Welcome

Welcome to the Tome of Ultimate Mapping. Together, we will journey through the realms of fantasy mapmaking using the range of cartographic software from ProFantasy. This Tome will take you into the depth of Campaign Cartographer 3+ and all its add-ons and companion products, providing you with a wealth of information, tips and tricks you can use when creating your maps.

The Tome contains a selection of the collected knowledge and experience from both our master mappers, as well as the users of the Campaign Cartographer software range. Therefore, I’d like to thank all of you for making this work possible.

Credits and Acknowledgements

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ToUM3-03-03
INTRODUCTION

As you read this, you are probably already familiar with Campaign Cartographer 3+™ (CC3+™). You have installed the software, read the manual, and tried the tutorials you found within it. You might even have tried out the annuals. In any case, we will assume that you are familiar with the basics of the CC3+ interface, allowing us to skip giving detailed explanations for the most basic tasks. However, this tome is intended for all CC3+ users, not just the experienced veterans, so we will start slowly. If you are one of the experienced veterans, you’ll probably just want to skim through the first few tutorials.

Campaign Cartographer 3+ (CC3+) forms the core of the Campaign Cartographer suite of products. Using CC3+, you can create any kind of map imaginable, including, but not limited to the following:

- Overland maps in a multitude of styles, including local, regional, continental and planetary maps.
- Floor plans: Modern, fantasy and futuristic.
- Portraits and Counters.
- Battle Maps.

You can create all of the above in the base CC3+ software, and this tome will teach you the skills needed to do so. However, there are several add-ons available for CC3+ that make the task of creating specific map types easier, such as Dungeon Designer 3 for creating Dungeon, Floorplan and Battle Maps, and City Designer 3 for creating villages, towns and huge cities. All of these add-ons will be detailed in their own section of the Tome.

Annuals

The Cartographer’s Annual is a premium subscription service providing you with a new issue every month of the year. The annuals cover various topics, so even if not all issues in a given year are interesting to you, most people should find many interesting issues. You can read more about the annuals on page 703.

Basics

If you are not familiar with the basics of CC3+, you should start with the CC3+ manual instead. You should find it in your @Documentation folder.

Moons

This composite image by Bill Roach shows a brilliant, warm, ringed gas giant with two Earth like moons. Both moons were created using Fractal Terrains 3. The moon is much smaller than the planet, but the perspective used for this view makes it look larger.
THE BASIC OVERLAND MAP

Let's start this journey into the world of CC3+ by creating a basic map. We will use this map to reacquaint ourselves with several of the core concepts of CC3+, and to explore some map-making techniques.

During this tutorial, we will discuss various topics related to creating believable maps, so even if you feel confident enough in your mapmaking to skip doing this tutorial, I recommend giving it a quick read through even if you are not actually mapping along.

Maps and Magic (and Technology)

When it comes to fantasy, whether it be in role playing games, computer games, literature or movies, we will often encounter magic. And if we are going to create a map for a world where magic exists, we must also consider how this will affect our maps.

The main reason for planning for this at the current stage is that I want to make sure my maps are believable. If I make a map for a roleplaying game, I want my players to be able to look at the map and feel that it fits naturally in the world. This obviously also holds true for a novel.

Magic is usually encountered in maps where features not normally possible are depicted. This may be as blatantly obvious as flying mountains and rivers that run upstream, but may also be subtle like terrain that wouldn't normally form in a specific area, like a lush jungle far to the north where normally there would be taiga.

Before even planning the map, you should have an idea of how magic will affect it. If you want a world heavily modified by magic, keep this in mind during planning, and if you want a world where magic is more rare and low-power (or even non-existent), you should plan for a world with features that would be believable in the real world.

Personally, I prefer worlds where magic isn't world-altering. I find it easier to accept a fantasy world if it makes sense to me in a real-world context, and magic feels more special if it isn't all-pervasive. But a high-magic world can also feel believable if the magic is properly defined up front, so it makes sense. But whatever you do, don't let magic become an afterthought. Retroactively explaining all the cool features of your world with "it's magic" as your players point them out for breaking the laws of nature makes suspension of disbelief hard. Also, if a feature is shaped by magic, ask yourself why someone would go through the effort to use all that magic to do this, or if it formed naturally, what caused magic to form such a feature?

