

Deep View™

User Reference Guide

RIGHT HEMISPHERE®

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Introduction



Welcome to Right Hemisphere's User Reference for Deep View.

Deep View is a viewing tool that enables you to view 3D content in Adobe FrameMaker and Microsoft PowerPoint presentations, Word documents, and Excel spreadsheets.

The core functionality for Deep View enables you to view spectacular visuals within sales presentations, training material, technical documentation, and online catalogues. Alternatively, you can view the 3D content by using the Deep View standalone viewer.

Deep View Complete is an authoring tool that enables you to insert 3D models into Adobe FrameMaker documents, and Microsoft PowerPoint presentations, Word documents, and Excel spreadsheets. You can also convert that 3D content into the PDF document format, and view 3D content within Right Hemisphere HTML documents created using Deep Exploration (http://www.righthemisphere.com/products/dexp/de_cad.html).

Complex engineering and animation data can be easily used for sales presentations, training material, technical documentation and online catalogues yet only basic computer skills are needed to create these stunning visuals.

This reference contains detailed information about all the features and capabilities of Deep View, and is organized mainly by functional areas. The User Interface (on page 134) section gives you a guide to program controls and where to find them.

If you have already used previous versions of this program, you might want to start here: Overview (on page 20). If you are new to this software, this would be a good place to start: Getting Started with Deep View (on page 21).

You can find a guide to using the online reference here: Using the Reference Online (on page 11), and below is a list of important introductory topics.

- Opening Files (on page 23).
- Viewing Content (on page 24).
- Objects (on page 38).
- Collaboration (on page 42).
- Detail Views (on page 48).
- Layers (on page 49).
- Measurements (on page 50).
- Object Editing Tools (on page 54).
- Steps and Procedures (on page 63).
- Printing Files (on page 65).

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Conventions

Several user interface controls are utilized within the application, similar to the functionality in most Windows applications. These controls are graphical objects that represent the various properties of the interface components and functions. Some controls display and allow editing of particular values. Other controls start associated commands. Each control has a unique appearance and operation designed for a specific form of interaction.

Help

Help is accessed from the product menu and, depending on the product you are using, by pressing **F1**. Certain conventions are used within the product and documentation to make them easier to use.

Mouse Controls

The mouse is an intuitive way of interacting with the application. The buttons can be used singularly, in conjunction with each other, and in conjunction with other keys on your keyboard to perform a variety of functions via shortcuts (on page 109).

Pressing and holding both mouse buttons is used for a variety of navigation methods including zooming in and out from scenes.

Left-mouse button: Referred to simply as the 'mouse' or 'left-click'. It is used for a number of selection functions including selecting objects, menu commands, buttons, and check boxes.

Right-mouse button: Referred to as 'right-click'. It is used for displaying the right-click menus; the available commands differ depending on the position of the cursor in the interface.

Middle/wheel button: Pressing and holding the middle or wheel button is used to perform certain zoom functions (on page 110).

Product Menus

The product menus are your main means of interacting with the application. Each menu contains commands used to perform various functions that relate to the application. Many menus contain sub-menus and commands.

Submenu buttons : Indicates that the selected command includes a submenu.

On/off toggles : Indicates that the menu command is 'on'.

Either/or toggles : Indicates that the menu command is the one selected from a group of mutually exclusive commands.

Close buttons : Used to close the current user interface component. For example, the various application dialogs.

Ellipsis : Indicates that a dialog will appear from where you can select various options.

Keyboard shortcuts (on page 109): Menus display any available keyboard shortcuts to the right of the commands. For example, the File > Open command can be accessed via the keyboard shortcut CTRL+O.

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Documentation Conventions

Certain conventions are used within the documentation to make it easier to use:

- Commands, tools, and selections are displayed in **bold** typeface. For example, click **OK**.
- Menu and submenu commands are separated by the greater-than (>) sign. For example, **File > Open**.
- Specific keystrokes are represented in capitals. For example, DELETE.
- Instructions are displayed as numbered steps.
- Related section headings are displayed in *italic* typeface if the section is within the current Help topic.
- Related section headings are linked (underlined), to the appropriate section if it is located in another Help topic.
- Where the word 'the application' is mentioned, the content relates to the application that you are using.
- Where the word 'image' is mentioned, the content relates specifically to a 2D representation.
- Where the word 'scene', 'model', or 'object' is mentioned, the content relates specifically to a 3D representation.
- Where words are displayed within square brackets [ ], substitute the relevant text for the described action.
- Where the plus (+) and minus (-) keys are mentioned, they relate to the number pad and not the QWERTY section of the keyboard.
- Where modules are mentioned, the term refers to products for which modules may be purchased.

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Using the Reference Online

This reference gives you information about every aspect of the software. Each topic contains an overview discussion followed by a 'Procedures' section with steps for using a command or feature, and sometimes an 'Interface' section detailing controls and parameters for the user interface.

Interface

Topic Overview—Tells you the name of the feature, command, user interface control, or concept, and gives you a description.

Procedures—Contains steps for tasks that illustrate the typical use of the feature.

Interface—Describes the controls for this feature as they appear in the user interface, with a description of their behaviors and settings.

Finding Information Fast

The online information system (Help User Reference) is a compiled HTML Help file and is viewed using the HTML Help Viewer. This section explains how to retrieve information quickly. Detailed information on using the HTML Help Viewer is explained later in this document.

Use the Navigation pane in the Help Window to get to information quickly. The pane comprises the Contents, Index and Search tabs that let you use search techniques for finding the information you need.

Contents Tab

The Contents tab displays the main sections of this online system as book icons. When you click a book, it expands to show the list of topics contained within it, like chapters in hard-copy books.

If a book is expanded already, clicking on it collapses the topics.

Index Tab

The Index is an alphabetical listing of keywords found in each topic.

Keywords may be linked to more than one topic. You can also type the first few letters of a subject, the whole word or a number of words for which to search.

Search Tab

The Search tab summons a full-text search engine that operates on a database of every word in the reference, created when the HTML Help system was compiled. You can use tools on the Search tab to find the Help topics containing any word or phrase.

Procedures

To go to a topic from the Contents tab:

1. Click the Contents tab to display the table of contents.
2. Click the book icon representing the area for which you want information. The page icons for the book expand below representing all the topics for the book's feature area.
3. Click the page icon for the topic you want.

To go to a topic from the Index tab:

1. Click the Index tab to display the Help Index.
2. Do one of the following:

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- Double-click the keywords for which you want to to find information. The topic is displayed in the right pane. The topic is displayed in the right pane.
- Type the subject you want to find in the 'Type in the keyword to find' field and press ENTER. The topic is either displayed in the right pane or, if a topic list is displayed, click the topic you require and click **Display**.

Using the HTML Help Viewer

This online information system is a compiled HTML Help (.chm) file; you view it using the HTML Help Viewer. The HTML Help Viewer is a two-pane window and a toolbar:

- The Navigation pane is on the left side of the window. It contains three navigational tabs, for Contents, Index and Search.
- The Topic pane is on the right side of the window. It displays the selected or default Help topic and is the pane from which you are reading right now.
- The Help Viewer toolbar comprises tools from which you can choose to help you use the Help Viewer and search for information.

Following are some tips on how to find more information when using the HTML Help Viewer:

- To link to another topic or a list of other topics, click the colored, underlined words in the Topic pane.
- Right-click the Contents tab or the Topic pane for shortcut menu commands.

Note: Most of information about using the HTML Help Viewer has been supplied directly by Microsoft. It has been made freely available for inclusion in HTML Help projects such as this one. This information has been edited and reformatted to match that of the other online information system delivered with this product.

Procedures

To find a Help topic:

1. In the Navigation pane, do one of the following:
   - Click the Contents tab to browse through a table of contents.
   - Click the Index tab, and then type a word or scroll through the list to see a list of index entries.

     Note: Topics are often indexed under more than one entry.

   - Click the Search tab, and then type the word to locate every occurrence of a word or phrase that may be contained in a Help file.
2. Click the contents entry, index entry, or search results entry to display the corresponding topic.

To see where the current topic fits in the table of contents:

While viewing the Index and Search tabs, press ALT+C. The Contents pane is displayed with the current topic highlighted.

To copy a Help topic:

1. Right-click in the pane of the topic you want to copy, and then click **Select All**.
2. Right-click again, and then click **Copy**.
3. Paste the copied topic into the document you require.

To copy only part of a topic:

Select the text you want to copy, right-click, and then click **Copy**.

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To print the current Help topic, do one of the following:

- Click the **Print** button on the toolbar, select the print options you require, and then click **OK**.
- Choose **Options > Print** on the toolbar, select the print options you require, and then click **OK**.
- Right-click a topic in the Topic pane and then click **Print** twice.
- Right-click a topic name on the Contents tab, click **Print**, select the print options you require, and then click **OK**.

To hide or show the Navigation pane:

On the toolbar, click **Hide** or **Show** to close or display the Navigation pane.

If you close the Help Viewer with the Navigation pane hidden, it is remains hidden when you next open the Help.

HTML Help Viewer Toolbar

File > Help
Keyboard F1



The Help Viewer toolbar contains a number of useful tools including print, refresh, and highlighting functionality.

Interface

Hide / Show 

—Hides or shows the Navigation pane.

Back 

—Moves to the previously viewed topic.

Print 

—Prints the current topic if the Topic pane is active. If the table of contents is active on the Navigation pane, you can choose to print the current topic, or the topic and its subtopics.

Options 

—Used to display the 'options' menu and modify the viewing settings.

- **Hide / Show Tabs**—Hides or shows the Navigation pane.
- **Back**—Moves to the previously viewed topic.
- **Forward**—Moves to the topic viewed after the previously viewed topic.
- **Home**—Displays the main topic of this online system.
- **Stop**—Halts the display of a topic.
- **Refresh**—Refreshes the Help display.
- **Internet Options**—Opens the Internet Options dialog and is used to modify browser settings. We recommend not using this command.
- **Print**—Prints the current topic if the Topic pane is active. If the table of contents is active on the Navigation pane, you can choose to print the current topic, or the topic and its subtopics.
- **Search Highlight On / Off**—Toggles highlighting on and off for each occurrence of a word or phrase found with a search.

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Searching for Help Topics

A basic search consists of the word or phrase you want to find. You can use Boolean, wildcard, and nested expressions. You can also limit the search to previous results, match similar words, or search topic titles only to further define your search.

The basic rules for formulating queries are:

- Searches are not case-sensitive, so you can type your search in uppercase or lowercase characters.
- You may search for any combination of letters (a through z) and numbers (0 through 9).
- Punctuation marks such as the period, colon, semicolon, comma, and hyphen are ignored during a search.
- Group the elements of your search using double quotes or parentheses to set apart each element. You cannot search for quotation marks.

Note: If you are searching for a file name with an extension, you should group the entire string in double quotes, ("filename.ext"). Otherwise, the period breaks the file name into two separate terms and, as the default operation between terms is AND, the logical equivalent to "filename AND ext." is created.

Searching for Words or Phrases: Using Wildcards

You can search for words or phrases and use wildcard expressions. Wildcard expressions allow you to search for one or more characters using a question mark or asterisk.

You can select the Match Similar Words check box to include minor grammatical variations for the phrase you search.

The table below describes the results of these different kinds of searches.

Search for	Example	Results
A single word	select	Topics that contain the word, 'select'. Note that grammatical variations, such as 'selector' and 'selection' are also found.
A phrase	"new operation" or new operation	Topics that contain the literal phrase 'new operation' and all its grammatical variations. Without the quotation marks, the query is equivalent to specifying "new AND operation", which finds topics containing both of the individual words instead of the phrase.
Wildcard expressions	esc* or 80?86	Topics that contain the terms 'ESC', 'escape', 'escalation', and so on. The asterisk cannot be the only character in the term. Topics that contain the terms '80186', '80286', '80386', and so on. The question mark cannot be the only character in the term.

Defining Search Terms: Using Boolean Expressions

The AND, OR, NEAR and NOT operators enable you to precisely define your search by creating a relationship between search terms. The following table shows how you can use each of these operators. If no operator is specified, AND is used. For example, the query "spacing border printing" is equivalent to "spacing AND border AND printing".

Search for	Example	Results
Both terms in the same topic.	operation AND parameter	Topics containing both the words 'operation' and 'parameter'.
Either term in a topic.	operation OR parameter	Topics containing either the word 'operation', or the word 'parameter' or both.
The first term without the second term.	operation NOT parameter	Topics containing the word 'operation', but not the word parameter.
Both terms in the same topic, close together.	operation NEAR parameter	Topics containing the word 'operation' within eight words of the word 'parameter'.

Note: The |, &, and ! characters do not work as Boolean operators (you must use OR, AND, and NOT).

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Using Nested Expressions

Nested expressions allow you to create complex searches for information. For example, "XML AND ((operation OR parameter) NEAR configuration)" finds topics containing the word 'XML' along with the words 'operation' and 'configuration' close together, or containing 'XML' along with the words 'parameter' and 'configuration' close together.

The basic rules for searching Help topics using nested expressions are:

- You can use parentheses to nest expressions within a query. The expressions in parentheses are evaluated before the rest of the query.
- If a query does not contain a nested expression, it is evaluated from left to right. For example. "XML not operation OR parameter" finds topics containing the word 'XML' without the word 'operation', or topics containing the word 'parameter'. On the other hand, "XML not (operation OR parameter)" finds topics containing the word 'XML' without either of the words 'operation' or 'parameter'.
- You cannot nest expressions more than five levels deep.

If you search for words within the HTML files, all HTML topic files are searched, including any that are not listed in the table of contents.

If you search for words that are similar to your search term, you can include minor grammatical variations for the phrase you search. For example, a search on the word 'add' finds 'add', 'adds', and 'added'. This feature only locates variations of the word with common suffixes. For example, a search on the word 'add' finds 'added', but not 'additive'.

If you search only the last group of topics you searched, you can narrow a search that results in too many topics found. You can also search through your results list from a previous search.

When searching for words in Help topics, you can have each occurrence of the word or phrase highlighted in the topics that are found. If you are viewing a long topic, only the first 500 instances of a search word or phrase are highlighted.

Procedures

To go to a topic from the Search tab:

1. Click the Search tab, and then type the word or phrase you want to find.
2. Click the 'Boolean' button to the right of the text field, and then one of the operator names to add Boolean operators to your search.
3. If required, do one of the following:
   - To define a search precisely, use a wildcard expression, nested expression, and Boolean operators.
   - To request similar word matches, search only the topic titles or search the results of a previous search.
4. Click **List Topics**, choose the topic you want, and then click **Display**.

Note: To sort the topic list alphabetically, click the Title column heading.

To search for words in the titles of HTML files:

1. Click the Search tab, type the word or phrase you want to find.
2. Select the Search titles only check box.
3. Click **List Topics**, choose the topic you want, and then click **Display**.

To find words similar to your search term:

1. Click the Search tab, type the word or phrase you want to find.
2. Select the Match similar words check box.

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3. Click **List Topics**, choose the topic you want, and then click **Display**.

To search only the last group of topics you searched:

1. On the Search tab, select the Search previous results check box.
2. Click **List Topics**, choose the topic you want, and then click **Display**.

Note: If you want to search through all of the files in a Help system, this check box must be off. If you previously used this feature, the Search tab opens with this check box turned on.

To repeat an earlier search:

Click the down arrow on the text-entry field, select a previously used search string, and then click **List Topics**.

To highlight words in searched topics:

Choose **Options > Search Highlight On** on the Help Viewer toolbar.

To turn highlighting off:

Choose **Options > Search Highlight Off** on the Help Viewer toolbar.

Keyboard Shortcuts: Help Viewer

The following keyboard shortcuts can be used for navigation in the Help Viewer.

Action	Keyboard Shortcut
Close the Help Viewer	ALT+F4
Switch between the Help Viewer and other open windows	ALT+TAB
Display the Options menu	ALT+O
Hide or show the Navigation pane	ALT+O and then press T
Print a topic	ALT+O and then press P Right-click in the Topic pane and click Print
Move back to the previous topic	ALT+LEFT ARROW ALT+O, and then press B
Move forward to the next topic if you have just viewed it	ALT+RIGHT ARROW ALT+O, and then press F
Turn on or off search highlighting	ALT+O and then press O
Return to the home page	ALT+O and then press H
Switch between the Navigation and Topic panes	F6
Scroll through a topic	UP ARROW and DOWN ARROW PAGE UP and PAGE DOWN
Scroll through all the links in a topic	TAB

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Contents Tab

The following keyboard shortcuts can be used for navigation in the Contents tab of the Help Viewer.

Action	Keyboard Shortcut
Display the Contents tab Note: Use this shortcut to see where a topic fits in the table of contents.	ALT+C
Open and close a book/folder	PLUS SIGN and MINUS SIGN LEFT ARROW and RIGHT ARROW
Choose a topic	DOWN ARROW and UP ARROW
Display the selected topic	ENTER

Index Tab

The following keyboard shortcuts can be used for navigation in the Index tab of the Help Viewer.

Action	Keyboard Shortcut
Display the Index tab	ALT+N
Type a keyword for which to search	ALT+W and then type the word
Choose a keyword in the list	UP ARROW and DOWN ARROW
Display the associated topic	ALT+D

Search Tab

The following keyboard shortcuts can be used for navigation in the Search tab of the Help Viewer.

Action	Keyboard Shortcut
Display the Search tab	ALT+S
Type a keyword for which to search	ALT+W and then type the word
Start a search	ALT+L
Choose a topic in the results list	ALT+T and then UP ARROW and DOWN ARROW
Display the selected topic	ALT+D
Search for a keyword in the result list of a prior search	ALT+U and press ENTER
Search for words similar to the keyword. For example, to find words like 'running' and 'runs' for the keyword 'run'.	ALT+M and press ENTER
Search through topic titles only	ALT+R and press ENTER

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Support

Online

Our online support page contains technical support information relating to all of the Right Hemisphere products. It provides access to the latest patch releases, tutorials, links to the registration pages, and the Right Hemisphere Forum including newsletters, FAQs, and tips and tricks.

Please take the time to check the support page (http://www.righthemisphere.com/support/contact_support.php) if you have any queries **before** sending us an email, in particular, you should check the Knowledgebase http://www.righthemisphere.com/support/kb/. It is most likely that the answer is right there!

Registration and Activation

If you require assistance with registration or activation, please contact us using our support form (http://www.righthemisphere.com/support/contact_support.php).

Help

The application User Reference is accessed from the product menu and, depending on the product you are using, by pressing **F1**. It contains detailed information about all the product features and capabilities and includes guides to the program controls.

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Updating

Start Menu > Programs > Right Hemisphere > Deep View > Cortex

Deep View can be updated in a number of different ways:

- Manual updates via Deep View's Help menu. This method uses Right Hemisphere's Cortex utility (http://www.righthemisphere.com/support/help/cortex/cortex_readme.htm), which is installed by default when Deep View is installed.
- Manual download and copy of files via the Patches section (http://www.righthemisphere.com/support/register/all_reg2.php?ara=1) of the Right Hemisphere Web site. This method should be used if you do not have an Internet connection.

Below, we describe the process of updating files from within Deep View. Please see your Cortex Help documentation for further information.

Cortex Updates

When Cortex runs, Deep View and all office applications must be closed in order for Cortex to complete the update.

During the update process, Cortex compares the current files (located in Deep View's installation folder), with the latest file versions (located on the Right Hemisphere Web site). Note that if a new version of Cortex is available, it must be updated before plugins or modules are updated.

When updating, any new files that are found are downloaded in a compressed format. They are then decompressed and copied to Deep View's folder. You can change the location where Cortex looks for updates from with the Cortex utility. For example, a local update server.

Certain folder 'write' permissions are required to update plugins. When Deep View is installed, a user group is created for it that has 'write' permissions to the Deep View's plugin folder and to Cortex's root folder. If you want to update Deep View, you must belong to that application user group.

Note: Certain user groups already have the required permission to update Deep View. For example, Administrators and Power Users.

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Overview

Deep View

Deep View is designed to work seamlessly with PowerPoint, Word, FrameMaker, and Excel to view 2D and 3D content. It can also be used as a standalone viewer in which to view 2D and 3D content.

Right Hemisphere's Deep View lets you view 2D and 3D content. It is free for download from Right Hemisphere (http://righthemisphere.com/products/dv).

Deep View supports a variety of 2D (on page 139) and 3D file formats (on page 140).

Some of the numerous features include:

- Adding comments to images and scenes.
- Adding measurements to scenes.
- Viewing steps and model views.

Deep View Complete

Deep View Complete is designed to work with PowerPoint, Word, FrameMaker, Excel and Deep Access as an authoring tool of 3D models that can be used for presentations, training material, technical documentation, and online catalogues.

When Deep View Complete is installed, the core functionality for Deep View creates the Deep View menu (on page 134) in the Office applications to allow viewing of 3D files.

Deep View Complete supports a variety of 2D (on page 139) and 3D file formats (on page 140).

Some of the numerous features include:

- Linking and embedding files.
- Resizing and moving images and models.
- Converting files to 3D PDF.
- Adding comments to images and scenes.
- Adding measurements to scenes.
- Viewing steps and model views.

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Getting Started

This section is designed to help you get started with Deep View.

There are two ways in which you can use these applications to work with 3D graphics. These are:

- Within an Office application.
- The Deep View viewer.

When Deep View is installed in Office applications, the Deep View menu (on page 134) is created in PowerPoint, Word, and Excel. When Deep View is installed in FrameMaker, a '3D Model' option is created in the Insert Object dialog in the Insert > Object menu. These menus are used to perform certain Deep View functions including inserting 3D models. Various other Deep View functions are found in the right-click menus.

Mouse Controls

When you are using the 3D tools in Deep View, each of the three mouse buttons has a different function.

 **Left click** - Scene rotate.

 **Middle click** - Pan.

 **Right click** - Zoom.

Procedures

To start Deep View within an Office application:

1. Open a PowerPoint slide show, Word document, FrameMaker document, or Excel spreadsheet.
2. From the Deep View menu, click **Insert 3D Model** to insert your model.

Note: In Office 2007, the Deep View menu is located in the Addins ribbon.

To start the Deep View standalone viewer, do one of the following:

- Click the Windows **Start** button, choose **All Programs > Right Hemisphere > Deep View** and then click **Deep View**.
- Double-click the Deep View .exe file in Windows Explorer or, if so configured, on your desktop.

You can now begin using Deep View (on page 22).

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Using Deep View

Deep View is available both as a standalone executable program, and an ActiveX control. The standalone executable program provides an easy convenient way for viewing files and associated collaboration. The ActiveX control allows the viewing and collaboration functionality of Deep View to be used from web pages, Word documents, Powerpoint presentations, Adobe Framemaker documents, Excel spreadsheets, and other ActiveX compliant applications.

Once you have started Deep View, you can view the 3D content in many different ways, either through the viewer, or from within an Office application. You can also modify the model and the scene properties for the current session.

This section presents these topics, designed to help you use and understand Deep View. It also introduces you to the Deep View terminology and some essential features.

