

CADtoEarth

For Autodesk Inventor

User's Guide

July 29, 2013

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Getting Started

This guidance document describes the formal steps on how to use CADtoEarth plug-in for Autodesk Inventor with CADtoEarth web application. It provides helpful information which is intended to assist you in usage of all application functions.

What is CADtoEarth

CADtoEarth is a family of innovative add-in applications for the most popular CAD packages, linking modeling environments with Google Earth and Google Maps.

CADtoEarth for Autodesk Inventor offers some very exciting capabilities. Here is the partial list of what you can expect:

- Import a section of a surface from Google Earth into the Autodesk Inventor modeling session.
- Import a pre-drawn sketch from Google Earth into the Autodesk Inventor modeling session.
- Get information directly from the Google Earth 3D Buildings layer.
- Place your 3D structures on the imported Surface within the Autodesk Inventor modeling session and then upload them back to Google Earth.
- Perform the similar operations with 2D objects between the Autodesk Inventor and Google Maps.

Manage your 3D models in CADtoEarth web application:

- Change altitude, scale, rotate and move your 3D structures.
- Choose 3D structures for auto-placement.
- Share your 3D structures with other users.
- Upload *.kmz models into your personal storage.

Sign Up for a CADtoEarth account

It is required to sign up for a CADtoEarth account to be able to link the Autodesk Inventor plug-in with Google Earth and Google Maps services.

You can register the CADtoEarth account in a few easy steps:

- To register, you will need a web browser and an internet connection.

In the browser address bar type: <http://www.cadtoearth.amcbridge.com>

- You should now have the Login page displayed in your browser.

Click on the [Register](#) link.

The image shows a web browser window displaying the CADtoEarth login page. The page has a light blue background with a subtle grid pattern. In the top right corner, there is a dark grey button labeled "Hello, Guest". On the left side, there is a "Log In" section. It contains two text input fields labeled "User Name" and "Password". Below these fields are three links: "Change Password", "Forgot password?", and "Register". The "Register" link is highlighted with a blue underline. Below the links is a checkbox labeled "Remember Me" and a "Log In" button. Three lines with arrows point from the links to text labels at the bottom of the page: "Click to change your password" points to "Change Password", "Click to recover your password" points to "Forgot password?", and "Click to begin registration" points to "Register".

Log In

Register

User Name

Password

[Change Password](#) [Forgot password?](#)

☐ Remember Me

Log In

Click to change your password

Click to recover your password

Click to begin registration

- This is a sample of what you will see on your screen after the Registration page is opened:

Register

Please enter the information below to register:

* User Name

Email

* Password

* Confirm Password

* Enter the characters shown in the image below

Terms of Use

ACCEPTANCE OF TERMS
AMC Bridge LLC ("AMC Bridge") welcomes you. AMC Bridge provides CADtoEarth (defined below) to you subject to the following Terms of Use ("TOU"). By accessing and using CADtoEarth, you accept and agree to be bound by the terms and provision of the TOU.

TRADEMARK INFORMATION
CADtoEarth is among the trademarks of AMC Bridge.

LINKS TO OTHER WEBSITES

* ☐ I have read and agree to the Terms of Use

- Enter your [User Name](#) and [Password](#) into the form.
- Read the Terms of Use
- Check [I have read and agree to the Terms of Use](#) option and click on [Register now](#) button when you are ready.

That's all you need to get started. The new CADtoEarth account is created.

CADtoEarth Plug-in

Introduction



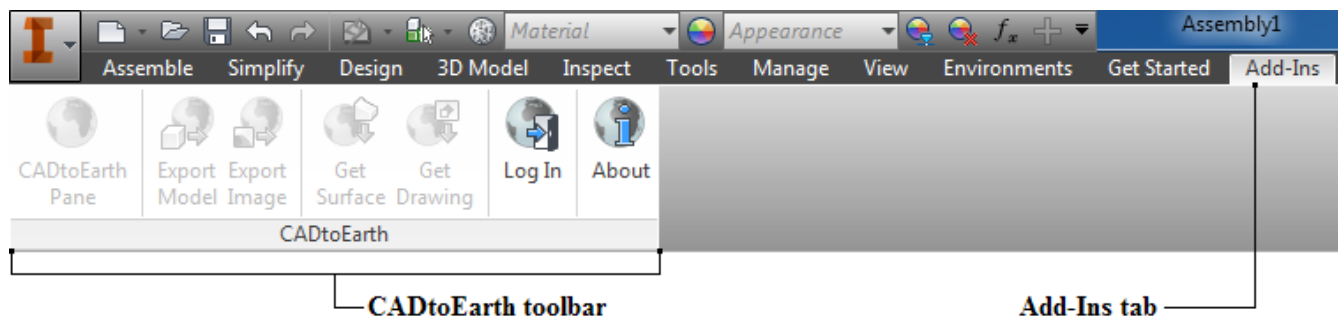
The CADtoEarth plug-in extends the functionality of Autodesk Inventor and establishes a bi-directional connection between CAD environment and Google Earth and Google Maps virtual globe and map services.

Plug-in features the following functions:

- Export of 3D model to Google Earth.
- Export of 3D model view and subsequent placement of it onto the Google Maps.
- Import of the Earth surface from Google Earth, which may be useful for architecture design purposes if rough data on ground elevations is needed.
- Import of the sketched curves from Google Earth and Google Maps, which may be useful for the object outlines capturing.

Access

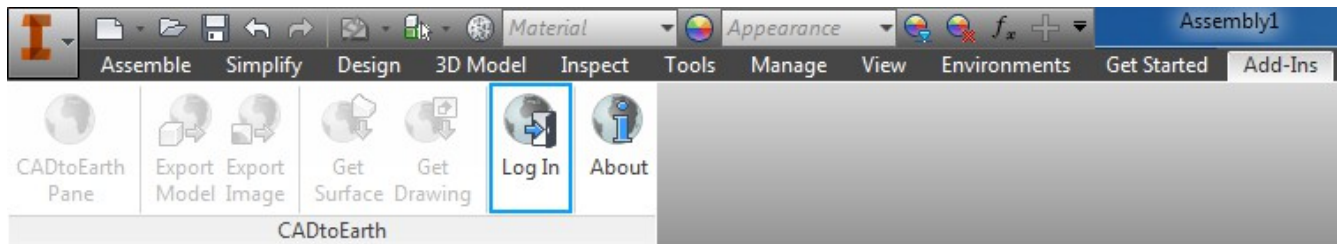
When CADtoEarth plug-in is installed, the CADtoEarth toolbar will appear on the [Add-Ins](#) tab of the Autodesk Inventor ribbon toolbar:



The CADtoEarth toolbar features the set of the following commands that you can run:

- Log In/Log Out command
- Get Drawing command
- Get Surface command
- Export Image command
- Export Model command
- CADtoEarth Pane command
- About command

Log In command



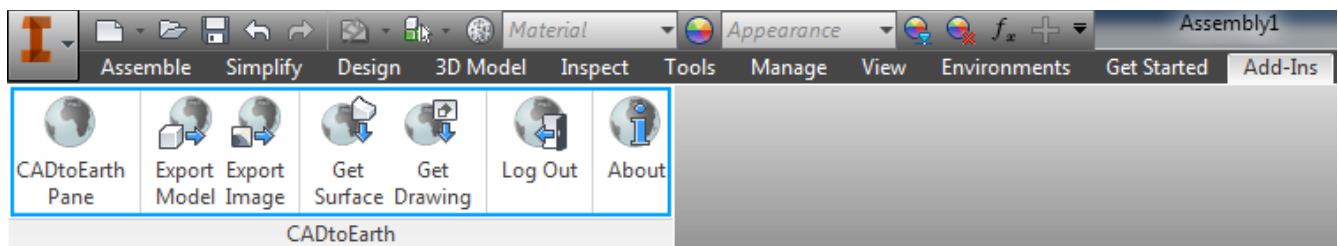
CADtoEarth implements a client-server system, where the plug-in is a client that sends a request to the server that returns a response. To communicate, you will need to login to the plug-in with your account credentials.

To do this, simply click on the [Log In](#) command and Login dialog will appear:

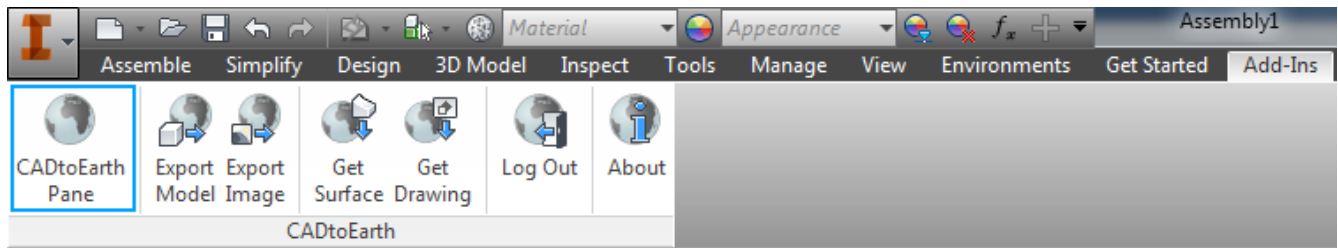
A screenshot of a 'Login' dialog box. It has a title bar with the word 'Login'. Inside, there are two input fields: 'USERNAME' with the placeholder text 'Username...' and 'PASSWORD' with the placeholder text 'Password...'. Below these fields is a checkbox labeled 'Remember me' and a blue hyperlink that says 'Don't have an account?'. At the bottom of the dialog are two buttons: 'OK' and 'Cancel'.

- Click on the [Don't have an account?](#) link to sign up for one. (See: [Sign Up for a free CADtoEarth account](#))
- Enter your user name and password if you already have the account.
- Check the [Remember me](#) option if you would like to automatically login to the CADtoEarth plug-in every time you open Autodesk Inventor.
- When you finish, click the [OK](#) button.

