



Autodesk® Publish DWG to Google Earth™ Extension

USER'S GUIDE

(Disclaimer: Remember that this is all early alpha and beta software; really cool technology, but it's unsupported, use at your own risk, etc. In other words, don't use these tools on mission critical projects! Lastly, we make no guarantee that these products/features will ever be commercially available.)

Overview

This add-on application is useful in publishing and viewing your DWG-based data and 3D models within Google Earth™.

Autodesk® Publish DWG to Google® Earth provides an easy-to-use system for publishing AutoCAD-based models to Google Earth. The tool is an add-on AutoCAD runtime extension (ARX) module that works with AutoCAD 2007, Architectural Desktop 2007, Civil 3D 2007, and other AutoCAD 2007 vertical applications.

This publishing tool is designed to specifically meet the needs of Architects, Designers, and Engineers using Autodesk products. Using the easy-to-use, wizard-driven interface, you can publish your 3D models directly from AutoCAD into Google Earth.

From the planning process all the way through to public approval, everyone involved in your project can now view and navigate your projects in the context of the rich, interactive Google Earth environment. Benefits include:

- Deliver high-impact presentations at planning board meetings or public hearings
- Streamline the preliminary project planning process
- Share conceptual plans with your clients as they develop
- Connect everyone involved in your project from the planning stage through to public approval

See the help file for detailed information on how to publish Autodesk DWG data directly into Google Earth. Information on using this application can be found in the *AeccPublishKml40.chm* help file available with this product.

You can obtain a copy of Google Earth™ here: <http://earth.google.com/>

Applicable Products

- AutoCAD 2007
- Architectural Desktop 2007
- Autodesk Civil 3D 2007
- Autodesk Map 3D 2007

Installation Instructions

You must have administrative privileges on your Microsoft® Windows® operating system to complete the installation process. It is strongly recommended that you exit all Windows programs before you start.

To install this product

1. Download the ZIP file to any temporary location.
2. Double-click the ZIP file to open, then double-click SETUP.EXE and follow the instructions to install this product.
3. You will need to pick the AutoCAD product directory where you want the tools installed, e.g. C:\Program Files\AutoCAD 2007 (*IMPORTANT: make a note of this location – you'll need to know this for installing the Google Earth toolbar*)
4. Note: If you have more than one applicable Autodesk product where you want this installed, you will have to repeat this procedure and install this set of tools to each product directory.
5. Online Help (AeccPublishKml40.chm) located in the Help folder under the AutoCAD product folder; e.g. C:\Program Files\AutoCAD 2007\Help – double click this in order to open and view the contents.

