Online Help

Autodesk DirectConnect 2008
2008.08 release

August, 2007

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Autodesk®

What is Autodesk DirectConnect?

Autodesk® DirectConnect is a family of data translators that lets you import CAD data into:

- Autodesk® AliasStudio™
- Autodesk® Maya®
- Autodesk® Showcase™
- Autodesk® ImageStudio

Each Autodesk DirectConnect translator lets you import a specific CAD file format into one or more of the Autodesk software products listed above. In addition, the software enables some CAD file formats to be exported from some products.

For details, see Supported products and translators.

Supported products and translators

The following table shows:

- File formats currently supported by Autodesk DirectConnect
- The Autodesk products that support them at the time of this release
- Which file formats require additional Autodesk DirectConnect licenses on which products.

File format	Autodesk AliasStudio	Autodesk ImageStudio	Autodesk Maya (1)	Autodesk Showcase
CATIA® V5 (Autodesk DirectConnect for CATIA V5 can be purchased)	✓ **License required**	✓ **License required**	Not available	✓ **License required**
Cosmo™ (See Open Inventor and Cosmo.)	Not available	✓ No license required	✓ No license required (1)	✓ No license required
DWG/DXF (Export is supported for AliasStudio.)	✓ No license required (4)	✓ No license required	✓ No license required (1)	✓ No license required
IGES	✓ No license required	✓ No license required	✓ No license required	✓ No license required
Open Inventor™ (See Open Inventor and Cosmo.)	✓ No license required. (2)	✓ No license required	✓ No license required (1)	✓ No license required
JT (Autodesk DirectConnect for JT can be purchased.)	✓ **License required**	✓ **License Required**	Not available	✓ **License Required**

File format	Autodesk AliasStudio	Autodesk ImageStudio	Autodesk Maya (1)	Autodesk Showcase
Pro/ENGINEER® (Autodesk DirectConnect for Pro/ENGINEER can be purchased.)	✓ No license required	✓ **License required**	✓ **License required (1)**	Not available
SolidWorks® (3) (SolidWorks 2005 or later must be installed and licensed.)	✓ No license required (3)	✓ No license required (3)	✓ No license required (1,3)	✓ No license required (3)
STEP	✓ No license required	✓ No license required	✓ No license required	✓ No license required
STL	Not available (2)	✓ No license required	✓ No license required	✓ No license required
UGS NX (6)	✓ **License required**	Not available	Not available	✓ **License required**

Table Notes:

(1) The file formats listed for Autodesk Maya apply to 32-bit Windows operating systems. The DWG, Pro/ENGINEER, IGES, STL, and STEP formats are available for Maya 8.5 running on Microsoft Windows XP Professional x64 Edition operating system. IGES, STEP and STL formats are available for Maya running on Mac OS X.

(2) Autodesk AliasStudio uses its own translators to support the STL format. Versions before 2008 also use their own translators to support the Open Inventor file format. For more information, see the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

(3) No Autodesk DirectConnect license is required to import SolidWorks® files. However, SolidWorks® 2005, 2006 or 2007 must be purchased, installed and licensed on the same machine.

(4) Autodesk DirectConnect also supports DWG/DXF export from Autodesk AliasStudio.

(5)The information in this chart is subject to change. Go to the Web for the most up-to-date information. (See the topic Find the latest information on the Web.)

(6)UGS NX is only available for 32-bit Windows.

What’s new this release

This section outlines enhancements for the 2008.07 version (released August, 2007), in addition to various bug fixes. It is divided into the following sections:

What’s new for your Autodesk product?

For Autodesk AliasStudio

UGS NX files can now be imported to and exported from AliasStudio. UGS NX part and assembly (.prt) files version V13.0 to NX 5.0 are supported.

For Autodesk Showcase

UGS NX 5.0 files can now be imported.

What’s new by format?

UGS NX enhancements

- Version 5.0 files are now supported.

CATIA® V5 enhancements

- Japanese characters in Catia V5 files are now handled on import.
- Offset surfaces from Catia V5 R17 are now processed correctly.
- Invisible objects within geometric sets are no longer processed when importing Catia V5 files.

IGES/STEP enhancements

- General IGES/STEP robustness improvements have been made.

Release notes and limitations

- For users of AliasStudio 2008 who have not upgraded to AliasStudio 2008 SP1 and import or export UGS NX files:

  If UGS NX is installed on your machine no further action is needed. If it is not, you need to add the environment variable **UGII_ROOT_DIR** and **UGII_BASE_DIR** to your environment. To set these environment variables, follow the general instructions in Additional software setup, Autodesk AliasStudio. This restriction has been removed in AliasStudio 2008 SP1.

