

Enter a drawing name with the full path in the File Folder text box. Select the Purge One File check box and click the Purge Files button. The program opens the drawing, purges it, saves it and closes it. The Purge Drawings dialog box returns and lists the number of files that were purged, in this case only one file.

Next, run the macro again and don't select Purge One File check box. In the text box, type the path and name of a folder that contains several drawings. Notice that the purge program opens, purges, saves, and closes each file in the folder and then shows a count of the files purged.

To run the program later, load the program into AutoCAD by selecting Tools | Macro | Load Project and browse to your `purgeapp.dvb` file. Then run the macro as we just described.

## Save time and space

A VBA program like the one we created allows you to process many drawing files at once to accomplish an important task—purging unused named objects. Automating this process can save you lots of time when you need to purge your drawings to make them smaller and more efficient. ▮

**Greg MacGeorge** is a systems analyst, with Yum Brands Inc. Visit Greg's website at [www.gregmacg.com](http://www.gregmacg.com) where you will find Free AutoLISP, VBA, and Windows programs. Greg can be reached at [gregmacg@bellsouth.net](mailto:gregmacg@bellsouth.net).

# Import and manage Land Desktop data with LandXML

by Michael Partenheimer

**Application:** Autodesk Land Desktop 2004/2005/2006

**D**o you ever need to modify, translate, or otherwise convert your Land Desktop project design data? Perhaps you'd simply like to import data into your project and compare it with existing data to detect design changes. These tasks are certainly tedious and time-consuming, but LandXML can help you streamline the process. In the December 2005 article, "Share Land Desktop data with LandXML," we explained what LandXML is and how to export Land Desktop data from your project to an XML file. This month, we'll explain how to benefit from using LandXML to import project data.

## More than just data import

In this article, we'll start by showing you how to easily add data to your new Land Desktop project from an existing XML file. Next, we'll explain how to compare LandXML data with your Land Desktop database to identify changes in the project data. Then, we'll discuss how to use LandXML to convert your project units from metric to imperial or vice-versa. Finally, you'll see how to use LandXML to globally translate and rotate project coordinates and elevations.

## Basic data import

In order to import data, you'll need an XML file. Using the Land Desktop Tutorial1 data that ships with Land Desktop, open `Drawing9.dwg` and choose Projects | Export LandXML from the main menu to generate an XML file. Name it `Example1.xml`. The

steps are detailed in the December 2005 LandXML article. Once you have your XML file, you'll need to create a new metric Land Desktop drawing and start a new Land Desktop project.

**Tip:** If you experience difficulty trying to export a LandXML file from your own large Land Desktop project, try the following. Make a copy of your Land Desktop project, open and attach a drawing to that copied project, and then delete any surfaces from the copied project not needed for your export. Reducing the size of the copied project could resolve your difficulties and may also speed the entire process. Just be sure to erase the copied project when you're done.

If you are unfamiliar with creating a new drawing and project, follow the steps outlined in Land Desktop

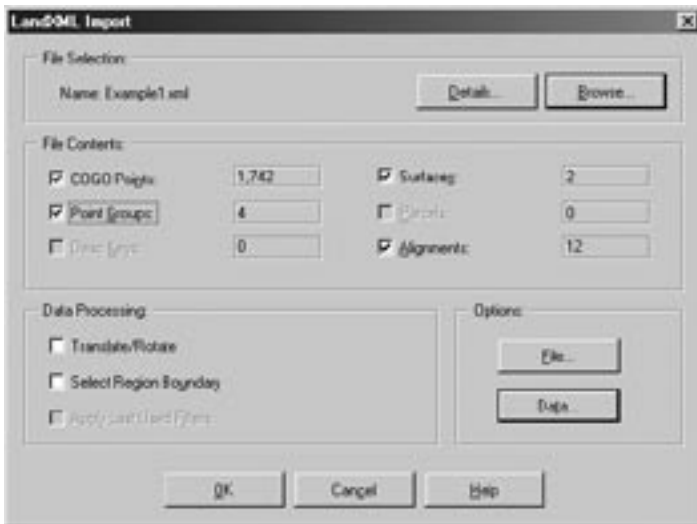


tutorial Lesson 1: Working with Projects. Land Desktop tutorials are accessed by choosing Help | Land Desktop Tutorials from the main menu.

