Using
Google Earth Pro
(v7.3.2)

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Using Google Earth Pro

Google Earth Pro (GEP) is a free downloadable software package that allows users to view satellite imagery of the Earth’s surface. It also allows users to mark up the imagery for their own use. Users can add placemarks, draw polygons, add paths and create maps. External information can also be added such as photos and scanned maps.

Access or Download Google Earth Pro Software

Access Google Earth Pro in the Library
- Google Earth Pro is available on all computers within the HMALC

OR

Download Google Earth Pro for home/laptop use
- Versions of Google Earth Pro for Windows and for Macs are now available for download.
- https://www.google.com/earth/desktop/

Opening Google Earth Pro

Google Earth Pro will open with a view of the Earth, with North America facing the screen.
Getting Oriented

Search
The Search box allows users to Fly To or move the view to any place in the Google Earth database. You can also Find Businesses, and locate Directions.

Places
In the Places window, you can mark and save placemarks, polygons, paths, and pictures that you would like to highlight. Any items located beneath My Places will automatically open once Google Earth Pro is restarted. Any items located beneath Temporary Places will be removed when Google Earth Pro is closed. It will not be saved.

Layers
The Layers window includes content provided by Google Earth Pro. This includes roads, 3D Buildings, terrain models, and a variety of other themes.

Navigation
Over in the top right corner of the view screen, the navigation tools are available. These allow a user to zoom in, zoom out, and change aspect, tilting to view the horizon and Street View.
**Tools**
The top menu bar offers options for marking-up the Google Earth Pro view. You can save your mark-ups in the form of placemarks, polygons, paths, and even add an image overlay or a photo.

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<td><img src="image" alt="View in Google Maps" /></td>
<td>View in Google Maps</td>
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**File**
Beneath the **File** menu you can Open, Save, Email as well as Import data and Print.

**View**
The **View** menu allows the user to adjust what is seen and how it is seen.

**Tools**
The **Tools** menu provides a link to certain tools and **Options** like Movie Maker and GPS...

The **Options** menu under **Tools** provides a variety of settings which can be adjusted.
About Places

Items that appear beneath My Places will automatically open when you open Google Earth Pro. If someone before you has used Google Earth and saved an item to My Places, it will appear when you open the software. Please keep in mind that if you have anything saved beneath My Places on a shared computer the next person who logs in and opens Google Earth will see it.

When you add content to Google Earth by using File > Open… your items will automatically be placed into Temporary Places. Here they will sit until you either save them or move them into My Places. Be forewarned, if you close Google Earth Pro without saving your items to My Places, everything in your Temporary Places will be lost!

You can easily move your temporary files to My Places by dragging and dropping them into My Places or by right-clicking on the file and selecting Save to My Places. You can also save your Temporary Places to My Places by making the temporary file active and selecting File > Save > Save to My Places.

Saving

Take note that there are 3 options for saving your My Places.

Save to My Places is used when you have Temporary Places that you wish to save to My Places to ensure that they do not get lost. You can use this command by selecting the file beneath Temporary Places and selecting File > Save > Save to My Places.

Save Place As… can be used when you are using multiple files that may slow down Google Earth due to the sheer volume. By using this command you can save one file, the entire folder or everything contained beneath My Places. This can be useful if you are working on more than one computer. You can then save and later reopen the files on any computer.

Save My Places will save the current My Places onto the computer you are currently using.
How should I save?

Personal Computer versus Shared Computer

If you are using a personal computer you will want to move all your Temporary Places to My Places and then Save My Places. Your files will be there the next time you open Google Earth.

If you are working on a public computer you will want to highlight My Places and then select File > Save Place As…

A Save file… window will open. Browse a location, change the file name if you choose, and Save. You have now saved all the files contained within My Places.

 Fortunately, Google Earth Pro is aware that we are human and occasionally forget to save our items. If you attempt to close Google Earth Pro before saving your Temporary Places it will prompt you with this window.

Google Earth Pro Options

You can modify Google Earth Pro options by selecting Tools > Options…

A) You can change options such as your Coordinates and Units of Measurements.

B) You can also change your Tour (see Recording a Tour) options such as Camera Tilt, Range and Speed.
**Layers Window**

The Layers window provides many linked options that can be superimposed onto the GE image.

