio button, then click on **Next**.

You see the first **Binary Data Wizard** dialog box.
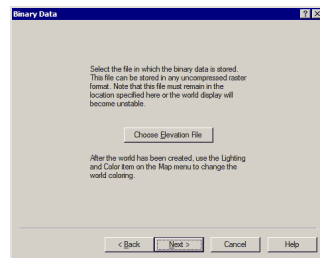
3   Click the **Choose Elevation File** button.

You see the **Binary Data Parameters** dialog box.
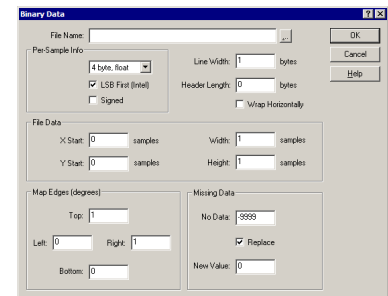
4   Click [...] to select the required file from a dialog box. **Select** the file **ETOPO5.bin** in the **Terrain Data** folder.

For the most part, the settings on this dialog box will be determined by the binary file selected.

5   Press **OK** to return to the Binary Data wizard.

6   Click **Next**.

A summary of the map to be generated will appear.
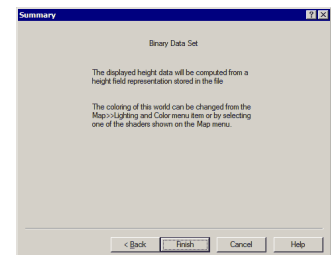
7   Click **Finish** to start generation.

FT Pro will **calculate** the new map, and display it in the main window.

Binary Data Files

Note that the binary file used must be present for as long as you intend to use the world file. FT Pro does not import the binary data into its own format, but rather uses the binary file for reference. Moving or deleting the binary file after saving a world created with it will result in the world file being unusable. This can be avoided by using the **Burn In To Surface** function, which is further detailed in this section.

Select

If the selected file has an associated description, you will be prompted as to whether you wish to use this or not.

Calculate

In most cases it is better to copy data files onto your hard drive before using them to make maps, as this improves the speed of FT Pro.

Burn In To Surface

The **Burn in to Surface** function takes the current world information and includes the data directly in the current FT Pro drawing. This removes FT Pro's reliance on binary data files. In effect, the binary data is converted into FT Pro's native format.

As a side effect, the **Burn To Surface** function removes the contribution of the fractal basis function, resulting in a smoother map. This makes the function useful for worlds that do not use binary files (e.g., when a surface has been roughened, using the **Burn To Surface** command will set the roughen channel to 1.0 (the default), and transfer all altitude adjustment to the land offset channel).

To use the **Burn In To Surface** function, select **Tools menu** >> **Burn In To Surface**. Since the function cannot be undone, FT Pro will prompt you to make sure you wish to proceed.
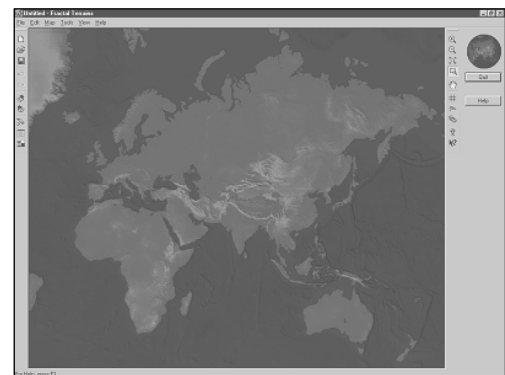
The images below show what can happen with the burn operation at differing editing resolutions.
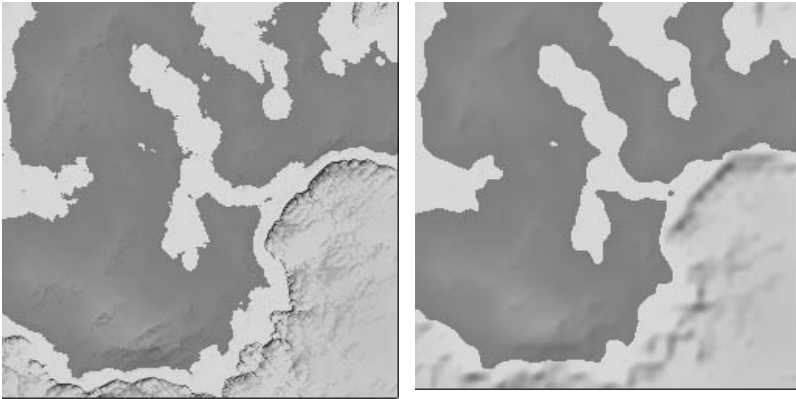
Original   Small (256)

Notice how the fine details are lost at small resolution.

Flat Worlds

If you want to manually draw land patterns, rather than allowing FT Pro to randomly generate them for you, you can create a new world that is a flat, featureless terrain. Using a flat world as a starting point, you can then use the editing tools to paint terrain features as you wish.

To start a new flat world:

1   On the **File menu, click New**.

    You see the Select World Type dialog box:

2   Check the **Flat World** radio button, and click on **Next**.

    You see summary of the world you are to produce.

3   Click on **Finish** to complete generation setup.

    FT Pro will calculate and draw the flat world.

4   On the **Tools menu, click Global Set** >> **Global Raise**, type **1000** and press **OK**.

    FT has raised the <u>height</u> all over the globe.

The world may now be edited as you see fit using FT's editing tools. See the ***Editing Your World*** tutorial on page 390 for guidelines.

Planar Worlds

If your idea of a flat world is not a featureless spherical world, but one defined on a plane, then FT Pro can work for you, but it takes a couple of extra mouse clicks:

1   Select **Map**>>**World Settings**.

    You see the **World Settings** property sheet.

2   Select the **Fractal Function** tab.

    You see the **Fractal Function** tab of the property sheet.

3   Check **Planar Function Evaluation** and then click **Apply**.

    FT Pro will calculate and draw the flat world.

4   On the **Tools** menu, click **Global Set** >> **Global Raise**, type **1000** and press **OK**.

    FT Pro has raised the height all over the globe.

Height

Because of the way the raise and lower tools work, it's often easier to start with a raised surface and use the lower tools to make seas than vice versa.

Image Overlays

What are overlays

FT Pro provides various physical quantities for your worlds (altitude, temperature, rainfall, climate), but has provided no easy way to work with user-defined quantities such as political areas. Image overlays are user-definable images that can be placed anywhere on the surface and drawn into using simple tools. FT Pro now supports an arbitrary number of image overlays (subject to your machine's memory limitations). These overlays can be placed on a small area of the world instead of the whole world as with the regular editing tools. Users can paint into these layers using basic drawing tools.

Transparency

In addition to regular colors, Image Overlays allow you to define transparency on a per-overlay basis. This transparency allows for multiple overlay layers to be visible in the same spot at the same time.

The Image Overlay Window

Image Overlays are created and controlled from the Image Overlays window. The main portion of the window contains a listing of the current-defined overlays and their visibility status. Double-clicking on an overlay entry brings up the Image Overlay edit dialog (see *Creating an Overlay*).
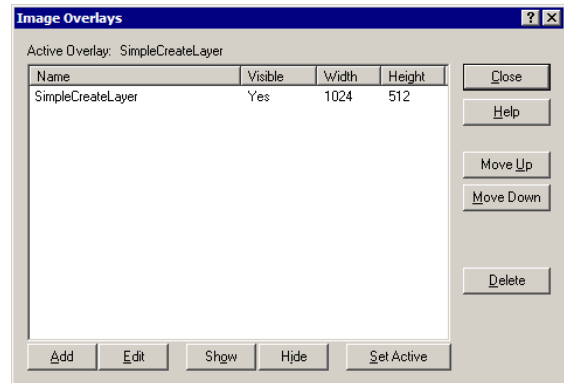
Overlays are drawn in the order shown in the list. The first entry in the list is drawn first, making the last entry shown in the list the topmost overlay drawn on the display.

Creating an Overlay

Overlays are created and edited using the same dialog box.

Visible indicates if the overlay can be seen.

Name is the name of the overlay shown in the main overlay window.

Show if indicates what parts of the overlay should be shown. The options are **Always**, which always shows all parts of the overlay; **Land**, which shows only those portions of the overlay which are above water level; and **Sea**, which shows only those portions of the overlay which are below water level. **Land** is useful for drawing political boundaries, because it allows the color to exactly match the

The slider controls the transparency of the overlay.

The **Size** group (**Width** and **Height**) controls the editing resolution of the overlay, which is the fineness of the details allowed.

The **Overlay World Edges** group controls where on the world the overlay is placed.

Import Color Image reads an image file into the overlay. The size of this image will replace the current overlay size.

Import Opacity Image will add the intensity of an image into the transparency channel. Unlike the Import Color Image option, this option stretches the image across the currently defined overlay.

Creating an overlay from a disk image

1   Use **Image Overlays**>>**Show Overlay** Window to show the **Image Overlays** window

2   Click **Add** to create a new overlay.

3   Click the **Import Color Image** button to select a BMP file to use for the overlay.

4   Adjust the **Overlay World Edges** to place the image where you'd like it to go. You may adjust the transparency of the image using the transparency slider.

5   Click **OK** to show the image.

Drawing and Erasing on an Overlay

Drawing on an overlay can be accomplished via brush or by filling a selection. Brushes draw using the color set via **Image Overlays**>>**Set Overlay Drawing Color**.

Filling the current selection operates at the current selection resolution (the system editing resolution for altitude editing). This potential mismatch of resolutions can result in imprecise fills and a coarse appearance to the fill. Selection filling draws using the color set **via Image Overlays**>>**Set Overlay Drawing Color**.To create an overlay from a disk image:

1   On the **Image Overlays** menu, click **Show Overlay Window**.

You see the **Image Overlays** window.

2   Click the **Add** button.

You see the **Edit Image Overlay** dialog.

3   Click the **Import Color Image** button.

You see the **Open File** dialog.

4   Select a Windows Bitmap image file to use for the overlay then click **OK**.

FT Pro will update the settings in the dialog to match those of the image.

5   Set the **Top**, **Left**, **Right**, and **Bottom** data values to indicate where the image overlay should go on your world. You may adjust the transparency of the image using the opacity slider. Click **OK**.

FT Pro will show your overlay on the main world image and the overlay will be listed in the Image Overlays window.
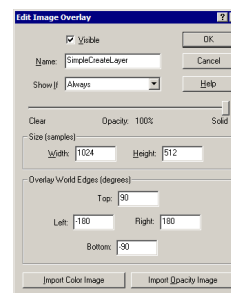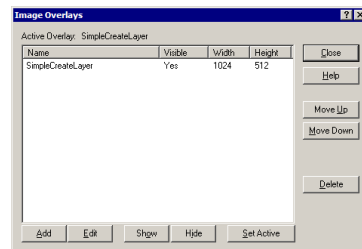
Adding a cloud image

Image Overlays can have transparency images as well as regular color images. We will use an image as the transparency portion of a solid white overlay to get the effect of clouds partially obscuring the world. Suitable cloud images can be downloaded from http://earthobservatory.nasa.gov/Newsroom/BlueMarble/ for use with FT Pro.

1   Use **Image Overlays**>>**Show Overlay Window** to show the **Image Overlays** window

2   Click **Add** to create a new overlay. Set a size of 1024 width and 512 height.

3   Click **OK** to show the overlay.

4 Select the newly added overlay and click the **Set Active** button to select the overlay as the active one for drawing.

5 Use Image Overlays>>Set Overlay Drawing Color to bring up the color picker.

6 Pick white (color 15) and click **OK**.

7 Use **Select**>>**All** to select the whole world.

8 Use Image Overlays>>Fill Selection With Drawing Color to fill the overlay with solid white.

BMP File

This bitmap will be converted to grayscale and resized to fit the image before being used as the transparency channel of the overlay.

9 Double-click the overlay in the **Image Overlays** window to bring up the **Image Overlays edit** dialog.

10 Click the **Import Transparency Image** button to select a **BMP file** to use for the overlay.

11 Click **OK** to accept the new transparency data.

The transparency data is added to your overlay. You should see clouds.

A Gaia-shaded worlds with clouds as described above.
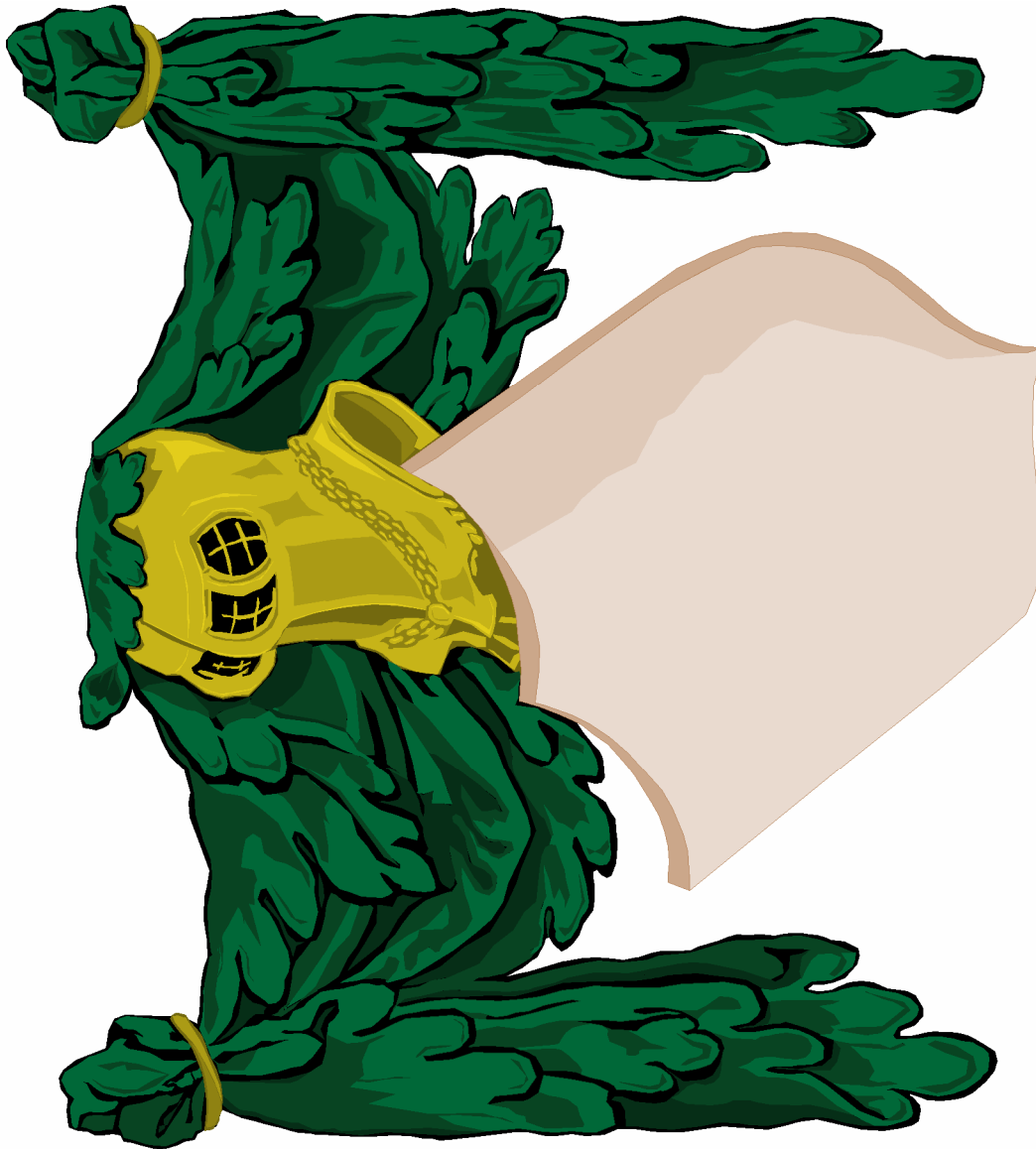
Draped Cartouche by Allyn Bowker

This is a close-up detail view of a draped cartouche made using basic CC2 Pro drawing techniques and converted into a symbol.

A shaded varicolor version of this cartouche is available in **Symbols\Tome\AB-DrapedCartouche.fsc**

Adding Rivers

Water Flow

Due to the way the process is defined, a river will stop flowing when it hits water, so a small lake can absorb the entire output of a large river. In that case, it's best to fill in the small lake and rerun the rivers tool.

Zoom In

This behavior can be controlled on the **Edit>>Preferences** dialog via the **Top-Level River Importance** value. The default value of 0.001 will show only the rivers with the largest flow at the largest zoom level. Setting this value to 100 will always show all rivers. Always showing all of the rivers may result in a drawing slowdown if many rivers have been computed, however.

River

FT has a habit of displaying perfectly straight segments of lines from about –180 to –90 longitude on the map when shown in the equirectangular projection. Using a different projection or ensuring that the –180 longitude line is off the display edge will make these lines disappear.

The **Rivers** tool in FT Pro computes the directions and amounts of **water flow** in the world and then places rivers over the areas of highest flow.

Once a set of rivers have been computed, these rivers will be stored internally as vectors. To reduce the processing load during display, FT Pro's default display operation is to reduce the number of rivers actually shown onscreen depending on the zoom level. Only the rivers with the highest flow will be shown at the highest zoom level. As you **zoom in**, more rivers will be shown. This behavior can be controlled on the **Edit>>Preferences** dialog via the **Top-Level River Importance** value. The default value of 0.001 will show only the rivers with the largest flow at the largest zoom level. Setting this value to 100 will always show all rivers. Always showing all of the rivers may result in a drawing slowdown if many rivers have been computed, however.
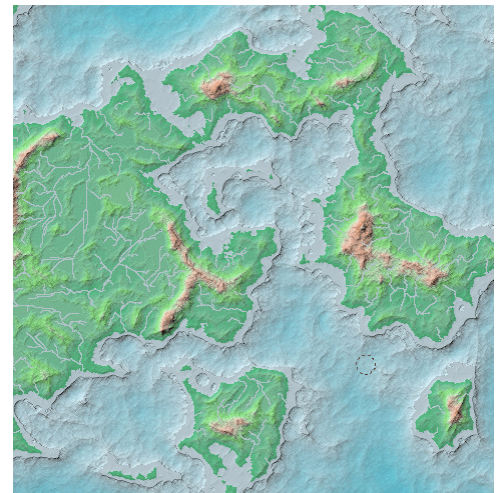
The vector **river** overlay may be shown and hidden using the **Tools>>Rivers>>Show River Overlay** and **Tools>>Rivers>>Hide River Overlay** commands.

The vector river overlay may be removed entirely by using the **Tools>>Rivers>>Clear River Overlay**.

Filling Basins

Not all rivers flow to the sea, but the vast majority do. To ensure that rivers will end up flowing to the sea in FT Pro, it is important to fill in the low spots that would prevent those rivers from getting to the ocean (they would get stuck in the low spots because FT Pro will not fill in the low spots with lakes unless you perform that step yourself.

Select **Tools** >> **Actions** >> **Fill Basins in Offset**.

> You see a progress dialog while FT Pro computes the world altitudes and then fills in the low spots that are not already occupied with water. If you would rather fill these low spots with water than land, use **Tools>>Actions>>Fill Basins as Lakes** instead.

Calculation resolution

FT Pro runs rivers on a discrete grid at a defined resolution. Although FT Pro can calculate your world altitudes to arbitrary resolution, it cannot run rivers at those same resolutions due to space and time constraints (not everyone has tens of gigabytes of memory and weeks of processing time to spare). The **River Definition Resolution** allows you to select the desired output resolution of the rivers.

Due to the nature of the discrete sampling of the world, rivers will run slightly differently depending on the chosen resolution. The image below shows an example of this difference for each of the default resolutions:

Notice how the higher resolution rivers give a better-looking pattern, while the lowest
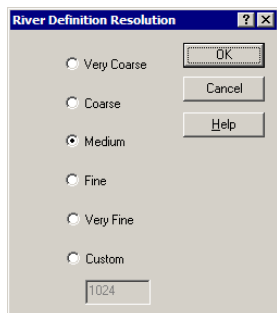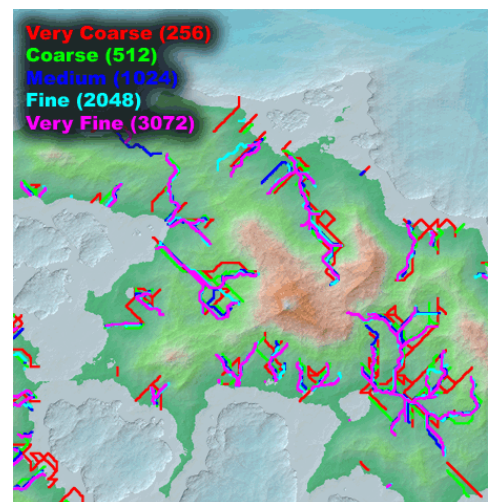
resolution rivers don't look as good. FT Pro extends rivers one sample out into rivers and bodies of water, and the effect coarse rivers is noticeable. Use the highest resolution your patience and machine will allow.

Vector Rivers

After the initial computations, the system will display the window below to let you finalize the river settings:

FT Pro has a habit of displaying perfectly straight segments of lines from about – 180 to –90 longitude on the map when shown in the equirectangular projection. Using a different projection or ensuring that the –180 longitude line is off the display edge will make these lines disappear.

River computation can be slow and takes a large amount of memory. If you have a slower computer or very limited memory resources then the process can take a very long time. If the river routing appears to have stopped for a very long time, it is possible that the system slowed down. Press **Cancel** on the progress dialog will stop the attempts to route rivers. Stopping the computation will reduce the number of river segments computed. Reduce the computation resolution and try again.

Adding the rivers

1   Select Tools >> Rivers >> Find Rivers.

You see the **River Definition Resolution** dialog.

2   Select the river resolution your desire then click **OK**.

Higher resolutions take longer to compute and create bigger output files, but can look better. FT Pro will show the **Operation Progress** dialog while computing the flows and then show you the **Select River Length** dialog.

3   Move the slider to select the desired river lengths then click **OK**.

FT Pro will show the rivers as you move the slider and will compute the vector rivers and show them on your map when you click **OK**.
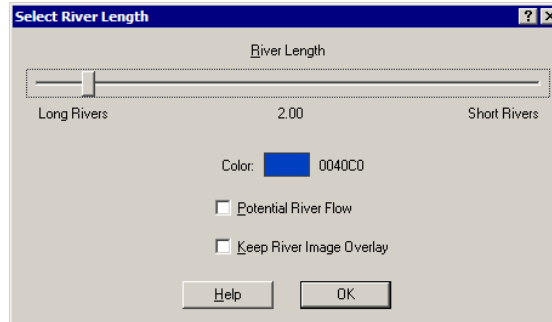
Vector River settings

- The **River Length** slider controls the length of rivers. This slider actually controls the threshold level of the flow map, so use the slider to give rivers the length you desire while keeping large areas of solid color from appearing on the map.

- The **Color** block controls the color of the inserted rivers.

- The **Potential River Flow** checkbox controls whether to use FT Pro's rainfall model to compute river flow (if checked) or whether to use a constant rainfall at every world point (if unchecked). Potential river flow can give longer or shorter rivers in various parts of the world depending on local rainfall conditions.

- The **Keep River Image Overlay** checkbox indicates if the onscreen image overlay shown in this stage will be kept as part of the world. The raster image overlay be discarded and only vector information will be kept if this box is unchecked.

- The **OK** button will accept your current river lengths and start computing the vector rivers.

FRACTAL TERRAINS PRO

Creating a World from Scratch

This brief **tutorial** is designed for FT Pro users who wish to create an Earth-like world for use in their campaign. The tutorial is divided into three parts: setting up FT Pro parameters to generate a workable world map, tweaking those results within FT Pro, and, finally, optimizing FT Pro's export tools to generate suitable maps for further modification within **CC2 Pro**.

Generating the World with *Fractal Terrains Pro*

The purpose of Fractal Terrains Pro is to create entire worlds easily and quickly. However, FT Pro does not always produce output that captures the "look and feel" you may desire for the world you've envisioned. Many first-time users expect FT Pro to generate **Earth-like worlds** right out of the box, and while FT Pro is certainly up to the task, it does require some setting adjustment from you.

While no world randomly created with FT Pro can match exactly our own Earth, we can approach earth-like features with *Fractal Terrains Pro.* The steps below provide a good starting point.

1   Create a new world as outlined in the section **Your First World** (see page 370) of this manual.

2   Depending on your settings, the world thus created may or may not appear very Earth-like. To push the world toward a more Earth-like look and feel, click **World Settings** 🔲 to show the **World Settings** property sheet.

3   The three settings you want to concentrate on are located in the **Primary** tab of the **World Settings** property sheet. They are **Roughness**, **Percent Sea**, and **Land Size**. I suggest the following values:

> Roughness: **0.75**
>
> Percent Sea: **50**
>
> Land Size: **2.44**

4   With the exception of the **World Seed** value, the remaining settings in the **World Settings** dialog may be kept.

5   Most of the settings on the rest of the property sheet may be left as they are; but depending on the speed and memory capacity of your PC, you may wish to alter the size of your editing setup**,** which affects the file size of your world and the FT Pro's rendering time for map redraws. The editing settings can be found on the **Editing** tab of the **World Settings** property sheet. I recommend the following:
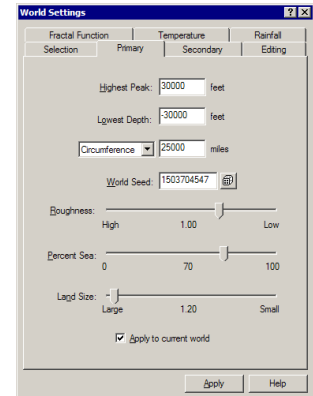
PC Processor Speed	PC RAM (in megabytes)	Editing Setup Setting
Less than 1GHz	Less than 256	Small
Between 1GHz and 2GHz	Between 256 and 512	Medium
2GHz or more	512 or more	Large

6   After you've made your **Editing Setup** choice, click **OK** to return to the **World Settings** dialog box.

7   In the **World Settings** dialog box, click **Apply** to set the world parameters. This will redraw the world using the settings you've just entered.

8 With these settings in place, click **Next World** 🌎 a few times to cycle through various **world layouts**.

Using the parameters above (with a world seed of 198623990, the Miller Cylindrical projection, and the Jhendor color scheme), I've chosen the following world:
There are a few landmasses I want to edit and a few islands I want to raise, but this world has a good look and feel—plenty of well defined continents, large seas, inland bodies of water, and even a good spot for an island archipelago.

9 When FT Pro has created the right world for your campaign, save the file.

You're now ready to use FT Pro's editing commands to customize the world.

Tweaking the FT Pro Output

There are two phases to tweaking the output that FT Pro creates: altering the landmasses, and then the climate. The former is accomplished by raising or lowering elevation; the latter by adjusting climate factors like rainfall and temperature. We'll start by making a few changes to the existing landmasses.

The first thing I want to do is break apart some of the landmasses to establish clearly separated continents. To do so, I'll use **Lower** ⛰ to sink some of the land bridges into the sea. I'd also like to create a small island archipelago in a tropical region—this area will serve as a setting for a future pirate campaign. Raising islands requires the **Raise** tool (p. 391), which I'll use to "paint" over a shallow sea area.

Before painting new elevations with the **Raise** and **Lower** tools, verify the current **Tool Settings** via the **Tools|Settings** menu command. Note the value in the **Raise/Lower** field; this is the increment by which elevation is changed every time you apply the **Raise** or **Lower** tool. I recommend adjusting this to a small and irregular number, which allows you to add or subtract altitude a little at a time and also ensures that the resulting land heights do not appear too artificial. In my **Tool Settings** dialog box, I entered a **Raise/Lower** value of 164.042 feet.

