

Najważniejsze informacje na temat renderingu w chmurze A360 w ramach aktywnej subskrypcji programów Autodesk

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About Rendering in A360

With rendering in Autodesk® A360, you can take advantage of virtually infinite computing power in the cloud to quickly create high-resolution renderings without the need for expensive hardware. By signing in to your Autodesk account, you can render projects from Autodesk applications such as Autodesk AutoCAD, Revit, Fusion 360, and Navisworks from any computer. Use Rendering in A360 to view preview images while you develop your design in your Autodesk software.

Data you upload to the rendering service is stored at a secure data center. Your source files cannot be viewed or downloaded by anyone else. Only a person signed in to the rendering service with your Autodesk ID and password can access the files, and even then, only to render them online.

With Rendering in A360, you can:

- Perform solar studies of designs in progress, so you understand the effects of insolation and shading during the day.
- Create panoramas of your scene, so that you and your clients can navigate through the scene interactively.
- Perform illuminance simulations of scenes, to better understand the effects of natural and artificial lighting.
- Create turntable animations of your model for presentations.
- Apply background environments to rendered scenes.

Related Information

- [What's New with Rendering in A360?](#)
 - [About Render Galleries](#)
 - [About Rendering from Autodesk Applications](#)
 - [About Improving Renderings Online](#)
-

What's New with Rendering in A360?

Release of 3ds Max 2016

- Render from Autodesk 3ds Max.

February 11, 2015

- Render as stereo panorama - Create a stereo rendering of your designs and view them with virtual reality goggles.

October 31, 2014

This section lists the changes and new features that have been added to Rendering in A360 in the year leading up to October 31, 2014.

- Render as turntable
- Render from Autodesk Navisworks
- New ways of sorting renderings in the public gallery:
 - Following: renderings you have commented on
 - Liked: renderings you have "liked."
 - Featured: projects highlighted by the Rendering in A360 team.
- Interactive rendering of Fusion 360 models
- Light Analysis feature for Revit
- "Render Gallery" renamed to "My Renderings"

About Render Galleries

There are two types of galleries where you can store or share your renderings.

My Renderings

All of your completed rendered images are available online from the My Renderings page. Images in My Renderings are grouped in collections according to their source document (for example, RVT or DWG). Each source file collection in My Renderings can contain multiple images. Thumbnail images representing the final renderings are shown chronologically; the newest images appear at the left. By default, the collection displays only the latest image you created for each camera view.

You can also access My Renderings, and perform some simple rendering tasks, from the Autodesk A360 home page.

Public Gallery

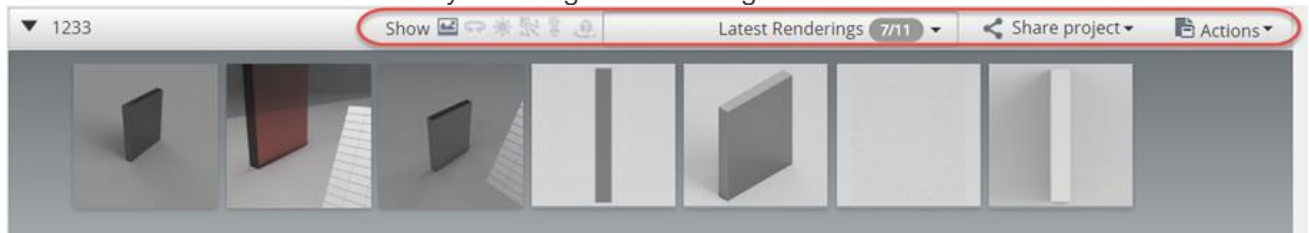
Autodesk A360 Rendering includes a public gallery where you can share renderings with anyone with an Internet connection. Anyone who is signed in to A360 can like and make comments on public gallery images.

To Work with My Renderings

Access My Renderings:

- Click the My Renderings tab in Rendering in A360.

Aside from navigation, most of the tasks you can do with images are available from the toolbar above each collection or by mousing over an image in a collection.




Navigate through the thumbnail images by clicking them, or by using the left and right arrow buttons that appear in larger collections.

Display Image Details

- Mouse over the thumbnail image.

Show or Hide a Larger Preview of an Image

1. Mouse over the thumbnail image.
2. Click the Action button .
3. Select the appropriate Show/Hide option; this varies, depending on the type of image being shown or hidden.

Share Images to Other Applications

Share a single image:


- When showing the preview of an image, click Share rendering below the image and select the share destination.

Share all images in a project:


- Click Share Project on the collection toolbar to share the project to destinations such as the public gallery or Autodesk A360 Drive.

Download Renderings

Download an individual rendering:

1. Mouse over the thumbnail image.
2. Click the Action button .
3. Select the appropriate download option; this varies, depending on the type of rendering being downloaded.


Download all renderings in a collection:

- On the collection toolbar, click Actions  Download All.
This creates and downloads a ZIP file of all images in the collection. Download All does not include in-progress or failed renderings. Turntable renderings are downloaded as movies, panoramas as image strips.

Delete Renderings

IMPORTANT: This permanently deletes the rendering and cannot be undone.


Delete a single image:

1. Mouse over the thumbnail image.
2. Click the Action button .
3. Select the appropriate Delete option; this varies, depending on the type of rendering being deleted.

Delete all renderings in a collection:

- On the collection toolbar, click Actions ► Delete All.







Show Only One View

1. Mouse over the thumbnail image.
2. Click the Action button  and select Show this view only to hide all other views in the collection.

TIP: To restore all views, select All Renderings from the Renderings box on the collection toolbar.

Filter Renderings Based on Type

- Filter types of images displayed in a collection using the Show buttons:

-  Still Image
-  Panorama
-  Solar Study
-  Illuminance
-  Lighting Analysis
-  Turn Table

You can select multiple types simultaneously; for example, click the Still Image and Solar Study buttons to show all still images and solar studies in that collection.

Switch Between Types of Views

Use the Renderings drop-down list to switch between different types of views:

- Latest Renderings displays the most recent image you rendered from each camera view.
- All Renderings displays all the renderings ever created for that source file.
- Versions displays all the renderings from a particular version of the source file you rendered. A version is the state of the source file at the time the renderings were created.

For example:

- When you click Start Rendering in Revit, a new version is created and rendered. If you go back to Revit later, make changes, and render again, a second version is created, and so on.
- When you upload a DWG with the same name as a previously uploaded DWG, a new version is created for that collection. Versions allow you to focus just on the renderings that came from the model when it was at a specific stage of development.
- Views displays all the renderings from a particular camera view, regardless of which version they were rendered from.