Oh, and if you do Sci-Fi, this applies equally. Futuristic technology will make possible what we cannot do today, and terraforming is a common theme, but do remember that everything takes time, money and effort. A feature shouldn't be there just because it is cool, there should be a believable reason for it.

Planning the Map

Before going ahead with the mapping, you should at the very least have a basic plan in mind. What is this location you are going to map? Where is it in the world? What geographical features would you find in the area? What is the scale of the map? Is it densely populated? How long have people been living here? What level of magic and technology do the inhabitants have? How is the mapped area influenced by the off-map neighbors? What is the background for the area? How is the political situation?

The area I am going to map for this tutorial is a large island from my own role playing campaign. The following text briefly answers the questions from above, and give us some flavor to aid in mapping.

Windclaw

You may remember Windclaw from the CC3+ manual, as we mapped part of the coastline for our tutorial map there. This time, we will map the entire island.

I actually have the entire world in Fractal Terrains 3 (see page 627) format, you can find the world file in @Tutorials/Tome/Fractal_Terrains/Virana.ftw. In the FT3 chapter we will discuss how to export this island from FT3 to CC3+ instead of drawing the coastline ourselves.
sparsely populated, with most settlements being located along the southeastern coast, the rest of the island being untamed wilderness. Technology is early medieval, and due to the primitive ships available, contact with the mainland is at a minimum, although some trade does happen. The current kingdom is nearly 400 years old, and was founded when humans settled the isles, although remains of earlier dwarven and elven civilizations can be found by those brave enough to explore the wilderness.

The very first thing we need to decide is the size of the map. I indicated in the description that it should be the size of a moderately sized European country, so it is pretty large. Note that this also tells us something about the scale of the map, it is going to be country-scaled, so only important details will be visible on this map. We will not be placing every minor settlement, every minor road, or every river.

Based on the above description, I’ve found that my Island will be about 500 by 500 miles. However, since the island will not be square, and because I want to show some ocean around the island, a map size of 800 by 800 miles seems reasonable.

1. Start a new map by clicking the New button. This will bring up the familiar New Drawing Wizard. Select the Overland Maps category, and check the Decide Settings Myself option. In the next steps, select a CC3 Mike Schley Overland map. Make the width 800 and the height 800. Leave everything else at their defaults.

   We could place the title, scale bar and compass rose in the map at this stage, but I prefer to do that later when I have the landmass in place.

I’ve saved my initial map in @Tutorials\Tome\Overland as Windclaw 01.FCW. I’ll save versions with incremented numbering during this tutorial, so you can check out my progress at various points. If you do load my maps, be careful not to save over them by accident, in case you wish to check out the original later.

Starting the Map – Land and Sea

Obviously, the most important feature of our map is the landmass, so it is here we will start. At this point, our map is nothing but a vast expanse of sea, so let us do something about this.

2. Use the Default Landmass tool to draw an outline of your landmass similar to the illustration. You shouldn’t spend too much time making it identical, but the rest of the tutorial will be a bit easier to follow along if it is somewhat similar.

   To produce a detailed coastline like this, you will have to place quite a few nodes manually. My landmass from the illustration required somewhere between 50 and 100 clicks to create. It is very important to remember that you can use the various zoom commands while in the middle of another command, as zooming in is very important when working on some of the more detailed sections of the landmass. Do note that the preview line of the landmass is not visible while in the middle of executing the zoom command, so you will need to use other visual clues to decide which area to zoom in to.

Scale

Maps come in different scales, such as local map, regional maps, world maps, etc. When we do a map, it is important to identify the appropriate scale for it, and decide which details to map based on that. If we put too many details into the map, or make the symbols too small, the map will look good when zoomed in, but will tend to look messy when zoomed out. Additionally, too many details may slow CC3+ down, or even cause crashes if you overload it. It is therefore recommended that you only map details realistically visible from the map scale you are making, and create separate zoomed-in maps with more details for interesting regions. This topic is discussed in The Big Edit - Making a Local Map from a Regional Map on page 56.