The User Interface (on page 134) section presents the program controls, and shows you where to find them.

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Opening Files

You can open (load) and view any supported files in Deep View.

RH files may be password protected. When password protected files are opened in Deep View, a dialog prompts for the password before opening the file.

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Viewing Content

2D images and 3D models can be viewed in a number of different ways by using various tools. In this section, we discuss using preset or user-defined views, displaying perspective, and orthographic views, applying various render and lighting modes, and displaying the viewport across your monitor.

You can also:

- Rotate, zoom, walkthrough, and pan (on page 26) the scene contents.
- Focus the camera (on page 97) on all visible and hidden objects.

You must have Deep View installed on your computer to view 3D content.

You can then open the document you want to view in the usual manner for the application you are using. For example, if you want to view a PowerPoint presentation, ensure Deep View is installed on your computer, open the PowerPoint document, and view the presentation as a slide show.

See also 3D Viewport Right-Click Menus (on page 96).

Displaying Content in Deep View

The content in PowerPoint slide shows, Word, FrameMaker, and Excel documents is displayed in 2D and 3D. This 3D content can be rotated, panned, and zoomed. The 3D viewport menu (on page 96), Scene Components panel (on page 74), and Animation toolbar (on page 93) can be used to control the display of the model in the scene.

Note: Content in PowerPoint presentations displays in 3D if saved as a slide show (.pps). If it is saved in 'normal' mode (.ppt), the content displays in 2D by default, although you can view the content in 3D. Content in FrameMaker documents is initially displayed in 2D. That is, the image that is displayed is an image of the model in the scene. To view the 3D model in PowerPoint, right-click over the image and choose 3D Model Object > 3D Model Object. In FrameMaker, double-click the image or right-click over the image and then click Edit 3D Model Object.

Mouse Controls

When you are using the 3D editing tools in Deep View, each of the three mouse buttons has a different function.

 **Left click** - Scene rotate.

 **Middle click** - Pan.

 **Right click** - Zoom.

Displaying Content in the Deep View Viewer

You are able to view 3D content in the Deep View viewer. The viewer is used to display 3D files as standalone files, rather than as objects embedded in Word, Framemaker, or Powerpoint.

This 3D content can be rotated, panned, and zoomed. The 3D viewport menu (on page 96), Scene Components panel (on page 74), and Animation toolbar (on page 93) can be used to control the display of the model in the scene. In addition, you have further options to save, email, and print your 3D model.

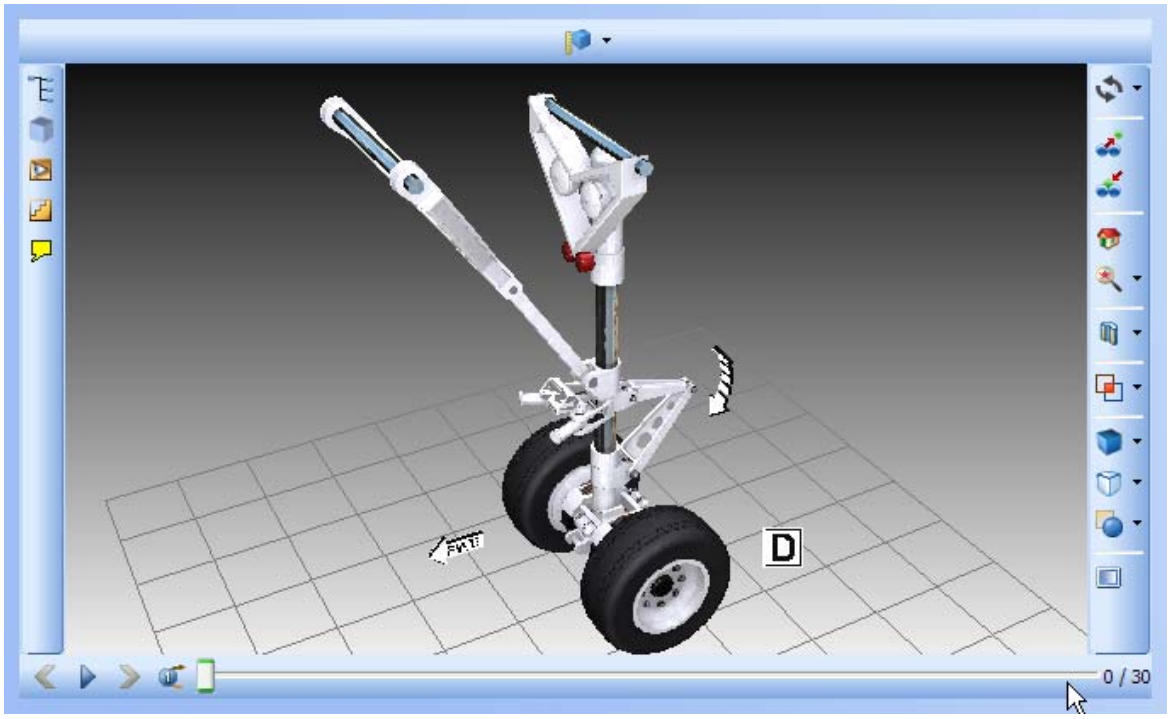
For a description of the function of each of the mouse controls, see Displaying Content (on page 24).

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Using Viewports

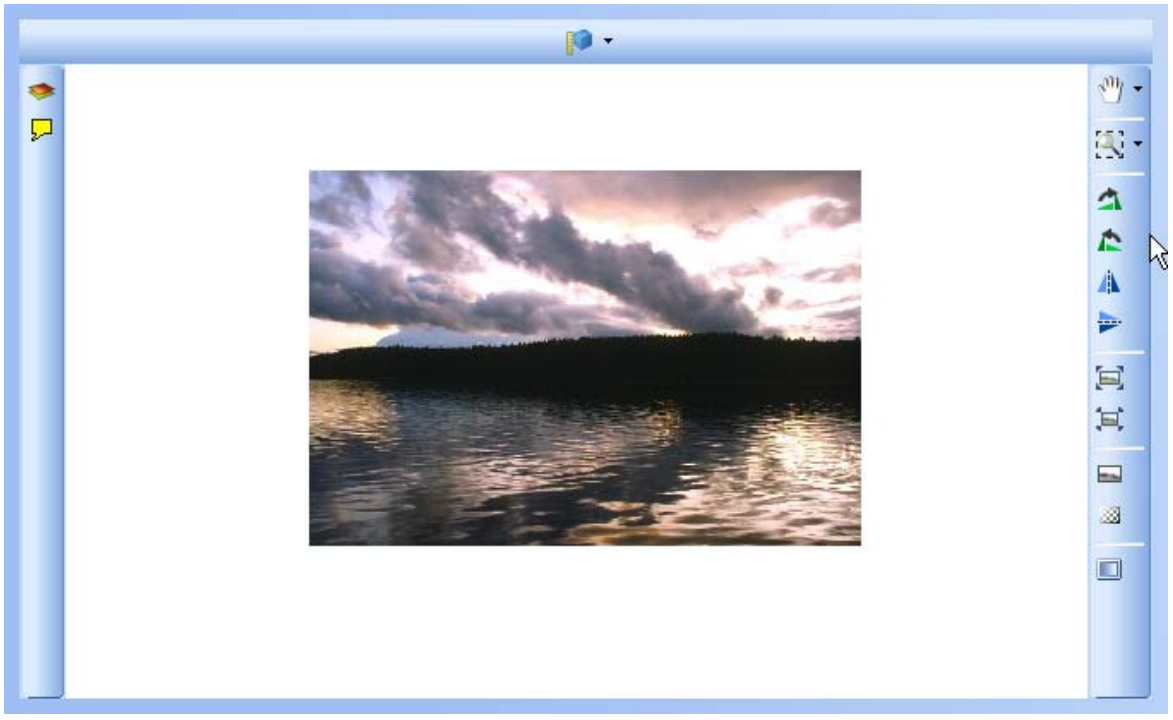
The active area includes a viewport that is used to view and edit (on page 130) the current file.

3D content displays in a 3D viewport.



3D viewport showing the Active area

2D content displays with 2D options.



2D viewport

Various right-click menus are also available.

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Navigating the Viewport

The 3D viewport can be navigated in a number of different ways.

- Rotating models.
- Rolling the camera.
- Panning scenes.
- 'Walking through' scenes.
- Viewing scenes from different angles.
- Zooming in and out of scenes.
- Displaying the scene at its 'best fit' within the viewport.
- Displaying 3D scenes in their standard camera view.

Keyboard shortcuts are available for many of the 3D navigation tools (on page 110).

Mouse Controls

When you are using the 3D editing tools in Deep View, each of the three mouse buttons has a different function.

 **Left click** - Scene rotate.

 **Middle click** - Pan.

 **Right click** - Zoom.

Rotating Models using the Orbit Tool

3D Editor toolbar > Click Orbit > Left-click and drag model in viewport (Rotate)
Keyboard > SHIFT+drag in 3D viewport (Roll)

You can rotate models and roll the camera in the 3D viewport. When you rotate a model, the camera moves around a point of rotation (focal point) to orbit the scene. The focal point is the the location of your cursor in the scene. When you roll the camera, it is moved around the viewing axis.

Note: These options are not available if you are in Pan mode.

Procedures

To rotate a model:

1. Select the 3D viewport.
2. Click **Orbit**  on the 3D Editor toolbar, left-click, and drag the model around the viewport.

The camera moves around the focal point and the model is rotated.

To roll a camera:

1. Select the 3D viewport.
2. Press SHIFT and drag the model around the viewport.

The camera is moved around the viewing axis.

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'Walking through' the Scene

3D Editor toolbar > Click Walkthrough > Left-click and drag model in viewport

Walkthrough Mode is used to move the camera through the 3D scene as though you are walking on the plane of the ground. Specifically, the Walkthrough Tool fixes the camera to a particular start position, and then allows you to move the camera around. Use SHIFT+left-click drag to control the camera height.

Procedures

To walk through the scene in Walk Through mode:

1. Select the 3D viewport.
2. Click **Walkthrough**  on the 3D Editor toolbar.
3. Click **Set Walk Start Position**  on the 3D Editor toolbar, to set your starting position and camera height.
4. Click and hold anywhere in the drawing area. A small plus sign (cross hair) displays at the location you selected.
5. Move the cursor up (forward), down (backward), left (to go left) or right (to go right) to walk through or around your model. The further you are from the cross hair, the faster you walk.

To look around the scene in your current position:

1. Select the 3D viewport.
2. Click **Walkthrough**  on the 3D Editor toolbar.
3. Click **Look Around**  on the 3D Editor toolbar, to set your position.
4. Move the cursor up, down, left or right to pivot around your current position.

Using Turntable Mode

3D Editor toolbar > Turntable tool

The Turntable tool  is used to rotate models in the 3D viewport. It works in a similar fashion to the Orbit (rotation) tool, but with a restriction whereby the camera only rotates around the horizontal or vertical axis.

Procedures

To rotate a model:

1. Select the 3D viewport.
2. Click **Turntable**  on the 3D Editor toolbar and drag the model around the viewport.

The camera moves around the focal point and the model is rotated.

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Panning Scenes

Keyboard > LEFT ARROW
Keyboard > RIGHT ARROW
Left+right-click / middle-click > Drag in 3D viewport
3D Editor toolbar > Click Pan

You can pan the scene in the 3D viewport by rotating the camera 360^0 around a vertical axis. You can also view scenes from different angles, laterally or vertically, using certain mouse keys.

Procedures

To pan an image or a scene:

1. Select the 3D viewport.
2. Hold down the LEFT or RIGHT ARROW.

The camera is moved laterally.

To view a scene from a different angle:

1. Select the 3D viewport.
2. Do one of the following:
   - Click **Pan**  on the 3D Editor toolbar, and drag the image or scene around the viewport.
   - Left+right-click, or middle-click and drag the image or scene around the viewport.

The camera is moved laterally or vertically.

Showing Page Layout

3D Editor toolbar > Page Layout tool

You can visualize how images and scenes in the 3D viewport will appear on a printed page by using the Page Layout tool. This allows 2D navigation of a page, which means that the camera is not changed and the render/illustrator outputs remain consistent. The zoom controls recenter the page, rather than the view within the page.

Procedure

To view the image or scene in Page Layout mode:

1. Select the 2D or 3D viewport.
2. Click **Page Layout**  on the 3D Editor toolbar.

The image or scene displays within the boundaries of a page.

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Zooming Scenes

Rotate Mouse Wheel
Right-click > Drag in 3D viewport
Keyboard > UP/DOWN ARROWS
Keyboard > +
Keyboard > -
Keyboard > CTRL++
Keyboard > *

Zooming is used to enlarge or reduce the magnification of scenes, and display them as they best fit within the viewport.

When you zoom in on a scene, the camera angle's field of view (FOV) is narrowed to magnify the scene. When you zoom out from a scene, the camera angle is widened to reduce the magnification. The zoom function is based upon the location of the cursor.

You can also use the arrow keys to 'truck' the scene, in other words, move the camera into a scene to view more closely, or out from a scene to view more distantly. When trucking, the focal point is always a fixed distance from the camera.

Procedures

To zoom in on a scene:

1. Select the 3D viewport.
2. Do one of the following:
   - Click **Zoom Window**  in the 3D Editor toolbar, and drag in the viewport. The selection is magnified to the selection's extents.
   - Rotate the Mouse wheel away from you.
   - Right-click, hold down the mouse button and drag the mouse into the viewport centre.
   - Press the PLUS SIGN (+).

The scene is magnified.

To zoom out from a scene:

1. Select the 3D viewport.
2. Do one of the following:
   - Rotate the Mouse wheel towards you.
   - Right-click, hold down the mouse button and drag the mouse out from the viewport centre.

The scene magnification is reduced.

To zoom the scene to the best fit:

1. Select the 3D viewport.
2. Click **Best Fit** , on the 3D Editor toolbar, or press the CTRL and the PLUS SIGN (+). The entire scene is displayed within the viewport.

To truck into a scene:

Hold down the UP ARROW. The camera moves into the scene.

To truck out from a scene:

Hold down the DOWN ARROW. The camera moves out from the scene.

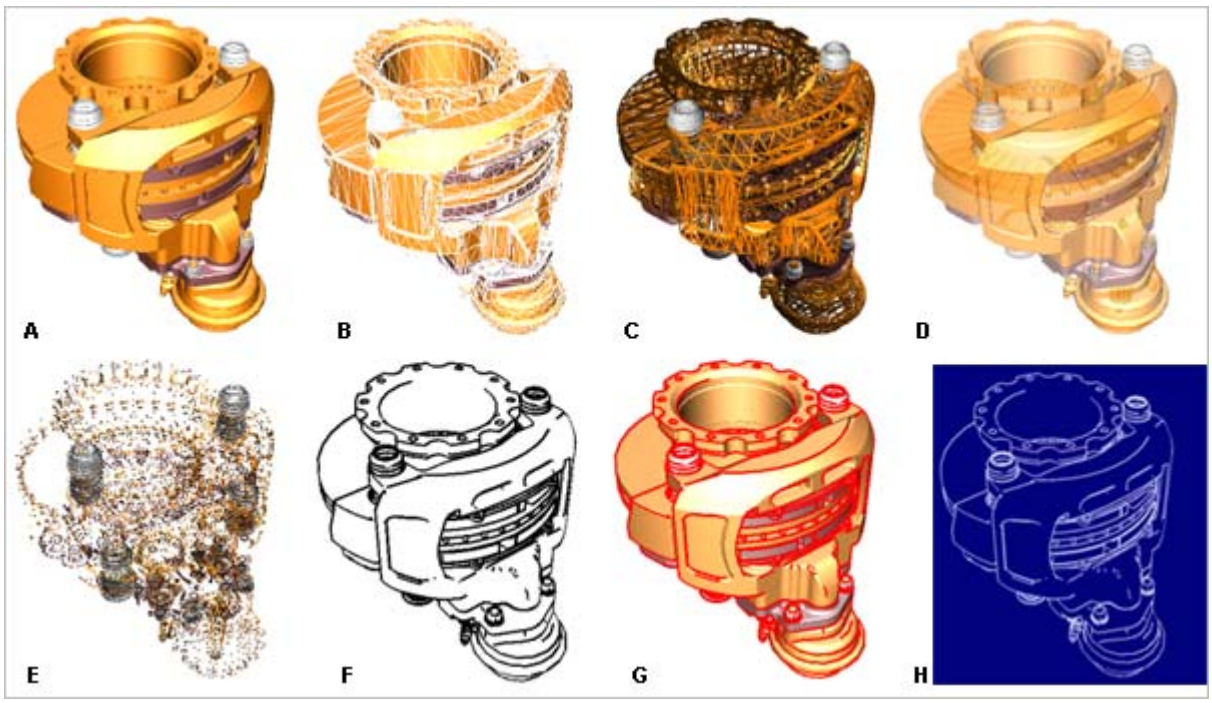
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Render Modes

Select > 3D Editor toolbar > Model Render Mode

Various render modes can be used to apply preset scene settings that manipulate a number of display elements including solid, transparent, wireframe. Employing different rendering styles can give a more realistic appearance by enhancing the clarity and three-dimensionality of a scene.

Below are some examples of the render modes.



A: Solid
B: Solid Wireframe
C: Shaded Wireframe
D: Transparent
E: Shaded Vertices
F: Line Illustration
G: Shaded Illustration
H: Blueprint (Line Illustration with modified settings)

Note: The Blueprint render mode is a customized mode created in Deep Exploration.

Note: The term 'wireframe' indicates that all polygon edges are shown, and the term 'outline' indicates only silhouette and crease edges are displayed. The colors of lines and vertices may be based on the object or the object's material.

Procedure

To apply a render mode:

Click **Model Render Mode**  on the 3D Editor toolbar, and then click the name of the mode you want to apply.

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Render Modes Menu

Select > 3D Editor toolbar > Model Render Mode

The Render Modes menu contains commands for the display of the scene including the render method, lights, and vertices. These settings apply to the entire scene.

Note that you can apply a render method to an individual object (on page 78), regardless of the render method selected for the scene.

Interface

 **Transparent Bounding Box**—Displays each object as a transparent bounding box.

Note: Each bounding box is axis-aligned (AABB) instead of the object's actual geometry. An AABB is a box with all its edges parallel to the X, Y, and Z axes, and is the smallest box that can completely contain the given object.

 **Solid**—Displays each object as solid.

 **Transparent**—Displays each object as transparent.

 **Solid Wireframe**—Displays each object as solid with a wireframe.

 **Line Illustration**—Displays each object as a solid rendering with outlines overlaid on top.

 **Solid Outline**—Displays each object as solid with outlines. That is, only silhouette and crease edges are shown.

 **Shaded Illustration**—Displays each object as solid with outlines with material color overrides. That is, the objects' material colors can be replaced or blended with other colors.

Other (on page 31)—Use this menu to select further display options for an object.

Other Menu

Select > 3D Editor toolbar > Model Render Mode > Other

The Other menu contains further options for the display of the scene. These settings apply to the entire scene.

Note that you can apply a render method to an individual object (on page 78), regardless of the render method selected for the scene.

Interface

 **Bounding Box**—Displays each object as a bounding box.

 **Transparent Bounding Box Outline**—Displays each object as a transparent bounding box with outlines along the edges.

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Note: Each bounding box is axis-aligned (AABB) instead of the object's actual geometry. An AABB is a box with all its edges parallel to the X, Y, and Z axes, and is the smallest box that can completely contain the given object.

 **Transparent Wireframe**—Displays each object as transparent with a wireframe.

 **Wireframe**—Displays each object as a wireframe.

 **Shaded Wireframe**—Displays each object as a shaded wireframe.

 **Hidden Wireframe**—Displays or hides the wireframe view without any visible hidden surfaces. A similar effect can be obtained using Solid Outline mode with the outline angle set to '0'.

 **Vertices**—Displays all objects as vertices.

 **Shaded Vertices**—Displays all objects as shaded vertices. The shading colors are based on the object's material colors.

Preset Views

3D Editor toolbar > Click Orthographic Projection
3D Editor toolbar > Click Perspective Projection
Right-click 3D viewport > Camera View > Click view

A number of different preset camera views can be used to display scenes in the selected viewport:

- **Perspective** (on page 97): Perspective views most closely resemble human vision. Objects appear to recede into the distance, creating a sense of depth and space. For most 3D computer graphics, this is the view used in the final output that the client sees onscreen or on the page. This is used when an isometric is not suitable. Perspective projections are also used for location drawings.
- **Orthographic** (on page 97): Orthographic views that display the scene from the selected viewpoint. Orthographic views are a type of parallel projection used for drawing engineering blueprints and is used for accurate description of objects and their positioning. Most 3D design relies on 2D representations or 'orthographic' views, for example, maps, plans, cross-sections, and elevations. In familiar terms, you might think of these views as 'flat' or 'straight-on', or as 'looking at right angles'. Orthographic views are two-dimensional, each defined by two world coordinate axes. Combinations of these axes produce three pairs of orthographic views: top and bottom; front and back; left and right.
- **Views** (on page 97): Displays all user-defined views and various preset views including isometric, dimetric, and trimetric.
  - **Isometric**: These views have three surfaces equally foreshortened and is the most frequently used projection. It is the simplest to understand because it is based on equals and parallels. Isometric views should be viewed without perspective.
  - **Dimetric**: A dimetric view has two of the three surfaces equally foreshortened.
  - **Trimetric**: Trimetric views have all three surfaces foreshortened by a difference ratio and can be used as an alternative when an isometric view is not suitable.

These views are accessed either via the 3D Editor toolbar (click **Orthographic** or **Perspective**), or via the right-click viewport menus (on page 96) for isometric, dimetric or trimetric view options.

Note: These options are not available if you are in Pan mode.

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Viewpoints

The isometric, dimetric and trimetric options display the following further commands from which to choose a viewpoint:

- **LTF—**View the model with the selected viewpoint from the left, top, front of the scene.
- **LTA—**View the model with the selected viewpoint from the left, top, aft (back) of the scene.
- **RTA—**View the model with the selected viewpoint from the right, top, aft of the scene.
- **RTF—**View the model with the selected viewpoint from the right, top, front of the scene.
- **LBF—**View the model with the selected viewpoint from the left, bottom, front of the scene.
- **LBA—**View the model with the selected viewpoint from the left, bottom, aft of the scene.
- **RBA—**View the model with the selected viewpoint from the right, bottom, aft of the scene.
- **RBF—**View the model with the selected viewpoint from the right, bottom, front of the scene.

Procedures

To use perspective projection to view your scene, do one of the following:

- Click **Perspective Projection** , on the 3D Editor toolbar.
- Right-click the 3D viewport, choose **Camera View**, and then click **Perspective**.

The scene displays using Perspective projection.

To use orthographic projection, do one of the following:

- Click **Orthographic Projection** , on the 3D Editor toolbar.
- Right-click the 3D viewport, choose **Camera View**, click **Orthographic**, and select the orthographic view you want to apply.

The scene displays using orthographic projection.

To apply another preset view:

Right-click the 3D viewport, choose **Camera View**, and then click the name of the view you want to apply.