  Warning: if you do have UGS NX installed changing this variable may stop that program from working correctly.

Find the latest information on the Web

For the most up-to-date information on Autodesk DirectConnect (including which CAD formats are currently supported, system requirements, and how to purchase translator licenses), go to one of the following URLs:

For **Autodesk AliasStudio**:

- www.autodesk.com/aliasstudio-directconnect

For **Autodesk Maya**:

- www.autodesk.com/maya-directconnect

For **Autodesk ImageStudio**:

- www.autodesk.com/imagestudio-directconnect

For **Autodesk Showcase**:

- www.autodesk.com/showcase-directconnect

Japanese documentation is also provided at these URLs.

Installing and Licensing

In this section:

Installing Autodesk DirectConnect

Installing with host software

Autodesk DirectConnect software is installed automatically when the following Autodesk software is installed:

- Autodesk AliasStudio
- Autodesk ImageStudio
- Autodesk Maya
- Autodesk Showcase

For information on installing these software products, refer to their respective installation guides.

Supported platforms

Autodesk DirectConnect runs on the same platform as the Autodesk product it is installed with:

	Microsoft® Windows® XP Professional	Microsoft Windows 2000 Professional	Microsoft Windows XP Professional x64 Edition	Apple® Mac OS® X 10.4 or higher
Autodesk AliasStudio	✓	✓		
Autodesk ImageStudio	✓	✓		
Autodesk Maya	✓	✓	✓ (DWG, Pro/ENGINEER, IGES, STL, and STEP formats only.)	✓ (IGES, STL and STEP formats only.)

	Microsoft® Windows® XP Professional	Microsoft Windows 2000 Professional	Microsoft Windows XP Professional x64 Edition	Apple® Mac OS® X 10.4 or higher
Autodesk Showcase	✓			

Recommended system requirements

Autodesk DirectConnect requires the following amount of disk space:

- On Windows® XP or Windows 2000 Professional, 260 megabytes of disk space available on a system drive or destination drive
- On Mac OS® X, 30 megabytes of disk space.

Note that Autodesk DirectConnect is installed with other products, so your system must also accommodate the host product requirements. (For the system requirements of the host product, consult its installation guide.)

Note For the most up-to-date information on hardware qualifications, go to www.autodesk.com/qual-charts.

Note to Autodesk AliasStudio users:

You must set an environment variable to use the IGES translator with Autodesk AliasStudio Version 13.0.2. For details, see the section “IGES” on page 19.

Additional software setup, Autodesk Maya

After you install your Maya software, you must load a plug-in to use Autodesk DirectConnect translators:

1. In Maya, select **Window > Settings/Preferences > Plug-in Manager**.
2. Click the DirectConnect plug-in to enable all of the Autodesk DirectConnect translators:
   - Windows: *DirectConnect.mll*
   - Mac OS X: *DirectConnect.lib*

   A check mark appears in the box.

Installing upgrades

You can download and install newer versions of Autodesk DirectConnect as they become available on the Web.

1. Find the newest version on the Web and download its exe file. (See the topic, Find the latest information on the Web.)

2. Remove the older version of Autodesk DirectConnect from your system. (In Windows, select **Start > Settings > Control Panel** and click on the **Add or Remove Programs** choice.

3. Double-click on the exe file you downloaded.

Licensing Autodesk DirectConnect

To purchase and install a license:

1. To see if a license is required, go to Supported products and translators.

2. Purchase the Autodesk DirectConnect license if required. For information on how to purchase a license, go to the DirectConnect Web sites. (See the topic, Find the latest information on the Web.)

3. From the Windows **Start** menu, select **Programs > Autodesk > DirectConnect > Licensing** and follow the instructions.)

> For details on licensing (including how to use hardware locks and how to install floating licenses), refer to the *Install_DirectConnect.pdf* document found on the installation CD of the Autodesk product you purchased.

4. To verify the license is installed, try to import a file (see the next topic).

To import files:

1. In your Autodesk software, choose the appropriate menu item.

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk ImageStudio	**File > Import**
Autodesk Maya	**File > Open Scene** or **File > Import**
Autodesk Showcase	**File > Import Models**

2. Select the file from the file browser. If you can't see the file, it is not supported or its translator is not licensed.

3. Click **OK**.

   The translator automatically launches and the file is imported into the scene.

