Autodesk Navisworks Freedom 2011

User Guide

March 2010

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Contents

Welcome to Autodesk Navisworks Freedom 2011 1

Chapter 1 What Is New in This Release? 3

Chapter 2 How to Get Assistance 5

Finding Information Using the InfoCenter 5
Overview of InfoCenter 5
Search for Information 6
Access Subscription Center 7
Use Communication Center 8
Save and Access Favorite Topics 9
Use the Help System 10
Specify InfoCenter Settings 13
Get More Help 15
View the Product Readme 16
Join the Customer Involvement Program 16

Chapter 3 Installation 17

Quick Start to Stand-Alone Installation 17
Prepare for Installation 17
System Requirements for Stand-Alone Installation 17
Understand Administrative Permission Requirements 19
Avoid Data Loss During Installation 19
Choose a Language 19
Configure Button 20
Install Multiple or Bundled Products 20
Install and Run Autodesk Navisworks Freedom 2011 20
Install Autodesk Navisworks 20
Launch Autodesk Navisworks 23
How to Launch Autodesk Navisworks in Another Language 23
Repair Autodesk Navisworks Freedom 2011 24
Uninstall Autodesk Autodesk Navisworks Freedom 2011 24
Installation Troubleshooting 25
General Installation Issues 25
How can I check my graphics card driver to see if it needs to be updated? 25
When performing a Typical installation, what gets installed? 26
Why should I specify the Project Folder and Site Folder? 26
How do I share the Autodesk Navisworks settings on a site and project basis? 26
Where are my product manuals? 27
Uninstall and Maintenance Issues 27

When should I reinstall the product instead of a repair? . . . 27
Do I need my original DVD to reinstall my software? . . . 27
When I uninstall my software, what files are left on my system? . . . 28

Chapter 4 **Quick Start** . . . 29
Start and Quit Autodesk Navisworks . . . 29
The User Interface . . . 29
Parts of Autodesk Navisworks Interface . . . 29
Application Button and Menu . . . 30
Quick Access Toolbar . . . 33
Ribbon . . . 34
Tooltips . . . 37
Keytips . . . 38
Navigation Tools . . . 38
The Classic User Interface . . . 38
Scene View . . . 45
Dockable Windows . . . 47
Status Bar . . . 50
Undo/Redo Commands . . . 51
Autodesk Navisworks Workspaces . . . 51
Default Keyboard Shortcuts . . . 52
Navigation with the Wheel Button . . . 55
Autodesk Navisworks Options . . . 56
Location Options . . . 59
Display Units . . . 60
Profiles . . . 61
Search Directories . . . 62
Gizmos . . . 62

Get a Whole-Project View . . . 65

Chapter 5 **Work with Files** . . . 67
Use File Readers . . . 67
NWD Files . . . 67
DWF Files . . . 67
Use File Exporters . . . 68
MicroStation File Exporter . . . 68
Manage Files . . . 68
Open Files . . . 68
Create Files . . . 69

Chapter 6 **Explore Your Model** . . . 71
Navigate a Scene . . . 71
Orientation in 3D Space . . . 71
Product-Specific Navigation Tools . . . 72
ViewCube . . . 93
Navigation Bar . . . 100
SteeringWheels . . . 102
Camera . . . 108
Navigation Aids . . . 111
Focus . . . 113
Hold . . . 114
Control the Realism of Your Navigation . . . 114
Gravity . . . 114
Crouching . . . 115
Collision . . . 115
Third Person View . . . 116

Chapter 7 **Control Model Appearance and Render Quality** . . . 117
Control Model Appearance . . . 117
Select Render Mode . . . 117

Add Lighting . . . 118
Select Background Effect . . . 120
Adjust Displaying of Primitives . . . 122
Control Render Quality . . . 124
Use Culling . . . 124
Control Rendering of Objects . . . 126
Adjust Presenter Materials . . . 128

Chapter 8 Review Your Model . . . 129
Select Objects . . . 129
Interactive Geometry Selection . . . 129
Set Highlighting Method . . . 134
Hide Objects . . . 135
Find Objects . . . 136
Quick Find . . . 136
Use Sets of Objects . . . 136
Object Properties . . . 137
Properties Window . . . 137
Comments and Annotations . . . 137
View Comments and Annotations . . . 137
Links . . . 139
Link Categories . . . 139
Display Links . . . 140
Customize Links . . . 141
Follow Links . . . 142
Quick Properties . . . 143

Chapter 9 Use Viewpoints and Sectioning Modes . . . 145
Modify Viewpoints . . . 145
Saved Viewpoints Window . . . 145
Recall Viewpoints . . . 147
Organize Viewpoints . . . 147
Edit Viewpoints . . . 148

Chapter 10 Play Back Animations . . . 151
Play Animations and Scripts . . . 151

Chapter 11 Share Data . . . 153
Print . . . 153
Print Preview . . . 153
Print Setup . . . 153
Print Current Viewpoint . . . 154

Chapter 12 TimeLiner Playback . . . 155
Overview of TimeLiner Tool . . . 155
TimeLiner Playback Window . . . 155
Simulate Tab . . . 155
Play Simulations . . . 157

Chapter 13 Autodesk Navisworks Reference . . . 159
Background Settings Dialog Box . . . 159
Collision Dialog Box . . . 159
Default Collision Dialog Box . . . 160
Edit Viewpoint Dialog Box . . . 161
File Options Dialog Box . . . 162
Culling Tab . . . 162
Orientation Tab . . . 163
Speed Tab . . . 163
Head Light Tab . . . 163
Scene Lights Tab . . . 164
InfoCenter Settings Dialog Box . . . 164

General Node . . . 164
Search Locations Node . . . 164
Communication Center Node . . . 164
Autodesk Channels Page . . . 165
Balloon Notification Page . . . 165
RSS Feeds Page . . . 165
Options Editor Dialog Box . . . 165
General Node . . . 166
Undo Page . . . 166
Locations Page . . . 166
Environment Page . . . 166
Interface Node . . . 167
Display Units Page . . . 167
Selection Page . . . 167
Measure Page . . . 168
Snapping Page . . . 168
Viewpoint Defaults Page . . . 168
Links Page . . . 169
Quick Properties Page . . . 170
Developer Page . . . 171
Display Page . . . 171
SpaceBall Page . . . 172
Navigation Bar Page . . . 172
ViewCube Page . . . 173
SteeringWheels . . . 174
User Interface Page . . . 175
Model Node . . . 176
Performance Page . . . 176
NWD Page . . . 177
NWC Page . . . 177
File Readers Node . . . 178
DWF Page . . . 178
Tools Node . . . 178
Presenter Page . . . 178
Scripter Page . . . 180
Animator Page . . . 180

Glossary . . . 181

Index . . . 183

Welcome to Autodesk Navisworks Freedom 2011

Autodesk Navisworks Freedom 2011 software is the free viewer for NWD files. Autodesk Navisworks products can combine design data created with a variety of design tools, and then publish the entire model to NWD format including properties, comments, viewpoints and 4D playback. Navisworks Freedom and the compact, secure, and streamable NWD file format give all project stakeholders access to the whole-project view. Quality is improved by enabling widespread real-time experience of entire design projects before they are real.

What Is New in This Release?

1

Autodesk Navisworks Freedom 2011 contains many new features and enhancements.

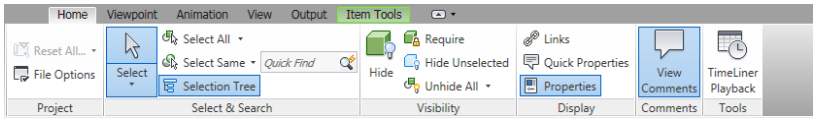
User Interface

The new ribbon-based interface enables faster access to the tools and commands you need, helping you to spend less time searching through menus and more time focusing on your work.

NOTE Smart Tags are now called Quick Properties.

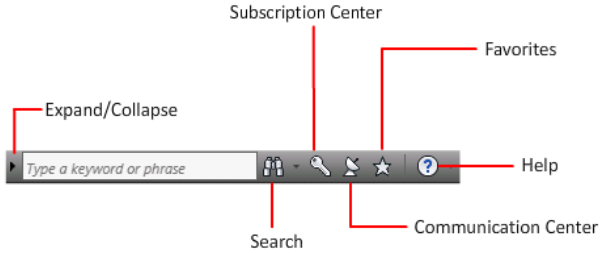
- **Application Button and Menu**. The application menu provides access to many common file actions, and also allows you to manage your files using more advanced tools, such as Import, Export, and Publish. See Application Button and Menu on page 30.
- **Quick Access Toolbar**. The Quick Access toolbar displays frequently used commands. You can customize it by adding more ribbon commands to it. See Quick Access Toolbar on page 33.

- **Ribbon**. The ribbon is the horizontal area of the Autodesk Navisworks application window that displays task-based commands and controls. The ribbon is divided into tabs, with each tab is supporting a specific activity. See Ribbon on page 34.



InfoCenter

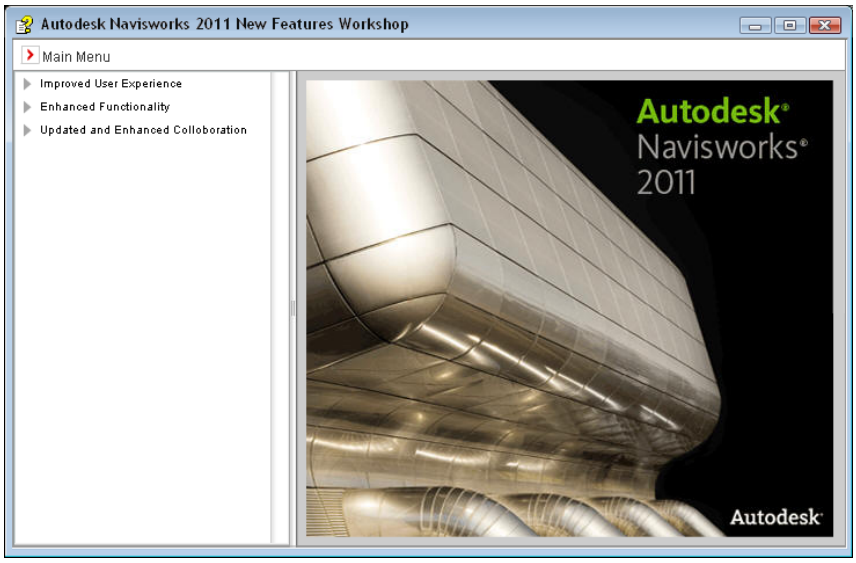
You can use InfoCenter to search a variety of information sources with one query. You can also easily access product updates and announcements.



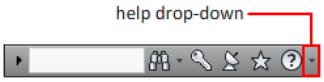
See “Finding Information Using the InfoCenter” on page 5.

New Features Workshop

The New Features Workshop introduces you to what’s new in Autodesk Navisworks.



You can access the New Features Workshop from InfoCenter. On the InfoCenter toolbar, to the right of the Help button, click the drop-down arrow.



You can also access the New Features workshop from the Start menu. Click Start ➤ All Programs ➤ Autodesk ➤ Navisworks Freedom 2011 ➤ New Features Workshop.

How to Get Assistance

2

There are various ways to find information about how to use this program, and multiple resources are available.

Finding Information Using the InfoCenter

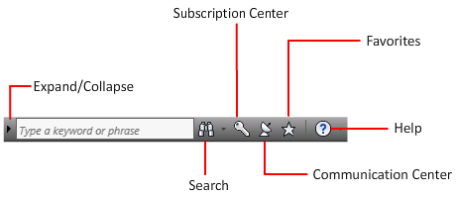
You can use InfoCenter to search a variety of information sources with one query. You can also easily access product updates and announcements.

Overview of InfoCenter

You can use InfoCenter to search for information, display the Subscription Center panel for subscription services, display the Communication Center panel for product updates, and display favorites panel to access saved topics.

You can use InfoCenter to:

- Search for information through keywords (or by entering a phrase)
- Access subscription services through Subscription Center panel
- Access to product-related updates and announcements through Communication Center panel
- Access saved topics through Favorites panel
- Access topics in Help



To display the InfoCenter box in a collapsed state, click the arrow to its left.

To browse search results

➤ On the panel for Search Results, Subscription Center, Communication Center, or Favorites, on the right side of the category header, do one of the following:

- Click the Next button.
- Click the Previous button.

To rearrange the topics displayed on a panel

1. Display a panel by doing one of the following:
   - In the InfoCenter box, enter a keyword or phrase. Then press ENTER or click the Search button.
   - In the InfoCenter box, click the Communication Center button.
   - In the InfoCenter box, click the Favorites button.
2. Click and drag a category or group header to the desired position.

NOTE You can rearrange categories within a group, but you cannot move them into other groups.

Search for Information

You can enter keywords or a phrase in the InfoCenter box to search for information.

When you enter keywords or a phrase in the InfoCenter box, you search the contents of multiple Help resources.

NOTE You must have Internet access to display search results from the Autodesk Online category.

Keyword searches produce better results. In case of a misspelled word, spelling suggestions are displayed on the panel.

The results are displayed as links on the InfoCenter Search Results panel. Click a link to display the topic, article, or document.

To keep Search Results, Subscription Center, Communication Center, and the Favorites panel expanded, click the push pin icon in the bottom-right corner of the panel.

When you use InfoCenter to search for information, you can use the following special symbols in your query to refine or expand it. These symbols can be used alone or can be combined.

Symbol	Description
*	Replaces one or more characters when used at the beginning, middle, or end of a word. For example, "*lish", "p*lish", and "pub*" will find "publish". Also, "anno*" will find "annotative", "annotation", "annoupdate", "annoreset", and so on.
?	Replaces a single character. For example, "cop?" will find "copy", but not "copybase".
~	Adds grammatical form variations to a keyword when added at the beginning or end of a word. For example, "plotting~" will find "plots", "plotted", and so on. Also, "~plot" will find "preplot", "replot", and so on.

When performing the exact phrase search, use double quotation marks (" ") to enclose words that must appear next to each other in the specified text string. For example, enter "**specify units of measurement**" to find only topics with all those words in that order. You can also use the previously mentioned symbols in a text string that is enclosed in double quotation marks.

To search multiple sources for information

1. In the InfoCenter box, enter a keyword or phrase.
2. Click the Search button.

The search results display in the Search Results panel.

To search a single location for information

1. In the InfoCenter box, enter a keyword or phrase.
2. Click the down arrow next to the Search button.
3. Select a location from the list to search.

The search results from that location display in the Search Results panel.

To add a location to search

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Add Search Location.
3. In the Add Search Location dialog box, specify a document or a file location to search.
4. Click Add.

Access Subscription Center

Subscription Center displays links to information about subscription services such as product enhancements, personalized web support from Autodesk technical experts, and self-paced e-Learning.

If you are a subscription member, you can access subscription services by clicking the Communication Center button in the InfoCenterbox, and then clicking a Subscription Center link. To learn more about Autodesk subscription membership, visit *http://www.autodesk.com/subscriptioncenter*.

About Subscription Center

With Autodesk Subscription, you get the latest releases of Autodesk software, incremental product enhancements, personalized web support from Autodesk technical experts, and self paced e-Learning. Subscription services are available to subscription members only.

By clicking the Communication Center button in the InfoCenter box, members have access to the following options (under Subscription Center):

- **Subscription status.** Checks your subscription status.
- **Create support request.** Provides direct one-to-one communication with Autodesk support technicians. You receive fast, complete answers to your installation, configuration, and troubleshooting questions.
- **View support requests.** Tracks and manage your questions and responses through Autodesk's state-of-the-art support system.
- **Edit Subscription Center profile.** Sets up and maintains your subscription account.
- **View e-Learning catalog.** Features interactive lessons organized into product catalogs.

- **e-Learning Lessons.** (For subscription members only.) Each lesson is 15-30 minutes and features hands-on exercises, with an option to use a simulation instead of the software application. You can use an online evaluation tool that identifies gaps in skills, determines what lessons will be most helpful, and gauges learning progress.

Subscription Resources and Privacy

Subscription resources provide interactive product features over the Internet. Each time you access subscription resources (such as e-Learning or Create Support Request) from Communication Center in an Autodesk product, product information (such as the serial number, version, language, and the subscription contract ID) is sent to Autodesk for verification that your product is on subscription.

Autodesk compiles statistics using the information sent to subscription resources to monitor how they are being used and how they can be improved. Autodesk maintains the information provided by or collected from you in accordance with Autodesk's published privacy policy, which is available at *http://www.autodesk.com/privacy*.

To open the Subscription Center

1. Click the Communication Center button in the InfoCenter box.
2. On the Communication Center panel, under Subscription Center, click the subscription resource you want to access.

NOTE Subscription Center is not available to all product users. If subscription resources are not available in your product, your product is not entitled to subscription benefits.

Manage Files with Autodesk Vault

If you are a subscription customer, you have access to Autodesk Vault, a file management tool that provides a repository where documents and files are stored and managed.

Autodesk Vault gives you more power to manage files and track changes. Versioned copies of master files are maintained, allowing you to easily revert to earlier versions of files. You can check files out for editing and later check them back in. The master copy is never directly edited.

Autodesk Vault consists of two required components: the Autodesk Data Management Server and the Vault Client. Optionally, you can also install the Vault Office Add-in.

For information about using the Vault, refer to the Vault Help system.

TIP The main components for the Autodesk Vault can be downloaded from the Autodesk Subscription site.

Use Communication Center

Communication Center provides up-to-date product information, software updates, product support announcements, and other product-related announcements.

Overview of Communication Center

You can click the Communication Center button to display links to information about product updates and announcements, and may include links to RSS feeds.

Whenever new information is available, Communication Center notifies you by displaying a balloon message below the Communication Center button in the InfoCenter box.

Communication Center provides the following types of announcements:

- **Autodesk Channels:** Receive support information, product updates, and other announcements (including articles and tips).

- **RSS Feeds.** Receive information from RSS feeds to which you subscribe. RSS feeds generally notify you when new content is posted. You are automatically subscribed to several default RSS feeds when you install the program.
- **Product Support Information.** Get breaking news from the Product Support team at Autodesk, including when Live Update maintenance patches are released.
- **Subscription Announcements.** Receive subscription announcements and subscription program news, as well as links to e-Learning Lessons, if you are an Autodesk subscription member (available in countries/regions where Autodesk subscriptions are offered).
- **Articles and Tips.** Be notified when new articles and tips are available on Autodesk websites.
- **Live Update Maintenance Patches.** Receive automatic notifications whenever new maintenance patches are released from Autodesk.
- **Featured Technologies and Content.** Learn more about third-party developer applications and content.

You can customize the items that display on the Communication Center panel. For more information, see "Specify InfoCenter Settings" on page 13.

Communication Center Online Policy

Communication Center is an interactive feature that must be connected to the Internet in order to deliver content and information. Each time Communication Center is connected, it sends your information to Autodesk so that you receive the correct information. All information is sent anonymously to Autodesk to maintain your privacy.

Communication Center sends the following information to Autodesk:

- Product name (in which you are using Communication Center)
- Product release number
- Product language
- Country/region (specified in the Communication Center settings)
- Your unique Customer Involvement Program (CIP) ID if you are participating in the CIP program

Autodesk compiles statistics using the information sent from Communication Center to monitor how it is being used and how it can be improved. Autodesk maintains information provided by or collected from you in accordance with the company's published privacy policy, which is available at *http://www.autodesk.com/privacy*.

To open Communication Center

- In the InfoCenter box, click the Communication Center button.

To receive new information notifications

- Click the link in the balloon message to open the article or announcement.

Save and Access Favorite Topics

You can click the Favorites button to display saved links to topics or web locations.

Any link that displays on the Search Results panel, Subscription Center or Communication Center panel can be marked as a favorite.

A link marked as a favorite displays a star icon on the Search Results panel, Subscription Center panel or the Communication Center panel.

To display the InfoCenter Favorites panel

- In the InfoCenter box, click the Favorites button.

NOTE The links displayed on the Favorites panel are organized into the same groups or categories from which they were added.

To save a link in InfoCenter as a favorite

1. Display a panel by doing one of the following:
   - In the InfoCenter box, enter a keyword or phrase. Then press ENTER or click the Search button.
   - In the InfoCenter box, click the Subscription Center button.
   - In the InfoCenter box, click the Communication Center button.
2. Click the star icon that is displayed next to the link that you want to save as a favorite.

To remove a favorite link from the InfoCenter Favorites panel

1. In the InfoCenter box, click the Favorites button to display the Favorites panel.
2. Click the star icon that is displayed next to the link that you want to remove from the Favorites panel.

Use the Help System

You can click the Help button to display topics in Help.

You can get much more benefit from the Help system when you learn how to use it efficiently. You can quickly find general descriptions, procedures, details about dialog boxes and palettes, or definitions of terms.

The Help system contains complete information about using this program. In the Help window, you use the left pane to locate information. The tabs above the left pane give you several ways for finding the topics you want to view. The right pane displays the topics you select.

To display topics in Help

- In the InfoCenter box, click the Help button.

How Help Topics Are Organized

Most topics in this Help system have three tabs above the right pane of the Help window. The tabs display different types of information.

- **Concept tab.** Describes a feature or function. When you click the Concept tab, the Help Contents list in the left pane of the Help window expands and highlights the current topic. The Contents tab displays the structure of the Help on that topic. You can easily display nearby topics by clicking them in the list.
- **Procedure tab.** Provides step-by-step instructions for common procedures related to the current topic. After displaying a procedure, you can click the Procedure tab to redisplay the current list of procedures.
- **Quick Reference tab.** Lists reference information related to the current topic.

When you click a different tab, the topic remains the same. Only the type of information displayed—concept, procedures, or quick reference links—is different.

Search in Help

Use the Help Search tab to find relevant topics based on keywords that you enter.

The basic search rules are as follows:

- Type your keywords in uppercase or lowercase characters; searches are not case-sensitive.
- Search for any combination of letters (a-z) and numbers (0-9).
- Do not use punctuation marks such as a period, colon, semicolon, comma, hyphen, and single quotation marks; they are ignored during a search.
- Group the elements of your search using double quotation marks or parentheses to set each element apart.

Use Wild Card Characters

You can use the following wild card characters in any keyword:

Symbol	Description
*	Replaces one or more characters when used at the beginning, middle, or end of a word. For example, "*lish", "p*lish", and "pub*" will all find "publish". Also, "an-no*" will find "annotative", "annotation", "annoupdate", "annoreset", and so on.
?	Replaces a single character. For example, "cop?" will find "copy", but not "copy-base".
~	Expands the tense of the word at the beginning or end of a word. For example, "plotting~" will find "plots", "plotted", and so on. Also, "~plot" will find "preplot", "replot", and so on.

Search for Phrases

When searching for a phrase, use double quotation marks (" ") to enclose words that must appear next to each other in the specified sequence. For example, enter "specifying units of measurement" to find only topics with all those words in that order. If you don't use the quotation marks around that text, Help finds all topics containing any one of the listed words, that is, all topics containing "specifying", all topics containing "units", all topics containing "of", and all topics containing "measurement".

TIP If you can't find the information you need through a search, try using the Contents tab.

Use Boolean Operators

With the AND, OR, NOT, and NEAR operators, you can 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	"tree view" AND "palette"	Topics containing both the words "tree view" and "palette"
Either term in a topic	viewpoint OR animation	Topics containing either the word "viewpoint" or the word "animation" or both

Search for	Example	Results
The first term without the second term	nwd NOT nwc	Topics containing the word "NWD", but not the word "NWC"
Both terms in the same topic, close together	user NEAR menu	Topics containing the word "user" within eight words of the word "menu"

NOTE The |, &, and ! characters do not work as Boolean operators. You must use AND (also +), OR, and NOT (also -).

Find Information in Help Topics

The tabs on the left side of the Help window provide different methods for finding information.

Contents Tab

- Presents an overview of the available documentation in a list of topics and subtopics.
- Allows you to browse by selecting and expanding topics.
- Provides a structure so you can always see where you are in Help and quickly jump to other topics.

Index Tab

- Displays an alphabetical list of keywords related to the topics listed on the Contents tab.
- Accesses information quickly when you already know the name of a feature, command, or operation, or when you know what action you want the program to perform.

Search Tab

- Provides a keyword search of all the topics listed on the Contents tab.
- Accepts the Boolean operators AND (+), OR, NOT (-), and NEAR.
- Accepts the wild cards *, ?, and ~.
- Allows you to perform a search for a phrase when the phrase is enclosed in double quotes.
- Displays a ranked list of topics that contain the word or words entered in the keyword field.
- Arranges the results alphabetically by title or by location if you click on the Title and Location column headings.

To find a specific word or phrase in the currently displayed Help topic

1. Click in the topic text and press CTRL+F.
2. In the Find text box, enter a keyword or phrase.
3. Click Next. If the keyword or phrase is located, the topic scrolls to display the result.

Print Help Topics

The quickest way to print the current topic is to right-click within the topic and click Print.

The Print button on the Help toolbar provides these print options:

- Print the selected topic (recommended)
- Print the selected heading and all subtopics

NOTE When you select the second option, you may get numerous printed pages, depending on how many subtopics the currently selected topic contains.

To print a Help topic

1. Display the topic you want to print.
2. Right-click in the topic pane. Click Print.
3. In the Print dialog box, click Print.

To print a selected heading and all subtopics

1. Display the topic you want to print and make sure that the Contents tab is displayed.
2. On the Help toolbar, click Print.
3. In the Print Topics dialog box, click Print the Selected Heading and All Subtopics.
4. Click OK.

Show and Hide the Contents Pane

Use the Hide button on the Help toolbar to shrink the Help window to a compact size by hiding the pane that contains the Contents, Index, and Search tabs.

The compact window size is best for displaying procedures while you work.

Use the Show button to expand the Help window to display the pane that contains Contents, Index, and Search tabs. The expanded window size is best for locating and displaying conceptual and reference information.

Specify InfoCenter Settings

You can specify InfoCenter Search and Communication Center settings in the InfoCenter Settings dialog box.

In the InfoCenter Settings dialog box, you can specify the following settings:

- **General.** Your current location, frequency for checking new online content and option to turn on or off animated transition effects for the InfoCenter panels.
- **Search Locations.** Locations (documents, web locations, and files) to search for information, as well as the name that displays for each location and the number of results to display for each. Also, you can add or remove search locations.
  The Web Locations check box provides access to important information on the Autodesk website, including the Knowledge Base and discussion groups. When you add document locations, you can specify files on your local drive.

  NOTE User-specified CHM (compiled help) files must be located on your local drive. InfoCenter cannot search CHM files located on network drives.

- **Communication Center.** Set the maximum age of the articles displayed on the Communication Center panel.
- **Autodesk Channels.** Channels to display in the Communication Center panel as well as the number of articles to display for each channel.
- **Balloon Notification.** Notifications for new product information, software updates, and product support announcements. Also, you can customize the transparency and the display time of the balloon.

- **RSS Feeds.** RSS feed subscriptions. You can add or remove RSS feeds. RSS feeds generally notify you when new content is posted.

To specify locations to search for information

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Search Settings.
3. In the InfoCenter Settings dialog box, Search Locations panel, in the right pane, select or clear the search locations you want to include or exclude when you search for information.
4. Click OK.

NOTE With the Search All Available Languages option, you can specify whether to search the default language or all available languages, including English, Japanese, and French. Select the check box if you want to search all available languages.

To add a new location to search for information

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Search Settings.
3. In the InfoCenter Settings dialog box, do one of the following:
   - On the Search Locations panel, in the right pane, click Add.
   - On the Search Locations panel, in the right pane, right-click anywhere in the pane. Click Add.
4. In the Add Search Location dialog box, specify a file location to search.
5. Click Add.

   NOTE A warning message is displayed when you add a search location with a file size larger than 5 MB. You cannot continue to work in the application until indexing is complete.
6. Click OK.

To remove a search location

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Search Settings.
3. In the InfoCenter Settings dialog box, do one of the following:
   - Select a location to remove, and then click Remove.
   - Right-click a search location. Click Remove.
4. In the InfoCenter - Remove Search Location dialog box, click Yes.
5. Click OK.

To specify the channels to display in the Communication Center panel

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Search Settings.
3. In the InfoCenter Settings dialog box, in the left pane, click Autodesk Channels.
4. In the right pane, select or clear the channels you want to display in the Communication Center panel.
5. Click OK.

To specify InfoCenter balloon notification settings

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Search Settings.
3. In the InfoCenter Settings dialog box, in the left pane, click Balloon Notification.
4. In the right pane, select or clear the options to turn balloon notification on or off.
5. Enter the number of seconds to set the length of time for balloon notifications to display.
6. Enter the transparency value of the balloon or set the value using the slider.
7. Click OK.

To add an RSS feed to Communication Center

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Search Settings.
3. In the InfoCenter Settings dialog box, in the left pane, click RSS Feeds.
4. In the right pane, do one of the following:
   - Click Add.
   - Right-click anywhere in the right pane. Click Add.
5. In the Add RSS Feed dialog box, enter the location of the RSS feed you want to add. Click Add.
6. In the InfoCenter - RSS Feed Confirmation dialog box, click Close.
7. Click OK.

To remove an RSS feed from Communication Center

1. In the InfoCenter box, click the down arrow next to the Search button.
2. Click Search Settings.
3. In the InfoCenter Settings dialog box, in the left pane, click RSS Feeds.
4. In the right pane, do one of the following:
   - Click Remove.
   - Right-click an RSS feed. Click Remove.
5. In the InfoCenter - Remove RSS Feed dialog box, click Yes.
6. Click OK.

Get More Help

You can access several additional sources of help.

- **Use Communication Center.** Display the Communication Center panel for product updates and announcements.
- **Press F1.** Displays context-sensitive reference information.
- **Click the Help button in many dialog boxes.** Displays reference information for the dialog box.
- **View the product Readme.** Displays late-breaking information about this product.

Other resources help you get information about Autodesk products and assistance with your questions about this program.

- **Autodesk website.** Access *http://www.autodesk.com*.
- **Local support.** Check with your dealer or Autodesk country/region office.

View the Product Readme

You can find late-breaking information about this software in the Readme.

It is suggested that you read through the Autodesk Navisworks Readme for information about recommended hardware, updated installation instructions, and known software problems. The Readme file is available from the product's program group on the Windows Start menu.

Join the Customer Involvement Program

You are invited to help guide the direction of Autodesk design software.

If you participate in the Customer Involvement Program (CIP), specific information about how you use Autodesk Navisworks is forwarded to Autodesk. This information includes what features you use the most, problems that you encounter, and other information helpful to the future direction of the product.

See the following links for more information.

- Learn more about the Autodesk Customer Involvement Program: *http://www.autodesk.com/cip*
- Read the Autodesk Privacy Statement: *http://www.autodesk.com/cipprivacy*

When you join, you will be able to view reports that can help you optimize your use of Autodesk Navisworks.

To turn the CIP on or off

1. On the InfoCenter toolbar, to the right of the Help button, click the drop-down arrow.
2. Click Customer Involvement Program.
3. In the Customer Involvement Program dialog box, select to start or stop participating.
4. Click OK.

Installation

3

This chapter provides information about installing and activating Autodesk Navisworks on a workstation.

Quick Start to Stand-Alone Installation

This section provides step-by-step instructions about how to prepare, and then install Autodesk Navisworks.

Prepare for Installation

To prepare for installation, you should review the system requirements, understand administrative permission requirements, and close all running applications.

Complete these tasks, and you are ready to begin installing Autodesk Navisworks Freedom 2011.

System Requirements for Stand-Alone Installation

The first task you need to complete is to make sure that your computer meets the minimum system requirements. If your system does not meet these requirements, problems can occur, both within Autodesk Navisworks and at the operating system level.

Whether your Windows operating system is the 32-bit or the 64-bit version, the version is automatically detected during installation.

See the following table for hardware and software requirements.

Hardware and software requirements

Hardware/Software	Requirement
Operating system	■ Windows 7 Enterprise ■ Windows 7 Ultimate ■ Windows 7 Professional ■ Windows 7 Home Premium ■ Windows 7 Home Basic
	Service Pack 2 (SP2) or later of the following:

Hardware and software requirements	
	■ Windows Vista Enterprise ■ Windows Vista Ultimate ■ Windows Vista Business ■ Windows Vista Home Premium ■ Windows Vista Home Basic
	Service Pack 2 (SP2) or later of the following:
	■ Windows XP Professional x64 Edition
	Service Pack 3 (SP3) or later of the following:
	■ Windows XP Professional (32-bit) ■ Windows XP Home (32-bit)
Web browser	**32-bit**
	Microsoft® Internet Explorer 6.0, SP 1 or later
	64-bit
	Internet Explorer 7.0 or later
Processor	**32-bit**
	AMD Athlon™ 3.0 GHz or faster (minimum); Intel® Pentium® 4, 3.0 GHz or faster (recommended)
	64-bit
	AMD or Intel EM64T
RAM	**32-bit**
	512 MB (minimum) 2 GB or greater (recommended)
	64-bit
	2 GB
Graphics card	128 MB, 1024 x 768 VGA, True Color (minimum); 256 MB or greater - 1280 x 1024 32-bit color video display adapter, True Color (recommended)
Hard disk	Installation 1 GB
Pointing device	Microsoft-mouse compliant

Hardware and software requirements	
DVD-ROM	Any speed (for installation only)
Optional hardware	Open GL©-compatible 3D video card; Printer or plotter; Modem or access to an Internet connection; Network interface card

Understand Administrative Permission Requirements

To install Autodesk Navisworks, you must have administrator permissions.

You do not need to have domain administrative permissions. See your system administrator for information about administrative permissions.

To run Autodesk Navisworks, you do not need administrator permissions. You can run the program as a limited user.

Avoid Data Loss During Installation

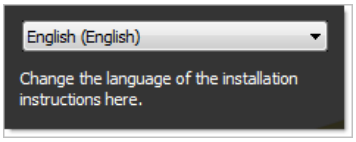
The Autodesk Navisworks installation process may stop if some applications (such as Microsoft® Outlook® or virus-checking programs) are running.

Close all running applications to avoid possible data loss.

Choose a Language

You can select a different language for installation instructions, and a language for individual product installations in the same install process.

When you start the installation process, the installer automatically determines your operating system language. If a supported language is detected, your install pages are displayed in that language. If you want to change that language, you select a different one from the Installer Language list on the first page of the Installation wizard.



NOTE Some products may not have multi-language support at the time of product release. Additional language support may be available later. Check *http://support.autodesk.com* for the availability of additional language packs.

Using Language Packs

Language packs support use of different languages in each Autodesk Navisworks product, including exporters. Pack names start with NAVFREE_, NAVREV_, NAVSIM_, NAVMAN_, and exporters_ respectively.

NOTE You must install at least one language pack for each product.

It is possible to install additional language packs to Autodesk Navisworks products later. You can manually install the required language packs by double-clicking on the language pack MSI file.

Language packs are located on the installation DVD and unpacked downloaded media under the x86 folder for 32-bit products and under the x64 folder for 64-bit products.

- Language packs for specific products are included in the NAVFREE, NAVREV, NAVSIM, NAVMAN, and NWEXPORT subfolders of x86 and x64 folders.

- Language packs for specific languages are included in the en-US (English), de-DE (German), es-ES (Spanish), fr-FR (French), it-IT (Italian), ja-JP (Japanese), ko-KR (Korean), pt-BR (Brazilian Portuguese), ru-RU (Russian) and zh-CN (Chinese PRC) subfolders of the product folders.

So, for example, to install the 32-bit French language pack for Autodesk Navisworks Freedom, double-click *x86/NAVFREE/fr-FR/NAVFREE_LP.msi*.

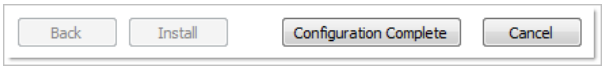
Configure Button

During the installation process, you choose either a typical installation (install the product with default settings), or a customized installation. If you choose to customize, you start that process in the Begin Installation page. Select the appropriate product from the drop-down list, and click Configure.

After you click Configure, the following dialog boxes and options are displayed:

- Project and Site Folders. These settings can be shared across an entire project site, or across a specific project group depending on the required level of granularity. Refer to "Why should I specify the Project Folder and Site Folder?" on page 26.
- Select the Installation Location. Select the Product Install Path. Use the Browse button to select the drive and location where product will be installed.

When you have completed your choices, click the Configuration Complete button. This takes you back to the Begin Installation page, where you can review your selections and complete the installation process.



If you do not wish to make configuration changes on the Begin Installation page, click Install.

Install Multiple or Bundled Products

Some Autodesk packages are comprised of multiple products or are part of multi-product bundles.

The Installation wizard for packages that are comprised of multiple products gives you the option to choose which products you want to install.

In the Installation wizard, for packages containing multiple products, you can choose which products and languages you want to install. During the install process, you are informed whether a copy of the software is already installed. You are also warned if your system does not meet the minimum system requirements for the product. Each product name is displayed on its own tabbed panel; you can configure them individually.

If you purchased a package that is a multi-product bundle, such as an educational or institutional package, you may have a package that includes several Autodesk products. For these bundled packages, an Installer disc contains information for all the products in the package. The Installer disc helps you install all of the products.

Install and Run Autodesk Navisworks Freedom 2011

You must have administrative permissions to install Autodesk Navisworks.

This section provides instructions for installing and activating Autodesk Navisworks for an individual user on a stand-alone computer.

NOTE Autodesk does not recommend or support the distribution of an Autodesk product using imaging software.

Install Autodesk Navisworks

The Autodesk Navisworks Installation wizard contains all installation-related material in one place.

From the Installation wizard, you can access user documentation, change the installer language, select a language-specific product, install supplemental tools, view support solutions, and learn about deploying your product on a network.

- Review installation documentation before you install. It is recommended that you take the time to familiarize yourself with the complete installation process before you install Autodesk Navisworks. You can access PDF versions of the licensing manuals and CHM versions of the installation manuals from the product's Installation wizard by selecting the Read the Documentation selection, or the Documentation link at the bottom, left pane of the install pages.
  You can also access PDFs from the product disc. For late-breaking information, it is also recommended that you review the product Readme.

  NOTE To view or print PDF (.pdf) files, Adobe® Reader must be installed on your computer. If you do not have Adobe Reader, you can download the latest version at *http://www.adobe.com*.

- Install Autodesk Navisworks Freedom 2011. From the Installation wizard, click Install Products. Follow the on-screen instructions to complete the installation.

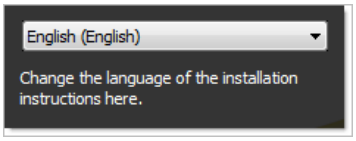
Install Autodesk Navisworks Using Default Values

This is the fastest means of installing Autodesk Navisworks on your system.

Only default values are used which means it is a typical installation being installed to `C:\Program Files\Autodesk\Navisworks Freedom 2011`.

To install Autodesk Navisworks using default values on a stand-alone computer

1. Insert the Autodesk Navisworks Freedom 2011 DVD into the DVD drive.
   The Autodesk Navisworks Freedom 2011 Installation wizard launches in the language that best matches the settings on your computer.
   If the Installation wizard does not start automatically, double-click `Setup.exe` at the root of the Autodesk Navisworks DVD.
2. In the Installation wizard, change the language of the installation instructions or accept the default language.

   Click Install Products.
3. Select the languages and the products you want to install.
   Click Next.
4. Review the Autodesk software license agreement for your country or region. You must accept this agreement to proceed with the installation. Choose your country or region, click I Accept, and then click Next.

   NOTE If you do not agree to the terms of the license and want to terminate the installation, click Cancel.

5. On the User Information page, enter your personal details and click Next.

   IMPORTANT The information you enter here is permanent and is displayed in the Autodesk Navisworks Freedom 2011 window (accessed in the InfoCenter box by clicking the down arrow next to the Help button ➤ About Autodesk Navisworks Freedom 2011). Because you can't change this information later without uninstalling the product, make sure you enter the correct information now.

