Chapter 1

Introduction to Autodesk Navisworks 2014

Learning Objectives

After completing this chapter, you will be able to:

- *Understand the basic features of Autodesk Navisworks 2014*
- *Start Autodesk Navisworks 2014 software*
- *Use different components of the User Interface screen of Navisworks 2014*
- *Understand the Local and Global options in Navisworks*
- *Understand different file types in Navisworks*
- *Manage files in Navisworks*
- *Share data in Navisworks*
- *Work in different workspaces in Navisworks*
- *Understand different file formats in Autodesk Navisworks 2014*
- *Access the Navisworks 2014 Help System*

INTRODUCTION TO Autodesk Navisworks 2014

In the construction industry, sometimes many teams are involved in a project working on different tasks. In such cases, the coordination between the team members and integration of the project data is important for seamless execution of the project. Autodesk Navisworks is designed to provide an integrated environment to coordinate, share, and manage project files between multiple teams. It helps them to view the whole project and make better design conclusions, accurate construction documents, and to anticipate performance of the design. It is a powerful software which takes construction and design to new levels. It holds a building information modelling project together. The use of Autodesk Navisworks 2014 provides a competitive advantage and a higher profitability to building industry professionals.

Autodesk Navisworks has three product verticals: Navisworks Freedom, Navisworks Simulate, and Navisworks Manage.

The Navisworks Freedom is a free viewer provided by Autodesk for viewing NWD files. Navisworks Freedom comprises all the basic tools including the complete set of navigation tools. This software can be used to quickly open the NWD files, review objects, create animation, and to navigate.

Navisworks Simulate includes the tools and options for reviewing, real-time navigation, simulation, and animation. This software can also be used to communicate the project information to others. Construction managers often can use this software for simulating the construction schedule.

Navisworks Manage is a comprehensive software which includes all the advanced and basic tools for coordination, real-time navigation, simulation, animation, clash detection, and estimation required for the project. This software can be used by construction managers, BIM engineers, architects, and so on.

Navisworks allows you to open the Autodesk Revit files in their native format. It also supports other file formats from other software such as CATIA, SolidWorks, Autodesk ReCap, Autodesk Inventor, Faro 4.8, and so on.

In this book, you will learn about all the basic and advanced tools in Navisworks Manage.

BASIC FEATURES OF Navisworks Manage

Navisworks Manage is a complete project software which allows analysis, reviewing, coordination, simulation, and design purpose. The basic features of Navisworks are discussed next.

Navigation and Reviewing Tools

Navigating and reviewing models in a scene are the essential features of Navisworks. In Navisworks, you can navigate within a model using tools such as **ViewCube**, **Pan**, **Zoom**, **Orbit**, **Look**, **Walk/Fly** and so on. There are some additional features in Navisworks that will give you the real-time experiences while working on a project.

While navigating, you can review a model by using various selection methods, transformation tools, measure tools, and redline tools. You can also analyze the properties of an individual or a group of objects in a model. All these tools and methods will be discussed in detail in the later chapters.

TimeLiner

TimeLiner is used to understand the construction sequence of a model. It helps you to create 4D simulation and allows you to see the effect of a schedule on the project. Using the TimeLiner feature, you can compare between the planned dates (start and finish) and the actual dates (start and finish) of any activity in the project. This feature helps in avoiding the potential problems that can arise during construction before it starts. Thus, you can reduce the delay and the amount of rework in a construction project. You can import the schedules from other project management software such as Microsoft Project, Primavera, and Asta.

Clash Detection

Clash Detection is used for detecting interferences between objects. Performing clash detection helps in identifying the errors and rectifying them. It thus reduces the risk of human errors and saves time and efforts. Using this feature, you can check the clashes and report them to the team members by exporting them.

Presenter and Autodesk Rendering

Presenter and Autodesk Rendering is used to create photorealistic images and visualizations by applying materials, real lighting effects, and background effects. Navisworks has several types of materials, effects, rendering styles that you can use to render the project with photorealistic effect before delivering it to the clients.

Animator and Scripter

Animator is used for creating animation by capturing every movement. Scripter is used for adding interactivity to the animated objects in a model.

BENEFITS OF NAVISWORKS

There are various advantages of using Navisworks. Some of them are listed below:

1) Navisworks has an open format, which supports a large variety of file formats.

2) Navisworks allows real-time navigation, clash detection, tolerance checking, design reviews, and project coordination with team members.

3) It improves productivity and quality by pre-visualizing the construction projects.

4) It allows rendering that helps in verifying the materials and textures that are appropriate for a proposed design.

5) It has the ability to import data from other applications to produce a single unified model.

STARTING Autodesk Navisworks 2014

You can start Navisworks by double-clicking on the Navisworks Manage 2014 icon on the desktop. Alternatively, choose the **Start > All Programs > Autodesk > Navisworks Manage 2014 > Manage 2014** from the task bar; the interface screen will be displayed, as shown in Figure 1-1. Note that this path is for Windows 7 operating system.

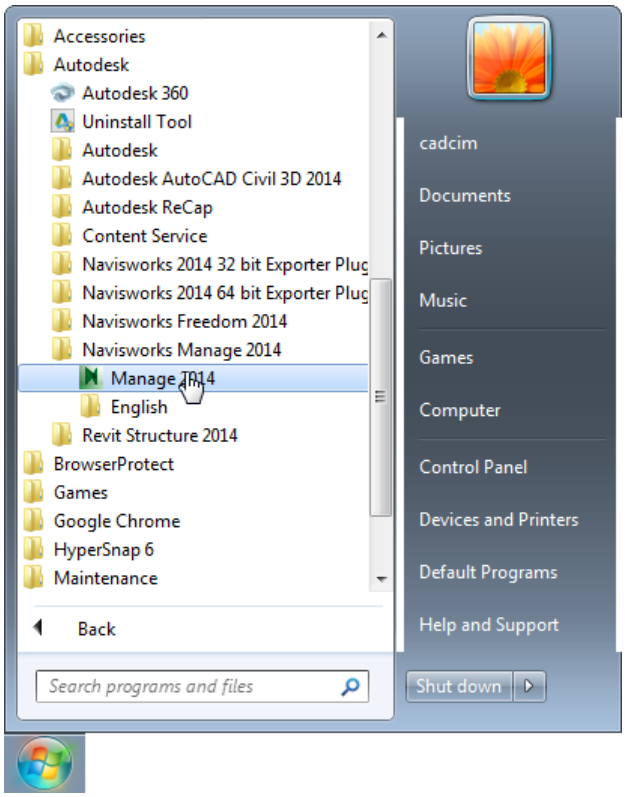

Figure 1-1 *Starting Autodesk Navisworks Manage from the task bar*

USER INTERFACE

The user interface of Autodesk Navisworks comprises several elements such as the **Application Button, Ribbon**, **Quick Access Toolbar**, **Info Centre**, **Scene View**, **Navigation Bar**, **Dockable Windows**, and **Status Bar**, as shown in Figure 1-2. The interface elements are exclusively designed to provide an easy access to the tools and windows. These elements are discussed next.

Title Bar

The Title bar is placed at the top of the user interface. It displays the program's logo and name of the current project. It also contains **Quick Access Toolbar** and **Info Centre** toolbar.

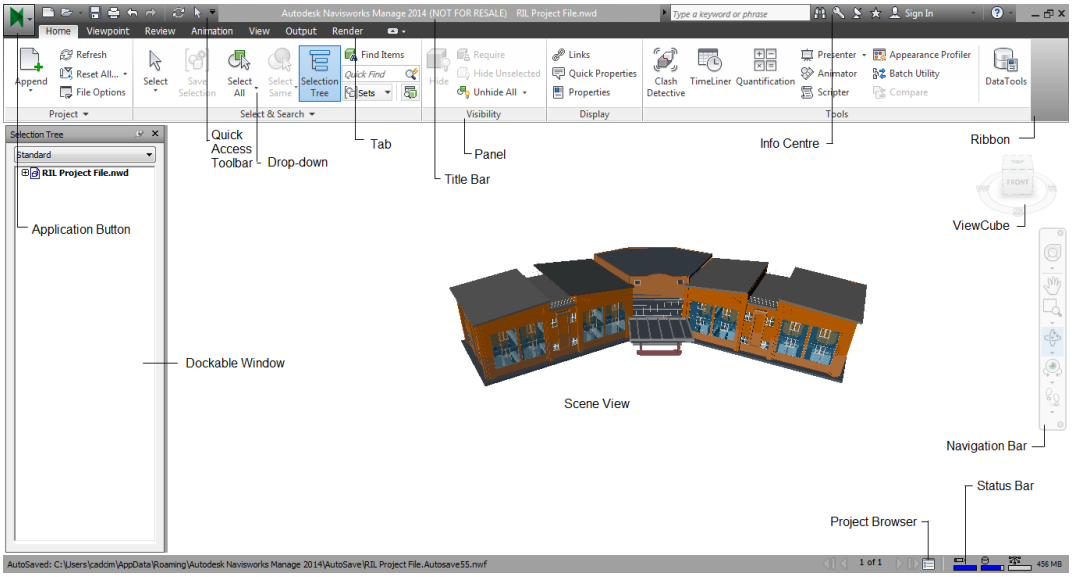

Figure 1-2 The User Interface of Autodesk Navisworks Manage 2014

Quick Access Toolbar

The **Quick Access Toolbar** comprises several frequently used tools such as **New**, **Open**, **Save**, **Print**, **Undo**, **Redo**, **Refresh**, and **Select**. Figure 1-3 shows the **Quick Access Toolbar**. It is located at the top of the application window. You can add the required tools from the ribbon to the **Quick Access Toolbar**. You can also remove the unwanted tools. To add a tool from the Ribbon, choose the tab which contains that tool, and right-click on the tool; a shortcut menu will be displayed. Choose the **Add to Quick Access Toolbar** option from the shortcut menu; the selected tool will be added to the **Quick Access Toolbar**. To remove a tool from the **Quick Access Toolbar**, right-click on it; a shortcut menu will be displayed. Choose **Remove from Quick Access Toolbar** option from the menu; the tool will be removed. You can place the toolbar below the Ribbon by choosing the **Show Below the Ribbon** option from the menu.

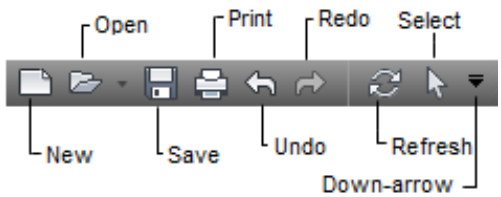

*Figure 1-3 The **Quick Access Toolbar***

InfoCenter

The InfoCenter toolbar contains several options, which are used to access product related information. You can use the search option in the InfoCenter toolbar to find the information on various topics. Specify the keyword in the **Search Field** text box and choose the **Search** button; the search results will be displayed in the Autodesk Wikihelp website. The **Sign In** option is used for signing in to the Autodesk 360 to access the online services.

The **Subscription Center** option is used to become a member of the subscription services from the Autodesk. The **Communication Center** option is used for product updates and announcements. The **Favorites** panel is to access the saved topics. Figure 1-4 shows the various tools in InfoCentre.

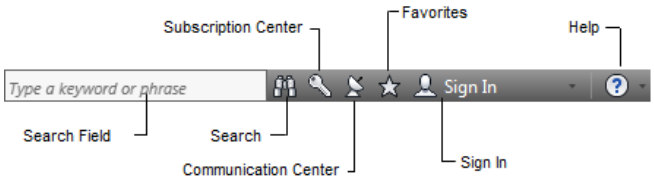

Figure 1-4 *The InfoCenter*

Application Menu



The Application Menu contains common tools that provide access to several file actions such as **Open**, **Save**, **New**, and **Save As**. To access these tools, choose the **Application Button**; the Application Menu will be displayed, as shown in Figure 1-5.