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Lighting Modes

Right-click 3D viewport > Display > Lights Menu

Various lighting modes can be used to apply preset settings for the display of the scene's lights, which imitate different kinds of real-world light sources such as the sun, office lamps, or stage and film lighting. Adding lights gives a more realistic appearance by enhancing the clarity and three-dimensionality of a scene.

A number of light settings can be applied either 'from the file', or by applying one of several lighting presets including colored lights, cube lights, and CAD optimized lights.

The available lighting modes are:

- Lights from file.
- Colored Lights Red/Green.
- Colored Lights Blue/Green.
- Cube Lights.
- CAD Optimized.
- Single Light from Eye.

If there are lights in the scene, the 'Lights from file' command is selected, and any lights that are visible in the Scene tree are activated and their effects seen in the viewport. This includes any lights loaded from the file. If there are no lights in the Scene tree, the 'Lights from File' command is inactive.

Various shortcuts are available from where to apply certain lighting modes.

Note: These options are not available if you are in Pan mode.

Procedures

To apply a lighting mode:

Right-click the 3D viewport, choose **Display**, click **Lights**, and then click the name of the mode you want to apply.

To increase the lighting brightness, do one of the following:

- Right-click the 3D viewport, choose **Display**, click **Lights**, and then click **Increase Brightness**.
- Press **]** to increase the brightness.

To decrease the lighting brightness, do one of the following:

- Right-click the 3D viewport, choose **Display**, click **Lights**, and then click **Decrease Brightness**.
- Press **[** to decrease the brightness.

To restore lighting brightness, do one of the following:

- Right-click the 3D viewport, choose **Display**, click **Lights**, and then click **Restore Brightness**.
- Press **Home** to restore brightness.

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Model Views and Portfolios

Information panel > Model Views
Scene Components panel > Scene Tree > Model Views

You can display user-defined views that are based on the current view of the scene. These are called 'model views' and they emulate the properties of schematic diagrams found in various types of manuals, for example, training and reference manuals. Each model view associates the current camera position and render mode.

A Portfolio is a collection of Model Views. Examples of this are:

- Standard Views Portfolio.
- Iso Views Portfolio.
- Line Illustration Portfolio.

When you display a model view, the view is created immediately with all settings from the current scene (lighting, visibility, etc.) and all the default settings (layer, camera position, active display settings).

Note: Model views are created with Deep Exploration and must be saved within the .rh version 4.0 file format.

When you display a model view:

- The viewport is set to the associated camera render mode.
- All objects that are not associated with the view become invisible.



Model view with all objects displayed / Model view with some objects hidden

The Model Views and Portfolios panel is used to display and activate model views. You can also view model view properties.

Procedures

To display a model view:

1. Click **Model Views** in the Information panel.
2. Click the portfolio and model view that you want to view.

To view the properties for a model view:

1. Click **Model Views** in the Information panel.
2. Click the portfolio and model view that you want to view.
3. Right-click the model view and select **Properties**.

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Display Modes

Select > 3D Editor toolbar > Full Screen
Right-click 3D viewport > Full Screen

Two display modes can be used in Deep View. You can view the application in a window (standard view), or you can use Full-screen display mode to view the application across your entire screen. The Full-screen option on the 3D Editor toolbar acts as a toggle between the two views.

Note: You can also toggle between Full-screen and standard views by using **F11** on your keyboard.

Procedures

To switch to Full-screen display mode, do one of the following:

- Click **Full Screen** , on the 3D Editor toolbar.
- Right-click the 3D viewport and click **Full Screen** when in the standard view.

To switch back to the standard view, do one of the following:

- Right-click the 3D viewport and click **Exit Full Screen Mode** in Full Screen display mode.
- Click **Exit Full Screen Mode** , on the 3D Editor toolbar.

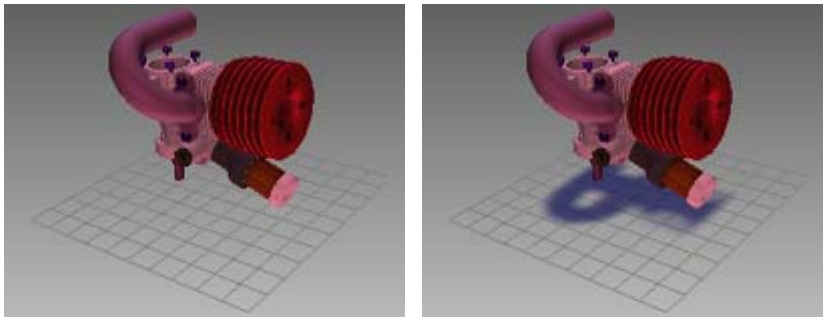
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Viewport Grid

Right-click 3D viewport > Display > Grid
Right-click 3D viewport > Display > Shadow

A grid can be displayed in 3D scenes to assist with the placement of objects and images and making them easier to distinguish. When displayed in scenes, grids can be thought of as the 'floor'. This can be helpful in creating a sense of model scale, model position, and world orientation. It can be useful for marketing presentations by giving products a place in the world.

In scenes, you can also display a shadow that is projected from the model onto the grid.



Scene: Grid / Grid with shadow

Note: The time taken to refresh the scene may increase slightly if you display a grid.

Procedures

To display and hide the grid in a scene, do one of the following:

- Right-click the 3D viewport, choose **Display**, and then click **Grid**.
- Press CTRL G on your keyboard.

If the grid was displayed, it is now hidden. If it was hidden, it is now displayed.

To display and hide the scene shadow in a scene, do one of the following:

- Right-click the 3D viewport, choose **Display**, and then click **Shadow**.
- Press CTRL F on your keyboard.

If the shadow was displayed, it is now hidden. If it was hidden, it is now displayed.

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Objects

Models can comprise a number of scene elements including objects and materials. The Scene Components panel displays all objects in the current scene in a tree-view hierarchy.

There are a number of different object types including cameras, lights, collaboration threads, and parts. Objects can comprise of multiple sub-objects and can have materials and textures applied to them.

Objects can be controlled in numerous ways including:

- Selecting (on page 38) and searching for objects.
- Modifying object visibility (on page 40).
- Highlighting objects.
- Viewing object properties (on page 78).

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Selecting Objects

Scene Components panel > Scene tree > 3D Objects list

Objects must be selected before their properties can be viewed.

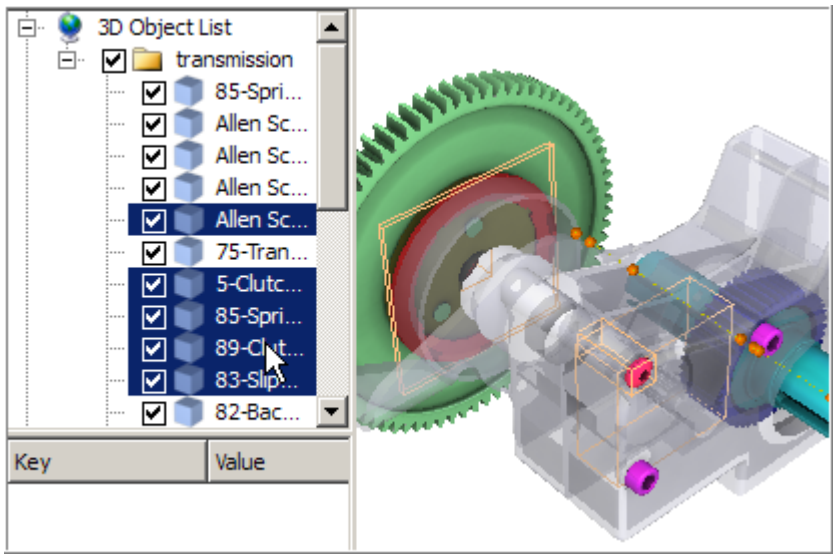
Individual, and grouped objects (both selected and unselected) can be highlighted or made transparent. This 'isolates' the objects to make it easier to distinguish them from others.

Objects can be selected in a number of different ways. Here, we describe how to select objects manually using the 3D Objects list (on page 76). We also describe how to manually clear objects from selection.

You can also select objects and clear the selection using the 3D viewport right-click menu (on page 96) and the 3D Objects list right click menu (on page 107).

When an object is selected, a bounding box outlines the object in the viewport, and the object name is highlighted in the 3D Objects list as shown below.

Note: The bounding box is not displayed by default. This option must be set in Selection Settings (on page 54) if required.



Multiple non-adjacent objects selected

Procedures

To manually select objects:

Click the object in the 3D Objects list. Hold down SHIFT to select adjacent objects or CTRL to select non-adjacent objects and click other objects in the list.

To clear objects from selection, do one of the following:

- Click the selected objects in the 3D Objects list.
- Click another object in the 3D Objects list.

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Select Objects Dialog

Right-click scene > Select Objects
Click in viewport with no selection > Keyboard F3 (Select Objects dialog)

Multiple objects can be selected (on page 38) by name, or metadata using the Select Objects dialog.

The dialog comprises selection tools used to select objects automatically, and a list that displays all the objects of the current scene. This list can be used to manually select objects.

Procedure

To open the Select Objects dialog, do one of the following:

- Right-click in the viewport and click **Select Objects**.
- Click the viewport, and with no selection press **F3**.

Interface

Name—Used to select objects by name.

- **Search for**—Selects objects using the letter/s contained in their names.
- **Include metadata**—Includes metadata with selected objects.
- **Case-sensitive**—Selects objects by name using upper and lowercase characters.

Filter—Used to filter the display of objects in the dialog.

- **All objects**—Displays all objects.
- **Previously selected**—Displays all objects that have been previously selected.
- **Visible Objects**—Displays all objects that are visible.

Close—Closes the dialog.

Help—Opens the relevant Help topic.

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Showing and Hiding Objects

Scene Components panel > Scene tree > Select object check box
Scene Components panel > Scene tree > Clear object check box
Right-click object in Scene tree > Hide Selection/Hide Unselected/Hide All Objects
Right-click object in Scene tree > Show Selection/Show All Objects

The 3D Objects list (on page 76) check boxes and right-click menu (on page 107) can be used to show and hide objects. You can also use the 3D viewport right-click menu (on page 96) to show objects.

The Scene tree check boxes respect hierarchy if it is present. For example, clearing the highest check box in a hierarchy clears all subordinate check boxes.

Procedures

To hide objects, with the objects displayed, do one of the following:

- Clear the objects' check boxes in the 3D Objects list.
- Select the objects you want to hide, right-click over the objects in the 3D Objects list, and then click **Hide Selection** to hide all selected objects.
- Select the objects (on page 38) you want to show, right-click over the objects in the 3D Objects list, and then click **Hide Unselected** to hide all unselected objects.
- Right-click in the 3D Objects list and click **Hide All Objects** to hide all objects.

To show objects, with the objects hidden, do one of the following:

- Select the objects' check boxes in the 3D Objects list.
- Select the objects (on page 38) you want to show, right-click over the objects in the 3D Objects list, and then click **Show Selection** to show all selected objects.
- Right-click in the viewport or 3D Objects list and click **Show All Objects** to show all objects.

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Collaboration

Information panel > Collaboration

Deep View can be used to create and edit various kinds of comments which can be used to direct attention to, and identify parts of a model. The Collaboration tools enable you to create conversations containing a number of different comment types. Using these tools, you can:

- Create (on page 42) note, line, and shape comments.
- Modify the conversation and user colors (on page 47).
- Hide and show comments (on page 46).
- Delete conversations (on page 46).
- Project redline comments onto the surface of the model (on page 44).

Editing can be performed by double-clicking the comment.

Collaboration Rules

Certain rules apply to comments:

- Comments are objects, and as such are displayed in the 3D Objects list when they are created.
- Using the 3D Objects list, you can select, hide and show comments in the same way as other objects.
- You can only delete comments and conversations in the Collaboration window.
- For comments to to be displayed on an image or model, the Collaboration window must be open.

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Creating a new Conversation

Information panel > Collaboration > Select type of Comment
Information panel > Collaboration > Select type of Redline Comment

The Comment and Redline tools are used to create different types of comments. Comments are then grouped together into a conversation, enabling you to easily follow a particular collaboration thread.

If you create a comment using the redline tools, you also have the option of being able to project that comment directly onto the model. The comment then follows the contours of the model.

When you select one of these tools, you can begin creating a conversation by clicking the model's surface to place the start point. At this point the cursor changes to a small cross.Certain actions are then required to finish creating the comment, and these differ depending on the tool selected as described below.

Create Actions

Text, Point, Cloud, Arrow note, Rectangle, Line and Freehand tools: Click, drag.

Note Circle tool: Click, drag, click.

Arc tool: Three clicks.

Polyline tool: Multiple clicks, right-click.

Procedure

To create a conversation:

1. Click one of the comment tools in the Collaboration window.
2. Do one of the following:
   - If you are creating a text, point, arrow, or a line comment, click where you want to place the start point and drag to the leader length.
   - If you are creating a circle note comment, click where you want to place the start point, drag outwards and inwards to set the circle radius, and click once more to set the leader length.
   - If you are creating an arc comment, click where you want to place the start point, click again to place the centre of the arc circumference, and click once more to place the end point.
   - If you are creating a circle comment or a rectangular comment, click where you want to place the start point and drag outwards and inwards to set the circle radius or size.
   - If you are creating a polyline comment, click where you want to place the start point, click to place the second point, and so on, then right-click to place the end point.
   - If you are creating a freehand comment, hold down the left mouse button and drag to set the shape.
   - If you are creating a cloud comment, click where you want to place the start point and drag outwards to set the size.
3. If you are creating a text comment, enter any text information in the the dialog box.
4. Select a link type, if required.
5. Click **OK**.

The conversation is added with the user name, date and time information. The Collaboration Layer object and newly created thread are displayed in the 3D Objects list.

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Create Conversation Dialog

Information panel > Collaboration > Select type of Redline Comment

The Create Conversation dialog displays when you select a redline comment to begin a conversation.

Procedure

To open the Create Conversation dialog and create a conversation:

1. Click one of the redline comment tools in the Collaboration window.
2. Make the selections you require.
3. Click **OK**.

A new conversation is created, and displays in the collaboration window.

Interface

Conversation Name—The name of the new conversation.

Link—Used to determine the type of link.

- **None**—No link.
- **URL**—The URL address for the comment. This URL will open up in a new window, even if opened while using the viewer via Deep Access.
- **Model View**—The comment is linked to a particular model view.
- **Step**—The comment is linked to a particular step.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved.

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

Projecting a Redline Comment onto the surface of the model

Information panel > Collaboration > Project onto Surface > Select Redline Comment

If you are using redline commenting, you can project redline comments onto the surface of the model. This means that when you rotate the model, the redline comment follows the contours of the model.

Procedure

To project redline comments onto the model:

1. Click **Project onto Surface** .
2. Click one of the redline comment tools in the Collaboration window, and drag the comment to the required size in the viewport.
3. If you are creating a conversation, make the selections you require, and click **OK**.

The new redline comment displays in the collaboration window, and is projected onto the model in the viewport.

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Create Conversation and Comment Dialog

Information panel > Collaboration > Select type of Comment

The Create Conversation and Comment dialog displays when you select a comment to begin a conversation.

Procedure

To open the Create Conversation and Comment dialog and create a conversation:

1. Click one of the comment tools in the Collaboration window.
2. Make the selections you require.
3. Click **OK**.

A new conversation is created, and displays in the collaboration window.

Interface

Conversation Name—The name of the new conversation.

Input Text for Comment—Used to enter text for the comment.

Link—Used to determine the type of link.

- **None**—No link.
- **URL**—The URL address for the comment.
- **Model View**—The comment is linked to a particular model view.
- **Step**—The comment is linked to a particular step.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved.

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

Add Comment to Conversation Dialog

Information panel > Collaboration >Select Conversation > Select type of Comment

The Add Comment to Conversation dialog displays when you select a comment to add to an existing conversation.

Procedure

To open the Add Comment to Conversation dialog and add your comments to a conversation:

1. Click one of the Comment tools in the Collaboration window.
2. Make the selections you require.
3. Click **OK**.

A new conversation is created, and displays in the collaboration window.

Interface

Input Text for Comment—Used to enter text for the comment.

Link—Used to determine the type of link.

- **None**—No link.

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- **URL**—The URL address for the comment. The URL name is entered in the corresponding field.
- **Model View**—The comment is linked to a particular model view. The view name is entered in the corresponding field.
- **Step**—The comment is linked to a particular step. The step name is entered in the corresponding field.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved.

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

Displaying and Deleting Comments

Information panel > Collaboration > Right-click Comment >Delete
Information panel > Collaboration > Delete Selected Conversation
Right-click 3D viewport > Delete > Selected Drawings and Dimensions

You are able to hide, show, and delete comments in a number of different ways.

Procedures

To show and hide comments, do one of the following:

Check or clear the Collaboration object check boxes in the scene tree.

To delete a conversation:

1. In the Collaboration window, select the conversation you want to delete.
2. Click **Delete Selected Conversation** .

To delete a specific comment:

Select the comment (on page 38) you want to delete, and do one of the following:

- Right-click the comment in the Collaboration window, and click **Delete**.
- Press **Delete** on your keyboard.
- Select the Delete > Selected Drawings and Dimensions command on the 3D viewport right-click menu.

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Editing Comments

Double-click comment in viewport

Individual comments can be modified using the Modify Comment dialog.

Note: You are unable to save changes to comments when viewing content with Internet Explorer.

Any editing you perform using this dialog is applied to the selected comment only.

Procedure

To edit a comment:

1. Double-click the comment you want to edit in the viewport.
2. Make the selections you require.
3. Click **OK**.

Changing the Comment Colors

Information panel > Collaboration > Change User Color
Information panel > Collaboration > Change User Color Background

You are able to change the way in which the comments display. Custom colors can be selected for both the text and background of comments. The toolbar color buttons reflect the currently selected color.

Any changes you make to these color settings are applied to all comments that are subsequently created.

Procedures

To open the color selector to select a color for the text:

1. In the Collaboration window, click **Change User Color** .
2. Make the selections you require.
3. Click **OK**.

To select a background color for the text box from the color selector:

1. In the Collaboration window, click **Change User Color Background** .
2. Make the selections you require.
3. Click **OK**.

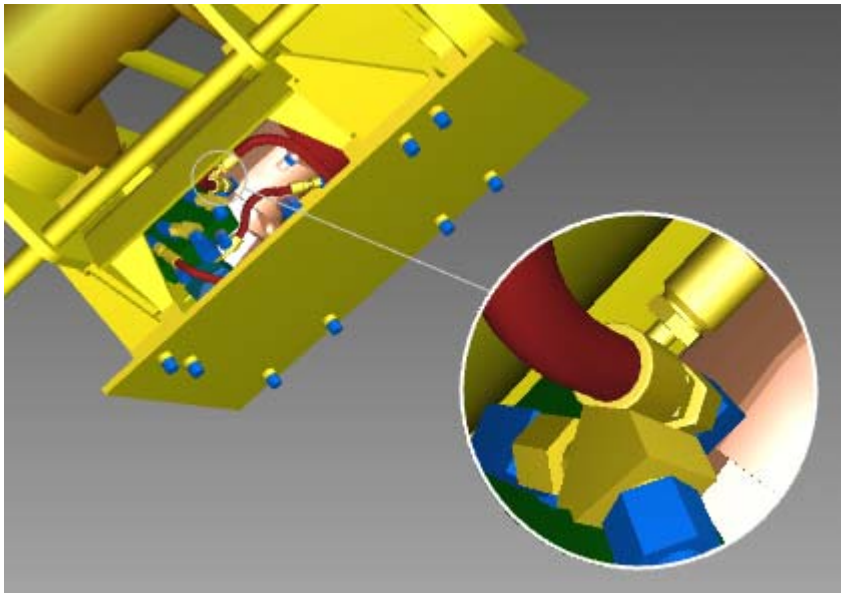
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Detail Views

Detail views allow you to view additional 3D viewports in a scene. Multiple views can be opened in a scene. When closed, they appear as special callouts. Each detail view has full camera manipulation, and contains a specific view of the model.

The Detail View option allows you to 'zoom in' to a specific region in your model, in order to view an object in more detail.

Note: Detail views are created in Deep Exploration.



Detail View window

Procedures

To open a Detailed View:

Highlight the area on the model that you want to show in detail, and click the center of the area.

To close the Detailed View:

Double-click the detail view.

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Layers

Information panel > Layers

Layers are used to group scene objects into a single hierarchy level, and so provide an alternate way to view scene geometry and elements. That is, layers are not related to the scene's hierarchy. For example, a scene could contain an electrical wiring and a plumbing layer. This allows for easy management of complex scenes.

For example, grouping components common to a particular function may not be possible by assembly hierarchy in a model of an engine compartment. The model may contain multiple assemblies also just parts of other assemblies. It may be convenient to view all the engine compartment components in one layer for easy display optimization when the cover is in place.

Note: The Layers Panel is used to view existing layers - editing is not available.

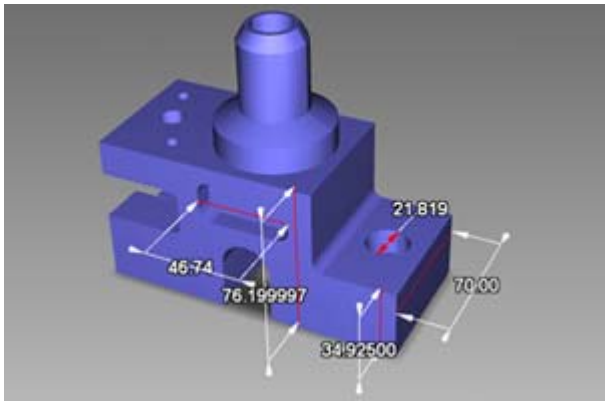
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Measurements

Select > Measurement toolbar > Distance
Select > Measurement toolbar > Angle
Select > Measurement toolbar > Calibrate

The measurement tools allow you to measure the distance between two object elements in a scene, or for a single object element, for example, between an object's faces, arcs, and vertices. In many cases, these measurements can replace the need for 2D drawings. For example, you can add key measurements to the scene, and you can read key dimensions for manufacturing checks.

You can also calibrate the scene. This allows you to create or overwrite the scale within the scene. Scale is specified by selecting two points anywhere in the image and then specifying units and distance.

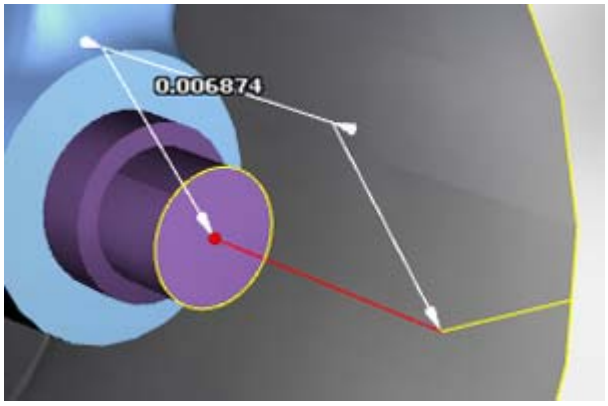


Object with multiple dimensions

When performing a measurement, the elements that can be measured within the object are highlighted when your cursor moves over them. You can limit the types of elements that are highlighted when you perform a measurement via the Object Element tools (on page 87):

- **Vertices:** Green 'points' indicating a corner of a polygon where two edges meet, or of a polyhedron where three or more faces meet. A polyhedron is a three-dimensional solid bounded by polygons.
- **Edges:** Lines of intersection between two faces.
- **Faces:** Planar surfaces of a geometric solid.
- **Arcs:** Lines that curve around a face with a center point displayed in red.

