

CINEMA 4D Exchange Add-On User Guide for ARCHICAD

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CINEMA 4D Exchange Add-On User Guide for ARCHICAD

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Overview

The following is a short guide to the use of the CINEMA 4D Exchange application with ARCHICAD. Please bear in mind that this short guide does not replace the comprehensive CINEMA 4D Exchange Reference Guide; we recommend that you use both documents together.

CINEMA 4D Exchange is MAXON's high-end 3D modeling, rendering and animation solution. Installing the CINEMA 4D Exchange for ARCHICAD allows CINEMA 4D Exchange to function as a powerful visualization tool or a graphical GDL modeler and editor tightly integrated with ARCHICAD. The connection between the two applications, using the C4D format (version R19), offers a streamlined 3D design workflow on both Macintosh and Windows platforms.

With the CINEMA 4D Exchange add-on connection, elements created in CINEMA 4D can be transferred to ARCHICAD as GDL objects.

Notes:

- With the introduction of the Morph tool in ARCHICAD 16, the CINEMA 4D Exchange Add-on is no longer necessary for some of these functions.
- For architectural visualization, CineRender, the new built-in rendering engine of ARCHICAD, provides most of the rendering capabilities of CINEMA 4D. For professional purposes and to further exploit the texture mapping, rendering and animating capabilities of CINEMA 4D, please use the built-in Export to CINEMA 4D command in ARCHICAD (from the Render pop-up button of the PhotoRendering palette). This export feature lets you precisely export the ARCHICAD model, together with the surface- and the rendering settings, into CINEMA 4D with one click.

Software Requirements

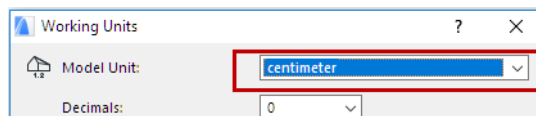
ARCHICAD and CINEMA 4D Exchange must be installed on your computer prior to the installation of the ARCHICAD add-on.

The latest ARCHICAD add-on can be downloaded free of charge from the following webpage:

http://www.graphisoft.com/products/archicad/addons/cinema_4d/cinema4d_download.html

Important Note for ARCHICAD 19 and earlier:

Before exporting with CINEMA 4D Exchange, make sure that ARCHICAD Working Units are set to centimeter. If the programs use different working units, you may find scaling problems after the data exchange.



As of ARCHICAD 20, the units of exported ARCHICAD models will be converted automatically in CINEMA 4D.

Usage Scenario 1: Exporting CINEMA 4D Exchange File for Visualization with Scene Update functionality

By exporting the whole project from ARCHICAD to CINEMA 4D Exchange, users can take advantage of its animation and rendering capabilities to create motion or still pictures.

New CINEMA 4D Exchange Scene Creation

1. After completing the modeling in ARCHICAD, go to the 3D window, and display all the model content you want to use for visualization.
2. Select **File > Save as** command and select the CINEMA 4D Exchange file format from the Save dialog's Format list.
3. Click **Save**.
4. Open CINEMA 4D Exchange, and select the **Open** command to open the model as a new scene.

Updating a Previously Exported ARCHICAD Model in CINEMA 4D Exchange

If the model has been modified in ARCHICAD after exporting as a CINEMA 4D Exchange file, it is possible to apply the modeling changes to the CINEMA 4D Exchange scene in the following manner:

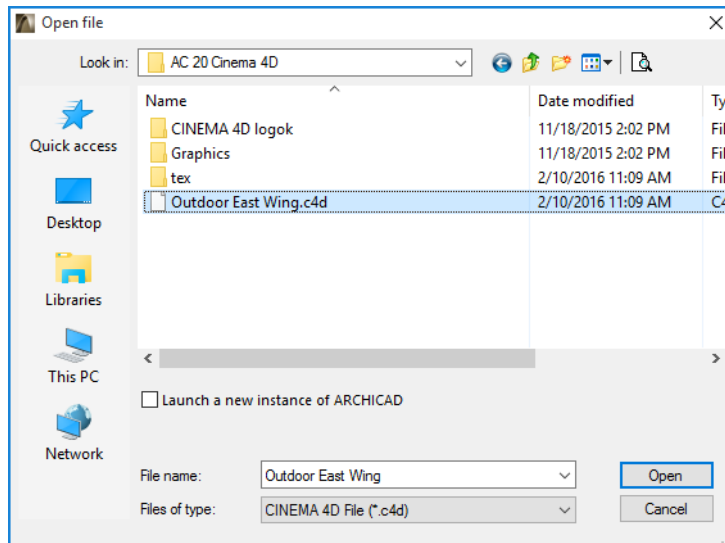
1. In ARCHICAD, go to the 3D window and display all the model content you want to use for visualization.
2. Select the **File > Save as** command, select the CINEMA 4D Exchange file format in the Save dialog's Format list and enter a new name for the file.
3. Click **Save**.
4. Open the original file in CINEMA 4D Exchange that you want to update.
5. Select the **File > Merge** command and select the new CINEMA 4D Exchange file that contains the new version of the model.

