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How to Import a Surveyor's or Architect's File

In this chapter, you'll learn about the process to follow when given a digital file by a surveyor or an architect or when you've downloaded one from a mapping source. You'll also learn about some of the potential pitfalls of dealing with digital files and how to avoid them!

If you're used to hand-drawing, your surveyor will have produced the survey and printed it for you at the scale you requested. You will then have traced the details you wanted and drawn the design over the top. If you wanted to work in a different scale, you would need to ask the surveyor to print it again for you—or rescale it yourself using your scale ruler.

Now that you're working with Vectorworks, you can ask your surveyor to send you their electronic file. This will usually be in either DXF or DWG format. Similarly, you can purchase mapping data from various online sources. I get mine from a company called Promap, where I can specify the client's postal/zip code and the select the area I want to include. I can then download a boundary map and optionally level data.

Importing an Existing Survey File or Map in DXF/DWG Format

One *very important* thing you need to know about the DXF/DWG file you are importing is the *unit of measure* in which it was created—so that you import its contents at the correct size.

The scale of the DXF/DWG is immaterial, as you can change the scale yourself once the import is complete. So, you need to change your thoughts from scale (important, of course, when receiving a printed survey) to unit of measure. Find out what your friendly surveyor uses. Mine uses meters. Vectorworks can make a good guess based on the information it can read from the DXF/DWG file, but I find it's best to know. You can also use a process of elimination. Once you've imported something, measure a door or window. If it's 1000 meters (833' 4") wide, you can probably guess that you set the unit of measure wrong. You'll learn how to rectify the situation in this chapter too.

For files downloaded from a mapping service, you'll need to check with their staff as to which unit of measure applies to their content. Most surveyors in the UK work in meters (but not always!), and architects are harder to predict!

DXF files are usually imported with a number of classes already setup to organize the information for you. You'll learn all about classes in this chapter.

Exercise Nine: Importing Surveyor's or Architect's Files

Start with a Blank File

It's really important to start with a blank document—starting with a file that already has information in it is not recommended. You then use the File > Import menu to bring up a list of different formats from which you can import. There are two options for importing DXF/DWG

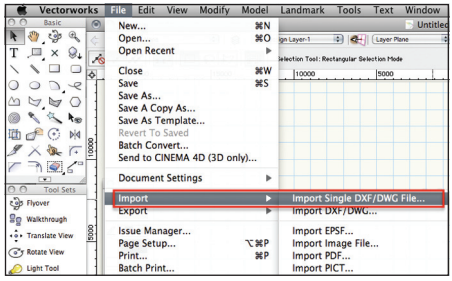
files. If you have just one file, you can use Import Single DXF/DWG file. However, it's possible that you may have more than one file. If that's the case, you need to import them all at the same time in which case you use the first option on the menu, Import DXF/DWG. This allows you to choose a set of files rather than just one. This chapter provides exercises covering both scenarios.

1. Select **File > New** and create a file from the template you created earlier.
2. Ensure the file is set up as you want it. Make a mental note of the scale of any Design Layers currently in the file.
3. Choose **File > Save**, and name your file **MySurveyImport.vwx** (because it's always a good practice to name and save your file as soon as you start working on a new project.)

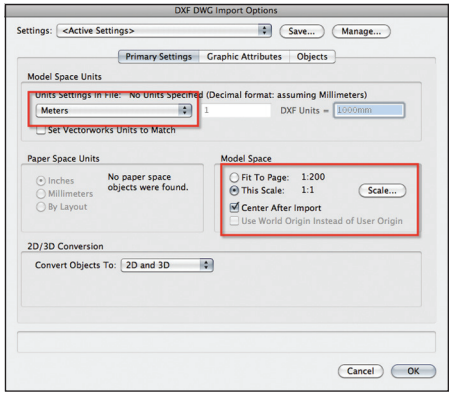
Import a Single DXF/DWG File

Use this step if your surveyor or architect has provided you with a single file.