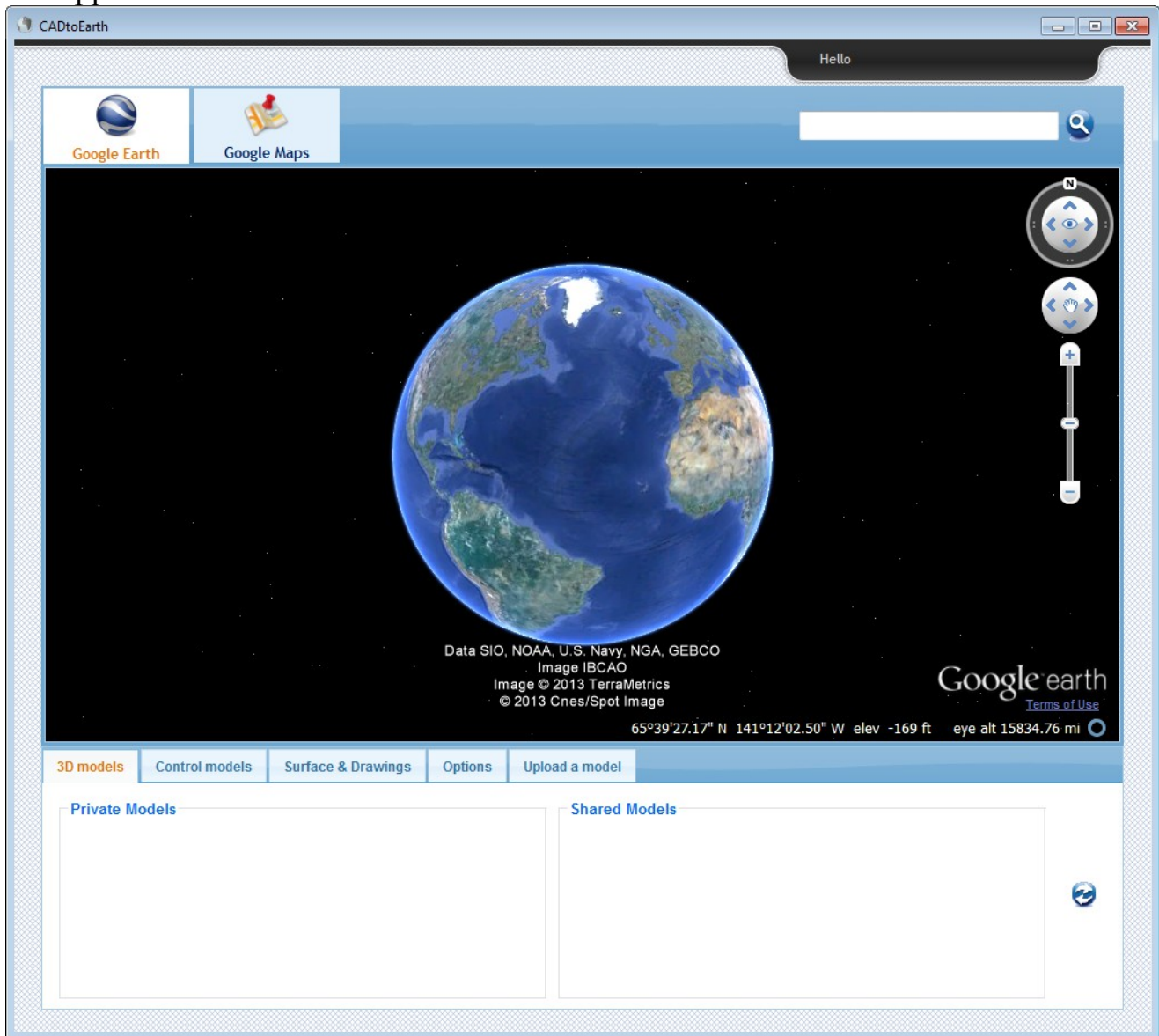
Once you have logged in, the CADtoEarth commands will be enabled and you will have full access to the CADtoEarth features:



CADtoEarth Pane command

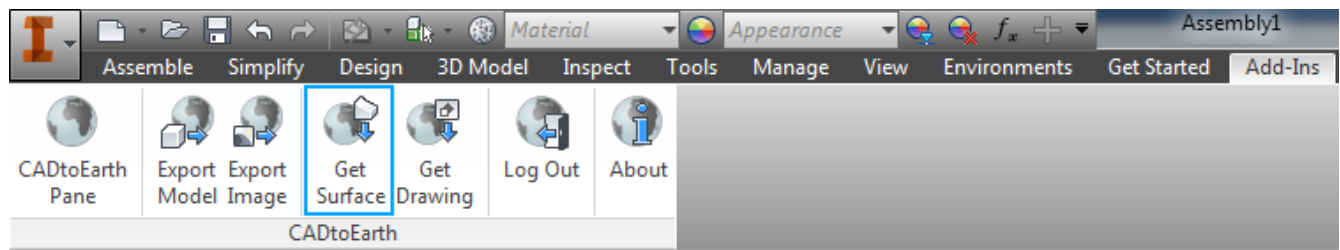


Run this command to open the CADtoEarth pane. It will simply display the CADtoEarth web application in the internal web-browser:



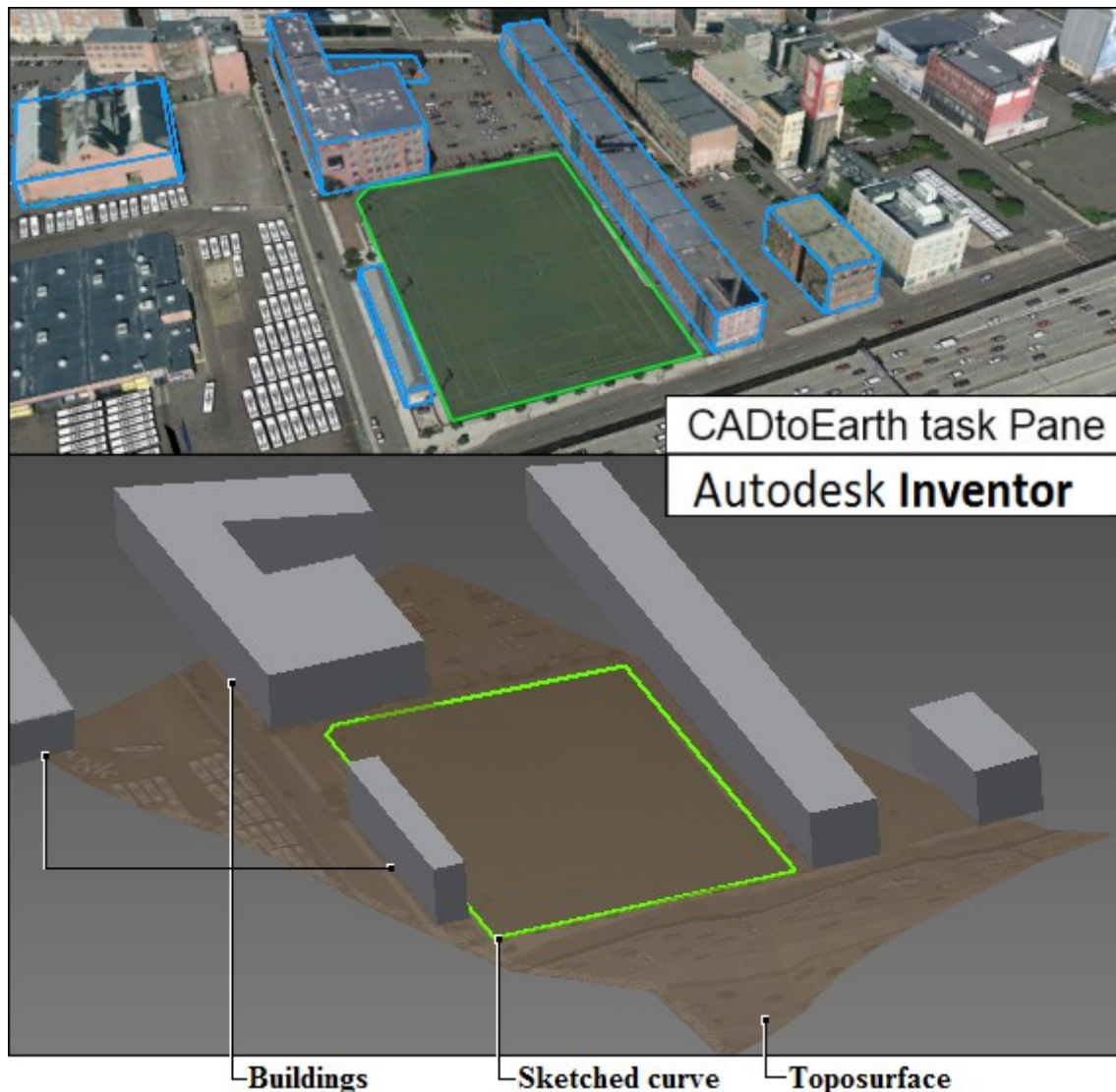
Find more information about how to start work with the CADtoEarth task pane at the Chapter 3: [CADtoEarth Web Application](#)

Get Surface command



One of the unique features of CADtoEarth is the ability to import certain part of the Earth surface into the CAD application. In order to do this the [Get Surface](#) command should be launched from the CADtoEarth toolbar.

Here is a sample of what you can expect:



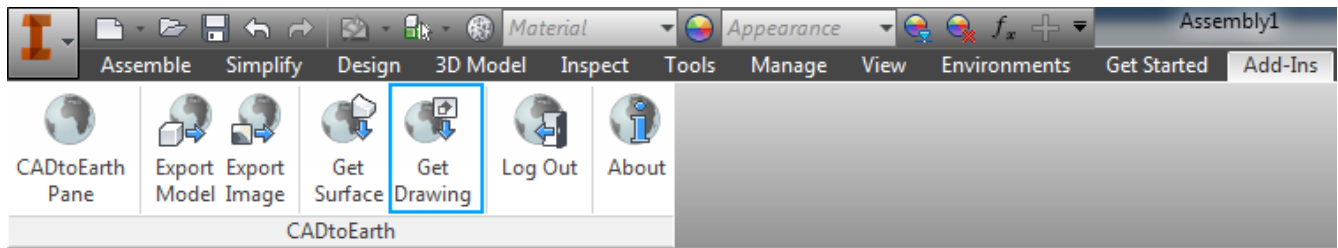
Once the command is launched a part of Earth surface captured using the CADtoEarth task pane tools will be imported into the currently opened Autodesk Inventor modeling session as a Surface object. (See: [How to capture a surface with CADtoEarth task pane](#))

If some curves were sketched on the Google Earth prior to surface capturing those curves will be brought in along with the surface, which may be useful for example in order to bring the outlines of buildings along with the surfaces they are located on.