After my altitude adjustments, my world map looks like this:

The next task in our world tweaking is to check the climate settings to verify that the output contains the climate types desired (for example, if you have a desert-based campaign in mind, you need to make sure your world contains a desert). The climate view is accessed via the **Map|Show Climate** menu command. Here is the climate view of the our world (if you've adjusted the climate colors on your system (p.374), the colors you see may not match the colors shown here):

The predominant climate types appear to be Tundra, Alpine forests, Temperate forests, and a scattering of Tropical Deciduous forest. I'd

Adjustments

One last recommendation: use the Raise/Lower tools conservatively, especially if you have a slow PC that takes time to redraw. This is especially true when lowering elevations along coastal areas—if you gouge too deeply, you'll remove continental shelves, and your world's beaches will abut deep ocean depths with no realistic gradient or slope. You can always "fix" elevation mistakes with the **Raise/Lower** tools, but after too many attempts, the world may begin to take a very different shape from what FT Pro originally created. The sensible practice is to raise or lower elevation bit by bit, waiting for results to appear before continuing.

like to add some desert and grassland areas, and, if there's room, add some more tropical jungle.

While FT Pro provides a climate painting tool (p. 392) for changing climate, you may wish to apply the more natural method of climate change of adjusting an area's rainfall or temperature. This makes use of FT Pro's built-in climate modeling rules and also "blends" different climates with realistic borders and gradations. With this in mind, we'll alter rainfall (leaving temperature ranges as FT Pro originally created them) by applying the Wetter/Drier tools (p. 391) to specific areas of the map. The anticipated result is that regional climate will change as **rainfall** levels fluctuate.

Climate depends largely on temperature and rainfall, both of which are affected by altitude. Low elevations are generally warmer and better suited to retaining moisture than high elevations, which are colder and hold very little moisture. Wind circulation keeps weather moving by pushing pressure cells across land and water. For the most part, these cells circulate in a clockwise direction north of the equator; south of the equator, the opposite is true, and they circulate in an anti-clockwise direction.

Winds that travel over water tend to pick up moisture, while winds that travel over land eventually lose any moisture they were carrying. Thus, a coastal area in the path of a wind current is likely to receive more rainfall than an area further inland, though an inland area adjacent to a large lake could conceivably receive a large amount of rain. Lacking large inland bodies of water, however, deep inland areas are likely to be drier than coastal regions, especially if land elevations increase.

In this respect, high hills and mountains affect rainfall. When the paths of moisture-laden currents intersect with high-elevation landforms, those currents drop their moisture in the form of precipitation—the colder air causes latent moisture to condense and fall as rain (or snow, depending on temperature). On the leeward side of the mountain, however, is found a "rain shadow," an arid region that receives little or no annual precipitation.

Reflecting the patterns of prevailing wind currents on the FT Pro world map helps determine where landforms like deserts, grasslands, tropical forests, deciduous forests, etc. are likely to occur. To simplify the process, imagine a single, predominant current for each large body of water and each large landmass. Imagine further that the path of each current circumnavigates the rough outline of its respective body of water or landmass. Recalling that currents over water carry moisture and deliver rain while currents over land lose moisture and supply little or no precipitation, you can get a rough idea of where to place certain climate types on the FT Pro map.

To illustrate this, the FT Pro map below shows the paths of my predominant currents. Arrows indicate the direction of flow (clockwise in the north and anti-clockwise in the south); red shows land currents and blue shows water currents; the black line represents the equator.

Applying these rules to the world I've created might generate something resembling this model.

Rainfall

Before adjusting rainfall levels, however, I need to consider some general weather patterns for my world. To provide earth-like results, these considerations need not involve hard science or exact data, but they should be based on the meteorological trends of our own planet. Fortunately, there are a few rules of thumb we can apply, and, while these rules are hardly without exception in the real world, they form enough of a consistent basis to help you place climate types realistically.

From this high-level zoomed out view, the changes may seem slight, but you should note the addition of much desert, chaparral, and grassland area, as well as slightly increased rain forest where appropriate. At this point, you should save your map once more. The next step is to adjust FT Pro's output settings in preparation for export to CC2 Pro.

Exporting to CC2 Pro

With your map tweaked to your satisfaction, it's time to export your map into CC2 Pro. There are two factors within FT Pro that will affect the quality of output--the current FT Pro view of the map and the detail level of the export.

When an FT Pro map is exported to CC2 Pro using the **File|Save CC2 Pro File** menu command, the output consists of the current view. This is a highly advantageous feature of FT Pro, because it saves you a great deal of work when creating **detailed maps** of your campaign world. You can use the **Save CC2 File** command to create a detailed CC2 Pro map of whatever FT Pro view you like. Now, detail maps are better created by zooming in to specific areas of your FT Pro map and then exporting to CC2 Pro.

For this portion of the tutorial, we'll create a CC2 Pro map of a detailed campaign area. Again, depending on what changes you made in the previous steps, your results may not match precisely, but the steps below should get you on track:

1   Zoom into an area of the FT Pro map that you would like to detail. Once you find a view you like, I suggest that you save the current view with the **View|Add View** menu command.

2   Use the **File|Save CC2 File** menu command to open the **CC2 Export** dialog box.

3   Click **Create** to generate a new export setting.

4   In the **Introduction** dialog box, select the **Altitude Contours** checkbox, and the **Basic** option radio button to dictate how contours are exported.

5   Click **Next** to continue.

6   In the **Basic Contour Settings** dialog box, uncheck the **Draw Contour Outline** checkbox. Leave the **Draw Coastline Outline** checkbox checked, but click on the black square next to **Outline Color** to select colour 68 for your coastlines.

7   Click **Next** to continue.

8   In the **Detail Level** dialog, you may specify the granularity displayed in your output CC2 Pro map. This aspect of the export is noted

most strongly in the rendering of coastlines and small islands—the higher the **detail** value, the rougher the coasts and the more tiny islands included in the output.

Detail

As the warning in the manual states, however, higher detail settings can create very large CC2 Pro files with very long redraw times. My recommendation is to start at 256 or 512 and gauge your PC's results from there. If you are satisfied with the combination of detail, file size, and redraw speed, you may wish to try a higher setting (e.g., 640 or 768). I also suggest that you check the Multipoly Each Contour Level and Altitude Relative to Water Level options.

9   Click **Next** to continue

10   In the **Other Items** dialog box, you may select additional accessories or features that FT Pro will add to your CC2 Pro map. I suggest these:

11   Click **Finish** to continue. You'll be prompted to enter a name for this export setting; perhaps "Tutorial" is appropriate (you can always edit or delete it later).

12   You are returned to the **CC2 Export** dialog box. In the **Export Settings** options, select the "Tutorial" setting you just saved, then click on the **Export World** button.
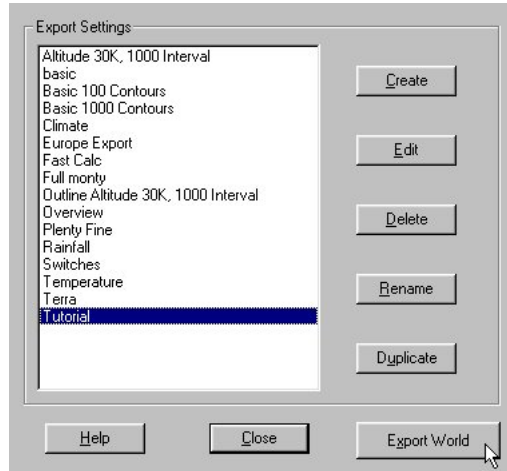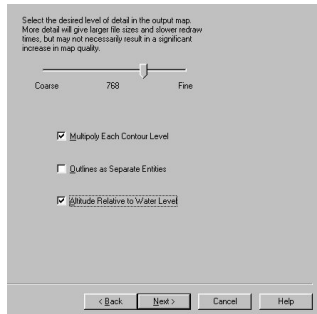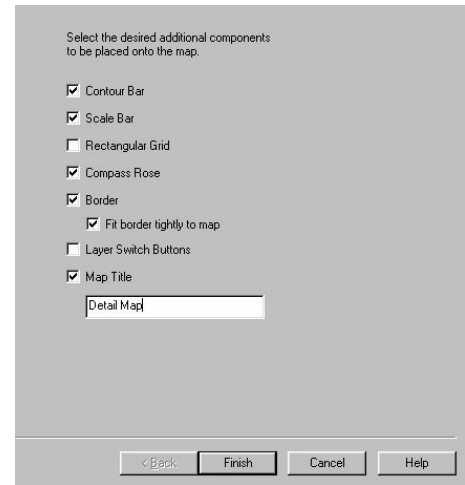
13   You are prompted to select a destination directory and provide a filename for the exported map. Name the map "tutorial.fcw" then click on the **Save** button. *Fractal Terrains Pro* begins the export process; depending on your PC's speed and memory, and the precise level of detail you specified above, this could take up to several minutes to complete.

14   When the export is complete, you're returned to the **CC2 Export** dialog box. Click on the **Close** button and launch CC2 Pro to open the tutorial.fcw map you saved in Step 13, above.

Output

A tremendously helpful timesaver offered by FT Pro is the automatic creation of a scale bar sized specifically for the map created. For example, the scale bar in the first display is 500 miles long; in the second detail it is only 100 miles long.

Note also the altitude contour bar on the right has far fewer contours than the first detail view. If you wanted to achieve more granularity, you could reduce the Contour Interval value specified in Ste p 6 above. While this would not produce contour colours beyond those found in FT Pro, it would increase the step increment of the contour bar exported to CC2 Pro.

15   By default CC2 Pro saves its files in compressed format. FT Pro uses uncompressed files for easy of writing. If you have this option set (**Tools** menu >> **Options** >> **FCW, FSC, FCT**) the file size will be reduced when you save the map (my tutorial.fcw map opened at 2,247KB but after a quick save command, the file size was reduced to 1,385KB).

For illustrative purposes only, let's see how adept FT Pro is at creating detail maps by returning to the *Fractal Terrains Pro* map and zooming into a detail

view of the detail view you saved in Step 1, above. Follow all the steps as put forth above, using the Tutorial export setting to create your CC2 Pro output. Here's what it looks like on my PC:

Be aware that the colours included in the CC2 Pro map match whatever scheme present in the FT Pro view from which the map was exported. Therefore, if you're using the Jhendor colour scheme for altitude, those colours will manifest in the CC2 Pro output. If you change the climate colours, for
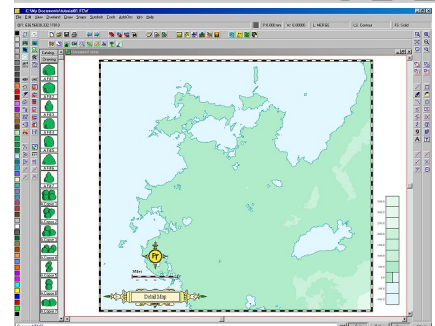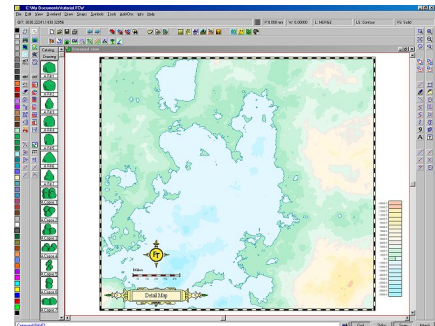
example, and export a Climate Map (check **Climate Contours** in Step 4, above), your changes will present in your export.

Regardless, your **CC2 Pro** map is ready to edit

Conclusion

This concludes the FT Pro tutorial on creating earth-like worlds for further development in **CC2 Pro**. It is hoped that the data above have helped get you on your way to creating your own, quasi-realistic worlds for your own campaigns. Despite anything found above, though, the best advice for getting the most out of FT Pro and **CC2 Pro** is to experiment, tweak, and explore with the various options available to find the world output perfect for you.

Scale in Feet

5   10   15   20   25

Campaign Dioramas

Ironwulf's Rustic Home
(House 03 20' x 30')

Drawn by: Steve Sorton

http://members.xoom.com/
IRONWULF/index.htm

©1999 Steve Sorton

One Square = 5 Feet

Ironwulf's Rustic House by Steve Sorton

Rustic House is a Dioramas drawing that is available in the Profantasy Download Library.

FT Pro Reference

Within the tutorials, you have been introduced to all of FT Pro's component parts. In this chapter, we shall discuss the more advanced features of the package, and we'll explore in detail some of FT Pro's features to which you have already been introduced.

Theory

FT Pro does a lot of very peculiar things internally and it may help the understanding of what the tools do if you have an understanding of what the program does.

The Elements

A map is composed of a number of elements that the user normally doesn't think about. A user's view of the world is that it has an altitude, a temperature, a rainfall value, and a climate derived from the two. The program uses a number of **other values** in its work, however.

Fractal basis function

The heart of FT Pro is the fractal basis function – **_fractal()_**. In essence, this is a mathematical entity evaluated in 3D space (the surface of the sphere).

The magnitude of the function is used as the basic altitude. FT Pro includes two different basis functions: Ridged Multifractal and Brownian Noise. They look somewhat different in terms of their final output, but they are treated in the same manner internally.

When a new world is generated, FT Pro evaluates the fractal basis function over the sphere. From the results of this calculation, it figures out what the **minimum and maximum values** are, as well as scale and offset factors required to get the desired percentage of water and min/max values.

Because the initial surface evaluation is rather coarse, it is possible that true min/max values won't be found and the surface can exceed the defined min/max values. The derived scaling and offset values (**_fsea_** and **_fscale_**) are used to convert the raw basis function value (typically in the range of 0.2 to 1.5 for the Ridged Multi-fractal model) into the user-defined min/max range.

Offsets

The land **Raise/Lower** tools work directly on the user-defined offset value. The values are painted directly into the offset map. One simple addition, and that's all there is to it.

Scaling

The land **Roughen/Smooth** tools work on the user-defined scaling value. The values are painted directly into the offset map. One final multiplication is all it contributes. The roughening effect comes about because it is scaling the **fractal basis function**.

Continental Shelves

The continental shelves are an exponential post-process applied to the altitude values. The raw altitude gets offset downward by the amount of the continental shelf level, and then an **exponent** of approximately 2 (or 0.5 in the case of terrain below the shelf level) is applied. After re-scaling to the correct min/max values, the final value is ready for the user-defined offset and scale.

Water Level

The **Water Level** tool works together with the altitude calculation to determine where the water is in the world. If the water level at a given point is higher than the altitude, the coloration will use the water rules. Otherwise it will use the land rules. The default water level is 0.0, but it can be locally changed to get lakes or dry areas. The user tools simply **paint values** into the map.

Other Values

For instance, the altitude is composed of many different components working together (the fractal basis function, internal scaling and offset factors, user-defined scaling and offset factors, and continental shelves) to get the final altitude value at a point. The temperature and rainfall similarly have user-defined scaling factors and offsets, as well as a fractal basis function.

Minimum and Maximum Values

All the user ever sees of this is the min/max values, percentage sea slider, and choice of basis function.

Fractal Basis Function

Unfortunately, this can also result in very high altitudes - it can create a world with interesting contours that are just a bit too high. Just set the scaling factor to values less than 1, and the mountains will drop.

Exponent

The location of the exponent has some consequences. Offsetting the land doesn't change the presence of the continental shelf or keep it at a constant depth underwater. It would have to come after the user adjustments to do that. It also causes the scaling to be just a hair off, which results in dramatic shifts in the coastlines. Setting the level to 0 will preserve the coastlines at the cost of having very steep ocean drop offs.

Paint Values

To ensure that painted water levels are properly represented during CC2 Pro export, the Altitudes relative to Water Level checkbox must be set in the CC2 Export Detail Level settings page.

Rainfall

Rainfall is computed according to the following **functions**:

$$rain = |fBm(lat,lon)| \cdot random + rbase$$

$$rain = rain \cdot \frac{temperature(lat,lon) + 30}{60}$$

$$rain = rain + \frac{altitude(lat,lon)}{1000} + uvalue(lat,lon)$$

Temperature

Temperature is computed according to the following **functions**:

$$temp_1 = 374 \cdot greenhouse \cdot (1 - albedo) \cdot \sqrt[4]{light}$$

$$temp_2 = temp_1 - 0.8 \cdot tscale + tscale \cdot insolation(axistilt,lat)$$

$$temp_3 = temp_2 - 0.006491 \cdot altitude(lat,lon)$$

$$temp = temp_3 + random * fBm(lat,lon)$$

Climate

Climate is computed directly from rainfall and temperature according to the following table:

Nothing fancy or peculiar, just a straight table lookup.

Climate Considerations & Descriptions

Bare Rock: This climate type is self-descriptive. Very little in the way of vegetation exists in these regions, other than hardy low-level plants, lichens, and so forth.

Boreal: Cold forests, usually of spruce and fir. Standing surface water is common in such regions, and bogs form in areas of saturation.

Chaparral: Low, scrubby brush and grassland. Similar to the hilly regions of California, and certain areas of Australia.

Desert: Regions which see very little annual precipitation. It is low rainfall, not temperature, that defines desert - desert areas on Earth are as diverse as the frozen wastes of Antarctica to the sandy expanses of the Sahara. Because FT Pro's rainfall model does not take into account factors such as weather patterns when computing rainfall, deserts will appear rarely within generated worlds. As such, if desert regions are required, they must usually be painted on by the user.

Rainfall Functions

random is Random from the rainfall model

rbase is the Base value

uvalue() is the user-defined rainfall value at that point

fBm is the basic Brownian Noise fractal type

Temperature Functions

temp is the final temperature in Kelvin

greenhouse, **albedo**, **light**, and **axistilt** are the values entered by the user in the temperature model

tscale is the same as Variance

random is the Random model value

fBm is one of those pesky fractal basis functions again

Grassland: Similar to the North American Great Plains - expanses of grassland with little in the way of large vegetation except along river courses etc. Annual rainfall is not high enough to support forests and so forth.

Hills & Mountains: Regions of altitude variance; self-explanatory.

Ice: Ice caps and so forth. Similar to the regional ice coverage of the Arctic and Antarctic.

Savannah: Tropical grassland, similar to that found within the African plains.

Temperate Forest: Forestland of a type commonly found across North America and Europe. They may be deciduous, evergreen, or of mixed composition.

Tropical Deciduous Forest: Similar to the coastal forests of South America, marked by large annual rainfalls interspersed with dry seasons, at a relatively constant temperature.

Tropical Evergreen Forest: Similar to the rain forests of equatorial Africa and the Amazon basin. Consistently high rainfall levels and little temperature fluctuation.

Tundra: Treeless areas with scattered, low-lying vegetation. Tundra freezes hard during winter, and is subject to permafrost for much of the rest of the year.

Southern March by Allyn Bowker

Instructions to duplicate the techniques used to draw **Southern March** can be found in Forgotten Realms® on page 104.

Southern March is available in the Profantasy Download Library.

Shawnee Glacier

High Desert

The Wastelands

The Badlands

Forbidding Hills

Gila of Yebbas

barrows

watchtower

Yebba Oasis

Ye Dead Peaks

Yebba Pass

Hell's Gate

The Woods

Hills of Noddendoddy

Top of the World

Keyhole Pass

Haunted Glenn

West Gate

Ponkapaug Lake

Langley Keep

Langley Slopes

Misty Moors

Blaurg Mtn

Blaurg

Peaceful Wood

Hills of Lost Hearts

Front Ridge

Coconino Marsh

Labyrinth Forest

Patia

Marlboro Keep

Weland Gorge

Weland Tower

Weland

Blazo

Scudder's Brother's Woods

Scudder's Woods

barrows

Dougton

Ignatz

Casper

Blue Hills

Coconino Creek

Northy River

Day River

Moonwood

waystation

Fia

Palgard

Dooley's Trace

Yebbat River

Ponkapaug Br.

witch's cave

No Man's Land

Pine Valley

Herbie's Bad

Timber Creek

Great Pine Barrens

Black River

Last Chance

Granite Mtn

The Cedars

Ashville

henge

Black Range

Back Ridge

Sword Point

Parson's Gate

Parson's Trace

Hidden Valley

Cedars Peak

Dark Forest

Forgotten Wood

towered hills

watchtower

barrows

South Sea

Barnstable Coast

The Southern March

100 Miles

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Scripts

FT Pro supports limited scripting capability. Scripts are **text files** that describe a set of operations that FT Pro will perform. These operations are fairly simple, being primarily limited to such operations as selection, adding, subtracting, smoothing, and some simple mound-type operations. The following file describes the operations supported and provides some examples of scripts. Operations are shown in bold. Items in rectangular brackets indicate that only one of the listed options can be specified, while items in italics indicate that a number or text literal should be used.

To run a script, select **Tools** >> **Actions** >> **Run Script**.

Script Commands

Tool Force [Offset|Scale|Rainfall|Temperature|Prescale] *value*

sets the value of the indicated layer to the value given.

Tool Fill_basins

fills the basins in the surface in the offset channel at the current editing resolution.

Tool Fill_lakes

fills the basins in the surface in the water channel at the current editing resolution.

Tool Raise [Offset|Scale|Rainfall|Temperature|Prescale] *value min max*

raises the value of the indicated layer to the value given. only selected areas are affected. min and max are the minimum and maximum values that are allowed in the result. these values are in the native units for the layer.

Tool Lower [Offset|Scale|Rainfall|Temperature|Prescale] value min max

lowers the value of the indicated layer to the value given only selected areas are affected. min and max are the minimum and maximum values that are allowed in the result. these values are in the native units for the layer.

Tool Smooth [Offset|Scale|Rainfall|Temperature|Prescale] value

smooths the values of the indicated layer by the amount given only selected areas are affected.

Tool Clip   [Offset|Scale|Rainfall|Temperature|Prescale] low high

clips the indicated layer so that all values are between low and high only selected areas are affected.

Tool Burn_in_to_surface

copies the current altitude value into the offset channel. All areas are affected regardless of selection.

Tool Mound *min max gamma* **replace[y|n]**

creates a mound as per the mound command

Select All

select all points on the surface

Select None

select no points on the surface and inactive the selection (cmds affect all).

Select Invert

invert the selection

Select Threshold *threshold*

convert the selection to a binary image at the threshold level given.

Select Feather *value*

smooth the selection by the value indicated.

Select Expand value

expand the selection by the value indicated

Select Contract value

contract the selection by the value indicated

Select Load path [Replace|Add|Subtract]

load a selection from the indicated path (no spaces allowed in the path). the operation indicates what the selection will do with the load action.

Select Save *path*

save the current selection as an 8-bit grayscale BMP image. no spaces are allowed in the path name.

Select Range [Altitude|Temperature|Rainfall] *how what min max*

  how = [Between|Not_between|Greater_than|Less_than]

  what = [Replace|Add|Subtract]

elect world parts on the indicated layer with the indicated mode **values**.

Sample script to smooth lower altitudes

To use these examples, just copy these examples into notepad and save them

```
// Sample script to smooth out lower altitudes.
// comment lines start with a '//' digram
# or comments can start with a '#' symbol
// smooth most of the stuff a little
select range altitude between replace 20000 100000
select smooth 2.0 // comments can go on the end of lines
tool lower scale 0.1 0 100000


// note that we don't care about the upper bound so use a large value


// lower altitudes a bit more
select range altitude between replace 10000 100000
select smooth 2.0
tool lower scale 0.1 0 100000


// even lower get a little more
select range altitude between replace 5000 100000
select smooth 2.0
tool lower scale 0.1 0 100000


// and so on
select range altitude between replace 1000 100000
select smooth 2.0
tool lower scale 0.1 0 100000
```

Values

Note that native units for the layers are:

- K for temperature
- cm/yr for rain
- m for altitude or offset
- no units are defined for scale

Before running script
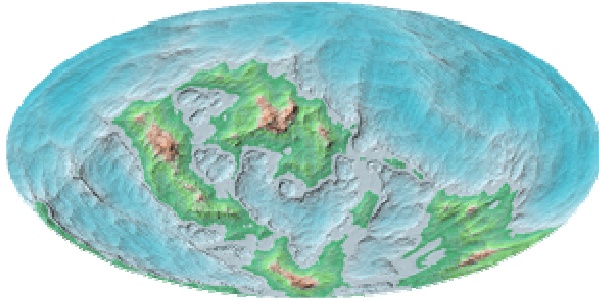
After running script
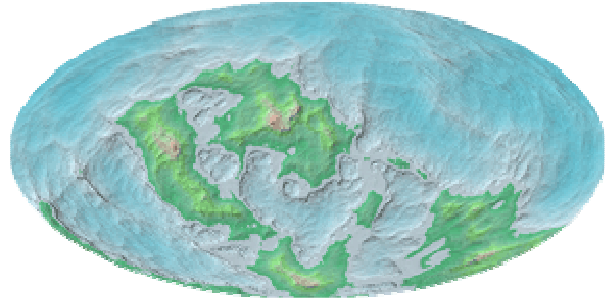
Sample script to save slices of a world to files

```
// save slices of the world at different elevations to BMP files
// this script has no visible effect on the FT Pro world in memory.
            select range altitude between replace -1000 100000
save n1000.bmp
select range altitude between replace 0 100000
save sealevel.bmp
select range altitude between replace 1000 100000
save sealevel.bmp
```

The Deafblind Guild & The Tree Of Fruits

School · Convocator · Questor · Questor · Questor · Convocator · Scryer · Overseer

Cellar · Jakes · Kitchen · Dining Room · Questor · Dean · Strong Room

High Priestess · Treasurer · Hall of Council · Guildmaster · Head of Coven

Washing Room / Jakes · Bookkeeper · Dining Room · Kitchen

Scale in Feet

0 5 10 15 20 25 30 35 40

Master Scribe & Librarian · Transdimensional Temple · Warlocks · Repository for Scrolls & Magicitems

Scroll Teleport Artifact · Storage for Unused Paper & Scrolls

Master of Ceremony · Page · Scribes Workshop · Witch · Judicial Advisor · Apprentices Advisor

Kansliet by Jonas Eckerman
Kansliet is available in the Profantasy Download Library.

FRACTAL TERRAINS PRO

FT Pro's Interface

The FT Pro interface consists of a main window (in which the world will be drawn, and most of your work will be done), and several ancillary toolbars and windows. These latter may be dragged onto and off the main window, just as standard Windows® floating toolbars (holding down `CTRL` while dragging toolbars will prevent them from docking on the main window.. The main window may be resized, maximized, and minimized. World re-draws are affected by the size of the main window, and can be quite slow when maximized.

Buttons, Menus and Shortcuts

The following summarizes FT Pro's menus, buttons, and keyboard shortcuts.