6. On the Begin Installation page, click Install.
   Click Yes to continue installing using the default configuration.

The wizard does the following:

- Uses a Typical installation, which installs the most common application features. To see which features are included in a Typical installation, refer to "Typically Installed Features" on page 26.
- Installs Autodesk Navisworks to the default install path of `C:\Program Files\Autodesk\Navisworks Freedom 2011`.
- Installs the products you selected in Step 3.

NOTE By default, the Installation wizard automatically enables the exporter plugins for all third-party products already installed on your computer.

7 On the Installation Complete page, choose:

- View the Autodesk Navisworks Freedom 2011 Readme. Open the Readme file with the information that was not available when the Autodesk Navisworks Freedom 2011 documentation was prepared.

NOTE If you do not want to view the Readme file now, clear the check box.

8 Click Finish.

Install Autodesk Navisworks Using Configured Values

With this installation method, you can fine-tune exactly what gets installed by using the Configure option.

You can alter the installation type, the install path, the license type, and specify the location of the Project and Site folders.

To install Autodesk Navisworks using configured values on a stand-alone computer

1 Insert the Autodesk Navisworks Freedom 2011 DVD into the DVD drive.

The Autodesk Navisworks Freedom 2011 Installation wizard launches in the language that best matches the settings on your computer.

If the Installation wizard does not start automatically, double-click `Setup.exe` at the root of the Autodesk Navisworks DVD.

2 In the Installation wizard, change the language of the installation instructions or accept the default language. Click Install Products.

3 Select the languages and the products you want to install.

Click Next.

4 Review the Autodesk software license agreement for your country or region. You must accept this agreement to proceed with the installation. Choose your country or region, click I Accept, and then click Next.

NOTE If you do not agree to the terms of the license and want to terminate the installation, click Cancel.

5 On the User Information page, enter your personal details and click Next.

IMPORTANT The information you enter here is permanent and is displayed in the Autodesk Navisworks Freedom 2011 window (accessed in the InfoCenter box by clicking the down arrow next to the Help button ➤ About Autodesk Navisworks Freedom 2011). Because you can't change this information later without uninstalling the product, make sure you enter the correct information now.

6 On the Begin Installation page, click Configure to make configuration changes. Each of the products you selected in Step 3 has its own tab.

NOTE At any time you can click Configuration Complete to return to the Begin Installation page.

7 You can make the following configuration changes:

➤ On the Project and Site Folders page, you can specify:

- Project Folder. Use the Browse button to select the directory that contains the product settings specific to a project group.
- Site Folder. Use the Browse button to select the directory that contains the product settings standard across the entire project site.

Click Next.

8 On the Select the Installation Location page, you can make the following configuration change:

- Product Install Path. Use the Browse button to select the drive and location where product will be installed. Click Next and then Configuration Complete to return to the Begin Installation page. Then, click Install.

NOTE If you want a copy of your configuration summary information, click Copy to Clipboard.

9 On the Installation Complete page, choose:

- View the Autodesk Navisworks Freedom 2011 Readme. Open the Readme file with the information that was not available when the Autodesk Navisworks Freedom 2011 documentation was prepared.

NOTE If you do not want to view the Readme file now, clear the check box.

10 Click Finish.

Launch Autodesk Navisworks

Assuming that you've followed all of the previous steps outlined in this Quick Start section, you can launch Autodesk Navisworks and start taking advantage of its new and updated features.

You can start Autodesk Navisworks in the following ways:

- Desktop shortcut icon. When you install Autodesk Navisworks, a shortcut icon is placed on your desktop. Double-click the Autodesk Navisworks icon to start the program.
- Start button. Click Start ➤ All Programs ➤ Autodesk ➤ Navisworks Freedom 2011 ➤ Autodesk Navisworks Freedom 2011.
- Location where Autodesk Navisworks is installed. If you have administrative permissions, you can run Autodesk Navisworks in the location where you installed it. If you are a limited-rights user, you must run Autodesk Navisworks from the Start button or from the desktop shortcut icon. If you want to create a custom shortcut, make sure that the Start In directory for the shortcut points to a directory where you have write permissions.

NOTE When the product is started, by default, it uses the language that best matches the settings on your computer. You can also launch Autodesk Navisworks in another of the supported languages.

How to Launch Autodesk Navisworks in Another Language

To run Autodesk Navisworks in another of the installed languages, you need to add one of the language selector arguments to the desktop shortcut.

To run Autodesk Navisworks in another language

1 Right-click the Autodesk Navisworks desktop shortcut, and click Properties on the shortcut menu to open the Autodesk Navisworks Properties dialog box.

2 On the Shortcut tab, enter a space in the Target field after ..*roamer.exe*, and then enter one of the following arguments:

-lang en-US for English localization

-lang de-DE for German localization

-lang es-ES for Spanish localization

-lang fr-FR for French localization

-lang it-IT for Italian localization

-lang ja-JP for Japanese localization

-lang ko-KR for Korean localization

-lang pt-BR for Brazilian Portuguese localization

-lang ru-RU for Russian localization

-lang zh-CN for Chinese (PRC) localization

3 Click OK to save the changes.

Repair Autodesk Navisworks Freedom 2011

If you accidentally delete or alter files that are required by Autodesk Navisworks Freedom 2011, Autodesk Navisworks might not perform correctly, and you might receive error messages when you try to execute a command or find a file. You can attempt to fix this problem by repairing Autodesk Navisworks Freedom 2011.

Repairing uses the features that were part of the installation type you chose when you initially installed the program.

To repair Autodesk Navisworks Freedom 2011

1 Do one of the following:

- (Windows XP) Click Start ➤ Settings ➤ Control Panel ➤ Add or Remove Programs.
- (Windows Vista and Windows 7) Click Start ➤ Control Panel ➤ Programs and Features.

2 From the list of programs, click Autodesk Navisworks Freedom 2011, and then click Change/Remove (Windows XP) or Uninstall/Change (Windows Vista and Windows 7).

The Autodesk Navisworks Freedom 2011 Installation wizard re-opens in Maintenance Mode.

3 Click Repair or Reinstall.

4 On the Select Repair or Reinstall page, click Repair My Autodesk Navisworks Freedom 2011 Installation. This option replaces all registry entries that Autodesk Navisworks initially installed and restores Autodesk Navisworks Freedom 2011 to its default state.one of the following, and then click Next.

NOTE Reinstall My Autodesk Navisworks Freedom 2011 Installation repairs the registry and reinstalls all files from the original installation. Use this option if the Repair My Autodesk Navisworks Freedom 2011 Installation option does not solve the problem.

5 On the Repair Autodesk Navisworks Freedom 2011 page, click Next to start the process.

6 On the Repair Complete page, click Finish.

Uninstall Autodesk Autodesk Navisworks Freedom 2011

When you uninstall Autodesk Navisworks Freedom 2011, all components are removed. This means that even if you've previously added or removed components, or if you've reinstalled or repaired Autodesk Navisworks Freedom 2011, the uninstall removes all Autodesk Navisworks installation files from your system.

To uninstall Autodesk Navisworks Freedom 2011

1. Do one of the following:
   - (Windows XP) Click Start ➤ Settings ➤ Control Panel ➤ Add or Remove Programs.
   - (Windows Vista and Windows 7) Click Start ➤ Control Panel ➤ Programs and Features.
2. From the list of programs, click Autodesk Navisworks Freedom 2011, and then click Change/Remove (Windows XP) or Uninstall/Change (Windows Vista and Windows 7).

   The Autodesk Navisworks Freedom 2011 Installation wizard re-opens in Maintenance Mode.
3. Click Uninstall.
4. On the Autodesk Navisworks Freedom 2011 page, click Next to remove Autodesk Navisworks from the system.
5. When informed that the product has been successfully uninstalled, click Finish.

NOTE Even though Autodesk Navisworks Freedom 2011 is removed from your system, the software license remains. If you reinstall Autodesk Navisworks Freedom 2011 at some future time, you will not have to register and re-activate the program.

Installation Troubleshooting

This section provides solutions to installation issues and answers to commonly asked questions that may arise while installing your products.

Additional troubleshooting information and support is also available at *http://support.autodesk.com*.

General Installation Issues

This section provides solutions to installation issues and answers to commonly asked questions that may arise while installing your products.

How can I check my graphics card driver to see if it needs to be updated?

It is recommended that you ensure your computer has the most current graphics card driver for the best possible display performance.

To identify your graphics card driver

1. Start Autodesk Navisworks Freedom 2011.
2. In the InfoCenter box, click the down arrow next to the Help button ➤ System Info.

   The Autodesk Navisworks Freedom 2011 information dialog box opens.
3. Review the information about your system including the graphics card driver and driver version, and click OK to close the dialog.

To check the Web for an updated graphics card driver

- Use Windows Update. If a more recent graphics card driver is available, select it to have Windows Update download and install it.
- Search the graphics card manufacturer's website for the type of installed graphics card. If a more recent graphics card driver is available, install it following the instructions provided by the manufacturer.

To install an updated graphics card driver

1. Check the Web for to see if an updated driver is available.
   - Use Windows Update.
   - Search the graphics card manufacturer's website for the type of installed graphics card.
2. If a more recent graphics card driver is available, follow the instructions from the website to install download and install it.

When performing a Typical installation, what gets installed?

A Typical installation includes the following features:

Autodesk Navisworks Freedom 2011	Contains full set of Autodesk Navisworks Freedom 2011 files
API	Contains the Component Object Model interface for customizing and extending the Autodesk Navisworks functionality
Sample RPCs	Contains several Rich Photorealistic Content files for the Presenter tool
Example NWD files	Contains various feature sample files
PDF manual	Contains the Autodesk Navisworks Freedom 2011 user guide in PDF format

Why should I specify the Project Folder and Site Folder?

You can share global Autodesk Navisworks settings, workspaces, datatools, avatars, Clash Detective rules, Presenter archives, custom Clash Detective tests, object animation scripts, and so on, with other users.

These settings can be shared across an entire project site, or across a specific project group depending on the required level of granularity.

Autodesk Navisworks examines the current user profile and the all users profile on the local machine, and then checks the settings in the Project Directory and the Site Directory. The files in the Project Directory take precedence.

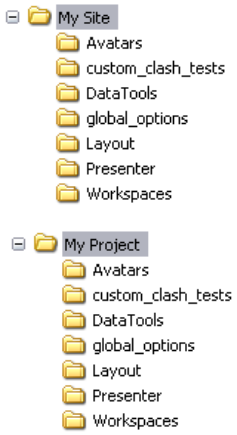
How do I share the Autodesk Navisworks settings on a site and project basis?

Sharing Autodesk Navisworks settings requires you to export the desired settings as an XML file to the appropriate Site or Project directory's *global_options* folder. The name of the XML file is not significant. However it must be stored in the *global_options* folder.

TIP When you configure global options, you can lock some of the options to prevent users from editing them later on local machines. To create a locked global options file, run the stand-alone Options Editor from the command line by typing `"drive:pathname\OptionsEditor.exe" -l`. The Options Editor opens with the locking facility.

To share settings on a site and project basis

1. Create appropriate Site and Project directories and subfolders in a central location to be accessed by other Navisworks users.



2. In Autodesk Navisworks, click the application button ➤ Options Editor.
3. Click Export.
4. In the Select Options to Export dialog box, check all options you want to export and click OK.
5. In the Save As dialog box, name the XML file as desired and save it to the *global_options* folder in the appropriate Site or Project directory.

See also:

- Location Options on page 59
- Global Options on page 57
- Select the Project and Site Folders (optional)

Where are my product manuals?

All documentation created for Autodesk products are built in two different formats: PDF and CHM.

- CHM files are made available during installation; click the Documentation link in the Installation wizard. To access CHM files after the product is installed, use the Help system in the product.
- PDF files are available after the product is installed; they are located in the `Autodesk\Autodesk Navisworks 2011\<locale>\Manuals` folder.

CHM files are installed to the `\Autodesk\Autodesk Navisworks 2011\<locale>` folder.

Uninstall and Maintenance Issues

This section outlines common issues and their solutions with regards to adding and removing features, reinstalling or repairing your installation, and uninstalling products.

When should I reinstall the product instead of a repair?

You should reinstall your product if you accidentally delete or alter files that are required by the program. Missing or altered files adversely affect the performance of your product and cause error messages when you try to execute a command or find a file.

If an attempt to repair an installation fails, reinstalling is the next best option.

Do I need my original DVD to reinstall my software?

When performing a reinstall of the product, you do not need to have the original DVD available.

Installation data is cached locally on your drive and that data is reused when reinstalling.

When I uninstall my software, what files are left on my system?

If you uninstall the product, some files remain on your system such as files you created or edited.

Your license file also stays on your workstation when you uninstall your product. If you reinstall on the same workstation, the license information remains valid and you do not have to reactivate the product.

Quick Start

4

This chapter helps you get up-to-speed with the Autodesk Navisworks interface.

Start and Quit Autodesk Navisworks

Once you've installed Autodesk Navisworks Freedom 2011, you can start it from the Windows desktop or from the command line.

To start Autodesk Navisworks, do one of the following from the Windows desktop:

- Double-click the Autodesk Navisworks icon, or
- Click Start ➤ All Programs ➤ Autodesk ➤ Navisworks Freedom 2011 ➤ Freedom 2011.

Autodesk Navisworks starts in the language that best matches the settings on your computer. You can also start Autodesk Navisworks in another of the installed languages.

To quit Autodesk Navisworks, click the application button . At the bottom of the application menu, click Exit Navisworks.

The User Interface

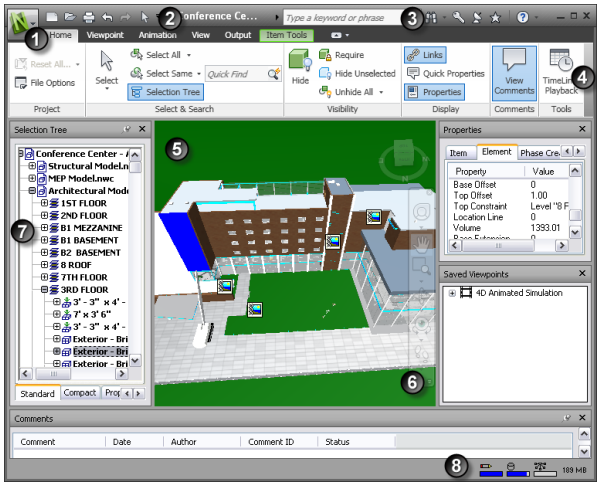
The Autodesk Navisworks interface contains a number of traditional Windows elements, such as the application menu, Quick Access toolbar, ribbon, dockable windows, dialog boxes and shortcut menus in which you complete tasks.

Parts of Autodesk Navisworks Interface

This section briefly describes the main components of the standard Autodesk Navisworks interface.

The Autodesk Navisworks interface is intuitive and easy to learn and use. You can adjust the application interface to match the way you work. For example, you can hide docking windows that you rarely use, so they do not clutter the interface. You can add and remove buttons from the ribbon and the Quick Access toolbar.

You can apply a different theme to the standard interface. You can also switch back to the classic Autodesk Navisworks interface with old-style menu and toolbars.



1. Application button and menu
2. Quick Access toolbar
3. InfoCenter
4. Ribbon
5. Scene View
6. Navigation bar
7. Dockable windows
8. Status bar

See also:

- Overview of InfoCenter on page 5

To change theme of the standard user interface

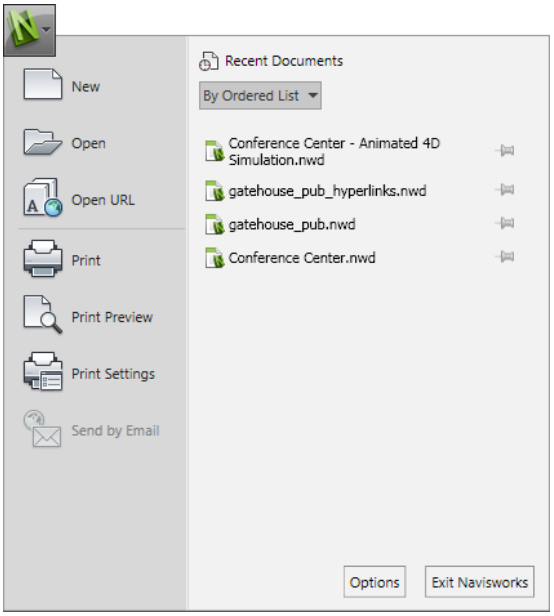
1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the User Interface option.
3. On the User Interface page, select the required theme type from the Theme drop-down list.
4. Click OK.

Application Button and Menu

The application menu enables you to access common tools.

It provides access to many common file actions, and also allows you to manage your files using more advanced tools, such as Import, Export, and Publish. Some application menu choices have additional menus that show related commands.

To open the application menu, click the application button . Clicking it again closes the application menu. Double-clicking the application button exits Autodesk Navisworks.



TIP You can exit Autodesk Navisworks by double-clicking the application button.

Quick Reference

Option	Description
(New)	Closes the currently open file, and creates a new file.
(Open)	Opens files.
(Open URL)	Opens a published NWD file located on a web server.
(Print)	Prints the scene.
(Print Preview)	Shows a preview of how the document will print.
(Print Settings)	Specifies print settings.
Options	Opens Options Editor.
Exit Autodesk Navisworks	Exits the program.

Recent Documents List

You can view, sort, and access supported files that you have recently opened.

The most recent files are shown in the Recent Documents list. The list is ordered with the most recently used file at the top.

By default, up to four files are shown. If you want to modify the size of this list, use the Options Editor.

You can pin the files by using the push pin button to the right. Pinning enables you to keep a file in the list until you turn off the push pin button.

Sort and Group Files

Use the drop-down list at the top of the Recent Documents list to sort or group files by:

- By Ordered List
- By Access Date
- By Size
- By Type

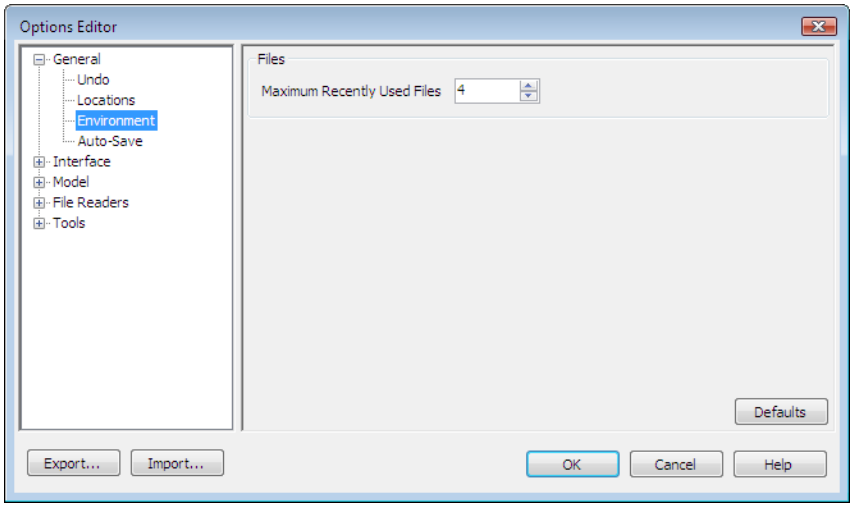
Preview Documents

When you mouse over a file in the Recent Documents list, the following information is displayed:

- Path where the file is stored
- Date the file was last modified
- Name of the person who is currently working with the file

To change the number of recent documents listed

1. Click the application button ➤ Options.
2. In the Options Editor, expand the General node, and click the Environment option.
3. On the Environment page, enter the number of recent documents to be listed into the Maximum Recently Used Files box.



4. Click OK.

To keep a document in the Recent Documents list

- Click the push pin button to the right of the document.

To view the Recent Documents list by access date

- In the top-left corner of the Recent Documents list, in the By Ordered List drop-down list, select By Access Date.

To view the Recent Documents list by size

- In the top-left corner of the Recent Documents list, in the By Ordered List drop-down list, select By Size.

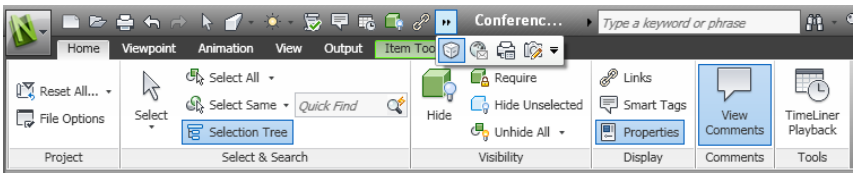
To view the Recent Documents list by type

- In the top-left corner of the Recent Documents list, in the By Ordered List drop-down list, select By Type.

Quick Access Toolbar

At the top of the application window, the Quick Access toolbar displays frequently used commands.

You can add unlimited number of buttons to the Quick Access toolbar. Buttons are added to the right of the default commands. You can add separators between the buttons. Commands that extend past the maximum length of the toolbar are displayed in a flyout button .



NOTE Only ribbon commands can be added to the Quick Access toolbar.

You can move the Quick Access toolbar either above or below the ribbon.

To add a ribbon button to the Quick Access toolbar

1. Display the tab and panel that contains the button you want to add to the Quick Access toolbar.
2. Right-click the button on the ribbon, and click Add to Quick Access Toolbar.

To remove a ribbon button from the Quick Access toolbar

1. Right-click the button on the Quick Access toolbar
2. Click Remove from Quick Access toolbar.

To display the Quick Access toolbar below the ribbon

- Click the Customize Quick Access Toolbar drop-down button, and click Show Below the Ribbon.

Shortcut menu: Right-click any button on the Quick Access toolbar. Click Show Quick Access Toolbar below the Ribbon.

To display the Quick Access toolbar above the ribbon

- Click the Customize Quick Access Toolbar drop-down button, and click Show Above the Ribbon.

Shortcut menu: Right-click any button on the Quick Access toolbar. Click Show Quick Access Toolbar above the Ribbon.

Quick Reference

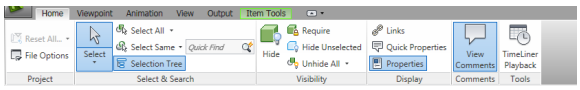
By default, it contains the following tools:

Option	Description
(New)	Closes the currently open file, and creates a new file.
(Open)	Opens files.

Option	Description
(Print)	Prints the current viewpoint.
(Undo)	Cancels the most recent action.
(Redo)	Reinstates the most recent action.
(Select)	Selects items with a mouse click.
(Customize Quick Access Toolbar)	Customizes the items displayed on the Quick Access toolbar. To enable or disable an item, click next to it on the Customize Quick Access Toolbar drop-down.

Ribbon

The ribbon is a palette that displays task-based tools and controls.



The ribbon is divided into tabs, with each tab is supporting a specific activity. Within each tab, tools are grouped together into a task-based series of panels.

To specify which ribbon tabs and panels are displayed, right-click the ribbon and, on the shortcut menu, click or clear the names of tabs or panels.

You can customize the ribbon depending on your needs in the following ways:

- You can change the order of ribbon tabs. Click the tab you want to move, drag it to the desired position, and release.
- You can change the order of ribbon panels in a tab. Click the panel you want to move, drag it to the desired position, and release.

You can control the amount of space the ribbon takes in the application window. There are two buttons to the right of the ribbon tabs, that allow you to choose the ribbon toggle and ribbon minimize states.

- The first button toggles between the full ribbon state and the minimize ribbon state .
- The second drop-down button allows you to select one of four minimize ribbon states:

  Minimize to Tabs: Minimizes the ribbon so that only tab titles are displayed.

  Minimize to Panel Titles: Minimizes the ribbon so that only tab and panel titles are displayed.

  Minimize to Panel Buttons: Minimizes the ribbon so that only tab titles and panel buttons are displayed.

  Cycle Through All: Cycles through all four ribbon states in the order, full ribbon, minimize to panel buttons, minimize to panel titles, minimize to tabs.

Contextual Tabs

Some of the tabs are contextual. When you execute some commands, a special contextual ribbon tab is displayed instead of a toolbar or dialog box. For example, as soon as you start selecting items in the Scene View, the previously hidden Item Tools tab appears. When nothing is selected, it becomes hidden again.

Slideout Panels

A down arrow to the right of a panel title indicates that you can slide out the panel to display additional tools and controls. By default, an expanded panel closes automatically when you click another panel. To keep a panel expanded, click the push pin icon in the bottom-left corner of the slideout panel.

Floating Panels

If you pull a panel off of a ribbon tab and into a different area in the application window or the desktop, that panel floats where you placed it. The floating panel remains open until you return it to the ribbon, even if you switch ribbon tabs.

Tool Launcher

Some ribbon panels display a dialog box or a dockable window related to that panel. A tool launcher arrow in the lower-right corner of the panel indicates that you can display a related tool. Click the icon to display the associated dialog box or dockable window.

Check Boxes

Check boxes allow you to toggle an option on or off.

Sliders

When an option can be executed with varying intensity, the slider allows you to control the setting from lower to higher, or reverse.

To display the ribbon

If you use the Classic user interface, you can switch back to the ribbon.

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the User Interface option.
3. On the User Interface page, select Standard from the User Interface drop-down list.
4. Click OK.

To hide or show a ribbon tab

1. Right-click anywhere inside the ribbon.
2. Under Tabs, click or clear the name of a tab.

To hide or show a ribbon panel

1. Click the ribbon tab that you want to organize.
2. Right-click the ribbon tab.
3. Under Panels, click or clear the name of a panel.

To show or hide text labels on ribbon panels

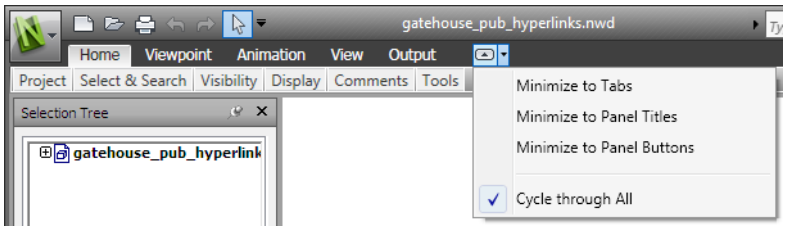
- Right-click a ribbon tab, and click or clear Show Panel Titles.

To return a floating panel to the ribbon

- Mouse over the right side of the floating panel and click the Return Panels to Ribbon icon.

To toggle the ribbon size

1. Click the drop-down arrow in the ribbon tab bar, and select the desired minimize ribbon state.



2 Double-click the name of the active ribbon tab or anywhere in the ribbon tab bar.
The ribbon toggles between the selected minimize ribbon state and the full ribbon state.

To reset the ribbon and the Quick Access toolbar

1 Right-click anywhere inside the ribbon.

2 Click Restore Default Ribbon.

Quick Reference

Home Tab

Panel	Contains tools to...
Project	control the whole scene.
Select & Search	select items in the scene via a range of methods, including using searches.
Visibility	show and hide items of model geometry.
Display	show and hide information including properties and links.
Comments	view and locate comments in the scene.
Tools	launch TimeLiner Playback tool.

Viewpoint Tab

Panel	Contains tools to...
Save, Load & Playback	load and playback saved viewpoints and viewpoint animations.
Camera	apply various settings to the camera.
Motion Settings	set the linear and angular speed of motion and apply realism settings such as gravity and collisions.
Render Style	control the lighting and rendering settings.

Animation Tab

Panel	Contains tools to...
Playback	select and play back animations.
Script	enable scripts.

View Tab

Panel	Contains tools to...
Navigation Aids	toggle navigation controls, such as the Navigation Bar, ViewCube, and HUD elements.
Scene View	set the background style/colors.
Workspace	control which floating windows are shown.

Output Tab

Panel	Contains tools to...
Print	print the current viewpoint.
Send	send an email with the current file as an attachment.

Item Tools Tab

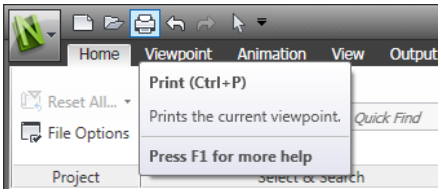
Panel	Contains tools to...
Hold	hold the selected items so that they move with you as you navigate around the scene.
Look At	zoom the current view onto the selected items.
Visibility	control the visibility of the selected items.
Transform	reset the position, rotation, and scale of the selected items back to their original values.
Appearance	reset the color and transparency of the selected items back to their original values.
Links	reset the links on the selected items back to their original values.

Tooltips

Placing the mouse pointer over a menu choice or a button shows a tooltip containing the name of the tool, a keyboard shortcut (if applicable), and a brief description of the tool.

Some tooltips on the application menu, Quick Access toolbar, and ribbon are progressive. If you leave the cursor over the menu choice or a button for another moment, the tooltip may expand to show additional information.

While the tooltip is visible, you can press F1 for context-sensitive help that provides more information about that tool.

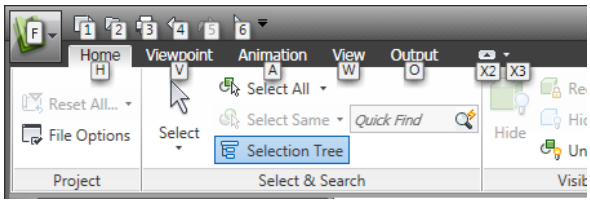


Keytips

Autodesk Navisworks provides accelerator keys, or keytips, to enable you to use the keyboard, rather than the mouse, to interact with the application window.

Keytips are provided for the application menu, Quick Access toolbar, and ribbon. You can still use 'old style' keyboard shortcuts, such as CTRL + N to open a new file, and CTRL + P to print the current file.

To display keytips, press ALT. The keytips (letters or numbers) are shown on the screen next to the corresponding command or user interface element. Press the displayed accelerator key to immediately invoke the desired command or to show the user interface element. For example, pressing ALT, and then pressing 1 creates a new file.



To hide the keytips, press ALT again.

See also:

- Default Keyboard Shortcuts on page 52

Navigation Tools

The navigation bar provides access to tools related to interactive navigation and orientation in the model including Autodesk® ViewCube® and SteeringWheels.

You can customize the navigation bar based on what you consider important to show. You can also change the docking position of the navigation bar in the Scene View.

The Classic User Interface

If you prefer, you can switch back to the Classic user interface, and use the toolbars and pull-down menus from the menu bar instead of the ribbon.

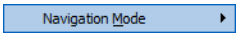
To switch to the Classic user interface

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the User Interface option.
3. On the User Interface page, select Classic from the User Interface drop-down list.
4. Click OK.

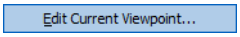
Menu Bar

The Menu bar contains all commands available in Autodesk Navisworks, grouped together by similar or 'like' functionality.

For example, all commands related to review functionality are located under the Review menu, all commands related to user assistance are located under the Help menu and so on.

When a menu has a right-pointing arrow, such as 

, there is a submenu associated with that choice.

When a menu item is followed by a series of dots, such as 

, there is a dialog box associated with that choice.

Quick Reference

File Menu

This menu contains commands for managing files.

Option	Description
New	Resets the program, and closes the currently open Navisworks file.
Open	Displays the Open dialog box.
Open URL	Displays the Open URL dialog box.
Print	Displays the Print dialog box.
Print Preview	Enables print preview mode.
Print Settings	Displays the Print Setup dialog box.
Send by Email	
Recent Files	Displays shortcuts to the most recently opened files.
Exit	Exits the program.

Edit Menu

This menu contains commands for locating, selecting and editing geometry in your model.

Option	Description
Undo	Reverses the last performed operation.
Redo	Reverses the last operation performed by the Undo command.
Select	Gives you access to selection functionality.
Displays the Quick Find dialog box.	
Quick Find Next	
Hidden	Toggles hidden mode for selected items.
Required	Toggles required mode for selected items.
Hide Unselected	Toggles hidden mode for unselected items.
Reset Item	
Reset All	Enables you to reset all overridden items back to their original state.

Option	Description
Enables you to sort the items in the Selection Tree alphabetically.	
File Units an Transform	

View Menu

This menu contains commands that control the Navisworks interface.

Option	Description
Control Bars	Enables you to toggle the display of control bars.
Workspaces	Enables you to control workspaces.
Scene View	Enable you to control the views in the Scene View.
Head-Up Display	Enables you to toggle navigation controls, such as ViewCube, Navigation Bar, and HUD elements.
SteeringWheels	Enables you to control the SteeringWheels.
Enable Stereo	Puts the video output into stereo mode.
Stereo Options	Displays the Stereo Options dialog box.
Scene Statistics	Displays useful scene statistics.

Viewpoint Menu

This menu contains a set of commands that affect the current viewpoint, including model appearance and navigation.

Option	Description
Look From	Enables you to look from a preset viewpoint.
Set Viewpoint Up	Sets the viewpoint up vector to align with the selected orientation.
Rendering	Enables you to select rendering mode.
Lighting	Enables you to select lighting mode.
Display	Enables you to display primitives.
Navigation Mode	Enables you to select navigation mode.
Navigation Tools	Enables you to control the camera during interactive navigation.
Edit Current Viewpoint	Displays the Edit Viewpoint dialog box for the current viewpoint.

Tools Menu

This menu contains commands for advanced model analysis and reviewing, and also commands for customizing Autodesk Navisworks.

Option	Description
TimeLiner Playback	Toggles the TimeLiner Playback window.
Links	Toggles the display of links.
Quick Properties	Toggles the display of quick properties.
Animation	Enables you to control animation playback, and toggle scripts.
Background	Enables you to select a background color for the Scene View.
File Options	Displays the File Options dialog box.
Global Options	Displays the Options Editor.

Toolbars

Autodesk Navisworks toolbars provide quick access to frequently used commands.

Every button on a toolbar includes a tooltip, which describes the function the button activates. Placing the mouse over a button displays a brief instruction on how to use this feature in the Status bar.

You can rearrange, open and close toolbars:

- To move a toolbar, click the dotted line at the edge of the toolbar, and drag it to a different location.
- To open or close toolbars, right-click an empty area next to the last toolbar on the screen, and choose from the list of available toolbars on the shortcut menu.

When a Autodesk Navisworks toolbar button has a down-pointing arrow, such as , a submenu toolbar is associated with that choice. Click the triangle to open the menu, and select a specific option. As you move through the menu, additional help is displayed in the Status bar. When the option is selected, it becomes the current command and is displayed as a button in the toolbar. To repeat the command, click the button in the toolbar. To choose a different command, click the triangle again.

Some toolbar buttons enable you to choose a program mode. For example, to look around your model, you need to be in look around mode. To rotate the model, you need to be in Free Orbit mode and so on. Autodesk Navisworks remains in the selected mode until instructed otherwise. To identify the mode you are in, look at the buttons. If a button is highlighted and has a dark blue boarder around it, the corresponding mode is currently active.

To leave the mode, either click the same button again or choose a different mode.

Some buttons are used to toggle the display of dialog boxes, and dockable windows (for example, the Presenter window, the Animator window etc.). Again, if a button is highlighted and has a dark blue boarder around it, it means that the corresponding display element is currently open.

As you open more toolbars on the screen, or resize the Autodesk Navisworks window, the toolbars may get overlapped with each other to reduce the screen clutter. When this happens, some buttons will be hidden under the overlaps. To quickly access the entire set of commands on a toolbar, click the chevron button at the right end of the toolbar. The remaining commands available for that toolbar will appear.

Quick Reference

In this section, you will find a complete list of Navisworks toolbars and associated buttons.

NOTE The actual toolbar content can differ from this reference depending on the workspace you use.

Standard Toolbar

This toolbar provides quick access to file management commands. It also enables you to undo/redo your actions, and open the Help system.

Button	Description
	Resets the program, and closes the currently open Navisworks file.
	Displays the Open dialog box.
	Displays the Append dialog box.
	Saves the currently open Navisworks file.
	Reverses the last performed operation.
	Reverses the last operation performed by the Undo command.
	Displays the Print dialog box.
	Displays copyright and license information about your copy of Autodesk Navisworks.
	Opens the Help system.

Selection Tools Toolbar

This toolbar provides access to the selection commands, plus enables you to hide geometry objects.

Button	Description
	Turns on Select mode.
	Toggles required mode for selected items.
	Toggles hidden mode for selected items.
	Toggles hidden mode for unselected items.

Navigation Mode Toolbar

This toolbar includes nine modes and six SteeringWheels for interactive navigation around your 3D models.

Button	Description
	Selects the wheel.
	Turns on Walk mode.
	Turns on Look Around mode.
	Turns on Zoom mode.
	Turns on Zoom Box mode.
	Turns on Pan mode.
	Turns on Orbit mode.
	Turns on Free Orbit mode.
	Turns on Fly mode.
	Turns on Constrained Orbit mode.

Rendering Style Toolbar

This toolbar controls the model appearance in Navisworks.

Button	Description
	Selects Lighting mode.
	Selects Rendering mode.
	Toggles the rendering of surfaces.
	Toggles the rendering of lines.
	Toggles the rendering of points.
	Toggles the rendering of snap points.
	Toggles the rendering of 3D text.

Workspace Toolbar

This toolbar gives you quick access to the Navisworks review and analysis tools.

Button	Description

Button	Description
	Toggles the display of links.
	Toggles the display of quick properties.
	Toggles the Viewpoints control bar.
	Toggles the Selection Tree control bar.
	Toggles the Comments control bar.
	Toggles the Properties control bar.
	Toggles the TimeLiner Playback window.
	Controls workspaces.

Animation Toolbar

This toolbar allows you to play back object and viewpoint animations, and toggle the scripting functionality.

Button	Description
	Rewinds the current animation back to the beginning.
	Steps back a single animation frame or keyframe.
	Plays the current animation backwards.
	Pauses the animation.
	Stops playing the current animation, and rewinds it back to the beginning.
	Plays the currently selected animation.
	Steps one frame or keyframe forwards.
	Fast forwards the current animation to the end.
	Toggles the Scripter engine on and off in the Navisworks file.

Navigation Tools Toolbar

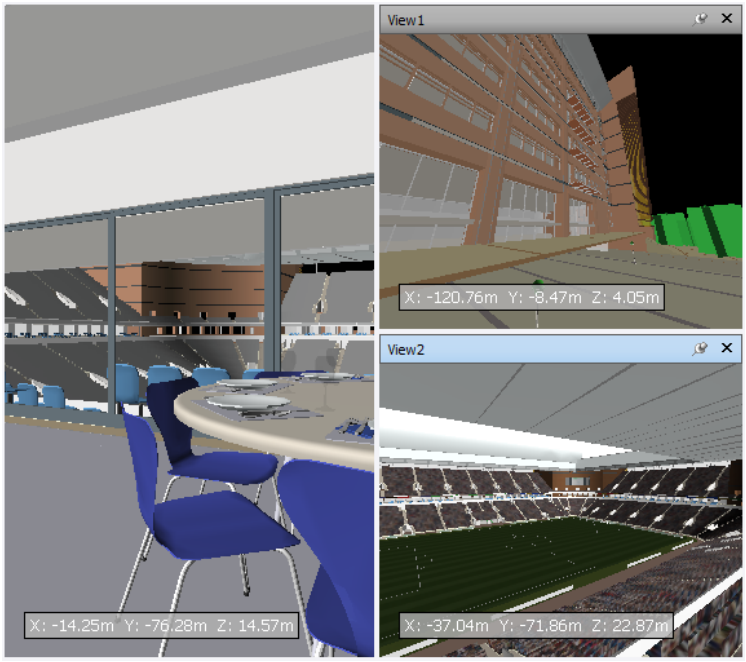
This toolbar enables you to control the camera during interactive navigation.

Button	Description
	Dollies and pans the camera so that the entire model is in the Scene View.
	Zooms the camera so that the selected item fills the Scene View.
	Puts the Scene View into focus mode.
	Holds the selected items. As you move around the model, these objects will move with you.
	Uses a perspective camera.
	Uses an orthographic camera.
	Toggles collision.
	Toggles gravity.
	Toggles crouching.
	Toggles third person view.
	Aligns the current viewpoint with the X axis.
	Aligns the current viewpoint with the Y axis.
	Aligns the current viewpoint with the Z axis.

Scene View

This is the area where you view and interact with your 3D models.