Also you can bring in the information about the buildings that are located on the imported part of a surface into the currently opened Autodesk Inventor modeling session as a set of Inventor Families.

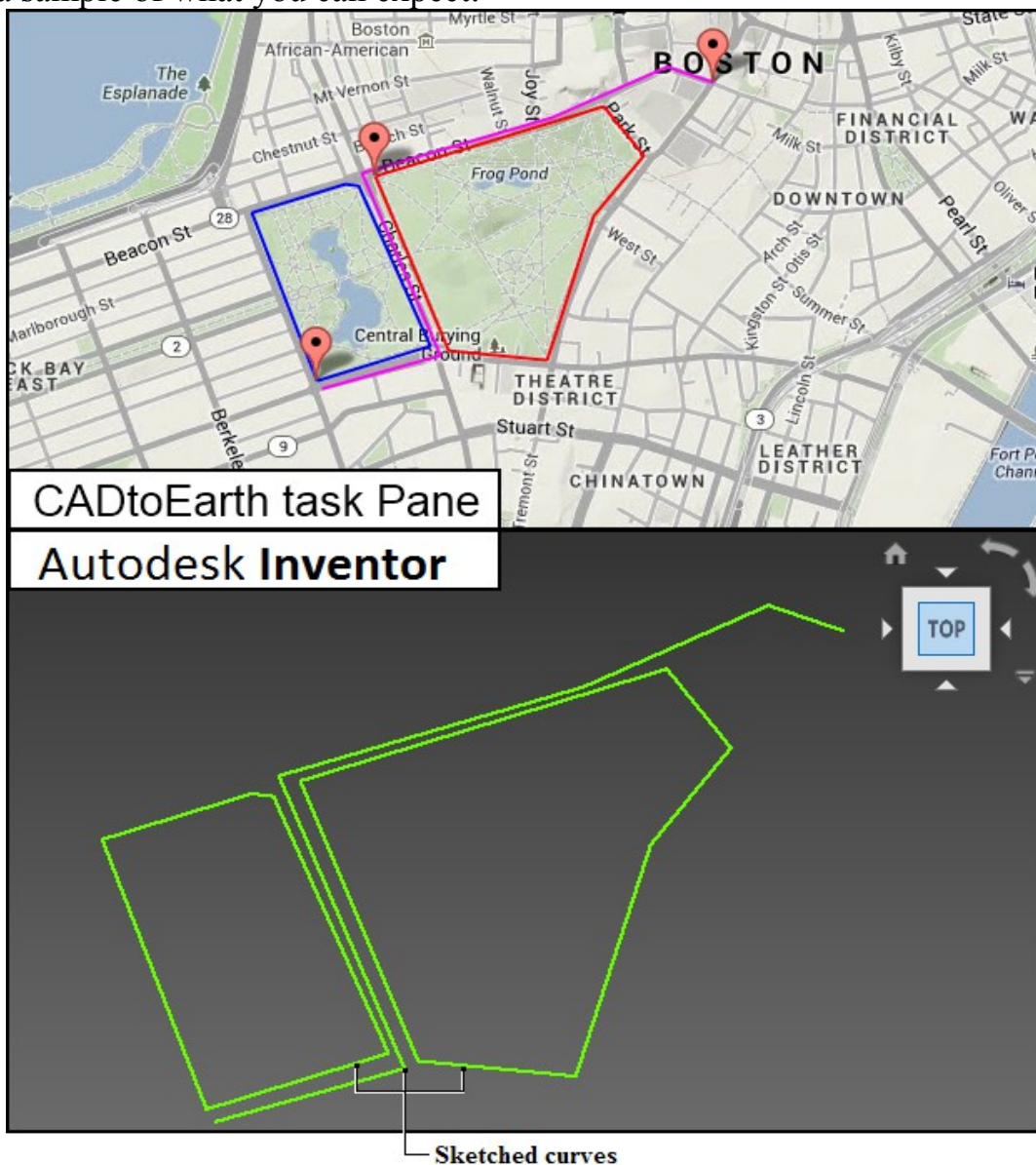
Information on geographical binding will be imported into the currently opened Autodesk Inventor project also, so if it is published back to Google Earth it will appear at the same geographical location.

Get Drawing command



Another unique feature of CADtoEarth is ability to import curves sketched on Google Maps into the CAD environment. In order to do so the [Get Drawing](#) command should be launched from the CADtoEarth toolbar.

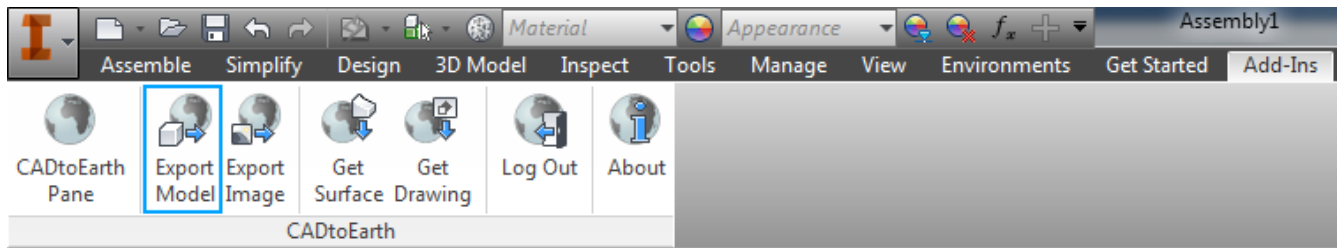
Here is a sample of what you can expect:



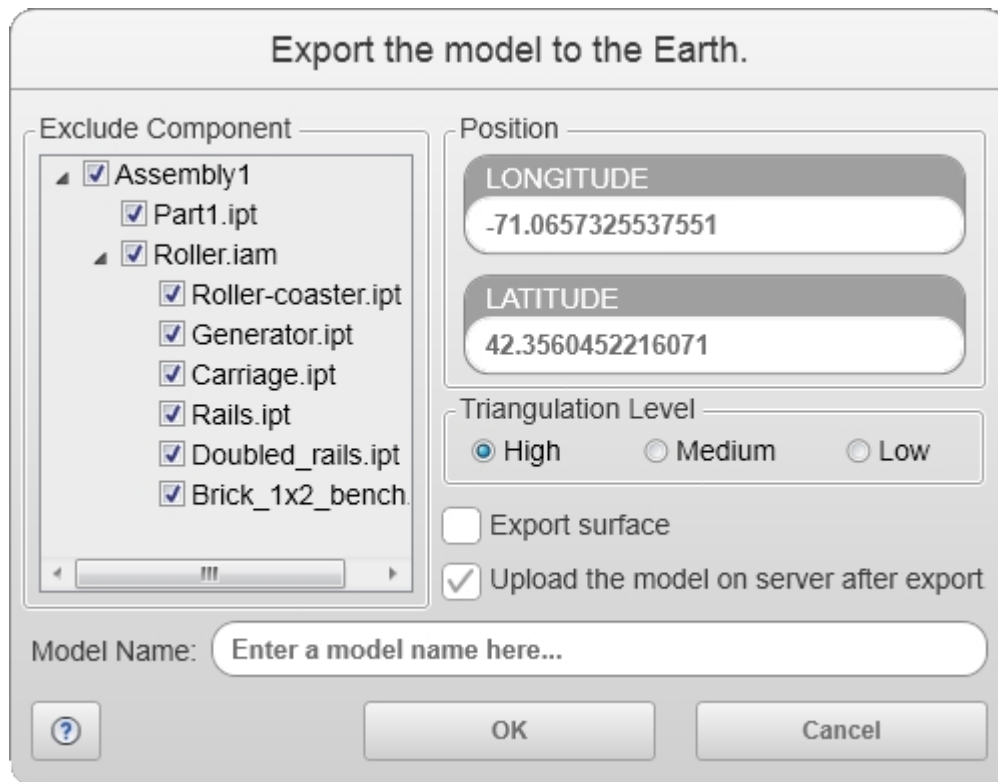
Once the command is launched the curves captured using the CADtoEarth task pane tools will be imported into the currently opened Autodesk Inventor modeling session as a Drawing object. (See: [How to create a drawing using CADtoEarth task pane](#))

The curves will be imported along with the information on geographical binding, so if the model that was built using the imported curves is published back to the Earth it will appear at the same location and will be oriented the same way.

Export Model command



The [Export Model](#) command should be used to export the model currently opened model in Autodesk Inventor to Google Earth and upload the resulting file to the CADtoEarth cloud service. Once the command is launched a form with several options appears:



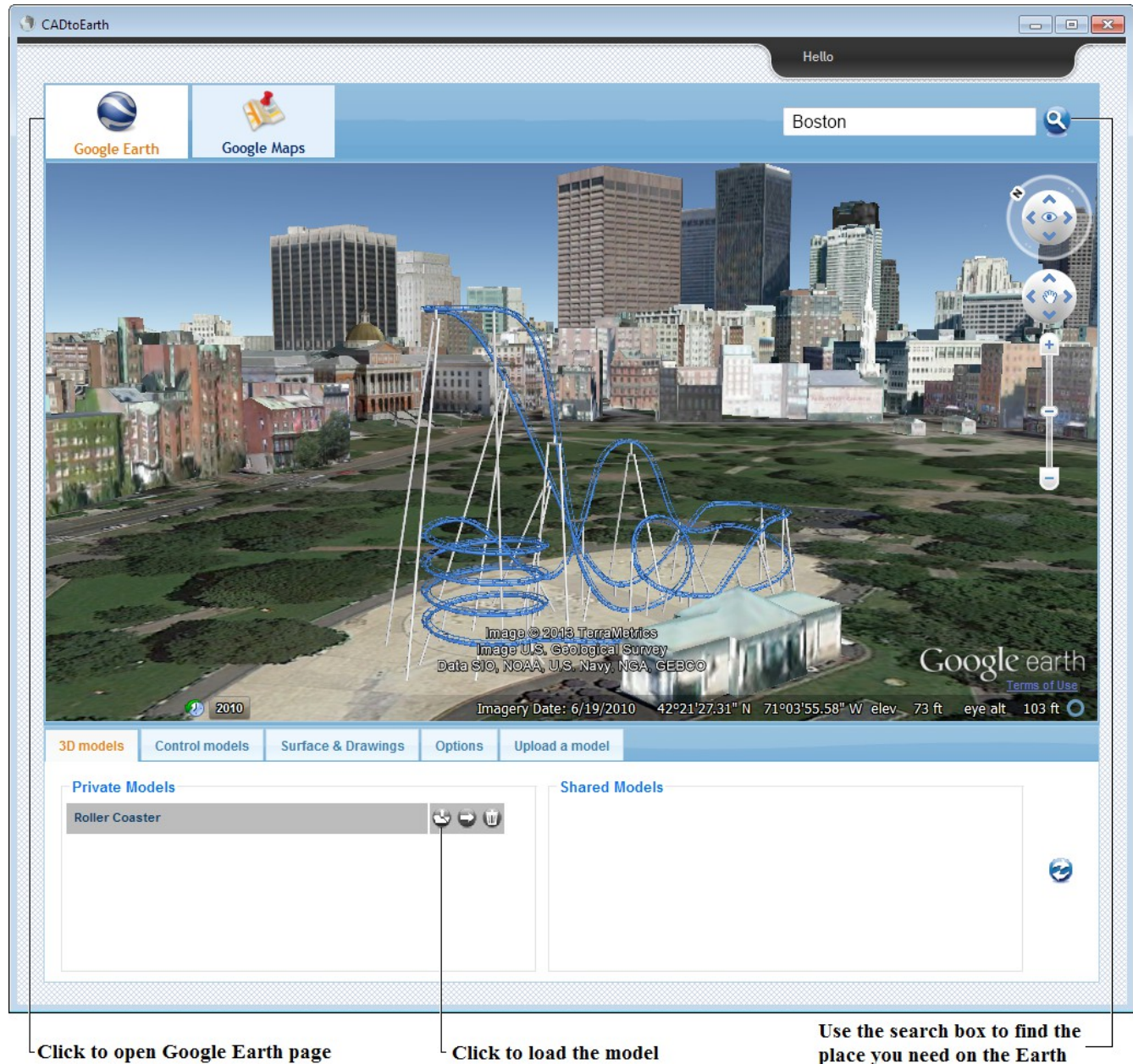
- [Exclude component](#) provides the ability to exclude a component or group of components from export.
- [Triangulation level](#) group of options that provides the ability to specify which detalization level to use during the export.

- [Latitude](#) and [Longitude](#) fields can be used to bind origin of the model to some geographical location. If location of the model is not known then these fields may be left empty.
- Check the [Export surface](#) option if you would like to export the surface object back to the Google Earth.
- Check the [Upload a model on server after export](#) option if you would like to automatically upload the generated file directly to the CADtoEarth cloud service, where it can then be manually placed to any location on Earth.
- Enter the model name and click the [OK](#) button.
- Leave the [Upload a model on server after export](#) option unchecked if you would like to save the resulting *.kmz file on your computer without uploading it to the CADtoEarth cloud service.

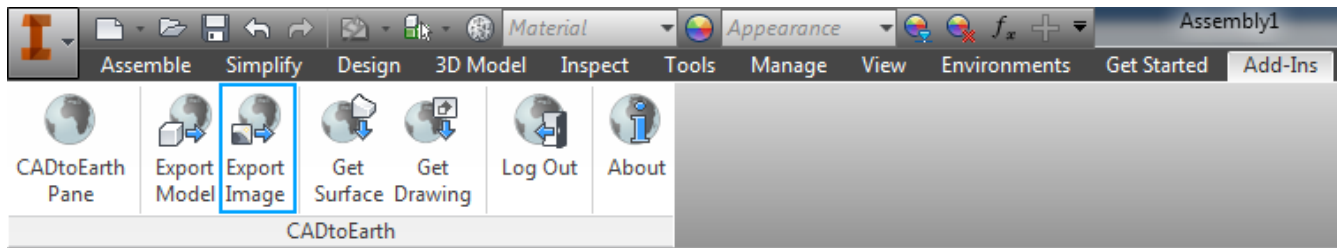
Note: You can upload the resulting *.kmz file later via CADtoEarth web application.
(See: [Upload Model tab](#))

Once the model has been uploaded to the server it can be simply placed on the Earth surface using the [Load model](#) button to the right of the model's name.
(See: [3D Models tab & Storages](#))

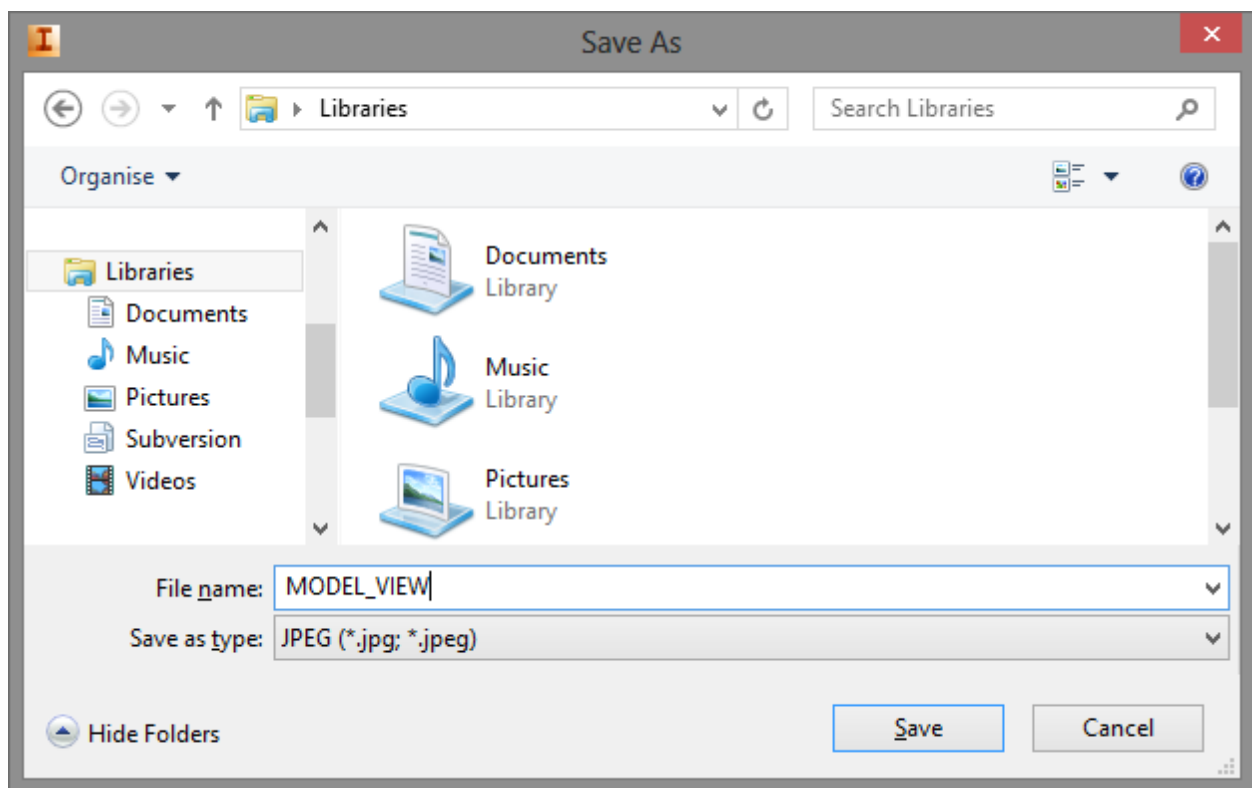
Here is a sample of what you can expect:



Export Image command



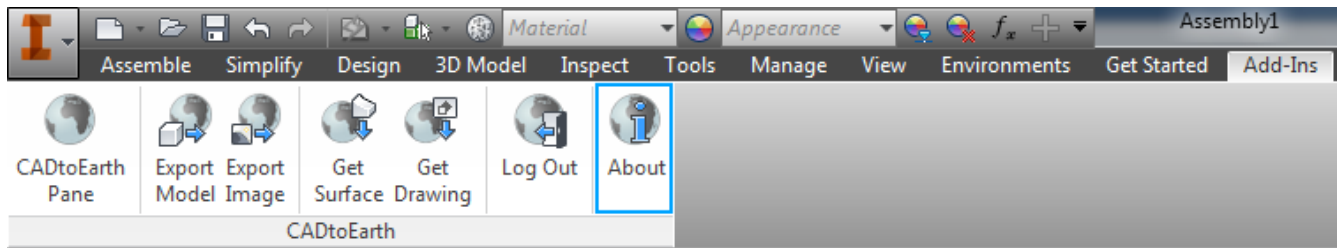
The [Export Image](#) command should be used to save the current model view as an image and upload it to the CADtoEarth cloud service where it can be placed onto the Google Maps. Once the command is launched the [Save As](#) dialog would appear:



- Enter the name for an exported image into the [File name](#) text box.
- The image will be saved in the folder you have chosen and automatically sent to the server.

Once the image has been uploaded to the server it can be simply placed on the Google Maps using the [Load image](#) button to the right of the picture's name.
(See: [Images tab & Storages](#))

About command



Run this command to open the CADtoEarth plug-in About dialog.



CADtoEarth Web Application

Introduction

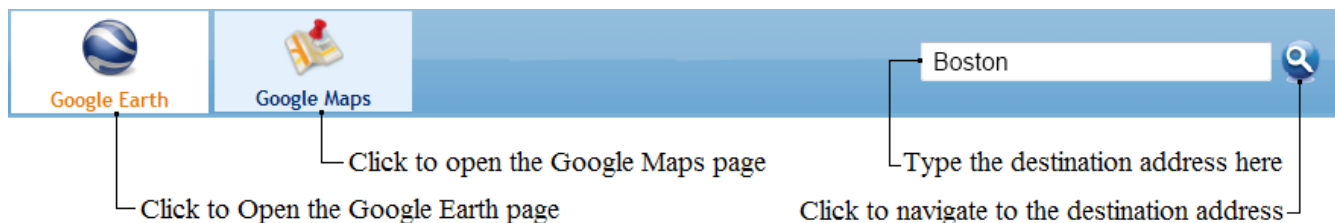
The CADtoEarth web application exposes some exciting capabilities, including the abilities to:

- Capturing of the certain part of Earth surface from the Google Earth.
- Sketching in Google Earth and Google Maps environments.
- Provides a personal storage for every CADtoEarth account, where the 3D models and Images will be placed.
- Provides a set of tools that will help you manage your 3D models. You can move, rotate and scale your 3D structures in order to fit the surrounding area.
- Share your 3D models with other CADtoEarth users.
- Choose the models to be placed at startup. It can be useful when you work with a set of 3D models.