Item	Shortcut	Function
File menu		
New	`CTRL` `N`	Start a new world
Open	`CTRL` `0`	Open an existing world
Save		Save the current world
Save As		Save the current world to a different file (including image file formats)
Save CC2 File	`CTRL` `C`	Save the current world to a **CC2** Pro file
Revert to Save		Discard all edits in favor of last saved version of this world
Export World >>		
Icosahedral		Export world to an icosahedral projection
Multiple Files		Export world to multiple tiled images and/or **CC2** Pro files
Spin View		Export world to images representing a rotational period
VRML		Export world to a VRML model
Revert to Saved		Revert to the saved version of the current world
Print		Prints the current view of the world
Print Setup		Access the standard print setup for your printer
Print Preview		Opens a standard Windows® Print Preview window, showing what the Print command will output
1, 2, etc.		Open previously viewed files
Exit		Quit FT Pro
Edit menu		
Undo		Undo the last command
Redo		Redo the last command
Preferences		Set FT Pro function preferences
Map menu		
Change Projection		Change the map projection used to display the world
Lighting and Color		Change the color and lighting settings for the world
World Settings		Change the current world settings
Background		Change the color and fill used for the world view window's background
Grid Settings		Change the grid settings
Show Altitude	`SHIFT` `A`	Change view to show altitude contours
Show Climate	`SHIFT` `J`	Change view to show climate contours
Show Rainfall	`SHIFT` `R`	Change view to show rainfall contours
Show Temperature	`SHIFT` `T`	Change view to show temperature contours

Next World	🌐		Draw world using the next sequential seed number. Current edits will be lost
Previous World	🌐		Draw world using the previous sequential seed number. Current edits will be lost
Overlay Image			Insert an overlay image to guide editing
Regenerate			Force FT Pro to regenerate the current world

Tools menu

Settings	⚒	`/`	Change values and options used for edit tools
Paint Values >>			
Climate	▦	`]`	Paint currently selected climate type (see Climate Selector)
Land Offset			Paint the currently set Raise/Lower value
Land Roughness			Paint the currently set Roughness value
Rainfall			Paint the currently set Rainfall value
Temperature			Paint the currently set Temperature value
Water Level	〰	`[`	Paint the currently set Water value. `SHIFT` and click to choose an altitude value to use from the world
Paint Raise >>			
Land Offset	🏔	`R`	Raise the painted area by the currently set Raise/Lower value
Land Roughness	🏔		Increase the roughness of the painted area by the currently set Roughness value
Rainfall	🌡	`W`	Increase the rainfall of the painted area by the currently set Rainfall value
Temperature	🌡	`H`	Increase the temperature of the painted area by the current Temperature value
Paint Lower >>			
Land Offset	〰	`L`	Lower the painted area by the currently set Raise/Lower value
Land Roughness	🏔	`S`	Decrease the roughness of the painted area by the currently set Roughness value
Rainfall	🌡	`D`	Decrease the rainfall of the painted area by the currently set Rainfall value
Temperature	🌡	`C`	Decrease the temperature of the painted area by the currently set Temperature value
Global Set >>			
Altitude			
Land Offset			Set the altitude of the whole world to the currently set Raise/Lower value
Land Roughness			Set the roughness of the whole world to the currently set Roughness value
Rainfall			Set the rainfall of the whole world to the currently set Rainfall value
Temperature			Set the temperature of the whole world to the currently set Temperature value
Water Level			Set the water level of the whole world to the currently set Water Level altitude
Global Raise >>			
Land Offset	`SHIFT` 🏔		Raise the altitude of the whole world by the currently set Raise/Lower value
Land Roughness	`SHIFT` 🏔		Increase the roughness of the whole world by the currently set Roughness value

Rainfall	SHIFT	Increase the rainfall of the whole world by the currently set Rainfall value
Temperature	SHIFT	Increase the temperature of the whole world by the current Temperature value
Water Level		Increase the water level of the whole world by the currently set Water Level value

Global Lower >>

Land Offset	SHIFT	Lower the altitude of the whole world by the currently set Raise/Lower value
Land Roughness	SHIFT	Decrease the roughness of the whole world by the currently set Roughness value
Rainfall	SHIFT	Decrease the rainfall of the whole world by the currently set Rainfall value
Temperature	SHIFT	Decrease the temperature of the whole world by the currently set Temperature value
Water Level		Decrease the water level of the whole world by the currently set Water Level value

Global Smooth >>

Land Offset		Blurs the land offset (altitude) editing map
Land Roughness		Blurs the land roughness editing map
Rainfall		Blurs the rainfall editing map
Temperature		Blurs the temperature editing map
Extra Large	4	Use the extra large (XL) brush size for painting to the world
Large	3	Use the large (LG) brush size for painting to the world
Small	2	Use the small (SM) brush size for painting to the world
Extra Small	1	Use the extra small (XS) brush size for painting to the world
Burn Into Surface		Converts the current world into a map in the land offset channel
Mound		Fills the current selection with land offset values from the selection's edge to its center
Mountain		Fills the current selection with land offset values from the selection's edge to its center

Select menu

All	Selects the entire world
Deselect	Removes the current selection
Inverse	Inverts the current selection
Altitude Range	Selects portions of the world by altitude
Climate Range	Selects portions of the world by climate range
Rainfall Range	Selects portions of the world by rainfall range
Temperature Range	Selects portions of the world by temperature range
Binarize	Removes feathering from the current selection mask
Feather	Softens (feathers) current selection mask

Modify >>

Expand	Expands the current selection mask by 1 pixel in all directions
Contract	Reduces the current selection mask by 1 pixel in all directions
Load Selection	Loads a selection mask file
Save Selection	Saves the current selection as a selection mask file

View menu — View or hide FT Pro's bars:

| World Tools | Toggle the World Tools s |

Map Tools		Toggle the Map Tools s
Globe Tools		Toggle the Globe Tools
Status Bar		Toggle the Status Bar
Tool Palette		Toggle the Tools Palette s
Map Info		Toggle the Map Info window
Color Key		Toggle the Color Key window
Climate Selector		Toggle the Climate Selector s
Selection Tools		Toggle the Selection Tools s

Help menu

Help Topics		Open FT Pro's help file
About Fractal Terrains Pro		Display current FT Pro version and program details

Selection Tools

Select Rectangle		Rectangular selection tool
Select Ellipse		Elliptical selection tool
Select Freehand		Freehand selection tool
Select Polygon		Polygonal selection tool

Climate Selector   Used to select the climate type to paint

Boreal	
Chaparral	
Desert	
Grassland	
Hills	
Ice	
Mountains	
None	
Bare Rock	
Savannah	
Temperate Forest	
Tropical Evergreen Forest.	
Tropical Deciduous Forest.	
Tropical Shrubland	
Tundra	

Other s

Zoom In		+	Zoom world view in by a factor of two
Zoom Out		-	Zoom world view out by a factor of two
Zoom Whole World		F12	Zoom whole world to fit in the current window
Zoom Window		F11	Zoom into a selected area (Click opposite corners of the area to be zoomed)
Distance			Measures a linear distance
Pan			Move the current world view (Click and hold to drag the view)
Context-Sensitive Help			Gain help on the selected item

Other Keyboard Functions

FT Pro supports some additional keyboard features, and these are described below:

Function	Keyboard/ Shortcut
Show next world without losing edits	CTRL SHIFT 🌐
Show previous world without losing edits	CTRL SHIFT 🌐
Cancel offset or projection move	SHIFT when releasing button in map projection dialog
Add new selection to current selection	SHIFT when clicking to end use of a selection tool
Remove new selection from current selection	CTRL when clicking to end use of a selection tool

Example: To select a rectangular area, click Select Rectangle ⬚, click in the main window to place one corner of the desired selection area, then hold SHIFT or CTRL down when clicking to place the opposite corner to add or remove from the current selection, respectively.

Reset toolbar positions to default	Hold SHIFT during startup
Prevent load of default file	Hold CTRL during startup

Bars

FT Pro's s are contained within standard Windows® floating bars. Each bar and window may be hidden or displayed via the **Tools menu**.

For reference, the bars are as follows. The functions of the buttons are outlined above.

Bar	Buttons
World Tools	
Map Tools	
Tool Palette	
Climate Selector	
Selection Tools	
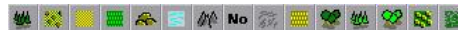
Information Windows

There are three additional floating windows comprising the FT Pro interface, and these can be hidden, dragged, or placed within the main window just as bars. These are summarized here.

Globe Tools — This window contains a globe that can be rotated to adjust the current world view. Click and hold on the globe, then move the cursor to rotate it. The world view will pan accordingly.

Clicking **Quit** will exit FT Pro.

Clicking **Help** will open FT Pro's help file.

Map Info — This window contains general information about the current world, or the portion of the world beneath the mouse cursor.

Color Key — This window keys the contour colors used for the current world. There are four versions of the color key window, one for each of the information views (Altitude, Climate, Rainfall, and Temperature).

Preferences

FT Pro allows a certain amount of **customization** in the way it works.

Tool menu

If the name of a bar appears with a tick beside it in that menu, it is currently shown. Clicking on the name of a tool bar will add or remove this tick, and accordingly show or hide the tool bar.

Customization

You can alter your preferences by selecting **Edit menu >> Preferences**, which presents the **Preferences** dialog box.

- ✓ **Reload last world file on startup** will automatically open the last saved world you worked on with FT Pro on startup if it is checked. If it is not checked, FT Pro will generate a new random world on startup.
- ✓ **Reload last settings files on startup** will cause FT Pro to automatically use the last saved world generation and color files on startup. If it is not checked, FT Pro will use the default settings.
- ✓ **Remember window position** will cause FT Pro to open in its __last used window position__ on startup, otherwise the default position will be used.
- ✓ **Click-Drag-Release zoom window style** alters the way the **Zoom Window** function works. If checked, zoom windows are drawn by clicking at one corner, holding the mouse down, dragging to the opposite corner, and releasing the mouse. If unchecked, zoom windows are drawn by clicking at one corner, and then separately clicking on the opposite corner of the window required. By default, this is unchecked.
- ✓ **Coarse initial drawing pass** changes the way FT Pro draws worlds to the screen. If checked, the world view will be initially drawn using coarse pixels, creating a blocky-looking view to start with. This view will be subsequently refined by FT Pro as time passes until all generated world data has been drawn. This is useful for quickly seeing the general form of a world before either accepting or rejecting it. If unchecked, FT Pro will fill in the world view's pixels layer by layer, gradually filling in the detail. This is the default method.
- ✓ **Version 1.23 Compatibility** changes the way FT Pro computes worlds. Version 1.23 and earlier had an error in the fractal computations that frequently resulted in inconsistent results from machine to machine and from run to run of the program. Version 1.50 and later corrected this flaw, but at the cost of generating different worlds for the same world seeds. Checking this item will force the old-style calculations, as will loading a pre-V1.50 FT Pro W file. It is unchecked by default.
- ✓ The **Display Update Rate** slider affects how often FT Pro updates the screen information. Reducing the number of updates per second will reduce the computation load for slower video cards or machines. Increasing it might help with the editing response for very fast machines and video cards. The default value of 4 seems to be a good value for most machines.
- ✓ **Maximum Horizontal Resolution** and **Maximum Vertical Resolution** control the maximum size that FT Pro will use to display onscreen, regardless of the actual physical display resolution. These values can be reduced to speed up calculations for slower machines, but reducing the values will affect the appearance of the lighting effects. The default values of 2048 for both indicate that the software should just use the physical window size for its computation size.
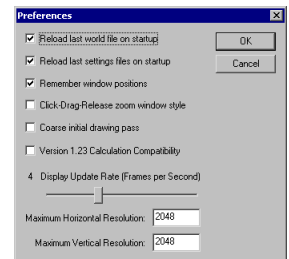
World Settings

When you create a synthetic or flat world, you will be presented with the **World Settings __dialog box__**.

- ✓ The **System** group contains world settings file management controls. Click on **Save** to save the current settings to a file. Select a file from the list and click on **Load** to load the settings contained within it. Click on **Update** to save changes to the currently used setting file. Select a file from the list and click on **Delete** to remove the file from your system.

- ✓ **Highest Peak** sets the maximum altitude for the world. Sometimes the generated world may exceed this value, but it usually keeps within bounds.
- ✓ **Lowest Depth** sets the lowest point in the ocean. Sometimes the generated world may exceed this value, but it usually keeps within bounds.

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Ridged Multifractal and Brownian Noise
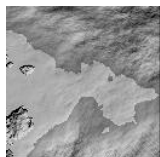
Ridged Multifractal
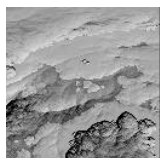
Brownian Noise

✓ The **Circumference** or **Diameter** (depending on the option selected from the drop-list) sets the size of the world. If Circumference is selected, the value is the distance around the world at the equator. If Diameter is selected, the value is the distance through the north and south poles. All worlds are assumed to be perfectly spherical, not an oblate spheroid like the earth.

✓ The **World Seed** is the world number to generate. It sets the random number seed for the internal generators. Values for this seed can range from negative 2,147,483,648 to positive 2,147,483,647. Click on to randomly allocate this value.

✓ **Method** selects the way in which the world altitude will be computed. The two options are available--**Ridged Multifractal and Brownian Noise**. Ridged Multifractal is composed of many ridges at different scales. Brownian Noise is basically just random noise at different scales without any particular structure.

The small button next to the **Method** drop list will bring up a dialog that can be used to set parameters for each type of computation method. Each computation method has its own set of parameters that can be adjusted.

The **Roughness** slider controls the level of roughness in a surface. This value is roughly the fractal dimension of the surface. The sequence below shows how Roughness affects the surface from high (**0.01**) to low (**1.49**):

0.01   0.38   0.75   1.13   1.49
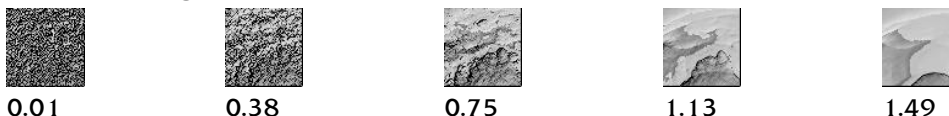
✓ **Percent Sea** sets the rough amount of sea that will be found on the map.

✓ **Land Size** sets the size of the land masses. The sequence below shows how the changing the setting changes the land mass size:

1.00   2.14   3.25   5.50   10.00

The smaller the land size setting, the more continents (or islands) you will get. A value of around 1.6 usually provides good results.

✓ If checked, **Apply to Current World** will apply any changes in the world parameters to the current world, preserving any terrain editing. If unchecked, all editing will be lost.

✓ Click **Advanced** button to access the **Advanced World Parameters** dialog box (see below).

✓ Click **Fractal Globe** button to access the **Fractal Globe** dialog box. This dialog box can be used to change the fractal evaluation size (similar effect to Land Size) as well as the center of evaluation. Each center of evaluation gives a unique world; moving the world center over each possible set of values will result in roughly 2^48 (about 281,500,000,000,000) worlds, each differing slightly from the next.

✓ **OK** accepts any changes made to the world settings and creates a new world with those settings.

✓ **Cancel** discards any changes and keeps to the current world.

✓ **Help** gets help for this dialog.

Advanced World Parameters

These settings allow you to affect the way in which the world is calculated. You may also change climate coloration, the location of the northernmost pole, axial tilt, etc.
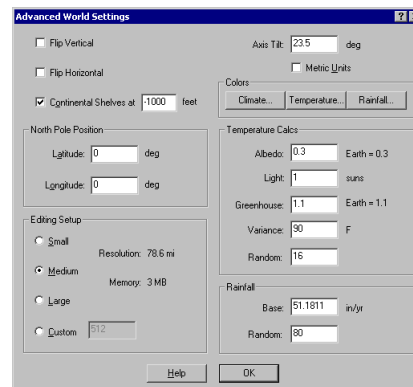
- ✓ **Metric Units**, if checked, changes all measurements to metric (kilometers, meters, centimeters, and degrees Celsius). If unchecked, measurements will be in Imperial units (miles, feet, inches, and degrees Fahrenheit).
- ✓ **Flip Horizontal** and **Flip Vertical** allow the world to be flipped around. If checked, **Continental Shelves** indicates that the continental margins will be computed. The value on this line is the depth at which the shelves will be generated. The pair of images below shows how a world appears with and without **continental shelves**. Note how turning on **Continental Shelves** can reduce the relative altitudes of some parts of the map.
- ✓ The **North Pole Position** group controls the location of the north pole. Changing this value will rotate the map around in its coordinate system. The change will not be applied to any terrain editing changes. **Latitude** and **Longitude** specify the new location on the sphere through which the pole will pass.
- ✓ The **Editing Setup** group sets how the resolution at which editing will be accomplished. **Small**, **Medium**, and **Large** set 256, 512, and 1024 samples horizontally respectively. **Resolution** and **Memory** indicate how big each sample will be at the equator and how much memory the editing surface will require. Specifying a surface that takes much more than a small fraction of the machine's physical memory size can result in poor performance during editing. **Custom** sets a custom editing size in case one of the other settings isn't to your liking.
- ✓ **Axis Tilt** specifies the axial tilt of the planet. This parameter affects the temperature distribution of the world.
- ✓ The **Temperature Calcs** group controls the settings for the temperature model. All **values** are average for an entire year.
- ✓ The **Rainfall** group controls the amount of rainfall. **Base** is the global amount of rainfall. **Random** is a scaling factor that adjusts a fractal field that adds to the **Base** value to give the final result.
- ✓ Clicking on the **Climate Colors** button brings up the **Climate Coloring** dialog.

with continental shelves

without continental shelves

Values

Albedo is the amount of reflectance that the world has (sum of all factors including clouds, land, and sea); an Earth-like world will have a value near 0.3.

Light indicates the amount of sunlight at all wavelengths reaching the planet in terms of solar radiation units (the Sun = 1).

Greenhouse indicates the greenhouse warming effect due to atmospheric effects; Earth has a value of approximately 1.1. Values less than 1 have a cooling effect, values greater than 1.0 have a warming effect.

Variance is a factor that determines how much the temperature varies from the equator to the poles. Earth has roughly a 90°F variance value.

Random is the amount that a random field will be scaled by to give local temperature disturbances.

Map Projections

As noted within the tutorials, displaying a globe across a flat surface provides a unique problem to which there are many solutions. Here, we shall discuss some of those solutions, and explain some of the finer points of the **Map Projection** dialog box.

- ✓ The **Map Projection** list holds the types of projections that can be displayed.
- ✓ **Fit** fits the projection to a square windows (sets the scale to 1.0).
- ✓ The + button zooms in by a factor of 2.
- ✓ The – button zooms out by a factor of 2.
- ✓ **Center of Projection** functions as a checkbox. When pressed, it will stay in; when pressed again, it will come out. When in, clicking the mouse on the map display and dragging it will change the center of projection (**Lat** and **Lon**). When out, clicking the mouse on the map display and dragging it will change the offset (**X Ofs** and **Y Ofs**).
- ✓ **Lat** and **Lon** indicate the current latitude and longitude of the center of projection. **Lat** can never be forced exactly to 90 or –90, but can get very close.
- ✓ **X Ofs** and **Y Ofs** control the current position of the map (0,0 means that the center of the map is directly over the center of projection; values from –1 to +1 move the map around).
- ✓ **Scale** sets the zoom level for the map. Values larger than 1 zoom out (make the map appear smaller), while values smaller than 1 zoom in (make the map appear larger).
- ✓ **Name**, **Type**, **Conformal**, **Equal-Area**, and **Perspective** provide feedback about the current map projection. **Name** is the projection name. **Type** is the general class of projection (cylindrical, pseudo-cylindrical, etc). **Conformal** indicates if the projection

preserves shapes. **Equal-Area** indicates if the projection preserves areas. **Perspective** indicates if the map if projected onto a point.

✓ **Help** gets help for the dialog.

✓ **OK** accepts the map projection and redraws the map.

✓ **Cancel** discards any modifications to the projection and returns to the main display.

Supported Projections

FT Pro supports a number of projections for various purposes. The default projection is Equirectangular.

Azimuthal Equidistant

An azimuthal projection capable of showing the entire world at once. Scale between any two points along a line passing through the center of the projection is true. Distorts the shapes and areas of places on the world. Examples of maps using this projection are found as early as the 16th century.

Conics

FT2 provides three new **conic projections**.
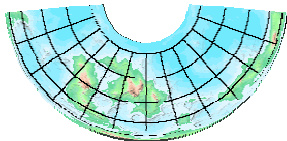
Conic Projections

Albers Equal-Area Conic
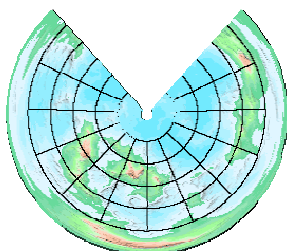
Equidistant Conic

Lambert Conformal Conic

Equirectangular
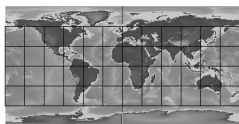
This cylindrical projection has the useful property that the scale is constant and true along meridians and the equator. It is by far the simplest projection to construct, being a simple graph of latitude vs. longitude. It distorts both shape and area, with the distortions increasing relative to distance from the equator.

The version of the Equirectangular project used by FT Pro is actually a special case called Plate Carree. In this projection, latitude and longitude are equal in size. It may have been originated by Eratosthenes in ancient Greece, and was widely used in the 15th and 16th centuries.

Gnomonic
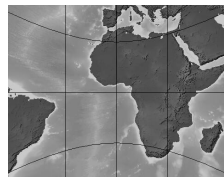
This azimuthal projection has several useful properties, but does not preserve shape or area. It has the useful property that a straight line on the map will give the shortest distance between those two points. It cannot display the full world, being limited to less than a hemisphere. Another of the projections thought to originate in ancient Greece (this time with Thales), its name is derived from the gnomon on a sundial.

Hammer

This equal-area projection is popular because it reduces distortion in many areas compared to similar projections. It has an elliptical border, which makes it rather decorative as well as functional. Developed in 1892 by H. H. Ernst von Hammer, this projection in widely used where whole-world, equal-area maps are desired.

Lambert Azimuthal Equal-Area
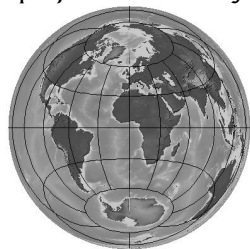
This projection is commonly used in atlases for maps of polar regions and Northern and Southern hemispheres. The equatorial aspect is commonly used for maps of the Eastern and Western hemispheres. This equal-area projection is classified as azimuthal.

Mercator

The **Mercator projection** is the familiar world map in elementary schools. This is an unfortunate fact, because the map has severe distortions of area in the polar regions (which is why Greenland looks bigger than South America). The Mercator projection, while conformal, is infinite in extent (the North and South Poles lie at + plus infinity and minus infinity respectively).
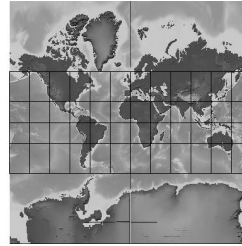
Miller Cylindrical

This **cylindrical projection** is neither conformal nor equal-area. It is closely related to the Mercator projection, but manages to keep the extreme polar distortions a little more under control.

Mollweide

A pseudocylindrical projection, **Mollweide** is used in thematic and atlas maps of the world. Distortions are severe at higher latitudes and towards the outer edges, but the scale is true at latitudes 44°40' north and south.
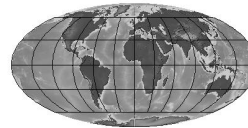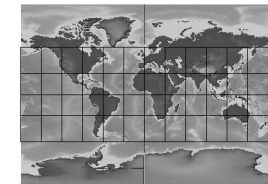
Orthographic

This azimuthal projection shows the world as it would appear if viewed from infinity. It cannot show more than a single hemisphere at a time. The small positioning globe on the main FT Pro interface is implemented using the Orthographic projection.
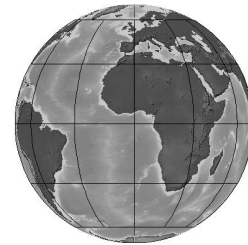
Pointy

The Pointy projection can be used to create an interrupted projection similar to the icosahedral projection output by FT Pro.
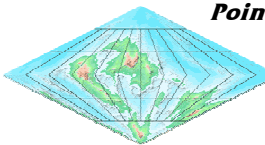
Sinusoidal

This pseudocylindrical projection has the useful feature that it is relatively easy to compute and is equal-area. It does suffer from significant shape distortion, especially at high latitudes and near

the outer edges. It was developed in the 16th century and used in some atlases in the 17th century, sometimes appearing in modern articles desiring to show relative areas.

Stereographic

The stereographic projection is a conformal azimuthal projection commonly used in the polar aspect for topographic maps of the Polar regions. The equatorial aspect was used in the 17th and 18th

centuries for maps of the Eastern and Western Hemispheres. While the projection cannot show the whole world, it is quite useful for mapping areas which are roughly circular in extent. Its origins (in polar aspect) may date to the Egyptians and Greeks by the second century B.C.
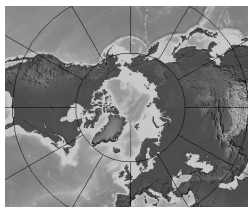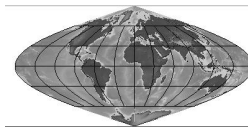
Van Der Grinten

The Van Der Grinten projection is a polyconic projection that is neither conformal nor equal-area. It encloses the entire world in a circle, but causes great distortions of area near the poles. The scale is true along the equator, but increases rapidly towards the poles. It was presented by Alphons J. van der Grinten of Chicago in 1898.
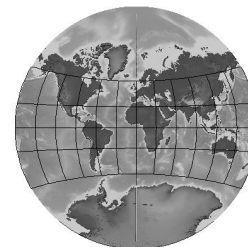
Wagner IV

A pseudocylindrical projection, Wagner IV is equal-area but not conformal. It was developed in 1934 by Putnins in Latvia, but was popularized by Wagner of Germany in 1949. Shape distortion is not as extreme in the polar regions as is that of the pointed equal-area projections such as sinusoidal, but is still considerable.

Planar worlds

All worlds in FT1 were spherical. FT Pro provides an option to evaluate the world on a plane instead. The climate model information such as temperature, rainfall, and climate are always computed on a sphere even in FT2, however. Most tools, such as the ruler tool, also work on spherical worlds.

Computing on a plane gives a world that is not distorted near the poles when viewed in the equirectangular projection, but when viewed in other projections.

Spherical World, equirectangular
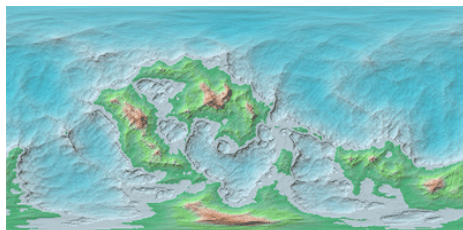
Planar World, equirectangular
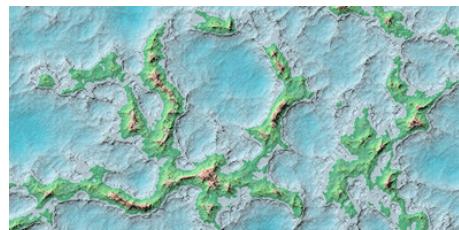
Spherical World, orthographic over south pole
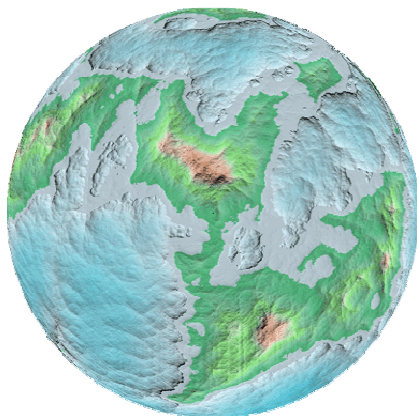
Planar World, orthographic over south pole
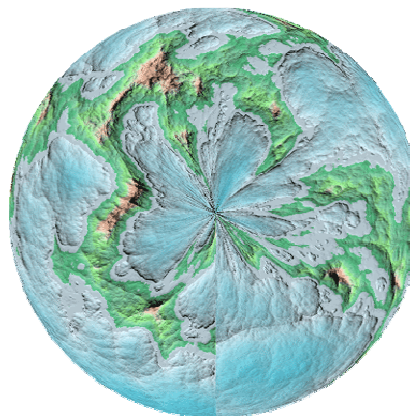
Defined

Definitions of interrupted projections are stored in the file Projection.txt, found in the FT program directory. Add your projections there. This file is loaded on startup so if any changes are made to this file then FT will need to be restarted for those changes to take effect.