Square

When drawing a map, be careful to not let your coastlines follow the map border too closely, as this tends to make your landmasses look artificial. Always make the map big enough to comfortably fit the landmass you desire, and do not try to fit your landmass to the map.

Sea

Most templates are designed to start out with sea as a background and then place land on top of that, but if you have a good grasp about how sheets and effects work you can get interesting results by doing things differently.
TOME OF ULTIMATE MAPPING

Fractalization
Fractalization works by adding extra nodes to increase detail. This is done by inserting the extra node midway between each existing node pair, and offsetting this node a bit so that the line between the original two nodes is no longer straight. This can be repeated multiple times (depth), and each time the lines are halved, doubling the number of nodes in the polygon.

Do note that having too many nodes in any one entity both slows down CC3+, and if you go beyond 10,000 nodes, you will start to encounter limitation in the underlying operating system, which can lead to crashes, so be careful. You can always use the LIST command to check how many nodes there are in a polygon, and you can reduce the number by using the REDN command.

Hit
I prefer to do my selections by using the shortcut keys because this is far faster, but you can accomplish the same by using the right click selection menu (see the Selection menu chapter on page 47).

Type
If you don't know the exact name of the fill style to look for, you could instead just have clicked the right mouse button, and selected the appropriate fill style from the dialog instead.

Let us zoom in to a part of the coastline to have a look.

3. Use Zoom Window to zoom in to the top left of the landmass.

If we look at the coastline here, we'll note that the detail level is rather low. There are lots of straight lines here, and the coastline could surely need a bit more definition. The easiest way to do this is to apply some fractalization to the coastline.

Do note that your landmass consists of both the main landmass polygon, as well as a blue outline. We cannot fractalize both at the same time and still make the outline follow the landmass, so we need to remove the outline, fractalize the landmass, and then create a new outline matching your newly fractalize landmass.

4. Use Erase to delete the outline. If you don’t remember how to select just the outline without also selecting the landmass, I recommend reviewing the Selection menu chapter on page 47, but one way of doing this is selecting the outline (which will also select the landmass), then hit (Both), followed by Fill Style (Fill Style). The prompt now reads fill style name [dialog], so type solid on the command line. You should now see that the selection count drops to 1, so complete the procedure by hitting Do It.

5. Click Fractalise.

Let us have a closer look at the fractalization dialog that appears.

a. Strength determines how much variation we introduce. If this number is too low, we will struggle to see the result of the fractalization, but if the value is too high, the result will be very jagged. Good values range between 20 and 50.

b. Depth is the number of times the fractalization algorithm runs. Each run will increase the detail level of the entity, but will double the number of nodes in the entity. Keep this number low!

c. Wave allows a more complex fractalization algorithm to run, which will vary the strength instead of using a fixed value.

d. Random Seed affects the random outcome of the algorithm. Changing this value will change the result, but there are no good/bad values to use here.

e. Smoothing creates a smooth polygon instead of a regular polygon. This may improve the end result, but a smooth polygon has a much longer redraw time than a regular polygon, so be a bit careful with this option on entities with many nodes.

6. Set the options as shown in the image above. Click OK, then click on the coastline to fractalize it. You may need to manually click Redraw to see the changes. DON'T click multiple times on the coastline.

Compare the image to the right with the pre-fractalized coastline from step 4 above. We can clearly see that the fractalized coastline is much more detailed, giving a more natural look.

Now, we need to add the coastal outline back. We could do this by using Outline in black or Outline in current color, which is the standard way of adding an outline to an entity, but since we wish to restore the look of our landmass to look like a landmass drawn by a drawing tool, it is faster to use the Change like draw tool for this, since we don't need to manually adjust the properties of the outline afterwards.
Complex Rooms

If you are starting at the tutorial at this point, you can load up the Chapel Maldina Catacombs 05 map in the @Tutorials\Tome\Dungeon folder.

