Oracle Utilities Network Management System

User's Guide

Release 1.12.0.2.0

E61792-01

April 2015

ORACLE®

Contents

Chapter 2

Chapter 3

Chapter 4

Chapter 7

Management Reporting **7-1**

Chapter 8

Chapter 9

Chapter 10

Power Flow, Suggested Switching,
Volt/VAr Optimization, and

Chapter 11

Chapter 12

Chapter 13

Chapter 14

Chapter 18

Appendix A

Appendix B

Preface

This guide describes how to use the Oracle Utilities Network Management System. It provides instructions for completing common tasks and provides descriptions of the fields, windows, buttons, and menus you will use to perform those tasks. The instructions and descriptions in this guide are based on the default product configuration for a user with full authority to use all functionality. Because the system is highly configurable, your system may look and behave differently.

Audience

This document is intended for users of the Oracle Utilities Network Management System application.

Related Documents

For more information, see the following documents:

- *Oracle Utilities Network Management System Installation Guide*

- *Oracle Utilities Network Management System Quick Install Guide*

- *Oracle Utilities Network Management System Configuration Guide*

- *Oracle Utilities Network Management System Adapters Guide*

Integration Guides

The following guides provide additional information for use when integrating with other Oracle Utilities applications.

- *Oracle Utilities Network Management System – Mobile Workforce Management Interface Implementation Guide*

- *Oracle Utilities Network Management System – Mobile Workforce Management Interface User Guide*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1

Web Workspace

This chapter describes the Oracle Utilities Network Management System (NMS) Web Workspace application. It includes the following topics:

- **Getting Started with Web Workspace**

- **Using the Work Agenda**

- **Using the Viewer**

- **Using the Control Tool**

- **Condition Summaries**

- **Using the Alarms and Devices Lists**

- **Using the User Log**

Getting Started with Web Workspace

The **Web Workspace** is a real-time application that provides the toolsets and views that are the foundation of the NMS user environment. The common features and platform provided by the Web Workspace provide a cohesive user experience for NMS application modules, such as Outage Management or Web Switching Management. This section provides information on common Web Workspace features, including the following topics:

- **Launching the Web Workspace and Logging In**

- **Understanding the Web Workspace Window**

    - **Common Features**

    - **Menus and Toolbars**

    - **Annunciators**

- **Window Positioning and Sizing**

    - **Moving Windows**

    - **Adjusting Window Size**

- **Working with Tables**

- **Sorting and Filtering Data**

- **Printing**

- **Taking Authority for Control Zones**

- **Creating an Event**

Launching the Web Workspace and Logging In

Launching the Web Workspace

Depending on your system installation, Web Workspace is typically accessed by an URL (provided by your NMS implementation team) or through shortcuts installed on your desktop or in your application menu (*e.g.*, the Microsoft Windows® Start menu or Linux Applications menu). Use the installed shortcuts, if applicable, or open the URL in a web browser to launch the application. The NMS will begin downloading *Java* components of the Web Workspace to your computer. The Web Workspace Login window will open.

Logging In

1. To log in, enter the following information in the Login window:

   User ID: enter the user name provided to you by your system administrator.

   Password: enter the password provided to you by your system administrator.

   Validate: click the **Validate** button to verify your login credentials.

   > **Note:** If your user name and password are not entered correctly, the system will display a "Login Error" message.

   Once you have entered your user name and password, the **Validate** button will become activated.

2. Click **Validate** (or press **Enter** while in the password field) to validate your credentials.

3. Select **User Type** from the drop-down menu to determine what tools and functions will be available to you. See **User Types** on page 1-2 for more information.

4. Once the login criteria have been entered, click the **Login** button to complete the login process and open the Web Workspace. The Web Workspace *view* is based on the selected User Type.

5. The **Quit** button closes the Login window and exits the NMS.

User Types

User type determines which Web Workspace environment will be displayed when you log in.

- **Administration:** provides the full Web Workspace complement of tools with additional tools and functions to change operational parameters, such as power flow settings.

- **Crew Operations:** provides a limited workspace with only the tools necessary for crew administration functions.

- **Full Operations:** provides operational access to all Web Workspace tools.

- **Full Operations plus Switching:** provides operational access to all Web Workspace tools plus the Web Switching Management tools.

- **Trouble Maintenance:** provides a limited workspace with tools necessary for outage management functions.

- **Switching Request:** provides access to the Web Switching Request environment with only the tools necessary to create switching requests.

- **View Only:** provides read-only access to the operational environment.

Understanding the Web Workspace Window

Web Workspace features and functionality are accessed through menus and toolbar buttons. A particular configuration of a user type's environment determines whether a tool is displayed as a window when you first log in to the system.
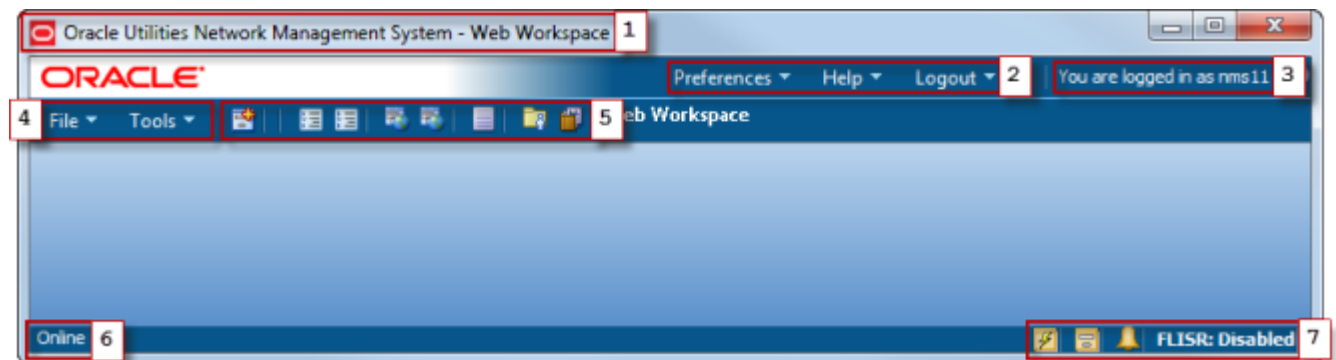
Web Workspace without any tools displayed.
Annotations:

1. Title Bar

2. Preference, Help, and Logout Menus

3. Login Information

4. File and Tools Menus

5. Toolbar

6. System Status Indicator

7. Annunciators

Common Features

There are several features that are common to nearly all Web Workspace windows:

- **Title Bars** display the name of the tool or dialog.

- **Menus** provide access to tools and user actions. Menu options that are followed by an ellipsis […] indicate that the option opens another window or dialog box.

  - **File** menu items typically start standard procedures (*e.g.*, printing or saving) and exit the window.

  - **Sort** and **Filter** menus allow you to modify how table data is sorted and filtered.

  - **Actions** menus provides access to features that are almost always specific to a particular window. Frequently used options on the Actions menu are often repeated as toolbar buttons.

  - **Help** menus provide access to information relevant to that window.

- **Toolbars** provide quick access to common functions. Toolbar buttons are used to perform an action or open a window. Button actions often correspond to **Action** menu options.

- **Right-Click Option Menus** provide many of the actions available through the Actions menus and toolbar buttons.

- **Annunciators** (or indicators) provide visual cues to system state or something that needs your attention.

- **Table columns** may be reordered by dragging the column (by its header) to a new position.

Menus and Toolbars

This section describes the menu and toolbar options. In the tables below, each menu item is listed along with submenu options, if available, and the default toolbar icon, if applicable; menu items without a default toolbar icon are indicated with a double dash (--) in the toolbar icon cell.

> **Note**: Menu and toolbar options vary depending on your user type, your system configuration, and licensed products.

File Menu

Menu Option	Submenu Option	Description	Toolbar Icon
New	Switching Sheet... (Ctrl+N)	Opens the **New Switching Sheet** tool that allows you to create a new switching sheet based on switching event type (for example, planned or emergency).	
	Safety Document...	Opens the **New Safety Document** tool that allows you to create a new safety document from a set of predefined types.	
	Event...	Opens the **Create Event** tool that allows you to create a new outage or non-outage event.	
	Damage Assessment...	Opens a new **Damage Assessment** document window. See **Creating Fuzzy Damage Assessments** on page 2-19 for information.	
Open	Switching Sheet... (Ctrl+O)	Allows you to open a switching sheet.	
	Switching Sheet Search...	Allows you to search for a switching sheet. By default, the search field searches against the switching sheet number and description fields. See **Open Switching Sheet using Switching Sheet Search** on page 9-64.	
	Safety Document...	Allows you to open a safety document.	
	Safety Document Search...	Allows you to search for a safety document. By default, the search field searches against the safety document number and description fields. See **From the Web Workspace Search Safety Document Dialog** on page 9-91.	

Tools Menu

Menu Option	Submenu Option	Description	Toolbar Icon
Work Agenda 1...		Opens the Work Agenda. See **Using the Work Agenda** on page 1-22.	
Work Agenda 2...		Opens a second Work Agenda.	
Viewer 1...		Opens the Viewer. See **Using the Viewer** on page 1-33.	
Viewer 2...		Opens a second Viewer.	
Condition Summaries...		Opens the Condition Summaries. Predefined filters include: • All Conditions • FLISR Actions • FLISR Disabled • Notes • Pending Construction • Pending Decommission • Tags	
SCADA Summary...		Displays the SCADA Summary. See **Using the SCADA Summary** on page 8-3 for more information.	--
AMI Request List...		Opens the AMI Request List. See **Displaying the AMI Requests List** on page 2-22.	--
Trouble Summary...		Opens the Trouble Summary. See **Using the Trouble Summary** on page 2-27.	

Menu Option	Submenu Option	Description	Toolbar Icon
Alarms and Devices List	Abnormal Devices List...	Displays a list of off-nominal devices in the subscribed authority zones. See **Abnormal Devices List** on page 1-107.	--
	Device Operations List...	Displays all recent operations performed in the user's control zones. See **Device Operations List** on page 1-107.	--
	SCADA Alarms List...	Displays a list of all SCADA alarms in the subscribed authority zones. See **SCADA Alarms List** on page 1-107.	--
	System Alarms List...	Displays a list of system alarms. See **System Alarms List** on page 1-108.	--
	FLISR Alarms List...	Displays a list of system alarms. See **FLISR Alarms List** on page 1-108.	--
Authority...		Opens the Authority tool, which grants control authority to users subscribing to discrete operations zones. See **Taking Authority for Control Zones** on page 1-18.	--
Crews...		Opens the Crew Actions tool, which shows the crews available in the subscribed control zone. See **Managing Crews with Web Trouble** on page 2-29.	--
DMS Summary...		Opens the DMS Summary to view the status distribution management functions and devices. See	
Switching Overlaps...		Opens the Global Overlaps tool. See **Viewing Global Overlaps** on page 9-96.	
Miscellaneous Log...		Opens the Miscellaneous Log. See **Using the Miscellaneous Log** on page 9-95.	
User Log...		Opens the User Log, which displays a list of all single-user actions within a certain time period. See **Using the User Log** on page 1-110.	
Manage Documents...		Opens the Manage Documents window, which allows you to associate documents to objects. See **Associating Documents with Devices** on page 1-96.	

Menu Option	Submenu Option	Description	Toolbar Icon
Feeder Load Summary...		Opens the Feeder Load Summary, which displays a list of the current feeder loads. See **Using the Feeder Load Summary** on page 11-2.	--
Suggested Switching Solutions...		Opens the SS Solutions tool. See **Using the Suggested Switching Solutions Tool** on page 10-20.	
FLISR Mode	**Disabled Manual Automatic**	Allows you to set the Fault Location, Isolation, and Service Restoration (FLISR) mode. See **Setting the FLISR Mode** on page 12-3.	--
CVR Mode	**Disabled Manual Automatic**	Allows you to set the Conservation Voltage Reduction (CVR) mode. See **Setting the CVR Mode** on page 10-24.	
FLM Status	**Disabled Enabled**	Allows *Administrators* to set the Feeder Load Management status. See **Feeder Load Management Overview** on page 11-1. • **Disabled**: FLM forecasts have been disabled, usually due to a model build. Only real-time information will be displayed. • **Enabled**: FLM forecasts are currently enabled.	--
Topology Validation Viewer...		Opens the Topology Validation Viewer, which displays reports of a number of different common problem areas with a data model, such as deenergized supply points, loops, and faulted areas. See **Topology Validation Viewer** on page 15-1 for more information.	--

Preferences Menu

The **Preferences** menu allows you to control certain common features of the Web Workspace.

Menu Option	Description
Smaller Font (Ctrl+Minus Sign)	Decreases the font size in text and icons. Repeat to further decrease the font size.
Bigger Font (Ctrl+Plus Sign)	Increases the font size in text and icons. Repeat to further increase the font size.
Reset Font (Ctrl+0)	The application will reset the text and icons to use their default font size.

Menu Option	Description
Darken Watermarks (Ctrl+W)	Make the watermarks more opaque.
Lighten Watermarks (Ctrl+Shift+W)	Make the watermarks more transparent.
Show Watermarks	Check to turn on watermarks. See **Watermarks** on page 1-9.
Save Preferences	Saves the current settings as the user's preference. See **Saving Workspace Preferences** on page 1-11 for details.
Restore Preferences	Restores the environment preferences to the default settings.
Audio Enabled	Un-check to turn off audible alarms.
Alarm Popups	Check to turn on popup alarms.

Color Coding Options

The color coding options determine how table data and related views are color coded in tools that support color coding of data.

- **Disable Coloring**: disables table cell and row coloring.

- **Enable Cell Coloring**: enables table **cell** coloring.

- **Enable Row Coloring**: enables table **row and cell** coloring.

Help Menu

Menu Option	Description
Web Workspace Help (F1)	Launches the online help system and loads the Web Workspace content.
Web Switching Help	Launches the online help system and loads the Web Switching Management content.
Email Log Files... (Ctrl-Shift-M)	Gathers the environment's log files and attaches them to a new email message using your default email client. The log files can then be sent to your support team or contact for further analysis.
Calculate Network Latency...	Runs a network diagnostic utility and returns the results in the **Network connectivity results** window.
About Web Workspace	Opens a window with environment and software information.

Logout Menu

The **Logout** menu includes the Logout User function. Once selected, you will be unsubscribed from any subscribed control zones and all open windows will close. The Web Workspace Login window is redisplayed. Click **Quit** to exit the system.

Annunciators

Annunciators are a combination of symbolic and text-based notifications of system statuses.
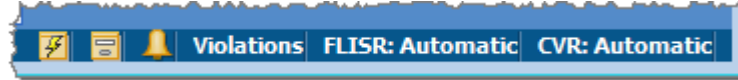
In the base environment, annunciator alerts are displayed for:

- **Unacknowledged Outage Events** ( ). See **Acknowledging Events** on page 1-32 for details on responding to new events.

- **Unacknowledged Non-Outage Events** ( ). See **Acknowledging Events** on page 1-32 for details on responding to new events.

- **Unacknowledged System Alarms** ( ). See **Using the Alarms and Devices Lists** on page 1-105 for details on viewing and acknowledging system alarms.

- **Violations.** The Violations alert is displayed when there are devices or feeders in a violation or warning state. Click **Violations** to open the Feeder Load Summary window in Present Load view. See **Using the Feeder Load Summary** on page 11-2 for information.

- **FLISR Mode Status**. *FLISR mode* is displayed when FLISR is set to *Manual* or *Automatic*. See **FLISR Mode** on page 1-7 and **Fault Location, Isolation, and Service Restoration** on page 12-1 for more details on using FLISR.

- **CVR Mode Status.** The *CVR mode* is displayed when CVR is set to *Manual* or *Automatic*. See **Setting the CVR Mode** on page 10-24.

     Note: Additional annunciators may be added on a per implementation basis.

Watermarks

Watermarks are used to show the environment that you are in. The semi-transparent text provides information about the system you are on. You may toggle watermarks on or off through the Preference menu, which also allows you to lighten or darken the watermark.

Window Positioning and Sizing

Web Workspace tool windows may be moved and sized in many ways within or outside of the Web Workspace primary window. The window positioning at startup is determined by the product or project configuration, but each user may move and size windows to support their workflow and preferences.

Moving Windows

To move a window, click the window tab and drag the window to the desired location either within the Web Workspace or on the desktop. When moving windows with the Web Workspace, the window can be docked to a side (top, bottom, left, or right) or to a tab connected to another pane.
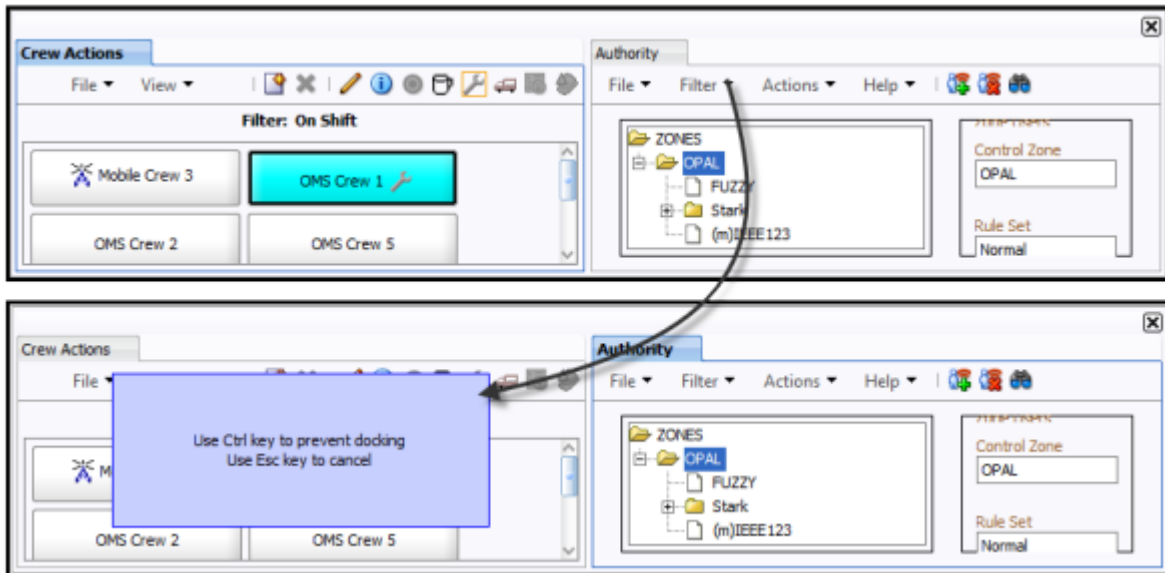
If you drop a window in the middle of an existing window, as shown above, it displays as a tab of the existing window:
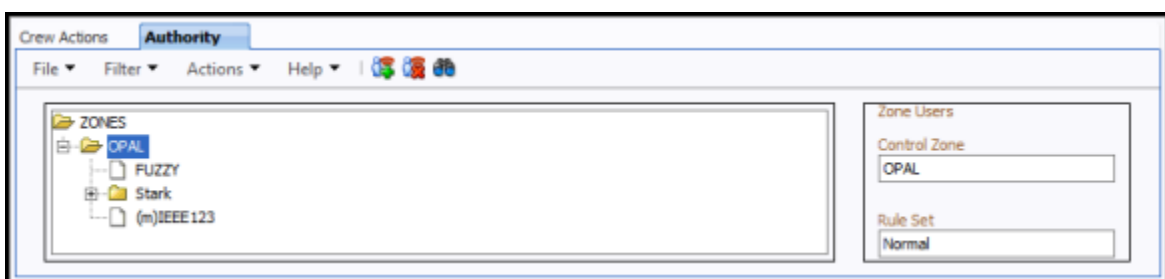
If you do not want a window (or window group) to dock to other windows or positions in the Web Workspace, drag the window away from other windows until it does not snap to a location; alternatively, if you press the Control key as you release the mouse, the window will not dock.

Adjusting Window Size

Resizing windows in NMS is equivalent to resizing an application window in Microsoft Windows or Linux. You may resize by clicking and holding a window edge and dragging until the window is the desired size; minimize by clicking the minimize button in the upper right corner of the window; maximize either by double-clicking the top of the window frame or by right-clicking and selecting **Maximize**. Depending on the windows state, right-click options will allow you to minimize, float, move, or dock the window. The Size right-click option displays the windows dimensions, in pixels.

Saving Workspace Preferences

Web Workspace starts with a standard configuration for window locations and sizes, font sizes, visible tools, and tool settings, such as column size and order. You can make adjustment to the workspace and then save those changes for future sessions.

To save your preferences, select **Save Preferences** from the Web Workspace **Preferences** menu.

Preferences are saved as follows:

Windows

The currently open windows are saved and reopened when you login. This feature is restricted to the following windows:

- Condition Summary
- Crew Actions
- Viewer 1
- Service Alarms
- SCADA Summary
- Work Agenda 1
- FLM Summary

Table Attributes

- Column widths
- Column ordering
- Locked columns
- Current sort
- Current filter

Non-Docked Window Attributes

- Size
- Placement (does not apply to dialog boxes)

Viewer Settings

- Unload on Focus
- Fixed Size
- Search Type
- Search Case
- Search Max Results
- Spatial Landbase
- Declutter
- Predicted Highlight Enable
- Conductor State Highlight
- Warnings Highlight
- Violations Highlight

Note: to save user preferences for switching tools, each switching plan type (*e.g.*, emergency, planned, etc.) needs to be saved separately. Ensure that only one switch plan of each type is displayed when you save preferences.

Restoring Default Preferences

To restore the default environment settings, select **Restore Preferences** from the Web Workspace **Preferences** menu.

Working with Tables

Selecting and Unselecting Rows

Many tables in Oracle Utilities Network Management System applications and tools allow multiple rows to be selected for a subsequent action, such as acknowledging new events in the Work Agenda or new system alarms in the Alarms and Devices Lists.

Selecting a Single Row

To select a row, click anywhere in the row; the row will change to the selected highlight color.

Selecting Contiguous Rows

To select contiguous rows, click the first row, press **Shift**, and then click the last row to select the anchors and all rows in between.

Selecting Discontiguous Rows

To select discontiguous rows, select the first row, press **Ctrl**, and then click each additional row.

Unselecting Rows

To unselect a row, press **Ctrl** and then click any cell in the row. The highlight color will be removed. Note that the cell may have a highlighted border, but it is not in a selected state.

Copying Table Data

Many tables in Oracle Utilities Network Management System applications and tools allow data to be copied and pasted into other applications.

1. Select the row or rows to be copied.

2. Press **Ctrl+C** to copy the row data.

3. In the target application, such as a spreadsheet application, press **Ctrl+V** to paste the data.

Exporting Table Data

Many tables in Oracle Utilities Network Management System applications and tools allow data to be exported as comma separated values (csv) files. If the export option is available, it will typically be listed under the tool's File menu as **Export Table...** or the export table button (🔼) will be available from the toolbar.

Sorting and Filtering Data

You can sort many Web Workspace data tables to display rows in a particular order or filter them to display a specific subset of the rows. Some of the Web Workspace tools also allow you to create your own user-defined sorts and filters. These options, if available, will be found in the tool's Sort and Filter menus or from an options menu when you right-click on the column heading.

Sorting

You can apply ascending or descending sorts to a single column in a table (where configured) by clicking once on the column header; clicking a second time on the column header will sort the rows in the opposite order. An arrow appears next to the column label identifying if the sort is ascending or descending.

Sort topics include:

• **Using the Sort Dialog Box**

• **Creating a User-Defined Sort**

• **Editing and Deleting Saved Sorts**

Using the Sort Dialog Box

Some Web Workspace tools allow you to create, modify, apply, and save user-defined sorts. Sorts are saved for each application, user, and user type. Thus, if a user logs in with multiple user types, each type will have their own set of sorts.

If a table supports user-defined sorts, select **Sort Dialog…** from the Sort menu or click the **Sort** button on the toolbar to display the Sort Dialog. You can also right-click the table header and then select **Sort...** from the pop-up menu.

The Sort Dialog displays the following items:

- The **Current Sort** drop-down menu presents a list of saved sorts for modification. When you select a sort from the list, the sort criteria are displayed.

- The table within the dialog allows you to specify the order in which the sort criteria is applied, which column in the application is to be used in the sort criteria, and in which direction the sort is to be applied (ascending, descending).

- The **OK** button applies the current sort to the table of data and exits the Sort dialog.

- The **Save...** button opens a dialog box for naming and saving the current sort. Saving automatically applies the sort. You can retrieve sorts through the option menu on the Sort dialog and the Sort menu in the window.

- The **Delete** button opens a dialog box asking you to confirm the deletion of the selected sort. Once it is deleted, you can no longer retrieve the sort.

- The **Show** button applies the current sort settings to the table of data, but does not exit the Sort dialog.

- The **Help...** button display help for using the Sort dialog.

- The **Exit** button exits the Sort dialog.

- The **Current Sort** drop-down presents a list of saved sorts for modification.

Creating a User-Defined Sort

To create a user-defined sort, complete these steps:

1. Open the Sort Dialog by selecting **Sort Dialog…** from the Sort menu or by right-clicking the table header and selecting **Sort...** from the pop-up menu.

2. In the row for Order 1, click on the drop-down menu under **Column** and select the first column you wish to sort by, and then click on the drop-down menu under **Direction** and select which order you wish to sort the column by.

3. Repeat the previous step for any other columns you additionally want to sort by.

4. Click the **Save…** button. The Store the Sort? dialog appears, prompting you to name the sort.

5. Click the **Yes** button. The Store the Sort? dialog appears, and the name you provided now appears in the option menu of saved sorts.

6. Click the **OK** button. The Sort dialog closes, and the sort is saved to the database.

Editing and Deleting Saved Sorts

You can use the option menu in the Sort Dialog to select a saved sort for modification. You can also delete a saved sort by selecting it from this menu and clicking on the **Delete** button.

Quick Sorting

You can sort the contents of a list by clicking on a column header. An icon indicates that the

column is being sorted; ascending (▲) or descending (▼) order.

Filtering

In addition to sorting, certain windows allow you to filter the data displayed. Filtering topics include:

- **Using the Filter Dialog**
- **Creating a User-Defined Filter**
- **Editing and Deleting Saved Filters**
- **Dynamic Filtering**
- **Auto Filtering**

Using the Filter Dialog

The Filter dialog is used to create, modify, apply, and save user-defined filters. User-defined filters are only accessible to the user who creates them and are erased when the user logs out unless they have been saved; to save, select **Save Preferences** from the Web Workspace **Preferences** menu.

To display this dialog, select **Filter Dialog...** from the Filter menu. You can also right-click on the table header, and select **Filter...** from the pop-up menu.

The Filter dialog displays the following items:

- The **Current Filter** drop-down menu presents a list of saved filters for modification. When you select a filter from the list, the filter criteria are displayed.

- **Filter Criteria**

  - **Column Name** displays the name of each column available in the table of data you are filtering.

  - The **Operator** column displays the type of filter.

  - The **Match Value** field is the value you want to filter by. For example, to show only data for the current day, you would set the Type to Match and the Value to the current date.

- **Actions**

  - **Save...** opens a dialog box for naming and saving the current filter. Saving automatically applies the filter. You can subsequently retrieve saved filters through the Current Filter option menu and the Filter menu in the window.

  - **Delete** opens a dialog box asking you to confirm the deletion of the selected filter. Once it is deleted, you can no longer retrieve the filter.

  - **Apply** applies the current filter settings to the table of data, but does not exit the Filter dialog box.

  - **Help...** displays help for the Filter dialog.

  - **Exit** closes the Filter dialog box and removes any applied filter settings.

Creating a User-Defined Filter

To create a user-defined filter, complete these steps:

1. Open the Filter Dialog by selecting S**how Filter Dialog** from the Filter menu or by right-clicking the table header and selecting **Filter...** from the pop-up menu.

2. Click on the **Operator** drop-down menu of a column you want to filter by and select the option you want.

Operators

Option	Description
any	No filter is applied to this field.
match	Table rows display only if the field value exactly matches the filter value.
like	Table rows display if the field value includes the some part of the filter value (*e.g.*, "Status" includes "tat"). **like** may also be used with Perl-style regular expressions. **Examples:** • To find values that match either X **or** Y, select **like** and enter X|Y in the **Match Value** field. • To find values that match X **and** Y, select **like** and enter (?=.*X)(?=.*Y) in the **Match Value** field. **Note:** There are many regular expression references, including books, web sites, and tutorials. For example: http://www.regular-expressions.info/tutorial.html.
not like	Table rows display only if the field value does not include the filter value (*e.g.*, "Status" does not include "tot").
multi-match	Matches with multiple arguments. Multiple filter values may be entered in the same field, separated by spaces.
not	Table rows display only if the field value does not match the filter value.
multi-not	Not with multiple arguments. Multiple filter values may be entered in the same field, separated by spaces.
>=	Greater than or equal to. Table rows display only if the field value is greater than or equal to the filter value.
<=	Less than or equal to. Table rows display only if the field value is less than or equal to the filter value.

3. In the **Match Value** column next to the selected **Operator**, enter the desired filter value.

4. Repeat the two previous steps for any other columns you want to filter by.

5. Click **Save**. A dialog box appears, prompting you to name the filter.

6. Type a name into the field and click **Yes**. The table is filtered according to the selected criteria, and the Filter field above the table now displays the name of your newly created filter.

> **Note:** You can view the filter by clicking on the **Apply** button, but if you click Exit, the applied filter will be undone before the dialog box closes.

Editing and Deleting Saved Filters

You can use the Current Filter drop-down menu in the Filter Dialog window to select a saved filter for modification. You can also delete a saved filter by selecting it from this menu and clicking on the **Delete** button.

Dynamic Filtering
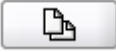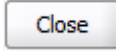
Some tables provide a row of blank filter boxes above the column headers. Enter all or part of the text you want to filter by in the appropriate filter box. The table data is dynamically filtered to display items that contain matching values as you enter the filter criteria. You can combine filter criteria by typing values in more than one column.

Auto Filtering

Some tables support auto filtering (also referred to as cell filtering), which allows you to filter the list by the value of any cell. To use auto filtering, right-click a cell containing the value you want to filter, and select the **Toggle Auto Filter** option. (When enabled, the menu option is checked.) The table is refreshed to display only rows where the value matches the selected cell. For example, if you click on a cell in the Feeder column with a value of "2413" and enable auto filter, the table will refresh to display only events for Feeder 2413. Click the option again to turn off cell filtering.

Printing

Printing is an option from several of the Web Workspace and Web Trouble windows. The Print Preview dialog box appears whenever one of the printing options is selected in Web Workspace or Web Trouble. The following table describes the buttons on the Print Preview dialog box.

Button	Description
←	Used to preview the previous page in a multi-page output.
→	Used to preview the next page in a multi-page output.
🔍	Used to zoom out on the contents of the preview.
🔍	Used to zoom in on the contents of the preview.
⊟	Used to scale out the font used for the print output.
⊞	Used to scale in the font used for the print output.
📄	Toggles the page orientation of the output between portrait and landscape.
📄	Brings up the Page Setup dialog box, which allows you to select paper size and source, set page orientation, set margins, and select the printer.
📄	Reverts the preview window back to its default settings.
🖨	Sends the print output to your selected printer, and then closes the Print Preview dialog box.
Close	Closes the Print Preview dialog box without printing any output.

Setting Print Margins

The Print Preview dialog box also allows you to set the margins of the output interactively. Follow these steps:

1. Position your cursor over the preview output until you see a red outline and your cursor becomes a double-headed arrow.

2. While the cursor is a double-headed arrow, click and hold your left mouse button and drag the red line to the desired location.

Taking Authority for Control Zones

The Authority tool is used to manage permissions to view data and perform operations in the operations network. Permissions are granted to operate in *Control Zones*, which are discrete sections of a utility's electrical distribution system. *Control Groups* are groups of control zones. You must subscribe to a control zone or a zone group to see events, manage crews, or perform device operations in that section. Once subscribed, you can examine and change the assignment of control zones, view control areas within the distribution system, and identify which users have authority over each section. This section provides information on using the **Authority tool**, including the following topics:

- **Using the Authority Tool**
- **Subscribing to a Control Zone**
- **Subscribing to an Authority Group**
- **Unsubscribing from a Control Zone**
- **Searching for a Zone**

Using the Authority Tool

If the Authority tool is not visible in the Web Workspace, select **Authority...** from the Web Workspace **Tools** menu.

Authority Tool Fields

The Authority tool has the following fields:

- The **Zones** area displays control zones or control groups.
- **Zone Users** displays the user(s) currently subscribed to the selected control zone. If no user is subscribed to the selected control zone, "system" displays in this field.
- **Control Zone** displays the currently selected control zone.
- **Rule Set** displays the rule set currently being used.

     Note: Rule Sets are operating conditions, such as *Normal* or **Storm**, that are typically set by Administrators or Shift Supervisors.

Authority Tool Menus

File Menu

Menu Option	Description	Toolbar Icon
Exit	Closes the Authority tool window.	--

Filter Menu

Menu Option	Description	Toolbar Icon
All Zones	Shows all Control Zones in the tree structure.	--
My Zones	Shows all Control Zones controlled by you.	--
Users' Zones	Shows Control Zones that are controlled by users/ operators.	--
System Zones	Shows control zones that are controlled by the System.	--
Zone Groups	Shows the Zone Group table, which allows you to subscribe to or view zone groups.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Subscribe...	Opens the Subscribe window that allows you to select subscribe to Control Zone(s) or Control Group(s).	
Unsubscribe...	Allows you to unsubscribe from subscribed control zones.	
Zone Search	Allows you to search for a control zone in the control hierarchy.	
Change Rule Set...	Allows you to change the operations rule set.	--

Help Menu

Menu Option	Description	Toolbar Icon
Authority Help	Opens the online help system to the Authority tool help content.	--

Subscribing to a Control Zone

With the Authority tool filter set to All Zones, the Authority tool lists all control zones in a hierarchical tree view. You may subscribed to an individual control zone, which is represented by a page icon (▯), or a zone collection, which is represented by a folder icon(📁).

To subscribe to one or more control zones, complete these steps:

1. Expand the list of Control Zones to locate the zone you want to control.

2. Select the row for the zone or zone folder. The zone will populate the Control Zone field.

   • To select multiple adjacent zones, press **Shift** and click the first and last zones to select all of the zones in that range; to select multiple non-adjacent zones, press **Ctrl** and click each zone individually.

3. Click the **Subscribe** button (👥), select **Subscribe...** from the **Actions** menu, or right-click and select **Subscribe...** from the options menu. The Subscribe dialog box opens.

4. Click **Subscribe** in the dialog box. You are now subscribed to the selected zone(s).
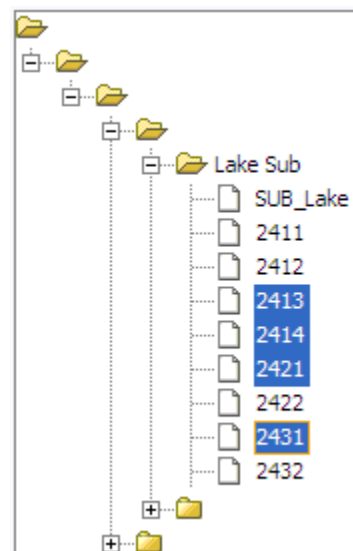
Subscribing to an Authority Group

To subscribe to a Authority Group, first select Zone Groups from the Authority tool's Filter menu to view the Authority Group table and then complete these step:

1. Select one or more rows from the Authority Group table. If the list of Authority Groups is long, you may use the filter box above the Authority Group title to find the desired group.

2. Click the **Subscribe** button (👥), select **Subscribe...** from the **Actions** menu, or right-click and select **Subscribe...** from the options menu. The Subscribe dialog box opens.

3. If applicable, deselect any control zones in the Authority Group that you do not wish to subscribe to.

4. Click **Subscribe**. You are now subscribed to the selected zone(s).

Unsubscribing from a Control Zone

When you are finished working in a control zone, you can unsubscribe from the control zone.

> **Note:** remember that you are automatically unsubscribed to all of your control zones when you logout.

To unsubscribe, complete these steps:

1. Select **My Zones** from the Filter menu.

2. Select the row containing the zone that you want to unsubscribe from. The zone will populate the Control Zone field.

3. Click the **Unsubscribe** button (👥) in the toolbar, select **Unsubscribe...** from the **Actions** menu, or right-click and select **Unsubscribe...** from the options menu. The Unsubscribe dialog box opens.

4. Click **Unsubscribe** in the dialog box. You are now unsubscribed from the zone.

Searching for a Zone

The Search feature can help you locate a control zone more quickly than expanding and viewing zones in the Authority window. To search for a zone, complete these steps:

1. In the Authority window, click the **Zone Search** button ( ) in the toolbar or select **Zone Search...** from the Actions menu. The Search Tool dialog box opens.

2. Enter the name or first part of the name of the control zone in the Zone field and then click the **Find Next** button. The search is not case-sensitive, but you must match exactly in your typing of spaces, hyphens, etc. If the system finds a match, the list of control zones expands and that zone is highlighted.

3. If there are multiple matches, click **Find Next** to locate the next control zone that matches your search criteria.

4. When you locate the zone you want, click the **Cancel** button to close the Search Tool dialog box.

Creating an Event

If a crew in the field discovers an event that has not been identified by a customer, you may use the **Create Event** tool to add the event to the NMS.

To open the Create Event window, select **New** and then **Event...** from the Web Workspace **File** menu. Alternatively, you may click the button on the Web Workspace toolbar.

The Create Event window displays the following fields and buttons:

• The **Selected Device** field displays the name of the device on which to create the event.

• The **Event Start** field and calendar button allow you to enter the start date for the event.

• The **Outage** and **Non-Outage** options allow you to designate whether the event should be created as an outage or non-outage.

• The **OK** button creates the new event on the selected device and closes the Create Event window.

• The **Help** button displays help for the current window.

• The **Cancel** button closes the Create Event window without creating a new event.

Using the Work Agenda

The Work Agenda displays event (or work) data. These events vary based on the modules and interfaces that have been implemented, but may include switching actions (with Switching Management), outage events (with Outage Management), etc. Events may be in various states, such as *New*, *In Progress*, *Incomplete*, or *Complete*.

This section includes the following topics:

- **Opening Multiple Work Agenda Windows**

- **Work Agenda Views**

- **Work Agenda Menu and Toolbar Features**

- **Work Agenda Data Fields**

- **Acknowledging Events**

Opening Multiple Work Agenda Windows

You can open more than one Work Agenda. To open a new Work Agenda, select the **Work Agenda 1** or **Work Agenda 2** option from the Web Workspace **Tools** menu. The new Work Agenda displays as a tab next on the Web Workspace window, to the right of any existing Work Agenda tabs.

When you select a row in one Work Agenda window, the system automatically selects the row for that event in all other Work Agendas (if the row is not being filtered).

All Work Agendas are subscribed at the same level as the original Work Agenda and other tools, but can have their own dynamic sorts and filters applied. The selected events are shared across the Work Agendas.

Work Agenda Views

Work Agenda *views* are filters based on event type and/or status. These filtered views are referred to as *lists* and the list name is displayed on the Work Agenda tab. For example, in the standard NMS product offering, the Web Workspace starts with Work Agenda open in the **To Do** list view, which displays all new and unassigned events that require attention, and the tab is labeled "Work Agenda: To Do."

> **Note:** the Work Agenda does not display any events until you take authority of a control zone (see **Taking Authority for Control Zones** on page 1-18).

Each row of the Work Agenda contains information about an event. A summary row at the top of the Work Agenda displays summary counts for all of the events listed in the current view.

The Work Agenda is configured with several different views that can be selected through the Filter menu or toolbar icons.

Work Agenda Menu and Toolbar Features

This section lists and describes the menu options and toolbar icons available in the Work Agenda.

File Menu - The table below describes the options available on the File menu.

Menu Option	Description	Toobar Icon
Export Table...	Opens a dialog to allow you to save the current table view data to a comma separated value (csv) file.	
Print	Displays the Print Preview dialog so you can view or print the list.	
Print Reading Pane	Displays the Print Preview dialog so you can view or print the Reading Pane.	
Print Preview Calls...	Opens the Report dialog that allows you to choose a preview type (*e.g.*, PDF, HTML, etc.); click **Preview....** to display the calls report for the highlighted rows.	
Print Calls...	Opens the Report dialog that allows you to choose a report type (*e.g.*, PDF, HTML, etc.) and printer for the highlighted rows; click **Print** to send the report to the selected printer.	
Email Calls...	Opens the Report dialog that allows you to choose the type of report (*e.g.*, PDF, HTML, etc.) to be generated for each highlighted row; click **Email...** to attach the calls to a new email message (using your default email application) that may then be sent to your chosen recipients.	
Exit	Closes the Work Agenda window.	--

Sort Menu - The table below describes the options available on the Sort menu.

Menu Option	Description	Toobar Icon
Sort Dialog...	Opens the Sort dialog, allowing you to create, modify, apply, and save user-defined sorts. See **Using the Sort Dialog Box** on page 1-13.	--
Default	Applies the default sort.	--

Filter Menu - The table below describes the options available on the Filter menu.

Menu Option	Description	Toobar Icon
Outages	Displays all outage events.	--
Non Outages	Displays all non-outage events.	--
Both	Displays both outage and non-outage events.	--

Menu Option	Description	Toobar Icon
Filter Dialog...	Opens the Filter dialog where you can create, modify, apply, and save user-defined filters. See **Using the Filter Dialog** on page 1-14.	--
All	Displays all events of any status. **Note:** statuses are displayed in the Work Agenda **Status** column; see **Event Status Codes** on page A-1 for a complete list of status codes and descriptions.	▤
CVR	Displays CVR-related events. **Statuses:** C-NEW, C-CMP, and C-CAN. **Note:** See **Event Status Codes** on page A-1 for event status descriptions.	
Completed	Displays all completed and cancelled trouble events. **Statuses:** CMP, F-CMP, M-CMP, P-CMP, S-CMP, W-CMP, CNL, F-CNL, S-CNL, and W-CNL. **Note:** See **Event Status Codes** on page A-1 for event status descriptions.	📂
Default	Applies the filter for the currently selected view.	--
In Progress	Displays most trouble events that have crew resources associated with them and any trouble event alarms. **Statuses:** ASN, F-ASN, S-ASN, W-ASN, ENR, F-ENR, S-ENR, W-ENR, F-ONS, S-ONS, W-ONS, NFY, ONS, RSCH, RST, S-RST, SUS, S-SUS, W-SUS, and VFY. **Note:** See **Event Status Codes** on page A-1 for event status descriptions.	≔
Incomplete	Displays all incomplete trouble events and events that have maintenance work pending. Incomplete events are events that are complete in the field but still require that **Event Details** be completed. **Statuses:** INC, M-INC, P-INC, S-INC, MNP, and S-MNP. **Note:** See **Event Status Codes** on page A-1 for event status descriptions.	▦
Switching	Displays all events that have an associated planned switching sheet in a **Scheduled** (or later) status.	--
To Do	Displays trouble events that require attention and any trouble event alarms. **Statuses:** CRT, C-CNL, NEW, F-NEW, M-NEW, P-NEW, S-NEW, NFY, RED, RSCH, SNT, M-SNT, P-SNT, S-SNT, W-SNT, UAS, F-UAS, M-UAS, P-UAS, S-UAS, W-UAS, VFY **Note:** See **Event Status Codes** on page A-1 for event status descriptions.	✅

Actions Menu

The table below describes the options available on the Actions menu. It also indicates whether the option displays in a pop-up menu when you right-click a row in the Work Agenda.

Menu Option	Description	Toolbar Icon	Right-Click Y/N
Acknowledge	Acknowledges the selected event.	✔	Y
View...	Opens Viewer 1 if not already open, and then focuses Viewer 1 on the device from the selected Work Agenda row.	◉	Y
Trouble Info...	Opens the Trouble Info window with information about the selected event.	☎	Y
Event Details...	Opens the Event Details window with information about the selected event.	ⓘ	Y
Referral...	Opens the Work Queue dialog, allowing you to select a work group to refer the event to and enter any necessary remarks.	🔜	Y
Release Crew(s)...	Opens the **Release Crew(s)** dialog box, which allows you to release assigned en route or onsite crews from an event. See **Releasing Crews from an Event Selected in the Work Agenda** on page 2-43 for more information.	--	Y
Incomplete	Changes the status of the event to an Incomplete status that is appropriate for the selected event (*e.g.*, INC, S-INC, P-INC, M-INC).	--	N
Cancel Event...	Cancels the selected event. A dialog box opens prompting you for a reason for the cancellation.	⇒✖	Y
Group Events...	Opens the Group Events dialog box, which allows you to manually group, relate, and un-relate events.	--	N
Associate Event...	Allows you to associate the selected fuzzy event to a device.	--	N
Send to Mobile	Changes the event status to a Sent status that is appropriate for the selected event (*e.g.*, SNT, S-SNT, P-SNT, M-SNT, W-SNT). Also, if the Sent to Mobile column value happens to be *N* at the time the **Send to Mobile** button is pressed, it will update to a value of *Y.*	--	N
Find Selection	Scrolls the currently selected event back into view should it scroll off of the list.	--	N
Auto Filter	Allows you to quickly filter the table by the selected cell value.	--	Y (toggle)

Menu Option	Description	Toolbar Icon	Right-Click Y/N
Auto Filter Off	Turns off any auto filter that has been applied.	--	Y (toggle)
Load Completed Events	By default, completed events are not loaded into the Work Agenda on startup for performance reasons. This action will open the Load Completed Events dialog.	--	N
Load Completed Events - Range...	Opens the Load Completed Events - Range dialog box, which allows you to filter completed events by a start and end date.	--	N
Load Completed Event…	Opens the Load Completed Event Dialog, which allows you to load a specific completed event by specifying its Event number (index).	--	N
Event Log...	Opens the Event Log window for the selected event.	--	Y
Switching...	Opens the **Open or Create New Switching Sheet** dialog, which allows you to create a new switching sheet or open a switching sheet associated with the selected event. See **Open or Create New Switching Sheet** on page 9-66 for more information.	--	N
AMI Confirm	Allows you to request meter pings from the AMI (Advanced Metering Infrastructure) system for the selected event.	--	N
Show AMI Request…	Displays a list of active and completed AMI requests for the selected event.	--	N
Update ERT(s)...	Opens the Update ERT dialog so you can enter a new ERT for all selected events.	--	N
System-Wide Default ERT...	Opens the System-Wide Default ERT (estimated restoration time) dialog, which allows you to view and modify the system-wide default restoration time value. (Use the Configuration Assistant to set restoration times for specific control zone/device class combinations.)	--	N
Fault Location Analysis...	Displays the Fault Location Analysis tool for the selected fault event.	--	N
Damage Assessment…	Opens the Damage Assessments tool, which displays a list of damage assessments associated with the selected event and allows you to add additional damage assessments. See **Using the Damage Assessments Window** on page 2-19.	--	Y
Confirm Outages	Opens the Confirm Outages tool, which allows you to confirm secondary or service outages for customers associated with event devices.	--	Y

Menu Option	Description	Toolbar Icon	Right-Click Y/N
Undo Grouping	Ungroups and repredicts all calls from an event. It may be used to undo the results of manual grouping or repredict upstream/downstream. This action is not allowed for events with crews. See **Ungroup Events** on page 2-14.	--	N
Show Event Note Balloon	Enables a balloon popup that displays event notes, if they exist.		Y
Show Reading Pane	Splits the Work Agenda table to display a panel with the selected row's details.		N

Help Menu - The table below describes the options available on the Help menu.

Menu Option	Description	Toobar Icon
Work Agenda Help (**F1**)	Opens the online help system to the Work Agenda tool help content.	--

Work Agenda Data Fields

The Work Agenda displays data in a summary row and an events list table.

Summary Row

The summary row tabulates data for the events in the displayed (filtered) events list.

- The **Total Events in View** field displays the number of events.

- The **Est Customers Out** field displays the number of customers estimated to be affected.

- The **Calls** field displays the number of calls received.

- The **Priority Calls** field displays the number of priority calls received.

- The **Emergency Customers Out** field displays the number of impacted emergency customers.

- The **Medical Customers Out** field displays the number of impacted medical customers.

- The **Key Customers Out** field displays the number of impacted key customers.

- The **Crews En Route/Onsite** field displays the number of crews en route or onsite.

The last three columns are based on the total counts (in your subscribed control zones) and, unlike the other Summary Row columns, ignore any filters:

- The **Priority To Do** field displays the number of priority jobs that are in the To Do list.

- The **Normal To Do** field displays the number of normal jobs that are in the To Do list.

- The **In Progress** field displays the number of in progress jobs.

Events List

The Events List provides a tabular view of events. The filter and sort criteria are displayed above the table; the Work Agenda tab displays the selected list view/filter (*e.g.*, To Do, All, In Progress, etc.).

Columns

- The first column displays event status symbols (*e.g.*, ✅ for Acknowledged events).

- The **Status** column displays the status assigned to the event. See **Event Status Codes** on page A-1 for a complete list of status codes and descriptions.

- The **Event #** column displays the number the system has assigned to the event.

- The **DMS Status** column describes any FLISR, FLA, CVR, or DistGen Violations or Warnings that have occurred for the event.

    Note: The **DMS Status** column is only visible if DMS (Distribution Management System) modules are licensed. For more information, see **Understanding FLISR Events in the Work Agenda** on page 12-4, **Understanding Fault Events in the Work Agenda** on page 13-3, or **Understanding CVR Events in the Work Agenda** on page 10-25.

- The **Feeder** column displays the name of the feeder associated with the event.

- The **E/H** column indicates whether the event is an extreme emergency (**E**) or has hazardous (**H**) conditions.

- The **Start Date** column contains the date and time the event began.

- The **# Out** column contains the number of customers experiencing an outage for the event.

- The **Run CMI** column contains the current *customer minutes interrupted* value for the event. Note that this value is automatically updated once a minute. By default, the CMI is 0 for restored events, but this can be customized

- The **# Calls** column contains the number of calls received for the event.

- The **Clues** column contains the clue codes for the calls received, if any.

- The **Phases Out** column contains the phases predicted out for the event.

- The **Device** column contains the name of the device associated with the event.

- The **Location** column contains either the address of the first customer that called if the event is a service outage or non-outage or the feeder location of the device if the event is a device outage.

- The **Crew** column contains the crew ID(s) of the associated crew(s).

- The **Est Restore Time** column contains the estimated restoration time (ERT) for the event.

- The **Est Src** column contains the source of the ERT for the event. The possible values for the ERT Source, from highest precedence to lowest, are as follows:

    - **C:** User-entered via applications or tools (for example, mobile interface, Work Agenda, Event Details, or Crew tools) other than Storm Management.

    - **G:** Storm Management published global ERT from the ERT Override dialog.

    - **D:** Storm Management published global ERT delay from the ERT Override dialog.

    - **P:** Storm Management non-published global ERT from the ERT Override dialog.

    - **M:** Maximum ERT exceeded. The Storm Management calculated ERT is beyond a set threshold for maximum ERT; no ERT is shown.

    - **O:** Storm Management onsite ERT calculated when the event status goes to en route and updated when the status changes to onsite.

    - **S:** Storm Management calculated ERT based on outages and crews in Storm Management

    - **I:** Initial default ERT, based on the system-wide default ERT (if set) or else configured default ERT based on device class and control zone

    - **N:** none (no ERT)

- The **Prediction Type** column contains the type of prediction (*e.g.*, New, Revised, Device Operation, etc.) or type of notification for NFY events (*e.g.*, Crew contact required).

- The **Restore Date** column contains the actual restoration date and time of the event.

- The **# Crit** column contains the total number of critical customers experiencing an outage for the event.

- The **# EMR** column contains the number of emergency customers experiencing an outage for the event.

- The **# MED** column contains the number of medically urgent customers experiencing an outage for the event.

- The **# KEY** column contains the number of key customers experiencing an outage for the event.

- The **Evt Type** column contains a description of the type of event. See **Event Type Codes** on page A-5 for a complete list of event type codes and their descriptions.

- The **Work Queue** column contains the name of the work group queue that the event has been referred to.

- The **Region** column contains the control zone region where the event occurred.

- The **Branch** column contains the control zone branch where the event occurred.

- The **Substation** column contains the control zone substation where the event occurred.

- The **Plan #** column contains the switching sheet number associated with the event, if any. The switching sheet number is prefixed by the switching sheet type (such as "Plan" or "Emer").

- The **Grp Type** column indicates whether the event is manually grouped or related. The possible types are:

  - GRP – manually grouped
  - REL – manually related

- The **Rel Event #** column contains the event number of the parent or lead event when the event has a special relationship with one or more other events.

- The **Rel Type** column contains the type of special relationship that the event is involved in. The possible types are:

  - L – lead event of a partial restoration
  - M – momentary
  - N – nested
  - P – non-lead event of a partial restoration
  - R – manually related
  - S – switching (relationship between switching jobs and planned outages)

- The **Sent to Mobile** column indicates whether or not the event is in a state that makes it eligible to be sent to the mobile system.

- The **AMI Request** column indicates whether or not a request was made to the AMI system to verify power to the meter.

- The **# Power Ups** column displays a running total of AMI meters, associated with the outage, that have responded with a power-up message. It requires that AMI integration is in place to support it.

- The **Dmg Asmt** column displays whether a damage assessment is needed and, if so, the status of the damage assessment. Possible values are:

  - **None** – damage assessment is not required. This is the initial state for new events.

  - **Needed** – damage assessment is required for the event, but not yet started.

  - **Started** – damage assessment has been started for this event.

  - **Assessed** – damage has been assessed. .

- The **Appt Type** column indicates the type of appointment scheduled using the types in the Web Call Entry application. See **Appointment Request** on page 3-6 for more information on scheduling appointments.

- The **Appt Range** column indicates the window of time given for a scheduled meeting. See **Appointment Request** on page 3-6 for more information on scheduling appointments.

- The **Appt Date** is the date an appointment has been scheduled for a customer meeting. See **Appointment Request** on page 3-6 for more information on scheduling appointments.

- The **Wgt Out** column displays the sum of weighted priority values for all the customers experiencing an outage for the event. See **Using the Customer Administration Weighted Priority Editor** on page 17-36 for more information on weighted priority.

Filtering, Sorting, Selecting, and Locking Columns

When you right-click the events table header, a pop-up menu displays a list of options that allow you to perform the following functions:

Menu Option	Description
Filter...	Displays the Filter Dialog so you can create, modify, apply, and save user-defined filters. See **Using the Filter Dialog** on page 1-14.
Sort...	Displays the Sort Dialog so you can modify the default sort. See **Using the Sort Dialog Box** on page 1-13.
Select Columns...	Opens a dialog that displays a list of columns that can be displayed in the Work Agenda table. A checkmark appears next to columns that are currently displayed. To remove a column from the table, uncheck the box. To add a column that is not currently displayed, check the box. Click OK to exit.
	Note: These settings are applied immediately and affect only the current user session. To save these settings as the default view for the Work Agenda (for the currently logged-in user), select **Save Preferences** from the Web Workspace **Preferences** menu.
Unlock Columns	When the Work Agenda is first launched, the first four columns are locked in place so they stay in view as you scroll the table to the right.
	• You may unlock the columns by choosing **Unlock Columns** from the options menu.
	• With the columns unlocked, you may lock columns by right-clicking the column you wish to be the right-most frozen column.

The Work Agenda table supports **Quick Sorting**, **Dynamic Filtering**, and **Auto Filtering**.

Using the Work Agenda Reading Pane

The Work Agenda Reading Pane provides a summarized view of data for an event selected in the Work Agenda or Viewer.

Fields:

• **Event Information**

   • **Event #**: displays the number the system has assigned to the event.

   • **Start Date:** displays the date and time the event began.

   • **Est Restore Date:** the estimated restoration time (ERT) for the event.

   • **# Out:** the total number of customers experiencing an outage for the event.

   • **# Emergency:** contains the number of emergency customers experiencing an outage for the event.

   • **#Medical:** contains the number of medically urgent customers experiencing an outage for the event.

   • **# Key:** contains the number of key customers experiencing an outage for the event.

   • **Device:** contains the name of the device associated with the even

   • **Zone:** contains the affected Control Zones.

   • **Phases Out:** contains the affected phases.

- **Clues:** contains any clues associated with the event.

- **Switching Plan...:** click to open or create a new switching plan. Associated plans are listed in the field next to the button. See **Web Switching Sheets** on page 9-3.

- **Event Crews:** provides a crew data table with information about crews assigned to the event. See **Managing Crews with Web Trouble** on page 2-29.

- **Call Comments:** lists call comments.

- **Operations Event Note:** lists operations event notes. See **Using the Event Log** on page 2-26.

Acknowledging Events

To acknowledge an event, complete these steps:

1. Select the row of the event with NEW, S-NEW, P-NEW, M-NEW, or RED status in the Work Agenda Events List.

2. Click on the **Acknowledge** toolbar button ( ) or select **Acknowledge** from the Actions menu. The event becomes acknowledged and its status changes accordingly.

Using the Viewer

The Viewer presents a graphical representation of the electrical distribution system, with additional symbology for conditions such as outages, crew locations, notes, tags, etc. The Viewer dynamically updates with condition and electrical distribution changes.

This section includes the following topics:

- **Starting the Viewer**

- **Understanding the Viewer**

- **Displaying Device Details**

- **Understanding the Viewer Coloring (View) Mode**

- **Searching and Loading Viewer Maps**

- **Navigating in the Viewer**

- **Viewer Focus**

- **Using Feeder Focus**

- **Using Lens Windows**

- **Real-Time and Study Mode**

- **Selecting Devices**

- **Identifying Symbology**

- **Hiding and Displaying Viewer Objects**

- **Executing Traces**

- **Using the Commissioning Tool**

Starting the Viewer

To open a Viewer, select the **Viewer 1...** option on the Web Workspace **Tools** menu. To start a second Viewer, select **Viewer 2...** After you have opened the Viewer, selecting the menu option will change the focus to that Viewer.

Understanding the Viewer

The following diagram shows the functional areas of the Viewer:
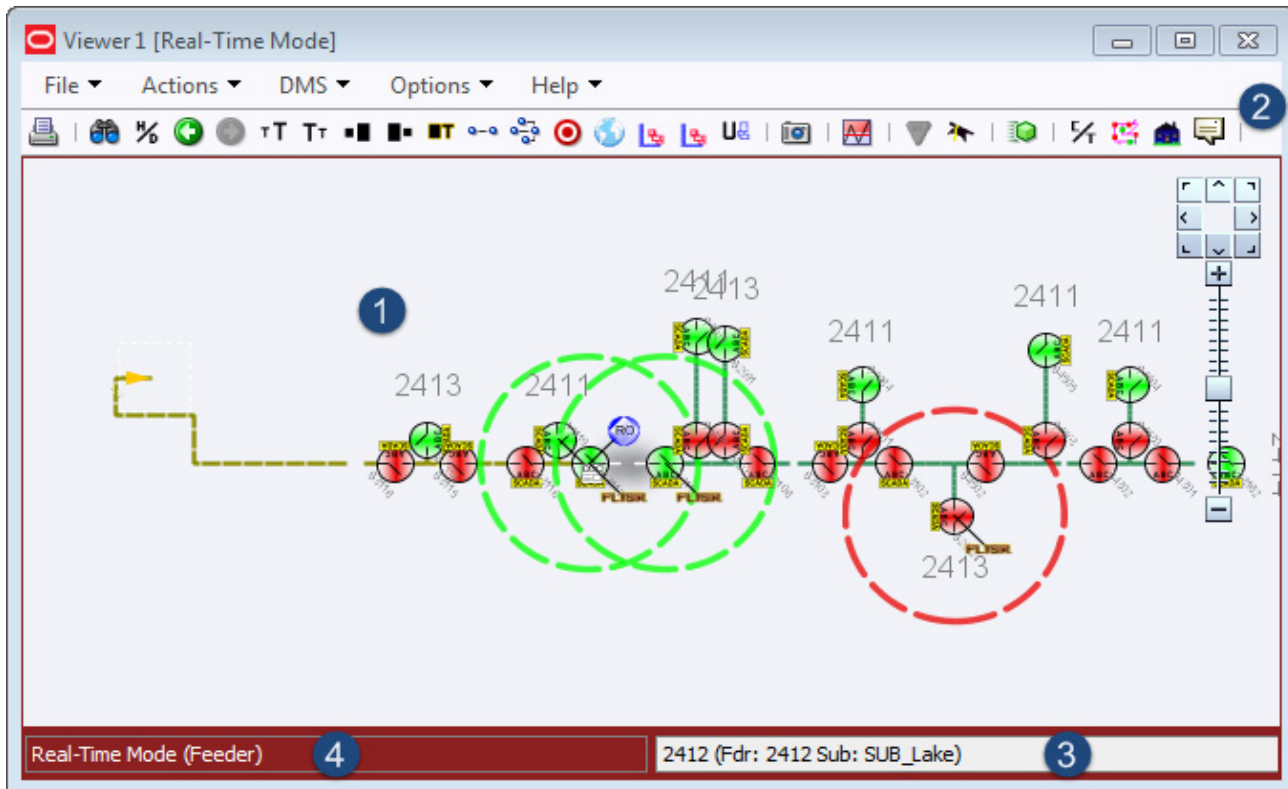
Viewer Functional Areas Legend:

1: **Drawing Area**

2: **Menus and Toolbar**

3: **Message Area**

4: **Real-Time and Study Mode Indicator with View Setting**

Drawing Area

The Viewer's drawing area displays dynamic maps that reflect the status of the system. The lines (used to represent conductors) and the icons (used to represent devices and conditions) are called *symbols*; the conventions that govern symbols are referred to as *symbology*.

Certain condition symbols, such as event type or note indicator, provide tooltips indicating the symbol's meaning. For example, as shown in the illustration above, the Note symbol's hover text is *Operator Note*.

If configured, the Viewer will dim the parts of the model that are outside of the user's authority. In those sections, the user will not be able to operate or otherwise modify those devices without taking authority using the Authority tool (see **Taking Authority for Control Zones** on page 1-18).

Message Area

The Viewer's message area displays device aliases, feeder names, and substation names.

Menus and Toolbar

The Viewer's menus and toolbars provide access to common functions.

File Menu

Option	Description	Toolbar Button
Print	Opens the Print Preview window, which allows you to print the contents of the Viewer window.	
Exit	Exits the Viewer.	--

Actions Menu

Option (Keyboard Shortcut)	Description	Toolbar Button
Search	Opens the Search dialog box, which allows you to enter search criteria and execute a search in the Viewer.	
Hide/Display...	Opens the Hide / Display dialog box, which allows you to select the types of information that are displayed on the map. See **Hiding and Displaying Viewer Objects** on page 1-60.	**H/D**
Back	Moves to the previous view before a pan, zoom, or object focus operation (if any) changed the focus location in the Viewer. This button functions similarly to a web browser's back button, storing a dozen "views." However, the loaded maps, the hide/display layers, and other options will use the current settings.	
Forward	Moves to the next view if the **Back** button has been used. It functions similarly to a web browser's forward button. However, the loaded maps, the hide/display layers, and other options will use the current settings.	
Feeder Focus (**F**)	Shows only the selected device's feeder at a zoom level that will allow the Viewer to display the feeder in its entirety.	--
Change Focus Feeders...	Opens the **Select Feeders to Display** dialog that lists the feeder in focus and all adjacent feeders allowing you to select (or deselect) which feeders to view in Feeder Focus. **Feeder Focus on Adjacent Feeders** on page 1-52.	--
Show Lens	Opens a Lens window zoomed in on selected device. See **Using Lens Windows** on page 1-53.	--
Zoom In (**Z**)	Zooms in on the map to show a smaller area in more detail.	--
Zoom Out (**Shift+Z**)	Zooms out on the map to show a larger area.	--

Option (Keyboard Shortcut)	Description	Toolbar Button
Text Bigger (**Shift+T**)	Increases the text font size.	ᴛT
Text Smaller (**T**)	Decreases the text font size.	Tᴛ
Symbols Bigger (**Shift+S**)	Increases the size of symbols.	▪■
Symbols Smaller (**S**)	Decreases the size of symbols.	■▪
Attributes Farther (**Shift+A**)	Displays attributes (e.g., flags, note symbols, etc.) away from the device. Each subsequent action moves the attribute farther away.	--
Attributes Closer (**A**)	Displays attributes closer to the device.	--
Reset Scale (**R**)	Resets the size of symbols and text to its default size.	■T
Fixed Size	This mode will keep the symbol and text sizes the same regardless of the zoom level.	--
Feeder One Line (**1**)	View the feeder one line for the selected object.	▫–▫
Schematic (**X**)	Focus the Viewer on the selected device or associated selected events in the schematic view is available.	⧈
Focus	Focuses the Viewer on selected devices or devices associated with selected events. See **Viewer Focus** on page 1-49 for details.	◉
View Browser Map	Opens a web browser map to display the geographic area.	🌐
Pointer Coordinates...	Opens a dialog that displays the geographic coordinates for a selected object.	--
Load Maps (**M**)	Allows you to explicitly load additional maps to display more of the surrounding area or additional detail.	🗺
Unload Maps (**Shift+U**)	Unloads all maps, not just those in the visible drawing area.	U🗺
Unload Maps on Map Load	Selection that sets the Viewer to unload previously loaded maps before loading another map.	--
Commissioning Tool...	Opens the Commissioning Tool, which allows you to commission a device that is currently in construction, or to decommission devices currently marked for removal.	--

Option (Keyboard Shortcut)	Description	Toolbar Button
Feeder Name(s) (**Shift+F**)	Causes the right status bar to display the names of the feeders and substations feeding the selected device for parallel or meshed conditions; for tie points, it will display the names of both feeders.	--
Save View Area...	Saves the viewing area after prompting for a name for the saved area. If a view area already exists with that name, you will be asked if you want to replace it.	📷
Delete View Area...	Deletes the viewing area after prompting for confirmation.	--

DMS Menu

This menu is only displayed if the Distribution Management System is licensed for your system and you have appropriate user permissions.

Option	Description	Toolbar Button
Feeder Load Management...	The **Feeder Load Management** button opens the Feeder Load Management window.	📊
Suggested Switching...	Displays the Suggested Switching wizard. This option is only enabled if a device is currently selected in the Viewer. See **Using Suggested Switching** on page 10-14.	--
Volt/VAr Optimization...	Displays the Volt/VAr Optimization wizard. This option is only enabled if a device is currently selected in the Viewer. See **Using Volt/VAr Optimization** on page 10-21.	--
Conservation Voltage Reduction...	Displays the Conservation Voltage Reduction wizard. See **Using Conservation Voltage Reduction** on page 10-24.	--

Options Menu

Option	Description	Toolbar Button
View Phases	Sets the Viewer's drawing areas to show conductor coloring by phases.	--
View Feeders	Sets the Viewer drawing area to feeder coloring mode.	--
View Currents	Sets the Viewer's drawing areas to show coloring by the current range. See **Chapter 10**, **Viewer Power Flow Information Visualization** on page 10-2, for more information.	--
View Loading	Sets the Viewer's drawing areas to show coloring by load (*i.e.*, the per unit current range). See **Chapter 10**, **Viewer Power Flow Information Visualization** on page 10-2, for more information.	--

Option	Description	Toolbar Button
View Voltage Per Unit	Sets the Viewer's drawing areas to show coloring by voltage per unit (*i.e.*, the per unit voltage range). See **Chapter 10**, **Viewer Power Flow Information Visualization** on page 10-2, for more information.	--
View Nominal Voltages	Sets the Viewer's drawing areas to show coloring by the nominal voltage range. See **Chapter 10**, **Viewer Power Flow Information Visualization** on page 10-2, for more information.	--
View Limits	Sets the Viewer's drawing areas to show conductor coloring by their Amp limits.	
Show Flow Direction (**D**)	Overlays flow direction arrows the selected view option. See **Chapter 10**, **Flow Direction** on page 10-6, for more information.	--
Big Symbols (**Shift+B**)	Allows you to toggle Big Symbols on or off. Displays a checkmark if big symbols are currently displayed.	--
Real Time	If you are currently in Study mode, select this to switch to real-time mode. If you are currently in real-time mode, this is grayed out. For more information on real-time mode, see **Real-Time and Study Mode** on page 1-54.	
Study	If you are currently in real-time mode, select this to switch to Study mode. If you are currently in Study mode, this is grayed out. For more information on study mode, see **Real-Time and Study Mode** on page 1-54.	
Reset Study Session...	Resets the study session to either the current real-time model or the nominal model. Also allows users to add or remove DMS functionality in the study session. Similar to the **DMS in Study Mode** option.	--
Close Study Session	Closes the current study session.	--
DMS in Study Mode	This option allows users without automatic access to DMS tools to enable them before starting their next study session. These users can also close their sessions and re-initialize them to change the DMS in Study Mode option. Users with DMS_STUDY_MODE permission will notice that the **DMS in Study Mode** checkbox is checked by default.	
Power Flow Real-Time Options...	The **Power Flow Options** button opens the Power Flow Options dialog.	

Help Menu.

Option	Description	Toolbar Button
Viewer Help (**F1**)	Opens online help content for the Viewer.	--
Legend	Opens the Viewer Legend window that displays information about the current view. See **Understanding the Viewer Coloring (View) Mode** on page 1-45 for more information.	--

Additional Toolbar Options

The following toolbar options do not have corresponding menu options:

Option	Description
⅂⁄T	The **Control Tool** button opens the Control Tool for the selected device. The Control Tool may also be opened by double-clicking a device or by right clicking the device and selecting **Control Tool...** from the options menu. (See **Using the Control Tool** on page 1-74.)
🔲	The **Trace** button opens the Trace tool window, set to the current device. The Trace tool may also be started by right clicking the device and selecting **Trace...** from the options menu. (See **Executing Traces** on page 1-65.)
🏠	The **Supply Points Mode** button causes the Viewer to display supply points for potential selection. This allows supply points to be graphically grouped and added to an outage.
💬	The **Device Details** button toggles device details on or off. Device Details may also be toggled on or off by right clicking the device and selecting **Device Details...** from the options menu. (See **Displaying Device Details** on page 1-43.)

Saving Viewer Preferences

When the Viewer options have been adjusted to render symbols, text, and window information as desired, select **Save Preferences** from the Web Workspace **Preferences** menu to save the options for subsequent sessions.

Context-Sensitive Pop-Up Menu Options

When you right-click certain objects in the Viewer window, a pop-up menu displays a list of options available for the object.

Crew Options

The following options are displayed when you right-click a crew symbol in the Viewer window; these options are only available for crews with AVL (Automatic Vehicle Location) systems.

Menu Option	Description
Assign	Assigns the crew selected in the Viewer to the event currently selected in Work Agenda. See **Assigning a Crew** on page 2-35 for more information.
En Route	Puts the crew selected in the Viewer en route to the event currently selected in Work Agenda. This is enabled only if the selected crew is an on-shift, available, non-mobile crew that is not currently en route or onsite. See **Placing a Crew En Route Using the Crew Actions Window** on page 2-35 for more information.
Release Crew	Releases the crew selected in the Viewer from the en route/onsite event selected in the Work Agenda. See **Releasing Crews from an Event** on page 2-43 for more information.
Update Availability...	Opens the Update Crew Availability dialog for the selected crew. See **Changing Crew Availability** on page 2-36 for more information.
Crew Info...	Opens the Crew Info dialog for the selected crew. See **Crew Info** on page 2-39 for more information.
Active Job Info...	Opens the Active Job Info dialog for the selected crew. This is enabled only if an en route or onsite crew is selected. See **Active Job Info** on page 2-41 for more information.

Event Options

The following options are displayed when you right-click an event symbol in the Viewer window:

Menu Option	Description
Event Details...	Opens the Event Details window for the event. See **Event Details** on page 2-2.
Trouble Info...	Opens the Trouble Info window for the event. See **Using the Trouble Info Window** on page 2-48.
Event Log...	Opens the Event Log window for the event. See **Using the Event Log** on page 2-26.
Damage Assessment...	Opens the Damage Assessment window. See **Working with Damage Assessments** on page 2-15.
Crew Info...	Opens the Crew Info window for the crew assigned to the selected event. See **Crew Info** on page 2-39.
Active Job Info...	Opens the Active Job Info window for the crew assigned to the selected event. This is enabled only if one crew is assigned to the event and is en route or onsite. See **Active Job Info** on page 2-41 for more information.

Menu Option	Description
Show En Route Location...	Shows the AVL location of the crew that is currently en route to the selected event. This option is only enabled when one crew is assigned to the event.
Release Crews...	Opens the Release Crew(s) dialog. Enabled when one or more crew is assigned to the event. See **Releasing Crews from an Event Symbol in the Viewer** on page 2-44.

Device Options

Depending on the device type, the following options may be displayed when you right-click a device in the Viewer window:

Menu Option	Description
Control Tool...	Opens the Control Tool for the selected device. See **Using the Control Tool** on page 1-74.
Device Details...	Displays the Device Details balloon above the selected device. See **Displaying Device Details** on page 1-43.
Attributes...	Opens the Attributes window, which displays information about the selected device. See **Viewing Device Attribute Information from the Viewer** on page 1-45.
Open...	Initiates the Control Tool's Open command. See **Control Tool Actions** on page 1-75.
Close...	Initiates the Control Tool's Open command, if applicable. See **Control Tool Actions** on page 1-75.
Customer List...	Displays the Trouble Info Customers List. See **Customers View** on page 2-53 for more information.
Damage Assessment...	Opens the Damage Assessments window, which displays a list of damage assessments associated with the device and allows you to add new damage assessments. See **Using the Damage Assessments Window** on page 2-19.
Toggle Call Display	Toggles call display on or off. When enabled, a symbol is displayed in the Viewer window for any transformers that have calls associated with an event. Events with calls and clues will show the call symbol and clue symbol.
Trace...	Opens the Trace tool, which allows you to display the path from a selected device to other devices based on specific criteria. See **Executing Traces** on page 1-65.

Displaying Device Details

Device Details provides information about devices selected in the Viewer. Device Details is enabled by clicking the **Device Details** button (⬚) in the Viewer's toolbar or by right-clicking a device and selecting **Device Details...** from the options menu.
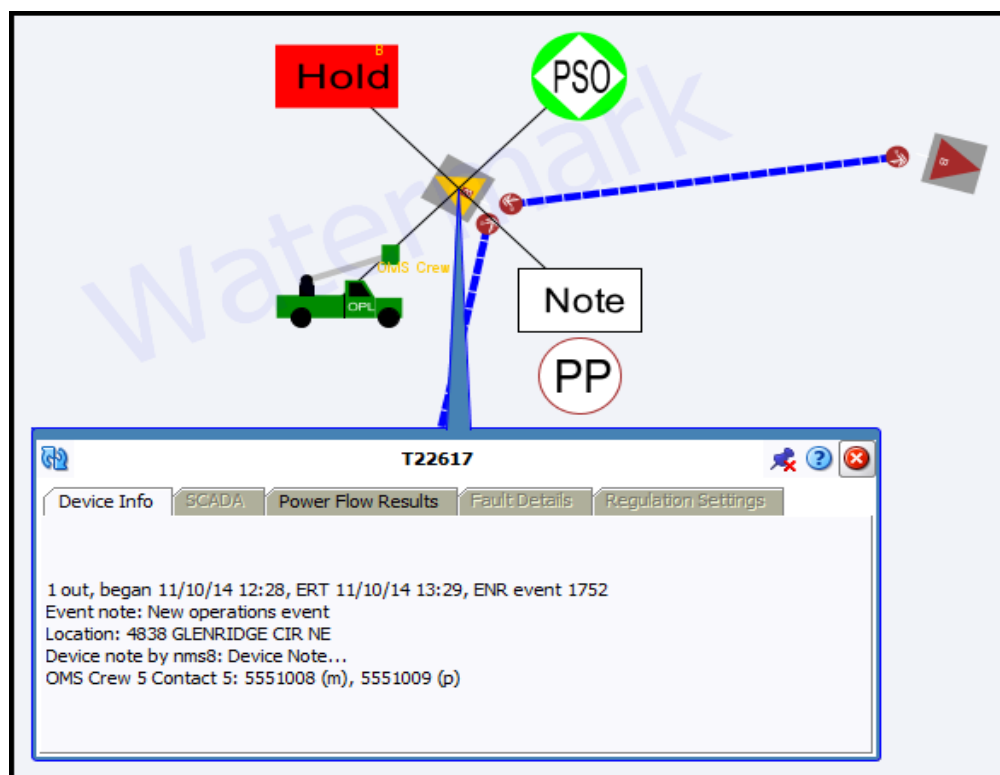
Note: the Viewer's Device Details button (⬚) is highlighted when enabled.

When Device Details is enabled, selecting a device will automatically launch a balloon-style callout window attached to the device in the Viewer. Selecting a different device will close the first window and open a window for the newly selected device. To keep a window open, you may "pin" it by clicking the pin button (📌). You may unpin the window by clicking the unpin button (📌) or close it by clicking the close button (❌). Device Details windows may be dragged to a different location in the Viewer or resized.

The Device Details tabbed data views provide relevant information based on the object selected. Data is refreshed whenever you select a different tab, but you may manually refresh the data by clicking the refresh button (🔄). Click the Help button (❓) to display help for the active tab.

The Device Details tabs provide the following information:

- **Device Info:** The information contained in the Device Info tab varies depending on the type of device and its current condition, but may include the following types of information:

  - Event information, such as number of customers affected, when the event began, estimated restoration time, event type, event number

  - Event Note

  - Location

  - Device Notes

- Crew information

- **SCADA:** The SCADA tab displays SCADA device data. It is only enabled for SCADA devices in systems that have implemented SCADA Extensions; see **Displaying SCADA Measurements with Device Details** on page 8-9 for details.

- **Power Flow Results:** The Power Flow Results tab displays Power Flow calculation results. It is only enabled in systems that have implemented Power Flow Extensions; see **Viewing Power Flow Results in Real Time** on page 10-7 for details.

- **Fault Details:** The Fault Details tab shows fault currents at the selected point in the model. Depending on the conductor selected, data will be displayed for the following fault types:

  - Single Phase Fault

  - Line to Line Fault

  - Three Phase Fault

- **Regulation Settings:** The Regulation Settings tab displays power engineering information for regulation devices, such as shunt capacitors, reactors, regulators/substation transformers, sources, and distribution generators. The information displayed in the Regulation Settings tab varies by regulation device type.

  - Shunt Devices

    - On Threshold

    - Off Threshold

    - # Energized Shunts

    - Max

    - Automatic Control

    - Regulation Type

    - Measurement Attribute

  - Generators

    - Voltage

    - Angle

  - Distribution Generators

    - Voltage Setpoint

    - kW

    - kVAr

    - Voltage Regulated

  - Regulator/Transformer

    - Voltage Setpoint

    - Tap Step

    - Min

    - Max

    - Automatic Control

Viewing Device Attribute Information from the Viewer

You can access attribute information related to a device using the Viewer. Device attributes include physical and reference information about a device, such as location and rating.

To view device attributes from the Viewer, complete these steps:

1. Right-click a device in the Viewer.

2. From the options menu, click the **Attributes…**. The Attributes window opens.

About the Attributes Window

The Attributes window is tabular and allows standard sorting and filtering; see **Sorting and Filtering Data** on page 1-12.

The information in the Device Information is view-only. Once the device attribute window is open, selecting another devices in the Viewer will update the information for the selected device.

See also **Viewing Device Attribute Information from the Control Tool** on page 1-86.

Understanding the Viewer Coloring (View) Mode

When the Viewer is launched, the network model is displayed in *Feeder View* mode where all conductors fed from a given feeder are displayed in the same color. The View mode indicator is displayed in the Viewer's status bar next to the Real-Time/Study Mode indicator.
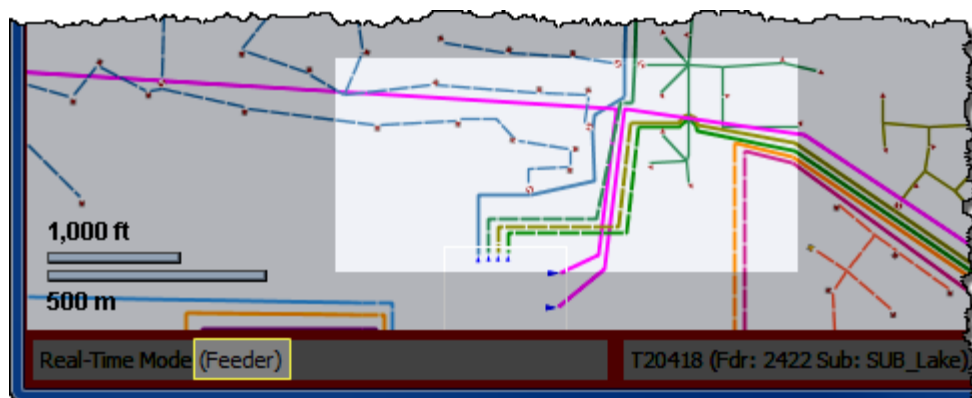
Viewer in Feeder view.

Changing the Coloring Mode

To change to a different coloring mode, select the view from the Viewer Options menu. For example, to change to the Phase coloring mode, select **View Phases** from the Options menu.
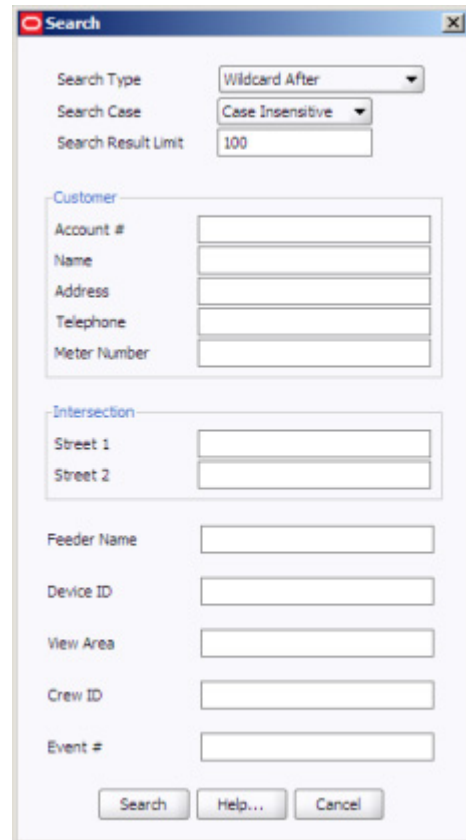
Viewing the Color Legend

To see the color legend for the view, select **Legend...** from the Viewer Help menu. Certain coloring rules (i.e., Energized, Abnormally Radial) display the default color in the legend, but get overridden by the feeder color for each specific circuit.

Searching and Loading Viewer Maps

The Viewer *Search* functionality allows you to quickly focus the Viewer on an area or object.

- Search Type Option

- Search Case Option

- Search Result Limit

- Customer Information Section

  - Account #

  - Name

  - Address

  - Telephone

  - Meter Number

- Intersection

  - Street 1

  - Street 2

- Feeder Name

- Device ID

- View Area

- Crew ID

- Event #

Using the Search Tool to Locate Map Areas and Objects

To locate a particular area or object in the Viewer, complete these steps:

1. Click the **Search** button on the Viewer toolbar or from the Actions menu. The Search dialog box opens.

2. Select the **Search Type** you wish to perform (Exact Match, Wildcard Before, Wildcard After, Wildcard Before and After, Soundex) from the **Search Type** option menu.

3. Select the **Search Case** option you wish to use (Case Insensitive, Case Sensitive) from the **Search Case** option menu.

4. Enter your search result limit in the **Search Result Limit** field (default value is 100).

5. Click the desired search field and either enter search criteria **or** leave the field blank to return all possible values (up to the search result limit).

6. Press **ENTER** or click the **Search** button.

7. If there is *only one match*, the Viewer will shift focus to the search result. If there are multiple matches, a Search Results dialog box displays the search results and the Search dialog box closes.

   For example, an Intersection search using the term Oaklynn returns six matches.
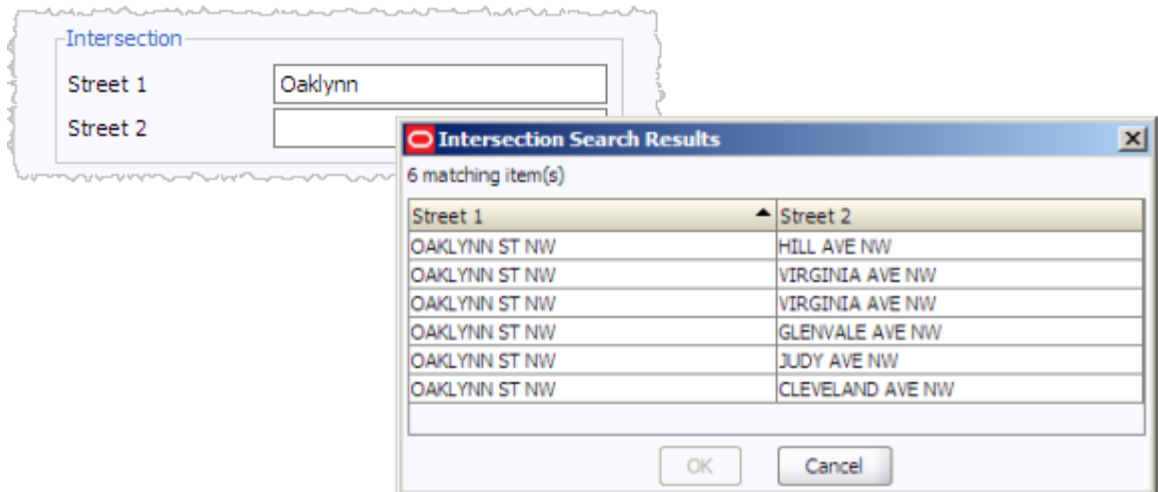
8. If there are multiple matches, select a row in the Search Results dialog box and click the **OK** button. The object appears centered in the Viewer and the Search Results dialog box closes.

   Note: If none of the results are what you wanted, click **Cancel** in the Search Results dialog box. The Search Results dialog box closes and the Search dialog box is redisplayed.

Loading and Unloading Viewer Maps

Once you have located an area or object using the Search dialog box, you can navigate to an adjacent area where the maps are not yet loaded. From here, you can load all the maps that should appear in the drawing area.

To load maps, do one of the following:

• Select **Load Maps** from the **Actions** menu.

• Press the **M** key.

• Click the **Load Maps** button ( ) on the toolbar.

To unload all maps (not just those in the visible drawing area), do one of the following:

• Select **Unload Maps** from the Actions menu.

• Press **Shift+U**.

• Click the **Unload Maps** button ( )on the toolbar.

> **Note:** unless your system is configured to unload maps with each focus, any loaded maps will continue to be loaded until you explicitly unload maps or you switch mode (*i.e.*, from study to real-time or from real-time to study).
>
> If there are more devices displayed than the configured maximum, which is 500,000 in the product configuration, the viewer will unload the maps that have the oldest access time to get the total under the limit.

Navigating in the Viewer

There are a number of ways to navigate around the Viewer:

• Pan left, right, up, down, or diagonally in the map using the pan compass.

• Use the Plus (**+**) and Minus (**−**) buttons on the zoom slider to zoom in and out. You can also drag the zoom slider toward the **+** to zoom in or toward the **−** to zoom out. The scale indicator displays the current zoom scale. The scale is hidden if a schematic view, such as a substation, is selected.

• Navigate using your mouse controls, as described in the next section.

Navigating Using Mouse Controls

There are various mouse controls you can use to navigate within the Viewer. The following table shows all of the mouse commands for the Viewer.

To…	Do this…
Select an object	Click the object.
Select multiple objects	Shift-click and drag to extend the selection rectangle around the area with the object you want to select. The **Select a Device** dialog will open listing all of the devices in the selection area.
Box Zoom	Box Zoom allows you to focus on an area. Click and hold the middle mouse button to begin drawing the rectangle and release it to complete drawing the rectangle; the Viewer will display the area selected at a zoom level that allows the area to fill the Viewer drawing area.
Zoom out	Scroll upward with the scroll wheel, if available.
Zoom in	Scroll downward with the scroll wheel, if available.

To…	Do this…
Open the Control Tool	Double-click the object.
Move the map	Click and drag the map to a new location.

Scaling Symbols and Text

To make the symbols for disconnects, breakers, and conditions prominent while zoomed out, select **Symbols Bigger** from the Viewer's **Actions** menu or click the ▪█ button on the Viewer's toolbar. The symbols remain large even as you zoom out, but will still disappear at standard Declutter levels. Conversely, you may make the symbols smaller by selecting Symbols Smaller (█▪). To make text annotations, such as device ID, phase indicator, etc., larger, select **Text Bigger** from the Viewer's **Actions** menu or click the ᵀ**T** button on the Viewer's toolbar. To make text smaller, select Smaller Text (**T**ᵀ). To reset symbols and text to their standard sizes, select **Reset Size** (█**T**) from the Viewer's **Actions** menu.

Displaying Pointer Coordinates

To view the coordinates of a point in the Viewer, click and select Pointer Coordinates... from the Viewer's **Actions** menu. The Pointer Coordinates dialog will open with the following information:

- **Window X/Y:** the position in the current drawing area view.

- **Coordinates (X/Y) (Geographic Coordinate System):**

- **Latitude/Longitude:**

- **Distance from Previous Coordinate (Feet):**

> **Note:** the keyboard accelerator (**C**) is very useful for quickly opening the Pointer Coordinates window.

Viewer Focus

The Viewer's **Focus** option is context aware and will function according to your selection.

- If you select an object in the Viewer, clicking the Viewer Focus button will focus on that object.

- If you select an event in the Work Agenda and click the Viewer Focus button, the Viewer will focus on the device/object associated with the event.

Focus on Viewer Selection

If you select an object in a geographic view in the Viewer and click the Focus button, the Viewer will center the object and zoom in/out as necessary. If the object is part of a substation or internal diagram view, the first Focus action will display the object in the substation or internal diagram view. Each successive click will cycle the Viewer through alternate views, if available, until it cycles back to the geographic view.

If one-line feeder schematics or normal schematics are configured, the Viewer **Focus** button (◉) will not include these in the set of maps it focuses on, you will need to click the **One-Line Feeder Schematic** (•–•) or Schematic ( ) buttons to navigate to that view.

> **Note:** Viewing schematics may not reflect the current (real-time) state of the network since the schematic views are generated by the model build process.

Example: Substation Breaker Focus

1. A substation breaker is selected.
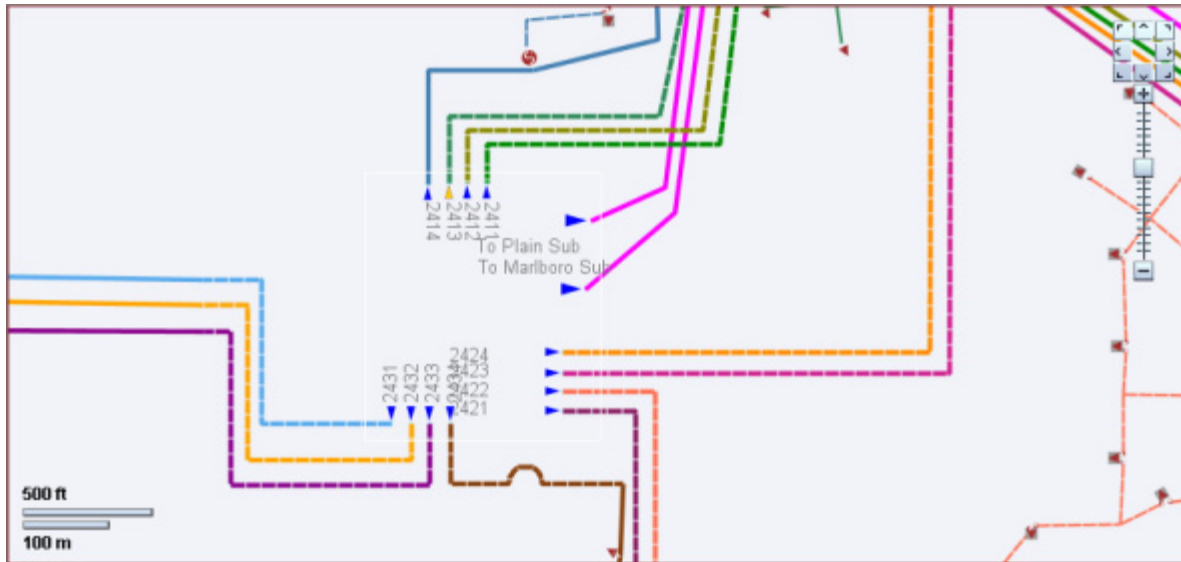
2. Click the **Focus** button (⬤); the substation internal view appears.
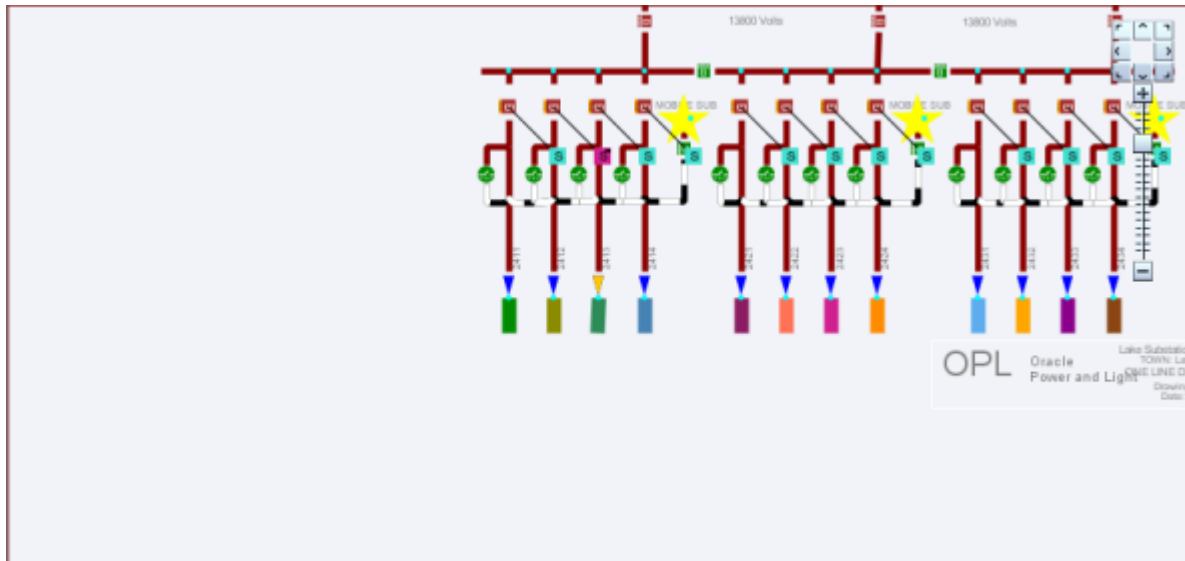
3. Click the **Focus** button (⬤) to return to the original network view.

4. Click the Schematic focus button (⬡) and the station schematic view will appear, if one exists, with the device centered in the schematic view..
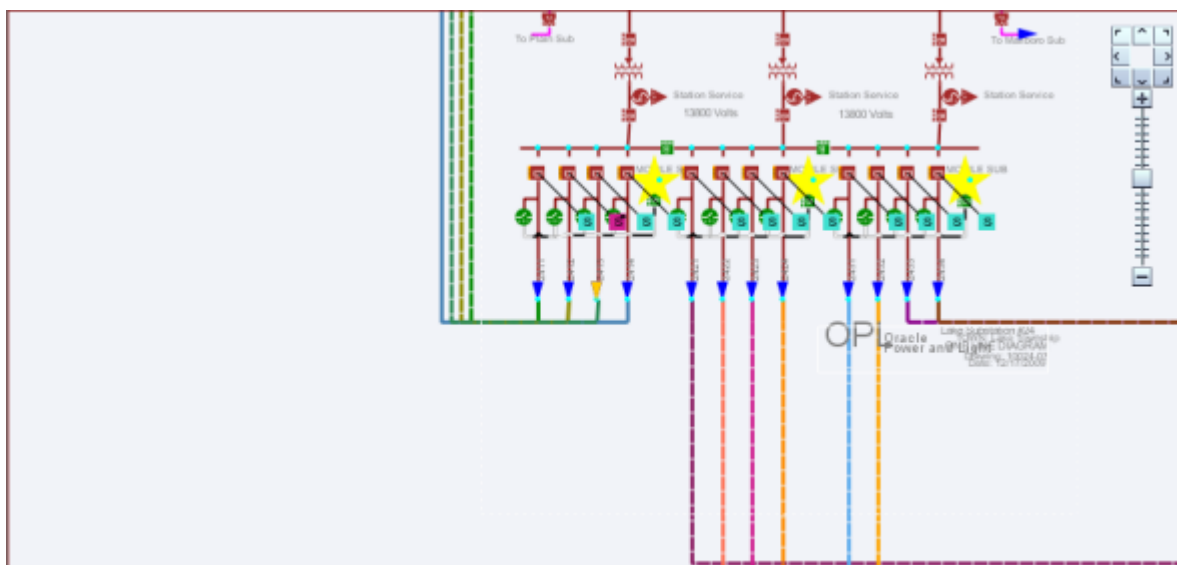
To return to the geographic view, click the **Focus** button (⊙).

Focus on Selection Made in another Window

When you make a selection of an event in another window (*e.g.*, the Work Agenda) and click the **Viewer Focus** button, the Viewer will find the device and focus the drawing area on it.

Using Feeder Focus

The Viewer's Feeder Focus feature traces from a selected device back to its feeder breaker and to all downstream devices on the same feeder.

> **Note:** Feeder Focus uses the real-time status or the status from the current study session. It does not display devices that may be part of the feeder in the nominal configuration but not currently part of the feeder.
>
> Feeder Focus should not be used at times of heavy system activity such as those that occur when there are many outages in the system caused by major events and storms.

To use the Feeder Focus feature, complete these steps:

1. Select a device in the Viewer drawing area.

2. Select **Feeder Focus** from the Actions menu or press the **F** key (the keyboard shortcut). All symbols disappear except the feeder the device is on.

3. To turn Feeder Focus off and show all the symbols again, press **F**.

Unlike tracing, no other electrical devices are shown except those on the selected feeder. The Feeder Focus will not include de-energized downstream devices. While in Feeder Focus, you can still use Hide/Display, Declutter, and Big Symbols.

Feeder Focus on Adjacent Feeders

To view the feeders adjacent to a feeder in Feeder Focus, select **Change Focus Feeders...** from the Viewer's **Actions** menu. The **Select Feeders to Display** dialog will open allowing with the list of the feeder in focus and all adjacent feeders.

> **Note:** The current feeder will be highlighted (selected) when the dialog opens.

From the list, you may:

- Select additional feeders to view.

- Deselect feeders in view; you may remove the initial Feeder Focus feeder.

> **Note:** use standard Shift+click/Control+click selection methods to select and deselect feeders.

Button Actions

- **Reset:** reselects the last applied feeders in focus.

- **Apply:** updates the Viewer with the selected feeders in feeder focus.

- **OK:** updates the Viewer with the selected feeders in feeder focus and closes the dialog.

- **Cancel:** closes the dialog without updating Viewer.

The dialog will remain open allowing you to change the feeders in focus until you either click **OK** or **Cancel** or remove the Viewer from Feeder Focus mode.

Viewing One Line Feeder Schematics

The Viewer's Feeder One Line feature allows you to see one-line feeder schematics views.

1. To initiate the feeder one-line view, select an object and press **1**.

The Viewer will display the Feeder One-Line view.

> **Note:** Alternatively, you may select Feeder One Line from the **Actions** menu or click the ●–● toolbar button.

2. To see adjacent feeders in the schematic view, select a tie device in the standard view and press **1**.
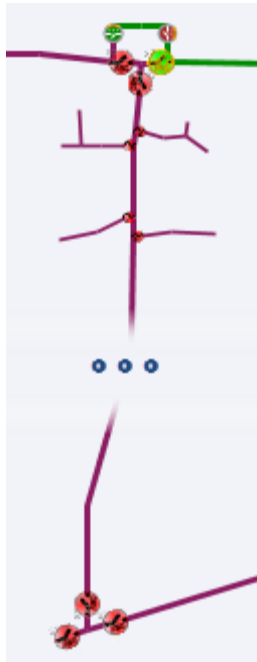
The Viewer will display the adjacent feeders schematic with lines highlighted to show the connections.
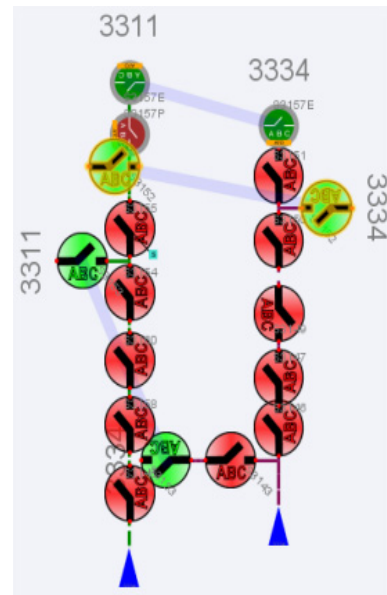
Using Lens Windows

The Viewer's Lens functionality allows you to start a "mini-Viewer" window that is focused and zoomed in on a selected device. To start a Lens window, select a device in the Viewer and select **Show Lens** from the Viewer's **Actions** menu. The Lens window will open zoomed in on the device.
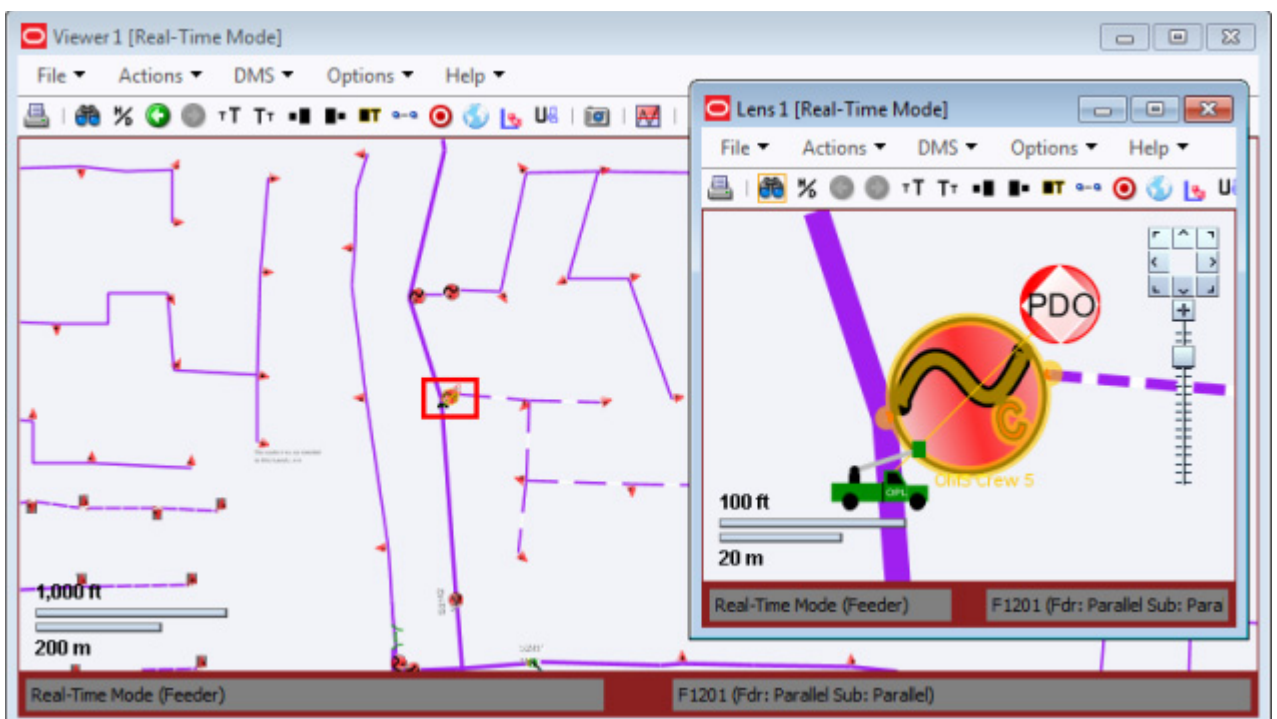
Behaviors of the Lens Window and Viewer Lens Area

The area displayed in the Lens window is indicated by a red rectangle in the Viewer's Drawing Area. The red rectangle may be moved directly in the Viewer by clicking and dragging. As the rectangle moves, the Lens window will update to show the area inside the rectangle. Likewise, panning and zooming in the Lens window will be reflected by position and size of the rectangle in the Viewer.

When the Lens is started, its text size, symbol size, attribute size, coloring rule, big symbols, and power flow arrow settings are all synchronized with the Viewer; thereafter, the Lens settings are independent. If you want to resynchronize the Lens settings with the Viewer settings, close and reopen the Lens. Note that real-time/study mode and tracing are always synchronized between the Viewer and the Lens.

Real-Time and Study Mode

NMS applications start in real-time mode, where every action you perform is applied to the real-time model and displayed to all users. Certain windows (the Viewer and the Control Tool) allow you to change to study mode, where your actions are reflected in your study session on your workstation, but not recorded in the real-time model. Study mode is especially useful in "what if" studies, when you need to evaluate the effects of an action before you record it in real-time.

When in real-time mode, the Viewer displays status, topology, and condition information based on real-time operations information. All changes to these items made by any user in real-time mode are reflected on all real-time Viewers in the system.

When in study mode, the Viewer displays only status and topology changes you make on your workstation. Changes made in your study session are not reflected in the real-time model, and likewise changes made in real-time are not reflected in your study session.

A study session is created for a specific workstation the first time you put the Viewer into study mode. The study session is initially created as a copy of the current real-time model. From that point on, changes in the study session and real-time are independent of each other. You can reset the study session to current real-time by using the Study Session Control tool. In addition, some Web Switching Management actions can also cause study session resets. Please refer to the Web Switching Management chapter for more information.

> **Note:** It is recommended that you reset study session(s) to real-time as often as makes sense (*e.g.*, when starting a new switching plan, testing a new 'what if' scenario, etc.). This is especially important during high load periods (*e.g.*, a storm).

Switching to Study Mode

To toggle the Viewer to study mode, do one of the following:

- Select **Study** from the Options menu, or

- Click the study mode button (⚡) on the toolbar.

  The Viewer window borders change color to gray.

  - You can reset the study session to either the current real-time model or the nominal model using the Viewer's **Reset Study Session…** button in the **Options** menu.

Switching to Real-Time Mode

To toggle the Viewer back to real-time mode, do one of the following:

- Select **Real Time** from the Options menu, or

- Click the real-time button (🔷) on the toolbar.

The Viewer window borders and dialog boxes change color back to red.

Selecting Devices

Device Selection

To select a device in the Viewer, click the device symbol. (Note that the Viewer will select the highest priority device that is closest to the mouse but still within the configured selection-radius.)

Problems with device selection may occur if the selection-radius is set too high and if an area has a multiple devices in close proximity. If that is the case, you may want to select multiple devices using Box Selection and choose the device from the **Select a Device** window.

Box Selection

Box selection is used to select a device from an area containing multiple devices. To perform a box selection, Shift-click and drag in the Viewer drawing area to create a rectangular selection box. When you release the mouse, the **Select a Device** window opens and is populated with all devices within the selection area. Select any device in the list to highlight it in the Viewer; highlighting changes the device symbology to the selection color, but the device is not selected until a selection action is initiated.

Select a Device provides the following actions:

- **Select** - selects the highlighted device and closes the window.

- **Control Tool** - selects the highlighted device, opens its Control Tool, and closes the window.

- **Device Details** - selects the highlighted device, opens the Device Details window above the device in the Viewer, and closes the window.

- **Cancel** - closes the window. The last highlighted device, if any, will remain highlighted in the Viewer, but will **not** be selected for subsequent Viewer actions.

  Note: only a single device can be selected at any given time unless the Viewer is in Supply Points mode. See **Graphical Grouping (Supply Points Mode)** on page 2-12 for details.

Polygon Selection

Polygon selection is an advanced form of box selection. To begin a polygon selection, press the Alt key and click the Viewer drawing area to place the first anchor point; continue to press Alt and click to add additional vertices. To complete the polygon, press Alt and right-click to connect the last vertex to the first vertex. Once the selection polygon is complete, the **Select a Device** window will appear listing all devices that were inside the area.

Multiple Selections

If you are in Supply Points mode, you can use Box Selection or Polygon Selection to select multiple supply points. To add a supply point to your selection press the Control key and click the supply point; likewise, to remove a supply point from your selection, press Control and click a selected supply point. You may also add multiple supply points to your selection by pressing the Control key while performing a box selection.

Identifying Symbology

Device Symbology

Changes in the status of a device (*e.g.*, switches, fuses, breakers, etc.) are reflected by changes in symbology. For example, a closed switch is a different color and shape than an open switch.

Switch in the closed state (left) and open state (right).

Condition Symbology

Dynamic conditions on a device (*e.g.*, "predicted service outage," "crew on-site," "notes," etc.) are indicated with specific symbols attached to the device to which the conditions apply.

Condition symbols display in specific areas around a device or object. The following table provides examples of where condition symbols display in relation to the device they are attached to. The following figure displays the Viewer with probable device outage, crew on-site, note and tag conditions.

Area	Symbols
Above Left	Tags
Above Right	Probable Service/Device Outages Real Outages
Below Left	En route/Onsite Crews
Below Right	Notes Call Clues

Work Agenda Interaction with Event Condition Symbols

When you select a condition symbol for an event, such as a predicted service outage symbol, the corresponding row in the Work Agenda will be highlighted and the Work Agenda table will scroll to display the row, if necessary. If the event is not in the Work Agenda filtered view, the Work Agenda will not change to a filter that would show the event and the selection will be cleared; for example, if the Work Agenda is set to show completed events, selecting an active event symbol will not change the Work Agenda to the "To Do" view to show the event.

Related

- **Work Agenda Views** on page 1-22

Conductor Symbology

Conductor symbology changes color, dash patterns, and thickness for different types of conductors and topology states.

Symbology	Line Pattern	Color
Overhead Line	Solid	Varies
Underground Cable	Dashed	Varies
Deenergized	Dashed	Black-White
Partially Energized	Dashed	Black-Grey
Predicted Deenergized	Dashed	Feeder Color-White
A Phase	Thin	Red
B Phase	Thin	Yellow
C Phase	Thin	Blue
Loop	Magenta	
Parallel	Purple	

Violation and Warning Symbology

Objects in the electrical model that are in warning or violation states have a yellow or red glow, respectively.

Example: Switch Warning and Conductor Violation

IEEE123-Regulator150

| Device Info | SCADA | Power Flow Results | Fault Details | Regulation Settings |

Nominal Base Voltage ▼

Phase	kV	Deg	kW	kVAr	kVA	Amps	Limit
A	2.63	0	1502	592	1614	612.69	700 A
B	2.64	-120	999	351	1059	400.57	700 A
C	2.64	120	1223	422	1293	490.27	700 A

Power Flow Solved   03/30/15 10:28

OH3P-2212409-3590513-2212017-3590591

| Device Info | SCADA | Power Flow Results | Fault Details | Regulation Settings |

Nominal Base Voltage ▼

Phase	kV	Deg	kW	kVAr	kVA	Amps	Limit
A	2.63	-0	1491	570	1596	612.69	530 A
B	2.64	-120	998	345	1056	400.57	530 A
C	2.64	120	1215	411	1283	490.27	530 A

Power Flow Solved   03/30/15 10:28

Device Details provides information about the selected objects warning or violation.

Related

- **Using the Feeder Load Summary** on page 11-2

Note: the colors are configurable so your system may be different.

Off-Nominal (Abnormal) Status Symbology

The table below illustrates how symbology identifies devices in off-nominal (abnormal) states.

Example	Description
	This illustration shows three 3-phase switches (marked A, B, and C) in their normal states. Switch A is normally open; Switches B and C are normally closed.
	When Switch C is opened, an outage is created (indicated by the RO symbol) and the downstream circuit is de-energized. The symbol for Switch C changes from red (closed) to green (open), and a green circle appears around it to indicate that it is abnormally open.
	Switch A is closed to re-energize the circuit. The switch symbol changes to red (closed) and a red circle appears around the switch to indicate that it is abnormally closed.

Example	Description
	Opening a single phase of the normally closed Switch B, causes the device to go into a partially abnormal state, which is indicated by a yellow switch symbol surrounded by a yellow circle. The state of each phase is indicated by a color block behind the phase name. In this example, the A phase is opened and the switch shows the A with a green (open) background; the B and C phases are closed and have red backgrounds.
The downstream circuit is partially de-energized and a real outage (RO) is created.	
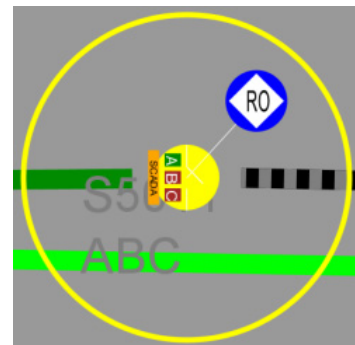
SCADA Symbology

For systems with SCADA Extensions, the Viewer provides many visual cues about SCADA devices and their statuses. For details on SCADA symbology, see **Understanding SCADA Information in the Viewer** on page 8-7.

Hiding and Displaying Viewer Objects

The Viewer's Hide/Display tool allows you to display only those map elements (e.g., layers, objects, crew types) that are of interest to you. To change visibility of components displayed in the Viewer, complete these steps:

1. Click the Hide/Display (**H/D**) toolbar button. (Alternatively, you may select Hide/Display... from the Actions menu.)

2. Select the elements that you want displayed; unselect those elements that you do not want displayed.

    Note: Hide/Display is a configurable feature of NMS so your dialog may have different options.

3. Hide/Display options may include:

- **Layer Groups:** defined groups of single layers listed in the **Layers** pane.

    - Above Ground

    - Underground

    - Transformers

    - SCADA Switches

    - All Electrical

    - Basic Landbase - refers to the display of landbase data from the Map Definition Utility.

- **Layers**

    - Overhead Conductors

    - Underground Cables

    - Manholes

    - Underground Fuses

    - SCADA Disconnects

    - SCADA Circuit Breakers

    - Other Electrical

    - Supply Nodes

    - Roads

    - Waterways

    - Other Landbase

    - Measurements - refers to SCADA measurements. For more information, see **SCADA Measurements** on page 8-2.

    - Violations - refers to devices or feeders in a violation or warning state. For more information, see **Using the Feeder Load Summary** on page 11-2.

- **Highlighting**

    - Predicted De-energized - adds a glow around an object that is predicted to be de-energized

    - Confirmed De-energized - adds a glow around an object that is confirmed to be de-energized.

    - Distributed Generation - adds a glow around conductors fed (or partially fed) by distributed generation.

    - Powerflow Violations - adds a glow around an object that has a powerflow violation.

    - Powerflow Warnings - adds a glow around an object that has a powerflow warning.

    Note: if more than one highlighting color matches, the following order of importance is used:

    1. Violations

    2. Warnings

    3. Predicted out

    4. All other highlighting (following the configured conductor coloring priority).

- **Crew Types**
  - Service & Trouble
  - Tree
  - Line
  - Eval
- Declutter (On/Off) - see **Decluttering the Viewer** on page 1-62 for details.
- Hide Conditions with Devices (On/Off) - see **Hiding Conditions with Devices** on page 1-63 for details.
- Spatial Landbase Menu - allows you to chose which Spatial Landbase to use. The options available will depend on your installation.
  - None
  - Web Map Server 1 Road
  - Web Map Server 1 Aerial
  - Web Map Server 2 Road
  - Web Map Server 2 Aerial
  - Oracle: refers to the display of Spatial Landbase data from an Oracle Locator or Oracle Spatial base map defined using Oracle MapBuilder. MapBuilder is a standalone graphical tool for creating and editing styles, themes, and base maps.
  - Oracle with Outage Summary
- The Network Level menu allows you to choose to display:
  - All Primary (the default)
  - Backbone Only
  - Primary and Secondary
  - Backbone and Laterals
- The Phases menu allows you to choose to display:
  - All Phases (the default)
  - Multi-Phase
  - 3-Phase Only
- The Pending Devices menu allows you to choose to display construction pending, decommissioning conditions, and inactive devices. Options are:
  - Hide Pending Devices (the default)
  - Show Pending Devices

4. Click the **Close** button to close the Hide/Display dialog.

Decluttering the Viewer

The Viewer automatically hides objects based on pre-defined declutter zoom levels. This allows you to only see high-level information at higher zoom levels, removing small text and other items that are no longer readable at that zoom level. When an object is decluttered, any associated conditions and text will also be decluttered. The declutter option in enabled by default, but you can turn it off by unchecking the Declutter (On/Off) option in the Hide/Display dialog.

Hiding Conditions with Devices

The Hide Conditions with Devices option, which is checked (*i.e.*, "on") by default, will hide all conditions when their associated devices are hidden, either due to other Hide/Display options or decluttering. When not checked, the conditions will always display, even when their devices do not.

Hide/Display Example

The following example demonstrates hiding two devices, displaying device conditions for a device that has been hidden, and removing highlighting from a conductor.
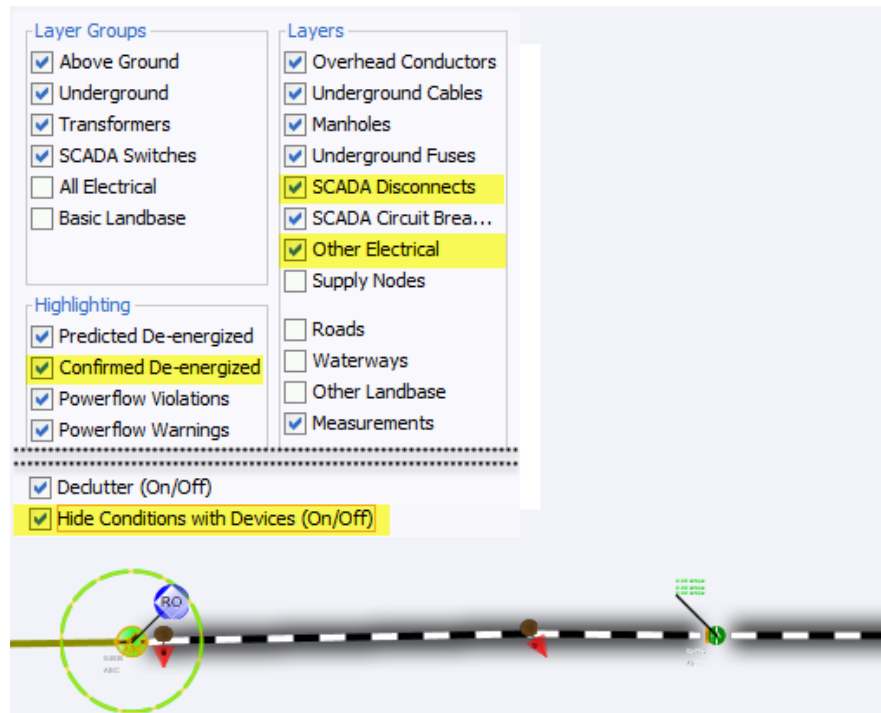
Unchecking the SCADA Disconnects and Other Electrical layers causes the Viewer to hide the devices; unchecking the Confirmed De-energized hides the black highlighting; unchecking the

Hide Conditions with Devices option causes the Outage symbol remain visible when the associated device is hidden.
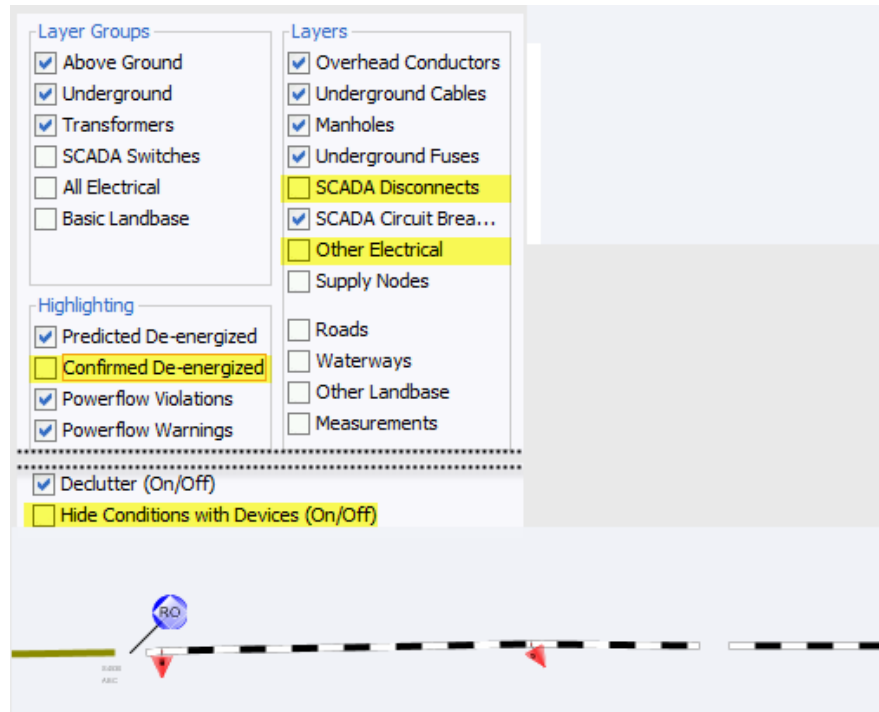
Executing Traces

The trace feature allows you to display the path from a selected device to other devices based on specific criteria. The trace path is displayed on the Viewer by changing all conductors that are part of the path to a thick light blue.