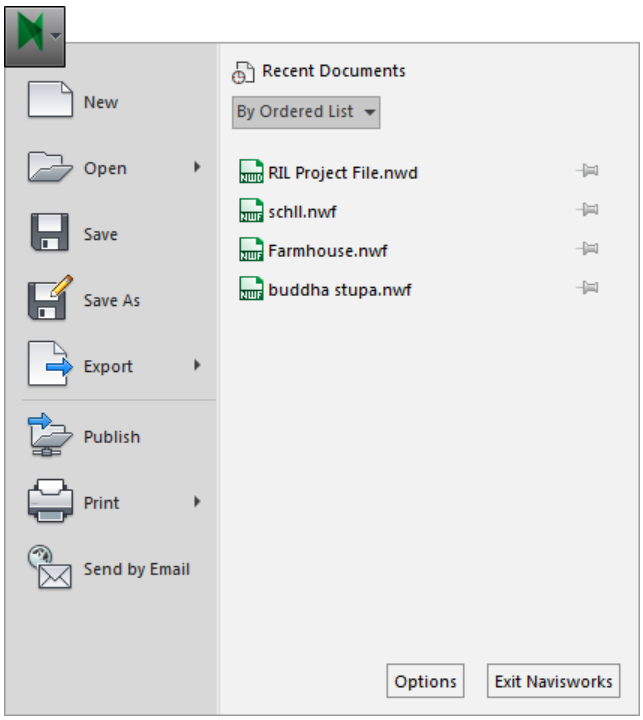

Figure 1-5 *The Application Menu*

In the Application Menu**,** you can view the recently used files. You can group and sort these files by selecting the options from the **Recent Documents** drop-down list, as shown in Figure 1-6. There are other options such as **Export**, **Publish**, **Print**, and **Send by Email**. These options will be discussed later in this chapter.

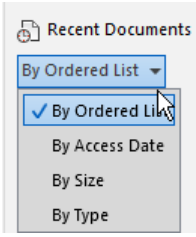

Figure 1-6 *The* ***Recent Documents*** *drop-down list*

Ribbon

The Ribbon is a palette in the interface that is displayed at the top of the screen, as shown in Figure 1-7. It comprises several tools and options, which are necessary for creating a project. These tools and options are grouped together in a task-based series of panels within the tabs. These tabs and panels can be customized by the users. This can be done by moving the panels and changing the views of the Ribbon as discussed next.

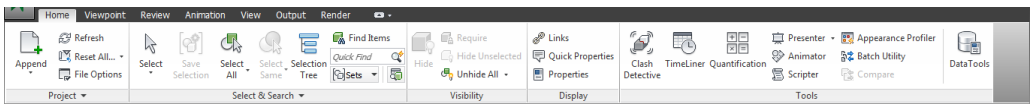

Figure 1-7 *Partial view of the Ribbon*

Moving the Panels

Navisworks allows the user to change the location of panels in the **Ribbon**. The panels can also be placed in the Scene View. To do so, click on the panel in the **Ribbon**, hold the left mouse button and then drag the panel to a desired place on the screen.

Changing the View of the Ribbon

You can control the space taken by the Ribbon in the interface by changing its view. To do so, click on the second arrow on the right of the **Render** tab; a flyout will be displayed, as shown in Figure 1-8. Select one of the four minimizing Ribbon options.

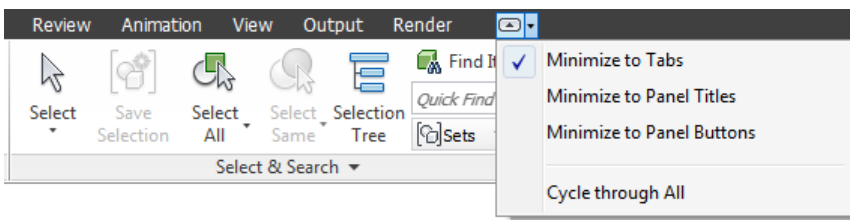

Figure 1-8 *Various options in the flyout for changing the views of the Ribbon*

To display only the tab titles, choose the **Minimize to Tabs** option from the menu. To display only tab and panel titles, choose the **Minimize to Panel Titles** option from the menu. To display only tab titles and panel buttons, choose the **Minimize to Panel Buttons** option from the menu. To cycle through all four Ribbon states, choose the **Cycle through All** option from the menu.

Scene View

This is the area where you can actually view and work with 3D models. By default, there is only one Scene View but Navisworks allows you to split the Scene View into multiple viewports by using the options available in the **Scene View** panel, as shown in Figure 1-9. Multiple views will help you to compare the views while rendering and creating animations. To split the Scene View horizontally, choose the **Split Horizontal** tool from the **View > Scene View > Split View** drop-down. Similarly, to split the scene vertically, choose the **Split Vertical** tool from the **View > Scene View > Split View** drop-down. These added Scene Views can be moved and docked. To do so, choose the **Show Title Bars** button from the **Scene View** panel in the **View** tab; all the added Scene Views will now have title bars, and they can be moved. You can display the current Scene View in the full screen mode. To do so, choose the **Full Screen** tool from the **Scene View** panel in the **View** tab; the current view will be displayed in full screen. You can use the **Background** tool from the **Scene View** panel to change the background settings such as color. The **Window Size** tool is used to adjust the size of the window for the desired scene view.

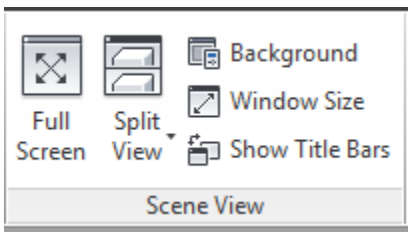

Figure 1-9 *The* ***Scene View*** *panel*

Navigation Bar

The **Navigation Bar** provides access to the tools used for navigation and orientation in a model. It contains **Steering Wheels**, **Pan**, **Zoom**, **Orbit**, **Look**, **Walk** and **Fly** tools, as shown in Figure 1-10. You can customize the **Navigation Bar** and can also change its docking position in the Scene View, which will be discussed in the next chapter.

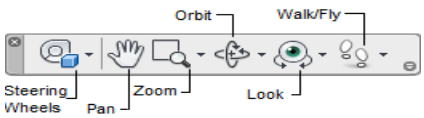

Figure 1-10 *The* ***Navigation Bar***

ViewCube

The ViewCube is a navigation control which is used to set the orientation of a model. It is always displayed at the top right corner in the Scene View. It comprises a cube and a compass ring at the base, as shown in Figure 1-11.



Figure 1-11 *The ViewCube*

Dockable Windows

Navisworks allows you to access most of its features from the dockable windows. These dockable windows can be moved, docked, and resized in the Scene View. To display these windows, click on the **Windows** drop-down in the **Workspace** panel of the **View** tab; various options will be displayed, as shown in Figure 1-12. Now, select the check box next to the required window in the list. For example, to display the **Animator** window, select the **Animator** check box; the **Animator** window will be displayed.

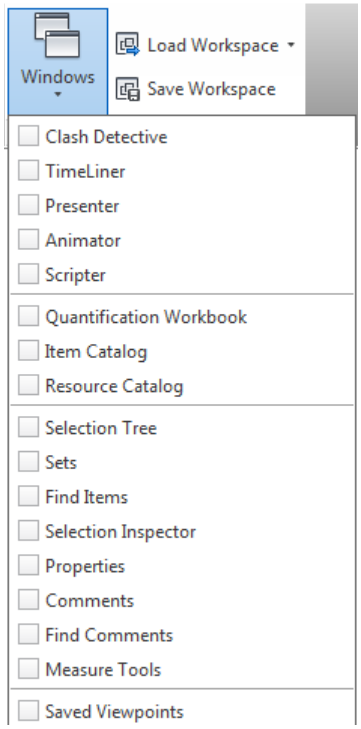

Figure 1-12 *Partial view of the* ***Windows*** *drop-down*

These windows can be customized. You can move, group, ungroup, and auto hide the windows. To move a window, click and drag the title bar of docking window and place it at the desired place. To group dockable windows, click and drag the title bar of the window to be added to the other window or group. To ungroup the window, click on the tab of the window you want to remove. Next, click and drag the window out of the group and place it at the desired place.

Status Bar

The Status Bar is located at the bottom of the interface screen, as shown in Figure 1-13. The Status Bar comprises the **Project Browser** button and the **Sheet Browser** buttons to navigate between models in the multi sheet file. It also displays the progress of the project and the amount of memory being used by Navisworks.

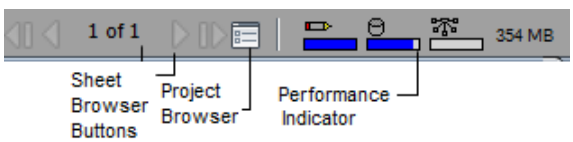

Figure 1-13 *The Status Bar*

Project Browser

The **Project Browser** is a dockable window. It contains all the 2D sheets and 3D models currently opened in the file. To display this window, choose the **Project Browser** button in the Status Bar; the **Project Browser** window will be displayed, as shown in Figure 1-14. This window is divided into three areas. The top area displays the name of the current file. The middle area contains a list of all the loaded sheets. The bottom area displays the property of the selected sheet.

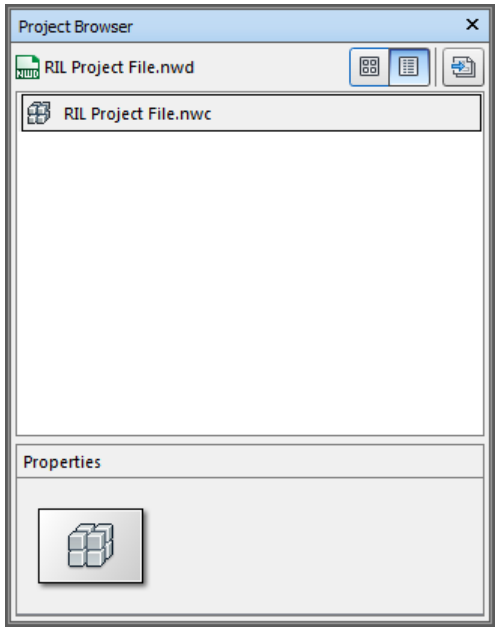

***Figure 1-14** The **Project Browser** window*

There are three buttons located at the top right corner in the window. These buttons are discussed next.

Thumbnail View

The **Thumbnail View** button is used to display the sheets and models as thumbnail images in the middle area of the window.

List View

The **List View** button is used to display the sheets and models in a list.

Import Sheets & Models

The **Import Sheets & Models** button is used to import sheets and models from external files. When you choose this button, the **Insert From File** dialog box will be displayed. Browse to the folder containing the required file and choose the **Open** button; the sheet/model will be added in the list. Figure 1-15 shows the **Project Browser** window containing a list of 2D sheets and 3D models.

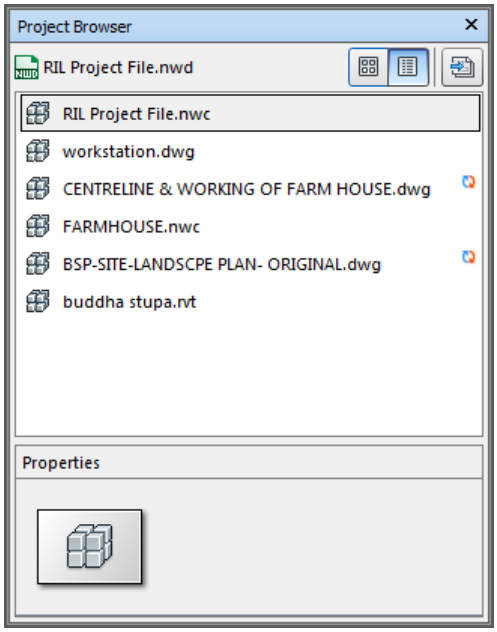

Figure 1-15 *The* ***Project Browser*** *window containing a list of added sheets and model*

After adding sheets or models, you will notice that not all sheets and models are prepared to be used in Navisworks. The sheets/models which are not prepared are represented by the symbol. To prepare the sheets/models, you need to click on the prepare icon located next to the sheets/models, refer to Figure 1-15.

Now, to open a required sheet/model in the Scene View, double-click on it in the **Project Browser** window; the selected file will be loaded in the Scene View. You can also use the multi-navigation buttons available in the Status Bar.

There are some options that are used for managing the sheets/models added in the **Project Browser** window. To access these options, right-click on the required sheets/models in the **Project Browser** window; a shortcut menu will be displayed, as shown in Figure 1-16. The options in the menu are discussed next.