When you start Navisworks, the Scene View contains only one scene view, but you can add more scene views, if needed. Custom scene views are named “ViewX” where “X” is the next available number. The default scene view cannot be moved



Looking at several views of your model simultaneously is useful when you compare lighting and rendering styles, animate different parts of your model, and so on.

Only one scene view can be active at a time. A scene view becomes active as you work in it. If you left-click a scene view, the scene view is activated and whatever you click is selected, or, if you click an empty area, everything is deselected. Right-clicking a scene view activates it, and opens a shortcut menu.

Each scene view remembers the navigation mode being used. The recording and playback of animations only occurs in the currently active view.

Each scene view can be resized. To resize scene views, move the cursor over the scene view intersection and drag the splitter bar ✣.

You can make custom scene views dockable. Dockable scene views have title bars, and can be moved, docked, tiled, and auto hidden the same way as dockable windows. If you want to use several custom scene views, but don't want to have any splits in the Scene View, you can move them elsewhere. For instance, you can tile your scene views on the Viewpoints control bar.

NOTE You cannot undock the default scene view.

Full Screen Mode

In Full Screen mode your current scene view takes up the full screen.

To interact with the model in the scene view, you can use the ViewCube, the Navigation Bar, the keyboard shortcuts, and the shortcut menu.

TIP If you use two monitors, your default scene view is automatically placed on the primary display, and the interface can be placed on the secondary display to control the interaction.

To create a custom scene view

- To split your active scene view horizontally, click View tab ➤ Scene View panel ➤ Split View ➤ Split Horizontal .
- To split your active scene view vertically, click View tab ➤ Scene View panel ➤ Split View ➤ Split Vertical .

Toolbar: Classic user interface: Model Views ➤ Split Horizontal and Model Views ➤ Split Vertical

To make custom scene views dockable

- Click View tab ➤ Scene View panel ➤ Show Title Bars.
  All of your custom scene views now have title bars.

Toolbar: Classic user interface: Model Views ➤ Toggle Title Bars

To delete a custom scene view

1. If your scene view is not dockable, click View tab ➤ Scene View panel ➤ Show Title Bars.
2. Click to close the scene view.

NOTE You cannot delete the default scene view.

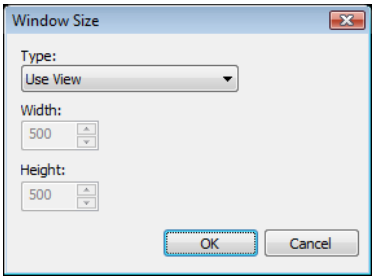
To toggle Full Screen mode

- Click View tab ➤ Scene View panel ➤ Full Screen .

Command entry: F11
Shortcut menu: Viewpoint ➤ Full Screen

To resize the content of the active scene view

1. Click View tab ➤ Scene View panel ➤ Window Size .
2. In the Window Size dialog box, Type drop-down list, select the sizing type.



   - **Use View** - makes the content fill the currently active scene view.
   - **Explicit** - defines the exact width and height for the content.
   - **Use Aspect Ratio** - uses the aspect ratio of the current scene view to automatically calculate the width of the content when the height is entered, or the height of the content when the width is entered.
3. If you selected the Explicit option, enter the width and height for your content in pixels.
   If you selected the Use Aspect Ratio, enter the width or height for your content in pixels.
4. Click OK.

Dockable Windows

Most Navisworks features are accessible from dockable windows.

There are several windows to choose from, which are grouped into several functional areas:

Main Tools Windows

These windows give you access to the core Autodesk Navisworks functionality:

- TimeLiner Playback

Review-related Windows

These windows contain tools required to perform select/search/review operations:

- Selection Tree
- Properties
- Comments

Viewpoint-related Windows

These windows contain tools necessary to set up and use viewpoints:

- Saved Viewpoints
- Tilt
- Plan View
- Section View

Windows can be moved and resized, and either floated in the Scene View or docked (pinned or auto-hidden).

TIP You can quickly dock and undock a window by double-clicking the window's title bar.

A docked window shares one or more edges with adjacent windows and toolbars. If a shared edge is moved, the windows change shape to compensate. You can also float windows anywhere on the screen, if necessary.

NOTE The Tilt window can only be docked vertically on the left or right, taking up the full height of the canvas, or be floating.

By default, a docked window is pinned, meaning that the window remains displayed at its current size and can be moved. When you auto hide a window and move the mouse pointer away from it, the window is reduced to a tab displaying the window name. Moving the mouse pointer over the tab displays the window fully, but temporarily, over the canvas. Auto-hiding a window can show more of the canvas while still keeping the window available. Auto-hiding a window also prevents it from being undocked, grouped, or ungrouped.

NOTE When you dock windows inside the default scene view, you do not get pin and auto-hide functionality.

An undocked window is one that has been separated from the program window. Each undocked window can be moved around the screen or screens as desired. Although undocked windows cannot be pinned, they can be resized and grouped.

A window group is a way to have more than one window occupy the same amount of space on the screen. When windows are grouped, each window is represented by a tab at the bottom of the group. In a group, click a tab to display that window. You can group or ungroup window as necessary and save custom workspaces. After changing window positions, you can save your settings as a custom workspace.

Auto Hide Position

When you auto hide a window, it collapses against a specific side of the canvas - Top, Left, Right, or Bottom. The side to which it collapses is determined by the docking position. So, for example, if you dock a window to the left of canvas, it collapses to the left.

The Shortcut Menu

Right-clicking a dockable window displays a shortcut menu of available commands. If you right-click a single item, or select one or more items and right-click, this menu contains commands related to the items. If you right-click an area that contains no items or data, the menu contains commands related to the dockable window, if appropriate.

To show a dockable window

1 Click View tab ➤ Workspace panel ➤ Windows .

2 Select the check box next to the desired window in the drop-down list.

To move a dockable window

1 Click and drag the title bar at the top or side of the window.

2 Optional: to prevent a window from automatically docking while you drag it, hold down the CTRL key.

TIP The docking tool allows you to place windows in a specific relationship to the canvas areas.

To group dockable windows

1 Click and drag the title bar of the window to be added to another window or group.

2 Drop the window on the title bar of the receiving window or group. A tab with the name of the dragged window is added to the bottom of the receiving window.

To ungroup dockable windows

1 Within the group, click the tab for the window you want to remove.

2 Click and drag the window tab out of the group.

3 Drop the window to ungroup it.

To auto hide dockable windows

➤ On a window title bar, click .

The window continues to be displayed until you move the mouse pointer away from it. When you move the mouse pointer, the window is collapsed until you place the mouse pointer over the window tab on the side of the canvas where its docked.

NOTE To move or group windows, you need to pin them first.

To pin dockable windows

1 Move the mouse cursor over the title bar to display the hidden window.

2 Click on the title bar. The window is now pinned, and can be moved and grouped.

To resize a dockable window or a group of windows

1 Place the mouse pointer over a window border until the mouse pointer changes to the splitter bar .

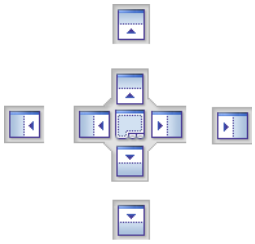
2 Click and drag the boarder to the desired size.

TIP You can resize both pinned and auto hidden windows. In an auto-hidden group, each window can be resized separately from other windows. In a pinned group, resizing one window resizes the rest of the windows.

Docking Tool

The docking tool indicates the relationship of a dragged window to the rest of the canvas, and enables you to pinpoint drag and drop destinations.

The tool contains an inner zone and outer zone of controls representing the drop destination. Five stickers of the inner zone are used to dock windows relative to the closest suitable area on the canvas, while four stickers of the outer zone are used to dock windows relative to the canvas itself.



The docking tool also provides visual previews of what space will be occupied by a window. These previews are shown when you are moving a window and while your mouse is over one of the stickers.

TIP To quickly create a window group, use the sticker at the center of the docking tool when you drag a window to its location. This works anywhere on the canvas excluding the default scene view and the Tilt window. Custom scene views can be grouped with other windows.

To move a window with the docking tool

1. Click and drag the title bar at the top or side of the window towards the place where you want it to dock. This activates the docking tool.
2. Drag the window over the sticker on the docking tool that represents the area you want the window to occupy.
3. Release the mouse button to dock the window there. The window is automatically resized to fill the area.

Status Bar

The Status bar appears at the bottom of the Autodesk Navisworks screen. It cannot be customized or moved around.

The left-hand corner of the Status bar is used to display short instructions on how to use the Autodesk Navisworks features (applies to the Classic user interface only).

In the right-hand corner of the Status bar there are four performance indicators that give you constant feedback as to how well Autodesk Navisworks is performing on your machine.

Pencil Progress Bar

The progress bar under the left hand icon (pencil) indicates how much of the current view is drawn, that is how much drop-out there is in the current viewpoint. When the progress bar is at 100%, the scene is completely drawn, with no drop-out. The icon changes color when a redraw is in progress. Whilst the scene is being drawn, the pencil will change to yellow. If there is too much data to handle and your machine cannot process this quickly enough for Autodesk Navisworks, then the pencil changes to red, indicating a bottleneck.

Disk Progress Bar

The progress bar under the central icon (disk) indicates how much of the current model is loaded from disk, that is how much is loaded into memory. When the progress bar is at 100%, the entire model, including geometry and property information, is loaded into memory. The icon changes color when a file load is in progress. Whilst data is being read, the disk changes to yellow. If there is too much data to handle and your machine cannot process this quickly enough for Autodesk Navisworks, then the disk changes to red, indicating a bottleneck.

Web Server Progress Bar

The progress bar under the right hand icon (web server) indicates how much of the current model is downloaded, that is how much has been downloaded from a web server. When the progress bar is at 100%, the entire model has been downloaded. The icon changes color when a file load is in progress. Whilst data is being downloaded, the web server changes to yellow. If there is too much data to handle and your machine cannot process this quickly enough for Autodesk Navisworks, then the web server changes to red, indicating a bottleneck.

Memory Bar

The field to the right of the icons reports the amount of memory currently being used by Autodesk Navisworks. This is reported in Megabytes (MB).

Undo/Redo Commands

You can undo or redo your actions in Autodesk Navisworks.

The default settings are adequate for regular Autodesk Navisworks usage, but you can adjust the amount of space allocated to the undo/redo buffer, if necessary.

To undo an action

- Click Undo on the Quick Access toolbar.

Command entry: CTRL + Z

Toolbar: Classic user interface: Standard ➤ Undo

To redo an action

- Click Redo on the Quick Access toolbar.

Command entry: CTRL + Y

Toolbar: Classic user interface: Standard ➤ Redo

Autodesk Navisworks Workspaces

Workspaces retain information about which windows are open, their positions, and the size of the application window.

Workspaces do not retain changes made to the ribbon or the Quick Access toolbar.

NOTE In the Classic user interface mode (that is, the ribbon is turned off), workspaces retain information about the dockable windows and the toolbars.

The workspaces can be shared with other users. You could, for example, create separate workspaces for occasional and power Navisworks users, or setup your own corporate standard.

Autodesk Navisworks comes with several pre-configured workspaces:

- **Safe Mode** - selects the layout with the minimum features.
- **Navisworks Standard** - selects the layout with commonly-used windows auto-hidden as tabs.
- **Navisworks Minimal** - selects the layout giving the most space to the Scene View.

You can use these workspaces as-is or modify them in accordance to your requirements. When you first start Navisworks, the Navisworks Minimal workspace is used. You can choose a different workspace at any time by clicking View tab ➤ Workspace panel ➤ Load Workspace , and then selecting the required workspace from the list.

Toolbar: Classic user interface: Workspace ➤ Workspaces

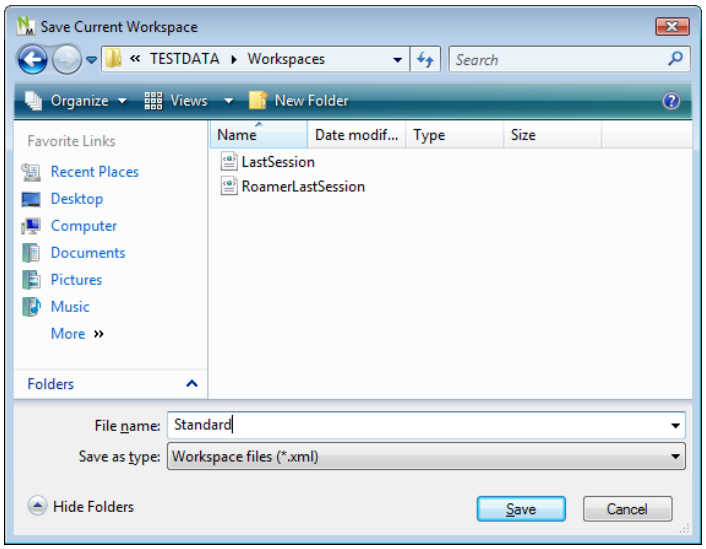
To save current layout to a new workspace

1. Set up your design review layout. For example, you can group together the Properties and Saved Viewpoints windows.

   If you use the Classic user interface mode, for example, you can close all toolbars except the Standard, Selection Tools, Navigation Mode, and Workspace.

2 Click View tab ➤ Workspace panel ➤ Save Workspace .

3 In the Save Current Workspace dialog box, enter a name for the new workspace. You can also select the name of an existing workspace to overwrite it with your modified configuration.

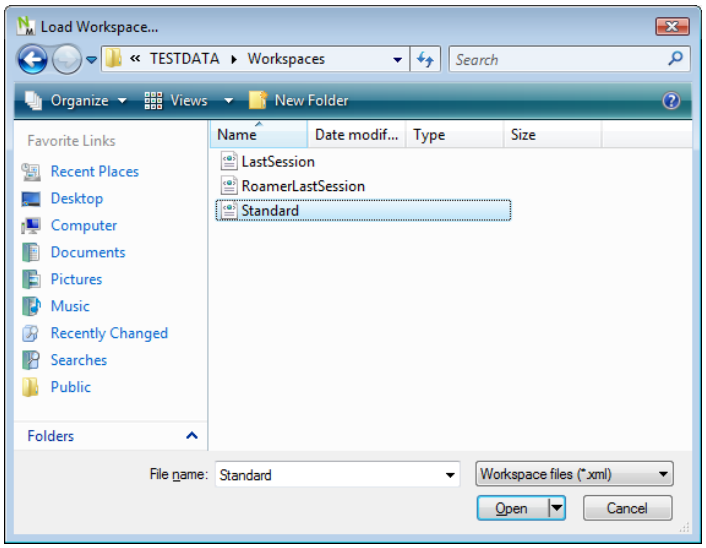


4 Click Save.

To load a saved workspace into Navisworks

1 Click View tab ➤ Workspaces panel ➤ Load Workspace .

2 In the Load Workspace dialog box, browse to the folder containing the desired workspace, and select it.



3 Click Open.

Default Keyboard Shortcuts

Keyboard shortcuts are keyboard alternatives you can use to initiate commands normally accessed with the mouse.

For example, to open the Selection Tree, window you can press CTRL + F12, to open the Comments window, you can press SHIFT + F6, and so on. Keyboard shortcuts offer a means to let you work faster and more efficiently. Some dialog boxes or dockable windows can be closed with the same command used to open it.

Many keyboard shortcuts are already set for most commonly used actions. You can modify the default shortcuts or add new shortcuts, if necessary.

Quick Reference

Default Keyboard Shortcut	Description
PgUp	Zooms to view all objects in the Scene View.
PgDn	Zooms to magnify all selected objects in the Scene View.
HOME	Takes you to Home view. This keyboard shortcut only applies to the Scene View windows. This means it will only work when this window has focus.
ESC	Deselects everything.
SHIFT	Used to modify the middle mouse button actions.
CTRL	Used to modify the middle mouse button actions.
ALT	Turns the keytips on or off.
ALT + F4	Closes the currently active dockable window when it is undocked, or exits the application if the main application window is active.
ALT + F6	Switches between the dockable windows when they are undocked.
CTRL + 0	Turns on Turntable mode.
CTRL + 1	Turns on Select mode.
CTRL + 2	Turns on Walk mode.
CTRL + 3	Turns on Look Around mode.
CTRL + 4	Turns on Zoom mode.
CTRL + 5	Turns on Zoom Window mode.
CTRL + 6	Turns on Pan mode.
CTRL + 7	Turns on Orbit mode.
CTRL + 8	Turns on Free Orbit mode.
CTRL + 9	Turns on Fly mode.
CTRL + D	Toggles Collision mode. You must be in appropriate navigation mode (that is, Walk or Fly) for this keyboard shortcut to work.

Default Keyboard Shortcut	Description
CTRL + F	
CTRL + G	Toggles Gravity mode.
CTRL + H	Toggles Hidden mode for selected items.
CTRL + N	Resets the program, closes the currently open Navisworks file, and creates a new file.
CTRL + O	Displays the Open dialog box.
CTRL + P	Displays the Print dialog box.
CTRL + R	Toggles Require mode for selected items.
CTRL + T	Toggles Third Person mode.
CTRL + Y	Reverses the last operation performed by the Undo command.
CTRL + Z	Reverses the last performed operation.
CTRL + F1	Opens the Help system.
CTRL + F3	
CTRL + F3	Toggles the TimeLiner Playback window.
Toggles the Tilt window.	
CTRL + F9	
CTRL + F10	Toggles the Section View window.
CTRL + F11	Toggles the Saved Viewpoints window.
CTRL + F12	Toggles the Selection Tree window.
CTRL + HOME	Dollies and pans the camera so that the entire model is in view.
CTRL + Right Arrow	Play selected animation.
CTRL + Left Arrow	Reverse Play selected animation.
CTRL + Up Arrow	Record viewpoint animation.
CTRL + Down Arrow	Stop playing animation.
CTRL + Space	Pause playing animation.
CTRL + SHIFT + HOME	Sets current view as Home.
CTRL + SHIFT + END	Sets current view as Front.
CTRL + SHIFT + Up Arrow	Takes you to the first redline tag.

Default Keyboard Shortcut	Description
CTRL + SHIFT + Down Arrow	Takes you to the last redline tag.
F1	Opens the Help system.
F2	Repeats the previously run Quick Find search.
F11	Toggles Full Screen mode.
F12	Opens the Options Editor.
SHIFT + P	Activates the Pan tool on the Navigation bar.
SHIFT + W	Opens the last used SteeringWheel.
SHIFT + F1	Enables you to get context-sensitive help.
SHIFT + F6	Toggles the Comments window.
SHIFT + F7	Toggles the Properties window.
SHIFT + F11	Opens the File Options dialog box.

Navigation with the Wheel Button

If you have a wheel mouse, you can use the middle mouse button to zoom, pan, and orbit.

To	Do this...
Zoom in	scroll the wheel button forward.
Zoom out	scroll the mouse wheel backward.
Pan	hold down the middle mouse button, and then move the mouse to pan.
Orbit	press and hold SHIFT and hold down the middle mouse button, and then move the mouse to orbit about the currently defined pivot point.
Change the pivot point	press and hold the CTRL key and hold down the middle mouse button, then drag to the point on the model you want to use as the pivot point.

NOTE The above does not apply when using Walk, Fly, or any of the classic navigation modes, all of which have their own wheel/middle button behaviors.

Quick Reference

Mouse Wheel / Middle Button Navigation

	Wheel	Middle Button	SHIFT + Middle Button
Non-Navigational Tools			
Select	Zoom In/Out	Pan	Orbit
Classic Navigation Modes			
Walk	Look Up/Down	Glide Camera	Glide Camera (Faster)
Look Around	Zoom In/Out	Pan	Orbit
Zoom	Zoom (Roll)	Zoom (Drag)	-
Zoom Box	Zoom (Roll)	Zoom (Drag)	-
Pan	Zoom (Roll)	Zoom (Drag)	-
Orbit	Zoom (Roll)	Glide Camera	-
Examine	Zoom (Roll)	Pan	-
Fly	-	Roll	-
Turntable	Tilt Up/Down	Pan	-
Standard Navigation Modes			
Pan	Zoom In/Out	Pan	Orbit
Zoom Window	Zoom In/Out	Pan	Orbit
Zoom	Zoom In/Out	Pan	Orbit
Orbit	Zoom In/Out	Pan	Orbit
Free Orbit	Zoom In/Out	Pan	Orbit
Constrained Orbit	Zoom In/Out	Pan	Orbit
Look At	Zoom In/Out	Pan	Orbit
SteeringWheels	Zoom In/Out	Pan	Orbit

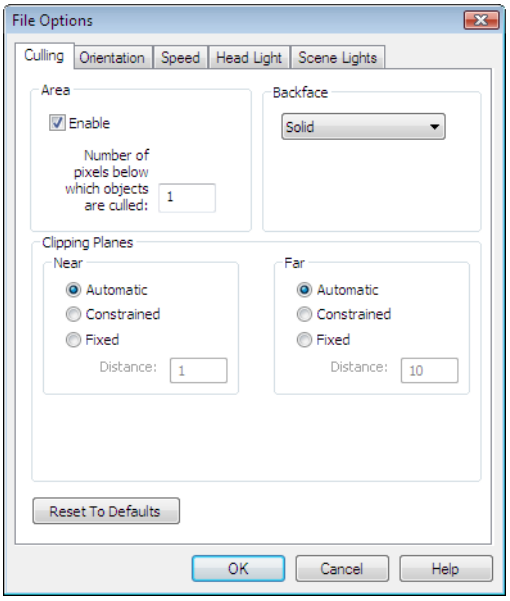
Autodesk Navisworks Options

There are two types of options: File Options and Global Options.

File Options

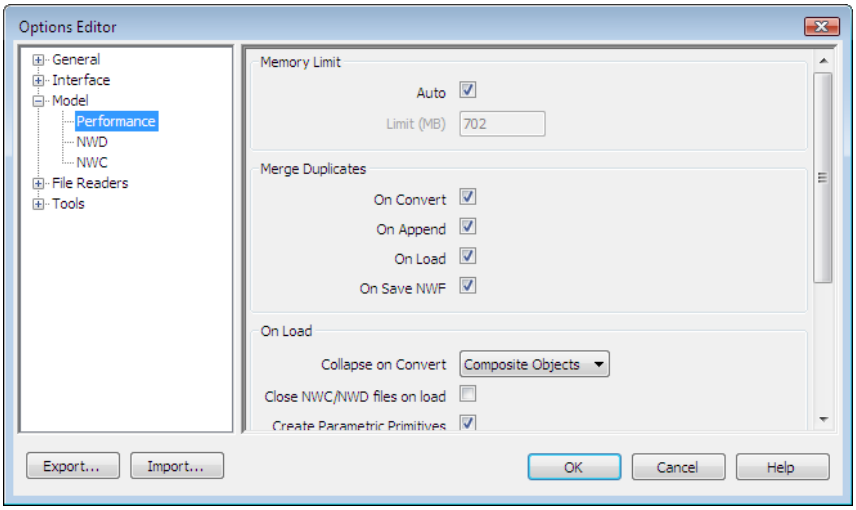
For each Autodesk Navisworks file (NWF and NWD), you can adjust the model appearance and the speed of navigation around it. File options are stored with Autodesk Navisworks files (NWF or NWD), and reloaded each time you open these files.

The File Options dialog box is used to customize various file options, and can be accessed by clicking Home tab ➤ Project panel ➤ File Options .



Global Options

Global options, on the other hand, are set for all Autodesk Navisworks sessions. The Options Editor can be accessed by clicking the application button ➤ Options, or it can be launched as a separate application. To do this, click Start ➤ All Programs ➤ Autodesk ➤ Navisworks Freedom 2011 ➤ Options Editor. The options are grouped together, and presented in a tree structure, making it quicker to find and change them.



Global options can be exported and imported, making it quick and easy for project managers, or systems administrators, to ensure the Autodesk Navisworks settings on all machines are identical.

To configure file options

1. Click Home tab ➤ Project panel ➤ File Options .
2. Use the File Options dialog box to customize various file settings.
3. Click OK to save the changes.

Menu: Classic user interface: Tools ➤ File Options

See also:

- "File Options Dialog Box" on page 162

To configure global options

1. Click the application button ➤ Options.
2. In the Options Editor, expand the desired node, and click the option you want to configure.
3. Click OK to save the changes.

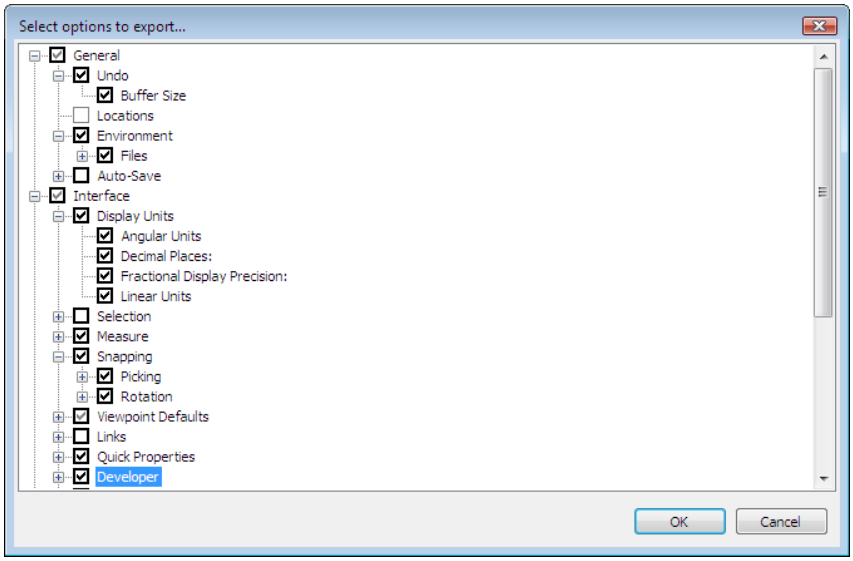
Menu: Classic user interface: Tools ➤ Global Options

See also:

- "Options Editor Dialog Box" on page 165

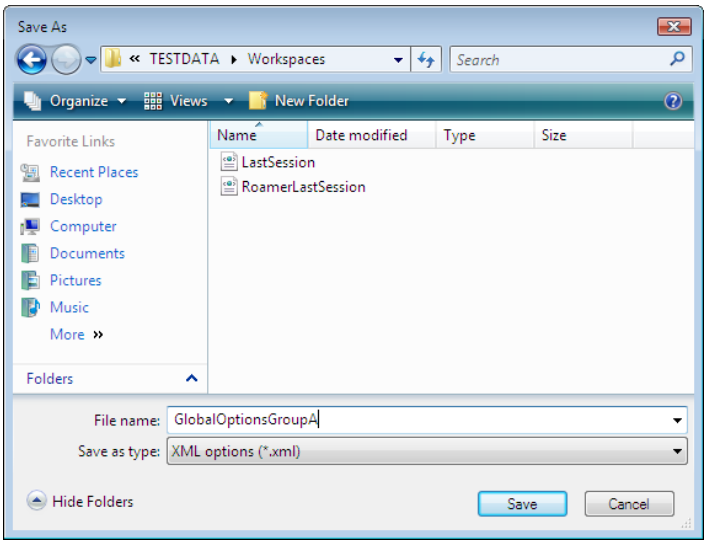
To export global options

1. Click the application button ➤ Options.
2. In the Options Editor, click the Export button.
3. In the Select Options to Export dialog box, select the check boxes for all options you want to be exported (or "serialized"). If an option cannot be exported, it is greyed out.



TIP To quickly select/deselect all options for a given category, use the top-level check boxes. For example, selecting the General check box, instantly selects all options under this node.

4. Click OK to export the selected settings.
5. In the Save As dialog box, enter a name for the settings file. You can also select the name of an existing settings file to overwrite it with your modified configuration.



6 Click Save.

7 Click OK to close the Options Editor.

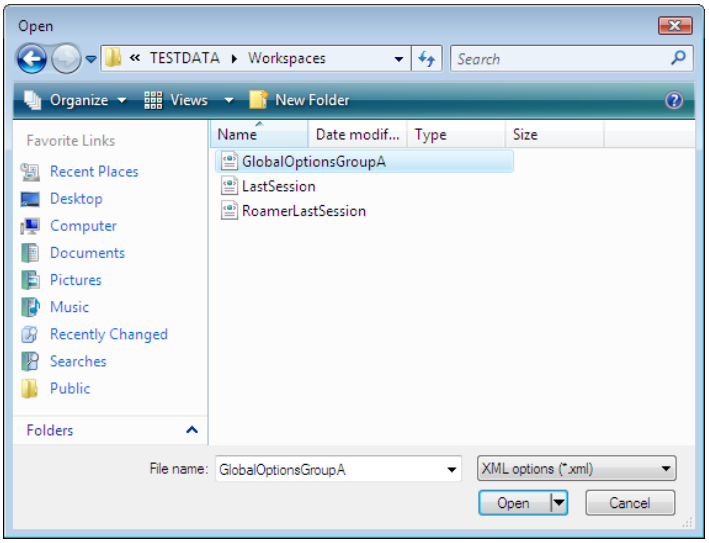
Menu: Classic user interface: Tools ➤ Global Options

To import global options

1 Click the application button ➤ Options.

2 In the Options Editor, click the Import button.

3 In the Open dialog box, browse to the folder containing the settings file, select it, and click Open.



4 Click OK to close the Options Editor.

Menu: Classic user interface: Tools ➤ Global Options

Location Options

These options enable centralized sharing of global Autodesk Navisworks settings, workspaces, datatools, avatars, Clash Detective rules, Presenter archives, custom Clash Detective tests, object animation scripts, and so on, with other users.

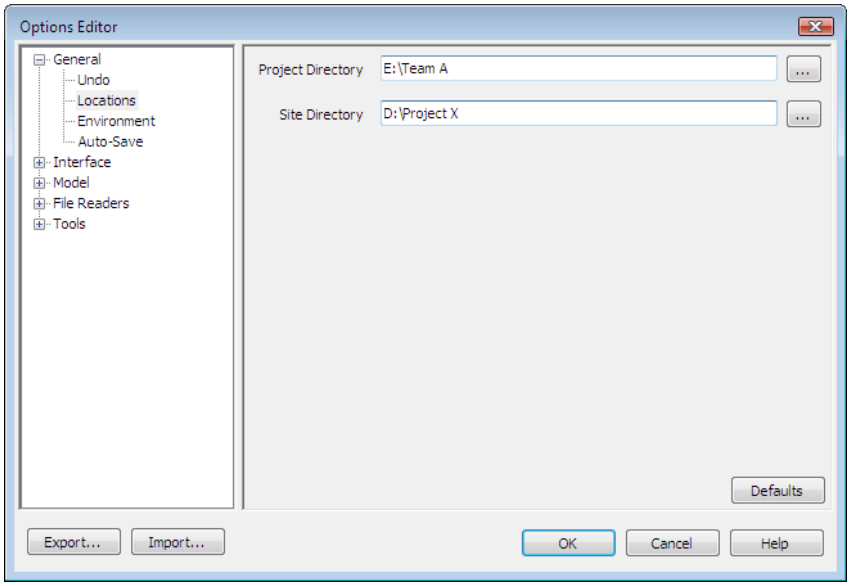
The settings can be shared across an entire project site, or across a specific project group depending on the required level of granularity.

See also:

- How do I share the Autodesk Navisworks settings on a site and project basis? on page 26

To configure location options

1. Click the application button ➤ Options.
2. Expand the General node in the Options Editor, and click the Locations option.



3. In the Project Directory box, browse to the directory that contains the Autodesk Navisworks settings specific to your project group.
4. In the Site Directory box, browse to the directory that contains the Autodesk Navisworks settings standard across the entire project site.
5. Click OK.

Menu: Classic user interface: Tools ➤ Global Options

NOTE When you run Autodesk Navisworks for the first time, the settings are picked up from the installation directory. Subsequently, Autodesk Navisworks examines the current user profile and the all users profile on the local machine, and then checks the settings in the Project Directory and the Site Directory. The files in the Project Directory take precedence.

Display Units

Display units determine the scale of your model in Navisworks.

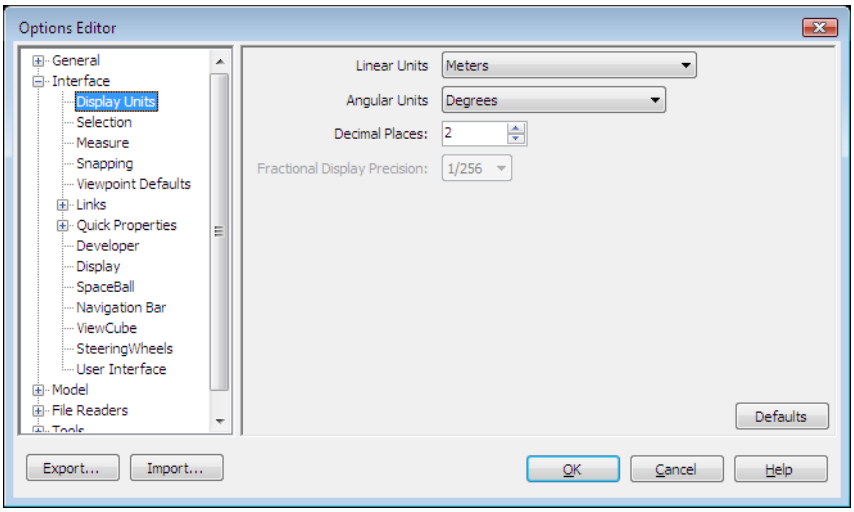
Display units are used to measure geometry in your scene, align appended models, set tolerances for clash detection, set texture sizes and so on.

When you open CAD and laser scan files, Autodesk Navisworks reads the file units directly from the files. If this is not possible (for example, the file is unitless), Autodesk Navisworks uses the default file units configured for that file type in the Options Editor whenever possible. Loaded files are scaled appropriately to the configured display units.

It is possible to rescale the file units, if they are found to be incorrect for the scene.

To customize display units

1. Click the application button ➤ Options.
2. Expand the Interface node in the Options Editor, and click the Display Units option.



3. Select the Linear Units from the drop-down list. Be sure to choose the exact format required.
4. Select the Angular Units from the drop-down list.
5. Enter the number of decimal places you want to see throughout the interface for your units in the Decimal Places box. If the unit chosen is a fractional unit, rather than a decimal unit, then you have the choice of what level of fraction to display the units from the Fractional Display Precision drop-down list.
6. Click OK.

Menu: Classic user interface: Tools ➤ Global Options

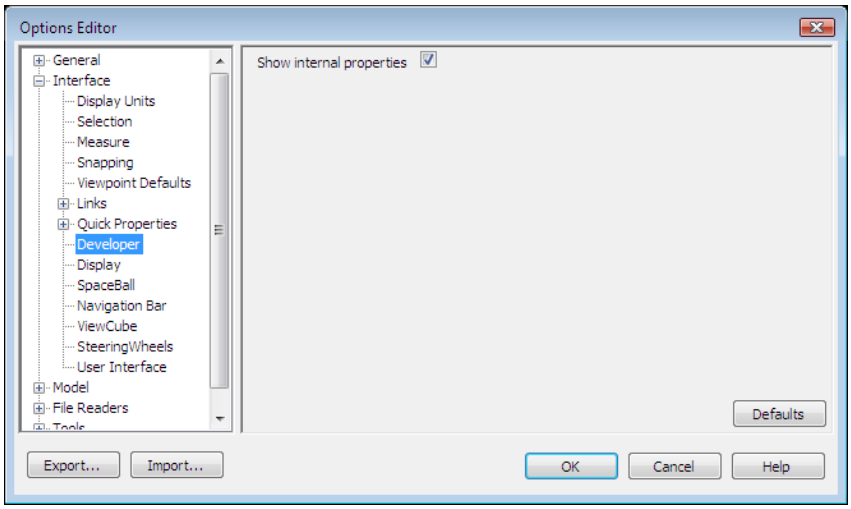
Profiles

Autodesk Navisworks can be adjusted to your level of CAD technical knowledge.

By default, a standard profile is used. If necessary, you can use a developer profile to display additional object properties.

To use a developer profile

1. Click the application button ➤ Options.
2. Expand the Interface node, and click the Developer option.
3. Select the Show Internal Properties check box to add additional object properties to the Properties window.



4 Click OK.

Menu: Classic user interface: Tools ➤ Global Options

Search Directories

Autodesk Navisworks searches for a variety of configuration files in subdirectories of three standard directories.

These files can be overridden on a per user, all users or per installation basis. The search directories are:

- *Application Data\Autodesk Navisworks Freedom 2011* within the current user profile. For example, *C:\Documents and Settings\user\Application Data\Autodesk Navisworks Freedom 2011* where **user** is the name of the current user.
- *Application Data\Autodesk Navisworks Freedom 2011* within the all users default profile. For example, *C:\Documents and Settings\All Users\Application Data\Autodesk Navisworks Freedom 2011*.
- Within the Navisworks install directory. For example, *C:\Program Files\Autodesk Navisworks Freedom 2011*.

Two additional directories, Site and Project, may be used to share various configuration settings with other users. When you run Autodesk Navisworks for the first time, the settings are picked up from the installation directory. Subsequently, Autodesk Navisworks examines the current user profile and the all users profile on the local machine, and then checks the settings in the Project Directory and the Site Directory. The files in the Project Directory take precedence.

See also:

- Location Options on page 59

Gizmos

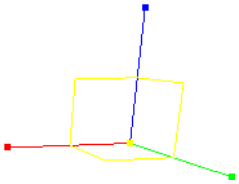
Autodesk Navisworks provides you with gizmo-based tools to interact with 3D objects. The following types of gizmos are used:

- Transform gizmos. Manipulate objects' transforms (translation, rotation, and scale) globally (as if they'd been changed in the original CAD model).
- Animation gizmos. Manipulate objects' transforms temporarily for animation purposes.
- Sectioning gizmos. Manipulate section planes and section box.

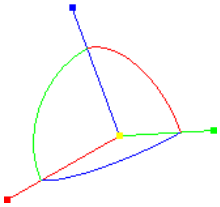
Each gizmo displays three colored axes at the correct angles relevant to the current camera position. Gizmos act like 3D objects in that the axis rotate with the viewpoint. However, they are overlaid over the top of the 3D

scene, and can't be obscured by other objects. When you mouse over a grabable part of the gizmo, the cursor changes to a hand icon.

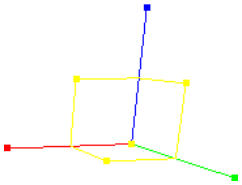
Move Gizmo



Rotate Gizmo



Scale Gizmo



When you use gizmos, you can adjust snapping to control the precision of your operations (click the application button ➤ Options ➤ Interface node ➤ Snapping page.

Get a Whole-Project View

Work with Files

5

In Autodesk Navisworks you can open NWD files (published data), and DWF files.

Use File Readers

NWD Files

An NWD file is a file created with Autodesk Navisworks publisher tool, and contains all model geometry together with review markups. You can think of an NWD file as a snapshot of the current state of the model.

NWD files are very small, as they compress the CAD data by up to 80% of the original size.

DWF Files

Autodesk DWF was specifically developed by Autodesk as a file format for architects, engineers, and GIS professionals to share design data. The DWF file reader reads all 3D geometry, as well as textures and properties.

Supported Entities

- All 3D geometry
- Texture maps
- Texture coordinates
- Colors (per-vertex, per-face)
- Property fields
- Categories

Unsupported Entities

- 2D lines/plot sheets
- Thumbnails
- Marked-up sketches
- More than one 3D sheet per file (any others are ignored)

- NURBS surfaces
- Cameras

See also:

- "DWF File Reader Options" on page 178

Use File Exporters

MicroStation File Exporter

Manage Files

Open Files

To open files in Autodesk Navisworks, you can either use a standard Open dialog box or drag and drop files directly into the Selection Tree window.

NOTE If the chosen file is a CAD or laser scan file, Autodesk Navisworks automatically uses an appropriate file reader to open it, provided this file format is supported.

Autodesk Navisworks keeps a list of recently opened files (by default, up to 4 files are shown). You can open any of these files by clicking the application button . If you want to modify the size of this list, use the Options Editor (General node ➤ Environment page).