Enabling the Google Earth Toolbar

1. At the AutoCAD command line, type CUILOAD, the following dialog will appear:

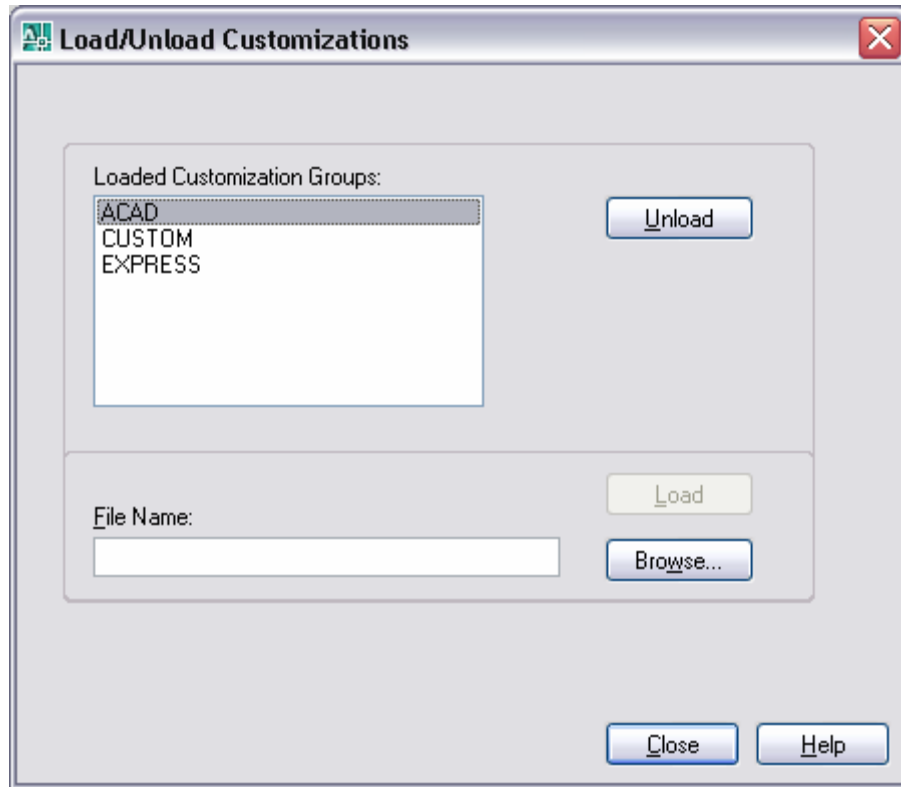


Figure 1: Loading the Google Earth menu

2. Browse to the location where you installed these tools, e.g. C:\Program Files\AutoCAD 2007
3. Select the file called "GoogleEarth.cui"
4. Click LOAD, then dismiss this dialog

The following toolbar will now be displayed on screen:



Working with these tools

Import Google Earth Image into AutoCAD

Prior to publishing your 3D model into Google Earth, you should know the position of where the model will be placed on the earth's surface. The simplest method to achieve this is to first import a Google Earth view into AutoCAD.

You can import the current Google Earth view into AutoCAD as a raster image. The image entity may be used as a back drop for design or, more importantly, as a means to georeference the position of your DWG model.

Georeferencing is the process of associating the position of your DWG model with a particular location on the earth's surface, along with orienting the DWG model to a particular direction relative to north.

The primary use of this command is to bring an image into AutoCAD, and adjust the position of the image relative to your model such that the DWG model will lie in the proper position on the earth's surface.

Complete the following steps:

1. Start Google Earth, and zoom to the location on the earth's surface that you want to capture the image
2. Be sure you are looking straight down at the earth's surface (that is, the view does not have any tilt.)
3. Also, for best results, zoom in close enough to capture enough detail of the earth's surface in the area of interest
4. Lastly, keep the Google Earth application maximized. Do not minimize or collapse the Google Earth application.

Here's what your display might look like (if you're looking down on our HQ in San Rafael, CA):