Translator details

For information on the Autodesk products that support these formats and whether a license is required, go to the topic Supported products and translators.

In this section:

CATIA® V5

CATIA® is computer-aided design software from Dassault Systèmes. It uses file format suffixes *.CATProduct* and *.CATPart*.

For information on the Autodesk products that support this format and whether a license is required, go to the topic Supported products and translators.

Software Prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- A license is typically required to import CATIA V5 files. For more information on how to purchase a license, go to the DirectConnect Web sites. (See the topic, Find the latest information on the Web.)

  To install a license, refer to the *Install_DirectConnect.pdf* document found on the installation CD.

To import CATIA V5 files

1. In your Autodesk software, choose the appropriate menu item. For example,

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk ImageStudio	**File > Import**
Autodesk Showcase	**File > Import Models**

2. Select a CATIA V5 (**.CATProduct or *.CATPart*) file from the file browser.
3. Click **OK**.

The translator is launched automatically and the file is imported into the scene.

Types of data imported

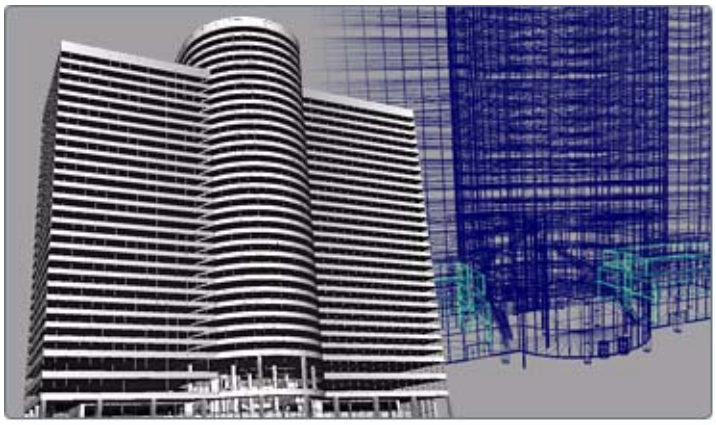
CATIA V5 releases R17 and earlier are supported. The following types of data are imported:

- Point
- Line
- Arc
- Ellipse
- Parabola/Hyperbola/BSpline curve/Polynomial curve
- Plane
- Cylindrical surface
- Conical surface
- Spherical surface
- Toroidal surface
- BSpline surface
- Revolve surface
- Ruled surface
- Open body
- Solid body
- Layer
- Geometric set
- Part (from CATIA V5 release 6 and higher)
- Product (from CATIA V5 release 6 and higher)
- Attributes (RGB color, layer, name and visibility)

For more information:

- For information on where to find this data in your Autodesk software, see *"Where to find imported data" on page 38*.
- There may be options in Autodesk AliasStudio for you to specify how this data is imported. See the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.
- For definitions on these data types, consult your CATIA documentation.

DWG/DXF



Autodesk DirectConnect lets you import Autodesk AutoCAD® drawing files (DWG) and Drawing eXchange File (DXF) files into supporting Autodesk products.

Tip For information on the Autodesk products that support these formats, go to the topic Supported products and translators.

Software Prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- No license is required to import this file format.
- For Maya, you must load a plug-in to use Autodesk DirectConnect translators. See “Additional software setup, Autodesk Maya” on page 12.

To import DWG/DXF files

1. In your Autodesk software, choose the appropriate menu. For example,

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk ImageStudio	**File > Import**
Autodesk Maya	**File > Open Scene** or **File > Import**
Autodesk Showcase	**File > Import Models**

2. Browse and select a DWG (*.dwg*) or DXF (*.dxf*) file.
3. Click **OK**.

   The translator automatically launches and the file is imported.

Types of data imported

The following types of DWG and DXF data are supported:

- lines, arcs, and splines
- extruded curves
- extrusions
- layers
- meshes
- surfaces
- text
- 3D solids
- materials.

Note For information on locating this data in your Autodesk software, see *Where to find imported data*.

Note There may be options in Autodesk AliasStudio for you to specify how this data is imported. See the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

To export DWG/DXF files (Autodesk AliasStudio)

To export DWG/DXF files from Autodesk AliasStudio:

1. In your Autodesk software, choose the appropriate menu:

To export a CAD file from...	Choose...
Autodesk AliasStudio	**File > Save As**

2. For details on available options, use the Autodesk AliasStudio help.

IGES

Initial Graphics Exchange Specification (IGES) is a file format for transferring graphics data between CAD/CAM systems. Autodesk DirectConnect lets you import the neutral IGES format files (*.iges or *.igs) from any number of CAD or modeling packages.