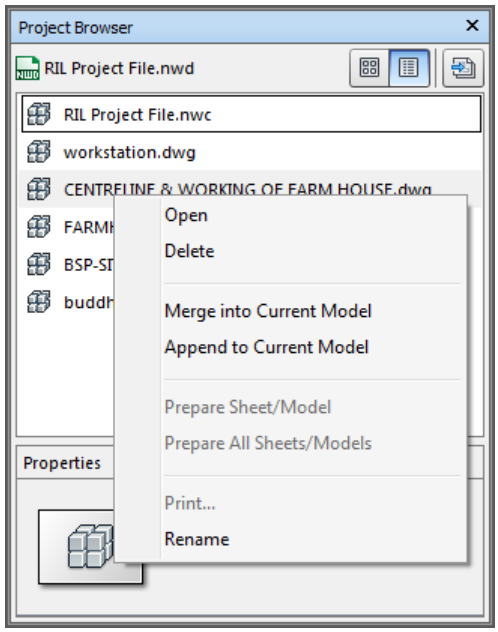

Figure 1-16 *The shortcut menu displayed in the* ***Project Browser*** *window*

Open
The **Open** option is used to open the selected sheet/model in the Scene View.

Delete
The **Delete** option is used to delete the selected sheet/model from the **Project Browser** window.

Merge into Current Model
The **Merge into Current Model** is used to merge the selected 3D model with the model opened in the Scene View.

Append to Current Model
The **Append to Current Model** option is used to add the selected 3D model to the model opened in the Scene View.

Prepare All Sheets/Models
The **Prepare All Sheets/Models** option is used to prepare all the added sheets/models to be used for Navisworks. Note that this option will be enabled only if the added sheets/models are not prepared for the use.

Print
The **Print** option is used to print the sheet/model opened in the Scene View.

Rename
The **Rename** option is used to change the name of selected sheet/model in the **Project Browser** window.

Autodesk Navisworks DIALOG BOXES

Certain options and commands when invoked, display a dialog box. Figure 1-17 shows an example of a dialog box. The dialog box is a secondary window, which comprises elements such as title bar, tabs, area label, check boxes, radio buttons, edit boxes, drop-down list, and buttons. These elements are discussed next.

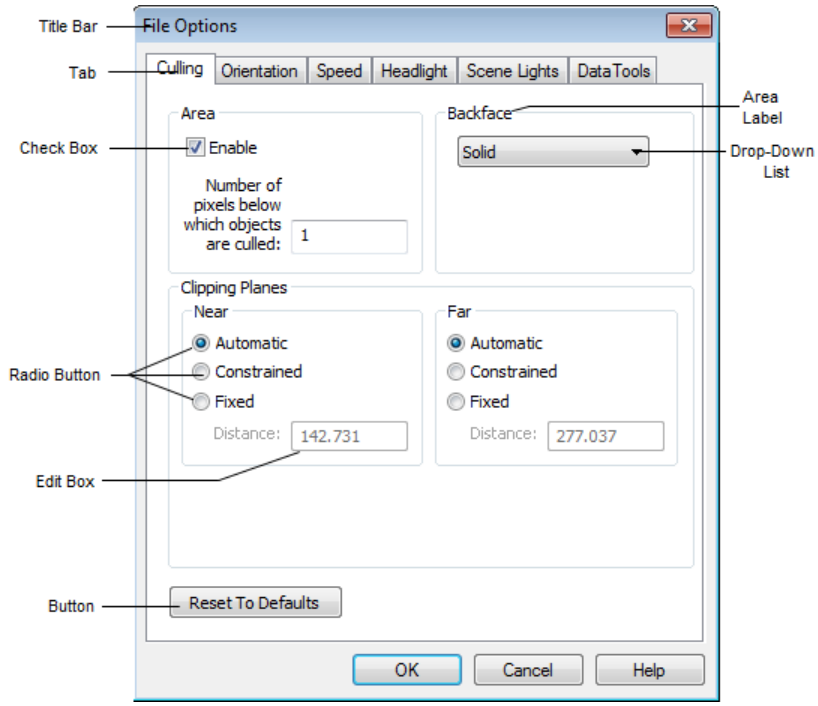

Figure 1-17 *Components of a Dialog box*

The title bar, as shown in Figure 1-17, displays the name of the dialog box. Tabs are the sections, which contain options related to the workflow. Area label is an area which contains options related to the chosen tab. Check boxes are toggle options which are used for making an option available or unavailable. Edit box is a box in which you can enter a value. Drop-down lists contain a list of options from which only one option can be selected at a time. There are more buttons in a dialog box which work as their name implies. The button **[...]** in a dialog box displays another dialog box. The **Help** button is used for accessing the help feature of the options available in the dialog box.

CONFIGURING SETTINGS IN Navisworks

In Navisworks, you can configure the settings locally or globally by using the **File Options** dialog box and the **Options Editor** dialog box, respectively. Next, you will learn to configure the local and global settings using these dialog boxes.

Configuring the Local Settings

In Navisworks, you can save the model appearance, navigation speed, and any other viewing options with different file types such as NWD and NWF. Whenever, a change is made in a file type, it will be saved and reloaded when you open it. This can be done by using various file options available in the **File Options** dialog box, refer to Figure 1-18. To display the **File Options** dialog box, choose the **File Options** button from the **Project** panel of the **Home** tab; the **File Option** dialog box will be displayed. This dialog box contains various tabs and options, which are discussed next.

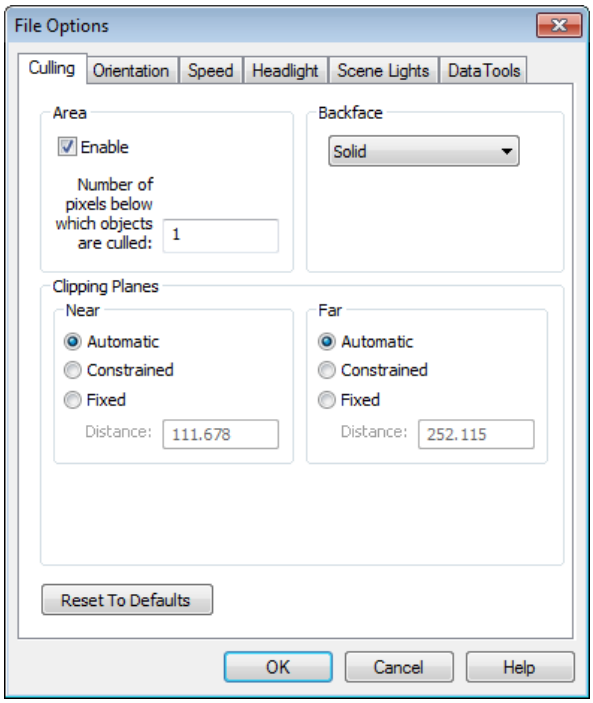

Figure 1-18 *The* ***File Options*** *dialog box*

In this dialog box, the **Culling** tab is chosen by default and has various options to adjust the geometry. In this tab, there are four area labels. In the **Area** area, select the **Enable** check box to include the area culling; the **Number of pixels below which objects are culled** edit box will be activated. Specify a value for screen area in this edit box. In the **Backface** area, select the options from the drop-down list to enable the backface culling for all elements in a project. In the **Clipping Planes** area, you can set the near clipping and far clipping planes. Both the clipping planes have three options: **Automatic**, **Constrained**, and **Fixed**. The **Automatic** option is used to automatically control the clipping plane position so that it can produce the best view of the model. The **Constrained** option is used to limit the clipping plane to the value specified in the **Distance** edit box. Note that the **Distance** edit box will be enabled only if you select the **Constrained** or **Fixed** radio button. The **Fixed** option is used to set the clipping planes to the value specified in the **Distance** edit box.

In the **Orientation** tab, you can adjust the orientation of the model.

You can use various options in the **Speed** tab to adjust the frame rate speed to reduce the amount of drop-out during navigation. To adjust the frame rate speed, specify the desired value in the **Frame Rate** edit box. Note that higher the value specified, smoother the navigation produced.

In the **Headlight** and **Scene Lights** tabs, you can customize the lighting of the model in the Scene View.

In the **Data Tools** tab, you can link the current opened file to external databases such as Excel files. The **New** button is used to open the **New Link** dialog box where you can link the external files. The **Edit** button is used to edit the specified link. The **Delete** button is used to delete the added link. The **Import** button is used to load the previously saved data links. The **Export** button is used to save the added link as a data tool file.



Note

*The changes made in the **File Options** dialog box will be saved only for the current file in Navisworks.*

Configuring the Global Settings

Global options can be configured and saved for all Autodesk Navisworks sessions. You can configure these options in the **Options Editor** dialog box. To display the **Options Editor** dialog box, choose **Options** from the Application Menu; the **Options Editor** dialog box will be displayed, as shown in Figure 1-19. Alternatively, right-click in the Scene View; a shortcut menu will be displayed. Choose **Global Options** from the shortcut menu; the **Options Editor** dialog box will be displayed.

The **Options Editor** dialog box is divided into left and right panes. The left pane contains several options which are grouped together and displayed in a hierarchy. The right pane displays the options selected from the left pane. There are five nodes in the left pane which have several sub-options. You can access any of the options by clicking on the plus node. These five nodes are discussed next.

In the **General** node, you can adjust the buffer size for undo/redo actions. You can specify the location where you will share the Navisworks settings such as workspaces, datatools, avatars, and so on. You can adjust the number of recent file shortcuts stored by Navisworks. You can also adjust the auto save options.

The **Interface** node, you can use various options to customize the Navisworks interface. You can customize the units used by Navisworks. You can customize the geometry selection method, style, and appearance of measuring lines and also the cursor snapping settings and so on.

The **Model** node contains the options for customizing Navisworks performance and file formats.

The **File Readers** node contains several file readers that are used while loading other CAD files.

In the **Tools** node, you can customize the settings of the options used for the **Clash Detective** window, **TimeLiner**, **Animator**, **Presenter**, and **Scripter**. These features will be discussed in later chapters of this textbook.

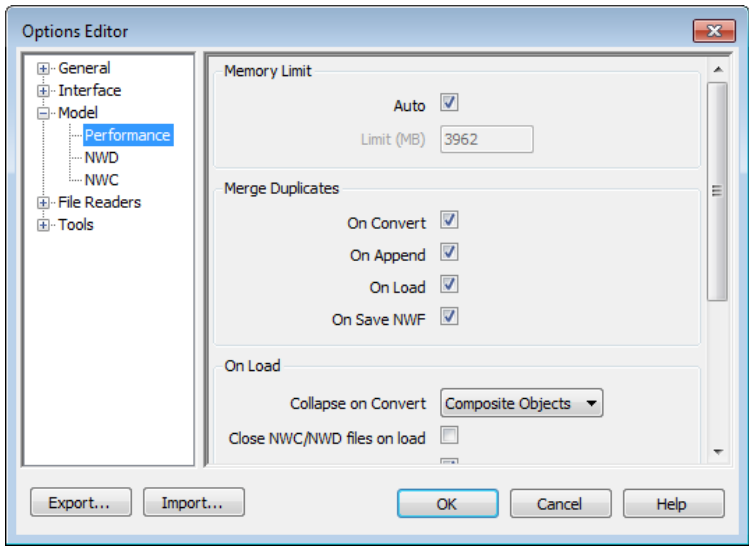

***Figure 1-19** The **Options Editor** dialog box*



Tip

*In the **Options Editor** dialog box you can also display more options which are required for the advanced users. To do so, press and hold the SHIFT key and then choose the **Options** button from the Application Menu; the **Options Editor** dialog box will be displayed with more options.*

Exporting and Importing Global Options

You can share the global options settings with other users by using the import and export feature. To export global options, choose the **Export** button in the **Options Editor** dialog box; the **Select options to export** dialog box will be displayed. In this dialog box, select the check boxes for the options which you want to export and choose the **OK** button; the **Save As** dialog box will be displayed. In this dialog box, browse to the location where you want to save the file. Specify a name for the file and choose the **Save** button; the file will be exported and saved at the specified location.

Similarly, you can import the global options settings. To do so, choose the **Import** button in the **Options Editor** dialog box; the **Open** dialog box will be displayed. In the **Open** dialog box, browse to the file location. Select the file and choose the **Open** button; the selected global options will be loaded in the **Options Editor** dialog box. Now you can use the imported global settings in the Navisworks session.

KEYBOARD SHORTCUTS

In Navisworks, keyboard shortcuts have been assigned to some of the frequently used tools. These shortcuts can be typed using the keyboard to invoke the corresponding tool. These shortcut keys will be displayed corresponding to the tool as a tooltip when you hover the

cursor over it. You can also enable the keytips by pressing the ALT key from the keyboard. As a result, various shortcut keys will be displayed in the Navisworks interface. Table 1-1 shows some of the frequently used shortcut keys in Navisworks.