1. Select
   File > Import > Import Single DXF/DWG.



2. Locate the file **Survey.dwg** among the exercises supplied with this book, select it, and then click Open. The DXF/DWG Import Options dialog box will be displayed.
3. Under Model Space Units, change Unit Settings in File to Meters. This piece of information is *critical* to the correct sizing of the imported drawing. "Model Space" is the AutoCAD equivalent of Vectorworks Design Layers. This is the bit where you need to know which unit of measure the surveyor or architect has used in their file. Vectorworks can try to work it out from the information provided, but in my experience, it's good to find out for sure. So, here in the UK, my starting guess would be meters if working with a surveyor.



4. You have a choice now of whether to set your Vectorworks drawing to the same unit of measure. I prefer to work in millimeters, so I don't change this, but this is a matter of personal preference.

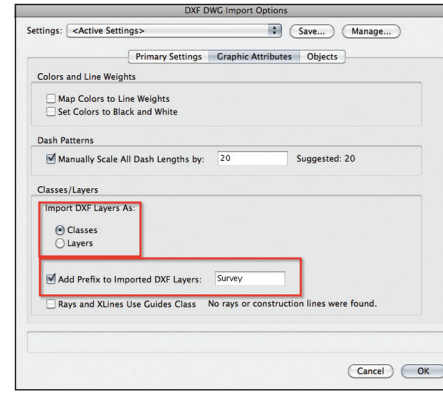
5. Moving down the screen, there is a section on Paper Space Units. Paper Space is the AutoCAD equivalent of Vectorworks Sheet Layers and your surveyor or architect may have set up Paper Spaces for you if he/she was intending to print the DXF/DWG file for you. If there are paper spaces detected, the recommended setting here is By Layout. In this example file, there are no paper spaces.

6. On the Model Space section of the dialog box, Vectorworks is suggesting a scale to use if you want to fit this drawing onto your page. If you don't want it to fit on the page, you can click the scale button to specify the scale you want. Remember, you can change the scale of a drawing at any time so what you choose now isn't set in stone. Select 1:1 (as this is how most AutoCAD drawings are created). You will rescale later.

7. Check **Center After Import** to ensure that the survey drawing is placed on your drawing area. It may contain "real-world" coordinates and therefore otherwise will be placed in its real-world location, which could be some way from your page area. Whichever method you choose, the coordinates of the objects remain constant. When you choose to center, the origin (0,0) is moved off the page to preserve the coordinates—preferable if you are working with other professionals and need to ensure the file remains at the same coordinates (see Georeferencing in the chapter on Setting Up the Drawing Board).

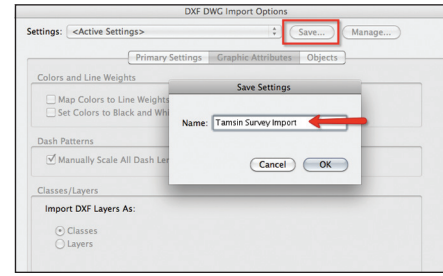
8. Under 2D/3D Conversion, set Convert Objects To: 2D and 3D. This is the safest option, as Vectorworks can then determine what is sensible to import as a 2D object and what is sensible to import as a 3D object.

9. Click on the **Graphic Attributes** tab at the top of the dialog. On this screen you can define what happens to incoming line weights (older versions of AutoCAD handle line weights with a separate color table that the user maps to line weights). As you have not created the AutoCAD file yourself, I would suggest you uncheck this box as you won't yet know which colors relate to which objects. (If you do know the intended mapping of line weights to colors, leave the box checked and see step 13 below.)



10. Ensure DXF Layers will be imported as classes (which are the most appropriate equivalent to AutoCAD layers).

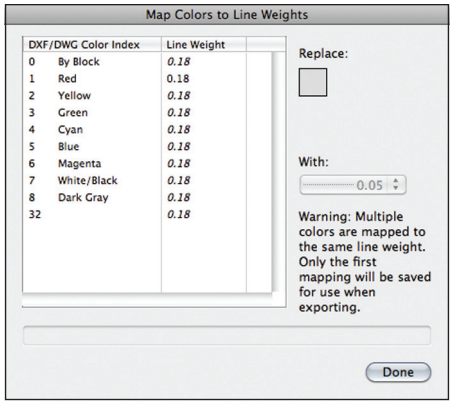
11. At the top of the dialog, there is an option to save these settings so that you can recall them each time you import a survey.