For information on the Autodesk products that support this format, go to the topic Supported products and translators.

Note Maya supports this translator on the Mac OS X operating system.

Software Prerequisites

- Install one of Autodesk AliasStudio, Autodesk ImageStudio, Autodesk Maya or Autodesk Showcase. (The Autodesk DirectConnect software is installed at the same time.)
- No license is required to import this file format.
- For Maya, you must load a plug-in to use Autodesk DirectConnect translators. See “Additional software setup, Autodesk Maya” on page 12.

Additional software setup, Autodesk AliasStudio

For Autodesk AliasStudio Version 13.0.2, you must set the ALIAS_IGES_DC system environment variable to use the latest IGES translator:

1. From your Windows toolbar, select **Start > Settings > Control Panel**.
2. Double click on **System**. The **Systems Properties** window opens.
3. Click on the **Advanced** tab.
4. Click on the **Environment Variables** button.
5. Click **New** and enter the following information:
   - For **Variable name**, `ALIAS_IGES_DC`

- For **Variable value**, 1

To import IGES files:

1. In your Autodesk software, choose the appropriate menu item. For example,

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk ImageStudio	**File > Import**
Autodesk Maya	**File > Open Scene** or **File > Import**
Autodesk Showcase	**File > Import Models**

2. Select a native IGES (**.iges or *.igs*) file from the file browser.
3. Click **OK**.

   The translator will automatically launch and the file will import into the scene.

Troubleshooting (Autodesk AliasStudio)

If the files you import contain unsatisfactory data, you may need to change the following import options in Autodesk AliasStudio:

Default Trim Curves

Specifies the trim curves that the processor will use. You can select parameter space curves, model space curves, or use the flag that is present in the.IGES file. If for any reason the trimming fails, the translator will try and trim with the alternative curves.

Shrink Surface

When ON, AliasStudio detects trimmed surfaces whose trim boundaries are the same as, or iso-parametric to, the natural boundaries of the untrimmed surface. It then converts these surfaces into AliasStudio surfaces by shrinking the untrimmed surface to the trim boundaries.

When OFF, AliasStudio converts all trimmed surfaces of this type to AliasStudio trimmed surfaces.

Types of data imported

The Autodesk DirectConnect for IGES translator imports ASCII format IGES files with or without linefeed characters at the end of each record. Binary IGES files are not supported.

NURBS are imported for this file format.

The following information is maintained on import:

- Surfaces and curves
- Data organization (groups, layers, visibility and instances)
- Units
- Colors

Note For information on this data in your Autodesk software, see *"Where to find imported data" on page 38*.

Note There may be options in Autodesk AliasStudio for you to specify how this data is imported. See the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

Identifying IGES supported entities in log files

The following table shows IGES entities supported on import by Autodesk DirectConnect for IGES.

Note Any entities with an entity use flag value 02 (Definition) are ignored by the input translator except for those with IGES Subfigure Definition entity (Type 308).

Type	Form	IGES Entity
100	0	circular arc
102	0	composite curve
104	0-3	conic arc, ellipse, parabola, hyperbola
106	1	copious data
106	2	copious data
106	11	copious data
106	12	copious data
106	63	closed area
108	0	plane
108	+/- 1	bounded plane
110	0	line
112	0	parametric curve
114	0	parametric surface
116	0	point
118	0-1	ruled surface

Type	Form	IGES Entity
120	0	surface of revolution
122	0	tabulated cylinder
124	0	transformation matrix
126	0-5	rational B-spline curve
128	0-9	rational B-spline surface
130	0	offset curve
140	0	offset surface
141	0	boundary entity
142	0	curve on surface
143	0	bounded surface
144	0	trimmed surface
308	0	subfigure definition
402	7, 9	associativity instance
408	0	singular subfigure instance

IGES levels

All supported geometric IGES entities that are associated with IGES level <n> are added to an Autodesk AliasStudio layer called LEVEL<n>. For example, if a 126 B-spline entity's directory entry indicates that it is on level 42, then it is added as Layer LEVEL42.

Open Inventor and Cosmo

Autodesk DirectConnect lets you import Open Inventor™ ASCII or binary files (*.*iv*) or Cosmo™ scene binary files (*.*csb*) into supported Autodesk software.

(Open Inventor is a 3D file format from Silicon Graphics Inc. with no relation to Autodesk Inventor® software.)

Tip For information on the Autodesk products that support these formats, go to the topic Supported products and translators.