The spherical world is very distorted at the poles when viewed in the equirectangular projection, while the planar world is not. In contrast, the planar world is puckered and has a vertical discontinuity in the bottom half of the image, while the spherical world looks fine in an orthographic projection. In general, using planar worlds means that you won't want to use a map projection other than equirectangular.

Interrupted Projections

Interrupted projections are projections that are composed of more than one part. FT Pro generalizes this to the point where a projection can be **defined** as a group of pieces of other projection types as well as zones of exclusion to prevent certain parts of a projection from showing.

Interrupted projections do not currently support changes in the center of projection. Each segment of the projection is defined with a fixed center of projection. Also, note that

interrupted projections are slower than regular projections, with the slowdown being proportional to the number of projection segments defined (more segments = slower).

File Format

This is the projection file format.

```
// projection definition file format
//
// simple text-based file.
//
// each projection is composed of a number of segments, each having
// a number of associated exlusion triangles. Each of these segments
// is evaluated in order during a scan. For best performance, the
// segments should be listed in the scanning order of the software:
// across the columns (increasing X) then down the columns (increasing
Y).
//
// A segment defines a slice of a projection. It has the basic
// projection parameters (cenlat, cenlon, ofsx, ofsy, zoom, lat0, lon0).
// It also has the offset within the defined image space (image space is
// defined as -1 to +1 in X and Y for the image; offset allows moving
// segments from the 0,0 point of the world). To limit exclusion checks,
// a segment has an area of effect (the edges of a lat/lon bounding box
// on the sphere). All lat, lon values are defined in degrees.
// Projection IDs must be defined between 64 and 191. Projection IDs
// outside this range will be silently rejected by the system even
// though the definition is valid. End users should define their
// projections on 128 to 191 to avoid collisions with potential
// future FT Pro -programmer-defined releases.
//
// Associated with each projection segment are zero or more exclusion
// triangles. These triangles are defined in image space. If a point
// lands within an exclusion triangle it is no part of this segment.
// Exclusion triangles allow for infinite-extent projections to be
// bounded on the image plane (for example, an icosahedral projection
// based on the stereographic projection would have 20 segments, each
// bounded by 3 triangles to limit the area of extent). Note that the
// triangles are defined on the whole plane, not just on the +/- 1 X/Y
// image plane. The points should not be too large (maybe +/- 20), but
// making them too closely-bounded to the plane will leave parts of
// infinite projections exposed to the user's scrutiny.
//
// Projection ID, "Name"
//
// Extent    l, t, r, b  // screen-space extents for the projection.
// Scale     scalefactor // whole-screen scale factor for the projection
//
// Segment   "ProjName", cenlat, cenlon, ofsx, ofsy, zoom, lat1, lat2
// Rotate    angle                       // rotation angle in (deg
counterclockwise)
// Scale     xscale, yscale              // scaling factor (deg)
// Offset    imgofsx, imgofsy            // offset area
//   forward projection is computed as Rotate( angle, Forward(lat,lon) *
scale)+offset
// Effective leftlon, toplat, rightlon, botlat // area of interest
// Exclude   type, outside, [data]
//   // type == 0, triangle with data as pt1x, pt1y, pt2x, pt2y, pt3x,
pt3y
//   // type == 1, circle with data as cenx, ceny, radius
//   // outside == 1 if data outside the specified zone should be
excluded
```
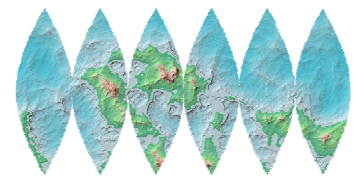

6-way Interrupted Sinusoidal

```
// // other EXCLUDE definitions go here
// EndSegment // segment def
//
// // other segment definitions go here
//
// EndProjection
//


//---------------------------------------------------------------------
----
```

Example Projections

```
Projection 64, "6-way Interrupted Sinusoidal"

Extent -3.14159265, 1.57079633, 3.14159265, -1.57079633
Scale 1.57079633
Description "Demonstration of an interrupted projection. No fancy
features, just a basic definition."

Segment "Sinusoidal", 0, -3*60+30, 0, 0, 1, 0, 0
Offset -3*0.33333333, 0
Effective -3*60, 90, -3*60+60, -90
EndSegment

Segment "Sinusoidal", 0, -2*60+30, 0, 0, 1, 0, 0
Offset -2*0.33333333, 0
Effective -2*60, 90, -2*60+60, -90
EndSegment

Segment "Sinusoidal", 0, -1*60+30, 0, 0, 1, 0, 0
Offset -1*0.33333333, 0
Effective -1*60, 90, -1*60+60, -90
EndSegment

Segment "Sinusoidal", 0, 0*60+30, 0, 0, 1, 0, 0
Offset 0*0.33333333, 0
Effective 0*60, 90, 0*60+60, -90
EndSegment

Segment "Sinusoidal", 0, 1*60+30, 0, 0, 1, 0, 0
Offset 1*0.33333333, 0
Effective 1*60, 90, 1*60+60, -90
EndSegment

Segment "Sinusoidal", 0, 2*60+30, 0, 0, 1, 0, 0
Offset 2*0.33333333, 0
Effective 2*60, 90, 2*60+60, -90
EndSegment

EndProjection


//-------------------------------------------------------------
Projection 65, "Rotation Demo"

Extent -3.14159265, 1.57079633, 3.14159265, -1.57079633
Scale 1.57079633
Description "Demonstration of interrupted projection with rotations."
```
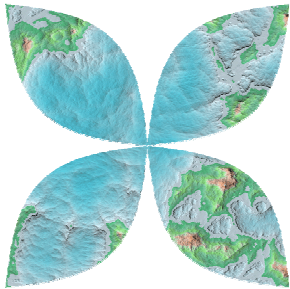
Rotation Demo

```
Segment "Sinusoidal", 0, -180+45, 0, 0, 1, 0, 0
Rotate -45
Offset -0.35345, -0.35345
Effective -180, 90, -90, -90
EndSegment

Segment "Sinusoidal", 0, -45, 0, 0, 1, 0, 0
Rotate 45
Offset 0.35345, -0.35345
Effective -90, 90, 0, -90
EndSegment

Segment "Sinusoidal", 0, 45, 0, 0, 1, 0, 0
Rotate 135
Offset 0.35345, 0.35345
Effective 0, 90, 90, -90
EndSegment

Segment "Sinusoidal", 0, 180-45, 0, 0, 1, 0, 0
Rotate -135
Offset -0.35345, 0.35345
Effective 90, 90, 180, -90
EndSegment

EndProjection

//------------------------------------------------------------------------

Projection 66, "Exclusion Test"

//Extent -100, 100, 100, -100
Scale 1.57079633
Description "Demonstration of exclusion zones."

Segment "Stereographic", 0, 0, 0, 0, 1, 0, 0
scale 1, 1
Offset 0.0, 0.0
Effective -120, 60, 120, -60
Rotate 0
Exclude   0, 0,  0, 0,  0.5, 0.86602540378443864676372317075294,  1, 0
Exclude   1, 0, -1, -1,  0.5
EndSegment

EndProjection

//-------------------------------------------------------------

Projection 67, "18-way Stereographic Gores"

Extent -3.15, 1.57079633, 3.15, -1.57079633
Scale 1.57079633
Effective -9*20, 90, -9*20+20, -90

Segment "Stereographic", 0, -9*20+10, 0, 0, 1, 0, 0
Offset -9*0.175, 0
Effective -9*20, 90, -9*20+20, -90
EndSegment

Segment "Stereographic", 0, -8*20+10, 0, 0, 1, 0, 0
Offset -8*0.175, 0
```
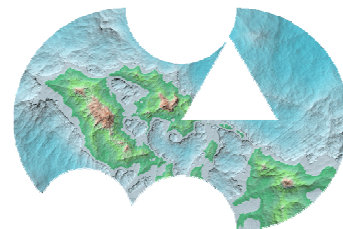

Exclusion Test

18-way Stereographic Gore

```
Effective -8*20, 90, -8*20+20, -90
EndSegment

Segment "Stereographic", 0, -7*20+10, 0, 0, 1, 0, 0
Offset -7*0.175, 0
Effective -7*20, 90, -7*20+20, -90
EndSegment

Segment "Stereographic", 0, -6*20+10, 0, 0, 1, 0, 0
Offset -6*0.175, 0
Effective -6*20, 90, -6*20+20, -90
EndSegment

Segment "Stereographic", 0, -5*20+10, 0, 0, 1, 0, 0
Offset -5*0.175, 0
Effective -5*20, 90, -5*20+20, -90
EndSegment

Segment "Stereographic", 0, -4*20+10, 0, 0, 1, 0, 0
Offset -4*0.175, 0
Effective -4*20, 90, -4*20+20, -90
EndSegment

Segment "Stereographic", 0, -3*20+10, 0, 0, 1, 0, 0
Offset -3*0.175, 0
Effective -3*20, 90, -3*20+20, -90
EndSegment

Segment "Stereographic", 0, -2*20+10, 0, 0, 1, 0, 0
Offset -2*0.175, 0
Effective -2*20, 90, -2*20+20, -90
EndSegment

Segment "Stereographic", 0, -1*20+10, 0, 0, 1, 0, 0
Offset -1*0.175, 0
Effective -1*20, 90, -1*20+20, -90
EndSegment

Segment "Stereographic", 0, 0*20+10, 0, 0, 1, 0, 0
Offset 0*0.175, 0
Effective 0*20, 90, 0*20+20, -90
EndSegment

Segment "Stereographic", 0, 1*20+10, 0, 0, 1, 0, 0
Offset 1*0.175, 0
Effective 1*20, 90, 1*20+20, -90
EndSegment

Segment "Stereographic", 0, 2*20+10, 0, 0, 1, 0, 0
Offset 2*0.175, 0
Effective 2*20, 90, 2*20+20, -90
EndSegment

Segment "Stereographic", 0, 3*20+10, 0, 0, 1, 0, 0
Offset 3*0.175, 0
Effective 3*20, 90, 3*20+20, -90
EndSegment

Segment "Stereographic", 0, 4*20+10, 0, 0, 1, 0, 0
Offset 4*0.175, 0
Effective 4*20, 90, 4*20+20, -90
```

```
EndSegment

Segment "Stereographic", 0, 5*20+10, 0, 0, 1, 0, 0
Offset 5*0.175, 0
Effective 5*20, 90, 5*20+20, -90
EndSegment

Segment "Stereographic", 0, 6*20+10, 0, 0, 1, 0, 0
Offset 6*0.175, 0
Effective 6*20, 90, 6*20+20, -90
EndSegment

Segment "Stereographic", 0, 7*20+10, 0, 0, 1, 0, 0
Offset 7*0.175, 0
Effective 7*20, 90, 7*20+20, -90
EndSegment

Segment "Stereographic", 0, 8*20+10, 0, 0, 1, 0, 0
Offset 8*0.175, 0
Effective 8*20, 90, 8*20+20, -90
EndSegment

EndProjection
```

New Projection Dialog

The **Map Projection** dialog has been updated to show more information about projection as well as to support the information required for conic projections.

Conic Projection Parallels

The standard parallels should generally be placed close to the top and bottom of the desired view area to minimize distortion. Conic projections can have very different appearances depending on the values of the standard parallels. The samples below are of a Lambert Conformal Conic projection with various lat0, lat1 value.

Lat0=89.999, lat1=0.001
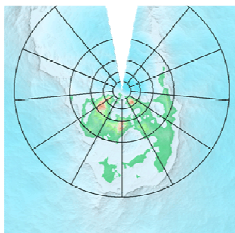
Lat0=60, lat1=0.001
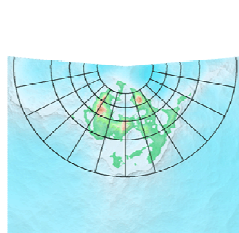
Lat0=30, lat1=0.001
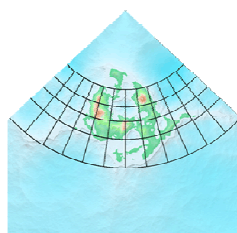
Lat0=0.01, lat1=0.001
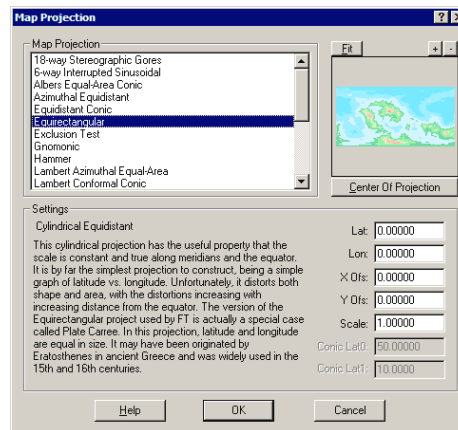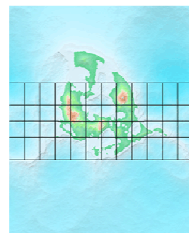
Map Projection dialog options

- **Lat** is the latitude of the center of projection, in degrees.

- **Lon** is the longitude of the center of projection, in degrees.

- **X Ofs** is the horizontal offset from 0,0 to the center of the current view.

- **Y Ofs** is the vertical offset from 0,0 to the center of the current view.

- **Scale** is the scaling factor for the projection. A value of 1.0 should fit the default projection area within the view. Values smaller than 1.0 have the effect of zooming into a smaller area of the map, while values larger than 1.0 will fit larger areas into the display.

- **Conic Lat 0** is the first standard parallel for conic projections.

- **Conic Lat 1** is the second standard parallel for conic projections.

More reading about Map Projections

Some books that also can help in the understanding of map projections are:

An Album of Map Projections (Snyder and Voxland; US Geologic Survey Professional Paper 1453)

Map Projections – A Reference Manual (Bugayevskiy and Snyder; ISBN 07484 0304 3)

Flattening the Earth (Snyder; ISBN 0-226-76747-7)

The Album is out of print, but the others are readily available.

FRACTAL TERRAINS PRO

Green Lady by Allyn Bowker*

The **Green Lady** was created using Character Artist Pro symbols that were edited using the techniques explained in *To Edit an existing symbol* on page 71. Her dress was created using basic CC2 Pro drawing commands. Also used were ornamenrts converted from fonts as explained in *Converting Fonts to Symbol Catalogs* on page 47.

The **Green Lady** is available to view in the **Examples>Tome** folder.

PERSPECTIVES PRO
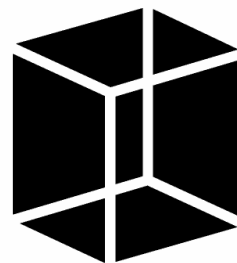
Perspectives Pro is an add-on for ProFantasy Software's Campaign Cartographer 2 Pro. Use it to create attractive 3D views of your floor plans and underground areas. We hope you enjoy it.

Perspectives Pro Introduction

Perspectives Pro (Per Pro) is an add-on for **CC2 Pro** that allows you to create 3D dungeons floorplans in a fixed view called **isometric**. After completing these **tutorials**, you will be able to create walls, floors and buildings and add symbols to build your designs.

- You can draw a top-down 2D view of your floorplan or take an existing 2D drawing, then convert it into a Per Pro view.
- You can draw floors, walls and rooms (floors and walls combined) directly in isometric view.
- You can add solids and holes using cones, cylinders, 3D boxes and polys.
- You can give 2D objects depth by extruding them.
- You can control the appearance of surfaces using predefined settings, and create your own.
- You can add a wide variety of symbols.
- You can create your own Per Pro symbols.

Getting to Per Pro

You can swap from **CC2 Pro** or any add-on to Per Pro by clicking the Per Pro button on CC2 Pro's File toolbar.

The Per Pro toolbar

The Per Pro **toolbar** includes almost all the features you need to create your maps.

Perspectives Pro Settings		Rectangular Floor
Wall		Rectangular Room
3D Box		House
3D Projections		Extrude
Symbol Catalog Settings		Symbol Style Toggle

Left click on a button to choose the most commonly used option, right click on a button to see a context menu of other tools. For example, a right click on **3D Box** to see a menu with other solid shape tools such as **Cylinders** and **3D Polygons**.

Command overview

Perspectives Settings controls the appearance of the 3D entities you add to your map.

Rectangular Floor adds a hatched flat area to your map. Right click for more floor options including **Polygonal Floor** and **Make Into Floor**.

Wall adds a hatched wall in the current thickness. Right click to select walls of a specific width or to choose a thickness.

Rectangular Room adds a floor surrounded by a wall with the current thickness. Right click to select options such as **Polygonal** and **Circular Rooms**

3D Box adds a hatched solid or hole. Right click for other solids.

Current 3D House adds a building in the current style. Right click to choose styles or create them.

Sidebar

Isometric drawing

In an isometric drawing, vertical lines are drawn straight up the screen, and the horizontal lines in the width and depth planes are shown at 30 degrees to the horizontal. The lines parallel to these three aXEs are at their true lengths. Lines that are not parallel to these aXEs will not be of their true length.

Tutorials

Finished examples of the tutorials are found in the **Tutorials\Tome\Perspectives** folder under CC2 Pro.

Can't see the Perspectives toolbar?

The Per Pro toolbar is usually found on the left of the Perspectives Pro screen. If you can't see them, select **Tools** and ensure that **Left toolbar 1** and **2** are ticked.

3D Projection takes a top down view and converts it into an isometric one. Right click to add isometric circles and lines.

Solid Extrusion takes a projected shape and gives it height and solidity, with hatched sides.

Starting a New Map

We are ready to start the tutorial.

1   Click **New** 📄.

    Per Pro displays a selection of different sized **templates** on which you can start your drawing.

2   Click **160 x120.fct** (not the angled version)

    You now see a new, blank Per Pro map.
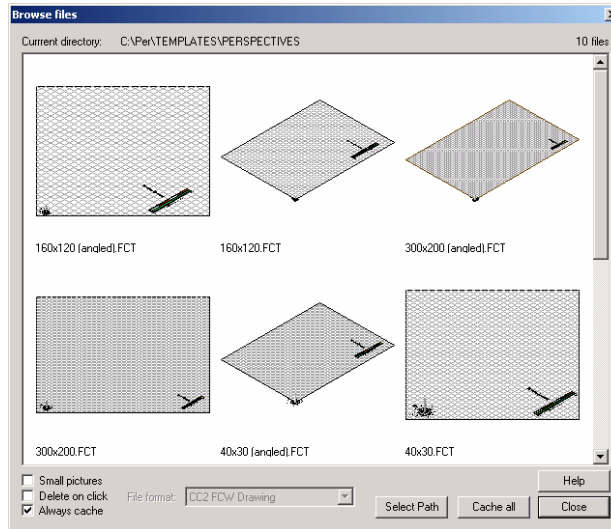
Templates

These come in two varieties, angled and non-angled. The non-angled templates match your paper more accurately, the angled ones are better looking.

Browse files

Current directory: C:\Per\TEMPLATES\PERSPECTIVES   10 files

160x120 (angled).FCT   160x120.FCT   300x200 (angled).FCT

300x200.FCT   40x30 (angled).FCT   40x30.FCT

☐ Small pictures
☐ Delete on click   File format: CC2 FCW Drawing   Select Path   Cache all   Close
☑ Always cache   Help

Perspectives Pro

Creating a Floorplan from Scratch
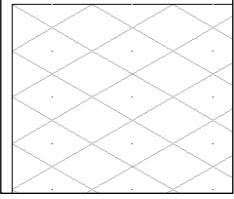
You can create Per Pro drawings by adding floor surfaces and rooms directly to the **isometric grid overlay** on your template. We'll create a simple Inn floorplan for your bar room brawl.

Choosing a Look

Per Pro lets you create attractive textures for surfaces, and use shaded color schemes as a background.

1   Click Perspective Settings 🔲.

Perspective Settings overview

Perspectives Settings are pre-defined combinations of color schemes and **hatching styles** used to create the walls, floors and solid shapes of your floorplan. When you use any of Perspective Pro's tools, their appearance is controlled by the settings. There are a number of predefined settings, and it's easy to create your own (see page 465).
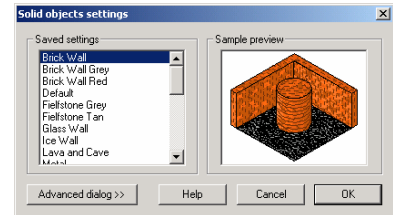
2   Click some settings to see the previews, then click **Brick Wall**, **OK**.

Adding floors

Rectangular Floor 🔲 lets you add floor surfaces in isometric view. Right click for a menu of **other floor types**.

3   Click **Rectangular Floor** 🔲.

The prompt reads First corner:.

4   Click a point in the lower left corner of the screen.

The prompt reads Second corner or enter length:

5   Move the mouse towards the upper right corner (**east**) of the map, then type **40'** and press ENTER.

The mouse movement tells CC2 Pro that you want the 40' length to extend in an easterly direction. The prompt reads Third corner or enter length[square]:

6   Move the mouse 6 grid squares north, then left-click. (A right click would have made the room square)

Each grid square is 5' wide, so you've completed a 40' by 30' floor.

Adding a wall

Although you can use the **Room** tool to create floors and walls in one, we're going to explore walls and floors separately just for the experience of using the tools.

7   Right click **Wall, current thickness** 🔲. From the context menu, click **Wall, 1' thick.**

The prompt reads First end:

8   Click on the north-west corner of the room.

The prompt reads Next node or enter distance (SHIFT – move handle) [done]:

9   We'd like the wall edge to run along the edge of the floor. At the moment, if you click, it would be the middle of the wall that aligns to the edge of the floor. Per Pro lets you change this in mid command.

| Wall, current thickness |
| Wall, 1' thick |
| Wall, 2' thick |
| Wall, choose thickness |
| Wall, wireframe |

---
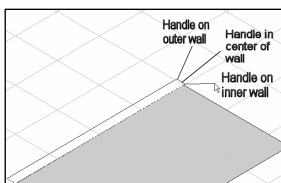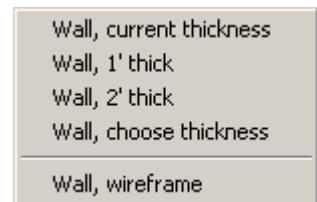
10 Press and hold down ⌊SHIFT⌋. Move the mouse.

> You can see a line cursor that attaches to the end of the wall. The cursor has three possible positions.

11 Move the mouse until the line cursor is attached to the inner edge of the **wall**. Lift your finger from ⌊SHIFT⌋ then move the mouse again.

> The first point you clicked aligns so that the wall runs along the floor edge.

12 Click on the north-east corner of the room, then click on the south-east corner of the room. Right click.

> The prompt reads The prompt reads Height [n]:

13 Although you can just click a point to let CC2 Pro know what height the wall will be, for accuracy, type **10'** and press ⌊ENTER⌋.

> You now have the start of a floorplan. You can see our drawing by opening **Floorplan01.FCW** in the **Tutorials**>**Tome**>**Perspectives** folder.

(Diagram labels: Second node, First node, Third node)
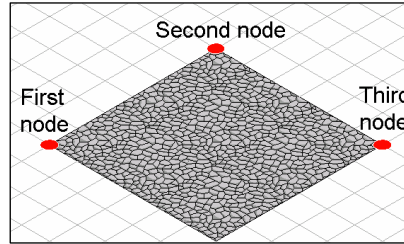
Symbols overview

Per Pro comes with a wide range of symbols duplicating most of those in DD Pro. Perspectives Pro symbols come in two flavors, **free-standing** and **wall features**. Freestanding symbols are those such as furniture and trap doors that can be placed on floors; wall features symbols are those placed against walls such as doors and windows.

Choosing your symbol catalog

You can choose your Per Pro symbol catalog by clicking on one of the buttons on the Symbol toolbar. Sometimes you will be given a choice of catalogs. Click on the one of your choice. You can swap between filled color symbols and mono symbols by clicking **Symbol Settings** 🔄.

Choosing your symbols

14 Click **Furniture** 🪑. Click **Per Filled Furniture**.

Scroll through the catalog. You can see a variety of Per Pro symbols.

15 Click **P Fireplace 2 TE**. Click the ⌊Snap⌋ button to un-depress it. This stops the cursor aligning to each snap point.

> You can see the symbol at the cursor. Choose the symbol's orientation:
> - Press ⬆ to make the symbol face North.
> - Press ⬇ to make the symbol face South.
> - Press ⬅ for make the symbol face West.
> - Press ➡ for make the symbol face East.
> - Press the ⌊TAB⌋ key to cycle between each facing.
> - Alternatively, click on the ⊞ to see all four versions of the symbol and click one directly.

(Diagram labels: Down arrow, Up arrow, Right arrow, Left arrow)
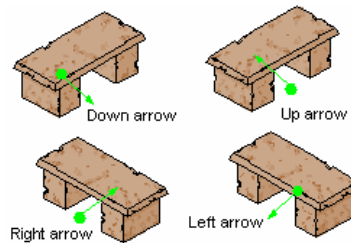
Wall

> Wall, current thickness
> Wall, 1' thick
> Wall, 2' thick
> Wall, choose thickness
>
> Wall, wireframe

Right click **Wall,current thickness** 🟥 to see all the wall options. Once you've chosen a wall thickness from the right click menu and drawn a wall, use Wall to draw walls of the same thickness.

Walls can also be used to create balconies (use a wide thickness with a very low height) and stairs (draw a series of walls with increasing height)

Free-standing

The **free-standing** symbols come in four alignments. Basically, you can align your symbol in the four compass directions. For some symbols (an upright barrel for example) this makes no difference. For others, such as a chair, this limits angle at which the chair appears.

Wall Features

The **wall features** symbols are depicted front on, and can align automatically to any wall by placing them against the base.

16 We want the fireplace on the north wall, so press ⬇ to make the fireplace face south.

17 Click an **insertion point** on the base of the north wall near the center.

18 Add a few more symbols from this catalog – remember you can press arrow keys to realign the symbols before you place them.

Varicolor Symbols

Some symbols have a variable color based around the current color. The main coloration will be the current color, the light and shade areas will be **color numbers** either side. You can see these symbols because they have a small square in the upper right corner with the current color in it. To use them, click the color indicator ▮ P:0.0, then choose a color in the color dialog box. You can then add the symbol to the drawing.

You can see the progress on our drawing by opening **Floorplan02.FCW** in the **Tutorials**>**Tome**>**Perspectives** folder.

Adding Doors and Windows
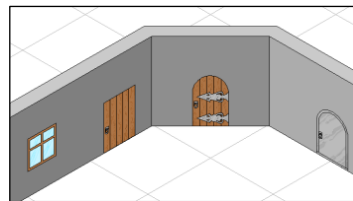
Wall features are **flat symbols** that change shape to match the angle of the wall to which they are aligned. They fix to the base of such walls. Doors are placed directly on the wall base, others such as windows will offset upwards after you've clicked a wall base. Some wall features symbols are not shearing or offset symbols, for example, the flaming torches. Only symbols that lie flat against the wall will work in this fashion.

19 Click **Wall Features** 🚪.

20 Click on **P Rdoor 5'** – the second door symbol.

21 Click **Zoom Window** 🔍 then zoom in to the east wall.

22 Move the **dynamic cursor** very close to the wall base.

> It stretches and aligns to the wall base.