CADtoEarth web services

The web application provides an access to Google Earth and Google Maps services. Easily switch between the web services using the [Google Earth](#) and [Google Maps](#) buttons at the top of the startup web page.

Use the Search box to quickly find the destination place you are looking for.



Access

You can access the CADtoEarth web application using the following link:

<http://www.cadtoearth.amcbridge.com>

Right now, CADtoEarth supports the following web browsers:

- Internet Explorer 7.0 or newer (32-bit only)
- Mozilla Firefox 3.0.1 or newer (32-bit only)
- Google Chrome 3.0.195.27 or newer

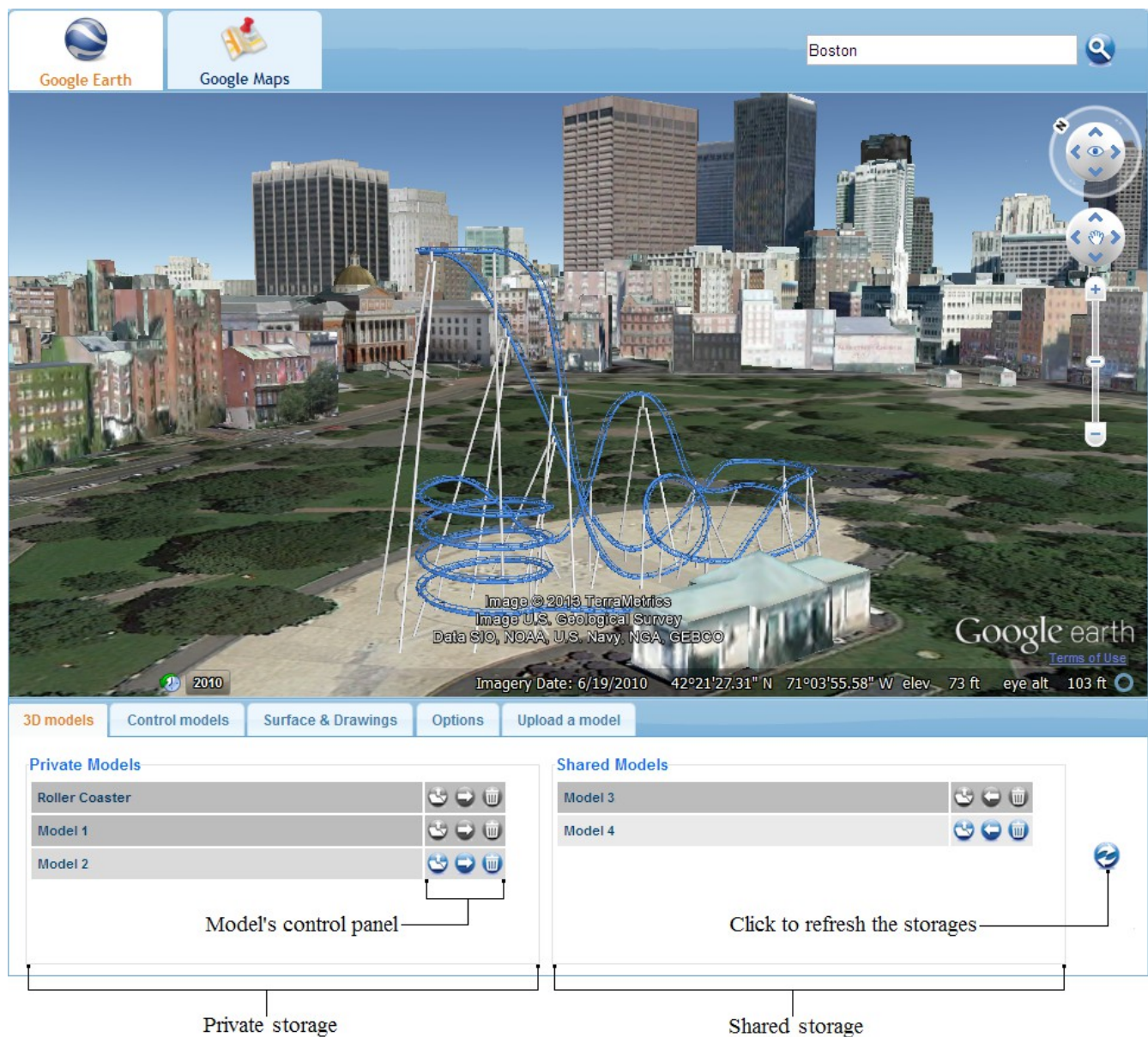
Google Earth Tools

3D Models tab & Storages

After exporting, the 3D structures will be uploaded directly to the CADtoEarth server. To review the uploaded models:





- Open the CADtoEarth task pane.
- Switch to **3D Models** tab under the Google Earth page.

Now you can see two file storages with uploaded 3D models. In the **Private storage** you will find the list of models that were exported or uploaded by you. In the **Shared storage** you will see the list of public models that were shared by other CADtoEarth users.



Note: By default the models exported from the CAD environment will be stored to the Private storage.

Below you can see the complete set of actions supported for every 3D model:

-  Load model - the command places selected 3D model onto the Earth surface. If there are built-in coordinates for the model, you will be offered to use them.
-  Move to Shared Storage - the command moves selected 3D model to the Shared Models list.
Note: The models in Shared storage are visible to everyone.
Note: You can share only up to 5 models.
-  Move to Private Storage - the command moves the selected 3D model to the Private Models list.
Note: You can perform this operation only for your own models.
-  Remove File - the command removes the selected 3D model from the CADtoEarth cloud service.
Note: You can perform this operation only for your own models.



Note: You cannot remove the model that is already placed on the Earth from the list. In order to do this you need to unload the model from the Earth.
(See: [Control Models tab](#))

Control Models tab

The **Control Models** tab allows you to manage the 3D structures that have been already placed on Earth. Use the Control Panel to scale, rotate and move your model in order to fit the surrounding area:

The screenshot shows the Google Earth interface with the 'Control Models' tab selected. A roller coaster model is visible in the 3D view of Boston. The interface includes a search bar with 'Boston' entered, a toolbar with navigation controls, and a bottom panel with tabs for '3D models', 'Control models', 'Surface & Drawings', 'Options', and 'Upload a model'. The 'Control models' tab is active, displaying a table of models and a control panel.

| Models on the Earth | Place on startup | Unload a model |
|---------------------|-------------------------------------|-------------------------------------|
| Roller Coaster | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Model 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Model 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |










Annotations:

- Check this option to autoplace the model (points to the 'Place on startup' checkbox for 'Roller Coaster')
- Click to unload selected model (points to the 'Unload a model' checkbox for 'Roller Coaster')





The Control Panel on the right includes sliders for scale (x1), rotation (1°), and position (-2 meter), along with 'Save' and 'Reset' buttons and a directional movement pad.

Control Panel allows you changing the settings for the selected model and saving of the resulting configuration.

Below you can see the complete set of actions supported by Control Panel:

-    Scale Slider – allows you to scale the selected 3D model. The range interval is from x0.1 to x6.
-    Orientation Slider – allows you to rotate the selected 3D model. The range interval is in degrees from -180° to 180°.
-    Altitude Slider – allows you to control the altitude of the selected model. The range interval is in meters from -965 to 965.

Move panel will help you change the location of the model to fit the surrounding area:

-  Right Button – the command moves the selected 3D model to the West.
-  Up Button – the command moves the selected 3D model to the North.
-  Left Button – the command moves the selected 3D model to the East.
-  Down Button – the command moves the selected 3D model to the South.

Click the [Save](#) button to save the resulting configuration for the selected 3D model.

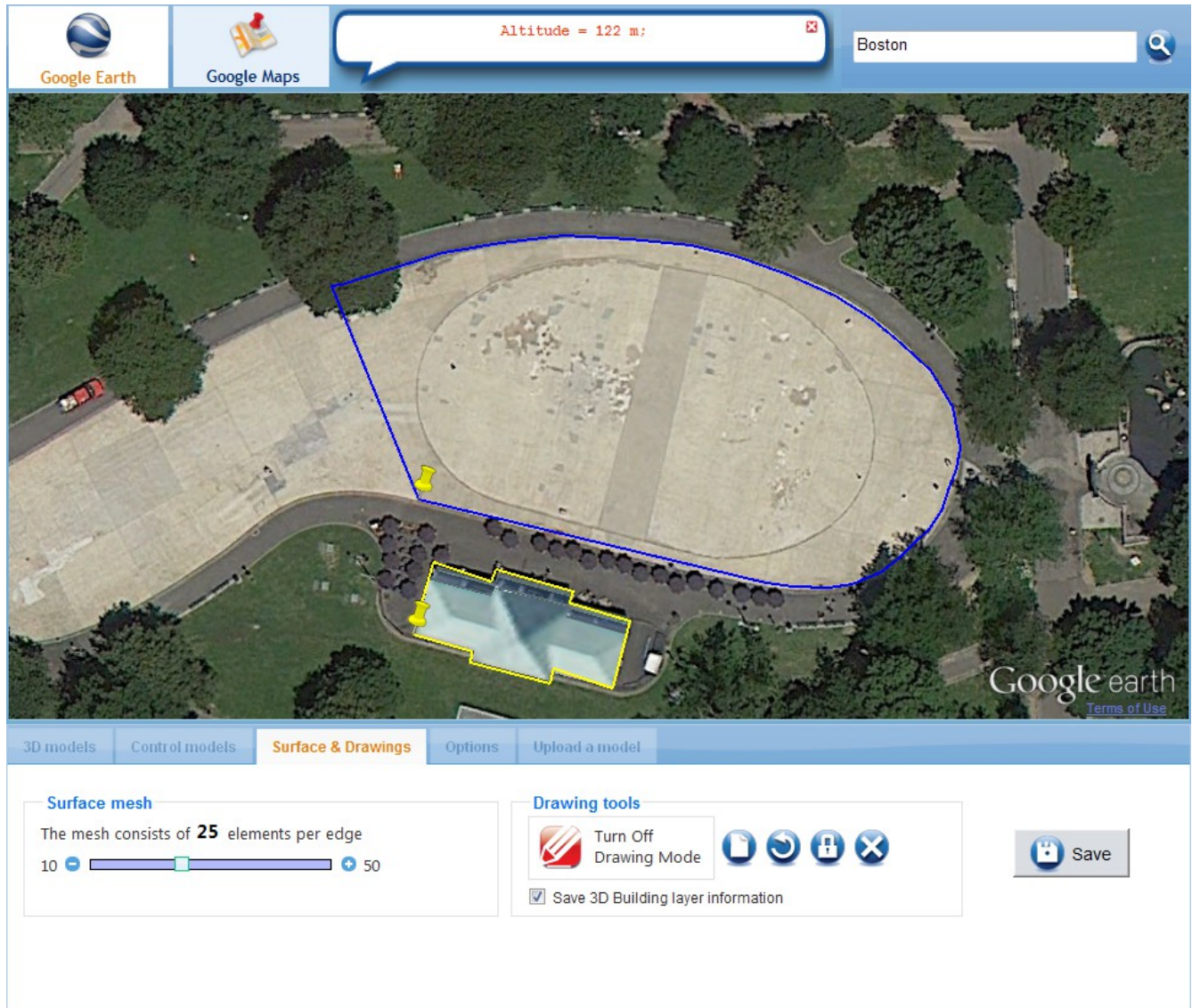
Click the [Reset](#) button to restore to the default configuration of the selected 3D model.