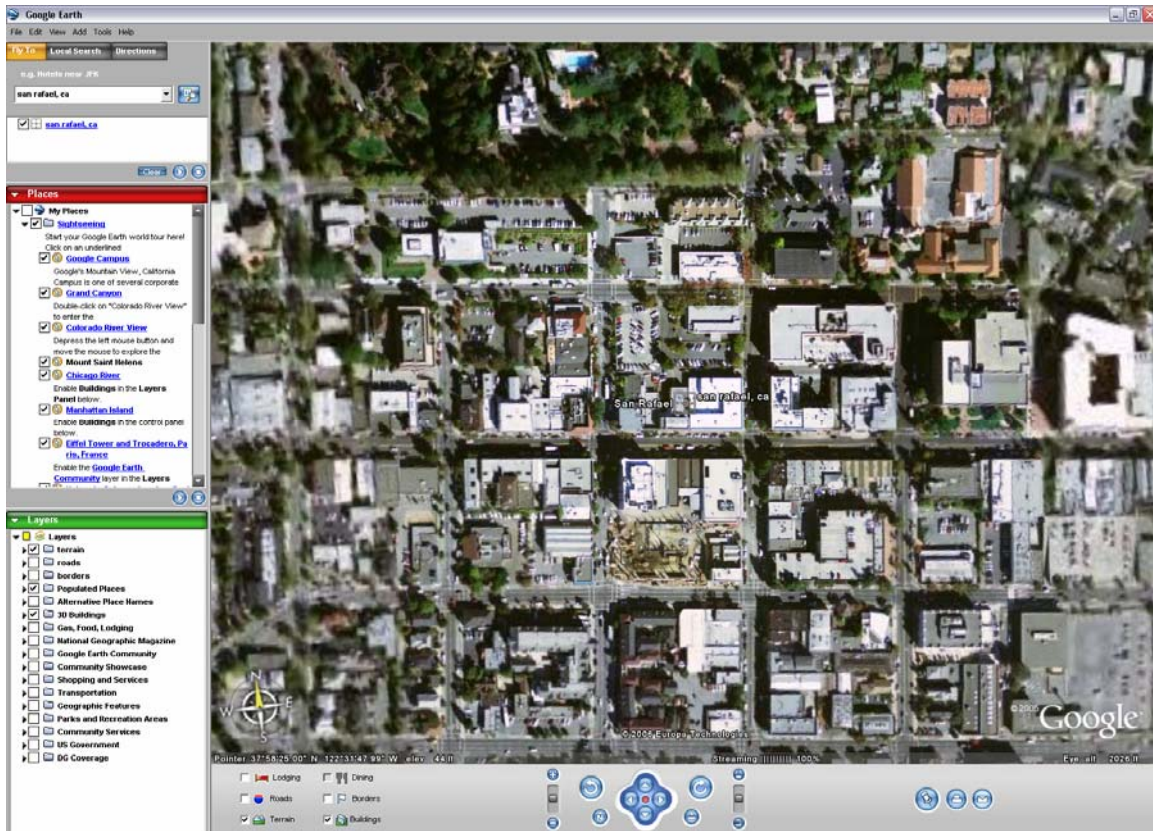



Figure 2: Google Earth view of San Rafael, CA

Now you are ready to bring this image of the Google Earth view into AutoCAD.

1. Start AutoCAD, and select the left button  on the Google Earth AutoCAD toolbar (or, type in IMPORTGEIMAGE).
2. After a brief period, a rectangle representing the border of the image will be attached to the AutoCAD graphics cursor.
3. Position the image to the desired location, and then specify a rotation angle to orient the image as desired.

Your display should look similar to this figure:

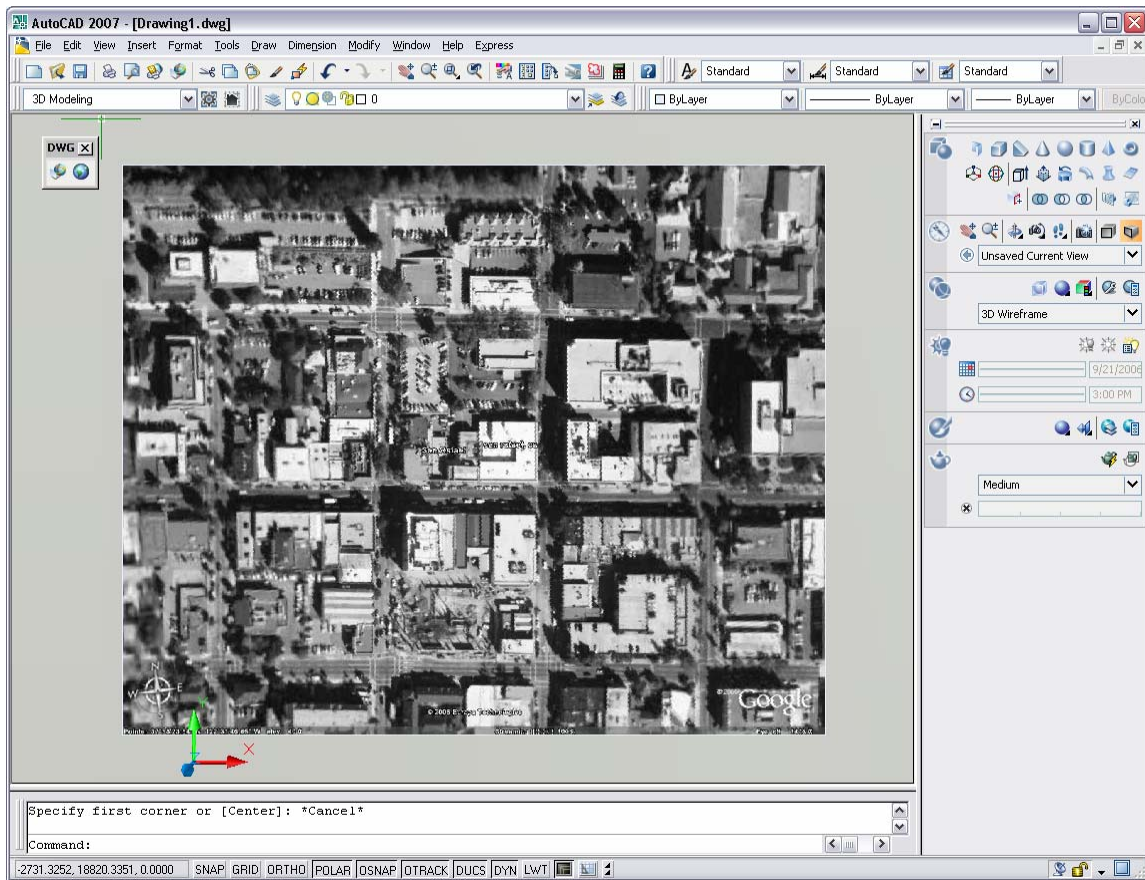



Figure 3: San Rafael image within AutoCAD

The following items may be of help:

- Once placed, you may use AutoCAD's 'move' and 'rotate' commands to further refine the position of the image relative to your model. Do not adjust the position of your DWG model. Rather, adjust the position of the image relative to your DWG model.
- The dimensions of the image in the drawing are defined by the extent of longitude and latitude the image covers in Google Earth, and a transformation of those extents to the linear units of your DWG.
- The image displayed in the drawing is an AcDbRasterImage, and is stored in the same directory as the DWG file. The first three letters of the image file name will be the same as the first three letters of the DWG file, and the image extension will be JPG.
- The image entity contains x-data stored with it that contains information about where on the earth's surface the image covers.

- The image brought into AutoCAD will only be black and white, even though the image in Google Earth is in color. There is no way to change this.

Publishing 3D DWG Models to Google Earth

To publish 3D DWG data to Google Earth, use the  button on the AutoCAD Google Earth toolbar, or type PUBLISHKML at the AutoCAD command line.

Once the PUBLISHKML command is selected a set of dialog boxes in the form of a wizard is presented. Follow the directions given on each step of the wizard to publish the data.

Use the “Collect Data from Imported Google Earth Image” button on the third dialog, (called Geo-Reference) to pick your Earth position.

There are detailed tooltips for each item on the dialog boxes. Use the information in the tooltips to understand the effect each control has.

The following items are related to publishing DWG data to Google Earth:

- DWG model data is grouped under the Model folder in the Places pane.
- Grouped entities in the DWG are grouped in common folders under the Model folder within the Google Earth Places pane.
- Cameras and camera paths are grouped in Cameras and Paths folders in the Places pane.
- Colors of published entities in Google Earth are matched closely to AutoCAD colors.
- Only model space data may be published to Google Earth.