Important: During the update process, not only the scene object geometries will be refreshed, but the object hierarchy as well. If the updated file is saved with different grouping options (e.g. by Class/by Material) than the original CINEMA 4D Exchange file, the CINEMA 4D Exchange scene hierarchy will be modified to match the new grouping scheme, which might cause data loss!

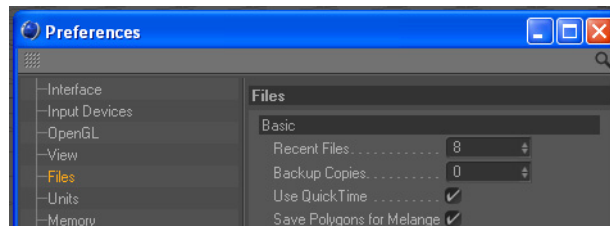
For configuration options, see the [“CINEMA 4D Exchange Export / Import Settings”](#) section.

Usage Scenario 2: CINEMA 4D Exchange File Import

To convert a CINEMA 4D Exchange file to an ARCHICAD GDL object, use the ARCHICAD **Open** or **Merge** command.



Note: You can only import CINEMA 4D Exchange files that have been saved with the CINEMA 4D Exchange Melange Exchange option. Set this option in the CINEMA 4D Exchange **Edit > Preferences** dialog box.

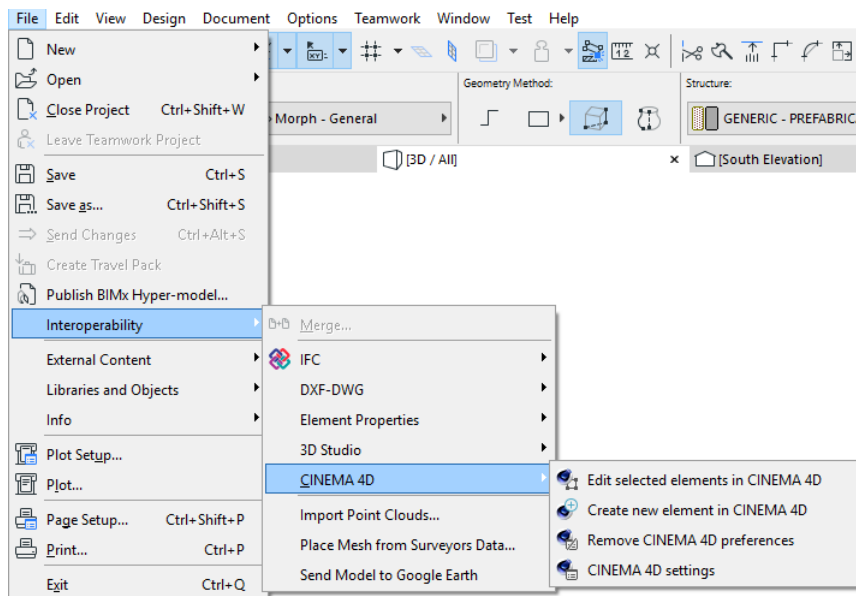


Usage Scenario 3: Bidirectional Free-Form Modeling

ARCHICAD

When you need a free-form CINEMA 4D Exchange shape in your ARCHICAD project, or you would like to modify an existing ARCHICAD element using CINEMA 4D Exchange, do the following:

- To create a new CINEMA 4D Exchange object, use the **File > Interoperability > CINEMA 4D Exchange > Create new element in CINEMA 4D Exchange** command, available while working in the 3D window.
- To edit elements, select them and use the **Edit selected elements in CINEMA 4D Exchange** command, available while working in the 3D window only.



By default, the commands are at the bottom of your **Interoperability** menu, but you can customize your work environment anytime.

In either case, ARCHICAD will launch CINEMA 4D Exchange and transfer the content of the 3D window. After the transfer, ARCHICAD will switch into “Synchronization” mode. During this time, no user interaction is possible in ARCHICAD and you should work in CINEMA 4D Exchange only.