This section includes the following topics:

- **Trace Types**

- **Executing a Trace**

- **Inspecting Direct Connections and Navigating to Connected Objects**

For a description of the fields and buttons on the Trace dialog box, see **Using the Trace Dialog Box**.

Trace Types

The following table describes the various types of traces.

Trace Type	Description
To Source	Traces from the selected device to its energizing source.
All Connected	Traces from the selected device to all connected devices, stopping only at energizing sources.
To Transformer	Traces from the selected device to upstream and downstream transformers.
To Switch	Traces from the selected device to upstream and downstream switches.
To Device Class	Traces from the selected device to a device class.
To Open Points	Traces from the selected device to all directly-connected open points on the feeder.

Using the Trace Dialog Box

Use the Trace dialog box to execute traces of all types.

To display the Trace dialog box, click the **Trace** button on the Viewer toolbar and select an object. The Trace dialog displays the following fields and buttons:

- The first drop-down menu allows you to select the trace type, as described in the table above.

- The second drop-down menu contains the options for the trace direction:

  - **Upstream** - Constrains the trace to be only upstream of the selected device.

  - **Downstream** - Constrains the trace to be only downstream of the selected device.

  - **All** - Allows the trace to be both downstream and upstream of the selected device.

    Note: Tracing all connected devices will automatically trace both upstream and downstream. Tracing to source will automatically trace upstream.

- The third drop-down menu allows you to select the trace mode:

  - **Current Session** - Performs the trace by using statuses currently displayed in the Viewer. This is the default.

  - **Nominal** - Performs the trace by assuming nominal statuses for all devices.

- The checkboxes enable you to select specific phase(s) to trace. By default, all available phases on the selected object are checked.

Advanced Trace Dialog Fields

Click the **Advanced** button ( ) in the bottom-right corner of the Trace dialog to display additional information about the selected object, including detailed topology. You can also inspect direct connections and navigate to connected objects.

When you click the Advanced button, the Trace dialog expands to display the following information:

The **Device Details** section displays the following device information:

• Device type

• Device handle

• Network Component Group (NCG)

• Map containing the device

• Display group

The **Symbol Details** section displays the following symbol information:

• Symbology class

• Symbol ID

• Coloring status

• Valid statuses

• Coloring rule

The **Connectivity Details** section displays the following connection information:

• Feeders

• Current statuses

• Nominal statuses

• Other statuses

The **Connections** section displays a list of connected nodes for the selected object. You can expand the list of connections for each node and focus the Viewer on an object in the list. For more information, see **Inspecting Direct Connections and Navigating to Connected Objects** on page 1-68.

Trace Dialog Toolbar

Toolbar Icon	Description
	The **Trace** button executes the trace.
	The **Clear** button erases the trace color from the Viewer and returns to normal color.
	The **Refresh** button performs the trace again. This is useful if devices have been operated or the model was rebuilt.
	The **Trace Focus** button focuses the Viewer on the entire extent of the trace.
	The **Endpoint** button focuses the Viewer on the endpoint device of the trace. It is disabled if the trace is in all directions (since there will not be a single endpoint).
	The **Upstream Impedance Report** button displays a dialog with all configured upstream devices, their solved voltages, and their modeled impedances. Only available if Power Flow Extensions are licensed. See **Inspecting Impedances with the Upstream Impedance Report** on page 1-69.
	The **Help** button displays online help for the Trace function.

Executing a Trace

To execute a trace, complete these steps:

1. Select the device you want to trace from and click the Trace button ( ). (See **Using the Trace Dialog Box** on page 1-65 for field descriptions.)

2. Select the trace type, direction, mode, and phase(s) for the trace, as described in the following table:

To trace...	Do this…
To all connected devices	Select "All Connected" from the drop-down and then click the **Trace** button. The Viewer traces from the device to all connected devices stopping only at an energizing source.
To connected transformers	Select "To Transformer" from the first drop-down and select the direction from the second drop-down. Click the **Trace** button. The Viewer traces from the device to all transformers in the specified direction.
To connected switches	Select "To Switch" from the first drop-down and then select the direction from the second drop-down. Click the **Trace** button. The Viewer traces from the device to the nearest switch in the specified direction.
To the energizing source	Select "To Source" from the first drop-down. Click the **Trace** button. The Viewer traces from the device upstream to the energizing source.

To trace...	Do this…
To a specific device class	Select "To Device Class" from the first drop-down. The Device Class field and **Search** button will be displayed. Click the Search button to open the Select Class dialog. Expand the electrical object tree and select the device class that you wish to trace to. Click **Ok** to populate the Device Class field. Click the **Trace** button. The Viewer traces to that device class.
A specific phase	Select the phase you want to trace. Select the tracing option (All Connected, To Transformer, To Switch, or To Source) and the direction, then click the **Trace** button.
Upstream	Select either "To Transformer" or "To Switch" from the first drop-down, and then select "Upstream" from the second drop-down. Click the **Trace** button.
Downstream	Select either "To Transformer" or "To Switch" from the first drop-down, and then select "Downstream" from the second drop-down. Click the **Trace** button.
Both upstream and downstream	Select either "To Transformer" or "To Switch" from the first drop-down, and the select "All" from the second drop-down menu. Click the **Trace** button. (Tracing all connected devices and tracing to the source will automatically trace both upstream and downstream.)
Using statuses currently displayed in the Viewer	Select "Current Session" from the third drop-down menu. Select the tracing option (All Connected, To Transformer, To Switch, or To Source) and the direction, then click the **Trace** button.
Using nominal statuses	Select "Nominal" from the third drop-down menu. Select the tracing option (All Connected, To Transformer, To Switch, or To Source) and the direction, then click the **Trace** button.

Inspecting Direct Connections and Navigating to Connected Objects

Use the advanced fields on the Trace dialog to inspect direct connections and navigate to connected objects.

1. In the Viewer drawing area, select the device you want to trace from and click the **Trace** button.

2. Click the **Advanced** button (⌄) in the bottom-right corner of the Trace dialog. The dialog expands to display detailed connection information.

3. In the Connections box at the bottom of dialog, click the + sign to expand a node and display all connection branches.

4. Right-click a connection row and select **Focus** from the pop-up menu. The Viewer focuses on the object and colors it with the specified color. The Trace dialog displays details for the newly selected object, including a list of its connections. Refer to **Advanced Trace Dialog Fields** on page 1-66 for more information.

5. Repeat steps 4 and 5 needed to inspect more connections.

Inspecting Impedances with the Upstream Impedance Report

The Upstream Impedance Report allows you to quickly view the impedances between a selected device and the associated equivalent source object. The types of devices shown in the report are configurable; by default, conductor, power transformer, and equivalent source impedances are displayed.

You may view impedances in a trace path without needing to navigate to each individual object or query the data from the NMS database. This will aid in diagnosing data issues while implementing DMS applications such as Power Flow, Feeder Load Management, Fault Location Analysis, etc.

To access the Upstream Impedance Report, do the following:

1. In the Viewer drawing area, select the device you want to perform the upstream impedance trace from and click the **Trace** button ().

2. From the Trace tool dialog, click the Upstream Impedance Report button (). The trace will be performed and the Impedance Report dialog will open.

Upstream Device Impedances Table

The **Upstream Device Impedances** table lists the devices contributing impedance to the network between the selected object and the equivalent source. The devices listed will be ordered with the most upstream device first. However, if the trace encounters a parallel area, the devices in parallel may be listed in any order. Devices in a parallel state are denoted with a check mark in the **Parallel** column and with magenta coloring in the **Order** column.

To see a listed device in the Viewer, right-click the row and select **View...** from the context menu. The Viewer will focus on the device.

> **Note:** Data may be copied from the table (see **Copying Table Data** on page 1-12 for instructions).

Using the Commissioning Tool

The Commissioning Tool allows you to commission a device that is currently in construction or decommission devices currently marked for removal.

To open the Commissioning Tool, select **Commissioning Tool...** from the Actions menu in the Viewer. The Commissioning Tool displays two panels:

- The **Waiting for Approval Panel** displays a list of devices that need to be approved and indicates their current statuses (To Commission or To Decommission).

- The **Approved Panel** displays a list of approved devices that now may be removed and indicates their current statuses (Commissioned or Decommissioned).

   If no pending devices are currently selected, both panels will be empty.

The status bar at the bottom of the Commissioning Tool window indicates the current real-time or study mode status.

You can perform the following actions on the devices displayed in the Commissioning Tool window:

Task	Description
Approve the selected device(s)	Select one or more devices in the Waiting for Approval list and click the approve button (✔); alternatively, you may use the right-click menu option. The devices are moved to the Approved list and their symbols in the Viewer change from red or green to gray.
Focus on the device in the master Viewer window	Select a single device in either list and click the Focus button (◉); alternatively, you may use the right-click menu option.
Remove the selected device(s) from the list	Select one or more devices in either list and click the Remove button (✖); alternatively, you may use the right-click menu option.
Undo the approval for the selected device(s)	Select one or more devices in the Approved list and click the Undo button (↩); alternatively, you may use the right-click menu option. The devices are moved to the Waiting For Approval list and their symbols in the Viewer change from gray back to red or green.

Commissioning and Decommissioning Devices

To commission or decommission sets of devices, perform the following steps:

1. In the Viewer, load the pending device changes you wish to modify. You can select multiple devices.

2. Enable the **Show Pending Devices** option in the Hide/Display dialog.

3. Switch to study mode if you don't want to affect the real-time model.

4. Select **Commissioning Tool...** from the Viewer's Actions menu. Selected devices pending approval are listed in the Waiting for Approval panel.

5. Select the devices you want to commission or decommission, then click the **Approve** toolbar button.

Note:

- Devices being decommissioned are no longer are part of the topological model and are immediately deenergized, as are any devices downstream.

- Commissioned devices immediately become part of the topological model and energization is recalculated (*i.e.*, a newly device attached to an energized conductor will become energized).

Selecting Pending Devices

When you select a device in the Viewer that is pending construction or decommission, the device is listed in one of the panels in the Commissioning Tool.
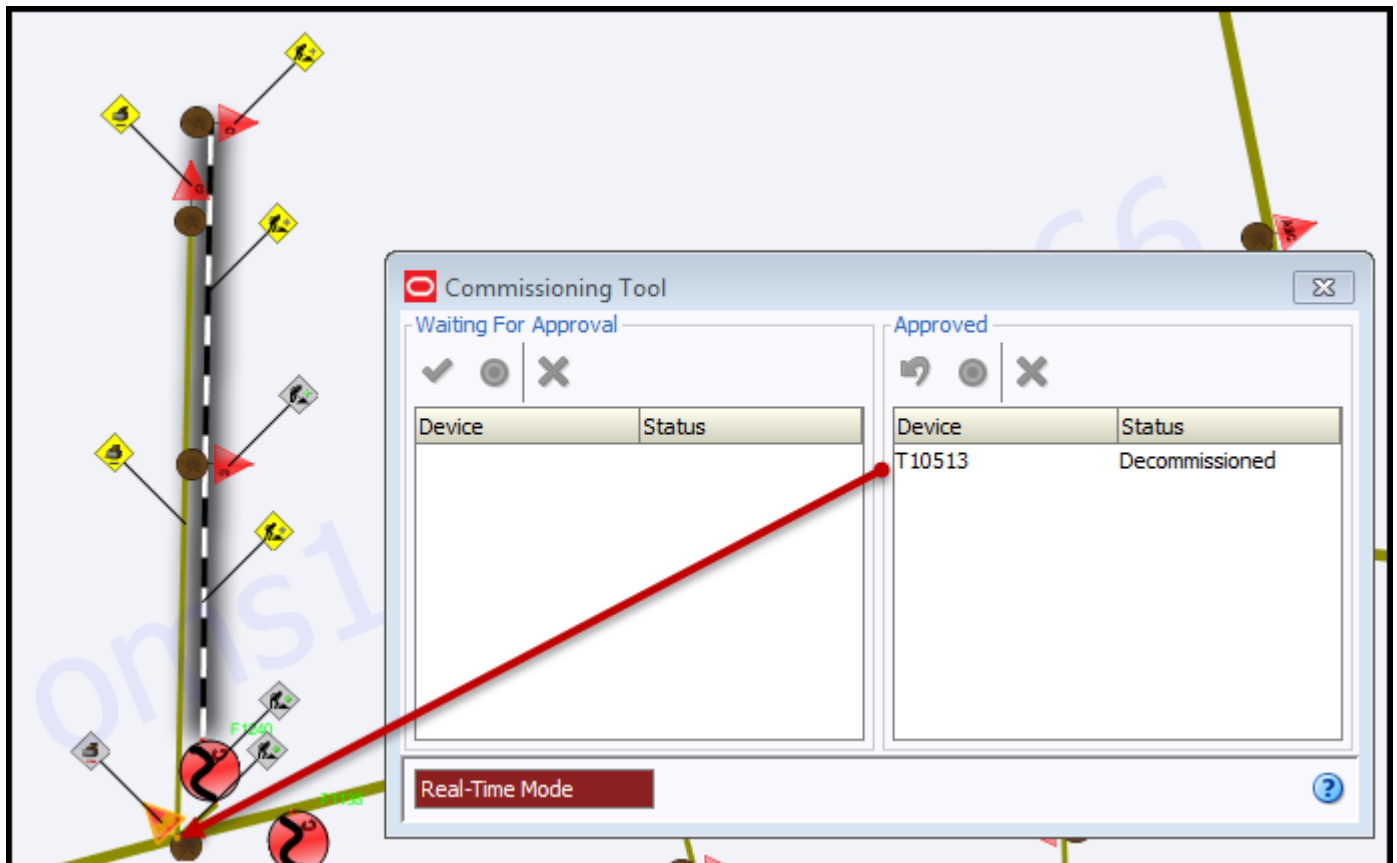
With Transformer T10513 selected in the Viewer, the Commissioning Tool's Approved pane is populated with the Decommissioned device.

To select multiple objects, shift-click and drag until the selection box surrounds the objects:
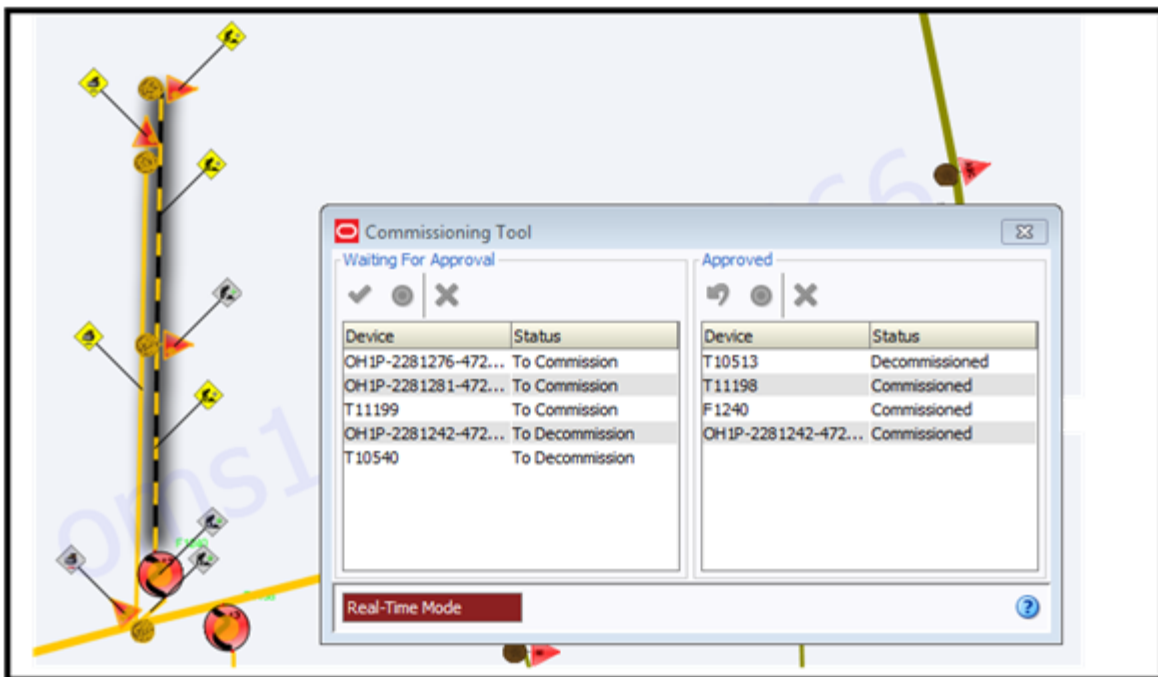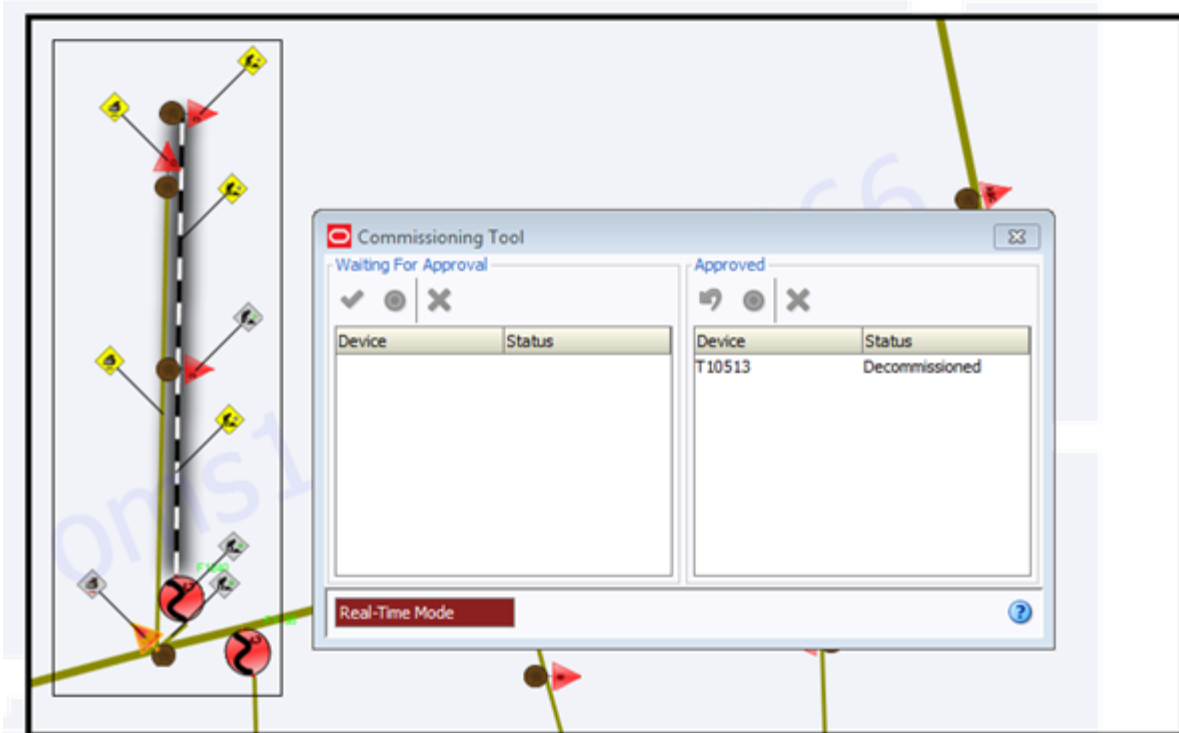
Note: use the **Show Pending Devices** option in the Hide/Display dialog to display or hide pending devices.

The Viewer displays the following commissioning-related conditions:

Symbol	Description
	Unapproved pending construction.
	Approved pending construction.
	Unapproved pending decommission.
	Approved pending decommission.

Using the Commissioning Tool with Web Switching Management

The Commissioning Tool will generate switching steps for each commissioning/decommissioning device action when Web Switching Management is licensed. Commissioning/decommissioning actions will always be recorded in Real-Time mode. The actions will either go into the Miscellaneous Log or a switching sheet recording Real-Time operations.

Non-complete Commissioning and Decommissioning steps can be executed over and over again in Study mode within the switching sheet they were recorded into. In Real Time, the steps can only be Instructed and Completed one time which will initiate the action against the Real Time model. Completing the step in study mode will only cause the action to be completed in the user's study session.

For performance purposes, Commissioning and Decommissioning steps should be completed in groups by highlighting multiple steps during step execution operations. This will force the requests to be packaged and processed as a batch request. The batch processing will only work if the Commissioning and Decommissioning steps are contiguous in the steps list without any other type of step mixed in. You can still highlight a larger group of steps containing a mixture of step actions and execute them, but each contiguous group of Commissioning and Decommissioning steps will be processed as a batch request.

An error will be generated when completing a commissioning/decommissioning step where the device has not been setup for commissioning or decommissioning. This error will cause the step to not complete and will halt step execution.

A warning scenario will be generated when completing a commissioning/decommissioning step where the resulting action has already been applied to the device in question. The user will have the option of ignoring the warning, which will cause step execution to continue. If the warning is not ignored, then step execution will be stopped.

Using the Control Tool

The Control Tool lets you perform actions on devices. It is typically brought up from the Viewer, although it can also be brought up from an event in the Work Agenda window. The actions you can perform on devices include tagging a device, placing a note on a device, re-predicting an outage upstream or downstream from a device, and opening and closing a device.

Control Tool topics include:

- **Understanding the Control Tool**
- **Operating Devices**
- **Tagging Devices**
- **Placing Grounds**
- **Disabling Automatic Throwover (ATO) Switches**
- **Highlighting Events in the Work Agenda**
- **Repredicting Upstream/Downstream**
- **Viewing Associated Customers**
- **Adding Notes**
- **Viewing Device Attribute Information from the Control Tool**
- **Toggling Call Display**
- **Viewing Customers**
- **Placing Jumpers**
- **Creating Momentary Outages**
- **Using the Look Ahead Dialog**
- **Associating Documents with Devices**
- **Associating Damage Assessments to a Device**
- **Completing and Instructing Actions**

For related topics, see also:

Understanding the Control Tool

The Control Tool lets you perform device operations based on the current status of the device. For example, if a device is already open, you can close it. If the device is closed, you can open it. You can operate all or some of the phases of a device (if the device is a multi-phase device).

You can access the Control Tool from the Viewer by double-clicking a device or by selecting a device and then clicking the **Control Tool** button (⌇) on the Viewer toolbar. If you click the Viewer drawing area without selecting a device, the system selects the nearest device.

The name of the device is displayed at the top of the Control Tool. On the left side of the screen are a set of buttons for the options you can perform. The options that appear differ depending on the type of device that the Control Tool was opened from (cable/conductor vs. actual device such as a transformer, fuse, etc.).

Control Tool Actions

Control Tool operations and functions are performed by clicking the buttons displayed on the Control Tool. The following table describes common Control Tool buttons and the actions they perform.

Option	Description

Operate...	Allows you to perform device operations; options available depend on the device and device state:
	• Open
	• Close
	• Instruct Open
	• Instruct Close
	• Open and Tag
	• Instruct Open and Tag
	• Remove Tag and Close Device
	• Instruct Remove Tag and Close
	• Undo Open.
	• Secondary Device Actions:
	  • Open Backfeed
	  • Instruct Open Backfeed
	  • Close Backfeed
	  • Instruct Close Backfeed
	  • Open Main & Close Backfeed
	  • Instruct Open Main & Close Backfeed
	  • Open Backfeed & Close Main
	  • Instruct Open Backfeed & Close Main

Phase Wire Down	Inserts a wire down condition into the model.
Put Wire Up	Removes wire down condition from the model
Model Edits...	Allows you to select a type of jumper to place. See **Placing Jumpers** on page 1-87.
Tag...	Allows you to Place Tag, Instruct Place Tag, Remove Tag, and Instruct Remove Tag.
DataRaker...	Allows you to view information about the device in Oracle DataRaker.
Ground...	Allows you to Place Ground, Instruct Place Ground, Remove Ground, and Instruct Remove Ground.

Option	Description
FLISR...	Allows you to enable or disable FLISR for that device. See **Enabling and Disabling FLISR Devices from the Control Tool** on page 12-3.
CVR...	Allows you to enable or disable CVR for that device.
Regulation Device...	Allows you to display the Regulation Device Parameters dialog for the selected Shunt Devices, Distributed Generator, Equivalent Source, or Transformer. The dialog allows you to change regulation device parameters as in the Feeder Load Management Details. This dialog has the additional advantage of allowing you to submit manual entries for SCADA measurements or send the instruction to SCADA, if available.
Fault Current...	Displays the Fault Current dialog to allow you to change the fault current for the feeder. See **Manually Entering Fault Current from the Control Tool** on page 13-7.
Change Load...	Change Load has two options: • **Change** - Displays the Change Load Dialog to allow you to change the total load for a particular device in your study session. Only available in Study Mode. • **Revert** - Reverts a changed load on a particular device in your study session to its original value.
Highlight Event	Displays the event in the Work Agenda. You must have the correct view of the Work Agenda window open in order to see the highlighted event (*e.g.*, the In Progress list).
Repredict Upstream	Allows you to manually repredict the outage to the next predictable upstream device.
Repredict Downstream	Allows you to manually repredict the outage to the next predictable downstream device.
Repredict to Here	Allows you to manually repredict downstream outages to the selected device.
Repredict PMO to Here	Allows you to manually repredict downstream momentary outages to the selected device.
View Documents...	Allows you to view documents associated with devices.
Note...	Allows you to place notes on devices.
Attributes...	Displays the Device Attributes window, which lists information about the selected device's properties. See **Viewing Device Attribute Information from the Control Tool** on page 1-86.

Option	Description
Damage Assessment…	Opens the Damage Assessments window, which displays a list of damage assessments associated with the device selected in the Viewer and allows you to add new damage assessments. See **Using the Damage Assessments Window** on page 2-19.
Toggle Call Display	Toggles the call display on or off. When enabled, a symbol is displayed in the Viewer window for any transformers that have calls associated with the event. This option is only available on Control Tools that are opened from a predictable outage device, such as a switch or fuse, which has an open associated event.
Customer List...	Displays the customers downstream from a device.
AMI Customer List...	Displays meters downstream from a device.
Switching Plan(s)...	Allows you to open a switching plan associated with the device. If multiple plans are associated with the device, the Device to Sheet Operation List displays a list of switching sheets and associated operations. Each operation represents a step in the switching sheet. Select a sheet operation and click **Open**. See **Web Switching Management** on page 9-1 for more information on using Web Switching Management.
Safety Document(s)...	Allows you to open or create safety documents associated with the device. See **Opening Existing Safety Documents** on page 9-91 or **Create a New Safety Document from the Control Tool** on page 9-103.
SCADA Summary...	Opens the SCADA Summary window. See **Using the SCADA Summary** on page 8-3 for more information.
Operate Phases	Allows you to operate all or specific phases of a device by toggling All or any combination of A, B, and C phases. Any phases not applicable to the device are disabled (*e.g.*, the Control Tool for an A phase transformer will have B and C disabled). This option is disabled if the selected device is 'gang-operated.'
Date and Time	Allows you to record the date and time an operation was performed. The field defaults to the current date and time, but you can adjust the date using the up and down arrow buttons next to the field. The date and time of the operation displays in the Event Recorder window. Note that this will also affect reported outage times.
Help	Displays Control Tool help.
Exit	Closes the Control Tool.

Operating Devices

You can open or close a device in the Viewer to reflect the current state of the device in the field. The Control Tool's available device operation options depend on the status of the device. For example, a Control Tool opened from an open device will only allow you to close the device. In real-time mode, you must have authority over the control zone where the device is located in order to operate the device.

If a device has multiple phases and you only want to open or close one of the phases, you can select which phase you want to operate using the toggle buttons in the Operate Phases section on the right side of the Control Tool.

> **Note**: Phase selection is disabled when the selected device is 'gang-operated'.

The Control Tool's Operate Phases pane displays the phases available for the selected device. A label above the Operate Phases section indicates the phases that are currently closed. For example, in the image below, a three phase switch is shown in the Viewer with the A and B phases abnormally open; the Control Tool shows that the C phase is closed and its Operate Phases pane lists all three phases available on the device.
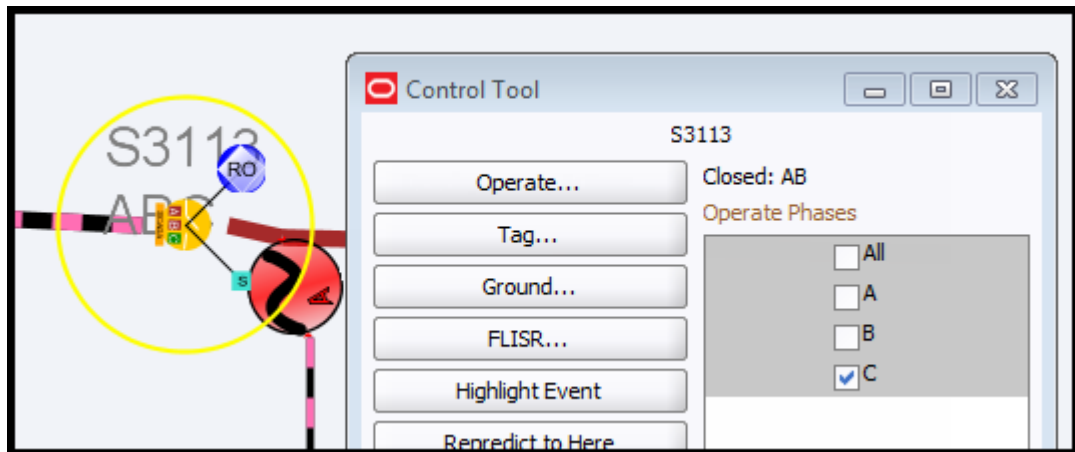
The Control Tool opens with the **All** phases check box selected whether the device is single phase, two phase, or three phase. You can select one or more phases to perform actions (note that you cannot perform open or close operations on All phases of a device that has different phases in different states).

Opening a Device

To open one or more phases on a device:

1. Open the Control Tool for a closed device.

2. Select the phase or phases that you want to open. If you wish to open all closed phases, you may leave ALL selected (which is the default).

3. Click **Open**. The selected phase(s) for the device open. If no phase is selected, an error message will be displayed.

Undoing the Open Operation

You can undo an Open operation, which is different than closing a device. With the Undo Open operation, any RDO that would have been restored will revert back to a predicted outage. As a result, no restore time is set for the associated job and the job remains active.

Closing a Device

To close one or more phases on a device:

1. Open the Control Tool for an open device.

2. Select the phase or phases that you want to close. If you wish to close all open phases, you may leave ALL selected (which is the default).

3. Click **Close**. The selected phase(s) for the device close.

Instructing Actions

Many **Operate** options, such as **Open** or **Close**, will have an **Instruct** version (for example, **Instruct Open**). These do not perform the action in the model, but instead place an Instruct condition in the model, which indicates that another party (usually a crew) has been instructed to perform the action.

Instructed actions display the Look Ahead and other warnings and errors, much like the traditional actions, with one important difference. If the action is to be recorded into a sheet, the Look Ahead and its associated errors and warnings display data as if the instructed steps in that sheet were already completed. This allows you to instruct actions in the Control Tool that are dependent upon instructed actions in the current sheet. This will also give you the correct customer count as if the instructed steps were already executed.

This considers all instructed steps in the single active sheet only if recording is on and the mode matches the Control Tool's, and then applies them to the model in the order that they were instructed (using the Instructed Date field.)

These instructed actions can then be completed, either in the sheet or in the Instructed Actions panel of the Control Tool.

Instructed Actions Panel

The Instructed Actions panel provides a way of recording results of instructed actions from the Control Tool rather than through an Emergency Switching Sheet, Standalone Safety Document, or the Miscellaneous Log. When an action is instructed, the panel's buttons are enabled so you can record the response.

To record instructed actions results:

1. Open the Control Tool for a device.

2. Click the **Operate...** button.

3. Select an instruct operation, such as "Instruct Open." The Instructed Actions pane will become sensitized.

4. At this point, the crew would be instructed to open the device and would report back whether:

   • they completed the action

   • they aborted the action

   • the action failed

5. Click the button corresponding to the result.

You may also click the **Show Sheet** button to open an associated Emergency Switching Sheet or Standalone Safety Document (if one exists) or the Miscellaneous Log if there is not an existing Emergency Switching Sheet or Standalone Safety Document.

> **Note:** this example assumes a crew is in the field being instructed to perform certain operations. The sequence of events is designed to be illustrative of the Control Tool actions rather than a suggested workflow for field operations.

Related

- **Emergency Switching** on page 9-66.

- **Using the Miscellaneous Log** on page 9-95.

- **Using Stand Alone Safety Documents** on page 9-103.

Tagging Devices

You can tag devices in the Viewer window that are physically tagged in the field. Tags placed on devices in the system prevent users from performing open or close operations on the device. When you place a tag on a device, a tag symbol appears attached to that device in the Viewer. You can place multiple tags on a single device. When you do, the number of tags on the device appears in parentheses next to the tag in the Viewer. You must have authority over the control zone where the device is located in order to tag the device.

Placing a Tag

To place a tag on a device:

1. Open the Control Tool for the device.

2. Click the **Place Tag** button. A tag symbol displays next to that device in the Viewer. If a tag symbol already existed (the device had at least one current tag), a number in parentheses next to the tag symbol will indicate the updated current number of tags.

Removing a Tag

To remove a tag from a device:

1. Open the Control Tool for the device.

2. Click the **Remove Tag** button. The Remove Tag dialog box opens, displaying a list of the tags on that device, including when the tag was placed and the user who placed it.

3. Select the row of the tag you want to remove and click the **Remove** button. The tag is removed. The number next to the tag symbol is decreased by one, unless there is now only one tag left, in which case the number is removed. If the last tag is removed, the tag symbol is removed from the Viewer.

Placing Grounds

When you open a Control Tool from certain devices or conductors (*e.g.*, fuse or wire), the ground function is available. Grounding a device grounds all parts of the circuit connected to the grounding point. The Look Ahead dialog warns you if the grounding action will create a live, grounded circuit. The grounded circuit is highlighted in the Viewer and indicated by a grounding symbol at the selected device or midpoint of the selected conductor.

Grounding a Device

To ground a device, complete these steps:

1. Open a Viewer window and load the map that contains the device you want to ground.

2. Open the Control Tool for the device.

3. Click on the **Ground...** button and select **Place Ground** from the drop-down menu. The Select Secondary Object dialog box will open.

   The Select Secondary dialog box's option list allows you to select a conductor from all conductors attached to the device on the side you want to ground. Once selected, the conductor will be highlighted in the viewer.
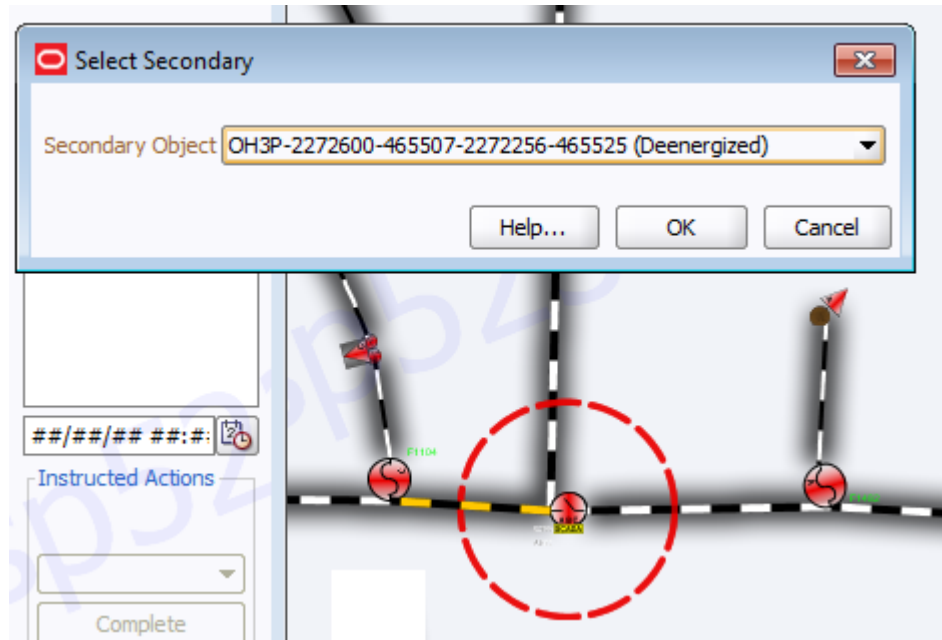
4. Select the conductor and click **OK**.

   If you are grounding a live conductor, the Add Ground Error dialog box opens with a warning: **Danger! This operation would ground a live section.**

   To abort a grounding operation, click **Cancel**.

5. Click **OK** to proceed with the ground. A ground symbol will appear on the device in the Viewer.

Removing a Ground from a Device

You can only remove a ground from the device or conductor on which the grounding was applied. To remove a ground from a device, complete these steps:

1. Open a Viewer window and load the map that contains the grounded device.

2. Open the Control Tool for the device.

3. Click on the **Ground...** button and select **Remove Ground** from the drop-down menu. If the device has multiple grounds, a Select Secondary Object dialog box appears.

4. Click on the conductor attached to the device on the side with the ground you want to remove. The alias of that conductor appears in the dialog box.

5. Click **OK**. The grounding symbol is removed from the Viewer.

> **Note:** When removing the last ground on a device that is required by an Issued safety document, a Grounds Check dialog will be displayed. From the Grounds Check dialog you have the option of navigating to the Safety Document, continuing with the Remove Ground operation or canceling the operation. For more details, see **Grounds Check** on page 9-86.

Disabling Automatic Throwover (ATO) Switches

The Control Tool for a Primary or Secondary ATO switch provides a function to disable or enable ATO functions. Disabling either ATO switch prevents the system from automatically throwing-over or auto-returning the pair of switches.

Placing a DISABLED Condition

To place a tag on a device:

1. Open the Control Tool for the ATO switch that you want to disable.

2. Click on the **Disable ATO** button.

3. A DISABLED condition will appear on the ATO switch.

The ATO switches can now be operated manually, energization can change, and the system will not automatically operate either ATO switch.

Removing a DISABLED Condition

To re-enable the ATO switch:

1. Open the Control Tool for the disabled ATO switch (*i.e.,* one that has the *DISABLED* condition).

• Click **Enable ATO**. The DISABLED condition will disappear from the ATO switch.

Once both ATO switches are enabled, the system will once again set the ATO switches to their correct positions, based on the energization.

Highlighting Events in the Work Agenda

If an event is associated with a selected device, you can find it in the Work Agenda window using the **Highlight Event** button on the Control Tool. You must have the correct view of the Work Agenda window open in order to see the highlighted event (*e.g.*, the In Progress list).

> **Note:** If there are multiple events associated with a device, only the first one found will be highlighted. See also **Work Agenda Interaction with Event Condition Symbols** on page 1-56.

Repredicting Upstream/Downstream

You can force the system to manually repredict a predicted outage either upstream or downstream from the current system predicted device. This is typically done when a crew finds that the problem is not at the predicted device.

- If the device is energized, the problem is actually one or more downstream outages.

- If the device is de-energized, the problem will actually be upstream.

Clicking the **Repredict Upstream** or **Repredict Downstream** button manually repredicts the outage to the next predictable upstream or downstream device. When repredicting downstream, the system distributes the event to one or more devices. Once a predicted outage is manually repredicted upstream or downstream, the system will treat the repredicted outages as non-grouping and no longer automatically repredict them.

For example, a crew finds that a predicted service outage (indicated by the "PSO" symbol) at a transformer is not actually where the trouble is located. Using the Control Tool, you can repredict the outage upstream to the switch. When you repredict the outage, the switch displays a "PDO" (predicted device outage) symbol. The original predicted service outage displayed in one of Work Agenda's Trouble Events list windows changes to a predicted device outage located at the switch.

Viewing Documents Associated with a Device

To view documents associated with a device, complete these steps:

1. Open a Viewer window. Locate a device that has an associated document you wish to view. (Devices with associated documents have a "**DOC**" condition symbol.)

2. Double-click on the device to bring up the Control Tool.

3. Select the **View Documents…** option from the Control Tool.

   - The Manage Documents window appears, which lists any associated documents for the selected device.

     - Select the document and click the **View Document** button to open the document for viewing.

     - Click **Exit** to close the Manage Documents window.

For instructions on associating documents to devices, see **Associating Documents with Devices** on page 1-96; note that this function is available only to administrative users.

Adding Notes

The Control Tool allows you to place notes on devices. Note text is displayed in the **Displaying Device Details** balloon dialog in the Viewer or the note may be opened by selecting **Note...** on the Control Tool, which will open the **Condition Data** dialog. All notes for the selected device are listed in the **Conditions** field. You may add a note or edit an existing note in the **Condition Text** field.

Condition Data Dialog Box

The Condition Data dialog displays the following fields and buttons:

- **Fields**

  - The **Condition Type** field displays the condition type of note.

  - The **Object** field displays the object class of the device.

  - The **Object Name** field displays the name or ID of the device.

  - The **Conditions** field lists the notes that have been entered for the device.

- The **Condition Text** field displays the text of the selected note.

- **Buttons**

  - The **New** button allows you to enter a new note for the device.

  - The **Edit** button allows you to edit the text of the selected note.

  - The **Delete** button deletes the selected note.

  - The **Cancel** button closes the Condition Data dialog.

Creating a Note

You can create one or more notes for a device using the Control Tool. Once you save a note, a note symbol displays in the Viewer next to the device. If you create multiple notes for a device, the number of notes is displayed in parentheses next to the note symbol.

To enter a note, complete these steps:

1. In the Viewer, open the Control Tool for the device.

2. On the Control Tool, click the **Note…** button. The **Condition Data** dialog opens.

3. Click the **New** button. The Condition Text field changes to an Add/Edit Text field.

4. Click in the Add/Edit Text field and enter the note text.

5. Click **Save**. The note is saved. The note text is displayed in the Conditions field. A note symbol appears in the Viewer next to the device. If a note already existed, a number appears in parentheses next to the note symbol with the current number of notes.

Editing a Note

To edit an existing note from the Control Tool, complete these steps:

1. In the Viewer, open the Control Tool for the device.

2. Click the **Note…** button. The Condition Data dialog opens with existing notes listed in the Conditions field.

3. Select the note that you want to edit. The note text will display in the Condition Text field.

4. Click the **Edit** button. The Condition Text field changes to an Add/Edit Text field.

5. Click in the Add/Edit Text field and edit the note text as needed.

6. Click **Save**. The note is saved.

Deleting a Note

You can delete a note once it no longer applies to the device or the event.

To delete a note, complete these steps:

1. In the Viewer, open the Control Tool for the device.

2. Click the **Note…** button. The Condition Data dialog opens with existing notes listed in the Conditions field.

3. Select the note that you want to delete.

4. Click the **Delete** button. The note is deleted from the Condition Data dialog. If it was the only note for the device, then the note symbol disappears from the Viewer. Otherwise, the note flag remains, but the number of notes (shown in parentheses next to the note) is decremented by one if there were three or more notes or removed if there were two notes.

Viewing Device Attribute Information from the Control Tool

You can access attribute information related to a device using the Control Tool. Device attributes include physical and reference information about a device, such as location and rating.

To view device attributes using the Control Tool, complete these steps:

1. Open the Control Tool for a device.

2. Click the **Attributes…** button. The Attributes window opens.

See also **Viewing Device Attribute Information from the Viewer** on page 1-45.

Toggling Call Display

You can view the calls associated with an event in the Viewer by clicking the **Toggle Call Display** button. A symbol appears attached to any transformers serving customers that have calls associated with the event. If there were multiple calls with the same "clues" then a number will appear in parentheses next to the call symbol. To hide the symbols, open the Control Tool from the device and click the **Toggle Call Display** button again.

Viewing Associated Customers

To view the customers on and downstream from a device, click the **Customer List…** button on the Control Tool. The Customers view of the Trouble Info window opens, listing all customers on and downstream from the device. See **Using the Trouble Info Window** on page 2-48 for more information.

> **Note:** You cannot toggle over to the Calls view when you open the Trouble Info window from this Customer List option.

Viewing Customers

To view meters downstream from a device, click the **Customer List…** button on the Control Tool. The Customers view of the Trouble Info window opens, listing all meters downstream from the device. If the selected device is deenergized, the list will display all customers downstream from it in the nominal model configuration. From this page, you can initiate a ping request, as well as monitor previous ping results. See **Using the Trouble Info Window** on page 2-48 for more information.

Placing Jumpers

In addition to creating an open point, you can insert a jumper on an overhead conductor or between overhead conductors; you can also place emergency cables between underground devices. The jumper is an active part of the model and fully operable. You can open and close jumpers as well as place tags and notes on a jumper.

The Control Tool's **Model Edits...** options menu allows you to select from the following jumper types.

Jumper Type	Description
In-line Jumper	In-line jumpers are placed in line. The position for the jumper is set to "closed" to maintain a continuous conductor. A closed jumper symbol displays at the midpoint of the selected conductor.
P-P Jumper/ Emergency Cable	Point-to-point jumpers are placed between a selected conductor and the same phase on any other conductor. A dialog box allows you to specify the second conductor. You can select the conductor in the Viewer. A point-to-point jumper symbol displays at the midpoints of the selected conductors. The default state for the inserted jumper is "open."
P-P Cross Phase	Point-to-point cross phase jumpers are placed between different phases on two different conductors. The Cross Phase Selection dialog box allows you to select a live phase and the phase to pick up. The Select Secondary dialog box allows you to specify the second conductor. You can select the conductor in the Viewer. A point-to-point jumper symbol displays, connecting the midpoints of the selected conductors. The default state for the inserted jumper is "open."
Inline Cross Phase	Creates an in-line cross phase jumper to correct any mis-modelled phasing. If desired, this can be configured for single and two phase fuses. The user presses this button and is presented with the standard cross phase dialog. After choosing the live phase, the system traces upstream to find the first object downstream from a device that contains that live phase, then places an inline cross phase jumper between those two devices. This model edit is automatically removed by the system if the map is rebuilt with the corrected phase.
Tap Generator	Tap Generators are used to add an energization point to the model. A Selection Required dialog box allows you to specify the tap location by clicking on the location in the Viewer.
Temporary Generator	Temporary Generators are similar to Tap Generators, but contain attributes needed to affect the powerflow solution. The **Add Temporary Generator...** option opens the Add Temporary Generator dialog, which allows you to edit these attributes. See **Adding a Temporary Generator** on page 1-89 for details.

Prompt Options

The **Model Edits... Prompt** options (*e.g.*, **In-line Jumper Prompt**, **Tap Generator Prompt**, etc.) allow you to enter details about the jumper with the **Enter Model Attributes** dialog box; see **Entering Model Attribute Values** on page 1-89 for details.

Inserting a Jumper

After the crew informs you what type of jumper they will insert, you can make the change in the system. To insert a jumper, complete these steps:

1. Open a Viewer and load the map that contains the conductor where you want to place the jumper.

2. Double-click on the conductor. The **Control Tool** opens.

3. Click **Model Edits...** and select the appropriate option for the type of jumper you want to insert:

    •   If you are placing an in-line jumper, the **Model Edit in Progress** dialog will be displayed.

    •   If you are placing a P-P jumper or emergency cable, the **Select Secondary** dialog box opens. Select another conductor in the Viewer and click **OK**. The **Model Edit in Progress** dialog will be displayed.

    •   If you are placing a point-to-point or an in-line cross phase, the **Select Secondary** dialog box will open. Select another conductor (in the Viewer), and click **OK**. The Cross Phase Selection dialog box opens. Select a phase for each device and click **OK**. The **Model Edit in Progress** dialog will be displayed.

        Note: The **Model Edit in Progress** dialog will disappear when the model build is completed. Click **OK** to dismiss the dialog or move it to the side while performing other operations. The Viewer will then refresh to display the jumper.

Operating a Jumper

Like devices, you can open and close (Disconnect and Connect) jumpers. To open or close a jumper, complete these steps:

1. Open a Viewer and load the map that contains the jumper you want to operate.

2. Double-click on the jumper. The Control Tool opens.

3. Select the desired phases from the Phases panel, then click **Operate...** and select the operation you want to perform (either **Disconnect Jumper** or **Connect Jumper**).

Removing a Jumper

Once a jumper has been removed in the field, you can remove the jumper from the system. This removes the jumper and fully restores the conductor. To remove a jumper, complete these steps:

1. Open a Viewer and load the map that contains the jumper you want to remove.

2. Double-click on the jumper. The Control Tool opens.

3. Click **Model Edits...** and then select **Remove Jumper**. The **Model Edit in Progress** dialog will open.

Placing/Performing a Tap Edit

To perform a tap edit:

1. Open a Viewer and load the map containing the conductor where you want to place the jumper.

2. Double-click the conductor. The Control Tool opens.

3. Click **Model Edits...** and then select **Tap Generator...**. The Selection Required dialog box will open.

4. Select a location in the Viewer to populate the Tap Location field in the Selection Required dialog box.

5. Click **OK**. The model edit is performed and a new energization point appears in the map at the selected spot.

Adding a Temporary Generator

1. To add a Temporary Generator on a selected conductor, click **Model Edits...** and then select **Temporary Generator...** to open the Add Temporary Generator dialog box.

2. In the Viewer, select a location to place the generator; the Generator Location field will update with the coordinates selected.

3. Choose a generator type from the **Choose Generator** options list.

4. Edit the attributes values in the table, as necessary.

5. Click **OK** to place the generator or click **Cancel** to abort the model edit.

Entering Model Attribute Values

The Enter Model Attribute Values dialog box allows you to edit a set of attributes for the model edit you are placing. The dialog box is opened automatically when you choose a **Prompt** option or you may open it for a Temporary Generator that has been added to the model.

> **Note:** to edit attributes for a temporary generator, select **Edit Attributes...** from the Control Tool's **Model Edits...** menu.

Once you have made changes to the attributes, click **OK** to place the model edit or click **Cancel** to abort the model edit.

Creating Momentary Outages

You can create a momentary outage by simulating a momentary interruption in the system. Momentary interruptions occur when a recloser operates and does not lock out. The Create Momentary… button is only enabled on Control Tools opened from reclosing devices. To create a momentary outage, complete these steps:

1. Open a Viewer and load the map that contains the device that you want to create the momentary outage for.

2. Double-click on the device. The Control Tool opens.

3. Adjust the date and time if necessary.

4. Click the **Create Momentary…** button. A dialog box opens

5. Enter the number of momentaries. Values between 1 and 100 enable the **OK** button.

6. Click **OK**. The momentary outage displays in the Work Agenda window with a status of *M-CMP.*

Using Aggregate Device Actions

The Control Tool's aggregate device actions operate multiple devices with a single action. These actions are only available when the devices have been modeled for aggregate actions. When modeled, the Control Tool's Operate... function has a Secondary Device Actions sub-menu with the aggregate actions.

> **Note:** The actions can still be performed separately when aggregate actions are possible.

Using the Look Ahead Dialog

The Look Ahead dialog provides information concerning the results of performing a requested device operation. The Look Ahead dialog uses system status and topology tracing to "look ahead" of the requested operation and determine its consequences.

The Look Ahead dialog displays whenever a switching operation is initiated from the Control Tool in energized or de-energized portions of the distribution system. After determining the consequences, the Look Ahead dialog either displays the appropriate dialog box or gathers additional data for display. You can use the information displayed in the Look Ahead dialog to decide whether to continue with the operation.

This section includes the following topics:

- **Understanding the Look-Ahead Process**
- **Drop Count Tab**
- **Pickup Count Tab**
- **ATO Customers Tab**
- **View Conditions Tab**
- **View Abnormal Tab**
- **View Critical Tab**
- **Violations Tab**

Understanding the Look-Ahead Process

The Look Ahead dialog uses status and topology tracing to "look ahead" of the requested operation and determine its consequences. Based on this information, you can decide whether to continue with an operation.

The flow diagram below shows the basic logic of the Look Ahead dialog.

```
Operation                    Grounding a live        Yes→   Danger! This
performed with the    →      section?                       operation will ground
Control Tool or                                              a live section.
through a
Switching Plan
                                 │ No
                                 ▼
                             Open/Close?   ─Close→   Energizing a    Yes→   Danger! This
              ←Open─                                 grounded                operation will
                                                     section?               energize a
                                                                            grounded section.
                │                                        │
                ▼                                        ▼
           Breaking      ─Yes→   Warning: This      Creating Loop?  ─Yes→  Warning: This
           Loop?                 operation will                             operation will
                                 break a loop.                              create a loop.
                │                                        │
                ▼                                        ▼
           Breaking      ─Yes→   Warning: This      Creating        ─Yes→  Warning: This
           Parallel?             operation will     Parallel?              operation will
                                 break a parallel.                         create a parallel.


                             Critical           ─Yes→      Critical Table
                             Customers?

                             Conditions         ─Yes→      Conditions Table
                             Present?

                             Abnormal           ─Yes→      Abnormal Table
                             Devices?

                             ATO                ─Yes→       ATO Customers
                             Customers?                     Table

                                  ▼
                             Counts Table
```

The Look Ahead dialog displays a warning if an operation will create or break loops or parallels. Counts, conditions, and abnormal device information are not available when dealing with loops and parallels.

The Look Ahead dialog displays whenever a switching operation is initiated from the Control Tool in energized, as well as de-energized, portions of the distribution system. If the operation will energize or de-energize the system, additional data is gathered and displayed in the Look Ahead dialog.

The information displayed depends on the results of performing the operation. A tab is enabled only if table information is available. You cannot open or close a device until you view any abnormal devices or conditions (see **View Abnormal Tab** on page 1-94).

> **Note**: If you attempt to open a switch in a deenergized area, the system displays the Create Nested Outage dialog box before displaying the Look Ahead dialog. Do one of the following:
>
> • Click **Yes** to create a nested outage.
>
> • Click **No** to open the switch without creating a nested outage.
>
> • Click **Cancel** to cancel the operation.

The Look Ahead Dialog

The Look Ahead dialog contains tabs and tables that display event- and device-related information. The items on the Look Ahead dialog are described below:

• **Header and Power Flow Results**

• **Drop Count Tab**

• **Pickup Count Tab**

• **ATO Customers Tab**

• **View Conditions Tab**

• **View Abnormal Tab**.

• **View Critical Tab**

• **Violations Tab**

Header and Power Flow Results

• **Information Provided**

• The **Device** field displays the name of the device being operated.

• The **Phase(s) to Operate** field displays the phase(s) of the device being operated.

• **Buttons**

• **Run Power Flow:** allows you to generate a Power Flow solution for the device. The Power Flow Results are displayed at the top of the Look Ahead Dialog. If any violations occurred during the run, the **Violations Tab** tab is enabled and the violations are listed.

For example, if you open a tie switch and then click the **Run Power Flow** button, the Power Flow Results panel displays the Breaking Current amps, the voltage difference, and the number of violations.

See **Chapter 10**, **Power Flow, Suggested Switching, Volt/VAr Optimization, and Conservation Voltage Reduction** for more information about Power Flow. The button is only available if Power Flow is licensed for your system.

• **Preview:** allows you to generate a trace in Viewer that highlights the area affected by the device operation. For example, if you open a device and click the **Preview** button, the Viewer displays the network area that will be de-energized.

> **Note:** The **Preview** button is only enabled when the network is going to be de-energized. When the Look Ahead is closed (by confirming the operation or clicking Cancel), the trace highlighting will be removed.

Drop Count Tab

The Drop Count tab displays the number of customers affected by the device operation. This tab provides information for Total Customers and total Critical Customers, with sub counts for three types of critical customers.

- The **Drop** columns display the drop information for the device. Information is displayed as counts dropped downstream of the device.

- The **Feeder** columns display the total counts for the feeder on which the device to operate is located.

- The first set of Drop and Feed columns shows data for the total counts.

- The following three sets (A, B, and C) show data for each individual phase.

- The last set shows counts for multi-phase customers. The counts for the individual phases (A, B, C) and multi-phase add up to the counts in the first or total columns (*i.e.*, A+B+C+Multi-Phase = Total).

Pickup Count Tab

The Pickup Count tab displays the number of customers affected by the device operation. This tab provides information for Total Customers and total Critical Customers, with sub counts for three types of critical customers.

- The first set of two columns shows data for the total counts. The following three sets of two columns show data for each individual phase (A, B, and C), with the last set showing counts for multi-phase customers. The counts for the individual phases (A, B, C) and multi-phase will add up to the counts in the "total" columns (*i.e.*, A+B+C+Multi-Phase = Total).

- The **Pickup** columns display the pickup information for the device. Information is displayed as counts picked up downstream of the device.

- The **Feeder** columns display the total counts for the feeder on which the device to operate is located.

ATO Customers Tab

The ATO Customers tab displays the number of customers affected by automatic ATO operations as a result of the device operation. These customers are not listed in the Counts table.

On loss of the primary feed:

- The ATO Customers page lists customers downstream from a pair of enabled ATO switches with a live secondary feed, because they will experience a momentary outage.

- The ATO Customers page does not list customers downstream from a pair of ATOs if either the primary or secondary switch is disabled. These customers appear on the Counts table, because they will experience a sustained outage.

- The ATO Customers page does not list customers downstream from a pair of ATOs if the secondary feed is already lost. These customers appear on the Counts table, because they will experience a sustained outage.

On restoration of the primary feed:

- The ATO Customers page lists de-energized customers who will be auto-returned if the secondary feed is already lost.

- The ATO Customers page lists currently energized customers who will be auto-returned if the ATO is configured as a "break before make" on auto-return.

• The ATO Customers page does not list currently energized customers who will be auto-returned if the ATO is configured as a "make before break" on auto-return.

Similarly to the Counts table, the ATO Customers table provides information for total Critical Customers with sub counts for three types of critical customers, Interrupting Current (phase), and Total Customers.

The first column shows data for the total counts. The following three columns show data for each individual phase (A, B, and C), with the last set showing counts for multi-phase customers. The counts for the individual phases (A, B, C) and multi-phase will add up to the counts in the "total" columns (*i.e.*, A+B+C+Multi-Phase=Total).

The rows displayed in the counts table include Crit Customers, EMR Customers, MED Customers, KEY Customers, Interrupting Current and total customers. Click on the **View ATO Custs** button to access ATO Customer information from any of the other views.

View Conditions Tab

The View Conditions tab shows any special conditions currently active on the circuit, including crew locations, tags, notes, etc. If conditions are present, you must view the conditions table to complete the operation. Click on the View Conditions tab to access condition information.

The Conditions table displays the following columns:

• The **Condition** column displays the type of condition that is present on the feeder such as a truck_location (crew), tag, note, etc.

• The **Device** column displays the name of the device on which the condition is located.

• The **Location** column indicates whether the condition is upstream or downstream of the current device.

• The **User Name** column displays the user name of the user that created the condition.

• The **Date/Time** column displays the date and time that the condition was created.

• The **Description** column

View Abnormal Tab

The View Abnormal tab displays data about abnormal devices on the same feeder as the device to operate. An "abnormal device" is any device that is not in its nominal state (*e.g.*, an open device that is normally closed).

The Abnormal table displays the following columns:

• The **Device** column displays the name of the device that is in an abnormal state.

• The **Nominal Status** column displays the normal status of the device.

• The **Current Status** column displays the current status of the device.

View Critical Tab

The View Critical tab shows customers classified as critical (*e.g.*, emergency, medical, key) that would be impacted by the proposed device operation.

The Critical Customers table displays the following columns:

• The **Name** column displays the critical customer's name.

• The **Address** column displays the critical customer's address.

• The **Phone** column displays the critical customer's telephone number.

Violations Tab

The Violations tab displays a list of all violations reported by Power Flow the last time Power Flow was run on this device. If Power Flow has not been run or no violations were encountered, this tab is grayed out.

Click the **Run Power Flow** button on the Look Ahead Dialog to run Power Flow. The Power Flow results are displayed at the top of the dialog. If violations are encountered during the run, the Violations Changes tab is enabled and the violations are listed in the violations table.

Actions

- The Violations tab provides a Viewer Target button ( ) to focus the Viewer on the device in a selected row.

- The Violations table may be printed by clicking the Print button ( ).

The violations table displays the following columns:

- **Substation** – The substation's name.

- **Feeder** – The feeder's name.

- **Nominal kV** – The normal operating voltage of the device.

- **Device** – The device's name.

- **Violation** – The violation or warning name. See **Data Source and Data Quality** on page 11-23 for range of values and colors for this column.

- **Phase** – The phase that the violation is on.

- **Value Before** – The value before the action.

- **% Before** – the ratio of the value before to the limit.

- **Value After** – The value after the action.

- **% After** – the ratio of the value after the action to the limit.

- **Limit** – The violation/warning limit.

- **Status** – The result of the action on the violation.

  - **Removed** – the violation has been removed by the action.

  - **Added** – a new violation will be added due to the action.

  - **Better** – changed from violation to warning after the action or the percent decreased (increased for under voltage violations/warnings) more than the threshold.

  - **Worse** – changed from warning to violation after the action or which percent increased (decreased for under voltage violations/warnings) more than the threshold.

  - **Same** – violations that exist in both lists and have values that did not change or the change was less than the threshold.

Three options menus enable filtering of the table data:

- Violations Only, Warnings Only, or Violations and Warnings

- Changes, After, or Before:

  - Changes: only shows changed violations resulting from the action.

  - Before: shows the violations before the action.

  - After: shows the violations after the action.

    Note: the Violations tab label changes based on the Changes/Before/After choice.

- • Violation Types: Conductor, Power Transformer, Distribution Transformer, Switch, Voltage, Backfeed, and Feeder Capacity. Each violation type displays the violation and warning count in parenthesis when you click the option menu.

Each violation change has a specific background and font color-code:

- • Added - red background, white foreground

- • Worse - orange background, black foreground

- • Better - yellow background, black foreground

- • Removed - green background, black foreground

See **Chapter 10**, **Power Flow, Suggested Switching, Volt/VAr Optimization, and Conservation Voltage Reduction** for more information about Power Flow.

Buttons

- • The **Open** button opens the device. If an "open" operation is being performed on a closed device, the Open button is enabled. If special conditions exist, then you must view the View Conditions tab before the Open button becomes enabled. Likewise, if abnormal device statuses exist, then you must view the View Abnormal tab before the Open button becomes enabled.

- • The **Close** button closes the device. If a "close" operation is being performed on an open device, the Close button is enabled. If special conditions exist, then you must view the View Conditions tab before the Close button becomes enabled. Likewise, if abnormal device statuses exist, then you must view the View Abnormal tab before the Close button becomes enabled.

- • The **Help...** button opens the online help content for Look Ahead.

- • The **Cancel** button cancels the device operation and closes the Look Ahead dialog.

Associating Documents with Devices

The Manage Documents window allows **administrative users** to create and remove associations between modelled devices and documents that are stored in the Oracle Utilities Network Management System.

Using the Manage Documents Window

To open this window, select **Manage Documents...** from the Web Workspace **Tools** menu.

The Manage Documents window displays the following fields and buttons:

- • The **Selected Device** field lists the device selected in the Viewer.

- • The **Manage Documents** field lists any documents associated to the device.

  - • The **Unassociate** button allows you to remove the association between the selected device and a document selected in the Manage Documents field.

  - • The **View Document** button allows you to view the selected document.

- • The **Available Documents** field lists the contents of the $CES_DRAWINGS directory (*i.e.*, $NMS_HOME/data/drawings). Use the blank text field to filter the Available Documents list. Enter all or part of the document you are looking for; the list is dynamically updated to display document names that include the text you enter.

  Note: Documents must be saved directly to the $CES_DRAWINGS directory as any files saved to sub-directories will not be visible to the tool.

- • The **Associated Devices** field lists which devices have an association with the currently selected item in the Available Documents list.

- The **Associate** button allows you to associate the currently selected item in the Available Documents list with the Selected Device.

- The **View Document** button allows you to view the currently selected item in the Available Documents list.

- The **Exit** button closes the Manage Documents window.

Associating a Document with a Device

To associate a document with a device, complete these steps:

1. Login to Web Workspace as an Administration user.

2. Select **Manage Documents...** from the Web Workspace **Tools** menu. The Manage Documents window opens. (See the previous section for field descriptions.)

3. Open a Viewer. Locate and select the device to associate to a document. The Manage Document window's Selected Device field populates with the selected device's name.

4. Select the item from the Available Documents list that you wish to associate with the selected device. The **Associate** and **View Document** buttons are activated.

5. [Optional] Click **View Document** to display the document in an external viewer. For example, viewing a JPEG file might open the file in Windows Photo Viewer.

6. Click **Associate** to create the association between the selected document and selected device. The following occurs:

   - The Manage Documents list populates with the document's filename and the Associated Devices field populates with the name of the selected device.

   - In the Viewer, a document condition now appears on the selected device.

7. Click **Exit** to close the Manage Documents window.

Removing a Document Association

To remove an association between a document and a device, complete these steps:

1. Login to Web Workspace as an Administration user.

2. Select **Manage Documents...** from the Web Workspace **Tools** menu. The Manage Documents window opens.

3. Open a Viewer. Locate and select the device that you wish to disassociate from a document. The Manage Document window's Selected Device field populates with the name of the device and the Manage Documents pane lists all associated documents.

4. In the Manage Documents list, select the document you wish to disassociate from the device. The **Unassociate** and **View Document** buttons are activated.

5. [Optional] Click **View Document** to display the document in an external viewer. For example, viewing a JPEG file might open the file in Windows Photo Viewer.

6. Click the **Unassociate** button to remove the association between the selected document and selected device. The following occurs:

   - The selected document is removed from the Manage Documents list.

   - In the Viewer, a document condition is removed from the selected device.

7. Click **Exit** to close the Manage Documents window.

Associating Damage Assessments to a Device

You can enter damage assessment for a device. Damage assessment incidents are not included in counts for the event. The damage assessment trouble code has an associated clue symbol Damage Assessment clue symbol (letters 'DA' in a red circle), which will be displayed in Viewer at the damage location.

When you enter damage assessment information, you can select one or more crew types needed to repair the reported damage.

If multiple damage assessments exist for an event, the system will calculate the estimated repair time by adding together estimated repair times from each active damage assessment.

To enter damage assessment information for a device, complete the following steps:

1. Open the Viewer.

2. Select a device and open the Control Tool for the device.

3. Click the **Damage Assessment...** button. The Damage Assessments window opens for the selected device. If any damage assessment records exist for this device, they are displayed in the list.

4. Click the **New Damage Assessment** (🗔) toolbar button. The Damage Assessment window opens.

5. Complete additional fields on this screen as needed. See **Damage Assessment Window** on page 2-16 for field descriptions.

6. Click the **Save** button on the toolbar.

7. New damage assessment is created. In the Viewer, a damage assessment symbol appears on the device. The damage assessment would either create new event or group into an existing event.

8. Once the damage has been assessed, populate the Damage Specifics, Required Material, and Attachments sections and click the **Damage has been assessed** (🗔) toolbar button to indicate that the damage assessment has been performed. The status of the damage assessment changes to Assessed. Estimated Time to Repair for the event may get updated based on entered damage details.

Completing and Instructing Actions

When you perform actions in the Control Tool while you are recording in Web Switching Management, the system automatically populates fields in the associated switching sheet as follows:

- The date field on the Control Tool, which defaults to the current date and time, is used to populate the Completed Date field in the associated switching sheet when an operation is completed in the Control Tool.

- If steps are instructed to a crew, this date is used to populate the Instructed Date field in the switching sheet.

The **Instructed Actions** area below the date field displays a list of actions that have been instructed on the selected device. The drop-down allows you to select an instructed action to complete.

The **Show Sheet...** button displays the sheet that contains the selected instructed action so you can execute the actions from Web Switching Management.

> **Note**: This option is available only when Web Switching Management is licensed. This allows you to navigate to the switching sheet so you can perform the step from there. If you are not using Web Switching Management, you can **Complete**, **Abort**, or **Fail** the selected instructed action from the Control Tool.

Condition Summaries

The Condition Summaries window lists all conditions, including notes, tags, pending deccommissions or constructions, and FLISR actions.

This section includes the following topics:

- **Using the Condition Summaries Window**
- **Toolbar and Menu Options**
- **Using Condition Summaries Balloon Details**
- **Editing or Deleting Conditions**

Using the Condition Summaries Window

To view the Condition Summaries window, select **Condition Summaries...** from the Web Workspace **Actions** menu in.

The Condition Summaries includes the following fields and buttons:

- The **Type** column contains the type of condition, such as Note, Tag, Pending Construction, Pending Decommission, FLISR Action, and Associated Document**.**

- The **Status** contains the status of the condition. Usually blank, but will list "Issued" for conditions that are part of an issued safety document. Other values may be configured.

- **Condition #** is the system-assigned identifier of the condition.

- The **Date Created** column contains the date and time the condition was created.

- The **Substation** column contains the name of the substation that serves the device on which the condition is located.

- The **Feeder** column contains the name of the feeder that serves the device on which the condition is located.

- The **User** column contains the user name of the individual who placed the condition.

- The **Device** column contains the name of the device on which the condition is located.

- The **Phase** column contains the name of the phase associated with the condition.

- The **Condition Info** column contains the text of the note or other condition.

Sorting and Filtering

The Conditions Summaries table supports common sorting and filtering functions. The predefined filters are based on the Condition Type; for example, the **Notes** filter selects all rows where the Type column has a value of *Note*.

See **Sorting and Filtering Data** on page 1-12 for additional information on using standard sorting and filtering features.

Toolbar and Menu Options

File Menu

Menu Option	Description	Toolbar Icon
Refresh	Refreshes the Condition Summaries window to display the most recent updates. If you edit a condition using the Edit button, you must refresh the summary to see your changes.	
Print Preview...	Displays the Print Preview window, from which you can view and print the summary.	
Delete Row...	Deletes the selected condition from the system. A confirmation dialog box prompts you to confirm before deleting. Once deleted, the condition disappears from both the Summary and the Viewer.	
Exit	Closes the Condition Summaries window.	--

Sort Menu

Menu Option	Description	Toolbar Icon
Sort Dialog...	Displays the Sort dialog box. The Sort Dialog option on the Sort menu performs the same function. See **Using the Sort Dialog Box** on page 1-13 for common sort functions.	
Condition #	Sorts the Conditions Summaries table by the Condition # column.	--
Device	Sorts the Conditions Summaries table by the Device column.	--
Date Created	Sorts the Conditions Summaries table by the Date Created column.	--

Filter Menu

Menu Option	Description	Toolbar Icon
Filter Dialog...	Displays the Filter dialog box. The Filter Dialog option on the Filter menu performs the same function. See **Using the Filter Dialog** on page 1-14 for more information.	
All Conditions	Displays all conditions.	--
FLISR Actions	Displays only rows with Type equal to *FLISR Action*.	--
FLISR Disabled	Displays only rows with Type equal to *FLISR Disabled*.	--
Notes	Displays only rows with Type equal to *Note*.	--
Pending Construction	Displays only rows with Type equal to *Pending Construction*.	--
Pending Decommission	Displays only rows with Type equal to *Pending Decommission*.	--
Tags	Displays only rows with Type equal to *Tag*.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Edit...	Opens the Edit balloon dialog. See **Editing or Deleting Conditions** on page 1-104.	
Enable View Balloon	Enables or disables balloon details. When enabled, a callout-like balloon opens that provides information, such as notes or related device documents, for the selected row. See **Using Condition Summaries Balloon Details** on page 1-103 for more information.	
View...	Focuses the Viewer on the device associated with the condition.	

Help Menu

Menu Option	Description	Toolbar Icon
Condition Summaries Help	Opens the online help system to the Condition Summaries help content.	--

Using Condition Summaries Balloon Details

The Condition Summaries Balloon Details displays device information (e.g., note text and associated documents) for rows selected in the Condition Summaries list.

To enable Balloon Details:

1. Click **Balloon Details** () on the Condition Summaries toolbar. When enabled, the toolbar behind the Balloon Details button will be highlighted.

To view condition details:

1. Select a row in the Condition Summaries table.
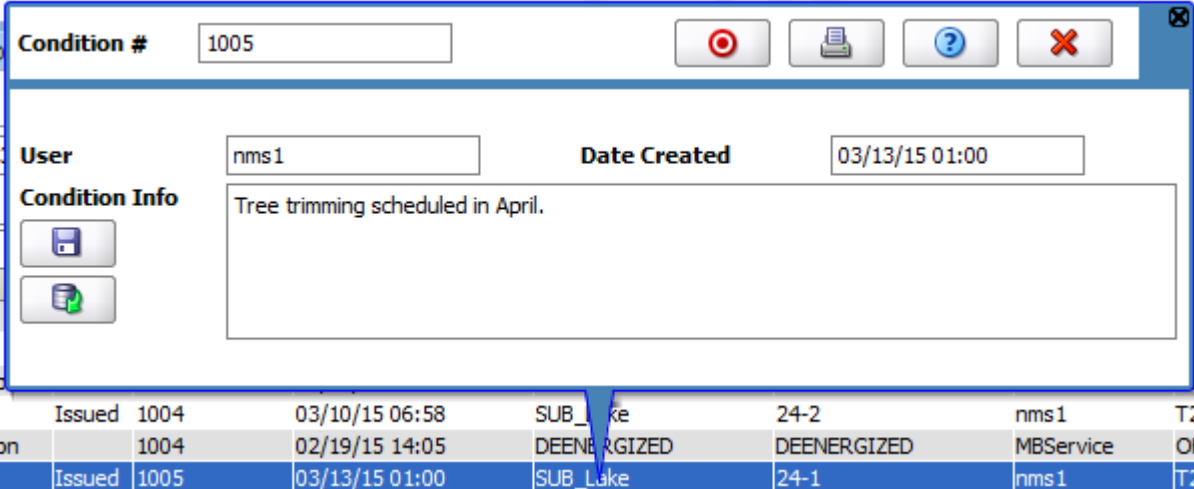
   Balloon Details displays applicable information about the selected condition.
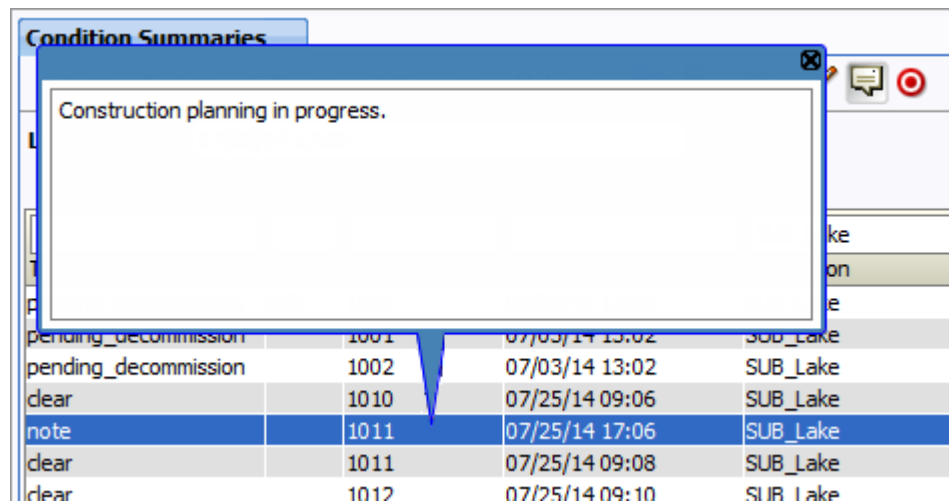
2. To close the balloon, click the close button () in the balloon's top right corner.

Editing or Deleting Conditions

To edit a selected condition, click the **Edit** button (🖉). The Edit balloon opens. This dialog box also appears if you double-click a condition when Balloon Details are turned off.

From this dialog box, you can perform the following tasks:

- Edit the condition information as desired, then click the **Save** (💾) button.

- Click the **View** button (🔴) to focus the Viewer on the device.

- Click the **Print** button (🖨) to print the condition text.

- Click the **Revert** button (🔃) to revert to the last saved version of the condition text.

- Click the **Help** button (❓) to launch online help for the dialog box.

- Click the **Delete** button (✖) to delete the condition.

    Note: you can also delete a condition by selecting the condition row and clicking ✖ from the Condition Summaries toolbar.

Using the Alarms and Devices Lists

The Alarms and Devices Lists window provides the following views:

*   **Abnormal Devices List**

*   **Device Operations List**

*   **SCADA Alarms List**

*   **System Alarms List**

*   **FLISR Alarms List**

To display the Alarms and Devices Lists window, select **Alarms and Devices Lists** from the Web Workspace **Tools** menu, then select one of the views listed above.

Menus and Toolbar

File Menu

Menu Option	Description	Toolbar Icon
Print...	Opens the print dialog box to allow you to print the current list.	🖨
Exit	Closes the window.	

Actions Menu

Action menu options vary by the list view.

Menu Option	Description	Toolbar Icon	Views
Acknowledge	Acknowledges the selected alarms.	✔	• System Alarms
Clear	Clears the selected alarms.	✐	• SCADA Alarms • System Alarms
Silence	Silences the selected alarms.	🔇	• SCADA Alarms • System Alarms
View...	Shows the associated device in the Viewer.	◉	• Abnormal Devices • Device Operations • FLISR Alarms • SCADA Alarms

Note: Toolbar action options are also displayed as pop-up menu options when you right-click a row in a list view.

Filter Menu

Menu Option	Description	Toolbar Icon
Show Filter Dialog	Opens the Filter dialog box, allowing you to create, modify, apply, and save user-defined filters.	--
Abnormal Devices List	Opens the Abnormal Devices view.	--
All	Displays all alarms of the selected alarm type.	
Device Operations List	Opens the Device Operations view.	--
FLISR Alarms List	Opens the FLISR Alarms view.	--
SCADA Alarms List	Opens the SCADA Alarms view.	--
System Alarms List	Opens the System Alarms view.	--

Help Menu

Menu Option	Description	Toolbar Icon
Help	Opens the online help content.	--

Abnormal Devices List

The Abnormal Devices view displays all devices that are not in their nominal state. For example, if a switch that is nominally closed is currently open, it will display in the Abnormal Device Summary. If a SCADA system is integrated with Oracle Utilities Network Management System, any devices that are reported by a SCADA point as being in an off-nominal state will also display. This will also display any wire downs or jumpers, or emergency cables in either an open or closed state.

To access the Abnormal Device Summary, select **Alarms and Devices Lists** and then **Abnormal Device Summary…** from the Web Workspace **Tools** menu.

The Abnormal Devices List displays the following fields:

- The **Date** column contains the date and time that the device was last operated.

- The **Feeder** column contains the name of the feeder that serves the abnormal device.

- The **Device** column contains the name of the abnormal device.

- The **Description** column contains a description of the operation that caused the abnormal state.

- The **Source** column contains the source of the abnormal operation.

- The **Value** column contains the current state of the device.

- The **Phase** column contains the phases of the device.

- The **Attribute** column contains the type of operation. In the Abnormal Devices List, this column displays 'status.'

- The **Nominal** column contains the normal state of the device.

Device Operations List

The Device Operations List displays all recent operations performed in the user's control zones.

To access the Device Operations List, select **Alarms and Devices Lists** and then **Device Operations List…** from the Web Workspace **Tools** menu.

This list displays the same columns as the **Abnormal Devices List**.

SCADA Alarms List

The SCADA Alarms view is only available if your system supports SCADA extensions. For more information about SCADA extensions, see **SCADA Extensions** on page 8-1.

To access the SCADA Alarms List, select **Alarms and Devices Lists** and then **SCADA Alarms List…** from the Work Agenda Tools menu.

The SCADA Alarms List displays the following fields:

- The **Date** column contains the date and time the alarm was generated.

- The **Feeder** column contains the feeder on which the device in the alarm is located.

- The **Device** column contains the identification of the device associated with the alarm.

- The **Description** column contains a description of the alarm.

- The **Source** column contains the originator of the alarm.

- The **Value** column contains the last reported measurement value. The value can be status, digital, or analog. For status measurements, typically a value of "0" indicates open and a value of "1" indicates closed. Any special tags placed on the device would be indicated by a digital value.

- The **Phase** column contains the phase of the measurement, described as A, B, C, or a combination of phases.

- The **Attribute** column contains the type of SCADA measurement (*e.g.*, current, voltage).

- The **Nominal** column contains the nominal value of the measurement that is in alarm (only for digital).

- The **Quality** column provides additional information about the SCADA measurement (*e.g.*, out of scan, inhibited, manual override) that is in alarm.

- The **Limit** column contains the configurable threshold value. If the analog crosses a low or high threshold, the system creates a limit alarm, and the threshold value appears here.

- The **Who Ack** column contains the ID of the user who acknowledged the alarm.

- The **Time Ack** column contains the date/time stamp when the alarm was acknowledged.

- The **Silenced** column indicates whether a row has been silenced.

System Alarms List

The System Alarms List displays a list of all system alarms.

To access the System Alarms List, select **Alarms and Devices Lists** and then **System Alarms List…** from the Web Workspace **Tools** menu.

The System Alarms List displays the following fields:

- The **Date** column contains the date and time the alarm was generated.

- The **Description** column contains a description of the alarm.

- The **Source** column contains the originator of the alarm.

- The **Who Ack** column contains the ID of the user who acknowledged the alarm.

- The **Time Ack** column contains the date/time stamp when the alarm was acknowledged.

- The **Silenced** column indicates whether a row has been silenced.

FLISR Alarms List

The FLISR Alarms List displays all recent alarms created by the FLISR application.

To access the FLISR Alarms List, select **Alarms and Devices Lists** and then **FLISR Alarms List…** from the Web Workspace **Tools** menu.

This list displays the same columns as the **Abnormal Devices List**., with the exception of the Feeder column, since the feeder is deenergized.

Acknowledging Alarms

To acknowledge an alarm, complete these steps:

1. In the Alarms and Devices List, select the row of the alarm you want to acknowledge.

2. Click the **Acknowledge** button. The following occurs:

    - The alarm becomes acknowledged.

    - Its audible alarm is silenced.

    - Your user name appears in the Who Ack field.

    - The current date and time appears in the Date Ack field.

    - The Silenced column is populated with a "Y."

Silencing Alarms

To silence an alarm, complete these steps:

1. In the Alarms and Devices List, select the row of the alarm you want to silence.

2. Click the **Silence** button.

   • The audio notification for the alarm becomes silent.

   • The alarm is still not acknowledged.

   • The Silenced column is populated with a "Y."

   • Subsequent new alarms will cause the audio notification to sound.

   Note: To turn audio notifications on or off, select **Audio Enabled** from the Web Workspace **Preferences** menu. The audio for the entire system (all alarms) will toggle on or off. See **Preferences Menu** on page 1-7.

Clearing Alarms from the List

To remove an alarm from the Alarms and Devices List, complete these steps:

1. In the Alarms and Devices List, select the row of the alarm you want to silence.

2. Click the **Clear** button. The alarm disappears from the list.

   Note: You can remove multiple alarms by selecting multiple rows before you click the Clear button. Select multiple rows by clicking a row, holding the mouse button, and dragging the pointer over the additional rows.

Preventing a Device from Reporting SCADA Alarms

To prevent a device from reporting Alarms, complete these steps:

1. In the Alarms and Devices List, select the row of an alarm that belongs to the device you want to inhibit.

2. Click the **Inhibit Alarm** button.

   • The device will not report SCADA alarms until the inhibit is cancelled.

   • An "I" appears next to the device in the Viewer indicating the device is inhibited.

   • An "I" appears in the Quality columns of the SCADA Alarms List and the SCADA Summary.

   Note: Inhibiting alarms does not affect the physical SCADA device; it only prevents Oracle Utilities Network Management System SCADA Extensions from reporting an incoming alarm.

Using the User Log

The User Log displays a log of actions taken by a user.

To open the User Log, select **User Log...** from the Web Workspace **Tools** menu.

The User Log window displays the following fields:

- The **User ID** field opens with the current user's identification, but the field may be edited to load log entries for a different user; for a different user log, enter their user ID and click **Load User Log** button (🔍).

- The **Begin Time** and **End Time** fields allow you to filter the User Log by time. To load log entries for a specific time period:

  - Enter a starting date in the Begin Time field.

  - Enter an ending date in the End Time field.

    Note: You can enter a beginning date, an ending date, or both.

  - Click the **Load User Log** button (🔍). The list is refreshed to display only entries with a date and time greater than or equal to the Begin Time and less than or equal to the End Time.

- The **User Comment** field allows you to enter a user comment log entry.

- The **User Log Table** has the following fields:

  - The **Date/Time** field displays the date/time at which the log entry occurred.

  - The **Event** field displays the Event # associated with the log entry.

  - The **Text** field displays a description of the log entry.

Menus and Toolbar

File Menu

Menu Option	Description	Toolbar Icon
Export Table...	Opens a dialog to allow you to save the table data to a comma separated value (csv) file.	📤
Print...	Opens the print dialog box to allow you to print the current list.	🖨
Exit	Closes the window.	

Actions Menu

Menu Option	Description	Toolbar Icon
Load User Log	Loads the User Log for the for the current filter parameters (User ID, Begin Time, and End Time).	
Clear	Clears the user log.	
View...	Displays the device associated with the log entry in the Viewer.	
Event Log...	Displays the Event Log for a selected user log entry associated with an event.	
Event Details...	Displays the Event Details window for the event associated with the selected log entry.	

Help Menu

Menu Option	Description	Toolbar Icon
User Log Help (**F1**)	Opens the online help system to the User Log help content.	

Adding Entries to the User Log

Comments may be entered for the current time or for the time associated with a selected log entry. When you begin to add text to the **User Comment** field, the button to add the entry will be sensitized; there are two types of buttons based on whether a row is selected in the User Log table ( ) or not ( ).

Adding New User Log Entries

To enter a new note to the User Log:

1. Enter the note text in the field and click the add button ( ) to submit the entry.

    Note: The **User Log** does not automatically refresh, so the new comment will not appear in the table until the user log is reloaded by clicking the Load User Log button ( ).

Adding an Associated User Log Entry

To enter a note associated to an existing User Log entry:

1. Select a User Log entry row to associate to a new note.

2. Enter the note text in the field and click the add to selected entry button ( ) to submit the entry.

    Note: The **User Log** does not automatically refresh, so the new comment will not appear in the table until the user log is reloaded by clicking the Load User Log button ( ).

Changing Entry Type Before Submitting User Log Entry

When you begin to add text to the User Comment field and the add button becomes sensitized, you may select or deselect a row to change the entry type.

For example, you want to enter a new note, but realize that the add associated comment button ( ) is sensitized, press Control and click the selected row to deselect; the button will change to the add new entry button ( ).

Chapter 2

Web Trouble

This chapter describes the Oracle Utilities Network Management System Web Trouble application. It includes the following topics:

- **Overview**
- **Managing Events with Web Trouble**
- **Managing Crews with Web Trouble**
- **Managing Calls with Web Trouble**

Overview

Oracle Utilities Network Management System - Web Trouble augments the Web Workspace module with crew and event management capabilities. Web Workspace's crew dispatch and management functions facilitate operations in daily maintenance and outage restoration situations.

Managing Events with Web Trouble

Web Trouble includes tools that build upon the Web Workspace to help you manage trouble events. This section describes those tools and how to perform basic event functions. It includes the following topics:

- **Event Details**
- **Setting the Work Queue**
- **Event Grouping**
- **Associating and Unassociating Calls with Devices**
- **Working with Damage Assessments**
- **Working with AMI Requests**
- **Updating the ERT for Selected Events**
- **Setting the System-Wide Estimated Restoration Time**
- **Using the Event Log**
- **Using the Trouble Summary**

Event Details

The **Event Details** window is used to enter and track information about the cause of an event and how the event is resolved. It displays event information, including crew contact details, both the begin and restoration times for the event, any partial restoration steps, and the operations event note. Some information is automatically entered into **Event Details**, and you can manually override some of this data. In addition, you can complete events from this window, giving you an opportunity to enter more detail about the event and validate the completion for proper event reporting.

This section contains the following topics:

- **Using the Event Details Window**
- **Updating the Estimated Restoration Time**
- **Recording Failed Equipment Information**
- **Copying Event Details to Related Partial Restoration Events**
- **Completing an Event**

Using the Event Details Window

To open Event Details, double-click the desired event's row in the Work Agenda. You can also select an event and then click the **Event Details** toolbar button or select **Event Details...** from the Actions menu.

The Event Details window is comprised of:

- **Menus and Toolbar**
- **Event Information Pane**
- **Job Actions Tab**
- **Completion Actions Tab**
- **Equipment Failure Tab**

Menus and Toolbar

The Event Details window displays a toolbar, as well as a Help and File. The Help menu displays the standard Help and About options. The table below describes the options on the File menu.

File Menu

Menu Option	Description	Toolbar Icon
Save	Saves the current event. If the event has already been completed, you are prompted to provide a reason for the update.	
Print Tab...	Opens the Print Preview dialog and allows you to print the current contents of the Job Actions tab.	
Print All...	Opens the Print Preview dialog and allows you to print the contents of all three Event Details tabs.	
Exit	Exits Event Details. You must press the **Save** button before pressing the **Exit** button if you wish to save any revisions you may have made.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Complete Event	Sets the status of the current event to Complete. If the required fields (Remedy and Failure) have not been entered, this option will not be available. This option is not available when the event is a switching job or planned outage.	
Maintenance	Sets the status of the current event to Maintenance Pending. If the required fields (Remedy and Case Note) have not been entered prior to selecting, an error will be displayed that will list the missing information.	
Copy	Copies the case notes and details for the currently loaded event to all other events related to it based on its partial restoration.	
Event Log...	Opens the Event Log.	
Switching...	Opens the **Open or Create New Switching Sheet** dialog, which allows you to create a new switching sheet or open a switching sheet associated with the selected event. See **Open or Create New Switching Sheet** on page 9-66 for more information.	
View...	Show device associated with the event in the Viewer.	

Event Information Pane

The top section of the Event Details window contains event attributes:

- The **Event #** is the number the system has assigned to the event.

- The **Device** is the name of the device associated with the event.

- The **Switching Plan #** is the switching sheet number associated with the event, if any. The switching sheet number is prefixed by the switching sheet type.

- **Zone** displays the control zone(s) where the associated device is located.

Job Actions Tab

The Job Actions tab lets you view detailed information about the event. The first section displays summary information about the event, including the duration and scope of the event. The second section displays partial restoration information. The third section allows you to enter estimated restore and repair time information as well as operations event notes. The fourth section allows you to manage crew contact times. The fifth section contains buttons that let you perform various actions associated with the event (*e.g.*, save any changes).

For instructions on updating the ERT, see **Updating the Estimated Restoration Time** on page 2-7.

The Job Actions tab displays the following fields and buttons:

- **Event Began** contains the date and time at which the event began. This field is editable except for switching jobs. For switching jobs, you must edit the Completed Date in the switching step itself. See **Steps Tab** on page 9-17 for more information.

- **Est # of Cust Out** contains the estimated number of customers experiencing an outage for this event.

- **Event Restored** contains the date and time of event restoration (*i.e.*, when the outage area was re-energized). This field is editable except for switching jobs. For switching jobs, you must edit the Completed Date in the switching step itself. See **Steps Tab** on page 9-17 for more information.

The **Partial Restoration Log** table displays information related to restoration if the event is restored in stages. This table does not display when the event is a non-outage. This table contains the following columns:

- The **# Cust Out Before** column contains the total number of customers out at each stage.

- The **Operation Time** column contains the date and time of the operation. User can modify values in this column as long as the changes do not alter the order of partial restoration steps. Changing partial restoration step operation time can affect outage restoration time if it is the final restoration step for the outage.

- The **Device** column displays the device operated at each stage.

- The **# Cust Restored** column contains the total number of customers that were restored at each stage.

- The **# Cust Added** column contains the total number of customers that were added at each stage.

- The **# Cust Out After** column contains total number of customers still without power after each stage.

- The **Remarks** column contains any comments or remarks entered by the user.

- The **Event #** column contains the event number associated with each partial restoration step.

- The **Est Time to Restore (HH:MM)** field displays the estimated time from the current time to complete the restoration in hours and minutes. The Est Time to Restore (HH:MM) field is not displayed when the event is a non-outage or switching job. To set the ERT, enter a value in this field and click the Update ERT button.

- The **Est Restore Date** fields display the date and time of estimated restoration. The Est Restore Date fields are not displayed when the event is a non-outage. To clear the ERT (leave it blank), click the Clear ERT button.

- The **Est Time to Repair (HH:MM)** field is used to enter the estimate time to repair in hours and minutes. This field is used when the crew on-site is only assessing the job and providing an estimate for the time it will take another crew to do the work. This field is editable, and Oracle Utilities Network Management System Storm Management uses the value, if installed. The Est Time to Repair (HH:MM) field is not displayed when the event is a switching job.

- The **Operations Event Note** is a text field for you to enter notes about the event. These are notes that are made available to the call takers to pass on any specific details about the event to new callers associated with this event.

En Route/Onsite Crews Section

- The **Next Crew Contact Required at** table displays when the operator next anticipates receiving contact from the associated crew(s).

  Use the **Reset Selected Crew Contact Time** button to reset the crew contact time to the date and time you enter in the **Date** field beside this button.

- The En Route/Onsite Crews table contains the following columns:

  - The **Crew ID** column of the table contains the crew name.

  - The **Contact** column displays the contact name for the assignment.

  - The **Mobile #** is the mobile phone number of the crew.

- The **En Route Date** column contains the time at which the crew was placed en route to the event. This column is empty if the crew has not arrived yet.

- The **On Site Date** column contains the time at which the crew arrived on site.

- The **Contact Required By** column contains the date and time at which the next contact is expected.

Completion Actions Tab

The Completion Actions tab lets you view detailed information about the event, as well as enter information about the actions taken to complete the event. The first section displays summary information about the event, including the duration and scope of the event. The second section lets you enter information about the cause of the outage, the affected system and subsystem, environmental factors, and the actions that were taken to restore the outage. The third section allows you to exclude the event from the interruption indices calculations. The fourth section displays a log of changes made to the event details after the event was completed. The fifth section contains buttons that let you perform various actions associated with the event (*e.g.*, complete the event).

For instructions on completing an event, see **Completing an Event** on page 2-8.

The Completion Actions tab displays the following fields and buttons:

- **Event Began** contains the date and time at which the event began. This field is editable except for switching jobs.

- **Est # of Cust Out** contains the estimated number of customers experiencing an outage for this event.

- **Event Restored** contains the date and time of event restoration (*i.e.*, when the outage area was re-energized). This field is editable except for switching jobs.

- The **Details** section displays the following drop-down lists.

  - The **System** drop-down lets you specify what type of system the failure is on (*e.g.*, overhead transmission, underground distribution, supply, etc.).

  - The **Sub-System** indicates whether the sub-system is primary or secondary, radial or mesh, or a service drop.

  - The **Type** drop-down lets you specify the type of device that is experiencing the problem.

  - The **Failure** drop-down lets you specify the type of failure that is occurring.

  - The **Interrupting Device** drop-down lets you specify the type of interrupting device involved with the event.

  - The **Weather** drop-down lets you specify weather conditions at the time of the event.

  - The **Environment** drop-down lets you specify environmental factors that have been involved with the event, such as humidity and salt spray.

  - The **Vegetation** drop-down lets you specify the type of vegetation issues involved with the event, such as tree or vine, location (on or off ROW), and severity (contact or uprooted).

  - The **Foreign Interference** drop-down lets you specify animals, vehicles, or any other type of foreign body that has contributed to the event.

  - The **Defective Equipment** drop-down lets you specify the type of equipment defect involved with the event (*e.g.*, age deterioration, customer equipment, etc.)

  - The **Scheduled** drop-down lets you specify whether or not the event was planned and if it was planned for safety purposes.

- The **Utility Error** drop-down lets you specify the reason for the event if it was caused by the utility company.

- The **Other** drop-down lets you specify if the cause is something other than that listed in the drop-down menus or if the cause is unknown.

- The **Remedy** drop-down lets you specify the task performed to resolve the event.

- The **Interruption Indices** section displays the following fields:

  - The **Exclude This Event** checkbox allows you to designate if you want to exclude this event from the interruption indices calculations done by the Oracle Utilities Network Management System – Trouble Reporting application. The Exclude from Interruption Indices checkbox is not displayed when the event is a switching job or planned outage.

  - The **Reason for Exclusion** field provides free-form text entry of the reason for the exclusion of this event from the interruption indices. The Reason for Exclusion field is not displayed when the event is a switching job or planned outage.

- The **Post-Completion Edit Log** table displays information related to event details being edited after the event is completed. This table contains the following columns:

  - The **Who** column contains the user ID of who performed the edit.

  - The **Date** column contains the date and time of the edit.

  - The **Reason** column contains a description of why the edit was made.

  - The **Field** column contains the name of an **Event Details** field that changed after the event was completed.

  - The **Previous Value** column contains the value of the field prior to the change.

    Note: if multiple fields are edited post-completion, each change will be listed in a separate row.

Equipment Failure Tab

The Equipment Failure tab lets you record detailed information about any failed equipment related to an event. You can record and track the type of equipment that failed, the manufacturer, serial number, and voltage details.

For instructions on entering failed equipment details, see **Recording Failed Equipment Information** on page 2-7.

The Equipment Failure tab displays the following fields and buttons:

- **Item** is automatically populated with the Failure option selected in the Event Details tab.

- The **Manufacturer** drop down menu provides a list of manufacturers to select from.

- **Serial #** is an editable (alphanumeric) field for you to enter the serial number for the equipment.

- **Date of Manufacture** is an editable (date/time) field for you to enter the date of manufacture of the equipment.

- **Date of Installation** is an editable (date/time) field for you to enter the date of installation of the equipment.

- **Primary Voltage** is an editable (alphanumeric) field for you to enter the primary voltage of the equipment.

- **Secondary Voltage** is an editable (alphanumeric) field for you to enter the secondary voltage of the equipment.

- **Rating** is an editable (alphanumeric) field for you to enter the rating of the equipment. The drop-down menu beside the Rating field allows you to select the rating units.

- **Phase** allows you to designate whether the equipment is single-phase or three-phase.

- **Type** is an editable (alphanumeric) field for you to enter the type of equipment.

- **Size** is an editable (alphanumeric) field for you to enter the size of the equipment.

Updating the Estimated Restoration Time

After a crew has arrived onsite and provided information regarding when the event will be restored, you can update this information using Event Details. To update the estimated restoration time, complete these steps:

1. Select the event in the Work Agenda window.

2. Click the **Event Details** toolbar button or select **Event Detail...** from the Actions menu. The Event Details window opens.

3. On the Job Actions tab, enter the amount of time (in hours and minutes) that the crew will take to restore the outage in the **Est Time to Restore** field.

4. Click the **Update ERT** button. The updated time displays in the Est Restore Date fields, and other windows that display the Est Restore Date will be updated.

Recording Failed Equipment Information

To record information about a failed device, complete these steps:

1. From the Event Details window, click on the Equipment Failure tab.

2. Select the manufacturer from the **Manufacturer** drop down menu.

3. Enter the serial number, dates of manufacture and installation, primary and secondary voltage, rating, type, and size of the equipment, as applicable.

4. Click on the drop-down list next to the **Rating** field and select the rating unit, as applicable.

5. Select the **Phase**.

6. Click the **Save** toolbar button. The information is saved to the database for the event. The Event Details tab re-displays.

Copying Event Details to Related Partial Restoration Events

You can copy the case notes and other event details for the currently loaded event to all other events related to it based on its partial restoration.

> **Note**: Any previously stored Event Details information for the related events will be overwritten (except for system-populated fields such as Event #, Device, Zone(s), Event Began, Est # of Cust Out, and Event Restored).

1. Select the event in the Work Agenda window.

2. Click the **Event Details** toolbar button or select **Event Detail...** from the Actions menu. The Event Details window opens.

3. Make any desired changes to the event details. Any comments you enter in the Operations Event Note will be applied to all related partial restoration events.

4. Click the **Copy** toolbar button or select **Copy** from the Actions menu. The corresponding event details are copied to all related partial restoration event(s) of the currently displayed event. Note that ERT information is only copied to active related events.

Completing an Event

After a crew has reported that an event is complete, you can update the event information in the Event Details window and complete the event. To complete an event, follow these steps:

1. Select the event in the Work Agenda window.

2. Click the **Event Details** toolbar button or select **Event Detail...** from the Actions menu. The Event Details window opens.

3. Click the **Completion Actions** tab.

4. Select the appropriate options from the drop-down menus. You must select either a Failure or a Remedy; additional options may be required, based on your configuration. Once the required options have been provided, the **Complete Event** button is enabled.

5. Click the **Complete Event** button or select **Complete Event** from the Actions menu. The event information is updated, the event is marked as "complete," and the Event Details window closes.

   Note: if you do not select a Failure or Remedy prior to selecting Complete Event, the system will display a Validation error message to notify you that a Failure and/or Remedy is required.

Confirm Outages

If you need to confirm a probable service outage or create new confirmed service/secondary outage events when a crew reports in from a site, you can use the Confirm Outages window. This window displays a table listing either all of the customers downstream of the predicted or confirmed outage device (when accessed from the Work Agenda) or all of the customers connected to the selected device (when accessed via the Control Tool).

This section includes the following topics:

- **Using Confirm Outages Window**

- **Creating a Confirmed Service Outage**

- **Creating a Confirmed Secondary Outage**

- **Creating a Confirmed Service and Secondary Outage for the Same Customer**

- **Restoring a Customer with a Confirmed Service or Secondary Outage**

Using Confirm Outages Window

To access the Confirm Outages window, do one of the following:

- Select **Confirm Outages…** from the Work Agenda Actions menu.

- Select a device in the Viewer that has customers connected to it, bring up the Control Tool, then click on the **Confirm Outages…** button.

The Confirm Outages window displays the following columns:

- The **Device** column contains the name of the device the customer is connected to.

- The **Address** column contains the customer's address.

- The **Name** column contains the name of the customer.

- The **Customer Type** column contains the customer type code.

- The **Prediction** column contains the outage prediction type (*e.g.*, Confirmed Service, Confirmed Secondary), if available.

- The **Restored** column contains "Yes" to indicate the customer has had their confirmed service or confirmed secondary outage restored. However, information must be entered in the Event Details window in order to complete it. Otherwise, it is blank.

- The **Grouping** column contains "Yes" if the call for the customer is groupable. The column is empty if there are no calls for the customer or if the call is not groupable.

- The **Event #** column displays the number the system has assigned to the customer's event. If a customer call is made groupable, the event number will change if the call is grouped to an existing or repredicted event.

- The **Call Time** column displays the time when the customer call was received.

- The **Telephone** column contains the customer's telephone number.

- The **Account #** column contains the customer's account number.

Color Coding

The rows in the Confirm Outages window are color-coded to designate when a customer has a confirmed service outage, a confirmed secondary outage, or when the customer has been restored. When a customer is affected by multiple outages, multiple rows will be displayed representing the different outages.

Color	Description
Green	Confirmed Service Outage
Orange	Confirmed Secondary Outage
Blue	Restored

Confirm Outages Menus and Toolbar

File Menu

Menu Option	Description	Toolbar Icon
Print...	Opens the print dialog box to allow you to print the current list.	🖨
Refresh	Refreshes the data.	🔁
Exit	Closes the Confirm Outages window.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Confirm Service	Confirms a service outage for the selected row(s).	--
Confirm Secondary	Confirms a secondary outage for the selected row(s)	--
Restore	Sets the outage to restored. The Restored column is populated with *Yes*.	--

Menu Option	Description	Toolbar Icon
Make Groupable	Makes the selected call groupable. The **Groupable** column is populated with *Yes*. This option is only available when a row for a customer with a non-groupable call is selected and the call is not part of a confirmed outage.	--
Event Details...	Opens the Event Details window for the selected event, if applicable.	
View...	Shows the associated device in the Viewer.	

Help Menu

Menu Option	Description	Toolbar Icon
Confirm Outages Help	Opens the Confirm Outages online help content.	--

Creating a Confirmed Service Outage

To create a confirmed service outage for a customer, complete these steps:

1. Select the row in the Confirm Outages window for the applicable customer.

2. Select **Confirm Service** from either the right-click option menu or from the Actions menu.

3. The Confirm Outages window refreshes. The row for the selected customer is now colored green, and the **Prediction** column is now populated with "Confirmed Service". A new event row appears in the Work Agenda Trouble Event list. A **CSVO** symbol appears on the customer's device in the Viewer window.

Creating a Confirmed Secondary Outage

To create a confirmed secondary outage for a customer, complete these steps:

1. Select the row in the Confirm Outages window for the applicable customer.

2. Select **Confirm Secondary** from either the right-click option menu or from the Actions menu.

3. The Confirm Outages window refreshes. The row for the selected customer is now colored orange and the **Prediction** column is now populated with *Confirmed Secondary*. A new event row appears in the Work Agenda Trouble Event list. A **CSCO** symbol appears on the customer's device in the Viewer window.

Creating a Confirmed Service and Secondary Outage for the Same Customer

To create a confirmed service outage and secondary outage for a customer, complete these steps:

1. Select the row in the Confirm Outages window for the applicable customer.

2. Select **Confirm Service** as described above; the Confirm Outages window will refresh with the confirmed service data. Likewise, with the same row selected, select **Confirm Secondary**.

3. The Confirm Outages window refreshes. There are now 2 rows for the customer with **Prediction** column populated with the outage type (*i.e.*, **Confirmed Service** and **Confirmed**

Secondary). Both a CSVO and CSCO symbol appear on the customer's device in the Viewer window.

Restoring a Customer with a Confirmed Service or Secondary Outage

To restore a confirmed service or secondary outage for a customer, complete these steps:

1. Select the row in the Confirm Outages for the applicable customer.

2. Select **Restore** from either the right-click option menu or from the Actions menu.

3. The Confirm Outages window refreshes. The row for the selected customer is now colored blue and the **Restore** column is populated with *Yes*. The CSVO/CSCO symbol disappears from the customer's device in the Viewer window (or the CSVO/CSCO numbers are decreased by one).

Setting the Work Queue

To set a Work Queue value for an event, complete these steps:

1. Select the desired event's row in the Work Agenda.

2. Click on the **Referral** toolbar button or select **Referral...** from the Actions menu. The Work Queue dialog appears.

3. Select a value from the **Refer To** list.

4. Enter any desired remarks into the **Remarks** field.

5. Click the **OK** button. The Work Queue dialog disappears, and the Work Queue column of the selected row updates with the selected Refer To value.

Event Grouping

While the system automatically groups events according to the trouble analysis rules, you may come across some events that are related, but are not grouped because of data modeling issues (*e.g.*, connectivity problems). You can manually group these events together using the Group Events dialog box.

Group Events Dialog Box

The Group Events dialog box allows you to group events. To open the Group Events dialog box, select **Group Events** from the Actions menu in the Work Agenda window.

The Group Events Dialog displays the following fields:

- The **Selected Events** area displays all of the events that have been selected for grouping.

- The **Group Method** contains a selection of grouping options:

    - The **merge** option is used for event grouping.

    - The **relate** option does not group the selected events, but rather allows you to record a relationship between the events and enter notes in the Relationship Comments field.

    - The **unrelate** option allows you to remove one or more previously related events from the relationship.

- The **Relationship Comments** field allows you to enter comments about the relationship when the Group Method is set to *relate*.

Grouping Events

To group events, complete these steps:

1. Open the Group Events dialog box by selecting **Group Events** from the Work Agenda Actions menu.

2. Make sure the **Group Method** is *merge.*

3. In the Trouble Events list, select the row for the event that all subsequent events will be grouped to. The event number appears in the Selected Events field.

4. Select the row of an event in the Trouble Events list that you want to group to the first selected event. The event number for the event is added to the Selected Events field.

5. If there are other events you want to add, select the row for those events in the Trouble Events list. The event numbers for the events are added to the Selected Events field.

6. To deselect a selected event, select its row again. The event number is removed from the Selected Events field.

7. Click on the **OK** button.

   • The selected events are grouped to the first selected event.

   • The rows for the subordinate events disappear from the Trouble Events List.

   • The number of customer calls are added together and their sum appears in the # Calls column.

Grouping Rules

If the events that you selected do not meet the manual grouping rules, the system will not let you group them. An error message will appear explaining the problem. Manual grouping rules include the following:

• General fuzzy events can group to any outage.

• Fuzzy events associated with a control zone can only group to other events in the same control zone.

• Non-outage events can group to outage or non-outage events.

• Outage events can group to other outage events, but outage events cannot be grouped to other outage events that they are not downstream of.

• Real outages (*i.e.*, outages that have a device opened/closed in the Viewer causing a segment of the model to be de-energized) cannot group to one another.

• Outage events cannot group to non-outage events.

• Meets (*e.g.*, meet fire, etc.) cannot group to anything.

• Switching jobs cannot group to anything.

Graphical Grouping (Supply Points Mode)

To add customers to an event graphically, follow these steps:

1. Select a probable outage in the Work Agenda.

2. Click the **Trouble Info** toolbar button or select **Trouble Info...** from the Actions menu to display the Trouble Info callers for this outage.

3. Select **Supply Points** from the File menu to display the Supply Point Summary.

4. In the Viewer, press the **Supply Points Mode** button to toggle into Supply Points mode.

5. The Supply points of the outage will be highlighted in green; other unselected supply nodes will be in cyan. Using a box or polygon, select a group of supply points. All supply points

inside the box or polygon will be highlighted. (See **Selecting Devices** on page 1-55 for details on selecting devices in the Viewer.)

6. Do one of the following:

- To add a single supply point, right-click on the supply point and select **Add Supply Points** from the pop-up menu. A row is added to the Trouble Info Supply Points table in green and marked as To Be Grouped (TBG).

- To add all highlighted supply points, hold down the Alt key and right-click on a highlighted supply point, then select **Add Supply Points** from the pop-up menu. The Supply Points rows are added to the Trouble Info Supply Points table in green and marked as To Be Grouped (TBG).

    Note: To display a list of highlighted supply points, Alt-right-click and then select **Show Supply Points** from the pop-up menu. The Supply Point Summary table on the Trouble Info window displays details for the highlighted supply points.

7. Press the **Update Event** button on the Trouble Info Supply Points view to group the Supply Points into the event.

8. Enter an event grouping threshold (in hours) in the Update Job confirmation dialog.

- The selected event will now include the selected supply points and the Work Agenda row will now reflect the new customer count and call count, if other calls existed on the selected Supply Points.

- Supply Points with calls that did not pass the selected grouping threshold are not added to the outage and will be marked in yellow with FAIL in the Grp column.

- You can also remove Supply Points from the event by selecting them and clicking the **Remove** button, then the **Update Event** button. Any calls on the removed Supply Points will create new events.

Relating Events

To relate events, complete these steps:

1. Open the Group Events dialog box by selecting **Group Events** from the Work Agenda Actions menu.

2. Change the Group Method to "relate." The Relationship Comments field is now accessible.

3. In the Trouble Events list, select the row for the event that all subsequent events will be related to. The event number appears in the Selected Events field.

4. Select the row of an event in the Trouble Events list that you want to relate to the first selected event.

5. If there are other events you want to add, select the row for those events in the Trouble Events list. The event numbers for the events are added to the Selected Events field.

6. Type a comment into the Relationship Comments field, if desired.

7. Click the **OK** button. The selected events are related to one another. The **Grp Type** column in the Work Agenda for each event now contains "REL", the **Rel Type** column now contains "R", and **Rel Event #** column now contains the event number of the earliest event.

Unrelating Events

To unrelated events that have been related, complete these steps:

1. Open the Group Events dialog box by selecting **Group Events** from the Work Agenda Actions menu.

2. Change the Group Method to "unrelate."

3. In the Trouble Events list, select the row for the event that you wish to unrelate. The event number appears in the Selected Events field.

4. If there are other events that you want to unrelate, select the row for those events in the Trouble Events list. The event numbers for the events are added to the Selected Events field.

5. Click the **OK** button. The selected events are unrelated. If two or more events are still part of that relationship, they remain related to each other. If the event that was displayed in the **Rel Event #** column was unrelated and two or more events are still part of that relationship, the **Rel Event #** column is updated with the event number of the earliest event remaining in the relationship.

Ungroup Events

To ungroup manually grouped events or repredicted upstream device outages, complete these steps:

1. Select a grouped event in Work Agenda.

2. Select Undo Grouping from the Work Agenda Actions menu. The event will be ungrouped and new events will be created for the previously grouped events.

> **Notes**:
>
> • You cannot ungroup events with crew assignments, whether assigned, en route, onsite, or suspended.
>
> • If the grouped event was predicted (*e.g.*, a Predicted Device Outage (PDO)), it is destroyed and the event number is lost along with any data entered in Event Details.
>
> • Ungrouped calls are put at the front of the grouping queue and then grouped normally.

Associating and Unassociating Calls with Devices

Sometimes a call comes in reporting a problem that is not clearly related to a particular customer or device. Until a device is identified for the problem, the event is considered a *fuzzy call*. When more information becomes available, you can associate the fuzzy call with a device. You can also unassociate these calls using the Trouble Info window.

Associating a Fuzzy Call with a Device

To associate a call with a device, complete these steps:

1. Open a Viewer window and load the map containing the device you want to associate.

2. In the Work Agenda list, select the row of the fuzzy event that you want to associate.

3. In the Work Agenda window, select **Associate Event** from the Actions menu. The Associate Event dialog box opens.

4. In the Viewer, select the device you want to associate the fuzzy call to. The device identification appears in the Device field of the Associate dialog box.

5. Click **OK** in the Associate Event dialog box. The row for the fuzzy event disappears from the Work Agenda, and the Oracle Utilities Network Management System analysis engine re-analyzes the fuzzy call using the selected associated device.

Unassociating/Reassociating a Call from/to a Device

To unassociate a call from one device and reassociate it to another device, complete these steps:

> **Note:** If you are unassociating a call and you want to turn it into a fuzzy call, simply do not select a device to re-associate it with (*i.e.*, omit the third and sixth steps below).

1. In the Work Agenda window, select the row for the event that contains the calls you want to unassociate.

2. Click the **Trouble Info** toolbar button or select **Trouble Info...** from the Actions menu. Call information about the event appears in the Trouble Info window.

3. Open a Viewer window and load the map containing the new device you would like to re-associate the call(s) with.

4. In the Trouble Info window, select the row for the call you wish to unassociate from its present device.

5. Select **Unassociate** from the Trouble Info Actions menu. The Unassociate dialog box opens.

6. Select a device in the Viewer to populate the New Device field in the Unassociate dialog box.

7. Click **OK** on the Unassociate dialog.

   - The call is unassociated from the current device and associated with the new device, if specified.

   - The Oracle Utilities Network Management System Web Trouble analysis engine re-analyzes the event from which the calls were unassociated, as well as the unassociated calls using their new associated device.

Working with Damage Assessments

The Damage Assessments feature provides summaries of existing damage assessments and methods for creating new damage assessments. When a crew in the field reports finding damage, you may record their findings in a damage assessment. New damage assessments may be associated with an existing event, a device, or may be created as "fuzzy" events. Damage assessments include:

- Damage description

- Equipment needed for the repair.

- Crew types needed for the repair.

Based on the reported damage, the system will calculate estimated repair time for an event. If multiple damage assessments exist for an event, the system will calculate the estimated repair time by adding together estimated repair times from each active damage assessment. Damage assessment trouble codes have associated clue symbols, which will be displayed in Viewer at the damage location(s).

> **Notes**:
>
> - Damage assessment incidents are not included in counts for the event.
>
> - Damage assessment cannot be performed for switching jobs, fault current events, and meets.

Damage Assessment Window

The Damage Assessment window is used to create or edit damage assessment information. The Damage Assessment window is displayed when you do one of the following:

- Create a new "fuzzy" Damage Assessment by selecting **New** and then **Damage Assessment...** from the Web Workspace **File** menu or clicking the 📝 button on the Web Workspace toolbar.

- Click the **Damage Assessment...** option from the Work Agenda **Actions** menu or the Control Tool to open the Damage Assessments window from which you may create a new damage assessment related to the selected event or device or edit an existing damage assessment.

    - To create a new Damage Assessment, select **New...** from the Damage Assessments **File** menu.

    - To open an existing Damage Assessment, select the Damage Assessment in the table and select **Open...** from the Damage Assessments **File** menu.

Menu and Toolbar

File Menu

Menu Option	Description	Toolbar Icon
Reload	Reloads the data	🔃
Save	Saves changes to the Damage Assessment	💾
Assessed	The damage assessment is complete.	📋
Obsolete	The damage assessment is no longer valid.	📋
Exit	Closes the Damage Assessment window.	--

The Damage Assessment window displays the following fields and buttons:

- **Event #** is the ID of the event associated with this damage assessment. **0** is displayed if an event has not yet been created for this damage assessment. Once event is created, click the Reload button to populate the field with the event ID.

- **Crew** is the crew that performed the damage assessment.

- The **Select Crew** button (📇) opens the **Select Crew** dialog so you can select a crew to associate with this assessment.

- **Mobile #** is the mobile number of the crew that performed the damage assessment.

- **Report Date** is the date and time when damage assessment was performed. Click the date-time icon to use the date picker to set the date.

Damage Location Section

- **Feeder** is the name of the feeder.

- **Device** is the device alias. You may move the damage assessment to a different device by editing this field.

   Actions

   - : search for a device to associate to the damage assessment.

   - : link the currently selected device to the damage assessment.

   - : view the device in the Viewer.

- **Address** is the street address where the damage assessment was performed.

   Address Actions

   - : focuses the Viewer on the saved latitude and longitude coordinates.

   - : opens the Select Damage Location dialog box, which captures the latitude and longitude of a point selected in the Viewer. With the dialog box open and the Viewer in focus, the cursor will appear as a crosshair (⊕) until you select a location; whenever you click in the Viewer, the Select Damage Location's **Latitude** and **Longitude** fields will update with values for that point. Click **OK** to add the selected coordinates to the damage assessment or click **Cancel** to reset the cursor and close the dialog box.

      Note: you may also press the escape key to reset the cursor.

- **Company** is the company-level control zone name.

- **Region** is the region-level control zone name.

- **Branch** is the branch-level control zone name.

- **Substation** is the substation-level control zone name.

   Action

   - : opens the Control Zone selection menu, which allows you to associate fuzzy damage assessment with a control zone. This is only possible during the initial creation of the damage assessment.

Damage Specifics Section

- **Phases Affected** displays a checkmark beside each affected phase.

- **Section Affected** allows you to specific the section affected by the damage. You can select from a list or enter a value manually.

- **Location** allows you to specify the damage location. You can select from a list or enter a value manually.

- The **Load Affected** checkbox indicates whether the damage affects customers. If checked, the damage assessment will generate an outage incident; otherwise, a non-outage incident will be generated. When damage assessment is performed for an existing non-outage, momentary, or non-electric event, this checkbox will be unchecked and non-editable.

- The **Street Light Damage Noted** checkbox indicates whether street line damage is reported.

- The **Required Crew Types** indicates the types of crews needed to repair the damage. Check each one that applies.

- The **Damage Type** column in the Damage Specifics table displays all known types of damage.

- The **Accessible** column in the Damage Specifics table displays the number of accessible instances of a particular type of damage. Enter a value for each applicable damage type. When you modify a row, its background changes to green.

- The **Inaccessible** column in the Damage Specifics table displays the number of inaccessible instances of the particular type of damage. Enter a value for each applicable damage type. When you modify a row, its background changes to green.

- **Comments** contains any remarks associated with the damage specifics.

Required Material Section

- The **Add Required Part** button opens the Add Required Part dialog so you can select a part and specify a quantity.

- The **Remove Required Part** button allows you to mark a row in the Required Material list for removal. Rows marked for removal display a red background.

- **Part ID** contains the IDs of parts required to repair the damage.

- **Part Name** contains the names of parts required to repair the damage.

- **Quantity** displays the quantity of the specified part.

- **Comments** displays remarks associated with the required material.

- The status bar displays the damage assessment status (New, Assessed, Complete, or Obsolete) and the estimated time to repair the reported damage. This is calculated from the information entered into the Damage Specifics table.

Attachments Section

The Attachments section allows you to attach a file or link an externally stored file to the damage assessment.

Actions

- : opens the Attach Files dialog that allows you to attach a file to the damage assessment. Maximum size of the attachment is 50M.

- : opens the Add Link dialog that allows you to add a link to an externally stored attachment that is accessible with an URL. To add a link, complete the following fields:

    Name: a name that is unique to the damage assessment.

    URL: link to attachment.

    Description: short description of the attachment contents.

    Click **OK** to add the attachment link or click **Cancel** to abort the action.

- : marks the selected attachments for removal.

- : opens the selected attachment. Links are opened in a web browser. Files are opened using application associated with the given file type.

- : saves local copies of the selected attachments. Only the file attachments can be saved.

Table Columns

- **Name:** attachment name (unique within a single damage assessment)

- **File Size:** attachment size in bytes (0 for links)

- **Modified Date:** last modification date for file attachments

- **Status:** status of the attachment (New, Modified or Deleted)

- **Link:** URL of the externally stored attachment

- **Description:** attachment description

Creating Fuzzy Damage Assessments

When a crew reports damage that is not associated with an event in the system, you may create a fuzzy damage assessment and link it to a location in the Viewer. Like with creating an event, you may create a fuzzy damage assessment for an outage or non-outage situation.