The follow figures detail the flow of the PUBLISHKML wizard:

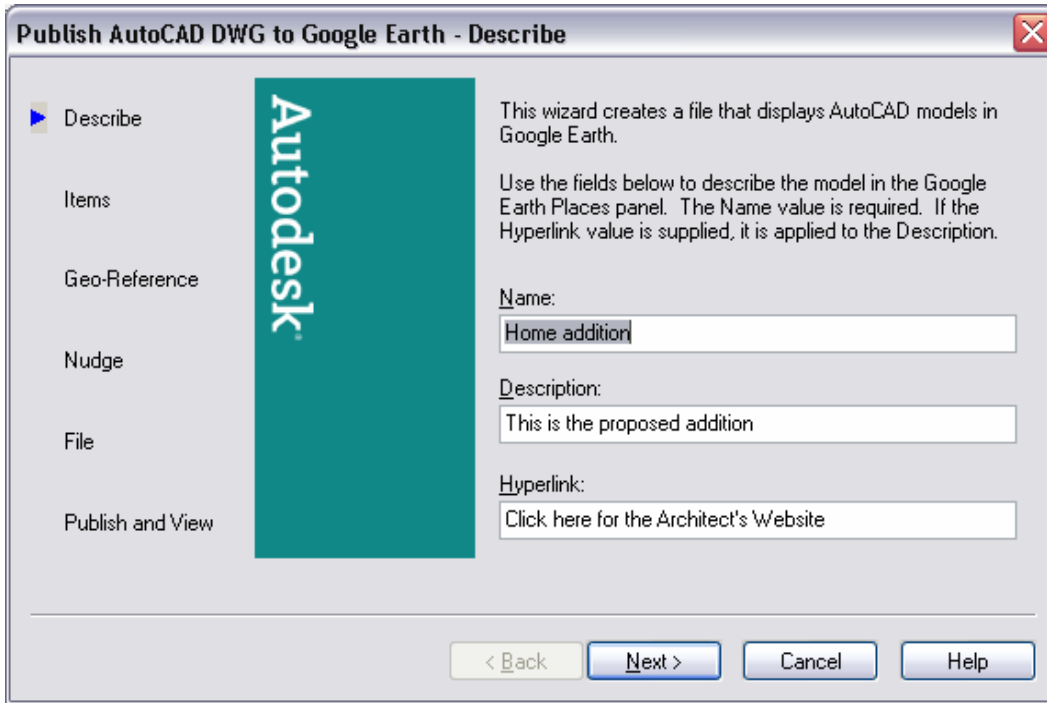


Figure 4: Labeling your model for presentation in Google Earth

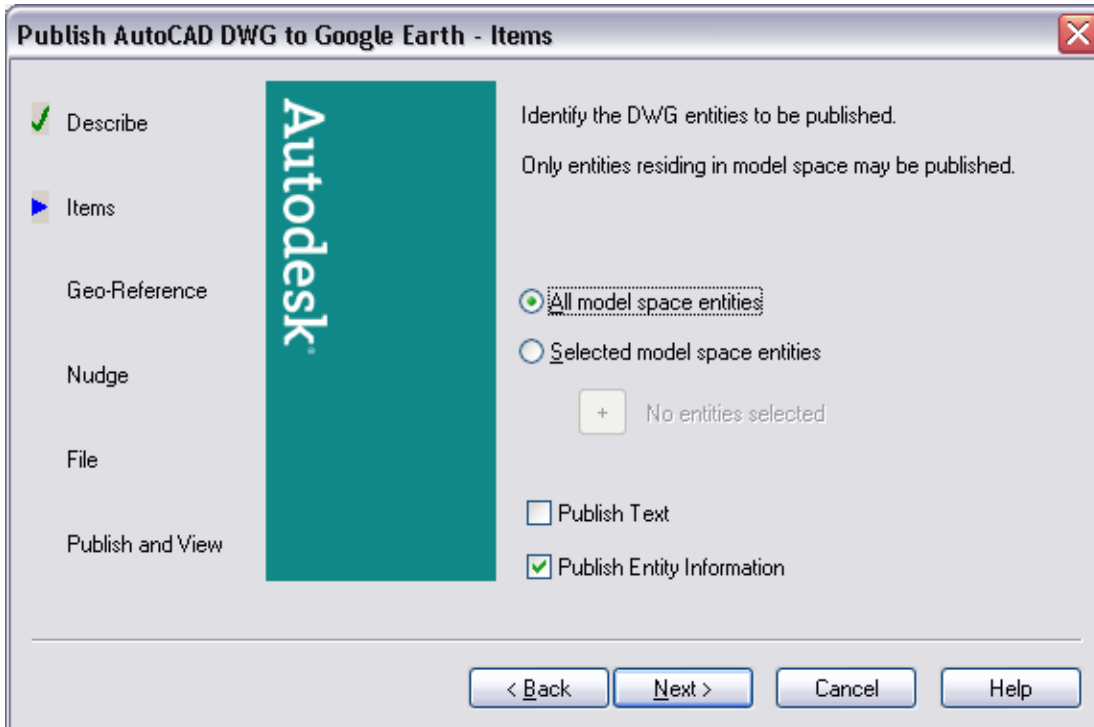


Figure 5: Select which objects to publish, enable text and ADT or C3D object properties