Note: ARCHICAD will ask you to locate CINEMA 4D Exchange manually the first time you use it. This is a one-time-only question; ARCHICAD will remember this location later. If the location of CINEMA 4D Exchange changes on the computer (e.g. because of an upgrade), you can re-set the location using **Remove CINEMA 4D Exchange preferences** in the **File > Interoperability > CINEMA 4D Exchange** menu.



In this case, the next time you select “Create new element in CINEMA 4D Exchange” or “Edit selected elements in CINEMA 4D Exchange”, you will be prompted to navigate to the CINEMA 4D Exchange executable location.

If you decide to cancel the CINEMA 4D Exchange editing process, you can click the “**Break connection to CINEMA 4D Exchange**” button in the synchronization dialog, but in this case you will not be able to get the model back from CINEMA 4D Exchange.

Important: If you start CINEMA 4D Exchange separately from ARCHICAD, don’t use the “Send back to ARCHICAD” command in CINEMA 4D Exchange. You can use the connection only if:

- You start CINEMA 4D Exchange from ARCHICAD and
- ARCHICAD is still in “Synchronization” mode

In order to restore the connection, do the following:

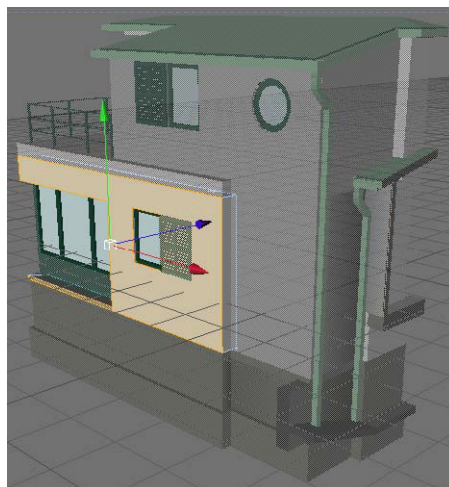
1. Save your scene as a CINEMA 4D Exchange file in CINEMA 4D Exchange.
2. Switch to ARCHICAD, activate the 3D window and establish the connection with CINEMA 4D Exchange using the Create new element in CINEMA 4D Exchange command.
3. In CINEMA 4D Exchange, merge the previously saved CINEMA 4D Exchange file.

Note: For configuration options, see the Export Parameters section.

CINEMA 4D Exchange

In CINEMA 4D Exchange, you will receive the entire contents of ARCHICAD’s 3D window.

- Elements which were not selected for editing will be in the “ARCHICAD environment” object group on the “ARCHICAD environment” layer. Elements of this group will be semi-transparent in CINEMA 4D Exchange. Their purpose is to help you position your design correctly. Editing these elements will have no effect on their ARCHICAD representation, and changes will be lost when you return to ARCHICAD. If you wish to modify these elements, then return to ARCHICAD, select them in the 3D window and use the “Edit selected elements in CINEMA 4D Exchange” command.
- If you used the “Edit selected elements in CINEMA 4D Exchange” command in ARCHICAD, the selected elements will be listed outside the ARCHICAD environment group and you can edit them freely. The objects will be hierarchically organized according to the current CINEMA 4D Exchange export settings ([see the “CINEMA 4D Exchange Export / Import Settings” section for further info](#)).



When you finish the CINEMA 4D Exchange design, you can send the information from the Editor window back to ARCHICAD using the **File > Send to ARCHICAD** command. This returns the model to ARCHICAD and keeps CINEMA 4D Exchange open for the next editing cycle.

If you created new elements in CINEMA 4D Exchange, ARCHICAD will automatically place the new objects at exactly the same location as in CINEMA 4D Exchange.

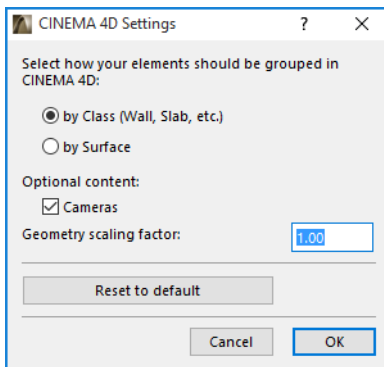
If you edited selected elements in CINEMA 4D Exchange, the original elements will be replaced with the new geometry.

The material and geometry information of CINEMA 4D Exchange is saved in the retrieved GDL object and will be used the next time you edit the object, but the content of ARCHICAD environment is newly generated during each export.