So far, we have been drawing rooms using the standard room tools. This lets us easily draw circular rooms, square rooms, rectangular rooms and polygonal rooms. The last one offers quite a bit of flexibility, but what if we wish to draw a rectangular room with a half-circle end? Obviously, the standard room tools don’t allow us to do this, but that doesn’t mean that CC3+ doesn’t allow us to do this. With a little manual work, we can create rooms in any shape we desire.

Before we draw our rooms, let us examine the properties of existing rooms. We do this by using the List command on one of our rooms. If you select one of the corners of one of the rooms, the status bar should tell you that you have 3 entities selected, and the List output should look like in the image.

As we can see, a room is built from 3 entities. Two of them are on the FLOORS sheet and one on the WALLS sheet. If you remember the Add Room dialog, this matches with the choices in that dialog, as you were prompted to select both a background and a foreground floor, and a wall. Since our foreground floor is completely opaque, the background entity is never seen, so we normally don’t concern us about it. However, if you are using a partially transparent foreground, you can get nice effects by combining it with the correct background. We’ll explore this option later though. For now, we will stick by opaque foreground floors and ignore the background completely.

From the list output, we are going to take with use a few important pieces of information. For each of our two relevant entities, we need to know what sheet and layer they are on, what fill style they use, and finally what line width they have.

12. Set the current sheet to FLOORS and the layer to BACKGROUND (FLOOR 2). Set line width to 0, line style to solid, and fill style to solid. Also set the color to something that will be visible on the background. Whatever color we use will not be visible in the final map, so I tend to use something highly visible, like color 6 (Pink).

13. Make sure you have the snap grid from previously (10’ grid, 2 snaps) enabled, then draw two 10’ radius circles using the Circle tool below each other (Let there be 40’ between the circle centers) in the empty area in the northwest part of the map. Then, draw two smaller 5’ radius circles, positioned like in the image. As long as the snap grid is on, getting these correct is extremely simple. My example image uses different colors for the small and large circles to make the setup clearer, but this is not needed. I have also turned off the BACKGROUND sheet to make the entities easier visible in the screenshots.
14. These circles don’t look that much like a room yet, but if you look at the outline of the circles, you may be getting an idea for what we are trying to do here. And to make this into a room, that is exactly what we need, the outline. By using the Break tool, we both remove the part of the circle we don’t need, and change it from a filled circle to an outline in one step.

Click the Break button. Now, select the upper large circle by clicking on the top edge of it. The command line now asks you for the break starting point. Click on the left edge of the circle (a little bit above where it meets the smaller circle). Finally, for the ending point of the break, click on the right edge of the circle. After executing a Redraw, your map should look like the image.

15. Repeat the procedure for the bottom circle.

16. Now, for the smaller circles. Use the Break tool, select the circle by clicking on the left edge, and the break points at the top and bottom. This should leave the left halves of the circles.

17. Use the Path tool to draw a path starting at the open end at the top circle, going 10’ to the right, 30’ down, and 10’ left to meet the open point of the bottom circle.

Notice how we now have the outline of our room. We have a few gaps, but these will be closed automatically when we combine the various parts.

We are now going to merge these outlines into a single polygon for our room. The first thing we need to do is to change our half-circles into paths. Right now they are arc entities, which cannot be a part of a polygon.

18. Right click the Explode button, and then select the Line to Path command. Select all the 4 arcs, and then hit 0 to complete the command.

Each arc has now been converted to a path. If these arcs were touching, they would also have been merged into a single path, but since they weren’t, they are now 4 separate paths.