The first element that is measured is displayed as bounded; this determines the bounds of the measurement. For example, the distance is not calculated past the end of an edge, or off the boundary of a face. The second measurement is unbounded. This allows you to measure the distance between a face and a plane or the extension of an edge. For example, in the image below the arc is bounded and the face is unbounded.



Distance measurement between an arc and a face

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When you perform a measurement for a single object element, the resulting values are:

- **Measurement on a vertex:** The position of the vertex in the scene.
- **Measurement on an edge:** The length of the edge.
- **Measurement on a face:** The area of the face.
- **Measurement on an arc:** The radius of the circle.

Once you perform a measurement, a dimension object is created in the scene. Dimensions are treated in the same way as other objects and can be edited and deleted.

Various settings (on page 52) can also be applied to the measurement tools to determine the way in which the measurements are calculated and displayed.

Note: Accuracy is reduced if a model uses a high level of polygon reduction.

Measurements are automatically updated as the objects to which they are associated are moved in the scene.

Note: You cannot save measurements when viewing content with Internet Explorer.

Measurement Rules

Certain rules apply to measurements:

- Once a measurement is made, the related dimension object is created in the scene.
- Dimensions are objects, and as such are displayed in the 3D Objects list when they are created.
- Using the 3D Objects list, you can select, hide and show dimensions, and delete dimensions in the same way as other objects.
- When you rotate, scale, or pan models, the dimensions move in relation to the parts while remaining the same size.
- Dimensions can be moved, rotated, and scaled separately from the model.
- For dimensions to be displayed on an image or model, the Dimensions command must be selected from the Display right-click menu.

Procedures

To measure a single object element:

1. Click **Settings**  on the Measurement toolbar, and modify the settings (on page 52) as required.
2. Click **Distance**  on the Measurement toolbar.
3. Click the element type which you want to measure on the Object Elements (on page 87) toolbar.
4. Place the cursor over the area from which you want to measure until the first element is highlighted, and then click the element.
5. Move the cursor away from the model and, with no elements highlighted, click again.
6. Drag the dimension away from the model, and then click again.

The measurement is made and the dimension is created.

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To measure the distance between two object elements:

1. Click **Distance**  on the Measurement toolbar.
2. Click the element types which you want to measure on the Object Elements (on page 87) toolbar.
3. Place the cursor over the area from which you want to measure until the first element is highlighted, and then click the element.
4. Click other element types if you want to measure between other elements.
5. Place the cursor over the area to which you want to measure until the second element is highlighted, and then click the element.
6. Drag the dimension away from the model and click again.

The measurement is made and the dimension is created.

To measure the angle between two object elements:

1. Click **Angle**  on the Measurement toolbar.
2. Click the element types on which you want to measure on the Object Elements (on page 87) toolbar.
3. Place the cursor over the element from which you want to measure until it is highlighted, and then click the element.
4. Place the cursor over the element to which you want to measure until the second element is highlighted, and then click the element.
5. Select either the internal or external angle, the angle is measured and the dimension is created.

To restrict a measurement to measuring a specific combination of axes:

1. Click **Angle**  or **Distance**  on the Measurement toolbar to display the additional measurement tools.
2. Click **Axis Restriction** .
3. Select the required axes to use in the measurement. You can select one axis or a combination.

To multiply the scene's scale by a specific coefficient along each axis:

1. Click **Scale Factor**  from the additional tools on the Measurement toolbar.
2. Select the required scale factor to use in the measurement.

Note: all three scale factors must be non-zero.

To measure a line and calibrate:

1. Click **Calibrate**  on the Measurement toolbar.
2. Make the measurement for which you want to calibrate.
3. Select the required distance and units.

The calibration is made and further dimensions within the scene are based upon this measurement.

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Measurement Global Settings

Select > Measurement toolbar > Distance > Settings
Select > Measurement toolbar > Angle > Settings

The Settings dialog is used to adjust the appearance of measurements (on page 50), including displaying the dimensions, measurement of arcs or circles, and the units in which to display the angle.

Procedures

To open the Measurement Global Settings dialog:

Click **Settings**  on the Measurement toolbar.

To modify the dimension settings:

1. Open the Measurement Global Settings dialog.
2. Make the selections you require.
3. Click **OK**.

Interface

General—Used to establish general settings.

- **Always on top**—Draws the dimension and dimension lines on top of all the objects in the scene.
- **Draw construction lines**—Draws the red construction line between the points being measured.
- **Draw surface features**—Draws the surface features. These include the vertices, highlighted edges, and surfaces.
- **Skip Transparent Geometry**—Disregards all transparent objects in the scene.
- **Line color**—Select a color from the color palette.
- **Precision**—Determines the number of decimal places to display in the dimension.
- **Display Dimension**—Used to establish how to display the measurement.
  - **Vectors**—Draws the measurement as a vector.
  - **Billboards**—Draws the measurement as a billboard. That is, the measurement rotates to always face the camera. When printed to a vector-based file, measurement is converted to vector line art.
- **Font**—Opens the Font dialog and is used to set the dimension font type, style, and size.
- **Vector font scale**—Determines the displayed font scale in the measurement.

Arcs—Used to establish the dimension to measure when measuring arcs or circles.

- **Radius**—Measures the circle's radius.
- **Diameter**—Measures the circle's diameter.

Angles—Used to establish the angle dimension between lines.

- **Degrees**—Measures the angle in degrees.
- **Radians**—Measures the angle in radians.

Units—Used to select a standard unit of measurement.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved.

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

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Object Editing Tools

3D Editor toolbar
2D Editor toolbar

Using the 3D Editor toolbar, you can perform various functions on selected 3D objects including x-raying part or all of a model, pulling apart models, and excluding some of a scene's geometry to view or render only certain portions of the scene.

When you are viewing 2D images, the 2D toolbar displays. Using the 2D Editor toolbar, you can perform various functions on 2D images, including flipping and rotating the image, and applying grayscale.

This section describes these functions. Please see 3D Editor toolbar (on page 89) and 2D Editor Toolbar (on page 91) for further information.

Pull Apart Mode

3D Editor Toolbar >Pull Apart
3D Editor Toolbar >Re-assemble

Selecting the **Pull Apart** button, , enables Pull Apart mode. Pull Apart mode allows objects to be manually selected (highlighted), from directly within the scene, and pulled apart from the model. The model can be reassembled at any time by clicking the **Re-assemble** button, .

It is possible to return to the previously saved view by clicking **Home View** .

Note: If an object has an animated sequence, click the play button. The scene returns to the 'Home' (saved) position before playing the animation, i.e. any object movements, using the 'Pull Apart' feature will be ignored.

Procedures

To pull apart selected objects:

1. Click **Pull Apart Mode**  on the 3D Editor toolbar.
2. Select the objects that you want to move.
3. Drag the object to the required position within the scene.

To reassemble the model:

Click **Re-assemble**  on the 3D Editor toolbar.

To return to the previously saved view:

Click **Home View** .

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X-Ray Selections

3D Editor Toolbar > X-Ray

X-Ray mode allows you to display objects as transparent in the viewport, based on one of three settings.

Procedure

To make an x-ray:

1. Click **X-Ray**  on the 3D Editor toolbar.
2. Click the down arrow to select the type of x-ray you wish to make.

Interface

 **None**—Displays all objects as opaque.

 **Unselected**—Applies transparency to all objects that are not selected. Selected objects are displayed as opaque.

 **Selected**—Applies transparency to all selected objects. Objects that are not selected are displayed as opaque.

 **Settings**—Used to modify the settings for x-ray display.

Note: You cannot save your changes in Deep View. That is, the changes are only effective for the current session.

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Selection Settings Dialog

3D Editor Toolbar >X-Ray > Settings

Using the Selection Settings dialog, you can modify the default settings for x-rays. The settings are saved to your computer registry for future use.

Procedure

To open the Selection Settings dialog:

1. Click **X-Ray**  on the 3D Editor toolbar.
2. Click **Settings** .
3. Make the selections you require.
4. Click **OK**.

Interface

Highlight—Used to highlight the selected object.

Include Children—Automatically x-rays all children of a selected parent object.

Bounding box—Displays a bounding box around the selected object.

X-ray opacity—Used to set the level of opacity when displaying an x-ray.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved.

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

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Cross Section

3D Editor Toolbar >Cross Section

Cross section planes allow you to exclude some of a scene's geometry, in order to view or render only certain portions of the scene.

The plane can be moved to 'slice' though a 3D model along the cross section plane's x, y, and z axes and also by rotating the plane.

Note: If you move the cross-section plane, its original position can be restored by selecting **Cross Section** , then selecting **Reset** .

Procedure

To create a cross section pane:

1. Click **Cross Section**  on the 3D Editor toolbar.
2. Click the down arrow to select an initial cross section plane to work with.

Interface

 **X**—Cross section perpendicular to the x axis.

 **Y**—Cross section perpendicular to the y axis.

 **Z**—Cross section perpendicular to the z axis.

 **Flip**—Flips the cross section plane to show the opposing cross section.

 **Reset**—Return to the original position.

 **Settings**—Used to change the settings for cutting and cross sectioning.

Note: You cannot save your changes in Deep View. That is, the changes are only effective for the current session.

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Cross Section Settings

3D Editor Toolbar >Cross Section > Settings

Using the Cutting and Cross Section Settings dialog, you can modify the default settings for cutting and cross-sectioning. The settings are saved to your computer registry for future use.

Procedure

To open the Cutting and Cross Section dialog:

1. Click **Cross Section**  on the 3D Editor toolbar.
2. Click **Settings** .
3. Make the selections you require.
4. Click **OK**.

Interface

Cross Sections—Used to establish general settings for cross sectioning.

- **Create caps**—Creates caps or not.
- **Create outline**—Used to create an outline of the cross section plane.
- **Cross section outline width**—Used to set the width for the outline of the cross section plane.
- **Cross section outline**—Used to open the color selector and select a color in which to display the outline of the cross section plane.
- **Cross section plane**—Used to open the color selector and select a color in which to display the cross section plane.
- **Cross section opacity**—Determines the opacity of the cross section plane.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved.

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

Help—Opens the relevant Help topic.

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Visual Comparisons

Select > 3D Editor Toolbar > Visual Compare

Visual Compare is a feature that allows you to compare two versions of an object or assembly. You can paint each marked object in the scene in three different colours, where each color denotes a particular version, in order to visualize the difference between two given objects or assemblies (2D or 3D). These are:

- an allocated color for union parts. That is, parts that appear in both versions.
- an allocated color for parts that are unique to version A.
- an allocated color for parts that are unique to version B.

For 2D images, three viewing modes are available. These are Composite, Difference and Union views. For 3D objects or assemblies, the only view available is the Composite view, and all other views are disabled.

The following assumptions are made:

- If the scene has no marked objects, all objects are marked as version A, you only need to specify version B objects.
- If the scene contains both A and B versions, composite mode is automatically displayed.
- If the scene contains only objects marked as Version A, all other objects are marked as Version B, and vice versa.
- All previously marked objects restore their original versions even if you change them during session time.

Note: Currently only the DirectX 9 display driver supports Compare functionality.

Procedure

To perform a Visual Comparison:

1. Open a 3D file or a 2D vector drawing.
2. Click **Visual Compare**  on the 3D Editor toolbar.
3. Click **Settings** .
4. Make your colour selections as required and click **OK**.
5. Click **Start/Cancel** .
6. Do one of the following:
   - Click **Assign Version A**  to mark your selected objects as version A.
   - Click **Assign Version B**  to mark your selected objects as version B.
7. Do one of the following:
   - Click **Show Composite**  to show the entire object, with versions A and B clearly marked in the assigned colors.
   - Click **Show Version A only**  to show only those parts marked as version A.
   - Click **Show Version B only**  to show only those parts marked as version B.

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Visual Compare Settings

3D Editor Toolbar > Visual Compare > Settings

The Visual Compare Settings dialog is used to assign specific colors to objects so that the version in which they belong is easily distinguishable.

Procedure

To open the Visual Compare Settings dialog:

1. Click **Visual Compare**  on the 3D Editor toolbar.
2. Click **Settings** .
3. Make the selections you require.
4. Click **OK**.

Interface

Version A color—Used to assign a color for version 1 objects.

Version B color—Used to to assign a color to version 2 objects.

Union Parts color—Used to assign a color to objects that appear in both versions.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved.

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

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Orthographic and Perspective Projection

3D Editor Toolbar >Orthographic Projection
3D Editor Toolbar Perspective Projection

Views can be changed between orthographic projection and perspective projection by using the Projection options on the 3D Editor toolbar.

You can use the arrow to the right of the toolbar button to switch from one view to the other. If you are viewing your scene using orthographic projection, the button displays as 'Orthographic Projection', and if you are viewing your scene using perspective projection, the button displays as 'Perspective Projection'.

Procedures

To use orthographic projection to view your scene:

Click **Orthographic Projection**, .

The scene displays using orthographic projection.

To use perspective projection to view your scene:

Click **Perspective Projection**, .

The scene displays using Perspective projection.

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2D Object Editing Tools

2D Editor toolbar > Transforms

You can perform a variety of functions on 2D images, including flipping and rotating the image, and applying grayscale.

Note: The 2D Toolbar only displays when you are viewing a 2D image. Viewing a 2D drawing displays a modified 3D Editor toolbar.

Procedures

To flip the image horizontally:

1. Open a 2D file.
2. Do one of the following:
   - Click **Flip Horizontally** , on the 2D Editor toolbar.
   - Click **Flip Vertically** , on the 2D Editor toolbar.

The flipped image displays in the viewport.

To rotate the image:

1. Open a 2D file.
2 Do one of the following:
   - Click **Rotate 90 clockwise** , to rotate the image 90 degrees in a clockwise direction.
   - Click **Rotate 90 counter clockwise** , to rotate the image 90 degrees in a counter clockwise direction.

To apply grayscale to the image:

1. Open a 2D file.
2. Click **Grayscale**  on the 2D Editor toolbar.

The image displays in the viewport as a grayscale image.

To display or hide all smoothing from the image:

1. Open a 2D file.
2. Click **Smoothing**  on the 2D Editor toolbar.

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Steps and Procedures

Information panel > Steps
Scene Components panel > Steps information

Just as model views emulate the properties of schematic diagrams, 'steps' can emulate sequences of instructions. Each step has a label and arbitrary text, and comprises a number of user-defined animated sequences that are displayed when you play the step.

Procedures within the manufacturing industry are often focused on Assembly, Disassembly, Testing, Maintenance, and Service. A “Procedure” within Deep View is a series of steps with an animation sequence or sequences attached to each step.

Steps are helpful for including 3D-view instructions in files, such as PDF files. They are based on the current view of the scene. Each step has an associated camera, and render mode.

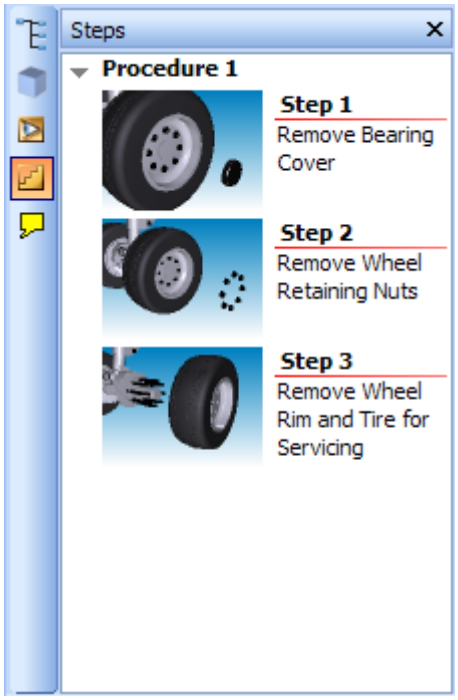
Steps are displayed in the Steps panel in the form of a thumbnail for each step. These steps may be grouped into a procedure.

When you select a step:

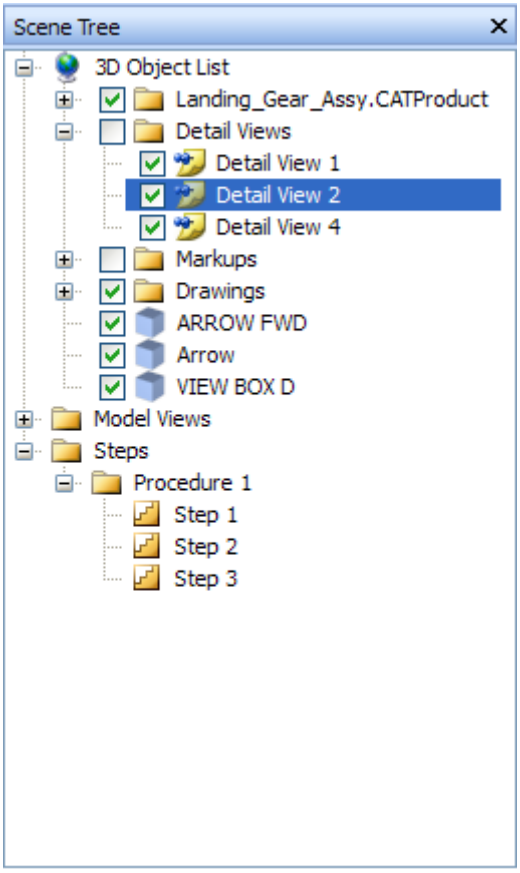
- The active viewport is set to the associated camera and render mode.
- All objects that are not associated with the step become invisible.

The Steps panel is used to play and activate steps. Using the right-click menu, you can also modify the step properties including defining the instructional text.

The illustrations below show the two different ways in which you can access the associated steps in a file.



Information Panel: Steps Information



Scene Tree: Steps

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Procedures

To play a step do one of the following:

- Click **Steps**  on the Information panel, and click the step you want to view.
- Click the step you want to view from the Steps information list in the Scene Components panel.

To play an entire procedure do one of the following:

1. Click **Steps**  on the Information panel, and click the procedure you want to view.
2. Do one of the following:
   - Click **Play**  to play all animations attached to the currently selected step.
   - Click **Play All**  to play all steps in the procedure in order from start to last. To play all steps in all procedures in a loop, right-click the animation toolbar and select 'Play all steps cyclic'.

To view the properties of a step:

1. Click **Steps**  on the Information panel, and click the procedure you want to view.
2. Click the step that you want to view.
3. Right-click the step and select **Properties**.

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Printing Files

When you print a Word document that contains 3D content, you are able to print the images of the models with high resolution. This option does not affect the quality of 3D models that are displayed in Word or in any other application; for example, FrameMaker or PowerPoint.

You cannot change the resolution of a printed image in PowerPoint, FrameMaker, or Excel.

Note: Saving models with a high image resolution can increase the size of the files.

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User Interface

The application interface in Deep View consists of the 3D viewport, Information panel, Measurements toolbar, 2D/3D Editor toolbars, Animation toolbar, and various right-click menus.

See the topics referenced below for detailed information on all of the user interface components.

Interface

Viewports (on page 131)—Used to view and modify the currently opened file. For example, a 3D scene or 2D image.

Information panel (on page 73)—Displays various types of information relating to the current file, depending on the viewport selection. The available components of the Information Panel vary, depending on the contents of the 3D file. For example, if a file does not contain steps or model views, these components do not display.

- **Scene** (on page 74)**Tree**—Comprises the the 3D Objects list, Model Views, and Steps.
- **Parts**—Displays a list of all parts associated with a model.
- **Layers**—Displays all layers associated with a model.
- **Model Views**—Displays all model views associated with a model.
- **Steps**—Displays all steps associated with a model.
- **Collaboration**—Displays the Collaboration window, and enables you to start conversations and collaborate with others.

Note: If you are accessing Deep View via Deep Access 5.7.x or earlier, the Collaboration Window is not available. Original teamwork markups using the Drawing and Markup toolbar only, are available.

Measurement toolbar (on page 87)—Used to display the Measurement control tools.

3D Editor toolbar (on page 89)—Used to display various view modes, clipping and pull apart tools.

2D Editor toolbar (on page 91)—Used to display buttons relating to functionality for 2D images.

Note: The 2D Editor toolbar is only available when viewing 2D images.

Animation toolbar (on page 93)—Provides controls for animated scenes.

Right-click menus—Sets of commands relating to the standard Deep View functionality.

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Deep View Viewer Menu



The menu bar is located directly under the main window title bar. The menu bar uses standard Microsoft Windows conventions.

Interface

File Menu

Help Menu (on page 106)

File Menu

Menu bar > File

The File menu is used to manage 2D and 3D files.

Interface

Open—Used to open supported files. The Open dialog is displayed from where you can locate the file you want to open.

Reload File—Reloads the currently selected file from its original location.

Close—Closes the currently selected file.

Save—Saves the current file.

Save As (on page 67)

Email—Emails the currently selected file to another user for collaboration.

Print (on page 67)—Prints the current image on the selected printer.

Exit—Quits the program. If files are being transferred when you close the application, the transfer is cancelled.

Save As

Menu bar > File menu > Save As

The Save As dialog is used to establish save settings for the selected file type (format).

Interface

File name—The name for the saved file.

Save as type—The format in which you want to save the file.

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Print

Menu bar > File menu > Print

The Print dialog is used to establish print settings for the selected file. This will determine the file's appearance when printed.

Interface

Colors—Opens the Printer Colors dialog (on page 68).

Orientation—The orientation with which you want to print the file.

- **Portrait—**The file prints with portrait orientation. That is, vertical positioning on the page.
- **Landscape—**The file prints with landscape orientation. That is, horizontal positioning on the page.

Color Mode—Used to select the amount of color that will be used in printing the file.

- **Color—**Prints the file in full color.
- **Grayscale—**Prints the file in shades of gray.
- **Black and White—**Prints the file in black and white.

Margins—Used to set the page margins for the printed file.

- **Left—**Used to set the size of the left margin.
- **Right—**Used to set the size of the right margin.
- **Top—**Used to set the size of the top margin.
- **Bottom—**Used to set the size of the bottom margin.

DPI—Used to determine the resolution of the image or how many pixels are defined in the boundary of a square inch, when printing. This is expressed as dots per inch (DPI).

Number of Copies—Used to select the number of copies that you want to print.

Printer—Used to select the printer on which you want to print the file.

Print to File—Indicates that the file prints to file, instead of to a printer.

Note: The file output must be a *.prn and this will encode according to the device type selected.

OK—Closes the dialog and applies the settings. Any changes made to the settings are saved..