CINEMA 4D Exchange Export / Import Settings

Grouping Options

ARCHICAD Elements can be exported either “by Class” or “by Material” (Surface). In both cases, the elements’ polygons are filtered out in hierarchy groups. To create a still image in CINEMA 4D Exchange, use the “by Material” option. All used materials form an individual group with all linked polygons in a quite simple structure, so replacing a material on the related surfaces becomes an easy task.



For freeform modeling, use the “by Class” method, which provides the freedom of easy element editing. All elements are grouped by type and `element_id`.

Cameras

By default, ARCHICAD exports only the current 3D viewport. The “Cameras” option exports all existing camera from the project.

Notes: The exported CINEMA 4D Exchange file contains the following entities:

- The model geometry of the visible layers, including the effects of SEO operations
- Converted Surfaces
- Camera view of the ARCHICAD 3D window and camera positions
- Lamps

Scene update functionality is available in CINEMA 4D Exchange R11.027 version and up.

The add-on creates a folder called “tex” next to the exported file, which contains all data (such as Surface textures) needed for CINEMA 4D Exchange to read and open the file correctly. Please do not remove this folder.

Element Settings

Surfaces

Surfaces will be converted to CINEMA 4D Exchange materials during the first export, and CINEMA 4D Exchange materials will be converted into Surfaces during every return process. As ARCHICAD and CINEMA 4D Exchange have different approaches to modeling materials, the conversions may suffer data loss in some cases. However, once an object has been edited or created in CINEMA 4D Exchange and then converted to a GDL object, the GDL object's parameters will include the CINEMA 4D Exchange material settings, so no data loss will occur in subsequent freeform editing processes.

Note: In case of bitmap textures, the bitmap images are stored in the “tex” folder next to the CINEMA 4D Exchange project file. To avoid missing textures in the object, do not remove this folder or its content.

Although ARCHICAD and CINEMA 4D Exchange have different ways of projecting textures, projections are converted during export. UVW mapping information is also stored with the CINEMA 4D Exchange polygon objects, so if you find that a converted projection of a texture is not exact enough for your needs, you can select “UVW Mapping” as projection in the object's texture tag. For objects that will act as solids in ARCHICAD, you should use projected textures instead of UVW mapping, because GDL objects with solid operation capabilities can be displayed correctly in ARCHICAD only if they use projected textures. If you create an object that won't take part in a solid operation in ARCHICAD, you can use UVW mapped textures and choose “preserve textures” as the Model Behavior setting of the retrieved GDL object (see below).

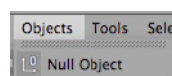
Limitations:

- If the element's polygons are grouped “by Material” in the hierarchy, only UVW mapping can be used for the texture projection.
- The current version uses only the Internal Rendering Engine settings of the Surfaces. As reflectivity is not supported by the Internal Rendering Engine, the export process considers highly shiny Surfaces to be reflective, while the less shiny Surfaces are converted to CINEMA 4D Exchange materials with specular light properties.

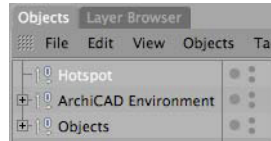
Hotspots in ARCHICAD Objects

If no hotspots are defined in CINEMA 4D Exchange, ARCHICAD's default hotspots will be shown with the returned GDL object. You can bypass the defaults and define custom hotspots by following these steps:

1. Create a Null object in CINEMA 4D Exchange and change its name to “Hotspot”.



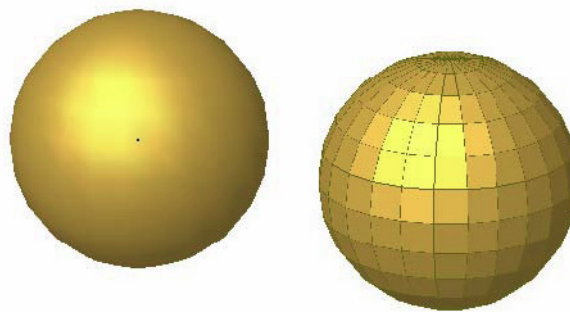
2. Move it to the desired location in the Editor windows.



It will be converted into a 3D hotspot in the ARCHICAD GDL object and will be located at the exact position of the CINEMA 4D Exchange Hotspot object.