Table 1-1 *Various shortcut keys used in Navisworks*

Keyboard Shortcut Keys	Description
F1	Open the Help system
F2	Rename the selected Item
CTRL+N	Create a new file
CTRL+O	Display the **Open** dialog box
CTRL+A	Display the **Append** dialog box
CTRL+0	Turn on turntable mode
CTRL+1	Activate the **Select** tool
CTRL+2	Activate the **Walk** tool
CTRL+6	Activate the **Pan** tool
CTRL+S	Save the current file

FILE TYPES IN Navisworks

In Navisworks, you can access files originated from a variety of design and engineering applications. It has the capability to share and coordinate these file types and create a single Navisworks file with a project view of the entire model. This file contains all the geometry data and the data created by several teams, and it enables you to explore the model. Navisworks converts and compresses most of the files upto 80 percent of their original size, so that sharing and working with files may become easier. Autodesk Navisworks supports three types of file formats: **NWD File Format**, **NWC File Format**, and **NWF File Format**. These file formats are discussed next.

NWC File Format

In Navisworks, NWC files represent the cache files that are created whenever you open a CAD file such as AutoCad and Revit. The cache file is created with the name of its CAD file, but with .nwc extension. These files are smaller than the original CAD files which makes their access faster.

You can customize the parameters for .nwc files from the **NWC** page in the **Options Editor** dialog box. To do so, choose **Options** from the Application Menu; the **Options Editor** dialog box will be displayed. Expand the **Model** node in the left pane of the dialog box. Choose the **NWC** option from this node; the **NWC** page will be displayed in the right pane of the dialog box, as shown in Figure 1-20.

In the **Caching** area, select the **Read Cache** check box to read the cache files when you open a CAD file. Similarly, select the **Write** check box to save a cache file.

In the **Geometry Compression** area, select the **Enable** check box to reduce the size of *.nwc* files. This will create smaller .nwc files that will require less memory.

In the **Reduce Precision** area, select the **Coordinates** check box to reduce the precision of coordinates. On selecting this check box, the **Precision** edit box will be activated. In this edit box, you can specify the precision value of coordinates. Select the **Normals** check box to reduce the precision of normals. Select the **Colors** check box to reduce the precision of colors. Select the **Texture Coordinates** check box to reduce the precision of texture coordinates.

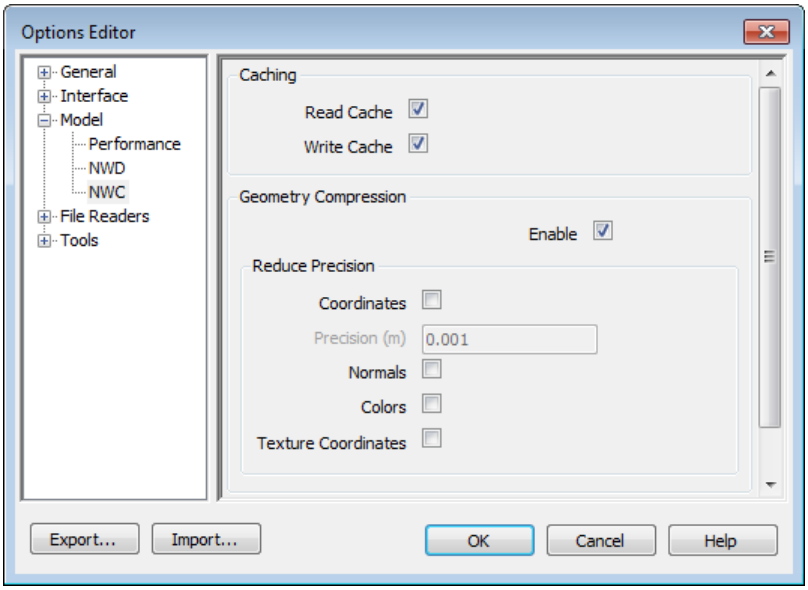

Figure 1-20 *The **NWC** page in the **Options Editor** dialog box*

NWD File Format

The NWD file stands for Navisworks Document File. The NWD file format is a basic file format, which contains all model geometry with relevant data. These files are very small as they compress the data upto 80 percent of their original size.

You can customize the parameters of .nwd files for saving and publishing them. To do so, choose **Options** from the Application Menu; the **Options Editor** dialog box will be displayed. Expand the **Model** node in the left pane of the dialog box. Choose the **NWD** option from this node; the **NWD** page will be displayed in the right pane of the dialog box, as shown in Figure 1-21. The options in this page are discussed next.

In the **Geometry Compression** area, select the **Enable** check box to compress the model geometry. This results in less memory usage leading to smaller *.nwd* files.

In the **Reduce Precision** area, select the **Coordinates** check box to reduce the precision of coordinates. On selecting this check box, the **Precision** edit box will be enabled. In this edit box, you can specify the precision value of coordinates. Select the **Normals** check box to reduce the precision of normals. Select the **Colors** check box to reduce the precision of colors. Select the **Texture Coordinates** check box to reduce the precision of texture coordinates.

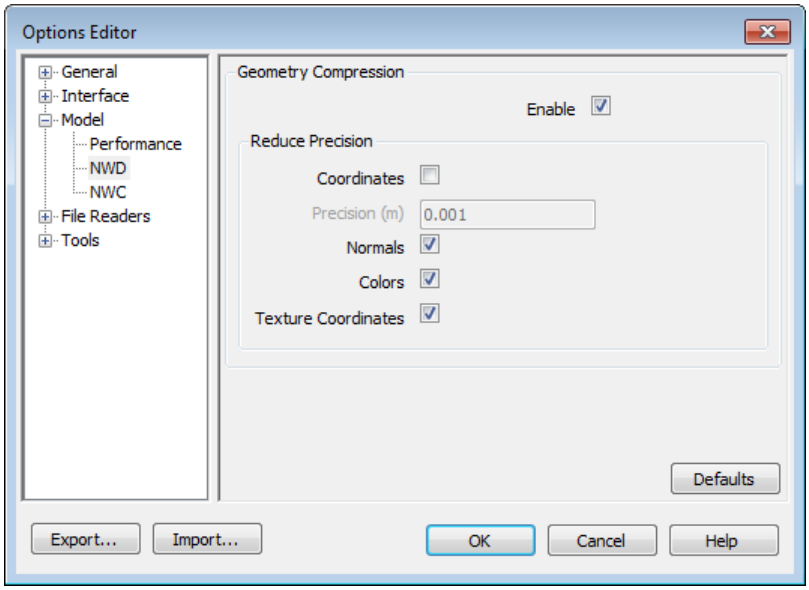

Figure 1-21 *The* ***NWD*** *page in the* ***Options Editor*** *dialog box*

NWF File Format

The *.nwf* format file contains link to the original Navisworks file along with specific data, graphics, viewpoints, search, timeliner, and information of the clash detection. The *.nwf* file does not store the model geometry, which makes it considerably smaller in size as compared to *.nwd* and *.nwc* file formats. You should always utilize *.nwf* file format while working on a project, so that the original source of file can be easily updated and re-cached.

FILE READERS

Autodesk Navisworks supports a variety of additional file types such as CAD file format, laser scan formats, and other engineering design applications. The file readers provide support to these file types with several types of file formats available in Navisworks. You can modify the parameters of these file formats. To do so, expand the **File Readers** node in the right pane of the **Options Editor** dialog box. Next, choose the desired file format from the right pane under the **File Readers**; the related parameter will be displayed in the right pane of the dialog box. For example, choose the **Revit** option in the left pane of the dialog box; the related parameters will be displayed in the right pane of the window, refer to Figure 1-22. These parameters are discussed next.

The options in the **Convert element parameters** drop-down list are used to specify the way to read the Revit parameters. The **Convert element Ids** check box is used to export the Id numbers for each Revit element. The **Try and find missing materials** check box is used to find the missing material, if any. The options in the **Coordinates** drop-down list are used to specify whether to use internal or shared coordinates for file aggregation. The **Convert element properties** check box is used to convert the properties of each Revit element into Navisworks nwc properties. The **Convert URLs** check box is used to support the hyperlink in the converted file. Select the **Convert construction parts** check box to export the construction

parts or clear this check box, if you want to export the original object. The **Convert linked files** check box is used to include the linked files in the exported NWC file. The **Divide File into Levels** check box is used to organize the Revit files in levels by file, category, family, and instance. The **Convert room geometry** check box is used to convert the room geometry into construction sub parts. The options in the **Convert** drop-down list are used to specify the viewing options for the Revit files.

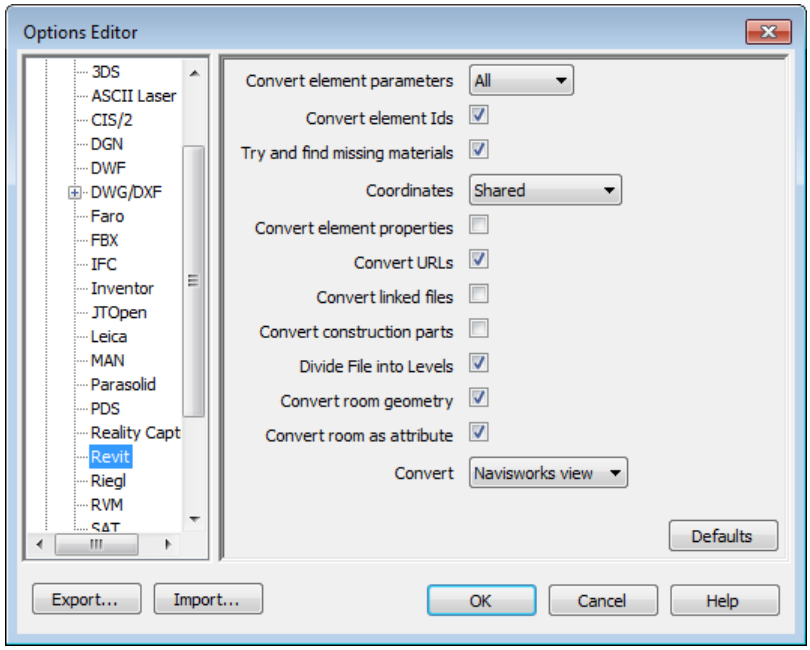

Figure 1-22 *Various options in the* ***Options Editor*** *dialog box*

MANAGING FILES IN Navisworks

In Navisworks, you can manage files in various ways. You can append geometry and data from multiple files; merge multiple files into single file; save, publish, and email files. Various procedures and operations used while managing files are discussed next.

Opening Files

In Navisworks, you can open an existing Navisworks project or any supported design file. To open a file, choose **Open > Open** from the Application Menu; the **Open** dialog box will be displayed. In the dialog box, browse to the file location and select the appropriate file and choose the **Open** button; the file will be opened in Navisworks. In this method of file opening, Navisworks automatically uses the appropriate file reader according to the file format.

You can also open the .nwd files located on a web server. To do so, choose **Open > Open URL** from the Application Menu; the **Open URL** dialog box will be displayed, as shown in Figure 1-23. Next, specify the file address in the text box and choose the **OK** button; the file will be opened in Navisworks.

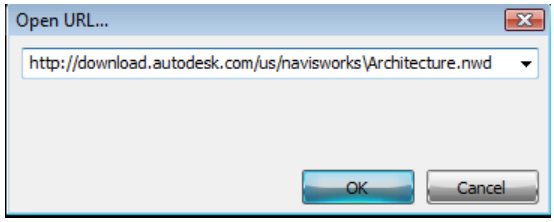

Figure 1-23 *The* ***Open URL*** *dialog box*

Appending Files

In Navisworks, you can create a composite model by adding geometry and data from multiple files to the currently open 3D model or 2D sheet. This process retains duplicate content such as geometry and mark ups. To add a file, choose **Open > Append** from the Application Menu; the **Append** dialog box will be displayed, as shown in Figure 1-24. In the dialog box, browse to the file location, select the appropriate file type, and then choose the **OK** button; the geometry and data from the file will be added to the currently opened file.