Cancel—Cancels the process and closes the dialog. Any changes made to the settings are lost.

Printer Colors dialog

Menu bar > File menu > Print > Colors

The Printer Colors dialog is used to apply colors for the printing of scene elements. For example, you can print the bounding box in green and vertices in red. The default material setting can also be modified.

Procedure

To apply a color to a scene element for printing:

Click the checkbox next to an element in the Printer Colors window, and then click **OK**.

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Interface

Use Screen Colors—Used to print the scene elements on a color printer exactly as they display on the screen.

Background top—Used to set the color of the upper half of the viewports' background gradient.

Background bottom—Used to set the color of the lower half of the viewports' background gradient.

Illustration Background top—Used to set the color of the upper half of the viewports' illustration background gradient.

Illustration Background bottom—Used to set the color of the lower half of the viewports' illustration background gradient.

2D Files Background—Used to set the color of the background gradient for 2D files.

Bones—Used to set the color of the model's bone structure.

Bone influence area—Used to set the color of the areas influenced by bones.

Bone affect area (Minimum)—Used to set the color of the minimum area affected by bones.

Bone affect area (Maximum)—Used to set the color of the maximum area affected by by bones.

Bounding box of all objects—Used to set the color of the bounding box lines that surround all objects.

Bounding box of scene—Used to set the color of the bounding box lines that surround the scene.

Bounding box of selected objects—Used to set the color of the bounding box lines that surround selected objects.

Transparent bounding box—Used to set the color of the transparent bounding boxes that surround all objects.

Shadow—Used to set the color of the scene shadow.

Default material ambient color—Used to set the color of the general light that illuminates the entire scene. Ambient light has a uniform intensity and is uniformly diffuse. It has no discernible source and no discernible direction.

Default material diffuse color—Used to set the color of the diffuse light that is reflected in a scene. Because most scenes contain much more diffuse light than ambient light, diffuse reflection plays the largest part in determining the overall color. Additionally, because diffuse light is directional, the angle of incidence for diffuse light affects the overall intensity of the reflection. Diffuse reflection is at its greatest when the light strikes a vertex parallel to that vertex normal. As the angle of reflection increases, the effect of the diffuse reflection diminishes. The amount of light reflected is the cosine of the angle between the incoming light and the vertex normal.

Note: Files may display differently in the viewport if you change the diffuse color material.

Default material specular color—Used to set the color that creates highlights on objects making them appear shiny, that is, the reflection.

Default material emissive color—Used to set the color that makes a rendered object appear self-luminous. Emission affects an object's color and can, for example, make a dark material brighter and take on part of the emitted color.

Faces in Line Illustration mode—Used to set the color of the faces in Line Illustration mode.

Selected faces—Used to set the color of selected faces.

Border of Selected face—Used to set the border color of selected faces.

Lines in Line Illustration mode—Used to set the color of the line when displaying a scene in Line Illustration and Hidden Wireframe modes.

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Lines in Shaded Illustration mode—Used to set the color of the lines in Shaded Illustration and Solid Outline modes.

Lines in Wireframe mode—Used to set the color of the lines in the various Wireframe modes.

Selection highlight—Used to set the color of the selected object's highlights.

Solid grid light cell—Used to set the color of the lighter cells of the solid grid, or ‘floor’ of the scene.

Solid grid dark cell—Used to set the color of the darker cells of the solid grid.

Transparent grid light cell—Used to set the color of the lighter cells of the transparent grid.

Transparent grid dark cell—Used to set the color of the darker cells of the transparent grid.

Subdivision control mesh—Used to set the color of the subdivision surface control mesh.

Surface normals—Used to set the color of surface normals.

Vertex-cross color—Used to set the color of the crosses representing an object's vertices.

Vertices in Vertices mode—Used to set the color of the vertices when displayed in Vertices mode.

Viewport labels—Used to set the color of the viewport labels.

Illustration Viewport labels—Used to set the color of the illustration viewport labels.

Wire grid—Used to set the color of the lines of the wired grid, or 'floor'.

X Axis—Used to set the color of the x-axis of the selected object and the world coordinate system, or 'axes'.

Y Axis—Used to set the color of the y-axis of the selected object and the world coordinate system.

Z Axis—Used to set the color of the z-axis of the selected object and the world coordinate system.

Cross section outline—Used to set the color of the cross section plane's outline.

Cutting plane—Used to set the color of the cutting plane.

Non output size area—Used to set the color for the area outside the output size area.

Output Size border and margin—Used to select the color of the border and margin for the output size area.

Detailed view border—Used to select the color of the detailed view border.

Illustration detailed view border—Used to select the color of the detailed view border when you are in illustration mode.

OK—Applies the settings and closes the dialog. Any changes made to the settings are saved.

Cancel—Closes the dialog. Any changes made to the settings are lost.

Help—Opens the relevant Help topic.

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Help Menu

Menu bar > Help

The Help menu provides access to the application's Help reference system and other helpful information.

Interface

Internet Update (on page 71)—Opens the Update dialog, and is used to establish the settings for updating files using Right Hemisphere's Cortex utility (http://www.righthemisphere.com/support/help/cortex/cortex_readme.htm).

Deep View Help—Displays the application's User Reference (online Help).

About Deep View—Displays a range of information about Deep View including the copyright and version information.

Update Dialog

Menu bar > Help Menu > Internet Update

The Update dialog is used to modify the update settings for Deep View, including stopping automatic updates and changing the update frequency. For example, you can set Deep View to be updated by Cortex every month or every week as you require.

Interface

Automatically update with Right Hemisphere server—Updates Deep View automatically when the selected amount of time has passed.

Update—Select the frequency of the update process from the drop down menu, from everyday to once a month.

OK—Closes the dialog and saves the settings.

Cancel—Closes the dialog. Any changes made to the settings are lost.

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Deep View Viewer Toolbar



The Viewer toolbar contains buttons relating to standard Deep View functionality.

Note: These options are also available from the File Menu (on page 67).

Interface

 **Open**—Used to select a file to open.

 **Save**—Used to save the existing file.

 **Email**—Used to email the file to another user for collaboration.

 **Print**—Used to print the file.

 **Help**—Used to open the Help File.

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Information Panel

The Information panel is used to access the Scene tree, Parts list, Model Views, Step, and Layer information. It is used to control the file components from within a tree-view hierarchy.



Information Panel

Note: The available components of the Information Panel vary, depending on the contents of the 3D file. For example, if a file does not contain steps or model views, these components do not display.

Procedure

To display the panel's components, click one of the following:

- **Scene Tree** to display the Scene tree.
- **Parts List** to display the Parts list.
- **Layers** to display associated layers.
- **Model Views** to display the associated model views in detail.
- **Steps** to display the associated steps in detail.
- **Collaboration** to display the Collaboration window, and create conversations containing comments and redlines.

Interface



Scene tree—Comprises the the 3D Objects list, Model Views, and Steps.

- **3D Objects list**—Displays all objects within a scene. It is used to select, display, and hide objects, and to edit the object's properties. Once an object is selected, the object name is highlighted in the list.



Parts List—Displays a list of all parts.



Layers—Displays all layers associated with a model.



Model Views—Displays all model views associated with a model.



Steps Information—Displays all steps associated with a model.



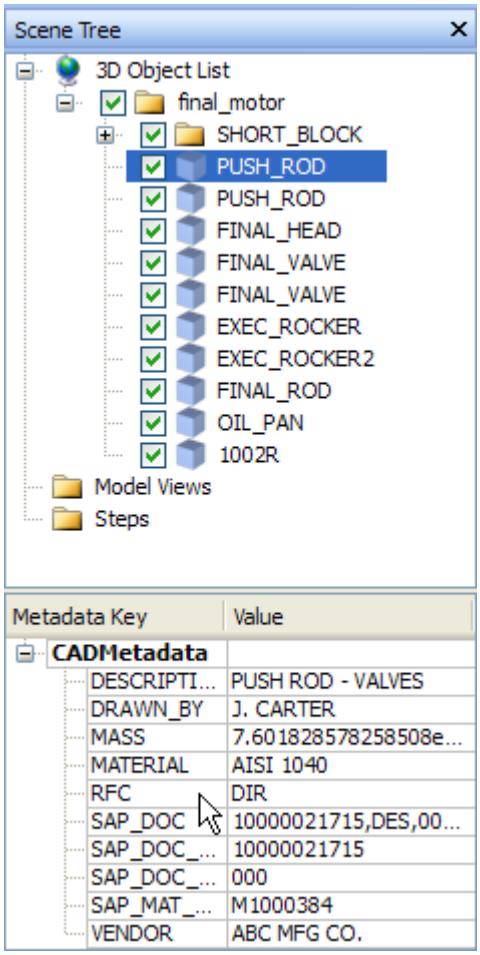
Collaboration—Displays the Collaboration window, and allows you to add comments to the model, and create a conversation.

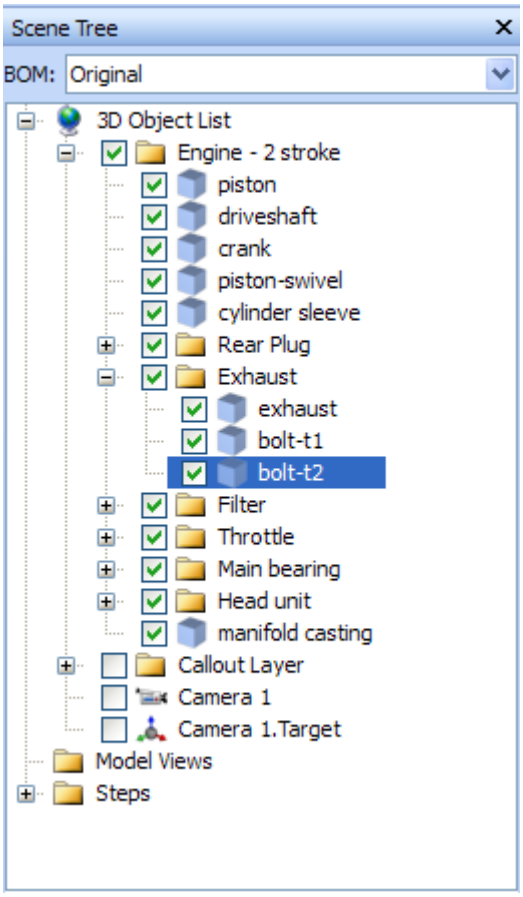
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Scene Components Panel

The Scene Components panel is displayed with 3D files and comprises a number of components; BOM information, the Scene tree, Model Views, and Step information. It is used to control the file components from within a tree-view hierarchy. Every node, object, and material is indicated by a separate icon (on page 75).

You can display, hide, and select scene components. You can also collapse the object hierarchy. The navigation bar displays the different components, and closes the panel.





Example 1: Scene Components Panel: Scene tree - no BOM

Example 2: Scene Components Panel: Scene tree - multiple BOM

Windows hierarchy conventions apply to the panel. For example, if you select an object's parent check box, all child objects are also selected. However, pressing CTRL and selecting a parent check box, selects only that object.

The panel contains various right-click menus (on page 106) that relate to the area you are using.

Multiple Bill of Materials

A list of parts (objects of the model) with the corresponding callouts can be displayed. This is called the Bill of Materials, BOM or BOM list. The BOM includes the part numbers and names and quantities of multiple copies of the same part. Initially the parts are grouped by name showing the number of parts with the same name.

You can select a hierarchy structure, where multiple BOMs are used. The BOM field only displays when there are associated multiple BOMs.

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Metadata Columns

Metadata Columns only display when at least one of the objects has metadata. These columns of information are added to the BOM in Deep Exploration.

Procedures

To display the scene tree:

Click the scene tree icon  in the 3D viewport.

To change the size of the Scene Tree:

Drag left or right from the right of the Scene Tree.

To close the Scene Tree:

Click the cross in the top, right of the Scene Tree.

To collapse the Scene Tree:

Press SHIFT + C on your keyboard.

Interface

BOM—Deep View can support more then one hierarchy structure (scene tree) in the scene. Used to select a hierarchy structure, where multiple BOMs are used.

Scene tree—Comprises the the 3D Objects list, Model Views, and Steps.

- **3D Objects list**—Displays all objects within a scene. It is used to select, display, and hide objects, and to edit the object's properties. Once an object is selected, the object name is highlighted in the list. If the object contains attached metadata, the key names and their associated metadata values are displayed in the lower portion of the scene tree.

Model Views—Displays all model views associated with a model.

Steps Information—Displays all steps associated with a model.

Property—Displays the metadata field name.

Value—Displays the value associated with the metadata key.

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Scene Components Panel Icons

Every node, object, and material displayed in the Scene Components panel (on page 74) is indicated by an icon.

Interface

 **3D Objects list node**

 **Group node**

 **Mesh object**

 **Bone object**

 **Camera object**

 **Light object**

 **Target object**

 **Markup object**

 **Model View**

 **Step**

Scene Tree

Scene Components panel > Scene tree

The Scene tree comprises the 3D Objects list, the Model Views folder, and the Steps folder. It can be used to show, hide, and select objects, model views and steps within scenes. Scenes can be enhanced by modifying the scene, and object properties.

When you create comments in a scene, the objects are displayed in this list, from where they can be edited, hidden, and deleted.

The tree's check boxes can be used to show and hide objects. They respect hierarchy if it is present; clearing the highest check box in a hierarchy clears all subordinate check boxes.

Note: You can also use the 3D viewport right-click menu (on page 96) to show and hide objects.

A number of properties can be set for 3D scenes and objects using the dialog boxes.

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3D Objects List

The 3D Objects list presents, and is used to control all of a scene's objects and materials from within a tree-view hierarchy. The check boxes can be used to select, display, and hide the objects.

A right-click menu (on page 107) can be used for object display and selection. This menu increases in importance as the complexity of the scene increases. You can also view and modify the properties of the scene and all its objects.

Model Views Folder

The Model Views folder presents, and is used to control the different model views, and/or portfolios associated with a scene. A right-click menu (on page 107) can be used for display and selection.

Steps Folder

The Steps folder presents, and is used to control and play the different steps and procedures within a scene. A right-click menu (on page 107) can be used for display and selection.

Scene Properties Dialog

Scene tree > 3D Objects list > Double-click 3D Objects node
Scene tree > 3D Objects list > Right-click with no selection > Scene Properties
Right-click 3D viewport with no selection > Scene Properties
ALT + ENTER with no selection

A number of properties can be viewed for 3D scenes including the units of measurement used, and associated scene metadata.

Procedure

To open the Scene Properties dialog, do one of the following:

- Double-click the 3D Objects node in the 3D Objects list.
- Right-click in the 3D Objects list with nothing selected, and then click **Scene Properties**.
- Right-click in the 3D viewport with nothing selected, and then click **Scene Properties**.
- Press ALT + ENTER with nothing selected.

Environment Tab

Scene Properties dialog > Environment tab

The Environment tab is used to view the global display settings including the scene's environment attributes and the unit measurement.

Interface

Units and Scale—Displays the unit type for the scene. The custom unit (scene unit) is a measurement in meters. For example, 1 scene unit = 0.01 meters.

Source—Displays the source file for the measurement.

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Summary Tab

Scene Properties dialog > Summary tab

The Summary tab is used to view a summary of the information relating to the scene's appearance including the number of vertices and faces, any texture coordinates, and any animation values.

The information is automatically updated when you modify the properties of the scene.

Interface

OK—Closes the dialog.

Cancel—Closes the dialog.

Help—Opens the relevant Help topic.

Metadata Tab

Scene Properties dialog > Metadata tab

The Metadata tab is used to view the metadata that is associated with the scene. Metadata only displays when at least one of the objects has metadata. These columns of information are added to the BOM in Deep Exploration.

Interface

Property—Displays the metadata field name.

Value—Displays the value associated with the metadata key.

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Object Properties Dialog

Scene tree > 3D Objects list > Right-click an object > Object Properties
Scene tree > 3D Objects list > Double-click object
Parts list > Right-click a part > Object Properties
Parts list > Double-click part
Right-click selected object in 3D viewport > Object Properties

Properties can be viewed for individual objects using the Object Properties dialog.

Note: Render method of an object cannot be set in Deep View.

Procedure

To open the Object Properties dialog, do one of the following:

- Right-click an object or a part in the 3D Objects, and click **Object Properties**.
- Double-click an object or a part in the 3D Objects, and click **Object Properties**.

Summary Tab

Object Properties dialog > Summary tab

The Summary tab is used to view a summary of the information relating to the object's appearance including the number of vertices and faces, any texture coordinates, and any animation values.

The information is automatically updated when you modify any properties relating to the scene.

Information Tab

Object Properties dialog > Information tab

The Information tab is used to view a summary of the information relating to the object's appearance including the number of vertices and faces, any texture coordinates, the parent object name (if any), and any animation values.

The information is automatically updated when you modify the properties of either the object or any associated material.

Metadata Tab

Object Properties dialog > Metadata tab

The Metadata tab is used to view the metadata that is associated with the object. Metadata only displays when the object has metadata. These columns of information are added to the BOM in Deep Exploration.

Interface

Property—Displays the metadata field name.

Value—Displays the value associated with the metadata key.

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Transformation Tab

Object Properties dialog > Transformation tab

The Transformation tab displays the selected 3D objects geometry and transformation information including the transform values (position, rotation, scale, and shear) of the selected objects along the axes. These are displayed encoded in a matrix and are relative to the world coordinate system by default.

An object's 'extents' are its maximum dimensions in X, Y, and Z. These are the dimensions of the rectangular bounding box that surrounds the object in local object coordinate system.

Interface

Relative to parent coordinate system—The position, rotation, scale, shear, and transform matrix values relative to the parent coordinate system.

Position—Used to display the position of the object along the X, Y, and Z axes. The values are relative to the parent coordinate system if it is a child object and the 'Relative to parent coordinate system' check box is selected.

Rotation—Used to display the object's rotation about the X, Y, and Z axes. The values are relative to the parent coordinate system if it is a child object and the 'Relative to parent coordinate system' check box is selected.

Scale—Used to display the object's scale along the X, Y, and Z axes. The values are relative to the parent coordinate system if it is a child object and the 'Relative to parent coordinate system' check box is selected.

Shear—Used to display the object's shear along the X, Y, and Z axes relative. The values are relative to the parent coordinate system if it is a child object and the 'Relative to parent coordinate system' check box is selected.

Transform matrix—The transform values of the selected object. The values are relative to the parent coordinate system if it is a child object, and the 'Relative to parent coordinate system' check box is selected.

Dimension—The object's dimensions along the X, Y, and Z axes.

Materials Tab

Object Properties dialog > Materials tab

The Materials tab displays the numbers, names, textures, and faces of the materials assigned to the selected object.

Interface

Number—Displays the system generated numbers of the materials used by the object.

Name—Displays the names of the materials used by the object.

Texture—Displays the texture files of the materials used by the object.

Faces—Displays the number of faces of the materials used by the object.

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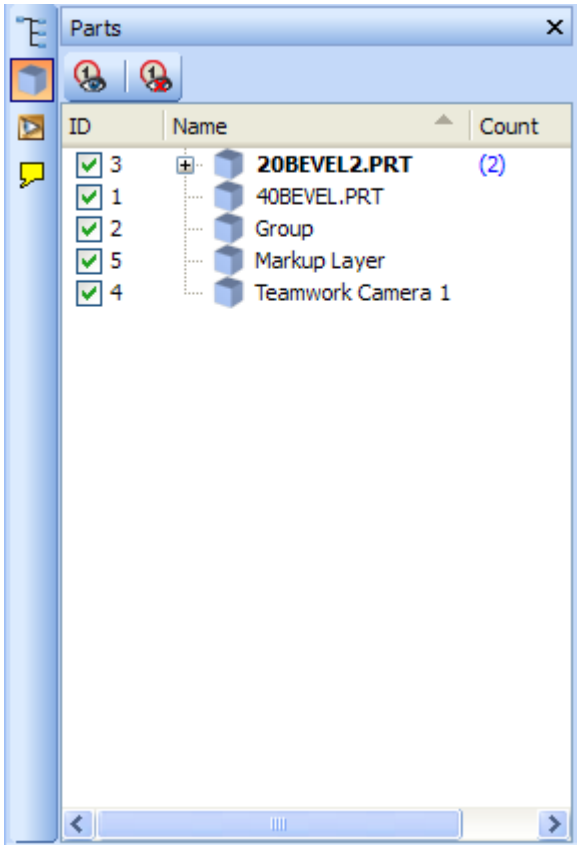
Parts List

Information panel > Parts List

The Parts List displays a list of all the parts that are associated with the current 3D file.

A right-click menu is available, from where you can perform a number of object-type functions including displaying and selecting objects, and viewing the properties of the selected object.

The Parts List displays all duplicated objects and the number of times that they are used in the scene. However, it displays only the objects that are part of the selected BOM source.



Information Panel: Parts List

Interface

Show Callouts—Used to display callouts.

Hide Callouts—Used to hide all callouts.

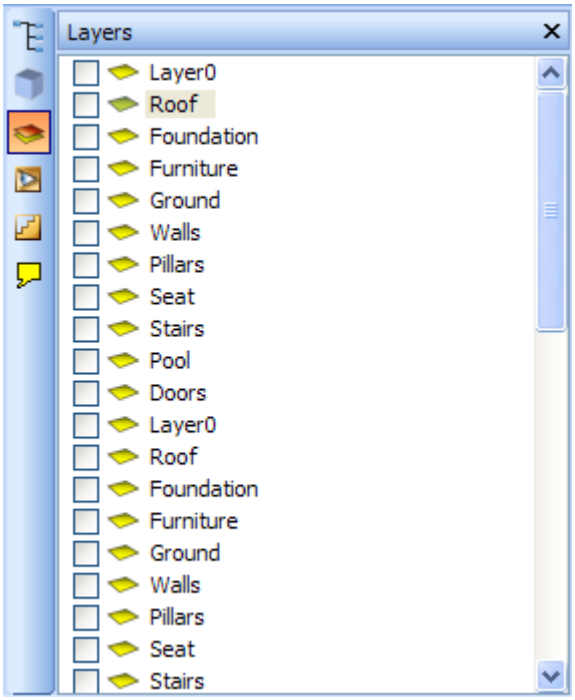
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Layers Information

Information panel > Layers

The Layers list displays a list of all the layers that are associated with the current 3D file.

The bar can be resized, moved, floated, docked, and closed similar to the functionality in most Windows applications.



Information Panel: Layers Information

See Layers (on page 49) for further information.