19. Right click the Explode button, and then select the Combine Paths command.

This command is used to combine several paths into one continuous path. If the paths are not already connected by sharing a common point, it will also add a line segment between the paths to make them continuous. However, when using this command, it won’t always know which ends of the paths to join. Therefore, after having selected the two paths you wish to join, the command line will read:

Select Next Path/[Finish] Flip Selections (F – First, S – Second):

Use the F and S keys to flip the endpoints used for the joining. Note that this will actually reverse the order of the nodes in the entity. There won’t be a visible effect, but basically the start and endpoints of the entity is now reversed. If you use the wrong endpoints, you will end up with an extra unwanted line segment. Notice in the Incorrect image how there is multiple line segments that shouldn’t be there. This happened because one or more paths were flipped the wrong way during the joining. The Correct image shows what happens when we correctly join the entities. It is also worth
noticing that there appears to be a line missing in the Correct image. This happened because after joining, we had both the start and ending point of our path in the same spot. To avoid duplicate points, CC3+ deleted the end point. This will fix itself when we create a polygon from this path, because a polygon always includes a closing line between the end point and starting point, as opposed to a path which does not have this.

To use the Combine Paths command, first select the first two paths to combine, use F and S to flip the entities to join the correct ends, then select the next path to join with the path. This completes the merging of the first two paths, and you can use F/S to fit the new one. Continue until all the paths have been joined, then right click to finish the command.

20. Right click the Explode button, and then select the Path to Poly command. Select our path, then hit Do it to complete the command. Except for the fill, we now have a perfect floor. That is, assuming we joined our paths correctly earlier. If not, the polygon will look quite weird.

21. Use Change Properties on the entity to change the fill style to Flagstone B Bitmap. Now we have the floor in place. We still need the walls, but notice how the walls should be in the exact same shape as the floor. This makes that part of the job really easy.

22. Click the Copy button. Select the floor, hit D to complete the selection process. CC3+ now asks for the source position of the copy, so enter 0,0 on the command line. Now CC3+ asks you to place the copy. Again, type 0,0. This will place a copy of our floor exactly on top of the existing one. Finally, right click to end the command.

23. Click Change Properties. However, instead of clicking on the floors to select them, hit P. This stands for Prior, and will automatically select the last entities you had selected, or if we copied entities, the last copy you placed. This is very helpful, since it will select the copy of the floor we just placed, but not the original. Hit D to finalize the selection process, and the Change Properties dialog should show.

Now, change the properties to the correct properties for a Wall entity which we found using the List command earlier. These are:

- Layer: WALLS
- Sheet: WALLS
- Width: 2
- Fill: Wall Cobble Grey Bitmap

That's it. We have created a complex room, using both circles and straight walls. We also made sure to use the correct properties for both walls and floor, so this room will work exactly like a regular dungeon room. This means that we can connect corridors to it and break the walls just as for any other room. Notice that connecting corridors to the rounded parts does work poorly however.

24. Connect the room to the neighboring room with a corridor.
11. Add a **Texturize** effect. Use @Bitmaps\Tiles\Overland\ice_VH.png as the texture, and an intensity of 1. This will give the background the same roughness as the ice walls.

12. Add an **Adjust Hue/Saturation** effect, with a lightness value of 25. Leave the other values at 0. This will lighten the overall color of the background.

**Finishing Touches**

That yellow map border doesn’t fit too well with this map. I would think that something closer to blue would be better.

The yellow part of the map border consists of 2 polygons, one for the dark color, and one for the light color.

13. Change the colors of each of the two yellow polygons. Change the color of the dark polygon to color 65, and the color of the light polygon to 69.

14. Add the **Texturize** effect to the **MAP BORDER** sheet to remove the flat look. Use @Bitmaps\Tiles\Overland\ice_VH.png as the texture, and an intensity of 1.

There you go; a nice cool ice cave for your adventures. Notice how we drew this one “backwards”. Instead of drawing rooms and corridors, we actually drew the solid areas instead.
taverns frequented by the sailors currently in town, as well as dock workers. Housing is generally cheap, but small and low standard.

When planning your districts, think of what kinds of houses and businesses belong in the area. Which people live here? How do they live? Which people work here? Where do they work? Which people tend to visit the district? Why are they visiting?