1. Open the Viewer to the general location of the damage.

2. Create a new damage assessment by clicking the new Damage Assessment button () in the Web Workspace toolbar.

3. Click the location selection button () to open the Select Damage Location dialog box.

4. Click the location in the Viewer where the damage was found. The Select Damage Location dialog will be populated with the latitude and longitude data from the Viewer.

5. Click **OK** to accept the latitude and longitude.

6. Add any other known information to the damage assessment and click the **Save** button ().

7. Close the Damage Assessment.

When you reopen the damage assessment, click the damage location focus button () to open the Viewer and focus on the saved coordinate data.

Fuzzy damage assessment can be associated to a device by populating the **Device** field with the valid device alias (either by entering it directly or selecting device in the Viewer) and then saving the damage assessment.

Using the Damage Assessments Window

The **Damage Assessments** window displays summary information for damage assessment records associated with an event.

Menu and Toolbar Options
File Menu

Menu Option	Description	Toolbar Icon
New...	Create a damage assessment in the Damage Assessment tool.	
Open...	Open the currently selected record in the Damage Assessment window.	
Reload	Reload the table data.	
Print...	Print the content of the Damage Assessments table.	
Exit	Closes the Damage Assessments window.	--

Actions Menu

Menu Option	Description	Toolbar Icon
View...	Focuses the Viewer on the device associated with the selected damage assessment.	

Filter Menu

Menu Option	Description	Toolbar Icon
Active	Show all active Damage Assessments.	--
Complete	Show all complete Damage Assessments.	--
Auto Filter Off	Clears any autofilter values that were set by right-clicking a Damage Assessment record in the table and selecting **Auto Filter**.	--
Show Filter Dialog	Open the filter dialog to choose filter criteria.	--
All	Show all damage assessments.	--

Help Menu

Menu Option	Description	Toolbar Icon
Damage Assessments Help	Opens the online help system to the Damage Assessments help content.	--

Damage Assessments Table

- **Status** is the status of the listed damage assessment.

  - New: the initial state of a damage assessment.

  - Assessed: the assessment is done. Damage Assessments in the Assessed state are included in estimated repair time calculations.

  - Complete: the event has been restored.

  - Obsolete: the damage assessment no longer applies to the event.

- **Event #** is the event number associated with the damage assessment.

- **Report Date** is the date and time when damage assessment was performed.

- **Crew** is the crew that performed the damage assessment.

- **Mobile #** is the crew's mobile number.

- **Feeder** is the name of the feeder.

- **Device** is the device alias.

- **Address** is the damage location address.

- **Region** is the region-level control zone name.

To view, edit, or create damage assessment information for an event:

1. Select an event from the Event List in the Work Agenda.

2. Select **Damage Assessment...** from the Actions menu. The **Damage Assessments** window opens. If any damage assessment records exist for this event, they are displayed in the table.

Creating a New Damage Assessment for an Event

To create a new damage assessment:

1. Click the **New** button on the toolbar. The Damage Assessment window opens. The following fields are pre-populated: Event #, Crew (if the outage has a single crew assigned/ en-route or onsite), Report Date, Damage Location (based on the location of the outage device), and Phases Affected (based on phases of the outage device).

2. Complete additional fields on this screen as needed. See the following section for field descriptions.

3. Click the **Save** button on the toolbar.

4. Use the **Complete** toolbar button to complete the damage assessment. When a damage assessment record is completed, its status changes to inactive and its symbol is removed from Viewer.

Working with AMI Requests

This section describes how to work with AMI requests. It includes the following topics:

- **Displaying the AMI Requests List**
- **Creating AMI Requests for Service Outages**
- **Creating AMI Requests for Device Outages**
- **Creating an AMI Request Without an Outage**
- **Completing AMI Requests**
- **Canceling AMI Requests**
- **Re-submitting AMI Requests**

Displaying the AMI Requests List

To display the complete AMI Requests list, select **AMI Requests List…** from the Web Workspace **Tools** menu.

> **Note:** the AMI Requests list only displays manually generated pings rather than a historical list of autopings.

To display the AMI Requests for a particular event. select the event in the Work Agenda, then select **Show AMI Requests...** from the Actions menu.

The AMI Requests List displays the following fields and buttons:

- The **Request #** column is the system-generated index of the request.
- The **Device** column is the outage device.
- The **Feeder** column is the device's feeder.
- The **Substation** column is the device's substation.
- The **Request Date** column is the date the ping was requested.
- The **Who Requested** column displays the login user name that initiated the request.
- The **Event #** column is the outage event. The Event # may be empty if meter ping was requested for a device rather than for an event.
- The **# Queried** column is the number of meters pinged.
- The **# Responded** is the total number of responses received to date.
- The **# Off** column is the number of deenergized responses received.
- The **Status** column displays ACT=active, CMP=completed, CNL=canceled.
- The **Complete Date** column displays the date completed.
- The **Who Completed** column displays the login user name that completed the request.
- The **Show Event** button navigates back to the Active Trouble Events List page for the selected row's event.
- The **Resubmit** button resubmits (re-pings) the AMI request.
- The **Complete** button completes the ping request.
- The **Cancel** button cancels the ping request and takes no further action.

Creating AMI Requests

This section includes the following topics:

- **Creating AMI Requests for Service Outages**

- **Creating AMI Requests for Device Outages**

- **Creating an AMI Request Without an Outage**

Creating AMI Requests for Service Outages

To create an AMI request for an existing service outage, follow these steps:

1. Select an existing PSO event in the Work Agenda, then select **AMI Confirm** from the Actions menu. A new AMI request is created for the meter affected by the selected event.

   If you attempt to create an AMI request for a customer that is part of an active AMI request, the AMI Rejected Meters dialog is displayed. This dialog lists the customer information associated with the meter that was rejected. Click **OK** to continue.

   Note: You can perform the same action by selecting **AMI Confirm** from the Trouble Info window.

Creating AMI Requests for Device Outages

To create an AMI request for an existing device outage, follow these steps:

1. Select an existing device outage in Work Agenda.

2. Select **AMI Confirm** from the Actions menu in Work Agenda. The Trouble Info tool is displayed, showing information about customers affected by the selected event.

3. Select customers whose meters should be pinged.

4. Select AMI **Confirm** from the Actions menu in Trouble Info. A new AMI request is created for the selected meters.

   Note: If you attempt to create an AMI request for a customer that is part of an active AMI request, the AMI Rejected Meters dialog is displayed. This dialog lists the customer information associated with the meter that was rejected. Click **OK** to continue.

Creating an AMI Request Without an Outage

To create an AMI request without an existing outage, follow these steps:

1. Double-click on a device in Viewer to bring up Control Tool.

2. Click **AMI Customer List…** in Control Tool. The Trouble Info tool is displayed, showing information about AMI-enabled customers for the selected event.

3. Select customers whose meters should be pinged.

4. Select **AMI Confirm** from the Actions menu in Trouble Info. A new AMI request is created for the selected meters.

   Note: If you attempt to create an AMI request for a customer that is part of an active AMI request, the AMI Rejected Meters dialog is displayed. This dialog lists the customer information associated with the meter that was rejected. Click **OK** to continue.

Completing AMI Requests

To complete an AMI request, select a row on the AMI Requests list and click the **Complete** button. The options presented to you depend on the status of the original event.

Canceling AMI Requests

To cancel AMI requests, select one or more rows on the AMI Request list and click the **Cancel** button. The canceled AMI requests disappear from the list of active AMI requests.

Re-submitting AMI Requests

To resubmit active AMI requests, select one or more rows on the AMI Request list and click the **Resubmit** button. A confirmation window appears, asking whether you want to cancel the active request before submitting the new request. Click **Yes** to confirm.

Updating the ERT for Selected Events

You can set the estimated restoration time for one or more events selected in Work Agenda.

> **Note**: Updating the ERT from the Work Agenda is not allowed for some event types. For Notify Alarms, Planned Outages, and Switching jobs, the user cannot set or clear the ERT. For Non Outages, Critical Meets, Future Meets, Real and Probable Momentary Outages, and Fault Current Events, the user can clear the ERT, but cannot set it.
>
> If the ERT update operation cannot be performed on one or more of the selected events, the *Ignored ERT Updates* dialog will be displayed when the other updates have completed. The *Ignored ERT Updates* dialog list the events where the ERT was not updated.

To set the ERT for selected events, follow these steps:

1. From the Work Agenda events list, select all the events for which you want to update the ERT.

2. Select **Update ERT(s)...** from the Actions menu. The Update ERT dialog opens.

3. Enter the new ERT using the calendar tool.

4. Click the **Set ERT** button. The Update ERT dialog closes, and the new ERT value is displayed for the selected events in the Work Agenda list.

Clearing the ERT

To clear the ERT for events selected in Web Work Agenda, follow these steps:

1. Selects one or more events in Web Work Agenda.

2. Select **Update ERT(s)…** from the Actions menu. The Update ERT dialog opens.

3. Click the **Clear ERT** button. The Update ERT dialog closes, and the ERT values for the selected events are cleared in the Work Agenda list.

Setting the System-Wide Estimated Restoration Time

Use this procedure to view and modify the system-wide default ERT value. The system-wide ERT is used for all events; it overrides any default ERTs defined at the control zone/device class level in the Configuration Assistant.

To set the system-wide default, follow these steps:

1. Select **System-Wide Default ERT…** from the Web Work Agenda Actions menu. The System-Wide Default ERT dialog opens.

2. Enter a new value in the New System-Wide ERT field, using the calendar tool.

   Note: Only future dates are allowed.

3. Click the **Set ERT** button. The dialog closes and the specified ERT becomes the default for any new events for which no specific default is specified. All not completed events with an Est Src value of I or N in the Work Agenda will have their ERT values reset to the system-wide default ERT value.

   Note: This action causes a full re-examination of all events currently in the system; thus, it is advised to use it sparingly when there are a large number of events present.

Clearing the System-Wide Estimated Restoration Time

Use this procedure to clear the system-wide default ERT value so that all events will use the default values specified for their control zone and device class combination, as defined in the Configuration Assistant. (See **Adding a Device/Zone-Based Default Restoration Time** on page 17-29.)

   Note: If you clear the system-wide default ERT and no default ERT has been defined that matches the control zone/device class of an event, the event will not be assigned a default ERT. The ERT will remain empty for the event unless you manually change it.

To clear the system-wide default, follow these steps:

1. Select **System-Wide Default ERT…** from the Web Work Agenda Actions menu. The System-Wide Default ERT dialog opens.

2. Click the **Clear ERT** button. The dialog closes and the previously specified ERT is no longer used as the default for any new events. The ERT for an event will default to the value defined for its control zone and device class.

   Note: This action causes a full re-examination of all events currently in the system; thus, it is advised to use it sparingly when there are a large number of events present.

Using the Event Log

The Event Log displays a list of all actions taken for an event and displays the Operations Event Notes for the event. You cannot edit existing actions, but you can add a new note.

To display the Event Log for a particular event, select a row in the Work Agenda list and select **Event Log...** from the Actions menu. The Event Log opens, displaying all log entries for this event. The Operations Event Notes field is populated with the comments for this event.

The Event Log displays the following menu and toolbar options:

File Menu

Menu Option	Description	Toolbar Icon
Export Table...	Opens a dialog to allow you to save the current table view data to a comma separated value (csv) file.	🔼
Print...	Print the Event Log.	🖨
Exit	Closes the Event Log window.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Load Action Steps	Load the action steps for the event listed in the **Event #** field.	🔍
Clear	Clears current event information from the window.	✏
View...	Focuses the Viewer on the device associated with the event.	◎
Event Details	Open event information in the Event Details window.	ⓘ

- The **Event #** field displays the event identifier. This field is editable so that a user can load a different event by entering a number.

- The **Operations Event Notes** field displays the existing Operations Event Notes for the event.

- Add note text in the top field and click the **Add** button (➕) to add the note.

    Note: The Event Log table does not automatically refresh, so the new note will be displayed the next time the event is loaded.

- The table displays a list of log entries. For each entry, the following columns are displayed:

    - The **Date/Time** field displays the date/time at which the log entry occurred.

    - The **User** field displays the user that initiated the action.

- The **Event** field displays the identifier of the original event for which the log entry was generated. Note that, due to grouping activities, the original event may no longer exist.

- The **Text** field displays a description of the log entry.

Clear Data and Load Event Log

To display entries for a different event:

1. Click the **Clear** button ( ) or select **Clear** from the **Actions** menu to clear the entire tool.

2. Enter a new event in the Event # field.

3. Click the **Load Action Steps** button ( ) or select **Load Action Steps** from the **Actions** menu to repopulate the table with the action steps for the new event listed in the **Event #** field.

Using the Trouble Summary

The Trouble Summary provides outage and damage summary information by control zone.

Menus and Toolbars

File Menu

Menu Option	Description	Toolbar Icon
Refresh	Refreshes the data in the Trouble Summary window. **Note:** when the **Use Current Time** option is checked, the Trouble Summary window will automatically refresh at predefined intervals.	
Print All...	Prints the outage summary and damage summary data for the selected region.	
Print Outage Summary...	Prints the outage summary data.	
Print Damage Summary...	Prints damage summary data for the selected region.	
Exit	Closes the Trouble Summary window.	--

Help Menu

Menu Option	Description	Toolbar Icon
Trouble Summary Help...	Opens the online help system to the Trouble Summary help content.	--

Outage Summary Data

The Outages Summary pane provides information about outage overview information that you may drill down by region.

Outages Summary data includes:

- The **Est Restore Time** column contains the estimated restoration time (ERT) for events in that region.

- The **Feeders Out** column contains the number of outages on feeder breaker devices.

- The **# Customers** column contains the total number of customers experiencing an outage for the region.

- The **# Critical** column contains the total number of critical customers experiencing an outage for the region.

- The **# Calls** column contains the total number of customer calls received for the region.

- The **# Service Outages** column contains the total number of service outages for the region.

- The **# Device Outages** column contains the total number of device outages for the region.

- The **# To Do Outages** column contains the total number of outages that do not have a crew en route or onsite.

The Outage Summary information may be based on the current time or a user selected time; the **Summary Time** is the time when summary information was generated within the chosen time parameter. To select a date and time parameter, deselect **Use Current Time** and click the **Display Outages Summary As Of** button (🗓) and pick your desired date and time.

Damage Summary Data

The Damage Assessment information includes aggregate data from damage assessments. The Damage Summary pane is only visible when **Use Current Time** is checked. The section, which is populated when a row in the Outages Summary is selected, includes the following data for the given region:

- **Zone:** control zone name.

- **Total Repair Time (HH:MM):** total amount of time needed to repair the damage reported for the selected control zone.

- **Required Crews:** provides information about the crew requirements.

  - **Crew Type:** lists the crew type(s) needed.

  - **# Needed:** number of crews needed for the given type.

- **Reported Damage:** lists type of damage reported.

  - **Damage Type:** damage type(s) reported.

  - **# Accessible:** number of accessible instances of the damage type.

  - **# Inaccessible:** number of inaccessible instances of the damage type.

- **Required Materials:** lists the materials required to restore/repair.

  - **Part ID:** the ID of the required part.

  - **Part Name:** name of the required part.

  - **Quantity:** number of parts required.

- **Comments:** provides damage assessment comments.

  - **Event #:** the event numbers associated with the damage assessment comments.

  - **Crew:** identification of the crew that made the damage assessment comment(s).

- **Damage Comment:** text from the Damage Assessment Damage Specifics **Comments** field.

- **Materials Comment:** text from the Damage Assessment Required Material **Comments** field.

- **# Load Affected:** number of damage assessments having Load Affected.

- **# Street Lights Damaged:** number of damage assessments having Street Lights Damaged.

Managing Crews with Web Trouble

Oracle Utilities Network Management System – Web Trouble allows you to manage crews efficiently. This section describes the various windows and functions that relate to managing crews. It includes the following topics:

- **Crew Actions**

  - **Assigning a Crew**

  - **Placing a Crew En Route Using the Crew Actions Window**

  - **Changing Crew Availability**

  - **Finding the Event a Crew is En Route To**

  - **Activating a Crew** and **Making a Crew Inactive**

  - **Setting a Crew's Status to On Shift** and **Setting a Crew's Status to Off Shift**

  - **Deleting a Crew**

  - **Filtering Crew Lists**

- **Crew Makeup**

  - **Creating a New Crew**

  - **Removing Personnel from a Crew**

  - **Removing a Vehicle from a Crew**

  - **Editing a Crew**

- **Crew Info**

  - **Unassigning a Crew**

  - **Placing a Crew En Route to an Assigned Event**

  - **Suspending a Crew**

- **Active Job Info**

  - **Moving a Crew**

  - **Releasing Crews from an Event**

  - **Updating Event Information**

Crew Actions

Use the Crew Actions window to view and manage crews. The Crew Actions window opens by default when you login to Oracle Utilities Network Management System Web Workspace. It is displayed below the Web Work Agenda window. You can also display this window by selecting **Crew...** from the Web Workspace **Tools** menu.

The Crew Actions window displays a **Menu and Toolbar** and provides two views: **Crew List View** and **Crew Icons View**.

From the Crew Actions window, you can perform the following tasks:

- **Assigning a Crew**

- **Placing a Crew En Route Using the Crew Actions Window**

- **Changing Crew Availability**

- **Finding the Event a Crew is En Route To**

- **Transferring a Crew to a Temporary Control Zone**

- **Activating a Crew** and **Making a Crew Inactive**

- **Setting a Crew's Status to On Shift** and **Setting a Crew's Status to Off Shift**

- **Deleting a Crew**

Menu and Toolbar

The Crew Actions window displays a toolbar and menu bar, as described in the following tables.

File Menu

Menu Option	Description	Toolbar Icon
New...	Opens the Crew Makeup window, which allows you to define a new crew.	
Delete	Deletes the currently selected crew after prompting for confirmation. This is enabled only if an inactive non-mobile crew is selected.	
Export Table...	Opens a dialog to allow you to save the current table view data to a comma separated value (csv) file.	
Exit	Closes the Crew Actions window.	--

View Menu

Menu Option	Description	Toolbar Icon
Icons	Switches to the Icons view if the List view is currently active.	--
List	Switches to List view if Icons view is currently active.	--

Filter Menu

Menu Option	Description	Toolbar Icon
Shift Status	Filters by shift statuses. The product environment includes the following shift options: • All • On Shift • Off shift • Inactive	--
Job Status	Filters by job statuses. The product environment includes the following job status options: • All • Available • Assigned • En Route • Onsite • Suspended • Unavailable	--
Crew Type	Filters by crew types. The product environment includes the following crew type options: • All • Service • Trouble • Tree Crew • Line • Eval	--
Event Zone	Filters crews by the zone of the event selected in the Work Agenda. The product environment includes the following event zone options: • All • Region (Control Zone Hierarchy Level 2) • Branch (Control Zone Hierarchy Level 3)	--
Parent Zones	Filters crews by parent Control Zone. • Include - Display crews created for zones that are parents of the subscribed zones • Exclude - Excludes crews created for zones that are parents of the subscribed zones	

Actions Menu

Menu Option	Description	Toolbar Icon
Edit...	Opens the Crew Makeup window, which allows you to edit the currently selected crew. This is enabled only if a non-mobile crew is selected.	✏
Crew Info...	Opens the Crew Info dialog for the selected crew.	ⓘ
Switching...	Opens the switch plan to which the selected crew is associated. This is enabled only if a crew is selected and Web Switching Management is licensed for your system. If more than one plan is associated with the crew, a dialog prompts you to select one.	--
View…	Opens Viewer 1, focused on the device where the selected crew is en route or onsite, and selects event in the Work Agenda Event List to which the crew is en route or onsite. This is enabled only if an en route or onsite crew is selected.	◉
Locate Crew...	Displays the selected crew in the Viewer window at the current coordinates of the crew. This option is available only for crews with AVL (Automatic Vehicle Location) systems.	--
Availability...	Opens the Update Crew Availability dialog for the selected crew. See **Changing Crew Availability** on page 2-36.	☕
Assign	Assigns the selected crew to the event currently selected in Work Agenda.	🔧
En Route	Puts the selected crew en route to the event currently selected in Work Agenda. This is enabled only if the selected crew is an on-shift, available, non-mobile crew that is not currently en route or onsite.	🚚
Active Job Info...	Opens the Active Job Info dialog for the selected crew. This is enabled only if an en route or onsite crew is selected.	📇
Onsite	Puts the selected crew onsite at the event currently selected in the Work Agenda. This is enabled after the crew is en route.	🪖
Toggle Mobile On	Turns off override for a crew that is currently overridden by the Toggle Mobile Off action.	--
Toggle Mobile Off	Overrides the selected crew to act as a non-mobile crew. Enabled if an active off shift mobile crew is selected. Not available to view only users.	--
Activate	Activates the selected crew. This is enabled only if an inactive non-mobile crew is selected.	--

Menu Option	Description	Toolbar Icon
Deactivate	Deactivates the selected crew. This is enabled only if the selected crew is an off-shift, active non-mobile crew that has no assignments.	--
Set On Shift...	Opens a dialog that allows you to enter an on-shift time for the selected crew. This is enabled only if an off-shift active crew is selected.	--
Set Off Shift...	Opens a dialog that allows you to enter an off-shift time. This is enabled only if the selected crew is an on-shift crew that is not en route or onsite.	--
Transfer Zone...	Temporarily transfer the crew to a different control zone.	--
Release Temporary Zone	Return the crew from its temporary control zone assignment back to its original control zone.	--

Crew List View

The Crew List view on the Crew Actions window displays a list of crews, in table format. The crews that appear in the list are based on the current filter settings. See **Crew Status** on page B-1 for a list of color codes used to indicate crew status.

The Crew List contains the following fields and buttons:

•   The **Control Zone** column contains the name of the control zone the crew is assigned to.

•   The **Crew ID** column contains a string that identifies the crew.

•   The **Crew Type** column contains the type of crew (*e.g.*, Eval, Service, Line, etc.).

•   The **Contact** column contains the contact name for the crew.

•   The **Crew Size** column contains the number of crew members.

•   The **Feeder** column contains the feeder for the device where the crew is en route/onsite.

•   The **Device** column contains the name of the device where the crew is en route/onsite.

•   The **Est Restore Time** column contains the date and time when the event where the crew is en route/onsite is estimated to be restored.

•   The **# Assign** column contains the number of events assigned to the crew.

•   The **Hours Worked** column contains the length of time the crew has been active.

•   The **Mobile** column indicates whether this is a mobile crew.

•   The **Shift Status** field displays the crew's current shift status. Valid statuses are:

    •   Inactive

    •   Off Shift

    •   On Shift

•   The **Job Status** field displays the crew's current job status. Valid statuses are:

    •   Available

    •   En Route

    •   Onsite

- Suspended

- Unavailable

Crew Icons View

The Crew Actions window displays buttons to represent the each crew. In this view, use the Actions menu to perform actions on the selected crew icon. As the crew's status changes, a symbol will be added to the button that depicts the current status; see **Event Status Codes** on page A-1 for the symbol icons that correlate to each status. See also **Crew Status** on page B-1 for a list of color codes that may be used to indicate crew status when cell or row coloring is enabled in the Web Workspace **Preferences** menu.

Activating a Crew

You can set a crew to Inactive status to indicate that it is available for work. You can only activate a crew if its current status is Inactive.

To activate a crew, complete these steps:

1. In the Crew Actions window, select the inactive crew you want to activate.

2. Select **Activate** from the Actions menu. (In List view, you can also right-click the crew and then select **Activate** from the pop-up menu.) The status changes to Off Shift.

   Note: You cannot activate a crew if its Mobile is Yes. You must choose the **Toggle Mobile Off** option on the Actions menu to change the mobile status before activating. The Mobile Flag columns displays No (Override), indicating that the crew's mobile status has been manually overridden.

3. You can now set the crew's status to On Shift. See **Setting a Crew's Status to On Shift** on page 2-34.

Setting a Crew's Status to On Shift

Setting an active crew's status to On Shift indicates that the crew has started working the shift and sets the time the crew sent on shift. You can only set a crew's status to On Shift if its current status is Active.

To put a crew On Shift, follow these steps:

1. In the Crew Actions window, select the active crew you want to put On Shift.

2. Select **Set On Shift...** from the Actions menu. (In List view, you can also right-click the crew and then select **Set On Shift...** from the pop-up menu.) The Set Crew On Shift dialog opens.

3. To set the On Shift time to the current time, click **OK**.
   To specify a different time, click the button and then select the date/time the crew went on shift. Click **OK** to close the dialog. The On Shift Time field is populated with the selected date/time.

4. Click **OK** to set the shift time. The crew's status changes to On Shift.

Setting a Crew's Status to Off Shift

Setting an active crew's status to Off Shift indicates that the crew has stopped working the shift and sets the time at which the crew went off shift. You can only set a crew's status to Off Shift if it's current status is On Shift.

To put a crew Off Shift, follow these steps:

1. In the Crew Actions window, select the On Shift crew you want to put Off Shift.

2. Select **Set Off Shift...** from the Actions menu. (In List view, you can also right-click the crew and then select **Set Off Shift...** from the pop-up menu.) The Set Crew Off Shift dialog opens.

3. To set the Off Shift time to the current time, click **OK**.
   To specify a different time, click the button and then select the date/time the crew went off shift. Click **OK** to close the dialog. The Off Shift Time field is populated with the selected date/time.

4. Click **OK** to set the shift time. The crew's status changes to On Shift.

Making a Crew Inactive

You can deactivate a crew to indicate that it is not available for work. You can only deactivate a crew if its current status is Active or Off Shift and it has no current assignments.

To deactivate a crew, complete these steps:

1. In the Crew Actions window, select the active or off shift crew you want to deactivate.

2. Select **Deactivate** from the Actions menu. (In List view, you can also right-click the crew and then select **Deactivate** from the pop-up menu.) The status changes to Inactive.

Deleting a Crew

To delete a crew, complete these steps:

> **Note**: You can only delete a crew if it is inactive. You cannot delete a mobile crew, even if the mobile flag has been overridden.

1. If the crew is active, you must first deactivate it (see **Making a Crew Inactive**). If a crew is on shift, you must first set the crew to off shift (see **Setting a Crew's Status to Off Shift**) and then deactivate it before you can delete it.

2. Select the crew in the Crew Actions window.

3. Select **Delete** from the Actions menu. (In List view, you can also right-click the crew and then select Delete from the pop-up menu.) A dialog prompts you to confirm the deletion.

4. Click **OK**. The crew is deleted from the system.

Assigning a Crew

You do not have to assign a crew to an event before placing it en route. Assigning merely lines up the event for the crew to work later. To assign a crew to an event, complete these steps:

1. In the Trouble Events list of the Work Agenda, locate the event you want to assign the crew to. Select the row of that event.

2. Select the crew you want to assign the event to in the Crew Actions window.

3. Select **Assign** from the Actions menu. (In List view, you can also right-click the crew and then select **Assign** from the pop-up menu.) The event information is automatically entered into the Crew Info window for the crew.

   > **Note:** You can assign multiple events to a single crew. You can also assign multiple crews to a single event.

Placing a Crew En Route Using the Crew Actions Window

To place a crew en route to an event, complete these steps:

> **Note**: You can only place a crew en route to an event if the crew is an on-shift, available, non-mobile crew that is not currently en route or onsite to an event.

1. In the Trouble Events list of the Work Agenda, locate the event you want to place the crew en route to. Select the row of that event.

2. Select the crew you want to place en route in the Crew Actions window.

3. Select **En Route** from the Actions menu. (In List view, you can also right-click the crew and then select **En Route** from the pop-up menu.) The icon for the crew turns green, and the

event information is automatically entered into the Crew Info and Active Job Info windows for the crew.

> **Note:** You can place multiple crews en route to a single event.

Changing Crew Availability

Making a crew available/unavailable is different from making it active/inactive. When a crew is inactive (*e.g.*, finished working for the day), the crew does not appear in the Crew Actions window. When a crew is unavailable, (*e.g.*, at lunch), it appears in the Crew Actions window (in yellow). You can assign an unavailable crew, but you cannot place it en route. See **Activating a Crew** and **Making a Crew Inactive** for more information on active/inactive crews.

To change a crew's availability, complete these steps:

1. Select the crew you want to change in the Crew Actions window. You cannot change an en route/onsite crew.

2. Select **Availability…** from the Actions menu. (In List view, you can also right-click the crew row and select **Availability...** from the context menu.) The Update Crew Availability dialog box opens.

3. Select the appropriate option to change the crew's availability.

    • **Available** button to make the crew available

    • **Unavailable** to make it unavailable

    If you are making an available crew unavailable, select the **Description** field and add a brief reason for the change (*e.g.*, on break).

    > **Note:** The description text is shown in the description field until you set the crew back to available.

4. Click **OK** to confirm your change or **Cancel** to abort the action.

If the crew has been made unavailable, the Crew ID will be displayed in yellow as will the crew icon.

> **Note:** You can assign events to both available and unavailable crews.

Finding the Event a Crew is En Route To

To find the event a crew is en route to, select the crew in the Crew Actions window and then select the **View** toolbar button or select **View...** from the Actions menu. The event row is highlighted in the Work Agenda Trouble Events list, and Viewer 1 focuses on the device associated with the en route event.

> **Note:** The Work Agenda event row will only be highlighted if the Work Agenda window is open and the event is on the list you currently have displayed in the Work Agenda window. The Viewer will only focus on the device if you have the Viewer 1 window open.

Transferring a Crew to a Temporary Control Zone

To transfer a crew to a temporary control zone, perhaps to offset a crew shortage in the zone, compete these steps:

1. Select the crew to transfer control.

2. Select **Transfer Zone...** from the Actions menu.

3. Select a control zone in the Transfer Crew Zone dialog.

4. Click **OK** to complete the transfer.

Returning Control of a Transferred Crew

To return control of the crew to their usual control zone, compete these steps:

1. Select the crew from the crew list.

2. Select **Release Temporary Zone** from the Actions menu.

The crew list will update to show that the crew's control zone has reverted to their permanent assignment.

Filtering Crew Lists

Crews may be filtered in either of the Crew Actions views (*i.e.*, List or Icons). Filters may be applied in any of the following ways:

1. **Filter Menu Options**

   • Choose any combination of options from the Shift Status, Job Status, and Crew Type to view only those crews meeting the criteria.

2. **List View Dynamic Filtering**

   • Enter filter criteria in the List View Dynamic Filter field at the top of each column in the crew table.

3. **Filter by Work Agenda Event Criteria**

   • Select an event zone option from the **Event Zone** sub-menu of the Crew Actions **Filter** menu.

   • Select one or more events in the Work Agenda that are in a control zone.

   • The Crew List will display only those crews assigned to the control zone.

     Note: if you select multiple rows in the Work Agenda that cross multiple control zones, the Event Zone filter will be removed from the Crew List or Crew Icons views. Once you select a single row or rows with events in the same control zone, the filter will be re-enabled automatically.

Crew Makeup

The Crew Makeup window allows you to perform the following tasks:

• **Creating a New Crew**

• **Removing Personnel from a Crew**

• **Removing a Vehicle from a Crew**

• **Editing a Crew**

To open the Crew Makeup window, select **New**... or **Edit**... from the File menu in the Crew Actions window or click either the **New…** or **Edit…** button in the Crew Actions window.

The Crew Makeup window displays the following fields and buttons:

• The **Crew ID** field displays the alphanumeric ID that identifies the crew.

• The **Mobile #** field displays the mobile telephone or radio number.

• The **Pager #** field displays the pager number.

• The **Contact** field displays the Name of the contact person for the crew.

• The **Crew Size** field displays the Number of members of the crew. The crew size is initially set to zero.

• The **Type** drop-down allows you to select the type of crew (*e.g.*, Line, Eval, Trouble).

- The **Temp/Perm** drop-down allows you to define the crew as either temporary or permanent. When a crew is set to temporary, you would normally delete it when it is deactivated.

- The **Control Zone** field displays the control zone that the crew is assigned to. When you click the **Edit…** button, a Control Zone dialog box opens letting you assign the crew to the selected control zone.

- The **Personnel** list displays the name and job title of each crew member. You can add crew members by clicking the **Add…** or **Select Personnel…** buttons. You can remove a crew member by selecting their row in the Personnel table and clicking the **Remove** button.

- The **Vehicles/Equipment** list displays the vehicles or equipment assigned to the crew. You can add vehicles or equipment by clicking the **Add…** or **Select Personnel…** buttons. You can remove a vehicle or piece of equipment by selecting the item and clicking the **Remove** button.

Buttons

- The **Edit...** button opens the Control Zones dialog box, allowing you to select the Control Zone the crew will be assigned to.

- The **Add...** (Personnel) button opens the Add Personnel dialog box, allowing you to enter a crew member's name and select their job type.

- The **Select Personnel...** button opens the Select Personnel dialog box, allowing you to select from a pre-defined list of personnel.

- The **Remove...** (Personnel) button removes the selected individual from the personnel list.

- The **Add...** (Vehicles/Equipment) button opens the Add Vehicle/Equipment dialog box, allowing you to assign vehicles to the crew.

- The **Select Vehicles/Equipment...** button opens the Select Vehicles/Equipment dialog box, allowing you to select from a pre-defined list of vehicles/equipment.

- The **Remove...** (Vehicles/Equipment) button removes the selected vehicle from the Vehicles/Equipment list.

- The **OK** button saves the crew changes and closes Crew Makeup.

- The **Cancel** button closes Crew Makeup without saving any changes.

Creating a New Crew

To create a new crew, complete these steps:

1. Open the Crew Makeup window either by selecting **New**... from the File menu in Crew Actions or by clicking the **New…** button in Crew Actions.

2. Enter the Crew ID, mobile and pager numbers, and contact.

3. Select the crew type and temporary or permanent from the drop-down lists.

4. Click the **Edit…** button to open the Control Zone dialog box. Select a control zone and click **OK**.

5. Click the **Add…** (Personnel) button to open the Add Personnel dialog box. Enter a crew member's name and select their job title, then click **OK**.

   Or,

   Click the **Select Personnel…** button to open the Select Personnel dialog box. Select one or more rows from the Select Personnel dialog (using the Control and/or Shift keys), then click **OK**.

6. Repeat the previous step until all crew members are added.

7. Click on the **Add…** (Vehicles/Equipment) button to open the Add Vehicle/Equipment dialog box. Select the vehicle type, and then click **OK**.

Or,

Click the **Select Vehicles/Equipment…** button to open the Select Vehicles/Equipment dialog box. Select one or more rows from the Select Vehicles/Equipment dialog (using the Control and/or Shift keys), then click **OK**.

8. Repeat the previous step until all vehicles are added.

9. Click **OK** on the Crew Makeup dialog to create the crew.

Removing Personnel from a Crew

To remove an individual from a crew you have open in Crew Makeup, select his or her name in the Personnel list and click **Remove**. The name disappears from the Personnel list.

Removing a Vehicle from a Crew

To remove a vehicle from a crew you have open in Crew Makeup, select the vehicle from the Vehicles/Equipment list and click **Remove**. The vehicle disappears from the Vehicles/Equipment list.

Editing a Crew

To edit a crew, complete these steps:

1. Open the Crew Makeup window either by selecting **Edit...** from the File menu or by clicking the **Edit** toolbar button in the Crew Actions window.

2. Make the changes to the crew.

3. Click **OK** on the Crew Makeup dialog to save the changes.

Crew Info

The Crew Info window displays detailed crew information not shown in Crew Actions window. It allows you to unassign a crew or access the Active Job Info window to place a crew en route to any of its assigned events.

Crew Info topics include:

• **Using the Crew Info Window**

• **Unassigning a Crew**

• **Placing a Crew En Route to an Assigned Event**

Using the Crew Info Window

To open the Crew Info window, do the following:

1. From the Crew Actions window List view, select the row of the crew you want to view.

   From the Crew Actions window Icons view, select the icon of the crew you want to view.

2. Click on the **Crew Info…** button or select **Crew Info...** from the Actions menu.

The Crew Info window contains the following fields and buttons:

• The **Crew ID** field displays the string that identifies the crew.

• The **Mobile #** field displays the crew's mobile phone number.

• The **Pager #** field displays the crew's pager number.

• The **Contact** field displays the name of the crew's contact person.

- The **Type** field displays the type of crew (*e.g.*, Eval, Service, Line, etc.).

- The **Temp/Perm** field displays whether the crew is a temporary crew or a permanent crew.

- The **Control Zone** field displays the control zone the crew is assigned to.

- The **Status** field displays the crew's current status. Valid statuses are:

  - Inactive

  - Off Shift

  - On Shift

- The **Mobile Flag** field indicates whether this is a mobile crew.

- The **Out of Range** field indicates whether the crew is currently out of range (no connectivity).

Personnel Section

- The **Name** column displays the names of all the crew members.

- The **Job Title** column displays the job titles of all crew members.

- The **Empl ID** column displays the employee ID of all crew members.

Vehicles/Equipment Section

- The **Type** field displays the vehicle types assigned to the crew.

- The **Vehicle ID** column displays the ID of all vehicles assigned to the crew.

Active Job Section

- The **Event #** field displays the event number of the event where the crew is currently en route/onsite, if any.

- The **Feeder** number displays the name of the feeder for the device where the crew is currently en route/onsite, if any.

- The **Est Restore Time** field displays the date and time when the event to which the crew is en route/onsite is estimated to be restored.

- The **Device** field displays the name of the device related to the event.

Current Assignment Section

- The **Event #** column contains the event number of the event the crew is assigned to.

- The **Assign Time** column contains the time the crew was assigned to the event.

- The **Feeder** column contains the name of the feeder involved in the event.

- The **Device** column contains the name of the device related to the event.

- The **# Calls** column contains the number of customer calls received for the event.

- The **# Out** column contains the estimated number of customers experiencing an outage for the event.

- The **Suspended** column indicates whether the assignment was suspended.

Context Menu

- The **Drop Assignment** context menu option removes the selected event from the list of crew assignments.

- The **Place En Route** context menu option opens the Active Job Info window for you to place the crew en route to an event on the assigned list. You must select an event on the assigned list before you click this button.

Unassigning a Crew

To drop an assignment from a crew, complete these steps:

1. In the Crew Information window, select the event from the Current Assignments table. The buttons at the bottom of the window become enabled.

2. Click the **Drop Assignment** button. A message box opens asking if you are sure you want to remove the assignment.

3. Click **OK**.

   - The crew is unassigned from the event.

   - The event is removed from the list of crew assignments.

   - The crew button/crew row changes to white (if the crew is not en route/onsite, unavailable, or assigned to another event).

Placing a Crew En Route to an Assigned Event

If a crew has been assigned to an event, you can place the crew en route to the event using the Crew Info window.

To place the crew en route to the assigned event, complete these steps:

1. In the Crew Information window, select the event from the Current Assignments table. The buttons at the bottom of the window become enabled.

2. Click the **Place En Route** button. The Active Job Info window opens and the crew is placed en route to the event.

Active Job Info

The Active Job Info window provides basic crew information, as well as information for the event where they are en route to/onsite at. It allows you to move and release crews. You can also use the Active Job Info window to record that a crew has arrived onsite, enter an estimated restoration time, and add an operations event note.

This section includes the following topics:

- **Using the Active Job Info Window**

- **Updating Event Information**

- **Moving a Crew**

- **Releasing Crews from an Event**

- **Suspending a Crew**

Using the Active Job Info Window

You can open the Active Job Info window either from the Crew Actions window or while placing a crew en route from the Crew Info window.

To open the Active Job Info window from Crew Actions, complete these steps:

1. In the Crew Actions window, select the en route/onsite crew you want to view active job information about.

2. Select **Active Job Info…** from the Actions menu. (From the List view, you can also right-click the crew and select **Active Job Info...** from the pop-up menu.) The Active Job Info window opens.

To open the Active Job Info window from Crew Info, complete these steps:

1. In the Crew Info window, select the row of the assigned event you want to place the crew en route to.

2. Click on the **Place En Route** button. The Active Job Info window opens.

The Active Job Info window displays the following fields and buttons:

- The **Crew ID** field displays the string that identifies the crew.

- The **Contact** field displays the name of the crew's contact person.

- The **Event #** field displays the event number of the event where the crew is en route/onsite.

- The **Feeder** number displays the name of the feeder for the device where the crew is en route/onsite.

- The **Device** field displays the name of the device related to the event.

- The **Not Onsite** drop-down menu is a toggle for you to designate whether the crew has arrived onsite yet or not. The field to the right of the drop-down is editable and populates with the current time when you toggle the crew to **Onsite**. You may use the calendar button to the right of the date/time field to specify a different time.

- The **Suspend Crew** checkbox indicates whether the crew is suspended. To suspend this crew, click the checkbox. The field to the right of the checkbox is editable and populates with the current time when you check this box. You may use the calendar button to specify a different time.

- The **Est Time to Restore (HH:MM)** field allows you to enter the estimated amount of time (in hours and minutes) for the event to be restored. If you enter a value here (to the left of the Update Time button) and then click the **Update Time** button, the system updates the Est Time to Restore (displayed to the right of the button) based on the value you entered. You can also enter the Est Time to Restore field directly if you prefer.

- The **Operations Event Note** field allows you to enter notes about the event.

Buttons

- The **OK** button saves the changes you have made and closes the Active Job Info window.

- The **Move Crew…** button opens the Choose Work location dialog box where you enter the location you want to move the crew to by selecting a device in the Viewer.

- The **Release Crew** button releases the crew from the event and closes the Active Job Info window.

- The **Cancel** button closes the Active Job Info window without saving any changes to the estimated restore time or Operations Event.

    Note: If you moved the crew, the change is still saved.

Updating Event Information

To update event information, complete these steps:

1. Open the Active Job Info window by selecting an en route/onsite crew in Crew Actions and then selecting **Active Job Info…** from the Actions menu.

2. To update the Estimated Restore Date or time, enter the Estimated Time to Restore and click the **Update Time** button. The Est Restore Date and time will change accordingly. You can also directly edit the estimated restore date and time field.

3. You can add event notes in the Operations Event Notes field.

4. Click **OK**. The Active Job Info window closes and your changes are saved.

Moving a Crew

Moving a crew does not change the event the crew is en route to/onsite at; rather, it moves the crew to another device location and keeps it associated with the same event. By default, Oracle Utilities Network Management System locates a crew at the predicted or confirmed clearing device so that graphically the crew appears to be at the same location as the outage symbol in the Viewer. In some cases, the crew may actually have to work at a location different from the clearing device. It is not required or necessary to move the crew, but moving the crew to the actual device location is helpful in keeping more accurate track of what is going on in the field.

To move a crew, complete these steps:

1. Open the Active Job Info window for the crew you want to move by selecting the crew in the Crew Actions window and then selecting **Active Job Info…** from the Actions menu.

2. Click the **Move Crew…** button. The Choose Work location dialog box opens.

3. Select the new device location in the Viewer window or select an event in the Work Agenda Trouble Events list that has the same device as the one where the crew is currently working.

4. Click **OK**. The crew symbol moves on the Viewer map and the crew's Device updates in the Active Job Info, Crew Info, and Crew Actions windows. The crew remains en route to/onsite at that same event.

Releasing Crews from an Event

You may release crews from an en route/onsite event using the Work Agenda, the Crew Actions Active Job Info window, or from event or crew symbology in the Viewer.

Releasing a Crew from the Active Job Info

1. Open the Active Job Info window for the crew you want to release by selecting the crew in the Crew Actions window and then selecting **Active Job Info…** from the Actions menu.

2. Click the **Release Crew** button. The following occurs:

   • The crew is released from the event.

   • The crew's active job information is removed from the Crew Info window.

   • The crew button/row changes to white (if the crew is not assigned to another event).

   • The Active Job Info window closes.

Releasing Crews from an Event Selected in the Work Agenda

1. Select a row in the Work Agenda with en route or onsite crews.

2. Select **Release Crews...** from the Actions menu. The **Release Crew(s)** dialog box opens listing the crew(s) assigned to the event. One or more crews may be selected:

3. Click a crew name to select one crew.

   To select additional crews:

   • Click, hold, and drag to select multiple adjacent crews.

   • Control-click to select multiple non-adjacent crews.

4. With the crew(s) selected, click **Release** to release the crews from the event.

The Release Crew(s) dialog box will close, the crew will no longer be associated with the event, and the crew symbology will disappear from the Viewer.

Releasing a Crew from the Crew Symbol in the Viewer

1. Right-click the crew symbol in the Viewer.

2. Select **Release Crew** to release the crew from the event.

Releasing Crews from an Event Symbol in the Viewer

1. Right-click the event symbol.

2. Select **Release Crews...** from the option menu. The **Release Crew(s)** dialog box opens listing the crew(s) assigned to the event. One or more crews may be selected:

3. Click a crew name to select one crew.

   To select additional crews:

   • Click, hold, and drag to select multiple adjacent crews.

   • Control-click to select multiple non-adjacent crews.

4. With the crew(s) selected, click **Release** to release the crews from the event.

The Release Crew(s) dialog box will close, the crew will no longer be associated with the event, and the crew symbology will disappear from the Viewer.

Suspending a Crew

You can suspend a crew that is currently en route or on site to an event. Suspending the crew indicates that the crew is not able to complete the work at this time and is expected to resume work on the assignment at a later time.

To suspend a crew from an en route/onsite event, complete these steps:

1. Open the Active Job Info window for the crew you want to release by selecting the crew in the Crew Actions window and then selecting **Active Job Info…** from the Actions menu.

2. Click the **Suspend** checkbox. The suspend date and time defaults to the current date and time. To specify a different date and time, click the calendar icon and then select the date and time the crew was suspended.

   The following occurs:

   • The Active Job Info window closes.

- The crew button in the Icons view and the crew row in the List view change to the Suspended color (orange, by default).

- The Current Assignments table in the Crew Info window displays Yes in the Suspended column for this assignment.

Using Drag and Drop

Oracle Utilities Network Management System Web Workspace supports drag and drop between Crew Actions and the Viewer, as well as between the Viewers or within the Viewer itself.

Placing a Crew En Route

You can place a crew en route to a device in the Viewer either by dragging a crew icon from the Crew Actions window to the affected device in the Viewer, or by dragging a crew symbol on another device already in a Viewer to the affected device.

> **Note:** You can cancel the in-progress dispatch or move of a crew by pressing the <Esc> key on your keyboard, or simply dragging the crew outside the Viewer and then releasing the mouse button.

Placing a Crew En Route from Crew Actions Window

To place a crew en route from the Crew Actions window using drag and drop, complete these steps:

1. Focus the Viewer on the device that has the event you wish to place the crew en route to.

2. In the Crew Actions window, click on an undispatched, available crew and drag your cursor into the Viewer window, positioning it over the device associated with the event you wish to place the crew en route to.

3. When you see the desired device highlighted in the Viewer, release the mouse button.

   - If multiple events are on the device, a dialog prompts you to specify which event the crew should be placed en route to. Select the appropriate event.

   - The crew symbol appears at the device. The Crew Actions and Work Agenda windows update to indicate that the crew is now en route to the event.

Placing a Crew En Route from the Viewer

To place a crew en route from the Viewer using drag and drop, complete these steps:

1. Focus the Viewer such that you can see both the symbol of the crew you wish to re-dispatch and the event you wish to re-dispatch the crew to. Alternatively, you can open two Viewers and focus one Viewer on the crew's current location, and the other Viewer on the new location.

2. In the Viewer window, click and drag the crew symbol to the device that has the event you wish to place the crew en route to.

3. When you see the device highlighted in the Viewer, release the mouse button.

   - If multiple events are on the device, a dialog prompts you to specify which event the crew should be placed en route to. Select the appropriate event.

   - The crew symbol appears at the device. The crew is released from its previous event and placed en route to the new event. The Crew Actions and Work Agenda windows update to indicate that the crew is now en route to the new event and no crew is en route to the old event.

Moving a Crew with Drag and Drop

Moving a crew does not change the event the crew is en route to, rather, it moves the crew to another device location and keeps it associated with the same event. By default, Oracle Utilities Network Management System locates a crew at the predicted or confirmed clearing device so that graphically the crew appears to be at the same location as the outage symbol in the Viewer. In some cases, the crew may actually have to work at a location different from the clearing device. You are not required to move the crew to the actual device location, but moving the crew can help you keep more accurate track of what is going on in the field.

Moving a Crew from the Crew Actions Window

To move a crew from the Crew Actions window using drag and drop, complete these steps:

1. Focus the Viewer on the device you wish to relocate the crew to.

2. In the Crew Actions window, click the en route crew and drag your cursor into the Viewer window, positioning it over the device that has the event you wish to relocate the crew to.

3. When you see the relocation device highlighted in the Viewer, release the mouse button. A confirmation dialog appears.

4. Click **OK** if you wish to complete the move or **Cancel** if you wish to cancel the move.

Moving a Crew from the Viewer

To move a crew in the Viewer using drag and drop, complete these steps:

1. Focus the Viewer such that you can see both the symbol of the crew you wish to relocate and the device you wish to relocate the crew to. Alternatively, you can open two Viewers and focus one Viewer on the crew's current location, and the other Viewer on the new location.

2. In the Viewer window, click and drag the crew symbol to device that you wish to relocate the crew to.

3. When you see the relocation device highlighted in the Viewer, release the mouse button. A confirmation dialog appears.

4. Click **OK** on the dialog if you wish to complete the move or **Cancel** if you wish to cancel the move.

Managing Calls with Web Trouble

Oracle Utilities Network Management System – Web Trouble includes windows that help you manage trouble calls. This section describes those windows and how to perform basic call management functions. It includes the following topics:

• **Changing Rule Sets**

• **Using the Trouble Info Window**

• **Viewing Call Info**

• **Ungrouping Calls**

• **Moving Customers to a Different Device**

• **Unassociating/Reassociating a Call from/to a Device**

• **Editing Clues**

• **Creating AMI Requests for Device Outages**

Changing Rule Sets

Rule sets are a collection of analysis rules that Oracle Utilities Network Management System Web Trouble uses to determine how and when certain devices will be predicted out and how fast a prediction moves upstream. For example, a rule set might cause fuses to be predicted out if three or more service outages are predicted on downstream transformers. Meanwhile, circuit breakers might require five downstream device outages to cause an upstream prediction to them.

You can change the rule set for control zone(s) over which you have authority over using the Authority window.

To change the rule set for a control zone, complete these steps:

1. Select **Authority** from the Tools menu in the Work Agenda. The Authority window opens.

2. Select the row of the control zone you want to change.

3. Click the **Change Rule Set…** button. A dialog box opens.

4. In the Rule Sets Available list, select the rule set you want to change to.

5. Click the **OK** button. The rule set for that control zone is updated. Oracle Utilities Network Management System Web Trouble will begin grouping and prioritizing new trouble calls in that control zone based on the new rule set.

   Note: You can only change the rule set for one row at a time.

Using the Trouble Info Window

Oracle Utilities Network Management System Web Trouble displays customer information about trouble events using the Trouble Info window. The Trouble Info window has four views; the view that opens initially depends on where you open the window from.

The table below describes the various Trouble Info views.

View	Description	Toolbar Icon
Callers View	Lists all calls associated with an event.	
Customers View	Lists all the customers: • located on or downstream from a given device, when accessed via the Control Tool • affected by a given event, when accessed via the Work Agenda Trouble Event lists	
Supply Points View	Lists all the supply points associated with the event or selected in the Viewer	
AMI Customers View	Depending on where it's accessed from, the AMI Customers view lists all the AMI-enabled meters located on or downstream from a given device or affected by a given event.	

Trouble Info Window Features

The Trouble Info window changes dynamically based on the view. The following tables describe the menus and toolbar actions available in the Trouble Info views.

File Menu

Menu Option	Description	View	Toolbar Icon
Callers	Changes the Trouble Info window to the **Callers View**.	All	
Customers	Changes the Trouble Info window to the **Customers View**.	All	
Supply Points	Changes the Trouble Info window to the **Supply Points View**.	All	
AMI Customers	Changes the Trouble Info window to the **AMI Customers View**. If AMI Customers is the currently selected view, the view is refreshed.	All	
Export Table...	Opens a dialog to allow you to save the current table view data to a comma separated value (csv) file.	All	
Print	Opens the Print Preview dialog, allowing you to print the current contents of the current view.	All	
Exit	Closes the Trouble Info window.	All	

Sort Menu

Menu Option	Description	View
Sort Dialog...	Opens the Sort Dialog, which allows you to choose the sort columns and type (i.e., ascending or descending).	All
Default	Sorts the table according to the default settings for the view.	All

Filter Menu

Menu Option	Description
Filter Dialog...	Opens the Filter Dialog, which allows you to choose the columns to sort on.
All	The All filter (default) displays all of the rows in the table.
All Critical	The All Critical filter displays all rows whose Critical column is set to 'EMR', 'MED', or 'KEY'.
EMR	The EMR filter displays all rows whose Critical column is set to 'EMR'.
KEY	The KEY filter displays all rows whose Critical column is set to 'KEY'.
MED	The MED filter displays all rows whose Critical column is set to 'MED'.

Actions Menu

Menu Option	Description	Views	Icon
Refresh	Refreshes the data in the current view.	All	
Call Info...	Opens the **Call Info Window** for the selected call.	Callers	
Ungroup	Opens the Ungroup dialog box, allowing you to ungroup the selected calls from the event.	Callers	
Unassociate	Opens the Unassociate dialog box, allowing you to unassociate the selected calls from this device and (optionally) associate them with a new device. See **Unassociating a Call from a Device** for more information.	Callers	
Move Customers...	Opens the Move Customers dialog box, allowing you to move selected customers to a new device. See **Moving Customers to a Different Device** on page 2-56 for more information.	Callers, Customers	
Edit Clues...	Opens the Edit Clues dialog box for the selected call. See **Editing Clues** for details.	Callers	
View	Targets the Viewer on the Supply Point for the selected call.	Supply Points	
Remove	Removes the selected device from the event.	Supply Points	
Update Event	Updates the event by saving changes, such as removing a device from an event.	Supply Points	
AMI Confirm	Requests meter pings from AMI system for the selected customers, if applicable. See **Creating AMI Requests** for details.	AMI Customers	
AMI History...	Opens the AMI History window.	AMI Customers	
Disable AMI	Disables AMI functionality for the selected meters. This option is only available when Oracle Utilities Network Management System is integrated with Oracle Utilities Smart Grid Gateway.	AMI Customers	
Enable AMI	Enables AMI functionality for the selected meters. This option is only available when Oracle Utilities Network Management System is integrated with Oracle Utilities Smart Grid Gateway.	AMI Customers	

Help Menu

The Help menu launches Trouble Info online help content.

Callers View

The Trouble Info Callers view lists all calls associated with an event. Open the Callers view by selecting an event in the Work Agenda and clicking the **Trouble Info…** button (📞).

Event Information

The Event Information panel contains the following information:

• The **Event #** field displays the number assigned to the event by the system.

• The **Began At** field displays the time the event began.

• The **Feeder** field displays the feeder on which the affected device resides.

• The **Event Device** field displays the name of the device associated with the event.

• The **Device Type** field displays the type of device associated with the event.

Calls Table

The Calls Table lists all calls associated with an event. The table provides the following information:

• The **Clues** column displays the trouble code clues received for the call.

• The **Device** column displays the name of the customer's service device.

• The **Name** column displays the customer's name.

• The **Telephone** column displays the customer's telephone number.

• The **Date/Time** column displays the date and time of the customer's call.

• The **Critical** column displays the customer type value of the customer.

• The **Cmt** column displays "Y" if the call contains customer comments and "N" if it does not.

• The **Address** column displays the customer's address.

• The **Account #** field displays the customer's account number.

Comments

The Comments table displays all customer comments associated with the event. If there is a comment associated with a call, selecting the call in the Calls Table will highlight the comment in the Comments table. The Comments table contains the following information:

• The **Name** column displays the customer's name.

• The **Comment** column displays the customer's comment.

Callers View Actions

The following actions are available using the Callers View:

• **Viewing Call Info**

• **Ungrouping Calls**

• **Unassociating a Call from a Device**

• **Moving Customers to a Different Device**

• **Editing Clues**

Ungrouping Calls

You can ungroup calls that were automatically grouped by the system as a result of trouble analysis rules. For example, you would ungroup a call from an event that is not actually related to the event, but rather should be its own non-groupable event. To ungroup calls, complete these steps:

1. Select the event row in the Work Agenda you want to ungroup and click the **Trouble Info...** button (☎). The Trouble Info window opens to the Callers view.

2. Select the row in the Calls Table for the call you want to ungroup.

3. Select **Ungroup** from the Actions menu. The Ungroup dialog box opens with the device related to the event populated in the Device field.

4. Click **OK**.

   • In the Work Agenda, the call is ungrouped and a new event row appears in the Trouble Events list with the appropriate device association.

   • In the Work Agenda, the ungrouped call is removed from the # Calls column for the event it was ungrouped from.

     Note: Events that are manually ungrouped will not be automatically grouped again by the system. However, you can manually group them again.

Editing Clues

You can edit the clues associated with a call, which will cause the call's trouble code to be changed. You can also enter comments that will be appended to the existing call comments.

To edit clues for a call, complete these steps:

1. Select an event in the Work Agenda with at least one call.

2. Select the **Trouble Info** button (☎). The Trouble Info window opens to the Callers view.

3. Select a row in the Calls Table.

4. Click the **Edit Clues** toolbar button or select **Edit Clues...** from the Action menu. The Edit Clues dialog opens.

5. Use the drop-down boxes to select different clues.

6. Enter remarks in the Comments box, if desired.

     Note: The Customer Remarks section is view-only.

7. Click **OK**. The system performs a reprediction to see if the event can now be grouped to other events or be grouped to by other events, based on the updated clues. The system also recalculates the dispatch priority and target response time for any event associated with this call.

Unassociating a Call from a Device

You can move a customer to a different device if you discover the customer is associated with an incorrect device. To move a customer to a different device, complete these steps:

1. Select an event in the Trouble Events list (in the Work Agenda window) with at least one call.

2. Select the **Trouble Info** button (☎). The Trouble Info window opens to the Callers view.

3. Select a row in the Calls table and select **Unassociate** from the Actions menu.

Customers View

The data shown in the Trouble Info Customers view depends on how it is launched.

- If launched from the Control Tool, it displays all customers located on or downstream from a given device (see **Device Options** on page 1-42 and **Control Tool Actions** on page 1-75 for information).

- When Trouble Info is launched from the Work Agenda, the Customers view displays all customers affected by a given event.

Event Information

The Event Information panel contains the following information:

- The **Event #** field displays the number assigned to the event by the system. (Work Agenda)

- The **Began At** field displays date and time when the event began. (Work Agenda)

- The **Feeder** field displays the feeder on which the associated device resides. (Work Agenda)

- **# Customers** displays either how many customers are located on or downstream from a given device or affected by a given event. (Control Tool or Work Agenda, respectively.)

- The **Event Device** field displays the name of the associated device. (Work Agenda)

- The **Device Type** field displays the type of the associated device. (Work Agenda)

- The **Updated:** field displays the date and time when the data was last updated. (All)

Customer Table

The Customer Table lists all customers associated with an event. The table provides the following information:

- The **Device** column displays the name of the customer's service device.

- The **Name** column displays the customer's name.

- The **Telephone** column displays the customer's telephone number.

- The **Critical** column displays the customer type value.

- The **Priority** column displays the customer's weighted priority. See **Using the Customer Administration Weighted Priority Editor** on page 17-34 for more information on weighted priority.

- The **Address** column displays the customer's address.

- The **Account #** column displays the customer's account number.

- The **Event ID** column displays any customer associated events.

- The **Clues** column displays the clues for the outage or event. Only the clues associated with the first customer call will be listed.

- The **Call Time** column displays the time the customer reported the event. If there are multiple calls from the customer, the call time will display the first (non-AMI) call.

- The **Total Calls** column display the number of times the customer called.

Customers View Actions

You can perform the following task from the Customers View:

• **Moving Customers to a Different Device**

Supply Points View

Depending on where it's accessed from, the Trouble Info Supply Points view lists all of the supply Points located downstream from a given device, or all of the supply points associated with a given event. Open this view by clicking on the **Supply Points** toolbar button or selecting **Supply Points** from the File Menu in the Trouble Info Callers or Customers view.

The Supply Points View displays the following fields:

• **Event Information**

    • The **Event #** field displays the number assigned to the event by the system.

    • The **Feeder** field displays the feeder on which the affected device resides.

    • The **Event Device** field displays the name of the device associated with the event.

    • The **Device Type** field displays the type of device associated with the event.

• **Supply Point Summary** displays totals for all supply points. (See below for descriptions of the columns in this section.)

• The table below the Supply Point Summary lists the following information for each supply point.

    • The **Device** column displays the name of the customer's service device.

    • The **# Customers** column displays the sum of all customers attached to the supply point.

    • The # **EMR** column displays the sum of all EMR customers attached to the supply point.

    • The # **MED** column displays the sum of all MED customers attached to the supply point.

    • The # **KEY** column displays the sum of all KEY customers attached to the supply point.

    • The **# Critical Total** column displays the sum of all critical customers attached to the supply point.

    • The **Control Zone** column displays the supply point's control zone name.

    • The **Group** column displays the pending action for the row:

        • TBG – To Be Grouped

        • TBU – To Be Ungrouped

        • FAIL – Action failed

Use the **View** button to view a selected device in the Viewer.

Click the **Remove** button to remove a device from the event.

Click the **Update** button to save changes.

For information about the **Update Event** button, see **Graphical Grouping (Supply Points Mode)** on page 2-12 for more information.

AMI Customers View

Depending upon where it's accessed from, the Trouble Info - AMI Customers view lists all the AMI-enabled meters located on/downstream from a given device or affected by a given event.

Open this view by clicking on the **AMI Customers** toolbar button or selecting **AMI Customers** from the File Menu in the Trouble Info Callers or Customers view.

Event Information

Event Information populates the top portion of the AMI Customer View.

- The **Event Information** field displays the number assigned to the event by the system.
- The list title displays how many AMI Customers are located on/downstream from a given device, affected by a given event, or affected on a given device.
- The **Updated** field displays the date and time at which the Customers view was last populated, as this list is not dynamically updated.
- The **Feeder** field displays the feeder on which the associated device resides.
- The **Event Device** field displays the name of the associated device.
- The **Device Type** field displays the type of the associated device.

Customer Table

The Customer table portion of the AMI Customers View displays information for the individual customers.

- The **Device** column displays the name of the customer's service device.
- The **Phases** column displays the phases of the customer's service device.
- The **Name** column displays the customer's name.
- The **Telephone** column displays the customer's telephone number.
- The **Critical** column displays the customer type value of the customer.
- The **Address** column displays the customer's address.
- The **Account #** column displays the customer's account number.
- The **Meter #** column displays the customer's meter number.
- The **Enabled** column displays the status of AMI functionality. A value of "Y" means that AMI functionality is enabled while a value of "N" means that AMI functionality is disabled. An asterisk next to the value (for example, Y*) means that a request to enable or disable AMI functionality is currently in progress for the meter.
- The **Request #** column displays the index of the last AMI ping request.
- The **Request Date** column displays the date of the last AMI ping request.
- The **Requested By** column displays the login name of the user who made the last AMI ping request.
- The **Completed By** column displays the login name of the user who completed the last AMI ping request.
- The **Received Date** column displays the date of the last AMI reading.
- The **Probability** column displays the probability percentage from the last AMI reading.
- The **Status** column displays the ON/OFF response from the last AMI reading.

Related Information

See **Working with AMI Requests** on page 2-22 for more information.

Viewing AMI Customers for a Device

To view AMI customers for a particular device:

1. Select a device in Viewer and open the device in the Control Tool.

2. Click the **AMI Customers…** button in the Control Tool. Trouble Info opens, and the AMI Customers table is populated with the customer information for AMI-enabled customers on the selected device.

Moving Customers to a Different Device

Trouble Info allows you to move customers to a different device if you discover they are associated with an incorrect device. The Move Customers tool is available from both the Callers and Customers views.

To move customers to a different device, complete these steps:

1. Select one or more customers to move from the Customers view

    Notes:

    *   You can use the Callers view if the customers that you want to move are all also callers.

    *   To select multiple adjacent customers, click the first customer row and then press the Shift key and click the last customer row.

    *   To select multiple non-adjacent customers, press the Control key and click each customer row individually.

2. Select **Move Customers…** from the Actions menu. The Move Customers dialog appears.

3. Select a device in the Viewer to move the customers to. The **New Device** field is populated with the device identifier.

4. Click **OK**. The Move Customers dialog closes.

    Note: If the selected customers were previously moved to a new device, a confirmation dialog (*i.e.*, Overwrite Moved Customers) is displayed. Do one of the following:

    *   Click **Yes** to continue and overwrite the existing customer move record.

    *   Click **Cancel** to cancel your selection and return to the Move Customers dialog to select a different device.

    *   Click **No** to abort the move completely.

5. The event is then re-analyzed using the new device information. If it does not repredict into the same event, the # Calls and # Customers for the original event are adjusted. Calls may be grouped into another existing event or a new event will be created.

    Note: Trouble Info will be updated with the Move Customer information.

Viewing Call Info

Detailed information about a logged call is displayed in the Call Info window. An event (represented by a single row in the Work Agenda) can have multiple calls if the calls have been grouped to one event. The Call Info window may be accessed from the Trouble Info window. You cannot edit the fields in the Call Info window; they are read only.

To open the Call Info window from the Trouble Info Callers view, select the row of the call you want to display and either click on the **Call Info...** button or select **Call Info...** from the Actions menu.

Call Info Window

The Call Info window displays the following fields and buttons:

- **Account #** displays the customer's account number.

- **Event Status** displays the current status of the event that this call is a part of.

- **Telephone** displays the customer's phone number.

- **Event #** displays the number assigned to the event by the system.

- **Name** displays the customer's name.

- **Clues** displays the short description representation of the Request drop-down menu selections that were entered when the call was logged.

- **Address** displays the customer's address.

- **Reported Start Date** displays the date and time the problem began for the customer.

- **City** displays the customer's city, state and zip code.

- **Call Taker ID** displays the user name of the person who entered the call.

- **Customer Type** displays the customer type value for the customer.

- **Crew ID** displays the name of the crew that has been placed en route to/is onsite at the event, if any.

- **Customer Device** displays the name of the customer's service device.

- **Callback Date** displays the date and time of the last callback attempt.

- **Zone(s)** displays the control zone(s) the customer is located in.

- **Customer Comment** displays any customer comments that were entered at the time the call was logged.

Buttons

- The **Print** button opens the Print Preview dialog, which allows you to print the currently displayed customer call information.

Menus

The following table describes the Call Info menus.

- **File Menu**

  - **Print** – Opens up the Print Preview dialog, which allows you to print out the contents of the currently displayed customer call information

  - **Exit** – Closes the Call Info window

- **Help Menu**

  - The Help menu displays the standard Help and About options.

Chapter 3

Web Call Entry

This chapter describes the Oracle Utilities Network Management System Web Call Entry application. Web Call Entry is used to enter and access customer call and event information. The application streamlines data entry and allows access to customer call, event, and dispatch information by personnel in various operations settings. Web Call Entry shares a database with other Oracle Utilities Network Management System applications. This allows you to view certain data that operations personnel and crew supervisors have entered into the system. The event history and call history information for a customer is often helpful when you are handling a new call from a customer reporting a service outage.

This chapter includes the following topics:

- **Logging in to Web Call Entry**
- **Using Web Call Entry**
- **Searching for a Customer**
- **Viewing Call History**
- **Viewing Event History**
- **Entering a Customer Call**
- **Entering a Fuzzy Call**
- **Cancelling a Customer Call**
- **Viewing the Outages Summary**

Logging in to Web Call Entry

Web Call Entry is accessed using a URL (web address) or as a local application, depending on your site's policy. Your system administrator determines the web address, if applicable. If accessing Web Call Entry from a browser, complete these steps:

To log in toWeb Call Entry, complete these steps:

1. Depending on how your system was installed, do one of the following:

    - Click the Web Call Entry icon found under the appropriate program group in your Windows Start Menu.

    - Double click the Web Call Entry icon on your desktop.

    - Open a web browser and type the Web Call Entry URL in the browser's Address field.

    The Web Call Entry Login window displays.

2. Enter your user name.

3. Enter your password.

4. Click the **Validate** button. The bottom portion of the Web Call Entry Login window sensitizes.

5. Select the appropriate User Type from the drop-down menu.

6. Click the **Login** button. The Web Call Entry main window appears.

7. If this is the first time running an Oracle Utilities Network Management System Windows-based product on your PC, you may be prompted to do a one-time download of a Java plug-in. If so, select **Yes** (or Accept or Agree) on all subsequent dialogs until Web Call Entry opens.

> **Note:** You or your system administrator can add Web Call Entry to your Start menu and/or create a shortcut icon on your desktop for quick access toWeb Call Entry. When you start up Web Call Entry for the first time, it will (depending on installation method) ask if you want to install a shortcut in your Start menu and on your desktop.

Using Web Call Entry

Web Call Entry is presented as a single window that is divided into sections based on functionality and type of information displayed. The sections provide functional groupings of features, such as searchability and data display.

The following topics describe Web Call Entry:

- **Menu and Toolbar**
- **Field Descriptions**

Related Topics:

- **Searching for a Customer**
- **Viewing Call History**
- **Viewing Event History**
- **Entering a Customer Call**
- **Entering a Fuzzy Call**
- **Cancelling a Customer Call**
- **Viewing the Outages Summary**

Menu and Toolbar

The Web Call Entry menu and toolbar provide access to commonly used functions. Most of the functions in the Actions menu are also available on the toolbar.

File Menu

Menu Option	Description	Toolbar Icon
Outages Summary...	Opens the Outages Summary window.	

Actions Menu

Menu Option	Description	Toolbar Icon
Customer Search	Searches for customers based on the search criteria entered into the Searchable Information section. The system displays up to the first 100 customers located in the database that match the criteria.	
Intersection Search	Searches for a street intersection based on one or two street names entered into the Intersection Search section. The order of the street names does not matter for matching purposes.	
Call Search	Searches through previous calls based on the search criteria entered into the Searchable Information section. The system displays up to the first 100 calls located in the database that match the criteria.	
Submit Call	Saves the call details entered into the request sections and clears the form.	
Check Meter	Requests current status of the meter for the customer. This option is disabled if the customer is not AMR-enabled.	
Call History...	Opens **Call History**, which lists current and historical calls from the customer. This option is disabled if a previous call does not exist.	
Event History...	Opens **Event History**, which lists current and historical events involving the customer. Note that the customer need not have called to be part of an event. This option is disabled if a previous event does not exist.	
Clear Form	Removes customer, event, and crew information from the fields on the window. Remember to save the call, if desired, before clearing the fields.	

Options Menu

Menu Option	Description	Toolbar Icon
Set Wild Card Searching	Allows you to set the wild card search option. Wild card searching allows you to enter partial names or numbers in the searchable fields and all matching results will be returned. For example, if you have the wild card searching set to Both, and you enter "anders" into the Name field, the system returns customers named "Anderson", "Andersen", and "Sanders". • **Before** - puts a wild card before the search string • **After** - puts a wild card following the search string • **Both** - puts a wild card both before and after the search string	--

Menu Option	Description	Toolbar Icon
Use Sound Search	Allows you to use the "sounds like" search feature, which displays search results that are phonetically similar to the search criteria. For example, if you enter "Jon Doh", the system would return customers such as "John Doe." If you select this search option, Wild Card searching and Exact Match searching options are disabled until this option is toggled off.	--
Use Exact Match Search	Displays search results that exactly match the search criteria. This is the most restrictive search option. Wild Card searching and Sound searching options are disabled until this option is toggled off.	--
Set Max Searching Results	Allows you to set the maximum number of search results returned. If you enter a maximum search result of "50", up to 50 entries display in the Customer Selection or Call Selection (search results) dialog box. This feature is helpful when using wild card searching. (For performance reasons, the system will not allow the maximum search results to be set above 100.)	--

Preferences Menu

The **Preferences** menu allows you to control certain common features of the Web Call Entry.

Menu Option	Description
Smaller Font (**Ctrl+Minus Sign**)	Decreases the font size in text and icons. Repeat to further decrease the font size.
Bigger Font (**Ctrl+Plus Sign**)	Increases the font size in text and icons. Repeat to further increase the font size.
Reset Font (**Ctrl+0**)	The application will reset the text and icons to use their default font size.

Help Menu

Menu Option	Description
Web Call Entry Help (**F1**)	Launches the online help system and loads the Web Call Entry content.
Email Log Files... (**Ctrl-Shift-M**)	Gathers the environment's log files and attaches them to a new email message using your default email client. The log files can then be sent to your support team or contact for further analysis.
About <*application name*>	Opens a window with environment and software information.

Logout Menu

Provides the **User Logout** command to exit Web Call Entry.

Field Descriptions

This section describes the fields and buttons on the Web Call Entry window.

Searchable Information

The Searchable Information section allows you to enter search criteria to locate information for the customer calling to report a problem or request service. You can execute a search with full or partial data by entering information in any of the searchable fields and then either clicking the **Search** button or selecting Search from the Actions menu. If there is more than one match for the query, results are displayed in a Customer Selection table. From the Customer Selection table, you can select the appropriate record. For more information, see **Searching for a Customer**.

The Searchable Information section displays the following fields:

- The **Call ID** field contains the unique Call ID generated when a call is entered. A successful search on this field will open the Call History window with information from this call.

- The **Account #** field contains the customer account number. Enter all or part of the account number to **search for the customer.**

- The **Telephone** field contains the customer telephone number. Enter all or part of the telephone number **to search for the customer.**

- The **Name** field contains the customer name. Enter all or part of the customer name to search for the customer.

- The **Address** field contains the customer address or the address for the problem location. Enter all or part of the address to search for the customer or problem location.

- The **City** field contains the city, state, and zip code. This is a view-only field that is populated when a search is performed.

Intersection Search Section

The Intersection Search section allows you to enter one or two street names and see a list of all matching street intersections containing the name(s). This allows the entry of a call that can be associated to the street intersection, which is helpful if someone is reporting a traffic light that is out or a customer has an outage but is not correctly located in the database.

The Intersection Search section displays the following fields:

- The **Street 1** field is required for searches and should just contain the street name with no numeric address part and no suffix such as St, Ln, Rd, S., W., etc. Capitalization does not matter.

- The **Street 2** field is optional for searches and should just contain the street name with no numeric address part and no suffix such as St, Ln, Rd, S., W., etc. Capitalization does not matter.

    Note: The order of the street names does not matter. If the database has "W 50th ST & BIRCH ST" as the intersection, it still will be found if you enter "Birch" for **Street 1**.

Additional Customer Information

The Additional Customer Information section displays the following fields:

- The **Account Type** field is a view-only field that indicates the type of customer account (*e.g.*, electric).

- The **Customer Type** field is a view-only field that indicates the type of customer (*e.g.*, critical). If a customer type has not been designated for the customer, this field will have 'STD'.

- The **Customer Device** field is a view-only field that indicates the device name associated with the customer.

- The **ERT to Report** field is used to track the estimated restore times (ERTs) given to a caller. If the customer is part of one or more outages, the **ERT to Report** field will default to the latest of the ERTs for outages affecting that customer. The button on the right opens a calendar dialog from which the reported date and time can be selected.

When the **amr** product is licensed, the Additional Customer Information section contains several fields, which allow users to check the current customer's meter status.

- The **Meter** field is a view-only field that displays the meter identification.

- The **Request Meter Status** button allows the user to request the customer's current meter status. This button is disabled if the customer is not AMR-enabled.

- The **Meter Status** field is a view-only field that displays meter status information received from the AMI system or an indication that there is an outstanding meter status request for the customer.

Appointment Request

The Appointment Request section allows you to schedule an appointment or record a prior notification requirement for a meet. The Appointment Request section includes the following fields:

- **Type** is a drop-down menu that allows you to select the appointment type:

  - **None**, the default value, signifies that there is not an appointment request for the call.

  - **After** signifies that an appointment is being scheduled within a range after the time given in the Date/Time field. For example, scheduling a meet between 8:00 a.m. and noon would have range of 04:00 and a time beginning at 08:00.

  - **Call Before** is for appointments where there is not a specific time or range, but the customer needs a certain amount of forewarning prior to the appointment. For example, it may be the time required for the customer travel from work to their home for the appointment.

Callback Request

The Callback Request section allows you to specify a 'call before' date/time and an optional callback phone number, or indicate if no callback was requested. The information you enter in these fields is saved to the database and used by other Oracle Utilities Network Management System applications and possibly other 3rd party systems that are interfaced to Oracle Utilities Network Management System.

The Callback Request section includes the following fields:

- **Call Before Date** is a radio button that allows you to indicate that the customer would like to be contacted (called back) when the event is restored. Click on the calendar button to select a date and time after which the callback should not be performed. The date field can be left blank if the customer does not indicate a restriction.

- **No Callback Requested** is a radio button that allows you to indicate that the customer does not want to be called back regarding the event.

- The **Callback Phone** field contains an optional phone number, to be entered if the customer wishes to be called back at a different number (*e.g.*, their cell phone) than the primary phone number on their account.

Request

The Request section allows you to enter general details provided by the caller. The information you enter in these fields is saved to the database and used by other Oracle Utilities Network Management System applications and possibly other 3rd party systems that are interfaced to Oracle Utilities Network Management System.

- **Power** is a drop-down menu that allows you to select the status of the power (*e.g.*, dim lights).

- **Cause** is a drop-down menu that allows you to select the cause (if known) of the event (*e.g.*, tree limb on wire).

- **Description** is a drop-down menu that allows you to select an additional description of the event (*e.g.*, sagging wire).

- **Street Light** is a drop-down menu that allows you to indicate problems with streetlights or traffic lights.

- **Meter** is a drop-down menu that allows you to select an action needed in regard to the meter (*e.g.*, connect).

- **Meet** is a drop-down menu that allows you to indicate whether emergency or other personnel should be met on the scene (*e.g.*, meet fire).

- **Priority** is a drop-down menu that allows you to indicate whether the event is a priority situation (*e.g.*, extreme/life).

- **Other** is a drop-down menu that allows you to cancel previous calls from this customer or enter in "informational" calls when the customer calls back to simply ask for more information about their event.

   Note: The actual set of drop-down menus may be different at your company.

Customer Comment
- The **Customer Comment** field allows you to enter a note based on the remarks of the caller.

Operations Event Note
- The **Operations Event Note** field displays any dispatcher or crew notes that may have been entered into the system, such as waiting for special equipment or for traffic police to secure an area. This field is view-only.

Event Information

The Event Information section is view-only and populated with information only if one or more active events are associated with the customer. The Event Information table displays information about each active event associated with the customer. To view the Operations Event Note if there are multiple events, select the desired event from the table.

The Event Information Section displays the following columns:

- The **Event #** column contains the unique number assigned to the event. The event number is also displayed in other Oracle Utilities Network Management System applications in order to track the status of the event.

- The **Event Device** column contains the name of the device associated with the event.

- The **Event Type** column contains a classification of the event. See **Event Type Codes** on page A-5 for a complete list of event type codes and their descriptions.

- The **Start Date** column contains the date and time the event began.

- The **Est Rest Time** column contains the date and time the operations center or the crew predicts the event will be resolved.

- The **Trouble Codes** column contains the trouble codes that were entered when the call was taken (*e.g.*, Sagging wire). See **Event Type Codes** on page A-5 for a complete list of event type codes and their descriptions.

- The **# Cust** column contains the estimated number of customers affected by the event.

Crew Information

The Crew Information section displays the following information about any crew currently associated with active events.

- The **Event #** column contains the unique number assigned to the event. The event number is also displayed in other Oracle Utilities Network Management System applications in order to track the status of the event.

- The **Crew ID** column contains the identification name or number of the crew.

- The **Assigned Date** column contains the date and time the crew was assigned to the event.If the crew is released or changed to en route, the column will be blank.

- The **# Assignments** column contains the total number of events to which the crew is assigned.

- The **En Route Date** column contains the date and time the crew was placed en route to the event.

- The **On Site Date** column contains the date and time the crew arrived on site.

Planned Outages Information

The Planned Outages Information section displays the following information about any upcoming planned outage that the customer will be a part of.

- The **Planned Start** column contains the date and time the planned switching work is scheduled to begin.

- The **Planned Finish** column contains the date and time the planned switching work is scheduled to end.

- The **Office** column contains the office responsible for the switching plan.

- The **Work Location** column contains the street address or specific location for the switching operation.

- The **Description of Work** column contains a general description about what the planned switching work is trying to accomplish.

Searching for a Customer

When a customer calls in, you can enter the details for the call in Web Call Entry. First you must search for the customer in order to populate the necessary information for submitting the call.

To search for a customer, complete these steps:

1. Verify that you have selected the preferred search option settings. Select the **Options** menu to view the current settings.

2. Enter all or part of the customer's information in the **Searchable Information** fields (*e.g.,* name, telephone number, etc.). Typically you will fill in search information in only one of the fields for a search.

3. Click the **Search** button on the toolbar, or press **Enter**. If a match is found, the customer information is displayed on the Web Call Entry window.

4. If more than one customer matches the search criteria, the Customer Selection dialog box displays the search results display in a table that contains the customer's account number, name, address, city, state, zip code, and telephone number. You can use this information to confirm that you are entering an event for the correct customer.

5. Select the customer from the list and click the **OK** button. The customer's information displays on the main Web Call Entry window.

Searching for a Customer Using the Call ID

When a customer calls in to follow up on a previous call, you can search for that call in Web Call Entry.

To search for a call using the original call ID, complete these steps:

1. Enter the call ID in the Searchable Information **Call ID** field.

2. Click the **Search** button on the toolbar, or press Enter. If a match is found, the Call History window opens. (See **Viewing Call History** on page 3-10.) Skip to step 5.

3. If more than one call matches your search criteria, the Call Selection dialog box opens. The search results display in a table that contains the call date/time, name, address, city, state, zip code, and telephone number. You can use this information to confirm that you are retrieving the correct call.

4. Select a call from the list and click the **OK** button. The call's information displays on the main Web Call Entry window.

5. Confirm that it is the correct call and click the **Load** button. The Call History window closes and the call information displays in the Web Call Entry window.

Search for a Call using Caller Information

To search for a call using previous caller information, complete these steps:

1. Verify that you have selected the preferred search option settings. Select the **Options** menu to view the current settings.

2. Enter all or part of the caller's information in the **Searchable Information** fields (*e.g.,* name, telephone number, etc.) Typically you will fill in search information in only one of the fields for a search.

3. Click the **Call Search** button on the toolbar. If a match is found, the call information is displayed.

4. If more than one call matches the search criteria, the Call Selection dialog box opens (see above). The search results display in a table that contains the call date/time, name, address,

city, state, zip code, and telephone number. You can use this information to confirm that you are retrieving the correct call.

5. Select a call and click the **OK** button. The call information displays in the Web Call Entry window.

Viewing Call History

Call History allows you to view a historical record of customer calls. This is important for managing the relationship with customers who are repeat callers. Once you have selected a call from the customer's call history, you can view the details for the call.

Call History offers a tabular summary of each call a customer has made that is still in the database. The calls are chronologically ordered by call date, but can be sorted by any of the other columns by clicking on the column header. Click the column header once to sort in one direction (*e.g.*, ascending order), and click a second time to sort in the other direction (*e.g*, descending order).

You can access **Call History** by clicking the **Call History** button on the toolbar or selecting **Call History...** from the Actions menu.

> **Note:** Your system administrator sets up the amount of call history data maintained in the database.

Call History User Interface

Call History displays the following sections:

Call History

- The **Call Date** column contains the date and time the customer call was entered.

- The **Trouble Codes** column contains the trouble conditions for the event (*e.g.*, out).

- The **Customer Comment** column contains comments from the customer as entered by the call taker, if any.

- The **Active** column is an indicator of whether the call is active. Values are:

  - Y - Yes, call (and associated event) are still active

  - N - No, call (and associated event) are resolved

  - C - Cancelled, customer called back to cancel call

  - E - Cancelled, operator cancelled event via Work Agenda

- The **Reported ERT** column contains the ERT value that was explicitly provided to the customer on that call.

- The **Call ID** column contains the unique ID generated when call is entered into system.

If you select a row in the table, the details for that call are displayed in the window below the table. The call details include customer information, callback request information, event information (*e.g.*, cause), and customer comments. The information on the Call History window is view-only except for the Callback Phone and the Customer Comment area. The fields on the Call Details window generally match the fields on the main Web Call Entry window.

Call Taker ID

- The **Call Taker ID** field displays the ID of the user who recorded the call.

Control Zone

- The **Control Zone** field displays the Control Zone where the problem is located.

Call Information

- The **Reported Start Date** field is a field that indicates when the event was first reported to have started.

Customer Information

- The **Call ID** field contains the unique Call ID generated when a call is entered.

- The **Account #** field contains the customer account number.

- The **Telephone** field contains the customer telephone number.

- The **Name field** contains the customer name.

- The **Address** field contains the customer address or the address for the problem location.

- The **City** field contains the city, state, and zip code.

- The **Customer Type** field is a field that indicates the type of customer (*e.g.*, critical). If a customer type has not been designated for the customer, this field will have '0'.

- The **Customer Device** field is a field that indicates the device name associated with the customer.

Appointment Request

The Appointment Request section includes the following fields:

- **Type** is a drop-down menu that allows you to select the appointment type:

  - **None**, the default value, signifies that there is not an appointment request for the call.

  - **After** signifies that an appointment is being scheduled within a range after the time given in the Date/Time field. For example, scheduling a meet between 8:00 a.m. and noon would have range of 04:00 and a time beginning at 08:00.

  - **Call Before** is for appointments where there is not a specific time or range, but the customer needs a certain amount of forewarning prior to the appointment. For example, it may be the time required for the customer travel from work to their home for the appointment.

Callback Request

- **Call Before Date** is a radio button that indicates that the customer wanted to be contacted (called back) when the event is restored.

- **No Callback Requested** is a radio button that indicates that the customer did not want to be called back regarding the event.

- The **Callback Phone** field contains an optional phone number that was entered if the customer wished to be called back at a different number than the primary phone number on their account.

Last Callback

- This displays the last **Callback Time** and **Callback Result**.

Request

- **Power** is a drop-down menu that indicates the status of the power (*e.g.*, dim lights).

- **Cause** is a drop-down menu that indicates the cause (if known) of the event (*e.g.*, tree limb on wire).

- **Description** is a drop-down menu that indicates an additional description of the event (*e.g.*, sagging wire).

- **Street Light** is a drop-down menu that indicates problems with streetlights or traffic lights.

- **Meter** is a drop-down menu that indicates an action needed in regard to the meter (*e.g.*, connect).

- **Meet** is a drop-down menu that indicates whether emergency or other personnel were to be met on the scene (*e.g.*, meet fire).

- **Priority** is a drop-down menu that indicates whether the event is/was a priority situation (*e.g.*, extreme/life).

- **Other** is a drop-down menu that indicates whether or not the call was simply an "informational" one (the call to cancel a previous call doesn't show up in the Call History, so this would never display the value of "Cancel").

Customer Comment
- The **Customer Comment** field displays the remarks of the caller, if any.

Toolbar Buttons
- The **Load** toolbar button loads the main Web Call Entry window with Customer and Event Information based on this call, and closes the Call History window. (Only enabled if search was based on Call ID.)

- The **Save** toolbar button saves any changes to the Callback Phone or Customer Comment fields and closes the Call History window.

- The **Cancel** toolbar button allows you to cancel the selected call.

- The **Close** toolbar button closes the Call History dialog box.

- The **Help** toolbar button displays help for this window.

Viewing Event History

Event History offers a table summary of events related to the customer. The events are chronologically ordered by start date, but can be sorted by any of the other columns by clicking on the column header. You can access **Event History** by clicking the **Event History** button on the toolbar or selecting **Event History...** from the Actions menu.

> **Note:** Your system administrator sets up the amount of event history data available.

Event History Section
- The **Event #** column contains the unique number assigned to the event. The event number is also displayed in other Oracle Utilities Network Management System applications in order to track the status of the event.

- The **Start Date** column contains the date and time the event was reported to have begun. This is typically the same time as when the first call was entered.

- The **End Date** column contains the date and time the event was resolved. If this field is empty, then the event has not been completed in Oracle Utilities Network Management System.

- The **Event Type** column indicates whether the event was an outage or non-outage. (**OUT** - An outage event where some customers were without power, **NON** - A non-outage event, such as street light always on/off.)

- If you select a row in the table, the details for that event are displayed in the window below the table. The event details include the event number, device and feeder information, and event time information. The information on the Event History window is view-only. Many of the fields on the Event History window match the Event Information and other fields on the main Web Call Entry window.

Event Information Section

- The **Event #** field displays the unique number assigned to the event. The event number is also displayed in other Oracle Utilities Network Management System applications in order to track the status of the event.

- The **Feeder** field displays the feeder associated with the event.

- The **Event Device** field displays the device associated with the event.

- The **Est Cust Affected** field displays the estimated number of customers affected by the event.

- The **First Call At** field displays the date and time the first call was entered.

- The **Event Start Date** field displays the date and time the event was reported to have begun. This is typically the time the first call was entered.

- The **Event Restored At** field displays the date and time the event was resolved. If this field is empty, then the event has not been completed in Oracle Utilities Network Management System.

- The **Remedy** field displays the value from the Event Details Remedy drop-down if it has been populated from Web Trouble.

Cause Factors

- The **Scheduled** field displays the value from the Event Details Scheduled drop-down if it has been populated from Web Trouble.

- The **Utility Error** field displays the value from the Event Details Utility Error drop-down if it has been populated from Web Trouble.

- The **Other** field displays the value from the Event Details Other drop-down if it has been populated from Web Trouble.

- The **Foreign Interf.** field indicates any foreign interference associated with the outage.

- The **Vegetation** field displays the value from the Event Details Vegetation drop-down if it has been populated from Web Trouble.

- The **Defective Equip.** field displays the value from the Event Details Defective Equip. drop-down if it has been populated from Web Trouble.

- The **Environment** field displays the value from the Event Details Environment drop-down if it has been populated from Web Trouble.

- The **Weather** field displays the value from the Event Details Weather drop-down if it has been populated from Web Trouble.

Operations Cancellation Reason

- The **Operations Cancellation Reason** field displays the reason given for canceling the event if cancelled by operations personnel. Typically done if event was inadvertently entered in the system.

Operations Cancellation Reason

- The **Operations Event Note** field displays notes entered regarding the event. These notes may include crew remarks and resolution issues.

Toolbar Buttons

- The **Close** button closes the Event History window.

- The **Help** button displays help for this window.

Entering a Customer Call

After you have located the information for a customer and have reviewed any call history and event history, you can proceed to enter a call. You enter all call information in the main Web Call Entry window.

To enter a customer call, complete these steps:

1. Search for the customer information. (For details on how to search for customer information, see Searching for a Customer.)

2. If the customer wishes to be called back when the event is complete, click the C**all Before Date** radio button. If part of your business process, and if the customer indicates a restriction, click on the **Calendar** button (at right) to enter the date and time after which the customer no longer wants to be called. If the customer provides a different phone number for the callback, enter it in the Callback Phone field.

3. Select the appropriate options from the drop-down menus in the Request section. These are necessary for operations personnel to understand and quickly resolve the event.

4. In the Customer Comments field, enter any information that the customer provides that will assist the operations personnel or the crew.

5. Save the call by clicking the **Submit Call** button on the toolbar or selecting the Submit Call option from the Actions menu. A popup dialog will display with a Call ID.

6. Provide the Call ID to the customer, and then click the **OK** button to dismiss the dialog.

Entering an Informational Call

A customer may call back to ask when their power is expected to be restored. If you need to keep track of when estimated restore times (ERTs) are provided to a customer, complete these steps:

1. Search for the customer information. (For details on how to search for customer information, see **Searching for a Customer** on page 3-9.)

    > **Note:** The **ERT to Report** field will default to the latest of the ERTs for outages affecting that customer. If the field is blank, or if a different ERT is given to the customer (*e.g.*, by rounding the listed ERT up to the next half hour), then modify the field to display the actual ERT that the customer is told. Select the button on the right to open a calendar dialog from which the reported date and time can be selected.

2. In the Web Call Entry Request section, select the **Informational** option from the **Other** drop-down.

3. Save the call by clicking the **Submit Call** button on the toolbar or selecting the Submit Call option from the Actions menu.

Entering a Fuzzy Call

Fuzzy calls are calls that are not initially associated with a customer or device. For example, a fuzzy call results when you receive a call from the police reporting that a pole is down at a street intersection. It can later be associated with a specific device.

The search will not match a specific customer, but will instead display the Fuzzy Call dialog box.

To enter a fuzzy call, complete these steps:

1. Enter the address information (*e.g.*, cross streets). A fuzzy call should have some address information filled in, even if it just an intersection.

2. Click the **Search** toolbar icon or select the **Search** option from the Actions menu. A dialog appears, indicating that there was no match for the search criteria, but the call can be edited or saved.

3. If you know the control zone associated with the trouble location indicated by the caller, click on the **Control Zone Selection** button to the right of the Control Zone field. Select the control zone from the tree display and then click the **OK** button.

4. Click the **Edit Call** button.

5. If the caller wishes to be called back when the event is resolved, click the **Call Before Date** radio button. Then, click on the **Calendar** button (at right) to enter the date and time after which the customer no longer wants to be called. Enter the caller's phone number in the **Callback Phone** field.

6. Select the appropriate options from the drop-down menus in the **Request** section, such as Power, Cause, Description, Street Light, Meter, Meet, Priority, and Other. (See **Callback Request** for details.) These are necessary for operations personnel to understand and quickly resolve the event.

7. In the **Customer Comments** field, enter any information that the caller provides that will assist the operations personnel or the crew.

8. Save the call by clicking the **Submit Call** button on the toolbar or selecting the **Submit Call** option from the Actions menu. **Note**: This button is only enabled if the Address field was filled in when the search was done.

    A popup dialog displays the Call ID.

9. Provide the Call ID to the caller, and then click the **OK** button to close the dialog.

Cancelling a Customer Call

You can cancel a call from the Call History window. This is useful if a customer calls back to indicate that the problem related to the initial call has been resolved. You can cancel fuzzy calls using this procedure.

> **Note**: The original call is not removed from the system; rather, its status is changed to C (cancelled) and a new call is created with a status of N, indicating that the original call and its associated event have been resolved.

To cancel a customer call, complete these steps:

1. Search for the customer information. (For details on how to search for customer information, see Searching for a Customer.).

2. Click the **Call History** button on the toolbar or select **Call History...** from the Actions menu.

3. Select the call in the Call History list. The Cancel button is enabled.

4. Click the **Cancel** button on the toolbar. The Cancel Call dialog is displayed.

5. Enter the reason for the cancellation, and click **OK**.

6. You can view the original cancelled call and the new call entry in the Call History.

Cancelling All Calls For a Customer Account

Use this procedure to cancel all calls for a customer account.

1. Search for the customer information. (For details on how to search for customer information, see **Searching for a Customer** on page 3-9.)

1. In the Request section of the main Web Call Entry window, select the Cancel option from the Other drop-down.

1. Save the call by clicking the **Submit Call** button on the toolbar or selecting the Submit Call option from the Actions menu.

> **Note**: Fuzzy calls must be cancelled in the Work Agenda. See the previous procedure.

Viewing the Outages Summary

The **Outages Summary** presents the user with a view-only summary of the total active outage events in the system. The information in the window dynamically updates as new calls come in and as new outages are created and restored. The events are sorted by default on the E/H and # Out values, but can be sorted by any of the other columns by clicking on the column header. You can access the Outages Summary by clicking the **Outages Summary** button on the toolbar or selecting **Outages Summary** from the File menu.

The **Outages Summary** contains two tables. The top table is a summary and the table below it displays a row for each event in the summary table.

The summary table at the top of the Outages Summary window displays the following columns:

• The **Events in View** field displays the number of events currently displayed in the Outages Summary.

• The **Est Cust Out** field displays the number of customers estimated to be affected by the events currently displayed in the Outages Summary.

• The **Calls** field displays the number of calls entered for the events currently displayed in the Outages Summary.

• The **Pri Calls** field displays the number of priority calls entered for the events currently displayed in the Outages Summary.

• The **EMR Cust Out** field displays the number of emergency customers affected by the events currently displayed in the Outages Summary.

• The **MED Cust Out** field displays the number of medical customers affected by the events currently displayed in the Outages Summary.

• The **KEY Cust Out** field displays the number of key customers affected by the events currently displayed in the Outages Summary.

• The **Crews En Route/Onsite** field displays the number of crews en route to/onsite at the events currently displayed in the Outages Summary.

The **Current Outages** table displays the following columns:

• The **E/H** column indicates whether or not the event is an emergency or hazardous condition. An "E" in this column denotes extreme emergency, and an "H" in this column denotes hazardous.

• The **# Out** column contains the number of customers experiencing an outage for the event.

- The **# Crit** column contains the total number of critical customers experiencing an outage for the event.

- The **# Calls** column contains the number of calls received for the event.

- The **Region** column contains the control zone region where the event occurred.

- The **Branch** column contains the control zone branch where the event occurred.

- The **Substation** column contains the control zone substation where the event occurred.

- The **Location** column contains either the address of the first customer that called if the event is a service outage or non-outage or the feeder location of the device if the event is a device outage.

- The **Start Date** column contains the date and time the event began.

- The **Est Restore Date** column contains the estimated restoration time (ERT) for the event.

- The **Est Src** column contains the source of the ERT for the event. The possible source values are:

  - N - none (no ERT)

  - S - Oracle Utilities Network Management System - Storm Management

  - P - Oracle Utilities Network Management System Storm Management "non-published global ERT"

  - O - Oracle Utilities Network Management System Storm Management "onsite ERT" used when the crew is en route or onsite. If the crew is en route, the ERT includes the travel time plus the repair time; if the crew is onsite, the ERT only includes the repair time.

  - G - Oracle Utilities Network Management System Storm Management "published global ERT"

  - C - User-entered (assumed to have been provided by the crew)

  - I - Initial default ERT

- The **Clues** column contains the clue codes for the calls received, if any.

- The **Status** column displays the status assigned to the event. See **Event Status Codes** on page A-1 for a complete list of status codes and descriptions.

- The **Crews** column contains the crew id(s) of the associated crew(s).

The **Operations Event Note** field displays the Operations Event Note for the selected event, if any.

Buttons

- The **Auto Filter** button allows you to quickly filter the view by the selected cell value.

- The **Auto Filter Off** button turns off any auto filter that has been applied.

Menus

The following table describes the Outages Summary menus.

Menu	Option	Description
File	Print	Opens up the Print Preview dialog, which allows you to print out the Outages Summary window.
File	Exit	Closes the Outages Summary window.
Filter	Auto Filter	Allows you to quickly filter the view by the selected cell value.
Filter	Auto Filter Off	Turns off any auto filter that has been applied.
Actions	Default Sort	Applies the default sort to the Outages Summary.
Help	Web Call Entry Help	Opens a help dialog for the current window.
Help	About Web Call Entry	Opens the standard About dialog.

Chapter 4

Web Callbacks

This chapter describes the Web Call Backs module functionality. It includes the following topics:

- **Overview**
- **Starting Web Callbacks**
- **The Web Callbacks Window**
- **Assigning Callbacks**
- **Viewing Callback Assignments**
- **Unassigning Callbacks**
- **Performing Callbacks**

Overview

Oracle Utilities Network Management System Web Call Backs is an application used to manage callback requests for customers who have called in reporting an outage. When the outage is resolved, Web Callbacks provides the information necessary to call customers. Web Callbacks allows you to assign groups of callbacks to users and outsourcing agencies, and also supports a "one-at-a-time" approach, where you can select an outage and perform the next callback. Callbacks are only created for customers who called in and had "Callback Requested" indicated when their call was entered.

Web Callbacks displays information about the outage and the original customer call, and allows you to save the results of the callback (power restored, phone busy, power still out, etc.). Customers whose power is not restored are re-introduced into the Oracle Utilities Network Management System for re-analysis and restoration. A Still Out trouble code clue, which appears in Clues field in Work Agenda and Trouble Info, is added to calls re-introduced in this way. Web Callbacks interfaces with other Oracle Utilities Network Management System modules to display customer comments and operations remarks.

Starting Web Callbacks

Web Callbacks is accessed using a URL (web address) or as a local application, depending on your site's policy. Your system administrator determines the web address, if applicable. If accessing Web Callbacks from a browser, complete these steps:

• Open your web browser by clicking the shortcut on the desktop, or from the Start menu.

• In the Address field of the browser, enter the URL for Web Callbacks, then press Enter. Please wait while Web Callbacks starts.

• If this is the first time running an Oracle Utilities Network Management System Windows-based product on your PC, you may be prompted to do a one-time download of a Java plug-in. If so, select Yes/Accept/Agree on all subsequent dialogs until Web Callbacks opens.

> **Note:** You or your system administrator can add Web Callbacks to your Start menu and/or create a shortcut icon on your desktop for quick access to Web Callbacks. When you start up Web Callbacks for the first time, it will (depending on installation method) ask if you want to install a shortcut in your Start menu and on your desktop.

Logging In

The Login window is the first Web Callbacks window you see. You must enter a valid user name and password, and then click the **Validate** button. Once your user name and password are validated, the system populates the option menu that allows you to select a user type.

The Login window displays the following fields and buttons:

• The **User ID** field allows you to enter the user name provided to you by the system administrator.

• The **Password** field allows you to enter the password provided to you by the system administrator.

• The **Validate** button verifies your login credentials. If the user name and password are not entered correctly, the system displays a warning dialog box.

• The **User Type** drop-down menu contains the list of user types within your authority.

• The **Login** button allows you to complete the login process. Once you click the Login button, the Web Callbacks window opens.

• The **Quit** button exits the Login window.

Logging In

To login to Web Callbacks, complete these steps:

1. Depending on how your system was installed, do one of the following:

    • Click the **Web Callbacks** icon found under the appropriate program group in your Windows Start Menu.

    • Double-click the **Web Callbacks** icon on your desktop.

    • Open a web browser and type the Web Callbacks URL in the browser's Address field.

    The Web Callbacks Login window displays.

2. Enter your user name in the User Name field.

3. Enter your password in the Password field.

4. Click the **Validate** button. The bottom portion of the Web Callbacks Login window sensitizes.

5. Select the appropriate User Type from the drop-down menu.

6. Click the **Login** button. The main Web Callbacks window will display.

The Web Callbacks Window

The Web Callbacks main window displays all of the events that have callbacks that must be completed. You can perform callback actions in the window using the menu, the buttons on the toolbar, or the buttons at the bottom of the window.

This following topics describe how to use the Web Callbacks window:

- **Menus**

- **Toolbar**

- **Header**

- **Callbacks Table**

- **Callbacks Summary Panel**

- **Callbacks Buttons**

- **Status Bar**

Related Topics:

- **Starting Web Callbacks**

- **Assigning Callbacks**

- **Viewing Callback Assignments**

- **Unassigning Callbacks**

- **Performing Callbacks**

Menus

The Web Callbacks menu bar provides access to all functions. The commonly used functions are also available on the toolbar and in buttons at the bottom of the window. There are three menus on the Web Callbacks menu bar: File, Actions, and Help.

- **Actions Menu**

  - **View My Callback Lists…** - Opens the View My Callback Lists window, which displays a list of callbacks assigned to you.

  - **Perform Next Callback…** - Opens the Perform Next Callback window, which allows you to perform the next callback for the selected event.

  - **Assign Callbacks…** - Opens the Assign Callbacks window, which allows you to assign callbacks for the selected event.

- **Preferences Menu**

  The **Preferences** menu allows you to control certain common features of the Web Call Backs.

  - **Smaller Font (Ctrl+Minus Sign):** Decreases the font size in text and icons. Repeat to further decrease the font size.

  - **Bigger Font (Ctrl+Plus Sign):** Increases the font size in text and icons. Repeat to further increase the font size.

  - **Reset Font (Ctrl+0):** The application will reset the text and icons to use their default font size.

- **Help Menu**

  - **Web Callbacks Help** (F1) - Opens the online help content for Web Callbacks.

  - **Email Log Files...** (Ctrl-Shift-M) - Gathers the environment's log files and attaches them to a new email message using your default email client. The log files can then be sent to your support team or contact for further analysis.

  - **About Web Callbacks** - Opens the About window, which provides system information.

- **Logout Menu**

  - User Logout - exits Web Call Backs.

Toolbar

The Web Callbacks toolbar provides a shortcut to many of the options available from the Web Callbacks menus. The following table describes the buttons on the Web Callbacks Toolbar.

Button	Description
View My Callbacks Lists	Opens the View My Callback Lists window, which displays a list of callbacks assigned to you.
Perform Next Callback	Opens the Perform Next Callback window, which allows you to perform the next callback for the selected event.
Assign Callbacks	Opens the Assign Callbacks window, which allows you to assign callbacks for the selected event.

Header

Beneath the Web Callbacks Toolbar is the header section. This section contains information regarding who is logged in to the application.

- The **User Name** field displays your Web Callbacks login user name. This field is not editable.

Callbacks Table

The Web Callbacks table contains a detailed list of each resolved event that still has callbacks remaining. These rows are color-coded by the status of the callback (not started vs. in progress).

The Callbacks Table displays the following columns:

- The **Event #** column contains the unique number of the event.

- The **# Callbacks** column contains the number of callbacks for the event.

- The **# Pri** column contains the number of callbacks from priority calls for the event.

- The **% Comp** column contains the percentage of callbacks completed for the event.

- The **# Rem** column contains the number of callbacks remaining for the event.

- The **# Asn** column contains the number of remaining callbacks for the event that have been assigned.

- The **Start Date** column contains the reported start date and time of the event.

- The **Restore Date** column contains the date and time the event was restored.

- The **Device** column contains the name of the device associated with the event.

- The **Status** column contains the status of callbacks for the event:

    - **In Progress** - Some callbacks for the event have been completed.

    - **Not Started** - Some callbacks for the event may have been assigned, but no callbacks are completed.

- The **Substation** column contains the name of the substation for the device associated with the event.

- The **Zone** column contains the name of the branch office where the event occurred.

- The **# Users** column contains the number of users with assigned callbacks for the event.

Callbacks Table Column Features

Web Callbacks allows you to sort columns of its table by clicking on the particular column. The column displays an ascending sort after the first click and a descending sort after the second. A black arrow displays the direction of the sort. Clicking on other columns will initially sort based on the opposite sort type from the last column (ascending if previous column was sorted descending) and the sort direction reverses with subsequent clicks.

Sorting Callbacks

To sort based on a callback list column, complete these steps:

1. Click on the column that you want to sort. The column sorts in ascending order, indicated by a black arrow pointing upward.

2. Click again to sort the column in descending order, indicated by a black arrow pointing downward.

3. Click on a different column and the list is sorted ascending based on that column.

Rearranging Columns

You can dynamically rearrange the columns in a Web Callbacks list by dragging and releasing the column headers. To rearrange the columns, complete these steps:

1. On the column header for the column you want to move, click and hold down the mouse button with the pointer.

2. Move the pointer to drag the column left or right to the new location.

3. Release the mouse button. The column appears in the new location.

Note that this change is temporary. The next time you start Web Callbacks, the columns will display in their default order.

Callbacks Summary Panel

The Callbacks Summary panel appears in the lower portion of the Web Callbacks window. This panel displays summary information from the callback list. The Callbacks Summary panel includes the following fields:

- The **# Callbacks** field displays the total number of callbacks from events that still have active callbacks.

- The **% Complete** field displays the total percentage of callbacks listed in # Callbacks that are complete.

- The **# Remaining** field displays the total number of callbacks not completed, based on the # Callbacks.

- The **# Priority Calls** field displays the total number of callbacks that were priority, meaning those where the original call was for a priority situation (*e.g.*, hazardous downed wire).

    Note: Once all callbacks for an event have been completed, they are removed from the data displayed in the Callbacks Summary Panel. As a result. the % Complete can actually decrease when the last callback for an event is completed and that event is removed from the calculation.

Callbacks Buttons

The buttons on the bottom of the main Web Callbacks window comprise commonly used functions.

- The **View My Callbacks Lists…** button opens the View My Callback Lists window, which displays a list of callbacks assigned to you.

- The **Perform Next Callback…** button opens the Perform Next Callback window, which allows you to perform the next callback for the selected event.

- The **Assign Callbacks…** button opens the Assign Callbacks window, which allows you to assign callbacks for the selected event.

Status Bar

The status bar appears at the bottom of the Web Callbacks window, providing informational messages to the user at various times. Messages will appear in the status bar when callbacks are assigned, unassigned, or cancelled, when callbacks are saved or when a new callbacks user is created.

Assigning Callbacks

The Assign Callbacks window is used to assign callbacks for a specific event to you and/or other logged in users in order to manage the completion of the callback requests. If callbacks have been assigned to a user and that person is unable to complete the callbacks in a timely fashion, you can unassign those callbacks.

To access the Assign Callbacks window, select an event in the main Web Callbacks window, and then do one of the following:

- Select the **Assign Callbacks…** option from the Actions menu, or

- Click the **Assign Callbacks** button **[X]** on the toolbar, or

- Click the **Assign Callbacks…** button beneath the Callbacks Summary panel.

This section includes the following topics:

- **Using the Assign Callbacks Window**

- **Assigning Numbers of Callbacks**

- **Assigning Percentages of Callbacks**

- **Assigning All Remaining Callbacks**

- **Reassigning All Remaining Callbacks**

- **Unassigning Callbacks**

Using the Assign Callbacks Window

The Event Info panel at the top of the Assign Callbacks window provides summary information about the event. The Event Callbacks panel provides a current status of callback assignments for the event per user, and allows you to change the number or percentage of assigned callbacks for each user.

> **Note:** When assigning callbacks to multiple users, you can assign a specific number of callbacks for the event to each user, or assign a percentage of the callbacks to each user.

The Assign Callbacks window displays the following fields and buttons:

- The **Event #** field displays the event number for which callbacks are being assigned.

- The **Device** field displays the name of the device associated with the event.

- The **Substation** field displays the name of the substation associated with the event.

- The **Total Callbacks** field displays the total number of callbacks for the event.

- The **% Complete** field displays the percentage of callbacks that are complete for the event.

- The **# Unassigned** field displays the number of callbacks for the event that have not been assigned.

- The **User Name** column contains the user name for each user currently logged in to the system. Other users appear in this column if they are permanently available (*e.g.*, a third party agency or IVR system). You can assign callbacks to any user in this column.

- The **Include Priority Calls** column contains a check box that allows you to specify whether you want to include priority calls in the callback assignments for the user. This option is only available to users who have been designated as **Priority Users** (see **Adding a User** on page 17-6 for details).

- The % **Assigned** column contains the percentage of the total number of callbacks assigned to the user for the event. You can assign a specific percentage to the user by editing this field and then pressing the **Enter** key. If the percentage does not result in an exact number of

callbacks (*e.g.*, the callback assignment would be 4.78), the system rounds to the nearest number (in this case, 5).

- The **# Asn** column contains the number of callbacks assigned to the user for the event. You can assign a specific number of callbacks to each user by editing this field and then pressing the **Enter** key.

- The **# Pri** column contains the number of callbacks for priority calls assigned to the user for the event. This column is not editable.

- The **# Rem** column contains the number of callbacks remaining assigned to the user for the event. This column is not editable.

- The **% Comp** column contains the percentage of the total number of callbacks assigned to the user for the event that are complete. This column is not editable.

Buttons

- The **Save** button saves any callback assignment changes and closes the Assign Callbacks window. There is also an option under the Assign Callbacks window's Actions menu for this action.

- The **Unassign** button unassigns the remaining uncompleted callbacks for the event for the selected user and closes the Assign Callbacks window. There is also an option under the Assign Callbacks window's Actions menu for this action.

- The **Assign Remaining** button assigns the remaining unassigned callbacks for the event to the selected user and closes the Assign Callbacks window. There is also an option under the Assign Callbacks window's Actions menu for this action.

- The **Exit** button closes the Assign Callbacks window without saving any changes. There is also an option under the Assign Callbacks window's File menu for this action.

Assigning Callbacks to Users

You can assign callbacks to yourself or to another user that is currently logged into the system, or to an external service if it has been set up in your system. All of the users that have access to the system can assign callbacks to themselves and to others.

Assigning Numbers of Callbacks

When assigning callbacks for an event, you can assign all callbacks to a single user or distribute the callbacks to multiple users. To assign a specific number of callbacks, follow these steps:

1. Select an event with multiple unassigned callbacks from the Web Callbacks main window.

2. Do one of the following:

    - Click the **Assign Callbacks** button on the toolbar, or

    - Select the **Assign Callbacks…** option from the Actions menu, or

    - Click the **Assign Callbacks…** button below the Callbacks Summary panel. The Assign Callbacks window opens.

3. Select the **# Asn** column for a user from the list of users.

4. Type the number of callbacks you want to assign to the user.

5. If the event has additional callbacks, select the column for another user and enter the number of callbacks that you want to assign to that user.

6. Once you have assigned all of the callbacks that you want to assign, click the **Save** button. The Assign Callbacks window closes.

Assigning Percentages of Callbacks

When assigning callbacks for an event, you can assign all callbacks to a single user, or distribute the callbacks to multiple users by percentage. To assign a percentage of callbacks for an event to a user, complete these steps:

1. Select an event with multiple unassigned callbacks from the Web Callbacks main window.

2. Do one of the following:

   • Click the **Assign Callbacks** button on the toolbar, or

   • Select the **Assign Callbacks…** option from the Actions menu, or

   • Click the **Assign Callbacks…** button below the Callbacks Summary panel. The Assign Callbacks window opens.

3. Select the **% Assigned** column for a user.

4. Type "50" and press **Enter**. This will assign 50% of the callbacks to the selected user.

5. Click the **Save** button. The Assign Callbacks window closes.

Assigning All Remaining Callbacks

To assign all remaining callbacks for an event to a single user, complete these steps:

1. Select an event with multiple unassigned callbacks from the Web Callbacks main window.

2. Do one of the following:

   • Click the **Assign Callbacks** button on the toolbar, or

   • Select the **Assign Callbacks…** option from the Actions menu, or

   • Click the **Assign Callbacks…** button below the Callbacks Summary panel. The Assign Callbacks window opens.

3. Select the **User Name** column for a user.

4. Click the **Assign Remaining** button. All remaining unassigned callbacks are assigned to the selected user. The Assign Callbacks window closes.

Reassigning All Remaining Callbacks

To reassign all remaining event callbacks for a user to another user, complete these steps:

1. Select the event with assigned callbacks for a user from the Web Callbacks main window.

2. Do one of the following:

   • Click the **Assign Callbacks** button on the toolbar, or

   • Select the **Assign Callbacks…** option from the Actions menu, or

   • Click the **Assign Callbacks…** button below the Callbacks Summary panel. The Assign Callbacks window opens.

3. Select the **User Name** column for the user with uncompleted assigned callbacks.

4. Click the **Unassign** button. All remaining assigned callbacks for the selected user are now unassigned. The Assign Callbacks window closes.

5. Reopen the Assign Callbacks window using one of the methods above.

6. Select the **User Name** column for the user you wish to perform the remaining callbacks.

7. Click the **Assign Remaining** button. All remaining unassigned callbacks are assigned to the selected user. The Assign Callbacks window closes.

Viewing Callback Assignments

With the View My Callback Lists window, you can view all of the callbacks currently assigned to you. To access the View My Callback Lists window, do any of the following:

- Select the **View My Callback Lists…** option from the Actions menu, or

- Click the **View My Callback Lists** button **[X]** on the toolbar, or

- Click the **View My Callbacks Lists…** button beneath the Callbacks Summary panel.

This section includes the following topics:

- **View My Callback Lists Window**

- **Viewing Your Callback Assignments**

- **Canceling Your Callback Assignments**

View My Callback Lists Window

The View My Callback Lists window displays the following fields and buttons:

- The **User Name** field displays the user name that you are logged in as.

- The **# of Callback Lists** Assigned field displays the total number of events for which you have callback assignments.

- The **Event #** column contains the event number associated with the callback list.

- The **# Callbacks** column contains the number of callbacks assigned to you for the event.

- The **# Pri** column contains the number of priority calls among your assigned callbacks for the event.

- The **% Comp** column contains the percentage of your assigned callbacks that are complete.

- The **# Rem** column contains the number of callbacks assigned to you for the event that need to be completed.

- The **Restore Date** column contains the date and time the event was restored.

- The **Device** column contains the name of the device associated with the event.

- The **Substation** column contains the name of the substation for the device associated with the event.

Buttons

- The **Unassign All** button unassigns all of your remaining callbacks for all lists. This might be done if you are taking a break and therefore need to make the callbacks available for others to do. There is also an option under the View My Callback Lists window's Actions menu for this action.

- The **Perform Callback List…** button opens the Perform Callback List window for the selected event, which allows you to enter the callback response for each callback assigned to you from that event. There is also an option under the View My Callback Lists window's Actions menu for this action.

- The **Cancel Callbacks** button allows you to cancel all of your remaining callbacks for the selected event and consider them complete.

- The **Exit** button closes the View My Callback Lists window.

Viewing Your Callback Assignments

To view callbacks assigned to you, complete these steps:

1. Do one of the following:

    •   Click the **View My Callback Lists** button on the toolbar, or

    •   Select the **View My Callback Lists…** option from the Actions menu, or

    •   Click the **View My Callback Lists…** button below the Callbacks Summary panel.

    The View My Callback Lists window opens, displaying all events with callbacks assigned to you.

2. Click the **Exit** button to exit the View My Callbacks Lists window.

Canceling Your Callback Assignments

To cancel callbacks assigned to you for a specific event, complete these steps:

1. Do one of the following:

    •   Click the **View My Callback Lists** button on the toolbar, or

    •   Select the **View My Callback Lists…** option from the Actions menu, or

    •   Click the **View My Callback Lists…** button below the Callbacks Summary panel.

    The View My Callback Lists window opens, displaying all events with callbacks assigned to you.

2. Select the row of the event you wish to cancel your assigned callbacks for.

3. Click the **Cancel Callbacks** button. A confirmation dialog appears.

4. Click the **Yes** button on the confirmation dialog. Your assigned callbacks for that event are now considered complete. If there are no more uncompleted callbacks assigned to other users remaining for that event, that event row will disappear from the window. Otherwise, that event row will remain displayed until all callbacks for that event are complete.

5. Click the **Exit** button to exit the View My Callbacks Lists window.

Unassigning Callbacks

You can unassign callbacks that have not been completed. You may unassign callbacks for a single event, or unassign all callbacks assigned to you.

> **Note:** If you exit Web Callbacks, the system automatically unassigns all of your remaining callbacks.

This section includes the following topics:

•   **Unassigning Callbacks for a Specific Event**

•   **Unassigning All of Your Callbacks**

Unassigning Callbacks for a Specific Event

To unassign callbacks for a specific event, complete these steps:

1. On the main Web Callbacks window, select the event for which you want to unassign callbacks.

2. Do one of the following:

   • Click the **Assign Callbacks** button on the toolbar, or

   • Select the **Assign Callbacks** option from the Actions menu, or

   • Click the **Assign Callbacks…** button below the Callbacks Summary panel. The Assign Callbacks window opens.

3. Select the **User Name** column for the user whose callbacks you wish to unassign.

4. Do one of the following:

   • To unassign all of the user's remaining callbacks for the event, click the **Unassign** button. The Assign Callbacks window closes.

   • To unassign a portion of the user's remaining callbacks for the event, enter a lower number of callbacks in the # Asn column for the user, or a lower percentage of callbacks in the % Assigned column, then press the **Enter** or **Tab** key. Click the **Save** button. The Assign Callbacks window closes.

Unassigning All of Your Callbacks

To unassign all of your callbacks, complete these steps:

1. Do one of the following:

   • Click the **View My Callback Lists** button on the toolbar, or

   • Select the **View My Callbacks Lists…** option from the Actions menu, or

   • Click the **View My Callback Lists…** button below the Callbacks Summary panel.

   The View My Callback Lists window opens, displaying all events with callbacks assigned to you.

2. Click the **Unassign All** button. A confirmation dialog appears.

3. Click **Yes** on the confirmation dialog. The View My Callback Lists window closes.

Performing Callbacks

Once you have assigned callbacks to yourself, or another user has assigned callbacks to you, you can complete those callbacks using the Perform Callback List window. You may also perform callbacks that are unassigned (not currently assigned to any user) using the Perform Next Callback window.

The Perform Callback List window is used to record the results as you are completing your assigned callbacks for an event. The Event Information panel at the top of the window provides summary information about the event. The Event Callbacks Summary panel provides a status of your callback assignments for the event. The callback list table lists customers who have requested a callback for the event, and the Additional Customer Information panel provides more details regarding the customer selected in the callbacks list table.

This section includes the following topics:

- **Accessing the Perform Callback List**
- **Using the Perform Next Callback Window**
- **Performing Assigned Callbacks for an Event**
- **Performing Unassigned Callbacks (Next Callback)**

Accessing the Perform Callback List

To access the Perform Callback List window:

1. Do one of the following:

    - Click the **View My Callback** Lists button on the toolbar, or
    - Select the **View My Callback Lists…** option from the Actions menu, or
    - Click the **View My Callback Lists…** button below the Callbacks Summary panel.

    The View My Callback Lists window opens, displaying all events with callbacks assigned to you.