Software prerequisites

- Install the Autodesk product where you will be importing files using these formats. (The Autodesk DirectConnect software is installed at the same time.)
- No license is required to import these file formats.

To import Open Inventor or Cosmo files

1. Choose the appropriate menu choice. For example,

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk Maya	**File > Open Scene** or **File > Import**
Autodesk ImageStudio	**File > Import**
Autodesk Showcase	**File > Import Models**

2. Browse to and select an Open Inventor (*.*iv*) or Cosmo (*.csb) file.

3. Click **OK.**

The translator will automatically launch and the file will be imported.

Types of data imported

Polygons and NURBS are imported for these file formats. The following information is maintained on import:

- Data organization (parent, child and groups)
- Units
- Materials
- Textures
- Polygonal Shapes
- Transformation nodes

Note For information on locating this data in your Autodesk software, see *Where to find imported data*.

Limitations

- Lines, cameras, lights, manipulators, tolerances and animation are automatically excluded when an Open Inventor file is imported.

JT

The DirectModel format JT is developed and supported by the JT Open Program. It is a format for the visualization of 3D models.

Tip For information on the Autodesk products that support this format and whether or not a license is required, go to the topic, Supported products and translators.

Software Prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- A license is required.

  For information on how to purchase a license, go to the DirectConnect Web sites. (See the topic, Find the latest information on the Web.) To install a license, refer to the *Install_DirectConnect.pdf* document found on the installation CD.

To import JT files

1. In your Autodesk ImageStudio software, choose the appropriate menu item.

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk ImageStudio	**File > Import**
Autodesk ShowCase	**File > Import Models**

2. Select a **.jt* file from the file browser.
3. Click **OK**.

The translator is automatically launched and the file is imported into the scene.

Types of data imported

The following information is maintained when JT files are imported:

- Precise geometric data conversion
- Data organization (parent and child hierarchal data, visibility and instances)
- Units
- Levels of detail (degrees of tesselation)
- Materials (brightness (shininess), ambient color, specular color, diffuse color and emission color)
- Textures (embedded image files)
- XTBREP and BREP topology

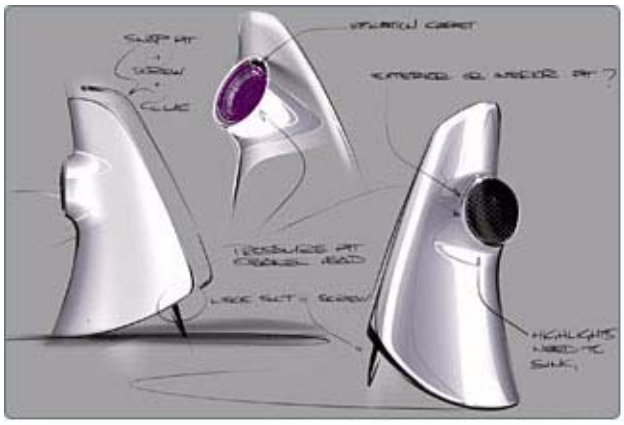
Note For information on locating this data in your Autodesk software, see *Where to find imported data*.

Note There may be options in Autodesk AliasStudio for you to specify how this data is imported. See the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

Limitations

- Import options are not available.
- Curve geometry and animation are automatically excluded when a JT file is imported.

Pro/ENGINEER®



Autodesk DirectConnect lets you import Pro/ENGINEER® part, assembly or PTC® Granite® files (*.*prt*, *.*asm* or *.*g*) into supported Autodesk software.

Tip For information on the Autodesk products that support this format and whether a license is required, go to the topic, Supported products and translators.

Software Prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- A license may be required.

  For information on how to purchase a license, go to the DirectConnect Web sites. (See the topic, Find the latest information on the Web.) To install a license, refer to the *Install_DirectConnect.pdf* document found on the installation CD.
- Export Pro/ENGINEER® files from your CAD software using Wildfire™ Release 3 (or lower) or PTC Granite Release 4 (or lower) specifications.
- For Maya, you must load a plug-in to use Autodesk DirectConnect translators. See Additional software setup, Autodesk Maya.

To import Pro/ENGINEER® files

1. In your Autodesk software, choose the appropriate menu item. For example,

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**

To import a CAD file into...	Choose...
Autodesk ImageStudio	**File > Import**
Autodesk Maya	**File > Open Scene** or **File > Import**

2. Browse to and select a Pro/ENGINEER® part, assembly or Granite® file (*.*prt*, *.*asm* or *.*g*).
3. Click **OK.**

The translator automatically launches and the file is imported.