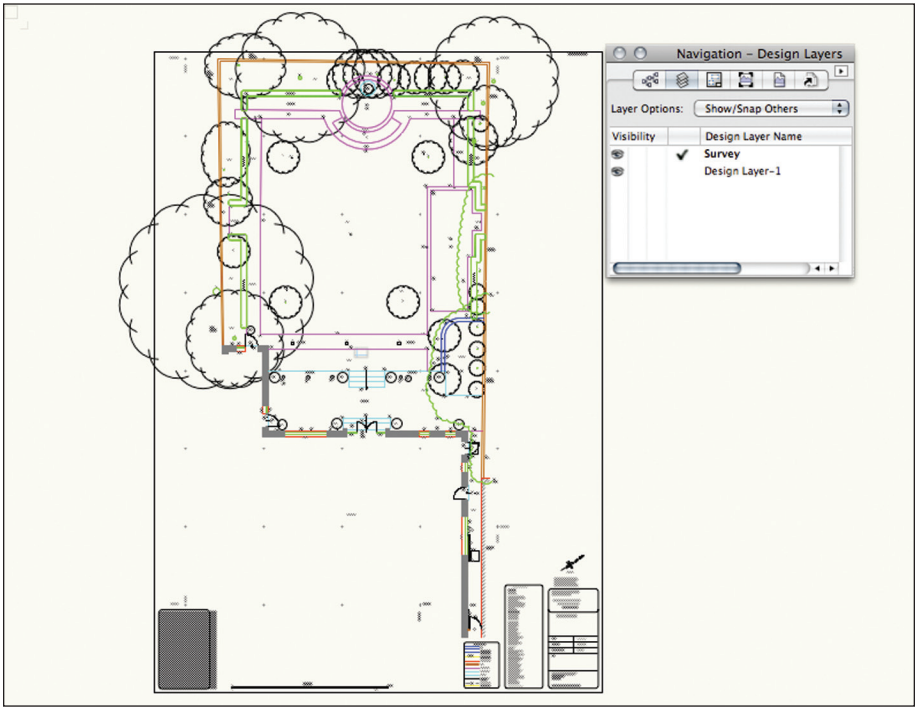
Ensure Custom is displayed in the Use Settings field, click Save As, and then enter a name for your import settings. Click OK.

12. Click OK to start the import process.

13. If you do know the intended mapping of lineweight to color and left Map Colors to Line Weights checked, the next dialog box displayed will ask you about mapping colors to line weights. The DXF/DWG process usually assigns colors to denote different line weights in the source file. You can change the line weights for different colors of you wish. Click Done.



14. Finally, Vectorworks will point out any fonts that exist in the DXF/DWG file that you do not have on your system and ask you which fonts you would like to use instead. In this example, there are two fonts, which by default, Vectorworks will change to Arial or Geneva. Click on each font and change to a font you prefer. Once set, these font

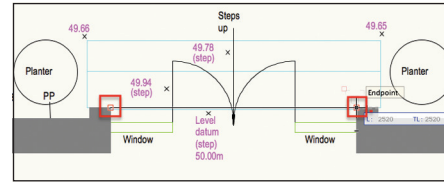


mappings are remembered by Vectorworks for each session and you will not be prompted to do this again until you import a file with another font that your system doesn't recognize.

15. Click OK to continue the import process. Click **Fit to Objects** on the **View bar** (the top of the screen.) As you imported at 1:1, the drawing will not fit on the page, but we'll deal with that later in this chapter. If you wish, you can save your file now. You can also review my file called **Import Survey-Completed.vwx**.