2. Select a row for an event in the View My Callback Lists table and either:

    - Select the **Perform Callback List…** option from the Actions menu, or
    - Click the **Perform Callback List…** button.

    The **Using the Perform Callbacks List Window** opens.

Using the Perform Callbacks List Window

The Perform Callbacks List window displays the following information:

- The **Event #** field displays the event number for which callbacks are being performed.
- The **Substation** field displays the name of the substation associated with the event.
- The **Zone** field displays the name of the branch office associated with the event.
- The **Device** field displays the name of the device associated with the event.
- The **Start Date** field displays the date and time the event began.
- The **Restore Date** field displays the date and time the event was restored.
- The **Operations Event Note** field displays any comments entered for the event by operations staff.
- The **# Callbacks** field displays the total number of your assigned callbacks for the event.
- The **# Remaining** field displays the number of your callbacks remaining for the event.

- The **% Complete** field displays the percentage of your callbacks that are complete for the event.

- The **Account #** column contains the customer account number.

- The **Name** column contains the name of the customer to be called back.

- The **Telephone** column contains the telephone number on record for the customer.

- The **Callback Phone** column contains the alternate telephone number (*e.g.*, cell phone) for the customer, if provided during original call.

- The **Call Before Date** column contains the date and time after which the customer does not wish to be called.

- The **Callback Status** column is a drop-down menu that lets you select the result of the call to the customer. This is the only editable field on the form. See **Callback Status** on page B-5 for status colors and descriptions.

- The **Callback Date** column contains the date and time the callback was performed. This column is automatically populated when you change the Callback Status.

- The **Customer Type** column contains an indication of whether the customer is a critical customer (*e.g.*, medical or key account).

- The **Priority** checkbox indicates whether or not the callback is associated with a priority call.

- The **Device** field in the Additional Customer Information panel displays the name of the selected customer's service device.

- The **Address** field displays the selected customer's service address.

- The **City** field displays the selected customer's city.

- The **Clues** field displays the trouble code clues received for the customer's call.

- The **Customer Comment** field displays the customer comments entered when the customer called, if any.

Buttons

- The **Save** button saves all callback status changes since the last save. This can be done after each callback (recommended), after every several callbacks, or just before exiting. There is also an option under the Perform Callback List window's File menu for this action.

- The **Cancel Callbacks** button allows you to cancel all of your remaining callbacks for the selected event and consider them complete.

- The **Exit** button closes the Perform Callback List window, returning you to the View My Callback Lists window. There is also an option under the Perform Callback List window's File menu for this action.

Performing Assigned Callbacks for an Event

Once you have been assigned a number of callbacks, you can begin completing them. To perform a callback, complete these steps:

1. Do one of the following:

    • Click the **View My Callback Lists** button on the toolbar, or

    • Select the **View My Callback Lists…** option from the Actions menu, or

    • Click the **View My Callback Lists…** button below the Callbacks Summary panel.

    The View My Callback Lists window opens, displaying all events with callbacks assigned to you.

2. Select a row for an event in the View My Callback Lists table and either:

    • Select the **Perform Callback List…** option from the Actions menu, or

    • Click the **Perform Callback List…** button.

    The Perform Callback List window opens displaying the details of the event and information for each customer to be called back.

3. Select a row for the callback you want to perform. At this time, you would physically make the call to the customer. Use the Callback Phone number if it exists. Otherwise use the number listed in the Telephone column.

4. Once the call is complete, change the Callback Status based on the result (*e.g.*, restored).

5. Click the **Save** button.

6. Make any remaining callbacks and change the Callback Status accordingly. Make sure that you click the **Save** button before exiting if you aren't saving after each call.

7. Click the **Exit** button when you have completed all of the callbacks.

Performing Unassigned Callbacks (Next Callback)

You can perform callbacks that are not assigned to any user using the Perform Next Callback window. This window allows you to select events from the main window and perform callbacks that have not yet been assigned to a user. The Perform Next Callback window displays the same information as the Perform Callback List window, just in a different order.

The callback that displays is automatically assigned to you so it cannot be assigned to anyone else. If you save a Callback Status of anything other than "Restored," "Not Restored," or "Cancel," the callback is not considered complete and remains assigned to you. If you do not save a Callback Status, the callback will be unassigned when you exit the Perform Next Callback window. You can also continue to process unassigned callbacks for this event by clicking the **Next Callback** button.

This section includes the following topics:

• **Using the Perform Next Callback Window**

• **Performing the Next Unassigned Callback for an Event**

Using the Perform Next Callback Window

To access the Perform Next Callback window, select an event in the main Web Callbacks window that has unassigned callbacks remaining, and then do one of the following:

    • Click the **Perform Next Callback** button on the toolbar, or

    • Select the **Perform Next Callback…** option from the Actions menu, or

    • Click **Perform Next Callback…** button beneath the Callbacks Summary panel.

The Perform Next Callback Window displays the following fields and buttons:

- The **Event #** field displays the event number for which callbacks are being performed.

- The **Substation** field displays the name of the substation associated with the event.

- The **Zone** field displays the name of the branch office associated with the event.

- The **Device** field displays the name of the device associated with the event.

- The **Start Date** field displays the date and time the event began.

- The **Restore Date** field displays the date and time the event was restored.

- The **Operations Event Note** field displays any comments entered for the event by operations staff.

- The **# Callbacks** field displays the total number of callbacks for the event.

- The **# Remaining** field displays the number of callbacks remaining for the event.

- The **% Complete** field displays the percentage of callbacks that are complete for the event.

- The **Account #** field displays the selected customer's account number.

- The **Name** field displays the name of the customer to be called back.

- The **Address** field displays the selected customer's service address.

- The **City** field displays the selected customer's city.

- The **Customer Type** field displays an indication of whether the customer is a critical customer (*e.g.*, medical or key account).

- The **Device** field in the Customer Information panel displays the name of the selected customer's service device.

- The **Clues** field displays the trouble code clues received for the customer's call.

- The **Customer Comment** field displays the customer comments entered when the customer called, if any.

- The **Priority** checkbox indicates whether or not the callback is associated with a priority call.

- The **Telephone** field displays the telephone number on record for the customer.

- The **Callback Phone** field displays the alternate telephone number (*e.g.*, cell phone) for the customer, if provided during original call.

- The **Callback Status** column is a drop-down menu that lets you select the result of the call to the customer. See **Callback Status** on page B-5 for status colors and descriptions.

- The **Callback Date** column contains the date and time the callback was performed. This column is automatically populated when you change the Callback Status.

Buttons

- The **Next Callback** button populates the Perform Next Callback window with the next unassigned callback for this event, if any, and assigns the callback to you. There is also an option under the Perform Next Callback window's Actions menu for this action.

- The **Save** button saves the result for this callback and enables the Next Callback button. There is also an option under the Perform Next Callback window's File menu for this action.

- The **Exit** button closes the Perform Next Callback window. There is also an option under the Perform Next Callback window's File menu for this action.

Performing the Next Unassigned Callback for an Event

To perform the next unassigned callback for an event, complete these steps:

1. On the Web Callbacks main window, select an event that has unassigned callbacks remaining (# Asn column less than # Rem column).

2. Do one of the following:

   - Click the **Perform Next Callback** button on the toolbar, or

   - Select the **Perform Next Callback…** option from the Actions menu, or

   - Click the **Perform Next Callback…** button beneath the Callbacks Summary panel.

   If all callbacks for the selected event have been assigned, an error dialog displays.

3. Place the phone call to the customer, using the phone number listed in the Callback Phone field, if provided. Otherwise, use the number in the Telephone field.

4. When the call is complete, select the appropriate option from the Callback Status drop-down menu.

5. Click the **Save** button.

6. If there are unassigned callbacks remaining for the event and you want to perform them, click the **Next Callback** button and repeat the three previous steps.

7. Click the **Exit** button to close the Perform Next Callback window.

   Note: The callback accessed from the Perform Next Callback window is assigned to you when the window opens to prevent another user from being assigned to it as well. If you save a result for the callback that does not actually complete it (*e.g.*, Busy, No Answer) and then exit the Perform Next Callback window, it will remain assigned to you. If you exit the Perform Next Callback window without saving a result for the callback, the callback returns to being unassigned.

Chapter 5

Storm Management

This chapter describes the Oracle Utilities Network Management System Storm Management application. It includes the following topics:

- **Getting Started with Storm Management**

- **Storm Management Full Operations Environment**

- **Storm Management Information Overview**

- **Storm Management View Only Environment**

- **Storm Management Storm Administration Environment**

Getting Started with Storm Management

Storm Management enables you to manipulate the event and crew information that the system will use to make its calculations. This section describes the login, menus, toolbar, and status bar, and other common sections of Storm Management.

> **Note**: Many utilities have different rules sets configured for storms versus normal conditions, which will affect the operation of Storm Management. Changing rule sets is done using the **Change Rule Set...** button on the **Web Workspace Authority** tool. For information on changing rule sets, see **Changing Rule Sets** on page 2-47.

Login Window

The Login window is the first Storm Management window you see. You must enter a valid user name and password, and then click the **Validate** button. Once your user name and password are validated, the system populates the option menu that allows you to select a user type. You will see different initial windows and options depending upon the user type specified.

The Login window displays the following fields and buttons:

- The **User ID** field allows you to enter the user name provided to you by the system administrator.

- The **Password** field allows you to enter the password provided to you by the system administrator.

- The **Validate** button verifies your login credentials. If the user name and password are not entered correctly, the system displays a warning dialog box.

- The **User Type** drop-down menu contains the list of user types within your authority.

- • Full Operations: provides Storm Management functionality for the operations user to edit storm, system, and crew criteria. See **Storm Management Full Operations Environment** on page 5-3 for details of the Full Operations environment

- • View Only: displays the information available to the Full Operations environment in a read-only mode. See **Storm Management View Only Environment** on page 5-39 for details.

- • Storm Administration: provides a post-storm data maintenance environment. See **Storm Management Storm Administration Environment** on page 5-41 for details.

- • The **Login** button allows you to complete the login process. Once you click the Login button, the appropriate Storm Management window opens, based upon the User Type selected.

- • The **Quit** button exits the Login window.

Logging In

To login to Storm Management, complete these steps:

1. Depending on how your system was installed, do one of the following:

   - • Click the **Storm Management** icon found under the appropriate program group in your Windows Start Menu, or

   - • Double click the **Storm Management** icon on your desktop, or

   - • Open a web browser and type the Storm Management URL in the browser's Address field. The Storm Management Login window displays.

2. Enter your user name.

3. Enter your password.

4. Click the **Validate** button. The bottom portion of the Storm Management Login window sensitizes.

5. Select the appropriate **User Type** from the drop-down menu.

6. Click the **Login** button. The appropriate Storm Management window opens.

7. Click the **Login** button to finish logging in.

Storm Management Full Operations Environment

This section describes the Storm Management window and general functionality. It includes the following topics:

- **User Interface Features**

    - **Menus**

    - **Status Bar**

    - **Storm Management Information Panels**

User Interface Features

Menus

There are four menus on the Storm Management menu bar:

- **System Menu**

- **Storm Menu**

- **Preferences Menu**

- **Help Menu**

- **Logout Menu**

System Menu

The options in the System menu are available in both storm and non-storm modes. The following table describes the System Menu options and associated toolbar icons.

Menu Option	Description	Toolbar Icon
Toggle Storm Mode...	Used to transition a control zone between the Storm Management non-storm and storm modes of operation. Opens the Define Storm dialog, prompting you to enter the information required to transition between modes. This option is not available in study mode.	
Save Changes	Saves any changes made in the window outside of the Crew Information table.	
ERT Override...	While periodically simulating the restoration process, Storm Management makes an estimated assessment and calculates an *Estimated Restoration Time* (ERT) for each eligible event. The estimates are accessible to other NMS modules. This option opens the **ERT Override** dialog, which allows the accessibility of the Storm Management estimates to other modules to be turned on and off at any control zone level, and also allows for an alternate global or *tiered* estimate to be applied at any control zone level instead. The ERT Delays tab allows the user to adjust **calculated** ERT values, for any control zone, with a delay factor.	

Menu Option	Description	Toolbar Icon
Force Simulation Run	Immediately invokes the simulation of the entire restoration process, recalculating the estimates. This option is typically only used in study mode.	▶
Retrieve Update	Refreshes the window with the most recent information from the system. In most cases, the window refreshes itself on a periodic basis. But, if there are unsaved changes in the Storm Management window at the time the automatic refresh is due to occur, the window will not refresh. Instead, an alert appears in the status bar indicating that an update is available, and the Retrieve Update option must be invoked in order to refresh the window with the new update. This allows you to continue making your changes and save them first before refreshing.	🔄
Print All…	Opens the Print Preview dialog, which allows you to print the Summary Information panel, Storm Report panel, Storm Information panel (if present), Crew Information panel (if present), and status bar information from the current Storm Management window. See **Printing** on page 1-17 for details on printing and using the Print Preview window.	--
Print Crews…	Opens the Print Preview dialog, which allows you to print out the Crew Information panel from the current Storm Management window. This option is only available in storm mode.	--

Storm Menu

The options in the Storm menu are only enabled when Storm Management is in storm mode. The following table describes the Storm Menu and associated toolbar options.

Menu Option	Description	Toolbar Icon
Toggle Study Mode	Toggles the Storm Management window between real-time and study modes of operation. The current mode is displayed in the status bar.	🔶
Export Study Session	When in study mode, allows you to export the current study session crews and parameters to the real-time session.	🔼
Reset Study Session	When in study mode, allows you to reset the current study session with the current real-time session crews and parameters.	🔄
Forecast Profiles…	Opens the Forecast Profiles dialog, which is used to save and pre-load outage forecasting parameters. This option is only available in storm mode at the simulation level.	📰

Menu Option	Description	Toolbar Icon
Calculate Crews...	Opens the Calculate Crews dialog, which is used to determine the approximate number of crews needed to complete assessment and repair by a specified date and time.	

Preferences Menu

The **Preferences** menu allows you to control certain common features of the Storm Management.

Menu Option	Description
Smaller Font (Ctrl+Minus Sign)	Decreases the font size in text and icons. Repeat to further decrease the font size.
Bigger Font (Ctrl+Plus Sign)	Increases the font size in text and icons. Repeat to further increase the font size.
Reset Font (Ctrl+0)	The application will reset the text and icons to use their default font size.

Help Menu

The options in the Help menu are available at all times. The following table describes the Help Menu options.

Option	Description
Storm Management Help (F1)	Opens the Online Help content for Storm Management.
Email Log Files... (Ctrl-Shift-M)	Gathers the environment's log files and attaches them to a new email message using your default email client. The log files can then be sent to your support team or contact for further analysis.
About Storm Management	Opens a dialog that displays information regarding what version of the application is presently running, as well as version and other information about the Oracle Utilities Network Management System Web Gateway that the application is using.

Logout Menu

The Logout menu provides the **User Logout** option, which immediately logs the user out of Storm Management and closes the application.

Status Bar

The status bar appears at the bottom of the Storm Management window, providing operating details for the system. The status bar displays the following fields:

- The **Last Update** field displays a timestamp indicating the date and time at which the most recent estimates were calculated.

- The **Update** field is an indicator that changes from "*No Update*" to "*Available Update*" (with a highlighted background) when there are unsaved changes at the time the automatic refresh of the Storm Management window is due to occur. The refresh does not occur until you click the Retrieve Update button on the toolbar or select the Retrieve Update option from the System menu.

- The **Real-Time/Study** Mode field displays "*Study Mode*" when the currently selected control zone is in the Storm Management study mode of operation and "*Real-Time Mode*" with a highlighted background when the zone is in real-time mode.

- The **Storm/Non-Storm Mode** field displays "Non-Storm Mode" when the currently selected control zone is in the Storm Management non-storm mode of operation and "Storm Mode" with a highlighted background when the currently selected zone is in the Storm Management storm mode of operation.

- The **ERT Override** field indicates whether any control zone in the system presently has its Storm Management estimates accessible to other modules (*e.g.*, may be displayed in an Oracle Utilities Network Management System **Work Agenda** column and available in Oracle Utilities Network Management System **Web Call Entry**) or overridden by an alternate estimate. If they are not accessible, or if they are overridden, this field displays "*ERT Override: On*" with a highlighted background. If not, this field displays "*ERT Override: Off.*"

- The **ERT Delay** field indicates if any ERT Delays are active. If there is an active ERT Delay, the field displays "*ERT Delay: On*" with a highlighted background. If not, the field displays the "*ERT Delay: Off.*"

- The **Lookups** field indicated the historical lookup value Shift, Season, and Day Type attributes that apply to the current time.

Storm Management Information Panels

The Storm Management **Full Operations** environment is divided into panels that contain information in labeled and bordered panes. A pane may be visible or hidden based on whether Storm Management is in Non-Storm or Storm Mode.

Pane Name	Description	Displayed in Mode(s)
Zone Selection	The Zone Selection pane provides the Control Zone hierarchy in a tree view. An individual Control Zone may be selected for a given storm or to drill down to get information about that zone when the storm applies to a higher level zone. See **Zone Selection** on page 5-11 for details.	Non-Storm, Storm
Storm Information	The Storm Information pane displays data entered when defining the storm. See **Storm Information** on page 5-8 for details.	Storm
Summary Information	The Summary Information pane provides an overview of the estimates for both the selected zone and the Company level zone. See **Summary Information** on page 5-10 for details.	Non-Storm, Storm
Storm Report	The Storm Report pane provides an overview of the historical averages, actual averages, and estimates for each outage type in the currently selected control zone. See **Storm Report** on page 5-9 for details.	Non-Storm, Storm
Crew Information	The Crew Information pane lists crew information for the currently selected control zone and its children. Crews are grouped by skill/type and by control zone.	Storm

Storm Management Information Overview

This section describes the Storm Management operating modes and related information displays:

- **Storm Management Modes**
- **Storm Information**
- **Summary Information**
- **Storm Report**
- **Zone Selection**

Storm Management Modes

Storm Management has two major modes of operation: *Non-storm* and *Storm*.

Non-Storm Mode

Non-storm mode applies to everyday operations. When calculating estimates, crew resources are not taken into account because it is assumed there are enough crews available to handle all events. All control zone views operate in non-storm mode until explicitly placed into storm mode.

Storm Mode

Storm mode is useful during and after a storm or other high volume outage period. In Storm mode, the estimate calculations factor in crew availability.

Study Mode

Study mode, which is an option when in Storm Mode, enables you to manipulate parameters that affect the estimate calculations, such as outage forecasting, manual overrides, and crew information without altering the current real-time calculations. Also, once in study mode, the user can export parameters from the study session back into the real-time session.

Storm Information

The Storm Information panel displays information about a defined storm (see **Using Define Storm Dialog** on page 5-18).

The Storm Information Panel displays the following fields:

- The **Storm Name** field displays the name of the storm. This field is not editable and is populated by information entered into the Storm Name field of the Define Storm dialog.

- The **Storm Start** field displays the starting date of the storm. This field is not editable and is populated by information entered into the Start Date field of the Define Storm dialog.

- **Storm Level** is a drop-down menu of severity levels of the storm. It is initially populated by the option selected on the Storm Level drop-down menu of the Define Storm dialog. If you modify the Storm Level for a control zone that has child zones as part of the same storm, the Storm Level for all of those child zones will be changed to the modified value as well.

- **Special Condition** is a drop-down menu of special storm types. It is initially populated by the option selected on the Special Condition drop-down menu of the Define Storm dialog. If you modify the Special Condition for a control zone that has child zones as part of the same storm, the Special Condition for all of those child zones will be changed to the modified value as well.

Storm Report

The Storm Report is the main Storm Management pane. It provides an overview of the historical averages, actual averages, and estimates for each outage type in the currently selected control zone. Each time you select a different control zone from the Zone Selection tree, the Storm Report Panel refreshes to display the information for the newly selected zone.

The Storm Report pane displays the following columns:

- The **Outage Types** column contains the name of the Storm Management outage type category.

- The **Actual Outages** column contains the actual number of unrestored events of the corresponding outage type in the currently selected control zone.

- The **Total Outages** column contains the total number of forecasted outages of the corresponding outage type in the currently selected control zone. If the currently selected control zone is operating storm mode, this value may be assigned or calculated as a percentage of the Actual Outages column using the Storm Management outage forecasting functionality. If the currently selected control zone is operating in non-storm mode, the value of this column is equal to the value of the Actual Outages column, because the outage forecasting functionality is not available in non-storm mode.

- The **Travel to Assess** column contains the average number of minutes between dispatch of an assessment crew and the arrival of that crew on the job site. The number outside of the parentheses is the historical average used in the Storm Management estimate calculations. The number in parentheses is the actual average that has been occurring in the field over the past 2 hours.

- The **Assess** column contains the average number of minutes taken to assess the effort needed to restore/repair the event. The number outside of the parentheses is the historical average used in the Storm Management estimate calculations. The number in parentheses is the actual average that has been occurring out in the field over the past 2 hours.

- The **Travel to Repair** column contains the average number of minutes between dispatch of the repair crew and the arrival of that crew on the job site. The number outside of the parentheses is the historical average used in the Storm Management estimate calculations. The number in parentheses is the actual average that has been occurring out in the field over the past 2 hours.

- The **Repair** column contains the average number of minutes taken to restore/repair the event. The number outside of the parentheses is the historical average used in the Storm Management estimate calculations. The number in parentheses is the actual average that has been occurring out in the field over the past 2 hours.

- The **Clean** column contains the average number of minutes taken to by the repair crew to clean up after the event is restored before going to the next job. The number outside of the parentheses is the historical average used in the Storm Management estimate calculations. The number in parentheses is the actual average that has been occurring out in the field over the past 2 hours.

- The **Total Time to Assess hrs:min** column contains the raw amount of time required to assess all outages of the corresponding outage type in the currently selected control zone, in hours and minutes. The very basic formula for calculating this value is the following: (Travel to Assess + Assess) * number of Actual Outages. However, if any outage forecasting or manual overrides are currently applied, or if the simulation has any of the outages projected to be assessed at a time that would use a different Travel to Assess or Assess time other than what's currently displayed in the Storm Management window, then that basic formula no longer holds.

- The **Estimated Assessed By** column contains the estimated date and time at which the last of all outages with the corresponding outage type in the currently selected control zone will be assessed.

- The **Total Time to Restore hrs:min** column contains the raw amount of time required to repair all events of the corresponding outage type in the currently selected control zone, in hours and minutes. The very basic formula for calculating this value is the following: (Travel to Repair + Repair) * number of Actual Outages in non-storm mode, or (Travel to Repair + Repair + Clean) * number of Actual Outages in storm mode. However, if any outage forecasting or manual overrides are currently applied, or if the simulation has any of the outages projected to be repaired at a time that would use a different Travel to Repair or Repair or Clean time other than what's currently displayed in the Storm Management window, then that basic formula no longer holds.

- The **Estimated Restored By** column contains the estimated date and time at which the last of all outages with the corresponding outage type in the currently selected control zone will be restored.

- The **Forecast Mode** drop-down menu enables you to select what kind of outage forecasting you want to apply. This field is only enabled when the currently selected control zone is one at the simulation level operating under storm mode. List options include:

  - **% Change** - Allows the % Change cell beneath the Actual Outages column to become editable, enabling you enter a percentage greater than 100. This increases the value in the Total Outages column for each outage type by that percentage.

  - **Value** - Allows the Total Outages cell for each outage type row to become editable. It also disables the % Change cell under the Actual Outages column.

Summary Information

The Storm Management Summary Information panel provides an overview of the estimates for both the selected zone and the Company level zone. Each time you select a different control zone from the Zone Selection tree, the Summary Information Panel refreshes to display the information for the newly selected zone. (If you select the Company level zone, the Summary Information table contains only the one row of Company information.)

The Summary Information Panel displays the following fields:

- The **Zone** column contains the name of the Company level zone and the currently selected zone.

- The **Est Assessed By** column contains the estimated date and time when all assessment within the control zone will be complete.

- The **Est Restored By** column contains the estimated date and time when all events within the control zone will be restored.

- The **ERT Override** field displays the alternate estimated restoration time, if a published or non-published control-zone wide alternate estimate is currently being applied to the selected zone. See **ERT Override Dialog** on page 5-11 for more information.

Zone Selection

The Zone Selection panel is available in both Non-Storm and Storm modes. Storm Management information is displayed on a per control zone basis, supporting views for the top three levels of the control zone hierarchy in the operations model. The top-level (usually the "Company" level) control zone view displays when Storm Management starts up.

Selecting the Control Zone to View

You can view the information for another control zone by selecting that zone in the Zone Selection tree. The data displayed applies to the selected zone and all of its children. However, some components may be disabled if the currently selected control zone is not at the simulation level.

Using Storm Management

Storm Management supports two operational modes: Non-storm Mode and Storm Mode. Non-storm mode applies to everyday operations. When calculating estimates, crew resources are not taken into account because it is assumed there are enough crews available to handle all events. Storm mode is useful during and after a storm or other high volume outage periods. In this mode, the estimate calculations factor in crew availability. All control zone views operate in non-storm mode until explicitly placed into storm mode.

Using ERT Overrides

While it is periodically simulating the entire restoration process, Storm Management calculates an estimated assessment and restoration time for each eligible event. These estimates for each event are accessible to other modules (*e.g.*, may be displayed in a Work Agenda column). However, it is not always prudent to have these estimates available to the other modules; for example, when you initially enter storm mode and the available crew resources have not been fully defined, the calculated estimates would be rather inaccurate.

ERT Overrides provides the ability to override calculated ERTs for one or more specified control zones. The ERT overrides will impact existing outages as well as future outages in those control zones until the override is removed. Either a new specific ERT can be specified using the ERT Override tab, or an ERT offset from the outage start time can be specified using the ERT Delay tab. Both tabs also support tiering, which provides more granular override values based on the number of customers impacted by an event.

> **Note:** The ERT overrides will not affect the ERT of existing outages with an ERT source of 'C', meaning it was input by a crew or operator as opposed to calculated by the system.

ERT Override Dialog

To open the ERT Override dialog, do one of the following:

- Select the **ERT Override...** option from the System menu, or

- Click the **ERT Override** button on the toolbar.

The ERT Override window opens with the ERT Override tab displayed. The ERT Delay functionality is accessed via the ERT Delay tab. Both window tabs offer consistent actions via the buttons at the bottom of the window.

ERT Override Tab Fields

- The **Zone** column contains the control zone that is having its Storm Management calculated estimates made inaccessible or overridden. With a row selected, click in the Zone field to

  activate the Control Zone Selection (OPAL), which will expand the

Control Zone Selection dialog. Select the desired Control Zone and click OK to close the Control Zone Selection dialog

- The **Tier** column contains the optional tier criteria for using a given ERT Override value. See the **Add Tier** button description below to learn how to add tiers. Note that if tiers are used, the ERT Override field on the Summary Information panel will not display a value (since there will likely be more than one), but rather just display "Published" or "Non-Published."

- The **ERT Override** column contains the estimated restoration date and time for all events within the control zone to be displayed outside of Storm Management. Once you click in the ERT Override column, a button displays. This button opens a calendar that enables you select a date and time. The date/time you enter must be in the future. This field may be left blank.

- The **Publish Projections** column contains a checkbox that indicates whether or not the ERT Override value is published to other modules for the affected events.

- The **User** column displays the id of the user who provided the ERT override/delay value.

ERT Delay Tab

The ERT Delay tab exchanges the ERT Override column for a Delay column; all other columns function exactly the same as described in the ERT Override tab overview including the ability to add tiers to the delay.

- The ERT Delay column contains the delay to be added to the start time of outages to calculate the ERT, rather than using the normally calculated ERT. Once you click in the ERT Delay column, a mask for hours and minutes is displayed (*i.e.*, ##:##). Enter a delay value in hours and minutes to set the delay value. The ERT Delay will be activated once the OK button is clicked.

    Example - Using the Mask

    If you want to set the ERTs to be four hours and 30 minutes from the outage start times, enter 0430; the mask will show 04:30.

ERT Override Buttons

- The **Add** button adds a new row to the table in the ERT Override dialog. That row may then be edited to contain the desired control zone, ERT Tier (using the **Add Tier** button), ERT Override date/time, and publish values. If a row marked for removal is selected, pressing the Add button will undo the removal mark. New, unsaved rows display in the table as green. Edited, unsaved rows display in the table as cyan.

- The **Add Tier** button adds a tier to a *selected* row. The Tier column will be populated with an options menu that defaults to the first tier criteria. Clicking the menu will display all of the tiers configured in the system. If multiple tiers are configured with overlapping numbers of customers impacted, the first tier (T1) values will take precedence over the second (T2) and third (T3) tiers; likewise, T2 will take precedence over T3.

The product configuration has three tiers each with five values:

- Tier 1

  - T1 1-5 customers

  - T1 6-25 customers

  - T1 26-100 customers

  - T1 101-250 customers

  - T1 >250 customers

- Tier 2

  - T2 1-10 customers

  - T2 11-100 customers

  - T2 101-250 customers

  - T2 251-500 customers

  - T2 >500 customers

- Tier 3

  - T3 1-50 customers

  - T3 51-250 customers

  - T3 251-500 customers

  - T3 501-750 customers

  - T3 >750 customers

- The **Remove** button highlights the selected row (in red) to indicate that it has been marked for removal from the table in the ERT Override dialog. Rows are not removed until the **OK** button has been clicked.

- The **OK** button applies any actions taken, with the following exceptions:

  - If the ERT Override table contains more than one row for the same zone, an error dialog will appear and no changes will be saved. I

  - If another user enters an ERT override while you have the dialog open, the system will block the update and display an ERT override conflict message that tells you to refresh the data to see the latest values. Once the data has been refreshed, using the Refresh button, you may then modify the ERT override, if still applicable.

- The **Print…** button brings up the Print Preview dialog, which allows you to print out the contents of the ERT Override dialog.

- The **Cancel** button closes the dialog without saving changes, and leaves the accessibility/ overrides of the Storm Management estimates as they were.

- The **Refresh** button repopulates the ERT Override dialog with the latest information from the server.

  Note: Applying overrides to the Storm Management estimates has no effect on events that have a crew onsite or events that have had an ERT manually entered in Oracle Utilities Network Management System. Those events will retain the display of their present manually entered/Storm Management ERT.

The following table describes what occurs when different combinations of ERT Override column and Publish Projections column values are applied.

If...	Then...
The Publish Projections checkbox is checked and you enter a date and time in the ERT Override column for that row…	All events in that control zone will receive that date and time as their default ERT value outside of Storm Management: The ERT Override value displays in the ERT Override field of the Summary Information table along with the word "Published". The ERT Override value displays for current outages in that control zone in other modules. New outages in that control zone receive the ERT Override value until you turn the override of the Storm Management estimates off.
The Publish Projections checkbox is checked and you did not enter a date and time in the ERT Override column for that row…	Publishing an empty ERT Override value is not a supported operation. Such entries will not be saved. The correct way to hide ERT values is to uncheck Publish Projections checkbox.
If the Publish Projections checkbox is not checked and a date and time are entered in the ERT Override column for that row…	All events in that control zone will receive a blank value as their default ERT value outside of Storm Management, regardless of whether or not a date and time is entered in the ERT Override column for that row; current and new events display a blank ERT value in other modules until you turn the override of the Storm Management estimates off: The ERT Override value displays in the ERT Override field of the Summary Information table along with the word "Non-Published".
If the Publish Projections checkbox is not checked and a date and time are not provided in the ERT Override column for that row…	All events in that control zone will receive a blank value as their default ERT value outside of Storm Management, regardless of whether or not a date and time is entered in the ERT Override column for that row; current and new events display a blank ERT value in other modules until you turn the override of the Storm Management estimates off: The ERT Override field in the Summary Information panel contains the word "Non-Published".

Turning Off Accessibility of the Estimates

To turn the accessibility of the estimates off, complete these steps:

1. Do one of the following:

    • Click the **ERT Override** button on the toolbar, or

    • Select the ERT Override option from the System menu. The ERT Override dialog opens.

2. Click the **Add** button to add a new row to the ERT Override table.

3. Click into the Zone cell of the new row, and then click the button on the right of the Zone field.

    • The Control Zone Selection dialog opens.

4. Select the control zone whose estimates you wish to make inaccessible.

5. Click **OK**.

    • The Control Zone Selection dialog closes.

    • The zone you selected populates the Zone field.

6. Uncheck the Publish Projections checkbox.

7. Click **OK**. Storm Management's calculated estimates for that control zone are no longer accessible to other Oracle Utilities Network Management System windows and the ERT Override dialog closes.

Overriding the Estimates

To override the estimates to a default "global" ERT for the events in a zone, complete these steps:

1. Do one of the following:

    • Click the **ERT Override** button on the toolbar, or

    • Select the **ERT Override**... option from the System menu. The ERT Override dialog opens.

2. Press the **Add** button to add a new row to the ERT Override table.

3. Click into the Zone cell of the new row, and then click the button on the right of the Zone field.

    • The Control Zone Selection dialog opens.

4. Select the control zone whose estimates you wish to make inaccessible and click **OK**.

    • The Control Zone Selection dialog closes.

    • The zone you selected populates the Zone field.

5. Click into the ERT Override cell of the new row, and then click on the Calendar button.

6. Select a date and time for the new default ERT. Click **OK** on the Calendar dialog to close it.

7. Click out of the ERT Override cell and into a different cell to ensure the ERT Override time is saved.

8. Make sure the Publish Projections checkbox is checked.

9. Click **OK**. Storm Management's calculated estimates for that control zone are no longer displayed to other modules; the provided ERT Override value is displayed instead. The ERT Override dialog closes.

Changing Publish/Non-Publish or Default ERT Information

If you have the accessibility of the Storm Management estimates turned off, you can revise the default ERT, or you can change from publishing the default ERT to not publishing it or vice versa, without having to first turn the accessibility back on. To do this, complete these steps:

1. Do one of the following:
   - Click the **ERT Override** button on the toolbar, or
   - Select **ERT Override...** option from the System menu. The ERT Override dialog opens.

2. If you want to update the ERT Override for a zone, click into the ERT Override cell of the applicable row, click on the Calendar button.

3. Select a date and time, then click **OK**.

4. Click out of the ERT Override cell and into a different cell to ensure the ERT Override time is saved.

5. Check or uncheck the Publish Projections checkbox for the applicable row.

6. Click **OK**. The following occurs:
   - The ERT Override dialog closes.
   - The default ERT is published and/or revised if the Publish Projections checkbox was checked, or
   - The default ERT is not published if the Publish Projections checkbox was not checked.

Turning Accessibility of Projections Back On/Removing Overrides

To turn the accessibility of the Storm Management estimates back on and/or remove ERT Overrides, complete these steps:

1. Do one of the following:
   - Click the **ERT Override** button on the toolbar, or
   - Select the **ERT Override...** option from the System menu. The ERT Override dialog opens.

2. Select the row that corresponds to the zone for which you want to turn the accessibility of estimates back on/remove the applied ERT Override.

3. Press the **Esc** key.

4. Click **Remove**.

5. Repeat previous steps as needed.

6. Click **OK**. The following occurs:
   - All eligible events immediately receive the most recently calculated Storm Management estimates.
   - If all rows have been removed from the ERT Override table, the status bar indicates ERT Override is off.

Printing ERT Overrides

To print the contents of the ERT Override dialog, complete these steps:

1. Do one of the following:

    • Click the **ERT Override** button on the toolbar, or

    • Select the **ERT Override...** option from the System menu. The ERT Override dialog opens.

2. Click the **Print…** button. The Print Preview dialog opens.

3. Adjust the scale, orientation, and page setup as desired.

4. Click the **Print** button on the toolbar to print the page(s). The Print Preview dialog disappears and the print output appears at your selected printer.

Manual Overrides

It may occur that the actual averages are significantly different from the historical averages. The % Change row of the Storm Report lets you temporarily manually override each category of the historical averages. The percentage you enter changes the lookup values used in the calculation of the estimates. This functionality is only available when the currently selected control zone is at the simulation level.

Overriding Historical Averages

To override the historical averages, complete these steps:

1. Make sure the currently selected control zone is at the simulation level.

2. Click in the cell of the % Change row for the column of the corresponding historical average category you want to change.

3. Revise the percentage in the cell to the value you want to use.

4. Click **Enter**.

5. Click the **Save** button on the toolbar or select Save from the System menu. The historical averages in the column immediately update to reflect the change.

Storm Management will use the modified values when recalculating estimates during the next scheduled simulation iteration. The modified values stay in place until you manually change the % Change row back to 100% or, if applied during storm mode, you exit storm mode. The historical averages are not changed in the database.

Using Storm Mode

Storm mode is useful during and after a storm or other high volume outage period. In this mode, the estimate calculations factor in crew availability.

Once a crew arrives onsite at an event, the Storm Management estimate calculation will then use the actual crew arrival time rather than the projected arrival time. The estimate calculation can adjust again when a crew reports an estimated repair time based upon observed field conditions.

This section includes the following topics:

*   **Entering Storm Mode**

*   **Using Define Storm Dialog**

*   **Placing a Control Zone in Storm Mode and Defining the Storm Information**

*   **Joining Existing Storms**

*   **Joining a Control Zone to an Existing Storm**

*   **Changing Storm Levels**

*   **Changing Storm Types**

*   **Forecasting Outages**

*   **Using Forecast Profiles**

*   **Working with Crew Information**

*   **Using Study Mode**

*   **Exiting Storm Mode**

Entering Storm Mode

To enter storm mode for a control zone, complete these steps:

1. Do one of the following:

    *   Select **Toggle Storm Mode** from the System menu, or

    *   Click the **Toggle Storm Mode** button on the toolbar.

    The Define Storm dialog opens. Enter the storm data.

2. Click the **Ok** button.

    > **Note:** You can only enter storm mode from real-time mode. Once in storm mode, you can switch to study mode.

Using Define Storm Dialog

The Define Storm dialog opens once you toggle to storm mode. You must enter information about the storm before Storm Management will change modes. The information you provide here is used to populate parts of the Storm Information section of the window.

The Define Storm dialog displays the following fields and buttons:

*   The **Zone** field displays the Name of the currently selected zone. This control zone and all of its children that aren't already in storm mode will be placed into storm mode as a part of this storm. This field is not editable.

*   The **Storm Name** field allows you to enter the name of the storm. This value is used in conjunction with the current date as the unique identifier of the storm. If this field is not populated when you click the **OK** button, and error appears. Click **OK** to close the message and correct the error.

- **Special Condition** is a drop-down menu of storm types that indicate a pre-defined condition existing with the storm. This condition may also dictate a different set of historical average values be used in the estimate calculations made by the system.

- **Storm Level** is a drop-down menu of severity levels for the storm. This value is recorded for information and reporting purposes only and has no effect on the estimate calculations.

- **Start Date** is the date and time at which the storm started. When you uncheck the "Use current time" option, the button on the right of this field opens a calendar that enables you to select the date and time. Valid dates and times are those prior to (and including) the current time. If your entry is invalid, an error message appears. Click **OK** to close the message and correct the error.

- The **Use Current Time** checkbox is selected by default. This option allows you to leave the Start Date field blank and have the current system time on the server be used as the Start Date of the storm. Deselecting this option enables the calendar button to the right of the Start Date field.

- The **Ok** button saves the entered storm information and closes the dialog. Storm Management is now operating in storm mode for the corresponding control zone(s).

- The **Cancel** button discards the entered storm information and closes the dialog without switching the currently selected control zone into storm mode.

Placing a Control Zone in Storm Mode and Defining the Storm Information

To place a control zone in storm mode and define the storm information, complete these steps:

1. Make sure the desired control zone is selected in the Zone Selection panel, and that the zone is in non-storm mode.

2. Do one of the following:

   - Select the Toggle Storm Mode option from the System menu, or

   - Click the **Toggle Storm Mode** button on the toolbar. The Define Storm dialog opens.

3. Provide information in the Storm Name field.

4. Select a Special Condition from the drop-down list, if desired.

5. Select a Storm Level from the drop-down list, if desired.

6. Select a date and time for the storm's Start Date. Either:

   - Leave the Use Current Time option checked.

   - Uncheck the Use Current Time option. Click the Start Date calendar button and select a date and time for the storm's start date. Click **OK**. The calendar closes, and the selected date and time populate the Start Date field.

7. In the Define Storm dialog, click **Ok**. The following occurs:

   - The Storm Information panel appears in between the Zone Selection and Summary Information panels. The Crew Information panel appears below the Zone Selection and Storm Report panels.

   - Storm Management operates in storm mode for the selected control zone.

   - If the selected control zone has any child zones not already operating in storm mode, the child zones operate in storm mode as part of this same storm.

     Note: If your system has a control zone set up directly beneath the top-level control zone to contain all of the fuzzy events in the system, that fuzzy control zone cannot be placed into storm mode. That fuzzy zone will only go into storm mode when its parent zone is placed into storm mode.

Joining Existing Storms

If you try to place a control zone into storm mode and either: 1) there are other control zones at the same level that are already operating in storm mode, or 2) the selected zone has children that are currently operating in storm mode, then the Define Storm dialog opens with a Join Existing Storm panel. This panel gives you the option of adding the currently selected control zone to an existing storm rather than creating a separate new one.

The Join Existing Storm panel lists the existing storms that the selected control zone can be added to. When you select a storm from the list, the Storm Details section of the dialog populates with the information that pertains to the selected storm, and then the only editable field is the Start Date.

The Join Existing Storm panel displays the following buttons:

- The **Clear Selection** button deselects the storm in the list and reverts the fields of the Storm Details section back to their default, editable values. This button is only enabled when an existing storm is selected from the list.

- The **Ok** button saves the entered storm information and closes the dialog. Storm Management is now operating in storm mode for the corresponding control zone(s).

- The **Cancel** button discards the entered storm information and closes the dialog without switching the currently selected control zone into storm mode.

Joining a Control Zone to an Existing Storm

To join a control zone to an existing storm, complete these steps:

1. Make sure the desired control zone is selected in the Zone Selection tree, and that the zone is in non-storm mode.

2. Do one of the following:

   - Select the Toggle Storm Mode option from the System menu, or

   - Click the **Toggle Storm Mode** button on the toolbar. The Define Storm dialog opens with the Join Existing Storm panel displayed.

3. In the Join Existing Storm panel, select the storm you want the selected zone to join.

4. Select a date and time for the storm's start date using one of the methods below:

   - Leave the Use Current Time option checked. The current system time on the server will be used as the Start Date of the storm in this control zone.

   - Uncheck the Use Current Time option. The Start Date of the storm you selected to join will be used as the Start Date of the storm in this control zone, unless you explicitly edit it.

   - To then edit the Start Date, click on the Start Date **calendar** button and select a date and time for the storm's start date. Click **OK**. The calendar closes, and the selected date and time populate the Start Date field.

5. In the Define Storm dialog, click **Ok**. The following occurs:

   - The Storm Information panel appears in between the Zone Selection and Summary Information panels. The Crew Information panel appears below the Zone Selection and Storm Report panels.

   - Storm Management operates in storm mode for the selected control zone.

   - If the selected control zone has any child zones not already operating in storm mode, the child zones operate in storm mode as part of this same storm.

     Note: If all of the children of a zone are eventually placed under the same storm individually with the Join Existing Storm panel, the parent zone is

automatically placed into storm mode when the last child zone is joined to that storm. The parent zone adopts the earliest Start Date of all of its children.

Changing Storm Levels

The Storm Level value is recorded for information and reporting purposes only and has no effect on the estimate calculations.

To change the Storm Level selection, complete these steps:

1. Make sure the currently selected control zone is at the simulation level and operating in storm mode.

2. In the Storm Information panel, select the new storm type from the Storm Level drop-down menu.

3. Click the **Save Changes** button or select the Save Changes option from the System menu.

   • Any child zones of the currently selected zone that are also part of this same storm will receive the new storm level as well.

Changing Storm Types

The storm type listed in the Special Condition drop-down menu is linked to a specific set of historical average values. If the characteristics of a zone's storm change, you can change the Special Condition value and have the system use a new set of historical average values in its estimate calculations for that zone.

To change the Special Condition storm type, complete these steps:

1. Make sure the currently selected control zone is at the simulation level and operating in storm mode.

2. In the Storm Information panel, select the new storm type from the Special Condition drop-down menu.

3. Click the **Save Changes** button or select **Save Changes** from the System menu.

   • The Storm Report panel immediately repopulates with the historical averages for the new storm type.

   • Any child zones of the currently selected zone that are also part of this same storm will receive the new storm type as well.

   • Storm Management will use the historical average values that apply to the new storm type when recalculating estimates for events in that control zone, as well as its child zones that belong to the same storm, during the next scheduled simulation iteration.

Example of Changing Storm Types

For example, the Branch level of the control zone hierarchy is the simulation level. A Wind/Rain storm was defined for the Stark branch zones, which includes the Lake, Alliance, and Massillon zones. However, the temperature in the Alliance zone was cold enough for ice to form. The Special Condition in the Stark zone is set to Wind/Rain storm, so estimates being calculated for Alliance could be inaccurate due to the increased travel time involved in the icy conditions observed there.

If you change Special Condition in the Alliance zone to Ice, the historical value averages in the Storm Report repopulate with values appropriate for an ice storm. When the next scheduled simulation iteration occurs, the events in the Alliance zone receive estimates calculated using the historical averages for Ice, while the events in all other control zones in the Stark region continue to receive estimates calculated using the historical averages for Wind/Rain.

Forecasting Outages

Outage forecasting takes into account future storm load. It provides more accurate estimated restoration projections in the early stages of a storm by simulating the expected impact of the storm. Outage forecasting can be performed in a control zone at the simulation level currently operating storm mode.

Forecasting Outages by Percentage

To perform outage forecasting by percentage, complete these steps:

1. Make sure the Forecast Mode field in the Storm Report panel is set to % Change, and the current control zone is at the simulation level.

2. Click in the % Change cell beneath the Actual Outages column.

3. Revise the percentage in the cell to the value you want to use. This value must be greater than or equal to 100%.

4. Press **Enter**.

5. Click the **Save Changes** button on the toolbar or select **Save Changes** from the System menu. The following occurs:

   • The value in the Actual Outages column for each outage category is multiplied by the percentage in the % Change row and the result is displayed in the Total Outages column for each outage type. If any outage type currently has an Actual Outages value of 0, then 0 will remain displayed in the Total Outages column until at least one event of that outage type appears.

   • New outages that enter the system reflect the forecasting percentage and update the Total Outages column accordingly.

   • During the next scheduled simulation, the Storm Management estimates calculation takes into account the increased outage percentage. The modified percentage stays in place until the value in the % Change row is changed back to 100 or until storm mode is exited for the control zone.

Forecasting Outages by Value

The Total Outages column of the Storm Report is a calculated column containing the number of total forecasted outages for each outage type. When the currently selected control zone is at the simulation level and operating in storm mode, you can override the value of this column by editing individual cells within the column.

To perform outage forecasting by value, complete these steps:

1. Make sure the Forecast Mode field is set to Value and the current control zone is at the simulation level.

2. Click in the cell beneath the Total Outages column for the Outage Type whose value you wish to forecast.

3. Enter the new value.

4. Click **Enter**.

5. Click the **Save Changes** button on the toolbar or select **Save Changes** from the System menu. The following occurs:

   • The Total cell value beneath the Total Outages column updates to reflect the new sum using the modified forecast values.

   • During the next scheduled simulation, the Storm Management estimates calculation takes into account the increased number of outages.

- As new outages enter the system, the Total Outages column stays the same until the number of Actual Outages for an outage type exceeds the number of total outages. Once that occurs, Value forecasting is no longer applied to that outage type.

   Note: If you enter an invalid value into the Total Outages column, the cell reverts to its previous value when the **Save** button is pressed.

Using Forecast Profiles

You may want to define and save one or more outage forecasting profiles to be used for analysis and resource planning prior to a storm's occurrence. You can create, edit, delete, and apply forecasting profiles by using the Forecast Profiles window.

This section includes the following topics:

- **Forecast Profiles Window**
- **Adding a Profile**
- **Editing a Profile**
- **Removing a Profile**
- **Applying a Profile**
- **Printing Forecast Profiles**

Forecast Profiles Window

To open the Forecast Profiles window, complete these steps:

1. Make sure the currently selected control zone is at the simulation level.

2. Do one of the following:

   - Select the **Forecast Profiles**… option from the System menu, or

   - Click the **Forecast Profiles** on the toolbar.

The Forecast Profiles window displays the following fields and buttons:

- The **Add Profile** button adds a new default row to the table in the Forecast Profiles dialog. That default row may then be edited to contain the desired profile name and outage type values. If a row marked for removal is selected, pressing the Add Profile button will undo the removal mark. New, unsaved rows display in the table as green. Edited, unsaved rows display in the table as cyan.

- The **Remove Profile** button marks the selected row for removal from the table in the Forecast Profiles window. Rows marked for removal display in the table as red.

- The **Save Profiles** button saves any new or modified profiles, and any rows marked for removal will be deleted. If the Forecast Profiles table contains more than one row with the same profile name, an error dialog will appear and no changes will be saved.

- The **Profile Name** column contains a unique name for the profile.

- The remaining columns correspond to each Storm Management outage type category. These columns contain the number of outages of that outage type that comprise the forecast profile.

Buttons

- The **Apply Profile** button applies the selected forecast profile values into the Total Outages column of the Storm Report panel.

- The **Print…** button brings up the Print Preview dialog, which allows you to print out the contents of the Forecast Profiles dialog.

- The **Cancel** button closes the dialog without saving changes, and leaves the forecast profiles as they were.

Adding a Profile

To add a new outage forecasting profile:

1. Do one of the following:

   • Click the **Forecast Profiles** button on the toolbar, or

   • Select **Forecast Profiles** from the System menu. The Forecast Profiles dialog opens.

2. Click the **Add Profile** button to add a new row to the Forecast Profiles table.

3. Click into the Profile Name cell of the row and specify a unique name for this profile.

4. Click in the desired outage type cells of the row and specify a number of outages.

5. Click the **Save Profiles** button. The Forecast Profiles dialog closes and the new profile is saved for later use.

Editing a Profile

To edit an existing outage forecasting profile:

1. Do one of the following:

   • Click the **Forecast Profiles** button on the toolbar, or

   • Select **Forecast Profiles** from the System menu. The Forecast Profiles dialog opens.

2. Click into the desired cell of the desired forecast profile and modify the profile name/outage type count.

3. Click the **Save Profiles** button. The Forecast Profiles dialog closes and the edited profile is saved for later use.

Removing a Profile

To remove an existing outage forecasting profile:

1. Do one of the following:

   • Click the **Forecast Profiles** button on the toolbar, or

   • Select the Forecast Profiles option from the System menu. The Forecast Profiles dialog opens.

2. Click into the any cell of the forecast profile to be removed.

3. Press the **Esc** key.

4. Click the **Remove Profile** button.

5. Click the **Save Profiles** button. The Forecast Profiles dialog closes and the marked profile is removed.

Applying a Profile

To apply an outage forecasting profile:

1. Do one of the following:

   • Click the **Forecast Profiles** button on the toolbar, or

   • Select **Forecast Profiles** from the System menu. The Forecast Profiles dialog opens.

2. Click into the any cell of the forecast profile to be applied.

3. Click the **Apply Profile** button. The Forecast Profiles dialog closes, and the Total Outages column of the Storm Report for each outage type is now populated with the corresponding value from the forecast profile.

4. Click the **Save Changes** button. The Total cell value beneath the Total Outages column updates to reflect the new sum using the modified forecast values. For any outage type where

the Actual Outages value exceeds the forecasted value, the Total Outages column for that outage type will instead display the Actual Outages value rather than the forecasted value.

Printing Forecast Profiles

To print the contents of the Forecast Profiles dialog, complete these steps:

1. Do one of the following:

   • Click the **Forecast Profiles** button on the toolbar, or

   • Select **Forecast Profiles...** from the System menu. The Forecast Profiles dialog opens.

2. Click the **Print…** button. The Print Preview dialog opens.

3. Adjust the scale, orientation, and page setup as desired.

4. Click the **Print** button on the toolbar to print the page(s). The Print Preview dialog disappears and the print output appears at your selected printer.

Working with Crew Information

Storms create critical outage situations that make it vital to account for crew resources. For example, you may need to move a crew to a different control zone depending on the backlog of outages within each zone.

Crew Information Pane

The Crew Information pane lists all of the crews identified in Storm Management for the currently selected control zone and its children. Crews of certain skill and availability within a control zone are grouped together. Each row in the Crew Information table represents a group of crews.

Crew Information Toolbar

The Crew Information pane provides toolbar action buttons:

Button	Description
➕ Add Crew...	The **Add Crew…** button opens the Add Crew Group dialog, which lets you define new crew groups for the Crew Information table.
✏️ Edit Crew...	The **Edit Crew…** button opens the Edit Crew Group dialog, which lets you change crew data for a selected crew group in the Crew Information table.
❌ Delete Crew...	The **Delete Crew…** button removes the selected crew group from the Crew Information table. A warning dialog opens, prompting you for confirmation before deleting.
➡️ Move Crew...	The **Move Crew…** button opens the Move Crew Group dialog, used to transfer crews from the selected crew group in the Crew Information table to another control zone.
💾 Apply Crew Change...	The **Apply Crew Changes** button saves changes made in the Crew Information table. Unapplied changes in the Crew Information table are highlighted in different colors.

Button	Description
🔽 Import Crews...	The **Import Crews…** button opens the Import Crews dialog. In real-time mode, this dialog lets you import crews from Oracle Utilities Network Management System Web Trouble into the Crew Information table. In study mode, it additionally lets you import crew group information from the real-time session or the applied manual override or outage forecasting parameters from the real-time session into study mode.

Crew Information Table

The Crew Information panel displays the following fields:

- The **# Crews** column contains the number of crews that belong to the group.

- The **Zone** column contains the name of the control zone that crew group is assigned to.

- The **Company** column contains the name of the company that the crew group works for. This column is for informational purposes and does not affect the outcome of the estimate calculations.

- The **Crew Type** column contains the type of crew within the group. This indicates the type of work performed by the crews. The options here match the crew types defined in the Crew Makeup window (see **Crew Makeup** on page 2-37 for details).

- The **Start Date** column contains the date and time at which each crew in the group is available for work.

- The **End Date** column contains the date and time at which each crew in the group becomes unavailable for work.

- The **Hours On** column contains the length of the shift worked by each crew in the group.

- The **Hours Off** column contains the length of time between shifts worked by each crew in the group (*i.e.*, the number of hours that the each crew in the group has off after completing each shift).

Hiding the Crew Information Table

You can hide the Crew Information table by clicking the ⌄ button in the upper left corner of the pane.

Sorting the Crew Information Table

You can sort the Crew Information table in ascending or descending order according to any column in the table.

To sort the Crew Information table, click on the column heading of the column you want to sort by. The table sorts in ascending order of the selected column, and an up arrow appears on the column heading, indicating that the sort is ascending.

Click the same heading again to toggle to descending sort order. A down arrow appears, and the table re-sorts.

Applying Changes

A highlighted row in the Crew Information table indicates that there have been changes entered but not yet saved.

- Green highlighted rows are new rows that are added to the table.

- Cyan highlighted rows are rows that have been edited or updated.

A crew group may have been added, edited, moved or imported, but the changes are not permanent until you click the **Apply Crew Changes** button (💾) on the Crew Information toolbar.

Once you save the changes, the new or changed rows in the Crew Information table are no longer highlighted. If at the time of the application there are rows in the Crew Information table that contain the same data in all of their columns (except the # Crews column), then those rows are combined. The numbers of crews for each row are added together and the sum appears in the # Crews column.

If you try to change the control zone view while there are unsaved changes in the Crew Information table, a dialog prompts you to do one of the following:

- The **Yes** button saves the changes in the Crew Information table and moves to the newly selected control zone.

- The **No** button discards the changes in the Crew Information table and moves to the newly selected control zone.

- The **Cancel** button closes the dialog without altering the changes in the Crew Information table or moving to the selected control zone.

Importing Crews

The crew information used by Storm Management is maintained separately from that in Oracle Utilities Network Management System Web Trouble. However, crew information defined in Web Trouble can be imported into Storm Management with the Import Crews dialog.

To open the Import Crews dialog when in storm mode, click the **Import Crews…** button (📥) on the toolbar.

> **Note:** Changes made within Storm Management to the imported crews will not affect the data in Oracle Utilities Network Management System Web Trouble.

The Import Crews dialog serves two functions:

- In real-time mode, it lets you import crew information from Web Trouble into the Crew Information table, based on specified filtering criteria.

- In study mode, it lets you import Web Trouble crew information, as well as the manual override/outage forecasting parameters of the currently selected control zone and any crew information from real-time mode into study mode.

Import Crews Window

The Import Crews window contains the following fields and buttons:

- Zone Information

  - The **Current Zone** field displays the name of the currently selected control zone. This field is not editable.

- Import Criteria

  - The **Reset** option, when checked, replaces all crews currently in the Crew Information table with the imported crews. When not checked, the imported crews are added to the existing data in the Crew Information table.

- The **Real Crews** option is checked by default. This option imports crew information from Web Trouble. This option is only deselectable in study mode.

- The **Crew Groups** option, when checked, lets you import the crew groups from the real-time session. This option is only enabled in study mode.

- The **Parameters** option, when checked, lets you import the outage forecasting and manual overrides from real-time mode for the selected control zone. This option is only enabled in study mode.

- Filters

  - The **Zone** option, when checked, option imports only crews from the specified control zone. The button on the right opens the Control Zone Selection dialog. (In this dialog, select the zone you want and click **OK**.)

  - The **Company** option is only enabled when the Real Crews Import Criteria option is not selected. It imports only the crews with the Company specified in the drop-down list.

  - The **Crew Type** option, when checked, imports only the crews whose type matches the crew type specified in the drop-down list.

  - The **Real Crew Status** option, when checked, imports the crews whose status in Web Trouble matches the status specified in the drop-down list. Available crew status options are On-Shift (crew is active and currently on shift), Off-Shift (crew is active and currently off shift) and Inactive (crew is currently not active). This option is only enabled when the Real Crews Import Criteria is selected.

- The **Import** button imports the crew information and/or outage forecasting and manual override parameters as specified and closes the dialog. In the Crew Information table, the imported data is highlighted and crews with identical parameters are automatically combined into the same group. To confirm the changes and remove the highlighting, click the **Apply Crew Changes** button.

- The **Cancel** button discards the import criteria options and closes the dialog without importing anything.

How to Import Crews

To import crews, complete these steps:

1. Make sure the currently selected control zone is operating in storm mode.

2. Click **Import Crews…** ( ) on the Crew Information toolbar.

3. Select the import criteria and filters for the crews you want to import.

4. Click **Import**. If an imported crew is not an identical match to any existing crew group rows in the Crew Information table, then it's added to the table as a new row and highlighted in green. If an imported crew is an identical match to any existing crew group rows in the Crew Information table, then the number of crews in the existing crew group row is incremented and the row is highlighted in cyan.

5. To apply the changes, click the **Apply Crew Changes** button ( ) on the toolbar.

Example of Importing Crews

The highlighted rows in the Crew Information table below show the results of importing crews into real-time without using the Reset option. The Hours On and Hours Off values default to 8 and 16 respectively for any crew information imported from Web Trouble.

- Green highlighted rows are new rows that are being added to the table.

- Cyan highlighted rows are crew groups that are having crews added to them. The # Crews column has been increased to reflect the new number of crews in the group.

> **Note:** The End Date column is not populated because there is no corresponding value defined in Web Trouble.

Adding Crew Groups

You can add new crew groups to Crew Information table using the **Add Crew** dialog. To open the

Add Crew dialog, click the **Add Crew…** button ( ) on the toolbar.

- **Details Pane**

    - The **Zone** field is the control zone that the crew group is assigned to. The default value is the control zone that Storm Management is currently viewing. The button on the right opens the Control Zone Selection dialog. (In this dialog, click on the zone you want and click **OK**.)

    - The **Company** drop-down menu is the name of the company that the crew group works for. This column is for informational purposes and does not affect the outcome of the estimate calculations.

    - The **Crew Type** drop-down menu is the type of crew within the group. This indicates the type of work performed by the crews. The options here match the crew types defined in the Crew Makeup window of Web Trouble.

    - The **# Crews** field allows you to specify the number of crews that belong to the group.

- **Schedule**

    - The **Start Date** field is the date and time at which each crew in the group is available for work. The button on the right opens a calendar dialog to select the date and time from.

    - The **Avail Until** field is the date and time at which each crew in the group becomes unavailable for work. The button on the right opens a calendar dialog to select the date and time from.

    - The **Hours On** field allows you to specify the length of the shift worked by each crew in the group, beginning at the Start Date.

- The **Hours Off** field allows you to specify the length of time between shifts worked by each crew in the group (*i.e.*, the number of hours that the each crew in the group has off after completing each shift).

- The **OK** button confirms the details and schedule for the new crew group, inserts the information into the Crew Information table, and closes the dialog. You must save the new crews by clicking the **Apply Crew Changes** button or selecting the Apply Crew Changes option from the Crew menu.

- The **Cancel** button discards the details and schedule and closes the dialog without inserting any information.

When there is at least one crew in the table, you can display the pop-up menu by selecting and then right-clicking a row in the Crew Information table.

- The **Copy Crew** option copies the selected row in the Crew Information table.

- The **Paste Crew** option inserts the copied crew into the Crew Information table below the current line.

- The **Add Crew** option inserts a new row into the Crew Information table containing default values. Once the new row is added, you can change the values in each column.

Adding Crew Groups with the Right-Click Pop-Up Menu

You can add crews directly in the Crew Information table by using the right-click pop-up menu. To do this, complete these steps:

1. Right-click in the Crew Information table. The options menu appears, with the **Add Crew** option enabled.

2. Select **Add Crew**. A new row appears in the Crew Information table with the default values, highlighted in green.

Editing Crew Groups Using Edit Crew

Once you have imported or added crew groups, you can modify the details of a crew group. Modify crew information using the Edit Crew Group dialog.

1. Click the **Edit Crew…** button ( ) on the toolbar to open the Edit Crew Group dialog. The Edit Crew Group dialog contains the same fields as the Add Crew Group dialog. The fields are populated with data from the selected row of the Crew Information table.

2. Modify the crew as necessary and click OK to update the Crew Information table.

3. To apply the modifications, click the **Apply Crew Changes** button ( ).

Editing Crew Groups within the Crew Information Table

You can also edit crews directly in the Crew Information table. To do this, complete these steps:

1. Click the cell of the row that you want to edit. Depending on the type of data in the cell, one of the following occurs:

   - A cursor appears within the cell.

   - A calendar dialog opens for you to select a new date and/or time.

   - A Control Zone Selection dialog opens.

   - A drop-down list opens.

2. Make changes by either editing the value in the cell or selecting from the dialog or drop-down list. (In the Control Zone Selection dialog, click on the zone you want and click **OK**. In the calendar dialog, select a new date and/or use the spinners to set a new time.). The edited row becomes highlighted in cyan.

3. Click **Apply Crew Changes** (💾). The following occurs:

- Your edits are saved.

- The row is no longer highlighted.

- The changes are used during the next scheduled simulation iteration.

Deleting Crew Groups

To delete a crew group from the Crew Information table, complete these steps:

1. Select the crew group in the Crew Information table.

2. Click the **Delete Crew** button (❌) .

   A message box opens, requesting confirmation that the selected crew group should be permanently deleted.

3. Click **Yes** to confirm the delete. The crew group disappears from the Crew Information table.

   Note: the **No** button cancels the delete.

Moving Crew Groups to a Different Control Zone

Each crew group is assigned to a specific control zone when it is created. During your analysis, you may want to adjust your crew resource allocation by reassigning crews to different control zones. The Move Crew Group dialog enables you to move all or part of the crews within a selected crew group to different control zones.

To open the Move Crew Group dialog, select a crew group from the Crew Information Table and click the **Move Crew…** button (➡). The Move Crew Group window contains the following fields and buttons:

- The **Company** field displays the name of the company that the crew group works for. This field is not editable.

- The **Crew Type** field displays the type of crew within the group. This indicates the type of work performed by the crews. It matches the crew types defined in the Web Trouble Crew Makeup window This field is not editable.

- The **From Zone** field displays the current control zone of the selected crew group. This field is not editable.

- The **To Zone** is the control zone that the specified number of crews is moving to. The button on the right opens the Control Zone Selection dialog. (In this dialog, click on the zone you want and click **OK**.)

- The **# Crews** field allows you to specify the number of crews within the selected crew group to move to the new control zone. If you enter a number greater than the number of existing crews, an error will occur when you click **OK**.

- The **OK** button confirms the details of the move and closes the dialog. If all of the crews in a group are being moved, the original crew group row now appears highlighted in cyan with the control zone modified. If only part of the crews is being moved from a crew group, the original group row is now highlighted in cyan with the number of crews decreased appropriately. A new crew group row appears highlighted in green with the number of specified crews to move and new control zone (all other fields in the row are the same as the original crew group).

- The **Cancel** button discards the details about the move and closes the dialog without saving any information.

To move crews, complete these steps:

1. Select a crew group row in the Crew Information Table.

2. Click the **Move Crew…** button ( ). The Move Crew Group dialog opens.

3. Click the zone selection button on the right of the To Zone field. The Control Zone Selection dialog opens.

4. Select the control zone you want to move the crews to and click **OK**. The Control Zone Selection dialog closes, and the zone you selected populates the To Zone field.

5. If you only want to move part of the crews in the group, enter the number of crews you want to move in the # Crews field.

6. Click **OK**. The dialog closes.

   If all of the crews in a group are being moved, the original crew group row now appears highlighted in cyan with the control zone modified.

   If only part of the crews is being moved from a crew group, the original group row is now highlighted in cyan with the number of crews decreased appropriately. A new crew group row appears highlighted in green with the number of specified crews to move and new control zone (all other fields in the row are the same as the original crew group).

7. Click the **Apply Crew Changes** button ( ). The following occurs:

   • The crew groups are moved to their assigned control zones.

   • The modified rows are no longer highlighted.

   • The updated information is used during the next scheduled simulation iteration.

Moving Entire Crew Groups Using the Table Edit Features

You can also move a crew group by clicking directly in the Zone field of the crew group row and changing the control zone. To move a crew group in this way, complete these steps:

1. Click in the Zone field for the crew group you want to move. The row becomes selected, and the Control Zone Selection dialog appears.

2. Select the zone you want to move the crew group to and click **OK**.

3. Click in a different field of the row. The Zone field updates to reflect the zone you just selected, and the row becomes highlighted in cyan.

4. Click **Apply Crew Changes** ( ). The modified row moves to its new control zone and is no longer highlighted. The updated information is used during the next scheduled simulation iteration.

Moving Partial Crew Groups Using the Right-Click Pop-Up Menu

You can also move partial crew groups directly from the Crew Information table. To do this, complete these steps:

1. Select a crew group row in the Crew Information Table.

2. Copy a selected crew group using the right-click Copy Crew option.

3. Paste it as a new row in the table using the right-click Paste Crew option.

4. Edit the Zone cell in the new row by clicking on it, selecting the new control zone and clicking **OK**.

5. Edit the # Crews cell in the original row.

6. Edit the # Crews cell in the new row.

7. Click **Apply Crew Changes** ( ). The following occurs:

   • The new row moves to its assigned control zone.

   • The modified rows are no longer highlighted.

   • The updated information is used during the next scheduled simulation iteration.

Using Study Mode

While in Storm Mode, you may enter study mode, which enables you to manipulate parameters that affect the estimate calculations, such as outage forecasting, manual overrides and crew information, without altering the current real-time calculations.

This section includes the following topics:

• **Entering Study Mode**

• **Calculating Crew Resources**

• **Importing Crews and Parameters**

• **Exporting Crews and Parameters**

• **Calculating Estimates in Study Mode**

• **Exiting Study Mode**

Entering Study Mode

To toggle between study mode and real-time mode, do one of the following:

• Select **Toggle Study Mode** from the Storm menu, or

• Click the **Toggle Study Mode** button on the toolbar.

You can only enter study mode from a control zone that is currently in storm mode.

The first time you enter a study session, several portions of the Storm Management window are not populated as they were in the real-time session:

• The Summary Information table's Est Assessed By and Est Restored By columns are empty.

• The Storm Report table's Total Time to Assess and Total Time to Restore columns display zeros.

• The Storm Report table's Estimated Assessed By and Estimated Restored By columns are empty.

• Outage forecasting parameters that existed in the real-time session are not applied.

• Manual overrides that existed in the real-time session are not applied.

• The Crew Information table is empty.

• The Last Update field of the status bar does not contain a time.

Once you create a study session, it remains active throughout the storm. You may find a need to toggle between study and real-time modes repeatedly during a storm. Each time you re-enter study mode, Storm Management loads the saved data saved from the most recent visit to the study session.

The status bar at the bottom of the Storm Management window identifies the current operating modes, as shown below for study, storm mode.

When in study mode, the window's refresh interval is disabled, and estimate calculations using the data in the study mode session must be triggered manually. However, the system does continue to make real-time estimate calculations for all control zones.

Calculating Crew Resources

In storm mode, Storm Management can calculate the approximate number of crews that the system requires to complete assessment and restoration in the currently selected control zone by a specified date. You can enter variables used in the calculation and see the results in the Calculate Crews dialog.

To open the Calculate Crews dialog, do one of the following:

- Select **Calculate Crews** from the Storm menu when in storm mode, or

- Click the **Calculate Crews…** button on the toolbar.

The Calculate Crews dialog displays the following fields and buttons:

- The Assessment **Desired Date** field contains the assessment completion time you want to achieve. The button on the right of this field opens a calendar that enables you to select a date and time. You must select a date and time later than the current time. The value you enter (and the system uses) displays in the upper left corner above the Used Crews table after the results are calculated. You may leave this field blank if you wish to Calculate Crews for Repair only.

- The Assessment **Work Efficiency (%)** field contains the efficiency of the assessment crews as a percentage. This value affects the amount of work to be completed and is applied along with performance factor values associated with the crew type. You must specify the assessment work efficiency as a percentage between 1 and 100. The value you enter (and the system uses) displays to the right of the Estimated Assessed By date above the Used Crews table after the results are calculated.

- The Repair **Desired Date** field contains the repair completion time you want to achieve. The button on the right of this field opens a calendar that enables you to select a date and time. You must select a date and time later than the current time. The value you enter (and the system uses) displays to the left of the Repair Eff percentage above the Used Crews table after the results are calculated. You may leave this field blank if you wish to Calculate Crews for Assessment only.

- The Repair **Work Efficiency (%)** field contains the efficiency of the repair crews as a percentage. This value affects the amount of work to be completed and is applied along with performance factor values associated with the crew type. You must specify the assessment work efficiency as a percentage between 1 and 100. The value you enter (and the system uses) displays above the right corner of the Used Crews table after the results are calculated.

- The **Hours** field contains the number of hours that equal one crew unit. The results are returned in crew units rounded to the next whole integer. The value entered and used by the calculation displays above the Unused Crews table.

- The **Calculate Crews** button calculates the number of crews based on the specified data. It populates the Used Crews and Unused Crews panels with the results.

- The **Reset** button resets the entries in the Assessment Desired Date and Work Efficiency, the Repair Desired Date and Work Efficiency, and the Crew Unit Hours fields back to their default values.

- The **Print…** button brings up the Print Preview dialog, which allows you to print out the contents of the Calculate Crews dialog.

- The **Cancel** button closes the dialog.

- The **Outage Types** column contains the name of the Storm Management outage type category.

- The **Assessment Units Existing** column contains the number of existing assessment crews units that can assess each outage type by the specified date.

- The **Assessment Units Needed** column contains the number of additional assessment crew units needed to assess each outage type by the specified date.

- The **Assessment Units Total** column contains the total number of assessment crew units needed to assess each outage type by the specified date.

- The **Repair Units Existing** column contains the number of existing repair crews units that can repair each outage type by the specified date.

- The **Repair Units Needed** column contains the number of additional repair crew units needed to repair each outage type by the specified date.

- The **Repair Units Total** column contains the total number of repair crew units needed to repair each outage type by the specified date.

- The **Crew Type** column indicates the type of work performed by the crews. It matches the crew types defined in the Crew Makeup window of Oracle Utilities Network Management System.

- The **Unused Units** column contains the number excess crew units for each crew type that are found to exist by the calculation.

Calculating Crews Needed to Assess and Restore Outages by a Given Time

To calculate the number of crew units needed to assess and repair all events in the currently selected control zone by a specific time, complete these steps:

1. From a control zone in storm mode, do one of the following:

    - Select **Calculate Crews** option from the Storm menu, or

    - Click the **Calculate Crews…** button on the toolbar.

2. Click on the Assessment Desired Date calendar button.

3. From the calendar dialog, select the date and time you want all assessment completed by and click **OK**.

4. Select the percentage in the Assessment Work Efficiency (%) field and type the percentage you want to use.

5. Click the **Repair Desired Date** calendar button.

6. From the calendar dialog, select the date and time you want all repair completed by and click **OK**.

7. Select the percentage in the Repair Work Efficiency (%) field and type the percentage you want to use.

8. Click the **Calculate Crews** button. Storm Management estimates the number of crew units needed and unused and displays the results in the Used Crews and Unused Crews tables.

Printing Calculate Crews Results

To print the contents of the Calculate Crews dialog, complete these steps:

1. Do one of the following:

    - Click the **Calculate Crews** button on the toolbar, or

    - Select **Calculate Crews...** option from the System menu. The Calculate Crews dialog opens.

2. Click the **Print…** button. The Print Preview dialog opens.

3. Adjust the scale, orientation, and page setup as desired.

4. Click the **Print** button to print the page(s). The Print Preview dialog disappears and the print output appears at your selected printer.

Importing Crews and Parameters

In study mode, the Import Crews dialog has additional options not available in real-time mode. It enables you to import Web Trouble crew information, as well as the manual override/outage forecasting parameters of the currently selected control zone and any crew information from real-time mode into study mode.

Importing Real-Time Crews and Parameters into the Study Session

To open the Import Crews dialog, click the **Import Crews…** button above the Crew Information table.

The following fields are only activated in study mode:

- The **Crew Groups** option, when checked, enables you to import the crew groups from the real-time session.

- The **Parameters** option, when checked, option enables you to import the outage forecasting and manual overrides from real-time mode for the selected control zone.

- The **Company** option is only enabled when the Real Crews Import Criteria option is not selected. It imports only the crews with the Company specified in the drop-down menu.

Once you click the **Import** button, Storm Management Crew Information panel looks and behaves as it does in real-time mode.

The window below shows how the Crew Information table would look if real-time crew groups are imported with no filters. All of the real-time crews are imported.

Importing Real-Time Session Information into the Study Session

To import crews, complete these steps:

1. Make sure the currently selected control zone is operating in study mode.

2. Click **Import Crews…** ( ).

3. Uncheck the Real Crews option under the Import Criteria section.

4. Check the Crew Groups option under the Import Criteria section.

5. Check the Parameters option under the Import Criteria section.

6. Click **Import**. The following occurs:

   - Any outage forecasting and manual override parameters that exist for this control zone in the real-time session are applied to the Storm Report table, but not yet saved.

   - The Save Changes button in the toolbar becomes sensitized.

   - The Crew Information table is now populated with the crew groups that exist for this control zone in the real-time session. If an imported crew is not an identical match to any existing crew group rows in the Crew Information table, then it's added to the table as a new row and highlighted in green. If an imported crew is an identical match to any existing crew group rows in the Crew Information table, then the number of crews in the existing crew group row is incremented and the row is highlighted in cyan.

7. Apply the outage forecasting and manual override changes by either:

   - Clicking the **Save Changes** button on the toolbar, or

   - Selecting Save Changes from the System menu.

8. Apply the Crew Info table changes by clicking **Apply Crew Changes** ( ).

The Crew Information table updates to display only those crews belonging to the currently selected control zone. The crew groups that are removed from the current view are saved in the study session for their appropriate control zones. You can view them by selecting their control zone from the Zone Selection tree.

Resetting the Current Study Session to Match the Real-Time Session

In the course of working with the study session, the user may want to start over by resetting the state of the study session to the current state of the real-time session.

1. To reset the study session, do one of the following:

    •   Click the **Reset Study Session** button on the toolbar, or

    •   Select **Reset Study Session** from the Storm menu.

    The Reset Study Session confirmation dialog will appear.

2. Click the **Yes** button on the confirmation dialog to proceed. The confirmation dialog closes. The Crew Information table updates with the crews defined in the real-time session. Special Condition, Forecast mode and override information in the Storm Report table are also updated to match the real-time session.

    > **Note:** This operation affects all control zones, not just the currently selected zone.

Exporting Crews and Parameters

Once the user is satisfied with the simulation parameters in study mode, the parameters can be exported back into the real-time session.

To export the study session parameters, complete these steps:

1. Do one of the following:

    •   Click the **Export Study Session** button on the toolbar, or

    •   Select **Export Study Session** from the Storm menu.

    The Export Study Session confirmation dialog appears.

2. Click the **Yes** button on the confirmation dialog to proceed. The confirmation dialog closes. The contents of the Crew Information as well as Special Condition, Forecast mode and override information in the Storm Report table are copied into the real-time session.

    > **Note:** This operation affects all control zones in the real-time session, not just the currently selected zone.

Calculating Estimates in Study Mode

Because estimate calculations using the data in the study mode session must be triggered manually, you must use the **Force Simulation Run** button to calculate the results.

> **Note:** While you are working in study mode, Storm Management continues to calculate restoration times for control zones operating in real-time.

To calculate estimates in study mode, do one of the following:

•   Select **Force Simulation Run** option from the System menu, or

•   Click the **Force Simulation Run** button on the toolbar.

The Summary Information table and Storm Report table update to display the estimates. The status bar indicates the time at which the forced simulation was last executed in the study session.

> **Note:** Each time you make changes in the Storm Management window in study mode, you must press the **Force Simulation Run** button in order to view the results of the changes. Because every time you press the **Force Simulation Run** button causes Storm Management to completely re-analyze and calculate estimates for all events in the system, forcing a simulation could slow down system performance at times. It is recommended you keep forced simulations at a minimum.

When Storm Management completes a forced simulation in real-time mode, a confirmation message is displayed.

Note: Once you've found the optimal settings in your study session, you must manually re-enter them into real-time mode to apply them to the storm.

Exiting Study Mode

To exit study mode, do one of the following:

• Click the **Toggle Study Mode** button on the toolbar, or

• Select **Toggle Study Mode** from the Storm menu.

If there are unsaved changes, a dialog opens prompting you for options to save the changes.

Note: You must exit study mode before you can exit storm mode.

Exiting Storm Mode

To exit storm mode for a selected control zone, do one of the following:

• Select the Toggle Storm Mode option from the System menu, or

• Click the **Toggle Storm Mode** button on the toolbar.

These options are only available if the currently selected control zone is operating in real-time mode and storm mode.

Define Storm Dialog

Once you press the Toggle Storm Mode, the Define Storm dialog opens, prompting you for the End Date of the storm in this zone.

The Define Storm dialog displays the following fields:

• The **Zone** field displays the name of the currently selected zone. This control zone and all of its children that aren't already in non-storm mode will be placed into non-storm mode, ending the storm in this zone(s). This field is not editable.

• The **Storm Name** field displays the name of the storm. This field is not editable.

• The **Special Condition** field displays a storm type that indicates a pre-defined condition existing with the storm. This condition may also dictate a different set of historical average values be used in the estimate calculations made by the system. This field is not editable.

• The **Storm Level** field displays the severity level for the storm. This value is recorded for information and reporting purposes only and has no effect on the estimate calculations. This field is not editable.

• The **Start Date** field displays the date time at which the storm started in this zone. This field is not editable.

• The **End Date** field contains the date and time at which the storm ended in this zone. When you uncheck the "Use current time" option, the button on the right of this field opens a calendar that lets you select the date and time. Valid dates and times are those prior to (and including) the current time. If your entry is invalid, an error message appears. Click **OK** to close the message and correct the error.

• The **Use Current Time** checkbox is selected by default. This option allows you to leave the End Date field blank and have the current system time on the server be used as the End Date of the storm in this zone. Deselecting this option enables the calendar button to the right of the End Date field.

Setting the Storm End Date

To set the storm's end date, complete these steps:

1. Select a date and time for the storm's end date. Either:

   • Leave the Use Current Time option checked.

- Uncheck the Use Current Time option. Click on the End Date calendar button and select a date and time for the storm's end date. Click **OK**. The calendar closes, and the selected date and time populate the End Date field. Valid dates are those between the start date and time of the storm and the current date and time.

2. Click the **Ok** button on the Define Storm dialog.

- Storm Management returns to non-storm mode for the selected control zone.

- If the control zone had any child zones in the same storm, the child zones are also returned to non-storm mode.

    Note: The **Cancel** button discards the End Date without saving it. The Define Storm dialog closes and the currently selected control zone stays in storm mode.

Storm Management View Only Environment

The Storm Management View Only environment is available for users who do not have a need to manipulate the various parameters on the Storm Management window, but rather need to monitor and analyze the information that is presented. To access the Storm Management View Only environment, login with View Only user type (See **Logging In** on page 5-2).

View Only Environment User Interface

View Only Menus

There are three menus on the View Only Storm Management menu bar: System, Storm, and Help.

Menu

The options in the System menu are available in both storm and non-storm modes. The following table describes the System Menu options and associated toolbar icons.

Menu Option	Description	Toolbar Icon
Retrieve Update	Refreshes the window with the most recent information from the system.	
Print All…	Opens the Print Preview dialog, which allows you to print out the Summary Information panel, Storm Report panel, Storm Information panel (if present), Crew Information panel (if present), and status bar information from the current Storm Management window.	--
Print Crews…	Opens the Print Preview dialog, which allows you to print out the Crew Information panel from the current Storm Management window. This option is only available in storm mode.	--

Storm Menu

The option in the Storm menu is only enabled when Storm Management is in storm mode for the selected control zone.

The following table describes the Storm Menu options.

Menu Option	Description	Toolbar Icon
Calculate Crews...	Opens the Calculate Crews dialog, which is used to determine the approximate number of crews needed to complete assessment and repair by a specified date and time.	

View Only Help Menu

The Help menu options are Storm Management Help, which opens the online help content for Storm Management, and About Storm Management, which displays information regarding the version of the application and the Web Gateway.

View Only Toolbar

The Storm Management toolbar provides a shortcut to many of the options available from the Storm Management menus.

The View Only Storm Management toolbar displays the following buttons.

- The **Retrieve Update** button ( ) refreshes the window with the most recent information from the system. In most cases, the window refreshes itself on a periodic basis. But, if there are unsaved changes in the Storm Management window at the time the automatic refresh is due to occur, the window will not refresh. Instead, an alert appears in the status bar indicating that an update is available, and the Retrieve Update option must be invoked in order to refresh the window with the new update. This allows you to continue on with your changes and save them first before refreshing.

- The **Calculate Crews** button ( ) opens the Calculate Crews dialog box, which is used to determine the approximate number of crews needed to complete assessment and repair by a specified date. This option is only available in storm mode.

Storm Management Storm Administration Environment

Upon completion of a storm (*i.e.*, all of the control zones belonging to the storm have been transitioned back to the non-storm mode of operation), authorized users can change completed storm data with Storm Management's Administration window. Users can view completed storm records and make changes to the control zone, storm type, storm level, and beginning and ending dates of the storm.

You can open the Administration window by clicking the Storm Management icon found under the appropriate program group in your Windows Start Menu, or by double clicking the Storm Management icon on your desktop (depending upon how it was installed). The Storm Management Login window will appear.

Login with a User Type of "Storm Administration" to proceed to the Administration window.

Administration Environment User Interface Features

Administration Menus

The Storm Administration environment provides the following menus:

- **Administration System Menu**
- **Administration Help Menu**
- **Administration Logout Menu**

Administration System Menu

The options in the System menu are available at all times. The following table describes the System Menu options.

Option	Description	Toolbar Icon
Revert Changes	Reloads the most recently saved records from the database.	
Save	Saves any changes made to the table.	
Print…	Opens the Print Preview dialog, which allows you to print out the contents of the Storm Administration table.	

Administration Help Menu

The Help menu provides links to online help content for Storm Management and information about the application, including release version and the Web Gateway that the application is using.

Administration Logout Menu

Provides the User Logout option. If you try to exit the window while there are unsaved changes in the table, a dialog prompts you to save changes. Click **Yes** to save the changes in the table and exits the window. Click **No** to discard the changes in the table and exits the window. The **Cancel** button closes the dialog without altering the changes in the table or exiting the window.

Storm Administration Table

The Storm Administration table displays the following fields and buttons:

- The **Storm Name** column contains the name of the storm as defined in the Define Storm dialog. This field is not editable.

- The **Zone** column contains the name of the control zone affected by this storm. Unless explicitly defined elsewhere in the table, all of the children of the control zone are considered part of this storm as well.

- The **Special Condition** column contains the storm type indicating a pre-defined condition of the storm, as defined in the Define Storm dialog.

- The **Start Date** column contains the date and time when the storm began in the zone, as defined in the Define Storm dialog.

- The **End Date** column contains the date and time when the storm ended in the zone, as defined in the Define Storm dialog.

- The **Storm Level** column indicates the severity of the storm, as defined in the Define Storm dialog.

Printing The Storm Administration Table

To print the contents of the Storm Administration table, complete these steps:

1. Do one of the following:

   - Click the **Print Preview** button on the toolbar, or

   - Select **Print...** option from the System menu. The Print Preview dialog opens.

2. Adjust the scale, orientation, and page setup as desired.

3. Click the **Print** button to print the page(s). The Print Preview dialog disappears and the print output appears at your selected printer.

Editing Storm Records

The Storm Administration window has many of the same editing capabilities as Storm Management's Crew Information table. The behavior of the editable field depends on the type of data in the field. When you select a row and click the right mouse button, a pop-up menu opens. The options in the menu enable you to cut, copy, paste, and delete rows in the table.

Pop-up menu options are described below:

- The **Cut Row** option removes the selected row from the table. You can paste the removed row back into the table with the Paste option. The row stays available for pasting until a new row is copied or cut from the table.

- The **Copy Row** option copies the selected row, enabling you to paste it into the table with the Paste option. The selected row that was copied remains in the table.

- The **Paste Row** option inserts the copied or cut row into the table.

- The **Delete Row** option removes the selected row from the table. The removed row cannot be pasted back into the table. To undo a deletion, you must select the Revert Changes option from the System menu to restore the table to its last saved state.

Example

The steps below show an example of how you can add new data to the Storm Administration window:

1. Select the row in the table that pertains to the storm whose data you want to change.

2. Copy the row and paste it in the table using the right-click menu.

3. Click in the Zone, Start Date, or End Date column. A cursor appears and you can enter new data.

4. Click in the Special Condition or Storm Level column. A drop-down menu appears with a list of eligible choices for you to select from.

5. Click the **Save** button to keep the changes. Storm Management validates the entries. If any of the following conditions is true, an error dialog appears and changes are not saved:

    •   A storm has multiple entries for the same control zone.

    •   An invalid Start Date or End Date is entered (*i.e.*, Start Date is later than End Date or End Date is earlier than Start Date).

    •   A storm has both an entry for a parent control zone and child control zone where the parent zone's Start Date is earlier than the child zone's Start Date. (Having both a parent and child control zone entry for the same storm with different Start Dates would indicate that the child zone was placed into storm mode within Storm Management first, and then later the parent zone was placed into storm mode within Storm Management. The parent zone entry would have to be removed and replaced with entries for each child zone if it's desired to record that one of the children had a later Start Date than the rest of the zones within that parent.).

    •   A storm has both an entry for a parent control zone and child control zone where the parent zone's End Date is earlier than the child zone's End Date. (Having both a parent and child control zone entry with different End Dates for the same storm would indicate that the child zone was placed back into non-storm mode within Storm Management first, and then later the parent zone was placed into non-storm mode within Storm Management. The parent zone entry would have to be removed and replaced with entries for each child zone if it's desired to record that one of the children had a later End Date than the rest of the zones within that parent.).

Understanding Storm Management Calculations

Storm Management enables you to analyze restoration times during high volume outage periods, such as those that occur during and following ice storms, thunderstorms, hurricanes, and other widespread disturbances. It can provide estimated assessment and restoration times for every outage in the system. It calculates estimates by periodically simulating the entire restoration process, taking into account the dynamically changing outage predictions and crew resource allocation. These restoration estimates can be used to manage workloads and prioritize crew assignments.

This section provides a detailed explanation of the algorithms and data Storm Management uses to create estimates. It includes the following topics:

•   **How Storm Management Works**

•   **Non-Storm Mode Algorithm**

•   **Storm Mode Algorithm**

How Storm Management Works

Storm Management has two basic modes of operation – non-storm and storm mode. The estimate calculation algorithm for each mode is fundamentally the same. For example, both modes use historical averages and simulated restoration calculation/analysis of all unrestored events in the system for the estimate calculation algorithm. However, non-storm mode does not attempt to make crew backlog calculations, making its analysis much simpler.

Historical Averages

The estimate calculation algorithm uses the following historical average minutes data that applies to the different parts of the restoration process:

- **Average travel time for an assessment crew**: how long it takes a crew that is going out to assess the event to arrive onsite, once en route.

- **Average assessment time**: how long it takes a crew to assess the event, once onsite.

- **Average travel time for a repair crew**: how long it takes a crew that is going out to repair the event to arrive onsite, once en route.

- **Average repair time**: how long it takes a crew to repair/restore the event, once onsite.

- **Average cleanup time**: how long it takes before a crew is ready to move on to their next assignment, once the repair/restoration is complete.

The historical average minutes can be broken down by various factors for further granularity of data:

- Control zone. The area the event is in (*e.g.*, urban vs. rural) may have an affect on how long it takes crews to arrive, and thus you may use different travel times for different control zones.

   > **Note:** One of the levels in the control zone hierarchy is designated as the control zone level at which the historical average minutes data is associated. This control zone level is herein referred to as the *simulation level*. For example, if the second level in the control zone hierarchy – the Region level – was the designated simulation level, that would imply that each region would have its own, possibly unique, set of historical average minutes.

- Outage type. The type of outage (*e.g.*, service outages vs. breaker lockouts) dictates how long it's going to take for repair/restoration, and thus you may use different repair/restore times for different types of outages.

- Shift. The time of day (*e.g.*, afternoon rush hour vs. middle of the night) may have an affect on how long it takes crews to arrive, and/or perform the assessment or repair/restoration, and thus you may use different travel, assessment, and repair/restore times for different shifts.

- Day type. The type of day (weekday vs. weekend vs. holiday) may have an affect on how long it takes crews to arrive, and thus you may use different travel times for different day types.

- Season. The time of year (*e.g.*, winter vs. summer) may have an affect on how long it takes crews to arrive, and/or perform the assessment or repair/restoration, and thus you may use different travel, assessment, and repair/restore times for seasons.

- Storm type. Particular weather conditions (*e.g.*, ice) may have an affect on how long it takes crews to arrive, and/or perform the assessment or repair/restoration, and thus you may use different travel, assessment, and repair/restore times for different types of storms.

Simulation

To generate estimates, the trouble analysis engine periodically goes through a simulated restoration calculation/analysis of all unrestored events in the system. Any events eligible to be assigned an estimated assessment and restoration time by Storm Management (*i.e.*, the events are of a type that Storm Management is configured to recognize, and they have not been given a manually-entered estimated restoration time from a crew/dispatcher) are sorted in priority order (part of the Storm Management configuration). Then, starting at the top of that list, the simulation begins. The event at the top of the list is examined. The mode of operation that the control zone in which the event resides is checked in order to determine which version of the algorithm is being applied to calculate the Estimated Restoration Time (ERT). The appropriate set of historical average minutes for the event is looked up, using the various characteristics such as control zone, outage type, storm type, and when the assessment and repair/restoration is projected to begin. Those historical averages are then used by the calculation of the appropriate algorithm to generate an estimated assessment time and estimated restoration time for the event.

The raw ERT value generated by the simulated restoration calculation can be further refined before becoming event's estimated restoration time.

If configuration rule 'ertAggregationPolicy' is set to *LATEST*, then all events estimated by Storm Management of the same type and at or under the same control zone at the aggregation level, are given the same ERT. That ERT is the latest Storm Management calculated ERT among these events. After aggregation, if configuration rule 'stormmanEstimateRounding' is enabled, the ERT value can be rounded.

Once an event has been given its estimates by the Storm Management simulation, it is removed from that priority-sorted list, and then the next event on the list is analyzed in the same manner, and the process continues until the last event on the list is removed. When the next simulation period occurs, the process starts over again. And when it does, the previously calculated estimates for many events may change, due to factors such as some previously unrestored events now being restored, new events of varying priority appearing, crews arriving onsite at various events, some events being given manually-entered estimated restoration times, no crew yet arriving onsite, or to various parameters on the Storm Management window being modified since the last iteration.

Storm Management Window

Because the engine that generates the estimated assessment and restoration times for each event is a separate process, you do not need to have a Storm Management window open in order for the estimates to be calculated. The main purpose of the Storm Management window is to enable you to monitor and analyze the estimates from overall control zone perspective, and to manipulate several of the parameters that are used to generate the estimates.

Given that it's not required to have a Storm Management window open to generate the estimates, after each periodic calculation of the estimates, the results are not pushed out to the Storm Management windows by the engine. Instead, each Storm Management window that's open has its own timer that it uses to periodically retrieve the latest information from the engine automatically.

Non-Storm Mode Algorithm

For an event that resides in a control zone that is operating under non-storm mode, the calculation of its estimated assessment and estimated restoration times is as follows:

- Look up the historical average values that pertain to an event with its characteristics.

- Verify whether or not an assessment has already been made for the event (if JOBS.ACT_ASSESS_TIME is non-null).

If assessment has been made:

- The repair time assessment provided (JOBS.EST_REPAIR_MINUTES) will be used in the calculation rather than the historical Repair average.

- Verify whether or not a crew is currently onsite for this event.

- If a crew is onsite:

  - Check the crew type to verify whether or not this type of crew is one that can repair this event.

    - If crew can repair:

      - It is assumed that the crew's onsite is there to perform the repair. The historical Travel to Repair average will not be used in the calculation. The actual repair time assessment (JOBS.EST_REPAIR_MINUTES) is added to the time at which the crew arrived onsite to generate the estimated restoration time (ERT) for the event.

    - If crew cannot repair:

      - It is assumed that the onsite crew is there to perform the assessment, and another crew must be sent out to perform the repair. The historical Travel to Repair average and the actual repair time assessment are added to the time at which the repair time assessment was provided (JOBS.ACT_ASSESS_TIME) to generate the estimated restoration time (ERT) for the event.

  - If a crew is not onsite:

    - The historical Travel to Repair average and the actual repair time assessment are added to the time at which the repair time assessment was provided (JOBS.ACT_ASSESS_TIME) to generate the estimated restoration time (ERT) for the event.

If no assessment has yet been made:

- Verify whether or not a crew is currently onsite for this event.

- If a crew is onsite:

  - Check the crew type to verify whether or not this type of crew is one that can both assess and repair this event.

  - If the crew type cannot perform both tasks:

    - Verify if the crew type can repair this event.

    - If crew can repair:

      - It is assumed that the crew's onsite is there to perform the repair. The historical Travel to Repair average will not be used in the calculation. The historical Repair average is added to the time at which the crew arrived onsite to generate the estimated restoration time (ERT) for the event.

    - If crew cannot repair:

      - It is assumed that the crew's onsite is there to perform the assessment. The historical Assess average is added to the time at which the crew arrived onsite to generate the estimated Assessment time (EAT). The historical Travel to

Repair and historical Repair averages are added to the estimated Assessment time to generate the estimated restoration time (ERT) for the event.

- If crew type can perform both tasks:

  - Verify whether or not assessment is required for this event (if Travel to Assess and Assess averages are both 0, assessment is not required).

  - If assessment is not required:

    - It is assumed that the crew that's onsite is there to perform the repair. The historical Travel to Repair average will not be used in the calculation. The historical Repair average is added to the time at which the crew arrived onsite to generate the estimated restoration time (ERT) for the event.

  - If assessment is required:

    - It is assumed that the crew that's onsite is there to perform the assessment. The historical Assess average is added to the time at which the crew arrived onsite to generate the estimated assessment time (EAT). The historical Travel to Repair and historical Repair averages are added to the estimated assessment time to generate the estimated restoration time (ERT) for the event.

- If a crew is not onsite:

  - Verify whether or not assessment is required for this event (if Travel to Assess and Assess averages are both 0, assessment is not required).

  - If assessment is not required:

    - No estimated assessment time (EAT) needs to be calculated. This historical Travel to Repair and historical Repair averages are added to the simulation to generate the estimated restoration time (ERT) for the event.

  - If assessment is required:

    - The historical Travel to Assess and historical Assess averages are added to the simulation to generate the estimated assessment time (EAT) for the event. The historical Travel to Repair and historical Repair averages are added to the estimated assessment time to generate the estimated restoration time (ERT) for the event.

Non-Storm Mode Algorithm Flow Chart
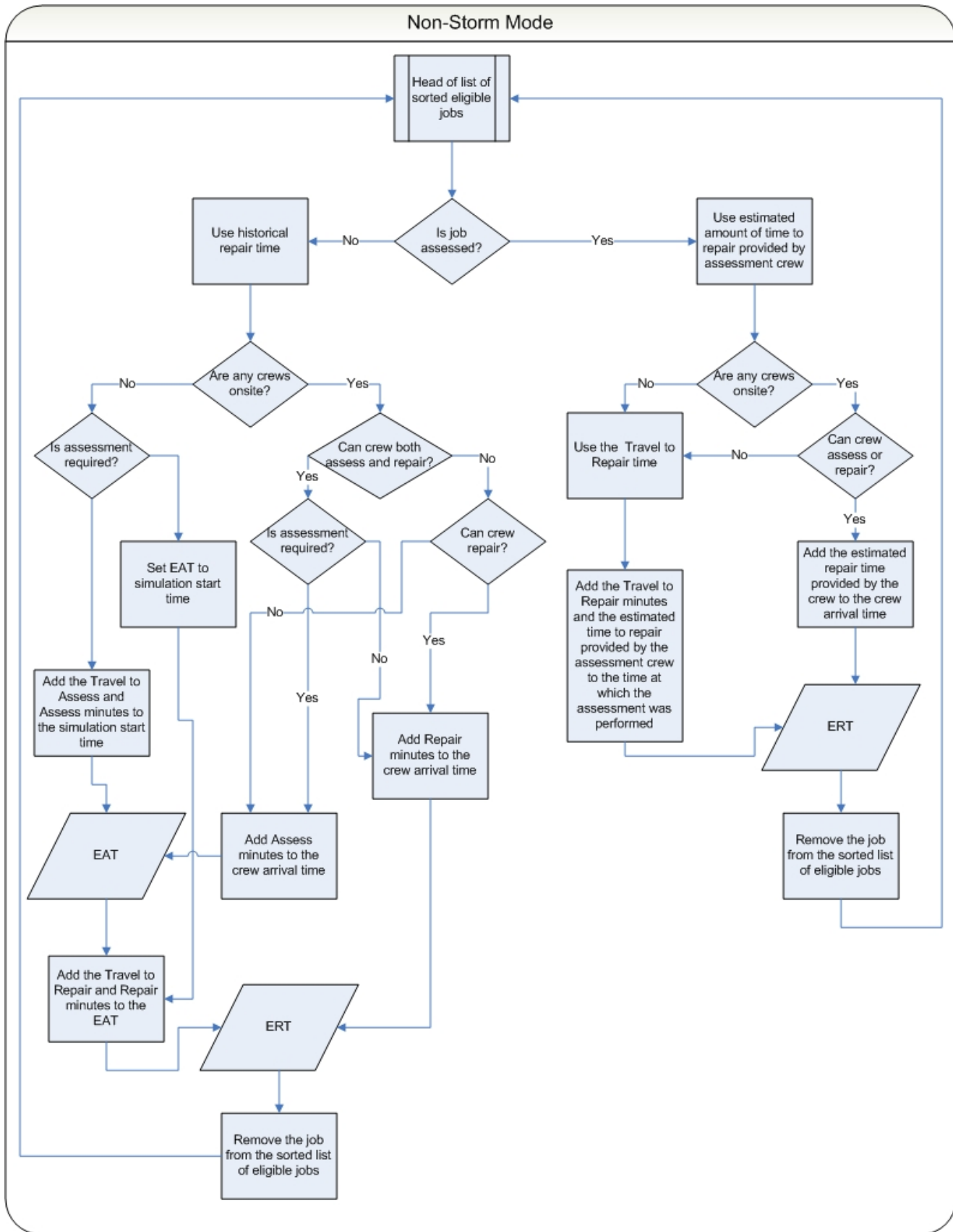
In summary, for an event that's in a control zone operating under non-storm mode:

- **Estimated assessment time** =
- the time at which the simulation iteration started +
- the historical average number of minutes it takes an assessment crew to arrive onsite +
- the historical average number of minutes it takes a crew to perform assessment once onsite

- **Estimated restoration time** =
- the estimated assessment time +
- the historical average number of minutes it takes a repair crew to arrive onsite +
- the historical average number of minutes it takes a crew to repair once onsite

Exceptions:

If a crew that can perform assessment is already onsite:

Estimated assessment time =

The time at which the assessment crew arrived onsite +

the historical average number of minutes it takes a crew to perform assessment once onsite

If an event has an actual assessment provided and no repair crew is yet onsite:

Estimated restoration time =

The time at which the actual assessment was provided +

the historical average number of minutes it takes a repair crew to arrive onsite +

the actual number of minutes it will take to repair, per the assessment

If an event has an actual assessment provided and a repair crew is already onsite:

Estimated restoration time =

The time at which the repair crew arrived onsite +

the actual number of minutes it will take to repair, per the assessment =

If an event does not require assessment and no repair crew is yet onsite:

Estimated restoration time =

The time at which the simulation iteration started +

the historical average number of minutes it takes a repair crew to arrive onsite +

the historical average number of minutes it takes a crew to repair once onsite

> **Note:** When the historical averages are applied to the calculation, the average that applies to the conditions at the time the particular step is projected to begin is used, not the average that applies to the conditions at the time the simulation iteration began. For example, Shift A has a particular average value for repair, and Shift B has a different average value for repair. The simulation iteration is in Shift A, but the calculated estimated assessment time falls in Shift B. When calculating the estimated restoration time, the historical average value for repair that pertains to Shift B will be used, not that of Shift A, because the repair isn't projected to begin until sometime during Shift B.

Storm Mode Algorithm

The algorithm for estimate calculation in storm mode is similar to that of non-storm mode, except that in storm mode the data entered into the Crew Information table on the Storm Management window is taken into consideration and used as the known crew resource allocation. At the start of each simulation, the algorithm assembles a crew availability list from the Crew Information table and uses that to keep track of when the next available crews are projected to be ready as the calculation progresses.

For an event that resides in a control zone that is operating under storm mode, the calculation of its estimated assessment and estimated restoration times is as follows:

- Look up the historical average values that pertain to an event with its characteristics

- Verify whether or not an assessment has already been made for the event (if JOBS.ACT_ASSESS_TIME is non-null)

If assessment has been made:

- The repair time assessment provided (JOBS.EST_REPAIR_MINUTES) will be used in the calculation rather than the historical Repair average

- Verify whether or not a crew is currently onsite for this event

- If a crew is onsite:

    - Check the crew type to verify whether or not this type of crew is one that can repair this event

    - If crew can repair:

        - It is assumed that the crew that's onsite is there to perform the repair. The historical Travel to Repair average will not be used in the calculation. The actual repair time assessment (JOBS.EST_REPAIR_MINUTES) is added to the time at which the crew arrived onsite to generate the estimated restoration time (ERT) for the event

    - If crew cannot repair:

        - It is assumed that the onsite crew is there to perform the assessment, and another crew must be sent out to perform the repair. The historical Travel to Repair average and the actual repair time assessment are added to the time at which the first crew that is eligible to repair this event will become available to generate the estimated restoration time (ERT) for the event

- If a crew is not onsite:

    - The historical Travel to Repair average and the actual repair time assessment are added to the time at which the first crew that is eligible to repair this event will become available to generate the estimated restoration time (ERT) for the event. The historical Clean average is added to the ERT and used as the time at which that eligible crew is available to be used for another event in the simulation.

If no assessment has yet been made:

- Verify whether or not a crew is currently onsite for this event

- If a crew is onsite:

    - Check the crew type to verify whether or not this type of crew is one that can both assess and repair this event

    - If the crew type cannot perform both tasks:

        - Verify if the crew type can repair this event

        - If crew can repair:

- It is assumed that the crew that's onsite is there to perform the repair. The historical Travel to Repair average will not be used in the calculation. The historical Repair average is added to the time at which the crew arrived onsite to generate the estimated restoration time (ERT) for the event

- If crew cannot repair:

  - It is assumed that the crew that's onsite is there to perform the assessment. The historical Assess average is added to the time at which the crew arrived onsite to generate the estimated assessment time (EAT). The historical Travel to Repair and historical Repair averages are added to the time at which the first crew that is eligible to repair this event will become available to generate the estimated restoration time (ERT) for the event. The historical Clean average is added to the ERT and used as the time at which that eligible crew is available to be used for another event in the simulation.

- If crew type can perform both tasks:

  - Verify whether or not assessment is required for this event (if Travel to Assess and Assess averages are both 0, assessment is not required)

  - If assessment is not required:

    - It is assumed that the crew that's onsite is there to perform the repair. The historical Travel to Repair average will not be used in the calculation. The historical Repair average is added to the time at which the crew arrived onsite to generate the estimated restoration time (ERT) for the event

  - If assessment is required:

    - It is assumed that the crew that's onsite is there to perform the assessment. The historical Assess average is added to the time at which the crew arrived onsite to generate the estimated assessment time (EAT). The historical Travel to Repair and historical Repair averages are added to time at which the first crew that is eligible to repair this event will become available to generate the estimated restoration time (ERT) for the event

- If a crew is not onsite:

  - Verify whether or not assessment is required for this event (if Travel to Assess and Assess averages are both 0, assessment is not required)

  - If assessment is not required:

    - No estimated assessment time (EAT) needs to be calculated. The historical Travel to Repair and historical Repair averages are added to the time at which the first crew that is eligible to repair this event will become available to generate the estimated restoration time (ERT) for the event. The historical Clean average is added to the ERT and used as the time at which that eligible crew is available to be used for another event in the simulation.

  - If assessment is required:

    - The historical Travel to Assess and historical Assess averages are added to the time at which the first crew that is eligible to assess this event will become available to generate the estimated assessment time (EAT) for the event. The EAT is used as the time at which that eligible assessment crew is available to be used for another event in the simulation. The historical Travel to Repair and historical Repair averages are added to the time at which the first crew that is eligible to repair this event will become available to generate the estimated restoration time (ERT) for the event. The historical Clean average is added to the ERT and used as the time at which that eligible repair crew is available to be used for another event in the simulation.

Storm Mode Algorithm Flow Chart

The yellow boxes indicate where the storm mode algorithm differs from the non-storm mode algorithm.
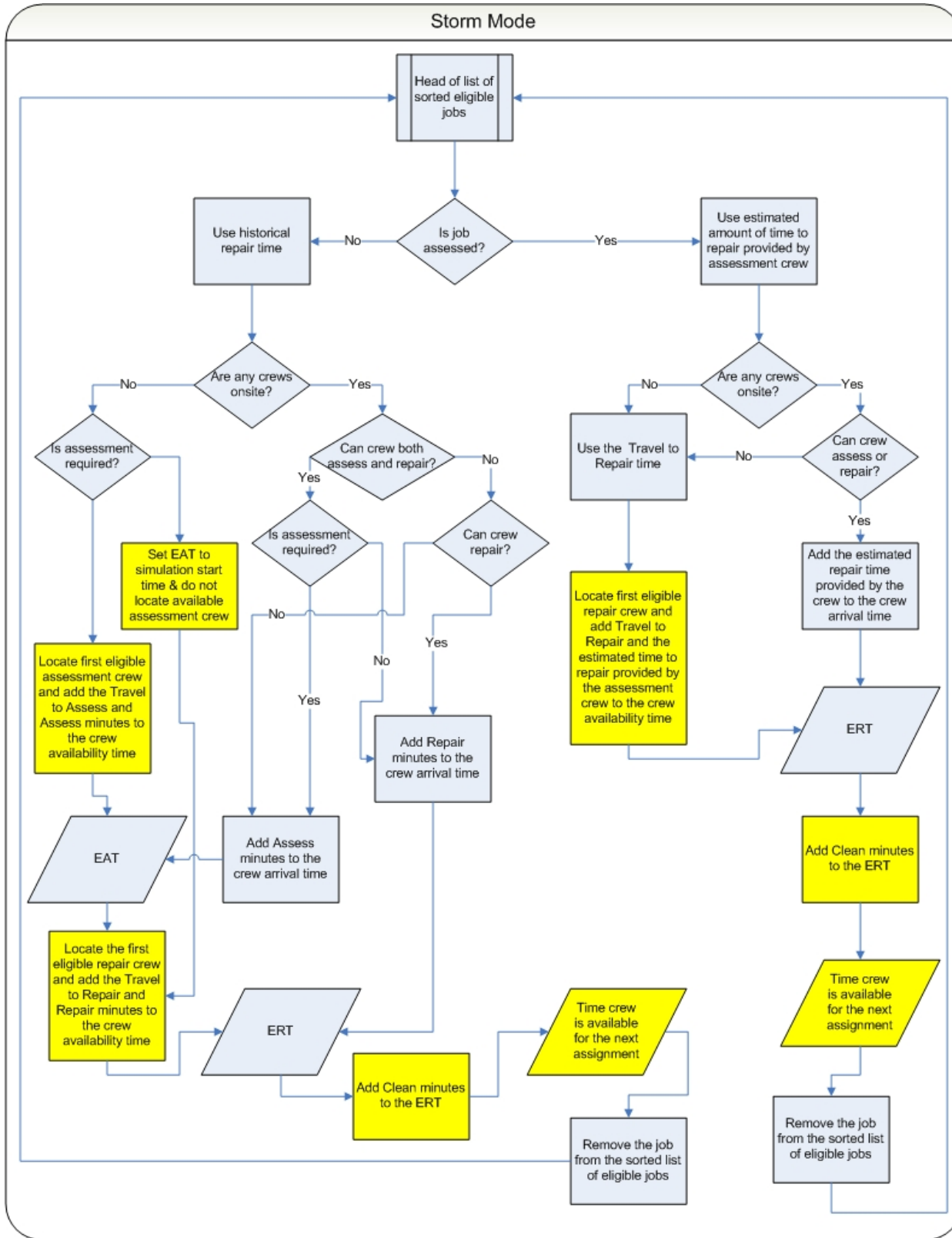
In summary, for an event that's in a control zone operating under storm mode:

Estimated assessment time =

- The time at which the first crew that's eligible to assess the event will become available +

- the historical average number of minutes it takes an assessment crew to arrive onsite +

- the historical average number of minutes it takes a crew to perform assessment once onsite

Estimated restoration time =

- The time at which the first crew that's eligible to repair the event will become available after the estimated assessment time +

- the historical average number of minutes it takes a repair crew to arrive onsite +

- the historical average number of minutes it takes a crew to repair once onsite =

Exceptions:

If a crew that can perform assessment is already onsite,

Estimated assessment time =

- The time at which the assessment crew arrived onsite +

- the historical average number of minutes it takes a crew to perform assessment once onsite

If an event has an actual assessment provided and no repair crew is yet onsite:

Estimated restoration time =

- The time at which the first crew that's eligible to repair the event will become available after the actual assessment time +

- the historical average number of minutes it takes a repair crew to arrive onsite +

- the actual number of minutes it will take to repair, per the assessment

Estimated restoration time =

- If an event has an actual assessment provided and a repair crew is already onsite,

- The time at which the repair crew arrived onsite +

- the actual number of minutes it will take to repair, per the assessment

If an event does not require assessment and no repair crew is yet onsite:

Estimated restoration time =

- The time at which the first crew that's eligible to repair the event will become available after the time at which the simulation iteration started +

- the historical average number of minutes it takes a repair crew to arrive onsite +

- the historical average number of minutes it takes a crew to repair once onsite

Notes:

- When the historical averages are applied to the calculation, the average that applies to the conditions at the time the particular step is projected to begin is used, not the average that applies to the conditions at the time the simulation iteration began. For example, Shift A has a particular average value for repair, and Shift B has a different average value for repair. The simulation iteration is in Shift A, but the calculated estimated assessment time falls in Shift B. When calculating the estimated restoration time, the historical average value for repair that pertains to Shift B will be used, not that of Shift A, because the repair isn't projected to begin until sometime during Shift B.

- If the algorithm finds that the calculated estimated assessment time or estimated restoration time would fall beyond the end of the shift of the first eligible crew by more than 60 minutes, it will go back and recalculate the estimate using a different crew other than the one that was originally chosen. The algorithm cannot split work for a single event between multiple shifts of the same crew or between multiple crews. As a consequence, if amount of work required for an event is more than the longest available shift of any crew capable of performing the work then the algorithm will not be able to provide a meaningful ERT for the event. At this point, the algorithm will use "default nominal crew" as a fall back mechanism in order to proceed. This is an artificial crew that can perform any work and not limited by shift restrictions. ERTs generated through use of "default nominal crew" are of no practical value and a warning is written into JMService log file each time this occurs.

Chapter 6

Service Alert Administration

This chapter describes the Oracle Utilities Network Management System - Service Alerts application. It covers the following topics:

- **Overview**

- **Logging In**

- **Using the Service Alert Administration Tool**

- **Service Alert Notification Examples**

Overview

Oracle Utilities Network Management System - Service Alerts is an application that allows for sending notifications to utility personnel in the form of an e-mail, or to devices capable of receiving email messages such as an alphanumeric pager or cell phone. These notifications are triggered by "events" in Oracle Utilities Network Management System Web Trouble. For example, a notification could be used to alert a marketing staff member that an unplanned outage affects a critical customer. This would enable the marketing person to contact the customer to provide up to date information about the status of the outage. Similarly, an operations staff member could be notified about the outage while away from the office.

Note that Service Alerts for planned events use the Web Switching Management's Impacted Customers list from the corresponding switching sheet to determine which customers would be affected by a planned outage. The Impacted Customers list has to be generated for a switching sheet in order for Service Alert notifications to work. See **Using the Impacted Customers Tab** on page 9-51 for details on the Impacted Customer list.

As a notification engine, Service Alert provides for configurable delivery options through use of an administration tool, and dynamic message format control facilitated by XSL transformation of an XML-based message payload. This gives the administrator the ultimate power and flexibility in determining the routing and content of all notifications.

Service Alert Admin Login Window

The Login window is the first Service Alert Administration window you see. You must enter a valid user name and password, and then click the Validate button. Once your user name and password are validated, the system populates the option menu that allows you to select a user type.

The Login window displays the following fields and buttons:

- The **User ID** field allows you to enter the user name provided to you by the system administrator.

- The **Password** field allows you to enter the password provided to you by the system administrator.

- The **Validate** button verifies your login credentials. If the user name and password are not entered correctly, the system displays a warning dialog box.

- The **User Type** drop-down menu contains the list of user types within your authority.

- The **Login** button allows you to complete the login process. Once you click the Login button, the Service Alert Administration window opens, based upon the User Type selected.

- The **Quit** button exits the Login window.

Logging In

To login to Service Alert Administration, complete these steps:

1. Depending on how your system was installed, either:
   - Click the **Service Alert** icon found under the appropriate program group in your Windows Start Menu, or
   - Double click the **Service Alert** icon on your desktop, or
   - Open a web browser and type the Service Alert URL in the browser's Address field. The Service Alert Administration Tool Login window displays.

2. Enter your user name.

3. Enter your password.

4. Click the **Validate** button. The bottom portion of the Service Alert Administration Tool Login window sensitizes.

5. Select the appropriate **User Type** from the drop-down menu.

6. Click the **Login** button. The Service Alert Administration window opens.

Using the Service Alert Administration Tool

The **Service Alert Administration Tool** enables you to configure message delivery options. It provides the following features:

- **General Features**
- **Contact Manager**
- **Group Manager**
- **Parameter Manager**
- **Utility Customer Manager**
- **Attribute Manager**

General Features

Preferences Menu

The following options in the Preferences menu are available at all times:

- **Smaller Font (Ctrl+Minus Sign):** Decreases the font size in text and icons. Repeat to further decrease the font size.

- **Bigger Font (Ctrl+Plus Sign):** Increases the font size in text and icons. Repeat to further increase the font size.

- **Reset Font (Ctrl+0):** The application will reset the text and icons to use their default font size.

- **Save Preferences**: saves the current column selection settings as the user's preference. Column selection is available in the **Contact Manager**, **Parameter Manager,** and **Attribute Manager** tabs.

- **Restore Preferences**: restores the default column selections.

Help Menu

The options in the Help menu are available at all times.

- **Service Alert Help** (F1) - opens the Online Help content for Service Alert.

- **Email Log Files...** (Ctrl-Shift-M) - Gathers the environment's log files and attaches them to a new email message using your default email client. The log files can then be sent to your support team or contact for further analysis.

- **About Storm Management** - opens a dialog that displays information regarding what version of the application is presently running, as well as version and other information about the Oracle Utilities Network Management System Web Gateway that the application is using.

Logout Menu

The Logout menu provides the User Logout option, which logs the user out of Service Alerts and closes the application.

Contact Manager

The Contact Manager tab allows you to perform the following tasks:

- **Adding a Contact**
- **Editing a Contact**
- **Selecting a Paging Provider**
- **Removing a Contact**

For a description of the fields and buttons on this tab, see the following topic.

Contact Manager Tab

The Contact Manager tab is used to add, edit, or remove contact information. The contact information contains identification information to associate each entry with an individual, as well as details regarding contacting the individual when a notification occurs. Note that an individual may have many contact entries. All contact entries in the system are listed in the Contacts table. Disabled contacts cannot receive notifications.

The Contact Manager tab displays the following fields and buttons:

- The **Contacts** panel lists company contacts that have been added through the Contact Manager. The table row colors correspond to whether a contact is active (white) or inactive (bluish gray). Rows in the table can be sorted in ascending or descending order by clicking on any column header.

    The columns displayed are user selectable by right-clicking the table heading area and checking or unchecking the list of available columns in the **Select Columns to Display** dialog. Once the columns have been chosen, you may save the choices for your subsequent sessions by selecting **Save Preferences** from the **Preferences** menu; if not saved, the default columns will be displayed when you relogin. See **Preferences Menu** on page 6-3 for details on saving and restoring column selections.

    The default product configuration displays the following columns:

    - The **Contact ID** column contains the contact's identification number.
    - The **Name** column contains the contact's name.
    - The **Email** column contains the contact's email address.
    - The **Active** columns contains the **Y** or **N** Active status.
    - The **Email** column contains the contact's email address.
    - The **Pager/SMS** column contains the contact's pager address or SMS number.
    - The **Printer** column contains the contact's printer name.

- The **Add** button () activates the editable fields in the Contact Information panel, which allows you to add a new contact.

- The **Edit** button () allows the user to edit contact information for the contact selected in the Contacts table.

- The **Remove** button () removes the currently selected contact parameter from the system.

- The **Print** button () opens the Print Preview window that allows you to print the contact list.

- The **Contact Information** panel is where the details for a contact are entered and/or edited.

    - The **Name** field contains the contact's name. This field can be edited when in add/edit mode. For sorting purposes, it is recommended that names be entered in "Last name, First Name" type format.

    - The **Contact ID** field contains a unique identifier that is useful for identifying an individual, particularly when that individual has more than one contact entry. Sorting on the External ID allows for quick viewing of all an individual's contact entries. A work phone number (possibly concatenated with a phone extension) could be used, for example.

    - The **Current Groups** field contains the groups to which this contact belongs. This field is not editable by the user, although group memberships can be modified on the Group Manager panel.

    - The **Email** field contains the contact's email address. This field can be edited when in add/edit mode.

    - The **Printer** field contains the contact's printer name. This field can be edited when in add/edit mode.

    - The **Pager/SMS** field contains the contact's pager address or SMS number. This field can be edited when in add/edit mode. This value will be the email alias for the contact's page or SMS device. The button next to the field allows the user to browse for a paging provider to assist in constructing the pager address string.

    - The **Search** button ( ) opens the Select a Paging provider dialog. This dialog provides a convenient means for select a paging provider used in constructing the email alias for a pager.

    - The **Active** checkbox enables/disables the contact entry. Disabled contacts do not receive notifications.

- The **Save** button ( ) saves the contact information currently being added/edited to the database.

- The **Cancel** button ( ) cancels the current add/edit operation.

Adding a Contact

To add a contact, complete these steps:

1. Click the **Contact Manager** tab on the Service Alert Administration Tool.

2. Click the **Add** button ( ). The appropriate fields in the Contact Information section become enabled.

3. Fill in the following fields: Name, Contact ID, Email (optional), Pager/SMS (optional), Printer (optional), and Active. The **Save** button becomes enabled.

4. If necessary, select a paging provider. See the next section for instructions regarding selecting a paging provider.

5. Click the **Save** button to save the contact information.

    Note: Creating a contact with a blank email, pager/SMS, and printer address effectively disables notification of the contact.