Note If you can't import the files, you may not have set up the license for Autodesk DirectConnect for Pro/ENGINEER®. For licensing information, refer to *"Licensing Autodesk DirectConnect" on page 13*.

Tip To maintain the original positioning and orientation of part files in your scene, import the assembly file. If you import part files before the assembly file, they will be positioned at the origin (0,0,0), and the original positioning will be lost.

Types of data imported

NURBS are imported for this file format. The following data is maintained on import:

- Precise geometric surface and topology information
- Data organization
- Tolerances and units.

Layers are not supported.

Note For information on locating this data in your Autodesk software, see *"Where to find imported data" on page 38*.

Note There may be options in Autodesk AliasStudio for you to specify how this data is imported. See the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

Limitations

- Node names are changed based on geometry, assembly or part names.
- Construction history, lines and animation are automatically excluded when a Pro/ENGINEER® file is imported.

SolidWorks®

Autodesk DirectConnect lets you import SolidWorks® part and assembly files (*.*sldprt* and *.*sldasm*) into supported Autodesk software, provided you have SolidWorks® installed and licensed on your machine. No Autodesk DirectConnect license is required.

Tip For information on the Autodesk products that support this format, go to the topic, Supported products and translators.

Software prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- No Autodesk DirectConnect license is required to import this file format, but you must install and license SolidWorks® Versions 2005, 2006 or 2007 on the same machine.
- For Maya, you must load a plug-in to use Autodesk DirectConnect translators. See “Additional software setup, Autodesk Maya” on page 12.

To import SolidWorks® files

1. In your Autodesk software, choose the appropriate menu item. For example,

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk ImageStudio	**File > Import**

To import a CAD file into...	Choose...
Autodesk Maya	**File > Open Scene** or **File > Import**
Autodesk Showcase	**File > Import Models**

2. Browse to and select a SolidWorks® part or assembly file (*.*sldprt* or *.*sldasm*). (If you cannot see the files, start the SolidWorks® software, minimize its window, and then try again to open the files.)

3. Click **OK.**

The translator automatically launches and the file is imported.

Tip To maintain the original positioning and orientation of part files in your scene, import the assembly file. If you import part files before the assembly file, they will all be positioned at the origin (0,0,0), and the original positioning will be lost.

Types of data imported

NURBS are imported for this file format. The following information is maintained on import:

- Precise geometric surface and topology information
- Data organization
- Tolerances and units
- Colors

Note For information on locating this data in your Autodesk software, see *"Where to find imported data" on page 38*.

Note There may be options in Autodesk AliasStudio for you to specify how this data is imported. See the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

Limitations

- Construction history, lines and animation are automatically excluded when a SolidWorks® file is imported.

STEP

Autodesk DirectConnect lets you import STEP files (*.*stp* or *.*STEP*). No Autodesk DirectConnect license is required.

Tip For information on the Autodesk products that support this format, go to the topic, Supported products and translators.

Software prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- Export STEP files from the CAD software using AP203 or AP214 specifications.
- No license is required to import this file format.
- For Maya, you must load a plug-in to use Autodesk DirectConnect translators. See “Additional software setup, Autodesk Maya” on page 12.

Note Maya supports this translator on the Macintosh OS X operating system.

To import STEP files

1. In your Autodesk software, choose the appropriate menu item. For example,

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**

To import a CAD file into...	Choose...
Autodesk ImageStudio	**File > Import**
Maya	**File > Open Scene** or **File > Import**
Autodesk Showcase	**File > Import Models**

2. Select a native STEP (*.stp or *.STEP) file from the file browser.
3. Click **OK**.

The translator automatically launches and the file is imported into the scene.

Types of data imported

NURBS are imported for this file format. The following information is maintained on import:

- Precise geometric surface and topology information (ISO 10303:42)
- Data organization (layers)
- Tolerances and units
- Colors

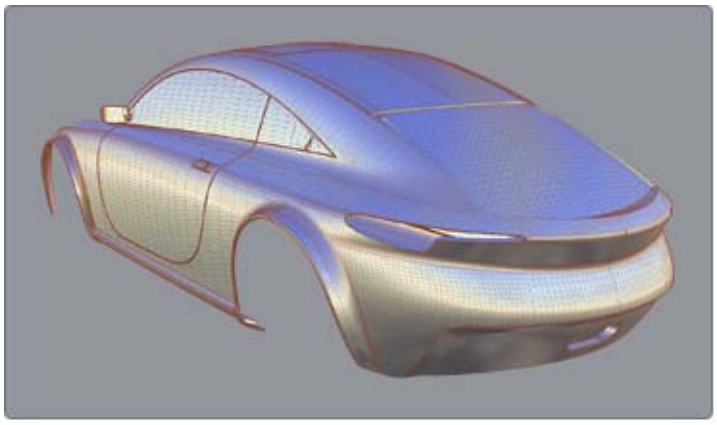
Note For information on locating this data in your Autodesk software, see *Where to find imported data*.