To Show and Hide Renderings in Autodesk A360 Drive

You can set renderings to be visible in Autodesk A360 Drive. From Autodesk A360 Drive, you can then view, comment on, and share those renderings with other Autodesk A360 Drive users.

Make Renderings Visible in Autodesk A360 Drive:

1. Go to My Renderings.
2. In the group of thumbnails showing the renderings you want to share, click Share Project
 ➤ Autodesk A360.

The renderings are now visible in Autodesk A360 Drive. Activities related to those renderings will now appear in the Autodesk A360 Drive Activities Area. In some cases, renderings may have issues that prevent them from being made visible in Autodesk A360 Drive; for example, rendering sample files cannot be shown in Autodesk A360 Drive. In these cases, the Autodesk A360 control is unavailable for those renderings.

To hide renderings that have been made visible in Autodesk A360 Drive, follow the same procedure except deselect Autodesk A360.

To Work with the Public Gallery

Access the Public Gallery

- Click the Gallery tab at the top of the Rendering in A360 page.

Sort Images in the Public Gallery

Use the buttons provided at the top of the page, including:

- Popular: determined by number of likes and newness.
- Following: images you have commented on.
- Liked: images you have liked.
- Featured: projects highlighted by the A360 Rendering team.
- Recent: recently shared images.

Search and Filter Images in the Public Gallery

- Enter a search term in the Search box.
- Select a filter from the Filter by Category drop-down box.

Share an Image from My Renderings to the Public Gallery

1. In My Renderings, click the collection that contains the image you want to share.
2. Click the image you want to share.
3. Below the image, click Share rendering and select Gallery.
4. Optional: Edit the description and other information about the image.
5. Click Share.

Stop Sharing an Image to the Public Gallery

1. Navigate to the image as you would when sharing the image.

2. Below the image, click Stop Sharing.

About Rendering from Autodesk Applications

One of the benefits of Rendering in A360 is that you can submit renders in the cloud and then continue working in your Autodesk application. Supported applications include Autodesk Revit, Autodesk AutoCAD, Autodesk 3ds Max, Autodesk Navisworks, and Autodesk Fusion 360. Each application has its own characteristics, requirements, and procedures that you should be aware of.

With Fusion 360 projects, you can also use Interactive rendering, a real-time photorealistic rendering environment that makes creating beautiful images and turntable animations easy.

Topics in this section

- [To Render in A360 with 3ds Max](#)
- [FAQ for Rendering in A360 with 3ds Max](#)

To Render in A360 with 3ds Max

Before You Start

Before rendering your scene in A360, you should prepare lighting, materials, and other settings as described here.

Cameras

Create at least one camera view that you want to render. A360 requires you to choose a camera view.

Lights and Materials



A360 supports only certain lights and materials. For details, see [FAQ for Rendering in A360 with 3ds Max](#).

Minimize the time for uploading and rendering

Consider saving a copy of your scene that contains only the objects to be rendered.

Render from 3ds Max 2016 and Newer Versions

1. Do one of the following:

- On the main toolbar, click  (Render in Autodesk A360).
- On the main toolbar, click  (Render Setup), then from the Target drop-down list, choose A360 Cloud Rendering Mode.

2. If you need to, click Cloud Credits ➤ Login to log in to your A360 account.

3. From the Views To Render drop-down menu, choose the camera views to render. You can render more than one camera view at a time.
4. On the Renderer panel, choose the A360 options you want. For details, see the 3ds Max help ► Rendering ► Renderers ► A360 Cloud Rendering. You can click the Test Scene Compatibility button to open a Render Message window that displays messages about the suitability of your scene for A360 cloud rendering.
5. Click Render.

FAQ for Rendering in A360 with 3ds Max

Why does some of my scene not render?

A360 rendering supports only certain features of 3ds Max. This section summarizes those limitations, but the details might change or improve as rendering support improves. Click Test Scene Compatibility on the Render dialog to see a detailed list of what is currently supported, or not.

Revit geometry and materials

Entities that are imported or linked from Revit render correctly. However, A360 disregards the Sky horizon height.

Lights

A360 supports Photometric lights and the Sun and Sky systems. It does *not* support Standard lights; in particular, it treats standard Target lights as point light sources. (Photometric target lights work correctly.)

Cameras

A360 supports both legacy and Physical cameras. But A360 does not render depth-of-field or motion blur effects.

Exposure Control

For Exposure ► Native, A360 supports either the "mr Photographic" or Physical Camera exposure control. If a different exposure control is active and you choose Native, A360 reverts to using its own Advanced exposure control.

Geometry

A360 supports render-time smoothing; for example, TurboSmooth iterations and view-dependent tessellation for Body Objects.

IMPORTANT: If you use view-dependent tessellation and render multiple camera views, the tessellation is based on the *first camera only*. If the first camera's field of view is greatly different from the second camera's, tessellation in the rendering of the second camera can be adversely affected. In situations like this, it is best to render a single camera only.

Materials

A360 supports Autodesk Materials.

Standard and Arch & Design materials can also render—these are mapped internally to the Autodesk Generic material.

Bitmaps and other textures

The basic features are supported, but scaling, cropping, and alpha settings are disregarded.

A360 does support UVW coordinates. It also supports the Invert, RGB Amount, and Filter settings.

Environments

A360 supports textures assigned to the Environment background.

Particles

Particles are supported, but the alpha setting on particle materials might not render as you intended.

To Render in A360 with Revit

Before You Start

Set up 3D views, lighting, and other parameters in Revit before using Rendering in A360.

3D views

Rendering in A360 relies on 3D views created in Revit. You can render any or all 3D views found in your project. The service does not work with 2D views.

Materials

Rendering in A360 is a highly optimized engine. It is not the same as the rendering engine used in Revit. You may find minor differences in the appearance of materials.

Exposure

Rendering in A360 automatically applies advanced exposure controls to simulate real-world lighting conditions. You can adjust these settings in the Render in Cloud dialog box.

Hotfix Available for Revit 2012 and 2013

To continue using your A360 account and Cloud rendering with Revit, download the upgrade here: <http://knowledge.autodesk.com/support/revit-products/downloads#?sort=score>

Render from Autodesk Revit 2013 and Later

1. Open a 3D view in a Revit project, and click View tab ► Graphics panel ► Render in Cloud. If prompted, sign in to your Autodesk account.

2. Select views, adjust settings, and click Start Rendering.
Revit creates a version of your project containing just the information necessary to render then transmits it to the rendering service. Revit displays a notification at the top of window when transmission finishes. You can continue to work in Revit or exit the program.
3. To monitor rendering progress from Revit, click View tab ► Graphics panel ► Render Gallery.