Check the [Place on startup](#) option if you would like the 3D model to be auto-placed every time CADtoEarth is opened


-  Unload Button – the command removes the selected 3D model from the Earth.

Surface & Drawings tab

At the [Surface & Drawings](#) tab you can easily set up the parameters of the exported surface and sketch some curves, which may be useful if rough data on ground elevations is needed or if you need to capture some object outlines:





Below you can see the complete set of supported actions:

10  50 Mesh slider – controls the accuracy of the captured surface.

Check [Save 3D Building layer information](#) option if you would like to get the building layer in 3D representation along with the surface.

Drawing Mode is a specific mode that allows you create some curves that can be obtained along with the surface. To be able to sketch a curve you have to turn the

Drawing Mode on. In order to do this click the  button under the 'Drawing tools' group.

Note: You won't be able to switch between the Google Earth tabs while the Drawing Mode is turned on! You can turn it off by clicking the  button under the 'Drawing tools' group.

Once the Drawing Mode is turned on, the **Drawing tools** commands will become enabled. Below you can see the set of actions supported by Drawing tools panel:



Create Button – the command begins a new polyline.



Undo Button – the command removes the last line from the current sketch.



Close Button – the command closes the current polyline.



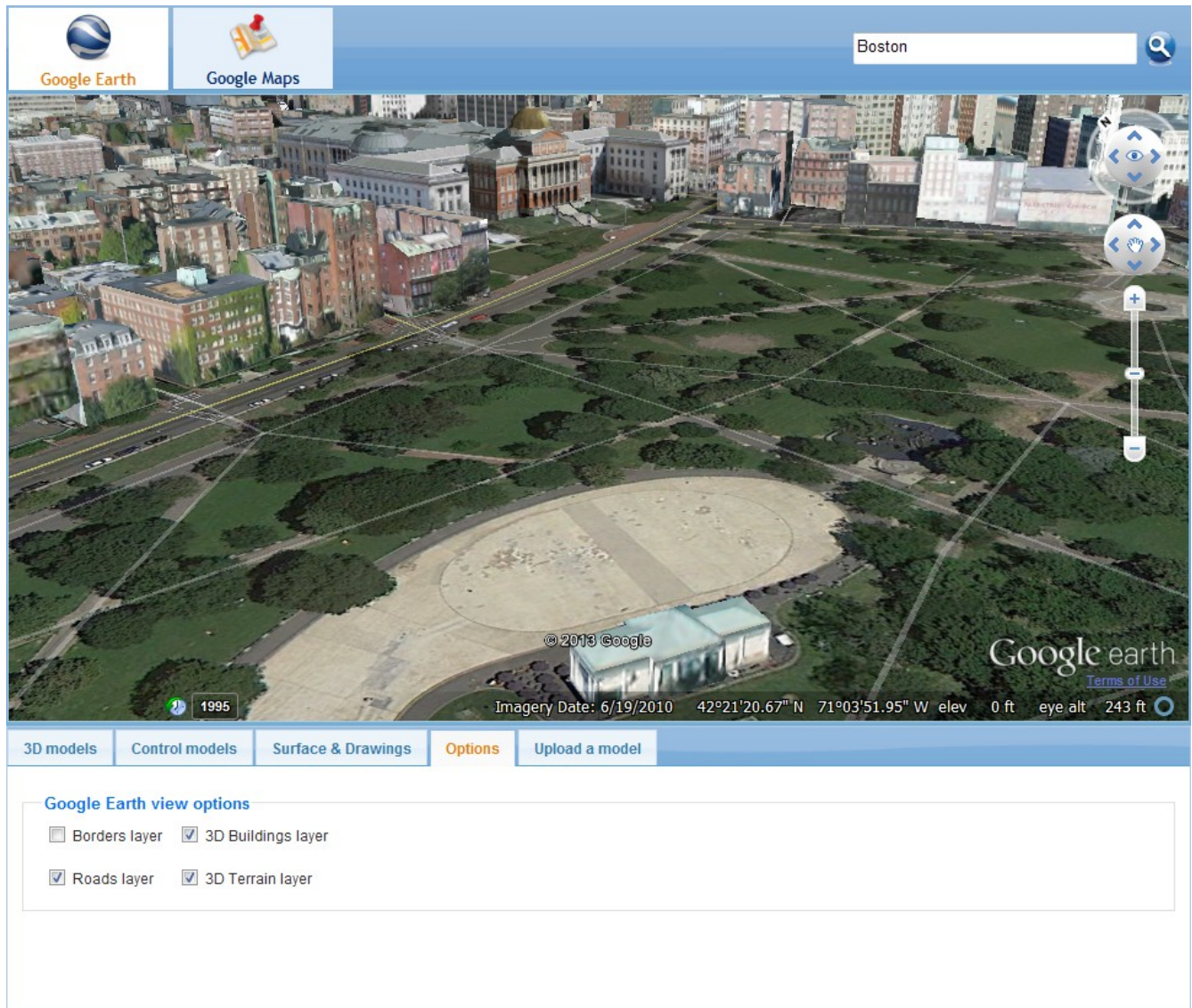
Unload Button – the command removes all the polylines.

Once you are ready to capture the surface with any additional information simply click on the **Save** button and the surface will be exported.

Now you can switch back to the CADtoEarth plug-in and import the surface.
(See: [Get Surface command](#))

Options tab

With the **Options** tab you can choose what information you would like to see on the Earth and choose the visual style (3D/2D) for the objects.



Below you can see the set of supported options:

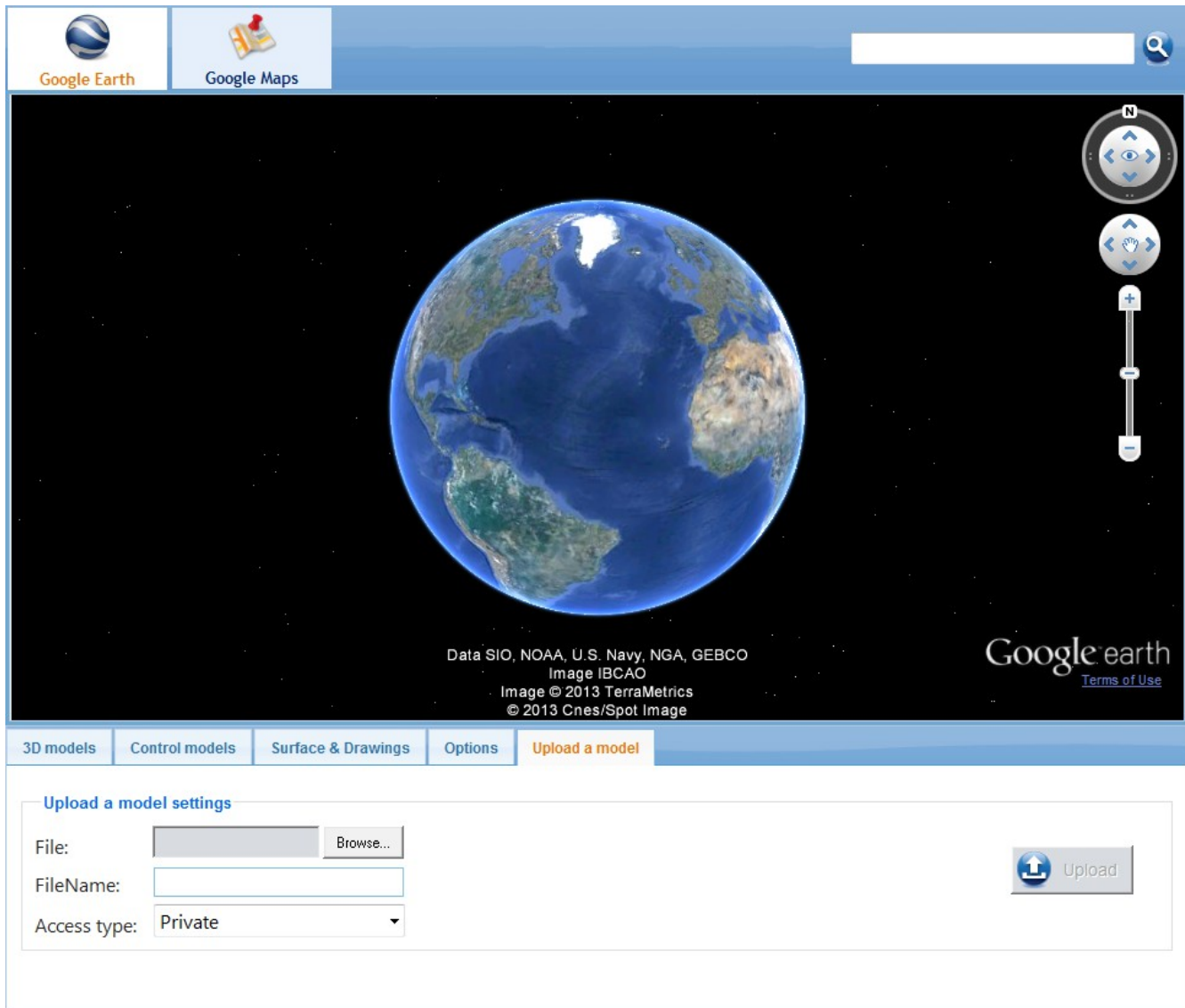
- Border layer – check this option if you would like to receive the information about political borders.
- Road layer – check this option if you would like to get information about the roads.
- 3D Building layer – check this option if you would like to see the buildings in 3D.
- 3D Terrain layer – check this option if you would like to see the terrain in 3D.