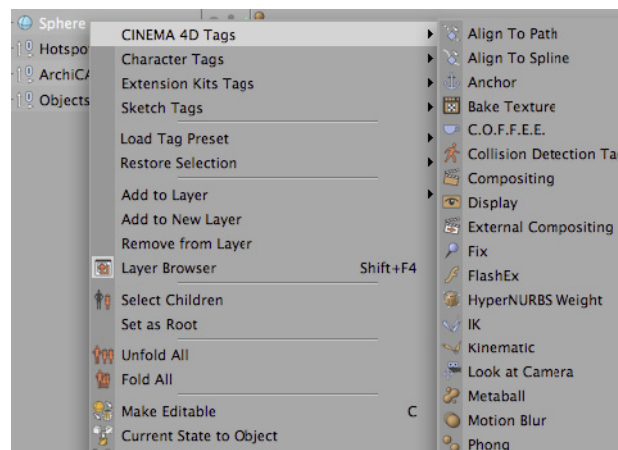
Edge Status of Objects

You are able to control the smoothing of the object's polygons at the edges.



To adjust the angle at which two adjoining polygons will be smoothed at the edges, do the following:

1. Select the object in CINEMA 4D Exchange.
2. Right-click on the object in the **Object Manager** and select the "Phong" tag from the CINEMA 4D Exchange Tags.



- Click on the appearing Tag marker in the **Object Manager**.

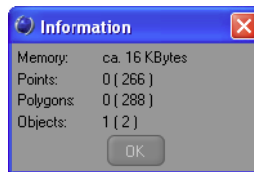


- Its properties will appear in the **Attribute Manager**.
- Switch Angle limit on and set your angle. The entered number will be the maximum angle at which two surfaces are smoothed into each other.

Number of Polygons in Objects

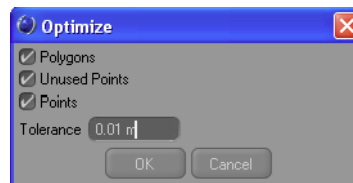
The number of polygons in your CINEMA 4D Exchange objects greatly influences the speed of your ARCHICAD. To check the number of polygons:

- Select all your objects, except the ARCHICAD environment, in the **Object Manager**
- Right-click on them and select **Object Information**
- The number of polygons is displayed in the appearing dialog



The fewer polygons the objects have, the faster ARCHICAD will be. If you think your object is too big, you have several options for reducing the number of polygons in CINEMA 4D Exchange prior to returning the object to ARCHICAD:

- The **Optimize** command will throw away polygons/points/edges which are closer than the entered Tolerance value.

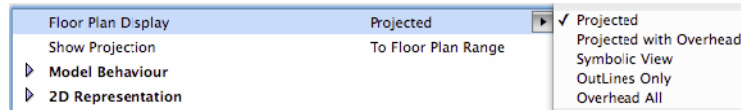


- Polygon Reduction** reduces the number of polygons for the objects to which it is applied. According to our tests, objects containing fewer than 20,000 polygons work well in ARCHICAD. Of course, placing multiple objects will increase calculation time.

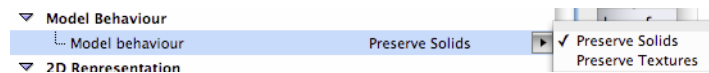
ARCHICAD Object Display Settings

The floor plan symbol of the created CINEMA 4D Exchange objects can be fine-tuned in ARCHICAD using the following object settings:

- 1. Floor Plan display** – choose one of the 5 options.



- 2. Model Behavior** – By default, the object coming back from CINEMA 4D Exchange contains two 3D geometry models.
 - The **Solid model** can be used in Solid Element Operations, but has restrictions on displayable Surfaces, so texturing may differ from the one used in CINEMA 4D Exchange.
 - The **Texture model** stores the custom texture information you assigned to certain surfaces of the object in CINEMA 4D Exchange, so the correctness of the displayed textures is limited only by the Internal Rendering Engine of ARCHICAD. To avoid duplicated geometry in the project, which may cause performance problems, select one of these behaviors.



- 3. 2D Representation** – Depending on the Floor plan display selected, different parameters may be listed here.

Element Dependency

Certain ARCHICAD elements, such as a window and the wall it is placed into, are interrelated. If you edit such elements in CINEMA 4D Exchange, the related elements will behave as follows:

Editing a Wall

If you select a wall that contains doors/windows, those elements will also be editable in CINEMA 4D Exchange. When they return from CINEMA 4D Exchange, then both the wall and the doors/windows will be part of the GDL object.

Editing a Door/Window

If you select a door/window and wish to edit it in CINEMA 4D Exchange, then only the selected door/window will be transferred as editable.

When such a door/window returns from CINEMA 4D Exchange, the original opening in the wall will be removed. You must place a new empty opening manually. The new GDL object will be placed in the same position as it occupied in CINEMA 4D Exchange.

If you edit two doors/windows at the same time, they will return as a single GDL object even if they are in separate walls.