You can use the SHIFT and CTRL keys to open several files at the same time. This automatically creates a new "Untitled" Navisworks file with the selected files appended together.

For NWD files, it is possible to publish them to a web server, and then open them directly from within Navisworks. You can start navigating the model even before the file has been fully downloaded. For this, 10 - 50% is usually sufficient. The greater the hierarchical structure of the model, the closer to 50% download is required. Similarly, the lesser the hierarchical structure of the model, the sooner you can begin the navigation.

To open a file

1. Click the application button ➤ Open ➤ Open .
2. In the Open dialog box, use the Files of Type box to select the appropriate file type, and navigate to the folder where your file is located.
3. Select the file, and click Open.

Toolbar: Classic user interface: Standard ➤ Open
Command entry: CTRL + O

To open NWD files located on a web server

1. Click the application button ➤ Open URL .
2. Enter the file address, and click OK.

Create Files

When you start Autodesk Navisworks, a new "Untitled" Navisworks file is automatically created for you. The new file uses default settings defined in the Options Editor, and in the File Options dialog box. You can customize these settings, as necessary.

If you have a Navisworks file already open, and want to close it and create another file, click New on the Quick Access toolbar.

Toolbar: Classic user interface: Standard ➤ New

Explore Your Model

6

Autodesk Navisworks Freedom 2011 enables you to walk through a scene in real time.

Navigate a Scene

In Autodesk Navisworks, you have a variety of options for navigating your scene.

You can directly manipulate your position in 3D space with navigation tools on the navigation bar. You can also use StreeringWheels® that travel with the cursor, and can save you time by combining many of the common navigation tools into a single interface.

You can use the ViewCube®, a 3D navigational tool that enables you to reorient the view of a model by clicking predefined areas on the cube. For example, clicking the front of the ViewCube turns the view until the camera is facing the front of the scene. You can also click the ViewCube and drag it to rotate the view freely.

You can use the tools on the Viewpoint tab ➤ Motion Settings panel to control the speed and realism of your navigation. So, for example, you can walk down stairs or follow terrain, crouch under objects, use an avatar to represent yourself within the 3D model.

Animating Navigation

As you navigate in Autodesk Navisworks, you can record viewpoint animations, and then play them back. For more information, see "Play Back Animations" on page 151.

Orientation in 3D Space

Although Autodesk Navisworks uses the X, Y, Z coordinate system, there is no hard-and-fast rule as to which way each of these particular axes actually "points".

Autodesk Navisworks reads the data necessary to map which way is "up" and which way is "north" directly from the files loaded into your scene. If this is not possible, by default, Z is treated as "up" and Y is treated as "north".

It is possible to change the "up" and "north" directions for the entire model (world orientation), and the "up" direction for the current viewpoint (viewpoint up vector).

NOTE Changing the viewpoint up vector affects navigation in modes that rely on the "up" direction of the current viewpoint, such as Walk, Constrained Orbit, and Orbit. It also has an impact on section views.

To align the viewpoint up vector to the current view

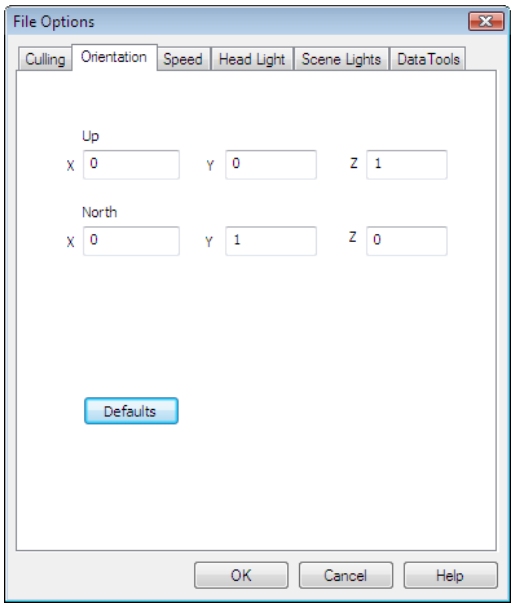
- In Scene View, right-click and click Viewpoint ➤ Set Viewpoint Up ➤ Set Up on the shortcut menu.

To align the viewpoint up vector to one of the preset axes

1. In Scene View, right-click and click Viewpoint ➤ Set Viewpoint Up.
2. Click one of the preset axis. Choose from:
   - Set Up + X
   - Set Up - X
   - Set Up + Y
   - Set Up - Y
   - Set Up + Z
   - Set Up - Z

To change the world orientation

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, Orientation tab, enter the required values to adjust the model orientation.



3. Click OK.

Product-Specific Navigation Tools

The navigation bar and SteeringWheels provide you with access to a set of product-specific navigation tools.

In Autodesk Navisworks Freedom 2011, some classic navigation tools have been replaced with new navigation tools. See the table below for more details.

Classic tool	Replaced by	Can be switched back to classic?
Pan	Pan	No
Zoom	Zoom	No
View All	Zoom All	No
View Selected	Zoom Selected	No
Zoom Box	Zoom Window	No
Orbit	Orbit	Yes
Examine	Free Orbit	Yes
Turntable	Constrained Orbit	Yes
Look Around	Look	No
Focus	-	-
Walk	Walk	Yes
Fly	-	-

Customizing Tools Behavior

For the navigation bar, you can use Options Editor to toggle between standard and classic modes for Orbit and Walk tools.

Control Navigation Realism

You can use Collision, Gravity, Crouch, and Third Person View to enhance your navigation experience.

TIP Use a combination of Collision, Gravity, and Crouch with the Walk tool. This allows you, for example, to walk up and down stairs and walk under low objects.

Navigation Bar Tools

The navigation bar contains a set of product-specific navigation tools.

Pan Tool

The pan tool moves the view parallel to the screen.

The tool is activated by clicking Pan on the navigation bar. Pan behaves the same way as the pan tool available on the SteeringWheels.

Zoom Tools

Set of navigation tools for increasing or decreasing the magnification of the current view of the model.

The following zoom tools are available:

- Zoom Window . Allows you to draw a box and zoom into that area.

- Zoom . Standard click/drag zoom.
- Zoom Selected . Zooms in/out to show the selected geometry.
- Zoom All . Zooms out to show the whole scene.

Zoom Window

The tool is activated by clicking Zoom Window in the Zoom drop-down on the navigation bar. It behaves the same way as the classic Zoom Box mode.

Zoom

The tool is activated by clicking Zoom in the Zoom drop-down on the navigation bar. It behaves the same way as the Zoom tool available on the SteeringWheels.

Zoom Selected

The tool is activated by clicking Zoom Selected in the Zoom drop-down on the navigation bar. Alternatively, you can click Item Tools tab ➤ Look At panel ➤ Zoom on the ribbon. It behaves the same way as the classic View Selected tool.

Zoom All

The tool is activated by clicking Zoom All in the Zoom drop-down on the navigation bar. It behaves the same way as the classic View All tool.

Orbit Tools

Set of navigation tools for rotating the model around a pivot point while the view remains fixed.

The following orbit tools are available:

- Orbit . Moves the camera around the focal point of the model. The up direction is always maintained, and no camera rolling is possible.
- Free Orbit . Rotates the model around the focal point in any direction.
- Constrained Orbit . Spins the model around the up vector as though the model is sitting on a turntable. The up direction is always maintained.

Orbit

The tool is activated by clicking Orbit in the Orbit drop-down on the navigation bar. It behaves the same way as the Orbit tool on the SteeringWheels. You can use the Options Editor to switch back to the classic Orbit mode.

Free Orbit

The tool is activated by clicking Free Orbit in the Orbit drop-down on the navigation bar. It behaves similarly to the classic Examine mode. You can use the Options Editor to switch back to the classic Examine mode.

Constrained Orbit

The tool is activated by clicking Constrained Orbit in the Orbit drop-down on the navigation bar. It behaves similarly to the classic Turntable mode. You can use the Options Editor to switch back to the classic Turntable mode.

To use the classic Orbit tool with the navigation bar

1. On the navigation bar, click Customize ➤ Navigation Bar Options.

2 In the Options Editor, the Navigation Bar page under the Interface node, select the Use Classic Orbit check box in the Orbit Tools area.

3 Click OK.

To use the classic Examine tool with the navigation bar

1 On the navigation bar, click Customize ➤ Navigation Bar Options.

2 In the Options Editor, the Navigation Bar page under the Interface node, select the Use Classic Free Orbit (Examine) check box in the Orbit Tools area.

3 Click OK.

To use the classic Turntable tool with the navigation bar

1 On the navigation bar, click Customize ➤ Navigation Bar Options.

2 In the Options Editor, the Navigation Bar page under the Interface node, select the Use Classic Constrained Orbit (Turntable) check box in the Orbit Tools area.

3 Click OK.

Look Tools

Set of navigation tools for rotating the current view vertically and horizontally.

The following look tools are available:

- Look Around . Looks around the scene from the current camera location.
- Look At . Looks at a particular point in the scene. The camera moves to align with that point.
- Focus . Looks at a particular point in the scene. The camera stays where it is.

Look Around

The tool is activated by clicking Look Around in the Look drop-down on the navigation bar. It behaves the same way as the Look tool available on the SteeringWheels.

Look At

The tool is activated by clicking Look At in the Look drop-down on the navigation bar. It behaves the same way as the SteeringWheels Look tool when you press and hold the SHIFT key.

Focus

The tool is activated by clicking Focus in the Look drop-down on the navigation bar. See Focus on page 113 for more details.

Walk and Fly Tools

Set of navigation tools for moving around the model and controlling realism settings.

The following tools are available:

- Walk . Moves through a model as if you were walking through it.
- Fly . Moves through a model like in a flight simulator.

Walk

The tool is activated by clicking Walk in the Walk/Fly drop-down on the navigation bar. By default, the tool behaves like the Walk tool on the SteeringWheels. You can customize the tool options in the Options Editor. You can also switch back to the classic Walk mode.

Fly

The tool is activated by clicking Fly in the Walk/Fly drop-down on the navigation bar. It behaves the same way as the classic Fly mode.

See also:

- Control the Realism of Your Navigation on page 114

To use classic Walk tool with the navigation bar

1. On the navigation bar, click Customize ➤ Navigation Bar Options.
2. In the Options Editor, the Navigation Bar page under the Interface node, select the Use Classic Walk check box in the Walk Tool area.
3. Click OK.

SteeringWheels Tools

Each wheel is divided into different wedges. Each wedge contains a navigation tool used to reorient the current view of a model. Which navigation tools are available depends on which wheel is active.

Center Tool

With the Center tool, you can define the center of the current view of a model. To define the center, drag the cursor over your model. A sphere (pivot point) is displayed in addition to the cursor. The sphere indicates that the point below the cursor in the model will be the center of the current view when you release the mouse button. The model is centered on the sphere.

NOTE If the cursor is not over the model, the center cannot be set and a prohibited cursor is displayed.

The point defined by the Center tool provides a focal point for the Zoom tool and a pivot point for the Orbit tool.

NOTE If you want to zoom from the Full Navigation wheels from your defined center point, hold down *CTRL* before zooming.

To specify a point on a model as the center of a view

1. Display one of the Full Navigation wheels or the big View Object wheel.
2. Click and hold down the Center wedge.
3. Drag the cursor to the desired location of the model.

4 Release the button on your pointing device when the sphere is displayed.
The model is panned until the sphere is centered.

To specify the target point for the Zoom and Orbit tools

1 Display one of the Full Navigation wheels or the big View Object wheel.

2 Click and hold down the Center wedge.

3 Drag the cursor over the desired location of the model.

4 Release the button on your pointing device when the sphere is displayed.
The model is panned until the sphere is centered.

5 Use the Zoom or Orbit tool to reorient the view of the model.
If you are using one of the Full Navigation wheels, hold down the *CTRL* key before using the Zoom tool.

Forward Tool

You use the Forward tool to change the magnification of the model by increasing or decreasing the distance between the current point of view and the pivot point. The distance that you can move forward or backward is limited by the position of the pivot point.

NOTE In orthographic views, the Forward tool is limited to the distance between the current position and the pivot point. In perspective views, it is not limited, so you can move the cursor through the pivot point.

To adjust the distance between the current point of view and the pivot point you use the Drag Distance indicator. The Drag Distance indicator has two marks on it that show the start and destination distances from the current point of view. The current traveled distance is shown by the orange position indicator. Slide the indicator forward or backwards to decrease or increase the distance towards the pivot point.

To reorient a view by moving towards or away from the model

1 Display the big Tour Building wheel.

2 Click and hold down the Forward wedge.
The Drag Distance indicator is displayed.

NOTE If you click the Forward wedge once, the model moves forward 50% of the distance between the current location and the pivot point.

3 Drag the cursor up or down to change the distance from which you view the model.

4 Release the button on your pointing device to return to the wheel.

Look Tool

With the Look tool, you can rotate the current view vertically and horizontally. When rotating the view, your line of sight rotates about the current eye position, like turning your head. The Look tool can be compared to standing in a fixed location, and looking up, down, left or right.

When using the Look tool, you adjust the view of the model by dragging the cursor. As you drag, the cursor changes to the Look cursor and the model rotates around the location of the current view.

In addition to using the Look tool to look around a model, you can also use the tool to transition the current view to a specific face on the model. Press and hold the Shift key before selecting the Look tool on one of the Full Navigation wheels.

Walking Through a Model

When using the Look tool from the big Full Navigation wheel, you can walk through a model by using the arrow keys on the keyboard. To adjust the walk speed, use the Options Editor.

Invert Vertical Axis

When you drag the cursor upward, the target point of the view raises; dragging the cursor downward lowers the target point of the view. To invert the vertical axis for the Look tool, use the Options Editor.

To look around a view with the Look tool

1. Display one of the Full Navigation wheels or the mini Tour Building wheel.
2. Click and hold down the Look wedge.
   The cursor changes to the Look cursor.
3. Drag the pointing device to change the direction in which you are looking.
4. Release the button on your pointing device to return to the wheel.

To look at a face in the model with the Look tool

1. Display one of the Full Navigation wheels.
2. Press and hold down the *SHIFT* key.
3. Click and hold down the Look wedge.
   The cursor changes to the Look At cursor.
4. Drag over the objects in the model until the face highlights that you want to look at.
5. Release the button on your pointing device to return to the wheel.

To look around and walk through a model with the Look tool

1. Display the big Full Navigation wheel.
2. Click and hold down the Look wedge.
   The cursor changes to the Look cursor.

3 Drag to change the direction in which you are looking.

4 While holding down the button on your pointing device, press the arrow keys to walk in the model.

5 Release the button on your pointing device to return to the wheel.

6 Click Close to exit the wheel.

To invert the vertical axis for the Look tool

1 Display a wheel.

2 Right-click the wheel, and click SteeringWheels Options.

3 In the Options Editor, the SteeringWheels page under the Interface node, select the Invert Vertical Axis check box in the Look Tool area.

Dragging downward and upward lowers and raises the target point of the current view.

4 Click OK.

Orbit Tool

You use the Orbit tool to change the orientation of a model. The cursor changes to the Orbit cursor. As you drag the cursor, the model rotates around a pivot point while the view remains fixed.

Specify the Pivot Point

The pivot point is the base point used when rotating the model with the Orbit tool. You can specify the pivot point in the following ways:

- **Default pivot point**. When you first open a model, the target point of the current view is used as the pivot point for orbiting the model.
- **Select objects**. You can select objects before the Orbit tool is used to calculate the pivot point. The pivot point is calculated based on the center of the extents of the selected objects.
- **Center tool**. You can specify a point on the model to use as the pivot point for orbiting with the *Center tool*.
- **CTRL+Click and drag**. Press and hold down the *CTRL* key before clicking the Orbit wedge or while the Orbit tool is active; then drag to the point on the model you want to use as the pivot point. This option is only available when using the big and mini Full Navigation wheels or the mini View Object wheel.

  NOTE While the Orbit tool is active, you can press and hold the *CTRL* key at anytime to move the pivot point used by the Orbit tool.This pivot point is used for subsequent navigation until it is moved.

Maintain Up Direction

You can control how the model orbits around the pivot point by choosing to maintain the up direction of the model. When the up direction is maintained, orbiting is constrained along the *XY* axis and in the *Z* direction. If

you drag horizontally, the camera moves parallel to the *XY* plane. If you drag vertically, the camera moves along the *Z* axis.

If the up direction is not maintained, you can roll the model using the roll ring which is centered around the pivot point. Use the properties dialog box for the SteeringWheels to control whether the up direction is maintained or not for the Orbit tool.

To orbit a model with the Orbit tool

1. Display one of the View Object or Full Navigation wheels.
2. Click and hold down the Orbit wedge.
   The cursor changes to the Orbit cursor.
3. Drag to rotate the model.

   NOTE Use the Center tool to re-center the model in the current view, if you are using one of the Full Navigation or View Object wheels.

4. Release the button on your pointing device to return to the wheel.

To orbit around an object with the Orbit tool

1. Press ESC to make sure no commands are active and to clear any previously selected objects.
2. Select the objects in the model for which you want to define the pivot point.
3. Display one of the View Object or Full Navigation wheels.
4. Click and hold down the Orbit wedge.
   The cursor changes to the Orbit cursor.
5. Drag to rotate the model.
6. Release the button on your pointing device to return to the wheel.

To turn on selection sensitivity for the Orbit tool

1. Display one of the View Object or Full Navigation wheels.
2. Right-click the wheel, and click SteeringWheels Options.
3. In the Options Editor, the SteeringWheels page under the Interface node, select the Center Pivot on Selection check box in the Orbit Tool section.
4. Click OK.
   The extents of any objects that are selected before the wheel is displayed are used to define the pivot point for the Orbit tool. If no objects are selected, the pivot point used by the Orbit is the one defined by the Center tool.

To maintain the up direction for the Orbit tool

1. Display the mini View Object wheel or one of the Full Navigation wheels.
2. Right-click the wheel, and click SteeringWheels Options.
3. In the Options Editor, the SteeringWheels page under the Interface node, select the Keep Scene Upright check box in the Orbit Tool area.
4. Click OK.
   Orbiting the model is constrained along the XY plane and Z directions.

To roll the model around the pivot point with the Orbit tool

1. Display the mini View Object Wheel or one of the Full Navigation wheels.
2. Right-click the wheel, and click SteeringWheels Options.
3. In the Options Editor, the SteeringWheels page under the Interface node, clear the Keep Scene Upright check box.
4. Click OK.
5. Click and hold the Orbit wedge.
   The cursor changes to the Orbit cursor.
6. Press and hold the *SHIFT* key to display the roll ring. Drag to roll the model.
7. Release the button on your pointing device to return to the wheel.

To start the Orbit tool with the middle mouse button

1. Display one of the wheels other than the big View Object or Tour Building wheels.
2. Press and hold down the *SHIFT* key.
3. Press and hold down the scroll wheel or middle button on your pointing device and drag to orbit the model.
4. Release the button on your pointing device to return to the wheel.

Pan Tool

When the pan tool is active, the Pan cursor (a four-sided arrow) is displayed. Dragging the pointing device moves the model in the same direction. For example, dragging upward moves the model up while dragging downward moves the model down.

TIP If the cursor reaches the edge of the screen, you can continue panning by dragging further to force it to wrap around the screen.

To pan the view with the Pan tool

1. Display one of the Full Navigation wheels, or the mini View Object wheel.
2. Click and hold the Pan wedge.
   The cursor changes to the Pan cursor.
3. Drag to reposition the model.
4. Release the button on your pointing device to return to the wheel.

To start the Pan tool with the middle mouse button

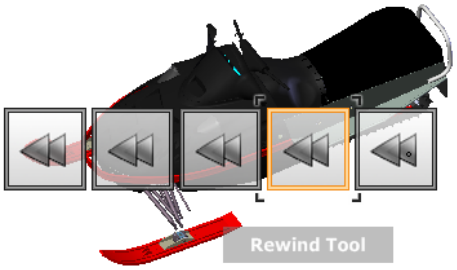
1. Display one of the Full Navigation wheels, or the mini View Object wheel.
2. Press and hold down the scroll wheel or middle button.
   The cursor changes to the Pan cursor.
3. Drag to reposition the model.
4. Release the wheel or button on your pointing device to return to the wheel.

Rewind Tool

As you use the navigation tools to reorient the view of a model, the previous view is saved to the navigation history. The navigation history holds a representation of the previous views of the model along with a thumbnail. A separate navigation history is maintained for each window; it is not maintained after the window is closed. Rewind navigation history is view-specific.

With the Rewind tool, you can retrieve previous views from the navigation history. From the navigation history, you can restore a previous view or scroll through all of the saved views.

NOTE When you rewind and record a new navigation history, the rewound views are replaced by new views. The navigation history is not saved between sessions.



To restore the previous view

1. Display a wheel.
2. Click the Rewind wedge.

To restore a previous view with the Rewind History panel

1. Display a wheel.
2. Click and hold the Rewind wedge.
   The Rewind History panel is displayed.
3. While holding down the button on your pointing device, drag to the left or to the right to restore a previous view.

Dragging to the left restores an older previous view. Dragging to the right restores a view that is newer than the one you are currently viewing. You must have previously used the Rewind tool to see views available on the right. The current position in the navigation history is indicated by the orange box that is dragged along the Rewind History panel.

Up/Down Tool

Unlike the Pan tool, you use the Up/Down tool to adjust the height of the current viewpoint along the model's Z axis. To adjust the vertical elevation of the current view, you drag up or down. As you drag, the current elevation and the allowed range of motion is displayed on a graphical element called the Vertical Distance indicator.

The Vertical Distance indicator has two marks that show the highest (Top) and lowest (Bottom) elevation the view can have. While changing the elevation with the Vertical Distance indicator, the current elevation is shown by the bright orange indicator, while the previous elevation is shown by the dim orange indicator.

To change the elevation of a view

1. Display one of the Full Navigation wheels or the Tour Building wheels.
2. Click and hold down the Up/Down wedge.
   The Vertical Distance indicator is displayed.
3. Drag up or down to change the elevation of the view.
4. Release the button on your pointing device to return to the wheel.

Walk Tool

With the Walk tool, you can navigate through a model as if you were walking through it. Once you start the Walk tool, the Center Circle icon is displayed near the base of the view and the cursor changes to display a series of arrows. To walk through the model, you drag in the direction in which you want to move in.

Constrain the Walk Angle

When walking through a model, you can constrain the movement angle to the world up vector. If the Constrain Walk Angle option is enabled, you can freely walk around while maintaining a constant camera viewpoint

elevation; if the walk angle is not constrained, you will "fly" in the direction you are looking. Use the Options Editor to constrain the movement angle to the world up vector for the Walk tool.

Use Viewpoint Linear Speed

By default, the linear navigation speed in viewpoints is directly related to the size of your model. You can set a specific speed of motion for all viewpoints (Options Editor ➤ Interface ➤ Viewpoint Defaults) or for the current viewpoint (Viewpoint tab ➤ Save, Load & Playback panel ➤ Edit Current Viewpoint). Use the Options Editor to make the Walk tool Use Viewpoint Linear Speed settings.

Movement Speed

As you walk or "fly" through a model, you can control the movement speed. Movement speed is controlled by the distance in which the cursor is moved from the Center Circle icon and the current movement speed setting. You can adjust the movement speed setting permanently and temporarily as you use the Walk tool. To permanently adjust the movement speed, use the Options Editor or the < and > keys when the Walk tool is active. To temporarily increase movement speed, press and hold the + (plus) key while using the Walk tool.

Change the Elevation

As you use the Walk tool, you can adjust the camera elevation by holding down the *SHIFT* key. This temporarily activates the Up/Down tool. With the Up/Down tool active, drag up or down to adjust the elevation of the camera. You can also use the *UP ARROW* and *DOWN ARROW* keys as you walk to adjust the height of the view.

To use the Walk tool to move through the model

1. Display one of the Full Navigation wheels or the mini Tour Building wheel.
2. Click and hold down the Walk wedge.
   The cursor changes to the Walk cursor and the Center Circle icon is displayed.
3. Drag in the direction you want to walk.

   NOTE While walking, press and hold down the + (plus) key to temporarily increase your movement speed.
4. Release the button on your pointing device to return to the wheel.

To change the movement speed for the Walk tool

1. Display a wheel.
2. Right-click the wheel, and click SteeringWheels Options.
3. In the Options Editor, the SteeringWheels page under the Interface node, use the Walk Speed slider in the Walk Tool area.
   Dragging the slider to the left decreases the walking speed; dragging the slider to the right increases the walking speed.
4. Click OK.

To constraint the Walk tool to the world up vector

1. Display a wheel.
2. Right-click the wheel, and click SteeringWheels Options.
3. In the Options Editor, the SteeringWheels page under the Interface node, select the Constrain Walk Angle check box in the Walk Tool area.
4. Click OK.
   Movement when walking is done parallel to the world up of the model.

To make the Walk tool use the viewpoint linear speed

1. Display a wheel.

2 Right-click the wheel, and click SteeringWheels Options.

3 In the Options Editor, the SteeringWheels page under the Interface node, select the Use Viewpoint Linear Speed check box in the Walk Tool area.

4 Click OK.

To adjust the height of the current view from the Walk tool

1 Display one of the Full Navigation wheels or the mini Tour Building wheel.

2 Click and hold down the Walk wedge.
The cursor changes to the Walk cursor and the Center Circle icon is displayed.

3 Do one of the following:
- Press and hold down the *SHIFT* key to enable the Up/Down tool; drag up or down.
- Press and hold down the *UP ARROW* or *DOWN ARROW* key.

4 Release the button on your pointing device to return to the wheel.

Zoom Tool

You use the Zoom tool to change the zoom magnification of a model.

NOTE When you start the Zoom tool from the Full Navigation wheel, incremental zooming must be enabled in the Options Editor in order to use *CTRL*+click and *SHIFT*+click.

Zoom Constraints

When changing the magnification of a model with the Zoom tool, you cannot zoom in any further than the focus point or out past the extents of the model. The direction you can zoom in and out is controlled by the center point set by the Center tool.

NOTE Unlike the Zoom tool on the big View Object wheel, the Zoom tool on the mini View Object wheel and the Full Navigation wheels are not constrained.

To zoom the view with a single click

NOTE You must enable incremental zoom when using the Full Navigation wheels, or a mini View Object wheel. For the big View Object wheel, the incremental zoom is always enabled.

1 Do the following to make sure the Enable Single-Click Incremental Zoom-In option is selected:
- **a** Display the Full Navigation wheel.
- **b** Right-click the wheel, and click SteeringWheel Options.
- **c** In the Options Editor, the SteeringWheels page under the Interface node, select the Enable Single-Click Incremental Zoom-In check box in the Zoom Tool area.
- **d** Click OK.

2 Display a wheel that has the Zoom tool.

3 Click the Zoom wedge.

The magnification of the model is increased and you are zoomed in closer to the model. If you hold down the SHIFT key while clicking the Zoom wedge, the model is zoomed out; you can hold down the *CTRL* key to zoom in.

To zoom a view in and out by dragging

1 Display one of the Full Navigation wheels, or one of the View Object wheels.

2 Click and hold down the Zoom wedge.

The cursor changes to the Zoom cursor.

3 Drag vertically to zoom in or out.

4 Release the button on your pointing device to return to the wheel.

To zoom into an area of the model by specifying window

1 Display one of the Full Navigation wheels or the mini View Object wheel.

2 Press and hold down the *SHIFT* key.

3 Click and hold down the Zoom wedge.

The cursor changes to the Zoom cursor.

4 Drag the pointing device to define the opposite corner of the window that defines the area in which you want to zoom.

NOTE Holding down the *CTRL* key while defining the second point of the window determines if the first point of the window is used as the corner or center of the window being dragged. When the *CTRL* key is held down, the first point defines the center of the window.

5 Release the button on your pointing device to return to the wheel.

To zoom in and out by scrolling the mouse wheel when the SteeringWheels is displayed

1 Display one of the wheels other than the big Tour Building wheel.

2 Scroll the wheel forward or backward to zoom in or out.

3 Release the button on your pointing device to return to the wheel.

Quick Reference

You use the Zoom tool to change the zoom magnification of a model. The following mouse click and key combinations are available to control how the Zoom tool behaves:

- **Click.** If you click the Zoom tool on a wheel, the current view is zoomed in by a factor of 25 percent. If you are using the Full Navigation wheel, incremental zoom must be enabled in the Options Editor.
- **SHIFT+click.** If you hold down the *SHIFT* key before you click the Zoom tool on a wheel, the current view is zoomed in by a factor of 25 percent. Zooming is performed from the current pivot point, and not the location of the cursor.
- **CTRL+click.** If you hold down the *CTRL* key before you click the Zoom tool on a wheel, the current view is zoomed in by a factor of 25 percent. Zooming is performed from the current pivot point, and not the location of the cursor.
- **Click and drag.** If you click the Zoom tool and hold down the button on your pointing device, you can adjust the magnification of the model by dragging up and down.

- **CTRL+click and drag.** When using the Full Navigation wheels or the mini View Object wheel, you can control the target point used by the Zoom tool. By holding down the *CTRL* key, the Zoom tool uses the location of the previous pivot point defined by the Zoom, Orbit, or Center tool.
- **SHIFT+click and drag.** When using the Full Navigation wheels or the mini View Object wheel, you can zoom in to an area of the model by dragging a rectangular window around the area you want to fit in the window. Hold down the *SHIFT* key and then click and drag a window around the area in which you want to zoom.

  NOTE If you hold down the *CTRL* key along with the *SHIFT* key, you can zoom in to an area of a model using a center-based window instead of one defined by opposite corners.

- **Mouse wheel.** When a wheel is displayed, scroll the mouse wheel up or down to zoom the view of the model in or out.

NOTE When you use the Zoom tool from the Full Navigation wheel or the View Object wheel, the point in the view where you click to zoom becomes the Center point for future Orbit operations until you either use the Zoom tool again or use the Center tool. If you press *CTRL* before you click the Zoom wedge, the Center point does not change.

Classic Navigation Modes and Tools

In the Classic user interface, there are nine navigation modes available from the Navigation Mode toolbar to control how you move around the Scene View: six camera-centric modes and three model-centric modes.

TIP You can use some of these classic navigation modes with the standard (ribbon) user interface. The Options Editor allows you to select between old and new modes.

In a camera-centric mode, the camera moves within the scene, whereas in a model-centric mode, model moves inside the scene. For example, orbit and examine modes essentially do the same thing, except that orbit mode moves the camera around the focal point and examine mode moves the model around the focal point.

NOTE Navigation modes and SteeringWheels are mutually exclusive, so activating navigation mode deactivates the current SteeringWheel menu.

Movement in each mode is based on the keyboard arrow keys, the SHIFT and CTRL keys, and mouse drags. The mouse wheel is also supported, allowing quick and easy zooming or tilting, depending on the current navigation mode.

TIP Dragging with the left mouse button while holding down the CTRL key performs the same actions as dragging with the middle mouse button, which is useful if you only have a two-button mouse.

The SHIFT and CONTROL keys modify the movement, for example holding down SHIFT in walk mode speeds up movement, and holding down CTRL in this mode, glides the camera left/right and up/down.

NOTE Gliding the camera is opposite to panning the model. Gliding is a camera-centric motion and panning is a model-centric motion.

Quick Reference

Mode	Description
	Walk. Enables you to walk through the model on a horizontal plane ensuring that "up" is always "up".
	Look Around. Enables you to look around the model from the current camera posi-

Mode	Description
	tion and gives the effect that you are moving your head around.
	Zoom. Enables you to zoom into and out of the model. Cursor up zooms in and cursor down zooms out.
	Zoom to a Box. Enables you to drag a box so that the contents of the box fill the view.
	Pan. Enables you to pan the model rather than the camera.
	Orbit. Enables you to orbit the camera around the model, ensuring that “up” is always “up”. The camera always orbits around the focal point of the model.
	Examine. Enables you to rotate the model about.
	Fly. Enables you to fly around the model like in a flight simulator.
	Turntable. Enables you to spin the model around the up vector. This navigation mode behaves as though the model is sitting on a turntable, ensuring that “up” is always “up”.

Walk Mode

In Walk mode, you can navigate through a model as if you were walking through it. In this mode, the up direction is always maintained.

Once you start walk mode, the cursor changes to the walk cursor. To walk through the model, you drag in the direction in which you want to move in.

To use walk mode to move through the model

1. Click Walk on the Navigation Mode toolbar.
2. To move, hold down the left mouse button as you drag in the direction you want to walk, or use the cursor keys. The camera spins left and right, and moves forwards and backwards.

   NOTE Holding down the SHIFT key speeds up this movement.

3. To glide, hold down the CTRL key as you drag the mouse. The camera glides left and right and up and down.

As walk mode is camera-centric, this mode differs from the normal pan mode in that the camera is moved rather than the model.

4 To tilt the camera up and down, spin the mouse wheel.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Walk
Command entry: CTRL + 2

Look Around Mode

In Look Around mode, you can rotate the current view vertically and horizontally. When rotating the view, your line of sight rotates about the current eye position, like turning your head.

To look around a view

1 Click Look Around on the Navigation Mode toolbar.

2 To look around, drag the left mouse button, or use the cursor keys. The camera looks left, right, up or down.

NOTE Holding down the SHIFT key speeds up this movement.

3 To rotate the camera around its viewing axis, hold down the CTRL key.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Look Around
Command entry: CTRL + 3

Zoom Mode

In Zoom mode, you can zoom into and out of the model.

To zoom the view

1 Click Zoom on the Navigation Mode toolbar.

2 Drag the left mouse button up and down, or use the up and down cursor keys, to zoom in and out respectively.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Zoom
Command entry: CTRL + 4

Zoom Box Mode

In Zoom Box mode, you can zoom into an area of the model by dragging a rectangular box around the area you want to fit in the Scene View.

To zoom in to an area of the model by specifying box

1. Click Zoom Box on the Navigation Mode toolbar.
2. Drag a box with the left mouse button over the Scene View to fill the view with the contents of the box.

NOTE Holding down the SHIFT or CTRL keys, or spinning the mouse wheel, temporarily enables normal Zoom mode.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Zoom Window
Command entry: CTRL + 5

Pan Mode

In Pan mode, you can move the model, rather than the camera. For example, dragging upward moves the model up while dragging downward moves the model down.

To pan a model

1. Click Pan on the Navigation Mode toolbar.
2. Drag the left mouse button to pan the model up, down, left and right.

NOTE Holding down the SHIFT or CTRL keys, or spinning the mouse wheel, temporarily enables normal Zoom mode.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Pan
Command entry: CTRL + 6

Orbit Mode

In Orbit mode, the camera moves around the focal point of the model. In this mode, the up direction is always maintained.

To orbit a model

1. Click Orbit on the Navigation Mode toolbar.
2. To rotate the camera around the model, drag the left mouse button, or using the cursor keys.

   NOTE Holding down the SHIFT key, or spinning the mouse wheel, temporarily enables normal Zoom mode.

3. To glide the camera, hold down the CTRL key as you drag the mouse. The camera glides left and right and up and down.

   As orbit mode is camera-centric, this mode differs from normal pan mode in that the camera is moved rather than the model.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Orbit
Command entry: CTRL + 7

Examine Mode

In Free Orbit mode, you can rotate the model around the focal point.

To examine a model

1. Click Examine on the Navigation Mode toolbar.
2. To rotate the model around the focal point, drag the left mouse button, or using the cursor keys. If the mouse is moving when you let go of the button, the model keeps spinning. Clicking on the model stops this.

   NOTE Holding down the SHIFT key, or spinning the mouse wheel, temporarily enables normal Zoom mode. Holding down the CTRL key, temporarily enables normal Pan mode.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Examine
Command entry: CTRL + 8

Fly Mode

In Fly mode, you can move around the model like in a flight simulator.

To use Fly mode to move through the model

1. Click Fly on the Navigation Mode toolbar.
2. Hold down the left mouse button to move the camera forward. As in a flight simulator, the left mouse button banks left/right when dragged left or right and tilts up/down when dragged up or down.

   NOTE Holding down the SHIFT key speeds up this movement.

3. Use the up and down cursor keys to zoom the camera in and out respectively; use the left and right cursor keys to spin the camera left and right respectively.

   NOTE Holding down the CTRL key rotates the camera around its viewing axis, while still moving forward.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Fly
Command entry: CTRL + 9

Turntable Mode

In Turntable mode, you can spin the model around the up vector as though the model is sitting on a turntable. In this mode, the up direction is always maintained.

To spin model on a turntable

1. On the navigation bar, click Turntable on the Navigation Mode toolbar.
2. Drag the left mouse button left and right, or use the left and right cursor keys, to spin the turntable left and right respectively.

   NOTE Holding down the SHIFT key or spinning the mouse wheel, temporarily enables normal Zoom mode. Holding down the CTRL key, temporarily enables normal Pan mode.

3. To tilt the turntable up and down, spin the mouse wheel, or use the up and down cursor keys.

Menu: Classic user interface: Viewpoint ➤ Navigation Mode ➤ Turntable
Command entry: CTRL + 0

View All Tool

Makes the complete model fit into the Scene View.

Using this function dollies and pans the camera so that the entire model is shown in the current view, which is very useful if you get lost inside a model or lose it completely.

Occasionally, you may get a blank view. This is usually because there are items that are very small in comparison to the main model, or items that are located a long way away from the main model. In these cases, right-click an item in the Selection Tree and click Zoom Selected to find your way back to the model before trying to figure out which items are "lost".

To view everything

➤ Click View All on the Navigation Tools toolbar.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ View All
Shortcut menu: Scene ➤ View All

Zoom Selected Tool

Zooms the camera so that the selected items fill the Scene View.

To view selected items

➤ Click Zoom Selected on the Navigation Tools toolbar.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Zoom Selected
Shortcut menu: Scene ➤ Zoom Selected

ViewCube

Autodesk® ViewCube® navigation tool provides visual feedback of the current orientation of a model. You can use the ViewCube tool to adjust the viewpoint of your model.

Overview of ViewCube

The ViewCube tool is a persistent, clickable, and draggable interface that you use to switch between views of your model.

When you display the ViewCube tool, by default it is shown in the top-right corner of the Scene View over the model in an inactive state. The ViewCube tool provides visual feedback about the current viewpoint of the model as view changes occur. When the cursor is positioned over the ViewCube tool, it becomes active. You can drag or click the ViewCube, switch to one of the available preset views, roll the current view, or change to the Home view of the model.

TIP When the navigation bar is linked to the ViewCube, both can be moved around the Scene View. See Reposition and Reorient the Navigation Bar on page 101 for more information.

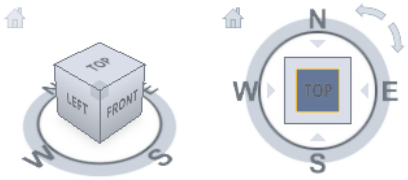
Control the Appearance of ViewCube

The ViewCube tool is displayed in one of two states: inactive and active. When the ViewCube tool is inactive, it appears partially transparent by default so that it does not obscure the view of the model. When active, it is opaque and may obscure the view of the objects in the current view of the model.

In addition to controlling the opacity level of the ViewCube when it is inactive, you can also control its size, and the display of the compass. The settings used to control the appearance of the ViewCube are located in the Options Editor.

Use the Compass

The compass is displayed below the ViewCube tool and indicates which direction North is defined for the model. You can click a cardinal direction letter on the compass to rotate the model, or you can click and drag one of the cardinal direction letters or the compass ring to interactively rotate the model around the pivot point.