Note There may be options in Autodesk AliasStudio for you to specify how this data is imported. See the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

Limitations

- Construction lines, modeling curves and animation are automatically excluded when a STEP file is imported.

STL



Autodesk DirectConnect lets you import STL files. No Autodesk DirectConnect license is required.

Tip For information on the Autodesk products that support this format, go to the topic, Supported products and translators.

Software prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- No license is required to import this file format.
- For Maya, you must load a plug-in to use Autodesk DirectConnect translators. See “Additional software setup, Autodesk Maya” on page 12.

Note Maya supports this translator on the Macintosh OS X operating system.

To import STL files

1. In your Autodesk software, choose the appropriate menu item. For example,

To import a CAD file into...	Choose...
Autodesk Maya	**File > Open Scene** or **File > Import**
Autodesk Showcase	**File > Import Models**
Autodesk ImageStudio	**File > Import**

2. Select a native STL file from the file browser.
3. Click **OK**.

   The translator automatically launches and the file is imported into the scene.

Types of data imported

All STL meshes and color files are imported.

For information on locating this data in your Autodesk software, see *Where to find imported data*.

UGS NX

Autodesk DirectConnect lets you import UGS NX files (Version 5.0 and earlier) into supported Autodesk software.

Tip For information on the Autodesk products that support this format and whether or not a license is required, go to the topic, Supported products and translators.

Software Prerequisites

- Install the Autodesk product where you will be importing files using this format. (The Autodesk DirectConnect software is installed at the same time.)
- A DirectConnect license is required for this format.

  For information on how to purchase a license, go to the DirectConnect Web sites. (See the topic, Find the latest information on the Web.) To install a license, refer to the *Install_DirectConnect.pdf* document found on the installation CD.

To import UGS NX files

1. In your Autodesk ImageStudio software, choose the appropriate menu item.

To import a CAD file into...	Choose...
Autodesk AliasStudio	**File > Open** or **File > Import > File**
Autodesk ImageStudio	**File > Import**
Autodesk ShowCase	**File > Import Models**

2. Select a *.*prt* file from the file browser. (UGS NX part and assembly (.prt) files version V13.0 to NX 5.0 are supported.)

Note There are options in Autodesk AliasStudio for you to specify how this data is imported. For details, see the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

3. Click **OK**.

   The translator is automatically launched and the file is imported into the scene.

To export UGS NX files (Autodesk AliasStudio)

To export UGS NX files from Autodesk AliasStudio:

1. In your Autodesk software, choose the appropriate menu:

To export a CAD file from...	Choose...
Autodesk AliasStudio	**File > Save As**

2. Go to the Autodesk AliasStudio documentation for more details on how to build a model in for maximum compatibility between UGS NX and Autodesk AliasStudio.

Types of data imported

The following UGS NX geometry types are supported by Autodesk DirectConnect. (Attributes such as name, color, layer and visibility are supported.)

- Point
- Line
- BCurve
- Circle
- Ellipse
- Parabola
- Hyperbola
- Surface Parameter Curve
- Trimmed Curve
- Intersection Curve
- BSurface
- Planar Surface
- Spherical Surface
- Cylindrical Surface
- Conical Surface

- Surface of Revolution
- Spun Surface
- Offset Surface
- Ruled Surface
- Swept Surface
- Toroidal Surface
- Blended Edge Surface
- Blended Bound Surface
- Facet
- Sheet Body
- Solid Body
- Part
- Instance
- Assembly

For more information:

- For information on where to find this data in your Autodesk software, see *"Where to find imported data" on page 38*.
- For details on how these geometry types are imported into Autodesk AliasStudio (including descriptions of options and tables showing how the geometry types map to the Autodesk AliasStudio geometry), see the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.
- For definitions on these data types, consult your UGS NX documentation.

Limitations

- Categories are not supported.
- This format is only supported for Windows 32-bit operating systems.