23 Click to place it.

24 Click **P-Window 1'**, the first window symbol. Click a point to the left of the door base.

> The prompt reads offset from place point [40]:

25 The **offset symbol** now moves perpendicular (vertically up) the wall base on a cursor. You could click a point, but instead type **3**.

> The window appears three feet above the floor.

26 Click a point on the right of the door base.

> The prompt reads offset from place point [3]

27 Right click to accept the default height above the floor.

> You could continue placing windows above the floor base at this fixed height.

> You can see our drawing by opening **Floorplan03.FCW** in the **Tutorials**>**Tome**>**Perspectives** folder.

Insertion Point

For most symbols, the symbol origin is in the center of the base where the symbol would align with a wall. For example, a chest would have its symbol origin in the center of the lower rear edge. This makes it much easier to get the correct insertion point when you place the symbol

Where this doesn't make sense, for example stalagmites, the symbol origin is in the center of the symbol.

Color Numbers

CC2 Pro's color scheme is based on a 256-color palette. Each color is assigned a number from 0 to 255 reading left to right on the color palette.

The first 32 colors are an assortment of useful colors forming a mini-palette, the remaining colors are in shades of 16 colors. It is these shades that are usually used with varicolor symbols and Per Pro color schemes.

Flat Symbols

Some wall features symbols do not change shape to match any wall angle., for example, the flaming torches. Only symbols that lie flat against the wall will work in this fashion.

Dynamic Cursor

If your wall features symbols are slow and difficult to place, you can hide layers, particularly the **HATCHING** layer.

If they are still too slow, right click at the symbol cursor and deselect **Smart Tracking** when you are placing a symbol. They'll still align, but you won't see the cursor locking to the wall base.

Offset Symbols

These are symbols such as windows that displace vertically from the wall base once you have clicked it.

P-Bed Dbl E

Offset distance

Insertion point

More To Try

Now you've got going, here are a few more things to try:

- Use the other symbol catalogs and add more wall features.

- Add more floors: right click **Rectangular Floor** ▨ and try out **Polygonal Floor** to make corridors and odd-shaped rooms.

- Click the **Layer** indicator and try hiding or shows the various Walls, Floors and Tops layers. Hide Hatching layers to speeds up drawing time.

Making Solid Shapes and Holes

Perspectives Pro includes some solid entities to create platforms, stairs, balconies, towers and holes. Cylinders, 3D Boxes and 3D Polys and **other solids** are all available.

After you've drawn the base of a solid, you are asked for its height – if you select a point above the base, you will get a solid, if you select a point below the base, a hole.

3D Boxes

To show the use of solids, we are going to add a raised pool to an existing room using 3D Box.

1   Open **ShapesHoles01.fcw** in the **Tutorials**>**Tome**>**Perspectives** folder. This shows a room drawn in the Stone Dwarf style.

2   Click **Perspective Settings** 🔲. Click **Stonewall Grey, Water Floor**.

   Note that the floor area thumbnail looks like a watery surface.

3   On the Perspectives Pro toolbar click **3D Box** 🔴.

   The prompt reads First Corner:

4   Click the first point for the box about one-and-half grid squares away from the north west corner of the room.

   The prompt reads Second corner or enter length.

5   Click a point in the north-east corner of the room. The cursor should be parallel to the north wall.

6   The prompt reads "Third corner or enter length [square]:"

7   Click the final point for the room near the south-east corner.

   The prompt reads Height or Depth[6]:

8   Type **2'** and press ENTER for a 2' high raised area. (**ShapesHoles02.fcw**)
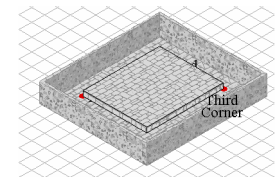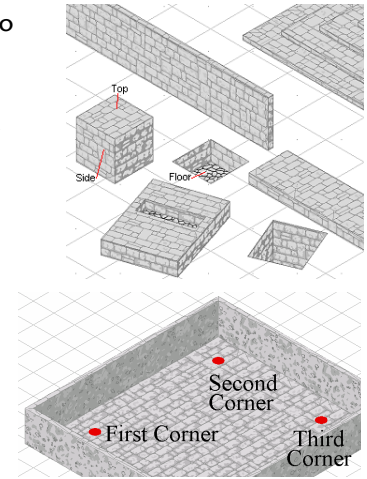
3D Regular Polygon

Now we'll make an indented area filled with water to go on the raised floor.

9   Click **Zoom Extents** 🔍 and then **Zoom Window** 🔍. Choose an empty area to one side of the floor plan.

   We are going to draw this hole at **floor level**, then move the center over the raised area.

10   Right click **3D Box** 🔴. Click **3D Regular Poly**.

   The prompt reads Number of nodes:

11   Type **8** for an octagonal hole. Press ENTER.

   The prompt reads Center:

12   Click a point on the corner of a grid square.

   The prompt reads First Corner (or enter distance)

13   Click a point two grid squares away.

   The prompt reads Height or depth:

14 Type **–2** then press ENTER for a 2' gap between the edge and the surface of the water.

  You've drawn the pool. We'll move it by eye.

15 Click **Move** . Click **Snap** then select and move the pool across to the surface. (**ShapesHoles03.fcw**)
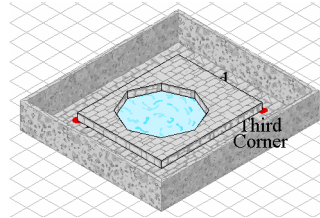
Adding Rooms
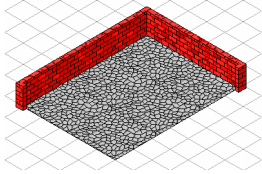
Per Pro provides a short cut for adding rooms with walls included to your drawings. If you right click, you can choose between rooms of the current **wall width**, and setting your own wall thickness.

- When you add a room, you draw the floor, then type or click a point for the wall height.

- You can add a square or rectangular room by clicking **Rectangular Room**

- You can add polygonal, circular or regular polygonal rooms by right-clicking **Rectangular Room**

Making a Per Pro Map from an Existing Plan View

You may find it easier to draw your floor plan from above, and then convert it into a Per Pro map. Per Pro provides tools to convert these plan views into isometric ones. This technique, with a bit of work, can also be used to create your existing CC2 Pro and DD Pro drawings into Per Pro floor plans. The tutorial files referred to here are in the **Tutorials/Tome/Perspectives** folder.

Projecting a Floorplan into Isometric View

In this example, we can draw a simple plan view straight onto the Per Pro template. We then use **3D Projection** to convert it into an isometric floor.

1   Click **New** ☐, then click the **160x120.fct** template. (PlanView01.FCW)

2   Right click the **Snap** button, then select the **5' Square**.

> When you draw in plan view, you need a square grid.

3   Use the scroll bars to zoom to an area to one side of the template.

4   Click **Polygon** ⬚. Click points to form a floor plan. (PlanView02.FCW)

5   Click **3D Projection** 🖼.

> You can see the Isometric **Projection dialog box**.

6   Click **Top CCW**. Select the polygon.

> In almost every case where you are creating an isometric floorplan, you will use the **Top CCW** option.
> The prompt reads "Iso view Origin"

7   Click a point on a corner of your polygon.

> You can see a dynamic cursor of the isometric version. The prompt reads To:

8   Right click the **Snap** button, then select the **5' Perspective grid**.

> We want to align the floor plan to the isometric grid.

9   Click a point on the grid to place your basic floor plan.
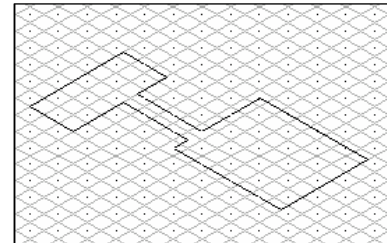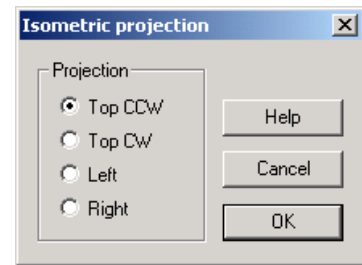
Converting the Basic Floor Plan

You can convert the projected isometric shape into a filled floor.

10 Right click **Rectangular Floor** 🖾, then click **Make into Floor**. Select the **polygon**.

The floor is complete, and you can add walls at this stage. (PlanView03.FCW)

Converting DD Pro Floorplans

You can convert floor plans created with DD Pro or the cut-down **Room** and **Corridor** commands in CC2 Pro into isometric view. It's fairly straightforward, but you will probably need to refer to this example.

Sidebar

3D Projection

3D Projection takes a flat shape and projects it into isometric view, as if it were viewed from above or from the side.

It's mainly used for converting existing floor plans to isometric view ready to be made into a floor, but you can also use it for creating symbols.

Projection Dialog box

- If you are converting a floorplan with North straight up the screen, choose **Top CCW** (Counter clockwise)

- If you are converting a floorplan with North left across the screen, choose **Top CW** (Clockwise)

- If you want to project onto a North or South wall, choose **Right**

- If you want to project onto an East or West wall, choose **Left**.

Polygons

You can make floors with "holes" in projecting the hole shape, then change the fill style and color to match the background color (usually Solid and White).

1   Click **New** ⬜, then click the **160x120.fct** template. On the **Edit** menu, click **Insert File**. The **Embed in Drawing** option should be selected.

2   Click **Dungeon.fcw (~)** in the **Tutorials\Tome\Perspectives** folder. Click a point above the top of the map border.

>   First, we place the dungeon map in a new, blank map.

3   Click the **Layer** indicator then **Thaw All** layers.

4   Click **Erase** 🖊 then erase all of the new image except the rooms, corridors and symbols.

5   Click **3D Projection** 🔲. Select the **Top CCW** option.

>   We want to project only the gray background on **BACKGROUND (FLOOR 1)** so that **Make into Floor** has something to work with.

6   Click two points forming a window around the entire dungeon, **And** (Both), Layer, **BACKGROUND (FLOOR 1)**.

>   The dungeon is ready to place.

7   Click a point on the template.

8   Right click **Rectangular Floor** 🔳, then click **Make into Floor**. Select the floor plan.

>   You can refer to the dungeon to add symbols. You could even explode then project the symbols onto the isometric version for more precision.

Converting Geomorph Floor plans

Some DD Pro floor plans are made from plugging geomorph symbols together. You can convert these into Per Pro floorplans as in the example above, but first you need to use **Explode** 🔨 to convert the symbols into their constituent parts. Then you can just follow the instructions in the previous example to make a floorplan.

Converting More Complex Shapes

Make into Floor can only convert **polygons** or projected circles into filled floors. To deal with this limitation, Per Pro provides you with the tools to make complex shapes into polygons.

1   Click **New** ⬜, then click the **160x120.fct** template.

2   Right click the **Snap** button, then select the **5' Square grid**.

>   We've turned snap on to ensure that the shape you are about to create is enclosed.

3   Use **Path** 〽, **Arc** 🏹, and **Smooth Path** 〽 to create an **enclosed shape**.

4   Right-click **3D Projection** 🔲. Click **Convert to Polygon**. Select the shape you've drawn.

5   Click **3D Projection** 🔲. Select the **Top CCW** option.

6   Right click **Rectangular Floor** 🔳, then click **Make into Floor**. Select the floor plan.

Adding Walls to Curves

You need to add walls to the completed floors. This process was described on page 452. This section shows you how to add walls around a curve.
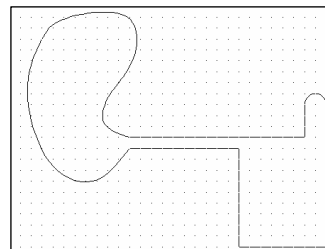
Enclosed shape

An enclosed shape has an unbroken outline with no overlaps. You can ensure that your ends connect by:

* Using **Snap** as in this example,
* Right clicking **Attach** and choosing **Nearest Endpoint**,
* Using the **Endpoint** modifier,
* Using the various **Trim** commands to ensure that everything lines up.

7 Right click the **Attach** button. Click **Nearest Endpoint**. Click **Attach** enabled.

8 Click **Wall, current thickness** ![icon]. Press SHIFT then move the drawing handle to the inside edge of the wall.

9 Click the **Layer** indicator then hide the **FLOORS, HATCHING** layer.

10 Where the wall is curved, click points at regular intervals along the curve. When you reach a straight section, click near its endpoint. (ComplexShape01.FCW)

Creating Solids from Projected Shapes

You can create solid shapes from the projected shapes you make. This enables you to create shapes that are hard to make with the usual solids such as 3D Box and 3D Polygon. This process is called **extrusion**. We'll use the shape in the previous section as an example.

1 Open **Extrude01.fcw**.

2 Click **Solid Extrude** ![icon]. Select the shape on the grid.

The prompt reads Extrude from:

3 Click a point.

The prompt reads Extrude to or enter distance [prior]:

Type **5** then press ENTER. The floor extrudes to give you a solid shape. Unlike with solids, a downward extrude does not give you a hole.

Projecting Text

You can label your drawings using **Text** ![A]. However, it can look good to make your text appear as if it is on the surface of your map, or vertically on a wall.

1 Click **Text** ![A]. Add some text outside the border of your drawing.

2 Right click **Text** ![A]. Click **Explode Text**. Select the text you've just added.

The **text, when exploded**, is converted into polygons and multipolies.

3 Click **3D Projection** ![icon]. Choose a suitable projection (see p.458) Select the text. Click a location for the text on the map.

Extrusion

Extrusion is the process by which a 2D entity is converted into a solid shape. Extrusion adds an extra dimension to 2D entities. Think of this as moving the entities through space, leaving a 3D trail behind them.

- **Solid Extrusion** lets you extrude vertically, creating a solid entity

- **Wireframe Extrusion** lets you extrude in any direction. It is used for making Per Pro symbols.

You can extrude shapes that you have drawn straight onto a Perspectives grid. Alternatively, you can extrude shapes created using 3D Projection.

Any closed shape can be extruded, whether a single entity like a polygon, or any enclosed chain of entities.

Text, when exploded

You can't zoom to it using the text find features or edit it as text once it has been exploded. You'll treat the resulting entities as any other polygons or multipolies.

Cottage on the Point by Allyn Bowker

The cottage uses many symbols from Symbol Set 2-Fantasy Floorplans. It also has symbols edited from their original versions using the techniques described in *To Edit an existing symbol* on page 71.

House Creation

Per Pro also lets you create outdoor scenes. There is a small outdoor symbol catalog 🌲. You can combine these with buildings made with the House command.

A Basic House

1   Click **New** 📄, then click the **160x120.fct** template.

2   Right-click **Current 3D House** 🏠.

The dialog box shows a selection of house settings, a preview of the current house settings and some roof type options.

Insert building

House settings
- No hatch
- Standard
- Thatched Cottage

House Settings...

Sample preview

Roof type
- ◉ 🟥   ○ ⊠
- ☑ Both ends the same

☑ Group building   Cancel

Help   Insert
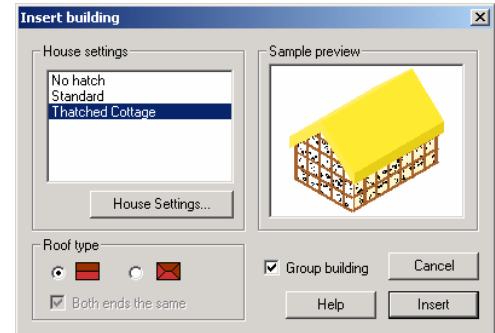
3   Click **No Hatch**. Click the first **roof type**. Click **Insert**.

The prompt reads First Corner:. You'll be drawing the edge perpendicular to the gable.

Roof Types

The roof types are gabled 🟥 and hip ⊠.

Hip

Gabled

4   Click a point.

The prompt reads Second corner or enter length[prior]

5   Click another point about **40 feet** (8 grid squares) away to the east.

The prompt reads Third corner or enter length[square]:

6   Move the mouse to the north a little, then type **30**.

If you had right clicked, you would have a square based house.

The prompt reads Wall height.

7   Click a point about 20 feet up.

The prompt reads Roof Height[12']:

8   Right click to accept the **default** roof height (12 feet)

Defaults

The house command has lots of default options shown at the command prompt. As always, you get the default values by right clicking. This makes is very easy to create many houses with a similar size and shape.

A House with an Extension

You can use the **Hip Roof** option ⊠ to add an extension to a house. For this to work, you need a house which does not have an overhanging roof.

1   Depress the **Snap** button.

2   Right-click **Current 3D House** 🏠.

3   Click **No Hatch**. Make sure the hip roof is selected, then click **House Settings**. Change the **Roof Overhang** to **0**. Click **OK**, then click **Insert**.

4   Draw a house similar to the one in the previous example.

5   Right-click **Current 3D House** 🏠.

6   Click **Hip Roof** ⊠ then uncheck **Both Ends the same.**

You need to draw the extension away from the house.
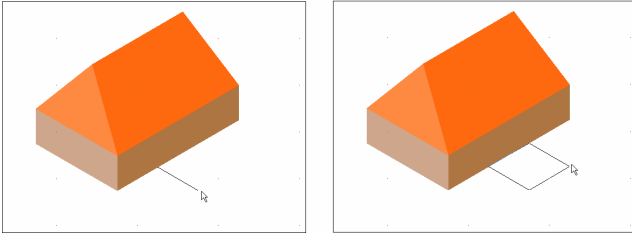
7 Click a point on the edge of the house where it meets the ground. Click another point two square to the south. Click a point two squares to the east.

You've formed the footprint of the extension.

8 Right click to accept the default wall height. Right click to accept the default roof height.

The **prompt** reads Left distance [10] (SHIFT allow outside):

9 Click **On** ⬛. Press and **hold down** `SHIFT`. Move the cursor on to the top edge of the roof, keeping `SHIFT` down and then click.
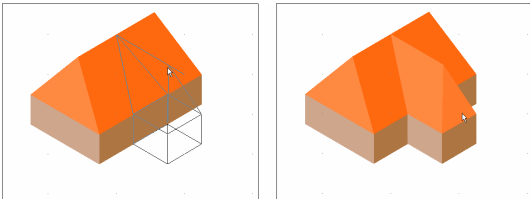
The prompt reads Right distance [symmetric] (SHIFT allow outside)

10 Release `SHIFT`. Click a point to form the other end of the hip roof.

More to Do

- Click **Outdoor** 🌲 then add some symbols.
- Add rivers, grass and other surfaces using appropriate Perspectives Settings.
- Create a map of the interior using **Floors** and **Walls**.

Hold Down

If you press `SHIFT` it will let the hip roof overhang the wall so that you can make extensions and connections. Otherwise, Per Pro prevents you from overhanging, as this would make an odd-looking roof under normal circumstances.

PERSPECTIVES PRO

Controlling the Appearance of Your Per Pro Maps

As we described on p. 452, the color and pattern of Per Pro's entities are controlled by the current Perspectives Settings. To choose one of the pre-existing settings just click on Perspectives Settings and choose from the list.

Creating Your Own Settings

1   Click **New** ⬜, then click the **160x120.fct** template.

2   On the **Perspectives** Pro menu, click **Perspectives Settings**.

> Creating a new setting is just a matter of choosing the options on this dialog box, then saving the results.

3   Click **New** to create a new setting then type **Dwarven Interior**.

4   Click the **Edit** button in the **Color Scheme** section.

> You could just pull down the list and chose an existing color scheme, but we'll show you how to make your own.
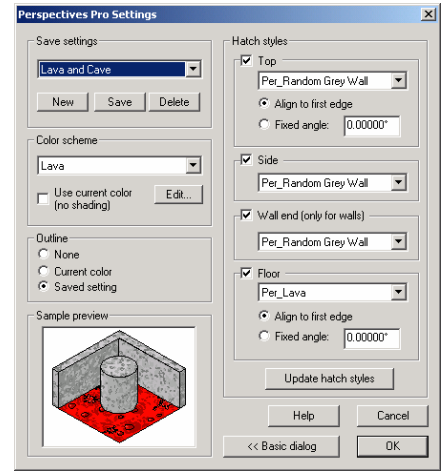
Color Schemes

We are going to create a dark gray rock wall, so we'll make a suitable color scheme.

5   Click **New** then type **Gray, Dark**.

6   Type **10** into the number of colors, then click **Auto Color**.

We are choosing a base color, which should have at least four colors either side for shading the walls. Auto color calculates the colors on either side.

7   Click color 244. Click in the floor color indicator and set it to 248.

8   Click in the outline color indicator then set it to color 0 (black). Click **Save**, then **OK**.

9   Set the **Outline** option to **Saved Setting**.

> The outline color will be that you chose for the color scheme – black.
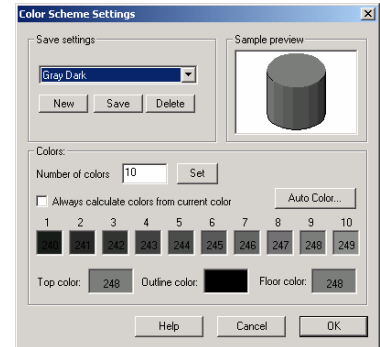
Hatch Styles

Walls, floors and roofs in Perspectives**Error! Bookmark not defined.** Pro have intricate hatch styles to give texture to surfaces. They will then look like brick walls, rough-hewn stone or wood paneling. The current **Perspectives Settings** control the appearance of surfaces, and each setting includes a background color and hatch styles for the top, side, floor and wall ends.

Perspectives Pro does not use **CC2** Pro's standard fill styles because they are not versatile enough – they cannot be aligned to vertical, horizontal or even angled surfaces. Instead, each hatch style is a tileable shape stores in a **CC2** Pro file.

You can create your own hatch styles, including **varicolor hatch styles**.

Each **Perspectives Setting** has hatch styles. Hatch styles are patterns that are drawn on to the surfaces of solid shapes to

Color Scheme

Perspectives Pro entities have a solid filled background color. The actual color used can be a single color, or vary with the angle of the surface from an imaginary light source. This light source assumes is assumed 135º horizontally, about 40º inclination and at a great distance. Perspectives Pro can use a fiXEd color scheme, where each shade is predetermined, or calculate the shades according to the current color when you add an entity. You can choose up to 10 shades of color. Each combination of shades can be saved, and then used in Perspectives Settings.

Auto Color

This creates a color scheme in the current number of colors, based round a selected color. Choose a color (not in the top two rows) from the color palette. The color scheme will be set. If there is no sufficiently dark color, black will be substituted, if no light color then white will be used.

You can instead set colors manually by clicking on the color number concerned.

Varicolor hatch styles

Varicolor hatch style change color according to the color of the surface to which they are applied. Create a hatch style as described in the next section, but with layer s the same as those for varicolor symbols (see the CC2 Pro manual and Help)

give them texture. They make your surfaces appear to be brick walls, stone, wood or even lava. You can choose different textures for top surfaces, wall ends floors and vertical surfaces.

10 Select the Side hatch style, and choose **Per_Rock Wall Grey**.

> We set the side first so that we can get a better look at the change on the preview.

11 Set the Top and Wall End hatch styles to **Per_Rock Wall Grey**.

12 Set the Floor hatch style to **Per_Paving Gray Floor**.

> Leave the **Align to First Edge** and **Fixed Angle** options as they are.

13 Click **Save**.

> You are now ready to use the new color scheme to add entities to your drawing.

Creating Hatch Styles

Each hatch style is stored in its own file and contains a rectangular shape that tiles with itself. The files are stored in the **Symbols\Perspective\Fill Styles** folder. Hatch styles for roofs (created in the same way) are found in the **Symbols\Perspective\Roof Styles** folder.

1 Click **New** .

2 Click **Blank Hatch Style.fct**

3 (Optional) On the **Template** layer, draw a solid box of the color of a typical background color for the style

4 Click the layer indicator, then set the **Standard** layer current

5 Using CC2 Pro's drawing tools create a **tileable**, front-on pattern
   - Draw using only **Polygon** , **Path** or **Line** ..
   - Use only **Hollow** or **Solid** fill styles
   - You can use entities of any line width or color
   - Entities on the **TEMPLATE** layer are ignored
   - You don't have to draw in the square provided.

6 Copy the tile to the left of the template box. Adjust the left-hand side of the tile so that it matches. Repeat this for each side.

7 Delete any copies you have made

8 On the **File** menu, click **Save As** then save the file in the **Symbols\Perspectives\Styles** folder of CC2 Pro.
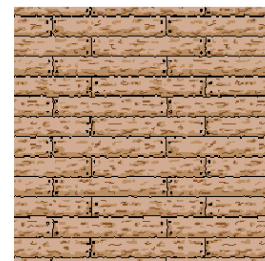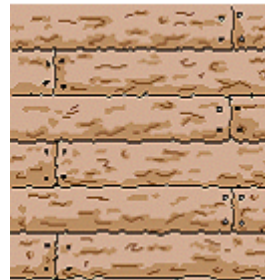
To Use the Created Hatch Style

To save time, CC2 Pro only checks for hatch styles on start-up. You need to let CC2 Pro know that you have changed or added a hatch style.

9 In an existing drawing, click **Perspectives Settings** on the **Perspectives** menu.

10 Click **Update Hatch Styles**.

11 Select an existing saved setting, or start a new setting.

12 Pull down any hatch style list – your new file will be there.

Align to First Edge
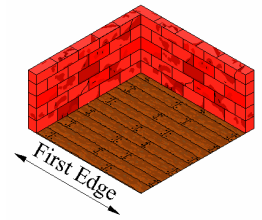
If you set the **Align to First Edge** option, when you use the Floor or Room tools, the pattern aligns to the first two points you click. This is useful for example if you want floorboards that align with the edge of a room.

FiXEd Angle
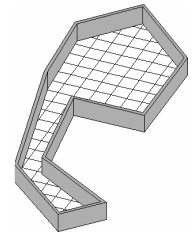
If you use the fiXEd angle option, the pattern always aligns to a particular direction. This is useful for hex or square grids with a fiXEd direction.

Tileable

A tileable shape is one in which the overall appearance is uniform when the image used as a hatch style. The edges of the tiles, when adjacent, mate seamlessly together.

- It's much easier to start with an existing hatch style pattern, or even a fill style symbol than start from scratch.
- For a quick hatch style, draw a tile, mirror copy it vertically, then mirror copy both tiles horizontally.
- Don't use too many nodes – hatch styles can grow rapidly and slow down your drawings.

Creating Perspective Symbols
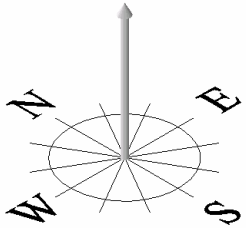
Perspectives Pro symbol creation requires a good understanding of CC2 Pro and a grasp of isometric drawing that comes with practice. It is for advanced users. A full tutorial on symbol creation starts on page 469.

To Create a Free-Standing Perspectives Pro Symbol

You need four views of the symbol, one for each compass direction.
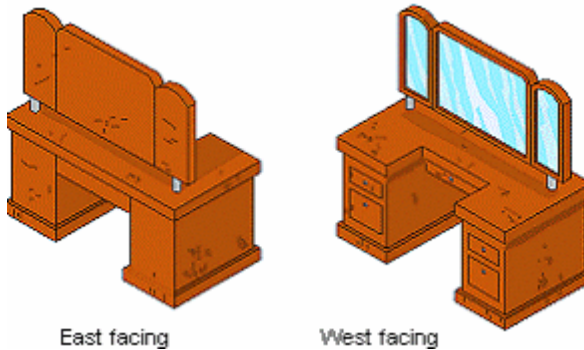
East facing   West facing

1   Click **New** . Click **blank.fct**.

2   Click the Layer Indicator then set the current layer to **SYMBOL DEFINITION**.

3   Draw two views of the symbol, one facing east, the other west. Depending on their symmetry, these may be identical. Use **3D Projection** , **Wire Frame Extrusion**, **3D Line** and **3D Circle** tools to make the symbols.