Drag or Click ViewCube

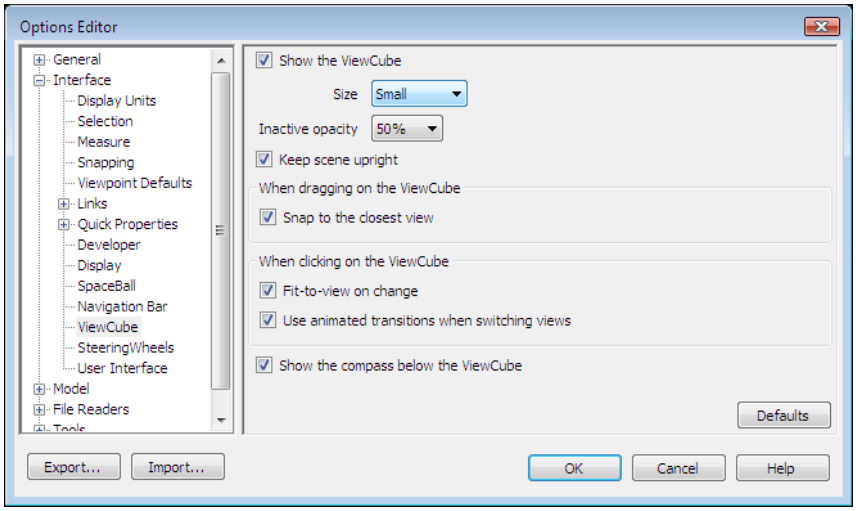
When you drag or click the ViewCube tool, the view of the model reorients around a pivot point. The pivot point is displayed at the center of the object that was last selected before using the ViewCube tool.

To display or hide the ViewCube

■ Click View tab ➤ Navigation Aids panel ➤ ViewCube .

To control the size of the ViewCube

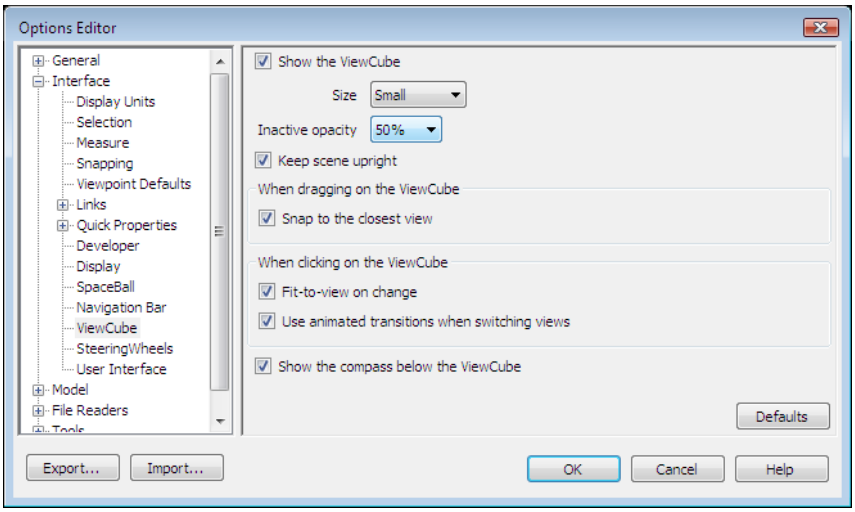
1. Right-click the ViewCube tool, and click ViewCube Options.
2. In the Options Editor, the ViewCube page under the Interface node, select an option from the Size drop-down list.



3. Click OK.

To control the inactive opacity of the ViewCube

1. Right-click the ViewCube tool, and click ViewCube Options.
2. In the Options Editor, the ViewCube page under the Interface node, select an option from the Inactive Opacity drop-down list.



3 Click OK.

To display the compass for the ViewCube

1 Right-click the ViewCube tool, and click ViewCube Options.

2 In the Options Editor, the ViewCube page under the Interface node, select Show Compass Below the ViewCube.

3 Click OK.

The compass is displayed below the ViewCube tool and indicates the direction of north for the model.

ViewCube Menu

Use the ViewCube menu to restore and define the Home view of a model, switch between view projection modes, and change the interactive behavior and appearance of the ViewCube tool.

To display the ViewCube menu

To display the ViewCube menu, do one of the following:

- Right-click on the compass, Home icon, or the main area of the ViewCube tool.
- Click the context menu button located below the ViewCube tool.

Quick Reference

The ViewCube menu has the following options:

- **Home.** Restores the Home view saved with the model. This view is in synchronization with the Go Home view option in the SteeringWheels menu.
- **Perspective.** Switches the current view to perspective projection.
- **Orthographic.** Switches the current view to orthographic projection.
- **Lock to Selection.** Uses the selected objects to define the center of the view when a view orientation change occurs with the ViewCube tool.

NOTE If you click Home on the ViewCube tool, the view returns to the Home view even if Lock to Current Selection is selected.

- **Set Current View as Home.** Defines the Home view of the model based on the current view.

- **Set Current View as Front.** Defines the Front view of the model based on the current view.
- **Reset Front.** Resets the Front view of the model to its default orientation.
- **ViewCube Options.** Displays the Options Editor where you can adjust the appearance and behavior of the ViewCube tool.
- **Help.** Launches the online Help system and displays the topic for the ViewCube tool.

Reorient the View of a Model with ViewCube

ViewCube is used to reorient the current view of a model. You can reorient the view of a model with the ViewCube tool by clicking pre-defined areas to set a preset view current, click and drag to freely change the view angle of the model, and define and restore the Home view.

Reorient the Current View

The ViewCube tool provides twenty-six defined parts to click and change the current view of a model. The twenty-six defined parts are categorized into three groups: corner, edge, and face. Of the twenty-six defined parts, six of the parts represent standard orthogonal views of a model: top, bottom, front, back, left, and right. Orthogonal views are set by clicking one of the faces on the ViewCube tool.

NOTE When the cursor is over one of the clickable areas of the ViewCube tool, the cursor changes to an arrow with a small cube to indicate that it is over the ViewCube tool. A tooltip is also displayed. The tooltip describes the action that you can perform based on the location of the cursor over the ViewCube tool.

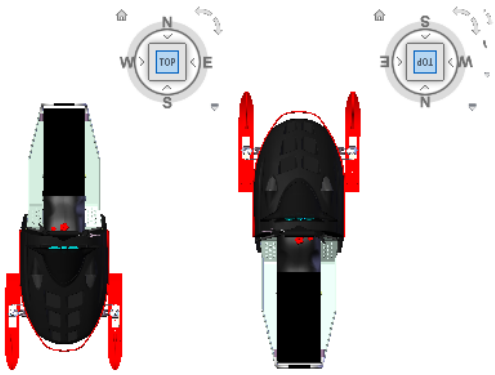
You use the other twenty defined parts to access angled views of a model. Clicking one of the corners on the ViewCube tool reorients the current view of the model to a three-quarter view, based on a viewpoint defined by three sides of the model. Clicking one of the edges reorients the view of the model to a half view based on two sides of the model.

You can also click and drag the ViewCube tool to reorient the view of a model to a custom view other than one of the twenty-six predefined parts. As you drag, the cursor changes to indicate that you are reorienting the current view of the model. If you drag the ViewCube tool close to one of the preset orientations and it is set to snap to the closest view, the ViewCube tool rotates to the closest preset orientation.

The outline of the ViewCube tool helps you identify the form of orientation it is in: standard or fixed. When the ViewCube tool is in standard orientation, not orientated to one of the twenty-six predefined parts, its outline is displayed as dashed. The ViewCube tool is outlined in a solid continuous line when it is constrained to one of the predefined views.

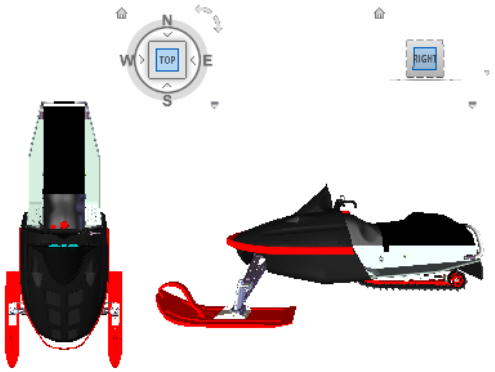
Roll a Face View

When you view a model from one of the face views, two roll arrow buttons are displayed near the ViewCube tool. Use the roll arrows to rotate the current view 90 degrees clockwise or counterclockwise around the center of the view.



Switch to an Adjacent Face

When the ViewCube tool is active while viewing a model from one of the face views, four orthogonal triangles are displayed near the ViewCube tool. You use these triangles to switch to one of the adjacent face views.



Front View

You can define the Front view of a model to define the direction of the face views on the ViewCube tool. Along with the Front view, the up direction of a model is also used to define the direction of the face views on the ViewCube tool.

NOTE Front view is a global setting and will be the same for viewpoints.

To reorient the current view to a preset orientation

- Click one of the faces, edges, or corners on the ViewCube tool.

To view an adjacent face

NOTE Make sure a face view is current.

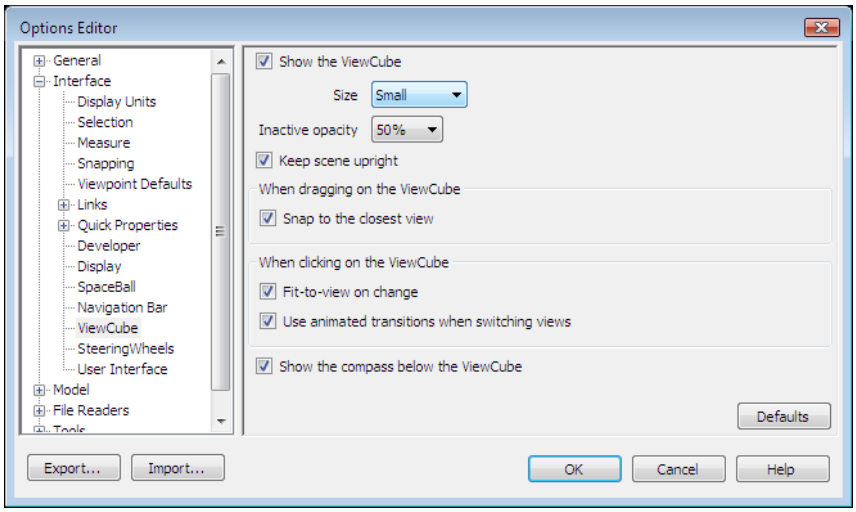
- Click one of the triangles displayed near the edges of the ViewCube tool.

To interactively reorient the view

- Click the ViewCube tool, hold down the left mouse button, and drag in the direction that you want to orbit the model.

To use animated transitions when reorienting a view to a preset orientation

1. Right-click the ViewCube tool, and click ViewCube Options.
2. In the Options Editor, the ViewCube page under the Interface node, select Use Animated Transitions When Switching Views.



   When checked, transitions from one view to another appear animated when clicking a predefined area on the ViewCube tool.

3. Click OK.

To automatically fit the model after a view orientation

1. Right-click the ViewCube tool, and click ViewCube Options.
2. In the Options Editor, the ViewCube page under the Interface node, select Fit-to-View on Change.
3. Click OK.

To roll a face view

NOTE Make sure a face view is displayed.

- Click one of the roll arrows displayed above and to the right of the ViewCube tool.
  The left roll arrow rotates the view 90 degrees counterclockwise; the right roll arrow rotates the view 90 degrees clockwise.

To define the front view

- Right-click the ViewCube tool, and click Set Current View as Front.

To restore the Front view

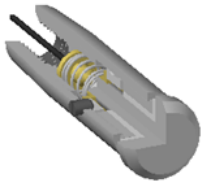
- Right-click the ViewCube tool, and click Reset Front.

Set the View Projection Mode

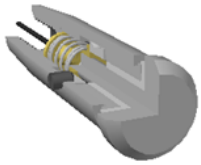
The ViewCube tool supports two view projection modes (Perspective and Orthographic). Orthographic projection is also referred to as parallel projection. Perspective projected views are calculated based on the distance from a theoretical camera and target point. The shorter the distance between the camera and the target point, the more distorted the perspective effect appears; greater distances produce less distorted affects on the model. Orthographic projected views display all the points of a model being projected parallel to the screen.

Orthographic projection mode makes it easier to work with a model due to all the edges of the model appearing as the same size, regardless of the distance from the camera. Orthographic projection mode though, is not how you commonly see objects in the real world. Objects in the real world are seen in perspective projection. So when you want to generate a rendering or hidden line view of a model, using perspective projection will give the model a more realistic look.

The following illustration shows the same model viewed from the same viewing direction, but with different view projections.



Orthographic



Perspective

To change the view projection mode

- Right-click the ViewCube tool, and click one of the following options:

  Orthographic

  Perspective

Home View

The Home view is a special view stored with a model that makes it easy to return to a known or familiar view. You can define any view of the model as the Home view. The saved Home view can be applied to the current view by clicking the Home button above the ViewCube tool or from the ViewCube menu.

To define the Home view

- Right-click the ViewCube tool, and click Set Current View as Home.

Command entry: CTRL+SHIFT+Home

To reorient the model to the Home view

- Click the Home button ( ) located near the ViewCube tool.
- Right-click the ViewCube tool, and click Home.

Examine Individual Objects with ViewCube

You can lock the ViewCube tool to a set of selected objects. Locking a selection of objects to the ViewCube tool defines the center of the current view and the distance from center for the view based on the selected objects.

To turn off Lock to Selection, you can click the Lock to Selection button next to the Home view button.

Selecting and deselecting objects after Lock to Selection is turned on has no effect on the center or distance from the center of the view when a view orientation changes. You cannot zoom fit to view a model when Lock to Selection is on, even if the ViewCube tool is set to zoom fit to view after each view orientation change.

To lock to the current selection

- Right-click the ViewCube tool, and click Lock to Selection.

If Lock to Selection is checked when a view orientation change occurs, the selected objects are used to calculate the center of the view and the view zooms to the extents of the selected objects. When cleared, the selected objects are used to calculate the center of the view and the view zooms to the extents of the model.

To examine an individual object with ViewCube

1. In the model, select one or more objects to define the centerpoint of the view.
2. Click one of the preset locations on the ViewCube tool, or click and drag the ViewCube tool to reorient the view of the model.

   The ViewCube tool reorients the view of the model based on the centerpoint of the selected objects.

Navigation Bar

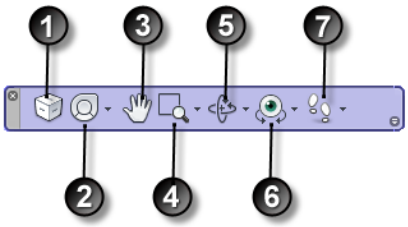
Unified and product-specific navigation tools can be accessed from the navigation bar.

Overview of Navigation Bar

The navigation bar is a user interface element where you can access both unified and product-specific navigation tools.

Unified navigation tools (such as Autodesk® ViewCube®, and SteeringWheels®) are those that can be found across many Autodesk products. Product-specific navigation tools are unique to a product. The navigation bar floats over and along one of the sides of the Scene View.

You start navigation tools by clicking one of the buttons on the navigation bar or selecting one of the tools from a list that is displayed when you click the smaller portion of a split button.



1. ViewCube on page 93. Indicates the current orientation of a model, and is used to reorient the current view of a model. Clicking this button displays the ViewCube in the Scene View when it's not visible.

2. SteeringWheels on page 102. Collection of wheels that offer rapid switching between specialized navigation tools.

3. Pan tool on page 73. Activates the pan tool and moves the view parallel to the screen.

4. Zoom tools on page 73. Set of navigation tools for increasing or decreasing the magnification of the current view of the model.

5. Orbit tools on page 74. Set of navigation tools for rotating the model around a pivot point while the view remains fixed.

6. Look tools on page 75. Set of navigation tools for rotating the current view vertically and horizontally.

7. Walk and Fly tools on page 75. Set of navigation tools for moving around the model and controlling realism settings.

To display or hide the navigation bar

■ Click View tab ➤ Navigation Aids panel ➤ Navigation Bar .

Reposition and Reorient the Navigation Bar

The position and orientation of the navigation bar can be adjusted by linking it to the ViewCube tool, docking it when the ViewCube tool is not displayed, or freely positioning it along one of the edges of the current window.

When linked to the ViewCube tool, the navigation bar is positioned below the ViewCube tool and in a vertical orientation. When not linked or docked, the navigation bar can be freely aligned along one of the edges of the Scene View.

You can specify how the navigation bar can be repositioned from the Customize menu. When the navigation bar is not linked to the ViewCube tool or docked, a grip handle is displayed. Drag the grip handle on the navigation bar to reposition it along one of the sides of the Scene View.

If the side of the Scene View that the navigation bar is aligned to is not long enough to show the entire navigation bar, it is truncated to fit. When truncated, the More Controls button is displayed and replaces the Customize button. When you click the More Controls button, a menu is displayed that contains the navigation tools that are not currently being displayed.

To reposition the navigation bar and ViewCube

1. On the navigation bar, click Customize.
2. Click Customize menu ➤ Docking Positions ➤ check Link to ViewCube.

   When Link to ViewCube is checked, both the navigation bar and ViewCube are repositioned together around the current window. When ViewCube is not displayed, the navigation bar is docked in the same location in which ViewCube would be instead.
3. Click Customize menu ➤ Docking Positions ➤ and then a docking position.

   The navigation bar and ViewCube are repositioned.

To link the position of the navigation bar to ViewCube

1. On the navigation bar, click Customize.
2. Click Customize menu ➤ Docking Positions ➤ check Link to ViewCube.

   When Link to ViewCube is checked, both the navigation bar and ViewCube are repositioned together around the current window.

To freely reposition the navigation bar along the edge of the current window

1. On the navigation bar, click Customize.
2. Click Customize menu ➤ Docking Positions ➤ uncheck Link to ViewCube.

   The grip handle for the navigation bar is displayed along the top of the navigation bar.
3. Click the grip handle and drag the navigation bar along the edge of the window where you want it displayed. Release the button on the pointing device to orient the navigation bar along the edge of the window.
4. Drag the navigation bar along the window's edge to adjust its position along the window's edge.

Control the Display of Navigation Tools on the Navigation Bar

You can control which unified and product-specific navigation tools are displayed on the navigation bar with the Customize menu.

The Customize menu is displayed by clicking the Customize button on the lower-right side of the navigation bar. From the Customize menus, you click the navigation tools that you want displayed on the navigation bar. The position of the navigation tools on the navigation bar is predefined and cannot be changed.

NOTE The ViewCube button is displayed on the navigation bar only when the ViewCube tool is hidden in the Scene View.

To customize the navigation bar

1. On the navigation bar, click Customize.
2. On the Customize menu, click the navigation tool you want to display on the navigation bar.

   A check mark next to a navigation tool's name indicates it is displayed on the navigation bar. Uncheck the navigation tool to remove it from the navigation bar.

Quick Reference

You can display a shortcut menu for tools on the navigation bar by right-clicking them. The following commands are available on the shortcut menu whenever they are applicable:

Command	Purpose
Remove from Navigation Bar	Removes the tool from the navigation bar. This is equivalent to unchecking the relevant check box in the Customize menu.
Close Navigation Bar	Hides the navigation bar.

SteeringWheels

SteeringWheels™ are tracking menus that follow your cursor, and from which you can access different 3D navigation tools from a single tool.

Overview of SteeringWheels

SteeringWheels, also known as wheels, can save you time by combining many of the common navigation tools into a single interface. Wheels are specific to the context from which a model is being viewed.

NOTE SteeringWheels and classic navigation modes are mutually exclusive, so activating a SteeringWheel deactivates the currently selected Classic navigation mode.

Display and Use Wheels

Pressing and dragging on a wedge of a wheel is the primary mode of interaction. After a wheel is displayed, click one of the wedges and hold down the button on the pointing device to activate the navigation tool. Drag to reorient the current view. Releasing the button returns you to the wheel.

Control the Appearance of Wheels

You can control the appearance of the wheels by switching between the different styles of wheels that are available, or by adjusting the size and opacity. Wheels are available in two different styles: big and mini. The

big wheel is larger than the cursor, and labels are shown on the wheel wedges. The mini wheel is about the same size as the cursor, and labels are not displayed on the wheel wedges.

Big Full Navigation Wheel

Mini Full Navigation Wheel

The size of a wheel controls how large or small the wedges and labels appear on the wheel; the opacity level controls the visibility of the objects in the model behind the wheel.

Control Tooltips for Wheels and Messages for Tools

Tooltips are displayed for each button on a wheel as the cursor is moved over them. The tooltips appear below the wheel and identify what action will be performed if the wedge or button is clicked.

Similar to tooltips, tool messages and cursor text are displayed when you use one of the navigation tools from a wheel. Tool messages are displayed when a navigation tool is active; they provide basic instructions about using the tool. Tool cursor text displays the name of the active navigation tool near the cursor. Disabling tool messages and cursor text only affects the messages that are displayed when using the mini wheels or the big Full Navigation wheel.

To display a wheel

1. On the navigation bar, click the arrow below the SteeringWheels button.
2. Click the wheel you want to display, for example Full Navigation Wheel.

Toolbar: Classic user interface: Navigation Mode ➤ SteeringWheels

To close a wheel

- Press *SHIFT+W*

To change the size of a wheel

1. Display a wheel.
2. Right-click the wheel, and click SteeringWheels Options.
3. In the Options Editor, the SteeringWheels page under the Interface node, select an option from the Size drop-down list in the Big Wheels or Mini Wheels area.
4. Click OK.

To change the opacity of a wheel

1. Display a wheel.
2. Right-click the wheel, and click SteeringWheels Options.
3. In the Options Editor, the SteeringWheels page under the Interface node, select an option from the Opacity drop-down list in the Big Wheels or Mini Wheels area.
4. Click OK.

To enable tooltips for wheels

1. Display a wheel.
2. Right-click the wheel, and click SteeringWheels Options.

3 In the Options Editor, the SteeringWheels page under the Interface node, select the Show Tooltips check box in the On-Screen Messages area.

   Tooltips are displayed for each wedge and button on a wheel when the cursor moves over the wheel.

4 Click OK.

To enable tool messages for wheels

1 Display a wheel.

2 Right-click the wheel, and click SteeringWheels Options.

3 In the Options Editor, the SteeringWheels page under the Interface node, select the Show Tool Messages check box in the On-Screen Messages area.

   Messages are displayed when you use the navigation tools.

4 Click OK.

To enable tool cursor text for wheels

1 Display a wheel.

2 Right-click the wheel, and click SteeringWheels Options.

3 In the Options Editor, the SteeringWheels page under the Interface node, select the Show Tool Cursor Text check box in the On-Screen Messages area.

   The name of the active tool is displayed near the cursor when the tool is in use.

4 Click OK.

Wheel Menu

From the Wheel menu, you can switch between different wheels and change the behavior of some of the navigation tools on the current wheel.

Use the Wheel menu to switch between the big and mini wheels that are available, go to the Home view, change the preferences of the current wheel, and control the behavior of the orbit, look, and walk 3D navigation tools. The menu items available on the Wheel menu are dependent on the current wheel and program.

To display the Wheel menu

■ Click the down arrow in the lower-right corner of the wheel or right-click on the wheel.

Quick Reference

The Wheel menu has the following options:

■ **Basic View Object Wheel.** Displays the big View Object wheel.

■ **Basic Tour Building Wheel.** Displays the big Tour Building wheel.

■ **Full Navigation Wheel.** Displays the big Full Navigation wheel.

■ **Advanced Wheels.** Displays the mini View Object, Tour Building, or Full Navigation wheel.

■ **Go Home.** Goes to the Home view saved with the model.

NOTE This is the Home view as set using the ViewCube.

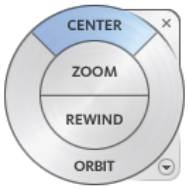
- **Fit to Window.** Resizes and centers the current view to display all objects in the Scene View. This is equivalent to clicking View All on the Navigation Tools toolbar in the Classic user interface.

- **Restore Original Center.** Restores the center point of the view to the extents of the model.
- **Level Camera.** Orients the camera such that it is level with the 'ground'. That is to say, resets the camera 'up' vector to the world up vector as set in File Options ➤ Orientation, and sets the roll of the camera to 0.
- **Increase Walk Speed.** Increases the walk speed for the Walk tool to double its current setting in the Options Editor.
- **Decrease Walk Speed.** Decreases the walk speed for the Walk tool to half its current setting in the Options Editor.

- **SteeringWheels Options.** Displays the Options Editor where you can adjust the appearance and behavior of SteeringWheels.
- **Help.** Launches the online Help system and displays the topic for SteeringWheels.
- **Close Wheel.** Closes the wheel.

View Object Wheels

With the View Object wheels (big and mini), you can view individual objects or features in a model. The big View Object wheel is optimized for new 3D users while the mini View Object wheel is optimized for experienced 3D users.



Big View Object Wheel

The big View Object wheel wedges have the following options:

- ***Center.*** Specifies a point on a model to adjust the center of the current view or change the target point used for some of the navigation tools.
- ***Zoom.*** Adjusts the magnification of the current view.
- ***Rewind.*** Restores the most recent view orientation. You can move backward or forward by clicking and dragging left or right.
- ***Orbit.*** Rotates the current view around a fixed pivot point at the view's center.

Mini View Object Wheel

The mini View Object wheel wedges have the following options:

- ***Zoom (Top wedge).*** Adjusts the magnification of the current view.
- ***Rewind (Right wedge).*** Restores the most recent view. You can move backward or forward by clicking and dragging left or right.
- ***Pan (Bottom wedge).*** Repositions the current view by panning.
- ***Orbit (Left wedge).*** Rotates the current view around a fixed pivot point.

NOTE When the mini wheel is displayed, you can press and hold the middle mouse button to pan, scroll the wheel button to zoom in and out, and hold the SHIFT key while pressing and holding the middle mouse button to orbit the model.

To switch to the mini View Object wheel

- Right-click the wheel, and click Advanced Wheels ➤ Mini View Object Wheel.

Toolbar: Navigation bar ➤ SteeringWheels ➤ Mini View Object Wheel
Menu: Classic user interface: View ➤ SteeringWheels ➤ Mini View Object Wheel
Toolbar: Classic user interface: Navigation Mode ➤ Mini View Object Wheel

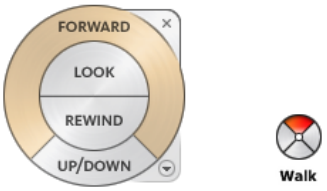
To switch to the big View Object wheel

- Right-click the wheel, and click Basic View Object Wheel.

Toolbar: Navigation bar ➤ SteeringWheels ➤ Basic View Object Wheel
Menu: Classic user interface: View ➤ SteeringWheels ➤ View Object Wheel
Toolbar: Classic user interface: Navigation Mode ➤ View Object Wheel

Tour Building Wheels

With the Tour Building wheels (big and mini), you can move through a model, such as a building, an assembly line, ship, or oil rig. You can also walk through and navigate around a model. The big Tour Building wheel is optimized for new 3D users while the mini Tour Building wheel is optimized for experienced 3D users.



Big Tour Building Wheel

The big Tour Building wheel wedges have the following options:

- ***Forward.*** Adjusts the distance between the current point of view and the defined pivot point of the model. Clicking once moves forward half the distance as far as the object you clicked.
- ***Look.*** Swivels the current view.
- ***Rewind.*** Restores the most recent view. You can move backward or forward by clicking and dragging left or right.
- ***Up/DownTool.*** Slides the current view of a model along the *Z* axis of the model.

Mini Tour Building Wheel

The mini Tour Building wheel wedges have the following options:

- ***Walk (Top wedge).*** Simulates walking through a model.
- ***Rewind (Right wedge).*** Restores the most recent view. You can move backward or forward by clicking and dragging left or right.
- ***Up/Down (Bottom wedge).*** Slides the current view of a model along the *Z* axis of the model.
- ***Look (Left wedge).*** Swivels the current view.

NOTE When the mini wheel is displayed, you can press and hold the middle mouse button to pan, scroll the wheel button to zoom in and out, and hold the SHIFT key while pressing and holding the middle mouse button to orbit the model.

To switch to the mini Tour Building wheel

- Right-click the wheel, and click Advanced Wheels ➤ Mini Tour Building Wheel.

Toolbar: Navigation bar ➤ SteeringWheels ➤ Mini Tour Building Wheel
Menu: Classic user interface: View ➤ SteeringWheels ➤ Mini Tour Building Wheel
Toolbar: Classic user interface: Navigation Mode ➤ Mini Tour Building Wheel

To switch to the big Tour Building wheel

- Right-click the wheel, and click Basic Tour Building Wheel.

Toolbar: Navigation bar ➤ SteeringWheels ➤ Basic Tour Building Wheel
Menu: Classic user interface: View ➤ SteeringWheels ➤ Tour Building Wheel
Toolbar: Classic user interface: Navigation Mode ➤ Tour Building Wheel

Full Navigation Wheels

The Full Navigation wheels (big and mini) contain common 3D navigation tools used for both viewing an object and touring a building. The big and mini Full Navigation wheels are optimized for experienced 3D users.

NOTE When one of the Full Navigation wheels is displayed, you can press and hold the middle mouse button to pan, scroll the wheel button to zoom in and out, and hold the SHIFT key while pressing and holding the middle mouse button to orbit the model.

Big Full Navigation Wheel

The big Full Navigation wheel wedges have the following options:

- ***Zoom.*** Adjusts the magnification of the current view.
- ***Rewind.*** Restores the most recent view. You can move backward or forward by clicking and dragging left or right.
- ***Pan.*** Repositions the current view by panning.
- ***Orbit.*** Rotates the current view around a fixed pivot point.
- ***Center.*** Specifies a point on a model to adjust the center of the current view or change the target point used for some of the navigation tools.
- ***Walk.*** Simulates walking through a model.
- ***Look.*** Swivels the current view.
- ***Up/Down.*** Slides the current view of a model along the Z axis of the model.

Mini Full Navigation Wheel

The mini Full Navigation wheel wedges have the following options:

- ***Zoom (Top wedge).*** Adjusts the magnification of the current view.
- ***Walk (Upper right wedge).*** Simulates walking through a model.
- ***Rewind (Right wedge).*** Restores the most recent view. You can move backward or forward by clicking and dragging left or right.
- ***Up/Down (Lower right wedge).*** Slides the current view of a model along the Z axis of the model.
- ***Pan (Bottom wedge).*** Repositions the current view by panning.
- ***Look (Lower left wedge).*** Swivels the current view.
- ***Orbit (Left wedge).*** Rotates the current view around a fixed pivot point.
- ***Center (Upper left wedge).*** Specifies a point on a model to adjust the center of the current view or change the target point used for some of the navigation tools.

To switch to the mini Full Navigation wheel

- Right-click the wheel, and click Advanced Wheels ➤ Mini Full Navigation Wheel.

Toolbar: Navigation bar ➤ SteeringWheels ➤ Mini Full Navigation Wheel
Menu: Classic user interface: View ➤ SteeringWheels ➤ Mini Full Navigation Wheel
Toolbar: Classic user interface: Navigation Mode ➤ Mini Full Navigation Wheel

To switch to the big Full Navigation wheel

- Right-click the wheel, and click Full Navigation Wheel.

Toolbar: Navigation bar ➤ SteeringWheels ➤ Full Navigation Wheel
Menu: Classic user interface: View ➤ SteeringWheels ➤ Full Navigation Wheel
Toolbar: Classic user interface: Navigation Mode ➤ Full Navigation Wheel

Camera

Autodesk Navisworks offers you a number of prefixed options to control the camera projection, position, and orientation during navigation.

Set Camera Projection

You can choose to use a perspective camera or an orthographic camera during navigation.

NOTE Orthographic cameras are not available with Walk and Fly navigation tools.

To use a perspective camera

- Click Viewpoint tab ➤ Camera panel ➤ Perspective .

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Perspective

To use an orthographic camera

- Click Viewpoint tab ➤ Camera panel ➤ Orthographic .

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Orthographic

Control the Field of View

You can define the area of the scene that can be viewed through the camera.

For the current viewpoint, you can move the FOV slider on the ribbon to adjust the Horizontal Field of View. For previously saved viewpoints, you can use the Edit Viewpoint dialog box on page 161 to adjust the values for both vertical and horizontal angles of view.

NOTE When you modify the Horizontal Field of View, the Vertical Field of View is automatically adjusted, and vice versa to match the aspect ratio in Autodesk Navisworks.

To control the horizontal field of view

- Click Viewpoint tab ➤ Camera panel, and move the FOV slider to control the camera's angle of view. Moving the slider to the right produces a wider angle of view, and moving the slider to the left produces a narrower, or more tightly focused, angle of view.

Position and Focus Camera

You can adjust the camera's position and orientation in the scene.

Move Camera

For the current viewpoint, you can use the Position entry boxes on the ribbon to move the camera position. For previously saved viewpoints, you can use the Edit Viewpoint dialog box on page 161 to adjust the camera values.

To move camera numerically

1. Click the Viewpoint tab, and slide out the Camera panel.
2. Type in numerical values into the Position entry boxes to move the camera by the amount entered.

Rotate Camera

You can adjust the angle of the camera during navigation.

For the current viewpoint, use the Tilt window to rotate the camera up/down, and the Roll entry box on the ribbon to rotate the camera left/right. For saved viewpoints, you can use the Edit Viewpoint dialog box on page 161 to adjust the camera values.

Tilt Window

The tilt angle is indicated in the scene's units below (negative) or above (positive) horizontal (0) at the base of the window.

You can use the Tilt window with the Walk tool on the navigation bar to look up and down. If your mouse has a wheel, you can use it to adjust the tilt angle.

To toggle the Tilt window

- Click Viewpoint tab ➤ Camera panel ➤ Show Tilt Bar .

Command entry: CTRL + F7

To roll camera up/down

- Drag the slider up or down on the Tilt window to roll the camera.
  You can also type values directly the entry box at the base of the Tilt window. A positive value rotates the camera upwards, and a negative value rotates camera downwards. Typing 0 straightens the camera.

To roll camera left/right

- Click the Viewpoint tab, and slide out the Camera panel.
- Type in a value into the Roll entry box to rotate the camera around its front-to-back axis.
  A positive value rotates the camera counterclockwise, and a negative value rotates it clockwise.

NOTE This value is not editable when the viewpoint up vector stays upright (that is, when you use Walk, Orbit and Constrained Orbit navigation tools).

Move Focal Point

You can change the focal point for the camera. For the current viewpoint, use the Look At entry boxes on the ribbon. For saved viewpoints, you can use the Edit Viewpoint dialog box on page 161 to adjust the camera values.

You can also put the Scene View into focus mode, which effectively swivels the camera so that the point clicked is in the center of the view. See Focus on page 113.

To move the camera focal point

1. Click the Viewpoint tab, and slide out the Camera panel.
2. Type in numerical values into the Look At entry boxes to move the camera focal point by the amount entered.

Straighten Camera

You can straighten the camera to align with the viewpoint up vector.

When the camera position is close to the viewpoint up vector (within 13 degrees), you can use this function to snap the camera to the appropriate axis.

TIP The same effect can be achieved by typing 0 at the base of the Tilt window.

To straighten camera

- Click Viewpoint tab ➤ Camera panel ➤ Align Camera drop-down ➤ Straighten .

Predefined Camera Views

In Autodesk Navisworks, you can align a camera to one of the axis, or select one of six predefined face views to instantly change the camera's position and orientation in the scene.

When you align the camera position along one of the axis:

- Aligning with X axis toggles between front and back face views.
- Aligning with Y axis toggles between left and right face views.
- Aligning with Z axis toggles between top and bottom face views.

NOTE You can customize the location of the front face by using the ViewCube tool. This change is global, and affects all viewpoints.

To align with X-axis

- Click Viewpoint tab ➤ Camera panel ➤ Align Camera drop-down ➤ Align X.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Align X

To align with Y-axis

- Click Viewpoint tab ➤ Camera panel ➤ Align Camera drop-down ➤ Align Y.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Align Y

To align with Z-axis

- Click Viewpoint tab ➤ Camera panel ➤ Align Camera drop-down ➤ Align Z.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Align Z

To look from a preset face view

- Right-click the Scene View, and click Viewpoint ➤ Look From.
- Click one of the face views. Choose from:
  - Top
  - Bottom
  - Front
  - Back
  - Left
  - Right

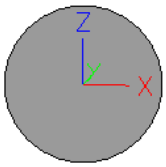
Navigation Aids

Head-Up Display

Head-up display elements are on-screen displays that provide information about your location and orientation in the 3D world.

In Autodesk Navisworks, you can use the following head-up display (HUD) elements:

- **XYZ Axes**. Shows the X, Y, Z orientation of the camera (or the avatar's eye if the avatar is visible). The XYZ Axes indicator is located at the bottom-left of the Scene View.



- **Position Readout**. Shows the absolute X, Y, Z position of the camera (or the avatar's eye position if the avatar is visible). The Position Readout is located at the bottom-left of the Scene View.

To toggle XYZ Axes

1. Click View tab ➤ Navigation Aids panel ➤ HUD drop-down.
2. Select or clear the XYZ Axes check box.

To toggle Position Readout

1. Click View tab ➤ Navigation Aids panel ➤ HUD drop-down.
2. Select or clear the Position Readout check box.

SpaceBall

NOTE The term SpaceBall is used as a generic term for all 3D motion controllers from 3Dconnexion™, including the SpaceBall, SpaceMouse and SpaceTraveler.

A SpaceBall can be used as an alternative to the mouse to move around the Scene View.

The behavior of the SpaceBall corresponds to the currently selected navigation bar tool on page 73 or navigation mode if you are using the Classic user interface. This enables you to navigate with the SpaceBall whilst performing other operations with the mouse.

If no navigation tool or mode is selected or if the selected tool or mode is not a valid mode for the SpaceBall, then a default navigation mode will be used.

The speed of navigation is sensitive to the amount of force applied to the SpaceBall. You can adjust the SpaceBall settings by using the Control Panel for the device which is supplied by the SpaceBall manufacturer with the installation.

The default navigation mode and the speed of translation and rotation can be adjusted in the Options Editor.

Reference Views

Reference views are useful to get an overall view of where you are in the whole scene and to quickly move the camera to a location in a large model.

There are two types of reference views available in Autodesk Navisworks:

- Section View
- Plan View

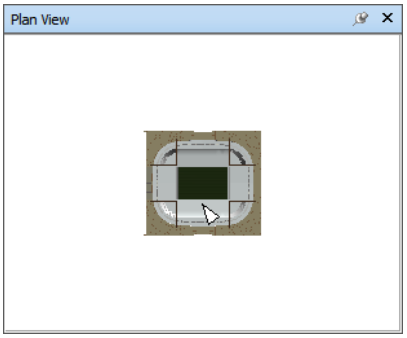
The reference views show a fixed view of the model. By default, the section view shows the view from the front of the model and the plan view shows a top view of the model.

Reference views are displayed inside the dockable windows. A triangular marker represents your current viewpoint. This marker moves as you navigate, showing the direction of your view. The marker may also be dragged by holding the left mouse button over it and dragging to move the camera in the Scene View.

NOTE The marker changes to a small dot when the reference view is in the same plane as the camera view.

To use the Plan View

1. Click View tab ➤ Navigation Aids panel ➤ Reference Views drop-down ➤ Plan View check box.
   The Plan View window opens with the reference view of the model.

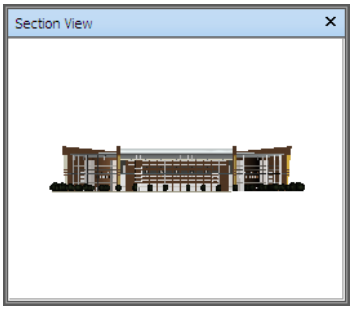


2. Drag the triangular marker on the reference view into a new location. The camera in the Scene View changes its position to match the position of the marker in the view.
   Alternatively, navigate to a different location in the Scene View. The triangular marker in the reference view changes its position to match the camera position in the Scene View.
3. To manipulate a reference view, right-click anywhere in the Plan View window. Use the shortcut menu to adjust the view as desired.

Command entry: CTRL + F9

To use the Section View

1. Click View tab ➤ Navigation Aids panel ➤ Reference Views drop-down ➤ Section View check box.
   The Section View window opens with the reference view of the model.



2. Drag the triangular marker on the reference view into a new location. The camera in the Scene View changes its position to match the position of the marker in the view.
   Alternatively, navigate to a different location in the Scene View. The triangular marker in the reference view changes its position to match the camera position in the Scene View.
3. To manipulate a reference view, right-click anywhere in the Section View window. Use the shortcut menu to adjust the view as desired.