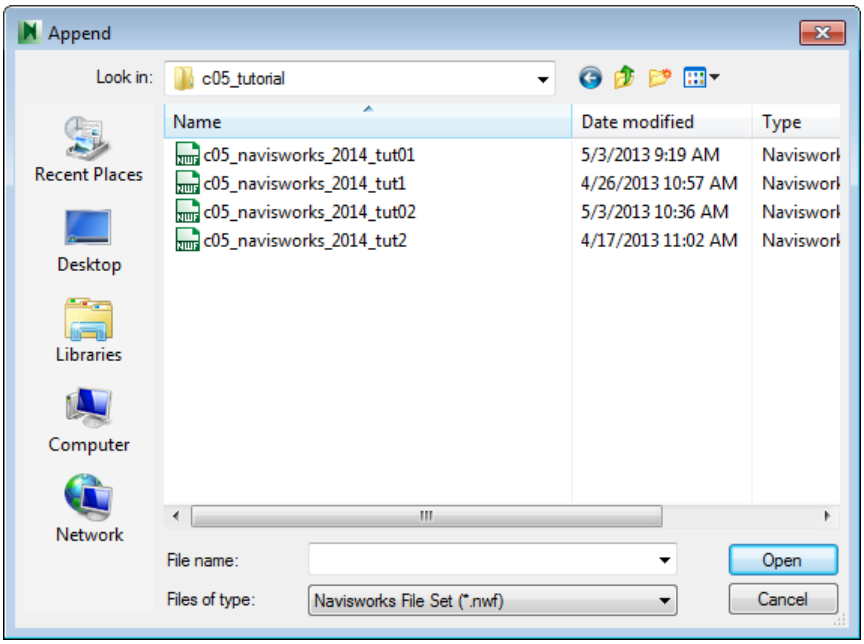

Figure 1-24 *The* ***Append*** *dialog box*

Merging Files

The users can review a model in different ways and their resultant models can be merged into a single Autodesk Navisworks file. Using the **Merge** feature, you can combine multiple copies of the same model without any duplication, but this will work only with NWF files. In NWD files, the **Merge** option will function like the **Append** option. To merge files, choose **Open > Merge** from the Application Menu; the **Merge** dialog box will be displayed, as shown in Figure 1-25. In the dialog box, browse to the file location, select the appropriate file type, and choose the **OK** button; the file will be merged with the currently opened file.

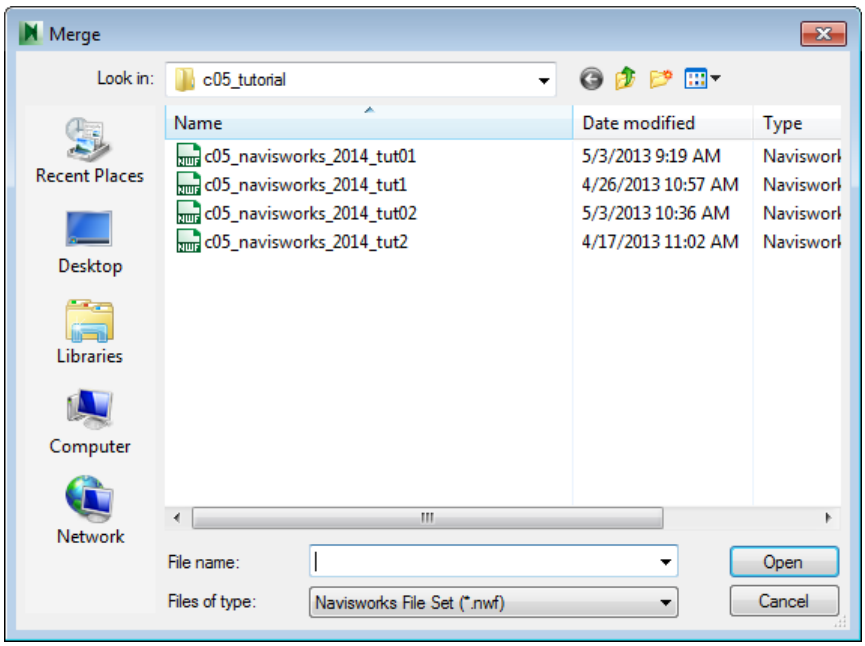

Figure 1-25 *The* ***Merge*** *dialog box*

Saving Files

You can save the Navisworks project either in an NWF file format by bringing all the model files together or in an NWD file format to capture the snapshot of your model. To save a file, choose the **Save As** tool from the Application Menu; the **Save As** dialog box will be displayed, as shown in Figure 1-26. In the **Save As** dialog box, browse to the file location, specify the file name, file type (.nwd or .nwf), and then choose the **Save** button; the file will be saved with the specified name at the specified location.

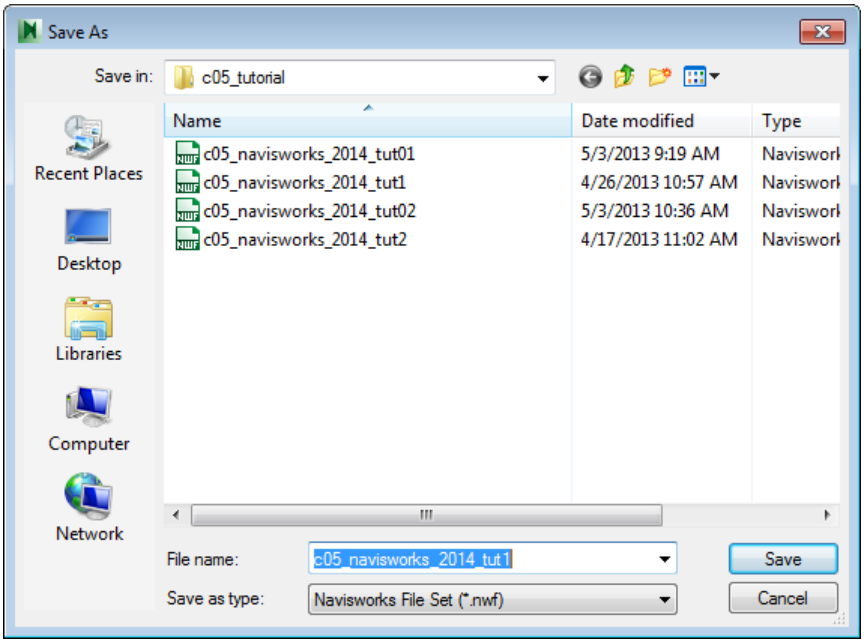

Figure 1-26 *The* ***Save As*** *dialog box*

Publishing Files

When you want to share your files with others, you can do so by using the **Publish** option. Using this option, you can embed the additional document information such as title, subject, name of the author, publisher, and so on. This option provides an additional security feature file password and file expiration, which allows the file to be accessed only with correct password, thus making it secure. To publish a file, choose the **Publish** option from the Application Menu; the **Publish** dialog box will be displayed as shown in Figure 1-27. Alternatively, to invoke the **Publish** dialog box, choose the **NWD** tool from the **Publish** panel in the **Output** tab.

Specify the parameters in the **Publish** dialog box and choose the **OK** button; the **Save As** dialog box will be displayed. In the **Save As** dialog box, browse to the file location, specify the file name, and choose the **Save** button; the file will be published at the specified location.

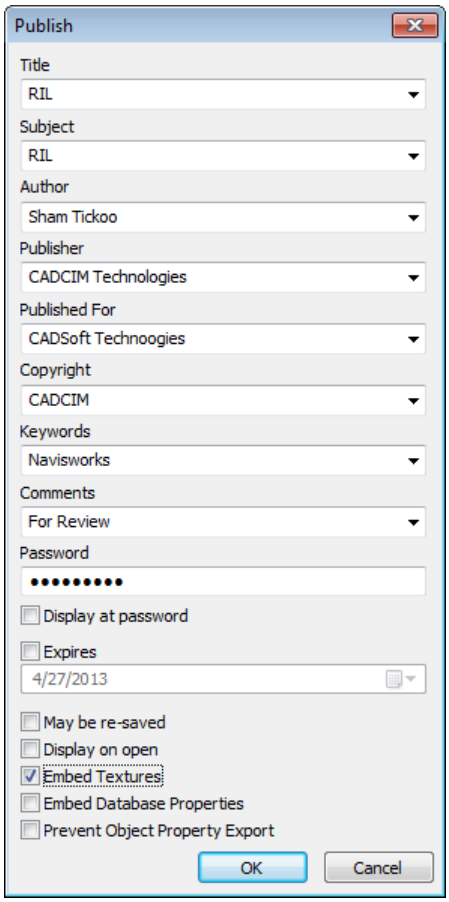

Figure 1-27 *The* ***Publish*** *dialog box*

Emailing Files

In Navisworks, because of the small size of the files, you can easily send and receive them through emails by using the **Send By Email** option. You can send both NWD and NWF files via email. To send an email, choose the **Send by Email** option from the Application Menu; an available mail software will open with a blank message. Your file will be attached with this message and ready to be dispatched. Alternatively, choose the **Send by Email** option from the **Send** panel in the **Output** tab.

WORKING WITH BATCH UTILITY

The **Batch Utility** allows you to append a batch of any supported format files into a single Navisworks file. You can convert multiple design files into a single NWD file. You can also generate a list of all the design files used in an integrated model in a text file. The **Batch Utility** is integrated with the **Windows Task Scheduler** option which allows you to schedule the conversions at specified times and intervals. The methods for combining and converting the files are discussed next.

Creating a List of Design Files

You can create a list of all the design files used in the current model. To do so, choose the **Batch Utility** tool from the **Tools** panel in the **Home** tab; the **Navisworks Batch Utility** dialog box will be displayed, as shown in Figure 1-28. In the left pane of the **Input** area, browse to the folder containing the design files; a list of design files will be displayed in the right pane of the **Input** area. Next, select the required files from the right pane of the **Input** area using the CTRL key and choose the **Add Files** button; files will be added to the file list box, refer to Figure 1-28. Next, choose the **Browse** button in the **As Single File** tab of the **Output** area in the dialog box; the **Save output as** dialog box will be displayed. In this dialog box, browse to the desired folder and enter the name for text file. Then, select the **File list (.*txt)** option from the **Save as type** drop-down list. Next, choose the **Save** button; the file will be saved at the specified location. Next, in the **Navisworks Batch Utility** dialog box, choose the **Run Command** button; the saved text file will be displayed with all the added design files and their paths.

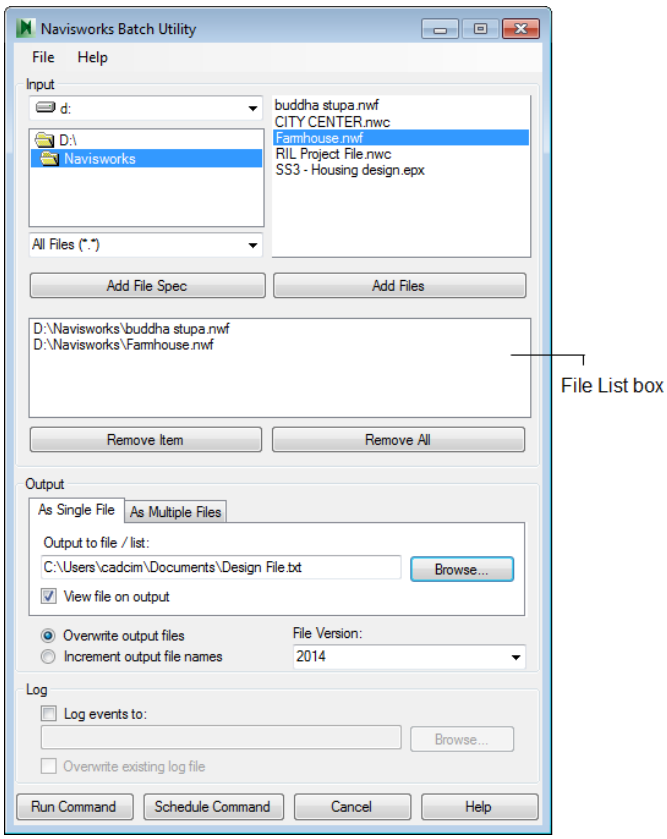

Figure 1-28 *The* ***Navisworks Batch Utility*** *dialog box*

Appending Multiple Files into a Single Navisworks File

You can append multiple design files into a single Navisworks file. To do so, browse to the file location and select the folder containing the files in the **Input** area; the files will be displayed

in the right pane of the dialog box. Select the required files using the CTRL key. Next, add the selected files by using the **Add Files** button. Now, choose the **Browse** button in the **As Single File** tab of the **Output** area in the dialog box; the **Save As** dialog box will be displayed. Next, specify the name for the new file and select the required file format (NWD or NWF) from the **Save As** drop-down list. Choose the **Save** button; the file will be saved at the specified location. Next, choose the **Run Command** button in the **Navisworks Batch Utility** dialog box; the saved file will be loaded in Navisworks with all the added files.