Because the Tutorial1 project is a metric project, the new drawing must be a metric drawing. If you created an Imperial drawing, use the Projects | Drawing Setup command to change the units. On the Units tab, change the Linear Units from Feet to Meters.

### Start the import

To begin the import process, use the Import LandXML command by choosing Projects | Import LandXML or by typing `landxml_import` at the command prompt. Select the `Example1.xml` file at the prompt to select a file. Click on the Open button to open the LandXML Import dialog box, shown in [Figure A](#).



**Figure A:** Set import options prior to importing data.



**Figure B:** Setting data options is necessary to obtain desired results.

In the File Selection section, you can use the Browse button to specify a different XML file to import. The Details button displays XML file content information including—most importantly—the linear units of the data. Our project data is in meters but when working with imperial units knowing whether the contents are in International Feet or U.S. Survey Feet is critical.

### Choose your components

The next section, File Contents, permits selection of the file components you'd like to import. The Data Processing section presents the option to Translate/Rotate the data—meaning that you can move or rotate the project coordinates. You can specify a portion of the project area rather than the entire site by selecting the Select Region Boundary check box.

### Set options

In the Options section, the File button sets the default search location for XML files and the Data button opens the LandXML Import Data Options dialog box, as shown in [Figure B](#).

When a project is based in imperial units, you will have a choice of either International Feet or U.S. Survey Feet. Selecting one or the other will either maintain the units stored in the XML file or convert from the XML units to the units you selected. This selection option is not available in a metric project, as [Figure B](#) shows.

Use the Insert To Drawing section to automatically generate corresponding objects during data import. The Surfaces section permits two choices: Maintain Triangulation, which imports the surfaces with breakline data intact, or Quick Import, which imports surfaces without breakline data. Maintaining breakline data is preferable because the imported surfaces exactly match the exported surfaces. Quick Import is useful as an alternative because importing a large surface can take a great deal of time. You need to add breaklines manually with this option. For our example, we selected the Maintain Triangulation option.

In the Profiles section you may elect to either overwrite all the existing project profile data or, using the Merge option, combine existing data with new vertical alignment data and also modify existing vertical alignments when the alignment data in the XML file differs from the existing. The Overwrite/Merge options are unimportant when there is no existing data.

Once you have made all of the selections, click OK to close the dialog boxes and process the LandXML data. The results are displayed in a summary, showing a total for each object type.

### Select data to import

At the same time, the LandXML Import Selection dialog box appears as shown in [Figure C](#). Here you may select the data to import.

As an additional convenience, the buttons in the Filter Data section allow you to select either all available data or only the desired specific data. For example, if you click the Alignments button, you can choose alignments, as shown in **Figure D**.

For our example, we selected all available data to import. When you finish with the Filter Data buttons, click on the Import button. The Tutorial1 project database is updated and now contains the data imported from the Example1.xml file.

## Compare import data to existing data

Now that you've seen how to import XML data into a Land Desktop project, we'll do it again, but this time we'll make some changes to the project data prior to import so that some of the XML data matches the Land Desktop project data and some doesn't. Using Land Desktop commands to make the data modifications, we modified four points, redefined an alignment, and deleted the Fg surface in the project database. Then, we repeated the process of importing data from the Example1.xml file.

The import process automatically compares the LandXML data with the existing project data. The results are displayed in a summary, shown in **Figure E**, so the differences can be seen. The summary displays a total for each object type and informs you of the difference between the existing project data and the XML file. The changes we made are evident in the comparison results. If you made different edits, those will be displayed here.

Note that identical data are filtered out and not available for import. Also, the Conflict Resolution settings shown in **Figure C** now play an important role. Conflicts occur when data exists in the project

and you attempt an import utilizing the same data name but different data values. You can choose to have the import command automatically overwrite existing data with the XML data, you can automatically skip the import of conflicting XML data thereby keeping the existing data intact, or you can choose to be prompted for a decision as to which data you want to keep. As a result, the Conflict Resolution settings allow you to import needed data without inadvertently overwriting good data with bad or obsolete data.