Command entry: CTRL + F10

Focus

You can put the Scene View into focus mode until the next click.

When you are in focus mode, clicking on an item swivels the camera so that the point clicked is in the center of the view. This point becomes the focal point for the Orbit tools (SteeringWheels and navigation bar).

In the Classic user interface, this point becomes the focal point for examine, orbit, and turntable classic navigation modes.

To focus on an item

■ Click Item Tools tab ➤ Look At panel ➤ Focus on Item .

Toolbar: Navigation bar ➤ Look tools ➤ Focus
Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Focus
Shortcut menu: Scene ➤ Focus

Hold

When you navigate around a model in Autodesk Navisworks, it is possible to "pick up" or hold selected items and move around with them in the model.

For example you may be viewing a plan for a factory and would like to see different configurations of machine layouts.

To hold and release objects

1. Select the objects you want to hold either in the Scene View or in the Selection Tree.
2. Click Item Tools tab ➤ Hold panel ➤ Hold .
   The selected objects are now held and will move with you through the model when you use navigation tools, such as Walk, Pan and so on.
3. To release the held objects, click Hold on the ribbon again.
4. If you want to reset the objects to their original position, click Item Tools tab ➤ Transform panel ➤ Reset Transform .

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Hold

Control the Realism of Your Navigation

Gravity

NOTE This function only works in connection with collision.

Where collision gives you mass, gravity gives you weight. As such, you (as the collision volume) will be pulled downwards whilst walking through the scene.

NOTE Gravity can only be used with the Walk navigation tool.

This allows you to walk down stairs, for example, or follow terrain.

To toggle gravity

■ When using the Walk tool, click Viewpoint tab ➤ Motion Settings panel ➤ Realism drop-down ➤ Gravity check box.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Gravity
Command entry: CTRL + G

Crouching

NOTE This function only works in connection with collision.

When walking or flying around the model with collision activated, you may encounter object that are too low to walk under, a low pipe for example. This function enables you to crouch under any such objects.

With crouching activated, you will automatically crouch under any objects that you cannot walk under at your specified height, thereby not impeding your navigation around the model.

TIP To temporarily crouch under a low object, hold down the Space bar to allow navigation to proceed.

To toggle crouching

➤ When using the Walk or Fly tool, click Viewpoint tab ➤ Motion Settings panel ➤ Realism drop-down ➤ Crouch check box.

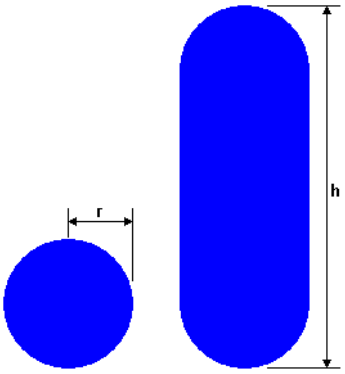
Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Crouch

Collision

This function defines you as a collision volume - a 3D object that can navigate around and interact with the model, obeying certain physical rules that confine you within the model itself. In other words, you have a mass and as such, cannot pass through other objects, points or lines in the scene.

You can walk over, or climb over objects in the scene that are up to half the height of the collision volume, thus allowing you to walk up stairs, for example.

The collision volume, in its basic form, is a sphere (with radius = r), that can be extruded to give it height (with height = h >= 2r). See diagram below:



The dimensions of the collision volume can be customized for the current viewpoint or as a global option.

NOTE Collision can only be used with the Walk and Fly navigation tools.

When collision is turned on, rendering prioritization is changed so that objects around the camera or avatar are displayed with much higher detail than normal. The size of the region of high detail is based on collision volume radius and speed of movement (needing to see what is about to be walked into).

To toggle collision

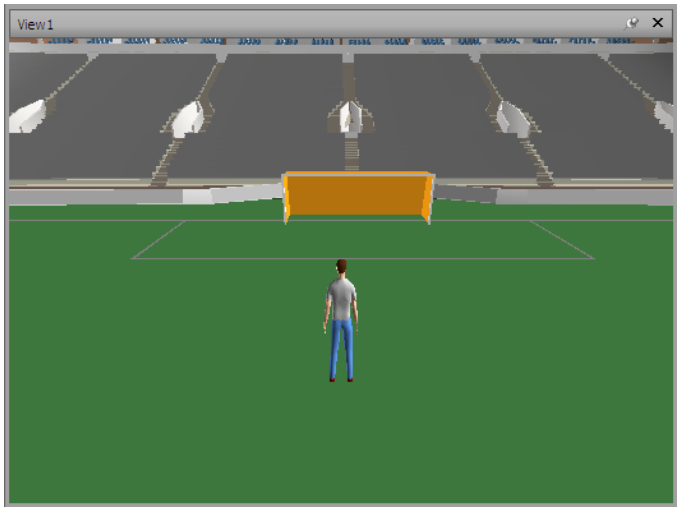
➤ When using the Walk or Fly tool, click Viewpoint tab ➤ Motion Settings panel ➤ Realism drop-down ➤ Collision check box.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Collision
Command entry: CTRL + D

Third Person View

This function allows you to navigate scene from a third person perspective.

When third person is activated, you will be able to see an avatar which is a representation of yourself within the 3D model. Whilst navigating you will be controlling the avatar's interaction with the current scene.



Using third person in connection with collision and gravity makes this a very powerful function, allowing you to visualize exactly how a person would interact with the intended design.

You can customize settings, such as avatar selection, dimension, and positioning, for the current viewpoint or as a global option.

When third person view is turned on, rendering prioritization is changed so that objects around the camera or avatar are displayed with much higher detail than normal. The size of the region of high detail is based on collision volume radius, speed of movement (needing to see what is about to be walked into) and the distance of the camera behind the avatar (in order to see what the avatar is interacting with).

To toggle third person view

➤ Click Viewpoint tab ➤ Motion Settings panel ➤ Realism drop-down . ➤ Third Person check box.

Menu: Classic user interface: Viewpoint ➤ Navigation Tools ➤ Third Person
Command entry: CTRL + T

Control Model Appearance and Render Quality

7

You can control both the appearance of the model in the Scene View and the quality of rendering in real time.

Control Model Appearance

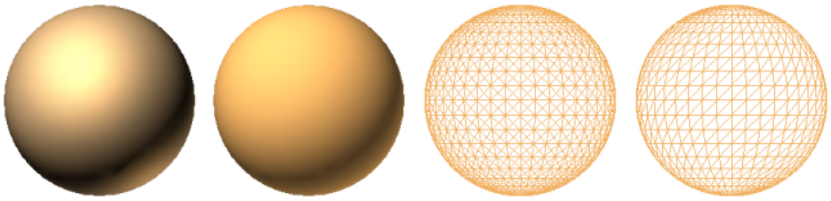
You can use the tools on the Render Style panel on the Viewpoint tab to control how your model is displayed in the Scene View.

You have a choice of one of four interactive lighting modes (Full Lights, Scene Lights, Head Light, or No Lights), four rendering modes (Full Render, Shaded, Wireframe, or Hidden Line) and you can individually turn each of the five primitive types (Surfaces, Lines, Points, Snap Points, and Text) on and off.

Select Render Mode

Rendering shades the scene's geometry using the lighting you've set up, and the materials and environmental settings (such as background) you've applied.

In Autodesk Navisworks, you can use four render modes to control how the items are rendered in the Scene View. The spheres below demonstrate the effect that the render modes have on model appearance. In order from the left, these are Full Render, Shaded, Wireframe, and Hidden Line.



Full Render

In Full Render mode, the model is rendered with smooth shading including any materials that have been applied using the Presenter tool, or have been brought through from the native CAD file.

NOTE Autodesk Navisworks does not convert all native CAD file's textures. For more details, see "Use File Readers" and "Use File Exporters" on page 68.

To select Full Render mode

■ Click Viewpoint tab ➤ Render Style panel ➤ Mode drop-down, and click Full Render .

Menu: Classic user interface: Viewpoint ➤ Rendering ➤ Full Render

Shaded

In Shaded mode, the model is rendered with smooth shading and without textures.

To select Shaded mode

■ Click Viewpoint tab ➤ Render Style panel ➤ Mode drop-down, and click Shaded .

Menu: Classic user interface: Viewpoint ➤ Rendering ➤ Shaded

Wireframe

In Wireframe mode, the model is rendered in wireframe. As Autodesk Navisworks uses triangles to represent surfaces and solids, all triangle edges are visible in this mode.

To select Wireframe mode

■ Click Viewpoint tab ➤ Render Style panel ➤ Mode drop-down, and click Wireframe .

Menu: Classic user interface: Viewpoint ➤ Rendering ➤ Wireframe

Hidden Line

In Hidden Line mode, the model is rendered in wireframe, but only the outline and facet edges of surfaces that are visible to the camera are displayed.

NOTE Unlike wireframe mode, where surfaces are rendered transparent, hidden line mode renders surfaces opaque.

To select Hidden Line mode

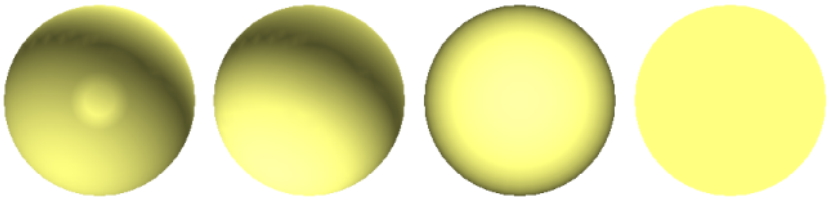
■ Click Viewpoint tab ➤ Render Style panel ➤ Mode drop-down, and click Hidden Line .

Menu: Classic user interface: Viewpoint ➤ Rendering ➤ Hidden Line

Add Lighting

In Autodesk Navisworks, you can use four lighting modes to control how the 3D scene is lit.

The spheres below demonstrate the effect the lighting styles have on them. In order from the left, these are Full Lights, Scene Lights, Head Light, and No Lights.



Full Lights

This mode uses lights that have been defined with the Presenter tool.

To use lights defined with the Presenter tool

- Viewpoint tab ➤ Render Style panel ➤ Lighting drop-down, and click Full Lights .

Menu: Classic user interface: Viewpoint ➤ Lighting ➤ Full Lights

Scene Lights

This mode uses the lights that have been brought through from the native CAD file. If no lights are available, two default opposing lights are used instead.

You can customize the intensity of scene lights in the File Options dialog box.

To use lights defined with the model

- Click Viewpoint tab ➤ Render Style panel ➤ Lighting drop-down, and click Scene Lights .

Menu: Classic user interface: Viewpoint ➤ Lighting ➤ Scene Lights

To adjust scene lights intensity

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, click the Scene Lights tab.
3. Move the Ambient slider to adjust the brightness of the scene.

   TIP Turning on scene lights mode before following this procedure lets you instantly see the effect your changes have on the scene rendering.

4. Click OK.

Head Light

This mode uses a single directional light located at the camera that always points in the same direction as the camera.

You can customize the Head Light properties in the File Options dialog box (Home tab ➤ Project panel).

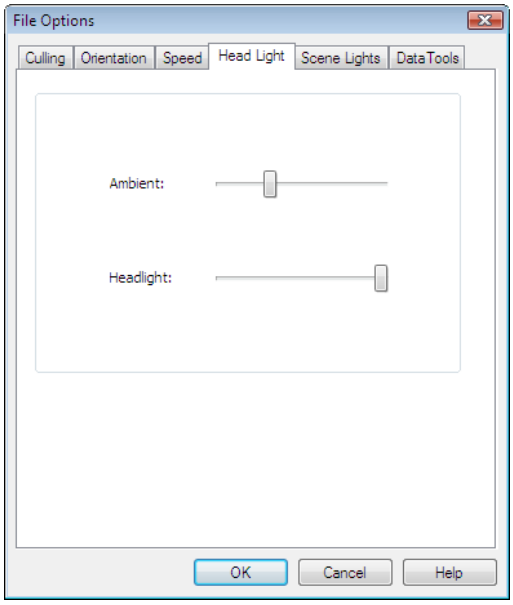
To use Head Light mode

- Click Viewpoint tab ➤ Render Style panel ➤ Lighting drop-down, and click Head Light .

Menu: Classic user interface: Viewpoint ➤ Lighting ➤ Head Light

To adjust Head Light intensity

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, click the Headlight tab.



3. Move the Ambient slider to adjust the brightness of the scene, and the Headlight slider to adjust the brightness of the directional light.

TIP Turning on Head Light mode before following this procedure lets you instantly see the effect your changes have on the scene rendering.

4. Click OK.

No Lights

This mode switches off all lights. The scene is shaded with flat rendering.

To turn off all lights

- Click Viewpoint tab ➤ Render Style panel ➤ Lighting drop-down, and click No Lights .

Menu: Classic user interface: Viewpoint ➤ Lighting ➤ No Lights

Select Background Effect

In Autodesk Navisworks, you can choose a background effect to use in the Scene View.

Currently, the following options are available:

- **Plain** - the background of the 3D scene is filled with the selected color. This is the default background style.

Plain background

- **Graduated** - the background of the 3D scene is filled with a smooth gradient between the two selected colors.

Graduated background

- **Horizon** - the background of the 3D scene is split across the horizontal plane giving the effect of a sky and the ground. The resulting artificial horizon gives you an indication of your orientation in the 3D world. By default, the artificial horizon respects the world up vector as set in File Options ➤ Orientation.

NOTE The artificial horizon is a background effect, and does not include a physical ground plane. So, for example, if you navigate "under the ground" and look up, you will not see the back of a ground plane, instead you will see the model from beneath, and a background filled with the sky color.

Horizon background

To set a plain background

1. Click View tab ➤ Scene View ➤ Background .
2. In the Background Settings dialog box, select Plain in the Mode drop-down list.
3. Select the required color from the Color palette.
4. Review the new background effect in the preview box, and click OK.

To set a graduated background

1. Click View tab ➤ Scene View ➤ Background .
2. In the Background Settings dialog box, select Graduated in the Mode drop-down list.

3 Select the first color from the Top Color palette.

4 Select the second color from the Bottom Color palette.

5 Review the new background effect in the preview box, and click OK.

To set an artificial horizon background

1 Click View tab ➤ Scene View ➤ Background .

2 In the Background Settings dialog box, select Horizon in the Mode drop-down list.

3 To set a graduated sky color, use the Sky Color and Horizon Sky Color palettes.

4 To set a graduated ground color, use the Horizon Ground Color and Ground Color palettes.

5 Review the new background effect in the preview box, and click OK.

Adjust Displaying of Primitives

You can enable and disable the drawing of Surfaces, Lines, Points, Snap Points, and 3D Text in the Scene View.

Points are "real" points in the model, whereas Snap Points mark locations on other primitives, for example the center of a circle, and are useful for snapping to when measuring.

Surfaces

Surfaces are the triangles that make up the 2D and 3D items in the scene. You can toggle the rendering of surfaces in the model.

To toggle the rendering of surfaces

■ Click Viewpoint tab ➤ Render Style panel ➤ Mode drop-down, and click Surfaces .

Menu: Classic user interface: Viewpoint ➤ Display ➤ Surfaces

Lines

You can toggle the rendering of lines in the model. You can also change the width of the drawn lines by using the Options Editor.

To toggle the rendering of lines

■ Click Viewpoint tab ➤ Render Style panel ➤ Lines .

Menu: Classic user interface: Viewpoint ➤ Display ➤ Lines

To change the line width

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Display options.

3 On the Display page, Primitives area, enter a number between 1 and 9 in the Line Size box.
This sets the width in pixels for lines drawn in the Scene View.

4 Click OK.

Points

Points are real points in the model, for example, the points in a point cloud in a laser scan file. You can toggle the rendering of points in the model. You can also change the size of drawn points by using the Options Editor.

To toggle the rendering of points

■ Click Viewpoint tab ➤ Render Style panel ➤ Points .

Menu: Classic user interface: Viewpoint ➤ Display ➤ Points

To change the size of points

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Display option.
3. On the Display page, Primitives area, enter a number between 1 and 9 in the Point Size box.
   This sets the size in pixels for points drawn in the Scene View.
4. Click OK.

Snap Points

Snap points are implied points in the model, for example, the center point of a sphere or end points of a pipe. You can toggle the rendering of snap point in the model. You can also change the size of the drawn snap points by using the Options Editor.

To toggle the rendering of snap points

■ Click Viewpoint tab ➤ Render Style panel ➤ Snap Points .

To change the size of snap points

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Display option.
3. On the Display page, Primitives area, enter a number between 1 and 9 in the Snap Size box.
   This sets the size in pixels of snap points drawn in the Scene View.
4. Click OK.

Text

You can toggle the rendering of 3D text in the model.

To toggle the rendering of 3D text

■ Click Viewpoint tab ➤ Render Style panel ➤ Text .

Menu: Classic user interface: Viewpoint ➤ Display ➤ Text

Control Render Quality

Use Culling

Culling lets you navigate and manipulate large and complex scenes at interactive rates by intelligently hiding less-important objects as you work.

In Autodesk Navisworks, you can use the following methods of culling objects:

- **Area** - the objects' size in pixels determines whether the objects are rendered or not. By default, any objects smaller than 1x1 pixels in size are discarded.
- **Backface** - by default, only the front face of every polygon is drawn in Autodesk Navisworks. Sometimes, during the conversion process the front and back face of polygons get mixed, in which case, you need to adjust the Backface option.
- **Near and Far Clipping Planes** (frustum culling) - objects closer to the camera than the near clipping plane or beyond the far clipping plane are not drawn. You can let Autodesk Navisworks automatically constrain the location of the clipping planes, or you can constrain their location manually.

To set area culling

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, Culling tab, select the Enable check box in the Area section.
3. Enter a value for the screen area in pixels below which geometry objects are culled. For example, setting this value to 100 pixels means that any object within the model that would be drawn less than 10x10 pixels in size are discarded.
4. Click OK.

To turn on backface culling for all objects

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, Culling tab, select On in the Backface area.
3. Click OK.

To turn off backface culling for all objects

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, Culling tab, select Off in the Backface area.
3. Click OK.

To turn on backface culling only for solid objects

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, Culling tab, select Solid in the Backface area.
3. Click OK.

To constrain the position of the clipping planes automatically

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, click the Culling tab.
3. Select Automatic for the Near clipping plane.

4 Select Automatic for the Far clipping plane.

5 Click OK.

Autodesk Navisworks automatically controls the position of near and far clipping planes to give you the best view of the model.

To constrain the position of the clipping planes manually

1 Click Home tab ➤ Project panel ➤ File Options .

2 In the File Options dialog box, click the Culling tab.

3 Select Constrained for the Near clipping plane, and enter the desired value in the Distance box.

4 Select Constrained for the Far clipping plane, and enter the desired value in the Distance box.

5 Click OK.

Autodesk Navisworks uses the provided values unless doing so affects the system performance (for example, makes the whole model invisible), in which case it adjusts the position of the clipping planes as necessary.

To fix the position of the clipping planes

1 Click Home tab ➤ Project panel ➤ File Options .

2 In the File Options dialog box, click the Culling tab.

3 Select Fixed for the Near clipping plane, and enter the desired value in the Distance box.

4 Select Fixed for the Far clipping plane, and enter the desired value in the Distance box.

5 Click OK.

IMPORTANT Autodesk Navisworks uses the provided values even if doing so affects the system performance (for example, makes the whole model invisible).

Make Objects Required

Although Autodesk Navisworks intelligently prioritizes objects for culling in the scene, sometimes it drops out geometry that needs to remain visible while navigating.

You can make sure the objects are always rendered during interactive navigation by making them required.

To make objects required

1 Select geometry items that you want to remain visible during navigation in the Selection Tree.

2 Click Home tab ➤ Visibility panel ➤ Require .

In the Selection Tree, the object appear red when required.

TIP Clicking Require again makes the selected objects unrequired.

Menu: Classic user interface: Edit ➤ Required
Command entry: CTRL + R

Ribbon: Item Tools tab ➤ Visibility panel ➤ Require

To make all objects unrequired

■ Click Home tab ➤ Visibility panel ➤ Unhide All drop-down ➤ Unrequire All .

Shortcut menu: Scene ➤ Reset All ➤ Unrequire All

Adjust Scene Rendering During Navigation

Your models can range in size from small models to complex supermodels. As you navigate a scene in real time, Autodesk Navisworks automatically calculates which items to render first, based on the size of items, distance from the camera, and the specified frame rate. This customizable frame rate is guaranteed by default, but can be turned off, if necessary. Items that Autodesk Navisworks does not have time to render are dropped out. These dropped items are rendered when navigation stops.

The amount of drop-out depends on several factors, such as your hardware performance (graphics card and driver), the size of the Scene View, and the size of the model. When working with truly large supermodels in Autodesk Navisworks, you will require a sufficient amount of RAM to load and review the data.

Autodesk Navisworks employs JetStream technology which optimizes the usage of the available RAM. Before running out of memory, Autodesk Navisworks pages unnecessary data to the hard disk, freeing up space for loading to continue. JetStream technology also enables you to start navigating the supermodel, before it has been completely loaded into memory. Autodesk Navisworks is large address aware, and utilizes any additional memory assignment following the 3GB switch available on Windows XP systems.

TIP You can reduce the amount of drop-out during navigation by reducing frame rate, or switching off the Guarantee Frame Rate option.

To set the target frame rate

1. Click Home tab ➤ Project panel ➤ File Options .
2. In the File Options dialog box, Speed tab, select the number of frames per second to be applied to the rendered display of the model.
3. Click OK.

To set the level of detail

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Display option.
3. On the Display page, Detail area, select the Guarantee Frame Rate check box to maintain the target frame rate during navigation. If this check box is clear, the complete model is rendered during navigation, no matter how long it takes.
4. Select the Fill in Detail check box to render a complete model when navigation stops. If this check box is clear, the items dropped out during navigation are not filled in when it stops.
5. Select the Batch Fill check box if you want the dropped out items to be rendered in chunks rather than gradually.

   NOTE This check box is clear by default, as gradual rendering gives better results for most video cards.

6. Click OK.

To render transparent items

NOTE If your video card supports hardware accelerated OpenGL, you can turn on the rendering of transparent items during interactive navigation. By default, transparent items are only drawn when interaction has ceased to prevent problems with display performance.

1. Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Display option.

3 On the Display page, Transparency area, select the Interactive Transparency check box.

4 Click OK.

To render parametric primitives

NOTE Modifying this option requires a restart of Autodesk Navisworks to take effect.

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Display option.

3 On the Display page, Primitives area, select the Enable Parametric Primitives check box. The level of detail changes during navigation depending on the distance from the camera.

If you want to use the default representations of primitives, clear this check box. The level of detail stays the same during navigation.

Click OK.

Accelerate Display Performance

If your video card supports OpenGL, you can improve the graphical performance by turning on hardware acceleration and occlusion culling.

Using the hardware acceleration usually gives you better and faster rendering. However, some graphics cards may not function well in this mode in which case switching this option off is recommended.

Occlusion culling can significantly improve performance in situations when much of the model is not visible. For example, when you walk down the corridor of a building, the walls occlude most geometry outside the corridor. Other rooms are only visible through doorways or windows. Turning on occlusion culling dramatically reduces the rendering load in such cases.

To use hardware acceleration

NOTE If your video card does not support OpenGL hardware acceleration, this option is not available.

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Display option.

3 On the Display page, Acceleration area, select the Hardware Acceleration check box. This allows Autodesk Navisworks to utilize any available OpenGL hardware acceleration on your video card.

NOTE If your video card drivers do not function well with Autodesk Navisworks, clear this check box.

4 Click OK.

To use occlusion culling

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Display option.

3 On the Display page, Acceleration area, select the Occlusion Culling check box.

4 Click OK.

NOTE Occlusion culling can only be used on a machine with an OpenGL 1.5 compliant graphics card.

Adjust Presenter Materials

You can adjust the appearance of Presenter materials in the Scene View to get optimum performance from your graphics card when navigating around heavily textured scenes.

See also:

- “Presenter Page” on page 178

Review Your Model

8

Select Objects

Autodesk Navisworks provides several methods to interactively select items.

Interactive Geometry Selection

In Autodesk Navisworks, there is a concept of an active selection set (the currently selected items, or the current selection) and saved selections sets. You cannot save any selection or search sets yourself, but you can use the selection or search sets saved in the model (the Sets tab on the Selection Tree).

Selecting items makes them part of the current selection, so you can hide them or override their colors.

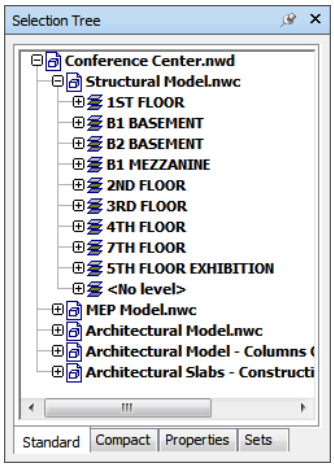
You can use several methods to interactively select items into the current selection. You can use the tabs in the Selection Tree, select items directly in the Scene View with the Select and Select Box tools, and you can select other items with similar properties to an existing selection using the selection commands.

NOTE Right-clicking any item in the Selection Tree or Scene View opens a shortcut menu.

You can also customize the level at which you select items (selection resolution), and modify the highlighting method for the items selected in the Scene View.

Selection Tree Window

The Selection Tree is a dockable window, which displays a variety of hierarchical views of the structure of the model, as defined by the CAD application in which the model was created.



Autodesk Navisworks uses this hierarchical structure to identify object-specific paths (from the file name down to a particular object).

By default there are four tabs:

- Standard. Displays the default tree hierarchy, including all instancing.
- Compact. Displays a simplified version of the hierarchy on the Standard tab, omitting various items. You can customize the level of complexity of this tree in the Options Editor.
- Properties. Displays the hierarchy based on the items' properties. This enables simple manual searching of the model by item property.
- **Sets.** Displays a list of selection and search sets. If no selection and search sets have been created, this tab is not shown.

Naming of items reflects the names from the original CAD application, wherever possible. You can copy and paste names from the Selection Tree. To do this, right-click an item in the Selection Tree, and click Copy Name on the context menu. Alternatively, you can click an item in the Selection Tree, and press CTRL + C. The name is now copied to the clipboard.

There are different tree icons representing the types of geometry making up the structure of the model. Each of these item types can be marked as hidden (gray), unhidden (dark blue) or required (red).

NOTE If a group is marked as hidden or required, then all instances of that group are marked as hidden or required. If you want to operate on a single occurrence of an item, then you should mark the instanced group (the level above, or the "parent", in the hierarchy) hidden or required.

To toggle the Selection Tree

- Click Home tab ➤ Select & Search panel ➤ Selection Tree .

Menu: Classic user interface: View ➤ Control Bars ➤ Selection Tree
Command entry: CTRL + F12

To use the Selection Tree to select objects

1. Open the Selection Tree, and click the Standard tab.
2. Click an object in the Selection tree to select the corresponding geometry in the Scene View.

   NOTE When you select an item in the tree, individual geometry or a group of geometry is selected in the Scene View depending on chosen selection resolution.

3. To select several items at the same time, use the SHIFT and CTRL keys. CTRL allows multiple selection item by item, and SHIFT allows multiple selection between the first and last items selected.
4. To remove selection from an object in the Selection Tree press ESC.

To customize the contents of the Compact tab

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Selection option.
3. On the Selection page, select the required level of detail in the Compact Tree box. Choose from the following options:
   - Models - the tree is restricted to displaying model files only.
   - Layers - the tree can be expanded down to the layer level.
   - Objects - can be expanded down to the objects level, but without the levels of instancing shown on the Standard tab.
4. Click OK.

Quick Reference

Icon	Description
	A model, such as a drawing file or design file.
	A layer or level.
	A group, such as a block definition from AutoCAD or cell definition from MicroStation.
	An instanced group, such as an inserted block from AutoCAD or cell from MicroStation. If in the imported file the instance was unnamed, Autodesk Navisworks names the instance to match its child's name.
	An item of geometry, such as a polygon.
	An instanced item of geometry, such as an instance from 3D Studio.
	A composite object. A single CAD object that is represented in Autodesk Navisworks by a group of geometry items.
	Saved selection set.
	Saved search set.

Selection Tools

There are two selection tools (Select and Select Box) available from Home tab ➤ Select & Search panel to control the way you select geometry.

Typically, using selection tools is mutually exclusive to using navigation tools (see Product-Specific Navigation Tools, so that when you are selecting you cannot navigate and vice versa.

NOTE When using a SpaceBall in conjunction with the standard mouse control, the SpaceBall can be configured for navigation and the mouse for selecting. See "SpaceBall" on page 112 for more information.

Selecting geometry in the Scene View automatically selects the corresponding objects in the Selection Tree.

Holding the SHIFT key whilst selecting items in the Scene View cycles through the selection resolution, allowing you to get more specific with your selections.

You can use the Options Editor to customize the distance from an item you have to be for it to be selected (pick radius). This is useful when you select lines and points.

Select Tool

The Select tool lets you select items in the Scene View with a mouse click. The tool is activated by clicking Home tab ➤ Select & Search panel ➤ Select drop-down ➤ Select . Once a single item is selected, its properties are shown in the Properties window.

Select Box Tool

In select box mode, you can select multiple items in the model by dragging a rectangular box around the area you want to make your current selection.

To select geometry with the Select tool

1. Click Home tab ➤ Select & Search panel ➤ Select drop-down ➤ Select .
2. Click an item in the Scene View to select it.
3. To select multiple geometry, press and hold down the CTRL key while clicking items in the scene.
4. To remove items from the current selection, hold down the CTRL key while clicking them again. Alternatively, press the ESC key to remove all items from the current selection.

Menu: Classic user interface: Edit ➤ Select ➤ Select
Command entry: CTRL + 1

To select geometry with the Select Box tool

1. Click Home tab ➤ Select & Search panel ➤ Select drop-down ➤ Select Box .
2. Drag a box with the left mouse button over the Scene View to select all items within the box.

   TIP Holding down the SHIFT key while dragging the box selects all items within and that intersect the box.
3. To select multiple geometry, press and hold down the CTRL key while dragging a box in the scene.
4. To remove items from the current selection, press the ESC key.

To set the pick radius

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Selection option.
3. On the Selection page, enter the radius in pixels that an item has to be within in order to be selected. The valid values are between 1 and 9.
4. Click OK.

Selection Commands

Selection commands enable you to quickly alter the current selection using logic. You can select multiple items based on the currently selected items' properties, or quickly invert the set, select everything or nothing.

To select all items within the model

- Click Home tab ➤ Select & Search panel ➤ Select All drop-down ➤ Select All .

To deselect all items

- Click Home tab ➤ Select & Search panel ➤ Select All drop-down ➤ Select None .

To invert your current selection

- Click Home tab ➤ Select & Search panel ➤ Select All drop-down ➤ Invert Selection .
  Currently selected items become deselected, and currently deselected items become selected.

To select all instances of the selected geometry group

- Click Home tab ➤ Select & Search panel ➤ Select Same drop-down ➤ Select Multiple Instances .

To select all items with the same name as the currently selected item

➤ Click Home tab ➤ Select & Search panel ➤ Select Same drop-down ➤ Same Name .

To select all items with the same type as the currently selected item

- Click Home tab ➤ Select & Search panel ➤ Select Same drop-down ➤ Same Type .

To select all items with the same property as the currently selected item

- Click Home tab ➤ Select & Search panel ➤ Select Same drop-down ➤ Same <Property>.

To use a saved selection or search set

- Open the Selection Tree window, and click the Sets tab.

Quick Reference

The selection commands are as follows:

- Select All. Selects all items contained within the model.
- Select None. Deselects everything in the model.
- Invert Selection. Currently selected items become deselected and vice versa.
- Select Multiple Instances. Selects all instances (sometimes called insertions) of the currently selected geometry group that occur in the model.
- Select Same Name. Selects all items in the model that have the same name as the currently selected item.
- Select Same Type. Selects all items in the model that have the same type as the currently selected item.
- Select Same <Property>. Selects all items with the same property as the currently selected item. This property can be any searchable property currently attached to the item, for example material or link.

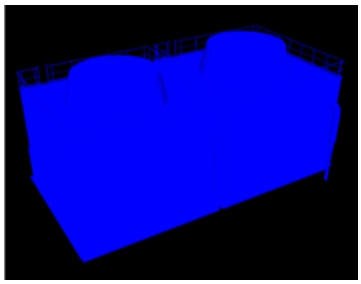
NOTE Using the Select Same <Property> command works by comparing items' properties. If you have multiple items selected when you perform a selection command of same name or type and so on, all the types, names and properties of the items in the current selection are compared with all items' properties in the scene. The items with properties matching any properties of the currently selected items are selected.

Set Highlighting Method

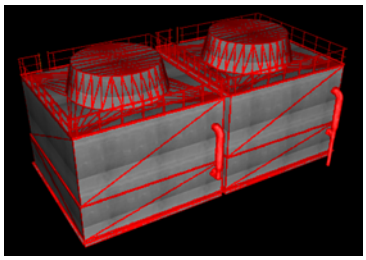
You can use the Options Editor to customize color and method of highlighting geometry selected in the Scene View.

There are three types of highlighting:

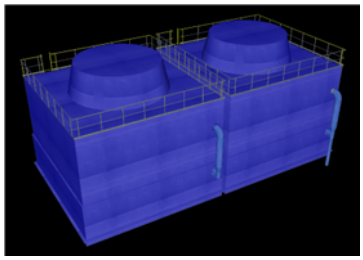
- Shaded



- Wireframe



- Tinted



To toggle highlighting of selected objects

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Selection option.
3. On the Selection page, Highlight area, select the Enabled check box, if you want the selected items to be highlighted in the Scene View. Clear this check box, if you don't want any highlighting.
4. Click OK.

To customize the way objects are highlighted

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Selection option.
3. Make sure the Enabled check box is selected.
4. Use the Method drop-down list to select the type of highlighting you want (Shaded, Wireframe or Tinted).
5. Click the Color palette to select the highlight color.
6. If you selected Tinted in the Method box, use the slider to adjust the Tint Level.
7. Click OK.

Hide Objects

Autodesk Navisworks provides tools that can be used to hide and display objects or groups of objects. Hidden objects are not drawn in the Scene View.

Hide Selected Objects

You can hide the objects in the current selection so that they are not drawn in the Scene View. This is useful when you want to remove specific parts of the model. For example, when you walk down the corridor of building, you may want to hide a wall that occlude your view of the next room.

Hide Unselected Objects

You can hide all items except those currently selected so that they are not drawn in the Scene View. This is useful when you only want to see specific parts of the model.

NOTE In the Selection Tree, the items appear gray when marked as hidden.

To hide selected objects

1. In the Scene View, select all items you want to hide.
2. Click Home tab ➤ Visibility panel ➤ Hide .
   The selected objects are now invisible.

   TIP Clicking Hide again displays the invisible objects.

Menu: Classic user interface: Edit ➤ Hidden
Command entry: CTRL + H
Shortcut menu: Hide

To make unselected items hidden

1. In the Scene View, select all items you want to review.
2. Click Home tab ➤ Visibility panel ➤ Hide Unselected .
   Only the selected geometry remains visible.

   TIP Clicking Hide Unselected again displays the invisible objects.

Menu: Classic user interface: Edit ➤ Hide Unselected
Shortcut menu: Hide Unselected

To reveal all hidden objects

- Click Home tab ➤ Visibility panel ➤ Unhide All drop-down ➤ Unhide All .

Shortcut menu: Scene ➤ Reset All ➤ Unhide All

Find Objects

You can run simple manual searches of the model by item property. To do this:

- On the Selection Tree, click the Properties tab, and click the saved property search in the list. The corresponding model geometry is selected in the Scene View.

Quick Find

To locate and select the objects quickly, use the Quick Find feature.

To quickly find items

1. Click Home tab ➤ Select & Search panel.
2. In the Quick Find text box, type in the string to search for in all item's properties. This can be a word or a few words. The search is not case-sensitive.
3. Click Quick Find . Autodesk Navisworks finds and selects the first item in the Selection Tree that matches the entered text, selects it in the Scene View, and stops the search.
4. To find more items, click Quick Find again. If there are any more items that match the entered text, Autodesk Navisworks selects the next one in the Selection Tree, selects it in the Scene View, and stops the search. Subsequent clicks find next instances.

Command entry: To open the Quick Find dialog box: CTRL + F. To Find Next: F3

Use Sets of Objects

In Autodesk Navisworks, you cannot save any selection or search sets yourself, but you can use the selection or search sets saved in the model.

Selection sets store a group of items for later retrieval. There is no intelligence behind this set - if the model changes at all, the same items will be selected (assuming they are still available in the model) when recalling the selection set.

Search sets work in a similar way, except that they save search criteria instead of the results of a selection. So, if there are any search sets saved in the model, then you use them in Autodesk Navisworks to run the search and select the resulting objects.

Selection and search sets can be named and contain comments. They can also be highlighted with icons in the Scene View, so that when you click on one, the selection set is restored to the active set and all the items within it are re-selected.

To select items from a selection or search set

1. Open the Selection Tree window, and click the Sets tab.
2. Click the saved selection or search set from the list.

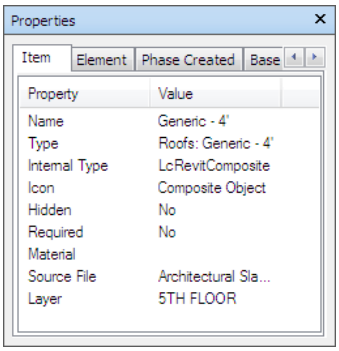
   On recalling a selection set, all the items that were selected when the set was saved are re-selected into the current selection.

   On recalling a search set, the search that was saved into the set is re-run and any items matching the specification are selected into the current selection.

Object Properties

Properties Window

The Properties window is a dockable window, which has a dedicated tab for each property category associated with the currently selected object.



Internal file properties, such as transform and geometry properties, are not shown by default. The Options Editor enables you to switch this on.

To toggle the Properties window

- Click View tab ➤ Workspace panel ➤ Windows drop-down, and select or clear the Properties check box.

Menu: Classic user interface: View ➤ Control Bars ➤ Properties
Command entry: SHIFT + F7

To examine object properties

1. Select the object of interest in the Selection Tree, or in the Scene View.
2. Open the Properties window, and use the tabs to navigate between the available property categories.

NOTE If more than one object is selected, the Properties window only shows the number of selected items, and doesn't show any property information.

To add tabs with internal properties to the Properties window

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Developer option.
3. On the Developer page, select the Show Internal Properties check box.
4. Click OK.

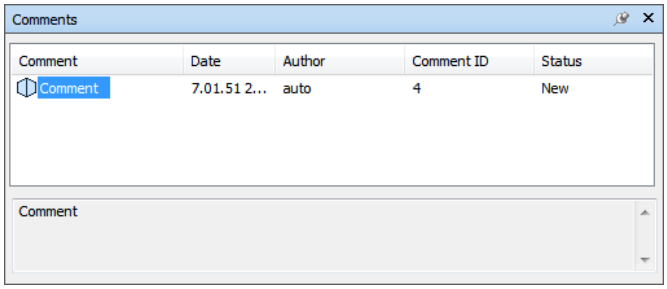
Comments and Annotations

View Comments and Annotations

You cannot add any comments, redline annotations or tags in Autodesk Navisworks, but you can view comments, redlines, and tags attached to viewpoints.

Comments Window

The Comments window is a dockable window that enables you to view comments.



The Comments window shows the name, time and date, author, ID, status, and subject (or first line) of each comment. There are different icons helping you to identify the source of each comment at a glance.

To toggle the Comments window

■ Click Home tab ➤ Comments panel ➤ View Comments .

To view comments

1. Open the Comments window.
2. Go the source of your comments. For example, open the Saved Viewpoints window.
3. As you click the source items, for example, viewpoints, the associated comments are displayed in the Comments window.