Here you can turn on and off numerous layers including Borders and Labels, Roads and 3D Buildings.

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**Opening a KMZ (Google Earth Pro) file**

A saved Google Earth file has the file extension **KMZ**.

To open a KMZ (Google Earth) file:

- Select **File > Open**…
- When the Open window appears, browse to the location of the KMZ file, select it and click Open
- The file will be added to Google Earth

Please note that when you open a file it is automatically put into **Temporary Places**.

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**Organizing your Data**

It is never too early to think about organizing your data so that it is easy to manage and easy to submit or present. You can organize your data similar to any data file organization by the use of folders.

For example, there are 3 types of parking lots at UTM; Reserved, Premium Unreserved, and Unreserved.

Perhaps you would like to present the data by speaking individually about each type of parking lot and the associated benefits and disadvantages. It would be helpful for you to show only the type of parking lot you are speaking about rather than all of them at the same time.

The best way to do this is to organize your data into folders.
Adding a Folder

1) To add a folder beneath My Places, right-click on My Places and select Add > Folder

2) A new folder properties window will appear. Provide the new folder an appropriate name. In this case we will name the folder "Types of Parking Lots". Click OK

3) The folder is visible. Since we are working with 3 types of parking lots, we can add 3 additional subfolders one for each type of parking available. To do this you right-click on Types of Parking Lots and select Add...Folder

Moving a File

The next step is moving the data files to its respective folder. You can do this in one of two ways: Drag and Drop or Cut and Paste.

**Drag and Drop**
- Left-click on the data file (or folder) that you wish to move. It will be highlighted.
- Left-click and hold while you drag the file into the appropriate folder or location
**Cut and Paste**

- Right-click on the data file (or folder) that you wish to move and select **cut**
- Next, select where you would like to move the file to, right-click and select **Paste**

**Viewing the Organized Files**

Once the files have been organized it is easy to view the contents of an entire folder by clicking it on and off.

By selecting the **Types of Parking Lots** folder you “turn on” all the data files and folders located beneath it. These files will now be visible in the Google Earth mapping area.

If you only wanted to see the Unreserved Parking only have the **Unreserved** folder checked.

Note what happens when you only select one subfolder or item beneath My Places or a master folder. Notice that the check mark becomes a solid block in those areas identifying that not every item beneath it is currently visible in the mapping area.

**Adding Placemarks**

**Step 1:**

Select the **Add Placemark** icon from the top menu or select **Add > Placemark**

**Step 2:**

Move your placemark by left-clicking and dragging. Zoom in and out to ensure you are placing the mark in the correct location.
Step 3:

A) Change the icon that represents the placemark by selecting the icon from the properties window.

B) Change other options, such as the color, scale and opacity of the icon.

Tip: If you have multiple points that depict the same thing, copy and paste placemarks by right-clicking and selecting copy and paste.

Step 4:

A) Add additional details to your placemark. Click ok.

B) Select the placemark you just created!

Tip: Google Earth recognizes HTML!

If you added a website to the description, you can view it right in Google Earth by selecting it! (Depending on your browser it may open directly in the browser instead of Google Earth)

Add Web Image...

Google Earth Pro recognizes HTML. You can add a website to a placemark, add a web image, or add a local image. Be sure to have permissions to post the photo.
Step 1:  
Select the **Add Placemark** icon from the top menu or by selecting **Add > Placemark**.

Step 2:  
Place the Placemark in the correct location

Step 3: 
A) Locate the online image, right-click and select **View Image** (available in FireFox)  
B) Copy and paste the image URL

Step 4: 
A) In the Placemark Window, click **Add web image**... and paste the image URL  
B) Click OK

Step 5:  
Be sure to add citation details for the image!

In this example we have used a photo from Flickr beneath the Creative Commons License. The Creative Commons License allows people to use photos as long as they are sourced in the manner which the author specifies.
The photo of the CCIT Building was posted onto Flickr beneath the Creative Commons License by Igor Mazic.