Snowport has been an important port from the earliest history of the city. So it is only natural that there is large dock district here. Additionally, the King of the Isles has always lived in Snowport, attracting the wealthier citizens to that part of the city, forming the government district. Around the eastern gate in the city wall, we find the warriors district, named after the eastern gate, which is again named the Warriors Gate because it was through this gate the city’s warrior would return triumphantly after taking care of whatever threat the city was experiencing. Lastly, we have the river district to the west, around the River Gate.

Mapping the City

Now that we have a plan, we are ready to start mapping the city.

Now, where to start our mapping? I prefer to start mapping a city by getting the bigger details into place, like the terrain, and let the city flow around them rather than shaping the terrain to the city.

Terrain

The most important terrain features of this particular city are the coastline and river. We already established that the city had a natural harbor, so let us ensure that our coastline represents this.

If we look at the local map of the region, you can see that the river seems to run just to the southwest of the city. However, this is really just due to the fact that a symbol on the overland map just represents the location of the city, but doesn’t properly represent the exact dimensions of the city. Additionally, it would have obscured the river if I placed it on top of it, so I left it next to the river, but when mapping the actual city, I fully intend to let the river flow through it. The same is true with regards to the coastline. It looks bad if I try to place the overland symbol on the actual coastline itself, and it makes the map harder to read. If I wanted the overland map to be 100% exact in this matter, I would have needed to resort to a colored polygon for my city instead of a symbol. For a modern type of map, that would probably have been the way to go, but for a fantasy map, we must often compromise a bit between visual looks and complete accuracy.

1. Start a new City map based on the CD3 Bitmap A style. Use a map size of 2000×1600 feet, and use CD3B_Grass Dark 3 as the background fill. To follow along with my tutorial maps, check out the numbered Snowport maps in @Tutorials\City.

Note that this style relies a bit on effects to make everything look right. The effect setting CD3 Bitmap A should be loaded with the template, if not, you should load this setting. Do note that this city map is much more resource demanding than any of the other maps we have drawn so far in this book, so you may wish to leave effects disabled when drawing. Additionally, if you feel things are going a bit slow, you may reduce the setting for the Automatic bitmap quality under Speed Settings. Checking the various options under Shading in this dialog also speeds up drawing considerably, at the expense of visual look. Just remember to reset the settings before printing or exporting the map.
TOME OF ULTIMATE MAPPING

Start with City Wall

I start with the city wall because I already have a rough vision on how this city looks. By starting with the city wall, I find it easier to show a city where the city wall has been a limiting factor in expansion, which often was the case.

However, if you have not decided on the layout of your city, you may find that building the city first, and then encircling it with a wall later may also work, although this approach can lead to an "unnatural" spacious city. In the end, choose the approach that fits you and the current city best.

Copy

For more details on how to create and edit drawing tools, see Editing and Creating Drawing Tools on page 140.

Merge Seamlessly

The reason for this behavior is that the outline and main entity is on two different sheets for this tool. This will cause the outline for the walls to appear on top of your tower walls, even if you draw the tower on top of the wall. Just remember to do a reload after placing the tower to observe the behavior.

Construction Line

A construction line is a temporary line used to aid in drawing, but which is not part of the final drawing. A construction line is usually set up on its own layer so that it is easy to hide these lines. To make it contrast with the map and easy to spot, I usually use bright green or pink for these lines.

2. Use the Water, Smooth drawing tool to add a coastline. Remember that this is an extreme close-up of the coastline compared to the King's Coast local map, so we should add additional details, but we should also give the local map a quick glance to make sure we get the overall shape and positioning correct.

Now, I also said that the river flows through the city, so we need to add that. There are no separate drawing tools in this style to make larger rivers, but neither do we need one, as we can continue using the same drawing tool as we did for the sea.

3. Use the Water, Smooth drawing tool again to draw a river coming in from the upper half of the left edge and running into the bay. Remember that you now need to draw the river as a polygon, effectively drawing each river bank individually as opposed to drawing a single line using the overland river drawing tools.