Quick Reference

Icon	Description
	Viewpoint (orthographic camera)
	Viewpoint (perspective camera)
	Viewpoint animation
	Viewpoint animation cut
	Tag

View Redlines and Tags

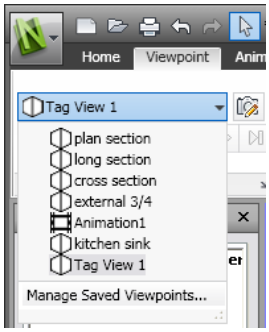
To view redlines and tags you need to recall the viewpoint that contains them.

To view redlines

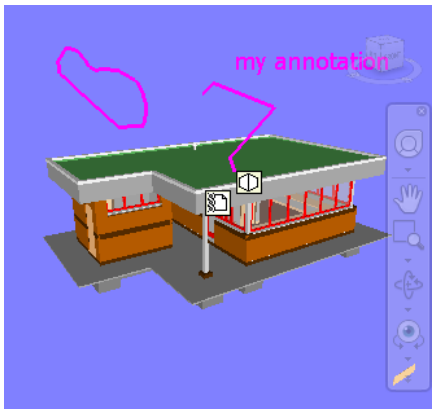
1. Click Viewpoint tab ➤ Save, Load & Playback panel ➤ Saved Viewpoints tool launcher .
2. Click the desired viewpoint in the Saved Viewpoints window. All attached redlines (if any) are displayed in the Scene View.

To view redlines and tags

- Click Viewpoint tab ➤ Save, Load & Playback panel ➤ Saved Viewpoints drop-down, and choose the viewpoint that you want to recall.



The viewpoint is displayed in the Scene View together with any redline annotations and tags.



Links

There are several sources of links in Autodesk Navisworks: original links that have been converted from the native CAD files, links that have been added by Autodesk Navisworks users, and links that have been automatically generated by the program (for example, viewpoint links).

The links converted from the native CAD files, and the links added by Autodesk Navisworks users are treated as object properties. This means, you can examine them in the Properties window.

All links are saved with Autodesk Navisworks files so that as the model changes, the links remain there for you and others to view.

Link Categories

There are two types of links: standard and user-defined.

Standard links are split into the following categories:

- Hyperlink
- Label
- Viewpoints
- Redline tags

By default, all links except labels, are drawn as icons in the Scene View. Labels are drawn as text.

If available, user-defined links are drawn as icons in the Scene View by default.

You can use the Options Editor to toggle the display of each of the link categories, and also to control their appearance.

Display Links

You can switch links in the Scene View on and off. You can also toggle the display of each of the link categories. Autodesk Navisworks remembers the selected visibility setting between sessions.

When links are switched on, you can reduce the screen clutter by restricting a number of links can be shown in the Scene View, hiding colliding icons, and using culling. Finally, as some standard link categories can have comments associated with them, you can choose to only draw links with attached comments.

To toggle the display of links

■ Click Home tab ➤ Display panel ➤ Links .

Menu: Classic user interface: Tools ➤ Links

To control the display of standard links

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, expand the Links node, and click the Standard Categories option.
3. On the Standard Categories page, select the Visible check box to display the corresponding link category. Clearing the check box hides the corresponding link category in the Scene View.

   By default, all standard link categories are visible.
4. Click OK.

To control the display of user-defined links

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, expand the Links node, and click the User-Defined Categories option.
3. On the User-Defined Categories page, select the Visible check box to display the corresponding link category. Clearing the check box hides the corresponding link category in the Scene View.

   By default, all user-defined link categories are visible.

   NOTE If no user-defined categories have been added, this page is empty.
4. Click OK.

To reduce the screen clutter

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, and click the Links option.
3. On the Links page, enter the number of links into the Max Icons box. By default, 25 links can be visible.
4. To hide links that appear overlapped in the Scene View, select the Hide Colliding Icons check box.
5. In the Cull Radius box enter the desired value. Only the links located within the specified distance from the camera are drawn in the Scene View. The default value of 0 means that all links are drawn.

6 Click OK.

To hide links without comments

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, expand the Links node, and click the Standard Categories option.

3 On the Standard Categories page, select the Hide Icons Without Comments check box for all required link categories.

By default, links without comments are also displayed.

4 Click OK.

Customize Links

You can customize the default appearance of links in Autodesk Navisworks. In particular, you can draw them in 3D, and you can add leader lines (arrows) pointing to the attachment point on the items. You can also choose how to represent each link category (as an icon or as text).

To draw links in 3D mode

NOTE In 3D mode links can become hidden by other objects in the scene when you are navigating.

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Links option.

3 On the Links page, select the In 3D check box.

Links now float in 3D space just in front of their attachment points to the items.

4 Click OK.

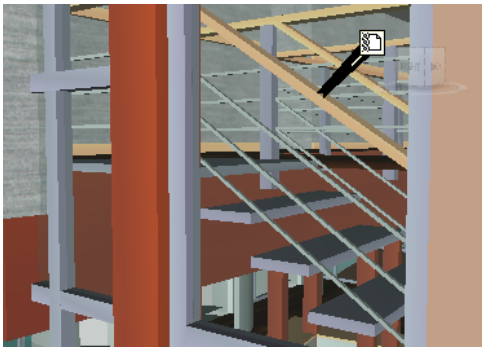
To show leader lines

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Links option.

3 On the Links page, Enter the X- and Y- distance in Leader Offset for the number of pixels to the right and up that these leader lines will use. The default angle is 0. The recommended angle is 45.

Links in the Scene View have now leader lines pointing to the attachment point on the items.



4 Click OK.

To customize appearance of standard links

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, expand the Links node, and click the Standard Categories option.
3. On the Standard Categories page, use the Icon Type box to specify how you want a link to be drawn for each of the available categories. You can choose between an icon and text.

   By default, label links are shown as text, and the rest of the link categories are shown as icons.
4. Click OK.

To customize appearance of user-defined links

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, expand the Links node, and click the User-Defined Categories option.
3. On the User-Defined Categories page, use the Icon Type box to specify how you want a link to be drawn for each of the available categories. You can choose between an icon and text. By default, links with user-defined categories are shown as icons.

   NOTE If no user-defined categories have been added, this page is empty.
4. Click OK.

Quick Reference

The table below shows the icons that can be used to represent different link categories in the Scene View.

Icon	Description
	Represents links that have hyperlink, label, or any user-defined category (and points to a web address).
	Represents links that have hyperlink, label, or any user-defined category (and points to an external file).
	Represents links with viewpoints category (perspective camera mode).
	Represents links with viewpoints category (orthographic camera mode).
	Represents links with tags category.

Follow Links

Links are an extremely useful review tool to allow you to access non-graphical information through the graphical interface of Autodesk Navisworks.

The links converted from the native CAD files, and the links added by Autodesk Navisworks users are treated as object properties. This means, you can examine them in the Properties window.

To follow a link

1. Make sure links are switched on. If not, click Home tab ➤ Display panel ➤ Links .
2. Click the desired link in the Scene View to open the attached data source.

Shortcut menu: Follow Link

Quick Properties

You can switch quick properties in the Scene View on and off. Autodesk Navisworks remembers the selected visibility setting between sessions.

When Quick Properties are switched on, you can view property information in a tooltip style window as you move your cursor over objects in the Scene View. You don't need to select objects first. The quick properties tooltip disappears after a few seconds.

By default, quick properties show the name and type of the object, but you can use the Options Editor to define which properties are shown. Each definition that you configure enables you to display an additional category/property combination in quick properties. You can choose whether to hide category names in quick properties or not.

NOTE When you move your mouse over an object that doesn't have the requested property, Autodesk Navisworks searches up the selection tree for a parent object that contains that information, and displays it instead, thus maximizing the useful information you get.

To toggle the display of quick properties

- Click Home tab ➤ Display panel ➤ Quick Properties .

Menu: Classic user interface: Tools ➤ Quick Properties

To add quick properties definition

1. Click the application button ➤ Options.
2. In the Options Editor, expand the Interface node, expand the Quick Properties node, and click the Definitions option.
3. On the Definitions page, click Grid View to display quick properties definitions as table rows.
4. Click Add Element . A new row is added to the top of the table.
5. Click the Category column, and select the property category from the drop-down list, for example 'Item.' The options available depend on the property categories in your model.
6. Click the Property column, and select the property name from the drop-down list, for example, 'Material'. The options available depend on the selected property category.

7 Click OK.

NOTE You can add as many definitions to your quick properties as you like.

To delete quick properties definition

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, expand the Quick Properties node, and click the Definitions option.

3 On the Definitions page, click Grid View to display quick properties definitions as table rows.

4 Click the Category or Property for the definition that you want to delete.

5 Click Remove Element .

6 Click OK.

To hide category names

1 Click the application button ➤ Options.

2 In the Options Editor, expand the Interface node, and click the Quick Properties option.

3 Select the Hide Category check box.

4 Click OK.

Use Viewpoints and Sectioning Modes

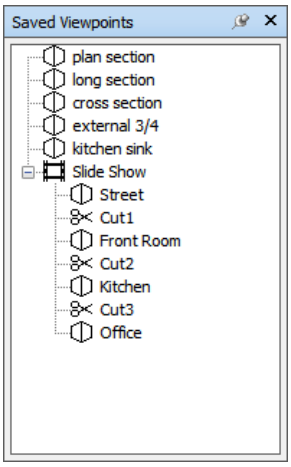
9

Viewpoints are snapshots taken of the model as it is displayed in the Scene View. Viewpoints may include a variety of comments and redline tags, which have been previously added to a viewpoint. You cannot create viewpoints in Autodesk Navisworks, but you can use any of the viewpoints and viewpoint animations saved in the model. Viewpoint animation typically contains both the user movement through the model and views of the model.

Modify Viewpoints

Saved Viewpoints Window

The Saved Viewpoints window is a dockable window that enables you to jump to preset viewpoints without having to navigate each time to reach an item.



Viewpoint animations are also saved with the viewpoints, as they are simply a list of viewpoints treated as keyframes.

Icons are used to represent different elements:

represents a folder which may contain all other elements (including other folders).

represents a viewpoint saved in orthographic mode.

represents a viewpoint saved in perspective mode.

represents a viewpoint animation clip.

represents a cut inserted into a viewpoint animation clip.

You can select more than one viewpoint by either holding down the CTRL key and left-clicking, or by left-clicking the first item, and then clicking the last item while holding down the SHIFT key.

You can drag viewpoints around the Saved Viewpoints window, but you cannot save any changes.

There are no buttons on this window, and commands are invoked through shortcut menus.

To toggle the Saved Viewpoints window

■ Click Viewpoint tab ➤ Save, Load & Playback panel ➤ Saved Viewpoints tool launcher .

Menu: Classic user interface: View ➤ Control Bars ➤ Saved Viewpoints
Command entry: CTRL + F11

Quick Reference

You get a different shortcut menu, depending on what element you right-click in the Saved Viewpoints window. All shortcut menus share the Sort option, which sorts the contents of the window alphabetically, including folders and their contents.

IMPORTANT Any changes that you make cannot be saved, and will apply for the duration of your Autodesk Navisworks session.

Blank Space

Sort Sorts the contents of the Saved Viewpoints window alphabetically.

Help Opens the Help system.

Saved Viewpoint

Add Copy Creates a copy of the selected viewpoint in the Saved Viewpoints window. The copy is named the same as the selected viewpoint, but includes the version number in brackets. For example, View1(1), View1(2) and so on.

Edit Opens the Edit Viewpoint dialog box, and enables you to manually edit the viewpoint's attributes.

Update Makes the selected viewpoint the same as the current viewpoint in the Scene View.

Transform Opens the Transform dialog box. It enables you to transform the camera position.

Delete Deletes the selected viewpoint from the Saved Viewpoints window.

Rename Enables you to rename the selected viewpoint.

Copy Name Copies the name of the selected viewpoint to the Clipboard.

Sort Sorts the contents of the Saved Viewpoints window alphabetically.

Help Opens the Help system.

Viewpoint Animation

Add Copy Creates a copy of the selected viewpoint animation in the Saved Viewpoints window. The copy is named the same as the selected viewpoint animation, but includes the version number in brackets. For example, View1(1), View1(2) and so on.

Edit Opens the Edit Animation dialog box, and enables you to set the duration of the selected viewpoint animation, the type of smoothing, and whether it loops or not.

NOTE Clicking Edit over an animation keyframe, opens the Edit Viewpoint dialog box; and clicking Edit over an animation cut, opens the Edit Animation Cut dialog box.

Update Updates all keyframes in the viewpoint animation with the current render style, lighting, and navigation tool or mode.

NOTE Clicking Update over a single keyframe will only update that frame with the current modes.

Transform Opens the Transform dialog box. It enables you to transform the camera position.

Delete Deletes the selected viewpoint animation from the Saved Viewpoints window.

NOTE Clicking Delete over a keyframe or a cut, removes the keyframe or cut from the viewpoint animation.

Rename Enables you to rename the selected viewpoint animation, keyframe, or cut.

Copy Name Copies the name of the selected viewpoint animation, keyframe, or cut to the Clipboard.

Sort Sorts the contents of the Saved Viewpoints window alphabetically.

Help Opens the Help system.

Folder

Add Copy Creates a copy of the selected folder in the Saved Viewpoints window. The copy is named the same as the selected folder, but includes the version number in brackets. For example, Folder1(1), Folder1(2) and so on.

Update Updates all viewpoints in the folder with the current render style, lighting and navigation tool or mode. Choosing Update for a single viewpoint will only update that viewpoint with the current modes.

Transform Opens the Transform dialog box. It enables you to transform the camera position.

Delete Removes the selected folder and all of its contents from the Saved Viewpoints window.

Rename Enables you to rename the selected folder.

Copy Name Copies the name of the selected folder to the Clipboard.

Sort Sorts the contents of the Saved Viewpoints window alphabetically.

Help Opens the Help system.

Recall Viewpoints

You can return to any of previously saved viewpoints. On recalling viewpoints the navigation mode that was active when the viewpoint was created will be re-selected. Any redlines and comments associated with the viewpoint will also be reinstated.

To recall a viewpoint from the Saved Viewpoints window

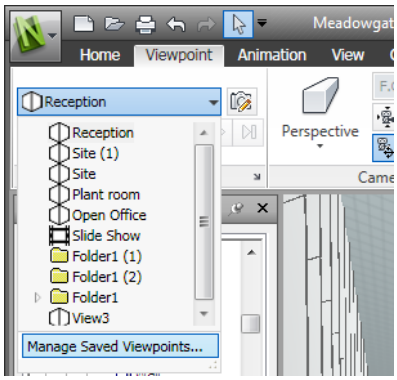
1. If the Saved Viewpoints window is not displayed, click Viewpoint tab ➤ Save, Load & Playback panel ➤ Saved Viewpoints tool launcher .
2. Click the desired viewpoint in the list. It is now displayed in the Scene View.

Organize Viewpoints

Viewpoints can be organized into folders, as necessary.

To organize viewpoints into folders

1. Click Viewpoint tab ➤ Save, Load & Playback panel ➤ Current Viewpoint drop-down ➤ Manage Saved Viewpoints.



This opens the Saved Viewpoints window, and makes it the active window.

2 Right-click an empty space in the Saved Viewpoints window, and click New Folder.

3 Type in a new name, and press Enter.

4 Drag the required viewpoints into your new folder.

Edit Viewpoints

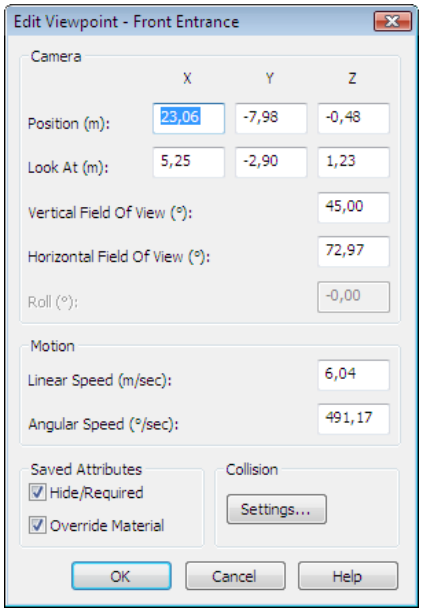
You can edit any viewpoints attributes, including camera position, field of view, speed of motion and saved attributes. All entries are measured in Display Units.

TIP Click Viewpoint tab ➤ Motion Settings panel to quickly adjust linear and angular speed of motion for your current viewpoint.

To edit current viewpoint

1 Click Viewpoint tab ➤ Save, Load & Playback panel ➤ Edit Current Viewpoint .

2 Use the Edit Viewpoint dialog box to adjust the viewpoint's attributes.



3 Click OK.

To edit a viewpoint

1. Click Viewpoint tab ➤ Save, Load & Playback panel ➤ Current Viewpoint drop-down ➤ Manage Saved Viewpoints.
2. In the Saved Viewpoints window, right-click the viewpoint you want to modify, and click Edit.
3. Use the Edit Viewpoint dialog box to adjust the viewpoint's attributes.

4. Click OK.

To delete a viewpoint

1. Click Viewpoint tab ➤ Save, Load & Playback panel ➤ Current Viewpoint drop-down ➤ Manage Saved Viewpoints.
2. In the Saved Viewpoints window, right-click the viewpoint you want to remove, and click Delete.

Play Back Animations

10

In Autodesk Navisworks there are two types of animation: viewpoint animation and object animation.

Viewpoint animation contains pre-recorded user and camera movements in the model. Object animation contains pre-recorded object movements in the model. You cannot record any animation in Autodesk Navisworks, but you can play back animations saved with the model. If there are any animation scripts, you can switch them on and interact with animated objects.

Play Animations and Scripts

You can play back both pre-recorded object animation and viewpoint animation in the Scene View.

The viewpoint animations play in real time; this means that the Autodesk Navisworks engine is still attempting to maintain the guaranteed frame rate so some drop-out may still occur, just as in real-time navigation.

Quick Reference

Control	Purpose
	Rewinds the current animation back to the beginning.
	Steps back a single animation frame or keyframe.
	Plays the current animation backwards.
	Stops animation playback.
	Pauses animation playback.
	Plays the currently selected animation.
	Steps forwards one frame or keyframe in the animation.

Control	Purpose
	Moves forward to the end of animation.
	The playback time slider.
	The playback time spinner.

To play an animation

1. Click Animation tab ➤ Playback panel ➤ Available Animations drop-down list and select the animation you want to play back.
2. On the Playback panel, click Play .

   Use the VCR buttons on the Playback panel to control the animation. The Playback Position slider enables you to quickly move forward and backward through the animation. Full left is at the beginning and full right is at the end.

   To the right of the Playback Position slider, there are two animation progress indicators: percentage and time (in seconds). You can type a number into either box to set the camera at a certain point.
3. For viewpoint animations, you may notice that the frame in the animation in the Saved Viewpoints window (click View tab ➤ Workspace panel ➤ Windows drop-down ➤ Saved Viewpoints) is highlighted when the animation is playing. Click any frame to set the camera to that point in time in the viewpoint animation and continue playing back from there.

To enable animation scripts

- Click Animation tab ➤ Scripts panel ➤ Enable Scripts .
  You can now interact with your model. For example, if there is a script to open a door on pressing a specific key on the keyboard, pressing this key will open the door.

Share Data

11

Print

You can print a hard copy of the current viewpoint to any printer or plotter.

Print Preview

Before you print out a copy of the model you are working on, you may wish to see how it will appear.

To preview model before printing

1. Click Output tab ➤ Print panel ➤ Print Preview .
2. Use the Zoom In and Zoom Out buttons to do just that with the preview image.
3. Click Print.
4. In the Print dialog box, click OK.

Print Setup

This option enables you to the set up paper size and orientation options.

To change the print setup

1. Click Output tab ➤ Print panel ➤ Print Settings .
2. In the Print Setup dialog box, make changes as required to the paper and orientation.
3. Click the Properties button if you want to change printer-specific settings.
4. Return to the Print dialog box, and click OK to print the image.

Print Current Viewpoint

When the print option is selected, Autodesk Navisworks prints the current viewpoint scaled to fit and centered on the page.

To print the current viewpoint

1. Click Output tab ➤ Print panel ➤ Print .
2. Check the printer settings are as required, and click OK.

NOTE The maximum image size is 2048x2048 pixels.

The Properties button controls printer-specific ink and paper settings.

Toolbar: Classic user interface: Standard ➤ Print

TimeLiner Playback

12

TimeLiner Playback enables you to view a TimeLiner construction sequence. In this section, you will learn how to simulate your TimeLiner sequence throughout the duration of the project schedule.

Overview of TimeLiner Tool

The TimeLiner tool adds 4D schedule simulation to Autodesk Navisworks files.

In Autodesk Navisworks Freedom 2011, TimeLiner has a playback-only option, allowing any externally created project data to be simulated, but no changes to be made to that data.

TimeLiner Playback Window

The TimeLiner Playback dockable window enables you to set up and play simulations.

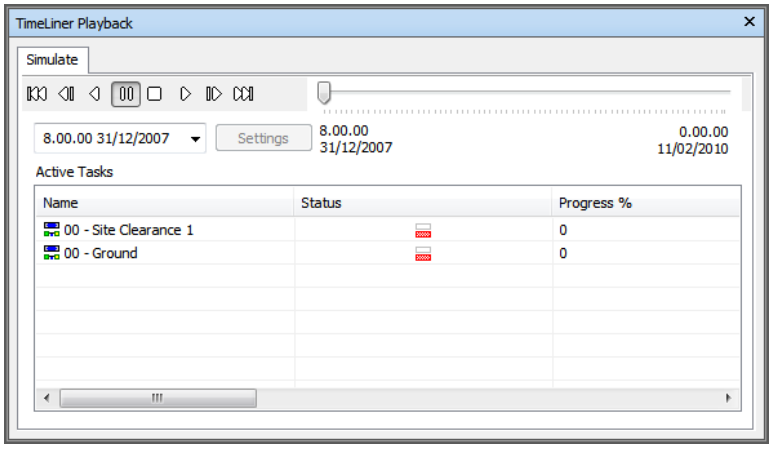
To toggle the TimeLiner Playback window

- Click Home tab ➤ Tools panel ➤ TimeLiner Playback

Menu: Classic user interface: Tools ➤ TimeLiner Playback

Simulate Tab

In the TimeLiner Playback window, the Simulate tab enables you to simulate your TimeLiner sequence throughout the duration of the project schedule.



The Status Icons

Each task has its own Status identified by an icon, representing planned against actual relationships. Each icon shows two bars. The top bar represents the Planned dates, and the bottom bar represents the Actual dates. If the Actual Start and Finish dates are the same as the Planned Start and Finish dates, the bars are displayed in green. Any variations between Planned and Actual dates are displayed in red. Missing Planned or Actual dates are shown in grey.

Actual Start and End dates equal Planned Start and End dates.

Actual End date before Planned Start date.

Actual Start date after Planned End date.

Actual Start date before Planned Start date and Actual End date after Planned End date.

Actual Start date before Planned Start date and Actual End date equals Planned End date.

Actual Start date equals Planned Start date and Actual End date after Planned End date.

Actual Start date equals Planned Start date and Actual End date before Planned End date.

Actual Start date after Planned Start date and Actual End date equals Planned End date.

Actual Start date before Planned Start date and Actual End date before Planned End date.

Actual Start date after Planned Start date and Actual End date after Planned End date.

Actual Start and End dates only.

Planned Start and End dates only.

The Playback Controls

Use the standard VCR buttons to step and play forwards and backwards through the simulation:

Rewind will rewind the simulation back to the beginning.

Step Back will step back a single step size.

Reverse Play will play the simulation backwards.

Pause will pause the simulation at the time you press it at. You can then look around and interrogate the model, or step forwards and backwards through the simulation. To continue playing from where you paused, just press Play again.

Stop will stop the simulation playing and rewind back to the beginning.

Play will play the simulation from the currently selected time.

Step Forwards will step forwards a single step size.

Forward will fast forward the simulation to the end.

You can use the **Simulation Position** slider to quickly move forwards and backwards through the simulation. Full left is at the beginning and full right is at the end.

The **Date/Time** box below the VCR buttons shows the point in time through the simulation. You can click on the drop-down icon to the right of the date to display a calendar, from which you can select a date to 'jump' to.

The Active Tasks

All Active Tasks are show in a multi-column table. You can move and resize table columns, if necessary.

You can view the current simulation time for each of the active tasks, and how close to completion they are (**Progress** is displayed as a percentage). The **Status** of each active task is also displayed as an icon. For simulations where Planned and Actual dates are available, the status provides a visual representation as to whether there is any variance between the planned and actual dates. See "The Status Icons" on page 156 for more information.

Play Simulations

To play a simulation

1. If the TimeLiner Playback window is not already open, Click Home tab ➤ Tools panel ➤ TimeLiner Playback .
2. Click the Play button on the Simulate tab.
   The TimeLiner Playback window displays the tasks as they are carried out, and the Scene View shows the sections of the model added or removed over time, in accordance with the task types.

Autodesk Navisworks Reference

13

Background Settings Dialog Box

Use this dialog box to choose a background effect to use in the Scene View.

Mode Selects the type of background effect. Choose from:

- Plain
- Graduated
- Horizon

Color Sets the color for a plain background.

Top Color Sets the top color in a graduated background.

Bottom Color Sets the bottom color in the graduated background.

Sky Color Sets the sky color (top) in a horizon background.

Horizon Sky Color Sets the sky color (bottom) in a horizon background.

Horizon Ground Color Sets the ground color (top) in a horizon background.

Ground Color Sets the ground color (bottom) in a horizon background.

Ribbon: View tab ➤ Scene View panel ➤ Background
Shortcut menu: Right-click a blank area in the scene, and click Background on the shortcut menu.
Menu: Classic user interface: Tools ➤ Background

Collision Dialog Box

Use this dialog box to adjust the collision settings for the selected viewpoint.

By default, Collision, Gravity, Auto Crouch, and Third Person view are switched off.

Collision Select this check box to define a viewer as a collision volume in Walk and Fly modes. As a result, a viewer acquires some mass, and cannot pass through other objects, points, or lines in the Scene View.

NOTE Selecting this check box changes the rendering prioritization so that objects around the viewer are displayed with much higher detail than normal. The size of the region of high detail is based on collision volume radius and speed of movement.

Gravity Select this check box to give a viewer some weight in Walk mode. This option works in conjunction with Collision.

Auto Crouch Select this check box to enable a viewer crouch under objects that are too low to pass under in Walk mode. This option works in conjunction with Collision.

Viewer

Radius Specifies the radius of the collision volume.

Height Specifies the height of the collision volume.

Eye Offset Specifies the distance below the top of the collision volume, where the camera will focus upon if Auto Zoom check box is selected.

Third Person

Enable Select this check box to use Third Person view. In Third Person view, an avatar is shown in the Scene View to represent the viewer.

Selecting this check box changes rendering prioritization so that objects around the avatar are displayed with much higher detail than normal. The size of the region of high detail is based on collision volume radius, speed of movement, and the distance of the camera behind the avatar.

Auto Zoom Select this check box to automatically switch from Third Person view to first person view whenever the line of vision becomes obscured by an item.

Avatar Specifies the avatar that is used in Third Person view.

Angle Specifies the angle at which the camera looks at the avatar.

For example, 0° positions the camera directly behind the avatar; 15° makes the camera look down on the avatar at a 15° angle.

Distance Specifies the distance between the camera and the avatar.

TIP If you want to restore the default values, click the Defaults button.

Pointing device: Edit Viewpoint dialog box ➤ Settings

Default Collision Dialog Box

Use this dialog box to specify and save your preferred collision settings.

By default, Collision, Gravity, Auto Crouch, and Third Person view are switched off. When you modify default collision settings, your changes do not affect the currently opened Autodesk Navisworks file. They are used as soon as you open a new Autodesk Navisworks file, or start a new Autodesk Navisworks session.

Collision Select this check box to define a viewer as a collision volume in Walk and Fly modes. As a result, a viewer acquires some mass, and cannot pass through other objects, points, or lines in the Scene View.

NOTE Selecting this check box changes the rendering prioritization so that objects around the viewer are displayed with much higher detail than normal. The size of the region of high detail is based on collision volume radius and speed of movement.

Gravity Select this check box to give a viewer some weight in Walk mode. This option works in conjunction with Collision.

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Selecting this check box changes rendering prioritization so that objects around the avatar are displayed with much higher detail than normal. The size of the region of high detail is based on collision volume radius, speed of movement, and the distance of the camera behind the avatar.

Auto Zoom Select this check box to automatically switch from Third Person view to first person view whenever the line of vision becomes obscured by an item.

Avatar Specifies the avatar that is used in Third Person view.

Angle Specifies the angle at which the camera looks at the avatar.

For example, 0° positions the camera directly behind the avatar; 15° makes the camera look down on the avatar at a 15° angle.

Distance Specifies the distance between the camera and the avatar.

TIP If you want to restore the default values, click the Defaults button.

Pointing device: Options Editor dialog box ➤ Interface node ➤ Viewpoint Defaults page ➤ Settings

Edit Viewpoint Dialog Box

Use this dialog box to edit viewpoint attributes.

Camera

Position Enter the X, Y, and Z coordinate values to move the camera into this position.

Look At Enter the X, Y, and Z coordinate values to change the focal point for the camera.

Vertical Field of View, **Horizontal Field of View** Defines the area of the scene that can be viewed through the camera. You can adjust the values for both vertical and horizontal angles of view.

A larger value produces a wider angle of view and a smaller value produces a narrower, or more tightly focused, angle of view.

NOTE When you modify the Vertical Field of View, the Horizontal Field of View is automatically adjusted, and vice versa to match the aspect ratio in Autodesk Navisworks.

Roll Rotates the camera around its front-to-back axis. A positive value rotates the camera counterclockwise, and a negative value rotates it clockwise.

NOTE This value is not editable when the viewpoint up vector stays upright (that is, when you use Walk, Orbit and Constrained Orbit navigation tools).

Motion

Linear Speed The speed of motion in a straight line for the viewpoint. The minimum value is 0 and the maximum is based on the size of the scene's bounding box.

Angular Speed The speed at which the camera turns.

Saved Attributes

This area applies to saved viewpoints only. If you are editing a current viewpoint, this area is not greyed out.

Hide/Required Select this check box to save hidden/required markup information about objects in your model with the viewpoint. When you use a viewpoint again, the hidden/required markups set when the viewpoint was saved are reapplied.

NOTE Saving the state information with each viewpoint requires a relatively large amount of memory.

Override Material Select this check box to save material override information with the viewpoint. When you use a viewpoint again, the material overrides set when the viewpoint was saved are reapplied.

NOTE Saving the state information with each viewpoint requires a relatively large amount of memory.

Collision

Settings Opens the Collision dialog box.

Ribbon: Viewpoint tab ➤ Save, Load & Playback panel ➤ Edit Current Viewpoint
Menu: Classic user interface: Viewpoint ➤ Edit Current Viewpoint

File Options Dialog Box

Use this dialog box to control the appearance of the model and the speed of navigation around it.

When you modify any of the options in this dialog box, your changes are saved in the currently opened Autodesk Navisworks file, and apply to this file only.

Ribbon: Home panel ➤ Project tab ➤ File Options
Menu: Classic user interface: Tools ➤ File Options.

Culling Tab

Use this tab to adjust geometry culling in the opened Autodesk Navisworks file.

Area

Enable Specifies whether or not area culling is used.

Number of Pixels Below Which Objects Are Culled Specifies a value for the screen area in pixels below which objects are culled. For example, setting the value to 100 pixels means that any object within the model that would be drawn less than 10x10 pixels in size are discarded.

Clipping Planes

Near

Automatic Select this radio button to make Autodesk Navisworks automatically control the near clip plane position to give you the best view of the model. The Distance box becomes unavailable.

Constrained Select this radio button to constrain the near clipping plane to the value set in the Distance box.

Autodesk Navisworks uses the provided value unless doing so affects performance (for example, makes the whole model invisible), in which case it adjusts the near clip plane position as necessary.

Fixed Select this radio button to set the near clipping plane to the value provided in the Distance box.

Distance Specifies the farthest distance between the camera and the near clipping plane position in constrained mode.

Specifies the exact distance between the camera and the near clipping plane position in fixed mode.

NOTE Nothing is drawn between the camera and the near clipping plane; when you override automatic mode, make this value small enough to display your data. Also, overriding automatic mode with values under 1 can produce unpredictable results.

Far

Automatic Select this radio button to make Autodesk Navisworks automatically control the far clipping plane position to give you the best view of the model. The Distance box becomes unavailable.

Constrained Select this radio button to constrain the far clipping plane to the value set in the Distance box.

Autodesk Navisworks uses the provided value unless doing so affects performance (for example, makes the whole model invisible), in which case it adjusts the far clip plane position as necessary.

Fixed Select this radio button to set the far clipping plane to the value provided in the Distance box.

Distance Specifies the closest distance between the camera and the far clipping plane position in constrained mode.

Specifies the exact distance between the camera and the far clipping plane position in fixed mode.

NOTE Nothing is drawn beyond this plane; when you override automatic mode, make this value large enough to include your data. Additionally, using the ratio of the far clipping plane to near clipping plane in excess of 10000 can produce unwanted effects.

Backface

Turns on backface culling for all objects. Select from the following options:

- **Off**. Turns off backface culling.
- **Solid**. Turns on backface culling for solid objects only. This is the default option.
- **On**. Turns on backface culling for all objects.

TIP If you can see through some objects, or some object parts are missing, turn off backface culling.

TIP If you want to restore the default values, click the Reset to Defaults button.

Orientation Tab

Use this tab to adjust the real-world orientation of your model.

Up

X, Y, Z Specify the X, Y, and Z coordinate values. By default, Autodesk Navisworks takes the positive Z-axis as Up.

North

X, Y, Z Specify the X, Y, and Z coordinate values. By default, Autodesk Navisworks takes the positive Y-axis as North.

TIP If you want to restore the default values, click the Defaults button.

Speed Tab

Use this tab to adjust the frame rate speed to reduce the amount of drop-out during navigation.

TIP If this does not improve navigation, try switching off the Guarantee Frame Rate option.

Frame Rate Specifies the number of frames per second (FPS) that are rendered in the Scene View.

The default setting is 6. You can set the frame rate from 1 through 60 frames per second. Reducing the value reduces drop-out, but can cause jerky movement during navigation. Increasing the value ensures a smoother navigation, but increases drop-out.

TIP If you want to restore the default values, click the Defaults button.

Head Light Tab

Use this tab to change the intensity of the scene's ambient light and headlight for Head Light mode.

Ambient Use the slider to control the overall brightness of the scene.

Headlight Use the slider to control the brightness of the light located at the camera.

NOTE To see the effect your changes have on the model in the Scene View, apply Head Light mode.

Scene Lights Tab

Use this tab to change the intensity of the scene's ambient light for Scene Lights mode.

Ambient Use the slider to control the overall brightness of the scene.

NOTE To see the effect your changes have on the model in the Scene View, apply Scene Lights mode

InfoCenter Settings Dialog Box

Use this dialog box to specify InfoCenter Search and Communication Center settings.

Buttons

OK Saves changes and closes the InfoCenter Settings dialog box.

Cancel Discards changes and closes the InfoCenter Settings dialog box.

Help Displays the context-sensitive help.

Pointing device: In the InfoCenter box, click the down arrow next to the Search button ➤ Search Settings

General Node

Use the General node to select your current location, frequency for checking new online content and option to turn on or off animated transition effects for the InfoCenter panels.

Please Indicate the Country/Region Nearest to Your Current Location Set the country in which Autodesk Navisworks users work. This is used for tailoring location-specific Communication Center content.

Check for New Online Content Specifies how often Communication Center checks for new content.

Use Animated Transition Effects for Panels Check to animate panel transitions.

Pointing device: InfoCenter Settings dialog box ➤ General node

Search Locations Node

Use the Search Locations node to identify content (documents, Web locations, and files) to be searched, as well as the name that displays for each location and the number of results to display for each.

Used by other Autodesk products, customizing search locations is not enabled in Autodesk Navisworks.

Pointing device: InfoCenter Settings dialog box ➤ Search Locations node

Communication Center Node

Use the Communication Center node to set the maximum age of the articles displayed on the Communication Center panel.

Hide Results Which Are More Than X Days Old Select this check box to have InfoCenter hide search results older than the numeric value you specify.

CAD Manager Channel Used by other Autodesk products to specify the RSS feeds published by a CAD manager, the CAD Manager Channel is not enabled in Navisworks.

Display Name Type the name to be displayed in the Search Results panel.

Pointing device: InfoCenter Settings dialog box ➤ Communication Center node

Autodesk Channels Page

Use the settings on this page to adjust the settings for Communication Center.

By default, all available channels are selected. You cannot add or remove channels from the grid, and you cannot edit data in the grid.

Select Channels to Display in the Communication Center Panel Select the channels and the number of articles you want to display in the Communication Center panel.

Pointing device: InfoCenter Settings dialog box ➤ Communication Center node ➤ Autodesk Channels page

Balloon Notification Page

Use the settings on this page to adjust balloon notifications.

Enable Balloon Notification for These Sources Select this check box to enable balloon notifications in the product. Balloon notifications appear over the InfoCenter box when any new information is available from the selected sources.

Live Update Channel (New Software Updates) Select this check box to receive balloon notification of available software updates.

Product Support Information Channel Select this check box to receive balloon notification of new product information.

CAD Manager Channel The CAD Manager Channel is not enabled in Navisworks.

RSS Feeds Select this check box to receive balloon notification of new RSS feeds.

Number of Seconds Balloon Notification Displays Enter a numeric value to indicate the amount of time to display balloon notifications.

% Transparency of Balloon Notification Enter a numeric value to indicate the transparency of balloon notifications.

Alternatively, drag the slider toward Opaque to decrease the balloon notification transparency percentage or toward Transparent to increase the transparency percentage.

Pointing device: InfoCenter Settings dialog box ➤ Communication Center node ➤ Balloon Notification page

RSS Feeds Page

Use the settings on this page to RSS feeds.

RSS Subscription Add. Specify the path for the RSS feed you want to add. After the RSS feed has been added to the RSS Subscription list, under Items to Display enter a numeric value to indicate the number of items to display.

Remove. Remove a selected RSS feed from the RSS Subscription list.

Pointing device: InfoCenter Settings dialog box ➤ Communication Center node ➤ RSS Feeds page

Options Editor Dialog Box

Use the Options Editor to adjust program settings for Autodesk Navisworks sessions.

The settings that you set up in the Options Editor are persistent across all Autodesk Navisworks sessions. You also share the modified settings with other members of your team.

The options are presented in a hierarchical tree structure. Clicking ⊞ expands the nodes, clicking ⊟ collapses the nodes.

Ribbon: Application button ➤ Options
Menu: Classic user interface: Tools ➤ Global Options

Buttons

Export Displays the Select Options to Export dialog box, where you can select the global options you want to export (or "serialize"). If an option cannot be exported, it is unavailable.

Import Displays the Open dialog box, where you can browse to the file with the required global option settings.

OK Saves the changes, and closes the Options Editor.

Cancel Discards the changes, and closes the Options Editor.

Help Displays the context-sensitive help.

General Node

Use the settings in this node to adjust the buffer size, file locations, number of recent file shortcuts you want Autodesk Navisworks to store, and the auto-save options.

TIP If you want to restore the default values, click the Defaults button.

Pointing device: Options Editor dialog box ➤ General node

Undo Page

Use the settings on this page to adjust the buffer size.

Pointing device: Options Editor dialog box ➤ General node ➤ Undo page
Buffer Size (KB) Specifies the amount of space Autodesk Navisworks allocates for saving undo/redo actions.

Locations Page

Use the options on this page to share global Autodesk Navisworks settings, workspaces, datatools, avatars, Clash Detective rules, Presenter archives, custom Clash Detective tests, object animation scripts, and so on, with other users.

The settings can be shared across an entire project site, or across a specific project group depending on the required level of granularity.

When you run Autodesk Navisworks for the first time, the settings are picked up from the installation directory. Subsequently, Autodesk Navisworks examines the current user profile and the all users profile on the local machine, and then checks the settings in the Project Directory and the Site Directory. The files in the Project Directory take precedence.