Editing a Contact

To edit a contact, complete these steps:

1. Click the **Contact Manager** tab on the Service Alert Administration Tool.

2. Click on a row in the **Contacts** table. This row represents the contact to be edited.

3. Click the **Edit** button ( ) The appropriate fields become enabled.

4. Modify one or more of the following fields: Name, Contact ID, Email, Pager/SMS, Printer, and Active.

5. If necessary, select a paging provider. See **Selecting a Paging Provider** on page 6-6 for instructions regarding selecting a paging provider.

6. Click the **Save** button to save the contact information.

> **Note:** Editing a contact to have a blank email, pager, and printer address effectively disables notification of the contact.

Selecting a Paging Provider

To select a paging provider, complete these steps:

1. Click on the **Search** icon next to the Pager field. The Select a Paging Provider dialog appears.

2. Click on a row in **Paging Providers** table. This row represents the paging provider to be chosen. The Paging Providers table contains the following columns:

   - **Provider** – The name of the paging provider company.

   - **Prefix** – A description of how an email alias for the pager is constructed. Typically, a sample prefix will be concatenated with the domain name.

   - **Domain Name** – The domain name used to construct the email alias for the pager device.

3. Click **OK** to choose the selected paging provider, or **Cancel** to dismiss the dialog without selecting a provider. The Select Paging Provider dialog closes.

4. Edit the **Pager** text field as appropriate.

> **Note:** The paging provider table is populated during the system installation. If you need to add, edit or modify paging provider information then please contact your system administrator.

Removing a Contact

To remove a contact, complete these steps:

1. Click the **Contact Manager** tab on the Service Alert Administration Tool.

2. Click on a row in the **Contacts** table. This row represents the contact to be removed.

3. Click the **Remove** button ( ). The Remove Contact dialog opens.

4. Click **Yes** to remove the contact from the system, or **No** to avoid removing the contact from the system.

Group Manager

The Group Manager tab on the Service Alert Administration Tool window is used to add, edit or remove contact groups, as well as specify the notification format for a group based on each notification type. A group is used in defining notification parameters. A notification parameter is the definition of a rule used to trigger a notification. Every parameter requires a group of contacts to be specified. This group specifies the intended recipients of a notification.

From the Group Manager tab, you can perform the following tasks:

- **Adding a Group**
- **Removing a Group**
- **Adding a Contact to a Group**
- **Removing a Contact from a Group**
- **Modifying the Message Transformation File**

For a description of the fields and buttons on this tab, see the following topic.

Group Manager Tab

The Group Manager tab contains the following information:

- The **Groups** panel displays a list of all groups in the system. A group does not need to contain any contacts, nor does it need to be associated with a notification parameter.

  - The **Add** button ( ) on the Groups panel opens the **Add Group** dialog. This dialog allows a new, empty group to be created. Each group must have a unique name.

  - The **Remove** button ( ) on the Groups panel deletes the group from the database. This will also delete all parameters associated with the group, but contacts that are members of the group are not deleted.

- The **Contacts** panel displays a list of the individual members in the selected group.

  - The **Add** button ( ) on the Contacts panel opens the **Add Contact** dialog. This dialog allows contacts to be added to the selected group.

  - The **Remove** button ( ) on the Contacts panel removes the selected contact from the selected group.

- The **Message Types** panel displays a list of the available notification message types that the selected group can receive.

- The **Transforms** panel contains information regarding the transforms for the selected message type.

  - The **Email** field displays the transform, in the form of an XSL file, which will be applied to the notifications of the selected notification type bound for an email destination corresponding to members of the selected group.

  - The **Pager/SMS** field displays the transform, in the form of an XSL file, which will be applied to the notifications of the selected notification type bound for a pager/SMS destination corresponding to members of the selected group.

  - The **Printer** field displays the transform, in the form of an XSL file, which will be applied to the notifications of the selected notification type bound for a printer destination corresponding to members of the selected group.

- The **Modify Transform** button saves the XSL file information to the database for the selected group and notification type. The user must verify that the specified XSL file is available in the designated location.

Adding a Group

To add a group, complete these steps:

1. Click the **Group Manager** tab on the Service Alert Administration Tool.

2. Click the **Add** button ( ). The Add Group dialog opens.

3. Enter a group name in the Group Name text field.

4. Click **OK** to create a group, or **Cancel** to avoid creating the group.

Removing a Group

To remove a group, complete these steps:

1. Click the **Group Manager** tab on the Service Alert Administration Tool.

2. Click on a group on the **Groups** list. The highlighted group is the group to be removed.

3. Click the **Remove** button ( ). A confirmation dialog opens.

4. Click **Yes** to remove the group, or **No** to avoid removing the group.

Adding a Contact to a Group

To add a contact to a group, complete these steps:

1. Click the **Group Manager** tab on the Service Alert Administration Tool.

2. Click on a group on the **Groups** list. The highlighted group is the group to which a contact will be added.

3. Click on the **Add** button ( ). The Select Contact dialog opens. The Contacts table in the Select Contact dialog displays all the contacts in the system that do not belong to the selected group.

4. Click on a row in the Contacts table. The Contacts table contains the following columns:

   - **ID** – System assigned unique id for the contact.

   - **External ID** – A unique identifier that is useful for identifying an individual, particularly when that individual has more than one contact entry. Sorting on the External ID allows for quick viewing of all an individual's contact entries, *e.g.*, Employee ID.

   - **Name** – The contact's name.

   - **Email** – The contact's email address.

   - **Pager/SMS** – The contact's pager or SMS address.

   - **Active** – A flag to indicate whether or not the contact is enabled in the system. Disabled contacts cannot receive notifications. Note that the table row colors correspond to whether a contact is active (white) or inactive (light blue).

   - **Printer** – The contact's printer name.

5. Click **OK** to add the selected contact to the group, or **Cancel** to avoid adding the contact to the group.

Removing a Contact from a Group

To remove a contact from a group, complete these steps:

1. Click the **Group Manager** tab on the Service Alert Administration Tool.

2. Click on a group on the **Groups** list. The highlighted group is the group from which a contact will be removed. The Contacts list displays the contacts in the selected group.

3. Click on a contact on the **Contacts** list. This is the contact to be removed.

4. Click the **Remove** button (❌). The Remove Contact From Group dialog opens.

5. Click **Yes** to remove the contact from the group, or **No** to avoid removing the contact from the group.

Modifying the Message Transformation File

To modify the transform for a given group and notification type, complete these steps:

1. Click the **Group Manager** tab on the Service Alert Administration Tool.

2. Click on a group on the **Groups** list. The highlighted group is the group for which the transformation filename will be modified.

3. Click on a notification type in the **Message Type** list. The highlighted type will be the notification type for which the transformation filename will be modified. The Email, Pager, and Printer transformation filename fields display default values for each transformation.

4. Modify the filenames associated with each transform.

5. Click **Modify Transform** to save the filenames to the database.

Parameter Manager

The Parameter Manager tab is used to add, edit, or remove notification triggering parameter information. A notification triggering parameter is the rule for defining a notification trigger within Service Alert. A parameter consists of a name, a threshold value, a group to notify when a violation occurs, and an associated control zone, device, or customer. Inactive parameters cannot be violated, and therefore will never trigger a notification.

The Parameter Manager tab allows you to perform the following tasks:

- **Adding a Customer Count Parameter**

- **Adding a Specific Customer Parameter**

- **Adding a Frequency of Outages Parameter**

- **Adding a Storm Affecting Control Zone Parameter**

- **Editing a Parameter**

- **Removing a Parameter**

For a description of the fields and buttons on this tab, see the following topic.

Parameter Manager Tab

The Parameter Manager tab is contains two panels:

- **Parameters Panel**

- **Parameter Information Panel**

Parameters Panel

The Parameters Panel displays the following fields and buttons:

- The **Parameters** panel lists all parameters in the system. Note that the table row colors correspond to whether a parameter is active (white) or inactive (bluish gray). For convenience, the rows in the table can be sorted in ascending or descending order by clicking on any column header.

  The columns displayed are user selectable by right-clicking the table heading area and checking or unchecking the list of available columns in the **Select Columns to Display** dialog. Once the columns have been chosen, you may save the choices for your subsequent sessions by selecting **Save Preferences** from the **Preferences** menu; if not saved, the default columns will be displayed when you relogin. See **Preferences Menu** on page 6-3 for details on saving and restoring column selections.

  The default product configuration displays the following columns:

  - The **Name** column contains a descriptive name given to the parameter.

  - The **Type** column contains the notification type on which the parameter is based.

  - The **Value** column contains the threshold value used in determining if a parameter violation has occurred. The units for this value are based on the notification type. For example, the parameter value unit of for the "Outage" notification type is "number of customers out." The "Outage affecting critical customer(s)" notification parameter value unit is "number of critical customers out."

  - The **Contact Group(s)** column contains the group of contacts to be notified when a parameter violation occurs.

  - The **Control Zone(s)** column contains the control zones to which the parameter applies.

  - The **Device Class(es)** column contains the types of devices to which the parameter applies, if applicable.

  - The **# Devices** column contains the number of device aliases associated with the parameter, if applicable.

    Note: A parameter must specify either a control zone or a list of devices (but not both).

  - The **# Accounts** column contains the count of customer account numbers associated with the parameter, if applicable.

  - The **Time Interval** column contains the time interval associated with the parameter, if applicable.

  - The **Event Type(s)** column contains the name(s) of the specific event type(s) this notification will be triggered for.

  - The **Event State(s)** column contains the name(s) of the specific event state(s) this notification will be triggered for. (Currently only used for Specific customer affected by unplanned outage notification.)

  - The **Use Event States** column contains a flag to indicate whether the Event State trigger is active for the parameter.

  - The **Customer Type(s)** column contains the critical customer types used in calculations for the associated notification.

  - The **Planned** column displays Y if notification should only be triggered for planned events.

  - The **Disable During Storm** column contains a flag to indicate whether parameter violation should be suppressed when the associated control zone is in storm mode or the

associated device resides in a control zone that is in storm mode. Storm modes are defined as part of Web Trouble configuration (rule sets applied to a control zone in the Authority tool).

- The **Duration** column contains the minimum outage duration (in hh:mm:ss format) required for the outage to trigger a notification.

- The **Add** button (![icon]) activates the editable fields in the Parameter Information panel, which allows you to add a new parameter.

- The **Edit** button (![icon]) allows you to edit the currently selected parameter.

- The **Remove** button (![icon]) removes the currently selected parameter from the system.

- The Export Table button (![icon]) allows you to save the Parameter Information table data as a CSV file.

Parameter Information Panel

The Parameter Information Panel is where the details for a parameter are entered and/or edited. The Parameter Information Panel displays the following fields and buttons:

> **Note**: The fields and buttons on this panel vary depending on the type of notification.

- The **Name** field displays the descriptive name given to the parameter. This value can be modified be when in add/edit mode.

- The **Select Contact Groups...** button brings up the Select Contact Groups dialog for selecting one or more groups to be notified when the parameter is violated. You can use the Control key in conjunction with the left mouse button to make multiple selections or deselect a group in the Select Contact Groups dialog. This button is enabled when in add/edit mode.

- The **Type** field displays a list of enumerated notification types to which this parameter applies. This value can be selected be when in add/edit mode.

  - Outage

  - Outage Affecting Critical Customer(s)

  - Outage Affecting Specific Customer

  - Frequency of Outages on a Device

  - Storm Affecting Control Zone

- The **Value** field displays the parameter threshold value. This value can be modified when in add/edit mode.

- The **Number of Selected Accounts** field displays the number of customer account numbers associated with the parameter, if applicable. This is non-editable field.

- The **Select Accounts...** button displays the Select Accounts dialog, allowing you to search for customer accounts to associate with the parameter, if applicable.

- The **Event Type** radio group allows you to select whether notification should be triggered by Planned or Unplanned events. This is only displayed for outage-type notifications.

  - The **Select Event Types...** button opens the Select Event Types dialog that allows you to select one or more event types that will trigger the notification when the parameter is violated. When multiple event types are selected, a notification will only be triggered the first time one of the selected event types is met. This button is enabled in add/edit mode when Unplanned Event Type is selected.

- The **Trigger** group allows you to select the event status that will trigger the notification. This group may contain one or more of the following options:

  - **Scheduled** - This checkbox is enabled only for outage notifications where the Event Type is Planned. If this is checked, the system will generate a notification when a switching sheet reaches the scheduled state, provided that other notification conditions are met.

  - **Started/In-Progress** - This checkbox is enabled only for outage notifications. If this is checked, the system will generate a notification when a planned or unplanned outage is started, provided that other notification conditions are met.

  - **Restored** - This checkbox is enabled only for outage notifications. If this is checked, the system will generate a notification when a planned or unplanned outage is restored, provided that other notification conditions are met.

  - **Cancelled** - This checkbox is enabled only for outage notifications. If this is checked, the system will generate a notification when a switching sheet reaches cancelled state or when an unplanned outage is cancelled, provided that other notification conditions are met.

  - **ERT Updated** - If checked, the system will generate a notification when an ERT is manually updated for an outage, provided that other notification conditions are met.

  - **Storm Started** - This checkbox is enabled only if the notification type is Storm Affecting Control Zone. If this is checked, the system will generate notification when storm has been created in Storm Management tool.

  - **Storm Updated** - This checkbox is enabled only if the notification type is Storm Affecting Control Zone and Storm Started checkbox is checked. If this is checked, the system will generate notification when information for an existing storm has been updated in Storm Management tool.

  - **Storm Ended** - This checkbox is enabled only if the notification type is Storm Affecting Control Zone. If this is checked, the system will generate notification when storm has been marked as ended in Storm Management tool.

- The **Duration** field allows you to enter the minimum outage duration (in hh:mm:ss format) required to trigger a notification. If an outage meets all the conditions for notification, but does not have sufficient duration, the system will delay the notification until the required outage duration has been reached. Duration of 0 seconds means that notification should be generated regardless of the outage duration. This field is only available for notification types: Outage, Outage Affecting Critical Customer(s), and Outage Affecting Specific Customers. Duration check is not applicable to Master Switching Jobs.

- The **Number of Selected Devices** field displays the number of device aliases associated with the parameter, if applicable. This is non-editable field.

- The **Select Devices...** button displays the Select Devices dialog, allowing you to search for devices to associate with the parameter, if applicable.

- The **Device Class(es)** field displays the class(es) or type(s) of devices to which the parameter applies. This value can be modified when in add/edit mode, depending upon the type of notification selected.

  - The **Select Device Classes...** button displays the Select Device Classes dialog, allowing you to select devices types to associate with the parameter, if applicable.

  - The **Clear** button clears the **Device Class(es)** field.

- The **Control Zone(s)** field displays the control zones of the device to which the parameter applies. This value can be modified when in add/edit mode.

  - The **Select Control Zones...** button displays the Select Control Zones dialog, allowing you to associate the parameter with a control zone, if applicable.

- The **Clear** button clears the Control Zone(s) field.

  Note: A parameter must specify either control zone or a device, but not both.

- Click the **Use Event States** checkbox if you want to select specific event states that will trigger the notification when the parameter is violated. If checked, the **Select Event States...** button is enabled.

  - The **Select Event States...** button brings up the Select Event States dialog for selecting one or more event states. You can use the Control key in conjunction with the left mouse button to make multiple selections or deselect a group in the Select Event Types dialog. This button is enabled when in add/edit mode.

- The **Time Interval** field displays the time interval value associated with the parameter. This value can be modified when in add/edit mode, depending upon the type of notification selected.

  - The **Specify Time Interval** button displays the Specify Time Interval dialog, allowing you to specify what time interval should be used for the parameter, if applicable.

  - The **Clear** button to the right of the Specify Time Interval button clears the Time Interval field when pressed.

- The **Disable During Storm** checkbox allows you to enable/disable the parameter during storm mode.

- The **Active** checkbox allows you to enable/disable the parameter.

- The **Select Customer Types...** button allows you to select one or more customer types to be considered in the calculations for the notification. This button is displayed only for notifications that involve critical customers.

  When you click this button, the Select Customer Type dialog opens. Select the customer types to include, then click **OK**.

  Note: If a customer belongs to more than one of the selected customer types, the customer is only counted once in the calculation.

- The **Save** button saves the parameter information.

- The **Cancel** button cancels an add/edit parameter operation.

About Parameter Values

A parameter must have certain required data specified before it may be saved. A parameter consists of a name, a threshold value, a group to notify when a violation occurs, and an associated control zone, device, or customer. The parameter value has a different meaning in the context of each of the various notification types.

The following table gives the units for each notification type.

Notification Type	Parameter Value Unit
Outage	Number of customers affected
Outage affecting critical customers	Number of critical customers affected
Outage affecting specific customer	N/A
Frequency of outages on a device	Number of outages
Storm affecting control zone	N/A

> **Note:** A group must exist to save the parameter. Use the Group Manager tab to create a group if one does not already exist.

Different notification types have different additional data required. The following table lists the other required values for each notification type.

Notification Type	Other Required Information
Outage	Event Type, Trigger, at least one device alias or Control Zone(s), or Device Class(es) and Control Zone(s)
Outage affecting critical customers	Event Type, Trigger, at least one device alias or Control Zone(s), or Device Class(es) and Control Zone(s)
Outage affecting specific customer	Event Type, Trigger, at least one customer account number.
Frequency of outages on a device	Time Interval, at least one device alias, or Device Class(es) and Control Zone
Storm affecting control zone	Trigger, Control Zone(s)

Adding a Customer Count Parameter

To add either an Outage notification parameter or an Outage affecting critical customer(s) notification parameter, complete these steps:

1. Click the **Parameter Manager** tab on the Service Alert Administration Tool.

2. Click the **Add** button. The appropriate fields on the Parameter Information panel become enabled.

3. Enter a descriptive name for the parameter into the **Name** field.

4. Click the **Select Contact Groups...** button. The Select Contact Groups dialog appears.

5. Select one or more groups to be notified when the parameter is violated from the Select Contact Groups dialog.

6. Click the **OK** button on the Select Contact Groups dialog. The Select Contact Groups dialog disappears.

7. Select either "1. Outage" or "2. Outage affecting critical customer(s)" from the **Type** options menu.

8. Enter a number in the **Value** field that represents the number of customers (for an Outage notification) or the number of critical customers (for an Outage affecting critical customer(s) notification) that must be out in order to trigger the notification.

9. Select either Unplanned or Planned from the **Event Type** options.

10. To limit the types of events that can trigger the notification, click the **Select Event Types...** button, then make your selection(s) on the Select Event Types dialog. If no selection is made, then the notification is triggered by all event types.

11. Select one or more check boxes in the **Trigger** section to specify when this notification should be triggered.

12. Either specify a list of devices or list of device classes and a list of control zones for the parameter. This is used in conjunction with the Value in order to trigger the notification.

    a. To specify a device, do the following:

       • Click the **Select Devices...** button. The Select Devices dialog opens.

       • Click the Add button (＋) to open the Device Search dialog. Enter your search criteria into the Search Text field. You may use an asterisk ("*") as a wildcard.

       • Click the **Search** ( ) button. The search results are displayed in the table.

       • Select the desired device(s) from the table and click **OK**. The Select Devices dialog is populated with rows for each selected device.

          • Newly added rows have a green background.

          • Rows can be removed from the Select Devices dialog using the **Remove Device** (✖) button. Rows scheduled for removal have a red background.

          • The **Undo Changes** (🗑) button reverts all changes made to the list of devices in the Select Devices dialog.

       • Click **OK** to close the Select Devices dialog. The Number of Selected Devices will be updated with the count of selected devices.

    b.   To specify a device classes and control zones, do the following:

- Select Device Classes

  - Click the **Select Device Classes...** button. The Select Device Classes dialog opens.

  - Select the device classes in the tree pane. You may click Expand All to show all device classes in the tree and click **OK**. The Select Device Classes dialog will close and the Device Class(es) field will be populated with the selected device class names.

- Select Control Zones

  - Click the **Select Control Zones...** button. The Select Control Zones dialog opens.

  - Select the desired control zones from the tree, and click **OK**. The Select Control Zones Dialog will close and the Control Zones field will be populated with the name of the selected control zones.

13. Select/deselect the **Use Event States**, **Disable During Storm,** and **Active** checkboxes as desired.

14. Click the **Save** button to save the parameter.

Adding a Specific Customer Parameter

To add an Outage affecting a specific customer parameter, complete these steps:

1. Click the **Parameter Manager** tab on the Service Alert Administration Tool.

2. Click the **Add** button ( ). The appropriate fields on the Parameter Information panel become enabled.

3. Enter a descriptive name for the parameter into the **Name** field.

4. Click the **Select Contact Groups...** button. The Select Contact Groups dialog appears.

5. Select one or more groups to be notified when the parameter is violated from the **Select Contact Groups** dialog and click **OK**. The Select Contact Groups dialog disappears.

6. Select "3. Outage affecting specific customer notification" from the **Type** drop-down menu.

7. Select either Unplanned or Planned from the **Event Type** radio group.

8. To limit the types of events that can trigger the notification, click the **Select Event Types...** button, then make your selection(s) on the Select Event Types dialog. If no selection is made, then the notification is triggered by all event types.

9. Select one or more check boxes in the **Trigger** section to specify when this notification should be triggered.

10. Click the **Select Accounts...** button to bring up the Select Accounts dialog.

11. Click the **Add Account** button ( ) to bring up the Account Search dialog.

12. Select a search criterion on the **Search Parameter** drop-down menu.

13. Enter text into the **Search Text** field according to the search criterion selected in the previous step. Note that an asterisk ("*") serves as a wildcard.

14. Click the **Search** ( ) button. The search results are displayed in the table.

15. Select the desired account(s) from the table and click **OK**. The Account Search dialog disappears and rows for the selected account numbers are added to the Select Accounts dialog.

    • Newly added rows have a green background.

    • Rows can be removed from the Select Accounts dialog using the **Remove Account** (❌) button. Rows scheduled for removal have a red background.

    • The **Undo Changes** (🗑) button reverts all changes made to the list of account in the Select Accounts dialog.

    Once satisfied with the list of accounts click **OK**. The Select Accounts dialog disappears, and the Number of Selected Accounts field is populated with the number of distinct account numbers from the Select Accounts dialog.

16. Select/deselect the **Use Event States**, **Disable During Storm,** and **Active** checkboxes as desired.

17. Click the **Save** button to save the parameter.

Adding a Frequency of Outages Parameter

To add a Frequency of Outages on a Device Notification parameter, complete these steps:

1. Click the **Parameter Manager** tab on the Service Alert Administration Tool.

2. Click the **Add** button (➕). The appropriate fields on the Parameter Information panel become enabled.

3. Enter a descriptive name for the parameter into the **Name** field.

4. Click the **Select Contact Groups...** button. The Select Contact Groups dialog appears.

5. Select one or more groups to be notified when the parameter is violated from the **Select Contact Groups** dialog.

6. Click the **OK** button on the Select Contact Groups dialog. The Select Contact Groups dialog disappears.

7. Select "5. Frequency of outages on a device notification" from the Type drop-down menu.

8. Enter a number in the **Value** field that represents the number of outages there must be in order to trigger the notification.

9. If desired, click the **Select Event Types...** button to bring up the Select Event Types dialog to limit the types of events that can trigger the notification. If no selection is made, then the default is all event types.

10. Click the **Specify Time Interval** button to bring up the Specify Time Interval dialog. Specify a time interval either as a certain number of hours/days/weeks/years.

    To specify the time interval as having a specific begin date, complete these steps:

    • Select the **Begin Date** radio button on the Specify Time Interval dialog. The Calendar button becomes enabled.

    • Click on the **Calendar** button. The Calendar dialog appears.

    • Specify the desired begin date and time in the Calendar dialog, then press the **OK** button. The Calendar dialog disappears, and the selected date/time now appears in the field next to the Begin Date radio button.

To specify the time interval as a certain number of hours/days/weeks/years, complete these steps:

- Select the **Time Window** radio button. The text field and drop-down button to the right of it become enabled.

- Select the desired unit of time from the drop-down menu and enter the desired number of units into the text field.

- Click the **OK** button on the Specify Time Interval dialog. The Specify Time Interval dialog disappears, and the Time Interval field is populated with the interval that was specified.

11. Either specify a list of devices or a list of device classes and list of control zones for the parameter. These are used in conjunction with the Value and Time Interval in order to trigger the notification.

    To specify a list of devices, do the following:

    - Click the **Select Devices...** button. The Select Devices dialog opens.

    - Click the Add button ( ) to open the Device Search dialog. Enter your search criteria into the Search Text field. You may use an asterisk ('*') as a wildcard.

    - Click the **Search** ( ) button. The search results are displayed in the table.

    - Select the desired device(s) from the table and click **OK**. The Select Devices dialog is populated with rows for each selected device.

        - Newly added rows have a green background.

        - Rows can be removed from the Select Devices dialog using the **Remove Device** ( ) button. Rows scheduled for removal have a red background.

        - The **Undo Changes** ( ) button reverts all changes made to the list of devices in the Select Devices dialog.

    - Click **OK** to close the Select Devices dialog. The Number of Selected Devices will be updated with the count of selected devices.

    To specify a list of device classes and a list of control zones, complete these steps:

    - Click the **Select Device Classes...** button. The Select Device Class dialog appears.

    - Select the desired device classes from the tree and click **OK**. The Select Device Classes dialog disappears, and the Device Class(es) field is populated with the names of the device classes.

    - To specify a list of control zones, click the **Select Control Zones...** button. The Select Control Zones dialog appears.

    - Select the list of control zones from the tree, and click **OK**. The Select Control Zones dialog disappears, and the Control Zone(s) field is populated with the name of the selected control zones.

12. Select/deselect the **Use Event States**, **Disable During Storm,** and **Active** checkboxes as desired.

13. Click the **Save** button to save the parameter.

Adding a Storm Affecting Control Zone Parameter

To add a Storm Affecting Control Zone parameter, complete these steps:

1. Click the **Parameter Manager** tab on the Service Alert Administration Tool.

2. Click the **Add** button ( ). The appropriate fields on the Parameter Information panel become enabled.

3. Enter a descriptive name for the parameter into the **Name** field.

4. Click the **Select Contact Groups...** button. The Select Contact Groups dialog appears.

5. Select one or more groups to be notified when the parameter is violated from the **Select Contact Groups** dialog.

6. Click the **OK** button on the Select Contact Groups dialog. The Select Contact Groups dialog disappears.

7. Select "6. Storm affecting control zone" from the Type drop-down menu.

8. Check **Storm Started** and/or **Storm Ended** in the **Trigger**. If Storm Started is checked, Storm Updated will become available and can also be checked.

9. Click the **Select Control Zones...** button. The **Select Control Zone** dialog appears.

10. Choose the desired control zones for the alert and click **OK**. The **Control Zone(s)** field will be populated with your choice.

11. Click the **Save** button to save the parameter.

Editing a Parameter

To edit a parameter, complete these steps:

1. Click the **Parameter Manager** tab on the Service Alert Administration Tool.

2. Click on one of the existing parameters in the Parameters table. The **Edit** button becomes enabled.

3. Click the **Edit** button ( ). The appropriate fields will become enabled.

4. Edit each field as desired.

5. Click **Save** to save the edited information, or click **Cancel** to avoid saving the edited information.

Removing a Parameter

To remove a parameter, complete these steps:

1. Click the **Parameter Manager** tab on the Service Alert Administration Tool.

2. Click on one of the existing parameters in the Parameters table. The **Remove** button becomes enabled.

3. Click the **Remove** button ( ). The Remove Parameter dialog opens.

4. Click **Yes** to remove the parameter or **No** to avoid removing the parameter.

Utility Customer Manager

The Utility Customers tab is used for designating customers as being "critical" within Service Alert and entering contact information for each critical customer. This information will display in the "Outage affecting critical customer(s)" notification. To "import" a customer into Service Alert, an "add" operation must be performed. Once the customer has been added, customer contacts can be associated with the account. Each customer contact can also have one or more phone entries, which indicate how the customer contact can be reached. To bring up contact information for an existing Service Alert Critical account, a "search" must be performed.

The Utility Customers tab allows you to perform the following tasks:

- **Adding an Account to Service Alert**
- **Searching for an Account**
- **Editing an Account**
- **Removing an Account**
- **Editing Customer Device Information**
- **Adding Customer Contact Information**
- **Searching for a Customer Contact**
- **Editing Customer Contact Information**
- **Removing Customer Contact Information**
- **Adding Customer Contact Phone Information**
- **Editing Customer Contact Phone Information**
- **Removing Customer Contact Phone Information**

For a description of the fields and buttons on this tab, see the following topic.

Utility Customers Tab

The Utility Customers tab displays the following fields and buttons:

- The header section contains details regarding a specific customer account.

    - The **Account Number** field displays the account number of the critical customer.

    - The **Name** field displays the name of the critical customer.

    - The **Address** field displays the address of the critical customer.

    - The **Client Type** menu allows you to specify a client type value for the critical customer. The available options are Undetermined, Office, Computer Data Center, Communications, Shelter, Command Center, Company Executives, and Business Leaders.

    - The **Add** button ( ) displays the Add Account dialog. This dialog allows you to add a critical customer into Service Alert. The main reason for doing this is to associate contact and contact phone information with the critical customer.

    - The **Edit** button ( ) places the header section into edit mode, allowing you to modify both the customer account name and the client type value.

    - The **Remove** button ( ) removes an account from Service Alert. This does not affect the customer's entries in the Oracle Utilities Network Management System tables.

    - The **Search** button displays the Search Account dialog. This dialog allows you to search for a critical customer that was previously added to Service Alert.

- The **Save** button allows you to save any changes you made while the header section was in edit mode, and returns the section to non-editable mode.

- The **Cancel** button returns the section to non-editable mode without saving any changes.

- The **Customer Devices** panel displays a list of devices that are associated with the currently selected account. For convenience, the rows in the table can be sorted in ascending or descending order by clicking on any column header.

  - The **Service Location ID** column contains the service location identification value for the device.

  - The **Device ID** column contains the identification value for the device.

  - The **Load Transfer** column contains the load transfer value for the device. The available options are NONE, AUTOMATIC, and MANUAL.

  - The **Load Shed** column contains the load shed value for the device. The available options are NO and YES.

  - The **Edit** button (✏) brings up the Device Information dialog, allowing you to modify the Load Transfer and Load Shed values of the selected device.

- The **Customer Contacts** panel contains the list of contacts for the currently selected account. For convenience, the rows in the table can be sorted in ascending or descending order by clicking on any column header.

  - The **ID** column contains the system assigned unique id for the customer contact entry.

  - The **Name** column contains the customer contact name.

  - The **Title** column contains the customer contact title, if applicable.

  - The **Instructions** column contains general instructions for contacting this individual.

  - The **Add** button (➕) displays the Add/Edit Customer Contact dialog. This dialog allows you to add a customer contact.

  - The **Edit** button (✏) displays the Add/Edit Customer Contact dialog. This dialog allows you to edit a customer contact.

  - The **Remove** button (✖) removes the contact from the critical customer contact listing.

  - The **Search…** button displays the Search Customer Contacts dialog. This dialog allows you to search for a customer contact that was previously added to Service Alert.

- The **Customer Contact Phones** panel displays phone information for the currently selected contact in the Customer Contacts table. For convenience, the rows in the table can be sorted in ascending or descending order by clicking on any column header.

  - The **ID** column contains the system assigned unique id for the customer contact phone entry.

  - The **Type** column contains the type of phone (Office, Home, Cell, etc.).

  - The **Number** column contains the phone number.

  - The **Ext** column contains the phone extension, if applicable.

  - The **Call Time** column contains the time of day to call the individual using this phone number (Anytime, Daytime, Nighttime, etc.).

  - The **Sequence** column contains the preferred calling order for reaching the customer contact.

- The **Add** button ( ) displays the Add/Edit Customer Contact Phone dialog. This dialog allows you to add a customer contact phone entry.

- The **Edit** button ( ) displays the Add/Edit Customer Contact Phone dialog. This dialog allows you to edit a customer contact phone entry.

- The **Remove** button ( ) removes the contact phone entry from the selected contact's list of phone contact information.

Adding Accounts

The **Add Account** dialog opens once you press the **Add** button ( ) on the Utility Customers tab. This dialog allows you to add a critical customer into Service Alert.

The Add Account dialog displays the following fields and buttons:

- The **Search Text** field displays the text used to search for a critical customer account. The text varies based on the search parameter. The asterisk character ('*') serves as a wildcard.

- The **Search Parameter** field displays the current search parameter. The available parameters are Account Number, Account Name, Phone Number, Address, City State, and Zip Code.

- The **Search** button performs a critical customer search within the Oracle Utilities Network Management System database based upon the Search Text and Search Parameter.

- The **Clear** button clears the Search Text field and the search results table.

- The **Account Number** column displays the account number of the critical customer.

- The **Account Name** column displays the account name of the critical customer.

- The **Phone Number** column displays the phone number of the critical customer.

- The **Address** column displays the address of the critical customer.

- The **City State** column displays the city and state portion of the critical customer's address.

- The **Zip Code** column displays the zip code of the critical customer.

- The **Emergency** column is a flag to indicate that this is an Emergency customer.

- The **Key** column is a flag to indicate that this is a Key customer.

- The **Medical** column is a flag to indicate that this is a Medical customer

- The **OK** button adds the customer to Service Alert and closes the Add Account dialog.

- The **Cancel** button closes the Add Account dialog without adding the customer to Service Alert.

Adding an Account to Service Alert

To add an account to Service Alert, complete these steps:

1. Click the **Utility Customers** tab on the Service Alert Administration Tool.

2. Click the **Add** button ( ). The **Add Account** dialog opens.

3. Select a search criterion on the **Search Parameter** drop menu.

4. Enter text into the **Search Text** field according to the search criterion selected in the previous step. Note that an asterisk ('*') serves as a wildcard.

5. Click the **Search** button to perform a search for critical customers in the Oracle Utilities Network Management System database. The search result table populates with a set of customer data.

6. Select a customer by clicking on a row in the table. The **OK** button becomes enabled.

7. Click **OK** to add the customer to Service Alert, or **Cancel** to avoid adding the account.

Searching for an Account

The Search Account dialog opens once you press the **Search** button on the header section of the Utility Customers tab in the Service Alert Administration Tool. This dialog allows you to search for a critical customer that was previously added to Service Alert.

The Search Account dialog contains the following information:

- The **Search Text** field displays the text used to search for a critical customer account within the Service Alert tables. The text varies based on the search parameter. The asterisk character ('*') serves as a wildcard.

- The **Search Parameter** field displays the current search parameter. The available parameters are Account Number, Account Name, Phone Number, Address, City State, and Zip Code.

- The **Search** button performs a critical customer search within the Service Alert database based on the search text and search parameter. The search is executed against customers previously added to Service Alert by means of **Adding Accounts** functionality.

- The **Clear** button clears the Search Text field and the search results table.

- The **Account Number** column displays the account number of the critical customer.

- The **Account Name** column displays the account name of the critical customer.

- The **Phone Number** column displays the phone number of the critical customer.

- The **Address** column displays the address of the critical customer.

- The **City State** column displays the city and state portion of the critical customer's address.

- The **Zip Code** column displays the zip code of the critical customer.

- The **Emergency** column is a flag to indicate that this is an Emergency customer.

- The **Key** column is a flag to indicate that this is a Key customer.

- The **Medical** column is a flag to indicate that this is a Medical customer.

- The **OK** button populates the Utility Customer panel with customer information, including contacts and contact phone entries, and closes the Search Account dialog.

- The **Cancel** button closes the Search Account dialog.

Searching for an Account in Service Alert

To search for an account, complete these steps:

1. Click the **Utility Customers** tab on the Service Alert Administration Tool.

2. Click the **Search** button. The Search Account dialog opens.

3. Select a search criterion on the **Search Parameter** drop menu.

4. Enter text into the **Search Text** field according to the search criterion selected in the previous step. Note that an asterisk ('*') serves as a wildcard.

5. Click the **Search** button to perform a search for critical customers within Service Alert. The search result table populates with a set of customer data.

6. Select a customer by clicking on a row in the table. The **OK** button becomes enabled.

7. Click **OK** to display the customer data and contact information on the Utility Customer panel, or **Cancel** to avoid selecting the account.

Editing an Account

To edit an account, complete these steps:

1. Search for an Account. (Refer to the previous topic for instructions). The customer account information loads into the header section.

2. Click the **Edit** button ( ). The Name and Client Type fields become editable.

3. Edit the **Name** field and change the selected **Client Type** as desired.

4. Click the **Save** button. The changes are saved and the header section returns to non-edit mode. In order to exit from edit mode without saving changes, click the **Cancel** button instead.

Removing an Account

To remove an account, complete these steps:

1. Search for an Account. (Refer to the previous topic for instructions). The **Remove** button becomes enabled.

2. Click the **Remove** button ( ). The Remove Customer Account dialog opens.

3. Click **Yes** to remove the account from the system, or **No** to avoid removing the account from the system.

Editing Customer Device Information

To edit the load transfer or load shed information for a customer device, complete these steps:

1. Add an account or search for an account, as described in the previous topics.

2. Select a row in the Customer Devices table on the Utilities Customer tab.

3. Click the **Edit** button ( ). The Device Information dialog opens.

4. Change the **Load Transfer** or **Load Shed** values as desired.

5. Click the **OK** button to close the dialog and save the changes, or click the **Cancel** button to exit from dialog without saving the changes.

Adding Customer Contact Information

To add customer contact information, complete these steps:

1. Add an account or search for an account, as described in the previous topics.

2. In the Customer Contacts section, click the **Add** button ( ). The Add/Edit Contact dialog opens.

3. Enter in a **Name** and **Title** for the customer contact. If applicable, enter in general instructions, or any other relevant information, regarding the contacting of the individual. The **OK** button becomes enabled.

4. Click **OK** to add the customer contact information to the database or **Cancel** to avoid adding the information.

Searching for a Customer Contact

The Search Customer Contacts dialog opens once you press the Search button on the Customer Contacts section of the Utility Customers tab. This dialog allows you to search for a customer contact that was previously added to Service Alert.

The Search Customer Contacts dialog displays the following fields and buttons:

- The **Search Text** field displays the text used to search for a critical customer account within the Service Alert tables. The text varies based on the search parameter. The asterisk character ('*') serves as a wildcard.

- The **Search Parameter** field displays the current search parameter. The available parameters are Contact Name, Contact ID, Contact Title, Account Name, and Account Number.

- The **Search** button performs a customer contact search within the Service Alert database based on the search text and search parameter. The search is executed against customer contacts previously added to Service Alert by means of the **Adding Customer Contact Information** on page 6-25 functionality.

- The **Clear** button clears the Search Text field and the search results table.

- The **Contact ID** field contains the system assigned unique id for the customer contact entry.

- The **Contact Name** column contains the customer contact name.

- The **Contact Title** column contains the customer contact title, if applicable.

- The **Account Name** column displays the account name of the critical customer the contact is already associated with.

- The **Account Number** column displays the account number of the critical customer the contact is already associated with.

- The **Add** button associates the selected contact with the currently displayed critical customer, including contacts and contact phone entries, adds a row for this contact to the Customer Contacts table, and closes the Search Customer Contacts dialog.

- The **Cancel** button closes the Search Customer Contacts dialog.

Searching for a Customer Contact in Service Alert

To search for a customer contact, complete these steps:

1. Add an account or search for an account.

2. Click the **Search** button. The Search Customer Contacts dialog opens.

3. Select a search criterion on the **Search Parameter** drop menu.

4. Enter text into the **Search Text** field according to the search criterion selected in the previous step. Note that an asterisk ('*') serves as a wildcard.

5. Click the **Search** button to perform a search for customer contacts within Service Alert. The search result table populates with a set of customer data.

6. Select a customer contact by clicking on a row in the table.

7. Click **Add** to associate the customer contact with the critical customer currently displayed on the Utility Customer panel, or **Cancel** to avoid adding a contact.

Editing Customer Contact Information

To edit customer contact information, complete these steps:

1. Search for an account that has customer contacts associated with it.

2. In the Customer Contacts section, click the **Edit** button ( ). The Add/Edit Contact dialog opens.

3. Edit the **Name**, **Title**, and **Instructions** associated with the customer contact. The **OK** button becomes enabled.

4. Click **OK** to save the edited customer contact information to the database or **Cancel** to avoid saving the information.

Removing Customer Contact Information

To remove customer contact information, complete these steps:

1. Search for an account that has customer contacts associated with it.

2. Click on one of the existing contacts in the **Customer Contacts** table. The **Remove** button becomes enabled.

3. Click the **Remove** button ( ). The Remove Contact dialog opens.

4. Click **Yes** to remove the contact's association with this account, or **No** to avoid removing the contact association.

Adding Customer Contact Phone Information

To add customer contact phone information, complete these steps:

1. Add an account or search for an account.

2. If the account does not have any associated contacts, add a customer contact.

3. Click on one of the existing contacts in the **Customer Contacts** table. The **Add** button becomes enabled.

4. Click the **Add** button ( ). The Add/Edit Customer Contact Phone dialog opens.

5. Select the type of phone and call time from the drop menu **Type** and **Call Time** drop menus.

6. Enter a phone number in the **Number** field. If applicable, a phone extension can be entered in the text field to the right of the Number field.

7. Enter a non-negative value in the Sequence field. This number is used to indicate the priority of this phone entry relative to all other phone entries associated with the selected customer contact. The **OK** button becomes enabled.

8. Click **OK** to save the customer contact phone information to the database, or **Cancel** to avoid saving the phone information.

Editing Customer Contact Phone Information

To edit customer contact phone information, complete these steps:

1. Search for an account that has customer contacts associated with it.

2. Click on one of the existing contacts in the **Customer Contacts** table. The **Edit** button becomes enabled.

3. Click the **Edit** button ( ). The Add/Edit Customer Contact Phone dialog opens.

4. Modify the selection the type of phone and call time from the drop menu **Type** and **Call Time** drop menus.

5. Edit a phone number in the **Number** field. Edit the phone extension in the text field to the right of the Number field.

6. Edit value in the **Sequence** field.

7. Click **OK** to save the customer contact phone information to the database, or **Cancel** to avoid saving the phone information.

Removing Customer Contact Phone Information

To remove customer contact phone information, complete these steps:

1. Search for an account that has customer contacts associated with it.

2. Click on one of the existing contacts in the **Customer Contacts** table.

3. Click on one of the contact phone entries in the **Customer Contact Phones** table. The **Remove** button becomes enabled.

4. Click the **Remove** button ( ). The Remove Phone dialog opens.

5. Click **Yes** to remove the contact's selected phone entry, or **No** to avoid removing the entry.

Attribute Manager

The Attributes Manager tab is used to add, edit, or remove attribute information associated with specific devices. Attribute Information can be displayed on notifications trigger by the associated device. An attribute consists of a Device ID, Attribute ID, a name and a value. Inactive attributes cannot be violated, and therefore will never trigger a notification.

The Attributes Manager tab allows you to perform the following tasks:

- **Adding Attributes**

- **Editing a Attribute**

- **Removing a Attribute**

For a description of the fields and buttons on this tab, see the following topic.

Attributes Manager Tab

The Attributes Manager tab displays the following fields and buttons:

- The **Attributes** panel lists all attributes known to Service Alert. Note that the table row colors correspond to whether a attribute is active (white) or inactive (bluish gray). For convenience, the rows in the table can be sorted in ascending or descending order by clicking on any column header.

  The columns displayed are user selectable by right-clicking the table heading area and checking or unchecking the list of available columns in the **Select Columns to Display** dialog. Once the columns have been chosen, you may save the choices for your subsequent sessions by selecting **Save Preferences** from the **Preferences** menu; if not saved, the default columns will be displayed when you relogin. See **Preferences Menu** on page 6-3 for details on saving and restoring column selections.

  The default product configuration displays the following columns:

    - The **Device ID** column contains the device to which the attribute applies.

    - The **Attribute Name** column contains a descriptive name given to the attribute.

    - The **Attribute Value** column contains a value given to the attribute.

- The **Add** button ( ) displays the Device Search dialog, allowing you to search for a device to associate with the attribute.

- The **Edit** button (![pencil](/)) allows you to edit the currently selected attribute.

- **Remove** button (x) removes the currently selected attribute from the Service Alert.

The **Attribute Information** panel is where the details for an attribute are entered and/or edited.

- The **Device ID** field displays the alias of the device to which the attribute applies.

- The **Attribute ID** field displays the system assigned internal id for the attribute.

- The **Attribute Name** field displays the descriptive name given to the attribute. This value can be modified be when in add/edit mode.

- The **Attribute Value** field displays the value given to the attribute. This value can be modified be when in add/edit mode.

- The **Active** checkbox allows you to enable/disable the attribute.

- The **Save** button saves the attribute information.

- The **Cancel** button cancels an add/edit attribute operation.

Adding Attributes

An attribute consists of a name and a value associated to a device or customer. The attribute information can be displayed on notifications trigger by the associated device.

1. Click the **Attribute Manager** tab on the Service Alert Administration Tool.

2. Click the **Add** button ( ) to bring up the Device Search dialog.

3. Enter into the **Search Text** field your search criteria. You may use an asterisk ('*') as a wildcard.

4. Click the **Search** button ( ). The search results are displayed in the table.

5. Select the desired device from the table, and then click the **OK** button. The Device Search dialog disappears, and the Device ID field is populated with the name of the selected device.

6. Enter a descriptive name for the attribute into the **Attribute Name** field.

7. Enter a value for the attribute into the **Attribute Value** field.

8. Select/deselect the **Active** checkbox as desired.

9. Click the **Save** button to save the attribute.

Editing a Attribute

To edit an attribute, complete these steps:

1. Click the **Attribute Manager** tab on the Service Alert Administration Tool.

2. Click on one of the existing attributes in the **Attributes** table. The **Edit** button becomes enabled.

3. Click on the **Edit** button ( ). The appropriate fields will become enabled.

4. Edit each field as desired.

5. Click **Save** to save the edited information, or click **Cancel** to avoid saving the edited information.

Removing a Attribute

To remove an attribute, complete these steps:

1. Click the **Attribute Manager** tab on the Service Alert Administration Tool.

2. Click on one of the existing attributes in the **Attributes** table. The **Remove** button becomes enabled.

3. Click the **Remove** button ( ). The Remove Attribute dialog opens.

4. Click **Yes** to remove the attribute or **No** to avoid removing the attribute.

Service Alert Notification Examples

Oracle Utilities Network Management System Service Alert sends the following types of notifications:

*   **Unplanned Outage Affecting Critical Customers**

*   **Unplanned Outage Affecting a Specific Customer**

*   **Planned Outage Affecting Many Customers**

*   **Storm Ended**

*   **Frequency of Device Operations**

Unplanned Outage Affecting Critical Customers

Below is a sample email message for an unplanned outage affecting critical customers. Details include: job# [1002] and device [F1111]; message generated at 06-04-2010 11:15:29.

Critical Customer(s) Affected By Unplanned Outage Notification

Generated by Oracle Utilities NMS Service Alert on 06-04-2010 11:15:29

A Real Device Outage has been detected on device **F1111** in the following location.

Company: OPAL
Region: Stark
Branch: Lake
Substation: Lake Sub
Feeder: 2414

The following summary information was provided for this event.

Event Number:	1002
Outage Type:	Real Device Outage
Outage Begin Time:	06/04/10 11:15
Number of Calls Received:	0
Total Number of Customers Affected:	113
Emergency Customers Affected:	3
Key Customers Affected:	5
Medical Customers Affected:	0

Critical Customer(s) Affected

Account Number	Client Type	Name	Address	Meter ID	EMR	KEY	MED	Contacts
2313150		ENTERPRISES INC PAVLAK	13090 CLEVELAND AVE NW, Lake Twp., OH, 44685	2200809	N	Y	N	N/A
2204952		MELLION LLC DRS	3451 EDISON ST NW, Lake Twp., OH, 44685	2204952	N	Y	N	N/A
9208904		OHIO LLC GIANT	13066 CLEVELAND AVE NW, Lake Twp., OH, 44685	2201212	N	Y	N	N/A
2201200		PROPERTIES LLC CLEARVIEW	3407 EDISON ST NW, Lake Twp., OH, 44685	2200179	N	Y	N	N/A
9208407		TRUST COMPANY OF NORTHEASTERN OHIO CENTRAL	13100 CLEVELAND AVE NW, Lake Twp., OH, 44685	2202401	N	Y	N	N/A
2280020		VOLUNTEER FIRE DEPT UNIONTOWN	EDISON ST NW, Lake Twp., OH, 44685	2280018	Y	N	N	N/A
2280020		VOLUNTEER FIRE DEPT UNIONTOWN	NORTHDALE ST NW, Lake Twp., OH, 44685	2280019	Y	N	N	N/A
2280020		VOLUNTEER FIRE DEPT UNIONTOWN	13055 OAKWOOD AVE NW, Lake Twp., OH, 44685	2280020	Y	N	N	N/A

Violated Parameter(s)

ID	Name	Threshold Value (Number of customers affected)	Parameter Device Alias	Parameter Control Zone	Disabled During Storm	Associated Group
2	Unplanned outage affecting 5 critical customers	5		OPAL	N	doc

Group(s) Notified
doc

Individual(s) Notified

ID	Name	Type	Address
2	Jan Somers	E-Mail	jan.somers@oracle.com
3	Andrei Berezin	E-Mail	andrei.berezin@oracle.com
2	Jan Somers	Pager	jan.somers@oracle.com

Unplanned Outage Affecting a Specific Customer

Below is a sample email message for an unplanned outage affecting a specific customer with ERT updated. Details include: ERT Updated to 06/04/10 14:28, job#[1003], device [T14467], and account(s)[2201130]; message generated at 06-04-2010 11:28:06.

ERT Updated for Unplanned Outage affecting Specific Customer(s) Notification

Generated by Oracle Utilities NMS Service Alert on 06-04-2010 11:28:06

The Estimated Restoration Time has been updated for the Probable Service Outage on device **T14467** in the following location.

Company: OPAL
Region: Stark
Branch: Lake
Substation: Lake Sub
Feeder: 2414

The following summary information was provided for this event.

Event Number: 1003
Outage Type: Probable Service Outage
Outage Begin Time: 06/04/10 11:27
Updated Estimated Restoration Time: 06/04/10 14:28
Previous Estimated Restoration Time: 06/04/10 13:27
Number of Calls Received: 1
Total Number of Customers Affected: 1
Emergency Customers Affected: 0
Key Customers Affected: 0
Medical Customers Affected: 0

Customer(s) Affected

Account Number	Client Type	Name	Address	EMR	KEY	MED	Contacts
2201130		KENNETH L RINEHART	3650 BROAD VISTA ST NW, Lake Twp., OH, 44685	N	N	N	N/A

Violated Parameter(s)

ID	Name	Account Number	Disabled During Storm	Associated Group
3	ERT updated for a specific customer	2201130	N	doc

Device Attribute(s)

Attribute ID	Attribute Name	Attribute Value

Group(s) Notified
doc

Individual(s) Notified

ID	Name	Type	Address
2	Jan Somers	E-Mail	jan.somers@oracle.com
3	Andrei Berezin	E-Mail	andrei.berezin@oracle.com
2	Jan Somers	Pager	jan.somers@oracle.com
3	Andrei Berezin	Pager	andrei.berezin@oracle.com

Planned Outage Affecting Many Customers

Below is a sample email message for a planned outage affecting many customers (customer scheduled). Details include: job#[1004] and device [F1236]; message generated at 06-04-2010 11:40:32.

Scheduled Planned Outage Notification

*Generated by Oracle Utilities NMS Service Alert on **06-04-2010 11:40:32***

A Switching Job, with associated device **F1236**, has been scheduled in the following location.

Company: OPAL
Region: Stark
Branch: Lake
Substation: Lake Sub
Feeder: 2414

The following summary information was provided for this event.

Event Number: 1004
Outage Type: Switching Job
Switch Plan Number: 1011
Switch Plan Scheduled Begin Time: 06/05/10 11:38
Switch Plan Scheduled End Time: 06/06/10 11:38
Total Number of Customers Affected: 83
Emergency Customers Affected: 0
Key Customers Affected: 0
Medical Customers Affected: 0

Customer(s) Affected

Account Number	Client Type	Name	Address	EMR	KEY	MED	Contacts
2201135		ALFRED D + PAULINE A LAYFIELD	13233 PARKVIEW AVE NW, Lake Twp., OH, 44685	N	N	N	N/A
2204050		ANDREW M BROWN	3871 EDISON ST NW, Lake Twp., OH, 44685	N	N	N	N/A
2201313		ANNE M NUDO	3880 HUGH ST NW, Lake Twp., OH, 44685	N	N	N	N/A
2200748		ANTHONY P + WAITLEY MELISSA N PALMERI	3803 EDISON ST NW, Lake Twp., OH, 44685	N	N	N	N/A
2204682		BARRY A + DEBRA L BODINE	EDISON ST NW, Lake Twp., OH, 44685	N	N	N	N/A
2201314		BARRY J + KELLY A CARLSON	13358 JAYNEVIEW AVE NW, Lake Twp., OH, 44685	N	N	N	N/A

•••

2200228		WILLIAM HOMA	13324 PARKVIEW AVE NW, Lake Twp., OH, 44685	N	N	N	N/A

Violated Parameter(s)

ID	Name	Threshold Value (Number of customers affected)	Parameter Device Alias	Parameter Control Zone	Disabled During Storm	Associated Group
4	Planned outage affecting 50 customers is scheduled	50		OPAL	N	doc

Device Attribute(s)

Attribute ID	Attribute Name	Attribute Value

Group(s) Notified
doc

Individual(s) Notified

ID	Name	Type	Address
2	Jan Somers	E-Mail	jan.somers@oracle.com

Storm Ended

Below is a sample Storm Ended email message. Details include: Storm Hurricane Bob - 06/04/10 Ended in OPAL/Stark/Canton; message generated at 06-04-2010 11:45:55.

Storm "Hurricane Bob - 06/04/10" Ended

Generated by Oracle Utilities NMS Service Alert on 06-04-2010 11:45:55

Storm Details

Category: Hurricane - Major Storm
Zone: OPAL/Stark/Canton
Begin Time: 06/04/10 11:43
End Time: 06/04/10 11:45

Violated Parameter(s)

ID	Name	Parameter Control Zone	Associated Group
5	Storm Ended in Canton	OPAL/Stark/Canton	doc

Group(s) Notified
doc

Individual(s) Notified

ID	Name	Type	Address
2	Jan Somers	E-Mail	jan.somers@oracle.com
3	Andrei Berezin	E-Mail	andrei.berezin@oracle.com
2	Jan Somers	Pager	jan.somers@oracle.com
3	Andrei Berezin	Pager	andrei.berezin@oracle.com

Frequency of Device Operations

Below is a sample email message for a Frequency of outages on a device notification. Details include: Violation parameter ID = 6; message generated on 06-04-2010 11:50:29.

Frequency of Outages on a Device Notification (Real-time)

*Generated by Oracle Utilities NMS Service Alert on **06-04-2010 11:50:29***

An outage, surpassing a parameter value, has been detected on device **T11430** in the following location.

Company: OPAL
Region: Stark
Branch: Lake
Substation: Lake Sub
Feeder: 2414

Violated Parameter(s)

ID	Name	Threshold Value (Number of service interruptions)	Parameter Time Interval	Parameter Begin Date	Parameter Device	Parameter Device Class	Parameter Control Zone	Associated Group
6	Three outages on the same transformer in one day	3	1 day(s)			transformer (200)	OPAL	doc

Device Attribute(s)

Attribute ID	Attribute Name	Attribute Value

Group(s) Notified
doc

Individual(s) Notified

ID	Name	Type	Address
2	Jan Somers	E-Mail	jan.somers@oracle.com
3	Andrei Berezin	E-Mail	andrei.berezin@oracle.com
2	Jan Somers	Pager	jan.somers@oracle.com
3	Andrei Berezin	Pager	andrei.berezin@oracle.com

Chapter 7

Management Reporting

Documentation for Oracle Utilities Network Management System Management Reporting may be found in the Oracle Utilities Analytics documentation.

Chapter 8

SCADA Extensions

This chapter covers **Oracle Utilities Network Management System (NMS) – SCADA Extensions**, including the following topics:

- **Overview**
- **SCADA Measurements**
- **Using SCADA Features**
- **Using the SCADA Summary**
- **Understanding SCADA Information in the Viewer**
- **Remote SCADA Operation Warnings**
- **Using SCADA Control Tool Features**
- **Switching Management SCADA Integration**

Overview

SCADA Extensions offers extended functions that enhance the capabilities of the Work Agenda, Viewer, Control Tool, and Web Switching Management applications. It also provides SCADA Summary, a window to display information about mapped SCADA measurements. These extended functions incorporate real-time data from a Supervisory Control and Data Acquisition (SCADA) system.

SCADA Extensions is required in order to display any SCADA data in **NMS**, whether it is through the Oracle Utilities Network Management System – SCADA ICCP Block 1, 2, and 5 Adapter interface or a custom interface. The interface itself is a separate component from the **NMS** and **SCADA Extensions**.

There are two basic types of SCADA interfaces employed. A one-way interface provides **NMS** with real time values for SCADA digital and analog measurements as well as quality codes, tags, and alarms. A two-way interface also allows the remote control of SCADA devices from within **NMS**.

SCADA Measurements

There are three possible types of SCADA measurements that SCADA Extensions can display:

- **Analog** - Numeric measurements of the distribution system operating conditions at SCADA devices, such as amps, kVAr, and volts.

- **Status** - Binary values, such as OPEN/CLOSE and ON/OFF. Status values related to switches are mapped into the topological status of switchable devices that affect the energization of the distribution model. Other status values, such as reclose, enabled, loop scheme indication, lightning mode, and fault indicators, are displayed as text pairs of symbols.

- **Digital** - Whole-integer value measurements indicating the state of the device such as tap positions or counters. The **NMS** SCADA ICCP Block 1, 2, and 5 Adapter does not currently support digital whole-integer measurements. However, these values can be available if converted through a custom adapter into engineering values.

Quality Codes

Quality codes provide information about the quality of the measurement coming from the SCADA system. Examples may include held, suspect, not valid, telemetered, calculated, entered, estimated, abnormal, off scan, SCADA error, and tag on. Additionally there are quality codes that may be applied to a SCADA measurement from the **NMS** applications. These include alarm inhibited and manually overridden.

Quality codes that may be configured to be supplied by the Oracle Utilities Network Management System SCADA ICCP Block 1, 2, and 5 Adapter include held, suspect, not valid, telemetered, calculated, entered, estimated, and abnormal.

Using SCADA Features

There are six primary locations where SCADA information can be accessed in **NMS**:

- SCADA device operations that result in customers out appear as real outage events on the trouble related views of the Work Agenda in the same manner as outages that were generated by call information except that they are automatically confirmed and appear immediately as real outages. These operations are also included on the Device Operations List on the Work Agenda.

- The SCADA Summary provides the current values and qualities of all mapped SCADA measurements in **NMS**, including both analog and digital measurements. You can filter, sort, modify, and comment on the measurements in the SCADA Summary.

- The Viewer displays dynamically updated SCADA information at or near the corresponding device on the electrical map. The data may be displayed via text annotation or, in the case of status and digital values, symbol changes. SCADA information that may be displayed on the Viewer includes switch status and other status values, digital values, and analog values, all with quality codes.

- The Viewer also shows all SCADA analog and digital values in the balloon dialog.

- The SCADA Alarms list is an extension of the Work Agenda window and may display various alarm messages that are sent from the SCADA system. You can modify, acknowledge, and comment on measurements on the SCADA Alarms list.

- Any SCADA status values that result in a switch being in its off-nominal state will cause the device to appear in the Abnormal Device Summary.

- Systems with a two-way interface let you perform remote operations (*e.g.*, open/close and tagging) on SCADA devices through an enhanced version of the Control Tool.

Using the SCADA Summary

The SCADA Summary provides the current values and qualities of all mapped SCADA measurements in Oracle Utilities Network Management System. Each row of this summary represents one measurement. There may be multiple unique measurements on one SCADA device. SCADA information includes digital and analog measurements, along with the quality codes and any user comments for each measurement. You can use the summary to view measurement information, manually replace current SCADA values, and inhibit updates.

This section includes the following topics:

*   **Using the SCADA Summary Window**

*   **Toolbar and Menu Options**

*   **Preventing Updates from SCADA**

*   **Manual Entry and Override of SCADA Values**

Using the SCADA Summary Window

The SCADA Summary may be opened to view all SCADA measurements or for measurements related to a device or feeder selected in the Viewer. The SCADA Summary displays the following fields and buttons:

*   The **Feeder** column contains the name of the feeder reporting the SCADA measurements.

*   The **Substation** column contains the substation name.

*   The **Device** column contains the name of the device reporting the SCADA measurements.

*   The **Value** column contains the last reported measurement value. The value can be status, digital, or analog. For status measurements, the values are displayed as a test pair, such as open/close, on/off, etc. Analog and digital values are shown as floating point and integer values.

*   The **Quality** column contains the Quality codes for the measurement that indicates the quality of the SCADA measurement (*e.g.*, out of scan, inhibited, manual override). Several quality codes can be listed.

*   The **Point Name** column displays the name of the SCADA measurement, as used in the SCADA system.

*   The **Attribute** column contains a description of the measurement type, as configured in the ATTRIBUTES.description column in the Oracle Utilities Network Management System database for the matching attribute.

Toolbar and Menu Options

File Menu

Menu Option	Description	Toolbar Icon
Load All	Repopulates the SCADA Summary with all measurements. This clears any device, feeder, or substation filters; see **Viewing SCADA Summary Data from a Selected Device** on page 8-6.	
Print...	Displays the Print Preview window, from which you can view and print the summary.	
Exit	Closes the SCADA Summary window.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Inhibit	**Inhibit** sets the *inhibit* quality code for the selected SCADA measurement. This suppresses any new updates from SCADA.	
Cancel Inhibit	**Cancel Inhibit** removes the *inhibit* quality code from the selected SCADA measurement. This allows any new updates from SCADA to be displayed.	
Manual Entry...	**Manual Entry** allows you to enter a new value for the selected SCADA measurement. When a changed SCADA value is received by the system, it replaces the manually entered value.	
Manual Override...	**Manual Override** allows you to enter a new value for the selected SCADA measurement. When a new SCADA value is received by the system, the measurement is blocked and the manually entered value remains.	
Cancel Override	**Cancel Override** cancels the manual override for the selected measurement and reverts the selected measurement to the last received value from the SCADA system.	
Disable in Power Flow	**Disable in Power Flow** disables the selected measurements from being included in the power flow solution.	
Enable in Power Flow	**Enable in Power Flow** re-enables the selected disabled measurements in the power flow solution.	
View...	**View** focuses the Viewer on the device.	
Load Feeder	Loads additional data for all SCADA measurements on a feeder when the SCADA Summary is displaying device data. Only available when the SCADA Summary is launched from the Control Tool.	

Menu Option	Description	Toolbar Icon
Load Substation	Loads additional data for all substation measurements when the SCADA Summary is displaying device or feeder data. Only available when the SCADA Summary is launched from the Control Tool.	
Load Adjacent Sub	Loads additional data for adjacent substations. Only available when the SCADA Summary is launched from the Control Tool.	

Filter Menu

Menu Option	Description	Toolbar Icon
Filter Dialog...	Displays the Filter dialog box. The Filter Dialog option on the Filter menu performs the same function. See **Filtering** on page 1-14 for more information.	--
All	Displays all rows in the SCADA Summary table.	--
Analogs	Displays rows with analog values.	--
Digitals	Displays rows with digital values.	--
Equipment	Displays rows with equipment values.	--
Statuses	Displays rows with status value.	--

Help Menu

Menu Option	Description	Toolbar Icon
SCADA Summary Help	Opens the online help system to the SCADA Summary help content.	--

Viewing All SCADA Summary Data

To open the SCADA Summary for all measurements, select S**CADA Summary...** from the **Tools** menu in Web Workspace.

Viewing SCADA Summary Data from a Selected Device

To open the SCADA Summary for a specific device, select the device or feeder in the Viewer and launch the Control Tool. Click **SCADA Summary...** and select one of the options:

•   **Device...:** loads the SCADA Summary with the selected device's SCADA measurement data.

•   **Feeder...:** loads the SCADA Summary with SCADA measurement data for the selected device's feeder.

•   **Substation...:** loads the SCADA Summary with SCADA measurement data for the selected device's substation.

When the SCADA Summary is launched from the Control Tool, the data source is shown in the status bar at the bottom of the SCADA Summary window.

> **Note:** if you select **Load All** from the SCADA Summary **Actions** menu, the table will be repopulated with all measurements and the status bar will be cleared.

Updating the SCADA Summary for Another Device

Once the SCADA Summary has been opened (from the Control Tool), you can view data for a different device by selecting it in the Viewer and then clicking the **Load** button in the SCADA Summary status bar.

Preventing Updates from SCADA

To prevent a SCADA measurement from accepting updates from SCADA, complete these steps:

1.   Select S**CADA Summary...** from the **Tools** menu in Web Workspace. The SCADA Summary window opens.

2.   Select a row in the SCADA Summary list that belongs to the device you want to inhibit.

3.   Click the **Inhibit** button ( ).

Manual Entry and Override of SCADA Values

Occasionally, you may need to manually enter a status, digital value, or analog value for a SCADA measurement. For example, you may need to enter fault current and a fault current indicator to trigger Fault Location Analysis (if applicable). See **Fault Location Analysis** on page 13-1 for more information.

If the value for the selected measurement is a switch status measurement (*i.e.*, open/close), you must choose **Show Control Tool...** from the pop-up menu to manually operate the switch. Otherwise, use the following procedure to enter a value manually:

1.   Select S**CADA Summary...** from the **Tools** menu in Web Workspace. The SCADA Summary window opens.

2.   Select the SCADA measurement row in the SCADA Summary list.

3.   Click either the **Manual Entry** or **Manual Override** button.

> **Note**: Manual Entry allows future SCADA value changes to replace the manually entered value. Manual Override prevents SCADA measurements received by the system from changing the manually entered value. Manual Override can be useful when testing specific devices or RTU communications offline, since the test operations can be prevented from creating outages in

Oracle Utilities Network Management System by putting manual overrides on the appropriate status measurements.

If the value for the measurement is a multi-state digital, analog, or any type of measurement other than a switch status measurement (open/close), a dialog box opens, allowing you to enter a value.

> **Note**: Multi-state digitals are not available through the Oracle Utilities Network Management System SCADA ICCP Block 1, 2, and 5 Adapter.

4. Select or enter the value you want to change the measurement to.

5. Click **OK**.

> **Note**: Clicking on the Manual Override button "blocks" any new values coming from the SCADA measurement. It does not affect the physical SCADA device, it only blocks the value reported by the SCADA device to Oracle Utilities Network Management System.

Disabling/Enabling Measurements in the Power Flow Solution

If you see anomalies in the SCADA data (*e.g.*, due to mapping issues, a transducer issues, or a temporal issue, *etc.*) where SCADA values seem potentially unhelpful in allowing PFService to solve, you can disable the suspected measurements from taking part in the power flow solution by doing the following:

1. Select the suspected measurements from the SCADA Summary tool

2. Click the Disable in Power Flow button ( ) from the Actions menu or the right-click option menu. The Quality column value will be set to **S** for the selected measurements.

To re-enable the disabled measurements:

1. Select the disabled measurements from the SCADA Summary Tool

2. Click the Enable in Power Flow button ( ) from the Actions menu or right-click popup menu. The Quality column value will be changed from **S** to blank for the selected measurements.

Understanding SCADA Information in the Viewer

Oracle Utilities Network Management System SCADA Extensions provides SCADA information in the Viewer in several different ways. The following table describes how SCADA information may appear in the Viewer (depending on your system's configuration).

Data	Description
Switch Status	Switch status information (*i.e.*, open or closed) received from SCADA is dynamically updated in the Viewer. Status symbology is no different than that for typical devices, except that it is based on data received automatically from a SCADA measurement rather than user input.

Digital Measurements	.Digital measurements (*e.g.*, tap position, auto reclose suppression, ground fault) received from SCADA are dynamically updated. These measurements are displayed as a letter code or symbol next to the SCADA device. Several digital measurement indicators may be listed. For example, when a SCADA Breaker's Auto Recloser attribute is set to off, the Viewer displays the AROF symbol
Analog Measurements	Analog measurements received from SCADA are dynamically updated. These measurements are displayed in the Viewer next to the associated SCADA device. Several unique measurements can be listed. When a new measurement is received, it replaces the current measurement.
Quality Codes	Quality codes provide additional information about the quality of the measurement coming from the SCADA device (*e.g.*, out of scan, inhibited, manual override). A quality code is displayed as a letter code following a symbol or measurement. **Quality Code Values:** • I: inhibited • M: manually entered/overridden value • H: high limit violation • L: low limit violation Example, SCADA Breaker with IM indicators on the manually entered values for Auto Recloser attribute (off) and temperature (125.00 F).
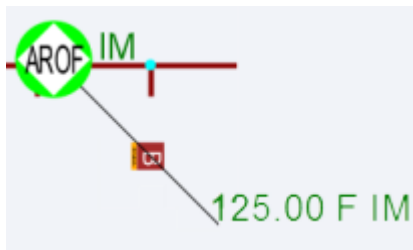
Enabling/Disabling SCADA Measurements in the Viewer

You can enable or disable SCADA measurements in the Viewer using the Hide / Display dialog.

Note: to access the Hide/Display dialog in the Viewer, see **Hiding and Displaying Viewer Objects** on page 1-60.

The system displays a flag ( ) to indicate that a device has available SCADA measurements.

Displaying SCADA Measurements with Device Details

If you select a SCADA device in the Viewer, the Device Details balloon displays a SCADA tab that lists the SCADA measurements for the selected device:
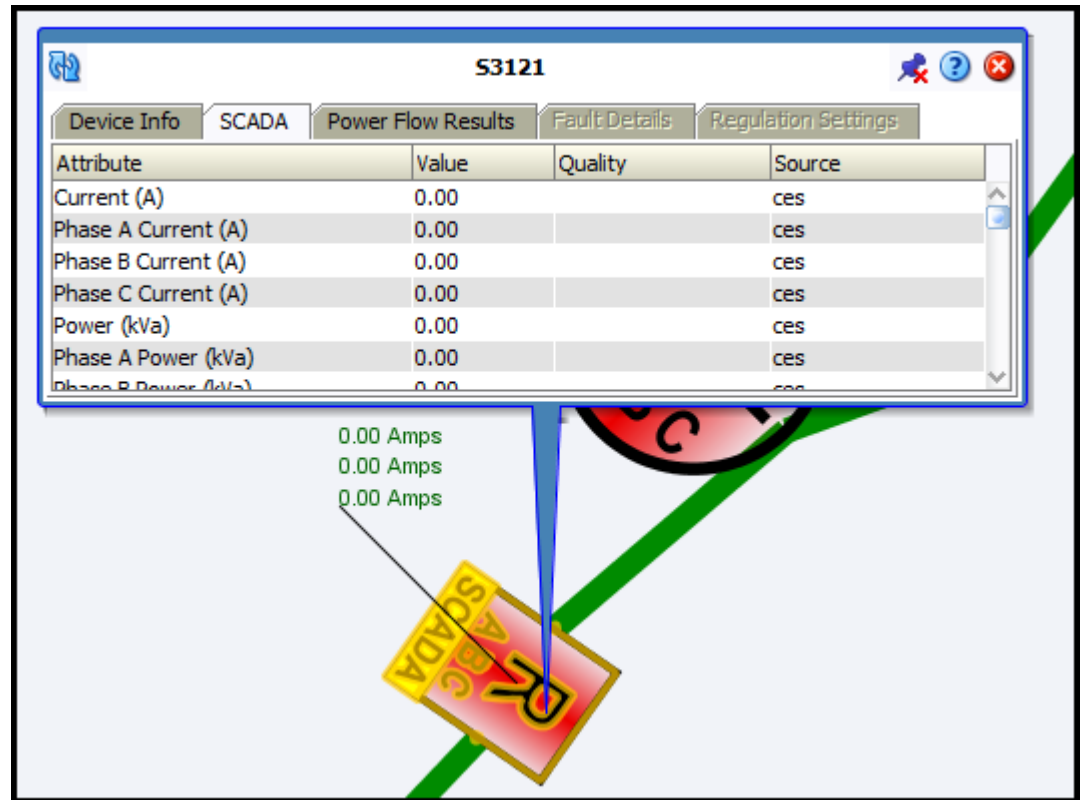
SCADA Device Details (see also **Displaying Device Details** on page 1-43)

- The **Attribute** column contains a description of the measurement type, as configured in the ATTRIBUTES.description column in the Oracle Utilities Network Management System database for the matching attribute.

- The **Value** column contains the last reported measurement value. The value can be status, digital, or analog. For status measurements, the values are displayed as a test pair, such as open/close, on/off, etc. Analog and digital values are shown as floating point and integer values.

- The **Quality** column contains the Quality codes for the measurement that indicates the quality of the SCADA measurement (*e.g.*, out of scan, inhibited, manual override). Several quality codes can be listed.

- The **Source** column contains the source for the measurement, as configured in the ANALOG_MEASUREMENTS.source or DIGITAL_MEASUREMENTS.source column in the Oracle Utilities Network Management System database.

Remote SCADA Operation Warnings

When you perform a remote SCADA device operation in a two-way system, Oracle Utilities Network Management System SCADA Extensions will run certain checks. There are three warnings that you might receive as a result of these checks.

> **Note:** The Oracle Utilities Network Management System SCADA ICCP Block 1, 2, and 5 Adapter controls are limited to switch status direct operate request.

The following table describes the possible remote SCADA operations warnings.

Warning	Description
SCADA Confirmation	When you open or close a SCADA-controlled device, the Look Ahead window opens providing information about the potential results of the operation (see **Using the Look Ahead Dialog** on page 1-90). After you view all the required information and choose to proceed, another message box opens, reminding you that a remote operation will take place and asking you to confirm the SCADA-controlled operation.
SCADA Control Action Time-Out	Once you have confirmed that you want to perform a SCADA-controlled device operation, Oracle Utilities Network Management System SCADA Extensions starts a timer. This timer monitors the response to the operation, expecting a "change-of-state" of the device (*e.g.*, open to close). If a change-of-state is not detected from the device before a time-out occurs, Oracle Utilities Network Management System SCADA Extensions generates an alarm displayed in the SCADA Alarms List.
SCADA Error	If errors are detected between Oracle Utilities Network Management System and the SCADA interface, a message box opens informing you of the failed operation. You should report these errors to the system administrator or support personnel.

> **Note:** If you click **Cancel** in the Look Ahead window, Oracle Utilities Network Management System SCADA Extensions will not initiate the remote SCADA operation.

Using SCADA Control Tool Features

If your system has a one-way SCADA interface, you can only receive information about SCADA measurements. If it has a two-way SCADA interface, however, not only can you receive information, but you can also remotely control SCADA devices. The Oracle Utilities Network Management System SCADA ICCP Block 1, 2, and 5 Adapter remote control is limited to direct operate request of switch status.

Use the Control Tool to perform operations on SCADA devices in the same manner as you would on non-SCADA devices (see **Operating Devices** on page 1-78). When you accept the operation in the Look Ahead tool, the system will open the SCADA Manual Entry Request dialog that allows you to submit a manual entry, submit the manual entry and inhibit further SCADA updates, or cancel the action.

Switching Management SCADA Integration

If you have a two-way SCADA system, you can operate devices as a step when completing a switching plan. Just like a typical switching plan, you can open or close devices by selecting the switching step and clicking the **Complete** button. (See **Issuing a Switching Sheet** on page 9-42.) With a two-way SCADA system, however, the actual device will be remotely operated. The Oracle Utilities Network Management System SCADA ICCP Block 1, 2, and 5 Adapter controls are limited to switch status.

If any errors occur, Oracle Utilities Network Management System SCADA Extensions generates an alarm displayed in the SCADA Alarms List.

Chapter 9

Web Switching Management

This chapter describes Oracle Utilities Network Management System Web Switching Management. It includes the following topics:

- **Overview**
- **Understanding Web Switching Management Windows**
- **Planned Switching**
- **Emergency Switching**
- **Event Associations**
- **Crew Assignments**
- **Working with Safety Documents**
- **Outage Correction**
- **Using the Miscellaneous Log**
- **Viewing Global Overlaps**
- **Web Safety**

Overview

Web Switching Management allows you to create and implement *switching sheets* and *safety documents*. Switching Sheets allow you to track proposed switching actions, analyze the results, and implement the plan. Safety Documents provide an electronic representation of paper safety documents, which are used for switching operations to record the issuance and release of tags on devices.

Web Switching Management's full feature set is available through the **Web Workspace** environment for a **Full Operations plus Web Switching** user type (see **User Types** on page 1-2). **Web Switching Request** provides the Switching Request user type with a subset of the **Web Switching Management** tools related to creating and editing switching requests.

Operating Modes

Web Switching Management supports two operating modes:

- **Real-Time Mode** - Allows you to make real-time changes to the state of devices in the system. When you create an emergency switching sheet, the system automatically enables real-time mode. For planned sheets, you can switch to this mode when the sheet is ready to be worked.

- **Study Mode** - Allows you to make changes without affecting real-time data. You can apply the actions to the steps, but the actions are not applied to the real-time data. This mode is valid for all types of sheets. Study mode is the only valid mode for template and outage correction switching sheets.

Understanding Web Switching Management Windows

Overview

This section provides an overview of Switching Sheet windows. Unlike other docked NMS applications, such as Work Agenda or the Authority tool, switching sheets cannot be moved outside of the confines of the NMS workspace. The standard configuration opens a switching sheet in the lower right quadrant of the workspace, but it may be moved anywhere within the workspace or maximized to the full workspace dimensions.

Each open switching sheet has its own tabbed window, which is labeled with a combination of the switching sheet type, number, and feeder ID, if the feeder field is populated. Multiple switching sheets are typically docked together and displayed as a tab group. Double-click any tab (or the empty area to the right of the tabs) to maximize the tab group; double-click again to restore the size.

Right-click the switching sheet tabs to access the options menu, which provides the following options:

- **Maximize:** maximizes the sheet window.

- **Restore:** restores the maximized window to its original size and position.

- **New Tab Group:** displays the sheet separately.

- **Collapse Tab Groups:** regroups separate windows into tab groups.

- **Windows...:** opens a dialog that lists all open sheets, which you can then:

    - Activate (*i.e.*, bring to front in a tab group) a single sheet.

    - Close selected sheets.

- **Close (Ctrl+F4):** closes the sheet.

- **Close All (Ctrl+Shift+F4):** closes all open sheets.

- **Close Others:** closes all open sheets except the sheet that was right-clicked.

Web Switching Sheets

Switching Sheet Types

Web Switching Management supports the following types of switching sheets.

- **Planned** - Used for switching sequences that are prepared ahead of time. In scheduled or planned switching, you can create, study, and approve switching steps in a Viewer in study mode prior to completing them in real-time. Planned switching sheets require information that is not needed for emergency switching sheets, such as a start and end date.

    Note: when creating a switching sheet from an event in the Work Agenda or Event Details, the *Planned* switching sheet type is not available.

- **Emergency** - Used for switching sequences that are prepared and implemented in real-time when overloads or unplanned outages occur.

    Notes:

    - Emergency Switching Sheets cannot be created from Web Switching Request.

    - FLISR sheet types are created by the FLISR tool and are another form of an Emergency switching sheet. Users cannot create FLISR switching sheets from scratch. In automatic mode, FLISR can create and execute a switch plan without operator intervention. See **Executing FLISR in Automatic Mode** on page 12-7. In manual mode, you generate and then execute the switch plan manually. See **Generating a Switch Plan with FLISR in Manual Mode** on page 12-8.

- **CVR** - CVR sheets are created by Conservation Voltage Reduction. See **Using Conservation Voltage Reduction** on page 10-24.

- **Template** - Used to record and store frequently performed switching step sequences that can be copied into a switching plan. A template is not used to perform actions, but rather to create and save "pre-built" sheets with step sequences. You can create a template from scratch or by copying an existing template, planned, or emergency switching sheet.

    Note: when creating a switching sheet from an event in the Work Agenda or Event Details, the *Template* switching sheet type is not available.

- **Outage Correction** - Used to correct outage information. Outage events are associated to this switching sheet type and then steps are recorded to reflect the actual events leading up to the outage. An option on the sheet then allows you to update the associated event, including customer counts associated to the outage.

    Note: Outage Correction switching sheets cannot be created from Web Switching Request.

Additional or alternative sheet types can be configured for your project; see the *Oracle Utilities Network Management System Configuration Guide* for details on creating custom sheet types.

Switching Sheet States

A switching sheet passes through different phases during the creation and completion of the sheet. These phases are represented by "states" that follow a logical sequence and determine what you can do with a switching sheet at any time. Each sheet type has a unique set of state transitions. For example, planned switching sheets have more state transitions than emergency sheets.

Normal Progression of Planned Sheet	Normal Progression of Emergency Sheet
1. New 2. Requested 3. Prepared 4. Checked 5. Approved (optional) 6. Scheduled 7. Issued 8. In Progress 9. Completed	1. New 2. In Progress 3. Completed

See **Changing the Switching Sheet State** on page 9-14 for a complete description of each possible state and instructions for changing the sheet state.

Note: The state of the switching sheet should not be confused with the state of individual switching steps within the switching plan, which may also progress through a series of states. See **Switching Sheet Step States** on page 9-29.

Switching Sheet Window Components

- **Menu and Toolbar Features**

- **Switching Sheet Tabs**

- **Status Bar**

Menu and Toolbar Features

File Menu

The table below describes the options available on the File menu.

Menu Option	Description	Toobar Icon
Save Sheet (**Ctrl+S**)	Saves the switching sheet.	
Copy As...	Opens the Copy Switching Sheet As dialog that allows you to copy the current sheet into a newly created sheet. The new sheet can be one of the following types: Planned, Emergency, Template, or Outage Correction. See **Copying a Switching Sheet** on page 9-65 for details.	--
Print Preview... (Ctrl+Shift+ P)	Opens the Switching Report Content Selection dialog that allows you to choose the criteria for previewing a switching report.	

Menu Option	Description	Toobar Icon
Print... (`Ctrl+P`)	Opens the Switching Report Content Selection dialog that allows you to choose the criteria for printing a switching report.	🖨
Email...	Opens the Switching Report Content Selection dialog that allows you to choose the criteria for emailing a switching report.	✉
Refresh	Refreshes the data in a view-only sheet. The Refresh option is available when another user has locked and edited the sheet.	🔄
Exit	Closes the active switching sheet.	--

Actions Menu

The options available in the Actions menu are dependent on the sheet type. Actions available will typically also be available through the right-click context menu and/or toolbar. The following are always in the Actions menu

Option	Description	Toolbar Button
Check In/ Create New Version	The **Check In** button allows you to check in and save a copy of the switching sheet. This is used for auditing purposes to determine differences between steps in two versions of a switching sheet.	📥
	When you check in a sheet, this button changes to Create New Version, which manually increments the sheet's version number and sets the sheet to Editing mode. See **Working with Switching Sheet Versions** on page 9-48 for more information.	
Edit Mode/ View-Only Mode	**Edit and View-Only Modes** When the sheet is in Edit mode (✏), you are the only user who can edit it. When it is in View-Only mode (✏), you cannot edit the sheet and it is available for editing by other users. The **Edit**/**View-Only Indicator** button toggles the sheet between Edit and View-Only modes.	✏ ✏
	When you open a sheet for editing, the sheet is automatically placed into Edit mode and blocks other users from editing it. If you open a sheet that is currently being edited by another user, you are not allowed to make any changes.	
Refresh	Refreshes the data in a view-only sheet. The Refresh option is available when another user has locked and edited the sheet.	🔄

Help Menu.

Option	Description	Toolbar Button
Web Switching Management Help (**F1**)	Opens online help content for the switching sheet's active tab. For example, if the Request tab is active, the "Completing the Request Tab" will be returned.	--
About Web Switching Management	Opens a window with environment and software information.	--

Switching Sheet Tabs
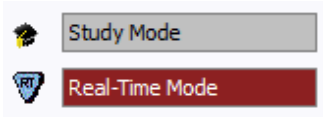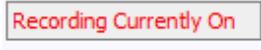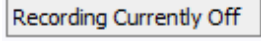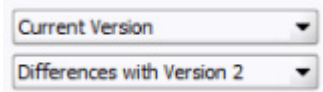
Each switching sheet tab displays a row of tabs that you can use to view and edit all of the information associated with the sheet. Some tabs, like the Steps tab, have their own toolbar with shortcuts for supported actions.

The following table describes the tabs displayed for each switching sheet.

Tab	Description
Request	Use this to view and enter information about the user who requested the switching sheet, including phone number and contact, the sheet's owner, charge number, start and finish dates, feeder and voltage information. See **Completing the Request Tab** on page 9-12.
Steps	Use this to view, add, and edit switching steps. See **Adding and Editing Steps** on page 9-17.
Impacted Customers	Use this to view, print, email, and maintain the list of impacted customers. See **Viewing Impacted Customers** on page 9-50.
Overlaps	Use this view to identify overlaps that the sheet may have with other sheets in the system. The search criteria can include date/time, control zone, and affected devices. See **Checking for Overlaps** on page 9-54.
External Documents	Use this to attach external documents to the switching sheet. See **Adding External Documents to a Switching Sheet** on page 9-60.
View Areas	Use this to save and reload viewing areas from a Viewer window. See **Saving and Loading View Areas** on page 9-56.
Safety Documents	Use this to view, load, and delete safety documents that have been defined for this sheet. See **Working with Safety Documents** on page 9-74.
Tracking/Audit Log	Use this to view audit log entries associated with this sheet. See **Viewing the Audit Log** on page 9-58. You can also use this to view the current sheet state or transition to another state. See **Changing the Switching Sheet State** on page 9-14.

Status Bar

The switching sheet status bar provides several indicators about the switching sheet and related system status.

	Status Bar Indicator	Description
1	**Mode Indicator** Study Mode Real-Time Mode	Indicates the current operating mode: • **Study Mode** - Allows you to complete switching operations without affecting the real-time data model. You can apply the actions to the steps, but the actions are not applied to the real-time data. • **Real-Time Mode** - Allows you to apply real-time changes to the state of devices in the data model.
2	**Overlap Indicator** : active : inactive	Indicates whether the switching sheet will result in overlap of affected devices or control zones during the same time period. This icon is dynamically updated to when overlaps are created or resolved.
3	**Impacted Customer Indicator** : customers impacted : no customers impacted	Indicates whether or not switching operations will impact customers. This icon is dynamically updated to reflect the results of generating the impacted customer list.
4	**Recording Indicator** Recording Currently On Recording Currently Off	Indicates whether recording is turned on or off. When recording is on, you can add steps by taking actions in the Viewer and Control Tool.
5	**Version Indicator** (Text)	Indicates the switching sheet version and whether or not your latest changes have been checked in. See **Working with Switching Sheet Versions** on page 9-48 for more information.
7	**Version Menu** Current Version Differences with Version 2	Indicates the version currently displayed and allows you to select a previous version to compare against the current version. See **Working with Switching Sheet Versions** on page 9-48 for more information.
8	**Edit/View-Only Indicator** : Edit mode : View-Only mode	**Edit and View-Only Modes** When the sheet is in Edit mode, you are the only user who can edit it. When it is in View-Only mode, you are cannot edit the sheet and it is available for editing by other users. The **Edit/View-Only Indicator** button toggles the sheet between Edit and View-Only modes. When you open a sheet for editing, the sheet is automatically placed into Edit mode and blocks other users from editing it. If you open a sheet that is currently being edited by another user, you are not allowed to make any changes.

Planned Switching

The sections that follow describe how to create and manage planned switching sheets. Planned switching sheets are used for switching sequences that are prepared ahead of time. In scheduled or planned switching, you can create, study, and approve switching steps in a Viewer in study mode prior to completing them in real-time mode.

This section contains the following topics:

- **Creating a Planned Switching Sheet**

- **Switching Sheet Requests**

- **Changing the Switching Sheet State**

- **Adding and Editing Steps**

- **Reviewing a Switching Sheet in Study Mode**

- **Replaying Steps**

- **Implementing a Planned Switching Sheet**

    - **Scheduling a Planned Master Event**

    - **Issuing a Switching Sheet** (includes associating a crew and printing the sheet)

    - **Instructing and Completing Switching Sheet Steps**

    - **Moving a Crew**

- **Working with Switching Sheet Versions**

- **Viewing Impacted Customers**

- **Checking for Overlaps**

- **Saving and Loading View Areas**

- **Emailing Switching Sheet Data**

- **Adding External Documents to a Switching Sheet**

- **Viewing the Audit Log**

- **Opening an Existing Switching Sheet**

- **Copying a Switching Sheet**

- **Deleting a Switching Sheet**

For information about emergency switching sheets, see **Emergency Switching** on page 9-66.

Creating a Planned Switching Sheet

You can create a new planned switching sheet directly by selecting **New** and then **Switching Sheet...** from the **File** menu; alternatively, click the [ ] toolbar button. The New Switching Sheet window is displayed.

New Switching Sheet Window

Use the New Switching Sheet window to create switching sheets. This window contains the following fields and buttons:

- The **Type** column displays the types of switching sheets you can create. Planned, Emergency, and Template are the base types.

- The **Description** column displays a description of the sheet type.

The **Pre-Created Switching Sheets** section displays a list of all existing switching sheets. It displays the following columns:

- **Status** displays the switching sheet state, such as New or Requested.

- **Type** displays the sheet type, such as Planned, Emergency, or Template.

- **Sheet #** is the number of the switching sheet. This number is automatically assigned by the system when the sheet is created.

- **User** is the ID of the user who created the sheet.

- **Feeder** is the feeder associated with the sheet (as displayed on the Request tab).

- **Device** is the device associated with the sheet (as displayed on the Request tab).

- **Substation** is the substation associated with the sheet (as displayed on the Request tab).

- **Completed Date** is the completion date for the sheet.

- **Description** is the description of the sheet (as displayed on the Request tab).

- The **Create** button creates a new switching sheet of the selected type.

- The **Create a Copy** button creates a copy of the switching sheet selected in the **Pre-Created Switching Sheets** list. This button is not enabled unless a switching sheet and a sheet type are selected.

See Also:

- **Creating a Planned Switching Sheet**

- **Filtering the Switching Sheet List**

- **Sorting the Switching Sheet List**

- **Creating a Switching Sheet Template**

- **Creating a Switching Sheet from a Template**

Creating a Planned Switching Sheet

Follow these steps to create a planned switching sheet from the New Switching Sheet window:

- To create a new switching sheet from scratch, select **Planned** from the Switching Sheet Types section, and then click **Create**.

- To create a copy of an existing sheet, do the following:

  1. Select the sheet you want to copy from the Pre-Created Switching Sheets list.

  2. Select **Planned** from the Switching Sheet Types list.

  3. Click **Create a Copy**. (To search for a particular sheet, see **Filtering the Switching Sheet List** on page 9-10.)

     Notes:
     You can create a new sheet based on a sheet of a different type. For example, you can create a planned sheet based on an emergency sheet or create a template based on a planned sheet.

     Although most fields are copied to the new sheet, some fields (such as Audit Log entries and step completion information) are cleared in the new sheet. If you copy a switching sheet that has one or more safety documents, copies of the safety documents are included with the new sheet.

Filtering the Switching Sheet List

Use the edit boxes at the top of each column to filter the list. Type all or part of the text you want to filter by. For example, to see only Planned sheets, type "Plan" in the Type edit box. The list is filtered to display only sheets where the Type column contains the characters "Plan." You can combine filter criteria by typing values in more than one column. As you type in each edit box, the list is filtered immediately based on entries in all boxes.

Sorting the Switching Sheet List

You can sort the list by clicking on a column header. A ▲ or ▼ icon indicates the column is being sorted in ascending or descending order, respectively.

Creating a Switching Sheet Template

Switching templates look like standard switching sheets, but they are used for creating and saving sheets that contain common information that is used repeatedly. The information may include:

- File attachments, which may be templates of other forms such as Excel Spreadsheets.

- Safety Documents

- View Areas.

- Pre-filled Request Tab Information.

Once you save the template, you can create a copy of it, and then edit the copy as needed. You can also copy individual steps from a template and paste them into another switching sheet. Templates can save you considerable time and effort when you are working with frequently performed switching sequences.

To create a template:

1. From the **File** menu, select **New**, and then select **Switching Sheet...** The New Switching Sheet window is displayed.

2. From the Switching Sheet Types section at the top of the window, select **Template**.

3. Do one of the following:

- To create a new, blank template, click **Create**.

- To create a template based on an existing sheet, select the sheet you want to copy from the Pre-Created Switching Sheets list, and then click **Create a Copy**. To search for a particular sheet, see **Filtering the Switching Sheet List** on page 9-10.

  Note: Although most fields are copied to the new sheet, some fields (such as Audit Log entries and step completion information) are cleared in the new sheet.

Creating a Switching Sheet from a Template

After a switching template has been created and saved, you can use the template as the basis for another switching sheet.

To create a new planned sheet from a template:

1. From the **File** menu, select **New**, and then select **Switching Sheet...** The New Switching Sheet window is displayed.

2. From the Switching Sheet Types section at the top of the window, select **Planned**.

3. From the Pre-Created Switching Sheets list, select the template to use.

4. Click **Create a Copy**.

5. Edit the sheet as needed (see the instructions in the remainder of this guide) and save when you are done.

Switching Sheet Requests

Someone other than the person who prepares the switching sheet usually initiates switching sheet requests. The requestor may be someone in the construction/maintenance department, while the preparer is typically an operations user assigned to look for and prepare new requests. Typically, the requestor is a Switching Entry user type.

Capabilities of the Switching Entry User Type

Switching Entry users do not have full access to all switching sheet information and operations. Specifically, Switching Entry users are limited to the following capabilities:

- Creating and viewing "Planned" switching sheets only. All other types of switching sheets are not available to Switching Entry users.

- Creating copies of existing switching sheets.

- Loading, printing, and emailing existing sheets. Only the information contained in the Request, Steps, Tracking/Audit Log, and External Documents tabs can be viewed, printed, or emailed.

- Performing the following operations on switching sheets that are in the New or Request Rejected state only:

  - Completing the fields on the Request tab.

  - Adding, removing, modifying, cutting, copying and pasting steps within the current sheet's Steps list. Steps can be added by using the Manual Step Addition panel (See **Adding Steps Manually** on page 9-30) or by adding Comment steps. Note that cut, copy and paste operations are only supported for sheets that are in the New or Request Rejected states.

  - Adding, removing, and viewing attachments on the External Documents tab.

  - Adding comment entries to the audit log on the Tracking/Audit Log tab.

- Incrementing and checking in versions of a switching sheet. This is done by selecting the Check-in button on the status bar of the switching sheet.

Once a sheet has transitioned to (or beyond) the Prepared state, Switching Entry users are limited to view-only mode.

Completing the Request Tab

Follow the steps in the previous sections to start a new planned switching sheet. Then use the Request tab to enter basic information about the switching sheet before you begin adding steps. When a new sheet is created, the user ID of the person who created it is automatically displayed in the Requested By field. You should complete as much of the information on this tab as possible.

When you have completed the information on the Request tab (fields described below)**,** update the sheet state to **Requested** on the Tracking/Audit Log tab. See **Changing the Switching Sheet State** on page 9-14 more information.

> **Note**: The switching sheet is automatically saved after a state change, and an entry is added to the audit log.

The Request tab contains the following fields:

- **Owner** displays the current owner of the switching sheet. See **Taking Ownership** on page 9-13 for more information.

- **Requested By** displays the person who requested the switching order. This field is initially populated with the ID of the user who created the switching sheet and can be updated. A value is required prior to submitting the request.

- **Phone Number** displays the phone number of the person requesting the switching order.

- **Email Address** displays the email address of the requestor.

- **Customer Name** displays the name of the customer requesting the interruption.

- **Phone Number** displays the phone number of the customer requesting the interruption.

- **Email Address** displays the email address of the customer requesting the interruption.

- **Charge Number** allows you to enter charge numbers that can then be executed and/or used by the switching sheet preparer.

- **Office** displays the office responsible for the switching sheet.

- **Location** displays the street address or specific location for the switching operation.

- **Substation** displays the substation where the switching operation takes place.

- **Device** displays the device being worked on (not necessarily the device being switched). This device address is given to the master event associated to the switching sheet after the switching sheet has been scheduled. The following buttons are displayed to the right of the Device field:

    - The **Device Lookup** button ( ) is used to search for and select a device.

    - The **Link Device** button ( ) to link a device selected from the Viewer to this switching sheet. First, click on the device in the Viewer, then click this button. The Device field is populated with the selected device's name.

    - The **Unlink Device** button ( ) is used to clear the device field.

    - The **Focus** button ( ) is used to locate this device in the Viewer.

- **Description of Work** displays a general description about what the switching sheet should try to accomplish.

- **Start Date** displays the date and time the switching work is scheduled to begin. This is required when scheduling a switching sheet. This is the Start Date given to the master event associated to the switching sheet after it has been scheduled. This is also used to generate the Impacted Customers list if no Planned Date is specified for a step. Enter the time in military time format (*e.g.*, 13:00 = 1 P.M.).

- **Alt. Start Date** displays the alternate date and time the switching work could begin. Enter the time in military time format (*e.g.*, 13:00 = 1 P.M.). The alternate start date must be later than the start date.

- **Finish Date** displays the date and time the switching work is scheduled to end. This field is required when scheduling a switching sheet. This date is the Estimated Restore Time (ERT) given to the master event associated to the switching sheet after it has been scheduled. The finish date must be later than the start date, and you must enter the finish time for the date to be valid. Enter the time in military time format (*e.g.*, 13:00 = 1 P.M.).

  - Use the 🔄 **Update ERT** button to update the ERT for the master event associated to the switching sheet. This option is only available after the sheet has been scheduled. This button is displayed next to both the Finish Date and Alt. Finish Date fields. The button is grayed if no date has been entered yet for the field.

- **Alt. Finish Date** displays the alternate date and time the switching work could end. The alternate finish date must be later than the alternate start date. Enter the time in military time format (*e.g.*, 13:00 = 1 P.M.).

- **Feeder** displays the feeder that is relevant to the switching sheet. This is a text entry field and is not auto-populated.

- **Voltage** displays a drop-down menu that lists the nominal device voltages. This list is configured and is not dynamically generated.

- The **Crew Will Switch** checkbox allows you to indicate whether the requesting crew will perform the switching activities.

- The **Crew Will Restore** checkbox allows you to indicate whether the requesting crew will restore the outage associated with the switching activities.

- The **Grounds Required** checkbox allows you to indicate whether the crew is required to place grounds on the appropriate devices or not.

Taking Ownership

You can take ownership of a switching sheet to indicate that you are currently working the sheet. Once you take ownership, no other user is allowed to execute steps for the sheet or edit restricted fields. Other users can still view, lock, and edit certain fields on the sheet.

To take ownership of a plan, click the 🧑‍🤝‍🧑 **Take Ownership** button next to the Owner field on the Request tab. Your user ID is displayed in the Owner field. You can also use this button to take over ownership of a switching sheet that is currently owned by another user. This is useful if there is a shift change and the original user does not relinquish ownership before logging off.

To relinquish ownership, click the 🧑‍🤝‍🧑 **Relinquish Ownership** button.

An entry is recorded in the audit log whenever ownership of a sheet changes.

Changing the Switching Sheet State

A switching sheet passes through different phases during the creation and completion of the plan. These phases are represented by "states" that follow a logical sequence and determine what you can do with a switching sheet.

> **Note:** The state of the switching sheet should not be confused with the status of individual switching steps within the switching sheet.

A switching sheet's current state is displayed on the Tracking/Audit Log tab. This tab also displays a button for each valid state to which the sheet can transition and allows you to enter a comment associated with the state transition.

Sheet State Tracking

Current State: Requested

Reject — Reason

Prepared — Comment

Delete — Reason

Audit Log

Entry Date ▲	Sheet Version	Sheet State	Entry By	Details
03/27/12 10:00	1	New	nms11	Switching Sheet Creation.
03/27/12 10:10	1	New	nms11	Check in New Version of Switching Sheet.
03/27/12 14:30	2	New	nms11	Increment Version of Switching Sheet.
03/27/12 14:31	2	New	nms11	Check in New Version of Switching Sheet.
03/27/12 14:32	3	New	nms11	Increment Version of Switching Sheet.
03/27/12 15:15	3	New	nms11	Take ownership of Switching Sheet.
03/27/12 15:16	3	Requested	nms11	Switching Sheet State Change.

To change the state of a switching sheet, click the appropriate state change button on the Tracking/Audit Log tab. It is helpful to provide comments or a reason for the state change.

The Audit Log table on the Tracking/Audit Log tab shows a history of all state transitions for the sheet, including the ID of the user who updated the state and the timestamp of the change. See **Viewing the Audit Log** on page 9-58 for details.

Switching Sheet States

The following table describes the switching sheet states.

State	Description
New	Indicates that the switching sheet is in the process of being created but has not yet been requested. When you create a switching sheet, its initial state is New.
Requested	Indicates that the sheet has been requested. A sheet transitions to this state when a user clicks the **Submit Request** button on the Tracking/Audit Log tab. This state is valid for planned switching sheets only. From this state, a sheet can progress to either the Rejected or Prepared state.
Rejected	Indicates that the request was rejected. A sheet transitions to this state when a user clicks the **Reject** button on the Tracking/Audit Log tab. The Reject button is grayed until you select a Reason. This state is valid for planned switching sheets only. From this state, a sheet can be requested again by clicking the **Submit Request** button on the Tracking/Audit Log tab.
Prepared	Indicates that the sheet has been prepared. A sheet transitions to this state when a user clicks the **Prepare** button on the Tracking/Audit Log tab. Although not required, all information for the switching sheet should be entered before you transition to this state. This state is valid for planned switching sheets only. From this state, a sheet can transition to the Checked state.
Checked	Indicates that the sheet has been checked. A sheet transitions to this state when a user clicks the **Check** button on the Tracking/Audit Log tab. All information for the switching sheet should be entered before you check the sheet. This state is valid for planned switching sheets only. From this state, a sheet can be approved, rejected, or scheduled.
Approved	Indicates that the sheet has been approved. A sheet transitions to this state when a user clicks the **Approve** button on the Tracking/Audit Log tab. All information for the switching sheet should be entered before you approve the sheet. This state is valid for planned switching sheets only. From this state, a sheet can be scheduled.
Check Rejected	Indicates that the sheet was rejected after being checked. A sheet transitions to this state when a user clicks the **Reject** button on the Tracking/Audit Log tab. The Reject button is grayed until you select a Reason. This state is valid for planned switching sheets only. From this state, the sheet can be prepared again.
Scheduled	Indicates that the sheet has been scheduled. A sheet transitions to this state when a user clicks the **Schedule** button on the Tracking/Audit Log tab. All information for the switching sheet should be entered prior to scheduling the sheet. This state is valid for planned switching sheets only. From this state, a sheet can be cancelled or issued.

State	Description
Canceled	Indicates that the sheet was cancelled. A sheet transitions to this state when a user clicks the **Cancel** button on the Tracking/Audit Log tab. The Cancel button is grayed until you select a Reason. This state is valid for planned switching sheets only. From this state, a sheet can be scheduled again.
Issued	Indicates that the sheet has been issued. A sheet transitions to this state when a user clicks the **Issue** button on the Tracking/Audit Log tab. All information for the switching sheet should be entered before issuing a sheet. This state is valid for planned switching sheets only. From this state, a sheet can transition to the Hold/ Pending, In Progress (automatically), or Completed state.
In Progress	Indicates that at least one switching step in a planned or emergency switching sheet has been instructed or completed in real-time mode. From this state, a sheet can transition to the Hold/Pending or Complete state.
Hold/Pending	Indicates that the sheet is on hold. A sheet transitions to this state when a user clicks the **Hold/Pending** button on the Tracking/ Audit Log tab. From this state, a sheet can progress to the In Progress (automatically) or Complete state.
Completed	Indicates that the sheet has been completed in real-time mode. A sheet transitions to this state when a user clicks the **Complete** button on the Tracking/Audit Log tab. A terminal action (Complete, Delete, Abort or Fail) must have been taken for each of the switching steps before a sheet can be completed. (See **Switching Sheet Step States** on page 9-29 for information about step states.) Once a plan is complete, it cannot be edited. This state applies to both planned and emergency switching sheets.
Deleted	Indicates that the sheet was deleted using the **Delete** button on the Tracking/Audit Log tab. The Delete button is grayed until you select a Reason.
Executed	Indicates that the switching steps in a FLISR or CVR switching sheet have been completed successfully. This state is set automatically by the system after completion of all steps in the switching sheet and is valid for FLISR or CVR switching sheets only. From this state, a sheet can transition to the Completed, In Progress, or Hold/Pending once you have reestablished the single user lock over the sheet.
Error	Indicates that at least one step has failed in the execution of switching steps in the FLISR or CVR switching sheet. This state is set automatically by the system when it finds an error in the execution of steps and is valid for FLISR or CVR switching sheets only. From this state, a sheet can transition to the Completed, Hold/ Pending, or In Progress once you have reestablished the single user lock over the sheet.

Adding and Editing Steps

This section describes how to add and edit steps in a switching sheet. It includes the following topics:

- **Steps Tab**
- **Switching Sheet Step States**
- **Adding Recorded Steps to a Switching Sheet**
- **Adding Comment Steps**
- **Copying and Pasting Steps**
- **Creating Go-Back Steps**
- **Working with Blocks**
- **Grouping and Ungrouping Steps**
- **Editing Existing Steps**
- **Finding and Replacing a Device in the Steps**
- **Finding and Replacing Text in the Steps**
- **Focusing on a Device in a Step**
- **Moving a Crew**

Steps Tab

Use the Steps tab to add, edit, record, instruct, and execute steps in a switching sheet.

Steps tab topics include:

- **Steps Tab Fields**
- **Steps Tab Toolbar and Options Menus**
- **Steps Tab Events and Crews Pane**

Steps Tab Fields

The steps table on the Steps tab displays the following fields:

- **Step#** displays the number of the step.

  - For a block header row, this column displays the block name.

  - For a step row, this column displays the step number (1 through n).

  - For a sub-step within an aggregate step, such as Open & Tag, this column displays the sub-step number (a-z). Blocks and aggregate steps can be expanded or collapsed by clicking the + or - sign.

  - If you are viewing the differences between this version and another version, this column uses outline numbering (1.1, 1.2, etc.) to identify steps that were added since the previous version. See **Working with Switching Sheet Versions** on page 9-48 for more information.

- **Version** displays the version number of the switching sheet when the step was added. See **Working with Switching Sheet Versions** on page 9-48 for more information.

- **Operation** displays the description of the switching action. When the switching action is associated to a safety document, then the safety document type and number will be displayed in this field after the switching description.

- **Device** displays the device alias referenced in the step.

- **Phases** displays the phase that was selected for the step. When obtaining a device through a Viewer device selection, all the phases are selected by default.

- **Details** displays information about the outcome of the switching step, such as:

  - Deenergize a section of the network.

  - Energize a section of the network.

  - Make a loop.

  - Break a loop.

  - Make a parallel. (The feeders involved in the parallel will be listed.)

  - Break a parallel. (The feeders involved in the parallel will be listed.)

  This information is recorded into the step when the step is initially added to the switching sheet, but is not dynamically updated as changes are made to the sheet. You can enter text into this field to replace the text that is automatically inserted.

- **Status** displays the state of the switching sheet step. See **Switching Sheet Step States** on page 9-29 for information.

- **Planned Date** displays the proposed date/time when this step will be performed. The Planned Date is used to generate more accurate and detailed Impacted Customer lists **and** to specify the ERT for the generated Planned Events. This date must be within the Start and Finish Dates specified on the Request tab. This date is automatically updated when the switching sheet's Start and Finish Dates are updated. Thus, if the work is rescheduled, the planned date values do not have to be manually updated as well.

- **Executed By** displays the user ID of the person who completed the step in real-time mode. This field is automatically populated by the system.

- **Completed Date** displays the date the step was completed. If this field is blank when a step is completed, failed, or aborted in real-time mode, then the system populates this field automatically. If you enter a date in this field before executing a step, that date is used instead. This allows you to specify when an action actually occurred. (This field is similar to the date field on the Control Tool.) If you attempt to edit this date after the step has been completed in real-time, the system checks to see if the step affects any jobs. If it does, the system prompts you to confirm that you want to change the affected start date or restoration date, as applicable, based on the event association.

- **Instructed By** displays the user ID of the person who instructed the step in real-time mode. This field is automatically populated by the system.

- **Instructed To** displays the ID(s) of the crew(s) to which the step was instructed. This field is automatically populated if crews are selected in the Crew List on the Steps tab header when you instruct a step. This field cannot be edited manually.

- **Instructed Date** displays the date and time the step was instructed. If this field is blank when the step is instructed, then the system populates this field automatically. If you enter a date in this field before instructing a step, that date is used instead. This field cannot be edited after the step is in a terminal state (completed, aborted, or failed).

- **Address** displays the address of the device referenced in this step. This field is automatically populated if you record the step by initiating an action within the Viewer.

- **Comments** displays any additional information associated with this step. You can enter free-form text in this field.

- **Hidden Columns:** The following columns are, by default, hidden from view.

  - **Cond Cls** displays the step's associated condition handle class.

  - **Cond Idx** displays the step's associated condition handle index.

These columns are used to determine the class and unique condition id associated to the step. A condition handle is associated to a step when the step manipulates a condition like, for example, an Apply Condition step or a Grounding step. Sometimes it is useful to determine the step that added a condition and the step that removed it. If you have a lot of Apply and Remove condition steps, it may be difficult to determine which step goes with each condition. These columns can help you diagnose issues with the step's related condition handle.
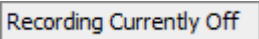
To display these hidden step columns, bring up the Select Columns to Display dialog by right-clicking on the Steps table header row and select the **Select Columns...** option. When the Select Columns to Display dialog comes up, select the Cond Cls and Cond Idx items and click the **OK** button.

The Cond Cls and Cond Idx columns will now be visible between the Operation and Device columns.

Steps Tab Toolbar and Options Menus

The Steps tab toolbar displays a button for actions that you can perform. If a button is grayed, then that action is not currently permitted. For example, if you are currently in Study Mode, then the Start Study Session button is grayed. Some toolbar buttons, such as the Cut and Paste options, are also available through an options menu that is displayed when you right-click a step row. The options menu contains some options that do not appear on the toolbar.

The following table describes all actions that can be performed on the Steps tab with toolbar buttons, keyboard shortcuts, and/or options menu items.

To perform this action:		Comments
Turn record mode on	Click ⬤	Record mode must be on in order to record operations using the Viewer and Control tool. The toolbar button combines the **record on** action and text for the current recording mode state: 🔲 Record Off The status bar also provides the recording mode status: Recording Currently Off
Turn record mode off	Click 🔴	The toolbar button combines the **record off** action and text for the current recording mode state: 🔴 Record On The status bar also provides the recording mode status: Recording Currently On
Save all device addresses to the database	Click 🗄	If you change one or more device addresses in a switching sheet, this action updates the devices' addresses throughout the switching sheet and also updates the device attribute table so that any new switching sheets referencing these devices will use the new addresses.
Focus Viewer 1 on the object referenced in the currently selected step	Click 🔴	By default, the master viewer is the VIEW1 Viewer.

To perform this action:		Comments
Instruct the selected steps	Click	This action is only permitted in real-time mode when the plan reaches Issued state. Note that step order execution rules apply when enabling this button (see **Step Order Execution Rules** on page 9-36 for details). When you select this button, the Instructed By and Instructed Date columns are populated.
Complete the selected steps	Click	Once the action is complete, the status of the step changes to *Completed* (see **Switching Sheet Step States** on page 9-29). If you are in real-time mode, the Completed Date column is also updated with the current date. Note that step order execution rules apply when enabling this button (see **Step Order Execution Rules** on page 9-36 for details). The Complete button is enabled in real-time mode when the plan reaches the Issued state. **Note:** To complete a step in real-time mode, you must have authority over the device.
Abort the selected steps	Click	Use this action if a step was never attempted. When you click this button, the status of the step changes to Aborted (see see **Switching Sheet Step States** on page 9-29). If you are in real-time mode, the Completed Date column is updated with the current date. However, the switching action is not actually performed.
Mark the selected steps as failed	Click	Use this if a step was attempted but failed. When you click this button, the status of the step changes to *Action Failed* (see **Switching Sheet Step States** on page 9-29) and the Completed Date column is updated with the current date. However, the action is not actually performed against the real-time data model.
Uninstruct an instructed step	Click	Use this action to change the state of an instructed step to *Uninstructed* (see **Switching Sheet Step States** on page 9-29). If the step has a device and an instruct condition on the device, then the condition will be removed prior to the step transitioning to the *Uninstructed* state. Steps that are in the *Uninstructed* state can be instructed again or aborted, failed or completed. Notes: • The uninstruct action is not available for SCADA instructed actions. This option is not available for steps in the *SCADA Pending* state. • Uninstructed steps may be deleted. • If you are using version controls, uninstructed and deleted steps may be red-lined and not deleted from the database. See **Working with Switching Sheet Versions** on page 9-48 for more information.

To perform this action:		Comments
Verify steps after a model edit	Click ✔	This action is available if model changes have occurred that impact one or more devices in the switching sheet.

The Web Switching service checks all the opened switching sheet steps after a model edit has occurred. If a step has a device that matches a device that was directly impacted by a model change, that step will be marked as needing verification. When the sheet is displayed, these steps will be highlighted in yellow. You can either check off each step in the sheet as they are verified or check off the entire sheet.

Notes:

- Outage Correction sheets are not included in this processing. Outage Correction validates the devices when the correction is made.

- While the sheet has verifications pending, step executions cannot be performed within the sheet.

Individual Verification
- To check off each step individually, right-click the highlighted step and select **Model Verify**.

Whole Sheet Verification
- To check off all of the steps in a sheet, click ✔ to Confirm all model changes. All highlighted steps will be marked as verified.

Once the steps have been verified, step execution can continue for the sheet. |
| Reset study session and clear the status of the steps | Click 🖼 | This action is only available in Study Mode. When you click this button, you are prompted to select either Nominal or Real Time.
- Choose **Real Time** to replicate the real-time device states.

- Choose **Nominal** to reset all devices to their predefined normal state. This will immediately clear the status of the steps in the current sheet. It will also clear the study step statuses in any other open sheets. |
Switch to current Real-Time Mode	Click 🔻	This action is only available when you are in Study Mode. When you click this button, the status bar displays real-time mode in red and Viewer 1 changes to real-time mode.
Switch to Study Mode	Click 🖍	This action is only available when you are in real-time mode. When you click this button, the status bar displays study mode in gray and Viewer 1 changes to study mode.
Find and replace text	Click 🔍	Use this to find and replace all occurrences of a device (see **Finding and Replacing a Device in the Steps** on page 9-37) or text (see **Finding and Replacing Text in the Steps** on page 9-38) in the switching steps.

To perform this action:		Comments
Cut steps to the clipboard	Click ✂	Select one or more steps. The selected steps are marked as being cut and are placed on the clipboard. The steps will only be moved after they have been pasted to their new location. Use the Paste option to paste the steps. This option is disabled if the sheet is in view only mode or the sheet state is Completed. Alternatively, right-click and choose **Cut** from the options menu or press **Control-X**.
Move Steps to the Miscellaneous Log	--	This action moves Real Time Completed, Aborted, Failed or Instructed steps to the Miscellaneous Log. SCADA Pending steps cannot be moved until they have transitioned to one of the states already stated. Steps associated to safety documents are also not allowed to be moved. Any step in a New or Uninstructed state will not be moved as the Miscellaneous Log only displays Real Time steps that are in a terminal or Instructed state. Any attempt to move an immovable step will result in an error dialog and the steps will not be moved from the switching sheet's steps list. To move steps to the Miscellaneous Log, select one or more steps and select **Move Steps to Misc Log** from the Actions menu or from the right-click options menu.
Copy steps to the clipboard	Click 📋	You can select one or more steps. The selected steps are copied to the clipboard. Use the Paste option to paste the steps. Alternatively, right-click and choose **Copy** from the options menu or press **Control-C**.
Copy steps as go-back steps	Click 📑	You can select one or more steps. Reverse steps are created for each selected step and copied to the clipboard. Use the Paste option to paste the steps. Alternatively, right-click and choose **Copy as Go-Backs** from the options menu or press **Control-G.**
Paste steps from clipboard	Click 📋	Steps are pasted after the currently selected step. The operation pastes the steps that were placed in the clipboard during the last Cut, Copy, or Copy as Go-Backs operation. Once the step(s) have been pasted, the Paste button is no longer available and the contents of the clipboard are cleared. This option is disabled if the sheet is in view only mode or the sheet state is Completed. Alternatively, right-click and choose **Paste** from the options menu or press **Control-V**.
Delete steps	Click ✖	Deletes the selected steps from the plan. This button is disabled if the sheet is in view only mode or if the step has transitioned beyond its initial state (No State). Alternatively, right-click and choose **Delete** from the options menu or press **Control-D**.

To perform this action:		Comments
Undo the last action	Click ⟲	Allows you to undo the last action (Cut/Paste, Copy/Paste, Delete, Add Step). The Undo function returns an error (*Undo is not supported across multiple sheets.)* when: • attempting to undo pasting steps cut from another switching sheet • the last action was not on the currently active sheet; for example, if you insert a step on Sheet A and then switch to Sheet B and click Undo. Alternatively, right-click and choose Undo from the options menu or press **Control-Z**.
Return to Nominal	Click ◀❙	The Return to Nominal function generates a block of switching sheet steps that contain all the steps needed to switch the affected devices back to nominal. They will be presented in a logic order, will not outage any customers, and are logically grouped. **Note:** the block is not go-back steps.
Add a Safety Document for a step	Click 📋	The **Create Safety Document for Selected Step** button creates a safety document for a selected step. If the system cannot determine the type of safety document to create for the step, the Select Safety Type dialog will open so you may choose the type. If the step selected is not valid for safety documents, an error is returned. Once a safety document type has been determined or selected, the safety document dialog opens. This option is disabled if the sheet is in view only mode or the sheet state is Completed. See **Working with Safety Documents** on page 9-74 for more detail.
Create a Safety Document	Click 🗂	The Create Safety Document button opens an options menu that allows you to choose a safety document type or open the Select Safety Type dialog. See **Working with Safety Documents** on page 9-74 for more detail.
Unlink from a Safety Document	Click ✂	Unlinks (removes the association to) a device from a safety document's device list. First, select the step with the device operation you want removed from the safety document, then click the button. See **Removing Devices** on page 9-84.
Complete all steps up to the selected step in 'silent' mode	Click ⬇	Use this action to complete all steps up to and including the selected step in 'silent' mode, which means that the system will auto-complete the operations without displaying the Look Ahead window. This option is only available in Study mode if you select a single row that has not already been completed. This is useful if you need to get a study session back to a point where you previously left off. Alternatively, right-click and choose **Complete to Here** from the options menu.

To perform this action:		Comments
Launch Feeder Load Management for the selected steps' feeders.	Click	Feeder Load Management may be launched when at least one step is selected. The **Feeder Load Management...** option is also available on the right-click option menu in the Steps table. This option is only available when Power Flow and FLM are both licensed and configured.
Execute FLISR plan	Click	Executes the entire FLISR plan. Applies only to FLISR switching sheets.
Clear all FLISR actions	Click	Clears all FLISR action conditions. Applies only to FLISR switching sheets.
Show or hide events and crews	Click ⩔ to show or ⩕ to hide the header	Shows or hides the Events and Crews pane, which displays crew and event associations. See **Steps Tab Events and Crews Pane** on page 9-25.
Show Manual Step Addition Form	Click	Shows the Manual Step Addition pane, which allows you to add steps without using the Control Tool. See **Adding Steps Manually** on page 9-30.
Add a new block header	Right-click and choose **Add New Block Header** from the context menu, then select the block type	Inserts a new block header of the selected type: Isolate, Fault Location, Maintenance, Restore, Construction, or Custom. If you choose Custom, you are prompted to enter the block header name. See **Adding a New Block Header** for more information. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Rename an existing block header	Right-click and choose Rename Block Header from the context menu, then select the block type	Rename an existing block header to one of the following types: Isolate, Fault Location, Maintenance, Restore, Construction, or Custom. If you choose Custom, you are prompted to enter the new block header name. See **Renaming a Block Header** on page 9-33 for more information. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Change an instructed date	Right-click and choose Update Instructed Dates... from the context menu.	When selected, this option will display the Update Instructed Date dialog. From this dialog you can enter in a new Instructed Date for the steps that are currently highlighted in the steps list. Any steps that have not been instructed will not be updated.
Clear the Planned Date field for this step	Right-click and choose **Clear Planned Date** from the options menu	This action is only available if the step has a value in the Planned Date column. Clicking this button removes the date and leaves the Planned Date column blank. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Clear the **Instructed To** field for this step	Right-click and choose **Clear Crew(s)** from the options menu	This action is only available if the step has a value in the Instructed To column. Clicking this button removes the crew and leaves the Instructed To column blank. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Clear the step's **Condition Class** and Index fields for this step.	Right-click and choose **Clear Condition Indexes** from the options menu.	The action will only happen for steps that are not in a terminal state and steps that are not associated to safety documents. Clicking this button will remove the condition class and index associated to the step. An error dialog will come up if any of the selected steps' condition handles could not be cleared.