Mirror copy line

North facing

East facing

4   Right click **Copy** then click **Mirror Copy**.

5   Select both symbols then click two points forming a vertical mirror line.
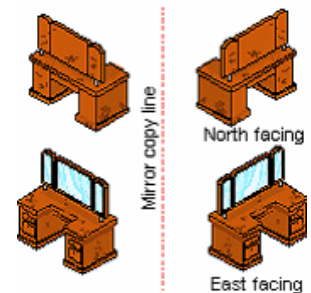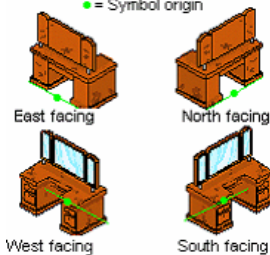
    This gives you the four symbols you need. You still need four, even if they are all identical.

Defining a Free-Standing Perspectives Pro Symbol

= Symbol origin

East facing   North facing

West facing   South facing

6   First, you need to determine the symbol origin.

    Imagine the symbol facing away from the wall. The origin is the bottom center where the symbol aligns with the wall. If the symbol has infinite rotational symmetry (a barrel or column), then use the center of the base for all four symbols.

7   If necessary, draw some lines with along the lower base of each symbol, then move the symbol from the center of this line to a **Snap** point to make it easy for you to define the origin.

8   On the Symbols menu, click **Define Symbol**. Use the origin for each symbol you determined above. Define each symbol, in the following order:

    i) The East-facing symbol (the name must have a suffix SPACE then E, eg P-Vanity E),

    ii) The North-facing symbol (eg P-Vanity N)

    iii) The West-facing symbol (eg P-Vanity W)

iv) The South-facing symbol (eg P-Vanity S)

Adding Free-Standing Symbol Information

For CC2 Pro to know that your four symbols are Perspectives Pro symbols, you need add information to each definition.

9 On the **Symbols** menu, click **Symbol Manager**.

10 Click the first Perspectives Pro symbol you have defined.

11 Click **Edit**. Click two points to make a symbol window.

12 On the **Symbols** menu, click **Add Symbol Info**.

13 Select **Symbol is one of a collection**

14 Select **One letter at the end**

15 Select **Arrow keys select different symbols**

16 Unselect **Perspectives Wall symbol (sheared)**

17 Close the symbol definition window.

18 <u>**Repeat**</u> for each symbol definition.
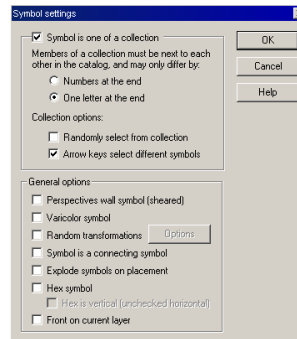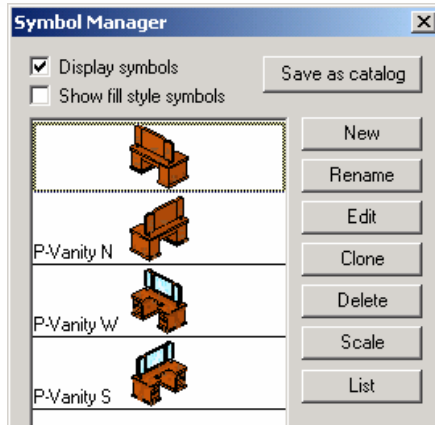
Creating Wall Features Symbols

Wall features symbols are those placed against walls such as doors and windows. These are much easier to draw than free-standing symbols; you just need to create a front-on view.

1 Click **New** ⬜. Click **blank.fct**.

2 Click the **Layer** Indicator then set the current layer to **SYMBOL DEFINITION**.

3 Draw a front-on view of the symbol.

4 In the **Symbols** menu, click **Define Symbol**.

5 Type a name, then click an origin point in the center of the base of the symbol.

6 In the **Symbols** menu, click **Add Control Points**.

7 Click one point on the left of the base, one in the middle.

8 Select the <u>**control points**</u> as in the example shown.
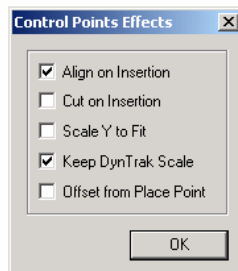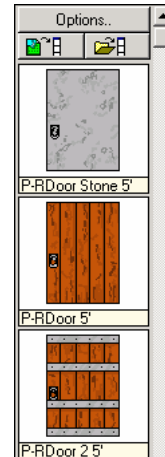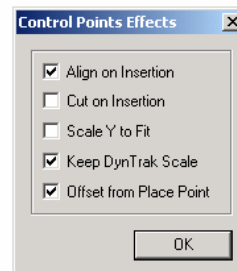
Adding Wall Features Symbol Information
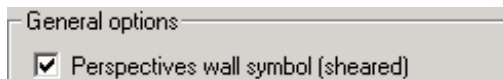
Follow the instructions in **Adding Free-Standing Symbol Information** on page 467 but with only the **Perspectives Wall Symbol (sheared)** setting selected on the **Add Symbol Information** dialog box.

Repeat Symbol Information

Add Symbol Information adds an invisible entity to the symbol definition that stores the symbol settings you see displayed in the Symbol Settings window. You can copy this symbol information between each symbol definition via the clipboard.

When you are editing the symbol definition and have added the symbol information, click **Copy** on the **Edit** menu. Select by type **XP entity.** This will select the symbol info entity. When you edit the next symbol, right click **Undo** then click **Paste non-visual** at **0,0**.

Control Points

Windows offset up from the wall base after you have placed them, so they have **Offset from Place Point** selected.

Saving any Perspectives Pro Symbol as a Catalog

Now that you've created the symbol, you should save it in the **Perspectives/Symbols/Filled** folder as a Campaign Cartographer 2 Pro FSC Symbol Catalog. You can add more symbols to the catalog at any time. If you want the symbol catalog to appear when you click **Symbol Settings**, you should **add a symbol setting** for the catalog.

Adding any Perspectives Pro Symbols to an Existing Catalog

If you want to add the symbol to an existing catalog, as opposed to starting an entirely new catalog, the process works pretty much as it does for normal **CC2 Pro** symbols, except you have to include all four versions of the symbol.

1 Save the symbol drawing in a convenient place.

2 Click **Open**. Click files of type **CC2 FSC Symbol Catalog**. Select the symbol catalog to which you wish to add your symbols.

3 In the **Symbols** menu, click **Symbol Manager**.

4 Click **Import**. Select the file from which you wish to import symbols.

   The symbols appear at the end of the symbol list.

5 Select each symbol and use **Move Up** to move them to where you want them to go. Make sure they remain in the same order in the drawing.

   You may find it easier to uncheck **Display Symbols** before moving the symbols around.

6 Close the **Symbol Manager** then save the catalog.
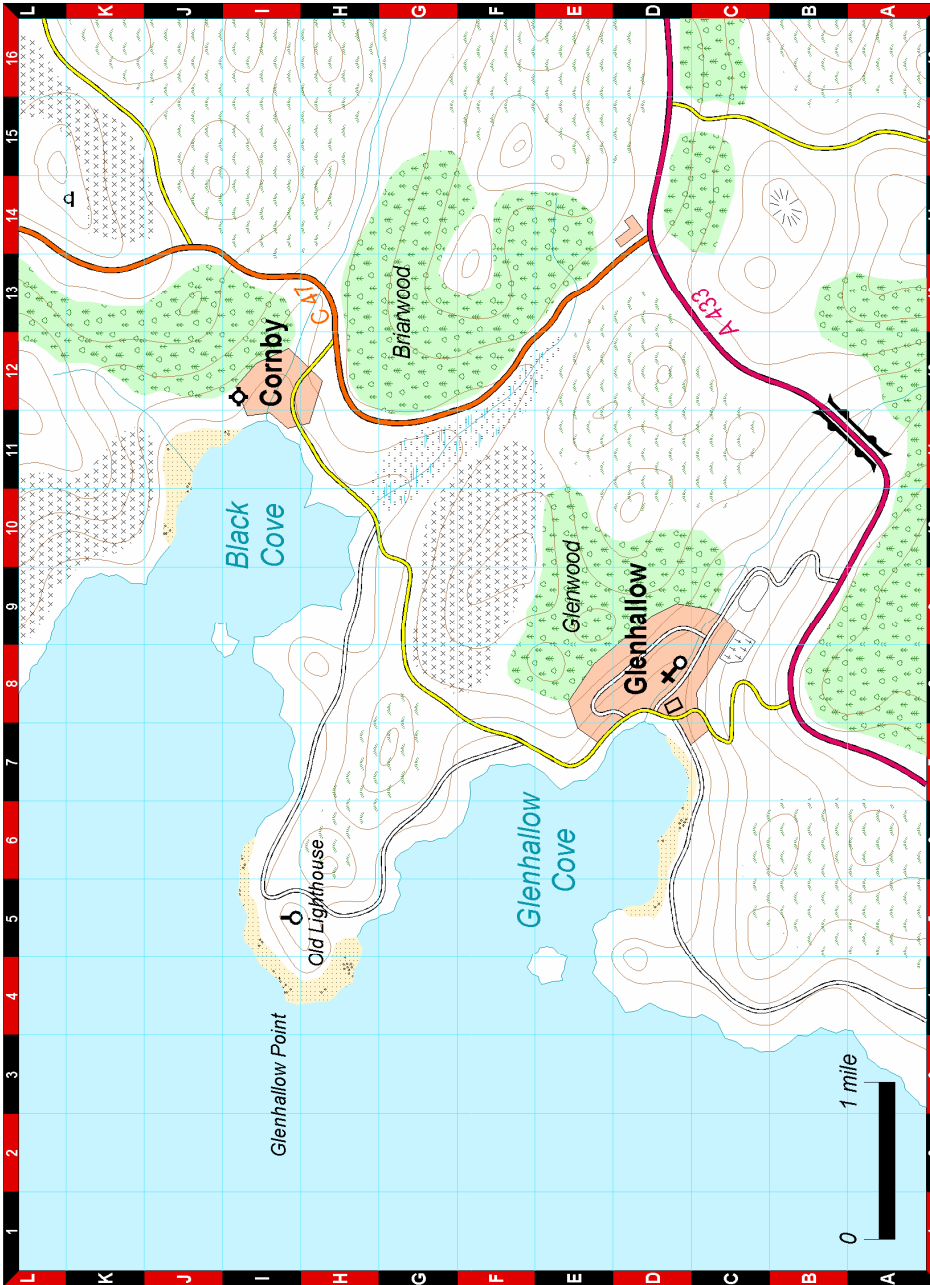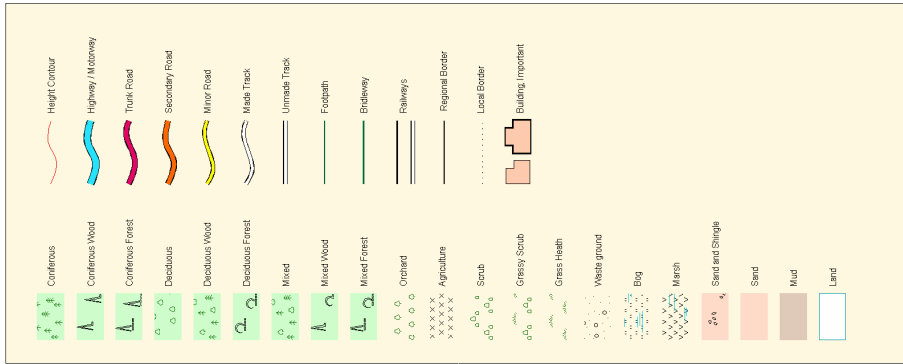
Modern Cornby and Glenhallow by Ralf Schemmann

Modern Cornby and Glenhallow is drawn on a Cosmographer Local Overland template. The drawing can be viewed in the **Examples>Modern** folder.

Legend:

Height Contour · Highway / Motorway · Trunk Road · Secondary Road · Minor Road · Made Track · Unmade Track · Footpath · Bridleway · Railways · Regional Border · Local Border · Building / Important

Coniferous · Coniferous Wood · Coniferous Forest · Deciduous · Deciduous Wood · Deciduous Forest · Mixed · Mixed Wood · Mixed Forest · Orchard · Agriculture · Scrub · Grassy Scrub · Grass Heath · Waste ground · Bog · Marsh · Sand and Shingle · Sand · Mud · Land

Map labels:

Cornby · Briarwood · Glenhallow · Glenwood · Black Cove · Glenhallow Cove · Glenhallow Point · Old Lighthouse · A 433 · G 41

0 1 mile

Perspectives PRO

Making a Perspectives Pro Symbol - an Example

Perspectives Pro isn't **true 3D**. It is a specific angled view of our created realms. The challenge of creating a symbol in that specific angled view isn't as hard as it might seem. The tutorial makes certain **assumptions** about your abilities with CC2 Pro but the tools provided in Perspectives Pro makes creating that angled view easy. We're going to make a simple wagon using these Per tools.

Our version of the wagon is in the **Tutorials/Tome/Perspectives** folder.

Creating a wagon

To create our wagon symbol, we're going to use a special template.

1 Click **Open** 📂 then open the drop down menu in the **Files of Type** field. Select **CC2 FCT Temple**, then navigate to the **Tutorials/Tome/Perspectives** folder. Select PerSymbol.FCT. (Wagon01.FCW)
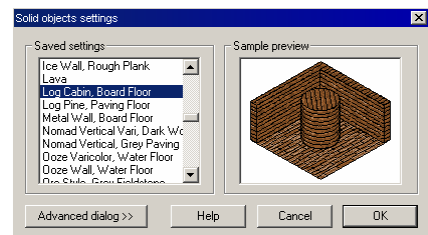
2 Click **Perspectives Settings** 🔲 then scroll down the **Saved Settings** to **Log Cabin, Board Floor**. Click **OK**.

3 Click **Rectangular Floor** 🔲. Pick a point on the template to begin. Each square on the template is 1 foot. With **Snap** enabled, draw a rectangle 5 feet (north to south) by 8 feet (east to west). (Wagon02.FCW)
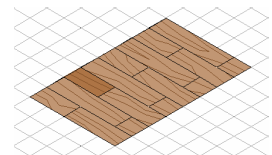
4 Right click **Wall** 🔲 then select **Wall, choose thickness**. Type **2"** [ENTER]. Click each corner of our 'floor' in turn and then click on the corner that we began with. Right click to end drawing walls and then type **2'** [ENTER] to raise the wall height. (Wagon03.FCW)
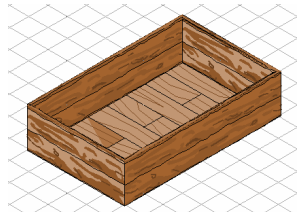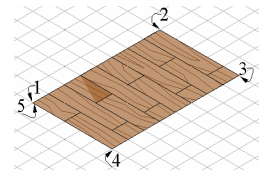
5 Click **3D Box** 🔴 then click the two front corners of our wagon floor (points 1 and 4 in the diagram above). Pull the 'box' out 3 feet east and then click again. Right click, then type **2"** [ENTER]. This will make the floor for the seating area. (Wagon04.FCW)
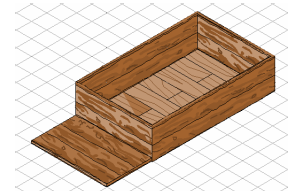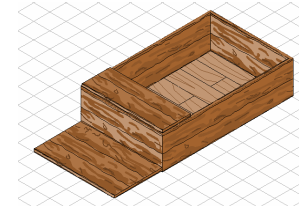
6 Click **3D Box** 🔴 then click the two top front corners of our wagon walls. Pull the 'box' 2 feet west and then click again. Right click then type **2"** [ENTER]. This will make the seat for the driver of our wagon. (Wagon05.FCW)

Making Wheels

7 Change the settings on the toolbar to match these:
   Line Width: 3", **Color**: #40 (medium brown), **Fill Style**: Solid

8 Click **Circle** 🔵 then draw a circle 3 feet wide on the template to the side of our wagon body.
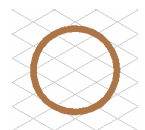
9   Change the settings on the toolbar to match these:

    Line Width: 1", **Color**: #40 (medium brown), **Fill Style**: Solid

10 Click **Path** ⚡ then draw a path across the center of our circle.

11 Right click **Copy** 🔳 then click **Circular Array**.

    Click the path we drew across the center of our circle. Right click, **Do it**. Now watch the command line. Type **3** ⎵ENTER⎵ for the number of spokes. Type **1** ⎵ENTER⎵ for the number of rings. Click the center of the circle for the Array center. Click the center of the circle again for the copy origin, then hit ⎵ENTER⎵ to accept the calculated angle of the spokes.
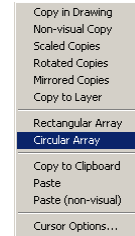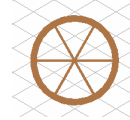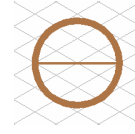
12 Change the settings on the toolbar to match these:

    Line Width: 0", **Color**: #40 (medium brown), **Fill Style**: Solid

13 Click **Circle** 🔵 then click the center of our wheel. Click to unselect **Snap**, then draw a smaller circle on the middle of the spokes for the hub.

14 Click **Bring to Front** 🔲 then select the outer circle of our wheel. Right click, **Do it**.

15 Change the settings on the toolbar to match these:

    Line Width: .5", **Color**: #247 (medium grey), **Fill Style**: Solid

16 Click **Circle** 🔵 then click **Snap** to select it. Click the center of our wheel. Click **Snap** again to unselect it, then draw a small circle on the hub to designate the axle.

17 Click **Circle** 🔵 then click **Snap** to select it. Click the center of our wheel. Draw a grey circle on the outer circle of our wheel that we drew in step 8.

18 Click **Outline** 🖌 then select all the entities that make up our wheel. Right click, **Do it**. (Wagon07.FCW)

19 Click **3D Projection** 📐 then select **Right**. Click **OK**. Select all the entities that make up our wheel, then right click, **Do it**.

20 In the **Tools** menu, scroll down to **Groups** and then in the side menu select **Group**. Select all the entities that make up our projected wheel. Right click, **Do it**.

21 Click **Erase** 🖊 then select all the entities that make up our original wheel. Right click, **Do it**. (Wagon08.FCW)

22 Click **Copy** 🔳 then select our projected wheel. Place one wheel at the front of the wagon and one on the back of the wagon.

23 Click **Erase** 🖊 then select all the entities that make up our projected wheel. Right click, **Do it**. (Wagon09.FCW)

Now we have a wagon. Since this is Perspectives Pro and all symbols are given in all four views, we'll need to make the **opposite view** of our wagon. This will be easy.

Opposite View

24 Click **Copy** 🔳 then select all the entities that make up our wagon. Right click, **Do it**. Set a copy of the wagon down under the first one.

25 Click **Move** 📍 then select the floor section for the seating area. Right click, **Do it**. Move the section to the far end of the wagon.

26 Click **Send Behind** 🔲 then select a wall of our wagon. Select the **floor area** we just moved, then right click, **Do it**.

Circular Array

CIRCULAR ARRAY makes multiple copies arranged in rings. Usually, you create a section of an object forming a "piece of pie" in a circular, then make a circular array with one ring and the default angle (even).
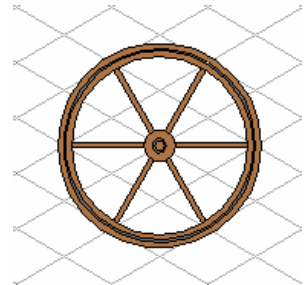
Opposite View

For some symbols like columns or barrels, this is easy because all four views are essentially the same. Some symbols are complex and each view will require a separate drawing. Our wagon, however, is in the middle. By drawing the opposite view of the wagon we already have, we can provide all four Perspective views.

Floor Area

The sections of the wagon we drew using the floor and walls tools are grouped entities. The entire section will be selected when we select any part of it.

27 Click **Move** then select the seat of the wagon. Right click, **Do it**. Move the section to the far end of the wagon. (Wagon10.FCW)

Because our wagon is not complex, by moving a few sections, we were able to turn our wagon around. From this view, however, we would see both back wheels. Let's add a wheel to the other side of the wagon.

28 Click **Copy** then select the back wheel. Right click, **Do it**. **Place the copy** of the wheel on the far side of the wagon.

29 Click **Send Behind** then select a wall of our wagon. Select thewheel we just placed, then right click, **Do it**. (Wagon11.FCW)
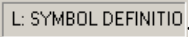
We're almost done now. We have to make the other two views and do a little clean up. Then we can define them as symbols.

Four Views

30 Click **Ortho** to select it.
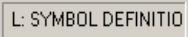
31 Right click **Copy** then select **Mirrored Copies**. Select all the entities that make up our wagons. Right click, **Do it**. Click to the left of the wagons and then draw a **straight line** down. Click again to end the line. (Wagon12.FCW)

Symbol Preparations

32 Click the **Layers** indicator `L: SYMBOL DEFINITIO`. Click to put an **F** in the **Freeze** box for the **HEX/SQUARE GRID** layer.

33 In the **Tools** menu, scroll down to **Groups** and then select **Ungroup**. Select all the entities for all of our wagons. Right click, **Do it**.

34 Click **Change Layer**. Right click, then select **Prior**. Right click, **Do it**. Right click, then select the **SYMBOL DEFINITION** layer. Click **OK**.

35 Click the **Layers** indicator `L: SYMBOL DEFINITIO` then click **Purge Unused**.

Now that we've ungrouped all the sections and purged all the **extra layers**, we're ready to define our wagons as symbols. Please refer to page 466 for instructions on defining Perspective symbols.
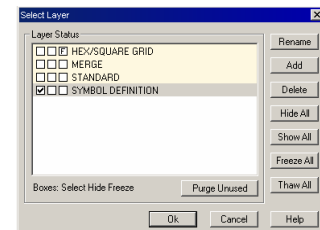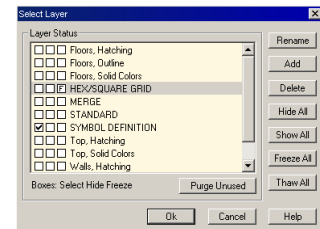
Blue Sword Inn

Second Floor

First Floor
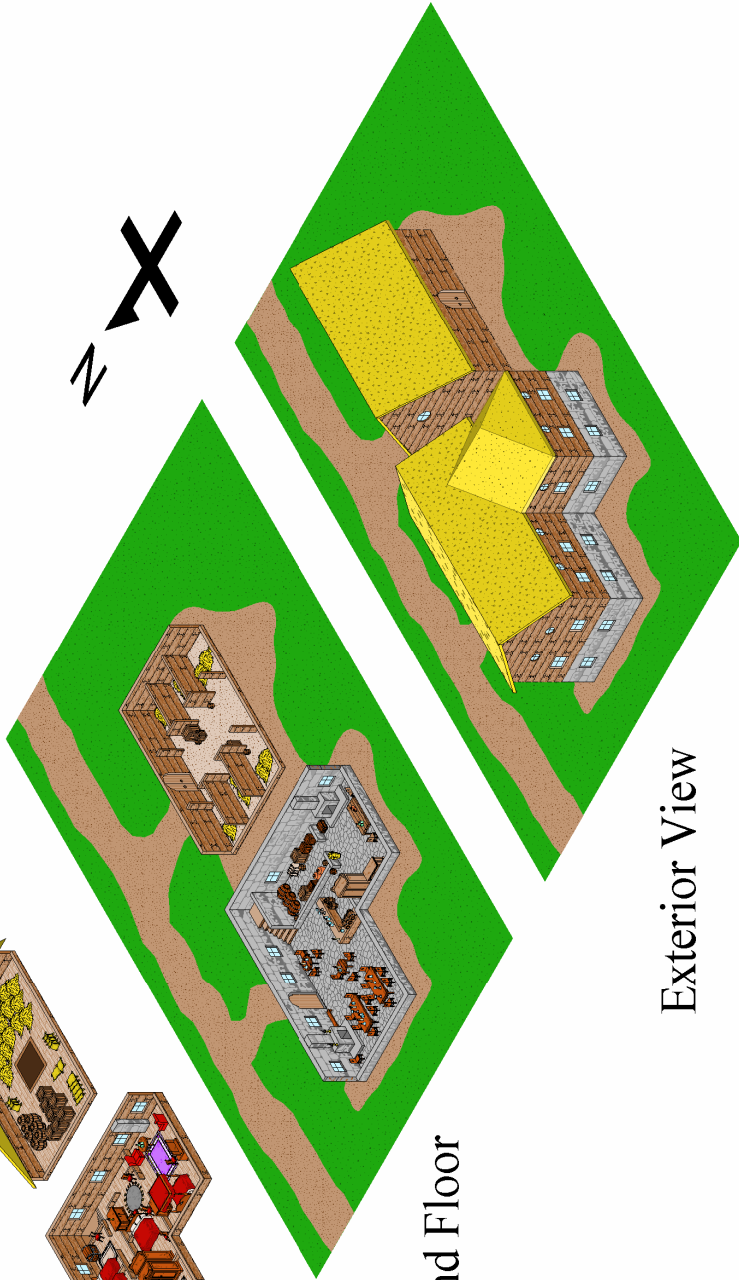
Ground Floor

Exterior View

Blue Sword Inn by Ralf Schemmann

The **Blue Sword Inn** is a Persepctives Pro drawing. It is available in the Examples>Perspectives folder.

Alphabetical List of Perspectives Pro Commands

This table gives you a list of all Perspectives Pro commands.

- **Command** gives you the command name found on the CC2 Pro's menus, the name that appears when you hover the mouse over a button (tool tip text) or on a right click popup menu. Type the command into CC2 Pro's Help Index or Find list to get more details on the command.
- **Where?** Lets you know which menu, popup menu or toolbar to find the command. Right click on the button to access a popup menu. For example, a **2-point circle** can be accessed by right clicking the **Circle** button ⊙ on the **Draw** toolbar. **Text Only** means that the command should be typed at the Command prompt.
- The **Text Equivalent** is what you type at the Command prompt to use the command.
- **Syntax** shows how you should construct your macro commands. If in doubt, type the text equivalent of the command at the keyboard and see what the prompts say. For details of this see the Macro Command Reference in the CC2 Pro manual.
- **Use In Macro** If the command is useable in a macro, then **Yes**, otherwise **No**. Note that all commands are useable as the last line in a macro. The next section on page 151 lists macro commands.