## Converting data units

Let's see how to import LandXML data into a new project, converting existing metric data to imperial



**Figure C:** You can refine the data you want to import.



**Figure D:** The Alignments option allows you to import only the data you want to import.



**Figure E:** You can easily see the differences between the project data and the XML file.

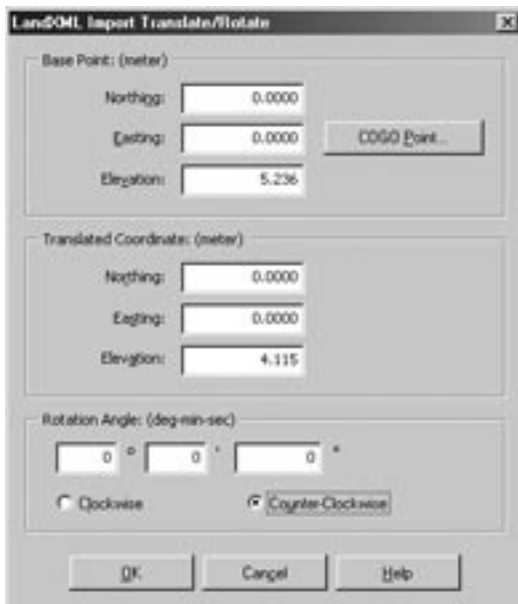
in the process. Begin once again by creating a new, blank Land Desktop drawing and creating a new Land Desktop project. We'll be converting the existing metric LandXML data to imperial, so this time set the new drawing to Feet units when prompted by the setup wizard.

Import data from `Example1.xml` as before. This time when the LandXML Import dialog box (shown in **Figure A**) opens, click on the Data button to access an important option. You must select either U.S. Survey Foot or International Foot as the Foot Type. If you select International Foot, the metric units are converted to imperial using a 3.2808398950131 conversion factor. If you select U.S. Survey Foot, a conversion factor of 3.28083333 is used instead. In our example, we selected U.S. Survey Foot.

When converting, clicking the OK button in the LandXML Import dialog box opens the LandXML Import Unit Conversion dialog box shown in **Figure F**. The Unit Conversion dialog box automatically appears whenever the LandXML Import tool detects drawing units set to a value that do not match the XML file data. Had the drawing been set to metric units, as in the first example, there would be no conversion option.



**Figure F:** XML file metric units are converted to imperial units.



**Figure G:** The Translate/Rotate feature can also adjust the datum elevation.

Continuing through the import process you'll encounter no further differences from the first basic import example. When import is complete you'll find all data have been imported to the project as imperial equivalents to the original metric project.

**Note:** A reverse conversion is also possible. An imperial to metric conversion will occur when the LandXML file contains imperial data and the drawing is set to metric units.

## Translating coordinates

You've seen how easy it is to import, compare, and convert units using LandXML data. Now let's see how to translate/rotate coordinates and adjust elevations.


Sometimes you and your collaborating consultants use different north-rotation and project coordinate systems for a project. This makes project data exchange difficult. By utilizing LandXML to exchange data, collaborators can easily convert incoming data to their own rotation and coordinate system.

As before, you'll want to create a new, blank Land Desktop drawing and a new Land Desktop project. Import data from the `Example1.xml` file. This time, when the LandXML Import dialog box opens, activate the data coordinate translation option by selecting the Translate/Rotate Data Processing check box. All other settings should be the same as previous examples.

After clicking on the OK button, the LandXML Import Translate/Rotate dialog box appears, as shown in **Figure G**. Here you can translate your consultant's coordinates and rotation data to your system. Just enter the coordinates of a known point and a rotation factor. If the translation coordinate is based upon a Land Desktop COGO (coordinate geometry) point, you can select the point number rather than type in the consultant's coordinate.

Sometimes it's necessary to adjust the datum elevation of a project. You can use the same Translate/Rotate option for this purpose. You can simply set all coordinates and rotation to zero values and type in the necessary elevation adjustment. The remaining steps are the same as our other import examples.

## Manage your data

LandXML makes data exchange easier and safer because the same familiar process is always used. The ability to easily compare and convert data enhances your productivity. LandXML truly gives to you the tools necessary to manage your project design data. 

**Mike Parteneimer** is Corporate CAD Manager of Hall & Foreman, Inc., a civil engineering firm. He is also the 2005-2006 president of the Civil CAD Consortium. He can be contacted at [mikeparteneimer@hotmail.com](mailto:mikeparteneimer@hotmail.com).