In the screenshot to the right, I made the river pink to show exactly how I drew it, but yours will be the same color as the sea. Note that I used the node edit tools (See page 50) to make the river extend slightly beyond the map border. I did this because the river is set up with an edge effect, and I didn't want that effect to appear where the river exited the map. Remember that the white polygons on the SCREEN sheet will cover up anything that extends slightly beyond the map border, so this part of the river will not be seen in the final map. Also note that you don't need to be concerned by the edge where the river touches the ocean, since the river and ocean will be one surface as far as effects are concerned.

Partitioning the City

From our discussion, we decided that the city should have a city wall, and that it consists of 4 districts (docks district, government district, warriors district and river district). I like to set up the area used by the city and the partitioning first, so that I know how to treat each area. Let us start with the city wall.

There is a drawing tool called City Wall 20', which is excellent for the wall itself. However, I do like to add some towers to my wall as well; something there is no drawing tool for. Fortunately, we can define our own drawing tools, so let us take care of this little issue immediately.

4. Make a copy of the City Wall 20' drawing tool, and name it City Wall Tower. Edit your new drawing tool, and set the Draw method to Ellipse/Circle. Hit the Options button, and set Eccentricity to 1.0. This will ensure that our towers are circular and not elliptical.

Click the Properties button, and set the Width to the fixed value of 8.0. Finally, click the Outline button, then the Properties button in that dialog. Set the width of the outline to a fixed value of 0.0. That's it. You now have a tower uses the exact same settings as the rest of the wall. When placing a tower, simply draw it on top of the wall where you want it, and it will merge seamlessly with the wall.

5. I also created a tool to draw simple gatehouses for the city gates. This tool is made the exact same way as the tower tool above, the only difference is that the Draw method is set to Path/polygon, and the Closure option is set to Closed. If you wish to make perfect rectangles with this tool, I recommend using some construction lines first to set up the rectangle, then using these as a guide when drawing the gatehouse (the Endpoint modifier is helpful here.)
The cargo hold

The final part of our ship is the cargo hold. This is also the simplest of them all.

45. Set up and activate the 4’ snap grid on the Deck 1 map.

46. Repeat steps 32 to 36 of this tutorial to copy the hull and effects to the Deck 1 map.

47. Copy the outer walls from Deck 2 to Deck 1. We will be using these as a guide.

48. Draw a new outer wall using the Bulkhead, Polished 0.5’ tool. Since there shouldn’t be a cargo hold beneath the bridge, simply end the deck with a straight wall at the point where the Deck 2 wall has its first bend.

   Once the new outer wall has been drawn, delete the one we copied from Deck 2.

49. Put in a floor using the Hull, Lattice Irreg tool.

50. Add some symbols to the cargo hold. The Cargo catalog contains crates and barrels that fit here. I also grabbed some spacesuits from Personal Items.

The last item I put in was a space vehicle. I initially grabbed one from a City Designer catalog (@Symbols\Cities\CD3\Vector Shaded\CD3C Moon Dwellings.FSC), but I later found that it was also available in a Cosmographer catalog (@Symbols\Cosmographer\Overland\Vehicles.FSC). This vector symbol didn’t fit to well initially, but I edited the symbol, replacing the original plain fill used for the hull with a bitmap fill from COS3, and made some other color changes to make it fit better. I only did some very quick and simple changes; you can easily make it fit much better if you spend a little more time on it.

Final touches

This drawing is basically complete, but there is one final change I would like to do. Right now, the navigation links lists the decks as Hull, Deck 1 and Deck 2. It would look better with proper names on the decks.

51. On each of the maps, use Numeric Edit to change the link text from Deck 1 to Cargo Hold, and from Deck 2 to Main Deck. Also, change the heading in the navigation box. However, with the current font size, Cargo Hold and Main Deck doesn’t fit in the box, so just use Cargo and Main respectively (Or change the font size, or resize the box).
Making Solid Shapes and Holes

Perspectives 3 includes some solid entities to create platforms, stairs, balconies, towers and holes. Cylinders, 3D Boxes and 3D Polygons 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 ShapesHoles 01.FCW. This shows a room drawn in the P3B Stone Wall, Flagstone Floor style.
2. Click Perspective Settings. Click P3B Brick G Wall, Water Floor.
   Note that the floor area thumbnail looks like a watery surface.
3. On the Perspectives 3 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.
   The prompt reads Third corner or enter length [square];
6. Click the final point for the room near the south-east corner.
   The prompt reads Height or Depth[6];
7. Type 2' and press Enter for a 2' high raised area. (ShapesHoles 02.fcw)

3D Regular Polygon

Now we’ll make an indented area filled with water to go on the raised floor.