Command	Description	Where	Text Equivalent	Syntax	Use in Macro
3D Box	3D box shape	Per toolbar	IBOX	xyCorner1;xyCorner2/dDist2; xyCorner3/dDist3;dHeight (negative makes a hole)	Yes
3D Circle Left	An isometric circle viewed from the left	Per toolbar, 3D Projection popup	CIRL	dRadius,xyCen1;xyCen2;...;xyN;	Yes
3D Circle, Right	An isometric circle viewed from the right	Per toolbar, 3D Projection popup	CIRR	dRadius,xyCen1;xyCen2;...;xyN;	Yes
3D Circle, Top	An isometric circle viewed from above	Per toolbar, 3D Projection popup	ICIRT	dRadius,xyCen1;xyCen2;...;xyN;	Yes
3D Line	Line angled to main isometric directions	Per toolbar, 3D Projection popup	ILINE	xy1;xy2;...;xyN;	Yes
3D Poly	Adds a 3D-polygon solid or hole	Per toolbar, 3D Box popup	IPOLY	xy1;xy2;...;xyN;dHeight[prior] (negative value makes hole)	Yes
3D Projection	Converts plan or elevation to isometric view	Per toolbar	IPROJ		No
3D Regular Poly	Adds a 3D regular-polygon-based solid or hole	Per toolbar, 3D Box popup	IRPOLY	nNodes[prior];xyCenter[prior];xyCorner;dHeight[prior] (negative value makes hole)	Yes
Caves and debris	Opens the Caves and debris symbol catalog	Symbols toolbar	SYMICONM; Cave*		No
Circular Room, choose width	Adds a circular floor plus walls in a user-defined wall thickness	Per toolbar, Rectangular Room popup	ICYLW	dWidth[prior];dRadius[prior];xyCen;dHeight[prior]	Yes

Command	Description	Where	Text Equivalent	Syntax	Use in Macro
Circular Room, current width	Adds a circular floor plus walls in the current wall thickness	Per Pro toolbar, Rectangular Room popup	ICYLWC	dRadius[prior];xyCen;dHeight[prior]	Macro
Containers and Treasure	Opens the Containers and Treasure symbol catalog	Symbols toolbar	SYMICONM; Containers and Treasure*		No
Convert to Polygon	Converts a closed chain of entities into a polygon	Per Pro toolbar, 3D Projection popup	LTP2		No
Current 3D House	Adds a house in the current house style	Per Pro toolbar	IHOUSEP	Varies with house style. (see below)	Yes
Current 3D House Gabled roof:	Adds a house in the current house style. This is with **Gabled roof**: in House Settings	Per Pro toolbar	IHOUSEP	xyCorner1;xyCorner2/dDist2; xyCorner3/dDist3[Square]; dWallHeight[Prior];dRoofHeight[Prior];	Yes
Current 3D House	Adds a house in the current house style. This is with **Hip Roof (both ends same** in House Settings	Per Pro toolbar	IHOUSEP	xyCorner1;xyCorner2/dSide2; xyCorner3/dSide3[Square]; dWallHeight[Prior];dRoofHeight[Prior]; dRoofIns	Yes
Current 3D House	Adds a house in the current house style. This is with **Hip Roof (ends different** in House Settings	Per Pro toolbar	IHOUSEP	xyCorner1;xyCorner2/dSide2; xyCorner3/dSide3[Square]; dWallHeight[Prior];dRoofHeight[Prior]; dRoofLeft;dRoofRight[same]	Yes
Cylinder	Adds a cylinder or cylindrical hole	Per Pro toolbar, 3D Box popup	ICYL	dRadius[prior];xyCen;dHeight[prior]	Yes
Elemental and magic	Opens the Elemental and magic symbol catalog	Symbols toolbar	SYMICONM; Elemental and Magic*;		No
Furniture	Opens the Furniture symbol catalog	Symbols toolbar	SYMICONM; Furniture*		No
Outdoor	Opens the Outdoor symbol catalog	Symbols toolbar	SYMICONM; Outdoor*		No
Perspective Settings	Sets current color and hatch scheme	Per toolbar	PEROPTB		No
Perspective Settings	Setsor edits current color and hatch scheme	Per toolbar	PEROPTB		No

Command	Description	Where	Text Equivalent	Syntax	Use in Macro
Polygonal Room, choose width	Adds a polygonal floor plus walls in a user-defined wall thickness	Per Pro toolbar, Rectangular Room popup	IPOLYW	dWidth[prior];xy1;xy2;...; xyN;dHeight[prior] (negative value makes hole)	Yes
Polygonal Room, current width	Adds a polygonal floor plus walls in the current wall thickness	Per Pro toolbar, Rectangular Room popup	IPOLYWC	xy1;xy2;...;xyN;dHeight[prior] (negative value makes hole)	Yes
Rectangular Floor	Rectangular floor	Per Pro toolbar	IBOXF	xyCorner1;xyCorner2/dDist2; xyCorner3/dDist3[Square]	Yes
Rectangular Room, choose width	Adds a rectangular floor plus walls in a user-defined wall thickness	Per Pro toolbar, Rectangular Room popup	IBOXW	dWidth[prior];xyCorner1; xyCorner2/dDist2; xyCorner3/dDist3[Square]	Yes
Rectangular Room, current wall width	Adds a rectangular floor plus walls in the current thickness	Per Pro toolbar	IBOXWC	xyCorner1;xyCorner2/dDist2; xyCorner3/dDist3[Square]	Macro
Regular Poly Room, choose width	Adds a regular poly floor plus walls in a user-defined wall thickness	Per Pro toolbar, Rectangular Room popup	IRPOLYW	dWidth[prior];nNodes[prior]; xyCenter[prior];xyCorner;dHeight[prior]	Yes
Regular Poly Room, current width	Adds a regular poly floor plus walls in the current wall thickness	Per Pro toolbar, Rectangular Room popup	IRPOLYWC	nNodes[prior];xyCenter[prior]; xyCorner;dHeight[prior]	Macro
Solid Extrude	Converts a flat isometric shape into a solid	Perspectives Pro	IEXTRUDE	xyFrom;dHeight	Yes
Temples and Statues	Opens the Temples and Statues symbol catalog	Symbols toolbar	SYMICONM; Temples and Statues*		No
Traps	Opens the Traps symbol catalog	Symbols toolbar	SYMICONM; Traps*		No
Up and Down	Opens the Up and Down symbol catalog	Symbols toolbar	Up and Down*		No
Wall Features	Opens the Wall Features symbol catalog	Symbols toolbar	SYMICONM; Wall Features*		No
Wall, 1' thick	3D Perspectives Wall, 1' thick	Per Pro toolbar, Wall popup	IWALL1	xyFirstEnd;xyNode1/dDist1;...; xyNodeN/dDistN;;dheight[prior]	Macro
Wall, 2' thick	3D Perspectives Wall, 2' thick	Per Pro toolbar, Wall popup	IWALL2	xyFirstEnd;xyNode1/dDist1;...; xyNodeN/dDistN;;dheight[prior]	Macro
Wall, choose thickness	3D Perspectives Wall choose thickness	Per Pro toolbar, Wall popup	IWALL	dThickness[prior];xyFirstEnd; xyNode1/dDist1;...;xyNodeN/dDistN;; dHeight[prior]	Yes

Command	Description	Where	Text Equivalent	Syntax	Use in Macro
Wall, current thickness	3D Wall, with current thickness	Per Pro toolbar	IWALLC	xyFirstEnd;xyNode1/dDist1;...; xyNodeN/dDistN;;dheight[prior]	Macro
Wall, wireframe	3D Perspectives Wall, outline only	Per Pro toolbar, Wall popup	IWALLW	dThickness[prior];xyFirstEnd; xyNode1/dDist1;...; xyNodeN/dDistN;;dheight[prior]	Yes
Weapons	Opens the Weapons symbol catalog	Symbols toolbar	SYMICONM; Weapons*		No
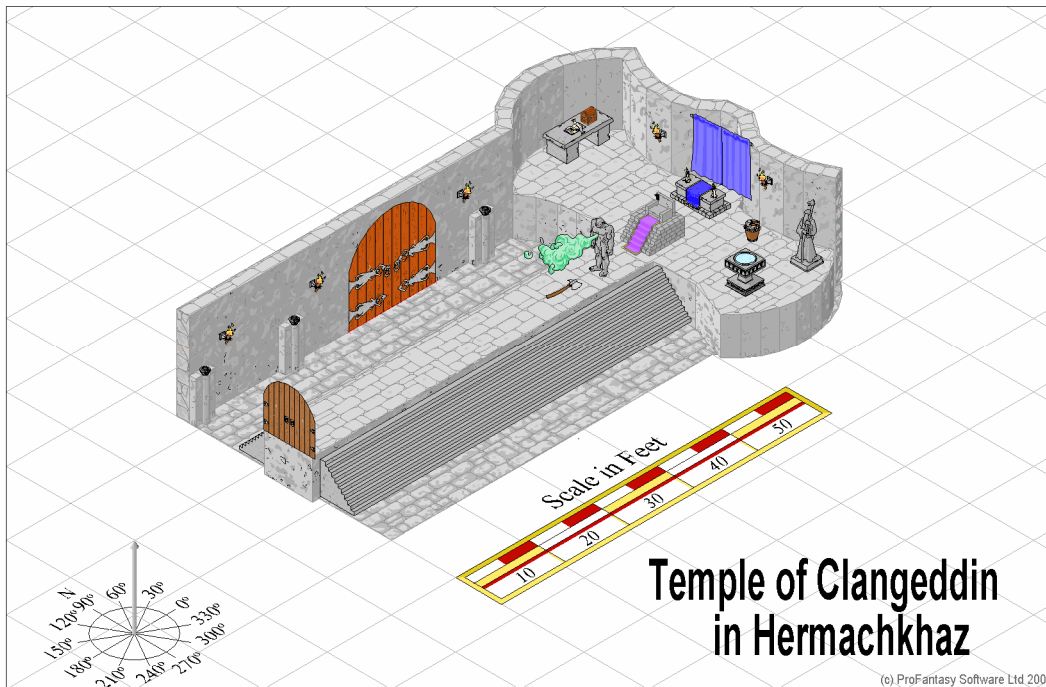
Temple of Clangeddin a from Profantasy

The Temple is a Perspectives Pro drawing available to view in the **Examples>Persepctives** folder.

The Jaw Peninsular from Profantasy

The Jaw Peninsular uses symbols from Symbol Set 1-Fantasy Overland. The drawing is available in the **Examples>SymbolSet2** folder

CASTLES!
SOURCE MAPS

WORLD WAR II
INTERACTIVE ATLAS

FANTASY OVERLAND
SYMBOL SET ONE

FOR CC2 PRO

FANTASY FLOORPLANS
SYMBOL SET TWO
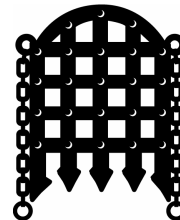
MODERN
SYMBOL SET THREE
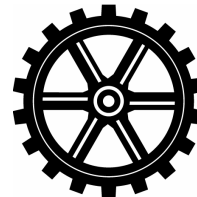
Source Maps: Castles!

Introduction

SMC is a stand-alone product which includes twenty-five castle floorplans, and a powerful viewer to examine them and print them at any scale. SMC includes historical details and images for castraphiles, as well as adventures in 3.5 Edition format. It also adds new symbol sets and drawing tools to **CC2** Pro and the Perspectives Pro add-on.

The SMC Viewer

SMC comes with a built-in viewer. The viewer is described in the first five sections. If you have **CC2**_Pro, you won't need to use the SMC Viewer – you can view all the castles and information using the **CC2** Pro interface. You should scan the SMC Viwer section to see how to navigate quickly between floors and castles.

Creating and Editing Castle Maps

All the plan view maps in SMC were created with **CC2** Pro and the 3D maps using the **Perspectives Pro** add-on. If you have either of these products you can edit the castles in the SMC and create your own.

Perspectives Pro

Per Pro is an add-on for CC2 Pro which allows you to create 3D isometric floorplans and buildings. We used it to create the 3D castles maps in SMC. See page 452 for more information.

Viewer Overview

When you've finished this chapter, you'll be able to use 90% of the features of the viewer. If you have CC2 Pro, you can navigate your castles from with the CC2 Pro interface.

Interface

The **Viewing Window** is where you see your maps. The affect of any Zoom or Layer changes will be visible here.

The **toolbar** is where you can select the Viewer's most frequently accessed commands.

You can move the Viewing Window over you maps using the **Scroll Bars**.

The position of the cursor is shown on the **Tracking Indicator**. As you move the mouse, you will see it change.

The **Command prompt** is where the Viewer asks for information.

The **Grid button** controls the Viewer's visual grid.
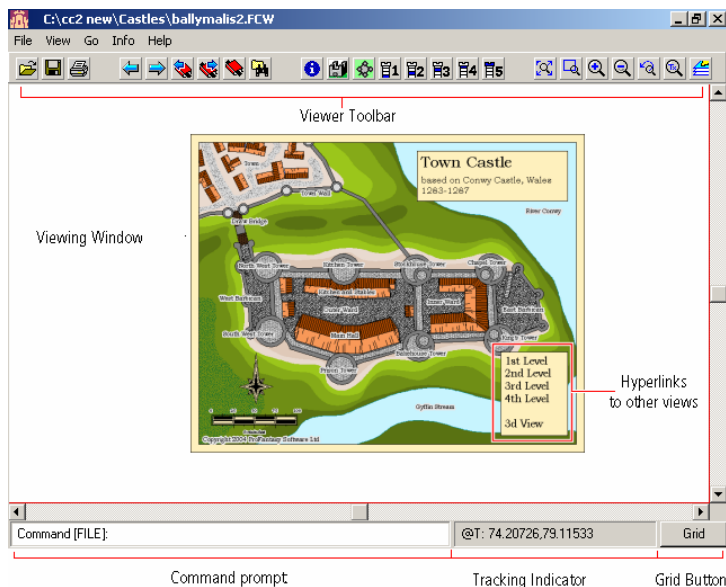
The Viewer Toolbar

File buttons

Open 📂 opens any
SMC map directly. The maps are found in the Castles folder of your SMC installation.
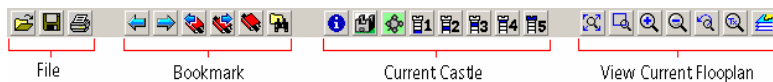
Save 💾 saves changes to the current view and Map Notes. The Viewer doesn't **prompt you** to save.

Print 🖨 opens the **Print** dialog box. If you click **OK**, you'll get the current view printed to fit the page.

Bookmark Buttons

These allow you to move between SMC maps in the viewer. Bookmarks are lists of files. We've included a number of bookmarks to make it easy for you to navigate through the castles.

Previous Map ⬅ opens the map you last looked at.

Next Map ➡ opens the next map in the file history.

Previous Bookmark 🔖 opens the previous file in the bookmark list.

Next Bookmark 🔖 opens the next file in the bookmark list.

View Bookmarks 🔖 lets you create bookmark files

Find In Files 🔍 finds all maps with particular text in (for example, all English castles)

Current Castle buttons

These select different maps of the current castle and let you see information.

Information ℹ️ lets you view historical and game information about the castle. The **information** opens in your browser. See the side bar to find information if you have CC2 Pro.

3D View 🏰 shows and isometric view of the castle. **Surroundings** ⚙ shows the castle in the context of its location.

The **Level** buttons 🏰1 🏰2 🏰3 🏰4 🏰5 **swap between the floors** of the castle. If a level isn't present, the button does nothing.

View buttons

These control your view of the current map.

Zoom Extents 🔍 shows you the whole map.

Zoom Window 🔍 lets you click two points forming a rectangle, and displays the area you picked at maximum zoom.

Zoom In 🔍 halves the width of amount you see

Zoom Out 🔍 doubles the width of the amount you see.

Zoom Last 🔍 goes back to the previous view of the map.

Zoom Text 🔍 zooms to a selected text string.

Layers 📑 allows you to **hide and show** certain features in the current map for example a hex or square grid over the map.

Grid Button

[Grid] The SMC viewer can display a grid of dots over the screen to give you an idea of distances on the map without being too intrusive. This **grid** will not print. The grid is set to an appropriate value for the scale of the map. Use the grid button to toggle this grid between on and off.

Command Prompt

For example, if you select Zoom Window, the command prompt changes to "zoom window:" You can now select a point with the cursor, or you can type **0,0** then press ENTER to get an exact point. Once the first point is inputted, you will see the prompt change to "opposite corner:" You can enter the opposite corner point using either input method.

Coordinates

Click on the Tracking Indicator to change the display mode:

T: Absolute: displays cursor movement in absolute coordinates as X and Y distances from the lower left corner of the map.

T:@ Relative: displays cursor movement in relative coordinates, as X and Y distances from the reference point.

T:< Polar: Tells the Atlas to display cursor movement in polar coordinates, as an angle and distance from the reference point.

Information Screen

3D Bookmark

This bookmark contains an alphabetical list of all the 3D views of all the castles.

Surrounding.bkm shows all the castle overviews and **all.bkm** has every map of all the castles in it. There are also bookmark files for the English and Welsh castles.

Command prompt

The **Command Prompt**, found at the bottom left of the screen makes requests for information (like locations, angles, numeric values, etc.) it needs to complete a command. Usually, you can click point, type a response, right-click to accept the default value [in square brackets].]" If you press either mouse button or ENTER the previous command will repeat

Tracking Indicator

T: 5870'-2 1/8",6858'-7 7/8"

The tracking indicator is found along the bottom of the screen next to the grid button. It displays the **coordinates** of the cursor location and whenever the Viewer asks you to select a point.

Hyperlinks to other views

1st Level
2nd Level
3rd Level
4th Level
Cellars

Surroundings

All maps have hyperlinks like those shown here. When you move over these, you will see a finger cursor. Click these hyperlinks to see other maps of the current castle. You can hide the hyperlinks by clicking **Layers** then hiding the **HYPERLINKS** layer.

Hyperlinks to Information

Click on the compass rose on any map to open your browser and see an html file with information on the current map.

Navigating the Maps

This section gives you a grand tour of the castle maps and shows you how to change the view of your map then print it.

Using Open

36 Click **Open**

The step will take a couple of minutes the first time, thereafter it is very quick.

37 Click **Browse**.

38 Click one of the castle thumbnails.

Bookmarks

39 Click **Bookmark**. Click the **Open** button then select **3D.bkm** from the **Castles** folder.

40 Click **Ballymalis3D.fcw** – the first on the list – and then click **Open Selected Entry**.

41 Click **Next Bookmark**.

The next castle in the **bookmark list** (Beaumaris) is now visible in 3D view. You can continue to browse castles by clicking **Next Bookmark**, or just left or right click to repeat the **Next Bookmark** command.

Current Castle Buttons

Click **Surroundings**, then the various **Level** buttons ▤1 ▤2 ▤3 ▤4 ▤5 to see different maps of the castle – each one is a new file, or click on the map key hyperlinks.

Zoom Windows, Zoom Extents

Zoom Window and Zoom Extents will get you any view of a map.

42 Click **Zoom Window** 🔍.

The prompt (at the bottom of the screen) reads zoom window: and the pointer changes to crosshairs.

43 Click (don't drag) from a point within the viewing window.

The prompt reads Opposite corner:. Now, when you move the mouse you see a box shrink and grow. This is **CC2 Pro** showing you the window to which it will zoom.

44 Put the opposite corner of the window at the top right of the island then click again.

CC2 Pro zooms in to the area.

45 Click **Zoom Extents** 🔍 to see the whole map again.

Zoom Text

46 Open **Goodrich_surroundings.fcw**.

47 Click **Zoom Text** 🔍, Type **Tower** then press ENTER .

There are **six choices**.

48 Click one of the three options. (No need to double click)

The Viewer zooms to your choice.

49 **Zoom Text** can also be used with **pattern matching**.
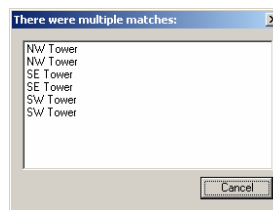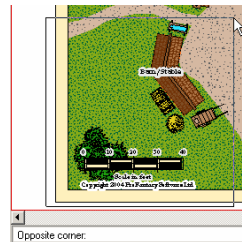
Using Layers

Layers are a way of hiding or showing associated features-- floor detail, numbering, labels or hyperlinks, for example. The layers are also hidden on your print. This can save you ink by hiding extraneous items, or it can hide details you don't want players in a game to see.

50 Click **Layers** 📑.

You can see the **Layers dialog box**
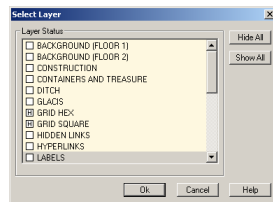
51 Click in the box next to **GRID SQUARE** to remove the **H**. Click **OK**.

A square grid is now visible on the map.

Global Layer Settings

The layers dialog box controls the appearance of the current map. You can also force one or more layers to be visible or hidden, over-riding the layer setting in each map. The **Global** dialog box works much like the Layers dialog box, except that, as well as Hidden and Visible, the layer status box next to each layer can also be grey – which means use the layer setting in the drawing.

52 On the **View** menu, click **Global Layer Settings**. Click in the box next to **GRID SQUARE** until it is no longer grey.

This layer will now be visible on every map you open.

Printing

The viewer can print any view of any map either to fit the page, or to a precise scale factor (e.g. 1:72 for miniatures). You can also tile to create oversize prints by tiling across pages. Remember that hidden layers do not print.

53 On the **File** toolbar click **Print** 🖶.

> You see the Print Drawing dialog box, which has five sections – **Printer**, **View to print**, **Scaling**, **Tiling** and **Options**.

Printing Without Worrying About Options

The Print dialog box gives you a great deal of control about how the printed map will look, but with that control comes options. If you want to print the entire map, these are the settings you want:

- View to print   Everything
- Scaling   Fit to page
- Tiling   # Horiz = 1, # Vert = 1
- Print White as Black   Not checked
- Portrait or Landscape As appropriate

Then click **OK**.

Printing Using the Options

54 Select the **View to print**. Normally you want either **everything** or the **current view**. If you have created named views under the **View** menu, you can select these as the view to print.

55 Select the **Scaling** you would like. If you set the **Paper Distance** to 1" and **Drawing Distance** to 10', then 1" on your paper will be 10' on the map.

> Units in all the maps are in feet. Use the " symbol to represent inches, and the ' symbol (or nothing) to represent feet.

56 Select the number of pages for print Tiling. The viewer can create oversized prints by tiling across more than one sheet of paper. When you select print tiling, it's important to use print preview to check what the drawing will look like. You could find yourself using up loads of paper! Set the Overlap **%** to around 5% to makes it easier to tape the printed sheets together.

Bookmarks, Indexes and Information

With the Viewer, you can create and use lists of associated files, search all the maps for a text string, or view information and images of any castle. It's pretty straightforward.

Searching the Files

57 Click **Find in Files** 🔍.

58 In the **Search for this Text** box, type **Barbican**.

> The Viewer finds all files that contain a phrase with the word "Barbican" in them, and lists the results in the bookmark window.

59 On the **Bookmark** dialog box, click **Save As** and save the results of the search.

60 Click **Open Selected Entry** to open **conwy1.fcw**

61 Click **Next Bookmark** 🔖 and **Previous Bookmark** 🔖 to browse the other files. Click **Zoom Text** 🔍 to find the word "Barbican" on each map.
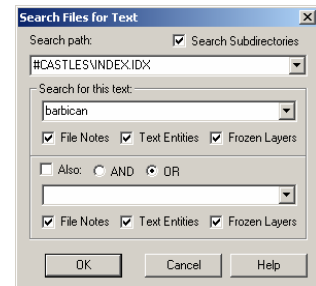
Reindexing the Maps

The Viewer's Find in Files utility looks in an index file rather than searching the files directly. If you change the maps by adding Map Notes (see below),
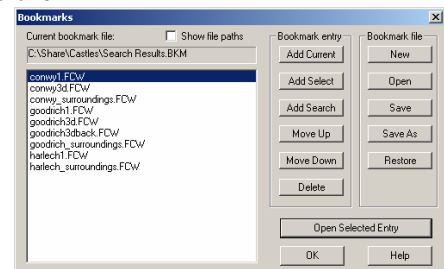
---

Scaling

Fit to page: Scales the selected view to best fit your paper size and orientation.

Scale factor: Paper distance refers to the printed size on your paper. Drawing distance refers to distances as measured from the drawing.

To measure distances in the drawing, click **Info menu >> Distance** and then pick two points between which to measure.

Find In Files Options

You can use the wildcards mentioned in the Pattern Matching sidebar on page 435.

Also: And/Or: You can further refine your search by adding an additional search string. To do so, check the Also box, then specify whether the additional criteria is And or Or. If And is selected, a search will yield results that contain both the first text and the second text. If Or is selected, a search will yield results that contain either the first text or the second text.

Bookmark Options

Add Current: Adds the current drawing to the end of the list.

Add Select: Adds a map you choose.

Add Search: Lets you search and add files to the list.

Move Up and Down:: Moves the highlighted file up or down one .

Delete: Removes an entry. This does not delete the file.

or editing the maps in CC2 Pro, you'll need to reindex the maps. On the **Go** menu, click **Reindex**.

Getting Information

You can find distances, areas and **other data** in your maps, or read historical descriptions and game information about each castle.

Finding Distances

62 On the **Info** menu, click **Distance**.

63 Click two points.

> The viewer gives you the distance between the points in feet.

Finding Areas

64 On the **Info** menu, click **Area**.

> The prompt reads 1st Point [select an entity]:

65 Click points around the area you want to measure and right click to finish.

> You can see the area, measured in square feet.

66 Click. This repeats the **Area** command. Right click to accept the option in square brackets (select an entity)

67 Click the edge of any area.

> You can see the area, measured in square feet.

Getting Information

68 On any map, click **Information** 🛈 , or click the compass rose.

Your browser opens, and you can view images and information about the castles. You can also open new instances of the Viewer from within the information files, viewing related maps.

Adding Map Notes

You can add text notes to any drawing. Each note has a name, and more than one note can be contained in any drawing. Each set of named notes is **saved with the drawing** and can be viewed or edited after the drawing is loaded. These notes can be searched using **Find In Files** 🔍 .

69 On the **Info** menu, click **Notes**.

70 Click **New**. Type a name for your note.

Type in (or paste) the information or search terms you want to add.

71 To view a note, highlight it, then click **OK**.

72 Now click T . You can print or save the note as a text file
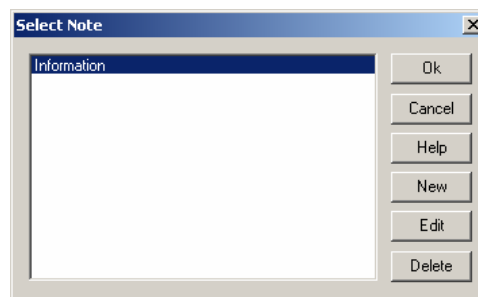
Using Castle Designer Pro

Castle Designer Pro is our name for the editing and map creation facilities that SMC adds to CC2 Pro. First, we'll give you a quick run down on finding your way around the castles in CC2 Pro, then we'll move show you how to create and edit maps.

Viewing the Castle Maps

The castle floorplans are found in the Castles folder of CC2 Pro. You view them using Open, then Browse, or click Bookmark and choose one of the bookmark files in the folder.

Select Note

Information

Ok
Cancel
Help
New
Edit
Delete

1st Level
2nd Level
3rd Level
4th Level
Cellars

Surroundings

485

Hyperlinks to other views

All maps have hyperlinks like those shown here. When you move over these, you can see a finger cursor 🖑. Click these hyperlinks to see other maps of the current castle. You can hide the hyperlinks by clicking **Layers** then hiding the **HYPERLINKS** layer.

Hyperlinks to Information

Click on the compass rose on any map to open your browser and see an html file with information on the current map.

Getting to Castle Designer Pro

1   Start **CC2** Pro.

2   Click the **SMC** 🏰 on the **File toolbar**.

You can now see the Castle Designer Pro interface.

The Castle Designer Pro Toolbar

Default Water	🟦	Default Contours
Default Wall	🧱	Default Forest
Default Construction lines	🔲	Default Grass
Default Floor	⬛	Castle drawing tools
Castle symbol settings	🏳	Toggle symbol style

Left click to choose the most commonly used option; right click to see other tools. For example, right click Default Floor to see a selection of castle floor drawing tools.

The Castle Designer Pro Symbol Toolbar

The Symbol Toolbar lets you load **castle symbols** into the catalog window. Click on a button to open a symbol catalog.