You can also schedule the appending multiple design files into a single file. To do so, follow the same process as mentioned above, but instead of choosing the **Run Command**, choose the **Schedule Command** button; the **Save task file as** dialog box will be displayed. In this dialog box, browse to the desired location and choose the **Save** button; the **Schedule Task** dialog box will be displayed. In the **Schedule Task** dialog box, specify the task name if required and specify the user name and password, and then choose the **OK** button; the **Window Task Scheduler** dialog box will be displayed. In this dialog box, choose the **New** button in the **Schedule Tab**. Next, specify when and how often you want to run the task and then choose the **OK** button.

Converting Multiple Files into Single NWD File

To convert multiple design files into a single NWD file follow the same steps for selecting the files as discussed above. Next, select the **Output to directory** radio button in the **As Multiple Files** tab. Note that if you select the **Output to same directory as source files** option, then by default, files will be created at the same location as source files. Next, choose the **Browse** button; the **Browse For Folder** dialog box will be displayed. In this dialog box, select the desired folder and then choose the **Run Command**; the added files will be converted into the NWD files and will be saved at the specified location. You can also schedule the conversion of multiple design files into individual NWD file. To do so, instead of using the **Run Command**, choose the **Schedule Command** and follow the steps as discussed above for importing the files.

SHARING DATA IN Navisworks

In Navisworks, there are three applications that you can use to share data: **Print** files, **Import** files, and **Export** files. These applications are discussed next.

Printing Files

In Navisworks, you can plot the existing view of the model using the **Print** tool. Before plotting the view, you need to see how it will appear on the sheet. To do so, choose the **Print Preview** tool from the **Print** panel in the **Output** tab; the print preview sheet will be displayed in the Scene View. Choose the **Zoom In** and **Zoom Out** buttons to adjust the view of the model. Choose the **Close** button to close the preview.

The print set up is configured by using the **Print Settings** tool. To change the print setup, choose the **Print Settings** tool from the **Print** panel in the **Output** tab; the **Print Setup** dialog box will be displayed. Make the changes as required in this dialog box, and choose the **OK** button to close it.

Next, to print the current view, choose the **Print** tool from the **Print** panel in the **Output** tab; the **Print** dialog box will be displayed. Verify the printer settings as required and choose the **OK** button; the file will be printed.

Importing Files

In Navisworks, data such as current search criteria, viewpoints, search sets, PDS review data, PDS tags, and PDS display sets can be imported. To import the search criteria defined in other files into Navisworks, choose the **Find Items** button from the **Select & Search** panel in the **Home** tab; the **Find Items** window will be displayed. Choose the **Import** button in this dialog box; the **Import** dialog box will be displayed. Browse to locate the desired .xml file, select it and choose the **Open** button; the selected file will be imported to the current session.

You can also import the search sets that you have saved. To do so, choose **Manage Sets** from the **Home > Select & Search > Sets** drop-down; the **Sets** window will be displayed. In this window, choose the **Import Search Sets** from the **Import/Export** drop-down; the **Import** dialog box will be displayed. Browse to locate the desired .xml file, select it, and choose the **Open** button; the selected file will be imported as search sets in the **Sets** window.

The method of defining search criteria and saving the search sets is discussed in the later chapters.

Similarly, to import the PDS display sets, choose the **Import PDS Display Sets** option from the **Import/Export** drop-down; the **Import** dialog box will be displayed. Browse to the desired .xml file, select it, and choose the **Open** button; the file will be imported to the current session. To import a PDS tag file, expand the **Tag** panel in the **Review** tab; a drop-down will be displayed, as shown in Figure 1-29. Choose **Import PDS Tags** from this drop-down; the **Import** dialog box will be displayed. Browse to the desired *.tag file, select it and choose the **Open** button; the file will be imported in the current session.

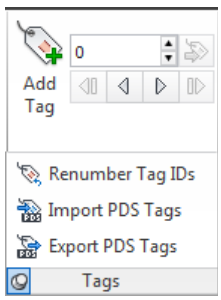

***Figure 1-29** The **Tag** drop-down*

To import a viewpoint, right-click in the **Saved Viewpoints** window; a shortcut menu will be displayed. Select the **Import Viewpoints** option from this shortcut menu; the **Import** dialog box will be displayed. Browse to the desired .xml file, select it and choose the **Open** button; the viewpoint will be imported to the current session.

Exporting Files

You can export data into various file formats from Navisworks such as 3D DWF/ DWFx, Google Earth KML, FBX files, and so on. To export a 3D model as DWF/DWFx file format, choose the **3D DWF/DWFx** option from the **Export Scene** panel in the **Output** tab; the **Export** dialog box will be displayed. Browse to the folder, where you want to locate the file and enter the file name in the **File name** edit box. Choose the desired format to save the file from the options in the **Save as type** drop-down list and choose the **Save** button; the file will be exported and saved at the specified location.

To export the Google Earth KML files, choose the **Google Earth KML** tool from the **Export Scene** panel in the **Output** tab; the **KML Options** dialog box will be displayed, as shown in Figure 1-30. The options in the dialog box are discussed next.

Select the **Export model relative to terrain height** check box in the **Options** area to put Google Earth in a mode where all heights are measured from ground. Clear this check box to measure the height from the sea level. To specify the model hierarchy in the exported file, select the required option from the **Collapse on export** drop-down list. To limit the amount of geometry exported into the output file, select the **Enable** check box in the **Limit number of polygons** area. The **Origin**, **Second reference point**, and **Third reference point** areas are used to show the reference point on Google Earth surface. To select the reference points from the Scene View, choose the **Pick** button from the required area and click at a location in the Scene View. Next, choose the **OK** button; the **Export** dialog box will be displayed. Enter the file name and location, and choose the **Save** button; the file will be exported and saved at the specified location.

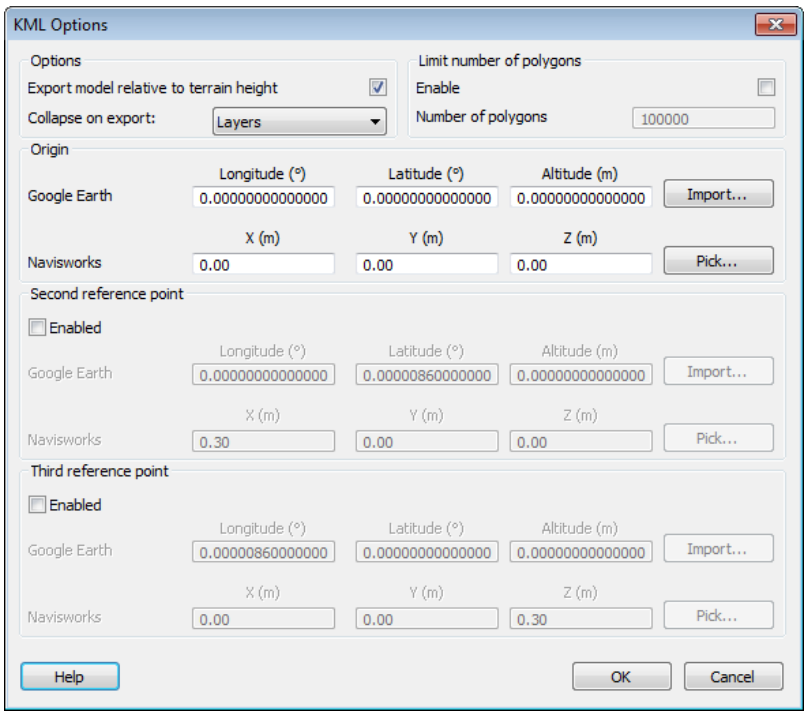

Figure 1-30 *The **KML Options** dialog box*

To export the FBX file, choose the **FBX** tool from the **Export Scene** panel in the **Output** tab; the **FBX Options** dialog box will be displayed as shown in Figure 1-31. To limit the amount of geometry exported into the output file, select the **Enabled** check box in the **Polygon Limiting** area of the **FBX Options** dialog box and enter the number of polygons in the **Number of Polygons** edit box. To include **Textures**, **Lights**, and **Cameras**, select the corresponding check boxes in the **Include** area. Specify the units to be used in the exported FBX file by selecting

an option from the **Convert Units to** drop-down list. Specify the format of exported file by selecting the option in the **FBX File Format** drop-down list. Select the version of exported file from the **FBX File Version** drop-down. Choose the **OK** button to close the dialog box; the **Export** dialog box will be displayed. In this dialog box, enter the file name and location, and then choose the **Save** button; the file will be exported and saved at the specified location.

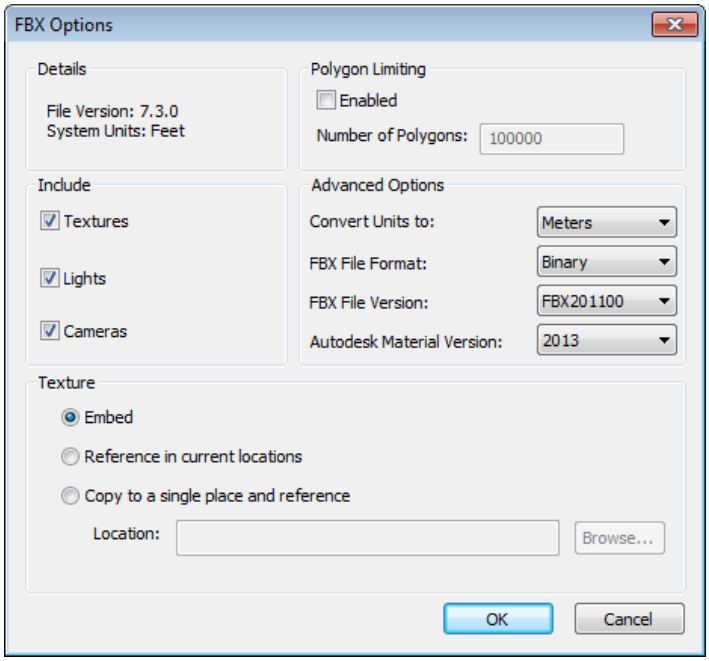

Figure 1-31 *The* ***FBX Options*** *dialog box*

Exporting Images and Animations

In Navisworks, you can export an image as JPEG or PNG file. You can also export the rendered image as different file formats. To export an image as JPEG image, choose the **Image** tool from the **Visuals** panel in the **Output** tab; the **Image Export** dialog box will be displayed, as shown in Figure 1-32. The options in this dialog box are discussed next.

In the **Output** area, select the format of the image from the **Format** drop-down list. For example, to export the image as JPEG, select the **JPEG** option from the list.

In the **Renderer** area, you can select a renderer from the **Renderer** drop-down list. Select the **Presenter** option to render the image with Presenter. Select the **Viewport** option to quickly render the image. Select the **Autodesk** option to render the image with Autodesk Rendering.

In the **Size** area, you can adjust the size of the image. In the **Options** area, you can smooth the edges of the exported image. Note that the **Options** area will be activated only if you have selected the **Viewport** option from the **Renderer** drop-down list in the **Renderer** area. After

specifying all the parameters, choose the **OK** button; the **Save As** dialog box will be displayed. In this dialog box, specify the file name and location, and then choose the **Save** button; the file will be saved as an image at the specified location.

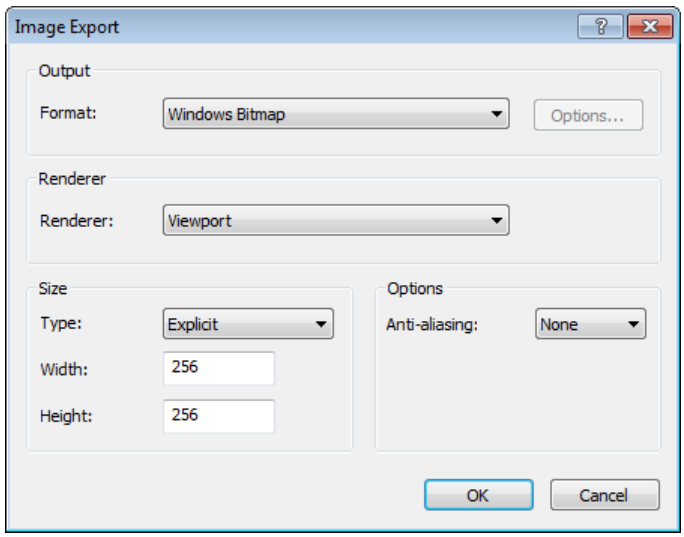

Figure 1-32 *The* ***Image Export*** *dialog box*

You can also export a rendered image in different file formats. To do so, choose the **Rendered Image** tool from the **Visuals** panel in the **Output** tab; the **Export Rendered Image** dialog box will be displayed, as shown in Figure 1-33. Select the type of image to be exported from the **Type** drop-down list. Choose the **Browse** button to specify the location. To set the size of file, specify the **Type**, **Width**, and **Height** parameters in the **Size** area. After specifying all the parameters, choose the **OK** button; the file will be saved as an image at the specified location.