8. Set the current sheet to FLOOR 01.
9. Zoom in to an empty area to the 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 [6];
11. Type 8 for an octagonal hole. Press Enter.
   The prompt reads Center:
**Mixing Map Styles**

In this floorplan tutorial, we will look at how to mix map styles for good effect. We will draw a modern map in the SS3 Bitmap A floorplan style, but we will also use elements from the DD3 dungeon style and the SS2 Bitmap A style as well. The result should be a very unique map.

For this map, we will make a small street scene, where some strange demonic platform has broken through from below. The general layout will contain a road, a parking lot, two buildings, an area behind the buildings with a park, which also is the location where our demonic platform will break through.

Do beware that this tutorial contains a lot of tiny details, but the I think the result is quite pleasing.

Consider this an advanced tutorial. I will explain how to accomplish everything in this map, but I won’t tell you every button you need to press or every symbol to place. By now, you should have more than enough grasp on the basics to understand what I am talking about at the various stages. Also, If I tell you do something on a sheet or layer you don’t have, create it. Refer to the complete sheet list on the next page for the complete sheet order.

You can find tutorial maps for various stages through this tutorial in the @Tutorials\TomeSS3 folder, under the Breaking Through filename. Be warned that this map is rather heavy on the effects, so a reasonably fast computer is recommended.

**Getting Started**

First, let us start a new map, and set it up with all the fill styles we will be using. I already know what fill styles the map will use, so I am adding them now, but there is nothing wrong with doing this at a later point if you need to include more fill styles.

1. Start a new map in the SS3 Bitmap A floorplan style. Size should be 150 by 80, and the background should be Concrete_SS3A.
2. Use Draw -> Insert file, and insert @System\Fill Styles\DD3 Dungeon Color.FCW into your map. However, when asked to place it in your map, don’t, simply hit Esc to end the command instead.
   Repeat for @System\Fill Styles\SS2 Bitmap A.FCW.

**Laying down the groundwork**

Since we started with the concrete background, we need to lay down some grass, a parking lot and a road.

3. Used the Terrain, Asphalt Cracked 1 drawing tool for the road, and Terrain, Asphalt Cracked 2 for the parking lot.
   For the grass, I wanted the Grass_SS3A fill style. However, there are no straight polygon drawing tools for this grass, so I found it easier to just draw the grass using Box.
   Make sure everything we just drew ended up on the OUTSIDE sheet.
PROJECTIONS

FT works with spherical worlds but your monitor is flat. A sphere won't fit on a flat surface, no matter how hard you try. Try peeling an orange and getting the peel to lie flat on a table. It won't go flat unless it tears or distorts. A map projection is the way in which a sphere (the orange rind) is distorted and torn to fit on a flat surface (the table). Many map projections have been developed down over the years to suit many tasks. Some preserve relative areas at the cost of distorting shapes, others preserve shapes at the cost of distorting areas, and others try to compromise between the two.

FT provides many map projections; some are well suited for whole-world maps while others work best on a local scale. It also includes interrupted projections, which can be used to display pieces of a world rather than a single contiguous world.

Supported Projections

**Albers Equal-Area Conic**

This conic projection is named after Heinrich C. Albers. The projection uses two standard parallels. Shape and scale are not preserved, but the distortion between the standard parallels is very small.

It is primarily used for regional area maps.

**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.

**Equidistant Conic**

This projections is a conic projection using parallels that are equally spaced. Distortion is the same along any one parallel, but there are both angular and scale distortions outside the two standard parallels used for this projection.

**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 FT3 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.