Render from Autodesk Revit 2012 with Add-In

1. If necessary, install the latest version of the Autodesk Cloud Rendering Add-in for Revit 2012.
The add-in, available from the rendering service (<http://rendering.360.autodesk.com>) lets you render and access the service from Revit 2012. You cannot upload Revit files directly to the rendering service from a web browser.
2. Open a 3D view in a Revit project, and click Online tab ► Rendering panel ► Render in Cloud. If prompted, sign in to your Autodesk account.
3. Select views, adjust settings, and click Start Rendering.
Revit creates a version of your project containing just the information necessary to render then transmits it to the rendering service. Revit displays a notification appears at the top of window when transmission finishes. You can continue to work in Revit. Quitting Revit during transmission cancels the process.
4. To monitor rendering progress from Revit, click Online tab ► Rendering panel ► Render Gallery in the Revit ribbon.

Light Analysis for Revit

The Light Analysis Revit (LA/R) plug-in uses the Rendering in A360 service to perform very fast and physically accurate daylighting analyses from within Revit. See the Autodesk Building Performance Analysis Help for more information.

FAQ for Rendering in A360 with Revit

Why can't I get the Revit add-in to install?

- The Autodesk Cloud Rendering Add-in for Revit 2012 requires that service pack 2 (Autodesk Revit Architecture 2012 Update 2) is installed.

How can I improve the appearance of rendered images?

- Try increasing the Render Quality value.
- Try adjusting the lighting in Revit.

Why doesn't the rendering update or respond?

- The source project may be too complex. Try reducing the Render Quality value or rendering with a smaller Image Size value.
- For security reasons, your computer clock and time zone must be set correctly. If they are not, your documents cannot be stored on Rendering in A360 servers and processed.

Why aren't some settings reflected in the rendering?

- Haze settings are ignored.

What are the differences between renderings using Rendering in A360 and Revit rendering?

- By default, the rendered image exposure is Advanced using Rendering in A360. Advanced generates balanced, well-lit images for most lighting conditions. In the Render in Cloud dialog box, you can change the exposure to use Revit's native exposure control settings instead of the default Advanced exposure.
- In Rendering in A360, materials closely match the ones rendered in Revit. Because of the new renderer, however, some differences might be visible. The differences could be significant if your project was created in an earlier version of Revit. The conversion of the older materials is not always an accurate match.

To Render in A360 with AutoCAD

Before You Start

Before uploading your drawing to Rendering in A360, you should prepare named views, lighting, and other parameters in AutoCAD as described here.

3D geometry

Rendering in A360 only works for AutoCAD drawings with 3D solids and surfaces. The service cannot render 2D geometry or paper space views.

Named views

Rendering in A360 relies on named views created in AutoCAD. You can render any or all named views found in your drawing. Create several named views before uploading your drawing file. The service can also render the current viewport when you saved the drawing.

Sun and sky

For sun, sky, and geographic location properties, create a named view from the viewport where these settings are applied. Make sure to select the Sun & Sky option (View Properties ► Background) when creating the named view.

Default lighting

Rendering in A360 will use the default lighting for the drawing unless you add at least one standard or photometric light to your scene in AutoCAD before uploading the drawing.

Materials

For AutoCAD 2010 drawings, only the materials that came with the software renders correctly through the rendering service. Drawings created in AutoCAD 2011 and newer can contain your own custom materials. However, if your drawing uses any custom texture files, create an eTransmit file to include them so that the rendering service can access them.

Xrefs

If your AutoCAD drawing relies on any xrefs (externally referenced drawing files), use the eTransmit feature in AutoCAD to gather these files into a single archive ZIP file for uploading.

Minimize the time for uploading and rendering

Consider saving a copy of your drawing that contains only the objects to be rendered.

Render from AutoCAD 2013 and Newer

1. Open a drawing in AutoCAD and click the Visualize tab ► Autodesk 360 panel ► Render in Cloud. If prompted, sign in to your Autodesk account.

NOTE: In earlier versions, the Visualize tab might be known as the Render tab.

2. From the Autodesk 360 dialog box, select the Model View, e-mail notification, and click Start Rendering.
3. Optional: In AutoCAD, click the Visualize tab ► Autodesk 360 panel ► Render Gallery to review and download the completed images.

Render from AutoCAD 2011-2012

1. Sign in to Rendering in A360 (<http://rendering.360.autodesk.com>).
2. If necessary, click the New Rendering tab.
3. On the Select a Source File page, use one of these methods:
 - Render an AutoCAD Drawing by clicking Select File. Browse to and open an AutoCAD drawing file (DWG) or an eTransmit ZIP file.
 - Render a sample file by selecting a file and clicking Continue.
4. On the Render Settings page, adjust the settings to set up one or more renderings of your drawing.

Add Image

Click to set up multiple images with different parameters from the same source file.

E-mail When Complete

By default, an e-mail is sent to the address associated with your Autodesk account when all your images are ready, or if errors occur.

5. Click Start Rendering. The Render Gallery page displays and you can review your completed renderings, monitor in-progress renderings, and re-render images.
-

FAQ for Rendering in A360 with AutoCAD

Why does validation fail when uploading my drawing?

- Make sure that you are using an AutoCAD drawing file (DWG) or an eTransmit ZIP file saved directly from AutoCAD 2010 or later.
- Make sure that your file contains 3D solids or surfaces. The service cannot render 2D geometry or paper space views.
- Autodesk recommends that your file contains at least one camera view.

How can I improve the appearance of rendered images?

- Try increasing the Render Quality value.
- Try adjusting the lighting in AutoCAD.
- Make sure that you include any xrefs or custom materials by creating an eTransmit archive.

Why doesn't the rendering update or respond?

- The source file may be too complex. Try using a lower Render Quality or smaller Image Size value.

Why does my image fail to render?

- Check your lighting settings in AutoCAD. For example, a spot light could be pointing in the wrong direction.
- Try saving and uploading the drawing again.

Why aren't some settings and RPC (Rich Photorealistic Content) objects in the rendering?

- Fog is not supported.
- Text and MText are not supported. Convert them to a mesh object before rendering.
- Standard lights (lightingunits=0) and distant lights are not supported; they are converted to Photometric lights.
- Default lights are not exported. If no explicit lights are in the scene, the rendering shows only the nonilluminated diffuse color of the objects.
- Shadow settings are ignored. Shadows are always ray traced.
- Background overrides (solid/gradient/image, sun/sky) are not supported.

What are the differences between renderings using Rendering in A360 and AutoCAD renderings?