To perform this action:		Comments
Group steps	Right-click and choose **Group Steps** from the options menu	Groups the selected steps and draws a bracket around them in the Steps list. This allows steps to be completed in or out of order within the grouping depending on the switching sheet type. See **Grouping Steps** on page 9-35. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Ungroup steps	Right-click and choose **Ungroup Steps** from the options menu	Ungroups the selected steps and revises or removes the group bracket. (If you ungroup the third of three steps, the first 2 remain grouped.) See **Ungrouping Steps** on page 9-35. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Insert a blank step	Right-click and choose **Insert Blank Step** from the options menu.	Inserts a new blank step after the currently selected step. This is useful for adding comment steps. See **Adding Comment Steps** on page 9-31 for more information. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Mark the location where steps should be inserted	Right-click and choose **Place Step Insertion Indicator** from the options menu.	Designates where newly recorded steps should be added. When you choose this option, a visible marker appears. The next recorded step is inserted after the marker. Each time you add a recorded step, the marker moves down to the newly recorded step, so that steps are added in the order in which they were recorded. This option is disabled if the sheet is in view only mode or the sheet state is Completed.
Remove step insertion indicator	Right-click and choose **Remove Step Insertion Indicator** from the context menu	When you click this option, the indicator is removed and any newly recorded steps are added to the end of the steps list. This action is only available when the step insertion indicator is showing.
Load the associated safety documents	Right-click and choose **Load Safety Document(s)…** from the context menu	If any of the selected steps are associated to a safety document, then that document will be loaded for each step. The document type and number appear in the Operation column of the step when there is an association.
Move the crew symbol to a new device in the Viewer	Right-click and choose **Move Crew** from the context menu	When this option is selected for a step with a crew instruction, the crew symbol within the Viewer is moved to the device specified in that step. This feature is only used to move the crew symbol within the viewer.
Move a column in the Steps list	Click the column heading and drag it to the desired position	This allows you to rearrange the order in which columns are displayed. For example, if you want each step's status to display in the first column, click the Status column header and drag it to the left of the Step # column.

Steps Tab Events and Crews Pane

The **Events and Crews** pane provides information on the events and crews associated with the sheet. Use the **Show Event and Crews** (⌄) and **Hide Events and Crews** (⌃) buttons on the Steps tab toolbar to expand and minimize the pane.

Events List

The **Events List** lists all events associated with the switching sheet. If you created a switching sheet from the Work Agenda Event List, the associated event is automatically displayed in the Events list. Use this list to view, add, and remove event associations and to view more information about the events. (For more information about associating events to switching sheets, see **Event Associations** on page 9-72.)

The Events List displays the following fields and buttons:

- The **Event** column displays the number of the associated event.

- The **Association** column displays the type of association. The list can have the following types of associations and will be listed in the order of Master, Planned, Forced, Manual and Canceled. Manual event associations are event associations that are added using the Add Event Association button on this window.

- The **# Out** column displays the number of customers outaged by this event.

- The **Status** column displays the status of the event, such as NEW, P-NEW (New Planned Event), or W-ASN (Master Switching Event).

- The **Device** column displays the name of the device.

- The **Add Event Association** button (➕) opens a dialog box that allows you to enter an event number to associate with the switching plan. The event number can also be populated by selecting an event in the Work Agenda Event List. These events will show up as "Manual" associated events within the Events list. See **Event Associations** on page 9-72 for more information.

- The **Remove Event Association** button (✖) removes the selected event association from the switching plan. This button is enabled only for Manual associated events. This option is disabled if the sheet is in view only mode or the sheet state is Completed.

- The **Event Details...** button (ⓘ) displays the Event Details window for the selected event.

- The **Call...** button (☎) displays the Trouble Info window for the selected event.

- The **Highlight in Work Agenda** button (▦) selects the event within the Work Agenda Event List.

- The **Show in Viewer 1** button (◉) focuses Viewer 1 on the associated device.

Crews List

The Crews List displays crews that are associated to the switching sheet; they may be directly associated using Crews List **Select Crew...** function or by virtue of being assigned or en route to an associated event. If you created a switching sheet from the Work Agenda Event List, any crew associations are automatically displayed in the Crews list on the Steps tab header.

The Crews List displays the following information:

- The **Crew ID** column contains the crew ID of the crew.

- The **Event** column contains the event number the crew is assigned or en route to.

- The **Contact** column contains the contact name for the crew.

- The **Mobile #** column contains the contact's mobile phone number.

- The **Pager #** column contains the contact's pager number.

- The **ASN/ENR Date** column contains the date and time of when the crew was assigned or placed en route to the event shown in the Event # column.

- The **Status** column indicates whether the crew is assigned or en route to the event shown in the Event # column.

- The **Type** column contains the crews' type (*e.g.*, Trouble).

- The **Crew Info** button (ⓘ) displays the Crew Information window for the selected crew. This button is enabled only if a crew is selected from the list. For more information, see **Associating Crews** on page 9-42.

- The **Update 'Instructed To' in Steps** button ( ) updates the Instructed To column for the selected steps with this crew's ID. This option is disabled if the sheet is in view only mode or the sheet state is Completed. This action will only be applied to steps in the Instructed or Completed states. Any selected step in any other state will be ignored.

- The **Move Crew** button ( ) allows you to move a crew to the device associated with the selected step. This button is enabled only when the selected crew is en-route or on-site to the associated event.

- The **Select Crew...** button ( ) opens the Select Crew dialog from which you may select crews or create contractor (foreign) crews to associate to the switch plan. For more information see **Assigning Crews to a Switching Sheet** on page 9-28.

- The **Remove Crew** button ( ) removes the selected crew from the table if they were added with the **Select Crew...** ( ) action and are not assigned, en route, or onsite.

Assigning Crews to a Switching Sheet

The Select Crew dialog allows you to assign crews to the switching sheet. You may also create contractor crews from the dialog's **Contractors** tab.

Selecting Crews from the System Crews List

To assign a standard (system) crew to the switch sheet

1. Click the **Select Crew...** button (⊞) to open the Select Crew dialog

2. On the **System Crews** tab, select one or more crew rows in the table.

3. Click **OK** to assign the crew(s) and close the dialog.

    Note: click **Apply** to assign the selected crews without closing the dialog.

Creating and Assigning Contractor Crews from the Contractor Entry Form

You may add a new contractor crew using the Contractor Entry Form. The created crews are assigned to the current sheet and added to the Contractor Crew List from which they may be assigned to other switching sheets or safety documents.

The form contains the following fields:

*   Crew ID: the crew name or identifier.

*   Contact: the name of the crew contact person.

*   Mobile #: the crew's mobile number.

*   Pager #: the crew's pager number.

*   Type: crew option menu that allows you to choose the crew type.

*   Comments: text field for comments.

Actions

*   **Create and Assign Crew** ( ): assigns the new crew entry to the switching sheet and adds them to the contractor crew list; the Select Crew dialog closes once the **Add** button is clicked.

*   **Clear Crew Fields** ( )**:** clears the entry form.

Using the Contractor Crew List

The Contractor Crew List allows you to assign existing contractor crews to the switch sheet or populate the Contractor Entry Form to reuse crew data when creating additional contractor crews.

Assigning an Existing Contractor Crew

1. Select the crew row(s) in the Contractor Crew List.

2. Click the **Assign Crew** button ( ) to assign the crew(s) to the sheet.

Assigning a New Contractor Crew Using Existing Crew Data

To create an additional contractor crew using data from an existing crew, do the following

1. In the Contractor Crew List, select the row with the desired crew data.

2. Click the **Transfer Crew Data** button ( ) to copy the data to the Contractor Entry Form.

3. Edit the data for the new crew.

4. Click the **Assign Crew** button ( ) to assign the new crew to the safety document and add them to the Contractor Crew List.

Switching Sheet Step States

Switching sheet steps go through stages or states, just like switching sheets. Step states are described below:

> **Note**: The status of steps that are executed in Study mode is prefixed with a two-character text string. (The default prefix is "ST," but this is configurable during system implementation.) Thus, a step that was completed in real-time mode would display the status "Completed," while a step completed in Study mode would display "ST Completed."

- **No state** - No action is associated with the step.

- **Instructed** - The step was instructed.

- **Uninstructed** - The instructed step was uninstructed.

- **Completed** - The step was successfully completed.

- **Partially Completed** - This state applies only to parent aggregate steps and indicates that some but not all child steps were completed.

- **Previously Completed** - This state occurs when a step is completed, but the device was already in the desired state.

- **SCADA Pending** - This state applies only to actions that the system identifies as SCADA actions (*i.e.*, actions on telemetry-controlled devices). It indicates that a SCADA action was instructed.

  > **Note**: If the system detects that the device was operated as instructed, the step state is then changed from SCADA Pending to Completed. If an error or timeout occurs, the step remains in SCADA Pending state.

- **Deleted** - The step was deleted from the sheet.

- **Aborted** - The step was marked as aborted by the user. (A step transitions to this state when the user selects the **Abort** option on the Steps toolbar.)

- **Failed** - The step was marked as failed by the user. (A step transitions to this state when the user selects the **Fail** option on the Steps toolbar.) The step can also fall into this state if the step fails to execute during automatic execution of steps within a CVR or FLISR sheet.

Note that a terminal action (Complete, Delete, Abort or Fail) must have been taken for each of the switching steps before a sheet can be completed.

Adding Recorded Steps to a Switching Sheet

Follow these steps to add recorded steps to a switching sheet using the Viewer and the Control Tool.

> **Notes**:
>
> For information about adding steps to an emergency switching sheet, see **Emergency Switching** on page 9-66.
>
> To record safety state transition steps (*i.e.*, steps that are associated to safety documents), see **Adding a Safety State Transition Step** on page 9-82.

1. Create or open a switching sheet (as described earlier) and display the **Steps** tab.

2. Select the step after which you want the recorded steps inserted. Right-click this step, then choose **Place Step Insertion Indicator** from the options menu. By default, steps are added to the end of the list.

3. If the Viewer is not displayed, open a Viewer by clicking the **Viewer 1** button on the Web Workspace toolbar or selecting **Viewer 1** from the Tools menu.

4. Verify that Web Switching Management is in Study Mode.

    •   To enable Study Mode, click the **Switch to Study Mode** button on the Steps tab toolbar. The status bar should display "Study Mode."

5. Verify that Viewer is in Study Mode.

    •   To enable Study Mode, select **Study** from the Options menu.

6. Verify that recording is enabled.

    •   To turn recording on, click the **Record Off** button on the toolbar. When recording is enabled, the toolbar displays Record On in red.

7. In the Viewer, search for the device on which you want to perform an operation.

8. Double-click the device. The Control Tool opens.

9. Select the action you want to perform. For example, to open a device, click **Operate** and then select **Open** from the list of operations. To place a tag on a device, click **Tag** and then select **Place Tag**.

10. If the step involves a device operation, the Look Ahead window opens. Click **Open** or **Close** in the Look Ahead window to continue.

    > **Note:** The Look Ahead window informs you of the results of the operation, including the creation of parallels and loops, the number of critical customers affected, and related abnormal devices and conditions. You may be required to view additional tabs, such as View Conditions, before you can close the Look Ahead window.

11. Click **Exit** on the Control Tool dialog. The device is updated in the Viewer and a step is added to the steps list. The new step is automatically selected.

Adding Steps Manually

The **Manual Step Addition** form allows you to add steps to a switching sheet without using the Control Tool. To add a step manually, complete the following steps:

1. Click the **Manual Step Addition** button (🔲) to display the Manual Step Addition form.

2. Add device information to the **Device** field using one of these methods:

    •   Select the device in the Viewer and click the **Set Device** (🔗) button. The device field will be populated with the device alias of the selected device.

        Note: this method is not available to the Switching Entry user type.

    •   Enter a partial device alias and search for it by clicking the **Search** (🔍) button to open the **Select Device** dialog. Select the device and click **OK**.

    •   Enter a device alias directly. When you tab out of the field, the system will validate that the device; if the device is not valid, the field will be highlighted to indicate that it should be corrected.

    Click the **Show in Viewer 1** button (🔴) to focus the Viewer on the selected device.

3. Select Phases. If operating on a specific phase, uncheck phases that will not be affected by the step.

    > **Note:** If a valid device is selected, only the phases which apply to that device are displayed. Otherwise, A, B, and C are all displayed.

4. Add the Operation. The operation is made up of two fields: a short operation code and an operation description. Click in either field and click the **Search** button (🔍) to open the **Select Operation** dialog, which is filtered to only display operations (and the corresponding

operation code) valid for the device type. Select an operation and click **OK** to add the operation or click **Cancel** to close the dialog without a selection.

> **Note:** if you know the operation code, you may enter it directly. If the operation code is invalid, the background of both fields will be red and the second text field will be blank. If the operation code is valid, the background of both fields will be white and the second field will display the operation description corresponding to the typed in operation code.

5. Click the **Add Step** button (✚) to add the manual step to the switching steps.

Adding a Place Ground Step Manually

If you add a **Place Ground** step, you will be prompted to Select Ground Node, which will list the conductors attached to the selected device and their energy status (energized or deenergized). Select the conductor for the ground node and click **OK** to add the grounding operation step or click **Cancel** to abort the step.

Adding Comment Steps

You can add comment steps that are not related to a specific device or operation. To add a comment step, select the step after which you want the comment step inserted. Right-click this step, then choose **Insert Blank Step** from the options menu. With the row selected, click in the Operation column to enable adding a description of this step; the Details column is also available for descriptive text.

> **Note**: You may enter text in the Operation, Details, Address, and/or Comments fields. You can also specify Date fields for the step. The other fields are populated automatically when you instruct and complete the step.

Resetting Operation Text

Operation text that has been manually entered may be reset to its original value by following the following steps:

- Right-click to select the row and open the option menu.

- Select **Reset Operation Text**. The **Reset Operation Text** dialog will open to confirm that you want to change the Operation text back to its original value.

- Click **Yes** to reset the value.

> **Note**: click **No** to close the dialog and leave the Operation text unchanged.

Copying and Pasting Steps

You can copy or cut steps and then paste them to another location within the step list or into another switching sheet. When you cut steps, they are marked as 'cut' in the steps list and are copied into the clipboard. When you copy steps, they are copied to the clipboard, but the original steps are not marked or removed from the list.

The in-order step execution rules are not enforced when cutting and pasting steps. Switching steps that were previously completed can later be cut and pasted into any location within the step list. This also pertains to cutting and pasting steps from one sheet to another.

If you cut and paste steps from one sheet to another, the system determines which events have associations with these steps and automatically moves the corresponding event/sheet associations from the old sheet to the new sheet. If you attempt to move some but not all of the steps for an event, the system displays a confirmation dialog indicating the affected events. If you confirm the action, then both the old sheet and the new sheet will have an association to the affected events. Any step moves that affect event associations are recorded in the audit log for tracking purposes.

Follow these steps to use the cut, copy, and paste functions:

1. Select the steps you want to cut or copy.

2. Click the **Copy Steps** or **Cut Steps** button (or right-click the selected steps and choose **Copy** or **Cut** from the options menu).

3. Select the step after which you want the steps inserted and click the **Paste Steps** button (or right-click the step and choose **Paste** from the options menu). Any cut steps are moved, and copied steps are duplicated.

> **Note**: Once the step has been pasted, the Paste button is no longer available and the contents of the clipboard are cleared.

Creating Go-Back Steps

When you are creating a switching sheet in Study Mode, you can automatically generate a sequence of switching steps to "go-back" to the original state. The Go-Back feature creates a new sequence of steps that reverses the existing sequence. For example, assume that Step 1 involves opening a device. If you select this step and choose Copy as Go-Backs, the system creates a step to close that device and copies the step to the clipboard. You can then paste the step in the appropriate location in the step list.

To create go-back steps for one or more steps, do the following:

1. Select the step or the range of steps you want to create reverse actions for.

2. Click the **Copy As Go-Backs** button (or choose **Copy as Go-Backs** from the options menu). Go-Back versions of the selected steps are copied to the clipboard.

> **Note:** If you selected one or more steps that are part of an aggregate step, all steps within the aggregate are automatically selected and copied as go-back steps. (An aggregate step is an operation, such as Open and Tag, that comprises two or more sub-steps, numbered a through z.)

3. Select the step after which you want the go-back steps inserted and click the **Paste Steps** toolbar button (or choose **Paste** from the options menu). The steps are pasted after the selected step.

Working with Blocks

Blocks are used to organize steps based on stages of execution. A block is a series of contiguous steps that can include both single (ungrouped) steps and groups of steps. The figure below shows an "Isolate" block that is expanded to display 7 steps, and a "Restore" block that is collapsed so that its steps are hidden.

Step #		Version	Operation	Device
⊟	Isolate	4		
	1		4 Place Note	S3141
	2		1 Close S2903 on phases ABC (HOT #1017)	S2903
	3		1 Close S3164 on phases ABC	S3164
	4		1 Open S3104 on phases ABC	S3104
	5		1 Place Tag S2981 on phases ABC	S2981
	6		1 Open S3142 on phases ABC	S3142
	7		1 Open S3140 on phases ABC	S3140
⊞	Restore	1		

Note the following when working with blocks:

- When you create a new sheet, the system creates an empty block named "Default." When you add steps, they are added to this block by default. You can delete this block and create a new top-level block if you wish.

- The system provides several pre-configured block headers – Isolate, Fault Location, Maintenance, Restore, and Construction – or you can create you own custom header. The header is simply the block name that is displayed in the Steps list.

- To expand a block and display its steps, click the + symbol to the left of the block name. To collapse a block and hide its steps, click the - symbol.

- All steps within a block must be completed before a step within another block can be completed, unless the block names are the same and the blocks are adjacent (not separated by any blocks of different names). See the **Parallel Step Execution** on page 9-33 for more information about parallel execution of block steps.

Adding a New Block Header

To add a new block header to the steps list:

1. From the Steps tab, right-click the step after which you want to insert a block. An option menu appears.

2. Select **Add New Block Header,** then select a block header type: Isolate, Fault Location, Maintenance, Restore, Construction, or Custom.

    Note: If you choose Custom, you are prompted to enter the block header name.

    A new block header row is added to the steps list.

Renaming a Block Header

To rename a block header in the steps list:

1. From the Steps tab, right-click the block step that you want to rename. An option menu appears.

2. Select **Rename Block Header**, then select a block header type: Isolate, Fault Location, Maintenance, Restore, Construction, or Custom.

    Note: If you choose Custom, you are prompted to enter a new block header name.

The selected block header row is renamed.

Parallel Step Execution

Parallel execution allows an operator to direct one crew through a set of steps in one block and another crew through a set of steps in another block. This provides the operator more flexibility when executing switching steps and more closely correlates with their actual business process.

Blocks of steps with the same block names can be executed in parallel when in order step execution rules are enabled (see **Step Order Execution Rules** on page 9-36 for details). The blocks must be sequentially listed and cannot be separated by different blocks of steps. For example, parallel execution is allowed when blocks are ordered (*e.g.*, Isolate, Isolate, Restore, Restore); parallel execution is not allowed if blocks are separated by different block names, such as Isolate, Restore, Isolate, Restore.

When executing switching steps, the system checks to see if the previous block step has the same name as the current block step. If it does, the system ignores any incomplete steps within these blocks, but requires that you complete the steps within each block in order. If steps are grouped within a block, normal grouping rules apply (see **Grouping and Ungrouping Steps** on page 9-34).

Below is an example of how you might create and execute a plan using parallel step execution:

1. Create a Planned switching sheet.

2. From the Steps list, right-click on the Default block step. Select **Add New Block Header** and then select the Isolate option.

3. Record one or more steps into the Isolate block for a single feeder.

4. Add another Isolate block at the end of the first block.

5. Record one or more steps into the second Isolate block for a different feeder.

6. Create two Restore blocks after the second Isolate block.

7. Create go-back steps for the first of the Isolate blocks. Paste the go-back steps into the first Restore block.

8. Repeat the previous steps to create and paste go-back steps into the second Restore block.

9. In Study mode, complete the first step in the first Isolate block. The step is completed.

10. Complete the first step in the second Isolate block. The step is completed.

11. Continue executing steps in parallel for both Isolate blocks and then both Restore blocks.

> **Note:** Parallel execution is not required in this situation; it is simply available as an option.

Grouping and Ungrouping Steps

Step grouping allows a sheet type to enforce in or out of order step execution rules for the steps that are grouped. For Product configured switching sheets, grouped steps exhibit the opposite execution rules that non-grouped steps have. If non-grouped steps can be executed out of order, then the grouped steps have to be executed in order; the opposite is true as well. For more information on how these rules are configured for each sheet type, see **Step Order Execution Rules** on page 9-36.

The following rules apply when grouping and ungrouping steps:

• Step groupings cannot cross over Block boundaries.

• Step groupings can be removed and altered (ungrouping and regrouping) at any time. Note that this may impact which steps can be completed next based on step completion rules.

This section includes the following topics:

• **Grouping Steps**

• **Ungrouping Steps**

• **Adding Steps to an Existing Group**

• **Grouping Aggregate Steps**

Grouping Steps

To group steps:

1. Select two or more contiguous steps. Remember that the grouping cannot cross Block boundaries.

2. Right-click and select **Group Steps** from the options menu. A blue bracket appears in the step number column to visually indicate the newly formed grouping, as shown in the following figure:

Note: Groups cannot span more than one block. If you attempt to group steps that span two or more blocks, the system will create separate groups within each block.

Ungrouping Steps

You can ungroup some or all steps in a group. To ungroup steps:

1. Select one or more steps that are currently part of a group.

2. Click the right mouse button and select **Ungroup Steps** from the options menu.

The bracket is removed (if all steps were ungrouped) or redrawn to indicate the steps that remain grouped. If the selected steps were in the middle of a grouping, then two new groups are created, and the middle steps are no longer grouped.

Adding Steps to an Existing Group

You can add one or more steps to an existing group as follows:

1. Select the steps you want to add and include at least one step from the existing group.

2. Click the right mouse button and select **Group Steps**.

The selected steps that were previously ungrouped are added to the existing group.

Grouping Aggregate Steps

An aggregate step is an operation, such as Open and Tag, that comprises two or more sub-steps (numbered a through z). An aggregate step is treated as a single step when grouping and ungrouping steps:

• If you add any sub-step of an aggregate step to a group, then all sub-steps are added to the group.

• If you ungroup any sub-step, then all sub-steps are removed from the group.

Step Order Execution Rules

Each of the switching sheet types have step execution rules that either require all the steps to be executed in order or executed out of order. Step grouping has been setup in each of the sheet types, except Outage Correction, to allow step executions to work in the opposite way of non-grouped steps (see **Grouping and Ungrouping Steps** on page 9-34). Outage Correction requires that the steps be validated in order, so out of order execution is not available for that sheet type.

When in-order execution rules are turned on, then the steps have to be instructed, executed, aborted or failed in the order that they are listed in the switching steps list. You cannot complete step 2 before step 1 has been completed, aborted, or failed. When out of order execution rules are turned on, then any step in a non-terminal state can be completed, aborted or failed at any time.

Each switching sheet type is configured with different rules for whether steps can be executed in or out of order normally and then also whether steps can be executed in or out of order when the steps are part of a grouping. The table below describes how each sheet type is configured.

Sheet Type	Execution Rule	Group Execution Rule
Planned	Steps have to be executed in order.	Grouped steps can be executed out of order.
Emergency	Steps can be executed out of order.	Grouped steps have to be executed in order.
Template	Steps have to be executed in order.	Grouped steps can be executed out of order.
Outage Correction	Steps have to be executed in order.	Grouping of steps is not available.

Editing Existing Steps

You can rearrange, add, and delete switching steps using options found on the Steps toolbar or from the Steps options menu.

Notes on editing steps:

* You cannot edit steps after the switching sheet has been completed.

* Some fields on the switching sheet are not editable after a plan has transitioned to a certain set of states. For example, the Instructed Date and Completed Date fields cannot be updated after the step has reached a terminal state (completed, aborted, or failed).

* Tabbing out of a cell can only be accomplished if the cell is not set up for word wrapping.

* The Operation, Details, and Comments columns are configured for word wrapping. Word wrapping means the cell height will grow if the text in the field is too long to be displayed within the confines of the cell width.

To edit switching steps, complete these steps:

1. Open the switching sheet and check the status bar to make sure that the switching sheet is in edit mode.

2. Click on the **Steps** tab.

3. Edit steps as follows:

- To edit the fields in a step, select the row and click in the Operation (for comment steps only), Details, Planned Date, Instructed Date, Completed Date, Comments or Address field and change the text.

- To insert a blank step, place your cursor in the row after which you want to insert the step and select the right-click **Insert Blank Step** option.

- To insert a recorded step, select the right-click **Place Step Insertion Indicator** option and then perform the action in the Viewer. Steps are inserted after the step that currently has the indicator. To record steps at the end of the steps list, remove the step insertion indicator first.

- To delete a step, select the row for the step you want to delete and click the **Delete** button. This button is disabled if the step has transitioned beyond its initial state (No state).

- To rearrange steps, cut and paste the steps to the desired location.

- You can cut, copy and paste steps from one plan to another. The ability to cut, copy or paste is governed by the sensitivity of the edit options. (The options are disabled if the edit operation is not allowed.)

4. Save the switching sheet by selecting **Save Sheet** from the File menu.

Finding and Replacing a Device in the Steps

The **Device** tab of the **Find and Replace** dialog allows you to find and replace occurrences of a device in the switching steps. This is helpful for finding a device in a switching sheet that has many steps. You can also use this function if you are reviewing a switching sheet and find that the wrong device was entered in a number of places.

To find occurrences of a device within the Steps list, complete these steps:

1. Open the switching sheet.

2. Click on the **Steps** tab.

3. *(Optional)* Select a step with a valid device name within the Steps list.

4. Click the **Find and Replace...** button on the Steps tab toolbar. The **Find and Replace** dialog box opens.

5. Click the Device tab, if not already selected. The Find field displays the selected step's device alias, if an optional step selection was made before displaying the Find and Replace dialog. Otherwise, enter a device ID in the Find field.

6. Click the **Find Next** button to navigate through the list of steps, highlighting each occurrence of that device.

To replace a device, complete these steps:

1. Open the switching sheet.

2. Click on the Steps tab.

3. *(Optional)* Select a step with a device that you wish to replace.

4. Click the **Find and Replace...** button on the Steps tab toolbar. The Find and Replace dialog opens. If a device ID was not preselected above, enter a device ID in the Find field.

5. Select a device from the Viewer. The Replace With field is populated with that device's alias. The New Phases column indicates the phase options of the newly selected device. By default, the ALL Phases option is selected.

6. If the device you are replacing is used in a grounding operation, click the **Ground Node** option menu and select the secondary device from the list.

7. Click **Replace**.

> **Note:** if you are replacing a device association on a step that has had its Operation text modified, a **Reset Operation Text** dialog will open asking you if you want to reset the operation text. You will have three options:
>
> *   Click **Reset** to reset the text;
> *   Click **Continue** to keep the manually entered Operation text.
> *   Click **Cancel** to cancel the device replace.
>
> For more information, see **Resetting Operation Text** on page 9-31.

Finding and Replacing Text in the Steps

The **Text** tab of the Find and Replace dialog allows you to find and replace occurrences of text in editable fields within the switching steps.

> **Note:** Not all editable fields allow Find and Replace; the project configuration determines what fields are editable. Base Product configuration allows you to find text in the step fields Operation, Device, Details, Executed By, Instructed by, Instructed To, Address and Comments. However, you can only replace text in the editable fields Details, Address and Comments.

To find occurrences of a device within the Steps list, complete these steps:

1. Open the switching sheet.

2. Click on the **Steps** tab.

3. Click the **Find and Replace...** button on the Steps tab toolbar. The Find and Replace dialog opens.

4. Click the Text tab, if not already selected.

5. Enter the search term in the **Find** field.

6. Click the **Find Next** button to navigate through the list of steps, highlighting each occurrence of that device.

7. To replace an instance of the search term, enter the replacement text in the **Replace with** field and click **Replace**. Repeat as necessary.

> **Note:** if you attempt to replace text in a non-editable field, a message will notify you that it cannot be replaced and the **Find Next** button will be desensitized.

Changing Start Date

The Change Start Date? dialog box appears when you edit the execution time of a step that is part of a partial restoration. The outage start times for the related events are not updated. The system does not have enough information to decide which steps should be updated without input.

The dialog box allows to select related steps that should also have their outage start time modified. Click **OK** to change execution time or click **Cancel** to abort the change.

Focusing on a Device in a Step

When reviewing a switching sheet, you can focus on a device in the Viewer 1 window to better understand the conditions present in the area of the device. To focus the Viewer window on the device in a switching step, select a step on the Steps tab and then select the **Object Focus** button on the Steps tab toolbar. The Viewer loads the appropriate map and focuses on the device.

Example Return to Nominal Scenarios

The following scenarios shows using Return to Nominal for switching actions on the diagram to the right..

Example 1

Simple load balance planned switching action.

1. The user creates a Planned Switching sheet to move load from one feeder to another:

    •   Close **B** -- make a parallel

    •   Open **A** -- break a parallel

    •   Close **D** -- make a parallel

    •   Open **C** -- break a parallel

2. The user switches to Real Time mode and executes the steps

3. The user clicks the ◀▌ button to generate *Return to Nominal* steps.

4. The switching plan will add the following new steps to the bottom of the plan, in a new *Return To Nominal* block:

    •   Close **C** -- make a parallel

    •   Open **D** -- break a parallel

    •   Close **A** -- make a parallel

    •   Open **B** -- break a parallel
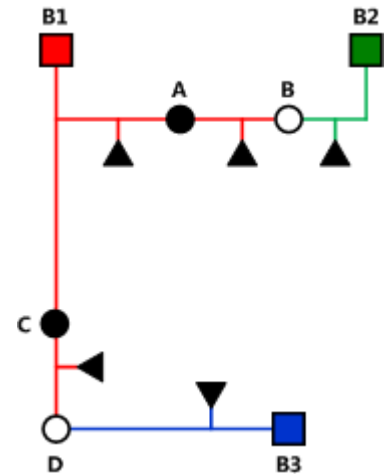
Example 2

First segment fault emergency switching plan.

1. The breaker B1 trips and creates a Real Outage due to a fault immediately downstream.

2. The user creates an Emergency plan for the outage

3. The new Emergency sheet is created and automatically lists:

    •   Open **B1** -- Deenergize a segment

4. In Real Time, the user records new steps to partially restore the areas between **AB** and **CD**:

    •   Tag **B1**

    •   Open **A** - <blank>

    •   Tag **A**

    •   Close **B** -- energize a segment

    •   Open **C** - <blank>

    •   Tag **C**

    •   Close **D** -- energize a segment

5. The user clicks the ◀▌ button to generate Return To Nominal steps.

6. The switching plan adds the following new steps to the bottom of the plan, in a new *Return To Nominal* block:

- Remove Tag **B1**

- Close **B1** -- energize a segment

- Remove Tag **A**

- Close **A** -- make a parallel

- Open **B** -- break a parallel

- Remove Tag **C**

- Close **C** -- make a parallel

- Open **D** -- break a parallel

Reviewing a Switching Sheet in Study Mode

You can review the actions of a switching sheet in a Viewer window. With the Viewer and the switching sheet in Study Mode, you can complete steps by selecting a step and clicking the **Complete** button on the Steps tab toolbar.

As the steps are completed, each one takes effect in the Viewer window and the words "ST Completed" appear in the Status column in the steps section. Steps are completed starting with the first step and continuing sequentially; however, it is possible to complete steps out of order based on the type of switching sheet and whether the step is in a step grouping or not. (See **Step Order Execution Rules** on page 9-36 for more information.)

The Look Ahead window informs you of the results of the operation, including the creation of parallels and loops, the number of critical customers affected, and related abnormal devices and conditions.

Replaying Steps

You can replay steps in the Viewer window, allowing you to experiment with and make changes to a switching sheet. You can then add and delete switching steps and then select one of the two **Reset Study Session** options. After resetting your study session, you will be able to go through the steps again using the **Complete** button.

Implementing a Planned Switching Sheet

Once you have created, studied, and approved a switching sheet, you can implement the plan. Implementing involves the following steps:

- **Scheduling a Planned Master Event**

- **Issuing a Switching Sheet** (includes associating a crew and printing the sheet)

- **Instructing and Completing Switching Sheet Steps**

Scheduling a Planned Master Event

In order to schedule planned switching, you must have entries within the Start Date and Finish Date (ERT) fields on the Request tab. Note that if a Planned Event is partially restored, then the ERT is determined by taking the latest date from the restoration steps *Planned Date* values (see **Planned Date** on page 9-18). If only one of the restoration steps has a Planned Date value, then that value is used even if it is the first step to restore customers. The ERT of the Master event is only used when none of the restoration steps have Planned Date values.

> **Note:** the calculated ERT is determined by using the Impacted Customer list, which must be generated for the functionality to work. If the list is not generated, then the ERT of the Master Event is used.

An optional device alias can also be specified within the Device field on this tab. Specifying a device will cause the planned Master Event to conform to the regular zone authority rules. If you do not have authority over the zone that the device resides in, then you will not see the planned Master Event that will be created when the switching sheet is scheduled.

To schedule a planned Master Event, complete these steps:

1. On the Request tab, fill in future dates and times within the Start Date and Finish Date entry fields.

2. To associate a particular device and control zone, select the device within the Viewer and click the **Link Device** button on the Request tab. If a device is not specified, then the Master Event will fall into the FUZZY control zone.

3. On the Tracking/Audit Log tab, click the button for the **Schedule** state. (If the Schedule button is not displayed, click through the available sheet state buttons until the Schedule button appears.) You can add a comment to each state transition if you wish.

   At this point, a new planned Master Event has been created and associated to the switching sheet. This new event appears in the Events list as a Master Event. You can display the Event Details for the event from either the Work Agenda Jobs List or the Events list on the Steps tab.

   > **Note**
   >
   > - The **Event Details** display is different for planned events than for spontaneous outage events. For instance, you cannot update the ERT for a planned event from Event Details. That has to be done from the associated switching sheet.

Updating the ERT in Event Details

You can update the ERT for an event to match the date and time specified in the Finish Date field on the Request tab. The new date will be visible in Event Details the next time you load the event. To update the ERT, complete these steps:

1. Select **Switching…** from the Actions menu in the Event Details window. The associated switching sheet is loaded and the steps are displayed.

2. Select the **Request** tab and enter in a new Finish Date (ERT) date and time.

3. Select the **Update ERT** button, which is displayed next to the date and time entry fields. The Estimated Restoration Time (ERT) is changed for the associated Master Event within the Work Agenda Jobs List. The new date is displayed in the Event Details the next time it is loaded for that event.

    > **Note:** This option is only available after the sheet has been scheduled. This button is displayed next to both the Finish Date and Alt. Finish Date fields. The button is grayed if no date has been entered yet for the field.

Issuing a Switching Sheet

Once you have scheduled the plan, you should associate crews to the planned Master Event and then issue the switching sheet to the crew.

Associating Crews

1. On the Tracking/Audit Log tab, verify that the switching sheet is in Scheduled state.

2. Find the Master Event for a planned switching sheet. (Right-click on the Master Event within the Steps tab Events list and click the **Highlight in Work Agenda** toolbar button.)

3. From the **Work Agenda Events List**, select the event. (Even though the event is highlighted, you must click on the event in the Work Agenda Events List in order to assign and dispatch crews to events.)

4. From the **Crew Actions** list, select the crew and then click the appropriate option on the Action menu: **Assign** or **En Route**. The Crew is listed in the Crew List on the Steps tab header, and the selected status is shown.

Releasing Crews from an Event

To release one or more crews from an event, select the master event in the **Work Agenda** and select **Release Crew(s)...** from the Actions menu. The **Release Crew(s)** window opens with a list of all crews assigned to the selected event. One or more crews may be selected:

- Click on a crew name to select one crew.

- Click, hold, and drag to select multiple adjacent crews.

- Control-click to select multiple non-adjacent crews.

Once the crew(s) have been selected, click **Release** to release the crews from the event..
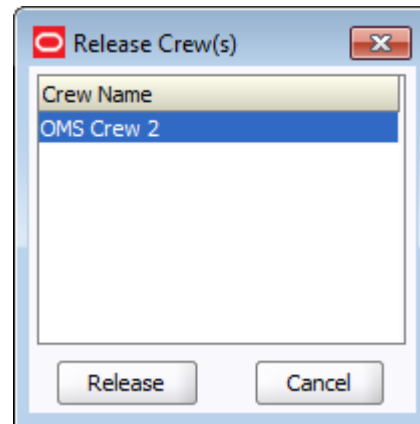
The Release Crew(s) window will close, the crew will no longer be associated with the event, and the crew symbology will disappear from the Viewer.

Pre-Assigning Steps to Crews (Optional)

You can pre-assign steps to crews before issuing the switching sheet. With pre-assigned switching steps, the crew is automatically highlighted in the Crew List as the steps are instructed and/or completed. To pre-assign steps to a crew, select the appropriate steps and then select the crew from the Crew List found on the Steps tab. (To select all the steps, select a single step and then press Control-A.) The Instructed To field for the selected steps is updated with the crew's ID.

> **Note:** To clear (deselect) crew step assignments, select all the steps again, then press the Control key and click the crew in the Crew List. The Instructed To column is cleared for all steps that have not been instructed, aborted, failed or completed.

The plan is now ready for the crews to work the steps.

> **Note:** To pre-assign each step to multiple crews, simply select more than one crew in the Crew List before selecting your steps.

Changing the Sheet State to Issued

When the plan is issued to the crew, change the sheet state to **Issued** on the Tracking/Audit Log tab. The sheet can now be printed (see the following section) and handed to the crew or sent via email, depending on how your crew assignments are handled.

Adding and Removing Event Associations

Click the **Add Event Association** button (➕) in the Steps tab header to associate an event with the switching plan. You can enter the event number or select an event in the Work Agenda Event List. The event will show up as a "Manual" associated event within the Events list.

Click the **Remove Event Association** button (✖) to remove a manual event association from the switching plan. This button is enabled only for Manual associated events.

See **Event Associations** on page 9-72 for more information.

Printing the Switching Sheet

To print the switching sheet:

1. Select **Print...** from the **File** menu (or click the **Print** (🖨) button on the main toolbar).

2. Select each section of the switching sheet you want to print:

   • Request

   • Events and Crews

   • Switching Steps

   • Impacted Customer List

   • External Documents

   • Safety Documents

   • Audit Log

3. Select the format for the print-out:

   • PDF

   • HTML

   • RTF

   • XML

4. Click **OK**. The Print dialog appears.

5. Verify that your printer is selected and click **Print**.

Instructing and Completing Switching Sheet Steps

Once you have scheduled and issued a switching sheet, you are ready to instruct and complete the switching sheet steps. Instructing a step indicates that you have provided the step information to the individual performing the switching actions in the field.

Overview

Note the following key information about instructing and completing steps:

- Instructing steps is only permitted in real-time mode.

- In order to begin instructing switching sheet steps, the sheet has to be Issued first. The Instruct and Complete buttons become enabled in real-time mode when the plan reaches the Issued state.

- The order that steps can be instructed depends on the type of sheet the steps are found in and whether the steps are part of a step grouping or not. (See **Step Order Execution Rules** on page 9-36.)

- Steps are not required to be instructed before being completed. It is up to you to decide if the step should be instructed first.

- To complete a switching step, the switching sheet must be in real-time mode. (You can complete steps in Study Mode, but these actions do not affect the real-time data model.)

- Although a Viewer window does not need to be open to complete switching steps, it is helpful to view the steps in a Viewer window. The Viewer must be in real-time mode as well.

- For steps involving device operations, you must have authority over the zone where switching operations will take place, or the system will not allow you to complete the switching steps.

- If you attempt to operate a device to its current state, such as closing a device that is already closed, a dialog informs you that the device is already in its desired state. You can continue or cancel the operation. If you continue, the system marks the step as completed or instructed (depending on your action). If you cancel, no action is taken.

Instructing and Completing Steps

To instruct and complete steps:

1. Verify that the switching sheet and the Viewer are in real-time mode.

2. On the Tracking/Audit Log tab, verify that the status of the sheet is Issued, In Progress, or Hold/Pending.

Instructing the Step

3. Select the step you want to instruct.

4. If a crew was assigned to the switching plan and was not pre-assigned to any steps, then select the crew from the Crews List in the Steps tab header. (See the previous sections for instructions on associating crews to switching sheets and pre-assigning steps.)

 > **Note:** Automatic crew list selection is based on the crew specified in the Instructed To field of the selected step. If the step does not display a crew in this field, then no crew will be selected in the Crews List.

5. When you give the instruction to the crew, click the **Instruct** button on the Steps tab toolbar.

6. If the step involves a device operation, the Look Ahead window opens. Click **Open** or **Close** in the Look Ahead window to continue with the step. (You may be required to view conditions associated with the operation before you can perform the operation.)

 The status of the step changes to Instructed. The Instructed To column is populated with the assigned crew's ID, and the Instructed Date column is populated with the current date/time. An Instructed symbol appears on the device in the Viewer.

If the step involves issuing a safety document to one or more crews, then the list of crews in the step's **Instructed To** field will be used to populate the Assigned Crews list within the safety document when the step is completed.

Notes on SCADA Actions:

If the step involves actions on a SCADA control and no crew has been selected, a confirmation dialog displays the following text: "Do you wish to send this request to SCADA?" If you click **Yes**, the step is instructed to SCADA, the request is sent to SCADA, and the status of the step is set to SCADA Pending. If you click **No**, the request is not sent to SCADA and the step is set to SCADA Pending (it will wait for telemetry in order to complete the step). This may be the case if a crew were instructed to perform the operation instead of a SCADA system. If you click **Cancel Action**, the operation is cancelled.

If the SCADA interface reports that the device was indeed opened, the step status is then updated to Complete. The switch opens in the Viewer and the instruct condition disappears.

If you select the Complete button before receiving information from SCADA, a confirmation dialog displays the following text: "SCADA telemetry only for selected device. Submit a manual entry?" If you click **Yes**, the status of the step is set to Completed, and the switch opens with status of M (for MANUAL entry) in the Viewer. If the SCADA interface reports that the device was indeed opened, the MANUAL indicator disappears. If you click **No**, the action is cancelled.

For more information about SCADA, see **SCADA Extensions** on page 8-1.

Notes on the Look Ahead and its Errors and Warnings

When instructing a step, the Look Ahead and its associated errors and warnings display data as if the other instructed steps in the sheet were already completed. This allows you to instruct multiple steps, including go-backs of previous steps, without receiving errors about missing tags, incorrect statuses, etc. This will also give you the correct customer count as if the other instructed steps were already executed.

This considers all instructed steps in the current sheet only and applies them to the model in the order that they were instructed (using the Instructed Date field.)

Completing the Step

7. After the crew reports that the step is complete, select the step and click the **Complete** button.

The Status is updated to *Completed*. The Completed Date column is populated and the device status is updated in the Viewer window. If customers are impacted, then a new planned outage event is placed upon the device as well. This event will also appear in the Events list on the Steps tab header.

8. If the step is a safety state transition step, then selecting the Complete button will cause the safety document dialog to be displayed. Verify that the information on the safety document is correct and click the **Execute** button at the bottom of the display to complete the action. (For more information, see **Executing Safety State Transition Steps**.

Note: All safety documents must be completed before you can complete the switching sheet. Also, in order to complete an Issue Safety State transition step, a crew must be specified in the Assigned Crews list. You can specify a crew by doing one of the following:

•   Select one or more crews within the Crew List on the Steps tab. Use these selections to populate the **Instructed To** field of the safety state transition step. Upon

completing the step, the crews listed in the **Instruct To** field will also be listed in the safety document's Assigned Crews list.

- Click the **Select Crews...** button () found above the Assigned Crews list on the safety document and use the Select Safety Crew dialog to populate the Assigned Crews list.

9. Repeat steps 3-8 for each switching step you want to instruct and complete.

Recording Additional Steps in Real Time

10. Additional steps may be added to the switching sheet in real time when it is in the 'Issued' state. Click the record button and proceed to record the actions as issued.

Completing the Switching Sheet

11. When all steps have been completed, click the **Tracking/Audit Log** tab and set the sheet state to *Completed* by clicking the **Complete** button. The **Confirm State Transition** dialog will open; click **Yes** to confirm the completion or click **No** to close the dialog without completing the sheet. The Finish Date may be updated, if necessary.

- *Optional*: add a comment in the text field to the right of the **Complete** button.

If any associated event has not been restored or if any safety document has not been completed, an error message is displayed indicating that the sheet cannot be completed.

Once the sheet is in the Completed state, any planned outage events are completed along with the planned master event. Any crews assigned or en route to the events are released as well.

> **Note:** Once all the steps in a switching sheet are complete, the plan itself is considered complete. Setting the sheet state to Completed "locks" the switching sheet so that no further modifications may take place for this sheet. A Completed sheet cannot be transitioned to any other state.

Moving a Crew

Crews are automatically relocated as steps are instructed to them. As steps are completed, crews are moved to the appropriate device based on the remaining instructed and non-complete switching steps. If all steps have been completed, the crew is moved back to the master device or the previously operated device, depending on the configuration. (If configured to go back to the master device and one is not given, then the crew disappears from the Viewer.)

You can manually move a crew to the device associated to the selected switching step. This option is available only if the step is instructed and has been instructed to a crew. This option allows you to move a crew to a different device when multiple steps have been instructed to a crew.

To move a crew to a device, follow these steps:

1. Associate the crew to the planned switching sheet as described in **Associating Crews**.

2. Transition the sheet to the Issued state, if it is not already.

3. Select the crew within the Crew List on the Steps tab header.

4. Instruct all steps in the sheet. Note that within the viewer, the crew initially moves from master device to the first instructed device and then to the next.

5. From the Steps list, right-click on an instructed step and select **Move Crew** from the options menu. The crew moves to the device associated to the selected step.

Working with Switching Sheet Versions

Switching sheets use a version control mechanism in order to keep operators and crews consistent with regards to which switching sheet they are viewing. The switching sheet as a whole has a version number, and steps can also have version numbers.

Each switching sheet version will go through a set of states.

- **Editing:** The current version of the sheet is being edited.

- **Checked In:** The current version of the sheet has been checked in. Any updates to the sheet other than instructing and completing steps will cause a new version to be created and that version will be in the Editing state.

The following describes how sheet version control works and presents examples of how the version and editing mode change as actions are taken on a switching sheet.

- When you first start a sheet, the sheet version is 1. The sheet's version number and editing state are displayed in the **Status Bar** at the bottom of the switching sheet. The new sheet's version is considered to be in an Editing state until it is checked in.

Action	Resulting Version and Editing Mode
Initial sheet is created	Version: 1 (Editing)

- When the sheet transitions to Issued state or whenever a switching step is instructed or completed in real-time mode, the system automatically checks in the current version of the switching sheet, but the version number is not incremented until you make changes, which will create a new version.

Action	Resulting Version and Editing Mode
Sheet transitions to Issued State, triggering automatic check-in	Version: 1 (Checked In)

- If you make switching step changes after the sheet has been checked in or change any field in the sheet, the system automatically creates a new version and increments the sheet's version number.

   Note: Your system's configuration determines which fields trigger a version change when edited. By default, a new version is created when any field is changed.

Action	Resulting Version and Editing Mode
Steps are added, triggering version update	Version: 2 (Editing)

- You can manually check in changes at any time. This creates a saved version of the sheet that you can refer back to later. It also makes the checked-in version available to other users who view the sheet. The Check In button is displayed in the **Status Bar** at the bottom of the switching sheet when the sheet's version is in an Editing state. When you click the Check In button, the current version is checked in, and the Check In button changes to Create New Version.

Action	Resulting Version and Editing Mode
User manually checks in version, using Check In Version option	Version: 2 (Checked In)

- You can manually increment a sheet's version after the sheet has been checked in using the Create New Version button. When you manually increment the version, the system creates a new version of the sheet and places that version into an Editing state.

Action	Resulting Version and Editing Mode
User manually increments version using the Create New Version option	Version: 3 (Editing)

- You cannot make changes to a switching sheet after it has been completed. Once a sheet is completed, it will be placed into view-only mode and cannot be edited any further.

Step Versioning

Steps also have version numbers. The step version number is the version number of the sheet when the step was added. A step's version number is displayed on the Steps tab to the right of the step number.

- If you add steps to a checked-in switching sheet, the sheet version is automatically incremented and the newly added steps are associated to this new sheet version number. This allows you to easily distinguish between steps that were previously issued to a crew and newly added steps.

- To see the differences between the current version and a previous version, open the version drop-down on the status bar, then select the version to compare against.
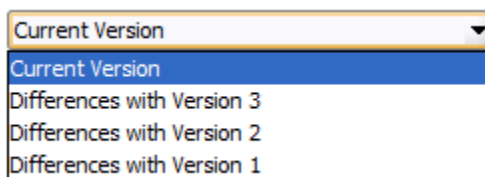
When you select a version, the Step # column uses outline numbering (1.1, 1.2) to identify steps that were added since the previous version.

If you delete a step when the switching sheet version is checked-in or when an earlier version of the step exists, then the step is removed from the current version. If you view a previous version in which the step existed, the deleted step is shaded red.

Step #	V...	Operation	Device	Status	Pla
Planned	1			Deleted	
⊟ Isolate	4				
0.1		4 Place Note	S3141	ST Completed	
1		1 Close S2903 on phases ABC (HOT #1017)	S2903	ST Completed	
2		1 Close S3164 on phases ABC	S3164	ST Completed	

Viewing Impacted Customers

The Impacted Customers tab displays a list of all customers affected by the switching step operations. It also shows the total number of customers in the interrupted, isolated, and restored states:

- **Interrupted:** customer had power at the start of the switching operation, lost power (at some point) during the operation, and had power again at the end of the operation.

- **Isolated:** customer had power at the beginning of the operation and had no power at the end of the operation.

- **Restored:** customers who were without power during the operation and had power at the end of the operation.

Important Note:
Service Alerts for planned events are triggered by the Impacted Customers List. Alerts will not be sent if the Impacted Customers List is not generated.

> **Note:** Customers marked as *Deleted* will not be included in the Interrupted, Isolated, or Restored total number counts.

The following rules apply to the Impacted Customer list:

- Whenever the system determines that a plan will impact customers, the Impacted Customers indicator is displayed on the status bar. If the sheet is later changed and customers are no longer impacted, then the indicator is removed.

- If a customer will be impacted multiple times during a sheet's execution, the customer is listed multiple times in the list.

- If no Planned Dates are specified for the device operations relating to an item in the list, then the dates will come from the sheet's Start and Finish Dates, which are required to generate the impacted customer list. The only exception to this rule is when working with Outage Correction sheets, which require step control times.

- The list can only be regenerated in study mode, since it displays the list of customers that will be impacted when the plan is executed and it uses your study session to calculate that list. See **Generating the List** on page 9-52 for more details.

- The list is not affected by the Real-Time execution status of the steps. The Work Agenda, Event Details, and Event Log are the source for Real-Time outage data.

- If multi-phase customers are affected by individual phase operations, they will be listed once for each phase dropped and the restore time will be the time they were **fully** restored (the last restoration step).

Using the Impacted Customers Tab

The Impacted Customers tab displays a list of impacted customers in a hierarchical, or tree, format -- just like Windows Explorer. The top level of the hierarchy is date/time the customer is impacted. Within date/time, the list displays each supply node along with the restore date/time. Within each supply node is a list of customers. You can expand or collapse any level of the hierarchy by clicking the + or - icon.

The Impacted Customer list displays the following fields and buttons:

- **# Interrupted** displays the number of customers who will be interrupted (Isolated and Restored) by the operations performed in this switching sheet.

- **# Isolated** displays the number of customers who will be isolated by the operations performed in this switching sheet.

- **# Restored** displays number of customers who will be restored by the operations performed in this switching sheet.

- **Name** displays different values depending on the type of row being displayed. There are three levels of information in the list:

    - **Impact Date** (level 1) displays the date the customers will be impacted. If the customers are not impacted by the switching steps in this switching sheet, but are being restored, then this date will be the start date of the switching sheet.

    - **Supply Node/Transformer and Restore Date** (level 2) displays the transformer alias the customer is found on within the model, followed by the Restore Date. The Restore Date is based on the Planned Date for the device or, if no Planned Date was specified, the Finish Date of the switching sheet. Isolated transformers display "No Restore Date".

    - **Customer Name** (level 3) displays the customer's name.

- **Account Number** displays the customer's account number.

- **Meter Number** displays the customer's meter number.

- **Critical** displays whether the customer is a critical customer or not.

- **Address** displays the customer's street address.

- **City** displays the customer's city.

- **Zip** displays the customer's zip code.

- **Phone** displays the customer's phone number.

- **Result** displays the result of the impact, such as Restored or Interrupted. If a delete operation is initiated against a customer in the list, then the **Result** field will have a value of Deleted.

Buttons

- The **Rebuild the Impacted Customer List** button ( ) regenerates the list based on the most current information in the switching sheet. Each time you rebuild the list, it is saved to the database. The application uses your Study mode to apply the step actions and to determine the Impacted Customers. Your study model should be set up or reset appropriately before generating the list. This button is only enabled when the switching sheet is in Study mode.

- The **Move Customers to a Different Device** button ( ) initiates the Move Customers dialog for selected customers. See **Moving Customers** on page 9-53 for information.

- **Mark Customers as Deleted** button ( ) marks the customers selected in the table as deleted.

- The **Reset all Deleted Impacted Customers** button ( ) resets all impacted customers that were previously marked as deleted in the list.

- The **Print Preview** button ( ) opens the Report Format dialog, from which the output format can be selected. The output will include the switching sheet header information and the Impacted Customer list.

- The **Print** button ( ) opens the Report Format dialog, from which the output format can be selected. A hard copy of the switching sheet header information and the Impacted Customer list will be generated on the printer you select.

- The **Email** button ( ) opens the Report Format dialog, from which the output format can be selected. An email composition window is generated with attached impacted customers list file named **`<sheet-type>_<sheet-#>.<format>`** and subject `Switching Sheet: <sheet-type>_<sheet-#>_impacted`. For example:

    Subject: Switching Sheet: *Planned_1079_impacted* (*Planned_1079.pdf*).

- The **Focus** button ( ) focuses the primary Viewer on the selected device.

- The **Show Critical Customers** button ( ) filters the list to show only critical impacted customers; when toggled off, all impacted customers will again be shown.

Color Coding

Rows (customers) on the list are color-coded to show the status:

- Green - Restored

- Orange - Isolated

- Red - Deleted

- No background - Interrupted

Generating the List

To generate the Impacted Customer list, follow these steps:

Important Note:

Service Alerts for planned events are triggered by the Impacted Customers List. Alerts will not be sent if the Impacted Customers List is not generated.

1. On the Request tab, verify that a Start Date and Finish Date have been entered for the sheet. The system uses these fields to generate the Impacted Customer list and the estimated restoration time for each customer. The start of outage is the Start Date of the switching sheet, and the restoration time is the Finish Date.

    Note: If a Planned Date is specified for a particular operation on the Steps tab, then the Planned Date, rather than the sheet's Start and Finish Date, is used to generate the impacted customer list for that operation.

2. Make sure that you have added all necessary steps to the switching sheet, and that the sheet is ready to be worked. The steps do not need to be completed to produce the list.

3. On the Steps tab, click the **Reset Study Session** button on the toolbar, then select **Real-Time** or **Nominal**. At this point, you can update your study session within the Study Viewer to depict what the model will be like when the work is carried out.

4. On the Impacted Customers tab, click the **Rebuild Impacted Customer List** button on the toolbar. The list is generated and displayed.

    Note: When the steps do not impact any customers, clicking this button will bring up an information dialog stating that no customers will be impacted as a result of the operations in the current switching sheet.

Sorting Impacted customers list

The Impacted Customers list can sort by clicking on a column header. By default they are sorted by impacted date and customer name in ascending order. Click once to sort them in descending order. An icon on column header indicates the current sort column and sort direction; the up arrow (▲) indicates ascending order; the down arrow ▼ indicates descending order. Printed output, through print-preview and print options, use the default sort order.

Deleting and Restoring Customers from the List

To remove a customer from the list, right-click the customer and select **Delete** from the options menu. The row is highlighted in red.

> **Note**: Removing the customer from the list does not remove the customer from the model; it simply marks the customer as deleted from the list. If you regenerate the list, the customer will still be marked as deleted. If the customer is impacted multiple times, then that customer will be marked as deleted in each of the lists.

To restore (un-delete) a customer, right-click the customer and select **Undelete** from the options menu.

To restore all previously deleted customers, click the **Reset all Deleted Impacted Customers** button. All red highlighting is removed.

Moving Customers

If you realize that customers have been incorrectly associated with a device, you may need to move them from a device that will be impacted to a device that will not be impacted. To move customers from their current device to another device, complete these steps:

1. On the Impacted Customers tab, select the rows for the customers you want to move.

   > **Note:** the expandable folder nodes are not selectable; you must select customer names.

2. Right-click and select **Move Customers...** from the options menu. The Move Customers dialog box opens, displaying the customer names, addresses, and their original device as defined by CIS.

   > **Note:** If you click the **Move Customers...** button without first selecting customer rows, you will receive an "Invalid Customer Selection" error with the message: Only customer rows selected are considered by the Move Customer feature. Any selected expandable folder nodes are ignored. Select at least one customer row to continue.

3. Click on the new device in the Viewer. The New Device field on the Move Customers dialog is populated with the selected device.

4. Click **OK**. The system determines whether or not the new device is also an impacted device.

   If the new device is not an impacted device, the customers are moved to the new device and are removed from the impacted customer list.

   If the new device is an impacted device, a confirmation dialog box is displayed. Do one of the following:

   • Click **Yes** to continue with the move. The customers are moved to the new device within the Impacted Customers list. If the selected customers were previously moved to a new device, another confirmation dialog is displayed. Do one of the following:

      • Click **Yes** to continue with the move. The existing customers move record is overwritten.

      • Click **Cancel** to return to the Move Customers dialog so you can select a different device.

•   Click **No** to cancel the move and close both the confirmation dialog and the Move Customers dialog.

•   Click **No** to return to the Move Customers dialog so you can select a different device.

•   Click **Cancel** to cancel the move and close both the confirmation dialog and the Move Customers dialog.

Checking for Overlaps

Once you have created steps for a planned event, generated the Impacted Customers list, and saved the switching sheet, you can cross-check the switching sheet with other switching sheets for overlaps of time, control zone, or affected devices.

This allows planners to create a single planned event instead of two separate events and avoid visiting the same location twice or impacting the same customers twice within a short time frame. Planners can identify whether to change the current switching sheet in order to avoid affecting the same customers or same area multiple times in a certain time period.

> **Note:** When an overlap occurs, the system does not prevent you from completing planned switching operations, but it does provide a warning indicating the overlap.

If the current plan has a time, control zone, or device overlap with another plan, the Overlap indicator is displayed on the switching sheet **Status Bar**. Use the Overlaps tab to view details about the overlaps.

Using the Overlaps Tab

The Overlaps tab displays the following fields and buttons:

•   The **Update Overlaps** button ( ) updates the Overlaps list based on the current settings.

•   The **Range** drop-down allows you to specify how to use the From and To dates. Options are:

   •   Sheet Start and Finish Dates

   •   +/- 1 day

   •   +/- 1 week

   •   +/- 1 month

   •   +/- 1 year

   For example, if you select Sheet Start and Finish Dates, the system updates the From and To dates to match the sheet's Start and Finish dates entered on the Request tab. If you select +/- 1 week, the system displays overlaps that are within one week of the sheet's Start and Finish dates (up to one week prior to or one week after).

•   The **From and To** fields specify the range of dates for which you want to view overlaps. These fields are automatically populated based on your selections in the Range field. If you manually enter values in the **From** and **To** fields, those values will override what was auto-populated by the Range selection.

•   The **Filter By** drop-down allows you to specify the type of overlaps you want to view: Devices, Control Zones, or Time. See **Updating the Overlaps List** on page 9-55 for details.

•   The **Open Selected Switching Sheet** button ( ) open the switching sheet selected in the overlaps list. Alternatively, you can right-click on the switching sheet and select **Open Switching Sheet** from the option menu.

•   The **Overlaps** table displays a row for each switching sheet that has an overlap with the active switching sheet (and meets the criteria specified above). The blank edit boxes at the top of each column allow you to filter the Overlaps list. See **Viewing an Overlapping Switching**

Sheet on page 9-55 for details.

- The **Sheet #** displays the switching sheet number that contains the overlaps.
- The **Type** column displays the type of switching sheet.
- The **# Devices** column displays the number of device overlaps.
- The **# Zones** column displays the number of overlapping control zones.
- The **# Hours** column displays the number of hours the sheet overlaps with the current sheet. This value is based on the dates specified in the Start and Finish date fields on each of the switching sheets.
- The **# Supply Nodes** column displays the number of impacted nodes shared by the two switching sheets.
- The **User** column displays the user ID of the requestor of the switching sheet.
- The **Start Date** column displays the start date of the switching sheet.
- The **Finish Date** column displays the finish date of the switching sheet.

The list on the Overlaps tab supports **Quick Sorting** and **Dynamic Filtering**.

Color Coding

Rows on the Overlaps tab are color coded to indicate the type of overlap:

- **Gray**: the switching sheets have an overlap, but the overlapping times on the sheets are in the past.
- **Red**: The switching sheets have device overlaps.
- **Orange**: The switching sheets have control zone overlaps.
- **White**: The switching sheets overlap in time only.

Updating the Overlaps List

Use the fields at the top of the Overlaps tab to re-generate the Overlaps list for a different time period or to show different types of overlaps.

To update the Overlaps List:

1. Use the **Range** and **From**/**To** dates (for device and control zone overlaps) to specify the time period for which to display overlaps.

2. From the **Filter By** drop-down, select the type of overlaps you want to list. For example, if you want to show only switching sheets that have device overlaps within a specified date range, select **Devices** from the drop-down.

3. Click the **Update Overlaps** button ( ) to refresh the list based on your selections.

4. Standard filtering and sorting options are available for the results list.

Viewing an Overlapping Switching Sheet

To view an overlapping switching sheet, double-click on the entry within the Overlaps List. The switching sheet opens in a new tab. Alternatively, you can right-click on the entry and select **Open Switching Sheet** from the options menu.

Saving and Loading View Areas

While working with a switching sheet, you may often want to return to the same area of the map. Web Workspace allows you to save an area of the map, called a view area, so that it can be loaded again later. This allows you to quickly focus the Viewer on a particular section of the model.

You can save multiple view areas for each Viewer. You can assign a description to each view area that identifies its contents and purpose. You can also select a saved view area to be loaded automatically into a Viewer when the switching sheet is opened.

Using the View Areas Tab

Use the View Areas tab to save and load view areas. The first row in the View Areas table contains a special *Dynamic View* (*i.e.*, All Devices) that contains all devices associated with the switching sheet; as devices are added in steps, the dynamic view is automatically updated to include those devices.

The View Areas tab displays the following fields and buttons:

- The **Auto-Load in Viewer** drop-down allows you to assign a View Area to a Viewer, which will then load that view whenever the sheet has focus. Note that the auto-load function does not open the Viewer so you must start the Viewer to see the View Areas.

- **Description** is the description of the saved viewing area. The default description is "View Area #," where "#" is a uniquely generated ID number. You can change this description up until the associated switching sheet has reached the Completed state. The All Devices (Dynamic View) description is not editable.

- The toolbar button allows you to save the map area that is currently displayed in Viewer 1.

- The toolbar button allows you to save the map area that is currently displayed in Viewer 2.

- The toolbar button allows you to load the selected viewing area to Viewer 1.

- The toolbar button allows you to load the selected viewing area to Viewer 2.

- The toolbar button allows you to delete the selected viewing area.

- The toolbar button allows you to reload all viewing areas marked for auto-loading.

Saving a Viewing Area

To save a viewing area, complete these steps:

1. In the Viewer window, navigate to the area of the map that you want to save as a viewing area.

2. On the View Areas tab in the Web Switching Management window, click one of the **Save Map** buttons on the toolbar.

   - Click to save the map area that is currently displayed in Viewer 1.

   - Click to save the map area that is currently displayed in Viewer 2.

   The new view area is added to the bottom of the list of saved views on the View Areas tab.

3. In the Description field, enter a meaningful name that describes the viewing area.

4. If you would like this viewing area to be loaded automatically the next time this switching sheet is opened, select the Viewer from the **Auto Load in Viewer** drop-down.

> **Note**: The application will only allow you to select one saved viewing area to be auto-loaded for each Viewer.

Loading a Saved Viewing Area

After a viewing area has been saved for a switching sheet, you can quickly load the viewing area into the Viewer window.

To load a saved viewing area, complete these steps:

1. On the View Areas tab, select the viewing area you want to load.

2. Click the appropriate button to load the viewing area into the desired Viewer (or use the right-click options menu options):

   - Click to load the selected viewing area to Viewer 1.

   - Click to load the selected viewing area to Viewer 2.

   The selected viewing area is displayed.

   > **Note:** If the Viewer you selected is not running, a message is displayed.

Reloading all Auto-Load Viewing Areas

Click the Reload All Viewers button () to reload all viewing areas marked for auto-loading. (The Auto Load in Viewer column indicates which viewing areas are specified for auto-loading in each Viewer.)

> **Note:** If no Viewers are running, a message is displayed.

Deleting a Saved Viewing Area

To delete a saved viewing area that you no longer need, complete these steps:

1. On the View Areas tab, select the viewing area you want to delete.

2. Click the **Delete** button (or right-click and select **Delete View Area** from the options menu). The viewing area is removed from the list.

Viewing the Audit Log

The Tracking/Audit Log tab displays the current state of the switching sheet and allows you to transition to a different state. You can provide comments to explain the reason or circumstances around the transition in the Sheet State Tracking panel. See **Changing the Switching Sheet State** on page 9-14 for more information, including valid switching states.

The Audit Log table contains a list of status changes the sheet has gone through since it was created. An entry is added to the log whenever changes occur to the sheet state, including (but not limited to) status changes, sheet ownership changes, generation of the impacted customer list, and sheet version check-ins.

The Audit Log table contains the following fields and buttons:

> **Note**: You cannot change any information for existing entries in the audit log table.

• **Entry Date** displays the Date and Time when the change was made.

• **Sheet Version** displays the version of the sheet when the change was made.

• **Sheet State** displays the state of the sheet when the change was made. (See **Switching Sheet States** on page 9-15 for state descriptions.)

• **Entry By** displays the user who initiated the change.

• **Details** displays a brief description of the audit entry.

> **Note**: You cannot change any information for existing entries in the audit log table.

As with other list displays, you can click and drag column headers to rearrange the order of columns. You can also resort the list by clicking on the Entry Date column header. By default, log entries are displayed in ascending chronological order.

Adding a Comment to the Audit Log

The Comment section of the Audit Log panel allows you to add a comment to the log.

1. Click in the Comment field and enter a comment. The **Add** button () will be enabled.

2. Click to add the comment to the log.

Emailing Switching Sheet Data

At any time during the process of editing or viewing a switching sheet, you can email the switching sheet data to one or more recipients. The switching sheet data will be sent as an email attachment in a chosen file format.

> **Note**: Your email client will be used for sending the email. Depending on your email client, some attachment behavior may be different than described. If you do not have an email client installed and set up on the PC from which you are running Web Workspace, you will not be able to email switching sheet data.

1. Click the **Email...** button ( ).

2. From the **Switching Report - Content Selection** dialog, check the box for each section you want included in the email data:

   • Request

   • Events and Crews

   • Switching Steps

   • Impacted Customer List

   • External Documents

   • Safety Documents

   • Audit Log

3. Choose the email format: PDF, RTF, HTML, or XML.

4. Click **OK**.

   • The Subject field is automatically populated; you can edit this field if you wish.

   • The selected data is attached to the email.

   > **Note:** depending on your configuration, you may be given the option to name the switching sheet data attachment prior to the file's attachment; the standard configuration will always name the file according to the sheet type and number (*e.g.*, Planned_1003.pdf).

5. (Optional) Enter any text you want to include with the message.

6. **Send** the message according to your email client's functionality.

Automatic Emails

Based on your system's configuration, emails can be automatically sent to an individual recipient or group and to the requesting user. Automatic emails are normally initiated after a switching sheet state change. For example, if a plan is rejected, the requesting user will be sent an email message indicating that the request was rejected and the reason for the rejection.

Adding External Documents to a Switching Sheet

Use the External Documents tab to attach supplemental documentation to the switching sheet. External Documents are stored in the database, so shared file systems are not needed.

> **Note:** External Document files may be images (e.g., jpg, png, bmp), documents (e.g., doc, docx, odt), spreadsheets (e.g., xls, xlsx, ods), etc.

Using the External Documents Tab

The External Documents tab displays the following fields and buttons:

- **Name** is the name of the external file. This field cannot be changed.

- **Length** is the number of bytes in the file. This field cannot be changed.

- **Modified Date** is the date the file was last modified or saved. This field cannot be changed.

- **Status** is the status of the document. When you initially add an external document, its status is New; when you save the sheet, its status is cleared. If you delete an external document, its status is set to Deleted until you save the sheet. If you load and modify the document from this tab, then its status is set to Modified.

- **Description** is a user-defined description. You can enter up to 4000 characters in this field.

- The **Attach** button (➕) allows you to attach an external document to the switching sheet. See **Adding an External Document** on page 9-60.

- The **Delete** button (✖) deletes the selected external document(s) from the switching sheet. See **Removing an External Document** on page 9-60.

- The **Open** button (📂) allows you to open the selected document. See **Opening and Editing an External Document** on page 9-61.

- The **Save As** button (💾) allows you to rename and save a selected document to the directory of your choice. See **Saving an External Document to Another Location** on page 9-61.

Adding an External Document

To add an external document to the active switching sheet:

1. Click the **External Documents** tab.

2. From the toolbar, click ➕.

3. From the Attach Files window, select the files you want to add to the sheet and click **Attach Files**. The External Documents tab displays the selected files in green. This indicates that the files have been selected, but have not yet been saved.

4. In the **Description** field, type a description of each file that will convey its contents and purpose.

5. Click the **Save Sheet** button to save the selected documents to the database. The documents are no longer displayed in green, indicating that the documents have been saved to the database, and their New status value is cleared.

Removing an External Document

To remove an external document from a switching sheet, do one of the following:

1. Click the **External Documents** tab.

2. Select the document in the table.

3. Click ✖.

Note: alternatively, right-click the document and choose **Delete** from the options menu.

The status of the selected document is set to Deleted, and the file is displayed in red.

4. Click the **Save Sheet** button to save your changes. The document list is updated and the file is removed from the database.

> **Note**: The file is deleted from the database, but the local copy of the file on your PC is not removed.

Saving an External Document to Another Location

When you add a document to the external documents list, the system saves the document to the database. If you want to save a *copy* of the current version of the document on your PC, follow these steps:

1. From the **External Documents tab**, select the document and click the **Save As** button (; or right-click and select **Save As...**). The **Save File As** dialog is displayed.

2. Browse to the directory where you wish to save the copy.

3. To change the file name, enter in a new name in the **File Name** field.

> **Note:** There is no rule against changing the file type. If you alter the file extension in the File Name field, then be aware that the file name will be saved exactly as you have typed it.

4. Click **Save**. A copy of the current database version of the document is saved to the directory with the specified name.

Saving a Selection of External Documents to Another Location

When you add a document to the external documents list, the system saves the document to the database. If you want to save a copy of more than one document at once to your PC, follow these steps:

1. From the External Documents tab, select multiple document entries and click the **Save Files to Directory...** button ( ); or right-click and select **Save Files to Directory...**). The Save Files To Directory dialog is displayed.

> **Note:** The **Save Files to Directory...** button ( ) is only visible when more than one entry is selected in the External Documents list.

2. Browse to the directory where you wish to save the copy. Another option is to enter the directory path in the Directory text field.

3. Click **Save Files To Directory**. Copies of the current database versions of the documents are saved to the specified directory.

Opening and Editing an External Document

External Documents may be opened for inspection or to edit depending on the state of the switching plan. If the plan is in View-Only mode (; see **Edit and View-Only Modes** on page 9-7), the document will be opened in read only mode; if the plan is in Edit mode ( ), the document will be opened with write permissions.

Opening an External Document

To open an external document:

1. Click the **External Documents** tab.

2. Select the document you want to open and click the **Open** button (🗁; or right-click the document and select **Open...**). The file is extracted to a local temporary directory and opened in the application associated with the file extension.

    > **Notes:** If the file extension, or type, is unknown or the application is not available, a message will be displayed indicating that the application is unknown.

Editing an External Document

External Documents opened from a sheets in Edit mode are available to edit.

1. Make changes to the document as necessary.

2. Save and *close* the document; the database will be updated with the changes made in the extracted (temporary) document the next time the switching sheet is saved.

Troubleshooting Issues with External Documents

It is best to close the document after it has been edited and saved due to conflicts that can occur if the local file is saved outside of the control of Switching Management.

When the switching sheet opens, the database attempts to extract the external document to the temporary folder and compares the date stamp of its version to the local copy. If the file in the temp directory is newer than the database version, it gives a warning that changes to the local file will not be saved (because the plan was switched to View-Only mode):
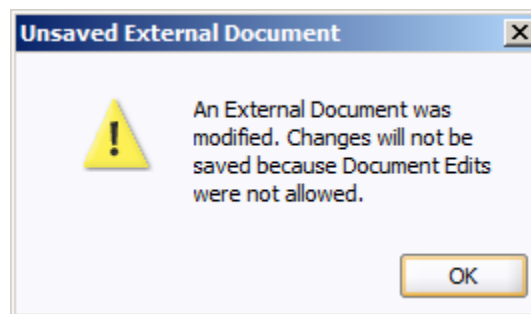
Once you click **OK**, the database will overwrite the local changes with the saved version of the external document in the database.

If the extracted document is still open when the database attempts to restore the saved version, a file lock conflict will result in another warning to inform you that the system cannot extract the database version of the document to the temporary folder and request that you take action to remove the conflict:
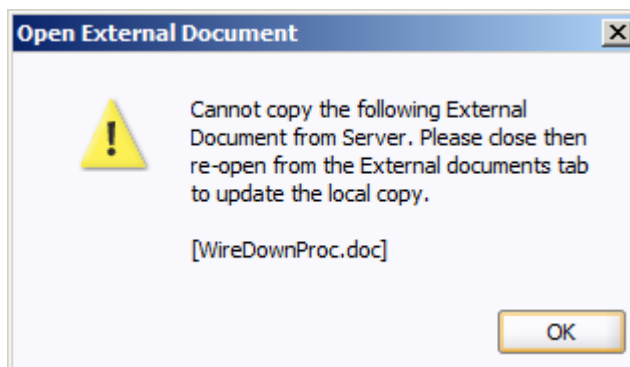
To remove the conflict, perform the following steps:

- On the warning dialog, click **OK**.

- Close the external document.

- In the switching plan window, click any tab other than External Documents (*e.g.*, Steps), and then click the External Document tab again. The system will extract the database version of the external document to the temporary directory.

Opening an Existing Switching Sheet

Depending on how a switching sheet is being worked, there are a number of ways for you to load an existing switching sheet.

>**Note:** Web Switching is configured to limit you from having more than 15 switching sheets loaded at one time. Attempts to surpass the limit will result in an error.

- **Open a Switching Sheet Window from Switching Sheet List**

- **Open a Switching Sheet using Web Switching Request**

- **From the Work Agenda**

- **From the Event Details**

- **From Crew Actions**

- **From the Control Tool**

>**Note:** If a step was highlighted when the sheet was closed, it will open with that step highlighted and centered in the steps list.

Open a Switching Sheet Window from Switching Sheet List

To open a switching sheet from the Switching Sheet List:

1. From the **File** menu, select **Switching Sheet...** from the **Open** option. The Switching Sheet List opens. Existing switching sheets are listed in the tabular view; the rows are color-coded to reflect switching sheet status:

   - **Green**: In Progress

   - **Red**: New

   - **Bright Yellow**: Scheduled, Checked, or Approved

   - **Pale Yellow**: Prepared

   - **Orange**: Requested

   - **White**: Hold/Pending

2. Select one or more sheets to open. To open multiple sheets, do one of the following:

   - Click, hold, and drag to select multiple adjacent rows.

   - Control-click to select multiple non-adjacent rows.

   - Use Dynamic Filtering to select sheets in the table and select all results by pressing Control+A.

   This window also supports standard filtering and sorting. (See **Sorting** on page 1-12 and **Filtering** on page 1-14.)

   Note: The sheet will be loaded with the last highlighted step, if any were highlighted when the sheet was last closed, centered in the middle of the steps list.

Open Switching Sheet using Switching Sheet Search

To search for an existing Switching Sheet:

1. From the **File** menu, select **Switching Sheet Search...** from the **Open** option.

2. In the Search Switching Sheet dialog, enter the desired text to search and press **Enter** or click the **Search** (🔍) button.

Open a Switching Sheet using Web Switching Request

To open a switching sheet from the Web Switching Request window:

1. From the **File** menu, select **Open**, and then select **Switching Sheet...**. The Switching Sheet List opens.

2. Select a sheet and click **Open**.

From the Work Agenda

1. Select an event from one of the Events Lists that has a switching sheet associated to it. This can be determined by checking to see whether a switching sheet number is displayed within the Plan # column for the selected event.

2. Select the **Switching…** option from the **Actions** menu. The Open or Create New Switching Sheet dialog is displayed.

3. Select the sheet you want to load from the Pre-Created Switching Sheets list and click **Open**. (You can start a new sheet by selecting a sheet type and clicking **Create**.)

From the Event Details

1. Select **Switching…** from the Actions menu. The Open or Create New Switching Sheet dialog is displayed.

2. Select the sheet you want to load from the Pre-Created Switching Sheets list and click **Open**. (You can start a new sheet by selecting a sheet type and clicking **Create**.)

From Crew Actions

1. If a crew has been placed en route to a Master switching sheet event, then select the crew in the crew list.

2. Select **Switching…** from the Actions menu. If only one sheet is associated with the crew, it is displayed in the Web Switching Management window. If multiple sheets are associated with the crew, the Crew to Sheet Selection List displays all associated sheets. If no sheets are associated with the crew, an error message appears.

3. Select a sheet and click **Open**.

From the Control Tool

1. From a Viewer, double-click a device that is involved in a switching sheet to open the Control Tool.

2. Click the **Switching Plan(s)…** button.

   • If the device is associated to one switching sheet (*i.e.*, it is listed in the **Device** field on the switching sheet's **Request** tab) **or** if it is included in one switching sheet step, that sheet will be opened in the Web Switching Management window.

   • If the device is associated with multiple switching sheets **and/or** included in multiple switching sheet steps, the **Device to Sheet Operation List** window will open. Each

associated sheet **and/or** operation will be listed in a separate row. Select a row and click **Open**.

Note: The Device to Sheet Operation List displays steps for active switching sheets and switching sheets that have been completed within the last 30 days.

Copying a Switching Sheet

You can create a new switch plan that includes all of the steps in the open switching sheet by using the **Copy As** function. To copy an open switching sheet, do the following:

1. Select **Copy As...** from the Switching Sheet's File menu to open the **Copy Switching Sheet As** dialog.

2. Select the new switching sheet's type:

   • Planned

   • Emergency

   • Template

   • Outage Correction

3. Click **Create a Copy** to create the new switching sheet.

   Note: The switching sheet type will determine how the new sheet opens (e.g., recording on or off, which tab is visible, etc.).

Deleting a Switching Sheet

You can mark a switching sheet as deleted if it is no longer being used. Deleted sheets are retained by the system and can be loaded in View-Only mode when hard-associated to a canceled event. Web Switching Management does not support full deletions of switching sheets from the database. A record of all activity for a switching sheet is always retained in the database.

Note the following rules regarding deleted switching sheets:

• The Delete option is only available for planned, template, outage correction, and emergency sheets that do not contain any real-time instructed or completed steps or any event associations other than canceled and manual events.

• You cannot delete a switching sheet once it has been scheduled. If you need to delete the sheet, you must Cancel it first.

• You cannot delete an outage correction sheet that has an event association.

• Deleted sheets do not appear in the Device to Sheet Operation List. (This list is displayed from the Control Tool.)

• Safety documents associated with a deleted sheet do not appear in the Device to Safety Document List. (This list is displayed from the Control Tool.)

• The Impacted Customer lists and External Document lists are cleared for deleted sheets.

• Deleted sheets are ignored by the Model Verify functionality.

To delete a switching sheet, follow these steps:

1. Click the Tracking/Audit Log tab.

2. Enter the reasons for the deletion in the Reason field to the right of the grayed Delete button. (The Delete button is not enabled until you enter text in the Reason field.)

3. Click the **Delete** button.

Emergency Switching

Emergency Switching includes any unplanned switching operations that occur due to events during storms, equipment failures, or even planned switching actions that fail or are incorrect. Unlike planned switching where the switching sheet is created and studied before it is issued, in emergency switching the switching sheet is created as the operations take place in real-time. Essentially, a switching sheet is created and implemented simultaneously. Steps are recorded on the Steps tab as the Control Tool actions are being performed, and each step is considered complete as it is being recorded.

Emergency switching operates just like planned switching, except that the Web Switching Management window and Viewer must both be in real-time mode. Whenever switching steps are recorded in a switching sheet using the real-time Control Tool, the operation is considered emergency switching. The switching sheet provides a record of the switching operation.

This section includes the following topics:

- **Creating an Emergency Switching Sheet**
- **Recording Emergency Operations**

Creating an Emergency Switching Sheet

Emergency switching sheets are typically created from the Work Agenda or Event Details window. When you create an emergency sheet from either of these applications, the sheet is automatically associated to the event and saved to the database. The associated actions pertaining to the event, including the Open step operation, will be included in the new sheet. The sheet cannot be deleted and will always remain associated to the originating event.

To create an emergency switching sheet, do one of the following:

- With an event selected in the Work Agenda, select **Switching...** from the Actions menu.
- From the Event Details Window, select **Switching...** from the Actions menu.

Open or Create New Switching Sheet

The **Open or Create New Switching Sheet** dialog will open with the options of creating a new Emergency or Outage Correction switching sheet (from the Switching Sheet Types pane) or opening an existing switching sheet that is associated to the event from the Pre-Created Switching Sheets pane.

Create New Sheet

1. Select the Emergency sheet type from the Switching Sheet Types pane. The **Create** button is enabled.
2. Click the **Create** button.
3. The Web Switching Management window displays the new emergency sheet.

Open an Existing Sheet

1. Select an existing sheet from the Pre-Created Switching Sheets list. The **Open** button is enabled.
2. Click the **Open** button.
3. The Web Switching Management window will load the selected switching sheet.

Alternative Method of Creating an Emergency Switching Sheet

- From the **File** menu, select **New** and then select **Switching Sheet...** to display the New Switching Sheet window. Select **Emergency** as the sheet type and click **Create**.

    Note: an emergency switching sheet created this way will not be associated with an event.

Recording Emergency Operations

The new emergency sheet is automatically populated with Start and Finish dates. The Start date is the current date/time; the Finish date is defined as the Start date plus a predefined standard event duration.

    Note: The duration is set to four hours in the product environment.

The sheet opens with the Steps tab active, real-time mode enabled, and recording on. If the Viewer is open, it transitions to real-time mode also. You can begin recording steps as described in the next section.

To record emergency switching operations, complete these steps:

1. Start a new emergency sheet as described in the previous section.

2. Create the steps by selecting devices in the Viewer window and selecting operations from the Control Tool. The process of adding recorded steps for emergency sheets is the same as for planned sheets in real-time mode. See **Adding Recorded Steps to a Switching Sheet** on page 9-29 for details.

    Once an action is completed in the Control Tool, the following occurs:

    - The status of the recorded step is set to Completed.

    - The Executed By field is populated with your user ID.

    - The Completed Date field is populated with the date and time shown on the Control Tool or the current time if a Control Tool date/time value is not specified.

    - Instructed actions use the date/time specified from the Control Tool to populate the Instructed Date field. If no Control Tool date/time value is specified, then the current time is used to populate the Instructed Date field.

    - Any outages created by completing steps in Real Time that are associated to an Emergency switching sheet will be classified as Real Outages and not Planned Outages. These Real Time step completions can occur from the Control Tool or from Web Switching Management.

3. When you have completed all emergency steps, click the **Tracking/Audit Log** tab and set the sheet state to *Completed* by clicking the **Complete** button. The **Confirm State Transition** dialog will open; click **Yes** to confirm the completion or click **No** to close the dialog without completing the sheet. The Finish Date may be updated, if necessary.

    - *Optional*: add a comment in the text field to the right of the **Complete** button.

        Note: Changes can no longer be made to the completed sheet.

Switching Sheet List

The Switching Sheet List is a tool used to manage active switching sheets and any switching sheet completed in the last 30 days. To load switching sheets older than 30 days, use the Search Switching Sheet window. The Switching Sheet List is not dynamically updated once it is displayed. If you keep the window pinned and visible, you can update the list using the Refresh button. If the list is closed and then reopened, the list will automatically refresh with the latest data.

The Switching Sheet List serves as the primary mechanism for loading switching sheets. You can either double click a single entry or highlight multiple entries and click the **Open...** (📁) toolbar option. A right-click **Open...** menu option is also available. When loading multiple switching sheets, a progress bar will be displayed at the bottom of the window. Once an open request has been initiated, it cannot be cancelled, but the system does restrict you from having more than 15 switching sheets open at any one time.

Menu and Toolbar Features

This section lists and describes the menu options and toolbar icons available in the Switching Sheet List.

File Menu

The table below describes the options available on the File menu.

Menu Option	Description	Toobar Icon
Export Table...	Opens a dialog to allow you to save the current table view data to a comma separated value (csv) file.	🔼
Print List...	Displays the Print Preview dialog so you can view or print the list.	🖨
Print Preview Selected Sheets...	Displays the Content Selection dialog so that you can choose which sections of each highlighted sheet to include in the generated documents. By default, PDF documents will be created for each of the highlighted switching sheets.	📄
Print Selected Sheets...	Displays the Content Selection dialog so that you can choose which sections of each highlighted sheet to include in the generated documents. By default, PDF generated documents will be printed for each of the highlighted switching sheets. The Content Selection dialog also includes the target print service. Your default printer will be the default option selected in the combo box list.	📑
Exit	Closes the Switching List window.	--

Sort Menu

The table below describes the options available on the Sort menu.

Menu Option	Description	Toobar Icon
Sort Dialog...	Opens the Sort dialog, allowing you to create, modify, apply, and save user-defined sorts. See **Using the Sort Dialog Box** on page 1-13.	--
Sheet #	Applies the default sort, which is the sheet # in descending order.	--

Filter Menu

The table below describes the options available on the Filter menu.

Menu Option	Description	Toobar Icon
Filter Dialog...	Opens the Filter dialog where you can create, modify, apply, and save user-defined filters. See **Filtering** on page 1-14.	--
Active	Displays all the active switching sheets (switching sheets NOT in the Status New, Completed, Deleted, Cancelled, or Training-Completed).	--
All	Displays all non-complete switching sheets and completed switching sheets from the last 30 days. - No Icon Completed - Displays switching sheets that have been completed in the last 30 days.	--
Completed	Displays switching sheets that have been completed in the last 30 days.	--
In Progress	Displays all switching sheets in the In Progress state.	--
My Sheets	This displays all sheets that were created or are owned by the current user.	
New	Displays all switching sheets in the New state.	--
Require Verification	Displays the switching sheets that require verification after model change.	
Today	Display switching sheets that are scheduled or are being worked on Today.	--
Tomorrow	Display switching sheets that are scheduled for Tomorrow.	--

Note: The Today and Tomorrow Switching Sheets List filters are based on the Start and Finish dates of the switching sheets. If tomorrow's or today's date falls within that time period, then the sheet will be included in the list. If the sheet has a Start date that is before today's date and has no Finish date, then the sheet will be included in the list.

Actions Menu

The table below describes the options available on the Actions menu.

Menu Option	Description	Toolbar Icon
Open...	Opens the selected switching sheets. If the window is not pinned or docked, the window will be closed once the sheets are loaded. **Note:** If the sheet is locked by another user, the Failed to Establish User Lock dialog box will be displayed; see **Opening Locked Documents** on page 9-71 for information.	📂
Refresh	Refresh the switching sheet list with the latest data from the database.	🔁
Pin	Pin the window so that it will not close after an open switching sheet request. **Note:** The icon shows the current state (*i.e.*, unpinned).	📌
Unpin	Unpin the window so that it will close after an open switching sheet request. **Note:** The icon shows the current state (*i.e.*, pinned).	📌
Dock	Dock the window into the NMS environment window. The tool will be docked next to the Work Agenda list.	--
Undock	Undock the window out from within the NMS environment window.	--

Help Menu

The table below describes the options available on the Help menu.

Menu Option	Description	Toobar Icon
Switching Sheet List Help (`F1`)	Opens the online help system to the Switching Sheet List help content.	--

Switching Sheet List Data Fields

The Switching Sheet List provides a tabular view of the switching sheets. The sort and filter criteria are displayed above the table.

•   The **Status** column displays the status of the switching sheet. See **Switching Sheet States** on page 9-15 for a complete list of switching sheet states.

•   The **Type** column displays the switching sheet's type.

•   The **Sheet #** column displays the switching sheet's number.

- The **Feeder**, **Substations**, **Description**, **Owner**, **Charge Number**, **Start Date**, **Finish Date** columns display the values from the sheet's **Request** tab.

- The **User** column displays the user that created the switching sheet.

- The **Completed Date** is the date the switching sheet was completed.

- The **Verify** column displays Yes when the switching sheet involved any model changes and require verification.

Opening Locked Documents

The Failed to Establish User Lock dialog box appears when opening switching sheet(s) or safety document(s) locked by another user. The Previously Established Lock list displays the details of locked sheet/document:

- **Number:** the number of the sheet/safety document.

- **User:** the user who has the sheet/safety document locked

- **Type:** the sheet/safety document type; for example, a planned switching sheet or a HOT safety document.

- **Date:** the date when the sheet/safety document was locked.

Click **OK** or the window close button to dismiss the dialog box.

Event Associations

Event associations are used to associate events to switching sheets. Associated events are displayed in the Events List on the Steps tab header. (See **Events List** on page 9-25.)

Events can be associated to switching sheets in two ways:

- **Hard Associations** are automatic associations that are normally made as you perform actions within Web Switching Management or perform actions from the Control Tool that are recorded into the switching sheet. An event can only have one hard association to a switching sheet. Hard associations cannot be broken once the association has been established; however, the association can be moved to a new switching sheet if the steps that created the event are moved.

- **Soft Associations** are associations that are normally added manually from the **Events List** in Web Switching Management. An event can be softly associated to an unlimited number of switching sheets. This type of association can be manually removed up until the associated switching sheet has reached the Completed state.

  Note: Event associations do not occur when the event causing action is recorded into the Miscellaneous Log.

Hard Associations

Hard associations can also be further classified by type. There are four types of hard association relation types:

- **Master** is the relationship type made between a Planned switching sheet and its active master switching job. There can only be one Master Event associated to any single switching sheet.

- **Canceled** is the relationship type made between a Planned switching sheet and a canceled master switching job. There can be any number of Canceled event associations to a single switching sheet. These Canceled events were originally classified as Master Events for the plan.

- **Planned** is the relationship type made between a Planned switching sheet and a planned outage. A planned outage is an outage that was generated from a planned switching sheet after the completion of an action recorded in the Steps section of the plan.

- **Forced** is the relationship type made between an Emergency switching sheet and an unplanned outage or non-outage event. A Forced relationship will be made when recording real-time actions into an Emergency switching sheet. The relationship can also be made when creating an Emergency plan for an event from the Work Agenda Jobs List or the events Event Details display.

Soft Associations

Soft associations only have one classification type:

- **Manual** is the relationship type made between a switching sheet and a manually associated event. Manual associations are also made between plans if an outage is hard associated to one plan and the outage is restored with another switching sheet. The plan that recorded the restoration step will have the event automatically associated to it with a classification type of Manual. Grouped events can also cause switching sheets to be manually associated. Partially restoring an outage or adding customers to an outage will create a manual association between the switching sheet and the job if no association (hard or soft) already exists.

Rules for Grouping Event Associations

When resolving outages in the network, it is common for events to be grouped together. When events are grouped, the associations will adhere to the following set of rules:

- If an event with no hard association consumes another event with no hard association, then the resulting event will have no hard association, and its manual associations will be a combined list of both events' manual associations.

- If an event with a hard association consumes an event with no hard association, then the resulting event will have the surviving event's hard association and a combined list of both events' manual associations.

- If an event with no hard association consumes an event with a hard association, then the resulting event will have the consumed event's hard association and a combined list of both events' manual associations.

- If an event with a hard association consumes another event with a hard association, then the resulting event will have the surviving event's hard association. The consumed event's hard association will be listed as a manual association along with the combined list of both events' manual associations.

- If an event consumes another event with an association to the same switching sheet, then the above rules will apply, but the plan will only be listed once in the event's association list. An event can only have one association to a specific switching sheet.

Crew Assignments

Normally when working a switching sheet, the crews are automatically associated to the sheet when the event the crew is assigned to is associated to the sheet. These crews show up in the Crews list just above the steps on the Steps tab. When crews need to be added to the list that will not be assigned or cannot be assigned to events, then the Select Crew dialog must be used. The Select Crew dialog is initiated from the Crews list **Select Crews...** toolbar button (). The dialog has two tabs for selecting the type of crew you wish to associate to the switching sheet.

System Crews

System crews are the same crews that are available to you from the Crew Actions list. Only available crews will show up in this list. The System Crews list shows the crew's ID, Type, Contact, Shift Status and Job Status. Table column filter fields are available to filter the list down to a specific crew entry. Once an entry is found, the **OK** or **Apply** buttons can be used to assign crews to the switching sheet. Selecting the **OK** button will assign the crew(s) and close the Select Crew dialog. The Cancel button will cancel any existing selections and close the Select Crew dialog.

Contractors

The Contractors tab gives you the capability to create contractor crews on the fly. Contractors are crews that are not system crews and do not exist in the NMS proper crew list. The crews available from the Contractor Crew List are only available for selection from Web Switching sheets and Web Safety documents. These crews will not be generally available throughout the NMS environment.

Working with Safety Documents

Oracle Utilities Network Management System Safety Documents, which are an electronic representation of paper safety documents used for switching operations, provide information about a particular operation and record the issuance and release of tags on devices. For switching operations, safety tags are first physically placed on devices, and then the safety document is issued; note that the safety tag must match the safety document type (*e.g.*, Hold tags are used with Hold safety documents). Issuing the safety document effectively gives the crew permission to begin work. When the work is completed, the safety document is released, warning the crew that they must stay clear. Once the safety document is released, safety tags may be removed from the devices and the switches may then be closed.

This section includes the following topics:

- **Understanding Safety Document Types**
- **Mapping Step Types to Safety Document Types**
- **Using Safety Documents in Switching Plans**
- **Opening Existing Safety Documents**
- **Completing Safety Documents**
- **Aborting Safety Documents**

Understanding Safety Document Types

Oracle Utilities Network Management System Web Switching Management includes a group of safety documents that represent common utility safety document types. These standard forms may be used to represent established safety documents in your organization.

- **Clearance** - indicates that clearance for work on a device or in an area has been obtained from the proper authority. The proper authority might be a control center supervisor or a regional dispatcher. Clearance documents imply that the device or area that requires work has been made safe to work on or in.

- **Delegated Control** - safety document (DCZ) allows users to identify a section of the network that has been turned over to the field for operation. The operator is no longer in control of the section of the network. It is the responsibility of the crew to operate in a safe and secure manner and document actions taken. See **Delegating Control of a Network Area** on page 9-88 for more information.

- **Hold** - indicates that the tagged device(s) should not be operated (*e.g.*, if the device is open, it should remain open). Hold safety documents are used when the device is to be held open or closed in order to complete work in an area of the distribution system. The purpose of the Hold safety document is to protect crew members and prevent injury to human life. Hold safety documents are placed and removed by individuals who have authority over a specific area or operation and serve to restrict the operation of a device.

- **Hot** - indicates that hot line work is being performed (*e.g.*, live wires), and if the tagged device(s) is opened, it should not be closed again until the safety document is released. When Hot Line safety documents are present, device operations in the area should be performed with caution.

- **Information Note** - provides some pertinent information about the device(s). Information Note safety documents are for informational purposes only. These safety documents do not restrict operation of the device, but provide information that a crew member or utility employee should be aware of when working on the device(s).

- **Warning Tag** - provides warning information about the tagged device(s). Like Information Note safety documents, Warning Tags are for informational purposes only. These safety

documents do not restrict operation of the device(s), but provide information that a crew member or utility employee should be aware of when working on the tagged device(s).

While safety document names and features may vary, understanding these types will help you understand the general use of most safety documents. Crews typically "own" safety documents and must authorize their release when they are finished working in an area or on a device.

Mapping Step Types to Safety Document Types

Safety document types are associated with certain types of steps. These step-to-safety document mappings are configurable. The following list shows what types of steps each safety document type is pre-configured to accept.

- **Clearance**:
    - Place Clearance Tag
    - Remove Clearance Tag
    - Place Ground
    - Remove Ground

- **Delegated Control (DCZ)**
    - Place DCZ Tag
    - Remove DCZ Tag

- **Hold**:
    - Place Hold Tag
    - Remove Hold Tag
    - Place Ground
    - Remove Ground

- **Hot**:
    - Place HOT Tag
    - Remove HOT Tag
    - Place Ground
    - Remove Ground

- **Informational Note**:
    - Place INFO Tag
    - Remove INFO Tag

- **Warning Tag**:
    - Place WARN Tag
    - Remove WARN Tag

Using Safety Documents in Switching Plans

Understanding the Safety Documents Tab

The Switching Sheet Safety Documents tab displays a list of all safety documents associated with a switching sheet. The Safety Documents tab displays the following fields and menu bar buttons:

Fields

- **Type** displays the type of safety document. (See **Understanding Safety Document Types** on page 9-74.)

- **Doc #** displays the safety document number.

- **Status** displays the status of the safety document. Valid statuses are: New, Issued, Released, Unissued, Aborted, Deleted, and Completed.

- **Crews** displays the crews assigned to this safety document.

- **Description** displays a description of the safety document.

Menu Bar Buttons

- The **Refresh** button( ) refreshes the safety document list.

- The **Create a Safety Document** button ( ) opens an options menu that allows you to choose a safety document type or open the Select Safety Type dialog.

- The **Open** button ( ) opens the selected safety document. (Alternatively, you can double-click the document in the list.)

- The **Associate** button ( ) displays the Switching Sheet Association dialog. From the dialog you can associate the safety document to a different switching sheet. See **Switching Sheet Associations** on page 9-93 for more details.

- The **Disassociate** button ( ), when pressed, displays a confirmation dialog pertaining to the disassociation of the safety document. Confirming the action will cause the safety document to be disassociated from the switching sheet. Once disassociated, the document is converted into a stand alone safety document.

- The **Delete** button ( ) deletes the selected safety document. Safety documents can only be deleted if there are no steps associated to the document. Deleted safety documents are not removed from the database.

Safety Document Dialog Overview

The Safety Documents associated to switching sheets are displayed as detached windows. When working with Web Safety, when there is no originating switching sheet, the document takes on a slightly different behavior and look. For more information on Stand Alone Safety Documents see **Web Safety** on page 9-97.

Toolbar Icons

- The **Save** button ( ) saves your changes to the safety document.

- The **Print Preview** button ( ) allows you to select a report format and then preview the safety document in the selected format.

- The **Print** button ( ) allows you to select a printer and then print a hard copy of the safety document to the selected printer.

- The **Email** button () allows you to email a version of safety document. You will be prompted to select a report format (PDF, HTML, RTF, or XML); click **OK** to generate the file, which will be attached to a new message launched from your default email application.

- The **Validate** button (), which is available on the DCZ safety documents, is used to determine whether the listed devices potentially isolate an area of the network.

- The **Issue** button () adds a step for issuing the selected safety document. The step is added to the end of the steps list or after the step insertion indicator (if one has been placed). This button is enabled when a document is in the New and Released states so the document may be issued and released multiple times. If any of the devices in the Tag Points list are not associated to steps, then the appropriate conditions will be placed on those devices when the document is transitioned to the Issued state.

- The **Unissue** button () is used to place an Issued safety document or a Released safety document into an Unissued (edit) state where the device lists can be altered. While in the Unissued state, you can add devices to the lists and mark devices already in the list for removal. Only when the safety document transitions back to the Issued state will the changes be applied.

- The **Release** button () adds a step for releasing the selected safety document. The step is added to the end of the steps list or after the step insertion indicator (if one has been placed). This button is only enabled if the safety document has been issued. Selecting this button will cause the Complete button to be enabled.

- The **Complete** button () adds a step for completing the selected safety document. The step is added to the end of the steps list or after the step insertion indicator (if one has been placed). If any of the devices in the Tag Points list are not associated to steps, then the appropriate conditions will be removed from those devices when the document is transitioned to the Completed state.

- The **Abort** button () allows you to set the status of the safety document to Aborted. The system prompts you to confirm the action before aborting. This button is only available in real-time mode and only for safety documents that are in the New state.

- The **Associate** button () displays the Switching Sheet Association dialog. From the dialog you can associate the safety document to a different switching sheet. See **Switching Sheet Associations** on page 9-93 for more details.

- The **Disassociate** button (), when pressed, displays a confirmation dialog pertaining to the disassociation of the safety document. Confirming the action will cause the safety document to be disassociated from the switching sheet. Once disassociated, the document is converted into a stand alone safety document.

Safety Document Panes

The safety document dialog displays the following panes:

- **Tag Points** display the device(s) that the safety document is associated with.

  Table Columns

  - **Edit State (untitled):** an iconic representation of the edited state of the device in the Unissued state. The edits will be applied when the document is issued. When working in Study mode, the edit state indicators will remain visible until the document is issued in real time.

    - ❌ : The device has been marked for removal.

    - ➕ : The device has been added to the device list and will be used as a boundary point the next time the document is issued.

  - **Device:** the device used to define the area or point of coverage of the safety document.

  - **Phases:** the device phases affected.

  Toolbar Buttons

  - 🔴 **Recording On/**⬜ **Recording Off**: Toggles recording of devices off or on. The Tag Points list allows users to record devices via selections from the viewer. To enable this feature, simply turn on recording and select devices in the viewer.

  - The **Add Device...** button (🔼) allows you to manually add a device to the list.

  - The **Undo Device Edit** button (🔄) allows you to undo an addition or removal of a device from the list. This option is only available when making device modifications in the Unissued state.

  - The **Remove Device** button (❌) allows you to remove a selected device from the Tag Points device list.

  - The **Change Phases** button (⚡) brings up the Select Phases dialog. From the dialog, new phases for the device can be selected.

    Select Phases Dialog Box

    The Select Phases dialog box allows you to alter the phases for the highlighted device in one of the safety document's devices list. When the document is in the Unissued state, a new pending entry will be added to the devices list with the new phase selections. When the document transitions from Unissued to Issued in Real Time, the new phase changes will be activated.

  - The **Object Focus** button (🔴) focuses the Viewer 1 window on the selected device.

- **Grounds** displays the device(s) that the safety document will protect and validate the grounds on.

  - **Table Columns**

    - **Edit State (untitled):** an iconic representation of the edited state of the device in the Unissued state. The edits will be applied when the document is issued. When working in Study mode, the edit state indicators will remain visible until the document is issued in real time.

      - ❌ : The device has been marked for removal.

      - ➕ : The device has been added to the device list and will require a ground condition the next time the document is issued.

- • **Device:** the device that should be protected with a ground before the document can be issued.

- • **Phases:** the device phases to be checked.

- • **Toolbar Buttons**

  - • The **Undo Device Edit** button ( ) allows you to undo an addition or removal of a device from the list. This option is only available when making device modifications in the Unissued state.

  - • The **Remove Device** button ( ) allows you to remove a selected device from the Grounds device list.

  - • The **Change Phases** button ( ) brings up a Select Phases dialog. From the dialog, new phases for the device can be selected. See **Select Phases Dialog Box** for details.

  - • The **Object Focus** button ( ) focuses the Viewer 1 window on the selected device.

- • **Other Devices** is a text field that allows you to enter a list of non-modeled devices.

  Note: An entry is required in at least one of these fields: Grounds, Tag Points, or the Other Devices.

- • **Feeder** displays the value found in the Feeder field of the originating switching sheet. To alter this value, simply enter your new value into the field.

  - • The **Reset Feeder Value** button is used to replace the safety document's current Feeder value with the value from the Feeder field of the associated switching sheet when the safety document was created. The switching sheet's Feeder value is found on the Request tab.

- • **Assigned Crews** displays a table list of the Crew IDs of the crews that the safety document has been issued to, as well as each crew's mobile number, pager number, and crew type. The crew IDs are auto-populated with the value from the **Instructed To** field in the safety state transition switching step. A crew is required in this list before an Issue safety state transition step can be completed in real-time.

  - • To select a crew to assign to this safety document, click the **Select Crew...** ( ) button to open the Select Safety Crew dialog. See **Assigning Crews to a Safety Document** on page 9-80.

  - • To display the selected crew information, click the **Crew Info...** ( ) button.

  - • To indicate whether the crew is issued or clear of the zone defined by the safety document, click the **Crew Issued/Clear** ( ) button and select either **Issued** or **Clear**. The Position column will be updated with the status.

  - • To delete crews from this list, click the crews and then click the **Remove Crew**(s) button ( ). At least one crew must remain assigned while the document is in the Issued state.

- • **Description** is a text field that allows you to enter notes for the safety document.

- • **Audit Log** contains the following information:

  - • **Table Fields:**

    - • **Date**: the date and time of each entry.

    - • **Description:** a description of the state change or device operation.

    - • **Device:** the device associated with the step.

- **User:** the name of the user who recorded the action.

- **Phases:** the phases affected.

- **Crews**: the crew identifiers pertaining to the audit log entry.

- The **Comment** section of the Audit Log panel allows you to add a comment to the log.

- **Edit Log** tracks the changes made to the entry fields of the document. It contains the following information:

  - **Date:** the date and time of each entry.

  - **User:** the name of the user who recorded the action.

  - **State:** the state of the safety document when the entry was added.

  - **Field:** The name of the field that was updated.

  - **Previous Value:** The previous value of the field before the update.

Creating a Safety Document from a Switching Sheet

Devices may be added automatically to a Safety Document by creating a safety document from step selections within the Steps list of the originating switching sheet. You may create a safety document in two ways:

1. **Create a Safety Document for a Selected Step:**

   - On the Steps tab, select the steps to which you want the safety document associated. For instance, select Hold Tag steps and Grounding steps to create Hold safety documents. These steps then define the isolation and grounding points for the safety document.

   - Click the **Create Safety Document for Selected Step** toolbar button ( ).

     - If the selected step maps to multiple types of safety documents, the Select Safety Type dialog prompts you to select the document type. For example, if you select only Grounding steps, then the Select Safety Type Dialog allows you to choose Clearance, Hold, or Hot as the safety document type.

     - Select the safety document type and click **OK**.

       Your selected step must conform or map to at least one safety document type. For example, if you select Place Hold and Place Hot steps an error will be displayed. To correct the issue, you will need to refine your step selections.

2. **Create a Safety Document Without Selecting a Step:**

   - To create a safety document without selecting a step, click the **Create Safety Document** ( ) button, which provides an options menu allowing you to select a specific safety document type or open the Select Safety Document Type dialog.

     - If you select a safety document type, the new safety document will be created. If you select **Select Safety Type Dialog...**, the Select Safety Type dialog will open allowing you to choose the document type. Select the safety document type, and click **OK**.

For a list of step types to safety document types, see **Mapping Step Types to Safety Document Types** on page 9-75. The steps in the sheet will also be updated with an additional entry in the Operation text indicating which safety document the step is associated to.

Assigning Crews to a Safety Document

The Select Safety Crew dialog allows you to assign crews to the safety document. You may also create contractor crews from the dialog's **Contractors** tab.

Selecting Crews from the System Crews List

To assign a standard (system) crew to the safety document:

1. Click the **Select Crew...** button (⬛) to open the Select Safety Crew dialog

2. On the **System Crews** tab, select one or more crew rows in the table.

   Note: you may **Shift+Click** to select multiple adjacent rows or **Control+Click** to select non-adjacent rows.

3. Click **OK** to assign the crew(s) and close the dialog.

   Note: click **Apply** to assign the selected crews without closing the dialog. Crews will appear in the "Unknown" position.

Creating and Assigning Contractor Crews from the Contractor Entry Form

You may add a new contractor crew using the Contractor Entry Form. The created crews are assigned to the current safety document and added to the Contractor Crew List from which they may be assigned to other safety documents or switching sheets.

The form contains the following fields:

- Crew ID: the crew name or identifier.

- Contact: the name of the crew contact person.

- Mobile #: the crew's mobile number.

- Pager #: the crew's pager number.

- Type: crew option menu that allows you to choose the crew type.

- Comments: text field for comments.

Actions

- **Create and Assign Crew** (🔼)**:** assigns the new crew entry to the safety document and adds them to the contractor crew list.

   Note: the Select Safety Crew dialog closes once the add button (🔼) is clicked.

- **Clear Crew Fields** (✏️)**:** clears the entry form.

Using the Contractor Crew List

The Contractor Crew List allows you to assign existing contractor crews to the safety document or populate the Contractor Entry Form to reuse crew data when creating additional contractor crews.

The form contains the following toolbar buttons:

- **Refresh Crew List** (🔄)**:** refreshes the contractor crew list with the full list of active contractors found in the database.

- **Assign Crew** (➕)**:** assigns the crew(s) to the safety document.

- **Transfer Crew Data** (⬆️)**:** transfers the selected crew's data up to the Contractor Entry Form fields. This allows contractors to be copied with minimal effort.

- **Obsolete Crew** (❌)**:** obsoletes a crew so that it no longer shows up in the Contractor Crew List. If the crew is still part of an active safety document or switching sheet, an error will be generated. The crew is not deleted from the system as it is still needed for auditing purposes in completed switching sheets and safety documents.

Assigning an Existing Contractor Crew

1. Select the crew row(s) in the Contractor Crew List.

2. Click the **Assign Crew** button (➕) to assign the crew(s) to the sheet.

Assigning a New Contractor Crew Using Existing Crew Data

To create an additional contractor crew using data from an existing crew, do the following

1. In the Contractor Crew List, select the row with the desired crew data.

2. Click the **Transfer Crew Data** button (🔧) to copy the data to the Contractor Entry Form.

3. Edit the data for the new crew.

4. Click the **Create and Assign Crew** button (🔧) to assign the new crew to the safety document and add them to the Contractor Crew List.

Adding a Safety State Transition Step

Each safety state transition step performs a single action, such as issuing or releasing a safety document. To add safety state transition steps, do the following:

1. From a switching, create a new safety document. See **Creating a Safety Document from a Switching Sheet** on page 9-80 for more information.

2. Validate that step recording is still turned on in the Steps tab.

3. Click the **Issue** button (👤) on the safety document. A new safety state transition step is recorded into the switching sheet steps list. The Operation column of the step indicates the type of operation being performed.

    Notes:

    Conditions associated to the devices in the Tag Points and Grounds lists have to be on the devices for the document to be issued. If the conditions are not on the devices, an error dialog will be displayed with the list of conditions that could not be found. The switching steps associated to those conditions will be highlighted in the switching sheet. This is mode specific, so when in study mode, the conditions have to be on the devices in your study session. Conditions are not required when only the Other Devices field is filled out.

    When recording the safety state transition steps in Real-Time, the safety document must have an assigned crew before it can be issued. This is not a requirement when in Study mode.

4. Select the **Release** and **Complete** buttons on the safety document. New safety state transition steps are recorded into the Steps list for the Release and Complete operations.

5. Close the safety document.

    Note: If you changed the Other Devices or Description field, you will be asked to save the changes. All other fields are automatically saved within the associated switching steps.

For instructions on executing safety state transition steps, see **Executing Safety State Transition Steps** on page 9-85.

Safety State Transition Failed Dialog Box

When a safety document is issued the conditions (tags and grounds) associated with it are locked. If some of the expected conditions are missing or fail to lock, the Safety Transition Failed dialog box is displayed. The Failed Safety Actions table contains the list of switching steps associated with the safety document, that caused the failure.

The switching steps placing those conditions will be highlighted on the Steps tab. Affected rows in the Tag Points and the Ground devices lists in the safety document will also be highlighted.

Editing the Device List

The **Tag Points** and **Grounds** device lists on the Hot, Hold, Clearance, Delegated Control, Information, and Warning safety documents may only be altered when in the *New* or *Unissued* states.

Adding Devices to a Non-Execute Safety Document

You can add additional devices to a safety document through one of three ways. The first method involves associated steps with devices to the safety document. The second method allows the users to added devices directly to the safety document through device selections on the viewer. The third method gives the user an Add Device dialog, from which they can hand enter or search for a device to be added to the list.

Step Association Method

The step association method is accomplished by doing the following:

1. Open a non-execute version of a safety document. (A non-execute version is loaded from the Safety Lists and the Control Tool. It displays a toolbar at the top of the dialog and no Execute button at the bottom.)

    From the associated switching sheet steps list, select the step with the device operation you want added to the safety document. For example, if you select an Add or Remove Tag step, the device is added to the Tag Points list on the safety document dialog. If you select a Ground step, the device is added to the Grounds list.

2. Click the **Link Switching Step Device** button (🔗) on the safety document dialog. The new device is added to the appropriate device list.

    > **Notes:**
    >
    > •   If the selected step is already associated to a safety document, then an error dialog indicates which safety document the step is already associated to.
    >
    > •   If the select step type is not configured for the safety document type, then an error will be displayed indicating the step that does not conform to the configured step to safety document type rules. For a list of step types to safety document types, see **Mapping Step Types to Safety Document Types** on page 9-75.

Device Recording Method

The device recording method from viewer device selections is accomplished by doing the following:

1. Open a non-execute version of a safety document. (A non-execute version is loaded from the Safety Lists and the Control Tool. It displays a toolbar at the top of the dialog and no Execute button at the bottom.)

Click the **Record Off** button (⬛) found on the Tag Points toolbar to turn recording on for that device list.
2. From the viewer, select devices that should be added to the Tag Points device list.

Safety Document Add Device Dialog Method

Using the Safety Document Add Device dialog, devices can be added to the Tag Points list by doing the following:

1. Open a non-execute version of a safety document. (A non-execute version is loaded from the Safety Lists and the Control Tool. It displays a toolbar at the top of the dialog and no Execute button at the bottom.)

2. Click the **Add Device…** button (🖼) found on the Tag Points toolbar. The Safety Document Add Device dialog is displayed.

3. From the dialog, enter part or all of a device alias. The search button (🔍) can be used to find a device from a partial device id.
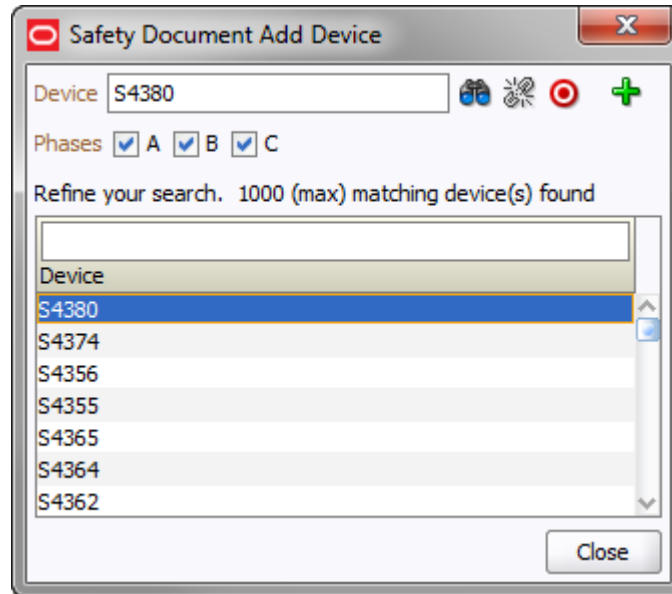
4. Select the appropriate phases for the device.

5. Click **Add Device** (➕). The device will be added to the Tag Points list with the indicated phases.

6. Continue to add devices using steps 3-5 and when completed, click **Close**.

Removing Devices

You can remove devices from a device list in two ways.

Option 1:

1. Open a non-execute version of a safety document. (A non-execute version is loaded from the Safety Lists and the Control Tool. It displays a toolbar at the top of the dialog and no Execute button at the bottom.)

2. Select the device you would like to remove from the Tag Points or Grounds list.

3. Click the **Remove Device** button (❌) from the appropriate device list toolbar. The device is removed from the list if the document is in the New state or is marked for removal if the document is in the Unissued state

Option 2:

1. From the associated switching sheet steps list, select the step with the device operation that you want removed from the safety document. For instance, if you select an Add or Remove tag step, the device will be removed from the Tag Points list. If you select a Ground step, the device will be removed from the Grounds list.

2. Click the **Unlink From a Safety Document** button (🔧) on the Steps tab toolbar. The device is removed from the safety document's device list if the document is in the New state or is marked for removal if the document is in the Unissued state.

Note: The **Unlink From a Safety Document** button can only be used for devices in the safety document that are associated to steps. Devices added without step associations will have to be removed using Option 1 described above.

Adding a Comment to the Audit Log

The Comment section of the Audit Log panel allows you to add a comment to the log. Click in the Comment field and enter a comment; click ✚ to add the comment to the Audit Log.

Executing Safety State Transition Steps

Once a safety state transition step has been recorded, executing (completing) the step causes the Execute Safety Step dialog to be displayed. This dialog looks just like the original safety document dialog except that it has no toolbar and it displays two buttons: Execute and Cancel. Use this dialog to verify that the safety document information is correct, and then click the **Execute** button to execute the step.

When a tag step with an associated safety document is executed, the Control Tool executes placement of the appropriate tag (Hold, Hot, Clearance, etc.) on the device. The symbol on the device indicates that a condition exists on the device, that the area has not been issued to the crew, and thus it is not isolated yet. After the safety document has been issued, the symbol on the device changes to indicate that the tag is under the control of the safety document. For example, if configured in your project, a sHold tag may change to indicate Hold with a small lock symbol next to it. When a tag changes to a locked state, it is no longer possible for the user to remove the tag from the Control Tool. The safety document must be released before the tags can be removed from the Control Tool.

For more information, see one of the following topics:

*   **Issuing Safety Documents While Executing Steps**

*   **Releasing Safety Documents While Executing Steps**

Issuing Safety Documents

Safety documents are issued when an Issue safety document switching step is completed and the Execute button is selected on the safety document.

> **Note**: The appropriate tag type must be placed on the device prior to the safety document being issued. For example, to issue a Hold document, you must place a Hold tag on the device before the safety document can be issued. This only pertains to devices associated to switching steps. Devices not associated to steps will automatically have conditions placed on the them when the document is issued.

When a safety document is transitioned from the Unissued state to the Issued state, all of the pending device list changes will be applied. If the transition is initiated in real-time mode, then any devices marked for removal will be removed from the list and related audit log entries will be created for each device change.

Once a safety document is issued:

*   Crews are transitioned to the "Issued" position.

*   You cannot complete, delete, or reissue the safety document. The device lists cannot be altered while in the Issued state.

*   The only state related button options available on the safety document dialog are Unissue and Release.

*   The Viewer displays a symbol on all devices that are specified in the safety document to indicate that the safety document has been issued.

Grounds Check

When an attempt is made to issue a safety document, the devices listed in the Grounds list are all required to have grounds. The document cannot be issued until the grounds exist on the listed devices. Once the safety document is issued, the grounds on those devices cannot be removed without acknowledging that they will be removed out from under an issued safety document. The Grounds Check dialog is displayed to the user when they attempt to remove the last ground on a device that is linked to an issued safety document. If the device has multiple grounds, then only the last ground to be removed will be flagged as being required by a safety document.

The Grounds Check dialog will give you a list of safety documents linked to the ground that is about to be removed. Double clicking on any of the safety document entries will cause the document to be loaded. You can also right-click on the entry and select the **Open...** menu option.

If you determine that the ground can be safely removed out from under the listed safety documents, then select the **Continue** button. This will cause the ground to be removed and audit log entries will be added to each of the affected safety documents indicating when, on which device and who removed the ground condition. The **Cancel** button can be pressed to cancel the entire Remove Condition operation.

Issuing Safety Documents Manually

To issue a safety document manually:

1. Open the safety document (if it is not already open) by selecting the document on the Safety Documents tab and clicking the **Open** button.

2. Click the **Issue** button on the open safety document. A symbol appears on all devices in the Viewer that are specified in the safety document to indicate that the safety document has been issued.

    Note: If you manually Issue a safety document in real-time mode, a safety state transition step is automatically recorded to the Steps list, regardless of whether step recording is turned on. This is the audit of the safety documents transitions.

Issuing Safety Documents While Executing Steps

To issue a safety document through step execution:

1. From the Steps List, select the Issue safety state transition step and click the **Complete** button. The Execute Safety Step dialog opens, and the **Execute** and **Cancel** buttons are enabled.