Igor Mazic, "CCIT Corner" September 4, 2005 via Flickr, Creative Commons Attribution.
Add Local Image…

You can also add a local image (an image that is saved on your computer) in the same manner as adding a web image. *Be sure to have permissions to post the photo.*

1. Select *Add Placemark*
2. Select *Add local image…*
3. Browse to your local image and select *Open* and *OK*

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Adding Polygons

**Step 1:**
Select the *Add Polygon* icon from the top menu or select *Add > Polygon*

**Step 2:**
Create a polygon by using the cursor and left-clicking.  
*Note:* you are not dragging the mouse, simply clicking on the corners.

*TIP:* You can remove nodes by right-clicking on the mouse
Step 3: 
Give the new polygon a name and provide a description

Step 4: 
A) In the properties window you can change the color of the polygon, the view, and the altitude. 
B) Select the Altitude tab, change the drop down menu to Relative to Ground, change the Altitude to 16m, and select the Extend sides to ground

You have just created a 3-dimensional polygon!

C) Select the View tab, and select the Snapshot Current View. This allows the user to zoom into the optimal viewing location by double clicking on the object beneath My Places or on the object within the mapping window.

Zoom out and then double-click on the polygon you just created in the table of contents. Notice that the view zoomed into the polygon just the way it was when you hit Snapshot current view!
Adding Image Overlays

Step 1:
Select the Add Image Overlay icon or select Add > Image Overlay. 
Note: Be patient, adding an Image Overlay can be a little tricky but beneficial!

Step 2:
Notice the green square. The image will be dropped in this location. If you know the approximate location of where you want your overlay to appear, adjust the location now by left clicking, dragging, and zooming.

Step 3:
A) Select Browse within the properties window. Locate your file and click OK
B) Take note that the added image may not line up with the GE view
Step 4:
Adjust the image overlay so that it lines up with the GE view

Moving, Resizing, and Rotating, Fit to Screen

A) To Move the image place the cursor into the center crosshairs, left-click and drag.

B) To Resize the image, move the cursor to the corner or sides, left-click and drag (be careful as you can easily stretch your image. If you stretch it you can select Fit to Screen to restore the image).

C) To Rotate your image box, move your cursor to the diamond located either within the box, or near the edge, left-click and rotate.

D) To Fit to Screen, select the Location tab and select Fit to Screen.

E) Use the Transparency slider found within the Image Overlay properties window. By moving the slider and making your image more transparent you can easily see the Google Earth imagery. This should help you place you image in the exact right position!

Adding a Photo

Step 1:
A) Zoom into the location you would like to add your photo
B) Select Add > Photo...
C) Browse to your photo
Placing a Photo

Unlike the Image Overlay, a photo is a regular image that doesn't need to match with the local terrain, but simply adds another aspect to the display. Working with a photo is a little trickier than with an Overlay. Once the photo is added it covers most of the screen and can be difficult to place. We recommend that you make the photo less opaque or clearer.

Rotating and Tilting a Photo

A) You can tilt and rotate your photo by using Tilt and Roll options found within the properties window and beneath the tab Photo

B) You will need to play with the tool to determine how you would like your photo to be displayed
Recording a Tour & Making a Movie

Step 1:
Select **Add > Tour** from the menu bar or select **Add > Tour** by right-clicking on any item in your places.

OR

Once you select **Add > Tour** the video camera will be selected in the top menu and a small recording window will appear on the bottom left of the map window.

Tip: Be creative when making your recording. Remember you can turn items on and off, zoom in and out, show the description of the item, etc…

D) Once you stop recording a new box will automatically appear and your recording will start to play.

Save your Tour
Step 3:
A) Save your recording by selecting the save icon on the right of the play recording box
B) When the New Tour window appears provide your tour with a name
C) Select OK
D) To play your Tour, select the item and then select the recording icon located beneath My Places

Step 4:
A) After your Tour is saved you can now export your video using the Movie Maker Tool. (Be sure to close your tour window first).
B) Go to Tools > Movie Maker
C) Under Record from… > A saved tour and find your tour in the drop down menu
D) In this Window you can choose the video format and resolution for exporting
E) Save your file to your computer to be used outside of the Google Earth Pro Software
Creating a Path

Step 1:
Select the **Add Path** icon or select **Add > Path**.