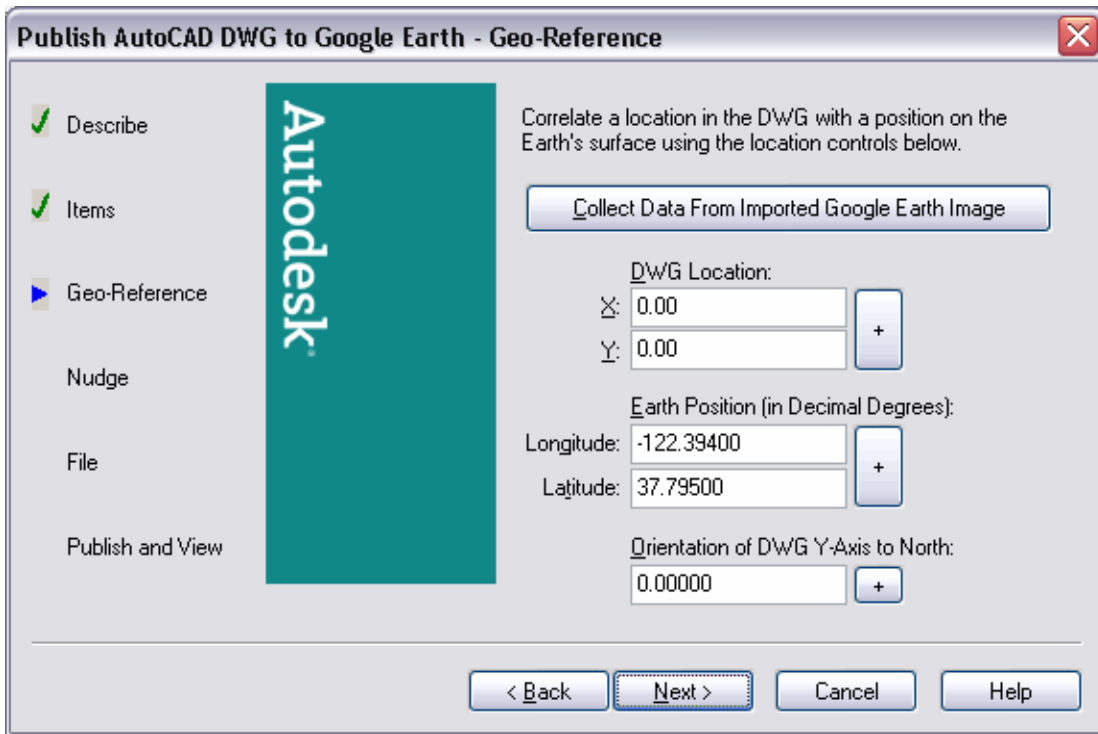


Figure 6: Locate your model on planet Earth

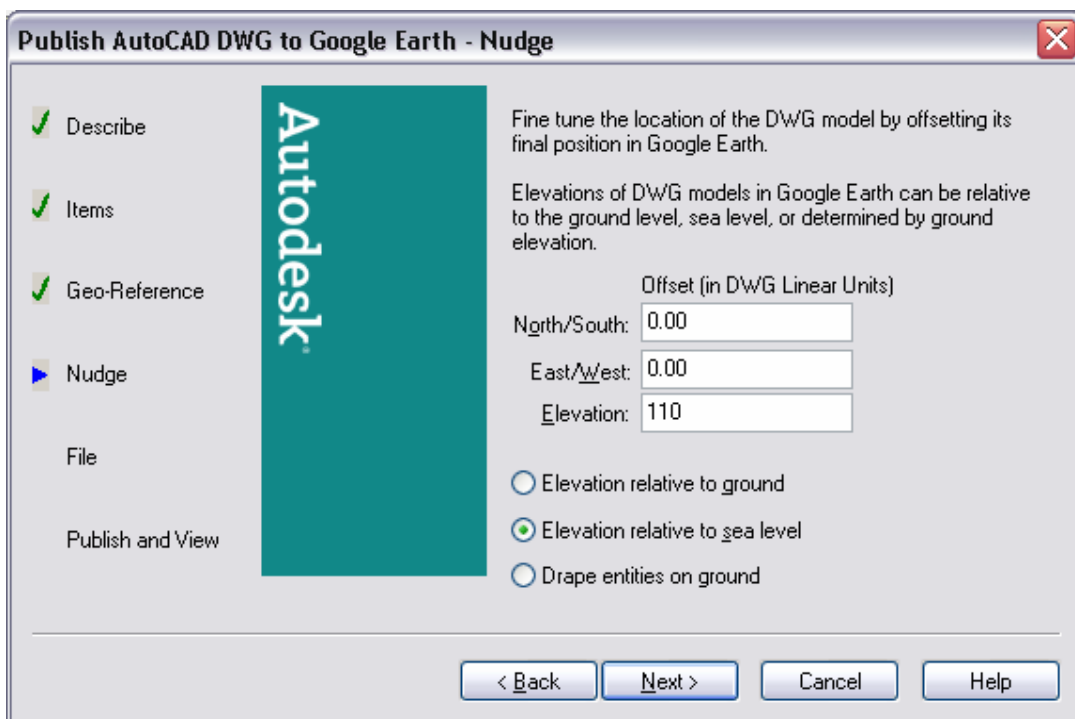


Figure 7: Tools for offsetting your model

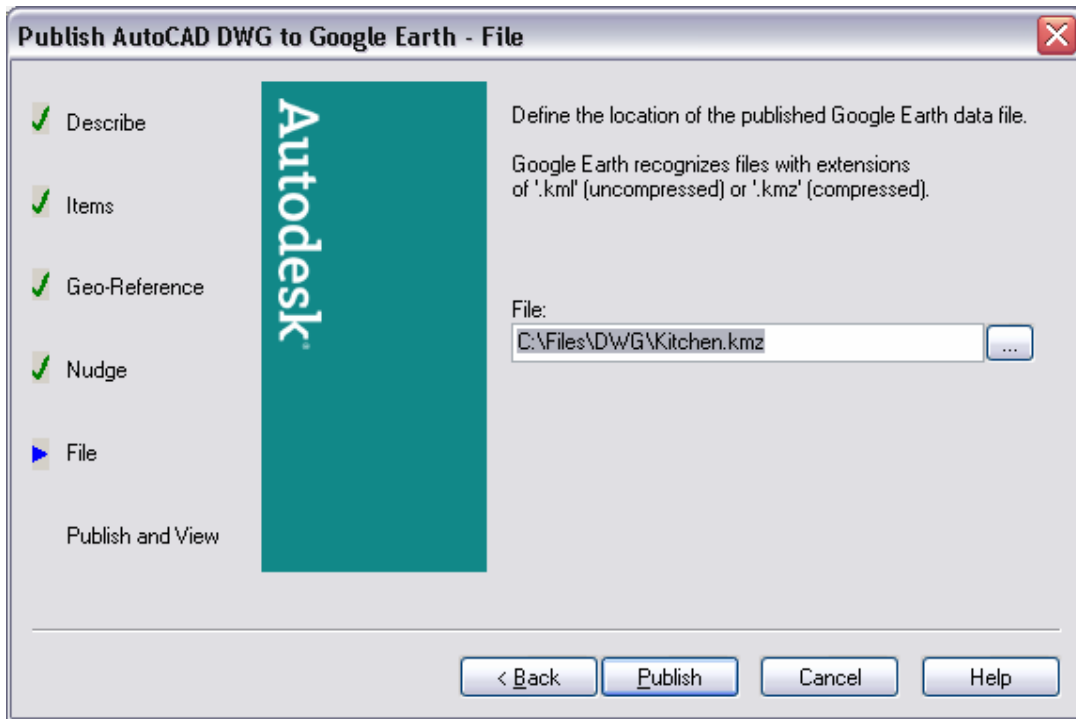