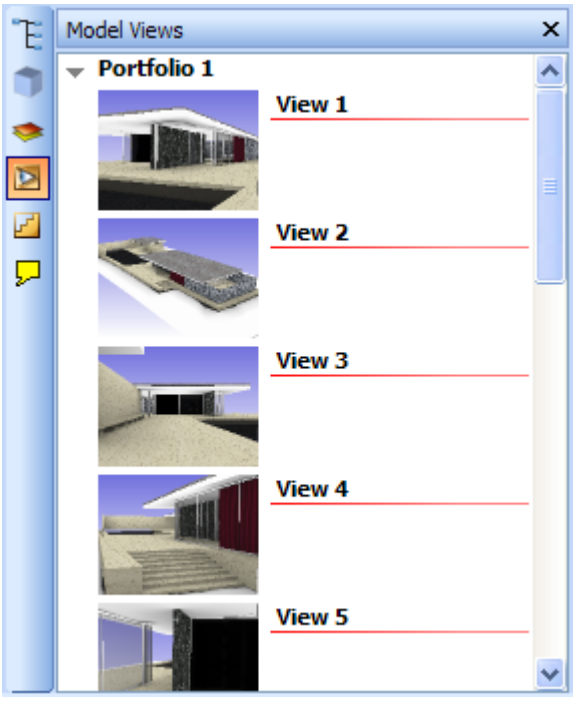
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Model Views

Information panel > Model Views
Information panel > Scene Tree > Model Views

The Model Views tab displays a list of all the model views that are associated with the current 3D file. If applicable, these are grouped by portfolio.

A right-click menu is available, from where you can activate the model view, and also view the properties (on page 83).



Information Panel: Model Views Information

See Model Views and Portfolios (on page 34) for further information and procedures.

Model View Properties Dialog

Model Views panel > Right-click model view > Properties

The Model View Properties dialog is used to view descriptions and keywords for the model view.

Interface

Name—The model view's name.

Description—The model view's description.

Keywords—Contains any keywords associated with the model view.

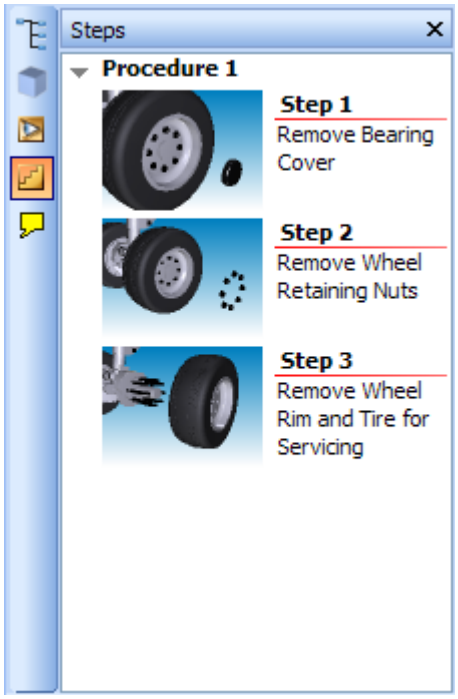
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Steps Information

Information panel > Steps
Information panel > Scene Tree > Steps

The Steps Information tab displays a list of all the steps that are associated with the current 3D file. If applicable, these are grouped by procedure.

A right-click menu is available, from where you can play the step, and also view the properties (on page 84).



Information Panel: Steps Information

See Steps and Procedures (on page 63) for further information and procedures.

Step Properties Dialog

Steps and Procedures panel > Right-click step > Properties

The Step Properties dialog is used to view step properties, including names, descriptions, and any keywords associated with the step.

Interface

Name—The step's name.

Description—The step's description.

Keywords—Contains any keywords associated with the step.

OK—Closes the dialog.

Cancel—Closes the dialog.

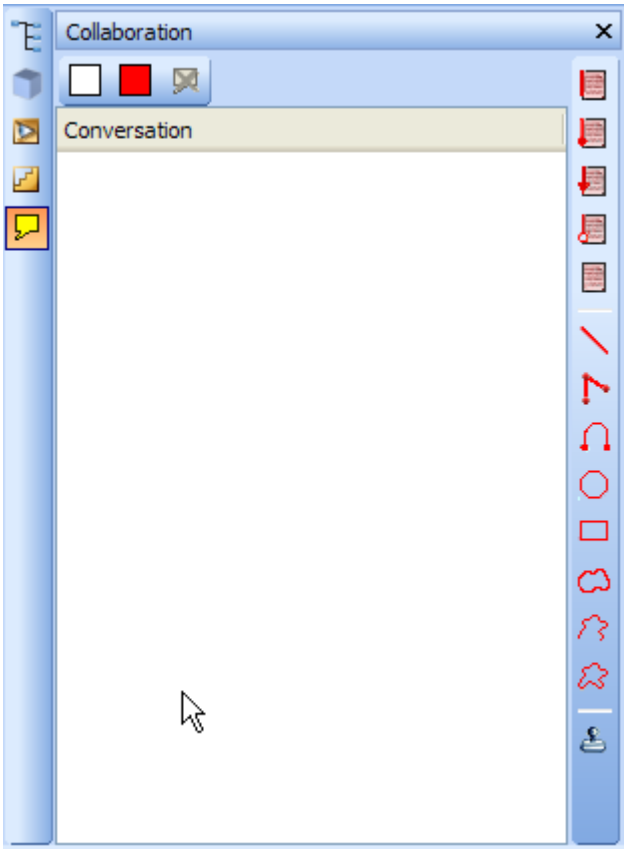
Help—Opens the relevant Help topic.

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Collaboration Window

Information panel > Collaboration

The Collaboration Window is used to create and edit various kinds of comments (on page 42), which can be used to direct attention to, and identify parts of a model.



Information Panel: Collaboration Window

See Collaboration (on page 42) for further information and procedures.

The window can be resized, moved, floated, docked, and closed similar to the functionality in most Windows applications.

Interface

Change User Color (on page 42)

Change User Color Background (on page 42)

Delete Selected Conversation (on page 42)

Comment Line (on page 42)

Comment Point (on page 42)

Comment Arrow (on page 42)

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 **Comment Circle** (on page 42)

 **Comment Normal** (on page 42)

 **Redline** (on page 42)

 **Polyline** (on page 42)

 **Arcs** (on page 42)

 **Circle** (on page 42)

 **Rectangle** (on page 42)

 **Cloud** (on page 42)

 **Freehand** (on page 42)

 **Closed Freehand** (on page 42)

 **Project onto Surface** (on page 42)

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Measurement Tools



The Measurement tools are used to measure the distance between two elements in a scene, or within a single element, and modify the measurement properties (on page 52).

There is also an option to show and hide PMI information, if the file that you are viewing contains it. This button is only available if the scene contains PMI.

Interface

Distance (on page 50)

Angle (on page 50)

Calibrate (on page 50)

Settings (on page 52)

Show / Hide all PMI

Object Elements Tools



When you create a measurement, you use the Object Elements tools to display, and snap to only the object elements (on page 50) that you want to measure; either vertices, edges, faces, or arcs. For example, if you select Vertices and Faces on the toolbar, only those elements are highlighted in the scene.

The elements that can be measured within the object are highlighted when your cursor moves them.

Procedures

To display the object elements tools to measure distance:

Click **Distance** on the Measurement toolbar.

To display the object elements tools to measure angle:

Click **Angle** on the Measurement toolbar.

Interface

Axis Restriction—Restricts the measurements to measuring a particular combination of axes.

- —X axis only.
- —Y axis only.

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- —Z axis only.
- —X and Y axes only.
- —X and Z axes only.
- —Y and Z axes only.



Scale Factor—Multiplies the scene's scale by the specified coefficient along each axis. All three scale factors must be non-zero.

 **Vertices**—Displays green 'points' indicating a corner of a polygon where two edges meet, or of a polyhedron where three or more faces meet. A polyhedron is a three-dimensional solid bounded by polygons.

 **Edges**—Displays lines of intersection between two faces.

 **Faces**—Displays planar surfaces of a geometric solid.

 **Arcs**—Displays lines that curve around a face with a center point displayed in red.

Cancel—Closes the object element tools and cancels the process.

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3D Editor Toolbar



A B C

A: **3D Editor toolbar - Pan**

B: **3D Editor toolbar - Orbit**

C: **3D Editor toolbar - Walkthrough**

The 3D Editor toolbar contains buttons relating to different 3D views and modes. The available buttons vary, depending on the mode in which you are viewing the model. For example, **Pan**, **Rotate**, or **Walkthrough** modes (see the above examples).

This toolbar is unavailable when viewing content with Internet Explorer.

Note: When you click outside the 3D viewport the 3D Editor toolbar fades away. You can show it again by pointing to it.

Interface

 **Orbit** (on page 26)

 **Turntable** (on page 26)

 **Walkthrough** (on page 26)

 **Pan** (on page 26)

 **Look Around** (on page 27)

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 **Set Walk Start Position** (on page 27)

 **Pull Apart** (on page 54)

 **Re-assemble** (on page 54)

 **Page Layout** (on page 28)

 **Home View** (on page 54)

 **Best Fit**

 **Zoom Window**

 **Cross Section** (on page 56)

 **Visual Comparison** (on page 58)

 **Model Render Mode** (on page 30)

 **Orthographic Projection** (on page 60)

 **Perspective Projection** (on page 60)

 **X-Ray** (on page 54)

 **Full Screen** (on page 35)

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2D Editor Toolbar (DV)



2D Editor toolbar

The 2D Editor toolbar contains buttons relating to functionality for 2D images.

This toolbar is unavailable when viewing 3D content.

Note: When you click outside the viewport the 2D Editor toolbar fades away. You can show it again by pointing to it.

Interface

 **Pan** (on page 26)

 **Page Layout** (on page 28)

 **Best Fit**

 **Zoom Window**

 **Rotate 90 Clockwise** (on page 61)

 **Rotate 90 Counter Clockwise** (on page 61)

 **Flip Horizontally** (on page 61)

 **Flip Vertically** (on page 61)

 **Fit to Screen** (on page 61)

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 **Original Size 1:1** (on page 61)

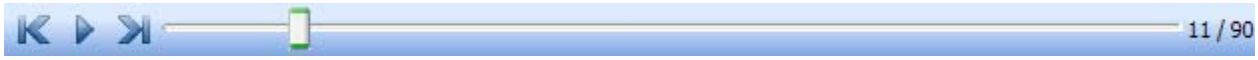
 **Grayscale** (on page 61)

 **Smoothing** (on page 61)

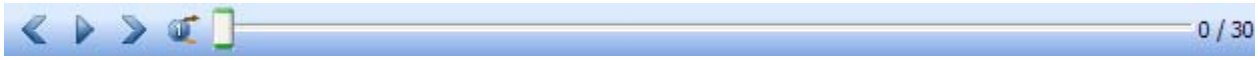
 **Full Screen** (on page 35)

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Animation Toolbar



Scene Level animation toolbar



Step animation toolbar

The Animation toolbar is used to control scene animation. It includes a time/frame slider and animation options. The Animation toolbar displays in two different ways; at scene level, or at step level, if the scene contains steps. It defaults to applying to the scene's steps, if there are any.

The Animation toolbar is only available when a scene is animated. In Word, Powerpoint, and Excel, it automatically displays when a document is opened that contains an animated scene.

Note: You may need to resize the active area (on page 128) to display the entire bar.

Procedure

To manually advance through the animation:

Drag the time/frame slider to move forwards and backwards through the animation.

Interface

 **Begin**—Moves to the beginning of the animation sequence.

 **Previous**—Moves to the previous step.

Note: The Previous button is ONLY available for scenes that contain steps. If the scene does not contain steps, the Begin button will display.

 **Play**—Plays the animation sequence as a continuous loop.

 **Next**—Moves to the next step.

Note: The Next button is ONLY available for scenes that contain steps. If the scene does not contain steps, the End button will display.

 **End**—Moves to the end of the animation sequence.

 **Play All**—Plays all the animation sequences from the first to the last sequence.

Note: The Play All button is ONLY available for scenes that contain steps.

Time/frame slider—Used to show the real-time status of the animation in progress, the current frame number, the total number of frames, and manually advance through the animation.

Animation toolbar right-click menu—Used to access options to establish animation settings and the type of play (simple, cyclic, ping-pong), or to select an animation sequence, if any.

- **Options** (on page 94)—Opens the Animation Options dialog where you can modify the animation settings.
- **Simple**—Sets the animation to play once from beginning to end.

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- **Cyclic**—Sets the animation to play continuously from beginning to end.
- **Ping-pong**—Sets the animation to play continuously back and forth from beginning to end, and from end to beginning.

Note: To use the simple, cyclic, and ping-pong options for step animations, a specific sequence must be loaded. For scene level animations, these apply immediately.

- **Sequences**—Used to select and activate individual sequences provided with a scene. These sequences can be used in a scene step, which can consist of one or more sequences, or in an animated scene. This option is only available if more than one sequence has been created for the animation.
  - **[sequence name]**—Moves to the selected sequence.

Animation Options

Animation Toolbar > Right-Click > Options
Right-click 3D viewport > Animate Options > Options

Using the animation options in the Animation Options dialog, you can control various animation settings including frame rate, duration, and time display.

The Sequence window displays a list of the animation sequences, including the default sequence. That is, the current scene animation.

Note: You cannot save your changes in Deep View. That is, the changes are only effective for the current session.

Procedure

To open the Animation Options dialog, do one of the following:

- Right-click the Animation toolbar and then click **Options**.
- Right-click the 3D viewport, click Animate Options, then click **Show Animation Toolbar**.

Interface

Sequence window—Displays the current scene's animation sequence.

- **Name**—The name of the animation sequence.
- **Start**—The number of the frame where the animation begins.
- **End**—The number of the frame where the animation ends.
- **FPS**—The frames per second, that is, the number of frames of an animation sequence that are displayed every second. The higher the frame rate, the smoother the animation. However, more processing power and system bandwidth are required. This setting reflects on the playback system as various film, computer, and TV playback systems differ.

Playback Control—Used to select the percentage playback speed and to skip frames.

- **Speed**—Determines the percentage playback speed, that is, the speed the animation plays back as a percentage of real-time speed. For example, if the animation is 10 seconds long and you enter 100%, it will take 10 seconds to playback. However, if you enter 50%, the animation will take 20 seconds to playback.
- **Skip frames**—Skips frames if the computer cannot keep pace with the current frame rate (FPS). This causes certain frames to be missed when playing the animation. Otherwise, all frames are displayed during playback even if they are not displayed at the current frame rate.

Continuous time—Calculates the animation between frames (frame interpolation), as you move the slider.

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Snap to frames—Moves from frame to frame, without frame interpolation, when moving the slider.

Default Fly to camera time—Sets the default flyto camera time.

Play all steps cyclic—Plays all animation continuously from beginning to end.

Time Display—Used to select how to display the time in the time/frame slider. This setting operates in relation to the FPS. For example, if the time slider is at frame 45, and the FPS is set to 30, the time slider displays the following for each of the different time display options: Frames: 45, Seconds: 1.5, MM:SS: 0:1.50 and SMPTE: 0:1:15.

- **Frames**—Displays the time in frames.
- **Seconds**—Displays the time in seconds.
- **MM:SS**—Displays the time in minutes and seconds.
- **SMPTE**—Displays the time in the Society of Motion Picture Technical Engineers standard. This standard measures video and television production time.

OK—Applies and saves the settings, and then closes the dialog.

Cancel—Closes the dialog. Any changes made to the settings are lost.

Help—Opens the relevant Help topic.

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Right-Click Menus

A number of right-click menus are available within the Scene Components panel, the 2D viewport (on page 136), and the 3D viewport (on page 96), providing tools to manage and edit your 3D content.

Note: The menus displayed may vary depending on the graphics card installed in your computer.

3D Viewport Menus

Right-click scene no selection
Right-click one or more objects

The 3D viewport right-click menu contains a number of commands including commands for selecting a display renderer, editing the scene settings, controlling model animation, and screen display.

Note: The available options differ depending on the application you are using, and the location of your cursor.

Interface

Camera View (on page 97)—Use this menu to select the aspect of the model you require.

Display (on page 98)—Use this menu to control all aspects relating to display. This includes lights, background, and whether items display or are hidden in the scene. For example, grid lines.

Animate Options (on page 101)—Use this menu to control model animation.

Preferences (on page 102)—Use this menu to set user preferences.

Delete (on page 105)—Use this menu to alter the appearance of the background.

Help (on page 106)—Use this menu to select the online help.

Zoom Active Object—Zooms the selected object to the best fit in the scene.

Zoom Visible—Zooms all visible objects to the best fit in the scene.

Zoom All—Resizes all objects to the best fit in the scene.

Home—Return to home.

Select All—Selects all objects in the scene.

Invert Selection—Selects all other objects.

Toggle Visibility—Shows and hides the selected object.

Hide Selection—Hides the selected object.

Hide Unselected—Hides all unselected objects.

Show All Objects—Displays all objects.

Full Screen (on page 35)—Displays the scene over the full screen.

Select Objects (on page 39)—Opens the Select Objects dialog, and is used to select multiple objects by name.

Scene Properties—Opens the Scene Properties dialog, and is used to view the current scene's properties.

Object Properties (on page 78)—Opens the Object Properties dialog and is used to view the selected objects' properties.

Print (on page 67)—Prints the current image on the selected printer.

Export—Opens the Export Scene dialog, and allows you to save the file as an RH file.

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Camera View Menu

Right-click 3D viewport > Camera View

The Camera View menu is used to view scenes through any user-defined views or through the isometric, dimetric, or trimetric preset views. You can select any number of viewpoints (on page 97) through which to view the current model.

You can also display the model using any available cameras, step views, and model views, and reset these views by selecting the User option.

Interface

Perspective (on page 32)—Displays a view of the model in perspective projection mode. The default projection mode is parallel, and is used when this option is unselected.

[Camera view name]—Displays a view of the model as set by the selected camera.

[Step view name]—Displays a view of the model as set by the selected step.

[Model view name]—Displays a view of the model as set by the activated model view.

Orthographic (on page 32)—Used to select an orthographic viewpoint through which to view the model.

- **Top**—Displays a view of the model orthographically from the top of the scene.
- **Bottom**—Displays a view of the model orthographically from the bottom of the scene.
- **Front**—Displays a view of the model orthographically from the front of the scene.
- **Aft (Back)**—Displays a view of the model orthographically from the back of the scene.
- **Right**—Displays a view of the model orthographically from the right of the scene.
- **Left**—Displays a view of the model orthographically from the left of the scene.

30° Isometric—Used to to view the model using a 30º isometric viewpoint from the selected point. All lengths are parallel to the axes and are displayed at their true length. See Preset Views (on page 32) for information on the viewpoint menu commands.

27° Isometric (1:2)—Used to select a 27º isometric viewpoint through which to view the model. See Preset Views (on page 32) for information on the viewpoint menu commands.

45° Isometric (Military)—Used to select a 45º isometric viewpoint through which to view the model. See Preset Views (on page 32) for information on the viewpoint menu commands.

Dimetric (42°/7°)—Used to select a dimetric viewpoint through which to view the model. See Preset Views (on page 32) for information on the viewpoint menu commands.

43° Trimetric—Used to select a 43º trimetric viewpoint through which to view the model. See Preset Views (on page 32) for information on the viewpoint menu commands.

48° Trimetric—Used to select a 48º trimetric viewpoint through which to view the model. See Preset Views (on page 32) for information on the viewpoint menu commands.

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Viewpoints

Viewpoints are preset camera modes. These options, for example, orthographic and isometric, select a viewpoint only and are not associated with the projection mode.

Orthographic views are a type of parallel projection used for drawing engineering blueprints and is used for accurate description of objects and their positioning. Most 3D design relies on 2D representations or 'orthographic' views, for example, maps, plans, cross-sections, and elevations. In familiar terms, you might think of these views as 'flat' or 'straight-on', or as 'looking at right angles'. Orthographic views are two-dimensional, each defined by two world coordinate axes. Combinations of these axes produce three pairs of orthographic views: top and bottom; front and back; left and right.

Isometric views have three surfaces equally foreshortened and is the most frequently used projection. It is the simplest method to understand because it is based on equals and parallels. Isometric views should be viewed without perspective.

Dimetric views have two of the three surfaces equally foreshortened. Trimetric views have all three surfaces foreshortened by a difference ratio and can be used as an alternative when an isometric view is not suitable.

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Display Menu

Right-click 3D viewport > Display

The Display menu contains commands that control the display of the scene, and determine whether objects are displayed or hidden. This includes lights, dimensions, and vertices.

These settings apply to the entire scene, and most are saved with the file. An example of one which is not, is: Show Backfacing Geometry.

Interface

Show Back Facing Geometry—Displays or hides the reverse side of the model.

Bones—Displays or hides bones.

Cross Section—Displays or hides the cross section plane.

Grid—Displays or hides the grid or 'floor' of the scene. Note that this option may reduce the speed of screen refreshes slightly.

Lights and Cameras—Displays or hides the scene lights and cameras.

Specular lights—Displays specular lighting (reflection). Specular reflection creates highlights on objects, making them appear shiny.

Note: Specular lighting should be turned off, if Rotation Performance (on page 102) is set to 'Quality'.

Shadow—Displays or hides an object's shadow.

Scene Bounding Box—Displays or hides the scene bounding box.

Textures—Displays and hides textures on objects in Solid render mode. The textures are displayed in the most realistic and detailed representation for the scene.

Vertices—Displays or hides all object vertices. Each vertex is displayed as a small cross in DX Graphics mode or as a point in OpenGL mode.

World Axes—Displays or hides the world axes.

Dimensions—Displays or hides any dimensions associated with the model.

Auto Rotate—Rotates the model automatically. When the model is rotated with the mouse, auto rotate is initiated in the direction and at the speed of the mouse action until you click over the model again. Note that this command may lessen the display performance.

HDR Render View (on page 99)—Renders the scene using the HDR Raytracer renderer.

Lights (on page 100)—Use this menu to select one of several lighting presets.

Smoothing (on page 101)—Use this menu to select a smoothing angle for the scene while in Solid or Transparent render mode.

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HDR Render Menu

Right-click 3D viewport > Display > HDR Render View

The HDR Render View menu contains settings for the HDR OpenGL renderer. This includes placing an environment map in the scene.

An Environment Map is a 360 degree image that is used for lighting a scene. The environment map is dragged onto the scene, and the scene then uses the environment map to recalculate the appropriate lighting for the scene, based upon the environment map.

Note: Environment maps are only visually available with the HDR Realtime renderer.

Interface

HDR GL Renderer—Used to select the HDR renderer.

Auto Exposure Control—Automatically adjusts the exposure of the scene.

Decrease Brightness—Applies less brightness.

Increase Brightness—Applies more brightness.

Load Environment Map—Opens the Load Environment Map dialog, and allows you to place an environment map in the scene.

Lights Menu

Right-click 3D viewport > Display > Lights
Keyboard > ALT+0, ALT+1, ALT+2, ALT+3, ALT+5, ALT+6, ALT+7, ALT+8, ALT+9, [,], HOME

The Lights menu contains commands for the display of the scene's lights, which imitate different kinds of real-world light sources such as the sun, office lamps, or stage and film lighting. Adding lights gives a more realistic appearance by enhancing the clarity and three-dimensionality of a scene.

You can either use the lights from the file, or you can use one of several lighting presets.

Note: The scene's lighting is also affected by the scene's ambient and illumination colors.