Upload Model tab

The [Upload Model](#) tab is the last tab under the Google Earth page.

With this tab you can upload the files in *.kmz format to your storages.

Note: KMZ is a file format that is supported by Google Earth. Google Earth can open such files directly and display the content. So go ahead and upload the *.kmz models you have and place them along with the models exported from Autodesk Inventor.



To upload a model, please do the following:

- Click on the [Browse...](#) button and select a *.kmz file from your computer.
- In the [Access type](#) drop down list choose the destination storage.
- Click the [Upload](#) button. The model will be uploaded to the chosen storage.

Now you can switch to the [3d Models](#) tab and place the uploaded model on the Earth.

(See: [3D Models tab & Storages](#))

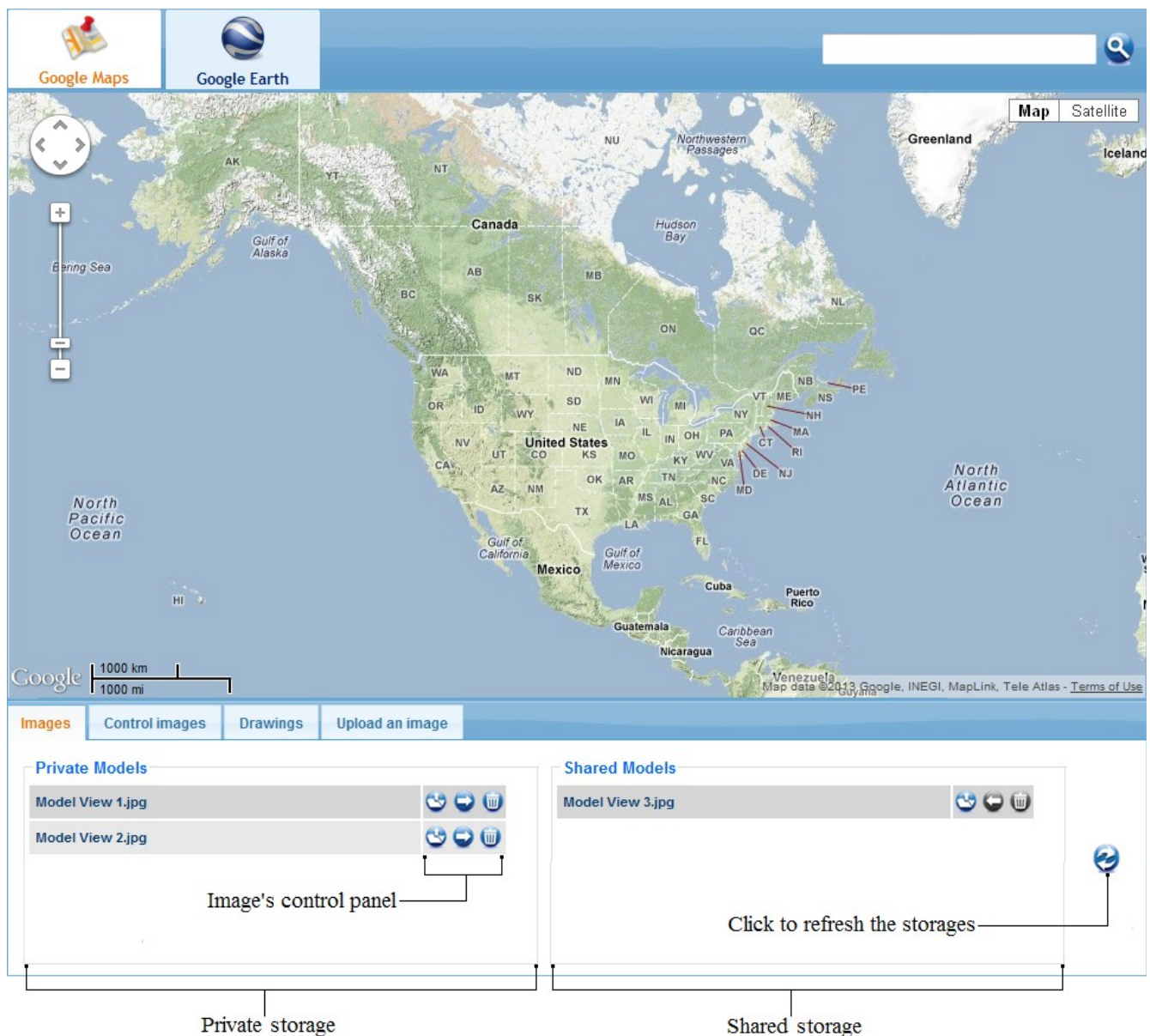
Google Maps Tools

Images tab & Storages

After exporting the images of models they will be uploaded directly to the CADtoEarth server. To review the uploaded images:

- Open the CADtoEarth task pane.
- Switch to **Images** tab under the Google Maps page.

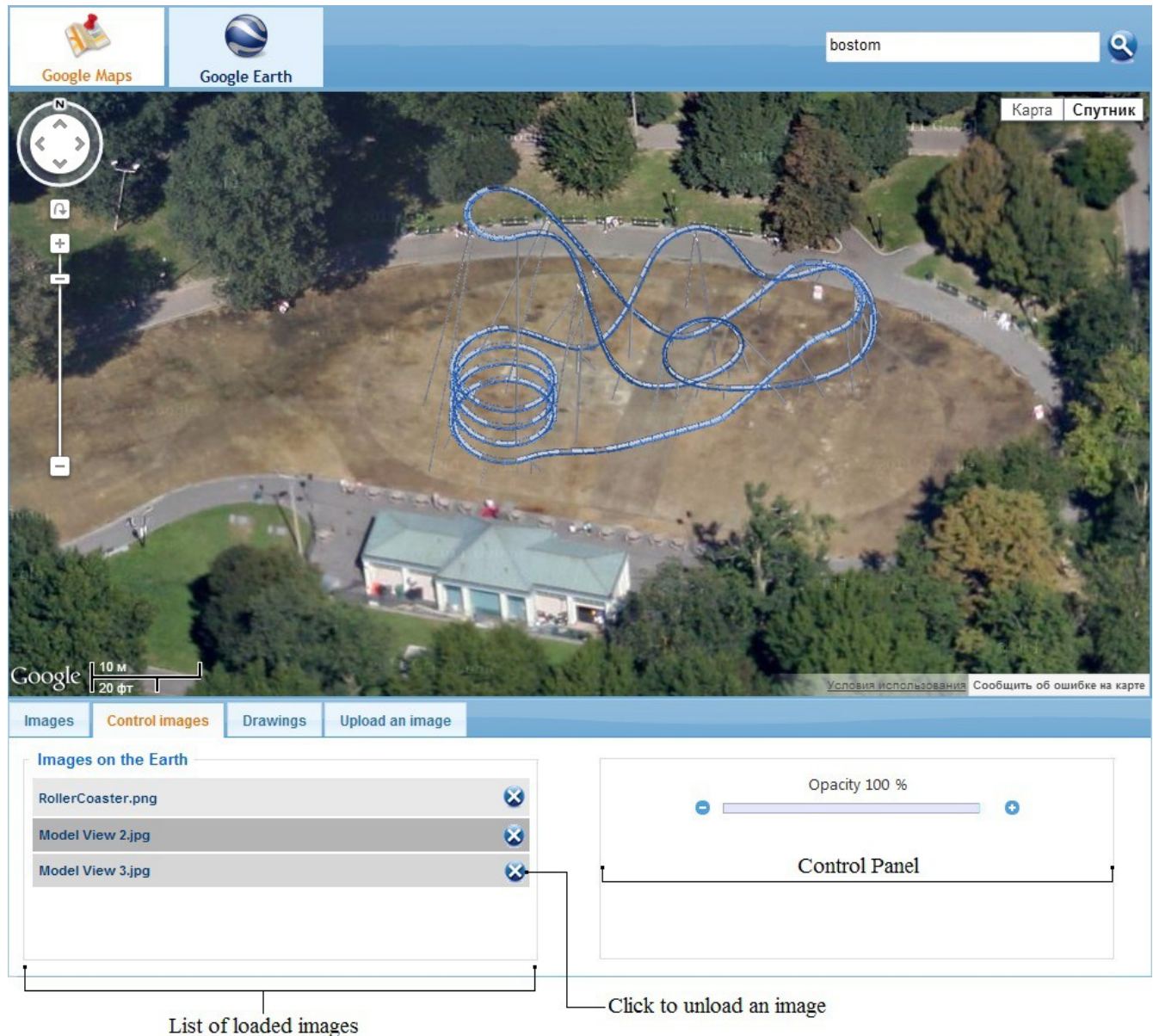
Now you can see two file storages with the uploaded Images. In the **Private storage** you will find the list of images that were exported or uploaded by you. In the **Shared storage** you will see the list of public Images that were shared by other CADtoEarth users.