    Note: When instructing safety state transition steps in real-time mode, the safety document dialog is not displayed. It is only displayed when the step is completed.

2. Click the **Execute** button. A symbol appears on all devices in the Viewer that are specified in the safety document to indicate that the safety document has been issued. The safety state transition step is also marked as Completed.

If any of the devices in the Tag Points list were not associated to switching steps, then conditions will be applied to the devices first. After all the conditions are on the devices, then the conditions will be changed to indicate that they are under the control of the safety document.

Releasing Safety Documents

Safety documents are released when switching steps associated to a releasing safety document are completed and the Execute button is selected on the safety document. The symbol for the safety document is removed from the device in the Viewer and the original tag symbols are placed back

onto the device. At this point the Safety Document can either be reissued to a different crew or completed.

> **Note:** Safety Documents cannot be released if any crews are still in the "Issued" position. Crews need to be "Clear" to proceed.

Releasing Safety Documents Manually

To release a safety document manually:

> **Note**: The document must already be issued before it can be released.

1. Open the safety document (if it is not already open) by selecting the document on the Safety Documents tab and clicking the **Open** button.

2. Click the **Release** button on the open safety document. The symbol for the safety document is removed from the device in the Viewer and the original tag symbols are placed back onto the device.

   > **Note**: If you manually release a safety document in real-time mode, a safety state transition step is automatically recorded to the Steps list, regardless of whether step recording is turned on. This is the audit of the safety documents transitions.

Releasing Safety Documents While Executing Steps

To release a safety document through step execution:

1. From the Steps List, select the Release safety state transition step and select the **Complete** button. The Execute Safety Step dialog opens, and the **Execute** and **Cancel** buttons are enabled.

   > **Note**: When instructing safety state transition steps in real-time mode, the safety document dialog is not displayed. It is only displayed when the step is completed.

2. Select the **Execute** button. The symbol for the safety document is removed from the device(s) in the Viewer and the original tag symbols are placed back onto the device(s). The safety state transition step is also marked as Completed.

Deleting a Safety Document

Safety documents can be marked as *Deleted* from the associated switching sheets Safety Documents tab. Safety documents can only transition to the Deleted state when they do not have safety state transition steps linked to them in the switching sheet's Steps list. Attempting to mark a safety document as Deleted with linked safety state transition steps will result in an error dialog. You will need to delete the safety state transition steps before the safety document can be marked as Deleted.

To mark a safety document as Deleted:

1. Navigate to the associated switching sheets **Safety Documents** tab.

2. From the safety documents list, select the document entry and click the **Delete** button. The document will be marked as Deleted. Safety documents can only be marked as Deleted when in the New state.

Delegating Control of a Network Area
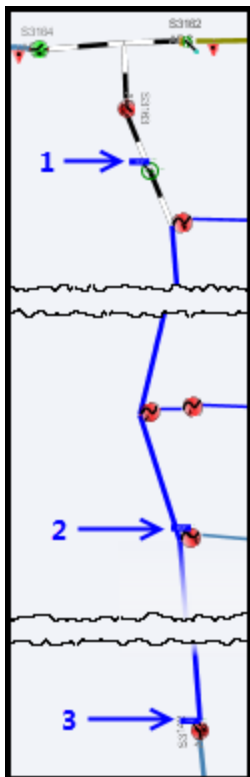
When you issue a DCZ Safety document, the system delegates the segment of the network bounded by the listed devices.

All the conductors in the delegated area recolor to the *Delegated* color, which can be seen in the Viewer Legend (see **Changing the Coloring Mode** on page 1-45 for additional information on Viewer coloring).

No operations are allowed on any devices in the segment until the document is released.
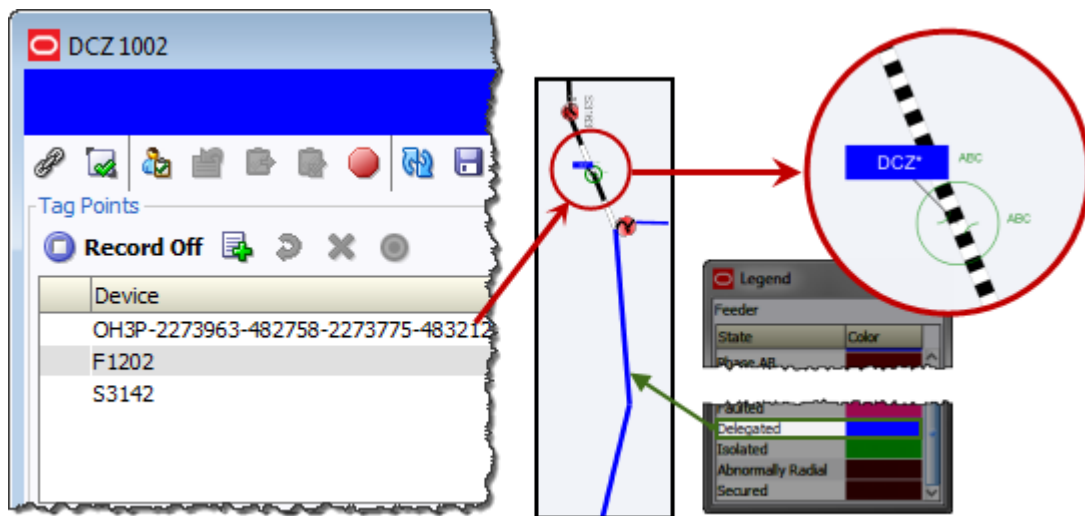
Safety Document List

The Safety Document List is a tool used to manage active safety documents and any safety documents associated to switching sheets that have been completed in the last 30 days. To load safety documents no longer available in the Safety Document List, use the Search Safety Document window. The Safety Document List is not dynamically updated once it is displayed. If you keep the window pinned and visible, then the Refresh button will need to be selected to update the list. If the list is closed and remapped, then the list will be automatically refreshed with the latest data.

The Safety Document List serves as the primary mechanism from which to load safety documents outside or not associated to switching sheets. You can either double click on a single entry or highlight multiple entries and click on the **Open...** toolbar option. A right-click **Open...** menu option is also available. When loading multiple safety documents, a progress bar will be displayed at the bottom of the window. Once an open request has been initiated, it cannot be cancelled, but the system does restrict you from having more than 15 switching sheets open at any one time. Each safety document is linked to a switching sheet.

Menu and Toolbar Features

This section lists and describes the menu options and toolbar icons available in the Safety Document List.

File Menu

The table below describes the options available on the File menu.

Menu Option	Description	Toobar Icon
Export Table...	Opens a dialog to allow you to save the current table view data to a comma separated value (csv) file.	⬆
Print	Displays the Print Preview dialog so you can view or print the list.	🖨
Exit	Closes the Safety Document List window.	--

Sort Menu

The table below describes the options available on the Sort menu.

Menu Option	Description	Toobar Icon
Sort Dialog...	Opens the Sort dialog, allowing you to create, modify, apply, and save user-defined sorts. See **Using the Sort Dialog Box** on page 1-13.	--
Doc #	Applies the default sort, which is the doc # in descending order.	--

Filter Menu

The table below describes the options available on the Filter menu.

Menu Option	Description	Toolbar Icon
Filter Dialog...	Opens the Filter dialog where you can create, modify, apply, and save user-defined filters. See **Filtering** on page 1-14.	--
Active	Displays all the active safety documents (safety documents in the Status Issued, Unissued, and Released).	--
All	Displays all safety documents and safety documents associated to completed switching sheets from the last 30 days.	--
Completed	Displays safety documents that are in the Completed state that are not associated to a switching sheet that has been completed longer than 30 days.	--
Issued	Displays all safety documents in the Issued state.	--
New	Displays all safety documents in the New state.	

Actions Menu

The table below describes the options available on the Actions menu.

Menu Option	Description	Toolbar Icon
Open...	Opens the selected safety documents and their associated switching sheets. If the window is not pinned or docked, the window will be closed once the safety documents are loaded. **Note:** If the safety is locked by another user, the Failed to Establish User Lock dialog box will be displayed; see **Opening Locked Documents** on page 9-71 for information.	📂
Refresh	Refresh the safety document list with the latest data from the database.	🔄
Pin	Pin the window so that it will not close after an open safety document request. **Note:** The icon shows the current state (*i.e.*, unpinned).	📌
Unpin	Unpin the window so that it will close after an open safety document request. **Note:** The icon shows the current state (*i.e.*, pinned).	📌
Dock	Dock the window into the NMS environment window. The tool will be docked next to the Work Agenda list.	--
Undock	Undock the window out from within the NMS environment window.	--

Help Menu - The table below describes the options available on the Help menu.

Menu Option	Description	Toobar Icon
Safety Document List Help (**F1**)	Opens the online help system to the Switching Sheet List help content.	--

Safety Document List Data Fields

The Safety Document List provides a tabular view of the safety document. The sort and filter criteria are displayed above the table.

- The **Status** column displays the status of the safety document.

- The **Type** column displays the safety document type.

- The **Doc #** column displays the safety document number.

- The **Sheet #** column displays the switching sheet the document is associated to.

- The **Feeder** column displays the feeder value as displayed on the safety document.

- The **Issued Date** column displays the date the document was last issued.

- The **Crews** column displays the crews the document was issued to.

- The **Description** is the description of the safety document as entered on the document.

- The **Released Date** displays the date the document was last released.

- The **Completed Date** displays the date the document was completed.

Opening Existing Safety Documents

> **Note:** If the sheet is locked by another user, the Failed to Establish User Lock dialog box will be displayed; see **Opening Locked Documents** on page 9-71 for information.

To open an existing safety document, complete these steps:

From the Web Workspace File menu:

1. Select **Open** and then **Safety Documents…** The Safety Documents List appears.

2. Select the safety document you want to open and click the **Open** button or double-click on the document in the list. The safety document is opened. If the safety document is associated with a switching sheet, the switching sheet will also open.

From the Web Workspace Search Safety Document Dialog

To search for an existing safety document:

1. From the Web Workspace **File** menu, select **Safety Document Search...** from the **Open** option.

2. In the Search Safety Document dialog, enter the desired text to search and press **Enter** or click the **Search** ( ) button.

Open a Safety Document from an Open Switching Sheet

1. Click the Safety Documents tab.

2. Select the safety document you want to open and click the **Open** button or double-click the document in the list. The safety document dialog is displayed.

Open a Safety Document from a Switching Step on the Steps Tab

1. Right-click on one or more steps that have safety document associations, then select **Load Safety Document(s)…** from the options menu. The safety document dialogs are displayed.

   Note: Steps with associated safety documents display the document type and number displayed in the Operation step column.

Open a Safety Document from the Control Tool

1. For active safety documents, double-click on a device within the Viewer window.

2. From the Control Tool, click the **Safety Document(s)…** button and then click **Open Safety Document(s)...** from the sub-menu.

   • If only one safety document is currently active on this device, then the safety document dialog is displayed.

   • If multiple safety documents are active, the Device to Safety Document List displays a list of safety documents for the device. The list includes only safety documents that are part of an active sheet and documents that were completed in the last 30 days. Select the safety document you want to load from this list.

   The safety document dialog is displayed along with the associated switching sheet.

Completing Safety Documents

When you have completed all steps in a switching sheet, you should complete all safety documents associated with the sheet.

To complete a safety document, use either of the following methods:

Option 1

1. Follow the steps described above to open the safety document.

2. Click the **Complete** button on the safety document dialog.

   Note: Once completed, the document is locked from further editing. When manually completing a safety document in real-time mode, the action is automatically recorded in the associated switching sheet's Steps list.

   Any devices in the Tag Points list, that were not associated to steps, will have their conditions removed.

3. Repeat these steps for all safety documents associated with the switching sheet.

Option 2

Record a Complete safety state transition step (as described in the previous sections) and use that step to complete the safety document. Repeat for all safety documents associated with the switching sheet.

Aborting Safety Documents

If a switching sheet is aborted, you will need to abort any associated safety documents before you can complete the switching sheet.

> **Note**: The Abort option is only available in real-time mode when the safety document is in the New state.

To abort a safety document, follow these steps:

1. Click the Safety Documents tab.

2. Double-click the safety document you want to abort.

3. Click the **Abort** button on the toolbar.

4. When prompted, confirm you action.

Switching Sheet Associations

Safety documents can be associated to different switching sheets and even disassociated and converted into a stand alone safety document. Safety documents can only be associated to different sheets or disassociated if the safety document does not have any switching sheet step links. An error will be issued to you if you attempt to disassociate or move a safety document that has linked switching sheet steps. A safety document's type and number will be displayed in the step's Operation column if a link exists.

When disassociating a safety document from a switching sheet, a confirmation dialog will be displayed to you. You must confirm the operation before the disassociation will proceed. When the document is disassociated, it will be converted into a stand alone safety document. The audit log of the switching sheet and the safety document will indicate when and who initiated the operation.

Safety document associations originate from the Switching Sheet Association dialog. This dialog allows you to select a sheet from a list of switching sheets you already have loaded or you can search for a particular switching sheet in the system. Completed switching sheets and switching sheets that cannot accept safety document associations will be filtered out of the list. Safety document association changes will result in audit log entries in the original switching sheet along with the target switching sheet and the safety document.

Outage Correction

Web Switching Management can be used for outage correction. After an outage is completed, you can revise the outage restoration sequence and times by re-recording the outage restoration sequence in study mode. Even though the scenario is recorded in study mode, the corrections will be made to the real-time outage. Study mode is used so that the model can be altered to resemble the real conditions when the outage was created. In order to use Outage Correction, you will need to have access to an available study session.

Re-Recording the Outage Restoration Sequence in Study Mode

To re-record the correct outage restoration sequence, follow these steps:

1. In your study mode viewer, manipulate the model to represent what the conditions were when the outage was created. This will be used as your template to record a new scenario into the Outage Correction sheet.

2. From the Event Details for a completed event, click the **Switching…** button. The Open Or Create New Switch Sheet dialog is displayed. Select the **Outage Correction** sheet type and then click the **Create** button. An Outage Correction switching sheet is created for the event.

3. In the Outage Correction switching sheet, turn recording on.

4. Record the entire set of corrected outage and restoration steps in the Viewer, using the Control Tool's date/time selector to set the correct operation times. Use the Impacted Customers tab to verify that the correct number of customers will be impacted by the new set of steps.

5. Click the **Correct Outage** button on the Steps tab toolbar. A confirmation dialog appears.

6. Press **OK**. The system validates the plan and, if successful, replaces all affected customer data for the related outage and updates the new outage time, customer count, and outage device. The Event Details, when re-loaded, will reflect any partial restoration changes as well.

   Note: if you are replacing an outage that was involved in a partial restoration scenario, you will need to either update the other related outages or mark them so that they are not reported and calculated in your indices.

Using the Miscellaneous Log

The Miscellaneous Log automatically records all real-time switching actions that are not recorded in any switching sheet. The miscellaneous log does not need to be open for steps to be recorded; the system automatically detects steps performed in real-time that are not being recorded in a switching sheet. You can use the miscellaneous log rather than creating emergency switching sheets.

This section includes the following topics:

*   **Displaying the Miscellaneous Log**

*   **Filtering the Log**

*   **Editing the Miscellaneous Log Steps**

Displaying the Miscellaneous Log

To view the Miscellaneous Log, select **Miscellaneous Log...** from the **Tools** menu. The Miscellaneous Log displays the same columns as a switching sheet Steps tab (except for the Version column, which will not appear). See **Steps Tab** on page 9-17 for column descriptions.

The following fields and buttons are displayed at the top of the Miscellaneous Log tab.

*   The **From** date picker, **Range** drop-down, and the **All Users** checkbox set the log's filter criteria. Note that the **From** date picker only includes dates, but not specific times.

*   The **Fetch** button ( ) is used to get records from the database.

*   The **Previous** ( ) and **Next** ( ) buttons allow you to view the log entries for the previous or following period. For example, if the number of days drop-down is set to 1 week, then clicking the Previous button displays the previous week's log entries.

*   The **Complete** button ( ) completes the selected instructed steps. The status of the step changes to *Completed*.

*   The **Abort** button ( ) sets the status of an instructed step to *Aborted*. Use this if the step was never attempted.

*   The **Fail** button ( ) sets the status of an instructed step to *Failed*. Use this if the step was attempted but failed.

*   The **Uninstruct** button ( ) swill remove the instruct condition from the device and delete the instructed step that was recorded into the Miscellaneous Log.

*   The **Focus** button ( ) focuses the Viewer on the selected device.

*   The **Cut** button ( ) allows you cut one or more steps from the miscellaneous log. You can then paste the steps into another switching sheet.

*   The **Print Preview** button ( ) allows you to generate and view the Miscellaneous Log report based on any applied filters. The output will include the date range for the steps included in the log, the user, and finally the list of steps. You will be prompted to select a report format (PDF, HTML, RTF, or XML); click **OK** to generate the file, which will open in an application that is associated with that file type (e.g., Adobe Reader for PDFs or your default web browser for HTML). You may save the generated file.

    Note: the filters will be refreshed when the report is generated so they will always contain current data regardless of what steps are displayed at the time the button was clicked.

- The **Print** button (🖨️) allows you to print the Miscellaneous Log report based on any applied filters (see **Note** for **Print Preview**, above). You will be prompted to select a report format (PDF, HTML, RTF, or XML); click **OK**. You will then be prompted to select a printer.

- The **Email** button (✉️) allows you to email the Miscellaneous Log report based on any applied filters (see **Note** for **Print Preview**, above). You will be prompted to select a report format (PDF, HTML, RTF, or XML); click **OK** to generate the file, which will be attached to a new message launched from your default email application.

- The **Help** button (❓) displays help for the Miscellaneous Log tab.

Filtering the Log

Use the fields at the top of the Miscellaneous Log tab to filter the list as follows:

1. Select a starting date from the **From** date picker.

2. From the drop-down, select the number of days from that starting date for which you want to see log entries.

3. Check or uncheck the **All Users** checkbox. (When **All Users** is checked, the log shows steps that were executed by all users; when unchecked, the log shows only steps that were executed by you.

4. Use the fields at the top of the tab to filter the log.

5. Click the **Fetch** button to refresh the list based on your entries.

Editing the Miscellaneous Log Steps

The **Comments** step column is the only column in the Miscellaneous Log that can be edited. The edits are automatically submitted to the database when cell focus is lost. Cell focus occurs when you press **Enter** or when you tab out of the field. The cell edit will also be submitted to the database if you navigate to another tab within the Oracle Utilities Network Management System environment. Step field edits within the Miscellaneous Log cannot be undone. If you wish to cancel what you are doing in the Comments field, then select the Escape (Esc) button.

Viewing Global Overlaps

The Global Overlaps list allows you to identify overlaps of date/time, control zone and affected devices within a specific time period for all active switching sheets.

To display the Global Overlaps list, choose **Switching Overlaps...** from the **Tools** menu.

The fields, buttons, and options on this tab are nearly identical to the Overlaps tab that is displayed for individual switching sheets. See **Using the Overlaps Tab** on page 9-54 for more information.

Click the Help button (❓) to display help for the Global Overlaps tab.

Web Safety

Web Safety provides *Stand Alone Safety Documents* for recording tagging and grounding operations outside of a switching plan. **Web Safety** is not a substitute for safety documents created in switching plans and, therefore, does not support the use of aggregate actions when recording tag points and grounding actions. **Web Safety** limits device associations to those not involved in *Open* and *Close* operations.

Understanding the Stand Alone Safety Document Window

Stand Alone Safety Documents windows share many features and behaviors of switching sheet windows. Like switching sheets, Stand Alone Safety Documents cannot be moved outside of the confines of the NMS workspace. Stand Alone Switching Document windows open in the lower right quadrant of the workspace, but may be moved anywhere within the workspace or maximized to the full workspace dimensions.

Each open safety document has its own tabbed window, which is labeled with a combination of the safety document type and the number. Multiple safety documents and switching sheets are typically docked together and displayed as a tab group. Double-click any tab (or the empty area to the right of the tabs) to maximize the tab group; double-click again to restore the size.

Right-click a tab to access the options menu, which provides the following:

> **Note:** for simplicity the term *sheet* will be used to mean either a stand alone safety document or switching sheet.

- **Maximize:** maximizes the window.

- **Restore:** restores the maximized window to its original size and position.

- **New Tab Group:** displays the sheet separately.

- **Collapse Tab Groups:** regroups separate windows into tab groups.

- **Windows...:** opens a dialog that lists all open sheets, which you can then:

    - Activate (*i.e.*, bring to front in a tab group) a single sheet.

    - Close selected sheets.

- **Close** (`Ctrl+F4`)**:** closes the sheet.

- **Close All** (`Ctrl+Shift+F4`)**:** closes all open sheets.

- **Close Others:** closes all open sheets except the sheet that was right-clicked.

Menu and Toolbar Features

File Menu

The table below describes the options available on the File menu.

Menu Option	Description	Toolbar Icon
Save (Ctrl+S)	Saves the Safety Document.	💾
Copy As...	Opens the Safety Document Types dialog that allows you to create a new safety document with the current document's data.	--

Menu Option	Description	Toobar Icon
Associate...	Display the Switching Sheet Association dialog. From the dialog you can associate the safety document to a switching sheet. See **Switching Sheet Associations** on page 9-93 for more details. Once the safety document is associated, it is no longer a stand alone safety document and when viewed the document takes on the look of a switching sheet associated safety document.	
Delete	Transition the document to the Deleted state and remove it from any of the safety document lists. This option is only available while the document is in the New state.	--
Print Preview... (**Ctrl+Shift+P**)	Opens the Switching Report Format dialog that allows you to choose the criteria for previewing a safety document report.	
Print (**Ctrl+P**)	Opens the Switching Report Format dialog that allows you to choose the criteria for printing a safety document report.	
Email...	Opens the Switching Report Format dialog that allows you to choose the criteria for emailing a safety document report.	
Exit	Closes the active safety document.	--

Help Menu.

Option	Description	Toolbar Button
Web Safety Help (**F1**)	Opens online help content for safety documents.	--
About Web Safety	Opens a window with environment and software information.	--

Toolbar Buttons

- The ⬤ Recording On /⬤ Recording Off buttons show you the current status of recording and allows you to toggle Control Tool related recording off or on, respectively.

- The **Paste** button (📋) allows you to add a step cut from the Miscellaneous Log or copied from another Safety document. See **Adding Devices to a Non-Execute Safety Document** on page 9-83 for more information.

- The **Place Condition** button (▶) is used to apply conditions when the condition actions were recorded in study mode through the Control Tool.

- The **Issue** button (📗) issues the selected safety document. A record of the transition is added to the Audit Log. Selecting this button will cause the **Unissue** and **Release** buttons to be enabled.

- The **Unissue** button (📋) is used to place an Issued safety document or a Released safety document into an Unissued (edit) state where the device lists can be altered. While in the

Unissued state, you can add devices to the lists and mark devices already in the list for removal. Only when the safety document transitions back to the Issued state will the changes be applied. Selecting this button will cause the **Issue** button to be enabled.

- The **Release** button ( ) releases the selected safety document. This button is only enabled if the safety document has been issued. Selecting this button will cause the **Issue** and **Complete** button to be enabled.

- The **Complete** button ( ) completes the selected safety document.

- The **Abort** button ( ) allows you to set the status of the safety document to Aborted. The system prompts you to confirm the action before aborting. This button is only available in real-time mode and only for safety documents that are in the New state.

- The **Confirm Model Changes** button ( ) becomes available when model changes have occurred that impact one or more devices in the safety document.

  The Web Switching service checks all the active safety documents after a model edit has occurred. If a safety document has a device that matches a device that was directly impacted by a model change, that device will be marked as needing verification. When the safety document is displayed, these devices will be highlighted in yellow. You can either check off each device in the document as they are verified or check off the entire document.

  While the safety document has verifications pending, safety state transitions cannot be performed within the document.

  Individual Verification

  To check off each device individually, right-click the highlighted step and select **Model Verify**.

  Whole Safety Document Verification
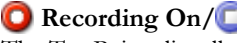
  To check off all of the devices in a sheet, click   to confirm all model changes. All highlighted devices will be marked as verified.

  Once the devices have been verified, safety state transitions can continue for the document.

- The **Reset Study Session** ( ) allows you reset your study session to a copy of either Real Time or Nominal conditions.

- The **Real Time** button ( ) switches the document to real time mode.

- The S**tudy Session** button ( ) switches the document to study mode.

- The **Step Actions** button ( ) toggles the actions view at the bottom of the safety document. The actions are identical to switching steps found in switching sheets. The actions list includes the tag, ground, and safety state transition actions associated to the document.

Safety Document Fields

The Stand Alone Safety Document dialog displays the following fields:

- **Tag Points** display the device(s) that the safety document is associated with.

    - **Table Columns**

        - **Edit State:** an iconic representation of the edited state of the device in the Unissued state. The edits will be applied when the document is issued. When working in Study mode, the edit state indicators will remain visible until the document is issued in real time.

            - ✖ **:** The device has been marked for removal.

            - ➕ **:** The device has been added to the device list and will be used as a boundary point the next time the document is issued.

        - **Device:** the device used to define the area or point of coverage of the safety document.

        - **Phases:** the device phases affected.

    - **Toolbar Buttons**

        - 🔴 **Recording On/**⚪ **Recording Off**: Toggles recording of devices off or on. The Tag Points list allows users to record devices via selections from the viewer. To enable this feature, simply turn on recording and select devices in the viewer.

        - The **Add Device...** button (▦) allows you to manually add a device to the list.

        - The **Undo Device Edit** button (↩) allows you to undo an addition or removal of a device from the list. This option is only available when making device modifications in the Unissued state.

        - The **Remove Device** button (✖) allows you to remove a selected device from the Tag Points device list.

        - The **Change Phases** button (⚡) brings up a Select Phases dialog. From the dialog, new phases for the device can be selected. See **Select Phases Dialog Box** for details.

    - The **Object Focus** button (🔴) focuses the Viewer 1 window on the selected device.

- **Grounds** displays the device(s) that the safety document will protect and validate the grounds on.

    - **Table Columns**

        - **Edit State (untitled):** an iconic representation of the edited state of the device in the Unissued state. The edits will be applied when the document is issued. When working in Study mode, the edit state indicators will remain visible until the document is issued in real time.

            - ✖ **:** The device has been marked for removal.

            - ➕ **:** The device has been added to the device list and will require a ground condition the next time the document is issued.

        - **Device:** the device that should be protected with a ground before the document can be issued.

        - **Phases:** the device phases to be checked.

- **Toolbar Buttons**

  - The **Undo Device Edit** button ( ) allows you to undo an addition or removal of a device from the list. This option is only available when making device modifications in the Unissued state.

  - The **Remove Device** button ( ) allows you to remove a selected device from the Grounds device list.

  - The **Change Phases** button ( ) brings up a Select Phases dialog. From the dialog, new phases for the device can be selected. See **Select Phases Dialog Box** for details.

  - The **Object Focus** button ( ) focuses the Viewer 1 window on the selected device.

- **Other Devices** is a text field that allows you to enter a list of non-modeled devices.

  Note: An entry is required in at least one of these fields: Grounds, Tag Points, or the Other Devices.

- **Feeder** field allows you to enter a feeder value.

- **Device** displays the device being worked on (not necessarily the device being switched). This device is also used to identify what control zone the document is found in. If you do not have authority over the zone the document is associated to the document will not show up in the Open Safety Document list. The following buttons are displayed to the right of the Device field:

  - The **Device Lookup** button ( ) is used to search for and select a device.

  - The **Link Device** button ( ) to link a device selected from the Viewer to this switching sheet. First, click on the device in the Viewer, then click this button. The Device field is populated with the selected device's name.

  - The **Unlink Device** button ( ) clear a linked device from the device field.

  - The **Object Focus** button ( ) focuses the Viewer 1 window on the selected device.

- **Assigned Crews** displays a table list of the Crew IDs of the crews that the safety document has been issued to, as well as each crew's mobile number, pager number, and crew type. A crew is required in this list before the document can be issued.

  - To select a crew to assign to this safety document, click the **Select Crew...** ( ) button to open the Select Safety Crew dialog. See **Assigning Crews to a Safety Document** on page 9-80.

  - To change a crews position, click the **Crew Issued/Clear** ( ) button and select either **Issued** or **Clear** from the options menu.

  - To delete crews from this list, click the crews and then click the **Clear Crew**(s) button ( ). When the document is in the Issued state, all but the last crew can be cleared from the list. At least one crew must remain assigned while the document is in the Issued state.

- **Description** is a text field that allows you to enter notes for the safety document.

- **Audit Log** contains the following information:

  - **Table Fields:**

    - **Date**: the date and time of each entry.

    - **Description:** a description of the state change or device operation.

- **Device:** the device associated with the step.

- **User:** the name of the user who recorded the action.

- **Phases:** the phases affected.

- **Crews**: the crew identifiers pertaining to the audit log entry.

- The **Comment** section of the Audit Log panel allows you to add a comment to the log.

- The **Edit Log** tracks the changes made to the entry fields of the document. It contains the following information:

  - **Date:** the date and time of each entry.

  - **User:** the name of the user who recorded the action.

  - **State:** the state of the safety document when the entry was added.

  - **Field:** The name of the field that was updated.

  - **Previous Value:** The previous value of the field before the update.

- The **Steps** section contains all of the step actions associated with the safety document.

Creating New Stand Alone Safety Documents

From the Web Workspace

To create a new Stand Alone Safety Document from the Web Workspace, from the **File** menu, select **New**, and then select **Safety Document...** The *New Safety Document* window will open.

Note: you may click the toolbar button ( ) rather than the File menu.

From the New Safety Document window, you may create a safety document based on a blank template or from a pre-existing safety document.

Create a New Blank Safety Document

To create a blank safety document from the New Safety Document dialog, do the following:

1. Select a safety document type from the Safety Document Type list.
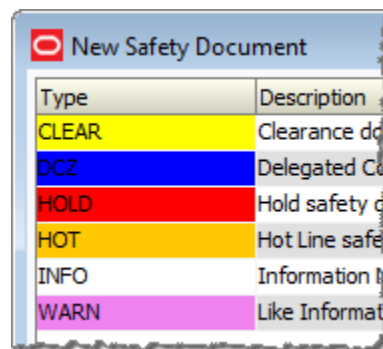
2. Click **Create**; the new safety document will open.

   Note: you may create a blank safety document from the Control Tool's **Safety Document(s)...** button. See **Create a New Safety Document from the Control Tool** on page 9-103.

Create a New Safety Document with Existing Safety Document Data

You may want to create a new safety document with data from an existing safety document; for example, creating multiple safety documents types to be used in a multistep switching operation.

1. Select a safety document type from the Safety Document Type table.

2. From the Pre-Created Safety Documents table, select an existing safety document that has the data you need for the new document.

3. Click **Create a Copy**; the new safety document will open and be populated with device data from the pre-created safety document. The Create a Copy button will only be visible after you have selected a safety document type and a safety document within the pre-created safety document list.

Create a New Safety Document from the Control Tool

To create a new Stand Alone Safety Document from the Control Tool, do the following:

1. Open the Control Tool for the device to be associated with a new safety document.

2. Click the **Safety Document(s)...** button and then select the option to create the new safety document type:

   - Create HOLD Document

   - Create HOT Document

   - Create Clearance Document

   - Create Information Document

   - Create Warning Document

   - Create Delegated Control Document

A new safety document will be created with the Tag Points list automatically populated with the originating device's id and full set of phases.

Using Stand Alone Safety Documents

Record Tag Operations

1. Create a new stand-alone safety document. The new document will open in Real-Time mode with Control Tool action and viewer device selection recording on.

2. Turn Tag Points viewer device selection recording off.

3. Double-click a device in the Viewer to launch its Control Tool.

4. Click **Tag...** and choose a place tag operation associated to that document type.

   For example, select **Place HOLD Tag** for a HOLD document.

   The device are displayed in the Tag Points list.

5. Click the **Step Actions** toggle button (▤) and note that the operations are recorded there as well. This is the source list and this list feeds the Device and Ground lists found on the document's main form.

Record Ground Operations

1. Create a stand-alone safety document.

2. Turn Tag Points viewer device selection recording off.

3. In real-time mode, with Control Tool action recording on, select a device in the Viewer and Place Tag operation associated to that document type. For example, select a **Place HOLD** for a HOLD document. The device are displayed in the Tag Points list.

4. Similarly, record a Grounding operation. The device used to place the ground is displayed in the Grounds list.

5. Click the **Step Actions** toggle button () and note that the operations are recorded there as well. This is the source list and this list feeds the Device and Ground lists found on the document's main form.

Remove a Device from a Safety Document

1. Create a stand-alone safety document.

2. Record tagging and grounding operations in real-time.

3. Select one of the devices in the Tag Points list and click to remove the device.

    Note: the *Remove* option is only available when the document is in the New or Unissued state.

4. Open the Miscellaneous Log and note that it now lists the Place Tag operation step that was removed from the safety document.

Issuing, Releasing, and Completing a Safety Document

1. Create a stand-alone safety document.

2. Record some tagging and grounding operations in Real Time.

3. From the document, assign a crew to the document.

4. Issue the document.   The conditions on the viewer will change to indicate that they are under the control of a safety document. This is indicated by displaying an asterisk within the viewer symbol. The status of the document is updated in the status bar, which is found at the bottom of the document. An audit log entry is created for the state transition.

5. Release the document. The conditions on the viewer will change to indicate that they are no longer under the control of the safety document. The status of the document is updated in the status bar, which is found at the bottom of the document. An audit log entry is created for the state transition.

6. From the viewer, remove the tagging and grounding operations while record is active in the safety document. The actions are recorded in the Audit Log of the safety document.

7. Complete the document. The safety document status is updated and unlocked and placed into View Only mode. All the toolbar options are desensitized except for the Copy As..., Print, Email, Help, Exit, and Focus options.

Loading a Safety Document

1. From the Open Safety Document list, load a safety document not associated to a switching sheet. The document should be loaded into the workspace editor.

Deleting a Safety Document

1. Create a stand-alone safety document.

2. From the document's File menu, select **Delete**. The document will be marked as Deleted and will no longer show up in the Safety Document List. Safety documents can only be deleted when no Real Time tags or Grounds are associated and listed in the Tag Points and Grounds list.

Copying a Safety Document

1. From the New Safety Document dialog, refresh the pre-created safety document list.

2. Select a pre-created safety document and a target document type.

3. Click **Create a Copy**. A new safety document is created. This new document will have the same list of devices as the original document. The Audit Log of the new document will have one entry describing when the document was created.

Create a Safety Document in Study Mode

1. From the New Safety Document dialog, select a safety document type and click **Create**. The new document is created and by default goes into Real-Time mode.

2. Click ![icon] .

3. Verify that Control Tool action recording is on and Viewer device selection recording is off.

4. Open the Viewer in Study Mode.

5. Add appropriate tags and grounds to devices. As the actions are recorded by the safety document, the devices show up in the Tag Points and Grounds lists.

6. Once all of the tags and grounds have been applied, issue the safety document and release it to test it in Study mode.

7. Reset the study session from the safety document.

8. Select the Tag Points and place the tag points in the model. This can be done by selecting the device and clicking the **Place Condition** button (![icon]).

9. Select the Grounds and place the grounds to the model. This can be done by selecting the device and clicking the **Place Condition** button (![icon]).

10. Click the **Focus** button (![icon]). The Viewer will display the appropriate conditions on the devices.

11. Issue the safety document. The conditions displayed in the Viewer will change to indicate that they are under the control of a safety document. This is indicated by displaying an asterisk within the Viewer symbol. The status of the document is updated in the status bar, which is found at the bottom of the document.

Associate an Existing Place Tag Action to a Safety Document

1. With no switching sheet or safety document in record mode, find a device that can have a HOLD condition.

2. Double-click the device to launch the Control Tool.

3. Select **Place Hold Tag** from the **Tag...** menu's **Hold Tags** sub-menu. A Hold Tag step is recorded into the Miscellaneous Log.

4. Create a HOLD safety document.

5. Load the Miscellaneous Log and refresh the list so that the Place Hold Tag step is displayed.

6. Select the Place Hold Tag step. Click the **Cut Step** button ( ) to cut the step.

7. Go back to the newly created Hold Safety document and click the Paste button ( ). The device associated to the Place Hold Tag step is displayed in the safety document's Tag Points list. The safety document can now be issued.

   Note: If you attempt to add a step action association that is not valid for the safety document type, an error message will be displayed. For example, you would get an error if you attempted to add a step action for a Place Hold Tag into a Clearance document.

Chapter 10

Power Flow, Suggested Switching, Volt/VAr Optimization, and Conservation Voltage Reduction

This chapter covers the following topics:

- **Using Power Flow**

- **Using Suggested Switching**

- **Using the Suggested Switching Solutions Tool**

- **Using Volt/VAr Optimization**

- **Using Conservation Voltage Reduction**

Using Power Flow

Oracle Utilities Network Management System Power Flow enables engineering analysis of the electrical distribution system for use in the operations and control center rather than for design or planning purposes. They assess the equipment loading and feeder voltage profiles for selected portions of the electrical network, and provide overload, fault, and voltage violation information for review.

Power Flow functionality allows you to view the results of the power flow solution, enter and evaluate solution options, and modify execution parameters.

> **Note:** Power Flow solutions may be returned as 'Inconclusive' when there are errors in the data model. That section of the network is disabled for Power Flow solutions until the island is re-enabled manually or the model is updated. See **Chapter 11**, **Feeder Load Management** for more information on feeder status and re-enabling a non-converged island.

This section includes the following topics:

- **Viewer Power Flow Information Visualization**

- **Real-Time Power Flow Updates**

- **Viewing Power Flow Results in Real Time**

- **Power Flow Real-Time Options**

- **Viewing Power Flow Results in Study Mode**

- **Using Power Flow with Look Ahead**

- **Power Flow Solutions Details for Administrative Users**

Viewer Power Flow Information Visualization

In addition to the standard feeder and phase views, the Viewer provides options for visualizing the power flow information. The Viewer Legend, which is opened from the Help menu, displays legend information based on the current view.

.
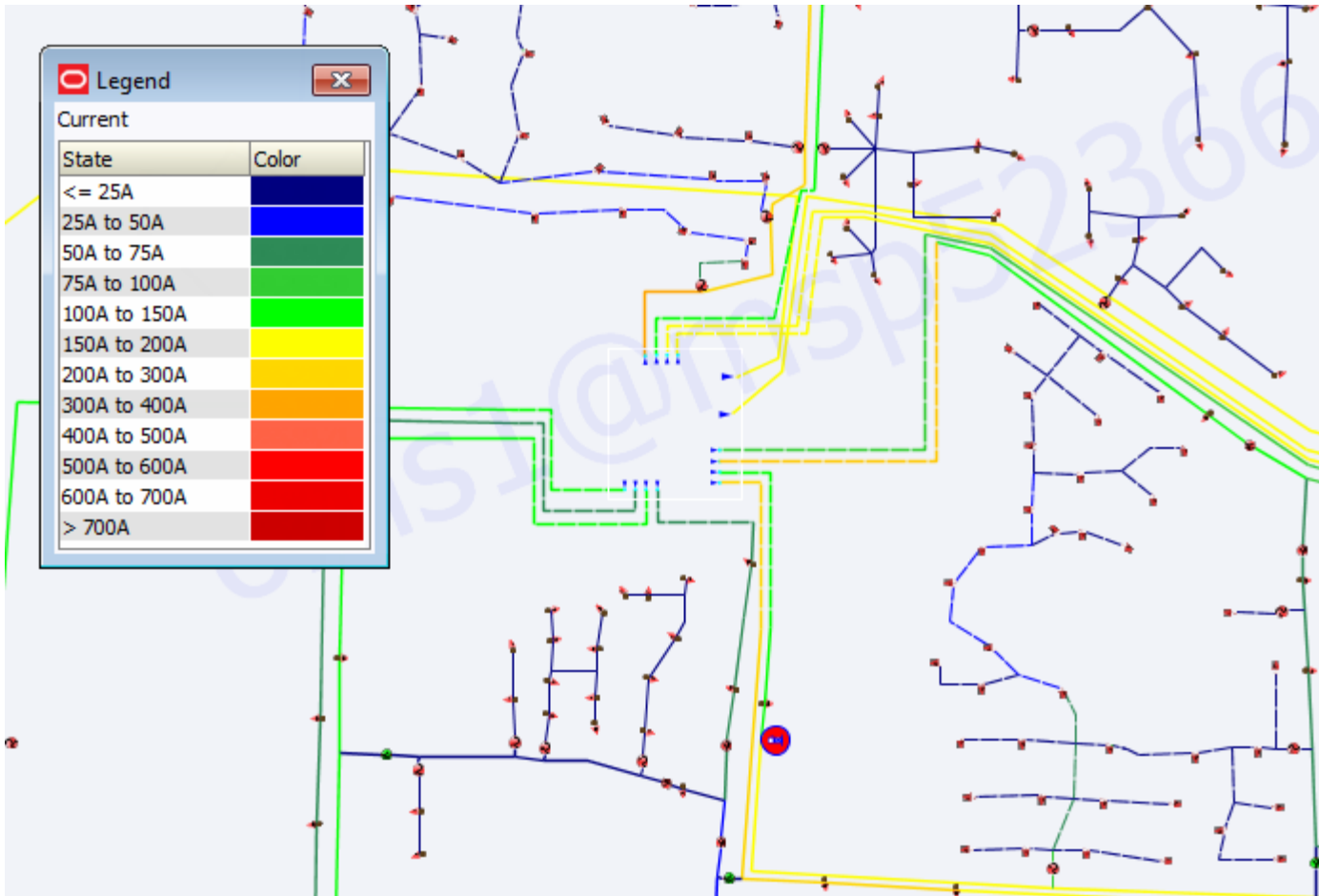
Currents: the current range
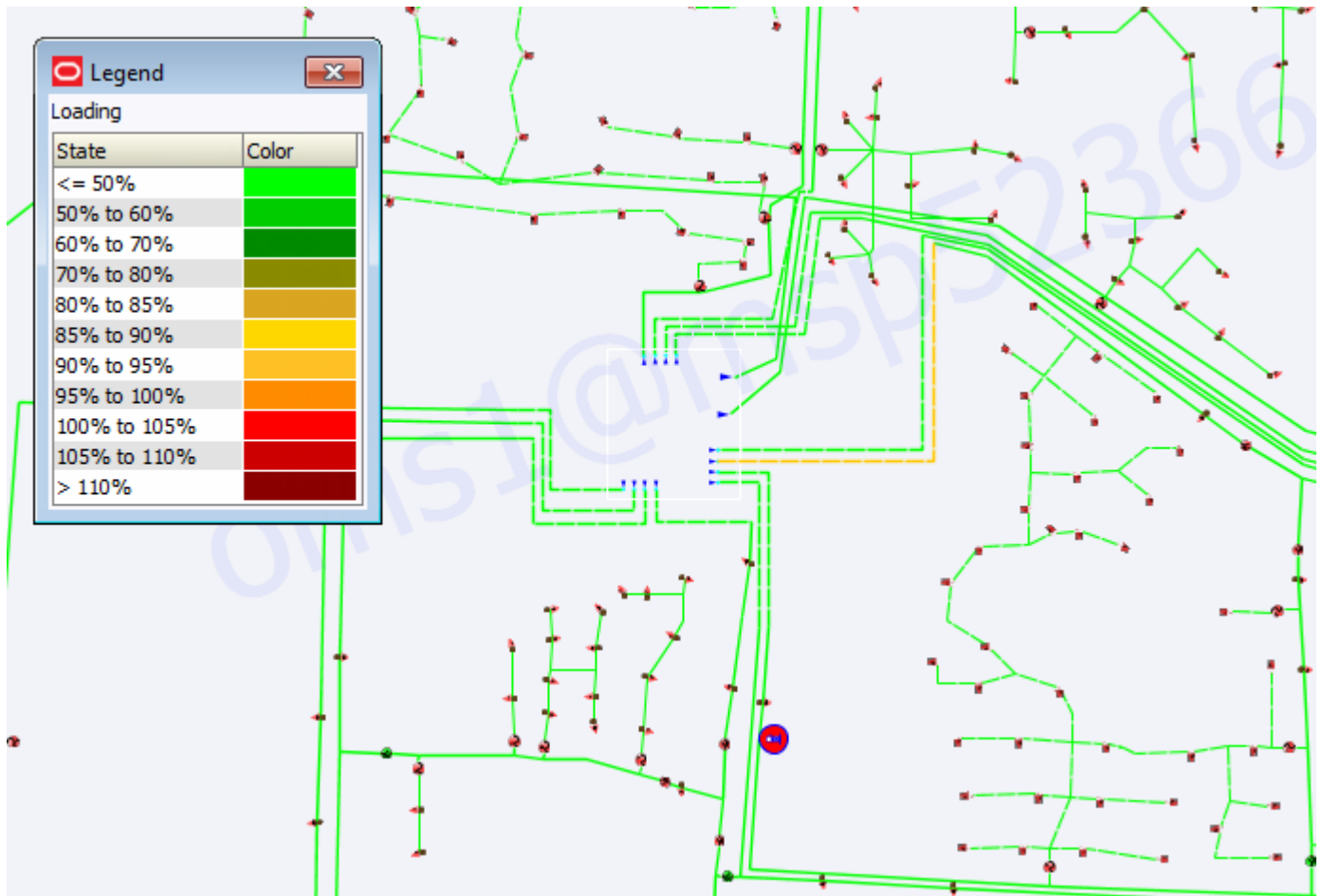
Loading: the per unit current range.
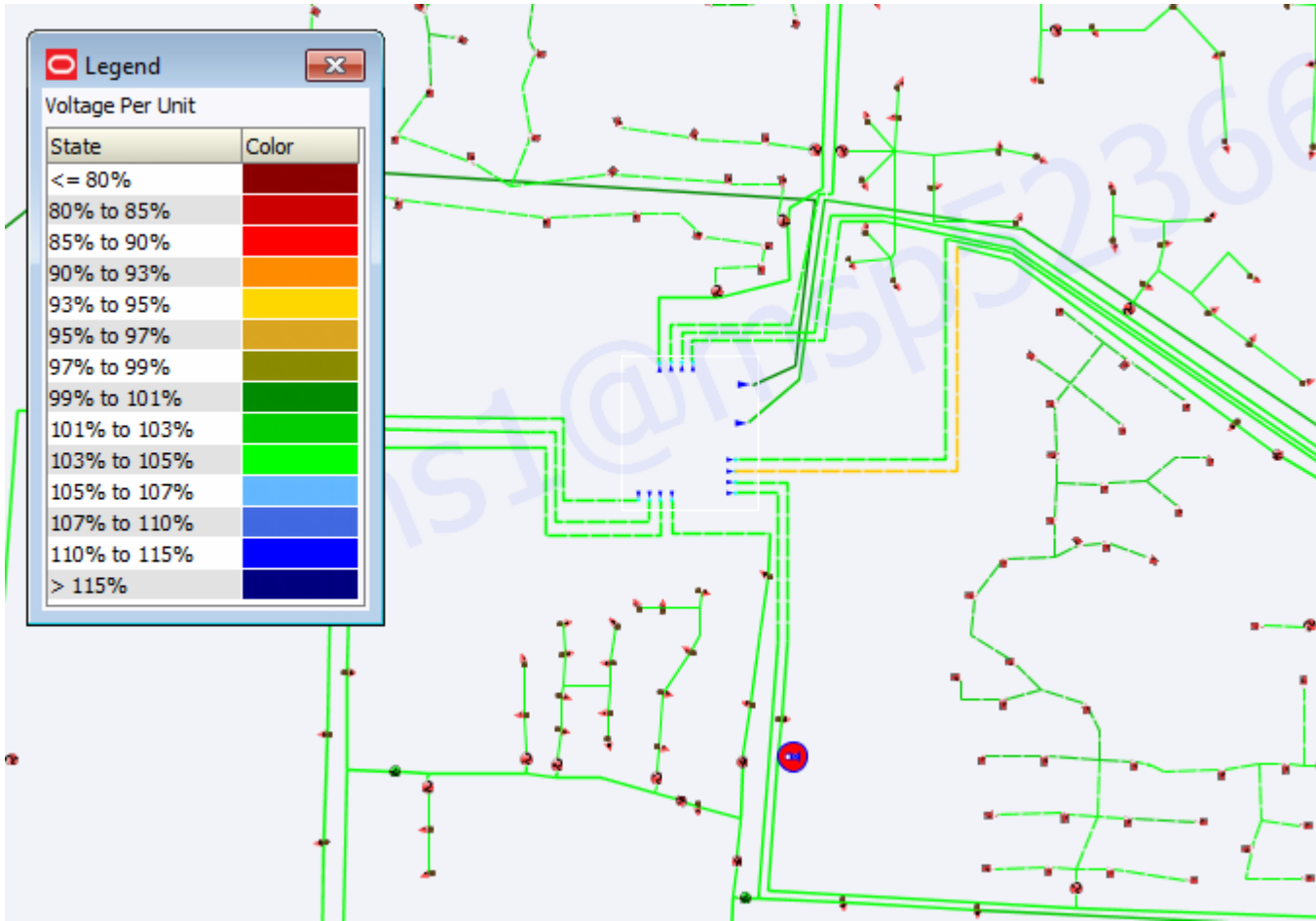
Voltage Per Unit: the per unit voltage range.
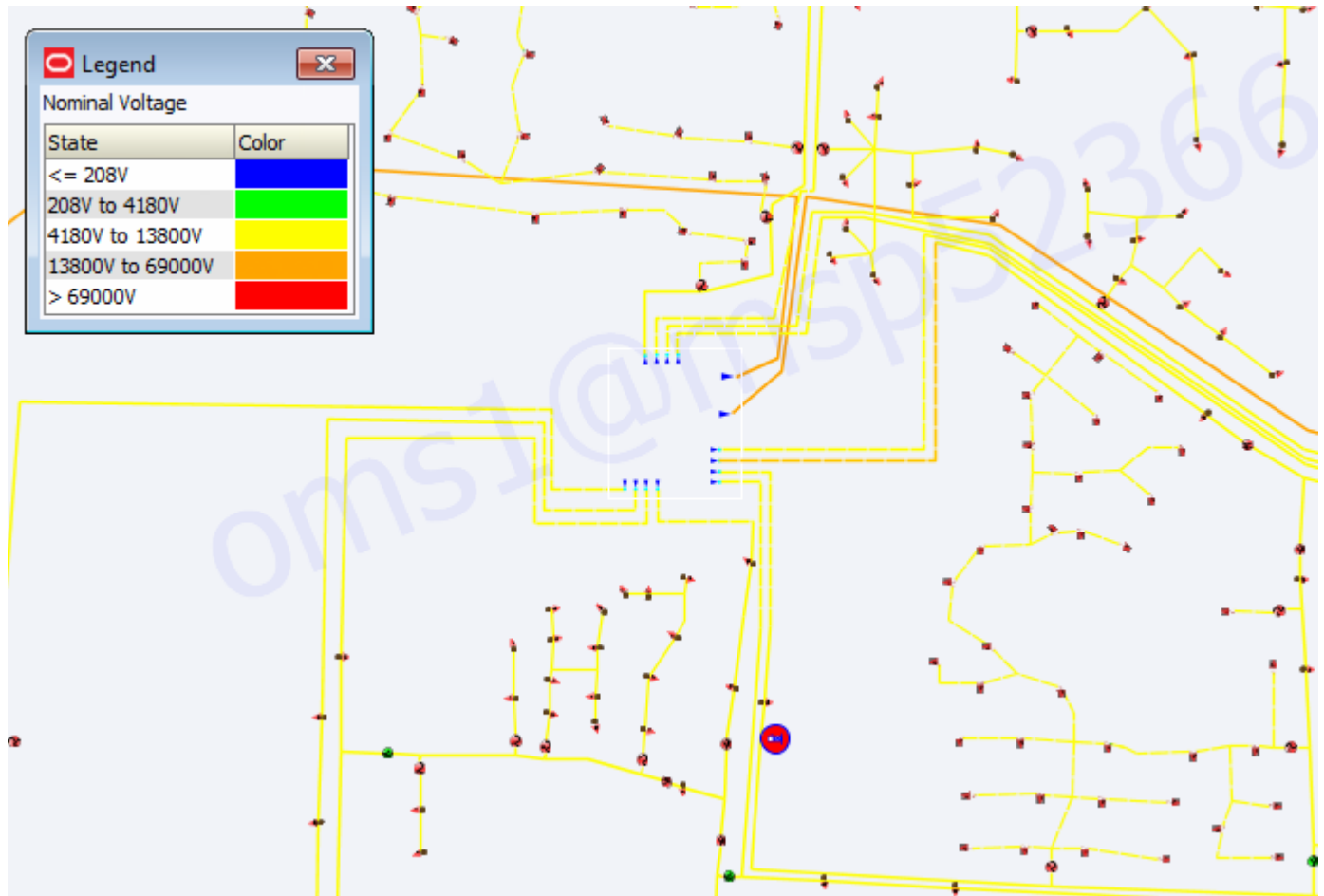
Nominal Voltages: the nominal voltage range.
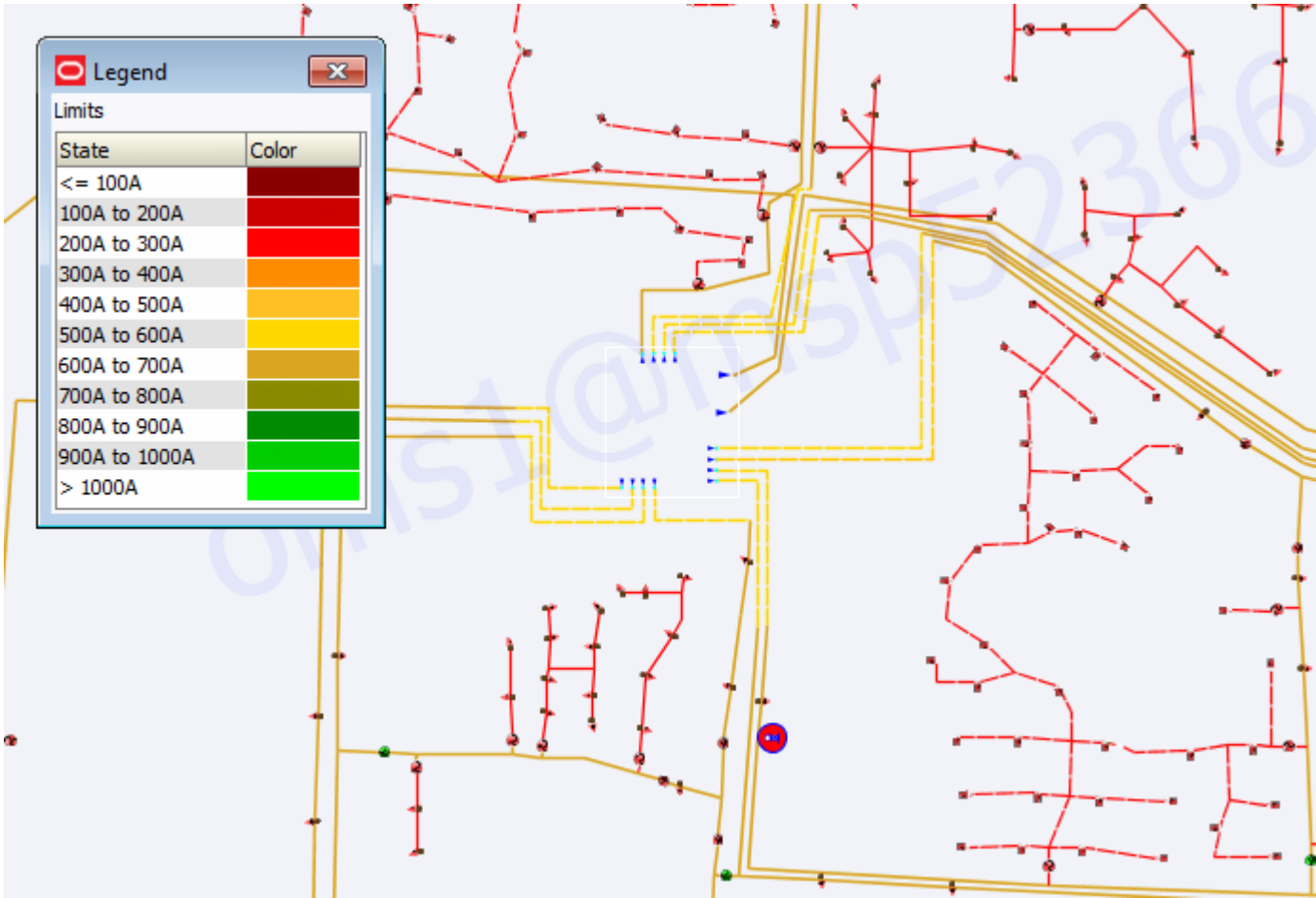
Limits: conductor Amp limits.

Flow Direction

The Viewer will render any of the view options with flow direction by selecting Show Flow Direction from the **Options** menu (Shift-F). The example below shows Feeder with flow direction enabled..

Disconnected Distributed Energy Resources

When a feeder is de-energized, any connected DERs are required to comply with IEEE-1547 disconnect rules. If the DER is not capable of operating in island mode, it must, for safety reasons, disconnect and stay off-line until voltage and frequency have been restored. This behavior is modeled in the Power Flow applications so that correct voltage and load can be determined.

When a DER unit is in this disconnected state, a condition is applied to the device to alert operators that the condition is temporary.
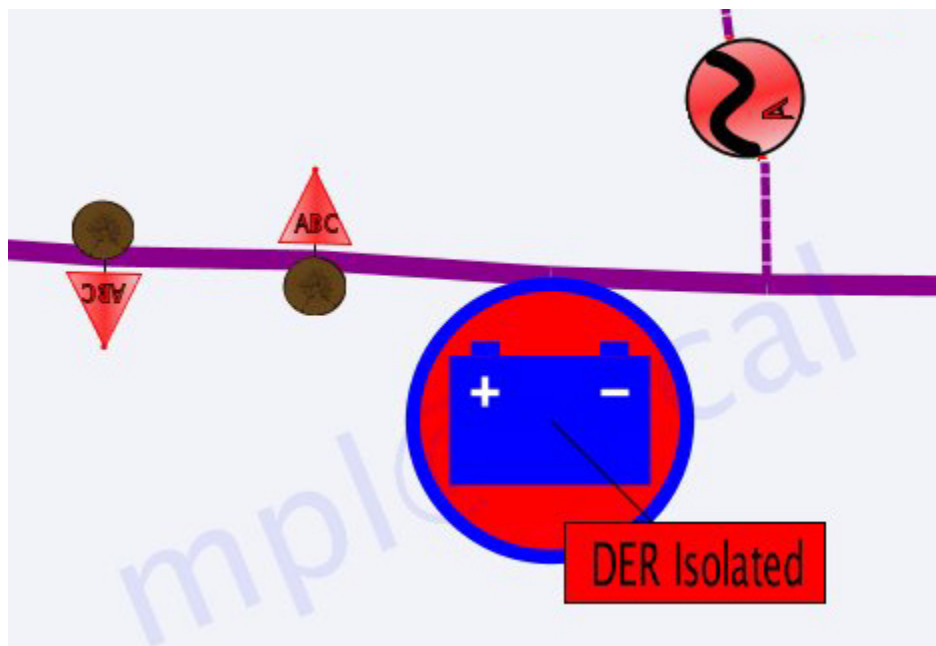
Real-Time Power Flow Updates

When a switching operation occurs in the system, it may take a few seconds before analog SCADA measurements update to reflect the new configuration. For this reason, the real-time power flow will not update instantaneously after a topology change, but will wait a configured number of seconds (the default is 30) before a resolve is triggered. By then, it is assumed that the system measurements are again stable. Clicking on the power flow results during the delay will result in a Power Flow Results Pending message being displayed.

> **Note**: The delay period is set in the SCADA_DELAY_TIME rule. Administrative users can view or change this setting on the Configuration Assistant **Using the Event Management Rules Tab**, in the Power Flow Related Rules category and Feeder Load Management subcategory.
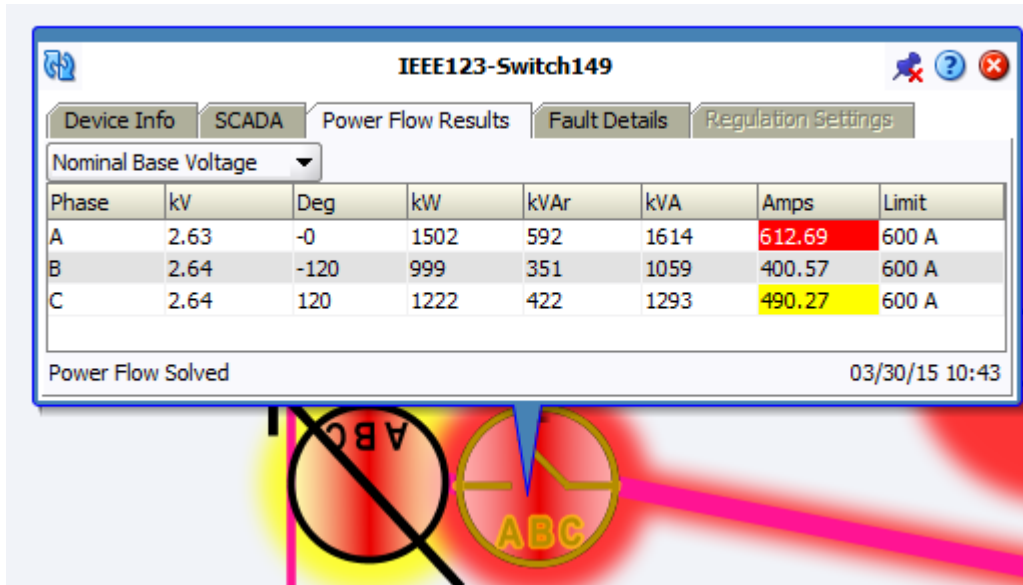
Viewing Power Flow Results in Real Time

The Viewer's Device Details functionality (see **Displaying Device Details** on page 1-43) displays power flow calculation information. As each object is selected in the Viewer, the Power Flow Results information updates with the calculated feeder voltages and equipment flows for the selected object. In real-time mode, Power Flow is working all the time, recalculating results dynamically. Device Details shows results from the latest calculations.

To view the Power Flow results for a device in real-time, follow these steps:

1. Start the Viewer. If the Viewer is in Study Mode, click the real-time ( ) button to set the Mode to Real-Time.

2. Click the balloon button ( ) to enable Device Details.

3. Click the device.

    The latest results are displayed on the Power Flow Results tab.

.

> **Note**: To view the parameters used in Power Flow Calculations, click the
> Viewer toolbar button or select **Power Flow Options...** from the Viewer
> **Options** menu. See **Power Flow Real-Time Options** on page 10-9.

Power Flow Status Messages

Power Flow status messages are provided to better alert you of the quality of the power flow solution being generated. They are displayed at the bottom of the Power Flow Results tab along with the date and time of the latest result.

Status messages for the NMS product configuration:

- **Power Flow Solution Pending** indicates that the power flow solutions are currently paused due to recent system topology changes and results will not be available until the configured delay has ended.

- **Power Flow Solved** indicates that the power flow calculations have completed successfully and the results are valid.

- **Inconclusive Power Flow Solution** indicates that Power Flow cannot find a stable solution since each iteration of the power flow algorithm yields a changing result.

- **Power Flow Not Solved - Suspect SCADA data** indicates that power flow solution failed to solve successfully due to SCADA data irregularities. See **Chapter 11**, **Feeder Load Management** for details on identifying SCADA data irregularities.

- **Power Flow Not Solved - Data Model Error** indicates there is an issue with some part of the data model that will not allow a reasonable solution to the power flow calculation.

- **De-energized Device** indicates the selected device is deenergized so there is no solution.

Understanding the Power Flow Results Data Table

The Device Details Power Flow Results displays power flow solutions in a tabular format. The date and time the last power flow solution was requested for the selected device appears in the bottom right corner of the balloon dialog.

- The **Voltage Display Type** used in the power flow calculation is displayed. You can change this to any of the following:

  - Secondary Base Voltage

  - Nominal Base Voltage

  - Voltage Percent

- The **Phase** column displays the device phase.

- The **kV** column contains calculated voltage in the units selected above.

- The **kW** column contains the calculated voltage in the units selected above.

- The **kVAr** column contains the phase reactive power flow.

- The **Amps** column contains the phase current.

- The **Limit** column contains the phase limit in either Amps, kVAR, or kVA depending on the device type:

  - Lines, Switches (Amps)

  - Capacitors (kVAr)

  - Transformers, Distributed Generation Devices, Loads (kVA)

    Notes:

    - In Study Mode, the Power Flow Results tab also displays a **Refresh** button. Clicking this button displays the Study Session Parameters window so you can change the Power Flow Options**.**

Data Indicators

Voltage and current violations are highlighted in red. Voltage and current warnings are highlighted in yellow. Amps for backfeeds are highlighted gray.

Power Flow Real-Time Options

To view the parameters used in Power Flow Calculations, click the 🟢 **Power Flow Options** button, which is available from the Viewer or the Feeder Load Management Tool.
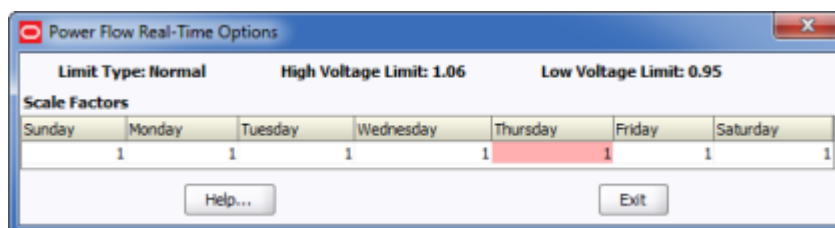
The Power Flow Real-Time Options dialog displays the limit type (emergency or normal) and the high and low limit values. It also displays the load scale factor values for each day. The current day's scale factor displays with a highlighted (pink) background. Non-administrative user types can view, but not edit, the options on this window; click **Exit** to close the window.

Administrative User: Full Resolve

Administrative Users can change the load scale factors, save their changes, and then start a full Feeder Load Management resolve by clicking **Full Resolve**. If you have unsaved changes, the system will prompt you to save. The resolve starts immediately and the window closes.
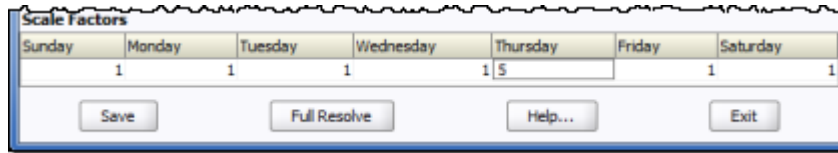
Viewing Power Flow Results in Study Mode

Power Flow results are calculated each time you display the Device Details Power Flow Results. To view Power Flow results for a device in study mode, follow these steps:

1. Start the Viewer and enable Device Details.

2. Set the Viewer to Study Mode. (When you change to Study Mode, the system prompts you to set the Study Session Parameters, as described in the next section.)

3. Select the device for which you want to view Power Flow results. (Click the left mouse button to select.) The Device Details dialog appears.

4. Click the Power Flow Results tab. The Power Flow Results tab is populated with the calculated results.

5. Click the button o view or modify the Study Session Parameters.

Understanding the Power Flow Study Mode Load Scenario

The **Power Flow Study Mode Load Scenario** tool allows you to set the parameters for network conditions that the power flow calculations will be based upon.

Load Profile

Allows you to setup the load and generation profile curves to be used for the study session. The **Real-Time** option will utilize the current (real-time) loading and generation values; the **Specific Period** option allows you to define a unique combination of load and generation profiles for a particular hour of the day.

For the **Specific Period** option, the following information is used:

- **Hour** is the hour to use for calculating results (0-23, Daily Peak).

- **Day** is the type of day, which is typically either Weekend, Work Day, or Seasonal Peak.

Additional options will allow you to select generation schedules for various distributed generation units based on the fuel that supplies the unit. The product configuration has the following options:

- **Wind** - select how much wind would be present (*e.g.*, No Wind, Windy).

- **PV (photovoltaic)** - select the amount of cloud cover (*e.g.*, Clear, Mostly Clear, Partly Cloudy, Mostly Cloudy, Cloudy)

- **Battery** - select the profile for battery charge/discharge cycles (*e.g.*, On, Off).

- **Fuel** - select the profile for fossil fuel based units (*e.g.*, 25%, 50%, 75%, 100%).

Scaling Factor

The Scaling Factor is a number that modifies the scenario.

Cold Load Pickup

Allows you to determine if deenergized loads should be treated as Cold Loads.

Limits

- **Limit Type** is either Normal or Emergency.

- **Season** is the simulation season (*i.e.*, Summer, Fall, Winter, or Spring).

- **High Voltage Limit** is the high voltage to use for reporting limit violations.

- **Low Voltage Limit** is the low voltage limit to use.

To request a Power Flow solution using the values entered on this window, click **OK**. When the system is finished calculating the results, the Power Flow Study Mode Load Scenario window is closed and the results are displayed in the Power Flow Results tab on the balloon details dialog.

> **Note:** Values are not saved when you apply them. The next time you open this dialog, the last saved values (rather than the last applied values) will be displayed. If no values were previously saved, real-time values will be used.

- To reset to real-time values, click **Reset to Defaults**. If you want to request a solution for the default values, click **OK**.

- To close the dialog without any action, click **Cancel**.

Using Power Flow with Look Ahead

During switching operations, the Look Ahead window allows you to preview the results of switching actions before you perform them. Look Ahead displays information including customers dropped/picked up, critical customers dropped/picked up, and load kVA.

With Power Flow Extensions, the Look Ahead window also includes information about the power flow solution, including the voltage, angle, and current changes that will result from a switching operation. The number of voltage and conductor violations is displayed at the top of the Look Ahead panel.

When you select an operation from the Control Tool, you can click the **Run Power Flow** button on the Look Ahead window to see what the effect would be if you completed the operation. The results are displayed at the top of the Look Ahead window and any violations resulting from the action are displayed in the **Violations Tab** tab. For information about the Look Ahead window, see **Using the Look Ahead Dialog** on page 1-90.

Power Flow Solutions Details for Administrative Users

Power Flow solutions details feature allows administrative users to request and review power flow solution details to identify areas of the model with data problems.

The solution details page is available from Power Flow Results tab of the Viewer's Device Details and from Feeder Load Overview table of Feeder Load Management tool.

Viewing Power Flow Solution Details from the Viewer:

1. Start the Viewer.

2. Click to enable Device Details.

3. Click the device.

4. Click the Power Flow Results tab, if not active.

   The Power Flow Results tab is populated with the calculated results.

5. Click to open Power Flow Solution Details.

Viewing Power Flow Solution Details from the Feeder Load Management Tool:

1. Open Feeder Load Management.

2. Select a row in the Feeder Load Overview table.

3. Select Power Flow Solutions Details from the Actions menu, or the right-click option menu, to open Power Flow Solution Details.

Using Power Flow Solution Details Window

The solution page includes:

- Title with load scenario, time for the solution, and starting device when the request was sent from the Viewer or starting feeder when the request was sent from FLM. The title also includes the solution status device when the request was sent from the Viewer.

- SCADA re-distributions descriptions.

- Power Flow Service iteration descriptions for each SCADA iteration with a list of shunts with step changes and a list of distributed generators with output changes. If at least one of the lists is not empty, the Power Flow Service iteration will be displayed as a hyperlink to the iteration details page.

- Hyperlinks to the Unbalanced Power Flow iterations for each PFService iteration with lists of devices with largest voltage mismatches (up to 10 devices) and lists of transformers with tap moves. Click an iteration link to navigate to the iteration page.

- All devices are displayed as hyperlinks, which focus the Viewer on the device.

- All iterations are listed in reverse chronological order, with the most recent at the top.

Click the **Back** button to navigate back to the summary page.

Using Suggested Switching

Oracle Utilities Network Management System Suggested Switching helps you generate switching steps for two fundamental types of scenarios:

- **Deenergizing and isolating an energized device.**

  Suggested Switching produces steps to isolate and deenergize devices while minimizing the amount of resulting dropped load.

- **Restoring power to a deenergized device.**

  Suggested Switching produces restoration steps by solving the power flow for each eligible tie point with adjacent feeders, in order to determine the remaining feeder capacity and the overloads after the deenergized section is picked up.

Suggested Switching Scenarios

- **Isolate Only**: A fault has occurred on a device or emergency maintenance is needed on a device. Suggested Switching can be used to generate the optimal switching steps to completely isolate the device from the system and evaluate the loads to be lost if no further restoration actions are implemented.

- **Isolate and Restore**: Suggested switching can be used to isolate a device from the system and restore downstream sections. If the selected device is already de-energized then upstream sections may also be restored.

- **Load Restore**: A deenergized area caused by planned or actual outages must be restored. Suggested Switching can be used to generate recommended switching plans to try to restore the loads as much as possible, and operate switches as little as possible.

- **Feeder Unloading**: A feeder is highly over-loaded, and some of its loading must be transferred to neighboring feeders or sources to avoid equipment damage or low voltages on the feeder. Based on system topology configurations, Suggested Switching will determine the optimal switching plans to transfer the required amount of loads from the specified feeder.

- **Substation Switching**

  - **Breakers**: One or more substation breakers need to be taken out of service for maintenance, so the feeders supplied from these breakers must be fed from alternate sources. Suggested Switching will create a plan whereby these breakers can be opened and the load on the feeders can be transferred to alternate supplies.

  - **Bus Section**: One of the bus sections needs to be taken out of service for maintenance, so all feeders fed from that bus section must be transferred to adjacent bus sections or substations. Suggested Switching can be used to identify which feeders should be transferred and recommend optimal plans to restore the supplied loads.

  - **Power Transformer**: A substation has two parallel power transformers, and one transformer needs to be taken out of service. Suggested Switching can be used to generate optimal switching plans to maximally transfer all existing feeders supplied by the transformer to adjacent power transformers or adjacent substations.

Using the Suggested Switching Tool

You can use the Suggested Switching tool to generate a set of steps that can be inserted into a new switching sheet or appended to an existing switching sheet.

Appending Steps to an Existing Switching Sheet

If you want to add steps to an existing sheet, do the following before you run the Suggested Switching tool:

1. Start Web Switching Management.

2. Create or select a planned switching sheet to append the optimization plan steps.

3. Click the **Record** button to enable recording. (This is required in order for optimization steps to be appended from the wizard.)

Selecting Devices

1. Select one or more devices in the Viewer, based on the switching scenario you want to perform:

   - **Isolate Only** - Select a single or multiple energized or de-energized devices. Optimum performance with multiple devices occurs if the devices are near each in the model.

   - **Isolate and Restore** - Select a single or multiple energized or de-energized devices. Optimum performance with multiple devices occurs if the devices are near each in the model.

   - **Restore** - Select a single de-energized device.

   - **Feeder Unloading** - Select one or more devices that identify a single feeder.

   - **Substation Switching** - Select one or more devices of the correct type, such as power transformers or breakers.

     Note: To select more than one device, press the CTRL key while clicking the devices in the Viewer.

Starting the Suggested Switching Tool

The Suggested Switching tool uses a wizard approach that steps you through a series of pages to gather input, generate plan options, and, finally, provide the results of the chosen plan for use in a new or existing switching sheet. To start the Suggested Switching wizard:

1. With the device(s) selected, select **Suggested Switching...** from the Viewer **DMS** menu.

Understanding the Suggested Switching Tool Window

The Suggested Switching window is divided into three areas:

1. **The Context Panel (left)**: shows the steps in the wizard. Completed steps are shown in normal text, the current step is bolded, and the remaining steps are grayed out.

2. **The Main Panel (right)**: provides the user options or results of wizard.

3. **The Button Panel (lower):** contains the following buttons:

   - **< Back:** Moves the wizard back to the previous page.

   - **Next >:** Moves the wizard to the next page, as listed in the context panel on the left side of the window.

   - **Cancel:** closes the Suggested Switching wizard. (Note that any selections or changes made to parameters on any of the pages will be lost.)

   - **Help...:** Opens the online help system to the Suggested Switching tool help content.

Selecting a Plan Type

Plan Type is the first page of the Suggested Switching wizard. It allows you to select the type of suggested switching operation to perform and whether only SCADA devices should be used in the plan.

1. **Only use SCADA devices**: select to constrain Suggested Switching to only consider SCADA operable devices for the switching plans. This allows you to create plans that can be operated from the Control Room without sending a crew to the field.

2. Select a Plan Type

> **Note:** once a Plan Type is selected, the context panel will be updated to list the applicable pages in the wizard.

Plan Type	Description	Pages in Wizard
Isolate Only	Isolate the selected device(s).	Plan Type Plans Summary
Isolate and Restore	Isolate the selected device(s) and try to restore as many downstream sections as possible.	Plan Type Load Scenario Constraints Feeders Plans Summary
Restore	Restore the selected deenergized device(s).	Plan Type Load Scenario Constraints Feeders Plans Summary
Feeder Unloading	Transfer load from a single feeder containing the selected devices.	Plan Type Unload Feeder Load Scenario Constraints Feeders Plans Summary
Substation Switching	Isolate one or more substation devices.	Plan Type Load Scenario Constraints Feeders Plans Summary

> **Note:** The Plan Types options will be desensitized if they are not valid for the selected device(s).

3. Click **Next** to proceed to the next step in the wizard.

Unload Feeder

The Unload Feeder page allows you to modify values for load to transfer from the feeder to adjacent feeders for each phase. The Unload Feeder page is **only** available when the Feeder Unloading plan type is selected.

1. Enter the load capacity in amps for A phase, if applicable.

2. Enter the available load capacity in amps for B phase, if applicable.

3. Enter the available load capacity in amps for C phase, if applicable.

4. Click **Next** to proceed.

Load Scenario

The Load Scenario page is used to verify or modify the power flow load and limits scenario, which will be used to determine the best plan options. When the window opens, the default values for load profile, scaling factor, and limits are visible in read-only mode; to change the scenario, click the **Modify** button to open the **Power Flow Study Mode Load Scenario** dialog box (see **Understanding the Power Flow Study Mode Load Scenario** on page 10-11 for details).

Once you have viewed and modified (as necessary) the load scenario, click **Next** to proceed to the Constraints page.

Constraints

Constraints determine acceptable system conditions for the suggested switching results. The Constraints page has three sections:

- **Constraints:** The Constraints section provides limits on the number of solutions and maximum search time for the scenarios.

- **Variations:** The Variations section provides variations in the solution methods.

- **Objective Weights:** The Objective Weights section ranks the importance of constraints on the solutions. **Relative Weight** field values are positive numbers; larger numbers are higher ranked and, therefore, have more weight when finding solutions.

1. (Optional) **Modify the Constraints Fields**

    - **Maximum Number of Plans:** sets the maximum number of solutions to generate.

    - **Number of Steps in Plan:** sets the maximum number of steps for an acceptable plan.

    - **Maximum Time to Search:** sets the maximum time that the system may search for solutions.

2. (Optional) **Modify the Variations**

    - **Minimize impacted area with non-load break switches** will cause Suggested Switching to include non-load devices in the plan. Intermediate steps will be added to first de-energize the non-load device for operation, and then subsequently reverse the intermediate steps.

    - **Shed Load to achieve objectives** will cause Suggested Switching to consider scenarios where load can be dropped to prevent overloads from occurring. Both of these options can considerably extend the time taken for Suggested Switching to find plans and should really be used in non suitable primary plans are found.

    - **Disconnect DG (IEEE-1547 rules)** will cause Suggested Switching to emulate DER disconnections during recent re-energization events. Therefore, in Restore scenarios, DER devices will be disconnected for the purpose of evaluating load.

    - **Cold Load Pickup** will cause Suggested Switching to increase the load in de-energized areas for Restore scenarios. The amount of increase is determined by the **Cold Load Pickup Percent** rule available in the Configuration Assistant.

3.   (Optional) **Modify the Objective Weights**

   •   **Critical Customers Impacted** will sort the plans by the number of critical customers impacted by the plan

   •   **Customers Impacted** will sort the plans by the number of customers impacted by the plan.

   •   **Minimum Feeder Voltage** will try to avoid low voltages at any point on the feeder

   •   **Average Feeder Voltage** will try to avoid low average voltages on a feeder

   •   **Distance to Feeder Head** will try to minimize the distance along neighboring feeders of tie switches used for load transfers

   •   **Feeder Remaining Capacity** will try to maximize the remaining feeder capacity of neighboring feeders

   •   **Tiepoint Remaining Capacity** will try to maximize the tie point capacity of tie switches used for switching

4.   Click **Next** to proceed.

Feeders

The Feeders page displays a list of tie switches to feeders that are adjacent to the selected feeder. Tie switches are displayed in priority order.

•   If you do not want a feeder to be used for load transfers, uncheck the box in the **Use** column.

•   To view a switch in the Viewer, select the switch in the list and click the **View...** button.

•   To change the priority order of the tie switches, select a tie switch in the list and click the **Move Up** or **Move Down** button, as applicable. Switches higher in the list are given higher priority.

•   Click **Next** to proceed.

The suggested switching algorithm computes the suggested switching plans based on settings from all the wizard pages that have been filled in to this point.

Plans

The Plans page displays a list of plans generated by the Suggested Switching tool and overview information for each plan.

•   **# Steps:** is the number of switching steps in the plan.

•   **Affected Feeders:** lists the feeders affected by the plan.

•   **Affected Switches:** lists the switches affected by the plan.

•   **Customers Impacted:** summarizes the number of regular and critical customers that are impacted by the plan. The counts are further divided into customers that are fully impacted and those that may be temporarily impacted by intermediate steps to allow non-load break operations.

•   **Violations Before:** the number of violations before the plan is implemented.

•   **Violations After:** the number of violations if the plan is implemented.

   Note: You may stop the system from generating additional plans by clicking the **Stop Solution** button. The button is only available when the system is still processing solutions (i.e., neither the **Maximum Number of Plans** or the **Maximum Time to Search** have been reached).

1. To view detailed result data and steps for a plan, select the plan in the Plans list and click the **Plan Details....** button, which will open the **Suggested Switching Plan Details** window.

Suggested Switching Plan Details

The Suggested Switching Plan Details window provides information about the plan's switching steps and feeder status.

- **Switching Steps Tab:** The Switching Steps tab shows the individual switching steps and the effects of each switching step on the feeder where its load is being transferred. Associated violations are shown in the Switching Step Violation tree to the right.

- **Feeder Changes Tab:** The Feeder Changes tab shows the net effect of all switching changes on each of the affected feeders. This view clearly shows the net change in violations before and after all switching steps are performed.

Click **Close** to return to the Plans page.

2. Once you have decided which plan to use, select it in the Plans list.

3. Click **Next** to proceed.

Summary

The Summary page displays the selected plan's Switching Summary for your review and allows you to insert or append the switching steps into a switching sheet.

- To save these steps in a new switching plan, click the **Create Plan...** button. The wizard closes, and a new planned switching sheet opens in the Web Switching Management window.

- To insert these steps into a currently open switching sheet, click the **Append Steps...** button. The steps are inserted into the open sheet in the Web Switching Management window.

See **Planned Switching** on page 9-8 for more information about Web Switching Management.

Using the Suggested Switching Solutions Tool

You can use the Suggested Switching Solutions tool to access previously generated suggested switching solutions. Further, this tool can be used to either create a new switching sheet with the same steps or append the steps to an existing switching sheet. For more information on how to generate suggested switching solutions, see **Using Suggested Switching** on page 10-15.

Creating Switching Sheets with Suggested Switching Solutions

If you want to create a switching sheet with steps from a previously generated Suggest Switching Solution, do the following:

1. Select **Suggested Switching Solution...** from the Web Workspace **Tools** menu.

    Suggested Switching Solutions displays a list of plans generated by the Suggested Switching tool in an expandable tree with unique identifiers for each solution.

2. Select a solution and expand the tree view to see overview information for each plan generated for the solution.

3. Right-click a plan name and select **View Plan Details**. The Suggested Switching Plan Details dialog will open.

4. Click **Create Plan** to create a new switching plan.

Appending Steps to a Switching Sheet with Suggested Switching Solution

The Suggested Switching Solutions tool allows you to append steps from a previously generated suggested switching solution to an existing switching sheet. With an existing switching sheet in record mode, do the following:

1. Select **Suggested Switching Solution...** from the Web Workspace **Tools** menu.

    Suggested Switching Solutions displays a list of plans generated by the Suggested Switching tool in an expandable tree with unique identifiers for each solution.

2. Select a solution and expand the tree view to see overview information for each plan generated for the solution.

3. Right-click a plan name and select **View Plan Details**. The Suggested Switching Plan Details dialog will open.

4. Click **Append Steps** to append the steps to the switching sheet.

Using Volt/VAr Optimization

This section includes the following topics:

- **Overview**

- **Before You Begin**

- **Running the Volt/VAr Optimization Tool**

Overview

Volt/VAr Optimization generates a set of optimal substation transformer tap positions and shunt device bank statuses to minimize power losses and maintain power quality as the system load changes.

The Volt/VAr Optimization tool uses a wizard approach that steps you through a series of screens to gather input and then presents the results. This allows you to maintain context and easily move backward and forward in the process as needed.

- Volt/VAr Optimization also allows you to specify a particular loading scenario against which to perform the Volt/VAr analysis. Based on the selected load scenario, Volt/VAr optimization uses the real-time load values or appropriately load values from the historic load profile for all load points in the analysis area. The user-selectable load scenarios are:

- Real-time loads

- Scaled loads

- Peak loads

- Specific period loads

In addition, you can specify the type of device controls to consider for the analysis.

Based on these settings, the tool generates a plan summary and detailed results for individual feeders, along with any violations or dropped loads. A set of implementation steps is also presented, showing substation transformer tap position and shunt device bank status changes. You can save these steps in a new switching sheet or insert them into an open switching sheet.

> **Note**: Volt/VAr Optimization uses Web Switching Management functionality and is only available if you are running Web Workspace as the Full Operations plus Web Switching user type. See **User Types** on page 1-2 and **Web Switching Management** on page 9-1 for more information.

Before You Begin

You can use the Volt/VAr Optimization wizard to generate a set of steps that can be inserted into a new switching sheet or appended to an existing switching sheet. If you want to add steps to an existing sheet, do the following before you run the optimization tool:

1. Create a new planned switching sheet or open an existing sheet.

2. Click the **Record** button to enable recording. This is required in order for optimization steps to be appended from the wizard.

Before you run the Volt/VAr Optimization tool, select one or more devices in the Viewer that identify which feeders you want to optimize. To select more than one device, hold down the CTRL key and click devices.

> **Note:** make sure that the CVR mode of the feeders is set correctly in the Configuration Assistant DMS Application Administration tab (see **Using the DMS Application Administration Tab** on page 17-23).

Running the Volt/VAr Optimization Tool

To start the Volt/VAr Optimization tool, select one or more devices (to identify a set of feeders) in the Viewer and then select the **Volt/VAr Optimization...** option from the **DMS** menu in the Viewer. (This option is only enabled if a device is currently selected.)

Each screen in the Volt/VAr Optimization wizard displays a context panel on the left side of the screen, which shows all the steps in the optimization process. Completed steps are shown in normal text, the current step is bolded, and the remaining steps are grayed out.

The wizard displays the following pages:

*   **Options**

*   **Load Scenario**

*   **Result Plan**

*   **Summary**

The buttons at the bottom of the dialog allow you to step forward and backward through the process or exit the tool.

Options

Options is the first page of the wizard. It displays the selected device and allows you to specify the basic parameters to use for the optimization.

Options has three sections:

*   **Objective:** allows you to

    *   **Loss Minimization:** Select this to run optimization for minimizing losses.

    *   **Conservation Voltage Reduction:** Select this to run optimization for demand reduction.

*   **Objective Weights:** allows you to assign relative values to the cost of making a move. The higher the number the more prohibitive the move. Therefore, for Transformer Tap and Shunt Device positions to be considered equally, the same values should be set. The optimization controls transformer taps and shunt device banks. The range of objective weights is 0 to 100.

    *   **Transformer Tap Move Weight**

    *   **Shunted VAR Move Weight**

The **Controllable Devices** list displays the regulation devices that will be optimized. A device can be enabled or disabled for optimization by checking or unchecking, respectively, the checkbox next to the device ID. The **SCADA** column indicates whether the device is SCADA enabled or not.

Load Scenario

The Load Scenario page allows you to change the load profile, scaling factor, and limits. When you click modify, it opens the Power Flow Study Mode Load Scenario window. See **Understanding the Power Flow Study Mode Load Scenario** on page 10-11 for details.

Result Plan

The next page of the wizard gives an overview of the analysis results. The information on this page cannot be changed. Use the **Plan Details** button to display more detailed result data for individual feeders.

- **The Summary** provides a tabular view of minimum voltage (%), maximum voltage (%), violations, losses (kW), and power (kW) before and after optimization.

- The **Plan Implementation Steps** lists the switching steps required to implement the optimization plan. To target the Viewer to a device affected by a step, select the step and click the **View...** button.

- The **Voltage Distribution on Affected Feeders** graph displays the voltage distribution on affected feeders before (in gray) and after (in blue) changes are made.

- Click **Plan Details...** to view results.

Plan Details

When you select a feeder from the Feeders list on the top of the page, the following details are shown:

- **Feeder Violations** table shows any violations associated with the selected feeder. To see the device associated with the violation, select a violation in the Feeder Violations list and click **View...**. (This button is enabled whenever a violation node is selected.)

- **Voltage Profile** graph for the selected feeder. To see the graph, select the tab Voltage Profile graph in the tabbed pane.

- **Voltage Distribution graph** for the selected feeder. To see the graph, select the tab Voltage Distribution graph in the tabbed pane.

Summary

The Summary page displays the implementation steps for the plan.

To save these steps in a new switching plan, click the **Create Plan...** button. The Volt/VAr Optimization wizard closes, and a new planned switching sheet opens in the Web Switching Management window.

To insert these steps into a currently open switching sheet, click the **Append Steps...** button. The steps are inserted into the open sheet in the Web Switching Management window.

See **Planned Switching** on page 9-8 for more information about Web Switching Management.

Using Conservation Voltage Reduction

This section includes the following topics:

*   **Overview**
*   **Setting the CVR Mode**
*   **Running Conservation Voltage Reduction in Real Time**

Overview

Conservation Voltage Reduction (CVR) generates a set of optimal transformer tap positions and shunt device statuses to reduce system demand and maintain power quality as the system load changes.

CVR may be used in real time or study modes:

*   In real time mode, when enabled, CVR runs in the background and generates recommendations for the current network topology using predicted loads for the short-term future (*e.g.*, 4 to 6 hours).
*   In study mode, the CVR optimization is achieved using the Volt/VAr Optimization Wizard. See **Running the Volt/VAr Optimization Tool** on page 10-23 for details.

Setting the CVR Mode

CVR supports three different modes of operation:

*   **Disabled** - CVR does not run.
*   **Manual** - CVR runs periodically for every hour and configured FLM cycle time. Feeders that require optimization in specific periodic execution can be set with desired CVR modes of the feeders in the Configuration Assistant's DMS Application Administration tab (see **Using the DMS Application Administration Tab** on page 17-23 for details). It checks the real-time load scenario and recommends shunt device and transformer/regulator status changes if there is a significant benefit. The recommendation plan will not be executed automatically.
    *   An operator may view recommendations by opening the CVR plan
    *   An operator has to manually create a switching sheet from the plan and execute it.
*   **Automatic** - CVR runs periodically for every hour and configured FLM cycle time. Feeders that require optimization in specific periodic execution can be set with desired CVR modes of the feeders in the Configuration Assistant's DMS Application Administration tab (see **Using the DMS Application Administration Tab** on page 17-23 for details). However, the status of the other feeders on the same substation Load Tap Changer can influence the CVR mode of this feeder. It checks the real-time load scenario and recommends shunt device and transformer/regulator status changes if there is a significant benefit. The recommendation plan will be executed silently. An event (C-NEW) will be created and displayed in the Work Agenda for the plan execution.

To set the CVR mode, select the **CVR Mode** from the **Tools** menu and then select the desired mode (**Disable**, **Manual**, or **Automatic**). Also select the desired CVR modes of the feeders in the Configuration Assistant's DMS Application Administration tab; see **Using the DMS Application Administration Tab** on page 17-23. Note that Feeder Load Management must be running for the CVR Mode options to be enabled; see **Feeder Load Management** on page 11-1 for more information. Also make sure that the FLM mode of these feeders is set to Forecasting in the Configuration Assistant's DMS Application Administration tab; see **Using the DMS Application Administration Tab** on page 17-23.

Understanding CVR Events in the Work Agenda

The Work Agenda **DMS Status** column provides information about CVR events and results of the CVR calculations. When row or cell coloring is enabled in the **Web Workspace** (see **Color Coding Options** on page 1-8), the **DMS Status** information is color coded. Possible CVR status results:

DMS Status Column	Description
CVR Plan Generated	In manual mode, CVR has generated a plan for manual execution.
CVR Automatically Executing	In automatic mode, CVR has generated a plan and is automatically executing the plan.
CVR Manually Aborted	CVR processing or execution has been aborted by a user.

Aborting a CVR Plan

To abort a CVR plan from the Work Agenda, right-click the CVR event and select **Abort DMS Processing** from the options menu.

Alternatively, in the CVR switching plan, right-click the CVR event in the Events table and select **Abort DMS Processing** from the options menu.

Running Conservation Voltage Reduction in Real Time

Viewing the CVR Report

Right click a CVR event row in the Work Agenda and select the **CVR Report** option. The CVR Report window opens with its list of feeders affected and recommendation plan.

Affected Feeders:

The **Affected Feeders** section lists all feeders affected by a CVR plan and provides details about load and violations before and after the optimizations are executed. Selecting a feeder and right-clicking will bring up the context menu. You can then navigate to the feeder in the viewer or bring up the optimization details.

The optimization details show:

• **Violations:** a detailed list of violations before and after optimization

• **Voltage Profile:** a graph plotting voltage against distance from the feeder head.

• **Voltage Distribution:** a histogram showing the range of voltages on the feeder.

Recommendation Plan

This section of the report gives details of the plan, including Substation, Feeder and Device level information. The device level information shows the before and after position settings as determined by CVR.

There is an option to select or deselect recommendations from the plan.

Right click a device to bring up the context menu, which consists of an option to navigate to the device in the viewer.

Actions Menu

The **Generate Switch Plan** option on the **Actions** menu is used to convert the recommendations into an actual CVR plan for execution. This is only necessary in **Manual** mode.

The recommendation plan can be printed by selecting **Print** from the **File** menu.

Viewing Feeder Details

Details of a feeder can be viewed from its popup menu option and in the Viewer.

Enabling and Disabling CVR Devices from the Control Tool

You can enable or disable devices for CVR actions by clicking the **Enable CVR** or **Disable CVR** buttons from the Control Tool. These buttons are displayed for all **CVR**-capable regulation devices. When a CVR device is disabled, a condition flag is shown on the Viewer adjacent to the device.

> **Note:** To run Conservation Voltage Reduction in study mode, see the **Using Volt/VAr Optimization** on page 10-22.

Setting CVR Mode on Feeders

You can set individual feeders to CVR Automatic (Hourly), Automatic (FLM Cycle Time), Manual (Hourly), or Manual (FLM Cycle Time), or Disable mode with the Configuration Assistant's DMS Application Administration tab (see **Using the DMS Application Administration Tab** on page 17-23 for details). However, the status of the other feeders on the same substation Load Tap Changer can influence the CVR mode of the feeder.

Chapter 11

Feeder Load Management

This chapter covers the following topics:

- **Overview**
- **Feeder Load Management Modes**
- **Using the Feeder Load Summary**
- **Using the Feeder Load Management Window**
- **Using Real-Time and Study Mode**
- **Data Source and Data Quality**
- **Using the DMS Summary**
- **Using the Weather Zone Forecast Tool**

Overview

Feeder Load Management (FLM) allows you to manage energy delivery in the electric distribution system and identify problem areas. FLM monitors the vital signs of the distribution system and identifies areas of concern so that the distribution operator is forewarned and can efficiently focus attention where it is most needed. It allows for more rapid correction of existing problems and enables possibilities for problem avoidance, leading to both improved reliability and energy delivery performance.

FLM is cyclically executed and automatically triggered by pertinent changes in the electric distribution system, such as increased demand, change in measured values reported by SCADA, or switch status changes. FLM uses a combination of SCADA derived scaling factors, load profiles, distributed generation profiles, and a globally supplied scaling factor to predict load for future forecasting.

> **Note:** FLM will use SCADA supplied scaling factors (in addition to load profile data) for a configurable period of time before transitioning to using global scaling factors. FLM uses a linear transition between the SCADA scaling factor and the global scaling factor.

Feeder Load Management tools are dynamically updated after each FLM execution, which may be performed periodically (provided SCADA reports a change in measured values) or in response to changes in the electrical network (e.g., a.switch is opened or closed). Time between FLM periodic executions, as well as other FLM execution parameters, is configurable. Administrative users can view or change this setting on the Configuration Assistant **Using the Event Management Rules Tab**, in the Power Flow Related Rules category and Feeder Load Management subcategory.

The **Feeder Load Summary** tool provides dynamically updated views of closest-in-time alarms, peak loads, and present loads of all feeders. From the Feeder Load Summary, you may drill down to those feeders where capacity margins and/or device limits are at risk or violated using the Feeder Load Management window.

The **Feeder Load Management** window provides load summaries, as well as Device Violations, Feeder Load Details, Tie Points Capacity Overview, Transformers, Shunted Devices, and Equivalent Sources Details. You can initiate Feeder Load Management calculations in Study Mode with different load scale factors and topology to predict selected feeders performance for different switching scenarios.

Feeder Load Management Modes

The Feeder Load Management mode is set by choosing an option from the **FLM Status** menu of the Web Workspace **Tools** menu. If you select **Enabled**, FLM will forecast the loads for all the feeders; if you select **Disabled**, FLM will only show the real-time load information.

> **Notes:** changes to the FLM status are system wide.

FLM modes can be set for individual feeders with the Configuration Assistant's DMS Application Administration tab (see **Using the DMS Application Administration Tab** on page 17-25 for details). A feeder can be in one of the following modes:

- **Forecasting Mode:** FLM will forecast the load scenario of the individual feeder.

- **Real-Time Mode:** FLM only show the real-time load information.

- **Disabled Mode:** FLM will not show any information about this feeder.

In effect, the minimum of the system-wide FLM mode and individual feeder FLM mode will be displayed.

Using the Feeder Load Summary

The Feeder Load Summary, available from the Web Workspace **Tools** menu, provides an overview of feeder performance. The data shows closest-in-time alarms, peak loads, and present loads of all the feeders within your subscribed control zone authority.

Menus and Toolbar

The Feeder Load Summary window provides the following menu and toolbar options.

File Menu

Menu Option	Description	Toolbar Icon
Print	Prints the Feeder Load Summary table.	🖨
Exit	Closes the Feeder Load Summary window.	--

Actions Menu

Menu Option	Description	Toolbar Icon
View...	Focus the Viewer on the selected feeder.	
Feeder Load Management Tool...	Opens and/or updates the Feeder Load Management Tool window. This button is disabled until you select row(s) in the Feeder Load Summary table with available FLM data. If multiple rows are selected, the Feeder Load Management window displays details for multiple feeders.	
Data source and data quality	Toggles the data source and data quality balloon. When active, a balloon dialog displays feeder head data source and data quality information for the selected row. See **Data Source and Data Quality** on page 11-23 for more information.	
Show Errors and Statistics...	Displays the FLM Feeder Errors, Warnings, and Details dialog that displays model warnings and errors for the selected feeder solution. See **Feeder Errors and Warnings** on page 11-7 and **Using Power Flow Solution Details Window** on page 10-13 for details.	

View Menu

Menu Option	Description	Toolbar Icon
Earliest Alarms	The *Earliest Alarms* list shows closest in time problems for each feeder. The list is sorted by the **Date/Time** column showing earlier problems first. If a feeder does not have any violations or warnings in the next 6 days, it will not be presented in the list.	See note.
Worst Case	The *Worst Case* list shows worst Feeder Condition for each feeder in the next 6 days. The list is sorted by the score showing worse problems first.	See note.
Present Loads	The *Present Loads* list shows the current loads, sorted by score.	See note.

Note: the view options may be selected from the drop-down list on the toolbar

Filter Menu

Menu Option	Description	Toolbar Icon
All	Show all feeders.	--
Violations Only	Show only feeders with violations.	--
Violations and Warnings	Show only feeders with violations or warnings.	--

Notes:

The Feeder Load Management Summary table supports **Quick Sorting**, **Dynamic Filtering**, and **Auto Filtering**.

Click the **Auto Filter** button to show only rows that match the selected **cell**. Auto Filter is disabled until you select a row in the Feeder Load Summary table.

Once an auto filter is applied, this button is replaced by the **Auto Filter Off** button.

Help Menu

Menu Option	Description	Toolbar Icon
Feeder Load Summary Help [F1]	Launches online help for Feeder Load Summary.	--

Status Bar

The Feeder Load Summary window status bar displays the user type: Administration, Full Operations plus Switching, or View Only.

The Administration user's status bar provides access to save and refresh functions.

The **Save** button ( ) is enabled when scale factors have been modified. See **Scale Factors Table** on page 11-6 for more information.

The **Refresh** button ( ) starts a new Feeder Load Management calculation. If a calculation is already in progress, the system will return a message that a forecast is in progress and that changes will be reflected in the next solution, which will begin immediately after the in-progress calculation is completed.

Feeder Load Summary Panels

The Feeders Load Summary window is divided into two sections or panels; each panel displays a table:

• **Feeder Load Summary Table**

• **Scale Factors Table**

Feeder Load Summary Table

The Feeder Load Summary table shows a list of feeders. By default, the Earliest Alarms view is displayed. Other available views are Peak Loads and Present Loads. To switch between views, click the appropriate toolbar button or select the appropriate option from the View menu.

The Feeder Load Management Summary table displays the following fields and buttons.

• **Substation:** the substation name.

• **Feeder:** the feeder name. This column displays a yellow background for feeders with abnormal data quality or/and data source for any of the phases. See **Data Source and Data Quality** on page 11-23 and **Feeder/Device Condition Names and Colors** on page B-6 for more details.

• **Phase:** phase with the maximum capacity utilization.

• **Util %:** feeder head utilization capacity.

• **Amps:** electrical current on the phase with the maximum capacity utilization.

• **KW:** active power on the phase with the maximum capacity utilization. This column is hidden by default. Right-click the table's header to open the Select Columns dialog, where you can select/unselect columns to display.

• **kVAr:** reactive power on the phase with the maximum capacity utilization. This column is hidden by default. Right-click the table's header to open the Select Columns, dialog where you can select/unselect columns to display.

• **kV:** voltage on the phase with the maximum capacity utilization.

• **Feeder Condition:** violation or warning (if any) on a feeder. When multiple violations/ warnings occur on a feeder, this column shows the highest-level violation. See **Feeder Conditions** on page 11-6 for more information.

• **Date/Time:** date and time for the displayed feeder condition.

- **Updated:** date and time of the last update for the feeder (only for Earliest Alarms and Peak Loads Views).

- **Score:** EDA score of the feeder at the time of the condition.

- **# Alarms:** total number of alarms on the feeder at the time.

Scale Factors Table

This table displays load week days' scale factors for future Feeder Load Management forecasts calculations. The pink background highlights the current day's scale factor. (Only administration users can edit the scale factors in this table.) This table is updated every time the Feeder Load Summary table is updated.

Feeder Conditions

Feeder Load Management displays feeder conditions, including warning and violations, in the **Feeder Condition** columns of the Feeder Load Summary and the Feeder Load Management Tool. Feeders that present no abnormal conditions at all are reported as *Normal*.

Abnormal Conditions

Abnormal conditions fall into 3 categories:

- **Warnings:** These conditions represent situations on the feeder when a device is approaching a limit. For example, the *High Voltage Warning* indicates that a distribution supply transformer is close to exceeding the (configured) upper limit.

- **Violations:** These conditions represent situations on the feeder when a device has breached a limit. For example, the *High Voltage Violation* indicates that a distribution supply transformer has exceeded the (configured) upper limit.

- **Errors:** These conditions represent the inability of the powerflow engine to achieve a result.

Warnings and Violations

Warnings and Violations have the following categories:

- **Backfeed:** A device has been detected to have real power flow in the reverse direction.

- **Under Voltage:** A device's voltage is at the low end of permissible operation

- **Over Voltage:** A device's voltage is at the high end of permissible operation

- **Switch Overload:** The current flowing through a switch is close to (or exceeding) rated value

- **DistTrans Overload:** The power flowing through a distribution transformer is close to (or exceeding) rated value

- **Feeder Capacity:** The current flowing through a Feeder Head Breaker is close to (or exceeding) rated value

- **Conductor Overload:** The current flowing through a conductor is close to (or exceeding) rated value

- **PowerTrans Overload:** The current flowing through a Substation Transformer is close to (or exceeding) rated value.

- **DistGen Time-to-Live (TTL)**: The distributed generator time to live is expected to expire (or has already expired) indicating the unit is close to running out of fuel/charge or already has.

- **DistGen Overload:** The distributed generator sustaining a section of the network in island mode is overloaded.

- **Model Error:** A device is determined to have invalid data attributes prior to attempting powerflow solutions

- **Inconclusive:** The powerflow engine could not converge on a solution. The solution details may give more information about the failures.

- **Inconclusive SCADA:** The feeder is an electrical island that contains a suspect SCADA related feeder. This means there is some question about the integrity of the results island-wide.

- **Suspect SCADA:** The data from SCADA can't be matched to a powerflow solution. This could mean that a device in the field as changed state and the NMS is unaware. There could be modeling or SCADA issues.

- **Solution Failed:** The powerflow engine diverged from a stable solution. This indicates a problem with the electrical model, for example an incorrect attribute or connection on a service. The solution details will give more information about the failures and identify the area where the problem occurs.

- **Inconclusive Solution:** The powerflow engine could not converge on a stable solution. That is, after the configurable number of iterations had been reached, the engine was still finding significant discrepancies. This indicates a problem with the electrical model, for example an incorrect attribute or connection on a service. The solution details will give more information about the failures, and identify the area where the problem occurs.

Conditions Coloring

The Feeder Conditions column uses the following color-coding:

- **Red:** Violations Exist

- **Yellow:** Warnings Exist

- **Green:** No Warnings/Violations Exist.

See **Feeder/Device Condition Names and Colors** on page B-6 for a list of feeder/device conditions and their corresponding cell and text coloring.

Feeder Errors and Warnings

The Feeder Errors and Warnings dialog lists specific device errors and warnings for each feeder that may prevent the system from solving power flow solutions.

1. Select a row in the Feeder Load Summary.

2. Select **Show Errors and Statistics...** from the Feeder Load Summary Actions menu. The Feeder Errors and Warnings dialog will open.

The Feeder Errors and Warnings table displays the following information:

- **Feeder** – the name of the feeder with possible model errors or warnings.

- **Device** – the name of a device on the feeder with possible model errors or warnings.

- **Severity** – the error or warning type.

- **Message** – the error or warning message returned.

3. You may inspect a listed device's attributes and connections by selecting a row and clicking the button, which will launch the Viewer with focus on the device.

Using the Feeder Load Management Window

The Feeder Load Management window provides detailed information about feeder loads, device violations and warnings, tie points capacity, and regulation devices. It supports real-time and study mode.

This section includes the following topics:

* **Accessing the Feeder Load Management Window**

* **Features of the Feeder Load Management Window**

* **Viewing and Modifying Study Session Parameters**

* **Requesting a New Feeder Load Management Calculation**

Accessing the Feeder Load Management Window

You can open the Feeder Load Management window from the Viewer or from the Feeder Load Summary window.

From a Viewer

To open the Feeder Load Management window from a Viewer, click the ⚡ button on the Viewer toolbar or select Feeder Load Management... from the Viewer's DMS menu.

The Feeder Load Management mode is defined by the Viewer's mode.

> **Note**: Feeder Load Management can be disabled for some of the feeders during the Model Build (see Model Build Guide for more information). If Feeder Load Management is disabled for a feeder, the Feeder Load Management button will be disabled when that feeder is selected in the Viewer.

From the Feeder Load Summary Window

From the Feeder Load Summary window, you can open the Feeder Load Management window for a single feeder or for multiple feeders.

* To open the Feeder Load Management window for a single feeder, double-click the corresponding row in the Feeder Load Summary table or right-click the row and select **Feeder Load Mgmt Tool** or **Feeder Load Mgmt Tool 2** from the pop-up menu.

* To open the window for multiple feeders, select the corresponding rows in the Feeder Load Summary Table and click the ⚡ button on the toolbar.

The Feeder Load Management window opens in real-time mode. Once the window is open, you can switch modes by clicking the corresponding button on the toolbar.

> **Note**: The system allows you to have two open Feeder Load Management Tools at any time. Multiple Feeder Load Management Tools can be used to compare the details for different feeders.

Features of the Feeder Load Management Window

The Feeder Load Management window is used to view detailed information about feeder loads, device violations and warnings, tie points capacity, and regulation devices. You can initiate Feeder Load Management calculations in Study Mode with different load scale factors and topology to predict selected feeders' performance for different switching scenarios.

The Feeder Load Management window displays a pull-down menu, toolbar, status bar, and two views. It has two modes: study and real-time. Each of these features is described in the sections that follow:

- **Menus and Toolbar**

- **Options Menu**

- **Status Bar**

- **Graphical View Tab**

- **Feeder Load Overview Tab**

- **Feeder Load Management Details**

- **Using Real-Time and Study Mode**

- **Viewing and Modifying Study Session Parameters**

- **Requesting a New Feeder Load Management Calculation**

- **Selecting Columns to Display**

- **Data Source and Data Quality**

Menus and Toolbar

The Feeder Load Management window provides the following pull-down menu options and toolbar options.

File Menu

Menu Option	Description	Toolbar Icon
Exit	Closes the Feeder Load Management window.	

Filter Menu

Select the filter to use for limiting the feeders displayed in the Feeder Load Overview table. Available filters are:

Menu Option	Description	Toolbar Icon
All	Displays all data.	--
Present Measurements	Displays only data for the present time.	--
Hourly Forecasts	Displays only forecasts for the next 24 hours.	--
Daily Peaks	Displays only daily peak forecasts for the next 6 days.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Real Time	Switches to real-time mode. (This option is grayed if Real-Time Mode is active.)	
Study Mode	Switches to study mode. (This option is grayed if Study Mode is active.)	
Re-enable Island	The **Re-enable Island** action is enabled for Administration users when selecting a row with a Non-Convergent, Inconclusive, or Solution Failed. The action tells PFService to attempt to solve the island for the next forecast. **Note:** This action is also available from the right-click options menu.	--

Options Menu

Menu Option	Description	Toolbar Icon
Power Flow Options...	Allows you to configure Real-Time Power Flow Options if you are in real-time mode. If you are in Study Mode, click this button to configure Study Mode Load Scenario.	
Select Columns...	Opens the Select Columns to Display dialog for you to select which columns you want to appear in the table on the Feeder Load Management window. If a column is not checked, it will be displayed in the Additional Columns balloon details window rather than on the main window.	--

Help Menu

The Help menu provides standard Help and About options.

Status Bar

The status bar displays at the bottom of the Feeder Load Management window.
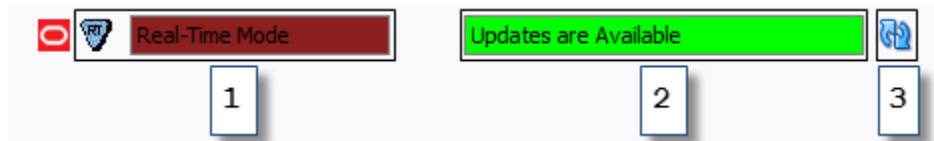
It provides the following information and functions:

1. Real-time or study mode indicators.

2. Indicates if data has been updated.

3. Refresh button ( ).

Graphical View Tab

The **Graphical View** tab is active when you initially start the Feeder Load Management tool. The Graphical View allows you to quickly see the trends in the forecasted data.
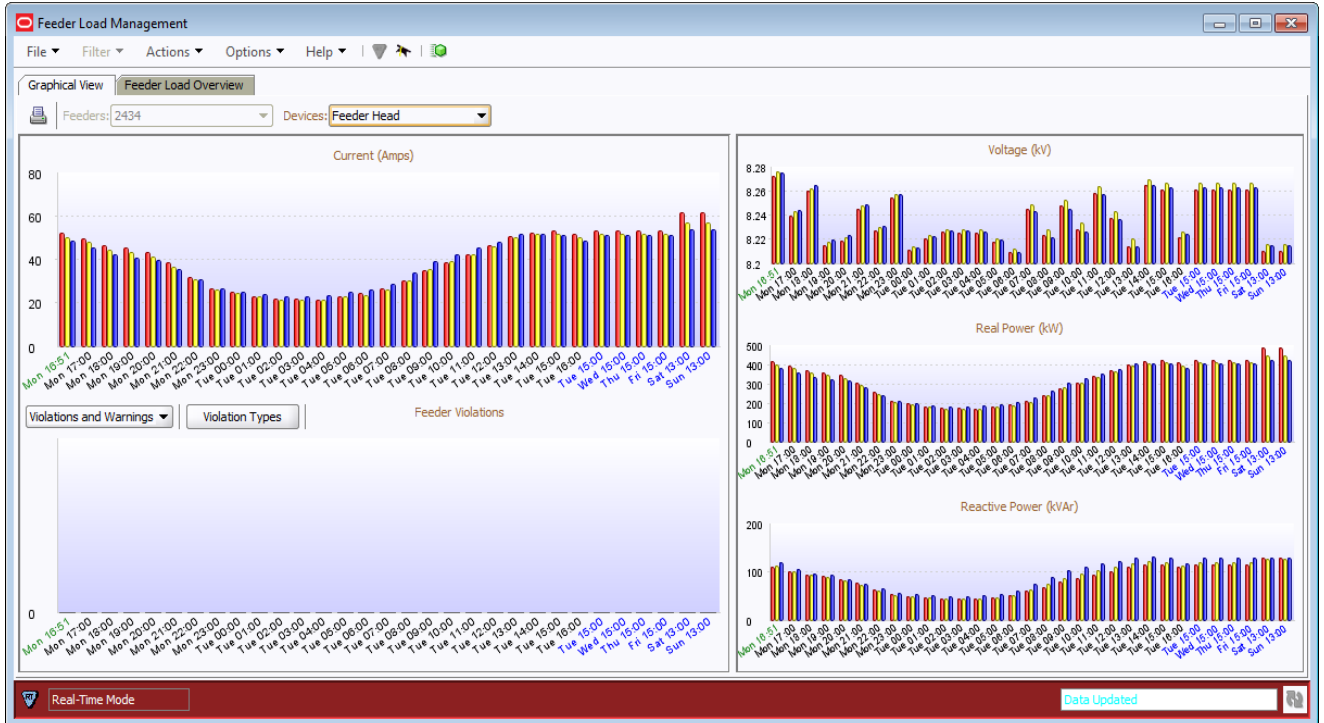
Use the **Feeder** option menu to display data for a different feeder, if the Feeder Load Management Tool is showing results for more than one feeder. Use the **Devices** option menu to display data for a signification device on the feeder; **Feeder Head** is the default selection.

The Graphical View shows five different graphs:

• Current

• Feeder Violations

• Voltages

• Real Power

• Reactive Power

For the currents, voltages, and power graphs, the bar graphs show three bars, representing results data for three phases.

• The X axis displays the time of the forecast, with values for real-time loading, 24-hour forecast values, and 6 daily peak forecasts.

• The axis label colors are based on forecast type and are consistent with the colors used on the Date/Time column of the tabular display.

• Use the slider between the left side of the tab (displaying the Current and Violations) and the right side of the tab (displaying Voltage and Power) to resize the graphs.

When you hover over a point on a graph, a hover text box displays the actual data values, as shown below:
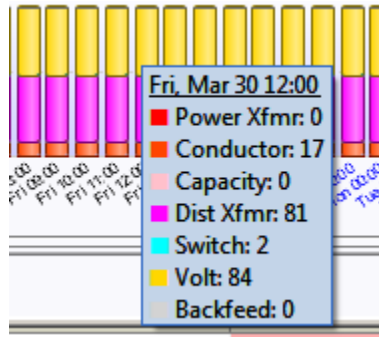
Feeder Load Overview Tab

The Feeder Load Overview tab provides feeder load data for the feeder(s) that were selected when the Feeder Load Management window was initiated or updated (either from the Viewer or the Feeder Load Summary window).

In real-time mode, the Feeder Load Overview displays:

- Present measurements (Date/Time column values in green),

- Next 24 hours forecasts (Date/Time column values in black), and

- Daily peak forecasts for 6 days after current day (Date/Time column values in blue).

In Study Mode, the Feeder Load Overview displays current study session data calculated by the Feeder Load Management tool based on the user's request from the **Viewing and Modifying Study Session Parameters**.

Toolbar

The Feeder Load Overview toolbar provides the following options:

- Click ▤ to open the **Feeder Load Management Details** for the selected row.

- Click ⊙ to focus the Viewer on a selected feeder. This button is disabled until the user selects a row in the Feeder Load Overview table.

- Click 🖨 to print the Feeder Load Overview table.

- Click 💬 to toggle on/off the balloon dialog. When this button is toggled on and a Load Overview row is selected, a balloon dialog displays the selected row's hidden columns.

- Click the Auto Filter button (Auto Filter) to show only rows that match the selected cell. Once an auto filter is applied, this button is replaced by the Auto Filter Off button.

- Click the Auto Filter Off button (Auto Filter Off) to remove a previously selected auto filter.

The toolbar also displays the current summary view name and the names of applied filters and sorts.

Feeder Load Overview Table

The Feeder Load Overview table includes the following columns:

- **Substation:** The substation name.

- **Feeder:** The feeder name. This column displays a yellow background for rows with abnormal data source or/and data quality for any of the phases. See **Feeder/Device Condition Names and Colors** on page B-6 for more details.

- **Amps A:** Phase A feeder head load and utilization capacity.

- **Amps B:** Phase B feeder head load and utilization capacity.

- **Amps C:** Phase C feeder head load and utilization capacity.

- **Limit Device (%):** device name and usage percentage for a phase limiting device with the biggest usage. Visible by default.

- **Limit Device A (%):** Phase A limiting device name and usage percentage. Hidden by default.

- **Limit Device B (%):** Phase B limiting device name and usage percentage. Hidden by default.

- **Limit Device C (%):** Phase C limiting device name and usage percentage. Hidden by default.

- **kW:** Total kW for all phases

- **kW A:** Feeder Head Phase A Active Power. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **kW B:** Feeder Head Phase B Active Power. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **kW C:** Feeder Head Phase C Active Power. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **kVAr:** Total kVAr for all phases.

- **kVAr A:** Feeder Head Phase A Reactive Power. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **kVAr B:** Feeder Head Phase B Reactive Power. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **kVAr C:** Feeder Head Phase C Reactive Power. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **kV A:** Feeder Head Phase A Voltage.

- **kV B:** Feeder Head Phase B Voltage.

- **kV C:** Feeder Head Phase C Voltage.

- **Loss:** Power loss for the feeder.

- **Feeder Condition:** violation or warning (if any) on a feeder. When multiple violations/warnings occur on a feeder, this column shows the highest-level violation. See **Feeder Conditions** on page 11-6 for more information.

- **Date/Time:** The date and time for the displayed feeder condition.

- **Score:** The EDA score of the feeder at the time of the condition.

- : The number of conductor overloads.

- : The number of switch overloads.

- : The number of feeder capacity violations.

- : The number of service transformer overloads.

- ⭐ **:** the alarm count for Distributed Generation Units.

- ⅀ **:** The number of power transformer overloads.

- ⚠ **:** The number of voltage violations.

- ⇄ **:** The number of backfeeds.

- **Source A:** Phase A source. This column is hidden by default in the main table and appears in the Additional Columns balloon. See **Selecting Columns to Display** for more details.

- **Source B:** Phase B source. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **Source C:** Phase C source. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **Quality A:** Phase A quality code. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **Quality B:** Phase B quality code. This column is hidden by default in the main table and appears in the Additional Columns balloon.

- **Quality C:** Phase C quality code. This column is hidden by default in the main table and appears in the Additional Columns balloon.

> **Note:** Some fields are displayed in the table by default, and others appear in the Additional Columns balloon dialog by default. Use the **Set Columns...** option on the Options menu to can configure which fields you want to appear in the table on the main window and which ones you want to appear in the balloon dialog.

Sorting and Filtering

The Feeder Load Management tabular view supports **Quick Sorting**, **Dynamic Filtering**, and **Auto Filtering**.

Selecting Columns to Display

You can choose which columns of data you want to appear in the tables on the Feeder Load Management Tabular View tab. This allows you to focus on particular information.

To select columns for display, follow these steps:

1. Choose **Select Columns...** from the Feeder Load Management Actions menu or right-click the Feeder Load Management table header and choose S**elect Columns...** from the pop-up menu. A list of available columns is displayed. Checked columns are currently displayed.

2. To add a column that is not currently displayed, click in the checkbox next to the column name.

3. To remove a column that is currently displayed, click to uncheck the box.

4. Click **OK**.

5. If you want to save these columns settings so they will be used in future sessions, select **User Preferences** from the Web Workspace **Tools** menu, and then click Save.