- Generally, these renderings should be similar. Differences might be apparent when using an older AutoCAD file that was automatically updated in a newer version of AutoCAD.
- In some cases, the scale of your texture might be different from the AutoCAD renderings. Ensure that the Conversion unit in the Units dialog box is *not* set to Unitless.

To Render in A360 with Fusion 360

Before You Start

Materials

Fusion uses Fusion 360 Appearance materials. These are supported in Rendering in A360.

Files

If rendering Fusion 360 files from your desktop, first use the Fusion 360 Export Archive feature to create a F3D file that you can upload to Rendering in A360.

Render from Fusion 360

1. In Fusion 360, open the Data Panel.
2. Click Information ⓘ below the thumbnail image of the model you want to render.
3. Click Open Details in A360 in the information box that opens.



4. In Autodesk A360, click Renderings on the left side of the window. The viewer displays a rendered image of the Fusion 360 model.
5. Click Actions to see rendering options.

Re-render using new settings

Enables you to rerender with a new aspect ratio and rendering size.

Render As Turn Table

Enables you to create a turntable animation of your model. This is the same as when rendering as a turntable from My Renderings in Rendering in A360.

Adjust Exposure

Opens a slider for exposure adjustment. This is similar to adjusting tone mapping in Fusion.

Download Image

Downloads an image of the current view to your computer.

Render Fusion 360 Files from Your Desktop

1. Sign in to Rendering in A360.
2. Click the New Rendering tab.
3. Upload a Fusion 360 file containing 3D objects, or use one of the provided sample Fusion files.
4. Adjust render settings and click Start Rendering.

To Work with Interactive Rendering and Fusion 360


NOTE: **BETA** This is a beta feature.

About Interactive Rendering

Interactive rendering is a real-time photorealistic-rendering environment powered by the cloud. It makes creating beautiful images and turntable animations from your Fusion 360 scene easy. You can apply environments, materials, and camera parameters and see the photorealistic results immediately. You can also render the results to My Renderings in Rendering in A360.

Access Interactive Rendering

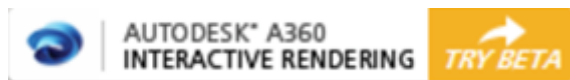
Access Interactive Rendering from the Autodesk A360 mini-gallery; for example, when using Fusion 360:

1. Open the Fusion 360 Data Panel.
2. Click Information  below the model thumbnail.
3. Click Open Details in A360 in the information box that opens.
This creates a rendered image of the model in Autodesk A360.



4. In Autodesk A360, click Renderings

5. In the viewer window, click




Navigate within a Model

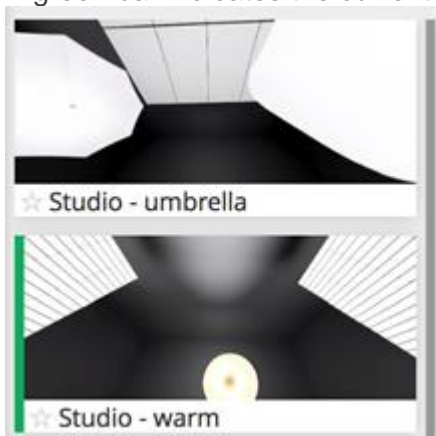
Use the navigation tool pallet to orbit, pan (Alt+drag), and zoom (Shift+drag). Click Home to reset the view.



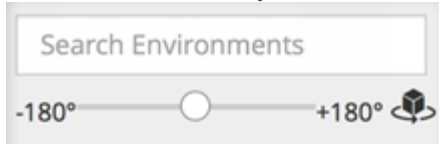
Apply Environments

Apply different environments to change the background and lighting of your scene.


1. Click Environments  in the toolbar on the left side of the window.
2. Drag an environment from the list into the viewer.
A green bar indicates the currently selected environment.




- Use the slider to adjust the rotation of the environment.



Apply Materials

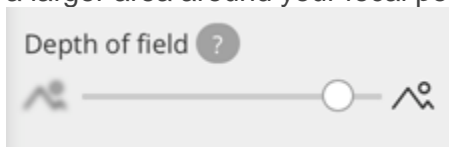
- Click Materials  in the toolbar on the left side of the window.
- Drag a material onto the part of your model you want to change.

Adjust Camera Parameters

Click Camera  in the toolbar on the left side of the window to display sliders for adjusting exposure, depth-of-field, and field of view.

Adjusting depth-of-field simulates the effect of adjusting the f-stop on a camera lens:

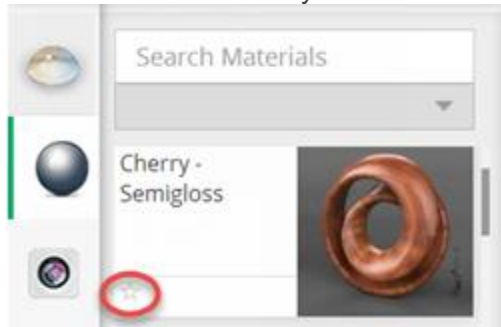
- Double-click the spot on your model where you would like to set the focal point.
- Adjust the slider to change the depth of field.
A cross-hair icon appears at the location of the focal point.
Sliding to the left simulates the effect of a larger aperture (low f-Stop), creating a bokeh effect. Sliding to the right simulates the look of a smaller aperture (higher f-Stop), keeping a larger area around your focal point in focus.




Use Favorites for Environments and Materials


Add environments and materials to a favorites list for easy access later.

- Click the star below any environment or material to add it to your list of favorites.



- Click the star again to remove the item from favorites.
- Click Favorites  in the toolbar on the left side of the window to access the list.

Create a Cloud Rendering of Your Scene



- Click the ^ symbol beside the Render button to open the Render Defaults window.
- Adjust aspect ratio and rendering size in the Render Defaults window.
You can also make the rendering into a turn table animation if you like.
- Click the check mark  to save the settings and close the Render Defaults window.
- Click Render at the bottom of the viewer.

The result is stored in the mini-gallery, as well as in My Renderings. In My Renderings, you can rerender the image if you like.

Use the Shots Bin



The shots bin is located at the bottom of the viewer. It contains saved views of your scene.

To add a shot to it, click the + sign  beside the Render button. The current view is saved as a shot. Any renderings you make in the scene are also displayed in the shots bin and indicated by an Interactive Rendering icon .

To Render in A360 with Navisworks

Before You Start

In Navisworks, set up and save the current 3D viewpoint that you want to render, including the lighting and other parameters before using the Render in Cloud tool.

3D Views

Rendering in A360 relies on 3D views created in Navisworks. You can render any or all 3D views found in your project, by making it the current view before starting the Render in Cloud command. The service does not work with 2D views.