Wall · Wall Features · Furniture & Fixtures · Vegetation · Siege

Drawing a Castle

Let's **draw** a small castle on a hill.

The First Level

1   Click **New** ▯

You will see a selection of templates, including those for surroundings and floorplans.

2   Open a new drawing based on the template '**Castle Floorplan 120x160**'.

3   On the layer **CONSTRUCTION** draw the basic layout of your castle. [See the tutorial CastleE01.fcw in the Tutorials>Essentials>Castles folder.]

4   Use **Offset** (OFFSET1) on the inside of the construction lines to create walls of the appropriate thickness. We'll be using 3' wide walls throughout this example. [See CastlesE02.fcw]

5   With the various trim commands (**Break**, **Trim To Entity**, etc.) and **Combine Paths** create closed polygons or multipolies for each of your buildings, towers and wall sections.

   As an example let us use the two rectangles forming the building adjoining the round tower [See CastlesE03.fcw]:

Draw Tools

Default Water, **Forest**, **Contours** and **Grass** are used for the castle surroundings.

Constructions lines, Floors and Walls are used for floor plans.

Castle Symbols

The **Wall** catalog includes new connecting symbols – choose a tower, and you'll be able to start drawing outer walls straight away. Click points, and it will leave a tower at each corner.

The **Siege** catalog includes connecting siege work trenches, too. The t-junctions and crossroads will align to the connected trenches.

Draw

This tutorial assumes you have a very good understanding of CC2 Pro.

Use **Break** (BREAK) on each of the rectangles, marking the break points with the help of the **Intersection** modifier (F6). [See CastlesE04.fcw]

Use **Combine Paths** (CMB) to connect to the remaining parts of the rectangles and close the resulting entity (EDIT). [See CastlesE05.fcw]

6 Copy all entities to the layer **WALLS** then hide and freeze the layer **CONSTRUCTION**. Change all entities to color black (0) and fill style **Solid**. Draw some interior walls for your castle. [See CastlesE06.fcw]

7 With the drawing tool Castles Doorstep, (grey) draw the spaces for the <u>**exits and entries**</u> to your castle over walls. Add door symbols to these doorsteps. [See CastlesE07.fcw]

8 Using the drawing tool "**Castle Floor, Tiles S Grey**" create a floor for your castle buildings. Use **Send Behind** to bring it behind the walls.

Draw a floor for the courtyard with the tool "**Castle Floor, Dust Brown**". [See CastlesE08.fcw]

9 The drawing tool "**Castles Window Sill, Grey**" lets you easily add some windows and/or arrow slits to the walls. Do so and also add some stairs to connect the different levels. Add furniture and other symbols to taste.

10 Save your drawing.

11 Congratulations. The first castle level is done. [See CastlesE09.fcw]

The Second Level

12 Save the drawing again under a different name (e.g. Level2). This will be our <u>**second level**</u>.

In the tutorial castle, I have removed some parts, added a few windows and doorsteps and replaced the "up" stairs with their "down" counterparts. [See CastlesE10.fcw]

13 Add a different floor to the rectangular building to show that it is open to the sky, e.g. with the **Castle Paving, Grey tool**.

14 <u>**Change the 2nd color**</u> of the rectangular building's walls and of the connecting walls to the towers to color 248. Add stairs leading to the 3rd Level. [See CastlesE11.fcw]

15 Save the drawing.

The Third Level

16 Save your map again. This time save it under a new name (e.g. Level3). Delete everything but the round tower walls, its windows, its floor and the upward leading stairs. [See CastlesE12.fcw]

17 Show the layer **CONSTRUCTION** and use the outline of the rectangular tower to <u>**draw**</u> a roof.

18 Add windows to the round tower as required. [See CastlesE13.fcw]

19 Save the drawing.

Congratulations. The floorplans for your castle are complete. We will continue with a map of the castle's surroundings.

The Map of the Surroundings

From now on we will often be copying map parts via the <u>**clipboard**</u>.

20 Start a new map based on the template "**Castle Surroundings 120x160**."

Exits and Entries

In this simple example, we will not create true breaks in the outer walls, but will create "doorsteps" instead.

For interior doors you can use cutting doors from the DD2 Wall Features catalog.
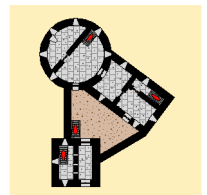
Second Level

If your second level will be quite similar to the previous one, simply erase all the stuff that changes and keep the rest.

If it is very different, it might better to erase everything but the **CONSTRUCTION** layer and redo the level starting from step 6 of the First Level.

Change Color

This way we show that we are looking at the top of the wall and not at its cross-section.

Draw

The CC2 House Command is handy for this.

Clipboard

For this to work correctly you need to open two instances of CC2. Just start CC2 twice and open different maps each time. You can easily switch between the two applications by clicking on your Windows toolbar or by pressing alt-tab.

Copy

Use significant points and an appropriate modifiers (e.g. Endpoint or Center) to place the copies exactly on top of the construction lines.

21 Open a second instance of CC2 Pro then open the first level of your castle.

22 Using the **Copy to Clipboard** and **Paste** commands copy all entities on the layer **CONSTRUCTION** from the floorplan map over to the new one. Place the copies where you want your castle to be on the surroundings map. [See CastlesE14.fcw]
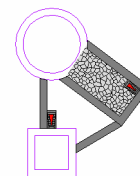
23 Open the second level floorplan in your second instance of CC2 Pro.

24 <u>Copy</u> the parts visible from above (i.e. the connecting walls and the roof of the rectangular building) to the surroundings map. [See CastlesE15.fcw]

25 Open the third and final level floorplan in your second instance of CC2 Pro.

26 Copy the roof of the rectangular tower into the surroundings map. [See CastlesE16.fcw]
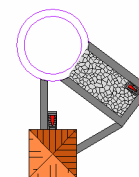
27 Change the layer to **CONSTRUCTION** and the drawing color to 7.

28 <u>Draw</u> an 8-sided regular polygon on top of the round tower so that the tower's outline is completely covered. [See CastlesE17.fcw]

29 Using the regular polygon as a guide, draw a roof for the round tower. [See CastlesE18.fcw]

30 With the drawing tool "**Castle Contour 0**" draw a green background to your map. Send the green background to the back.

31 Using the additional contour drawing tools (**Castle Contour x**) create a hill underneath your castle. [See CastlesE19.fcw]

32 Add a few more details to the surroundings map, e.g. a dirt floor for the courtyard, a path leading up to the castle and some trees. [See CastlesE20.fcw]
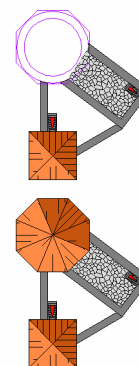
That is our surroundings map of the castle. Let's move on to the <u>3d view</u> now.

3d View

33 Start a new map based on the template "**Castle Isometric 120x160**".
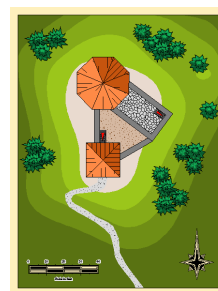
34 Open a second instance of CC2 Pro then load the surroundings map.

35 Copy the layer **RELIEF/CONTOUR** over to the new isometric map. Use 0,0 both as reference and insertion point.

36 Activate the Perspectives Pro menu and use "**3d Projection**" (IPROJ) to project the contours onto the isometric map.

37 Erase the unprojected contours. [See CastlesE21.fcw]

38 <u>Move</u> all contours except the lowest one 10 feet in y direction

Do the same again, (select by **Prior**) but leave out the second lowest contour (the lowest one of those you have moved). Repeat until you have moved the highest contour on its own. Your contours should now look like the approximation of a hill. [See CastlesE22.fcw]

39 Use "**Smooth To Straight**" on all contours. This makes <u>further work</u> with them much easier. [See CastlesE24.fcw]

40 Copy the layer **CONSTRUCTION** from the surroundings map into the isometric one. Use 0,0 for both reference and insertion point.

Copy

Use significant points and an appropriate modifiers (e.g. Endpoint or Center) to place the copies exactly on top of the construction lines.
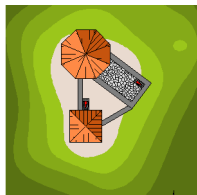
Draw

Again the City Designer Pro house command is very useful for this. You can use one of the Castle house styles that are added to that command with "Castles!"

3d View

Note that you need Perspectives Pro to follow this tutorial.

Move

You can use the grid or type in the coordinates "@0,10".

Note how many times we moved the highest contour. In this example it was four times or 40 feet in total. We will need this number later.

Further Work

You can make the illusion of an actual hill much more convincing by inserting nodes into the contour polygons at the left and right edges of the hill and connecting these nodes to the next higher contour. You can use Endpoint, Attach mode to make this easier. [See CastlesE23.fcw]

41 Use **3d Projection** (IPROJ) to project the construction lines. Use **0,0** for both Iso view origin and insertion point.

42 Erase the unprojected construction lines.

43 Move the construction entities 40 feet in y direction to bring them on top of the hill (remember that we moved the topmost contour by that distance.) [See CastlesE25.fcw]

44 Hide the layers **RELIEF/CONTOUR** and **MAP BORDER**. They will just get in the way for the following.

45 Set the **CONSTRUCTION** layer as current.

Explode any multipolies on the construction layer, set the Perspective settings to "**Castle, Simple Grey**" then **Extrude** the outer construction circle of the round tower. Give it a height of 45'. [See CastlesE26.fcw]
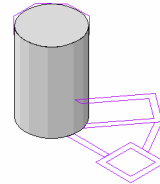
46 Change the Perspective Settings to "**Castle, Simple Grey Paving top**" and draw a 3D Polygon along the outline of the rectangular building. Give it a height of 15'.

47 Move the construction lines for the rectangular building 15' vertically upwards.

48 Change the Perspective settings back to "**Castle, Simple Grey**" then draw battlements (a low 3d polygon) along the top of the building using the construction lines as a guide. Do not **draw** "behind" the round tower. [See CastlesE28.fcw]
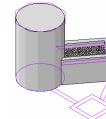
49 Extrude the connecting walls by 20' and the square tower by 30'. [See CastlesE29.fcw]

50 From the "**Walls**" catalog in the Symbols>Perspectives>Castles folder, place an octagonal roof on top of the round tower and a square one on the square tower.

51 Add windows and doors from the Perspectives Pro or Castles! "**Wall Features**" catalogs to the castle.
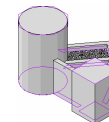
52 Show all layers then erase everything on the layer **CONSTRUCTION**. [See CastlesE30.fcw]

53 Add the road leading up to the castle and some trees and then you are finished. Well, except for labeling and linking the maps, but that is not covered in this tutorial. [See CastlesE31.fcw]

Draw

Be sure NOT to draw "behind" the round tower or the whole thing will look wrong. You can use the Intersection modifier (F6) to accurately draw the polygon up to the round tower walls. [See CastlesE27.fcw]

Source Maps: World War 2 Interactive Atlas

The WW2IA Viewer

If you are using WW2IA as a stand-alon product, see *The SMC Viewer* on page 480. This covers most of the viewer features. The only button not covered in the SMC Viewer section is **Parent** ⬆, which takes you from a detailed map to the next largest map. For example, if you were viewing Dieppe, Parent would take you to Eastern Europe.

Take a look at the WW2IA manual in the Documents folder of your WW2IA installation folder for more information.

The World War 2 Add-on

The WW2IA adds new capabilities to **CC2 Pro**. These additions are covered here. Documentation for the viewing features is covered in the documentation included with the Atlas, **CC2 Pro** includes all. If you have **CC2 Pro**, you can edit Atlas maps, create your own unit counters and create maps from scratch.

Starting the WW2 Add-on

54 Start **CC2 Pro**.

55 From the top **toolbar**, click **World War 2** 🏅.

WW2 Add-on features

WW2 specialized mapping commands are found on the WWII menu and on the left toolbars.

A click on a toolbar **button** gives you the default value, a right click gives other choices.

Unit Arrows

Current Arrow (left click): Adds a unit movement arrow to your drawing, with the current settings. Click a start point (the base of the arrow), click more points, then right click. You can **add arrows** to existing arrows.

Arrow dialog box (right click) opens the **Unit Arrow** settings dialog.

The **Unit Arrow** settings dialog allows you to configure **parameters** for drawing arrows:

- **Width** is the width, in drawing units, of the arrow's base

- **Angle** is the angle of the arrow's sweep, if Swept styles are selected

- **Color** is the color the arrow will be drawn with. Click this box to open CC2 Pro's color dialog

- **Fill Style** lists all available fill styles existing within the current template. Arrows will be drawn using the selected fill style

- **Layer** is the layer to which the arrow will be drawn. *current settings* indicates the arrow will be drawn to the current working layer

- Check the **Outline** box to draw arrows which have outlines. The outline colour box indicates the color with which the outline will be drawn–. Click the box to open CC2 Pro's color dialog

- The **Arrow Head** settings allow you to set the length and width of the arrow's head in relation to the width of its base

- The **Style** options allow you to specify flat or swept styles for the arrow's base and head
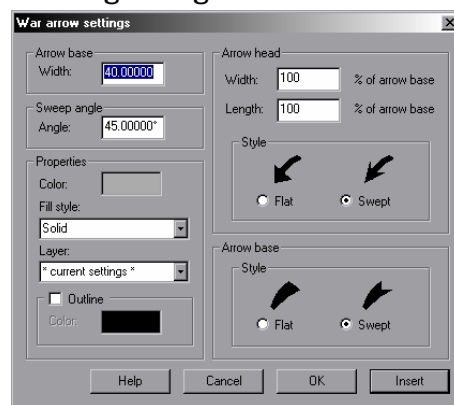
Symbol Catalogs

The buttons ▣▣▣ indicate the three catalogs available with the Atlas--**flags**, **WWII units** and **NATO APP-6 counters**. Click on a button to open its corresponding catalog. You can also access these by clicking on the symbol toolbar.

Creating APP-6 NATO counters

56 Click **New** ▢

57 Click the **Unit Counter Maker** template.

58 Click **Nato App 6 Unit** symbols ▣.

59 Add symbols from the catalog. Place them in the center of the template. They will be positioned around the center according to **NATO App-6** specs.

60 You may be asked to supply text info; for example, unit names; type it in.

61 When you have finished, copy the counter to the clipboard, and paste it into another map, or add it to a symbol catalog.

Symbol Set 1: Fantasy Overland

The overland symbol set contains two new symbol styles: "Fantasy" and "Hand Drawn". The Hand Drawn style comes in three subtypes: varicolor line only, color filled and varicolor filled (parts of varicolor symbols adopt the current color). Add these new styles to CC2 Pro's existing overland style and you've got five styles to use.

Click CC2 Pro [cc2] to load the Overland menu system. Click **Symbol Style Toggle** [icon] on the left toolbar to **cycle** between each symbol style. Each time you click you will see the next style of symbol load in the symbol catalog window.

Click the symbol buttons to select an appropriate symbol catalog from the currently selected style. Right click **Symbol Style Toggle** [icon] to choose one of the new symbol styles from a menu.

Symbol Set 1 Example 1

Master Mapper Ralf Schemmann has created a set of drawing tools which match the color scheme of the Symbol Set 1 symbols. To create a map using these drawing tools, take the following steps. This example assumes you know how to use CC2 Pro.

1   Start a new map based on the template RS 800x600.fct. You can resize this template and change the appearance of the border, but be sure to read the Map Border sidebar on page 60 first. You'll be completely covering up the background with contours, so the template has no background.

   Note that there is an area - a **style palette** - marked Drawing Tools. You can click on any of the colored boxes on this key to use the custom drawing tools. You can also access these drawing tools by clicking **All Map Drawing Tools** [icon], or right clicking on any of the overland drawing tools buttons. You may find it easier to uncheck the "Display Sample" tick box when doing this. The drawing tools are include "RS" at the end, eg **Map Contour, RS 00**.
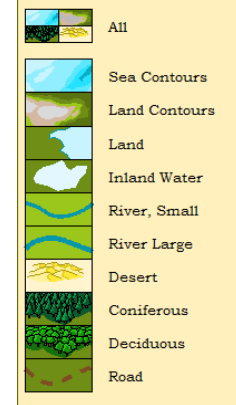
Adding Sea

2   Click the **Sea Contours** area in the style palette.

   You can see a bunch of new contour settings, for example **Map Contour, RS -7**.

3   Draw the contours, by zooming in and clicking points. Starting with the lowest level of sea and working up til you are ready to add the land.

These drawing tools have a **weak fractalization**, and Ralf does many clicks by hand when creating his maps, as he finds it gives the most pleasing result. It combines a slight randomness with a human eye. Obviously, this is more time consuming, but the results are worth it.

Adding Land

4   Click **Land** on the style palette. Zoom in close and start clicking points for the land, If your whole map is land, then you can miss this step out, and just draw contours.

   This tool adds a dark green area representing the lowest land contour on the RELIEF/CONTOURS layer, and a blue outline on the COAST/SEA layer.

Cycle

The sequence is:

Normal Filled

Fantasy

Hand Drawn Line Only

Hand Drawn Filled

Hand Drawn Varicolor

Style Palette

The style palette has hotspots which activate drawing tools. Click in a box to start a drawing tool.

- Hotspots are only active when there is no current command, so you can't cancel a current command when using a style palette. If you move over a box and don't see the hand cursor when you move over the area, it's probably because you are in the middle of another command. Right click until the command is cancelled, then select the drawing tool.

- If you use the drawing tools on a style palette frequently, you might find it easier to add new buttons to the toolbars, activating your styles.

- Click **Show Hyperlinks** on the **Draw** menu to see how these work. Click Edit and click a box edge to edit the hotspot text.

Weak Fractalization

By this we mean a depth of 1 or 2, and a strength of less than 30% You can experiment by select **All Map Drawing Tools**, clicking Advanced and selecting a drawing tool. Click the Options button to see and change the fractal settings.

Increase these setting if you want to draw maps more quickly, but have less control.

Drawing Tools

- All
- Sea Contours
- Land Contours
- Land
- Inland Water
- River, Small
- River Large
- Desert
- Coniferous
- Deciduous
- Road

5   Click **Land Contours**, on the style palette and carefully add the land contours. They tan colored areas will later by used as a background to mountain symbols.

Filling up the Land

6   Click **Inland Water** on the style palette to add lakes, then add **Desert**.

7   Add the backgrounds for your large forested areas using **Confierous** and **Deciduous** tools. Don't do this where you are going to put just a few free standing trees – only larger areas should have a background.

8   Next, add **Rivers**, large and small, then Roads. You could leave roads until you've added structures symbols, later.

Your map might now look like this:

Symbols

Use a symbol scale of 1/1000 of the greatest dimension of the template. In this case, that's 0.8. This is just a guideline – it's designed to make the symbols the right size on a standard print out. You can vary it up or down by a factor of two depending on the final paper size and the use to which you put your map.

FANTASY OVERLAND
SYMBOL SET ONE

FANTASY FLOORPLANS
SYMBOL SET TWO

MODERN
SYMBOL SET THREE
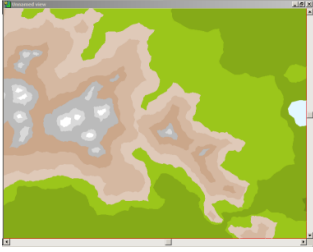
9 Add the mountains and foothills symbols within the color 45 (tan) border.

10 Add the coniferous and deciduous forests within the areas you draw earlier, perhaps allowing a little of the color to show through.

You can add other symbols just as you would on any other overland map. Ralf has created a Dark Fantasy symbol set to supplement Symbol Set 2 which fits in nicely with maps like these. See his mapsandmore.com website for more information.
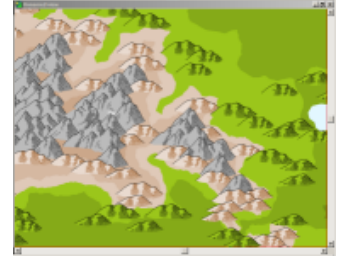
Thain

This example was created using Symbol Set 1 and the drawing tools described on page 492

Cartography by Ralf Schemmann, based on design by the Thain Bulider Team.

The Island of Thain

based on the reports of various travellers and the surveys of Malakandrius of Ashensford

Symbol Set 2: Fantasy Floorplans

Symbol set 2 is designed for use with floorplans, so we've integrated it into the DD Pro interface.

If you have DD Pro

1   Click 🔲 **DD Pro** to load the DD Pro menu system,

2   Right-click **Symbol Style Toggle** 🔄 to see the new symbol styles.

    The new styles start **Fantasy** and **Handdrawn**.

3   Select one from the menu.

4   Choose your symbol catalogs by selecting from the DD Pro symbol toolbar, or clicking Symbol Settings.
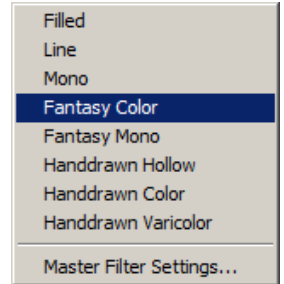
If you don't have DD Pro

Click the 📂 button above the symbol catalog window and then navigate to the appropriate CC2 Pro subfolder. For example, with CC2 Pro in C:\CC2:

C:\CC2\Symbols\Skirmish	The new skirmish symbols
C:\CC2\Symbols\Dungeons\Fantasy	The new fantasy style
C:\CC2\Symbols\Dungeons\Handdrawn	The new hand drawn style
C:\CC2\Symbols\Dungeons\HDMono	Mono version of hand drawn style
C:\CC2\Symbols\Dungeons\HDVari	Varicolor version of hand drawn style

Filled
Line
Mono
Fantasy Color
Fantasy Mono
Handdrawn Hollow
Handdrawn Color
Handdrawn Varicolor

Master Filter Settings...

Symbol Set 3: Modern

Symbol Set3 does a lot more than provide symbols; it gives you new drawing tools and templates on which to put them. If you know how to use drawing tools (see page 25) and start new maps, these new features are very straightforward to use.

To use Symbol Set 3, start **CC2 Pro** as normal then click the new **SS3** button.

Modern Overland maps

1   To start a modern overland map, click **New** 📄 then select **Modern Overland**. Choose a suitably sized template

2   Click **Modern Overland Tools** 🪄 to see the modern overland tools.

The mapping buttons in SS3's menu have modern features and styles, such as <u>highways</u> and railways. These tools only work with Modern Overland templates, which are configured with the necessary styles.

3   Click **Overland Mapping** 🔲 from the Symbol toolbar to select the overland mapping symbols.

Modern Floorplans

1   To start a modern floorplan map, click **New** 📄 then select **Modern Floorplan**.

2   Click **Modern Floorplan Tools** 🪄 to use the floorplan drawing tools. You can also use tools from DD Pro and CD Pro to create building outlines. CD Pro and to a lesser extent DD Pro have symbols useful for including on moden maps.

3   Choose symbol catalogs using these buttons on the Symbol toolbar.

All but the far right one are for floorplans.

Sidebar symbol list:

- Debris
- Furniture
- Up/Down
- Wall Features
- Weapons
- Street Furniture
- People and Animals
- Vehicles
- Warning Signs

- Overland Mapping

Appendix A- Illustrations

* indicates the drawing is available in the Examples>Tome folder   † indicates that a symbol catalog is available in the Symbols>Tome folder

Appendix B – Material Included with the Tome

The Tome includes many support files including symbols, bitmaps, templates, example maps and a command reference. These are detailed here.

Getting the material

If you have purchased a printed copy of the Tome from a store, go to the ProFantasy Software website at http://www.profantasy.com and register your copy. You canthen download this material and the latest PDF for free. If the download is too large, or you don't have internet access, please write to the address on the first page of the manual. Include your serial number, name and address, and we'll send you a CD.

Bitmaps

Several new parchment and paper bitmaps are included in the **CC2/Bitmaps/Tiles** and the **CC2/Bitmaps/Tiles/Tome** folders. These are new, never before released bitmaps to use as backgrounds for your maps.

Command Reference

Available in the **CC2/Documents** folder, this reference comes in three versions--PDF , comma delimted and Excel® spreadsheet. The reference is a complete list of all supported commands in CC2 Pro, its add-ons and accessories. If you have Excel® or a spreadsheet viewer, you can sort the list as you require. You could also import the data into a database from the csv file, as well.

Mini Style Pack - Sudbury

This is a preview of the upcoming Style Packs. The Style Packs will give you all the components necessary to create a map in the featured style. The Sudbury Mini Pack is a preview version and includes:

- 7 drawing tools found in the **CC2/System/Drawing Tools** folder. These tools are accessed through a clickable link on the Sudbury Templates.
- 1 Sudbury Hints and Tips PDF found in the **CC2/Documents** folder and accessed through a clickable link on the Sudbury Templates.
- 1 Sudbury symbol catalog found in the **CC2/Symbols/Tome/Tome Sudbury.FSC**. These symbols are loaded into the Sudbury Templates and are ready to use by clicking the **Symbols Drawing** icon.
- 1 Sudbury Example map in PDF form found in the **CC2/Documents** folder and accessed through a clickable link on the Sudbury Templates.
- 9 Templates found in the **CC2/Templates/Map** folder. These templates are named Tome Sudbury to designate them as part of the Sudbury Mini Pack included with the Tome. With the CC2 menu open, click **New** then scroll down to the Tome Sudury templates to select one.

Symbol Catalogs

Several new symbol catalogs are included in the Tome material.

- Catalogs of line symbols can be found in the **CC2/Symbols/Maps/Tome** folder. These symbols are derived from CC2's basic line symbols. They have been edited to be in a style frequently seen in the hand drawn maps by Master Mapper Allyn Bowker.
- There is a catalog of draped shield cartouches in **CC2/Symbols/Tome/AB-Draped Cartouche.FSC**. These symbols are in SVC.
- There are 3 catalogs of symbols in the **CC2/Symbols/Tome folde**r collected from example drawings. Linda Kekumu compiled a catalog of new symbols, **symbols_lmk.FSC**, from 2 of her example drawings--Cold Iron and The Grist Mill. She also compiled a catalog of new symbols, **PF_symbols.FSC**, from Two Party Dungeon seen on page ~. Matthew Lynn compiled a catalog of symbols, **Analorn Prison.FSC**, used in his Analorn Prison drawing.

- The symbol catalog **Tome Sudbury.FSC** in **CC2/Symbols/Tome** folder is compiled from the Sudbury Mini Pack. This is the catalog loaded into the Sudbury templates.
- The symbol catalog **Tome Cartouches & Scalebars.FSC** in **CC2/Symbols/Tome** folder is a catalog of cartouches, scalebars and directional pointers used in the Tome parchment templates.

Templates

There are 15 new parchment templates in the **CC2/Templates/Maps** folder. These templates use the new bitmaps and are accessed by clicking **New** from the CC2 menu, then scrolling down to the Tome Parchment templates.

Two Party Dungeon Adventure

Two Party Dungeon by Linda Kekumu is a never before released, mid-level, light-hearted conflict intended for two sets of players with two GM's. The adventure is in the **CC2/Examples/Tome/Two Party** folder. Open General.txt to read the description and GM notes for the adventure. Open **Two Party.FCW** to begin.

Index

Using the Index

Index entries in Title Case are buttons, screen components or dialog box text. With the exception of FT Pro, entries do not mention the add-on to which they refer unless there is an ambiguity. For example, **CC2 Pro** has cut down versions of DD Pro and CD Pro commands – eg houses (**CC2 Pro**).

If you are looking for something in the index and can't find it, please let us know what you were looking for and what you searched under – this will help us update the Tome.