Interface

Lights from File—Applies any lights that are visible in the Scene tree, including any lights loaded from the file. RH files can be saved with additional lights, and these are displayed in the Scene tree. If there are no lights in the Scene tree, this command is unavailable.

Colored Lights Red / Green—Applies red, blue, and green lighting. The color from each light remains separate from the others.

Colored Lights Blue / Green—Applies blue and yellow lighting. The color from each light remains separate from the others.

Cube Lights—Applies cube lighting.

CAD Optimized Lights—Applies lighting that is optimized for CAD files. This should be used in conjunction with CAD files.

Single Light from Eye—Applies a single light originating from the viewer's eye.

Increase Brightness—Applies more brightness.

Decrease Brightness—Applies less brightness.

Restore Brightness—Restores the original level of brightness.

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Smoothing Menu

Right-click 3D viewport > Display > Smoothing

The Smoothing menu is used to apply smoothing to selected objects in Solid or Transparent mode (on page 30). This can be helpful in improving the 'look' of the objects.

These settings are global; that is, they change the smoothing for the entire scene. Individual objects can possess local smoothing settings that override these global settings.

Note: These commands may lessen the display performance. They also have no effect on wireframe views.

Interface

Use existing smoothing normals—Applies the smoothing normals from the current file.

20—Applies a 20° smoothing angle.

30—Applies a 30° smoothing angle.

35—Applies a 35° smoothing angle.

Custom Angle—Used to open the Smoothing Angle dialog and apply a user-defined smoothing angle.

Smoothing Disabled—Disables all smoothing.

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Animate Options Menu

Right-click 3D viewport > Animate Options

The Animate Options menu enables you to control model animation, and is only available when a model is animated.

Note: The options available from this menu vary, dependant on whether the animated scene contains steps. In addition, the Simple, Cyclic and Ping-Pong playback options are available immediately for scene level animations, but are only available for step animations after a particular sequence is loaded.

Interface

Begin—Moves to the beginning of the animation sequence.

Previous—Moves to the previous step.

Note: The Previous button is ONLY available for scenes that contain steps. If the scene does not contain steps, the Begin button will display.

Play—Plays the animation sequence as a continuous loop.

Next—Moves to the next step.

Note: The Next button is ONLY available for scenes that contain steps. If the scene does not contain steps, the End button will display.

End—Moves to the end of the animation sequence.

Play All—Plays all the animation sequences from the first to the last sequence.

Note: The Play All button is ONLY available for scenes that contain steps.

Options (on page 94)—Opens the Animation Options dialog where you can modify the animation settings.

Simple—Sets the animation to play once from beginning to end.

Cyclic—Sets the animation to play continuously from beginning to end.

Ping-pong—Sets the animation to play continuously back and forth from beginning to end, and from end to beginning.

Note: To use the simple, cyclic, and ping-pong options for step animations, a specific sequence must be loaded. These options will only appear in the Animate Options menu once a sequence is loaded. For scene level animations, these apply immediately.

Auto-Rotate—Rotates the model automatically. When the model is rotated with the mouse, auto rotate is initiated in the direction and at the speed of the mouse action until you click over the model again. This option may lessen the display performance.

Sequences—Used to view a specific sequence. This option is only available if more than one sequence has been created for the animation.

- **[sequence name]**—Moves to the selected sequence.

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Preferences Menu

Right-click 3D viewport > Preferences

The Preferences menu enables you to customize the way in which your application displays. It is used to establish various settings including transparency, display renderer, and color profile settings.

In addition, you can configure the settings for a 3Dx spacemouse, if you have one attached and installed.

Interface

Transparency Effect—Displays a transparency effect to toolbars.

Rollover Labels—Displays associated part names when you move the mouse over the model.

Rollover Toolbars—Displays associated tooltips when you move the mouse over the buttons on the toolbar.

Rotation Performance—Used to simplify the viewport display when panning or rotating models. This ensures that the display frame rate does not drop, causing an irregular display.You can choose speed or quality.

Display Renderer (on page 103)—Used to select the renderer that determines how the scene is rendered while you work. The available options depend on the graphics cards installed on your computer.

Use Color Profile (reload needed)—Allows you to specify whether or not to use a color profile, if there is one included in the file being viewed.

3Dx Input Settings (on page 104)—Allows you to control the camera using the 6DOF controller.

Note: This option is only available if you have the 3DConnexion spacemouse attached and installed.

Background (on page 105)—Use this menu to alter the appearance of the background.

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Display Renderer Menu

Right-click 3D viewport > Preferences > Display Renderer

The display renderer determines how scenes are rendered while you work. By default, the Software Z-Buffer renderer is selected.

You can change the display renderer at any time.

Note: If you have the OpenGL graphics driver installed on your computer, you can enable the 3D graphics acceleration card by selecting the OpenGL display renderer to boost rendering speed by three to five times.

Line styles are supported in all display renderers except Dx9. For example, .dwg and .dwf files use line styles. You are able to view any line styles that are within these file, as illustrated below, when viewing or exporting the files.

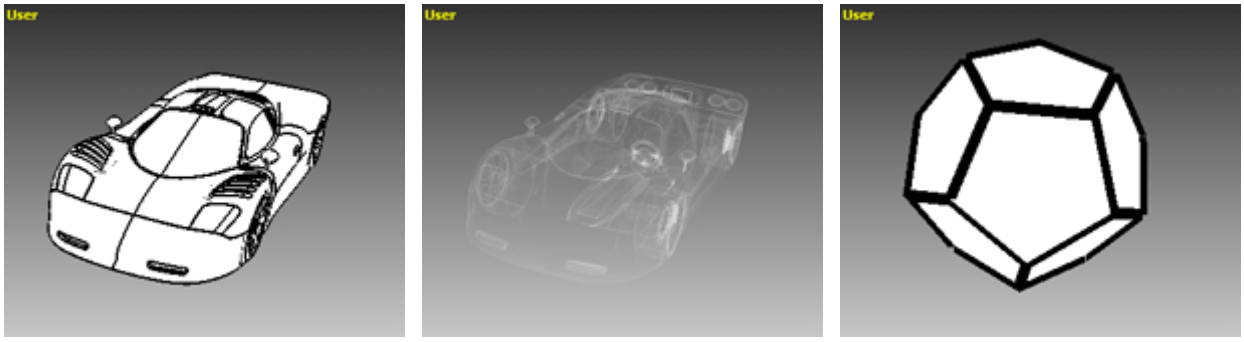
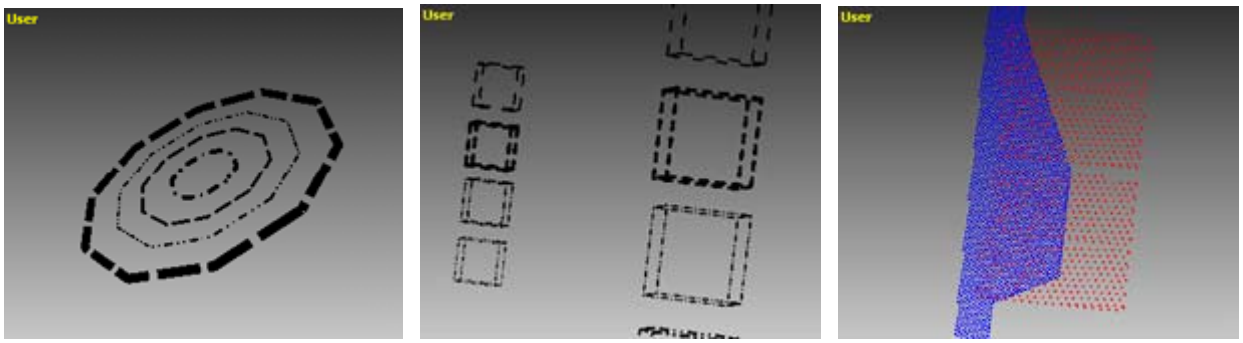


Illustration with high detail/Thin wireframe/Thick and thin lines



Various line thickness/Orthographic styles/Dots

Note: Dx9 does not support Illustration or wireframe line thickness greater than 1px.

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3Dx Input Device Settings

Right-click 3D viewport > Preferences > 3Dx Input Settings

Using the 3dConnexion Device Settings dialog, you can control the camera using the 6DOF controller with 3dConnexion spacemouse.

Note: This option is only available if you have a 3dConnexion spacemouse attached and installed.

Interface

Device Active—Makes the device active if checked.

Zoom Sensitivity—Overrides the devices default setting.

Pan Sensitivity—Overrides the devices default setting.

Rotate Sensitivity—Overrides the devices default setting.

Note: For more information refer to the information supplied with your 3dConnexion Spacemouse.

OK—Applies the settings and closes the dialog. Any changes made to the settings are saved.

Cancel—Closes the dialog. Any changes made to the settings are lost.

Background Menu

Right-click 3D viewport > Preferences > Background

The Background menu contains commands for the display of the background.

Interface

Top Color—Used to set the color of the upper half of the viewports' background gradient.

Bottom Color—Used to set the color of the lower half of the viewports' background gradient.

Illustration Top—Used to set the color of the upper half of the viewports' background gradient for illustration.

Illustration Bottom—Used to set the color of the lower half of the viewports' background gradient for illustration.

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Delete Menu

Right-click 3D viewport > Delete

The Delete menu contains commands for deletion of comments and dimensions in the scene.

Interface

Selected Drawings and Dimensions—Deletes the currently selected comments and/or dimensions.

All Dimensions—Deletes all dimensions in the scene.

Help Menu

Right-click 3D viewport > Help

The Help menu is used to perform a variety of commands including viewing the online help.

Note: These options are also available in the Deep View menu.

Interface

Deep View Help—Displays the application's User Reference.

About Deep View—Displays a range of information about Deep View including copyright and version information. You can also use this option to activate the product after registration.

Home

Right-click 3D viewport > Home

The Home option behaves in different ways, depending on the contents of the scene. For example:

- If there is no activated model view or step, pressing **Home** resets the camera to its original position and direction as if the model was just loaded.
- If there is an activated model view, pressing **Home** resets the active model view as if it was activated with double-clicking in the model view panel.
- If there is an activated step, pressing **Home** resets the step to the beginning as if it was activated with double-clicking in the steps panel but without playing the animation.

In all three cases models are reassembled.

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Scene Components Panel Menu

Certain context menus are available when you right-click within the Scene Tree. The available menu options depend on your current selection within the Scene tree.

For example, if you have an object selected in the 3D Objects list, object selection options are available. However, if you have a material selected in the Materials folder, only the Material Properties option is available.

3D Objects List Menu

Information panel > Scene tree > 3D Objects list > Right-click object
Information panel > Scene tree > 3D Objects list > Right-click no object selection

The 3D Objects list menu enables you to select objects, cancel your selection, and show and hide objects. You can also view and edit object or scene properties, depending on your selection within the list. The available commands differ depending on your selection.

Interface

Activate camera (on page 32)—Changes the scene to the view from the selected camera. This option is only available if a camera object is selected.

Select All—Selects all objects in the scene.

Invert Selection—Inverts the current selection.

Select Sub Objects—Selects all sub objects of the selected object.

Show All Objects—Displays all objects.

Show Selection—Displays any hidden objects that are selected.

Hide All Objects—Hides all objects.

Hide Selection—Hides the selected object.

Hide Unselected—Hides all unselected objects.

Object Properties (on page 78)—Opens the Object Properties dialog and is used to view metadata for the selected object(s). This option is only available if one or more objects are selected.

Scene Properties—Opens the Scene Properties dialog and is used to view and edit the properties of the selected scene. This option is unavailable if an object is selected.

Collapse Scene Tree—Collapses the scene tree. This option is unavailable if an object is selected.

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Model Views Menu

Scene Components panel > Scene tree > Model Views > Right-click model view
Scene Components panel > Scene tree > Model Views > Right-click portfolio

The Model Views menu enables you to select and activate model views, cancel your selection, and show and hide objects. The available commands differ depending on your selection.

Interface

Activate Model View—Activates the selected view in the selected viewport..

Select All—Selects all objects in the scene.

Invert Selection—Inverts the current selection.

Show All Objects—Displays all objects.

Show Selection—Displays any hidden objects that are selected.

Hide All Objects—Hides all objects.

Hide Selection—Hides the selected object.

Hide Unselected—Hides all unselected objects.

Steps List Menu

Scene Components panel > Scene tree > Steps list > Right-click step
Scene Components panel > Scene tree > Steps list > Right-click procedure

The Steps list menu enables you to select steps, cancel your selection, and show and hide objects. The available commands differ depending on your selection.

Interface

Play Steps—Plays all steps in the selected procedure.

Play Step—Plays the selected step in the selected viewport.

Select All—Selects all objects in the scene.

Invert Selection—Inverts the current selection.

Show All Objects—Displays all objects.

Show Selection—Displays any hidden objects that are selected.

Hide All Objects—Hides all objects.

Hide Selection—Hides the selected object.

Hide Unselected—Hides all unselected objects.

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Keyboard Shortcuts

This section shows the pre-assigned keyboard shortcuts; keyboard alternatives to program functions. It also describes any shortcuts that can be accessed using the mouse buttons.

If a keyboard shortcut is available for a command, it is displayed to the right of the command name on the menu.

Mastery of these shortcuts is the difference between an average user and a 'Power User'. We strongly recommend you practice these shortcuts as they are explained in the tutorials, and wherever possible in your own projects.

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3D Navigation Shortcuts

These are the pre-assigned keyboard shortcuts for 3D navigation.

User Interface Function	Keyboard Shortcut
Roll camera (move camera around viewing axis)	SHIFT+drag
Orbit scene (move camera around focal point)	Drag mouse
Pan scene (rotate camera around vertical axis)	LEFT / RIGHT ARROW
View from different angle (move camera laterally/vertically)	Left+right-click+drag Middle-click+drag
Truck in (move camera into scene to view more closely) Note: The focal point is a fixed distance from the camera.	UP ARROW
Truck out (move camera out from scene to view more distantly) Note: The focal point is a fixed distance from the camera.	DOWN ARROW
Zoom in (narrow the camera angle (FOV) to magnify scene)	Right-click+drag into scene PLUS SIGN (+) IntelliMouse
Zoom out (widen camera angle (FOV) to reduce scene magnification)	Right-click+drag out from scene MINUS SIGN (-) IntelliMouse
Zoom to extents (fit scene to viewport/screen)	CTRL+PLUS SIGN (+)
Restore to default camera view	MULTIPLICATION SIGN (*)
Control camera height in Walk mode	SHIFT+left-click+drag
Step forward/backward in Walk mode	UP / DOWN ARROWS
Make left and right turns in Walk mode	LEFT / RIGHT ARROW
Move the camera up/down/left/right in Walk mode	SHIFT+ARROWS

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Render Mode Shortcuts

These are the pre-assigned keyboard shortcuts for functions relating to render mode.

User Interface Function	Keyboard Shortcut
Bounding Box render mode	CTRL+1
Transparent Bounding Box render mode	CTRL+2
Vertices render mode	CTRL+3
Wireframe render mode	CTRL+4
Solid render mode	CTRL+5
Transparent render mode	CTRL+6
Solid Wireframe render mode	CTRL+7
Transparent Wireframe render mode	CTRL+8
Toggle scene bounding box	CTRL+B
Toggle back-facing geometry	CTRL+H
Toggle vertices	CTRL+I
Toggle cameras and lights	CTRL+L
Toggle cross section	ALT+X

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General Shortcuts

These are the pre-assigned keyboard shortcuts for general procedures within the main user interface.

User Interface Function	Keyboard Shortcut
Display right-click menus	Right-mouse click
Toggle Full-screen and Standard display modes	F11
Return to Standard display mode from Full-screen mode	ESC or F11
Open Scene Properties dialog	Double-click 3D Objects node in Scene tree
Display a viewport grid	CTRL+G
Display a shadow	CTRL+F

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HDR Renderer Shortcuts

These are the pre-assigned keyboard shortcuts for functions specifically relating to the HDR renderer.

User Interface Function	Keyboard Shortcut
Enable HDR renderer	ALT+F9
Auto Exposure control	ALT+F10
Decrease exposure	ALT+F11
Increase exposure	ALT+F12

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Lights Menu Shortcuts

These are the pre-assigned keyboard shortcuts for the Lights menu (on page 100).

User Interface Function	Keyboard Shortcut
Display lights from file	ALT+0
Display white lights	ALT+1
Display daylight	ALT+2
Display hard lights	ALT+3
Display colored lights red/green	ALT+4
Display colored lights blue/green	ALT+5
Display blue lights	ALT+6
Display marsiano (red) lights	ALT+7
Display single white light from eye	ALT+8
Turn all lights off	ALT+9
Apply more brightness	]
Apply less brightness	[
Restore original brightness	HOME

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Scene Components Panel Shortcuts

These are the pre-assigned keyboard shortcuts for the Scene Components panel (on page 74).

User Interface Function	Keyboard Shortcut
Open the Object Properties dialog for selected object	Double-click object in Scene tree Select object+ALT+ENTER
Toggle selected object and sub-object display	Select object+H
Hide selected object	Select object+S
Set the view to Home	H
Collapse Scene Tree	SHIFT+C

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Selection Shortcuts

These are the pre-assigned keyboard shortcuts for selection procedures.

User Interface Function	Keyboard Shortcut
Select an object	Click object icon in Scene tree Click object in viewport
Select all sub-objects of the selected objects	ALT+click object in viewport
Select multiple objects	CTRL+click objects in Scene tree CTRL+click objects in viewport
Open Select Objects dialog	F3

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Smoothing Menu Shortcuts

These are the pre-assigned keyboard shortcuts for the Smoothing menu (on page 101).

User Interface Function	Keyboard Shortcut
Toggle smoothing	CTRL+S

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Steps Shortcuts

These are the pre-assigned keyboard shortcuts for steps.

User Interface Function	Keyboard Shortcut
Play all Steps	SHIFT+Spacebar
Play the selected Step	Spacebar
Play next Step	PAGEDOWN
Play previous Step	PAGEUP
Select next Step	ARROW DOWN
Select previous Step	ARROW UP

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Using Deep View for Office

Deep View has additional options for 3D publishing. These include:

- User interface extensions in Microsoft Word, Powerpoint and Excel to make it easy to embed 3D content into documents, spreadsheets, and powerpoint presentations.
- Allowing 3D enabled PDF files to be published from Word, Powerpoint and Excel documents that contain 3D content. This functionality also integrates email, allowing you to easily share your documents with others.
- A suite of additional format reading plugins to those in the standard Deep View install. These include the following formats:
  - Autodesk 3D Studio.
  - Computer Graphics Metafile.
  - FiLMBOX.
  - Google SketchUp Document.
  - HTML Document with 3D.
  - Lightwave.
  - Open Inventor.
  - OpenFlight Scene Description Database.
  - Rhinoceros 3D Model.
  - Universal 3D.
  - VRML Worlds.
  - Wavefront.

*This requires Adobe Acrobat Professional.

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Inserting Files using Deep View

2D and 3D files can be inserted into PowerPoint spreadsheets, Word documents, FrameMaker documents, and Excel spreadsheets.

Files are inserted into documents in one of two 'working modes (on page 122)'. The mode in which a file is inserted depends on the type of application you are using. For FrameMaker and Excel, the file is inserted in the Interactive mode which is optimized for viewing. For PowerPoint and Word, the file is inserted in the Image mode with the 'active area' determined by 'controls'.

The active area refers to the entire scene in both Image and Interactive mode. When files are first inserted into PowerPoint, Word, FrameMaker, or Excel, you may need to resize the active area (on page 128) to display the entire Scene Tree.

If you are using Deep Exploration CAD Edition or the Standard Edition and the CAD modules, CAD files should be saved as .rh files before being inserted or dragged into Office documents.

Note: If you are using Deep Access or Gateway, you must ensure the content is downloaded before inserting. Please see the Deep Exploration User Reference (Start > Programs > Right Hemisphere > Deep Exploration > Help) or the Deep Access User Reference (Deep Access > Help) for further information.

Inserting Files in Office

Menu bar > Deep View > Insert 3D Model
Drag a file into a Word document
Drag a file into a PowerPoint presentation

2D and 3D files can be inserted into documents in two different ways:

- Using the 'Insert 3D Model' Deep View menu (on page 134) command in Windows applications.
- By dragging a file from Windows Explorer or Right Hemisphere's Deep Exploration into an open document in Windows applications.

Inserting files using the menu command gives you the option of either linking, embedding, or linking and embedding (on page 121) the file. Dragging files links and embeds the file by default.

Insertion Rules

The following rules apply:

- Files cannot be inserted into text boxes in PowerPoint or Word.
- Only file types that are selected for drag and drop in the configuration settings can be dragged into Office applications.
- Dragging is unavailable in Excel.
- Dragged 2D images are inserted as standard Windows images; double-click to access the 3D viewport right-click menu (on page 96).

Procedures

To insert a file into a document:

1. Open a new or existing PowerPoint presentation, Word document, or Excel spreadsheet.
2. Choose **Deep View > Insert 3D Model**.
3. Select a file.
4. Do one of the following:
   - Click **Link** to link the source file to the image/model in the destination document.

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- Click **Embed** to place a copy of the source file directly in the destination document.
- Click **Link & Embed** to link the source file to the image/model in the destination document.

5. Click **Open**.
6. If you are inserting a file for the first time, click **OK** in the Default Rendering Mode dialog to select the automatically detected renderer (on page 21) as the default.

Note: You can modify the default default renderer (on page 30) at a later date if required.

To drag a file into a document:

1. Open a new or existing PowerPoint presentation or Word document.
2. Drag a file from Windows Explorer, Deep Exploration, or Gateway into the current document.
3. Save the document in the usual way for the application you are using.

Inserting Files in FrameMaker

Menu bar > File > Import > Object > 3D Model

2D and 3D files can be inserted into FrameMaker documents, as either linked, embedded, or linked and embedded (on page 121). Files are inserted into documents in the Interactive mode; optimized for viewing.

Note: You cannot drag files into FrameMaker.

Procedure

To insert a file into a FrameMaker document:

1. Open a new or existing document.
2. Choose **File > Import > Object**.
3. Select **Deep View 3D Content** and click **OK**.
4. Navigate to and select a file.
5. Do one of the following:
   - Click **Link** to link the source file to the image/model in the destination document.
   - Click **Embed** to place a copy of the source file directly in the destination document.
   - Click **Link & Embed** to link the source file to the image/model in the destination document.
6. Click **Open.**
7. If you are inserting a file for the first time, click **OK** in the Default Rendering Mode dialog to select the automatically detected renderer (on page 21) as the default.

Note: You can modify the default default renderer (on page 30) at a later date if required.

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Linking and Embedding Files

Deep View linking and embedding files is generally consistent with linking and embedding files within Office applications.

Linking

When a file is inserted as linked, it references a source file that resides outside of the document in which the file is inserted - the destination document.

If the source file is modified, the changes are reflected in the destination document as long as the link is maintained. This is useful when file size is a consideration or when you want to include information that is maintained independently.

If the link is broken, the image/model is not displayed in the destination document. Additionally, the original camera view of the model is displayed each time the document is opened.