Materials

Rendering in A360 is a highly optimized engine. It is not the same as the rendering engine used in Navisworks. You may find minor differences in the appearance of materials.

Exposure

Rendering in A360 automatically applies advanced exposure controls to simulate real-world lighting conditions. You can adjust this in the Render in Cloud dialog box.

Experiment with low resolution

You may want to first render in lower resolution and quality to check general appearance before committing to higher quality and resolution images resulting in credits being required. Note that a rendering doesn't need to be resubmitted from Navisworks. You can rerender with better quality from inside Rendering in A360.

Render from Navisworks

1. In Navisworks and click the View tab ► Graphics panel ► Render in Cloud. If prompted, sign in to your Autodesk account.
2. For 3D Views, you can only render the current view.

3. Adjust the settings, and click Start Rendering.
Navisworks creates a version of your project containing just the information necessary to render then transmits it to the rendering service. Navisworks displays a notification at the top of the window when transmission finishes. You can continue to work in Navisworks or exit the program.
4. To monitor rendering progress from Navisworks, click the View tab ► Graphics panel ► Render Gallery.

FAQ for Rendering in A360 with Navisworks

How can I improve the appearance of rendered images?

- Try increasing Render Quality value.
- Try adjusting the lighting in Navisworks.

In Navisworks, how do the Environments settings and render style lighting options affect the rendering?

- If Environments settings are off and the Full Lights option is selected, a default environment is displayed (Blue sky), and lights will export to cloud rendering.
- If Environments settings are off and the Full Lights option is not selected, a default environment (Blue sky) is displayed, and light will not export to cloud rendering.
- If Environments settings are on and the Full Lights option is selected, Navisworks environment settings will be used and lights will export to cloud rendering.
- If Environments settings are on and the Full Lights option is not selected, Navisworks environment settings will be used and light will not export to cloud rendering.

NOTE: Full Lights uses the highest quality lighting. To select Full Lights, click Viewpoint tab ► Render Style panel ► Lighting ► Full Lights.

Why doesn't the rendering update or respond?

- The source project may be too complex. Try reducing the Render Quality value or rendering with a smaller Image Size value.
- For security reasons, your computer clock and time zone must be set correctly. If they are not, your documents cannot be stored on A360 servers and processed.
- Make sure you saved your file in Navisworks to specify a file name. Otherwise, Render in Cloud will submit a render job but the rendering will not display in the Render Gallery.

Why aren't markups in the rendering?

- Markups are not supported.

Why is the whole model rendered when I enabled a section view?

- The Enable Sectioning setting is not supported. The rendering engine will always render the entire model.

Are point cloud files supported?

- No, point cloud files are not supported.

What are the differences between renderings using Rendering in A360 and Navisworks rendering?

- In Navisworks, the default rendered image exposure is Advanced. Advanced generates balanced, well-lit images for most lighting conditions. You can change the exposure in the Render in Cloud dialog box. In Rendering in A360, materials closely match the ones rendered in Navisworks. However, some differences might be visible.

About Improving Renderings Online

To improve a rendering, you can re-render it from My Renderings.

- To re-render an image, from the thumbnail Action button  click one of these options.

Re-render using new settings

Prepare a new rendering based on the same source file and version.

Render as Panorama

Create an interactive panorama based on the camera view used in the image.

Render as Stereo Panorama

Create a stereo rendering of your designs and view them with virtual reality goggles.

Render as Solar Study

Enables you to visualize the impact of natural light and shadows on both the exteriors and interiors of projects. Use the dialog boxes provided to adjust parameters. Works for both Revit and AutoCAD files.

Render with Illuminance

Prepares a new rendering with units of brightness displayed in false color, including a legend indicating the number of incident Lux. This enables you to check lighting levels in your design, for example to get LEED certification for a building. The scale displayed is logarithmic.

- To re-render all images shown in the collection, choose Actions ► Re-render All. (This action is available only when you are viewing the collection by Latest Renderings or by Version.) This command lets you batch render all the images shown using common settings.

While rendering, you can do the following.


- View details about rendering progress by mousing over the thumbnail image progress bar.
- Select Cancel Rendering from any in-progress rendering thumbnail menu to stop rendering the image (cannot be undone).
- Once rendering has begun, you can close your browser window. You can still monitor rendering progress and review completed images in My Renderings.

NOTE: You can also adjust an image's exposure. This does not perform a re-render, but just an image post-processing on HDR data.

To Work with Panoramas

Rendering in A360 enables you to create and view panoramic images. Each panorama is a navigable, 360-degree scene based on the camera view used in the image.

Render a Panoramic Image

1. In My Renderings, mouse over the thumbnail image.
2. From the thumbnail Action button , select Render as Panorama.

View a Panoramic Image

Once rendered, a curved, double-headed arrow icon appears over each panorama thumbnail in a collection.




Panorama Thumbnail

1. Click a panorama thumbnail to display the scene in the panorama viewer.
2. Place the mouse pointer over the panorama viewer and click and drag to interact with the scene.
3. Hold down the Shift key and scroll the mouse wheel to zoom in and out of the scene.


Download a Panoramic Image


You can download a panoramic image as a cube-map strip composed of six images. You can convert these images to other cube-map formats to view them offline using third-party programs.

1. In My Renderings, mouse over the thumbnail image.
2. From the thumbnail Action button , select Download Panorama.
3. Choose between two download options.
 - As HTML Viewer: An HTML file linking to the series of panoramic images
 - As Image Strip: A full-sized image strip of the panoramic images

To Work with Solar Studies

Solar studies enable you to visualize the impact of natural light and shadows on both the exteriors and interiors of Revit and AutoCAD projects. The first step to creating a solar study is to use a preview to see the brightness range that the full solar study will have. Preview

thumbnails are identified in a collection with half-sun icons . Once the exposure settings have been adjusted, the full solar study can be rendered. Full solar study thumbnails are

identified in a collection with full-sun icons . Clicking on those thumbnails opens the sun study viewer.


Preview and Render a Solar Study

1. In My Renderings, click a preview solar study thumbnail to display a mosaic image of a selection of frames, together with exposure adjustment controls. The preview images show the full brightness range present in the solar study.
2. Adjust the exposure parameters to the best possible output.
3. Click Start Rendering to render the full solar study output.

View a Solar Study

- In My Renderings, click a full solar study thumbnail to display the sun study viewer. The viewer shows you a movie preview of the solar study that you can scrub or play. Each frame is time-stamped with the date and time of the solar study simulation.


Download a Solar Study

1. In My Renderings, mouse over the thumbnail image.
2. From the thumbnail Action button , select Download Solar Study to download a ZIP file containing the full-size frames of the solar study.