![Add Path icon and menu options]

Step 2:
A) Left-click and drag OR click and go to create your path.

**Tip:** You can delete your last path entry by selecting the delete key OR by right-clicking

B) Give your new Path a name, change the color and weight of the line and select the other various options

![Path creation window with options]

Step 3:
Play your Path by selecting the **Play Path** button at the bottom of Places.

![Places window with DB To North Building selected]

**Tip:** You can record your Path by selecting the **Record a Tour**, start recording than selecting the **Play Path** icon!
Ruler Tools

Google Earth Pro allows the user to measure distance across a surface area, a path, calculates area and can create 3D Paths and Polygons.

Direct Distance:

To Measure the direct distance from one point to the other you can do this by selecting the Tools tab in the toolbar and select Ruler>Line. This will open up a new window where all your measurement can be done. Select an area on the map with the cursor and then double click your endpoint to get the measurement results. Select Clear to start a new measurement.

Area:

In order to measure the area of the University of Toronto Mississauga campus you will need to select polygon in the ruler window. Create a shape around the campus with your cursor and then when finished the end point to calculate the results.

Area and Radius of a Circle:

Google Earth Pro allows you to calculate the area of a circle on a map. In the Ruler window select Circle. Place the cursor into the middle of your location and drag the mouse downwards to increase the radius of the circle. The results will be calculate immediately and shown in the ruler window.

If the circle needs to be repositioned simply select the middle point of the circle on its radius to make changes.
Elevation Profile

Step 1:
Create a path or import a path

Step 2:
A) Select the Path
B) Select *Edit > Show Elevation Profile* icon
OR
C) Right-click on the Path and select *Show Elevation Profile*

Step 3:
A) The elevation profile will appear at the bottom of the window. Some valuable information is available immediately including:
- Minimum and Maximum Elevations
- Range Totals including, Path Distance, Elevation Gain/Loss, Max Slope, and Average Slope

B) Move your cursor inside the Elevation Profile window. You can now easily identify the elevation at any given point along your path!
The Viewshed Tool

The viewshed tool only available in GE Pro versions 7.0 and up, allow a user to analyze the visible terrain of a surrounding area in 3D from the point of view of a placemark. Land features highlighted in green are in the line of sight relative to the placemark, all those that are not visible will be highlighted in gray.

1) **Add a placemark** on the area that you would like to analyze
2) Right click the placemark and select **Properties > Altitude**

C) Right click on the placemark and select Show Viewshed
D) Google Earth will now calculate the terrain from your specified altitude and give you an output

*Tip: Tilt the camera in your window to a horizontal view on the horizon and zoom to your placemark for the best results.*
**Geographic Information System (GIS) Data Import**

Google Earth Pro has the ability to import georeferenced GIS data files into Google Earth.

1. Select **File...Import**...
2. When the **Open** window you can browse to the location of your GIS dataset. Select the dropdown menu to view all the file formats that Google Earth accepts.

**Importing a Shapefile**

1. Following the steps above browse to the location of the shapefile you would like to add.
2. Select the shapefile and select **Open**
3. A window will open asking if you would like “to apply a style template”. Select **Yes**.

![Google Earth window](image)

The Style Template Settings window will open.

4. Beneath the **Name** tab change the **Set Field Name** to what you’d like to see the imported shapefile features called.
5. Beneath the **Color** tab you can set colour options for your imported features.

Once you selected your option, click **OK**.

A Save Template window will open. You can choose to save your template or disregard them by selecting **Cancel**.
Street View

Street view works the same in Google Earth as it does in Google Maps. The one main difference is that you can place placemarks, photos, polygons etc. in street view.

Opening Street View

Step 1:
A) Move your cursor over the navigational controls
B) Left-click on the peg man and drop him onto a road
C) You have now entered Street View

Navigating in Street View

While you are in street view you can navigate with two different methods with the mouse and with the key board.

**Mouse Controls**

- **To pan (look around)**: Left-click and hold while moving the mouse
- **To move**: Left-click or scroll your mouse wheel in the desired direction
- **To Zoom In or Out**: Right-click and hold while moving the mouse up and down
- **To Exit Street View**: Click Exit Street View at the top of the Screen

**Tip:** You can see where Street View has been by taking note of the Yellow or White paths visible in the window
Adding a Placemark in Street View

An advantage of adding a placemark in Street View is that you can now use it for presentations to show real ground level photography. You can add a placemark and when selected beneath Places the map window will take you from the Satellite View into Street View.