Embedding

Embedding places a copy of the source file directly in the destination document.

If the source file is modified, the file is not updated in the destination document. This is useful when you want to distribute a version of the document to people who don't have access to the independently maintained source file.

Linking and Embedding

The Link & Embed option offers a combination of linking and embedding when inserting files into documents.

The image/model is updated as the source file changes. However if the link is broken, the file still displays in the destination document.

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Working Modes in Deep View

Two modes are used to work with 2D images and 3D models once a file is inserted into a document:

- **Image mode:** Presents a 2D representation which can be moved and resized using controls. The Scene Tree and the toolbars are not displayed in Image mode.

  Note: You cannot move images in Word documents.

- **Interactive mode:** Presents a 3D representation which can be rotated, panned, scaled, or zoomed (on page 26). The 3D viewport menus (on page 96), Information panel (on page 73), Measurements toolbar (on page 87), 2D/3D Editor toolbars (on page 89), and Animation toolbar (on page 93), can be used to control scene settings, objects, materials, and animation.

Procedures

To switch to Image mode:

- If you are using PowerPoint, Word, FrameMaker, or Excel, right-click over the scene and click **Image Mode**.
- If you are using PowerPoint, double-click outside the active area.

To switch to Interactive mode, do one of the following:

- If you are using PowerPoint, Word, or Excel, right-click over the image and click **Interactive Mode**.

  Note: You can also select 3D Model Object > Edit to switch to Interactive mode.

- If you are using PowerPoint, Word, or FrameMaker, double-click inside the active area.
- If you are using FrameMaker, right-click over the image and click **Edit 3D Model Object**.

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Inserting Internet Shortcuts using Deep View for Office

Office Menu bar > Deep View> Insert Deep Server Link
FrameMaker Menu bar > File > Import > Object > 3D Model

2D and 3D files can be inserted into FrameMaker and Office by inserting an Internet shortcut. An Internet shortcut references a source file that resides in Deep Server. The file in which the Internet shortcut is inserted, is known as the destination document. When you insert a Internet shortcut into the destination document, either the image of the 2D source document, or the model of the 3D source document is displayed.

Only certain files can be downloaded (on page 127) as an Internet shortcut. See the Deep Access Help Reference for details.

Insertion Rules

The following rules apply:

- Dragging is unavailable in PowerPoint, Word, FrameMaker, and Excel.
- Embedding is unavailable in Excel.
- Linking, and linking and embedding is unavailable for Internet shortcuts to 2D content in PowerPoint.

Procedure

To insert an Internet shortcut into an Office document:

1. Open a new or existing PowerPoint presentation, Word document, or Excel spreadsheet.
2. Choose **Deep View > Insert Deep Access Link** and navigate to and select the Internet shortcut to insert.
3. Do one of the following:
   - Click **Link** to link the source file to the image/model in the destination document.
   - Click **Embed** to place a copy of the image/model directly in the destination document.
   - Click **Link&Embed** to link the source file to the image/model in the destination document.
4. Click **Open**.

To insert an Internet shortcut into a FrameMaker document:

1. Open a new or existing document.
2. Choose **File > Import > Object.**
3. Select **3D Model** and click **OK**.
4. Navigate to and select an Internet shortcut.
5. Do one of the following:
   - Click **Link** to link the source file to the image/model in the destination document.
   - Click **Embed** to place a copy of the image/model directly in the destination document.
   - Click **Link&Embed** to link the source file to the image/model in the destination document.
6. Click **Open.**

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Updating Internet Shortcuts in Office

Menu bar > Edit > Links

Internet shortcuts are dynamic, in that they are linked to the most recent version of that file. Linking and embedding Internet shortcuts is generally consistent with linking and embedding files within Office applications.

Linking

An Internet shortcut references a source file that resides outside of the document in which the file is inserted - the destination document.

If the source file is modified, the changes are reflected in the destination document as long as the link is maintained. This is useful when file size is a consideration or when you want to include information that is maintained independently.

If the link is broken, the image/model is not displayed in the destination document.

Embedding

Embedding places a copy of the Internet shortcut directly in the destination document.

If the source file is modified, the content is not updated in the destination document. This is useful when you want to distribute a version of the document to people who don't have access to the independently maintained source file.

Linking and Embedding

The Link&Embed option offers a combination of linking and embedding when inserting an Internet shortcut into documents.

If the link is broken, the image/model still displays in the destination document.

Procedure

To update linked Internet shortcuts:

Open an existing PowerPoint presentation, Word document, or Excel spreadsheet. The images/models are automatically updated. You can then save the document in the usual way for the application that you are using.

To update linked and embedded Internet shortcuts in Word:

1. Open an existing Word document.
2. Choose **Menu bar > Edit > Links**.
3. Select the Internet shortcut to update.
4. Click **Update Now**.
5. Save the document in the usual way for the application that you are using.

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Updating Internet Shortcuts in FrameMaker

Internet shortcuts are dynamic, in that they are linked to the most recent version of that file.

Linking

An Internet shortcut references a source file that resides outside of the document in which the file is inserted - the destination document.

If the source file is modified, the changes are reflected in the destination document as long as the link is maintained. This is useful when file size is a consideration or when you want to include information that is maintained independently.

If the link is broken, the image/model is not displayed in the destination document.

Embedding

Embedding places a copy of the Internet shortcut directly in the destination document.

If the source file is modified, the content is not updated in the destination document. This is useful when you want to distribute a version of the document to people who don't have access to the independently maintained source file.

Linking and Embedding

The Link&Embed option offers a combination of linking and embedding when inserting an Internet shortcut into documents.

If the link is broken, the image/model is still displayed in the destination document.

Procedure

To update Internet shortcuts:

Open an existing FrameMaker document. The images/models are automatically updated. You can then save the document in the usual way for the application that you are using.

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Downloading Files and Internet Shortcuts

You can download 2D and 3D files and Internet shortcuts via the Deep Server Web site (http://www.righthemisphere.com/products/dserv/index.htm), if you have one installed. These files and shortcuts can then be inserted (on page 120) into PowerPoint, Word, FrameMaker, and Excel documents.

Deep Access is an easy-to-use Web site tool to search for, view, manage and utilize 2D, 3D, and CAD assets by various attributes including managing by metadata from a single Web page. You can then create and view 2D and 3D derivatives.

Files and shortcuts are downloaded to sub-folders that are named according to the asset's assigned project, assigned category, asset name, and asset ID. By default, these sub-folders are created in the 'My 3D Models' folder. However, you can choose alternate folder locations as required. For example, downloaded files are placed in the C:\Documents and Settings\[user name]\My Documents\My 3D Models\[project name]\[category]\[asset name_asset ID] folder.

Note: If the 'My 3D Models' folder does not currently exist, one is created in the 'My Documents' folder.

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Editing the Active Area

After creating content, you can move and resize the active area. The active area refers to the entire scene.

Active Area in Office

The active area is moved and resized in Image mode; images are moved and resized within the document using the controls that appear when the image is selected. These procedures conform to the Windows conventions for moving and resizing images. In Interactive mode, models are moved and resized within the scene (on page 26).

Note: You cannot move images within a Word document when they are displayed in the default 'In line with text' text wrapping style. Please see your Word documentation for further information.

Procedures

To move the active area in Image mode:

In PowerPoint or Excel, select the image and drag it to it to its new location in the document.

To resize the active area in Image mode:

Position the mouse pointer over one of the sizing controls, drag the mouse away from or toward the center.

- To keep the center of an object in the same place, hold down CTRL while dragging the mouse.
- To maintain the object's proportions, hold down SHIFT while dragging the mouse.
- To maintain the proportions while keeping the center in the same place, hold down CTRL and SHIFT while dragging the mouse.

Note: To resize ActiveX controls in MSWord, switch from Reading view to either Outline, Draft, Web Layout, or Print Layout.

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Active Area in FrameMaker

The active area is moved and resized in either Image or Interactive mode. Models are moved and resized within the scene (on page 26) in Interactive mode only.

The active area is moved and resized within the document using the controls that appear when the image is selected. These procedures conform to the Windows conventions for moving and resizing images.

Note: Refer to the Adobe FrameMaker Help for further information on moving and resizing anchored frames.

Procedures

To move the active area:

- Relocate the anchored frame to the new anchoring position in the document. The active area moves with the anchored frame.
- Select the active area and drag it to the new position within the anchored frame. If the anchored frame covers any part of the image, the image is cropped and the anchored frame must be resized.

Important Note: We recommend not moving the active area out of the anchored frame.

To resize the active area:

Position the mouse pointer over one of the sizing controls, drag the mouse away from or toward the center. Note that the anchored frame should always be larger than the active area, otherwise the active area is cropped.

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Editing Content

Once you have created files that include 2D or 3D content, you can edit scenes in Interactive mode using a variety of tools. These editing procedures are identical across all applications.

Note: In Image mode, Windows conventions apply for editing images.

Procedures

To edit Deep View content:

1. Do one or more of the following in Interactive mode:
   - Use the 3D viewport menu (on page 96) to edit the scene's settings.
   - Use the Scene Components panel (on page 74) to edit the objects and materials.
   - Use the Animation toolbar (on page 93) or the Animate Options menu (on page 101) to control any model animation.
   - Use the 3D Editor toolbar (on page 89) to edit the model.
   - Use the Information panel to view steps (on page 63) and model views.
   - Use the Measurements (on page 50) toolbar to add measurements (on page 87).
   - Use the Collaboration (on page 42) window to add conversation threads.
2. Save the document in the usual way for the application that you are using.

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Viewports

When you insert a 2D or a 3D file into FrameMaker or an Office application, there are two modes; Image mode and Interactive mode. The area in which the file is displayed is known as either the 2D or 3D 'viewport' depending on the current mode or the current application:

- **Image mode**: Displays the 2D viewport. A right-click menu (on page 136)is available with which you can switch between the working modes (on page 122).
- **Interactive mode**: Displays the 3D viewport. This area defines the boundary in which a model can be moved, panned, and resized. A right-click menu (on page 96) is also available with which you can modify the scene.

Various right-click menus are available depending on the current mode, where the cursor is positioned when you click, and whether you added 2D content using the 'Insert 2D for Collaboration' command.
Double-clicking objects in the 3D viewport displays the Object Properties dialogs (on page 78).

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Converting to 3D PDF from Deep View

Office Menu bar > Deep View > Convert To 3D PDF
Office Deep View 3D PDF Conversion toolbar > Convert To 3D PDF
Office Menu bar > Deep View > Convert To 3D PDF and Email
Office Deep View 3D PDF Conversion toolbar > Convert To 3D PDF and Email

Once you have created 3D content, you can publish that content from within PowerPoint and Word to the Adobe Portable Document (.pdf) format using Right Hemisphere's conversion tools (on page 135). All 3D content is converted to the Universal 3D (.u3d) format. You can choose to convert content to PDF, or convert content and send it via email.

You can then view the converted content with any 3D-enabled Adobe application such as Adobe Reader version 7.0.x or Adobe Acrobat 3D. Once you have opened a PDF document, you can interact with the 3D content using Adobe's 3D tool.

Note: You must have Adobe Acrobat Professional version 7.0.x or higher, or Acrobat 3D 7.0.7 or higher installed on your computer to be able to convert content to PDF. You can convert 3D content from either Image or Interactive mode, however, you cannot convert content to PDF from within Excel in either mode.

Please note that converting to 3D PDF only applies to Office applications.

For further information about the .u3d file format, please see www.3dif.org (http://www.3dif.org). For further information regarding 3D interactivity within .pdf documents, please see the Acrobat Professional Help.

Procedures

To convert 3D content directly to 3D PDF:

1. Open the 3D PowerPoint or Word document that you want to convert.
2. Do one of the following:
   - Choose **Deep View > Convert To 3D PDF**.
   - Click **Convert To 3D PDF**  on the Deep View 3D PDF Conversion toolbar.
3. Navigate to and select a location in which to save the document, enter a name, and then click **Save**.

To convert 3D content to 3D PDF and email:

1. Open the 3D Word or PowerPoint document that you want to convert.
2. Do one of the following:
   - Choose **Deep View > Convert To 3D PDF and Email**.
   - Click **Convert To 3D PDF and Email**  on the Deep View 3D PDF Conversion toolbar.
3. Enter the recipients's email address, and then click Send.

The .pdf document is saved as the current filename and is attached to an email message.

To display the Adobe 3D tool:

1. Open a PDF document.
2. Click the 3D content in the viewport.

The 3D tool is displayed and you can now interact with the 3D content.

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Deleting Files

Select 2D file > Keyboard > DELETE
3D file > Image mode > Select file > Keyboard > DELETE

3D files are deleted from documents in Image mode. 2D files can be deleted as soon as they are selected within the document.

Procedures

To delete a 2D file from a document:

1. Click the image to select it.
2. Press **DELETE**.

The file is deleted immediately.

To delete a 3D file from a document:

1. In Image mode, click the image to select it.
2. Press **DELETE**.

The file is deleted immediately.

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User Interface

The application interface in Office applications consists of the Deep View menu. In FrameMaker, these commands are accessed via the right-click menu. Certain other interface elements and tools become available once 3D content is created.

See the topics referenced below for detailed information on all of the user interface components.

Interface

Deep View menu (on page 134)—Provides access to the main Deep View menu commands.

Viewports (on page 131)—Comprises one of two viewports that are used to view and modify the currently opened file. For example, a 3D scene or 2D image. The viewport type depends on the current Deep View mode:

- **Image mode**: Displays 2D content in the 2D viewport (on page 131).
- **Interactive mode**: Displays 3D content in the 3D viewport (on page 131).

Information panel (on page 73)—Displays various types of information relating to the current file, depending on the viewport selection. The available components of the Information Panel vary, depending on the contents of the 3D file. For example, if a file does not contain steps or model views, these components do not display.

- **Scene (on page 74) Tree**—Comprises the the 3D Objects list, Model Views, and Steps.
- **Parts**—Displays a list of all parts associated with a model.
- **Layers**—Displays all layers associated with a model.
- **Model Views**—Displays all model views associated with a model.
- **Steps**—Displays all steps associated with a model.
- **Collaboration**—Displays the Collaboration window, and enables you to start conversations and collaborate with others.

Note: If you are accessing Deep View via Deep Access 5.7.x or earlier, the Collaboration Window is not available. Original teamwork markups using the Drawing and Markup toolbar only are available.

Measurement toolbar (on page 87)—Used to display the Measurement control tools.

3D Editor toolbar (on page 89)—Used to display various view modes, clipping and pull apart tools.

2D Editor toolbar (on page 91)—Used to display buttons relating to functionality for 2D images.

Note: The 2D Editor toolbar is only available when viewing 2D images.

3D PDF toolbar (on page 135)—Used to convert 3D content to 3D PDF.

Note: The toolbars Fade effect will be automatically turned off when you switch to the OpenGL renderer.

Right-click menus—Sets of commands relating to the standard Deep View functionality.

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Deep View Menu

Office Menu bar > Deep View

The Deep View menu bar is used to perform a variety of commands including inserting 3D models, converting documents to PDF, and activating Deep View.

Note: Not all these options are available in FrameMaker. Options that are available in FrameMaker are accessed via the right-click menu.

Interface

Insert 3D Model (on page 120)—Used to insert a 3D file, either from the 'My 3D Models' folder that was created during the Deep View installation, or the folder of your choice.

Insert Deep Access Link (on page 124)—Used to insert an Internet shortcut to a Deep Access file into the document.

Convert to 3D PDF (on page 132)—Creates a PDF document and converts all 3D content to the .u3d format.

Convert to 3D PDF and Email (on page 132)—Creates a PDF document and converts all 3D content to the .u3d format, and then attaches the published .pdf document to an email.

Deep View Help—Displays the application's User Reference (online Help).

Support—Displays the Right Hemisphere Web site support page.

About Deep View—Displays a range of information about Deep View including copyright and version information. You can also use this option to activate the product after registration.

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3D PDF Toolbar

Right-click menu bar > Deep View 3D PDF Conversion
Menu bar > View > Toolbars > Deep View 3D PDF Conversion

The 3D PDF toolbar is used to publish 3D content (on page 132) from within Word and PowerPoint to the Adobe Portable Document (.pdf) format.

Note: Converting to 3D PDF does not apply to FrameMaker documents.

Procedures

To show the 3D PDF toolbar, do one of the following:

- With the toolbar hidden, right-click in the menu bar and click **Deep View 3D PDF Conversion**.
- With the toolbar hidden, choose **View > Toolbars > Deep View 3D PDF Conversion**.

To hide the 3D PDF toolbar, do one of the following:

- With the toolbar displayed, right-click in the menu bar and click **Deep View 3D PDF Conversion**.
- With the toolbar displayed, choose **View > Toolbars > Deep View 3D PDF Conversion**.

Interface

 **Convert To 3D PDF** (on page 132)

 **Convert To 3D PDF and Email** (on page 132)

2D Viewport Menus

Right-click 2D viewport

The 2D viewport right-click menu contains a number of commands with which to switch to Interactive mode.

The available options differ depending on the application you are using.

Note: Certain menu options use standard Windows and Adobe conventions, and as such are not described in this reference.

Interface

Interactive mode—Switches to Interactive mode.

3D Model Object—Used to switch to Interactive mode.

- **Edit**—Switches to Interactive mode.

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Hints and Tips for Deep View

This section contains hints on using Deep View.

All Applications

- Microsoft Dx9 is supported.
- Avoid overlapping active windows or active areas.
- Files cannot be inserted into text boxes.
- For best results when viewing a 2D image inserted for collaboration, you should use the 'Orthographic top' view.

3D PDF

The following features are not supported when viewing 3D PDF documents:

- Animation bar.
- Object Properties dialog.
- Scene Properties dialog.
- Tools toolbar.

PowerPoint

- Certain keys on the keyboard can be used to control the model's lighting and size while in presentation mode. Once you have selected the model, the lighting and zoom modes become active.
  - Lighting mode is available using the square brackets to increase (]) and decrease ([) the model's brightness. Restore the original level of brightness by pressing HOME.
  - Zoom mode is available using the UP and DOWN arrows and the PLUS (+) and MINUS (-) signs to increase and decrease the size of the model.
- Leave some space below the active window on each slide, to click to the next slide when in presentation mode.
- If you want to to play animation during presentation mode, save the document with either the animation Forward or Reverse options 'on'. When the presentation slide is displayed, the animation is played automatically. Presentation performance is typically slowed if you choose to do this.

Word

- Deep View inserts 3D models into Word as a graphic, so many of the same Word conventions apply. However, formatting options are unavailable in Interactive mode.
- Set the document background to opaque white for best results.
- Ensure that 'Drawing objects' is selected in Tools > Options > Print when printing documents.
- If you want to to play animation on switching to Interactive mode, save the document with either the animation Forward or Reverse options 'on'. When you next switch to Interactive mode, the animation is played automatically. Presentation performance is typically slowed if you choose to do this.
- You can turn high resolution printing on and off as required.

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FrameMaker

- The anchored frame should always be larger than the active area. Please see the Adobe FrameMaker Help for further information.

Excel

- If you want to to play animation on opening, save the document with either the animation Forward or Reverse options 'on'. When you next open the document, the animation is played automatically. Presentation performance is typically slowed if you choose to do this.

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Appendix A: 2D File Formats

The following supported 2D file formats are part of the standard application delivery. This list is organized alphabetically by file format.

File Format	Type	Extension	Version/Notes
Adobe Illustrator Vector Graphics	Image	AI	
Adobe Photoshop Document	Image	PSD	
Autodesk Animator Graphic	Image	CEL	
DirectX DirectDraw Surface	Image	DDS	Deep View Complete only.
EA/Amiga Interchange File Format	Image	IFF	
Encapsulated Postscript	Image	EPS	
FLIC Animator Animation (fli)	Image	FLI	First frame only; resolution limited to 320x200.
FLIC Animator Animation (flc)	Image	FLC	First frame only.
Graphics Interchange Format	Image	GIF	
JEDMICS C4 Compressed Image	Image	C4	
JPEG 2000 J2K	Image	JP2K	
JPEG 2000 JP2	Image	JP2	
JPEG 2000 JPC	Image	JPC	
JPEG 2000 JPX	Image	JPX	
JPEG Image	Image	JPEG, JPG	
Maya Interchange File Format	2D Raster	IFF	
Portable Network Graphics	Image	PNG	All sub-types supported.
Portable Pixelmap Graphic	Image	PPM	
Publisher's Paintbrush Bitmap Graphic	Image	PCX	
Radiance Picture	2D Raster	HDR	
Scalable Vector Graphic	Image	SVG	
Silicon Graphics Image	Image	RGB, RGBA, INT, INTA	8-32 bpp; RLE or uncompressed; no color maps.
SOFTIMAGE Picture	Image	PIC	
Tagged Image File Format	Image	TIF, TIFF	
TGA Image	Image	TGA	All sub-types supported.
Windows Bitmap Graphic	Image	BMP, DIB	
Windows Run Length Encoded Bitmap	Image	RLE	

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Appendix B: 3D File Formats

The following supported 3D file formats are part of the standard application delivery. This list is organized alphabetically by file format.

Note: Some formats are not available in Deep View Standard.

File Format	Type	Extension	Version/Notes
Autodesk 3D Studio	Scene	3DS	Deep View Complete only.
Autodesk 3D Studio Project	Scene	PRJ	Deep View Complete only.
AutoCAD Design Web Format	Scene	DWF	Deep View Complete only.
AutoCAD Drawing Interchange	Scene	DXF	Deep View Complete only.
AutoCAD Drawing Object	Scene	DWG	Deep View Complete only.
AutoCAD Sheet Sets	Scene	DST	Deep View Complete only.
Computer Graphics Metafile	Scene	CGM	Deep View Complete only.
Deep Vision Scene	Scene	DVS	Deep View Complete only.
FiLMBOX	Scene	FBX	Deep View Complete only.
Google SketchUp Document	Scene	SKP	Deep View Complete only.
Hewlett-Packard Graphics Library	2D Vector (drawing)	HPGL	
HTML Document with 3D	Scene	HTML	Deep View Complete only.
Lightwave 3D Object	Scene	LWO	Deep View Complete only.
Lightwave Binary	Scene	LW	Deep View Complete only.
Lightwave Scene	Scene	LWS	Deep View Complete only.
Open Inventor	Scene	IV	Deep View Complete only.
OpenFlight Scene Description Database	Scene	FLT	Deep View Complete only.
Rhinoceros 3D Model	Scene	3DM	Deep View Complete only.
Right Hemisphere Binary	Scene	RH, RHZ	
Universal 3D	Scene	U3D	Deep View Complete only.
VRML Worlds	Scene	WRL, VRML	Deep View Complete only.
Wavefront Object	Scene	OBJ	Deep View Complete only.

Note 1: The file formats DWG and DXF have 2D characteristics when vector lines are applied, and do not function in the same manner as pure 3D file formats. For example, you cannot rotate a model rendered with vector lines and saved in a DWG format.

Note 2: If you are using Deep Exploration, CAD files should be saved as .rh files before being inserted or dragged into Office documents.

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