To Work with Illuminance Renderings

Perform illuminance simulations of scenes to check lighting levels and better understand the effects of natural and artificial lighting in your design. This can help when seeking LEED certification for a building.

Create an Illuminance Rendering

1. In My Renderings, mouse over the thumbnail image.
2. From the thumbnail Action button , select Render As ► Illuminance.
3. In the window that opens, verify the cloud credit information and click Start Rendering.


View an Illuminance Rendering

- In My Renderings, click an illuminance rendering thumbnail. Units of brightness are displayed in false color, including a legend indicating the number of incident Lux. The scale displayed is logarithmic, and ranges from 0 to the maximum illuminance detected in the scene. Available controls depend on the original application (for example, Autodesk Revit) from which the rendering originated.
-

To Work with Turntables

Render a Turntable Animation

You can take an existing Autodesk Fusion 360 image in My Renderings and render it into a turntable animation with a custom frame count, render quality, and image size.

1. In My Renderings, mouse over the thumbnail image.
2. From the thumbnail Action button , select Render As ► Turn Table.
3. In the window that opens, adjust the settings you want and click Start Rendering.

View a Turntable Rendering


Once rendered, a turntable icon appears over each turntable thumbnail in a collection.



Turntable Thumbnail

1. Click the turntable thumbnail to display the scene in the viewer. By default, the scene rotates automatically.
2. Drag inside the viewer to pause and control the rotation.

Download a Turntable Animation

1. In My Renderings, mouse over the thumbnail image.
2. From the thumbnail Action button , select Download Turn Table.
3. Choose between two download options.
 - As HTML Viewer: An interactive HTML file that you open and then drag through to view
 - As Video: An MP4 video

About the Render Settings Window

Adjust these values in the Render Settings window when re-rendering an image from Rendering in A360.

Camera (AutoCAD DWG files only)

Select a camera view from the list. Select All Cameras to render images of all views simultaneously. Most Recent Active View renders the viewport that was active when your DWG was last saved.

Environment

Apply a background environment and image-based lighting to your scene from a collection of High Dynamic Range (HDR) images, replacing the existing background environment from your original scene. Select None to use the original scene background again.

Render Quality

Choose a render quality based on your needs and available cloud credits, which are updated in real-time in the Render Settings window when you make a selection. All renderings at standard quality and under 1 mega pixel are free (no cloud credits required). This type of rendering is useful for working on design ideas. Jobs with these render settings usually take ten minutes or less.

Exposure

By default, advanced exposure settings simulating physically correct lighting conditions are automatically applied to all renderings. To use Revit's native exposure control settings instead of the default advanced exposure, rerender the image from My Renderings and select Exposure ► Native. (Native exposure is not available for renderings created from DWG files).

File Format

Select a file format for your completed images. File format has no effect on rendering time.

- PNG (Lossless): 24-bit Portable Network Graphics file. PNG is the best format for most purposes. An 8-bit alpha channel containing transparency data is also provided in each PNG file.
- JPEG (High Quality): 24-bit Joint Photographic Experts Group image. File sizes are greatly reduced. Minor loss of quality may be visible. JPEG files contain no transparency data.
- TIFF (Uncompressed): 24-bit Tagged Image File Format image. Although this format is identical in quality to PNG, it may save you a conversion step if your application requires TIFF. An 8-bit alpha channel containing transparency data is also provided in each TIFF file.

Alpha: For file formats that support transparency (such as PNG and TIFF), select this to create an alpha (transparency) layer using parts of the image not touched by the camera ray. Once an image is rendered with alpha, its tooltip includes the text "Alpha Channel: Enabled".

Image Size

Select one of the preset image sizes from the list, in megapixels (MP). The rendering will be created using the maximum allowable width and height in px to give the selected MP size. Remember that larger images take much longer to render than smaller images. Renderings of 2 to 8 MP are useful for internal design reviews and other situations that require higher quality to communicate your design intent. In some cases jobs with these render settings can take longer depending on server loads. Save renderings above 8 MP for images requiring the finest quality, such as competition submissions, important client reviews, and print presentations. In some

cases, jobs with these render settings can take longer depending on server loads. The maximum image size is 4000 x 4000 pixels.

Aspect Ratio

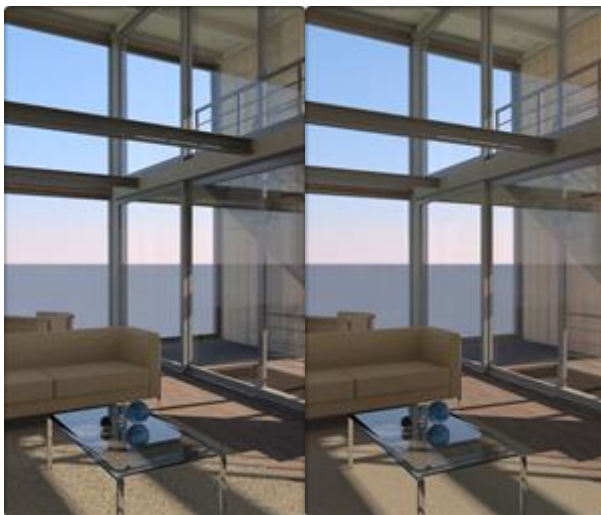
Select a preset aspect ratio from the list. To create an image with a different aspect ratio, select Custom Aspect Ratio and enter width and height values, or click the lock icon to the right of the width and height fields.

About Render Quality

Setting	Eye rays variable	Reflection samples variable	Lighting accuracy variable	When to use	Speed
Standard	4.0	1	Low	More accurate than Draft. Perfect for quick visualization during design.	4x
Final	32	16	High	Lower noise and broader tonal range than High. Perfect for archival rendering, when speed is not a priority.	20x

There are two Render Quality settings, each with a different balance of three variables: eye rays, reflection samples, and lighting accuracy.

NOTE: Speed comparisons are relative. The overall rendering time for any image is a function of render quality, image resolution, and complexity of the scene.



Standard

Final

Eye Rays

Ray tracing analyzes the way simulated rays of light bounce around in your 3D scene. *Eye rays* refers to the number of initial simulated light rays being traced per pixel in the final

rendered image of your scene. The more eye rays that are calculated per pixel, the greater the accuracy of this variable's final value.

Reflection Samples

The quality of a calculated reflection depends on the amount of detail in the texture of the surface. *Reflection samples* refers to the amount of detail per eye ray. A higher number of reflection samples results in reflections that appear more photorealistic.