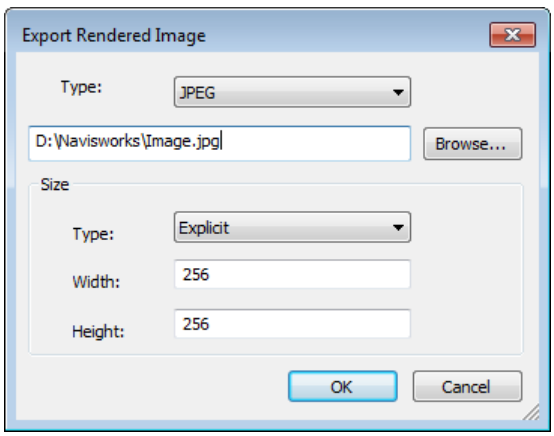

Figure 1-33 *The* ***Export Rendered Image*** *dialog box*

Similarly, you can export a file as a Piranesi Epix file. To do so, choose the **Piranesi Epix** tool from the **Visuals** panel in the **Output** tab; the **Piranesi Epix** dialog box will be displayed. In this dialog box, choose the **Browse** button; the **Save As** dialog box will be displayed. In the **Save As** dialog box, specify the file name and location, and then choose the **Save** button. Next, specify the size in the **Size** area and choose the **OK** button; the file will be exported and saved at the specified location.

You can also export the animation created in Navisworks as an AVI file (Audio Video Interleave). To do so, choose the **Animation** tool from the **Visuals** panel in the **Output** tab; the **Animation Export** dialog box will be displayed. In the **Source** area of the dialog box, select the source of animation from the **Source** drop-down list. In the **Renderer** area, select a renderer from the **Renderer** drop-down list. Set the size of the animation by using the options available in the **Size** area. After specifying all the parameters, choose the **OK** button; the **Save As** dialog box will be displayed. In the **Save As** dialog box, specify the file name and location and choose the **Save** button; the file will be exported and saved at the specified location.

Export Data

You can also export clash tests information, TimeLiner schedule, search set files, viewpoint files, viewpoint reports, and tag files. The tools used for exporting this type of data are available in the **Export Data** panel of the **Output** tab. Exporting this data is discussed in detail in further chapters.

SWITCHBACK FEATURE

In Navisworks, you can switchback to the native software by using the Switchback feature. This feature allows you to select an object in Navisworks and then locate, review, and modify the same object in the native software in which the model has been created. For example, to use the switchback feature with Revit, ensure that Revit is installed on the system. In the Revit software, choose the **Add-Ins** tab and select **External Tools > Navisworks Switchback**. Now return to Navisworks and select the required object in the Scene View; the **Item Tools** contextual tab will be displayed in the ribbon. Next, choose the **Switchback** tool from the **Switchback** panel in the **Item Tools** tab; the **Resolve** dialog box will be displayed. In this dialog box, you need to specify the location of the revit file and then choose the **OK** button. The 3D view of the model will be loaded in the Revit. Next time when you select an object in the model in Navisworks and then use the **Switchback** feature, the model with the current view and the selected object will be loaded in Revit.

If the **Add-Ins** tab is not available in the Revit software, then go to **Control Panel > Programs and Features**. Double-click in the **Autodesk Navisworks Manage 2014 Exporter Plug-ins** displayed in the program list; the **Setup Initialization** window will be displayed. Choose the **Add or Remove Features** option; the description box will be displayed. In the description box, ensure that the **Revit 2014 Plugin** option has a green tick mark next to it . Next, choose the **Update** button and restart the computer; the **Add-Ins** tab will be added in the Revit software.

SETTING UNITS IN Navisworks

When you open a file in Navisworks, the units of the model elements in the file will be the same as those you have assigned in the original CAD application. You can also customize the display units. To do so, choose the **Options** button from the Application Menu; the **Options Editor** dialog box will be displayed. In the dialog box, expand the **Interface** node in the left pane of the dialog box and then select **Display Units**; various options will be displayed in the right pane of the dialog box, as shown in Figure 1-34. In the right pane of the dialog box, select the required linear units from the **Linear Units** drop-down list. Select the angular units from the **Angular Units** drop-down list. Specify the number of decimal places in the **Decimal Places** edit box. If you have selected the fractional unit instead of a decimal unit, you can also define the level of fraction to display the units by selecting options from the **Fractional Display Precision** drop-down list.

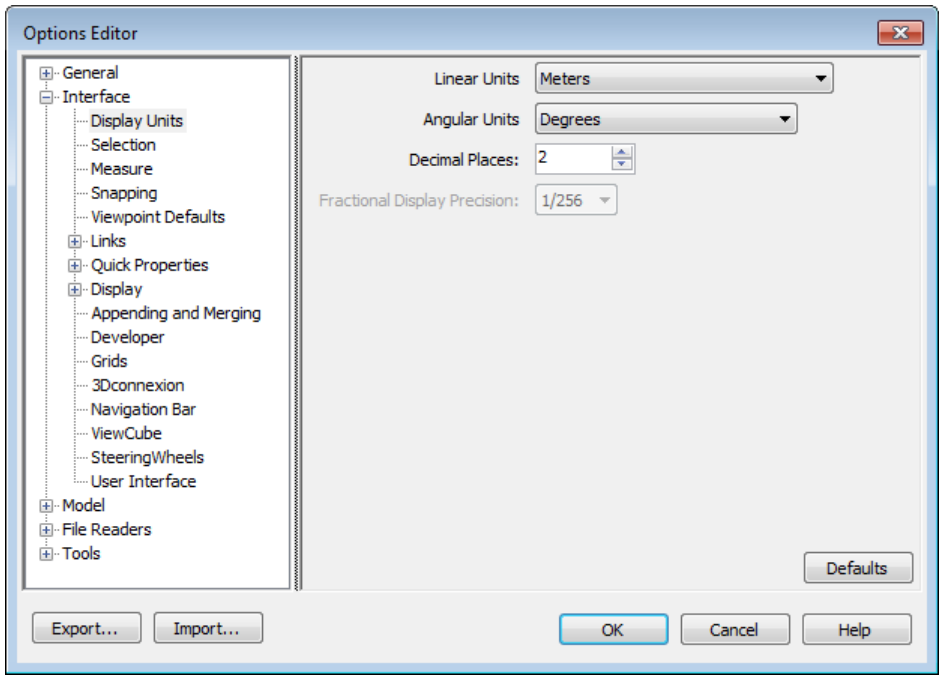

Figure 1-34 *Selecting the* ***Display Units*** *option in the* ***Options Editor*** *dialog box*

Navisworks WORKSPACES

In Navisworks, there are four pre-configured workspaces. You can customize these workspaces for the basic and advanced users. You can also set up a workspace as required. To use the pre-configured workspaces, select a workspace from the **View > Workspace > Load Workspace** drop-down. The options in the drop-down are: **Safe Mode**, **Navisworks Extended**, **Navisworks Minimal**, and **Navisworks Standard**. These workspaces are discussed next.

Safe Mode

The **Safe Mode** workspace displays the interface with minimal features, as shown in Figure 1-35.

Navisworks Extended

The **Navisworks Extended** workspace displays the interface with features recommended for advanced users. Figure 1-36 shows the interface with the **Navisworks Extended** workspace.

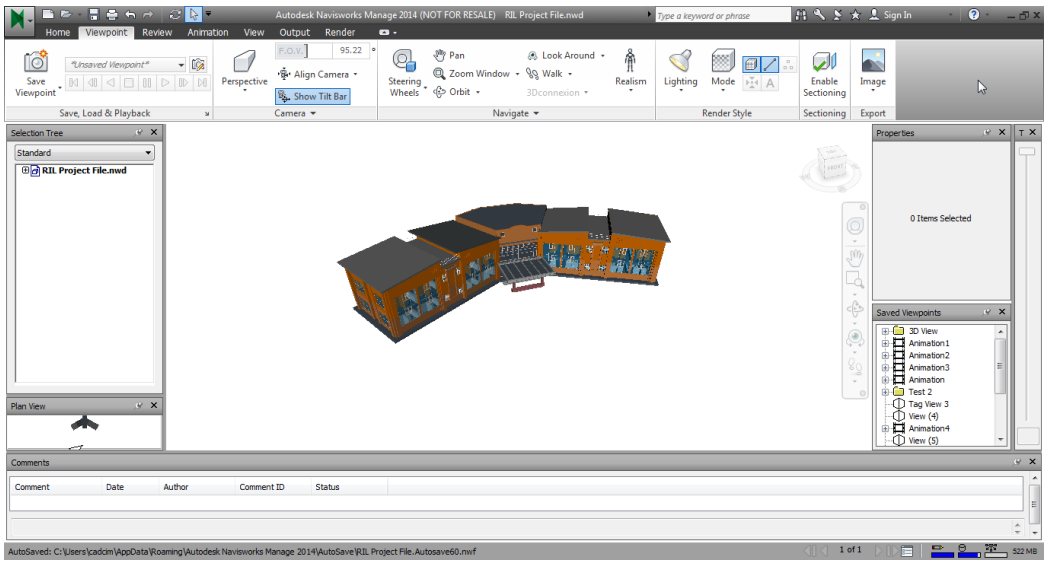

Figure 1-35 *The* ***Safe Mode*** *workspace in Navisworks*

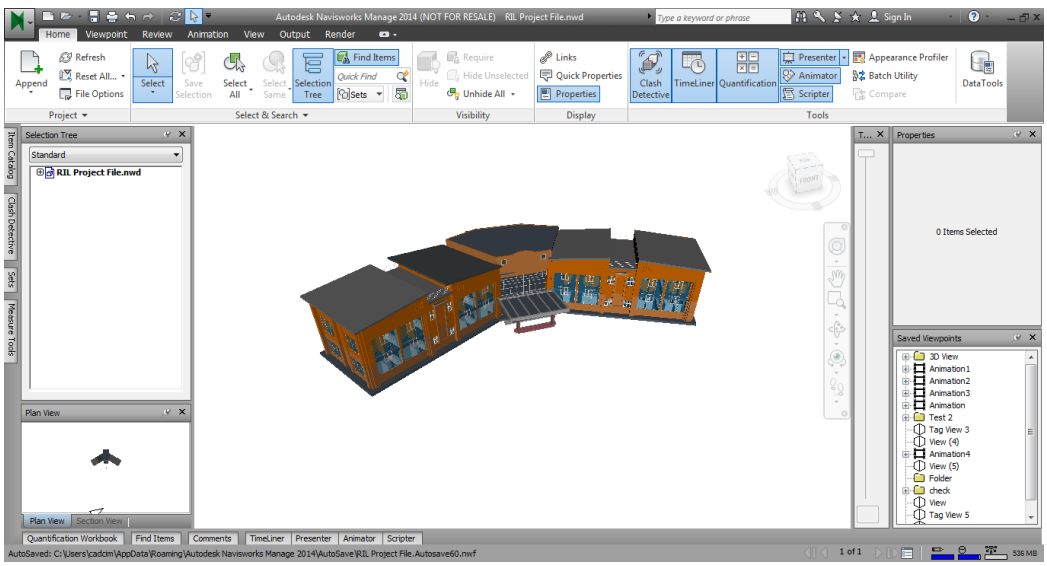

Figure 1-36 *The* ***Navisworks Extended*** *workspace*

Navisworks Standard

The **Navisworks Standard** workspace displays the interface with commonly used windows. These windows will be displayed as tabs in the Scene View. Figure 1-37 shows the interface with the **Navisworks Standard** workspace.