Project Directory Click to open the Browse for Folder dialog box, and locate the directory that contains the Autodesk Navisworks settings specific to a project group.

Site Directory Click to open the Browse for Folder dialog box, and locate the directory that contains the Autodesk Navisworks settings standard across the entire project site.

See also:

- Location Options on page 59
- How do I share the Autodesk Navisworks settings on a site and project basis? on page 26

Environment Page

Use the settings on this page to adjust the number of recent file shortcuts stored by Autodesk Navisworks.

Maximum Recently Used Files Specifies how many file shortcuts Autodesk Navisworks can remember. By default, shortcuts to the four most recently opened files can be displayed.

Interface Node

Use the settings in this node to customize Autodesk Navisworks interface.

TIP If you want to restore the default values, click the Defaults button.

Display Units Page

Use this page to customize the units used by Autodesk Navisworks.

Linear Units Use the drop-down list to select the desired linear value. Meters are used by default.

Angular Units Use the drop-down list to select the desired angular value. Degrees are used by default.

Decimal Places Specifies the number of decimal places used by units.

Fractional Display Precision Specifies the level of fraction used by units. This box is enabled for fractional units only.

Selection Page

Use the options on this page to configure the way geometry objects are selected, and highlighted.

Pick Radius Specifies the radius, in pixels, that an item has to be within in order for it to be selected.

Resolution Specifies the level of selection used by default.

When you click in the Scene View, Autodesk Navisworks requires a starting point for the object path in the Selection Tree box to identify the selected item. You can choose one of the following options:

- **Model** - the object path starts at the model node; as a result, all objects in the model are selected.
- **Layer** - the object path starts at the layer node; as a result all objects within a layer are selected.
- **First Object** - the object path starts at the highest level of objects below the layer node, if applicable.
- **Last Object** - the object path starts at the lowest level of objects in the Selection Tree. Autodesk Navisworks looks for composite objects first, and if none are found, the geometry level is used instead. This is the default option.
- **Last Unique** - the object path starts at the first unique level of objects (not multiple-instanced) in the Selection Tree.
- **Geometry** - the object path starts from the geometry level in the Selection Tree.

Compact Tree Specifies the level of detail shown on the Compact tab of the Selection Tree.

Use one of the following options:

- **Models** - the tree is restricted to displaying model files only.
- **Layers** - the tree can be expanded down to the layer level.
- **Objects** - can be expanded down to the objects level, but without the levels of instancing shown on the Standard tab.

Highlight

Enabled Indicates whether Autodesk Navisworks highlights the selected items in the Scene View.

Clear this check box if you don't want to highlight selected items.

Method Specifies how the objects are highlighted. Select one of the following options:

- Shaded
- Wireframe
- Tinted

Color Click to specify the highlight color.

Tint Level (%) Use the slider to adjust the tint level.

Measure Page

Use the options on this page to adjust the appearance and style of the measure lines.

Line Thickness Specifies the thickness of the measure lines.

Color Click to specify the color of the measure lines.

In 3D Select this check box to draw the measure lines in 3D.

If the measure lines become obscured by other geometry, clear this check box to draw the lines in 2D over the top of geometry.

Show Measurement Values in Scene View Select this check box if you want to display the dimension labels in the Scene View.

Use Center Lines When this check box is selected, the shortest distance measurements snap to the center lines of parametric objects.

When this check box is clear, the surface of the parametric objects is used for the shortest distance measurement instead.

NOTE Changing this option does not affect any measurement currently in place. To see any changes, clear the measurement, and start again.

Snapping Page

Use the options on this page to adjust the cursor snapping.

Picking

Snap to Vertex Select this check box to snap the cursor to the nearest vertex.

Snap to Edge Select this check box to snap the cursor to the nearest triangle edge.

Snap to Line Vertex Select this check box to snap the cursor to the nearest line end.

Tolerance Defines the snapping tolerance. The smaller the value, the closer the cursor must be to a feature in the model before it snaps to it.

Rotation

Angles Specifies the multiplier for the snapping angle.

Angle Sensitivity Defines the snapping tolerance. The value you enter here determines how close to the snapping angle the cursor must be for snap to take effect.

Viewpoint Defaults Page

Use the options on this page to define attributes that are saved with viewpoints when you create them.

When you modify default viewpoint settings, your changes do not affect the currently opened Autodesk Navisworks file. They are used as soon as you open a new Autodesk Navisworks file, or start a new Autodesk Navisworks session.

Save Hide/Required Attributes Select this check box to save viewpoints with hidden/required markup information about objects in your model. When you use a viewpoint again, the hidden/required markups set when the viewpoint was saved are reapplied.

By default, this check box is clear, as saving the state information with each viewpoint requires a relatively large amount of memory.

Override Material Select this check box to save viewpoints with material override information. When you use a viewpoint again, the material overrides set when the viewpoint was saved are reapplied.

By default, this check box is clear, as saving the state information with each viewpoint requires a relatively large amount of memory.

Override Linear Speed By default, the linear navigation speed is directly related to the size of your model. Select this check box, if you want to set a specific navigation speed manually.

Default Linear Speed Specifies the default linear speed value.

Default Angular Speed Specifies the default speed at which the camera turns.

Collision

Settings Opens the Default Collision dialog box where you can adjust the collision, gravity, crouching and third person view settings.

Links Page

Use the options on this page to customize the way links are displayed in the Scene View.

TIP If you want to restore the default values, click the Defaults button.

Show Links Toggles the display of links in the Scene View.

In 3D Indicates whether the link icons are drawn in 3D in the Scene View.

Select this box if you want the links to float in 3D space just in front of their attachment points to the geometry.

If the links become obscured by other geometry, clear this check box to draw the link icons in 2D over the top of geometry.

Max Icons Specifies the maximum number of icons to draw in the Scene View.

Hide Colliding Icons Select this check box to hide the link icons that appear overlapped in the Scene View.

Cull Radius Specifies how close to the camera links have to be before they are drawn in the Scene View. Any links further away than this distance are not drawn. The default value of 0 means that all links are drawn.

X Leader Offset, Y Leader Offset Links can be drawn with leader lines (arrows) pointing to the attachment point on the geometry that the link is attached to. Enter the X- and Y- values to specify the number of pixels to the right and up that these leader lines use.

Standard Categories Page

Use the settings on this page to switch the displaying of links based on their categories.

Hyperlink

Icon Type Specifies how to display this link category.

Select one of the following options:

- **Icon** - links are represented by default icons and in the Scene View.
- **Text** - links are represented by text boxes with link descriptions in the Scene View.

Visible Select this check box to display this link category in the Scene View.

Label

Icon Type Specifies how to display this link category.

Select one of the following options:

- **Icon** - links are represented by default icons and in the Scene View.
- **Text** - links are represented by text boxes with link descriptions in the Scene View.

Visible Select this check box to display this link category in the Scene View.

Viewpoints

Icon Type Specifies how to display this link category.

Select one of the following options:

- **Icon** - links are represented by default icons in the Scene View:

  - links to viewpoints saved in perspective mode

  - links to viewpoints saved in orthographic mode

- **Text** - links are represented by text boxes with link descriptions in the Scene View.

Visible Select this check box to display this link category in the Scene View.

Hide Icons Without Comments Select this check box to display only the links that have comments in the Scene View.

Redline Tags

Icon Type Specifies how to display this link category.

Select one of the following options:

- **Icon** - links are represented by default icons in the Scene View.
- **Text** - links are represented by text boxes with link descriptions in the Scene View.

Visible Select this check box to display this link category in the Scene View.

Hide Icons Without Comments Select this check box to display only the links that have comments in the Scene View.

User-Defined Categories Page

Use this page to view custom link categories.

The padlock icon indicates that you cannot add or remove categories directly from here.

Buttons

Grid View Click to display custom link categories in a tabular format.

List View Click to display custom link categories in a list format (the same way as the standard link categories are shown).

Records View Click to display link categories as records.

Previous and Next Element Use and to navigate between link categories. If you clicked the Records View button, this is the only way to move between the records.

Visible Select this check box to display the corresponding link category in the Scene View.

Icon Type Select one of the following options:

- **Icon** - links are represented by default icons and in the Scene View.
- **Text** - links are represented by text boxes with link descriptions in the Scene View.

Quick Properties Page

Use the options on this page to customize the way quick properties are displayed in the Scene View.

TIP If you want to restore the default values, click the Defaults button.

Show Quick Properties Toggles the display of quick properties in the Scene View.

Hide Category Clear this check box to include category names in the quick properties tooltips.
If you don't want to see category names in the quick properties tooltips, select this check box.

Definitions Page

Use the options on this page to set up the quick properties categories.

Buttons

Add Element Click to add quick properties definitions.

Remove Element Click to delete the selected quick properties definitions.

Grid View Click to display quick properties definitions in a tabular format.

List View Click to display quick properties definitions in a list format.

Records View Click to display quick properties definitions as records.

Previous and Next Element Use and to navigate between quick properties definitions.
If you clicked the Records View button, this is the only way to move between the records.

Category Specifies the property category that you want to customize.

Property Specifies the property that is displayed in the tooltips for the selected category.

Developer Page

Use the options on this page to adjust the display of object properties.

Show Internal Properties Indicates whether additional object properties are displayed in Autodesk Navisworks.
Select this check box if you want to get access to the Geometry tab and the Transform tab in the Properties control bar.

Display Page

Use the options on this page to adjust the display performance.

Acceleration

Hardware Acceleration Select this check box to utilize any available OpenGL hardware acceleration on your video card.
If your video card drivers do not function well with Autodesk Navisworks, clear this check box.

NOTE If your video card does not support OpenGL hardware acceleration, this check box is not available.

Overlay Buffer Select the hardware overlay option from the drop-down list.

Occlusion Culling Select this check box to enable occlusion culling. This means that Autodesk Navisworks only draws visible objects and ignores any objects located behind other objects.
Selecting this check box improves the display performance when much of the model is not visible. For example, when you're walking down the corridor of a building.

IMPORTANT Occlusion culling can only be used on a machine with an OpenGL 1.5 compliant graphics card.

Transparency

Interactive Transparency Select this check box to render transparent items dynamically during interactive navigation.

By default, this check box is clear, therefore, transparent items are only drawn when interaction has stopped.

NOTE If your video card does not support hardware accelerated OpenGL, selecting this check box can affect display performance.

Detail

Guarantee Frame Rate Indicates whether the Autodesk Navisworks engine maintains the frame rate specified on the Speed tab of the File Options dialog box.

By default, this check box is selected, and the target rate is maintained while moving. When movement stops the complete model is rendered.

If this check box is clear, the complete model is always rendered during navigation, no matter how long it takes.

Fill In Detail Indicates whether Autodesk Navisworks fills in any discarded detail when navigation has stopped.

Batch Fill Select this check box to render detail in chunks (batches) rather than gradually.

NOTE This check box is clear by default, as gradual rendering gives better results for most video cards.

Primitives

Point Size Enter a number from 1 through 9 to set the size (in pixels) of points drawn in the Scene View.

Line Size Enter a number from 1 through 9 to set the width (in pixels) of lines drawn in the Scene View.

Snap Size Enter a number from 1 through 9 to set the size (in pixels) of snap points drawn in the Scene View.

Enable Parametric Primitives Indicates whether Autodesk Navisworks dynamically renders parametric primitives during interactive navigation.

Selecting this check box means the level of detail changes during navigation depending on the distance from the camera.

Clear this check box to use the default representations of primitives; the level of detail stays the same during navigation.

SpaceBall Page

Use the options on this page to customize the SpaceBall behavior.

These options are offered in addition to the adjustments that can be made using the Control Panel for the device which is supplied by the SpaceBall manufacturer with the installation.

Scale Translation By Enter the value that is used to adjust the speed of translation.

Scale Rotation By Enter the value that is used to adjust the speed of rotation.

Navigation Mode Use the drop-down list to specify a default navigation mode for the SpaceBall. It is used when no valid navigation mode is currently selected.

Navigation Bar Page

Use the options on this page to customize the behavior of tools on the navigation bar.

Orbit Tools

Use Classic Orbit Select this check box if you want to switch from the standard Orbit tool to the classic Autodesk Navisworks Orbit mode on the navigation bar.

Use Classic Free Orbit (Examine) Select this check box if you want to switch from the standard Free Orbit tool to the classic Autodesk Navisworks Examine mode on the navigation bar.

Use Classic Constrained Orbit (Turntable) Select this check box if you want to switch from the standard Constrained Orbit tool to the classic Autodesk Navisworks Turntable mode on the navigation bar.

Walk Tool

Use Classic Walk Select this check box if you want to switch from the standard Walk tool to the classic Autodesk Navisworks Walk mode on the navigation bar.

Constrain Walk Angle When this check box is selected, the Walk tool will keep the camera upright while navigating. If this check box is clear, the tool will allow the camera to roll while navigating (resulting in behavior almost like the Fly tool).

Use Viewpoint Linear Speed When this check box is selected, the Walk tool will respect the Viewpoint Linear Speed setting. In this case, the Walk speed slider will act like a multiplier.

When this check box is clear, the Walk tool will work independently of the Viewpoint Linear Speed setting, using a fixed value set with the slider.

Walk Speed Sets the speed of the Walk tool from 0.1 (very slow) to 10 (very fast).

ViewCube Page

Use the options on this page to customize the ViewCube behavior.

Show the ViewCube Indicates whether or not the ViewCube is displayed in the Scene View.

TIP You can also toggle the ViewCube by clicking View tab ➤ Navigation Aids panel ➤ ViewCube .

Size Specifies the size of the ViewCube. You can choose from the following options:

- Automatic
- Tiny
- Small
- Medium
- Large

NOTE In automatic mode, the size of the ViewCube is relative to the size of the Scene View, and ranges between medium and tiny.

Inactive Opacity When the ViewCube is inactive, that is your cursor is distant from the ViewCube, it appears transparent. To control the opacity level, choose from the following options:

- 0%
- 25%
- 50%
- 75%
- 100%

Keep Scene Upright Indicates whether the upside-down orientations of the scene is allowed when you use the ViewCube.

When this check box is selected, dragging the ViewCube produces a turntable effect.

When Dragging on the ViewCube

While being dragged, the ViewCube and the scene rotate in an arcball like fashion, unless the Keep Scene Upright check box is selected.

Snap to the Closest View Indicates whether the ViewCube snaps to one of the fixed views when it is angularly close to one of the fixed views.

When Clicking on the ViewCube

Fit-to-View on Change When this check box is selected, clicking the ViewCube rotates around the center of the scene and zooms out to fit the scene into the Scene View. When dragging the ViewCube, prior to the drag, the view changes to look at the scene center (but does not zoom) and continues to use that as the pivot point while dragging.

If this check box is clear, clicking or dragging the ViewCube rotates around the current pivot point and does not zoom in or out.

Use Animated Transitions When Switching Views If this check box is selected, an animated transition displays when you click on a section of the ViewCube to help you visualize the spatial relationship between the current viewpoint and the selected viewpoint.

NOTE When navigating about 3D scenes that contain vast amounts of geometry, the application frame rate may drop and make it difficult for the system to smoothly animate a viewpoint transition.

Show the Compass Below the ViewCube Indicates whether the compass is displayed below the ViewCube tool.

SteeringWheels

Use the options on this page to customize the SteeringWheels menus.

Big Wheels

Size Specifies the size of big wheels. You can choose from the following options:

- Small (64x64)
- Normal (128x128)
- Large (256x256).

Normal is the default option.

Opacity Controls the opacity level of big wheels. The default value is 50%. You can choose from the following options:

- 25% (mostly transparent)
- 50%
- 75%
- 90% (mostly opaque)

Mini Wheels

Size Specifies the size of mini wheels. You can choose from the following options:

- Small (16x16)
- Normal (32x32)
- Large (64x64).
- Extra Large (256x256)

Normal is the default option.

Opacity Controls the opacity level of mini wheels. The default value is 50%. You can choose from the following options:

- 25% (mostly transparent)
- 50%
- 75%
- 90% (mostly opaque)

On-Screen Messages

Show Tool Messages Toggles the display of tooltips for navigation tools. When this check box is selected, the tooltips are shown below the cursor as you use the tools.

NOTE This setting is always on for View Object and Tour Building wheels, and cannot be turned off.

Show Tooltips Toggles the display of wheel tooltips. When this check box is selected, the tooltips are shown when you hover over wedges on the wheels.

NOTE This setting is always on for View Object and Tour Building wheels, and cannot be turned off.

Show Tool Cursor Text Toggles the display of tool label below the cursor.

NOTE This setting is always on for View Object and Tour Building wheels, and cannot be turned off.

Look Tool

Invert Vertical Axis Selecting this check box swaps the up-down axis for the Look tool; that is pushing the mouse forward looks down, and pulling the mouse backward looks up.

Walk Tool

Constrain Walk Angle Selecting this check box makes the Walk Tool respect the world up vector (as set in File Options ➤ Orientation). As a result, using the Walk tool causes the camera to snap to the current up vector.

When this check box is clear, the Walk tool disregards the world up vector, and the camera is walked with its current up orientation unaffected.

Use Viewpoint Linear Speed When this check box is selected, the Walk tool will respect the Viewpoint Linear Speed setting. In this case, the Walk speed slider will act like a multiplier.

When this check box is clear, the Walk tool will work independently of the Viewpoint Linear Speed setting, using a fixed value set with the slider.

Walk Speed Sets the speed of the Walk tool from 0.1 (very slow) to 10 (very fast).

Zoom Tool

Enable Single-Click Incremental Zoom In When this check box is selected, single clicking over the Zoom wedge increases the magnification of the model. When this check box is clear, nothing happens when you single click over the Zoom wedge.

Orbit Tool

Keep Scene Upright When this check box is selected, the Orbit tool behaves similarly to the classic Orbit mode, with orbiting constrained along the XY axis and in the Z direction.

When this check box is clear, the Orbit tool behaves similarly to the classic Examine mode, and you can roll the model around the pivot point.

Enable Selection Sensitivity When this check box is selected, the objects selected before the Orbit tool are used to calculate the pivot point to use for orbiting. The pivot point is calculated based on the center of the extents of the selected objects.

User Interface Page

Use the options on this page to choose the user interface (standard or classic), and select the color theme.

User Interface Choose between the following options:

- Classic. Switches over to the classic Autodesk Navisworks interface with old-style menu and toolbars.
- Standard. Switches over to the new interface with a ribbon tool palette. This is the default option.

Theme Use the drop-down list to apply one of the preset interface themes.

Model Node

Use the settings in this node to optimize Autodesk Navisworks performance, and customize parameters for NWD and NWC files.

TIP If you want to restore the default values, click the Defaults button.

Performance Page

Use the options on this page to optimize Autodesk Navisworks performance.

Memory Limit

Auto Indicates whether Autodesk Navisworks automatically determines the maximum memory that can be used. Selecting this check box sets the memory limit to the lowest of your available physical memory or address space, less that required for your operating system.

Limit (MB) Specifies the maximum memory that Autodesk Navisworks can use.

Merge Duplicates

These options improve performance by multiply instancing matching items. Rather than storing every item in memory, if any items are the same, Autodesk Navisworks can store one instance of them and 'copy' that instance into other positions. This is of particular benefit on larger models, where there are significant numbers of these duplicate geometries.

On Convert Select this check box to merge duplicates when a CAD file is converted into the Autodesk Navisworks format.

On Append Select this check box to merge duplicates when a new file is appended to the currently opened Autodesk Navisworks file.

On Load Select this check box to merge duplicates when a file is loaded into Autodesk Navisworks.

On Save NWF Select this check box to merge duplicates when the current scene is saved in the NWF file format.

On Load

Collapse on Convert Collapses the tree structure on the Selection Tree to the specified level when native CAD files are converted into Autodesk Navisworks. Select from the following options:

- **None** - the tree is fully expanded. Use this option to enable splitting polylines into individual segments when importing DWGs and DGNs to support multiple clash intersections. For DGN files, you also need to select File Readers ➤ DGN ➤ Split Lines check box, and deselect File Readers ➤ DGN ➤ Merge Lines and Arcs check box. For DWG files, you also need to set File Readers ➤ DWG/DXF ➤ Line Processing drop-down to Separate All Lines.
- **Composite Objects** - the tree is collapsed up to the level of composite objects.
- **All Objects** - the tree is collapsed up to the level of objects.
- **Layers** - the tree is collapsed up to the level of layers.
- **Files** - the tree is collapsed up to the level of files.

This enables performance to be prioritized over structure/properties and has the added benefit of improving streaming by cutting down the logical structure.

NOTE Although Autodesk Navisworks tries to collapse items to the fewest number possible, it may be necessary to prevent collapsing in some cases to preserve model fidelity. For example, if an item has properties or materials unique to itself, then collapsing would endanger this information, and therefore it will not be collapsed.

Close NWC/NWD files on Load Indicates whether NWC and NWD files are closed once they've been loaded into memory.

When you open NWC/NWD files, Autodesk Navisworks locks them for editing. By selecting this check box, you instruct Autodesk Navisworks to close NWC or NWD files as soon as they've been loaded into memory. This means that the files can be opened and edited by other users while you are viewing them.

Create Parametric Primitives Select this check box to enable creation of parametric models (models described by formulae not vertices).

Using this option allows you to get better looking visuals, faster rendering, smaller memory footprint (especially, when loading DGN and RVM files with significant amounts of parametric data that no longer need to be converted into vertices in Autodesk Navisworks).

NOTE Modifying this option takes effect when you next load or refresh file.

Create Presenter Materials Select this check box to enable creation of Presenter materials when NWC files are loaded.

Clearing this check box turns off creation of Presenter materials.

Temporary File Location

Auto Indicates whether Autodesk Navisworks automatically selects your user Temp folder.

Location Click to open the Browse for Folder dialog box, and select the desired Temp folder.

NWD Page

Use the options on this page to enable and disable geometry compression and select whether the precision of certain options is reduced when saving or publishing NWD files.

Geometry Compression

Enable Select this check box to enable geometry compression when NWD files are saved.

Geometry compression results in less memory being required and therefore smaller NWD files.

Reduce Precision

Coordinates Select this check box to reduce the precision of coordinates.

Precision Specifies the precision value for coordinates. The larger the value, the less precise coordinates are.

Normals Select this check box to reduce the precision of normals.

Colors Select this check box to reduce the precision of colors.

Texture Coordinates Select this check box to reduce the precision of texture coordinates.

NWC Page

Use the options on this page to manage reading and writing of cache files (NWC).

By default, when Autodesk Navisworks opens a native CAD file (for example, AutoCAD or MicroStation), it first checks in the same directory whether there is a cache file present with the same name as the CAD file but with an .nwc extension. If there is, and this cache file is newer than the native CAD file, then Autodesk Navisworks opens this file instead as it has already been converted to Autodesk Navisworks format and, therefore, opens much quicker. If, however, there is no cache file present, or the cache file is older than the native CAD file, then Autodesk Navisworks has to open the CAD file and convert it. By default, it writes a cache file in the same directory and with the same name as the CAD file, but with the .nwc extension, for speeding up the opening of this file in future.

Caching

Read Cache Select this check box to use cache files when Autodesk Navisworks opens native CAD files.

Clear this check box if you don't want to use cache files. This ensures that Autodesk Navisworks converts native CAD files each time they are opened.

Write Cache Select this check box to save cache files when native CAD files are converted. Generally, cache files are much smaller than original CAD files, therefore, selecting this option does not take up too much disk space.

Clear this check box if you don't want to save cache files.

Geometry Compression

Enable Select this check box to enable geometry compression when NWC files are saved.

Geometry compression results in less memory being required and therefore smaller NWC files.

Reduce Precision

Coordinates Select this check box to reduce the precision of coordinates.

Precision Specifies the precision value for coordinates. The larger the value, the less precise coordinates are.

Normals Select this check box to reduce the precision of normals.

Colors Select this check box to reduce the precision of colors.

Texture Coordinates Select this check box to reduce the precision of texture coordinates.

File Readers Node

DWF Page

Use this page to adjust the options for the DWF file reader.

Faceting Factor Enter the required value to control the level of faceting that takes place.

The faceting factor must be greater or equal to 0, where 0 results in the faceting factor being turned off. The default value is 1. To get twice the number of facets, double the value. To get half as many facets, halve the value. Larger faceting factors result in more polygons to a model and larger Autodesk Navisworks files.

Max Facet Deviation This setting controls the greatest distance between the edge of a facet and the actual geometry.

If this distance is greater than the Max Facet Deviation value, Autodesk Navisworks adds more facets.

If the Max Facet Deviation is set to 0, then this function is ignored.

Extract Textures Select this check box to extract textures and environment maps associated with the file.

NOTE Environment maps are not set in the scene by default, and must be configured in Presenter manually.

When this check box is clear, the file reader ignores maps and textures.

See also:

- "DWF File Reader"

Tools Node

Use the settings in this node to adjust the options for Presenter, Scripter, and Animator.

Presenter Page

Use this page to adjust the Presenter options.

Profile You can adjust Presenter to your level of knowledge.

Select from the following options:

- **Basic** - gives you access to the basic Presenter features, with a limited editing functionality. This is the default option.

- **Standard** - gives you access to some of the advanced Presenter features.
- **Advanced** - gives you access to the advanced Presenter features, such as extra materials, lights, render styles.

Smoothed Textures Select this check box if you want textures to look smooth; this takes longer to render.

When this check box is clear, the textures render faster, but appear pixelated.

Filtered Textures Select this check box to turn on mipmapping. Using this option improves the appearance of textures in the distance.

Interactive Materials Indicates whether the applied Presenter materials are shown during navigation. By default, this check box is selected.

When this check box is clear, textures are not displayed during navigation. Using this option reduces the load on graphics cards, and gives less drop-out in heavily textured scenes. The materials reappear automatically when navigation stops, provided Autodesk Navisworks uses full render mode.

Interactive Lighting Indicates whether the applied Presenter lights are shown during navigation. By default, this check box is selected.

When this check box is clear, lights are not displayed during navigation. Using this option reduces the load on graphics cards, and gives less drop-out in heavily lit scenes. The lights reappear automatically when navigation stops, provided Autodesk Navisworks uses full lights mode.

Max Texture Size This option affects the visual details of the textures applied to geometry. Enter the desired value in pixels. For example, a value of 128 means the maximum texture size of 128 pixels x 128 pixels.

The higher the value, the higher the load on your graphics card, as more MB in memory is required to render textures.

Max Image Texture Size Specifies the maximum size for texture images in pixels. For example, a value of 256 means the maximum texture size of 256 pixels x 256 pixels.

The higher the value, the higher the load on your graphics card, as more MB in memory is required to render textures.

Max Background Texture Specifies the maximum size for background textures in pixels. For example, a value of 256 means the maximum texture size of 256 pixels x 256 pixels.

The higher the value, the higher the load on your graphics card, as more MB in memory is required to render textures.

Blend Transparent Textures Select this check box to use partially transparent objects. This option improves overall quality, but takes longer to render.

When this check box is clear, items with transparency of more than 50% are treated as completely transparent, and are not rendered.

Use Texture Anti-Aliasing Indicates whether anti-aliasing is used for procedural textures. Selecting this check box improves quality, but takes longer to render.

A procedural texture is a mathematically- generated image that represents natural elements such as wood, marble, granite, metal, stone, and so on. In Presenter, procedural textures have ball-style preview icons.

Hardware Shading Selects the hardware-accelerated shading.

NOTE This option can only be used on machines with OpenGL 1.5 compliant graphics cards.

Choose from the following options:

- **Off** - turns off hardware-accelerated shading.
- **Lighting** - only lights are shown.
- **Passive Shadows** - both lights and shadows are turned off during navigation, and automatically reappear when navigation stops.
- **Interactive Shadows** - both lights and shadows are shown during navigation.

Hardware Bump Maps Select this check box to display bump map textures during navigation. To use this option, enable Hardware Shading first.

NOTE This option can only be used on machines with OpenGL 1.5 compliant graphics cards.

Hardware Marble Select this check box to display hardware-rendered marble materials during navigation. To use this option, enable Hardware Shading first.

NOTE This option can only be used on machines with OpenGL 1.5 compliant graphics cards.

Scripter Page

Use the settings in this node to customize the Scripter options.

Message Level Selects the contents of the message file.

Choose from the following options:

- **User** - the message file only contains user messages (that is, messages generated by message actions in scripts).
- **Debug** - the message file contains both user messages and debug messages (that is, messages generated internally by Scripter). Debugging enables you to see what is going on in more complex scripts.

Path to Message File Use this box to enter the location of the message file. If a message file doesn't exist yet, Autodesk Navisworks attempts to create one for you.

NOTE You can't use variables in the file path.

Animator Page

Use the settings in this node to customize the Animator options.

Display Manual Entry Indicates whether the Manual Entry bar is shown in the Animator window. By default, this check box is selected.

Glossary

Glossary of technical terms relating to Autodesk Navisworks Freedom 2011.

Display Terminology

average frame rate This shows the current measured frame rate, averaged over the last second.

average frame time This shows the time taken to render the last frame.

average triangle rate This shows the rate at which triangles are being rendered and is a measure of how well your graphics card is working.

culling Culling is a process for determining items *not* to draw during the render of a scene. Autodesk Navisworks does a level of prioritized culling with the drop-out method of rendering interactive scenes, but you have a certain level of control over other aspects of culling such as backface, near and far planes.

drop-out In order to maintain interactivity and guarantee a user-defined frame rate, Autodesk Navisworks only renders what it can in the fraction of a second it has. The remainder is “dropped out”, or not rendered.

Autodesk Navisworks prioritizes what is rendered and what is dropped out based on size of the item's bounding box, distance from viewer and size on screen, so only the less significant items in the scene are dropped out.

Once navigation has ceased, the scene continues rendering until all items are visible.

frame rate The frame rate is the number of frames per second (FPS) that are rendered in the main navigation window. Autodesk Navisworks guarantees a user-defined frame rate in order to maintain interactivity.

File Terminology

published data files (NWD) Published NWD files are useful when wanting to take a snapshot of the model at a certain time. All the geometry and review information is saved into the NWD file and cannot then be changed. Published NWD files can also contain information about the file, as well as being able to be password protected and time-bombed for security. These files are also very small, compressing the CAD data by up to 80% of the original size.

Published NWD files are useful when issuing models for viewing by others with the Autodesk Navisworks Freedom 2011 free viewer, as well as being appendable themselves into Autodesk Navisworks to build up a larger scene.

Selection Terminology

These are terms specific to Autodesk Navisworks that are used in relation to selecting items.

composite objects A composite object is a group of geometry that is considered a single object in the selection tree. For example, a window object might be made up of a frame and a pane. If a composite object, the window object would be both the frame and the pane and be selected all at once.

instances An instance is a single object, which is referred to several times within a model, for example a tree. This has the advantage of cutting down on file size by not unnecessarily repeating an object.

item name The original CAD or Autodesk Navisworks assigned identifier. Any item can have a name and this name will usually come from the original CAD package that the model was created in.

item type Every item in Autodesk Navisworks has a type. Examples of types are reference files, layers, instances (sometimes called inserts), and groups. Every CAD package also has a number of geometry types, for example, polygons, 3D Solids, and so on.

selection resolution The selection resolution is the level in the selection tree you start selecting at. You can cycle through items in the tree by holding down the SHIFT key during a selection.

user name and internal name Each category and property name has two parts - a user visible string which is localized and an internal string which isn't and is mainly used by the API. By default when matching names in the Smart Tags and Find Items dialog boxes, both parts must be the same, but you can use the flags to match only on one part. You might use Ignore User Name if you wanted to match something irrespective of which localized version was being used.

Viewpoint Terminology

angular speed The speed that the camera moves when turning right and left in any navigation mode.

anti-aliasing Anti-aliasing improves image quality by softening the jagged edge appearance of sharp lines. 2x to 64x refers to the extra number of frames that are required for the anti-aliasing process. The greater the number of frames, the finer the effect, (with the consequent increase in rendering time).

aspect ratio Aspect ratio is the proportion of X-axis to Y-axis size. For example, in exporting a bitmap of a viewpoint, maintaining the aspect ratio would keep the proportion of the view even if the number of pixels was different.

camera-centric Navigation modes in which the camera is moved around the model.

field of view The field of view of a camera is the angle that the camera can see. A large field of view will fit more into the view, but will look distorted and a small field of view will tend to make the view more flat, tending towards an orthographic view. There are two fields of view in Autodesk Navisworks - vertical and horizontal. Editing one will change the other and the two are related by the viewpoint's aspect ratio.

focal point The focal point is the position in 3D space that the camera will rotate around or zoom into in examine, orbit, turntable and zoom modes.

model centric Navigation modes in which the model is moved in front of the camera.

roll The roll of the camera is its angle around the viewing axis. This cannot be edited in a navigation mode where the world up vector stays upright (walk, orbit and turntable).

saved attributes Each viewpoint can optionally save the state of its hidden and "required" items, as well as any material (color and transparency) overrides. Then, on recalling the viewpoint, those same items are re-hidden, re-made required, and the materials reinstated. This can be useful in the creation of animations when dragging on viewpoints onto an empty animation.

tilt angle This is indicated in the scene's units below (negative) or above (positive) horizontal (0) at the base of the Tilt window.

viewpoint up vector The direction that Autodesk Navisworks considers "up" is called the "viewpoint up vector". This is maintained in the walk, orbit and turntable modes. This may be also referred to as "world up vector".

Index

3D space 71

A

align viewpoint 71
animation
  enable scripts 151
  play 151
Animation toolbar 44
Animator options 180
annotations 137
Autodesk Channels 13

B

background effects 120
Background settings 159

C

cameras 108
  align 111
  orthographic 108
  perspective 108
  straighten 110
  tilt 110
Center tool 76
CIP (Customer Involvement Program) 16
close toolbars 41
collision 115
Collision 159
  Auto Crouch 159
  Gravity 159
  Third Person 159
  Viewer 159
comments 137
  clash result 137
  search set 137
  selection set 137
  TimeLiner task 137
  view 137
  viewpoint 137
  viewpoint animation 137
Communication Center 8
  about 8
  receiving announcements 9
  settings 13
  Subscription Center 7
compass (ViewCube) 94
configuration files 62
constrained orbit 92
create 69
crouching 115
culling 124
  area 124
  backface 124
  near and far clipping planes 124
  require objects 125
Customer Involvement Program 16
customizing
  navigation bar 101

D

Default Collision 160
  Auto Crouch 160
  Gravity 160
  Third Person 160
  Viewer 160
Developer options 171
Display options 171
Display Units 60
Display Units options 167
displaying
  Help 10
dockable windows 47
DWF options 178

E

Edit menu 39
Edit Viewpoint 161
enable scripts 151
enhancements 3
Environment options 166
exit 29

F

face views 96
Favorites links (InfoCenter) 9
File menu 39
File Options 56, 162
  Culling 162
  Head Light 163
  Orientation 163
  Scene Lights 164
  Speed 163
file readers
  DWF 67
find 136
  InfoCenter information 6
  links 142
finding
  InfoCenter information 13
fly 91
focal point 91
Forward tool 77
Frame Rate 163
Front view 97
frustum culling 124
Full Navigation wheels 107
Full Navigation Wheels 102
full screen mode 46

G

gizmos 62

Global Options 56
Developer 61
Display Units 60
Environment 32
export 57
import 57
Location 60
graduated background 120
gravity 114

H

hardware accelearation 127
head-up display 111
Help
access more information 15
concepts 10
displaying 10
print 12
procedures 10
quick reference 10
search 11
searching multiple Help sources 6
hide objects 135
highlighting 134
Home view 99
horizon background 120
HUD 111
hyperlinks 139

I

InfoCenter
about 5
favorite links 9
searching 6
settings 13
Subscription Center 7
InfoCenter Settings 164
Autodesk Channels 165
Balloon Notifications 165
Communication Center 164
RSS Feeds 165
installation 17, 20
general issues 25
languages 19
maintenance issues 27
stand-alone 17
troubleshooting 25

K

keyboard shortcuts 52

L

launch 29
lighting 118
full lights 119
head light 119
no lights 120
scene lights 119
links 139
categories 139
control display 140
customize 141
find 142
follow 142
standard 139
user-defined 139
Links options 169
Locations 60
Locations options 166
look around 89
Look tool 78

M

markups 137
Measure options 168
Menu bar 38
menus 38
Edit 39
File 39
Tools 41
View 40
Viewpoint 40
move toolbars 41

N

navigating
navigation bar 100
navigation 71
navigation bar 100
Navigation Bar options 172
Navigation Mode toolbar 43
navigation modes 87
Constrained Orbit 92
Fly 91
Free Orbit 91
Look Around 89
Orbit 90
Pan 90
Turntable 92
Walk 88
Zoom 89
Zoom Box 90
Navigation Tools toolbar 45
new 69
new features 3
notifications 8
NWC options 177
NWD options 177

O

open 68
open toolbars 41
Options Editor 165
File Readers 178
General 166
Interface 167
Model 176
orbit 90
Orbit tool 79

orientation 71

P

pan 90
Pan tool 81
Performance options 176
pick radius 131
pivot points 79
plain background 120
Presenter materials 128
Presenter options 178
preview 153
primitives 122
  lines 122
  points 123
  snap points 123
  surfaces 122
  text 123
print 153
  current viewpoint 154
  preview 153
  setup 153
privacy 9
product news 8
product updates 8
progress bar
  disk 50
  memory 51
  pencil 50
  web server 50
Project Directory 60

Q

Quick Find 136
quick properties 143
  control display 143
  definition 143
  hide category name 143
Quick Properties options 170
quit 29

R

Readme 16
recently used files 31
Redo 51
reference views 112
rendering 117
  accelerate 127
  control 126
  full 117
  hidden line 118
  shaded 118
  wireframe 118
Rendering Style toolbar 43
review 137
Rewind tool 82
ribbon
  about 34
  displaying and organizing 34
RSS feeds 13

S

Scene Area 45
scene views 45
  resize 45
Scripter options 180
search
  InfoCenter 6
search directories 62
searching
  InfoCenter 13
selection 129
  commands 133
  pick radius 131
Selection options 167
Selection Tools toolbar 42
Selection Tree 129
  sort 129
share
  print 153
shortcuts 52
Show Internal Properties 61
Site Directory 60
Snapping options 168
SpaceBall 112
SpaceBall options 172
stand-alone installation 17
Standard toolbar 42
start 29
Status bar 50
SteeringWheels 102
SteeringWheels options 174
straighten 110
Subscription Center 7
system requirements
  stand-alone installation 17

T

tilt 110
TimeLiner
  active tasks 157
  simulation playback 156
TimeLiner Playback 155
  simulate 155
  status 156
Toolbar Options 41
toolbars 41
  Animation 44
  Navigation Mode 43
  Navigation Tools 45
  Rendering Style 43
  Selection Tools 42
  Standard 42
  Workspace 43
Tools menu 41
tooltips 102
Tour Building wheels 106
Tour Building Wheels 102
turntable 92

U

UI 29

Undo 51
Undo options 166
unhide objects 135
up direction 79
Up/Down tool 83
updates 8
updating
  Communication Center updates 8
user interface 29
User Interface options 175

V

view
  fit model to Scene Area 93
  fit selection to Scene Area 93
  hold items 114
  set focal point 113
  third person perspective 116
View menu 40
View Object wheels 105
View Object Wheels 102
ViewCube 93
  appearance 93
  compass 93
  lock to selection 99
ViewCube options 173
Viewpoint Defaults options 168
Viewpoint menu 40
viewpoints 145
  delete 148
  edit 148
  folders 147
  organize 147
  use 147
views
  ViewCube orientation 96

W

walk 88
Walk tool 83
wheels 102
window
  Comments 138
  Edit Viewpoint 148
  Properties 137
  Saved Viewpoints 145
  TimeLiner Playback 155
windows
  auto-hide 47
  dock 47
  tile 47
  undock 47
Workspace toolbar 43
workspaces 51
  create 51
  load 51
  save 51
  shared 51
world orientation 71

Z

zoom 89
zoom area 90
Zoom tool 86