Lighting Accuracy

Rendering a scene requires analyzing all the light sources present, for each pixel in the final image. This analysis can often be simplified with little perceptible effect, resulting in dramatic speed improvements. *Lighting accuracy* refers to the amount of simplification applied to the lighting in your scene when each pixel in the final rendered image is calculated. Draft quality mode further simplifies the lighting calculation by averaging groups of pixels with similar properties.

About Adjusting Image Exposure

Adjust Exposure provides you with several slider controls to adjust exposure parameters directly. When you begin adjusting the exposure settings, the preview area uses HDR data to display the full range of exposure adjustments as you make them.

When you click Apply, a new post-processing task begins. When complete, the adjusted, image displays in the collection as a new thumbnail. If you display another image before clicking Apply, any new exposure adjustments are discarded.

IMPORTANT: The Adjust Exposure capability requires a WebGL-enabled browser.

About Environments

Environments are HDR (High Dynamic Range) images that can be applied to any rendered scene. Setting an environment enables IBL (Image-Based Lighting) in your scene. This lights the scene using the sun and sky in the environment image you choose, providing dramatic reflections and shadows.

TIP: Take a site photograph under sky conditions like one of the environments in the Autodesk collection. Then render your scene with an environment, selecting PNG or TIFF as the file format. The rendered PNG or TIFF file will contain an alpha channel for masking out the environment background and replacing it with your own site photography using a photo-editing application such as Autodesk Pixlr. The result is a realistically lit scene in the proper site context.

The following environment images are available from Rendering in A360. Although they look distorted here, they appear correctly when mapped to your camera views.



Dock



Riverbank



Crossroads



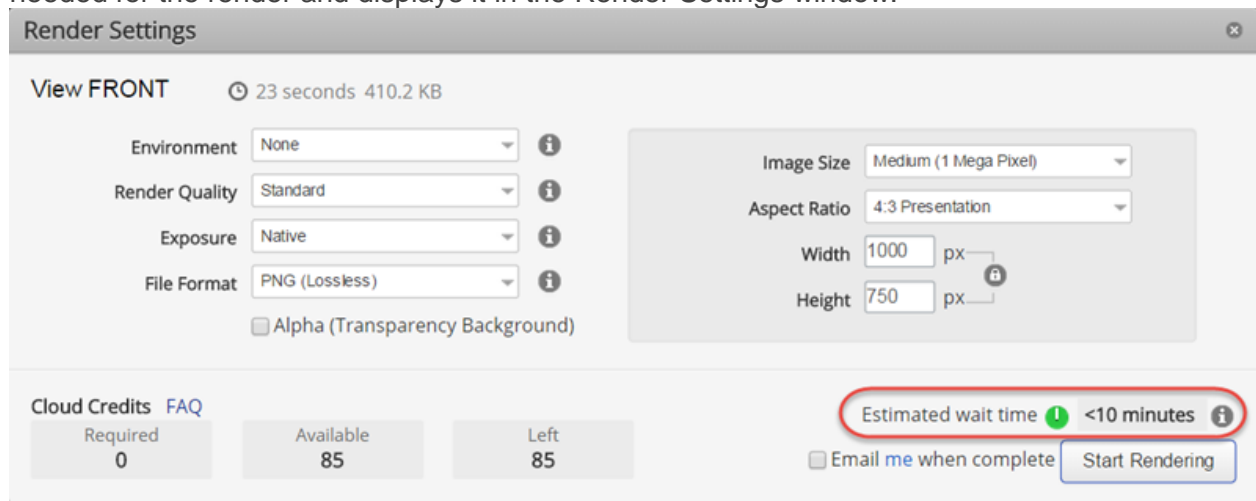
Seaport



Field

About Render Wait Times

When you set up a render, Rendering in A360 calculates an estimated amount of time needed for the render and displays it in the Render Settings window.



Actual wait times are affected by a number of factors, including:

- Render quality
- General render settings, such as image size
- Server availability
- Rendering entitlement (Commercial or Education)

NOTE: If you are a student and you submit a rendering during a peak period your render will be queued differently. In some cases, your rendering could be queued for several hours. Solar and illuminance renderings are more intensive and take longer to render. You can often reduce your wait time by reducing the number of frames in these types of renderings. Other tips if a rendering seems to be taking much longer than expected:

- Make sure you have enough cloud credits in your account. A rendering cannot be started if you have insufficient credits.
- Avoid cancelling and resubmitting a rendering job, because this will send the job back to the end of the rendering queue.

About Commercial Cloud Credits

Types of Commercial Cloud Credits

There are two types of commercial cloud credits:

- Individual: Granted to a named user on a license; these cannot be transferred or shared with other users.
- Shared: Available to named users on a shared contract.

NOTE: Students have access to unlimited educational cloud credits, which are described in a separate topic.

You can only use one type at a time for a rendering (rendered image or view). You must have sufficient cloud credits in either your individual or shared balance to complete your job. In other words, you cannot combine the two types and use them on one rendered image. For example, if you have five individual credits and ten shared credits, but an image requires 11 cloud credits to render, you will not be able to do the render. This is because you do not have enough credits of either type, and you cannot combine them for a rendering.

Order of Use

If you have enough individual credits for a rendering, they will be used before shared credits. Shared credits will only be used if you do not have enough individual credits.

Multi-View Renders

For multi-view renders – for instance, three different views of a model – each view is treated as a separate rendering. You must have enough credits of at least one type to render each view. No renderings will be done unless all three views can be rendered.

See the following table for various rendering examples. In all cases, 7 individual credits and 9 shared credits are available.

Render	Credits Required	Credits Used	Job Result
1 View	4	4 individual	Success
1 View	8	Not enough individual cloud credits were available, so 8 shared credits were used.	Success
1 View	12	Not enough of either type was available.	No rendering done
2 Views	4 for first view, 8 for second view	4 individual credits were used for the first view. There were not enough individual credits left for the second view, so 8 shared credits were used.	Success
2 Views	8 for first view, 8 for second view	Not enough individual credits for either view. There were enough shared credits to render one view, but not both views, so no rendering was done.	No renderings done
3 Views	3 for each view	6 individual credits were used for the first two views, while 3 shared credits were used for the third view.	Success

About Education Cloud Credits

Students are given unlimited cloud credits for rendering, free of charge. Student renderings are managed in special queue which may become busy during peak periods, such as the end of a semester.

Students who want to avoid long waits should:

- Only render with high quality when necessary
- Plan ahead and submit final renderings well ahead of academic deadlines at the end of the semester

Some users may have both commercial and education entitlements associated with the same email address. In this situation, when a user runs out of commercial credits, the education credits are used. Depending on server load, this could noticeably delay the rendering.

FAQ for Rendering in A360

What are some known service limitations?