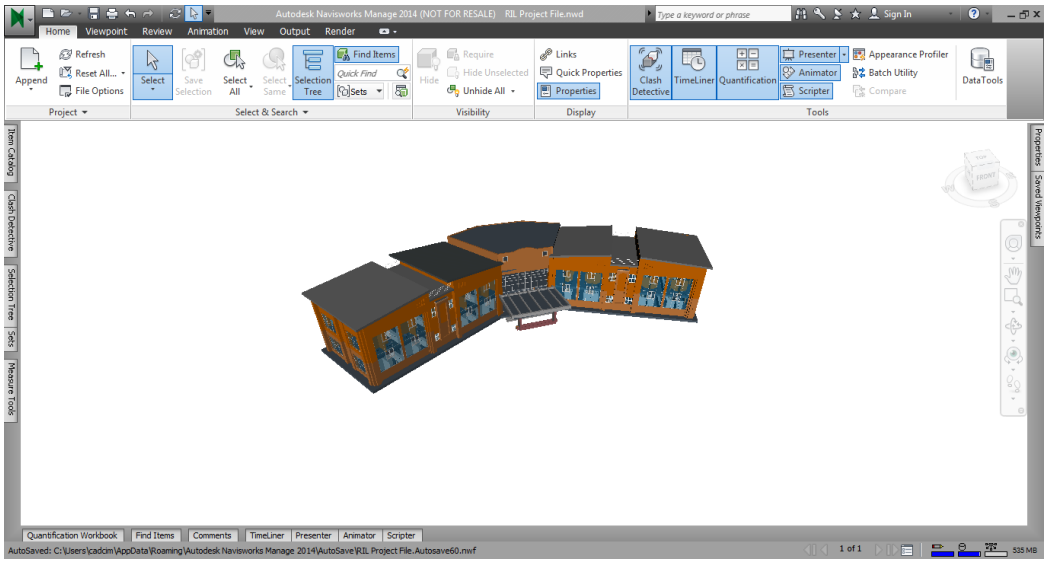

Figure 1-37 *The* ***Navisworks Standard*** *workspace*

Navisworks Minimal

The **Navisworks Minimal** is the default workspace that will be loaded when you start Navisworks. In this workspace, the dockable windows are not displayed in the Scene View and therefore you get the maximum area to work with.

You can save the current workspace configuration to a new workspace. To do so, choose the **Save Workspace** tool from the **Workspace** panel in the **View** tab; the **Save Current Workspace** dialog box will be displayed. In the dialog box, browse to the desired location and choose the **Save** button to save the workspace. The workspace will be saved as **Workspace files (*.xml)** file type.

Next, to load the saved workspace, select the **More Workspaces** option from the **View > Workspace > Load Workspace** drop-down list; the **Load Workspace** dialog box will be displayed. In the dialog box, browse to the file location, select the workspace and choose the **Open** button; the saved workspace will be loaded.

Autodesk Navisworks HELP SYSTEM

The **Help** feature contains complete information about using the Navisworks software. With the help of user assistance, you will learn to use Navisworks efficiently. You can easily find general descriptions, procedures, definition of terms, how to use tools, details about the dialog boxes, and so on, with the use of Help feature. In Autodesk Navisworks Manage 2014, you can access online help documentation (Autodesk WikiHelp) as well as local (offline) help documentation.

To access the help feature click on the **Help** drop-down on the right of the **Favorites** button, a flyout containing help options will be displayed, as shown in Figure 1-38. The options to access the help are discussed next.

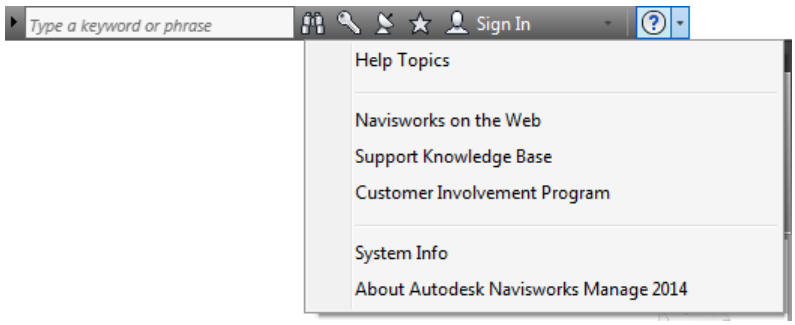

Figure 1-38 *The* ***Help*** *menu*

Using the Local Navisworks Manage 2014 Help Feature

To access the local Navisworks Manage 2014 Help, choose the **Help Topics** option from the **Help** menu, the Autodesk Navisworks **Help** window page will be displayed, as shown in Figure 1-39. Note that, if you always want to use the offline help page, select the **Always use offline help** check box from the **Options > Options Editor > General > Environment** from the Application Menu.

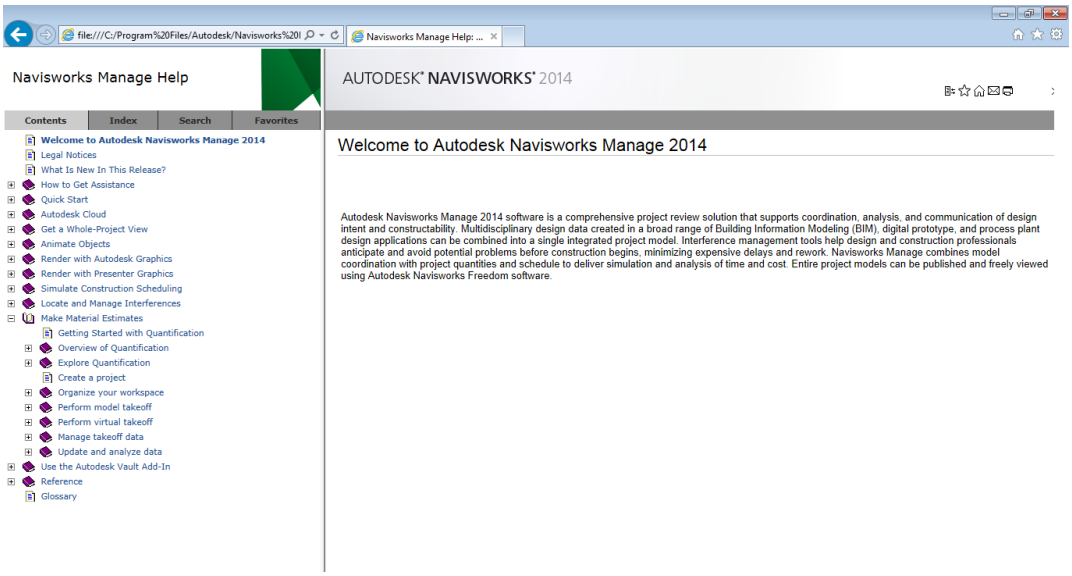

Figure 1-39 *Partial view of the Navisworks* ***Help*** *page*

In the **Help** window, the left side is used to locate the information tabs that help you in finding the desired topics. The topics you select from the left side will be displayed in the right side. The tabs on the left side of the window provide different methods for finding the information. In the **Contents** tab, you will get an overview of the available documentation

in the form of a list of topics and sub topics arranged in a hierarchical structure. The **Index** tab displays an alphabetical list of keywords related to the topics listed in the **Contents** tab. With the help of the **Index** tab, you can access the information quickly. You can search all topics listed in the **Contents** tab by using the **Search** tab. You can type the keywords in the **Search** box. The keywords are not case sensitive. Note that, you can only search for letters and numbers in the search box but not the punctuation marks. While searching for phrases, use double quotation marks to wrap the words so that they appear in defined sequence and display the correct result.

In Navisworks, the topics in the **Help** window are organized into three tabs: **Concept**, **Procedure**, and **Quick Reference tab**. These tab display different types of information. To display an attribute or function of a particular topic, click on the **Concept** tab in the **Help** window; the **Help Content** list will highlight the current topic. To learn the step-by-step process of using a tool or an option in the current topic, click on the **Procedure** tab; it will display the easiest procedure of using that tool or option. To display the list of the information related to the current topic, click on the **Quick Reference** tab.

You can also print the topics in the **Help** window by using the **Print** option. To print a help topic, click on the topic you want to print and then right-click in the right side of the window; a shortcut menu will be displayed. Choose the **Print** option from the menu; the **Print** dialog box will be displayed. In this dialog box, choose the **Print** button.

Using the Autodesk WikiHelp

In Autodesk Navisworks Manage 2014, **Autodesk WikiHelp** has been introduced to access various help topics online. You can access the **Autodesk WikiHelp** for Navisworks Manage by choosing the **Help** tool from the **Infocenter**. On doing so, the **Autodesk WikiHelp** page will be displayed, as shown in Figure 1-40. In the **Browse Help** area of this page, click on the required topic; the content related to the selected topic will be displayed in the help page.

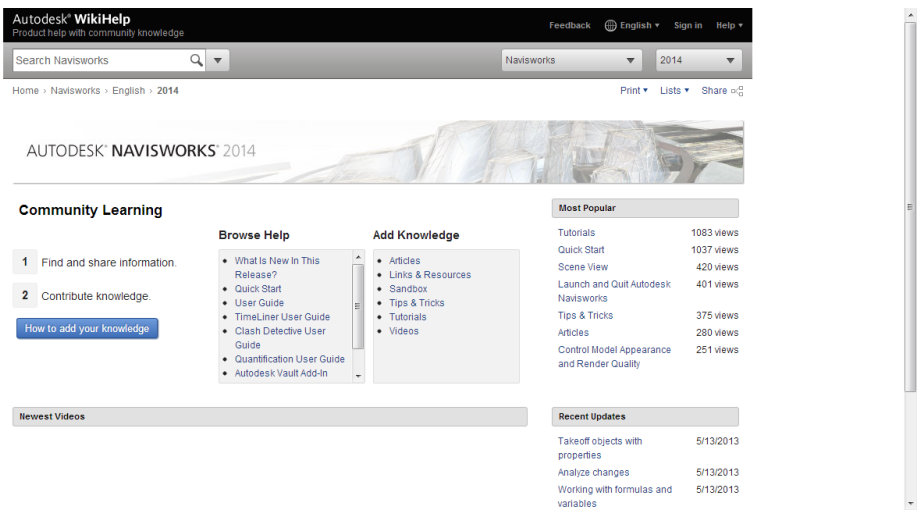

***Figure 1-40** The **Autodesk WikiHelp** page*

Using the Context Sensitive Help

If you need help, specific for a selected tool or dialog box, Autodesk Navisworks Manage provides several options to access the relevant information. Many dialog boxes contain the **Help** button that can be used to view help for the options available in that dialog box. If the **Help** button is not available, you can press the F1 key to access the related information. To inquire about a tool; place the cursor over it; a **Help** message box will be displayed. Now, you can press the F1 key to view more help topics.

Self-Evaluation Test

Answer the following questions and then compare them to those given at the end of this chapter:

1. The _____ window is used to import 2D sheets and 3D models.

2. The _____ feature is used to combine the multiple models together without any duplication.

3. The _____ option is used to send Navisworks files to other users via email.

4. The _____ workspace displays the interface with minimum features.

5. The _____ comprises various navigation tools.

6. The NWC files are heavier than their original CAD applications. (T/F)

7. The NWD files contain the model geometry with the relevant data. (T/F)

8. Using the **Open URL** option, you can open the NWD files located on a web server. (T/F)

9. The **Batch Utility** option is used to print the Navisworks files. (T/F)

10. The NWF files does not contain any link to the original files. (T/F)

Review Questions

Answer the following questions:

1. Which of the following options is used to open a file in Navisworks?

a) **Send by Email** b) **Print**
c) **Open** d) **Export**

2. Which of the following options is used to display only tab titles in the **Ribbon**?

a) **Minimize to Panel Titles** b) **Minimize to Tabs**
c) **Cycle through All** d) **Open URL**

3. Which of the following options is used to split the Scene View horizontally?

a) **Split Vertical** b) **Split Horizontal**
c) **Show Title Bars** d) **Background**

4. Which of the following options is used to display the interface for advanced users?

a) **Safe Mode** b) **Navisworks Standard**
c) **Navisworks Extended** d) **Navisworks Minimal**

5. Which of the following option is not available in the Application Menu?

a) **Open** b) **Open URL**
c) **Print** d) **Load Workspace**

6. The File Options are used to save the changes within a particular file. (T/F)

7. In Navisworks, you cannot customize the lighting in the Scene View. (T/F)

8. The Global Options are saved for the all Navisworks sessions. (T/F)

9. The NWC file is a Navisworks Document File type. (T/F)

10. In Navisworks, you cannot export data in various file formats. (T/F)

Answers of Self-Evaluation Test
1. Project Browser, **2. Merge**, **3. Send by Email**, **4. Safe Mode**, **5. Navigation Bar**, **6.** F, **7.** T, **8.** T, **9.** F, **10.** F