Figure 8: Save your model into a format Google Earth can read

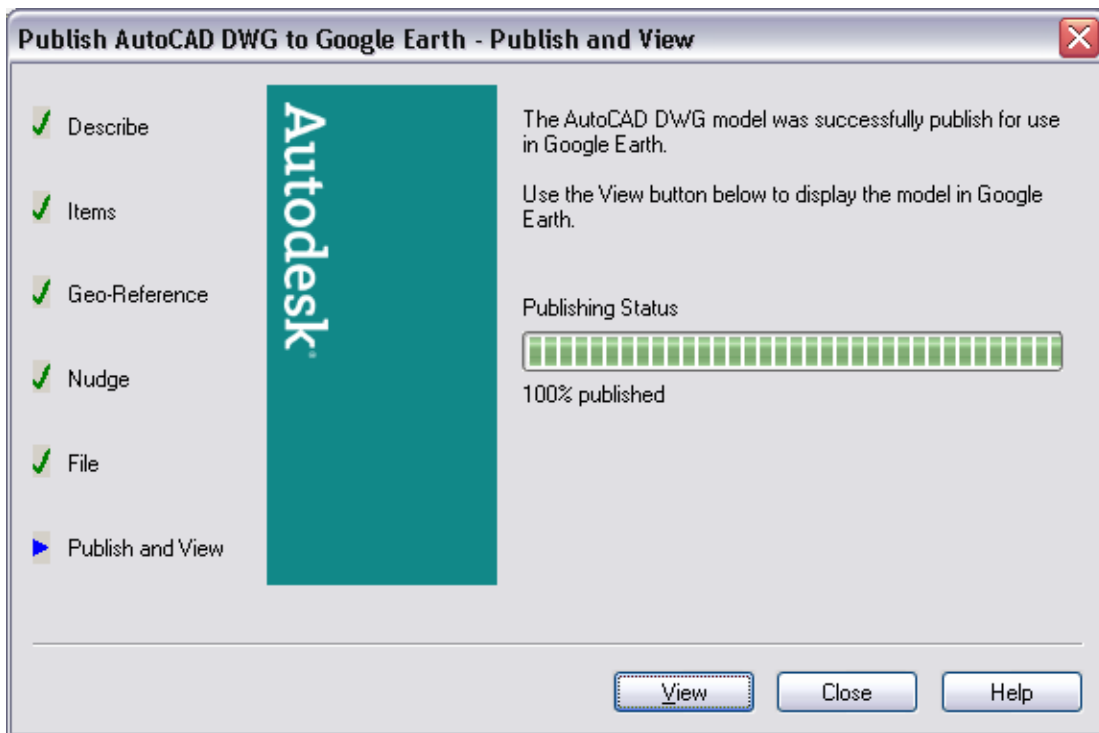


Figure 9: Once saved, click on View to open Google Earth

Command Reference

Command Name	Description
PUBLISHKML	Exports your 3D DWG model space entities to an external file for use within Google Earth.
IMPORTGEIMAGE	Brings current Google Earth view into AutoCAD as raster image. Use this command to georeference your DWG model data to correct position on earth's surface.