Step 1:
A) Locate the area in which you would like your placemark to be placed  
B) Select the Add Placemark icon from the top menu or select Add > Placemark  
C) Move the Street View window until the placemark is in its desired location  
D) Select the View tab within the Placemark Properties window  
E) Select Snapshopt current View

Step 2:
A) Exit Street View by clicking on the Exit Street View Button.  
B) Your map window will return to the Satellite View  
C) Notice that Mike’s Dog House is now visible in Satellite View  
D) Double clicking on the item will take you back to the Street View placemark
Creating a Balloon (from a template)
Download a Balloon Template

Step 1:
A) Go to https://www.google.ca/intl/en/earth/outreach/tutorials/balloon.html
B) Scroll down to the Select a Template section and browse through the 5 template option
C) Choose the template you like best and select Download this template
D) Select Open with Google Earth

Working with a Balloon Template

Once your balloon template opens in GE, it will fly to the default location of the placemark.

Three (3) clickable items are added to GE and placed beneath Temporary Places.
Preparing the Balloon template ready for Editing

Step 1:
A) Copy and Paste the Template object into My Places
B) Open the placemarks properties window (right-click > Properties)

Within the placemarks property window take note of the Description box. It is full of HTML coding. Also take note of the placeholders (IN CAPS). These are the sections that will be substituted with your content!
Step 2:

A) **Reposition the placemark.** To do this you will have to be in the Properties Window. Zoom out and move by Left-clicking and dragging your placemark to the desired location.

B) **Give the template a new name**

C) **Snapshot the current view.**

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**Editing the Balloon Template content**

**Step 1:**

Open the properties window of the template and select the **Description** tab.

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All of the items in CAPS are the items that you will paste over with your content.

For example, look above at the blank template; the items are all listed there in {CAPS}.

By scrolling through the HTML coding for the Balloon Template Locate and replace the appropriate content for your balloon into the appropriate holder space. You will be replacing the curly brackets and everything within them "{ALL OF THIS}".
Step 2:  
**Replacing Images**

A) Isolate your online image and copy the URL (only have the image visible on the screen)  
B) Locate the appropriate area to replace  
C) Paste the URL between the quotation marks “{EVERYTHING BETWEEN}”

The new Logo (or image) is now visible!

Step 3:  
**Replacing Text**

A) Copy the text you would like to place within the template  
B) Locate the appropriate area to paste it within  
C) Replace the curly brackets and text within with the text you would like to see

Please note that in this example some additional breaks were added using simple HTML

The new Text is now visible!
Step 4: **Replacing Links**

A) Locate the URL of the Link you would like to add  
B) Locate `{LINK_1_URL}` and to paste the URL  
C) Locate `{LINK_1_NAME}` and change it to the name of the link as you would like to see it

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**Historical Imagery**

Step 1:  
A) Select the icon from the top menu  
OR  
B) Zoom in over an area until the bottom left of the screen appears with the Imagery Date and the oldest photos it has on the area.
When you select the Historical Imagery icon you will get a slide bar just below the icons.

1) Time slider: Use this to navigate between different time periods
2) Light blue shows time periods with available imagery, the Dark blue shows time periods with no imagery
3) The oldest date of available imagery
4) Zoom in and out of the timeline
5) Close the historical image finder by using the x

Creating a Map

If there is an area of the Earth on Google Earth Pro that you would like to map simply position the area you would like to view in the window, check off any layers you would like to be visible and click the “Save Image” tab in the tool bar.

Within your maps you will be able to add a title and description, scale bar, north arrow and a legend. You can edit these options by hovering over them until you see Edit Options, and double click to make changes. You can also re-position elements on your map by selecting them and dragging where desired.

By selecting “Map Options” you can turn on and off map elements and adjust the scale. Google Earth Pro gives you the ability to export your map in different high definition resolutions for printing.

When you are satisfied with your map and have chosen your resolution click on Save Image and save it to a desired location on your computer.