Check the Size of Objects in the Imported File(s)

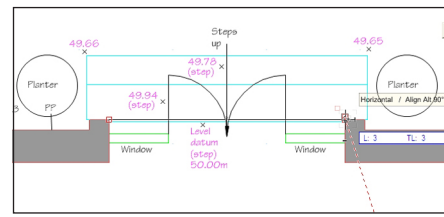
As I've tried to stress in this chapter, the scale of the imported file(s) is immaterial. Knowing the unit of measure is crucial. Sometimes, it's not possible to know for sure, in which case you need to check the size of the objects you've imported. Find an object in the garden about which you know the size (or approximate size) or can make an educated guess. If there are doorways marked on the plan, that's a good starting point. Otherwise, look for a gate or a path and measure its width.



1. From the **Dims/Notes** tool set, select the **Tape Measure** tool.
2. Click on the left of the French doors in the center of the house. Then click on the right of the doorway. The Tape Measure tool is showing you the length of the doorway. In this example, my Vectorworks units are set to millimeters, so this doorway is 2520 mm wide (see the blue figures to the right of the door inside the blue box or "data bar"). This seems a reasonable size for French doors. Later in this chapter, we will look at rectifying the situation if the imported file is not the correct size.
3. Click on the **Selection** tool.

How Will You Know if the Unit of Measure was Wrong?

Had I set the unit of measure incorrectly, it wouldn't necessarily be immediately apparent. In the example image below, I imported the file with a unit setting of millimeters instead of meters and set my scale to be 1:50 at import. Alarm bells started to ring (in my head!) when I clicked **Fit to Page** in the **View bar** and couldn't see anything. However, using the **Fit to Objects** button on the **View bar** helped me to find the property.



Great! The whole garden appeared to be in proportion. However, when I repeated the tape measure step above, this is what I saw. My unit of measure in the Vectorworks file is millimeters and so this doorway is 3 mm wide (Vectorworks has rounded to the nearest millimeter)! If I hadn't checked, and then

started designing shapes by eye rather than by specific dimensions, I could have gotten myself into a mess.

Reviewing the Layers and their Scale

In this section of the exercise, we're going to look at the layer structure of the drawing and ensure that the scales are correct for our page. There are two types of layer:

- Design Layers: where you draw your designs. Design Layers are transparent, allowing you to see objects drawn on layers beneath them. I like to think of them as overlays that you use to build up your design. Anything you draw in Vectorworks lives on a Design Layer.
- Sheet Layers: where you combine different views, details at different scales, etc., ready for printing. They are not transparent and represent a physical piece of paper. They show only what you want them to show from the design layers.

You'll learn much more about sheet layers later in the book in the chapter on preparing to print. For now, all you need to know is that they are like a presentation layer and are at a scale of 1:1. You can draw on them, but they are not the place for you to do your design work.

To understand the benefit of using multiple design layers, think about the design process when hand-drawing:

- Receive the survey printed by your surveyor, or draw up your own survey.
- Produce the draft plan: Trace the house, boundary, etc. Then add your design proposals.
- Produce "Setting Out" and "Hard Landscaping" Plans: Trace the house and boundary and hard landscaped areas. Then add dimensions.
- Produce "Planting Plan": Trace the house and boundary and the planting beds.

I think I've made my point. How many times did we trace the house? Design layers are like transparent pieces of paper. If we put the house and boundary on its own layer, then we do not need to re-draw it. We can place another layer over the top for each stage in the design process. You can control whether layers are visible or not. For example, you might want to show the house and boundary with the planting but not with the hard landscaping. You can make the hard landscaping layer temporarily invisible.

Review the Design Layers

Design Layers are managed via the
Navigation palette, which you'll find to the right of the screen. If you have inadvertently closed it, you can open it again from the **Windows/Palettes** menu.

1. Continue working on your file MySurveyImport.vwx, or you can use the ImportSurvey-Complete.vwx file. On the Navigation palette there are a number of tabs. Hover your mouse over the tabs to see what they show you. Click on the Design Layers tab.