Control Images tab

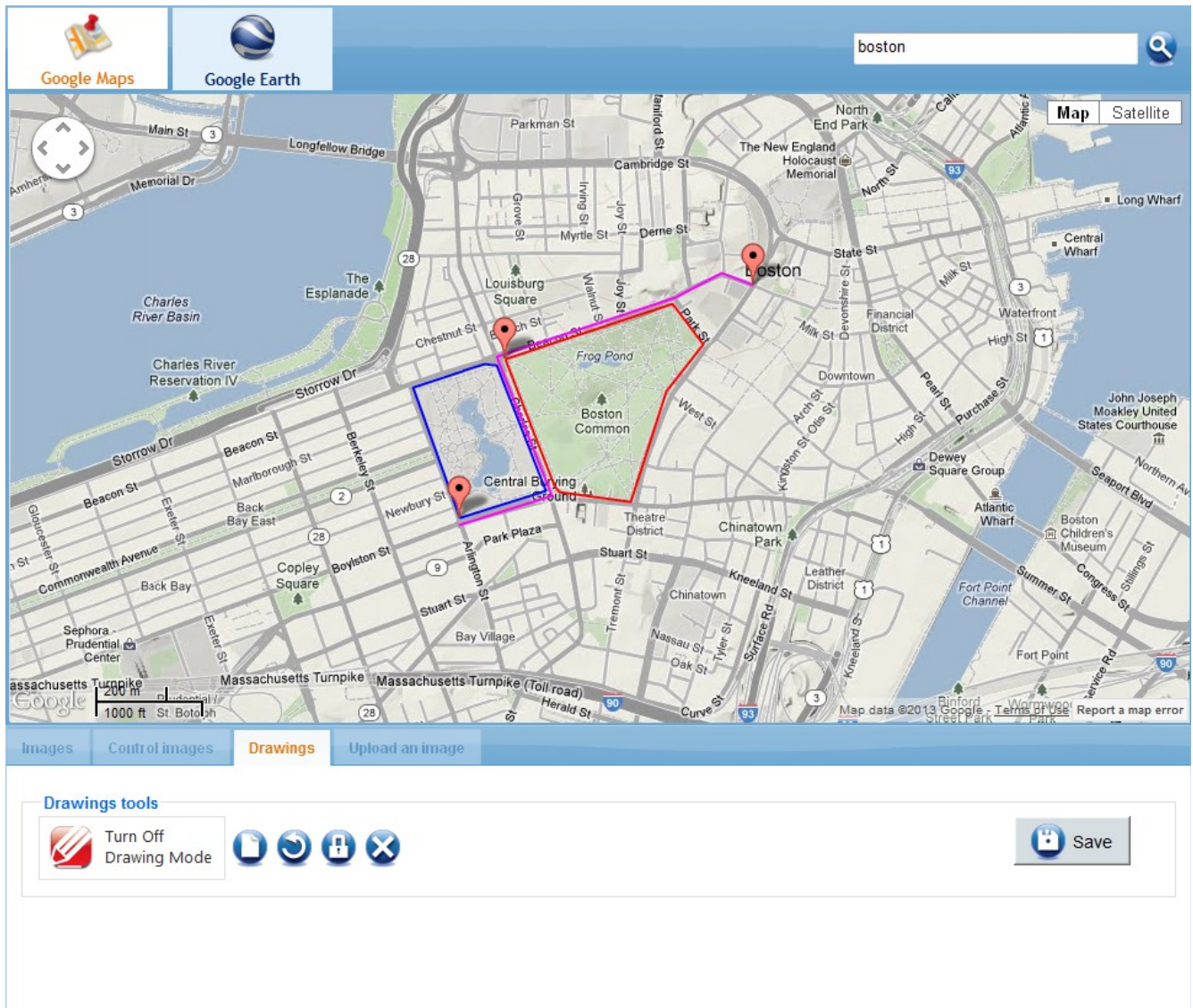
The **Control Images** tab allows management of the Images that have been already placed on Google Maps:

- Use the Control Panel box to change the opacity of the selected image.
- To change the position drag an image with the left mouse button pressed.
- To rotate hold the right button and move the mouse. Drag the image corner to resize.



Drawings tab

At the [Drawings](#) tab you can easily sketch some curves, which may be useful if you need to capture some object outlines:



[Drawing Mode](#) is a specific mode that allows you create some curves that can be exported from Google Maps. To be able to sketch a curve you have to turn the Drawing

Mode on. In order to do this, click the  button under the 'Drawing tools' group.

Note: You won't be able to switch between the Google Maps tabs while the Drawing

Mode is turned on! You can turn it off by clicking the  button under the 'Drawing tools' group.

Once the Drawing Mode is turned on, the [Drawing tools](#) commands will become enabled. Below you can see the set of actions supported by Drawing tools panel:



Create Button – the command begins a new polyline.



Undo Button – the command removes the last line from the current sketch.



Close Button – the command closes the current polyline.



Unload Button – the command removes all the polylines.

Once you are ready, simply click on the [Save](#) button and the sketched curves will be exported.

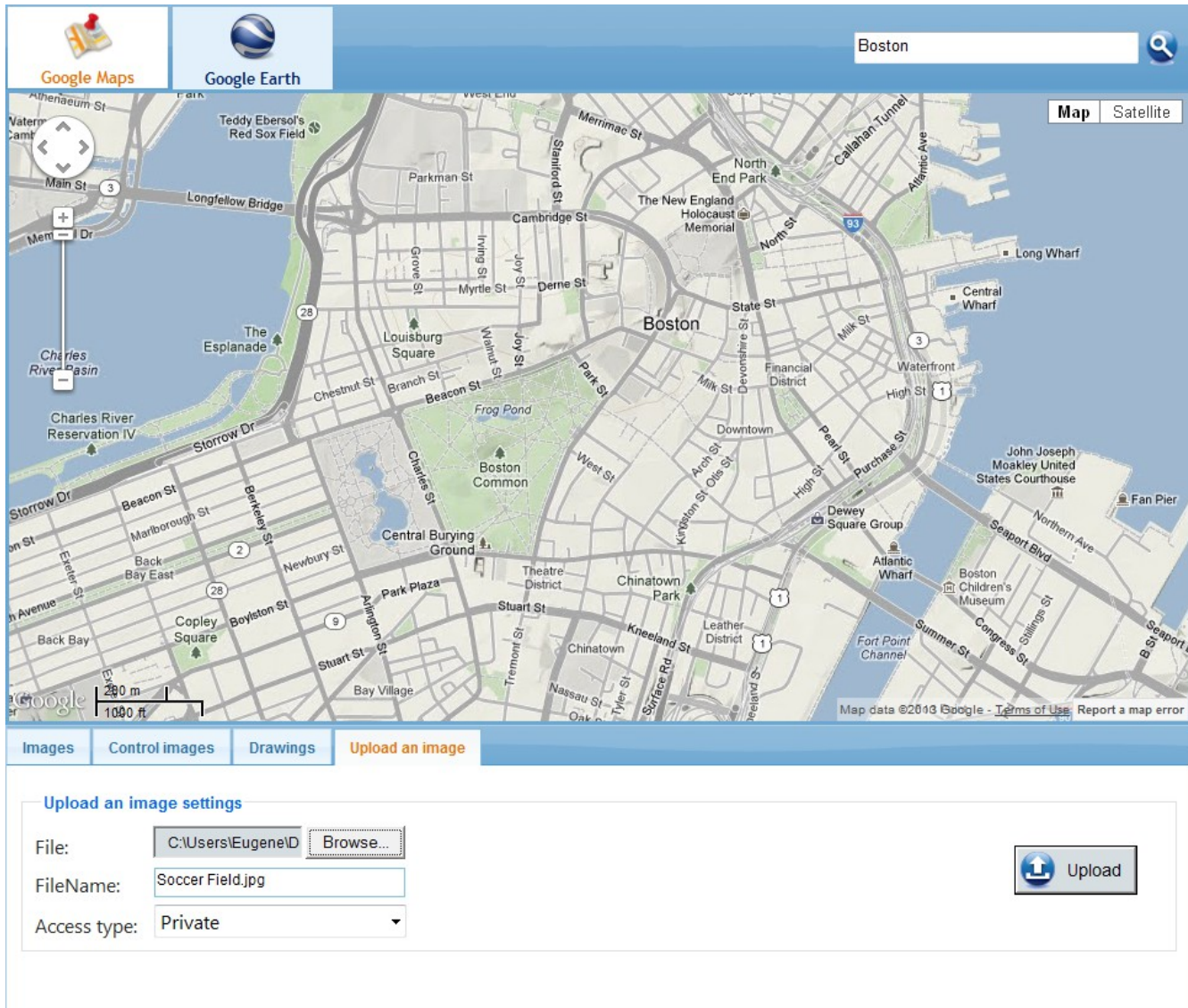
Now you can switch back to the CADtoEarth plug-in and import the Drawing.
(See: [Get Drawing command](#))

Upload Image tab

The [Upload Image](#) tab is the last tab under the Google Maps page.

With this tab you can upload images in *.jpeg, *.gif or *.png formats to your storages.

Upload the images and place them along with the model views exported from Autodesk Inventor.



The screenshot shows the Google Maps interface with the 'Upload Image' tab selected. The map displays a view of Boston, including the Charles River, the Esplanade, and the Financial District. The 'Upload an image settings' form is visible below the map, showing the file path 'C:\Users\Eugene\ID', the filename 'Soccer Field.jpg', and the access type set to 'Private'. An 'Upload' button is present at the bottom right of the form.

To upload an image, please do the following:

- Click on the [Browse...](#) button and select an image from your computer.
- In the [Access type](#) drop down list choose the destination storage.
- Click the [Upload](#) button. The image will be uploaded to the chosen storage.

Now you can switch to the [Images](#) tab and place the uploaded image of the model on Maps. (See: [Images tab & Storages](#))

Appendix A: Contact Us

AMC Bridge has a global footprint with offices and development centers in North America and Ukraine. Our North American headquarters in New Jersey handles all Sales, Administrative and Business inquiries. Most of our software developers are located in our state of the art office in Dnepropetrovsk, Ukraine.

Please let us know how we can help you, and we will get in touch with you as soon as we can.

AMC Bridge North America Headquarters:

10 Lake Shore Drive S.
Randolph, NJ 07869

Phone: **+1 973-895-1724**
Fax: **+1 973-895-5376**

For all online inquiries, please contact: **contact@amcbridge.com**
Technical Support: **support@amcbridge.com**

You can contact us right now.

We look forward to hearing from you.