- Still images are capped at 4000 x 4000 pixels.
- Panoramas are rendered at a smaller size than the image they are generated from.
- Solar Studies are limited in size and number of frames (currently 30). This limitation is subject to change.

Are there known feature issues?

- Re-rendering an image whose exposure was adjusted does not render with the adjusted parameters if the Exposure value is set to Advanced or Native. Select Customized instead. "Advanced" means that Rendering in A360 will automatically determine which exposure setting should be applied. "Native" means the exposure setting in the original application will be applied.
- Exposure Adjustment works only on WebGL enabled browsers like Google Chrome and Mozilla Firefox. Make sure your browser, video drivers, and hardware fully support WebGL to use this feature.
- AutoCAD exposure settings (logarithmic) are supported for the initial rendering from AutoCAD. If you adjust the exposure on the rendering portal, the original settings are converted to the best matching settings of the Advanced exposure and used for all subsequent renderings.

Are there any known performance issues?

- When selecting Adjust Exposure for an image, the exposure controls may be disabled briefly while the HDR image is loaded into the preview panel. This delay is expected, as the HDR data can be large.

FAQ for Rendering Cloud Credits

What are cloud credits?

- Cloud credits are the units Autodesk uses to measure the cost of various tasks in Autodesk A360, such as renderings and simulations. To see the general Autodesk FAQ on cloud credits, go to <http://www.autodesk.com/cloud-credit-faq>.

What are megapixels?

- A megapixel (MP) is one million pixels. It is used as a unit of measurement for cloud credit charging when rendering.
- You can calculate the number of MPs a single rendering will be by multiplying the width and height values in the Render Settings window. For example, if you set the width and height to be 1500 px and 1029 px, respectively, the total MPs for the rendering will be $1,500 \times 1,029 = 1,543,500$ px, or 1.54 MPs. If you render 6 views in Revit at this size, you would be requesting 9.24 MPs.
- Solar Studies and Panoramas consist of more than one frame, so to calculate the total MPs in these renderings, you need to multiple the MP in each frame by the number of frames. Panoramas require 6 frames each.

How are cloud credits charged for rendering?

- Cloud credits are charged per megapixel (MP), and at different rates depending on the size, quality, and type of rendering.

What is the charge for basic renderings?

Basic renderings are charged as follows:

- Renderings of single images at Standard quality under 1 MP are free.
- Renderings over 1 MP at Standard quality cost half a cloud credit per total number of MPs.
- Renderings of any size at Final quality cost one cloud credit per total number of MPs.

What is the charge for solar studies and panoramas?

Solar study and panorama renderings are never free. Cloud credit charges are calculated as follows:

- Renderings of any size at Standard quality cost a quarter of a cloud credit per total number of MPs.
- Renderings of any size at Final quality cost half a cloud credit per total number of MPs.

What is the charge for illuminance renderings?

- Illuminance mode renderings are never free and are always charged at one cloud credit per total number of MPs.

Are there fractional charges for rendering jobs?

- No. Cloud credit charges are always rounded to the nearest integer. You will never be charged fractional cloud credits for a job.
- For example, for a single rendering of 5.5 MPs at Standard quality, calculations are as follows:
 $5.5 \text{ MP} \times 0.5 \text{ cloud credits/MP} = 2.75 \text{ cloud credits}$
The 2.75 cloud credits are rounded to 3.
Rendering in Autodesk A360 will calculate and show you this charge before you submit your rendering job.
- Rounding is done with X.49 as the threshold. For example, if a cloud credit charge is 2.49 MPs, it is rounded down to 2. If the charge is 2.50 cloud credits, the number is rounded up to 3.

What's the difference between Standard and Final render quality levels?

- Standard quality gives you a rendering that is adequate for seeing the results of your render without using a large number (or any) cloud credits. Standard renderings may be good enough for your needs in some cases, but are not necessarily of high enough quality to provide, for example, to a client as final presentation material. Standard quality renderings will, however, give you a very good sense of what the Final version will look like.
- Final quality gives you a high quality rendering that you can use to share with interested viewers. Final quality renderings require more cloud credits, so you should test at Standard quality before creating a Final render.



Standard

How do I buy Cloud Credits?

- Subscription users can purchase additional cloud credits from Autodesk e-Stores, Autodesk resellers, and Autodesk Direct Sales.

My cloud credits have disappeared and I can no longer render. What happened?

- The most likely reason is your shared cloud credits have reached their expiration date. Shared cloud credits on your subscription contract have a fixed lifespan and expire twelve months after the date of purchase. For more information, go to <http://www.autodesk.com/cloud-credit-faq>.

How can I tell how many cloud credits I have?

1. At the top of the rendering window, open the drop-down menu under your user name.
2. Click Account Settings.
3. Click the Services tab.
4. Review the Rendering information under Autodesk A360 Features, Services and Related Products.

How do my settings affect the number of cloud credits I'll be charged for a rendering?

- The two settings that primarily affect cloud credit charges are Render Quality (as described under "How are cloud credits charged?") and Image Size. Select image sizes judiciously. For example, a 4,000 x 4,000 px rendering (16 MPs) requires many more cloud credits than a 1,000 x 1,000 px rendering (1 MP).

How does the limited time free trial work?

- For a limited time, Autodesk is offering a chance for new users to experiment with the advanced features of Rendering in Autodesk A360 for no charge. This offer is to allow you to test the new features of the service and is not to be applied to commercial work. If you are new user, during this limited-time trial you will automatically receive 25 free cloud credits that can only be used for rendering.
- Though there is no end date set for the free trial, Autodesk reserves the right to end it at any time.
- In times of heavy server workload, rendering priority will be given to subscription customers over free trial users.

What is Autodesk Subscription?

- Autodesk Subscription is a maintenance and support program that provides exclusive advantages and delivers the lowest total cost of ownership for your software. Key benefits include immediate access to upgrades, product enhancements, web services, previous version rights, flexible licensing plans and online customer support.

How do I know if my office is an Autodesk Subscription customer?

- Your Subscription can be verified within your Autodesk Account. After signing in, click "Enable your Subscription benefits" to verify your Subscription and enable your account with the Autodesk A360 cloud services you're eligible for.

I'm an Autodesk Subscription customer. What do I need to do to keep using Rendering in A360?

- Nothing. When you log in, you should see a dialogue box with your Subscriptions cloud allocation amount. Whenever you do a rendering that costs any cloud credits, the allocation amount will be updated.

I work for an office that is an Autodesk Subscription customer. What do I need to do in order to keep using Rendering in A360?

- Cloud credits are allocated per license and will aggregate at a contract level. Contact your Contract Administrator/Software coordinator to find out how the allocations of your cloud credits work at your company.