Where to find imported data

For Autodesk AliasStudio:

Data Organization	Tolerances and Units	Colors (Shaders)
Parts and assembly information is displayed in the **Windows > Information > Layer Categories** window.	Unit settings are visible from **Preferences > Construction Options**.	Colors are visible from the **Render > Multi-lister > Shaders** window.

For more information on these settings, menu items and options, see the Autodesk AliasStudio Data Transfer reference book and the Autodesk AliasStudio online help.

For Autodesk ImageStudio:

Data Organization	Tolerances and Units	Colors (Shaders)
Parts and assembly information is displayed in the **Groups** window. Layers information is displayed in the Layers window.	Unit settings are visible from **Edit > Preferences.**	Colors are imported as **Materials** and displayed in the **Asset List** as *default1DirectConnectShader, default2DirectConnectShader* and so on. You can only change the names for these materials. If you save CAD shaders back to the **Asset Library**, they are stored in a category called *DirectConnect.*

For more information on these settings and menu items, see the Autodesk ImageStudio online help.

For Autodesk Maya:

Data Organization	Tolerances and Units	Colors (Shaders)
Layer information is visible from either the **Display > UI Elements > Channel Box / Layer Editor** menu or the **Windows> Relationship Editors > Display Layers** menu**.** Part and assembly information is visible from either the **Window > Outliner** menu or the **Window > Hypergraph** menu.	Unit settings are visible from **Window > Settings/Preferences > Preferences.** Open the **Categories** tab and choose **Settings** to change the **Working Units** and **Tolerances.**	Colors are imported as shaders and are visible from either the **Window > Rendering Editors > Hypershade** window or the **Window > Rendering Editors > Multilister** window.

For more information on these settings and menu items, see the Autodesk Maya online help.

For Autodesk Showcase:

Data Organization	Tolerances and Units	Colors (Shaders)
Layers, parts, and assembly hierarchies are shown in the Organizer window (**Scene > Organizer**). This window shows the original file hierarchy and lets you create your own arrangements of objects. You can view and change the state of objects from visible to hidden to deleted.	Unit settings are visible from **Edit > Model settings.** The tesselation, or number of levels of detail (LODs), can be set on file import. To see the number of LODs after a file is loaded, select **Options > Performance and Quality**, click the **Lock display quality to** button, and move the slider back and forth to see the different LODs.	Colors are imported as materials and are visible from **Material > Material Properties.**

For more information on these settings and menu items, see the Autodesk Maya online help.

Glossary

assembly

An organizational file that fits together a collection of manufactured parts into a complete model.

CATIA® V5

CATIA V5 is computer-aided design software from Dassault Systèmes. Autodesk DirectConnect allows the exchange of 3D model data from CATIA V5 using the native CATIA part (*.CATPart*) and product (*.CATProduct*) files.

Cosmo™

A legacy 3D file format from Silicon Graphics Inc. using efficient binary compression using *.*csb* (Cosmo Scene Binary) files.

DWG

(AutoCAD drawing file) A file format used by Autodesk® AutoCAD® software that contains lines, curves and 3D data.

DXF

Drawing eXchange File. A file exchange format containing ASCII code and binary representations of the objects in a DWG file.

Granite® One

A CAD technology platform for design collaboration using solid models.

IGES

Initial Graphics Exchange Specification. A file format for transferring graphics data between CAD/CAM systems. A neutral file format that can be imported into any number of CAD or modeling packages

Inventor (Open Inventor™)

Open Inventor™ is a legacy 3D file format from Silicon Graphics Inc. with no relation to Autodesk Inventor® software. Open Inventor is an object-oriented 3D toolkit that describes complete 3D scenes which can be made interactive and that are optimized for OpenGL. It is an ASCII or binary file format.

JT file

The DirectModel format JT is developed and supported by the JT Open Program. It is a format for the visualization of 3D models.

parts

Parts are organized into a collection of groups, which then forms a project hierarchy.

Pro/ENGINEER®

A product from Parametric Technology Corporation. A solid modeling format that requires positional construction tolerances.

SolidWorks®

A product from SolidWorks Corporation. A solid modeling format that requires positional construction tolerances.

STEP

An international standard for the exchange of geometric product definitions. STEP formats that are relevant to Autodesk products are AP203 (general mechanical CAD) and AP214 (automotive CAD).

STL

An StL (“StereoLithography”) file is a triangular representation of 3-dimensional surface geometry. The surface is tessellated or broken down logically into a series of small triangles (facets). Each facet is described by a perpendicular direction and three points representing the vertices (corners) of the triangle.

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