Displaying Data for Hidden Columns

If you have one or more columns currently hidden from view, you can use the balloon dialog to display the hidden data. Follow these steps:

1. First, make sure that the balloon dialog is enabled for the table containing the hidden columns.

   If not currently enabled, click the ⬜ button in the panel's toolbar.

   > **Note**: If all columns are currently displayed in the table, the balloon dialog button is disabled.

2. Click on a specific cell or row in the table. The balloon dialog displays all hidden columns and data in table format, as shown below:
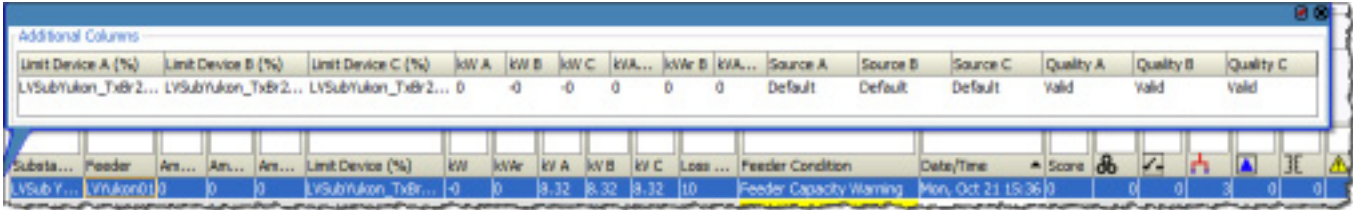
Viewing the Limiting Device by Phase

To view the limiting device in the viewer, right-click the Feeder Load Overview row and select from the View Limit Device Phase options for the applicable phase (e.g., View Limit Device Phase A). Viewer 1 will focus on the device.
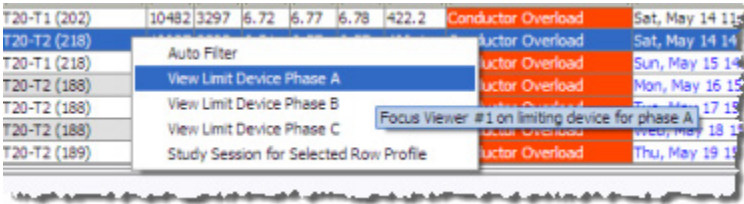
Starting a Study Session for Selected Row Profile

Each row in the Feeder Load Management window corresponds to a specific network condition. By selecting *Study Session for Selected Row Profile* from the right-click option menu, you can go directly into the **Power Flow Study Mode Load Scenario** to begin a study session in the Viewer based on the conditions in the row.
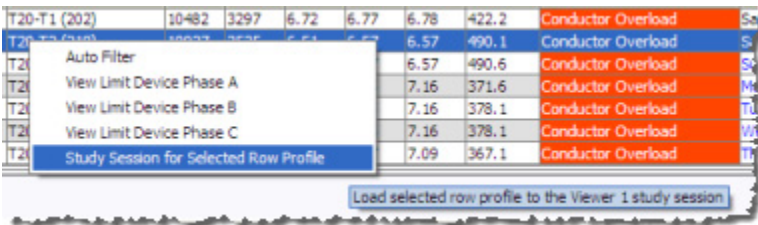
Feeder Load Management Details

The **Feeder Load Management Details** window provides information about a selected row in the **Feeder Load Management Feeder Load Overview Tab**. It is accessed by double-clicking the row or by clicking the ⬜ button.

The Feeder Load Management Details window has seven possible tabbed data views. Any views that do not return data will be desensitized.

- **Violations** – displays identified device overload violations and energy assessment warnings for the feeder selected in the **Feeder Load Overview Tab**.

- **Tie Points** – displays all three-phase open tie points for the feeder selected in the **Feeder Load Overview Tab**.

- **Transformers** – displays all Transformers electrically connected to feeder selected on the **Feeder Load Overview Tab**.

- **Shunt Devices** – displays all downstream capacitor and reactor banks for the feeder selected on the **Feeder Load Overview Tab**.

- **Equivalent Sources** – displays all sources electrically connected to the feeder selected on the **Feeder Load Overview Tab**.

- **Equivalent Sources** – displays all sources electrically connected to the feeder selected on the **Feeder Load Overview Tab**.

- **Load Details** – displays SCADA measurements and calculated flows for applicable devices.

Violations

The **Violations** tab displays identified device overload violations and energy assessment warnings for the feeder selected in the **Feeder Load Overview Tab** panel.

The Violations data includes the following columns:

- **Device** – The device's name.

- **Violation** – The violation or warning name. See **Feeder/Device Condition Names and Colors** on page B-6 for range of values and colors for this column.

- **Phase** – The phase that the violation is on

- **Value** – The violation/warning value

- **%** – Value percent of limit. The Violations table is sorted based on this column.

- **Limit** – The device limit for violated attribute.

- **Units** – The validation type unit (*i.e.*, A, kVA, kVAr, kV).

Violations Toolbar

The Violations toolbar provides the following options:

- Click ⊙ to focus the Viewer on the selected device.

- Click 🖳 to print the table.

- Select the data criteria from the **Violations and Warnings** options menu; options are: Violations Only, Warnings Only, or Violations and Warnings options menu.

- Select the device class from the **Violations Types** options menu. The number of devices having the violations or warnings is provided in parenthesis.

Tie Points

The Tie Points tab displays all three-phase open tie points for the feeder selected in the **Feeder Load Overview Tab**. A tie point is a three-phase open switch of an accepted and configured set of switch classes. The open switch doesn't need to be in its nominal position.

The Tie Points Capacity table includes the following columns:

- **Tie Point:** The tie point name

- **To Feeder:** The adjacent feeder that will be connected to the current feeder if the tie point is closed.

- **To Substation:** The *To Feeder's* substation name

- **To Feeder Amps A:** To Feeder Phase A Current

- **To Feeder Amps B:** To Feeder Phase B Current

- **To Feeder Amps C:** To Feeder Phase C Current

- **Pickup Amps A:** Phase A current pickup capacity

- **Pickup Amps B:** Phase B current pickup capacity

- **Pickup Amps C:** Phase C current pickup capacity

- **Limit Device Phase A:** ID of limiting device for Phase A.

- **Limit Device Phase B:** ID of limiting device for Phase B.

- **Limit Device Phase C:** ID of limiting device for Phase C.

Tie Points Toolbar

The Feeder Tie Points Capacity Overview toolbar provides the following options:

- Click to focus the Viewer on a selected feeder. This button is disabled until the user selects a row in the Tie Points Capacity table.

- Click to open Feeder Load Management 2 for the feeder listed in the To Feeder column of the selected row. This button is disabled until the user selects a row in the Tie Points Capacity Overview table. If Feeder Load Management 2 is already open, it is updated with the data for the "To Feeder."

- Click to print the Tie Points table.

Transformers

The Transformers tab displays all Transformers electrically connected to feeder selected on the **Feeder Load Overview Tab**.

The Transformer Details table includes the following columns:

> **Note**: Administration and Full Operations users can change some of regulation devices parameters in Real-Time Mode for non-SCADA devices. Both SCADA and non-SCADA devices settings can be edited in Study Mode. Editable cells display a pink background.
>
> Click the button on the tab's toolbar to save the changes and trigger resolve for the selected feeder. Editing in Real-Time Mode is available only when a present load row is selected in the Feeder Load Overview table.

- **Device** – The device name

- **kV A** – Device Phase A Voltage

- **kV B** – Device Phase B Voltage

- **kV C** – Device Phase C Voltage

- **Voltage Setpoint** - The regulation set point. Administration and Full Operations users can change the value of this column when the Regulation Type is not "No Tap" or "Fixed Tap" and the Automatic Control is on.

- **Tap Step** - The tap step position. Administration and Full Operations users can change the value of this column to a value between Min Tap Step and Max Tap Step when the Regulation Type is not "No Tap" and the Automatic Control is off.

- **Min Tap Step** - The minimum tap step position

- **Max Tap Step** - The maximum tap step position

- **Regulation Type** – The regulation type

- **Automatic Control** – Administration and Full Operations users can switch the value of this column between on and off when the Regulation Type is not "No Tap" or "Fixed Tap."

Shunt Devices

This tab displays all downstream capacitor and reactor banks for the feeder selected on the **Feeder Load Overview Tab**.

The Shunt Devices table includes the following columns:

> **Note**: Administration and Full Operations users can change some of regulation devices parameters in Real-Time Mode for non-SCADA devices. Both SCADA and non-SCADA devices settings can be edited in Study Mode. Editable cells display a pink background.
>
> Click the 🔄 button on the tab's toolbar to save the changes and trigger resolve for the selected feeder. Editing in Real-Time Mode is available only when a present load row is selected in the Feeder Load Overview table.

- **Device** – The device name

- **Device Type** - Capacitor or Reactor

- **kVAr A** – Device Phase A Reactive Power

- **kVAr B** – Device Phase B Reactive Power

- **kVAr C** – Device Phase C Reactive Power

- **On Threshold** - The on threshold. Administration and Full Operations users can change the value of this column when the Regulation Type is not fixed and the Automatic Control is on.

- **Off Threshold** - The off threshold. Administration and Full Operations users can change the value of this column when the Regulation Type is not fixed and the Automatic Control is on.

- **# Energized Steps** – The number of energized steps. Administration and Full Operations users can change the value of this column to a value between 0 and # Total Steps when the Automatic Control is off.

- **# Total Steps** – The total number of steps in the shunt device.

- **Regulation Type** – The regulation type of the shunt devices. The regulation types is displayed as one of the following: Fixed, Bus Voltage, Line Current, Line VAR, Line Power Factor, or Temperature.

- **Measurement Attribute** – The monitored attribute of regulated bus voltage, line flow, or area time/temperature.

- **Automatic Control** – Administration and Full Operations users can switch the value of this column between on and off when the Regulation Type is not fixed.

Equivalent Sources

This tab displays all sources electrically connected to the feeder selected on the **Feeder Load Overview Tab**.

The Equivalent Sources table includes the following columns:

> **Note**: Administration and Full Operations users can change some of regulation devices parameters in Real-Time Mode for non-SCADA devices. Both SCADA and non-SCADA devices settings can be edited in Study Mode. Editable cells display a pink background.
>
> Click the 🔁 button on the tab's toolbar to save the changes and trigger resolve for the selected feeder. Editing in Real-Time Mode is available only when a present load row is selected in the Feeder Load Overview table.

- **Source Name** – The name of the source

- **kW A** – Source Phase A Active Power

- **kW B** – Source Phase B Active Power

- **kW C** – Source Phase C Active Power

- **kVAr A** – Source Phase A Reactive Power

- **kVAr B** – Source Phase B Reactive Power

- **kVAr C** – Source Phase C Reactive Power

- **Amps A** – Source Phase A Current

- **Amps B** – Source Phase B Current

- **Amps C** – Source Phase C Current

- **kV** - Administration and Full Operations users can change the value of this column for non-SCADA devices. The user can edit measurements for SCADA devices in the SCADA Summary. To open the SCADA Summary window, right-click a row for SCADA device and select the **SCADA Summary** in the popup menu.

- **Angle** - Administration and Full Operations users can change the value of this column for non-SCADA devices.

- **Validity** - Data validity. Possible values: Valid, Suspect, or Invalid.

Distributed Generation

The Distributed Generation tab displays sources of distributed energy generation on the feeder.

The Primary|All option menu on the toolbar allows you to select from:

- **Primary** (default) – restricts the display to significant (Utility Owned or Commercial) units.

- **All** – include net-metered residential units.

The Distributed Generation table includes the following columns:

- **Name** – The name of the generator

- **kV A** – Voltage A (kV)

- **kV B** – Voltage B (kV)

- **kV C** – Voltage C (kV)

- **kW** – Real Power Output (kW)

- **kVAr** – Reactive Power Output (kVAr)

- **Voltage Regulated** – Voltage

- **Voltage Setpoint –** Voltage Setpoint (p.u.)

- **Min PF - Leading** – Minimum Leading Power Factor

- **Min PF - Lagging** – Minimum Lagging Power Factor

- **Target kW**

- **Target kVAr**

- **TTL Expiration:** the time to live expiration of the generator.

- **Status:** whether the unit is **On** or **Off**; can be driven from a SCADA signal.

- **Charge Mode:** whether the unit is Charging, Discharging, or Idling; can be driven from a SCADA signal.

Load Details

The Load Details tab displays all sources electrically connected to the feeder selected on the **Feeder Load Overview Tab**. The feeder head will typically characterize each feeder and 3 to 5 closed sectionalizing devices. Some of these sectionalizing devices will have measurements and may be supervisory control points. Note: This panel is available only when a present load row is selected in the Feeder Load Overview table.

Click the balloon ( ) to toggle on/off the SCADA balloon dialog. When toggled on and a Load Details row that contains SCADA is selected, a balloon dialog displays the selected row's hidden SCADA readings columns.

The Load Details includes the Feeder Load Details table and a toolbar. In study mode, the toolbar includes a refresh button and a device field that allows you to add a particular device to the Load Details screen and the Devices drop-down menu on the FLM Graphical View tab. Click the Refresh button to trigger a new solution with this device. The Load Details table includes the following columns:

- **Amps A** – Solved Phase A Current

- **Amps B** – Solved Phase B Current

- **Amps C** – Solved Phase C Current

- **kW A** – Solved Phase A Active Power

- **kW B** – Solved Phase B Active Power

- **kW C** – Solved Phase C Active Power

- **kVAr A** – Solved Phase A Reactive Power

- **kVAr B** – Solved Phase B Reactive Power

- **kVAr C** – Solved Phase C Reactive Power

- **kV A** – Solved Phase A Voltage

- **kV B** – Solved Phase B Voltage

- **kV C** – Solved Phase C Voltage

Using Real-Time and Study Mode

If you start or update the Feeder Load Management Tool from the Viewer, the tool's mode is defined by the Viewer's mode.

If you start or update the tool from the Feeder Load Summary window, the tool opens in real-time mode. Once the tool is open, you can switch modes by clicking the corresponding button on the toolbar or selecting the appropriate menu option.

When you start the tool in Study Mode or switch from real-time to study mode inside the tool, the **Power Flow Study Mode Load Scenario** dialog prompts you to select the Load Profile from either the real-time system or from a specific period (hour and type of day).

Viewing and Modifying Study Session Parameters

The Study Session Parameters dialog allows you to request a new Feeder Load Management calculation for the current study session's topology. You can specify power flow options, the start date and time, type, and number of forecasts to calculate. You can also change the scale factor for any day of a week.

An existing study session is used as the Feeder Load Management Tool Study Session or, if none exists, a new study session is created based on the real-time data. The user can reset the study session from the Viewer. The session can be reset to nominal or real-time data. The Feeder Load Management mode **does not chang**e when the Viewer switches between real-time and study mode.

To display the Study Session Parameters dialog, do one of the following:

- In real-time mode, click the 🐦 button on the Feeder Load Management Tool toolbar or select **Study Mode** from the Actions menu.

- In study mode, click the 🔘 button on the Feeder Load Management Tool toolbar or select **FLM and Power Flow Options** from the Actions menu.

The Study Session Parameter dialog displays the following fields and buttons:

Feeder Load Management Options Panel

- **Hourly Forecasts** - run hourly studies for the next 24 hours to include load scaling determined by real-time SCADA values

- **Daily Peak Forecasts** - run daily peak studies for the next 7 days.

- **Specific Period** - Run a single study for the specified period:

    - **Scale** is the Scaling Factor is a number that modifies the scenario.

    - **Day** is the type of day, which is typically Weekend, Work Day, or Seasonal Peak.

    - **Wind** is the condition of the wind power sources.

    - **PV** is the condition of solar power sources.

    - **Fuel** is the availability of the fuel for fossil fuel power sources.

    - **Battery** is the condition of the Battery power sources.

Limits Panel

- **Limit Type** - Indicates the limit type, either Normal or Emergency.

- **Season** - Indicates the season, such as Spring, Summer, etc.

- **Voltage Limits** - Specifies high and low voltage limits.

Buttons

- **Reset to Defaults** - Click **Reset to Defaults** to reset to real-time values.

- **OK** - Click **OK** to request the calculation for the selected feeders. See **Requesting a New Feeder Load Management Calculation** on page 11-22.

- **Cancel** - Click **Cancel** to exit the Study Session Parameters dialog.

Requesting a New Feeder Load Management Calculation

To request a new Feeder Load Management Study Mode calculation, follow these steps:

1. Do one of the following to open the Study Session Parameters dialog:

   - In real-time mode, click the ![icon] button on the Feeder Load Management toolbar or select **Study Mode** from the Actions menu.

   - In study mode, click the ![icon] button on the Feeder Load Management toolbar or select **Study Session Parameters** from the Actions menu.

2. Complete the fields on the Study Session Parameters dialog.

3. Click **OK**. The rows will clear. When the forecasts are ready, the refresh (![icon]) button will enable; click the ![icon] button to update the table data.

   The results of the calculation are displayed on the Feeder Load Management Overview Panel.

4. View other Feeder Load Management Window Panels for more information.

Data Source and Data Quality

Possible sources of data for a feeder head are Default, SCADA, or Manual Entry. SCADA is considered to be the normal source; the other two are considered abnormal.

Possible values of data quality are:

- **Valid** – data is valid.

- **Suspect** – there are inconsistencies in the data that the system cannot reconcile, which indicates a possible misconfiguration of SCADA or model data.

- **Invalid** – the SCADA system has reported a measurement as being unusable.

- **Load** – indicates a measurement is suspect because the system is unable to scale the loads to match it.

- **Profile** – indicates a potential mismatch between modeled load profile Power Factor and the value determined from SCADA. Incorrectly modeled shunt devices can also trigger this value.

- **Filtered** – Value from SCADA was not used to scale Power Flow solution.

A yellow background for a feeder name in Feeder Load Summary or Feeder Load Overview indicates that the feeder head data source and/or quality is abnormal.

Feeder Load Summary

File ▾   Actions ▾   View ▾   Filter ▾   Help ▾

Present Loads ▾   Auto Filter   **Filter: Substation = SUB_LAKE, All   Sort: Score (-)**

Substation	Feeder	Phase	Util %	Amps	kV	Feeder Condition	Date/Time	Score ▾	# Al...
SUB_LAKE									
SUB_Lake	2411	B	23	110	8.26	Normal	Thu, Mar 07 10:06	0	0
SUB_Lake	2412	A	22	107	8.25	Normal	Thu, Mar 07 10:06	0	0
SUB_Lake	2421	A	30	144	8.26	Normal	Thu, Mar 07 10:06	0	0

Data source, quality, and alarm counts are not included in Feeder Load Management tables by default. To see this additional information, enable balloon details (🗩) and select a table row.

Feeder Load Summary

	Phase A	Phase B	Phase C
Source:	SCADA	SCADA	SCADA
Quality:	Valid	Invalid	Valid

Help ▾

Filter   **Filter: Substation = SUB_LAKE, All   Sort: Score (-)**

Substation	Feeder	Phase	Util %	Amps	kV	Feeder Condition	Date/Time	Score ▾	# Al...
SUB_Lake	2411	B	23	110	8.26	Normal	Thu, Mar 07 10:06	0	0
SUB_Lake	2412	A	22	107	8.25	Normal	Thu, Mar 07 10:06	0	0
SUB_Lake	2421	A	30	144	8.26	Normal	Thu, Mar 07 10:06	0	0

Identifying Devices with SCADA Suspect and SCADA Inconclusive Results

After finding that a power flow will not solve due to a suspect SCADA data, you can use FLM to identify the devices that are returning bad data. You may identify the problem by viewing a device in the **Viewer** and seeing that the Power Flow will not solve or by seeing a Suspect SCADA feeder condition in the **Feeder Load Summary**.

1. Once you have opened FLM, notice the row with the Suspect SCADA condition.

2. Select the row and click the Feeder Load Management Details ▭ button.

3. Select a row with Suspect data and click the target button ⊙ to focus the Viewer on the device.

Using the DMS Summary

The DMS Summary displays the summary of the distribution system for FLM-enabled feeders.
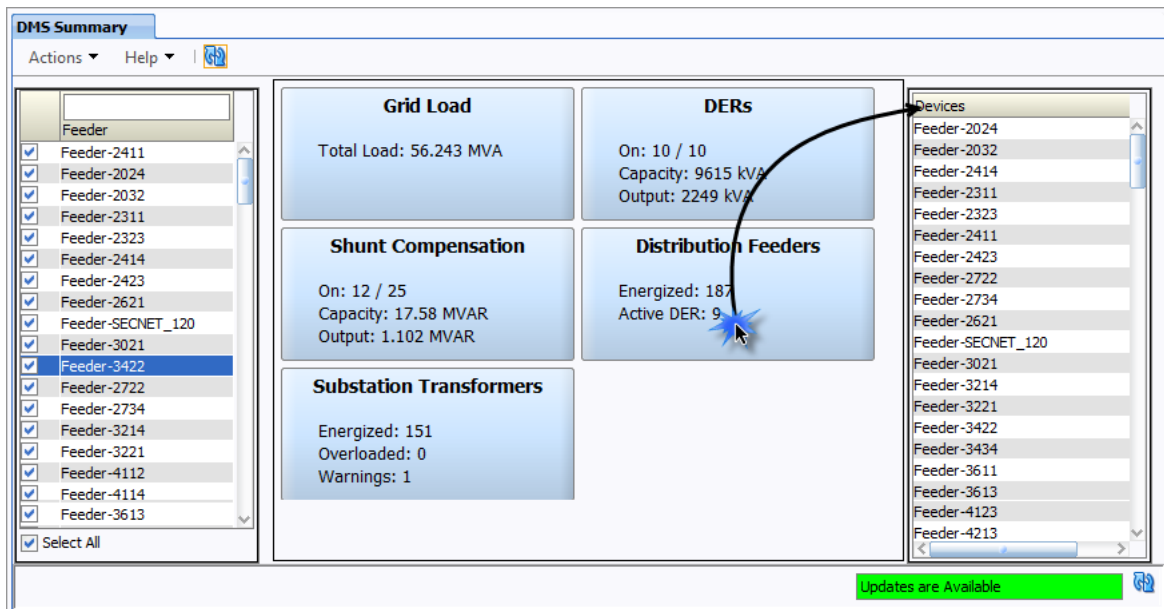
The DMS Summary window is comprised of three panes:

1. The Feeder pane (left) displays the list of FLM-enabled feeders in the subscribed zone. The filter box allows you to filter the list to quickly find a feeder of interest. The checkbox allows you to select or deselect all feeders.

2. The middle pane displays the status of **Grid Load**, **DERs**, **Distribution Feeders**, **Shunt Compensation**, and **Substation Transformers**.

3. The Devices pane (right) displays a list of devices providing data for the block selected in the middle pane.
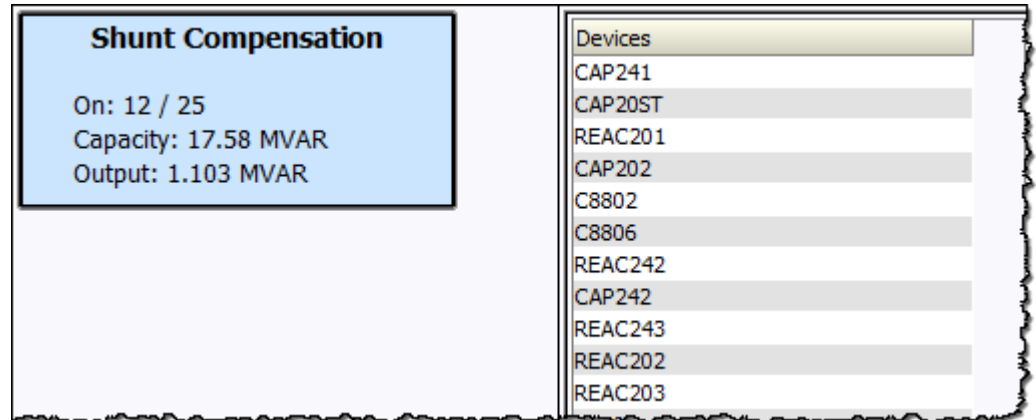
When there is an update available from FLM or if you have changed the feeder selection, the text indicator in the status bar will display "**Updates are Available**" and the refresh button ( ) will be enabled. Click the refresh button to update the summary.

If you select a device listed in either the left pane or right pane and right-click, you can select **View...** to focus the device in the Viewer.

Using the Weather Zone Forecast Tool

The Weather Zone Forecast Tool allows an admin type user the ability to modify the profiles used with different types of distributed generation for a set of pre-configured weather zones. This allows different distributed generation profiles be applied independently to each weather zone. For example, the climate in each of the different weather zones in a utilities service territory may be uniquely different. One area may be sunny and the other cloudy and raining. If, for example, PV was connected to the network, it would be incorrect to utilize a sunny profile in the region that was cloudy. The distributed generation profiles will be used by the real-time and forecasted power flow solutions to increase the accuracy of the results.

• Each row represents a weather zone within the NMS data model (*e.g.*, Mountain, Coastal, Desert, Inland, etc).

• For each zone row, the admin user has the ability to modify the distributed generation profile used for the current day plus the following six days.

• A drop-down option menu allows the admin user to select the type of distributed generation displayed (*e.g.*, Wind, PV, Hydro, Fossil Fuel, etc).

Menus and Toolbar

The Weather Zone Forecast Tool provides the following pull-down menu options and toolbar options.

File Menu

Menu Option	Description	Toolbar Icon
Save Forecast	Saves the current weather zone forecast.	--
Exit	Closes the Weather Zone Forecast window.	--

Actions Menu

Menu Option	Description	Toolbar Icon
Refresh	Refresh the safety document list with the latest data from the database.	
Sunday . . . **Saturday**	Selections for each day of the week that allows you to change the forecast for that day based on the selected distributed generation type.	--

View Menu

Menu Option	Description	Toolbar Icon
Wind Forecast	View the weather zone forecast for wind powered distribution generation.	--
PV Forecast	View the weather zone forecast for PV powered distribution generation.	--
Fuel Forecast	View the weather zone forecast for fossil fuel powered distribution generation.	--
Battery Forecast	View the weather zone forecast for battery powered distribution generation.	--

Help Menu

Menu Option	Description	Toolbar Icon
Weather Zone Forecast Tool Help [F1]	Launches online help for the Weather Zone Forecast Tool.	--

Chapter 12

Fault Location, Isolation, and Service Restoration

This chapter describes the Oracle Utilities Network Management System (NMS) Fault Location, Isolation, and Service Restoration (FLISR) functionality.

> **Note**: The features described in this chapter are specific to the FLISR functionality. For information about the Fault Location Analysis (FLA) feature, see **Fault Location Analysis** on page 13-1.

This chapter includes the following topics:

- **Overview**
- **Setting the FLISR Mode**
- **Understanding FLISR Events in the Work Agenda**
- **Using the FLISR Report Tool**
- **Viewing FLISR Disabled Devices**
- **Viewing FLISR Conditions**
- **Using the FLISR Flow Summary Window**

Overview

FLISR responds to protection trips of SCADA monitored and controlled switches (*i.e.*, feeder circuit breakers (CB) and downstream reclosers (ACR)). FLISR automatically identifies the faulted section using the telemetered Protection Trip and Fault Indication flags and then (in Auto Mode) automatically schedules the isolation and restoration actions to restore the non-faulted areas de-energized by isolating the fault. In Manual Mode, FLISR will present the isolation and restoration actions for execution by the user. If Oracle Utilities Network Management System **Power Flow** is implemented, FLISR will use power flow analysis in the solution analysis.

The following figures show the sequence of events in a FLISR scenario.

The first figure shows the various scenarios in the momentary processing. The scenarios are:

1. A breaker trips and is followed a short time later by a reclose operation.

2. A breaker trips and is followed by a recloser lockout.

3. A breaker trips but the device has no recloser lockout signal available. FLISR waits a configurable amount of time and, in the absence of a close operation, assumes lockout to have occurred.

Momentary Processing

| Pending Tag Created Timer Started | Pending Tag Removed Timer Cancelled Momentary Event Created | Pending Tag Removed Timer Cancelled RO Created | Pending Tag Removed Timer Cancelled RO Created |

Device OPEN | Scenario 1: Device CLOSE | Scenario 2: Lockout Signalled | Scenario 3: Timer Expires
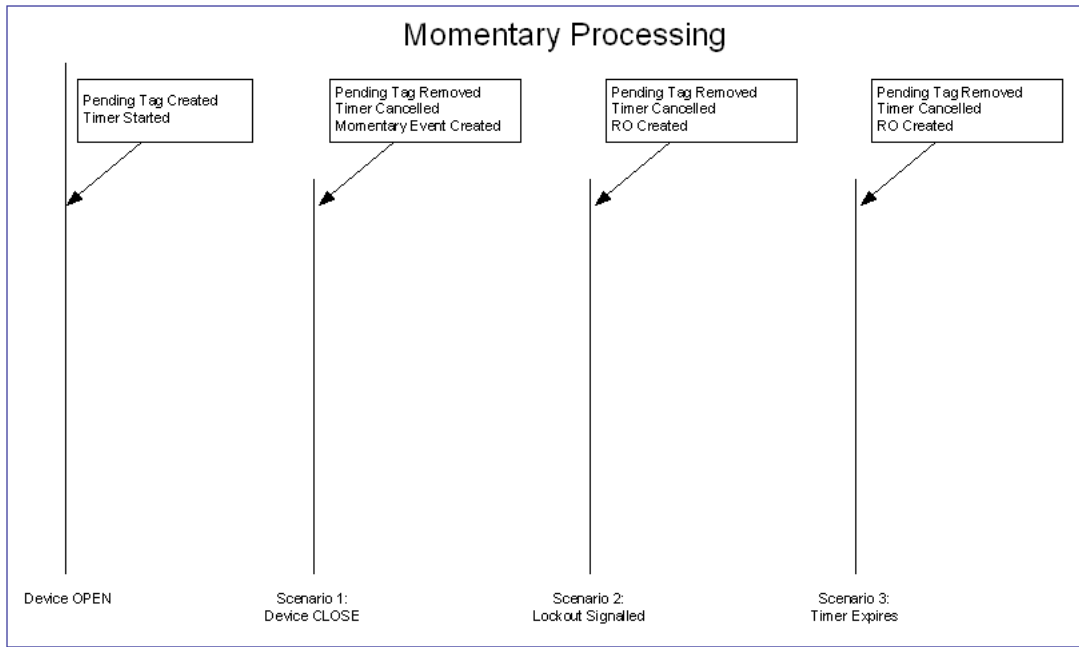
> **Note:** RO (Real Outage) is created only if customer supply nodes are de-energized as a result of the operation.

Once an RO is created, the FLISR processing sequence shown in the following figure is initiated.

FLISR Time Line

If device FLISR disabled, abort.

Check for CB Trip Indication, if present and not set, abort.

Check for Lockout, if present and not set, abort.

Check for Fault Indication, if present and not set abort

Trace downstream and schedule Demand Scan of all downstream RTUs

Commence FLISR processing, rechecking RL and CT flags

Issue FLISR Feeder Disable Issue ACR Suppress Issue Isolate Control

SCADA confirms isolate control Issue Restore control

SCADA confirms restore contol. Wait 20 seconds Issue ACR Restore

Wait further 20 secs Issue FLISR Feeder Enable Control

10 secs (configurable) | 15 secs (max allowed time configurable) | 5 - 10 seconds (typical) | 5 - 10 seconds (typical) | 40 secs

Outage Event Created. | 25 secs | 35 secs | 45 secs | 85 secs

The control sequence (starting at around 25 seconds) is only performed in automatic mode. In manual mode an operator must initiate the control sequence.

Timings in the above diagram are only indicative. Actual values will depend on the complexity of the solution required and the responsiveness of the isolate/restore controls sent to SCADA. The following timings are deterministic:

- The delay allowed for demand scans. This is configurable and defaults to 10 seconds.

- The maximum solution time allowed in automatic mode. This is configurable and defaults to 15 seconds. If the solution takes longer to solve than this time, FLISR will not automatically execute the control sequence. The option for an operator to manually initiate the control sequence is preserved.

- Maximum time allowed for automatic operations after the lockout is: Demand scan delay + maximum solution time. The default configuration is 25 seconds.

- Wait times for Recloser operations. These are 20 seconds.

- Any error conditions detected during process are logged in the Event Log.

FLISR Blocking Conditions

NMS may be configured with conditions to block FLISR actions when present. Any FLISR regeneration plan that would include the condition will be excluded from automatic actions or from suggested restoration plans.

Possible Blocking Scenarios

- Blocking could be set up for a type of safety document and then FLISR would skip any scenario that would operate a device that had been tagged with that type of safety document.

- Any device with a crew onsite could be blocked to protect the crew from an automatic device operation.

Setting the FLISR Mode

FLISR supports three different modes of operation:

- **Disabled** - Disables FLISR from calculating, generating or executing a restoration plan. FLISR still automatically performs disables/enables functions.

- **Manual** - Places FLISR in manual mode, where restoration plans are automatically generated but must be manually executed by the operator via a switching sheet generated from the FLISR Tool.

- **Automatic** - Places FLISR in automatic mode, which automatically generates and executes switching sheets.

To set the FLISR mode, select **FLISR Mode** from the **Tools** menu and then select the desired mode (**Disable**, **Manual**, or **Automatic**). These modes can be set for individual feeders through the Configuration Assistant's DMS Application Administration tab (see **Using the DMS Application Administration Tab** on page 17-25 for details). In effect, FLISR will run the minimum of the system wide mode and feeder mode

Enabling and Disabling FLISR Devices from the Control Tool

You can enable or disable devices for FLISR actions by clicking the **Enable FLISR** or **Disable FLISR** buttons from the Control Tool. These buttons are displayed for all FLISR devices.

When a FLISR device is disabled, a condition flag is shown on the Viewer adjacent to the device.

> **Note:** Disabling a Circuit Breaker or a Recloser will implicitly disable all downstream FLISR actions. Disabling a non-reclosing device (*i.e.*, a simple sectionalizer) will only disable the individual device.

Understanding FLISR Events in the Work Agenda

The Work Agenda **DMS Status** column provides information about FLISR status and results of the FLISR calculations. When row or cell coloring is enabled in the **Web Workspace** (see **Color Coding Options** on page 1-8), the **DMS Status** information is color coded. Possible FLISR status results:

DMS Status Column	Description
	Blank. A non-DMS event.
FLISR Solution in Progress	The job is currently being processed as a FLISR job and a solution is being searched for.
FLISR Solution Failed	No solution was found or devices may have been tagged, failed SCADA execution, etc.
FLISR Plan Generated	A FLISR solution has been found for the job.
FLISR Plan Generated with Violations	A FLISR solution has been found, but it causes violations on the restoring feeder – manual intervention is required.
FLISR Automatically Executing	The system is executing the plan.
FLISR Automatically Executed	The system has finished executing the plan.
FLISR Automatic Execution Failed	The plan failed to execute – manual intervention is required.
FLISR Tag Found	Tags were found on the affected feeder.
FLISR Manually Aborted	FLISR processing or execution has been aborted by a user.

Aborting a FLISR plan

Select a FLISR event in the Work Agenda. Right-click the event and select **Abort DMS Processing**. Alternatively, in the FLISR switching plan, right-click the FLISR event in the Events table and select **Abort DMS Processing**.

Using the FLISR Report Tool

The FLISR Report Tool summarizes the SCADA devices and their signals and the recommended restoration plans. To start the FLISR Report Tool:

- Select a FLISR event in the Work Agenda. Right-click and select **FLISR Report...** from the option menu or select **FLISR Report...** from the **Actions** menu. The Fault Location, Isolation, and Service Restoration Tool window opens for the selected event.

    Note: These options are only available if the selected event is a FLISR event.

The Fault Location, Isolation, and Service Restoration window displays the following information:

- **SCADA Measurements**. This summarizes the status of all FLISR devices downstream of the tripped device.

    - **Device** displays the alias of the device. Select the row that will allow you to "target" the isolation switch in the Viewer.

    - **Status** displays the tripped/closed status of all associated SCADA devices.

    - **Pre-Trip Amps** displays the pre-fault amps through the associated SCADA devices. This is calculated from the pre-fault kW and pre-fault kVAr.

    - **Fault Indicator** displays the fault indication status of all associated SCADA devices.

    - **Lockout Indicator** displays the reclose lockout status of all associated SCADA devices.

    - **Pre-Trip kW** displays the pre-fault kW through all associated SCADA devices.

    - **Pre-Trip kVAR** displays the pre-fault kVAr through all associated SCADA devices.

    - **Quality** displays the relevant SCADA status of the associated SCADA device's status, reclose lockout, fault indication, and analog signals.

- **FLISR Messages.** Summarizes pertinent information associated to the plan such as tags found, reasons for failure, execution details such as solution start/end times, FLISR sheet creation start/end times, sheet execution start time, status and end time.

    - **Device** displays the alias of the device for which the message is associated to. For example, if a downstream switch had a tag associated to it the switch alias would appear here.

    - **Date** displays the time stamp related to corresponding message.

    - **Is Alarm** displays whether this message is an alarm (Y) or not (N).

    - **Message Description** displays a string with information for that row entry. Examples include reasons for failure, tags found, information about plan execution, sheet id, job id, etc.

- **FLISR Plans**

    - **Isolation Switch** displays the alias of the SCADA device used as the isolation point, in the FLISR-generated restoration plan.

    - **Preferred Restore Option** (unlabeled) column allows you to select the desired restore switch option for this isolation switch.

    - **Pickup Amps** displays the expected amps (load) in the section bounded by the isolation switch, which is to be transferred to another feeder.

    - **Restore Switch** displays the alias of the SCADA device used as the restoration point in the FLISR-generated restoration plan.

    - **Feeder** displays the feeder name to which supply is being transferred.

    - **Peak Load Time** displays the time of load reported for consideration. This would be peak load after the restore.

- **Before Feeder Amps** displays the amps on the feeder to which supply is being transferred.

- **After Feeder Amps** displays the expected amps (load) on the feeder to which supply is being transferred after the transfer.

- **Violation Start Time** displays the time that feeder violations start, if applicable.

- **Violation End Time** displays the time that feeder violations end, if applicable.

- **Limit Device** displays the highest loaded limiting object type.

- **Expected Limit Object Amps** displays the expected highest loaded limiting object amps after the restoration.

FLISR Report Tool Menus and Toolbar

This section describes the toolbars and menu options available when you are running FLISR.

File Menu

- The **Print** option prints the contents of the window.

- The **Exit** option exits the FLISR tool.

Actions Menu

- The **Generate Switch Plan** option generates a switch plan for the selected isolate/restore sequences when FLISR is in Manual mode or when a plan resulting in a violation is detected under Auto mode.

- The **Enable Balloon Details** option toggles the balloon details on and off. When enabled, a balloon dialog displays details about the selected item. For Limit Devices, the balloon dialog displays the Limit Device Amps,% of Rating, and Margin.

Options Menu Actions

These options are displayed when you right-click a row in the FLISR Report tool.

- **View...** displays (focuses) the Viewer on the selected device.

- **SCADA Summary...** displays the SCADA Summary window for the selected row in the SCADA Measurements table.

- **Flow Summary...** opens the FLISR Flow Summary. This option is only available when a row is selected in the FLISR Plans list.

- **View Isolate Switch...** focuses the Viewer on the affected feeders for the selected isolate sequences. This option is only available for the selected row's isolation switch.

- **View Restore Switch...** focuses the Viewer on the affected feeders for the selected restore sequences. This option is only available for the selected row's restoration switch.

- **View Limit Device**... focuses the Viewer on the highest expected limiting device for the selected restore sequence.

Executing FLISR in Automatic Mode

In Automatic mode, FLISR can create and execute a switch plan without operator intervention as follows:

1. A fault occurs and a section is isolated.

2. FLISR completes its analysis and produces its solutions.

3. FLISR selects the best combination, based on a set of rules such as preferring to restore load to the same Zone Substation and avoiding violations.

4. FLISR creates a plan and executes all steps in the plan automatically.

5. An operator can view the plan during and after execution. If the switching sheet is called up during the automatic execution, it will have been placed in View Only mode. The switching sheet may be manually augmented with additional steps after the automatic execution has completed. The switching sheet will behave like a normal Fault switching sheet after the FLISR generated steps are completed or have failed (after it is taken out of View Only mode).

After FLISR calculations have been made, the corresponding switching sheet may be called up from the **Switching…** option in the Work Agenda. It is possible that when you call the switching sheet up you will see the switching sheet still executing.

FLISR Automatic Mode with Violations

FLISR automatic mode with violations works as follows:

1. A fault occurs and a section is isolated.

2. FLISR completes its analysis and produces its solutions. One of the preferred restoration scenarios includes creating violations on the restoration feeder.

3. FLISR selects alternate restoration scenarios. This might mean skipping a preferred feeder to avoid the violations and selecting a different feeder that has more capacity.

4. A plan is created and all steps in the plan are executed.

5. An operator can view the plan during and after execution as described above.

Generating a Switch Plan for the Violation Case

In the case where the restoration plan would result in violatons, either in the restoring feeder or the section being transferred, the user must apply an override to generate the Switch Plan.

The checkbox must be selected for the plan you want to use. The system prompts you for confirmation. In automatic mode, plans with violations are not executed automatically and must be run by the user in manually (from the switching sheet via the **Execute FLISR Steps** action).

Generating a Switch Plan with FLISR in Manual Mode

In manual mode, you can generate a switching sheet from the FLISR tool and then execute the steps in Web Switching Management.

Here's how the process works:

1. A fault occurs and a section is isolated.

2. FLISR completes its analysis and produces its solutions.

3. The operator inspects the FLISR solutions and either accepts the default scenarios or decides to adjust the scenarios.

4. The operator instructs FLISR to generate the plan.

5. The operator reviews the plan.

6. The operator can choose to do one of the following:

   • Instruct, Complete and/or fail each step manually, or

   • Choose to let FLISR execute all steps in the plan.

Generating the Switch Plan

To generate the switching sheet from the Fault Location, Isolation, and Service Restoration window, follow these steps:

1. In the FLISR Plans table, click the checkbox for the plans you want to generate. (The checkbox appears in the column to the right of the Isolate Switch column.)

2. Click the **Generate Switch Plan** toolbar button or select **Generate Switch Plan** from the Actions menu. The FLISR Event to Sheet List dialog opens.

3. Click the **Generate Switch Plan** button. The switching sheet is displayed, with the switch steps already inserted.

   Note: If there is an existing sheet already associated with this FLISR outage, the FLISR Event to Sheet List dialog opens. Choose a sheet from the list. Indicate whether the steps should be appended to the existing plan and whether the existing sheet should be overwritten. The switching sheet will be displayed with the FLISR-generated steps, based on the options selected.

4. From the Switching Sheet Editor window, choose one of the following options on the **Action** menu.

   • **Execute FLISR Steps** - Executes all FLISR switch steps after prompting for confirmation. Note that separate isolation/restoration sequences will be executed in parallel.

   • **Clear FLISR Conditions** - Clears the FLISR operated Flags from the Viewer for this Switching Sheet.

Viewing FLISR Conditions

FLISR Conditions (i.e., FLISR Actions and FLISR Disabled Devices) are listed in the **Condition Summaries**, which is accessed from the **Tools** menu. See **Condition Summaries** on page 1-100 for additional details on the Condition Summaries window.

Viewing FLISR Actions

To view all FLISR Actions, select **FLISR Actions** from the Condition Summaries Filter menu. The FLISR See **Condition Summaries** on page 1-100 for more information.

Viewing FLISR Disabled Devices

The system allows you to view devices that have been individually disabled from FLISR operations. There are several scenarios for disabling FLISR on a device.

- Devices can be enabled/disabled through actions on the device's control tool

- Disabling a circuit breaker (and/or recloser) automatically disables all downstream devices along a radial feeder. Each device is checked during FLISR execution for upstream disabled breakers or reclosers.

- Disabling a sectionalizer disables just the individual device.

- Suppressing reclose features of a recloser or circuit breaker will also disable FLISR on the device.

- An explicit FLISR Disable SCADA point can be mapped to a device. When set (typically through a SCADA calculated point), FLISR will be disabled on that device.

- A device can be disabled in multiple fashions; only when all disabling conditions are removed will the device become active again.

- A device can only be enabled by removing the corresponding disabling constraint. For example it is not possible to manually enable a device that has been automatically disabled due to reclose suppression.

- Disabled devices are marked with a "FLISR Disabled" condition, shown in the Viewer, and summarized in the Condition Summaries window with the FLISR Disabled filter.

Using the FLISR Flow Summary Window

The FLISR Flow Summary window displays the calculated flows in the restoration path and in the de-energized section that will be transferred.

To open this window, right-click a row in the FLISR Plans section of the Fault Location, Isolation, and Service Restoration window, then select **Flow Summary...** from the pop-up menu.

The Flow Summary window displays the following fields and buttons:

- **Device Name** is the alias of the object in the restoration path or de-energized section.

- **Device Type** is object type: Cond = conductor, Switch = switch, Fuse = fuse.

- **Amps Flow A/B/C** is the flow in amps through the object.

- **Amp Limit A/B/C** is the limit in amps for the object.

- **Largest % Usage** is the expected load flow through the object as a percentage of the object's rating.

- **Smallest Margin** is the available capacity in amps for the object.

- **kV** is the kV on the branch.

- **Low Limit** is the low kV limit.

- **High Limit** is the high kV limit.

- **% Nominal** is the percentage of nominal voltage that branch is being run at.

- **Violation Type** is type of violation, if any, on the branch. The violation type drives the coloring of the device name column. Devices that violations are colored red. Devices that have warnings are colored yellow. Devices that have neither violations nor warnings are colored green.

- **Violation Start Time** displays the time that violations start.

- **Violation End Time** displays the time that violations end.

- **Restored Device** is set to 'Y' if the object is part of the faulted (de-energized) feeder or 'N' if it is part of the restoring feeder.

- The **Focus** toolbar button displays the branch flow in the Viewer, with the selected object flashing.

Chapter 13

Fault Location Analysis

Oracle Utilities Network Management System's Fault Location Analysis (FLA) uses fault-related SCADA measurements to identify probable fault locations. This information can be used to dispatch crews to targeted locations, thus shortening outage duration and restoration time.

> **Note**: Fault Location Analysis is only available if your system supports SCADA extensions.

This chapter covers the following topics:

- **Fault Location Process Overview**

- **Using Fault Location Analysis**

Fault Location Process Overview

The Fault Location process is as follows:

- When the system receives a message of a fault occurrence, the FLA automatically retrieves fault information from relays and fault indicators (if available) and logs a new event in the Work Agenda.

- FLA uses fault information and circuit parameters to calculate potential fault locations for fault events. Potential fault locations are displayed in the Viewer.

- When the FLA tool is started, it displays analysis details about fault events, including SCADA measurements and probable fault locations.

- If more than one fault location is identified for a specific fault event, the user may have to correct a calculated fault location after the actual fault location is identified by crew members on site.

Fault Location Algorithm

The algorithms used by FLA are different from those used for a regular short-circuit analysis. When performing a short-circuit analysis, where you are determining fault currents, you have more information since you know where the fault is. In that case, the model is solved with a known fault type at a known location. The fault currents at the target location are determined by the source voltage, source impedance, and all conductor impedances along the path to the fault.

With FLA, only the fault currents at the fault reporting device are known and the fault location must be extrapolated. If available, FLA can utilize fault voltage recorded at fault reporting device in conjunction with the fault currents to further improve the analysis.The short-circuit analysis is performed with the fault placed at the breaker and the fault currents determined for that scenario. These should be higher than the fault currents reported by SCADA. For example, if SCADA is reporting 2500 Amps at the breaker and the solution is reporting 3000 Amps, we know that there is more impedance in the path to the fault that would account for the 500 Amps difference. We calculate the impedance that would cause the difference and trace down the feeder summing up conductor impedances until we arrive at a location that equates to the target impedance.

One significant difference between the two scenarios is that by placing the fault at the breaker, we are removing all downstream load from consideration. Whereas in FLA, the fault is actually downstream, so the breaker fault currents will have a component that is for the load that is between the breaker and the fault. The assumption that is made is that component is insignificant; however, in reality, the further down the feeder the FLA fault is, the more significant that component becomes. This may or may not have a significant impact on the results because the fault will pull down the breaker voltage.

Using Fault Location Analysis

FLA displays possible fault locations and the SCADA data involved in the fault location analysis. You can also use the tool to confirm or discard calculated locations.

This section includes the following topics:

- **Understanding Fault Events in the Work Agenda**
- **Using the Fault Location Analysis Tool**
- **Confirming Fault Locations**
- **Marking Fault Locations as Incorrect**
- **Correcting a Fault Location**
- **Manually Entering Fault Current from the Control Tool**
- **Configuring Individual Feeders for FLA**

Understanding Fault Events in the Work Agenda

When the system receives a message of a fault occurrence, the FLA automatically retrieves fault information from relays and fault indicators (if available) and logs a new event in the Work Agenda. The Work Agenda fault event provides the following information:

- The **Status** column displays "F-NEW."

- The **# Out** column (number of customers experiencing outage) is 0.

- The DMS Status column will list one of the following:

  - FLA Solution in Progress

  - FLA Solution Found

  - No FLA Locations Found

  - FLA Solution Failed

    Note: when fault locations are corrected, the system will determine percentage accuracy of the predicted fault location to the actual fault location. This information will be appended to the data in the DMS Status column description.

- The **Evt Type** is "FAULT."

- The **Pred Type** is "Revised Prediction."

- No phases are listed as out.

- All device-related fields, such as the control zone information, appear as they would for any other event.

You can treat the event like you would other event types in the Work Agenda (*e.g.*, acknowledge, assign crews, etc.). In addition, the Work Agenda allows you to start the FLA tool when a fault event row is selected by selecting Fault Location Analysis... from either the Work Agenda Actions menu or the right-click options menu.

Using the Fault Location Analysis Tool

The Fault Location Analysis window displays possible fault locations and the SCADA data involved in the Fault Location analysis.

File Menu and Toolbar Options

- To print the Fault Location Analysis information, click the toolbar print ( ) button or select **Print** from the **File** menu.

- To close the Fault Location Analysis window, select **Exit** from the **File** menu.

The Fault Location Analysis window displays two sections:

- The **SCADA Measurements** section displays fault-related SCADA measurements used to identify probable fault locations.

- The **Possible Fault Locations** section displays the list of devices identified by the Fault Location Analysis tool as possible fault locations. If no valid fault locations are found, a single "Undetermined Fault" record is listed.

SCADA Measurements Section

Table Data

- The **Device** column contains the name of the device reporting the SCADA measurements.

- The **Status** column contains the status of the device.

- The **Fault Ind** column contains the fault indicator (Yes or No).

- The **Fault Current Ind** column indicates whether the fault current values for that device should be processed (Yes, No, or N/A). The fault current may trigger fault location analysis even without a breaker trip.

- The **Qual** column contains quality codes for the measurement that indicate the quality of the SCADA measurement (*e.g.*, out of scan, inhibited, manual override). Several quality codes may be listed.

- The **Amps** columns contain the calculated current flow from the source.

- The **kV** columns contain the voltage at the fault reporting device at the time of the fault. These are optional measurements and may not be configured for all projects.

Options Menu

If you right-click to select a row in the SCADA Measurements section, the options menu displays the following options:

- **SCADA Summary...** - Launches the SCADA Summary filtered for the selected device.

- **View...** - Displays the device in the Viewer.
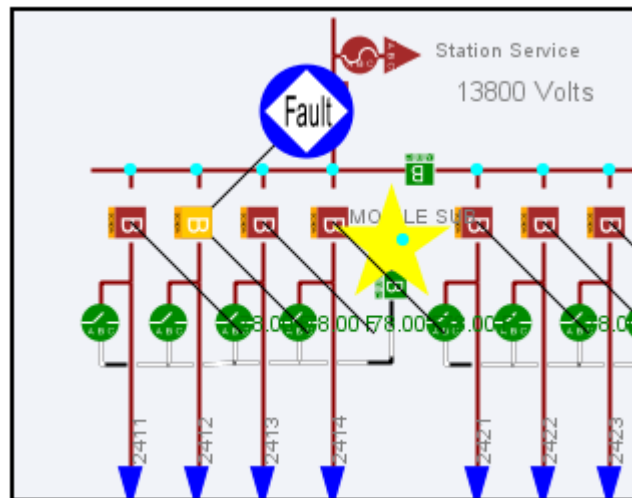
Possible Fault Locations Section

Table Data

- The **Status** column contains the status of the fault location: Possible Fault, Confirmed Fault-Out, or Fault Incorrect.

- The **Fault Type** column contains the fault type: Phase A to Ground, Phase A to Phase C, etc.

- The **Fault Device** column contains the fault device name.

- The **Phases** column contains the faulted phases.

- The **Location** column contains distance from the device to the upstream switch.

- The **Total Distance** column is the total number of feet from the device that reported fault current.

- The **Coordinate** column contains the coordinate of the predicted fault. If the model is configured to be spatially enabled, this column will convert the GIS coordinates to latitude/longitude. (See "Spatially Enabling the Data Model for Advanced Spatial Analytics" in chapter 8, System Data Model, of the *Oracle Utilities Network Management System Configuration Guide* for details.)

Options Menu

If you right-click to select a row in the Possible Fault Locations section, the options menu displays the following options:

- **Confirm Fault** - Marks the device as Confirmed and marks all other devices in the list as Incorrect (not the correct fault location). See **Confirming Fault Locations** on page 13-6.

- **Mark Incorrect** - Marks the devices as Incorrect (not the correct fault location). See **Marking Fault Locations as Incorrect** on page 13-6.

- **Correct Fault…** - Displays the Correct Fault Location window, which allows you to manually edit the fault location. See **Correcting a Fault Location** on page 13-6.

- **View...** - Displays the selected device in the Viewer.
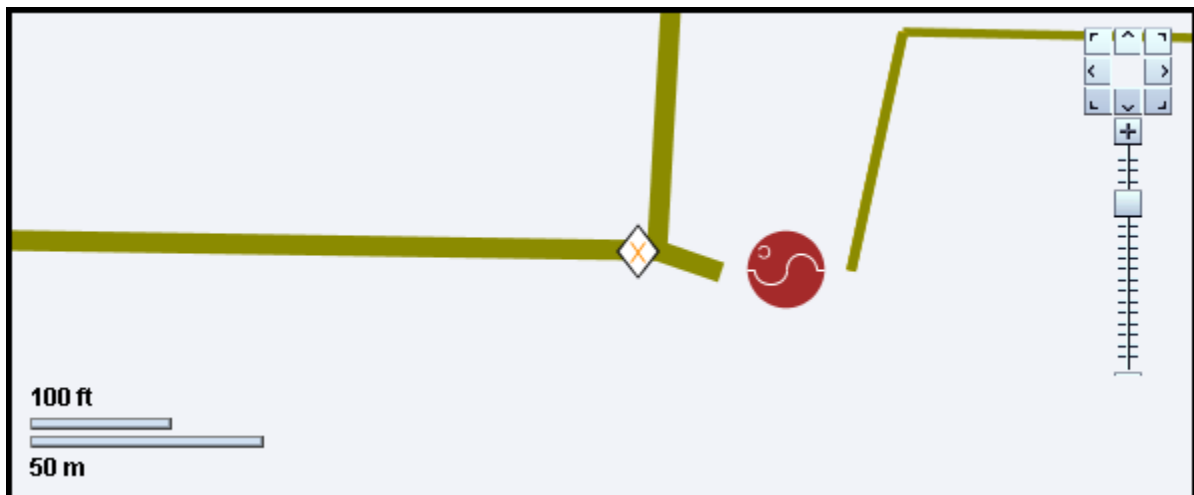
Confirming Fault Locations

To confirm a fault location:

1. Select the device you want to confirm from the Possible Fault Location section on the Fault Location Analysis window. (See **Using the Fault Location Analysis Tool** on page 13-3.)

2. Right-click and select **Confirm Fault** from the option menu. The selected device is marked as Confirmed and all other devices in the list are marked as Incorrect.

    The Confirmed Fault changes from ⬦ to ⬦ in the Viewer. The other Incorrect faults disappear from the Viewer.

    > **Note:** the options are also available when you right-click a fault location symbol in the Viewer.

Marking Fault Locations as Incorrect

To mark a possible fault location as incorrect:

1. Select the device you want to mark as incorrect from the Possible Fault Location section on the Fault Location Analysis window. (See **Using the Fault Location Analysis Tool** on page 13-3.)

2. Click the right mouse button and select **Mark Incorrect** from the pop-up menu. The selected device is marked as Incorrect and disappears from the Viewer.

    > **Note:** the options are also available when you right-click a fault location symbol in the Viewer.

Correcting a Fault Location

If none of the possible fault locations is correct, you can select the closest one and then correct the fault location details. The system creates a new fault location with the corrected information.

To correct a fault location:

1. Select the closest fault location from the Possible Fault Location section on the Fault Location Analysis window. (See **Using the Fault Location Analysis Tool** on page 13-3.)

2. Click the right mouse button and select **Correct Fault…** from the pop-up menu. The Correct Fault Location window is displayed. The Status of the new fault location is set to Corrected Fault and is not editable.

3. Enter the correct values for the following fields:

    *   **Fault Type** - The specific fault type, such as Phase A to Ground or Phase C to Phase A.

    *   **Fault Device** - The faulted object. This is the device alias for the conductor selected in the Viewer.

    *   **Distance** - The distance to the referenced device.

        Note: The reference device field populates with the first upstream switch. The system automatically displays the first upstream switch for the selected fault device. You can reference a different device by selecting the device in the Viewer and clicking the **Change Reference Device** button (🔗) on the Correct Fault Location dialog box; the Select Reference Device dialog box is displayed. The system populates the Reference Device field with the selected device in the Select Reference Device dialog box. Click **OK** to accept this device or click **Cancel** if this is not the correct device.

    *   **Description** - A brief description of the fault. This text will be displayed in a balloon dialog on the Possible Fault Locations table for Corrected Fault rows.

4. Click **OK**. All existing fault locations are flagged as incorrect, and a new location is added that matches your entries.

A new fault location symbol appears in the Viewer at the location indicated by the Distance and Reference Device fields. Any existing fault location symbols in the Viewer are removed.

>   **Note:** the options are also available when you right-click a fault location symbol in the Viewer.

Manually Entering Fault Current from the Control Tool

You may manually enter SCADA fault data to have FLA calculate a fault location.

1. Launch the Control Tool for the breaker.

2. Click the **Fault Current...** button.

3. In the Fault Current dialog, enter the SCADA fault current data.

4. Click **OK** to close the dialog and initiate the FLA calculation.

A new Fault event will be initiated and the fault indicators will be displayed in the Viewer.

Note: click **Cancel** to close the Fault Current dialog without initiating a FLA calculation.

Configuring Individual Feeders for FLA

Individual feeders can be enabled or disabled for FLA using the Configuration Assistant's DMS Application Administration tab. See **Using the DMS Application Administration Tab** on page 17-23 for details.

Chapter 14

Model Management

This chapter describes how to manage changes to your system data model.

> **Note**: For complete information about configuring, validating, and testing the data model, see "Building the System Data Model" in the Oracle Utilities Network Management System Configuration Guide.

This chapter includes the following topics:

- **Overview**
- **Logging In**
- **Using the Model Management Window**
- **Model Management Actions**

Overview

Model Management is a tool for managing changes to your system model. The process of extracting updates from the GIS and updating the model is unique for each company. Typically, model updates are handled by a set of scripts that run automatically on a regular schedule. If there are problems in the update process, the model administrator can use the Model Management tool to identify and resolve the problems and then re-apply the model updates.

The following describes the model update process and introduces several terms that are used in this chapter:

- **GIS Data Extraction** is the customer-specific process by which data is extracted from the GIS to Oracle's vendor-neutral model preprocessor (`*.mp`) file format.

- `*.mp` files must be **preprocessed** before they can be built into the model. Preprocessing converts the `*.mp` files into the `*.mb` file format required by the Model Builder.

- A set of transactions (`*.mb` files), collectively referred to as a **patch**, are submitted to the Model Builder for processing. Patches are applied to or built into the core operations model.

- The **Model Builder (MBService)** processes the `*.mb` files, saves the information to the Oracle Utilities Network Management System Operations Model RDBMS, and writes out a set of **maps,** which are used by the Viewer to display portions of the system model.

- If any problems arise during preprocessing or model building, you can use the Model Management tool to perform the following tasks:

  - Identify maps that need to be built (referred to as pending maps)

  - View a list of recent patches and their statuses

  - Display all patches that were applied to a particular map

  - Rebuild individual maps or run a full model build

  - Run the post process script

  - View the Preprocessor Log, the Patch Build Log, and the Patch Build Report

  - Enable or disable model build reporting

  - Delete an import file to be rebuilt.

Logging In

To log in to Model Management, complete these steps:

1. Depending on how your system was installed, do one of the following:

   - Click the **Model Management** icon found under the appropriate program group in your Windows Start Menu.

   - Double-click the **Model Management** icon on your desktop.

   - Open a web browser and type the Model Management URL in the browser's address field.

   The Model Management Login window displays.

2. Enter your user name in the User Name field.

3. Enter your password in the Password field.

4. Click the **Validate** button. The bottom portion of the Login window sensitizes.

5. Select the appropriate User Type from the drop-down menu.

6. Click the **Login** button. Upon successful login, the Model Management window opens.

Using the Model Management Window

The Model Management window displays the following information:

- **Menu and Toolbar Options**

- **Pending Map Section**

- **Patches Section**

- **Menu and Toolbar Options**

- **Status Bar**

Model Management actions include:

- **Displaying Map History**

- **Displaying the Preprocessor Log**

- **Building Maps**

- **Rebuilding a Patch**

- **Displaying the Patch Build Log**

- **Displaying the Patch Build Report**

- **Enabling and Disabling Model Building**

Menu and Toolbar Options

The Model Management menu and toolbar provide access to commonly used functions. Most of the functions in the Actions menu are also available on the toolbar.

File Menu

Menu Option	Description	Toolbar Icon
Print...	Opens the Print Preview dialog, which allows you to print the contents of the Model Management window.	🖨

Actions Menu

Menu Option	Description	Toolbar Icon
Refresh	Refreshes both the Pending Maps and Patches lists.	🔄
Halt Model Build	Stops all model build activity. See **Enabling and Disabling Model Building** on page 14-8 for more information.	⏸
Enable Model Build	Enables model building activity that was previously halted.	▶

Menu Option	Description	Toolbar Icon
Run Full Model Build	Rebuilds the entire system model, not just individual maps.	--
Run Post Process	Runs the post-processing script. Post processing takes place after maps are built. The default post-processing script performs a recompute and recache of the control zones in DDService, but this can be modified to perform various tasks, such as generating control zones or computing EE details from the model.	
Enable Model Build Reporting	Enables or disables model build reporting. The Model Build Report lists all objects that were modified when a particular patch was applied. If enabled, a checkmark appears next to the menu option.	--
Build Map	Prompts you to enter one or more map names and then rebuilds the specified maps. If you are entering multiple map names, separate names with spaces, as shown below: `Landbase_49132336 Primary_49132336`	

Preferences Menu

Menu Option	Description
Smaller Font (**Ctrl+Minus Sign**)	Decreases the font size in text and icons. Repeat to further decrease the font size.
Bigger Font (**Ctrl+Plus Sign**)	Increases the font size in text and icons. Repeat to further increase the font size.
Reset Font (**Ctrl+0**)	The application will reset the text and icons to use their default font size.

Help Menu

Menu Option	Description
Model Management Help (**F1**)	Launches the online help system and loads the Model Management content.
Email Log Files... (**Ctrl-Shift-M**)	Gathers the environment's log files and attaches them to a new email message using your default email client. The log files can then be sent to your support team or contact for further analysis.
About Model Management	Opens a window with environment and software information.

Logout Menu

Menu Option	Description
User Logout	Exits Model Management.

Pending Map Section

The **Pending Maps** section lists all maps that need to be built. This section displays the following columns:

- **Order** displays the order that the maps will be built. The value is returned by the *<project>*_maps_to_build.ces script.

- **Map Name** displays the name of the model map.

- The **Pending Actions** column displays one of the following:

  - **To be preprocessed**: The *.mp files have not been preprocessed into *.mb files, which is necessary before they can be built into the model.

  - **To be committed**: The *.mp were preprocessed into *.mb files, but have not been committed (built into the model).

- The **Last Build Status** displays the status of the last attempt to build the map. Statuses are:

  - **New**: No attempt has yet been made to complete the pending action.

  - **Failed submit**: The patch was submitted to the Model Builder but the map could not be built. See **Rebuilding a Patch** on page 14-8 for details on correcting this problem.

  - **Failed commit:** The patch was submitted to the Model Builder but the map could not be committed due to a dynamic data error. See **Rebuilding a Patch** on page 14-8 for details on correcting this problem

  - **In progress**: The pending action is currently in progress.

Pending Map Actions

With a map selected in the Pending Maps section, right-click to view the options menu. The options, listed below, are dependent on the state of the file selected.

- **Map History...** - see **Displaying Map History** on page 14-7 for information.

- **Preprocessor Log...** - see **Displaying the Preprocessor Log** on page 14-7 for information.

- **Delete...** - allows you to delete processed files that need to be rebuilt or that you do not want to commit to the model. Only *.mb or *.mbd files may be deleted; if you attempt to delete an *.mp file, you will receive an error notifying you that you cannot delete preprocessor files.

- **Build Map(s)** - see **Building Maps** on page 14-7 for information.

Patches Section

The **Patches** section lists all patches for the last 24 hours. To see patches for another time period, change the beginning and ending dates above the list as desired, then click the **Refresh** button.

The Patches section displays the following columns:

- The **Patch** column displays the patch number. The system assigns a number to a patch when it is submitted.

- **Map Name(s)** displays the name of the model map(s).

- **Creation Date** displays the date the patch was created.

- **Commit Date** displays the date the patch was submitted to the Model Builder.

- **Build Status** displays the status of the patch submission. Statuses are:

  - **Successful** - The patch was successfully applied and the model was updated.

  - **Failed Submit** - The patch was submitted to the Model Builder, but the map could not be built. See **Rebuilding a Patch** on page 14-8 for details on correcting this problem.

  - **Failed commit** - The patch was submitted to the Model Builder, but the map could not be committed due to a dynamic data error. See **Rebuilding a Patch** on page 14-8 for details on correcting this problem.

  - **In Progress** - The patch is currently being processed by the Model Builder. The map file(s) are either being parsed, being applied, or being committed to the database.

Status Bar

The status bar displays the following information:

- **Maps to Build** - The total number of maps that need to be built. These maps are displayed in the Pending Maps section of the screen.

- **Failed Map** - The total number of maps that could not be built (were submitted and failed).

- **Model Build Status**:

  - **Enabled** - Model building is currently enabled. To disable, click the **Halt Model Build** button ( ).

  - **Halted** - Model building has been halted. To re-enable, click the **Enable Model Build** button ( ).

  - **In Progress** - A model build is currently in progress.

Model Management Actions

You can perform the following actions from the Model Management window:

- **Displaying Map History**

- **Displaying the Preprocessor Log**

- **Building Maps**

- **Rebuilding a Patch**

- **Displaying the Patch Build Log**

- **Displaying the Patch Build Report**

- **Enabling and Disabling Model Building**

Displaying Map History

To view a list of all patches that affect a particular map, follow these steps:

1. Select a map from the Pending Maps list on the Model Management window.

2. Right-click and select **Map History** from the options menu. The Map History dialog opens. The columns on this dialog match the columns in the Patches list on the Model Management window.

3. Filter the list as desired by typing the target text in the filter boxes at the top of each column.

4. To take action on an item in the list, right-click the item and then select one of the following options from the options menu:

   - **Rebuild Patch**

   - **Patch Build Log**

   - **Patch Build Report**

Displaying the Preprocessor Log

The preprocessor log displays information and warnings generated during preprocessing. Follow these steps to display the preprocessor log file associated with a map:

1. Select a map from the Pending Maps list on the Model Management window.

2. Right-click and select **Preprocessor Log** from the pop-up menu. The preprocessor log opens.

Building Maps

To build one or more pending maps, follow these steps:

1. Select the map you want to build from the Pending Maps list on the Model Management window.

2. Right-click and select **Build Map(s)** from the pop-up menu. The system builds the selected map and displays the results in the Result dialog.

3. Review the results and then click **Close**.

4. Click the **Refresh** button on the toolbar. If the build was successful, the map is removed from the Pending Maps list and a new row is displayed in the Patches list for this map.

Rebuilding a Patch

To rebuild a patch, follow these steps:

1. Select a patch from the Patches list on the Model Management window.

2. Right-click and select **Rebuild Patch** from the pop-up menu. The results of the rebuild process are displayed in the Results dialog.

3. Review the results, and then click **Close**.

4. Click the **Refresh** button on the toolbar. A new row is displayed in the Patches list for this patch.

Displaying the Patch Build Log

The Patch Build Log displays information and warnings generated during the build process. To display the log for a specific a patch build, follow these steps:

1. Select a patch from the Patches list on the Model Management window.

2. Right-click and select **Patch Build Log...** from the pop-up menu. The log entries are displayed in the Patch Build Log dialog.

3. Click **Close** to exit.

Displaying the Patch Build Report

The Patch Build Report contains a list of all objects that were modified when a particular patch was built.

> **Note**: The Patch Build Report is only generated if Model Build Reporting is enabled at the time the patch was built. Use the **Enable Model Build Reporting** option on the Actions menu to enable or disable Model Build Reporting.

To display the build report associated with a patch, follow these steps:

1. Select a patch from the Patches list on the Model Management window.

2. Right-click and select **Patch Build Report...** from the pop-up menu. The Patch Build Report dialog is displayed.

3. Review the report, and then click **Close**.

Enabling and Disabling Model Building

You can temporarily suspend all model building activity if needed. This is useful if, for example, a major storm causes widespread outages. By halting model builds, you can lighten the load on the system while it manages the outages. When storm damage has been repaired, you can resume model building.

To stop model building, select **Halt Model Build** from the **Actions** menu or click the Halt Model Build button ( ).

To resume model building, select **Enable Model Build** from the **Actions** menu or click the **Enable Model Build** button ( ).

Chapter 15

Topology Validation Viewer

The Topology Validation Viewer displays reports of a number of different common problem areas with a data model, such as deenergized supply points, loops, and faulted areas.

This chapter includes the following topics:

*   **Topology Validation Viewer Window**
*   **Running a Topology Validation Report**

Topology Validation Viewer Window

The Topology Validation Viewer displays reports in separate tabs and has a dynamic status bar that changes to show the time a particular report was run and the total number of instances found.

The status bar also includes a combo box where you can choose whether the tool displays reports run for the current model or for the nominal model. As you change that selection, the tool repopulates with reports that match your selection.

Menus and Toolbar Options

File Menu

The following table describes the File Menu options.

Option	Description
🖨 Print…	Opens the Print dialog, which allows you to print the currently selected report.
Exit	Closes the Topology Validation Viewer window.

Action Menu

The following table describes the Action Menu options.

Option	Description
▶ Run Validation...	Opens the Run Validation dialog, which allows you to choose the reports to run and select criteria for them.
🔄 Refresh	Reloads all reports.

Help Menu

The following table describes the Help Menu options.

Option	Description
Topology Validation Viewer Help	Opens the Oracle Utilities Network Management System's online help content for the Topology Validation Viewer.

Running a Topology Validation Report

To run new reports, do the following:

1. Click the **Run Validation...** ▶ button to display the **Run Validation** dialog.

2. Choose the options you wish to use for your report:

    a. **Model**:

    - Nominal: run the report against the nominal model.

    - Current: run the report against the current model.

    b. **De-Energization Objects**:

    - **All**: show all de-energized branches

    - **Conductors**: show only de-energized conductors.

    - **Transformers**: show only de-energized transformers.

3. In **Run Reports**, select the reports to run:

    a. **De-Energization**: show all de-energized supply_nodes.

    b. **De-Energized Supply Nodes**: show de-energized supply_nodes.

    b. **Loops/Parallels**: show loop/parallel objects.

    b. **Cross Phase**: show cross-phase objects.

    b. **Mesh ID Groups**: show Mesh ID groups of more than 3 MIDs.

    b. **Feeder ID Groups**: show Feeder ID groups of more than 2 FIDs.

    b. **ATO Groups**: show all ATOs below an FID.

    b. **Islands**: show the size of all islands.

    b. **Faults**: show all faulted objects.

    b. **Partially Closed**: show all partially closed objects.

Refresh the tool using Refresh to load the new reports as they finish.

Chapter 16

Redliner

Redliner provides tools for the capture, annotation, emailing and saving of images. You can use these tools to document and collaborate on Oracle Utilities Network Management System and other related screens. You can save screen captures as JPEG files that may be marked-up, commented upon, or distributed via email. You can also use Redliner for sending detailed information to other work groups including customer service centers, marketing, media relations, and technical support.

This chapter includes the following topics:

• **Redliner Window**

• **Working with Images**

Redliner Window

The Redliner main window is used to capture and annotate images. You can perform other actions in the window using the menu or buttons on the toolbar. You will initially access Redliner through a desktop shortcut or from your computer's Start menu.

Menus

There are three menus on the Redliner menu bar: File, Action, and Help.

File Menu

The following table describes the File Menu options.

Option	Description
New	Refreshes the transparent image window by taking a new screen capture and clearing any user edits.
Save…	Opens the Save JPEG image dialog, which allows you to save the current image as a JPEG file.
Print…	Opens the Print dialog, which allows you to print the image.
Email…	Opens the Redliner Email dialog, which allows you to email the image as an attachment.
Exit	Closes the Redliner window.

Action Menu

The following table describes the Action Menu options.

Option	Description
Refresh	Refreshes the transparent image window by taking a new screen capture and clearing any user edits.
Email Settings…	Opens the Redliner Preferences dialog, which allows you to enter email settings such as SMTP Server, Display Name, Reply to Address, etc.

Help Menu

The following table describes the Help Menu options.

Option	Description
Redliner Help	Opens the Oracle Utilities Network Management System's online help content for Redliner.
About Redliner	Opens a dialog that displays information about the Redliner.

Toolbar

The Redliner toolbar provides a shortcut to many of the options available from the Redliner menus. The toolbar appears below the menu bar.

The following table describes the buttons on the Redliner Toolbar.

Button	Description
Draw	Allows user to draw in the transparent image window. Note that this toggle button is mutually exclusive with the **Insert Text** button.
Insert Text	Allows user to insert text into the transparent image window by opening up the Insert Text dialog. Note that this toggle button is mutually exclusive with the **Draw** button.
Change Color	Opens the Select Color dialog, which allows you to select a color to use.

Status Bar

The status bar appears at the bottom of the Redliner window, providing operating details for the application.

- The left-most field displays the locked/unlocked status of the image in the transparent image window.

- The center field displays whether Redliner is in drawing or text edit mode.

- The right-most field displays the current color selection.

Working with Images

This section describes how to work with images using Redliner. It includes the following topics:

- **Capturing an Image**
- **Annotating an Image**
- **Saving an Image**
- **Emailing an Image**
- **Printing an Image**

Capturing an Image

The Redliner transparent image window captures your screen at and refreshes when resized and repositioned to reflect the windows, desktop, and images behind the tool. The window can be resized and repositioned infinitely in order to capture the exact image needed.

Once the image has been edited, however, the image becomes locked, and repositioning and resizing will not change the image. The locked/unlocked status is always indicated on the Redliner status bar.

To reset the image capture and remove any editing you have performed, select **New** from the **File** menu or **Refresh** from the **Action** menu.

Annotating an Image

The options on the Redliner toolbar are used to annotate a captured image.

- Use the **Draw** button to draw freehand on the image.
- Use the **Insert** button to type text on the image.
- Use the **Change Color** button to select which color to use with the Draw and Insert Text options.

Drawing

To draw on a Redliner captured image, complete these steps:

1. Click the **Draw** button on the toolbar.
2. Click and hold the left mouse button while dragging the cursor around the image to draw freehand lines on the image.

    Note: There is no undo action for drawing.

Inserting Text

To insert text onto a Redliner captured image, complete these steps:

1. Click the **Insert Text** button on the toolbar.
2. Place the mouse cursor over the transparent image window and single-click the left mouse button. The Insert Text dialog appears.
3. Select the desired Font, Style, and Size from the Text Properties section of the dialog.
4. Type the desired text into the Text to Insert field.
5. Press the **OK** button. The text appears at the location the cursor was at when the left mouse button was clicked to bring up the Insert Text dialog.

    Note: There is no undo action for text insertion.

Changing the Color of Lines or Text

To change the color of the text and/or lines to be added to an image, complete these steps:

1. Click the **Change Color** button on the toolbar. The Select Color dialog appears.

2. Select a color from the Swatches tab of the Select Color dialog.

3. Use the options on the HSB (Hue/Saturation/Brightness) and RGB (Red/Green/Blue) tabs of the Select Color dialog to adjust the selected color, if desired.

4. Click the **OK** button. The Select Color dialog closes, and the newly selected color appears in the right-most field of the status bar.

5. Click either the **Draw** button or **Insert Text** button to proceed to use the newly selected color on the image.

Saving an Image

To save an image that you have captured in the Redliner window, complete these steps:

1. Select the **Save…** option from the File menu. The Save JPEG Image dialog appears.

2. Type the name you wish to give the image into the File name field.

3. Click the **Save Image** button on the dialog. The Save JPEG Image dialog closes and a JPEG file is saved with the name and location you specified in the Save JPEG Image dialog.

Emailing an Image

You may email the current contents of the Redliner window to someone directly from Redliner. The image capture is automatically attached as a JPEG file to the email, and the Redliner Email dialog allows you to enter standard email information including recipient(s) (To:), carbon copy recipients (Cc:), and subject heading (Subject:) in the appropriate fields.

Email Settings

Before you can send email from Redliner, you must first configure the email settings in the Redliner Preferences dialog. To configure the settings, complete these steps:

1. Select the **Email Settings…** option from the Action menu. The Redliner Preferences dialog appears.

2. Type your name into the **Display Name:** field. This is name that will appear as the sender's name in the email sent to the recipient.

3. Type your email address into the **Reply to Address:** field. This is the address that will appear as the sender's email address in the email sent to the recipient.

4. Change the name in the Attachment Name: field, if desired. This is the name that the image attachment will be given in the email sent to the recipient.

5. Type the name of your SMTP server into the **SMTP Server Name:** field. Your system administrator can provide you with this information.

   > **Note:** Redliner keeps a history of the email addresses that you have emailed images to. Press the **Clear** button beside the **Clear Address History** field to clear out this history.

6. Press the **OK** button on the Redliner Preferences dialog.

Sending an Email

To email the image captured in the Redliner window, complete these steps:

1. Select the **Email…** option from the File menu. The Redliner Email dialog appears.

2. Type the email address(es) of the recipient(s) into the To: field.

3. Type the email address(es) of the carbon copy recipient(s) into the Cc: field, if any.

4. Type an email subject into the Subject: field.

5. Type any additional accompanying text for the email.

6. Press the **Send Mail** button to send the email.

7. If the email is successfully sent, a confirmation dialog appears.

8. If the email is not successfully sent, an error dialog appears.

9. Click the **OK** button on the Sending Email dialog. The Sending Email dialog closes.

Printing an Image

To print the image captured in the Redliner window, complete these steps:

1. Select **Print…** from the File menu. The Print dialog appears.

2. Select the desired printer, page properties, print range, and copies in the Print dialog.

3. Press the **OK** button on the Print dialog. The Print dialog closes, and the output appears at your desired printer.

Chapter 17

Configuration Assistant

Oracle Utilities Network Management System Configuration Assistant provides a graphical view of the Oracle Utilities Network Management System configuration options and allows the user to add, edit, and store configuration changes.

This chapter includes the following topics:

- **Getting Started with the Configuration Assistant**
- **Using Common Configuration Assistant Features**
- **Using the User Administration Tab**
- **Using the Event Management Rules Tab**
- **Using the Event Details Options Tab**
- **Using the Work Agenda Predefined Filters Tab**
- **Using the DMS Application Administration Tab**
- **Using the Feeder Management Tab**
- **Using the State Transitions Tab**
- **Using the Default Restoration Times Tab**
- **Using the Customer Administration Tab**

Getting Started with the Configuration Assistant

This section includes the following topics:

- **Accessing Configuration Assistant**
- **Logging In**
- **Using Common Configuration Assistant Features**

Accessing Configuration Assistant

Configuration Assistant is accessed using a URL (web address) or as a local application, depending on your site's policy. Your system administrator determines the web address, if applicable. If accessing Configuration Assistant from a browser, complete these steps:

- Open your web browser by clicking the shortcut on the desktop, or from the Start menu.

- In the Address field of the browser, enter the URL for Configuration Assistant, then press Enter. Please wait while Configuration Assistant starts.

- If this is the first time running an Oracle Utilities Network Management System Windows-based product on your PC, you may be prompted to do a one-time download of a Java plug-in. If so, select Yes/Accept/Agree on all subsequent dialogs until Configuration Assistant opens.

  > **Note:** You or your system administrator can add Configuration Assistant to your Start menu and/or create a shortcut icon on your desktop for quick access to Configuration Assistant. When you start up Configuration Assistant for the first time, it will (depending on installation method) ask if you want to install a shortcut in your Start menu and on your desktop.

Logging In

The Login window is the first Configuration Assistant window you see. You must enter a valid user name and password, and then click the **Login** button. Once your user name and password are validated, the main Configuration Assistant window opens.

To log in to Configuration Assistant, complete these steps:

1. Depending on how your system was installed, either:

   - Click the **Configuration Assistant** icon found under the appropriate program group in your Windows Start Menu, or

   - Double click the **Configuration Assistant** icon on your desktop, or

   - Open a web browser and type the Configuration Assistant URL in the browser's Address field. The Configuration Assistant Login window displays.

2. Enter your User ID. This is the user name provided to you by the system administrator.

3. Enter your Password.

4. Click the **Validate** button. The bottom portion of the Configuration Assistant Login window sensitizes.

5. Select the appropriate User Type. This drop-down menu contains the list of user types within your authority.

6. Click the **Login** button. The appropriate Configuration Assistant window opens, based upon the User Type selected.

Using Common Configuration Assistant Features

This section describes the common options available from the Configuration Assistant.

Configuration Assistant Menus and Toolbar

This section describes the menu and toolbar options available with the Configuration Assistant.

File Menu.

Menu Option	Description	Toolbar Icon
Export Configuration ...	Generates SQL statements for the current state of the configuration associated with every tab on the application. Once generated, the SQL statements are displayed in a window with options to save or print the information.	
Print Preview	Opens the Print Preview dialog, which allows you to print out the User Administration tab, Event Management Rules tab, Event Details Options tab, and Work Agenda Predefined Filter tab information from the current Configuration Assistant window. See **Printing** on page 1-17 for details on using Print Preview.	

Actions Menu

The Actions menu can vary by tab. See the tab descriptions for Actions menu option differences.

Menu Option	Description
Create Client Installer...	Launches the client installer application. See the *Oracle Utilities Network Management System Installation Guide* for details on creating the installer and installing local copies of the Oracle Utilities Network Management System client applications. This menu item is available on all tabs.

Preferences Menu

The **Preferences** menu allows you to control certain common features of the Configuration Assistant.

Menu Option	Description
Smaller Font (**Ctrl+Minus Sign**)	Decreases the font size in text and icons. Repeat to further decrease the font size.
Bigger Font (**Ctrl+Plus Sign**)	Increases the font size in text and icons. Repeat to further increase the font size.
Reset Font (**Ctrl+0**)	The application will reset the text and icons to use their default font size.

Help Menu

Menu Option	Description
Configuration Assistant Help	Opens the Configuration Assistant online help file.
Email Log Files... (Ctrl-Shift-M)	Gathers the environment's log files and attaches them to a new email message using your default email client. The log files can then be sent to your support team or contact for further analysis.
About Configuration Assistant	Opens a dialog that displays information regarding what version of the application is presently running, as well as version and other information about the Oracle Utilities Network Management System Web Gateway that the application is using.

Logout Menu

The **Logout** menu includes the **Logout User** function. Once selected, the Configuration Assistant exits.

Using the User Administration Tab

The Configuration Assistant User Administration tab allows an administrator to add and remove users, modify user types associated with users, and view user login activity. The User Administration tab contains the following panels:

*   **Understanding the Current Users Panel**

*   **Understanding the User Type Memberships Panel**

*   **Understanding the User Log Panel**

From this tab, you can perform the following tasks:

*   **Adding a User**

*   **Editing a User**

*   **Removing a User**

*   **Saving an Exported User Configuration**

*   **Changing User Type Memberships**

*   **Reorder Current User Types**

*   **Resetting a User Login**

Understanding the Current Users Panel

The Current Users panel lists all of the users currently configured to use one or more modules of Oracle Utilities Network Management System, and allows you to add, edit, and remove users.

Each time you select a row in the Current Users table, the User Type Memberships and User Log panels populate with information that pertains to the selected user.

The Current Users Panel displays the following fields and buttons:

*   The **Username** column contains the Oracle Utilities Network Management System login name of the user.

*   The **Full Name** column contains the full name of the user.

*   The **Last Logon** column contains the date and time the user last logged on.

*   The **Last Logoff** column contains the date and time the user was last logged off.

*   The ✚ **Add** button you to create a new user.

*   The ✖ **Remove** button allows you to remove an existing user.

*   The ✎ **Edit** button allows you to modify the Username and Full Name of the user.

*   The 🔄 **Refresh** button refreshes the table with the current contents of the database.

*   The ▯ **Service Recache** button causes the Oracle Utilities Network Management System services to recache with the changes you've made in the Configuration Assistant window. If you do not do this, your changes will not be recognized until Oracle Utilities Network Management System services are restarted.

*   The ⬆ **Export Configuration...** button generates SQL statements for the current state of the configuration associated with the User Administration tab. These SQL statements may then be saved to a file and/or printed.

Adding a User

To add a new user to Oracle Utilities Network Management System, complete these steps:

1. Click ✚ **Add** in the Current Users panel. The Add / Edit User Information dialog appears.

2. Enter the user information in the data fields:

    *   **Username:** the new user's system login name.

    *   **Full Name:** the user's full name.

    *   **Default Zone Set:** optionally, add the name of the control zone set that the user will be automatically subscribed to when they log in to the system.

    *   **Excluded Zone Set:** optionally, enter a zone set that the user cannot subscribe to.

        Note: once you select a zone in either the Default Zone or the Excluded Zone, that zone will be removed as a choice from the other.

3. Select the user's account setting:

    *   **Active User**: designates an active user account; required to login to NMS.

    *   **Priority User**: used for callback processing, which sends priority customer callback notifications to users with the Priority User account setting selected.

    *   **External User**: designates an external system user agent that connects to NMS via an interface, such as Web Callbacks or IVR.

        Note: Temporarily Inactivating a User

        When a user will be inactive for a period of time, you may wish to set their user status to inactive by deselecting the Active User option. This will keep them from logging into the system, but allows for simple reinstatement when they become available.

4. Click 💾 **Save**. The new user is added to the Current Users table.

    Note: If the entered **Username** already exists, an error will appear and you will have to modify the username.

Editing a User

To edit the name information for an Oracle Utilities Network Management System user, complete these steps:

1. Select the user you wish to edit in the Current Users table.

2. Click ✏️ **Edit**. The Add / Edit User Information dialog appears.

3. Modify any of the enabled fields, as desired.

4. Click 💾 **Save**. The user information is updated in the Current Users table.

    Note: If the modified Username already exists, an error will appear and you will have to modify the username.

Removing a User

To remove a user from Oracle Utilities Network Management System, complete these steps:

1. Select the user you wish to remove in the Current Users table.

2. Click ✖ **Remove**. A confirmation dialog appears.

3. Click **Yes** to remove the user or **No** to cancel the removal.

Saving Exported User Configuration

To generate and save SQL statements for the current state of the configuration associated with the User Administration tab, complete the following steps:

1. Click ⬆ **Export Configuration...** beneath the Current Users table. A dialog appears indicating that the configuration is being generated.

2. Once the generation is finished, the Generated Configuration dialog appears.

   • To save the generated SQL statements to a file, click 💾 **Save**. The Save Configuration File dialog appears. Type a name for the file into the File name field. The Save Configuration File dialog disappears.

   • To print the generated SQL statements, click 🖨 **Print**. The Print Preview dialog appears.

   • Click 🗑 **Cancel** to close the Generated Configuration dialog.

Understanding the User Type Memberships Panel

The User Type Memberships Panel allows you to assign a selected user to Oracle Utilities Network Management System applications and set their permissions by user type (see also **User Types** on page 1-2) for each.

The **User Type Membership Panel** displays the following fields and buttons:

•   The **Products** column lists the Oracle Utilities Network Management System component applications.

•   The **Remaining User Types** column lists the available user types for the selected product that the selected user does not have access to.

Product-User Type Matrix

User Type	Configuration Assistant	Model Management	Service Alert	Storm Management	Web Call Entry	Web Callbacks	Web Workspace
Administration	x		x				x
Crew Operations							x
Full Operations				x		x	x
Full Operations Plus Switching							x
Model Validation		x					
Storm Administration				x			
Switching Request							x
Trouble Maintenance							x
View Only				x			x
Web Call Entry					x		

•   The **Current User Types** column lists the user types for the selected product that the selected user has access to.

•   The ✚ **Add Selected User Type(s)** button allows you to grant access to a selected user type from the Remaining User Types column to the selected user.

•   The ✖ **Remove Selected User Type(s)** button allows you to remove access to a selected user type from the Current User Types column from the selected user.

Changing User Type Memberships

To modify the user type memberships for a user, complete the following steps:

1. Select the user whose memberships you wish to modify in the Current Users table. The User Type Memberships table populates with the current user type information.

2. Select the desired product from the Products column. The Remaining User Types and Current User Types columns populate with the user type information for that product for the selected user.

    *   To add a user type for a selected product, select the user type(s) from the **Remaining User Types** column.

        *   Click ✚ **Add Selected User Type(s)**. The selected user type will move to the Current User Types column

    *   To remove a user type for a selected product:

        *   Select the user type from the Current User Types column. Click ✖ **Remove Selected User Type(s)**. The selected user type will move to the Remaining User Types column.

        Note: see the *Oracle Utilities Network Management System Configuration Guide* for details on adding and configuring user types.

Reorder Current User Types

To change the order of the configured user types on the login window(s), complete the following steps:

1. Select the user whose memberships you wish to modify in the Current Users table. The User Type Memberships table populates with the current user type information for the selected user.

2. Select a user type in the Current User Types column that you wish to move in the list. The arrows to the right of the column are now sensitized.

3. Click the appropriate arrow to change the user type order:

    *   Click ⤊ to move the selected user type up to the top of the list.

    *   Click ⌃ to move the selected user type up one position in the list.

    *   Click ⌄ to move the selected user type down one position in the list.

    *   Click ⤋ to move the selected user type down to the bottom of the list.

Understanding the User Log Panel

The User Log panel displays the login history for the selected user. From this panel you may also fix log entries for a user that is unable to login because the system thinks the user is already logged in from elsewhere (*e.g.*, a system error of some sort prevented the database from being updated with the correct information).

The User Log panel displays the following fields and buttons:

- The **Host** column displays the name of the host machine that the user was logged in from.

- The **Display** column displays the name of the display machine that was being used.

- The **Product** column displays the name of the product the user was logged in to.

- The **User Type** column displays the name of the user type the user was logged in as.

- The **Login Date** displays the date and time of the user login.

- The **Login Status** displays the status of the user login (*e.g.*, SUCCESSFUL).

- The **Logout Date** displays the date and time of the user logout.

- The **Logout Status** displays the status of the user logout (*e.g.*, SUCCESSFUL).

- The **Reset Login** button allows you to force a logout entry into the database for a user that is still logged in per the User Log information. This is useful in cases where a user's client may have crashed for some reason and the user's loss of client isn't recorded in the database as a logout. The system also unsubscribes the user from any zones to which they were subscribed.

Resetting a User Login

To reset a user login, complete the following steps:

1. Select the user whose login you wish to reset in the Current Users table. The User Log table populates with the login history for the selected user.

2. Select the row in the User Log table that pertains to the login you wish to reset (this must be a row where the Logout Date, Logout Status, and Logout Method columns are blank). The **Reset Login** button sensitizes.

3. Click the **Reset Login** button. The User Log table updates the selected row with the current date and time for the Logout Date, FORCED for the Logout Status, and SYSTEM for the Logout Method.

Using the Event Management Rules Tab

The Event Management Rules tab allows an administrator to add, edit, remove, update, and activate Event Management Rules in the Oracle Utilities Network Management System. These rules govern the behavior and output of Web Trouble in various situations, such as outage prediction, crew behavior, momentary outage processing, etc.

This section contains the following information:

* **Event Management Rules Components**

* **Working with Rules**

Event Management Rules Components

The Event Management Rules tabs contains three panels:

* **Rule Categories Panel**

* **Currently Configured Rules Panel**

* **Documentation Panel**

Rule Categories Panel

The Rule Categories panel on the Event Management Rules tab lists all of the Event Management Rules available for configuration, organized by functional category. The search function at the top of the panel allows you to search for rules.

The Rule Categories may be expanded or collapsed using the buttons below the Categories tree:

* **Expand All:** expands all of the rule category folders to display their contents.

* **Collapse All:** collapses all of the rule category folders.

Selecting a Category to View

When you select a category folder from the Rule Categories panel, the folder expands to display the names of the Event Management Rules within that category. Some of the categories may also have sub-categories.

When an individual rule is displayed in the list, a symbol appears to the left of the rule. The bullet (⬤) symbol indicates that the rule is already configured in at least one rule set. The red **x-like** (✖) symbol indicates that the rule is not presently configured in any rule set.

When you select an individual rule (or certain categories) in the list, the Documentation panel on the Event Management Rules tab populates with documentation for the selected rule.

Resizing the Rule Categories Panel

You can resize the Rule Categories panel by dragging the right side of the panel to the left or right. You can also quickly expand or collapse it by clicking the directional arrows next to the upper right corner of the rules categories panel.
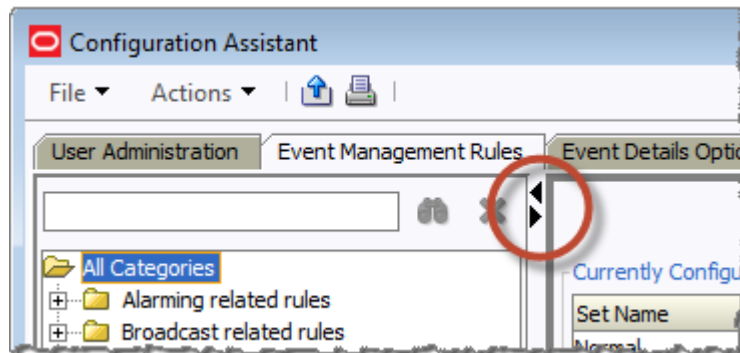
Searching for a Rule

You may filter the rules by adding a search term to the search field and clicking the search ( ) button.
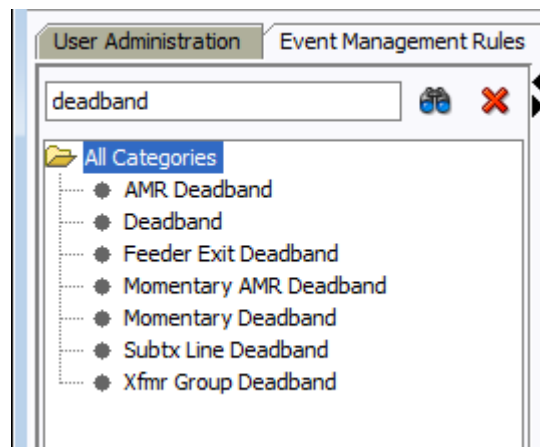
To clear the search, click the button.

Currently Configured Rules Panel

The Currently Configured Rules panel on the **Using the Event Management Rules Tab** tab lists the SRS rules configured for Oracle Utilities Network Management System. It allows you to add, edit, and remove rules.

> **Note:** The table uses *friendly* names for readability. For example, one SCADA data related rule has a friendly **Rule Name** of **Allow Calculated Points**, but the code rule name is RT_CALCULATED_POINTS. See **Documentation Panel** on page 17-14 for more information.

Action Buttons

- The ✚ **Add** button allows you to add a rule to the configuration.

- The ✖ **Remove** button allows you to remove a selected rule from the configuration.

- The ✏ **Edit** button allows you to edit the selected rule in the configuration.

- The 🔃 **Refresh** button refreshes the table with the current contents of the database.

- The ▯ **Service Recache** button causes the Oracle Utilities Network Management System services to recache with the changes you've made in the Configuration Assistant window. If you do not do this, your changes will not recognized until Oracle Utilities Network Management System services are restarted.

- The ⬆ **Export Configuration...** button generates SQL statements for the current state of the configuration associated with the Event Management Rules tab. These SQL statements may then be saved to a file and/or printed.

Currently Configured Rules Table

The Currently Configured Rules panel displays the following fields and buttons:

- The **Set Name** column displays the friendly Set Name that the rule is configured in.

- The **Incident Type** column displays the configured Incident Type value of the rule.

- The **Rule Name** column displays the rule name.

- The **Rule Value 1** column displays the configured Rule Value 1 value of the rule.

- The **Rule Value 2** column displays the configured Rule Value 2 value of the rule.

- The **NCG Class** column displays the configured ncg class value of the rule.

- The **NCG Index** column displays the configured ncg index value of the rule.

- The **Rule Value Integer 1** column displays the configured Rule Value Integer 1 value of the rule.

- The **Rule Value Integer 2** column displays the configured Rule Value Integer 2 value of the rule.

- The **Rule Value Integer 3** column displays the configured Rule Value Integer 3 value of the rule.

- The **Rule Value Integer 4** column displays the configured Rule Value Integer 4 value of the rule.

- The **Rule Value Integer 5** column displays the configured Rule Value Integer 5 value of the rule.

Filtering the Currently Configured Rules Table

To filter the Currently Configured Rules table based upon a selected column value, complete these steps:

1. Click a cell that contains the value you want to filter the table by. The row will be highlighted and the cell that was clicked will have a border indicating that it is selected.

2. Right-click and choose **Toggle Auto Filter** from the options menu to filter the table by the selected column/cell value combination.

   To remove filtering, right-click anywhere in the table and select **Toggle Auto Filter**. The filter will be removed and all table rows will appear.

Documentation Panel

When you select an individual rule and certain categories from the list in the Rule Categories panel, the Documentation panel populates with documentation for the selected rule. For categories, the information is usually descriptive, but the individual rules documentation has the database names for the rule, its attributes, and valid values. If there are related rules, the related rule will be included and will link to the documentation content for that rule.

Example

If you select the **Broadcast related rules** category, the Documentation panel populates with:

These rules control how calls and jobs get broadcast, including which calls appear in the viewer.

If you select the **Broadcast Clues** rule, the Documentation panel will update with documentation for broadcastClues (the database name). Part of the broadcastClues description includes a link to the documentation page for the related broadcastIncidents rule, which broadcastClues is normally used with.

The friendly names in the Currently Configured Rules panel correspond to the database names as follows:

Friendly Name	Database Name	Database Description
Set Name	set_name	A name used to identify what set a rule should belong to.
Incident Type	incident_type	See each individual rule description for valid value for this column.
Rule Name	rule_name	The name of the rule.
Rule Value 1	rule_value_1	A character string. See each individual rule description for valid and default values, if applicable.
Rule Value 2	rule_value_2	An integer value. See each individual rule description for valid and default values, if applicable.
NCG CLS	ncg_cls	Used in conjunction with the ncg_idx value to narrow the application of a rule to a specific control zone.
NCG Index	ncg_idx	Used in conjunction with the ncg_cls value to narrow the application of a rule to a specific control zone.
Rule Value Integer 1	rule_value_integer_1	An integer value. See each individual rule description for valid and default values.
Rule Value Integer 2	rule_value_integer_2	An integer value. See each individual rule description for valid and default values.
Rule Value Integer 3	rule_value_integer_3	An integer value. See each individual rule description for valid and default values.
Rule Value Integer 4	rule_value_integer_4	An integer value. See each individual rule description for valid and default values.
Rule Value Integer 5	rule_value_integer_5	An integer value. See each individual rule description for valid and default values, if applicable.

Working with Rules

Add a Rule to the Configuration

To add a rule to the configuration, complete these steps:

1. Click ✚ **Add** to open the Event Management Rule Fields dialog.

   Note: If you had first selected a row in the Currently Configured Rules table, the dialog will be initialized with the values from that row.

2. Select the name of the rule you wish to add from the **Rule Name** drop-down menu.

3. Select the name of the rule set you wish to add the rule to from the **Ruleset** drop-down menu.

4. Indicate whether or not you want the rule to be activated in the rule set by checking (or unchecking) the **Active** checkbox.

5. Enter the desired configuration values for the remainder of the fields.

   Note: see the Documentation Panel for valid values for the fields.

6. Click 💾 **Save** to save the newly added rule.

7. If the newly added rule already exists in the specified rule set, a conformation dialog appears.

   • Clicking **Yes** overwrites the existing rule configuration with the new configuration.

   • Clicking **No** will not add the new rule and you will be returned to the Event Management Rule Fields dialog.

   Note: This is the only validation currently performed when adding a rule. Please refer to the individual rule documentation in the Documentation Panel for further information regarding valid values.

Edit a Rule in the Configuration

To edit a rule in the configuration, complete these steps:

1. Select the rule you wish to edit in the Currently Configured Rules table.

2. Click ✏ **Edit**. The Event Management Rule Fields dialog appears.

3. Modify the rule fields as desired.

   Note: see the Documentation Panel for valid field values.

4. Click 💾 **Save**. The rule information is updated in the Currently Configured Rules table.

   Note: If you modify a rule's rule set to have values that already exists in that other rule set, an error dialog appears. Clicking **Yes** will overwrite the existing rule configuration with the new configuration that you specified. Clicking **No** will preserve the existing rule.

   For example, you select a **Crew Incident Alarm** rule that is in the Major Storm rule set and then select **Minor Storm** from the **Ruleset** options. If the rule already exists in the Minor Storm rule set, you will get the error.

   This is the only validation currently performed when editing a rule. Please refer to the individual rule documentation for further information regarding what the valid values are for a particular rule.

Remove a Rule from the Configuration

To remove a rule from the configuration, complete these steps:

1. Select the rule you wish to remove in the Currently Configured Rules table.

2. Click ✖ **Remove**. A confirmation dialog appears.

3. Click **Yes** to remove the rule or **No** to cancel.

Export Configuration

To generate and save SQL statements for the current state of the configuration associated with the Event Management Rules tab, complete the following steps:

1. Click the 🔼 **Export Configuration...** button beneath the Currently Configured Rules table. A dialog appears indicating that the configuration is being generated.

2. Once the generation is finished, the Generated Configuration dialog appears.

    *   To save the generated SQL statements to a file, click 💾 **Save**. The Save Configuration File dialog appears. Type a name for the file into the File name field. The Save Configuration File dialog disappears.

    *   To print out the generated SQL statements, click 🖨 **Print**. The Print Preview dialog appears.

    *   Click the 🗑 **Cancel** button to close the Generated Configuration dialog.

Using the Event Details Options Tab

The Event Details Options tab allows an administrator to configure the contents of each of the option menus that reside Event Details windows. (See **Event Details** on page 2-2 for more information.)

This tab contains one panel:

• **Event Details Options Panel**

Use this tab to perform the following tasks:

• **Adding an Options Panel Submenu**

• **Adding an Option**

• **Removing an Option**

• **Editing an Option**

• **Saving Exported Event Details Configuration**

• **Reordering Options**

Event Details Options Panel

The Event Details Options panel allows you to add, edit, remove, and reorder the contents of each of the option menus that reside on the Event Details windows (see **Event Details** on page 2-2 for details).

The Event Details Options panel displays the following fields and buttons:

• The **Event Type** allows you specify which event type configuration you want to modify the options of (*e.g.*, Outage, Non Outage, Planned Event, Switching Event).

• The **Event Details Option Menus** selection menu contains a list of the option menus that exist for the selected Event Type.

• The **Options for Currently Selected Menu** table populates with the currently configured options for the selected option menu and event types.

• The ✚ **Add** button allows you to add a new option or submenu to the selected option menu for the selected event type.

• The ✖ **Remove** button allows you to remove the selected option.

• The ✐ **Edit** button allows you to edit the selected option.

• The 🔃 **Refresh** button refreshes the table with the current contents of the database.

• The 🔼 **Export Configuration...** button generates SQL statements for the current state of the configuration associated with the Event Details Options tab. These SQL statements may then be saved to a file and/or printed.

Adding an Options Panel Submenu

Submenus allow you to create cascading groups of Event Details options that provide logical categories for the user to drill down to make their selection. To add a submenu to an option menu, complete the following steps:

1. Select the **Event Type** whose option menu you wish to change.

2. Select the option menu you wish to change from the **Event Details Option Menus** drop-down list.

3. Click ➕ **Add**. The Add/Edit Option dialog appears.

4. Enter the new option name in the **Option Name** field.

5. Enter the same name in the **Display Menu** field.

6. If the new submenu is being added to another submenu, enter the name of the parent submenu in the **Submenu** field.

7. Click 💾 **Save**. The Options for Currently Selected Menu table updates with the new option.

    Note: when changing an existing event details option to use cascading drop down menus, a configuration change to an Event Details XML file (i.e., EVENTDETAILS_PNL_ACTIONS.inc) is also needed. You will need to edit the ComboBoxBehavior element by adding the display_menu and submenu attributes. For more information, see the Event Details Configuration section of the *Oracle Utilities Network Management System Configuration Guide*.

Example: the **Failure** menu's **Conductor** option submenus **Cable - UG** (options shown) and **OH**:

Adding an Option

To add a new option to an option menu, complete the following steps:

1. Select the **Event Type** whose option menu you wish to change.

2. Select the option menu you wish to change from the **Event Details Option Menus** drop-down list.

3. Click ➕ **Add**. The Add/Edit Option dialog appears.

4. Enter the new option name in the **Option Name** field.

5. Leave the **Display Menu** field blank.

6. If the option is being added to a submenu, enter the name of the submenu in the **Submenu** field.

7. Click **Save**. The Options for Currently Selected Menu table updates with the new option.

   Note: If the option name already exists, an error will appear and you will have to modify the name.

Removing an Option

To remove an option from an option menu, complete the following steps:

1. Display the Event Details Options tab on the Configuration Assistant window.

2. Select the Event Type whose option menu you wish to change.

3. Select the option menu you wish to change from the Event Details Option Menus drop-down list.

4. Select the option you wish to remove from the Options for Currently Selected Menu table.

5. Click the ✖ **Remove** button. A confirmation dialog appears.

6. Click **Yes** to go ahead and remove the option. Click **No** to cancel the removal.

Editing an Option

To edit an existing option, complete the following steps:

1. Display the Event Details Options tab on the Configuration Assistant window.

2. Select the Event Type whose option menu you wish to change.

3. Select the option menu you wish to change from the Event Details Option Menus drop-down list.

4. Select the option you wish to edit from the Options for Currently Selected Menu table.

5. Click the ✏ **Edit** button. The Add/Edit Option dialog appears.

6. Make the desired changes.

7. Click 💾 **Save** to save the new option. The Options for Currently Selected Menu table updates with the edited option.

   Note: If you enter the name of an option that already exists, an error dialog appears.

Saving Exported Event Details Configuration

To generate and save SQL statements for the current state of the configuration associated with the Event Details Options tab, complete the following steps:

1. Display the Event Details Options tab on the Configuration Assistant window.

2. Click the **Export Configuration...** button beneath the Options for Currently Selected Menu table. A dialog appears indicating that the configuration is being generated.

3. Once the generation is finished, the Generated Configuration dialog appears.

   • To save the generated SQL statements to a file, click **Save**. The Save Configuration File dialog appears. Type a name for the file into the File name field. The Save Configuration File dialog disappears.

   • To print out the generated SQL statements, click **Print**. The Print Preview dialog appears.

   • Click the **Cancel** button to close the Generated Configuration dialog.

Reordering Options

To change the order of the options on an option menu, complete the following steps:

1. Select the Event Type whose option menu you wish to change.

2. Select the option menu you wish to change from the Event Details Option Menus drop-down list. The Options for Currently Selected Menu table populates with the options for the selected option menu and event type.

3. Select an option in the table that you wish to move in the list. The arrows to the right of the column are now sensitized.

4. Use the arrow buttons to rearrange options:

   • Click to move the selected user type up to the top of the list.

   • Click to move the selected user type up one position in the list.

   • Click to move the selected user type down one position in the list.

   • Click to move the selected user type to the bottom of the list.

Using the Work Agenda Predefined Filters Tab

The Work Agenda Predefined Filters tab on the Configuration Assistant window allows you to add, modify, and delete pre-defined filters for the Work Agenda. These pre-defined filters are used to remove (hide) specified rows from the Work Agenda list so that only the desired events are shown. Use this tab to perform the following tasks:

- **Adding a Filter**
- **Editing a Filter**
- **Deleting a Filter**

The Work Agenda Predefined Filters tab displays the following fields and buttons:

- The **Current Filter** drop-down displays the name of the currently displayed filter and allows you to select an existing predefined filter.

- The **Filter Option Table** contains the following columns:

  - The **Column Name** column displays all columns by which you can filter.

  - The **Filter Type** column displays the available filter types:

    - **Any** - No filter is applied. All values for this column are included. This is the default.

    - **Match** - When this filter type is selected, the Work Agenda will include only items where the value of the column specified in the Column Name field matches the value specified in the Value field.

    - **Like** - When this filter type is selected, the Work Agenda will include only items where the value of the column specified in the Column Name field includes the value specified in the Value field.

    - **Not Like** - When this filter type is selected, the Work Agenda will include only items where the value of the column specified in the Column Name field does not include the value specified in the Value field.

    - **Multi-Match** - When this filter type is selected, the Work Agenda will include only items where the value of column specified in the Column Name field matches any of the values specified in the Value field.

    - **Not** - When this filter type is selected, the Work Agenda will include only items where the value of the column specified in the Column Name field does not match the value specified in the Value field.

    - **Multi-not** - When this filter type is selected, the Work Agenda will include only items where the value of the column specified in the Column Name field does not match any of the values specified in the Value field.

    - **>** - When this filter type is selected, the Work Agenda will include only items where the value of the column specified in the Column Name field is greater than the value specified in the Value field.

    - **<** - When this filter type is selected, the Work Agenda will include only items where the value of the column specified in the Column Name field is less than the value specified in the Value field.

- The **Value** column allows you to enter the filter value.

- The 🞤 **Add** button allows you to add a new filter.

- The 💾 **Save** button allows you to save a new filter or edit an existing filter.

- The ✖ **Remove** button allows you to remove the selected filter.

- The **Refresh** button refreshes the table with the current contents of the database.

- The **Export Configuration...** button generates SQL statements for the current state of the configuration associated with the Work Agenda Predefined Filter tab. These SQL statements may then be saved to a file and/or printed.

Adding a Filter

To add a new filter, follow these steps:

1. Click **Add** on the Work Agenda Predefined Filters tab. The Add Filter Name dialog is displayed.

2. Enter a meaningful name for the filter and click **OK**. The new filter name is displayed in the Current Filter box. The Filter Options table displays a list of columns by which you can filter the Work Agenda. By default, the Filter Type for all columns is Any, indicating that no filter is currently applied.

3. To apply a filter to a particular column, select the desired Filter Type (described in the previous section) and enter the filter Value. For example, to filter the Work Agenda by restore date, locate the Restore Date column, then select '>' from the Filter Type drop-down, and enter a date in the Value column. The filter will display only events with a Restore Date greater than the date you entered.

4. Repeat step 3 for each column you want to filter by.

5. Click **Save** to save the new filter criteria.

    Note: To make the new filter criteria available in the Work Agenda, the name of the new filter needs to be added to the OTHER_FILTERS column in the DYNTABLE_VIEWS table for the desired Work Agenda view.

Editing a Filter

To edit an existing filter, follow these steps:

1. From the Current Filters combo box, select the filter you want to edit.

2. Modify the filter settings as needed. To remove a filter, select **Any** from the Filter Type drop-down for that column. To filter by a particular column, select the desired Filter Type and enter a filter Value.

3. Click **Save**. The filter is updated and will be available from the Work Agenda.

Deleting a Filter

To delete an existing filter, follow these steps:

1. From the Current Filters combo box, select the filter you want to delete.

2. Click **Delete**. A confirmation dialog is displayed.

3. Click **OK** to confirm the deletion. The filter is deleted and will no longer be available from the Work Agenda.

Saving an Exported User Configuration

To generate and save SQL statements for the current state of the configuration associated with the Work Agenda Predefine Filter tab, complete the following steps:

1. Click the 📤 E**xport Configuration...** button beneath the Current Filter table.

2. Once the generation is finished, the Generated Configuration dialog appears.

   - To save the generated SQL statements to a file, click 💾 **Save**. The Save Configuration File dialog appears. Type a name for the file into the File name field. The Save Configuration File dialog disappears.

   - To print out the generated SQL statements, click 🖨 **Print**. The Print Preview dialog appears.

   - Click the 🗑 **Cancel** button to close the Generated Configuration dialog.

Using the DMS Application Administration Tab

The DMS Application Administration Tab allows an administrator to configure different DMS application modes on per feeder basis.

Actions Menu: DMS Unique Options

Menu Option	Description
FLISR Status	Allows you to set the FLISR mode for the selected feeder: • Automatic • Manual • Disabled
FLM Status	Allows you to set the FLM mode for the selected feeder: • Forecasting • Real-Time • Disabled
CVR Status	Allows you to set the CVR mode for the selected feeder: • Automatic (Hourly) • Automatic (FLM Cycle Time) • Manual (Hourly) • Manual (FLM Cycle Time) • Disabled
FLA Status	Allows you to set the FLA mode for the selected feeder: • Enable • Disable

DMS Application Mode Editor

Table Columns

- The **Substation** column displays the substation name.

- The **Feeder** column displays the feeder name.

- The **FLM** column displays the FLM mode of the associated feeder. A feeder can be in **Forecasting**, **Real-time**, or **Disabled** FLM mode.

- The **FLISR** column displays the FLISR mode of the associated feeder. A feeder can be in **Automatic**, **Manual**, or **Disabled** FLISR mode.

- The **CVR** column displays the CVR mode of the associated feeder. A feeder can be in **Automatic (Hourly)**, **Automatic (FLM Cycle Time)**, **Manual (Hourly)**, **Manual (FLM Cycle Time)**, or **Disabled** CVR mode.

- The **FLA** column displays the FLA mode of the associated feeder. A feeder can be either FLA **Enabled** or **Disabled**.

Buttons

The 🔄 **Refresh** button refreshes the screen by reading the data from the database table. Any unsaved changes will be lost.

The ▯ **Service Recache** button causes the Oracle Utilities Network Management System services to recache with the changes you have made in the Configuration Assistant window; otherwise, saved changes will not be recognized until Oracle Utilities Network Management System services are restarted.

The 💾 **Save** button saves any changes you have made.

Modifying a Feeder DMS Application Mode

1. Select a feeder or multi-select a set of feeders.

2. Select the application from the **Actions** menu and choose the mode; alternatively, you may right-click and select the mode from the application in the context menu. For example, with a row selected, right-click and select **Forecasting** from the **FLM Status** option.
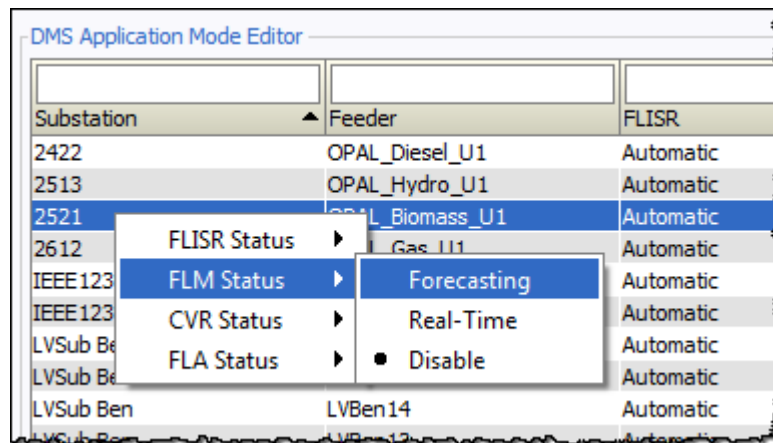
Using the Feeder Management Tab

The Feeder Management tab allows you to view and modify the feeder color displayed in the Viewer.

NMS Feeder Management Table

The NMS Feeder Management table has the following columns:

Feeder: the feeder name.

Substation: the name of the feeder's substation.

Source Color: the name of the currently assigned feeder color.

Buttons

The **Refresh** button refreshes the screen by reading the data from the database table. Any unsaved changes will be lost.

The **Service Recache** button causes the Oracle Utilities Network Management System services to recache with the changes you have made in the Configuration Assistant window; otherwise, saved changes will not be recognized until Oracle Utilities Network Management System services are restarted.

Changing Feeder Color

To change the color of a feeder, right-click the feeder row and select Assign Color..., which will open the **Choose a color for <feeder name>** dialog box. You may select from existing NMS colors or from the available color libraries (*i.e.*, swatches, HSV, HSL, RGB, or CMYK). Click **OK** to update to the selected color or **Cancel** to close the dialog box without making changes. Click **Reset** if you wish to return to the original color.

Using the State Transitions Tab

In Oracle Utilities Network Management System, events, switching sheets, safety documents, and damage assessment pass through different phases over their lifecycle. These phases are represented by *states*. Transitions between states are knows as state transitions. A transition between any two states happens when certain actions are performed by a user or the system.

The State Transitions tab allows you to view the state transitions of events, switching sheets, safety documents, and damage assessment in tabular and graphical views. The tab is divided into 3 panes:

1. **Selection Pane**

   State transitions in NMS are divided logically into multiple groups. The highest level division is based on the application (**APP**); the second level is based on sub-categorizations of the applications into groups (**Group**); the last level are states applicable to the application group.

   Filter Options Menus

   - **App**: the application type option menu lists codes for the NMS applications with state transitions:
     - DA - Damage Assessment
     - SF - Safety
     - TE - Trouble Events (generic for events)
     - WSW - Web Switching
   - **Group:** the group selection lists the available groups for the selected application. For example, if the application is TE, you may select OUT for outage events.
   - **States:** the states selection lists the available states for the chosen app-group combination. In addition to the specific states selection, you may choose **All States** to see all state transitions for the app-group combination.

   Buttons

   - 🔍 **View:** Based on the selection of different combo boxes, on clicking this button, it will display the filtered set of transitions in table and graphical view.
   - 🔄 **Refresh:** refreshes the data by reading from the database table, but retains previously selected filters by user.

2. **Tabular Section**

   The table displays transitions in tabular view and contains following columns:

   - **APP**: Application name
   - **TRANS_KEY**: unique key of transitions
   - **TRANS_GROUP_KEY**: transition type (OUTAGE/MEET).
   - **FROM_STATE_KEY**: unique value for state (from).
   - **TO_STATE_KEY**: unique value for state (to).
   - **TRANS_ACT_KEY**: unique value for action.
   - **DESCRIPTION**: description of this state transition.

3. **Graphical Section:**

The transitions from the table are displayed in a hierarchical view in this section. States are displayed as rectangular boxes labeled with the state name. Transitions are displayed with arrow symbols beginning at the *from state* and ending at the *end state* with the action name of the transition on top of the edge. When you select an arrow in the graphical view, the corresponding table row will be highlighted.

Viewing State Transitions

To view state transitions, do the following:

1. Select the application from the **App** options menu.

2. Select the group from the **Group** options menu.

3. Select a specific state from the **State** options menu.

4. Click **View**.

The table and graph will be updated for the state transitions applicable to your selection.

Example: New Damage Assessments State Transitions

1. Select **DA** from the **App** menu.

2. Select **Damage Assessment** from the **Group** menu.

3. Select **New** from the **State** menu.

4. Click the arrow that starts at the **New** box and ends at the **Assessed** box.

Using the Default Restoration Times Tab

The Default Restoration Times tab on the Configuration Assistant window displays the current default restoration time configuration and allows you to modify the ERT values for each device class by control zone.

> **Note**: To change the system-wide default restoration time, see **Setting the System-Wide Estimated Restoration Time** on page 2-25.

Device/Zone Default Restoration Times Pane

The Device/Zone Default Restoration Times pane provides a tabular view that provides the relationship between a control zone, a device, and the default restoration time that has been set for them.

Columns
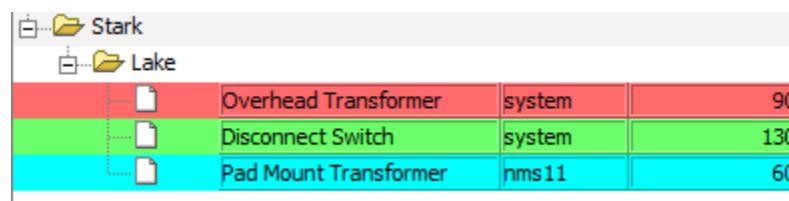
- The **Control Zone** column displays the control zone name.

- The **Device Class** column displays the device class name.

- The **User** column lists the user who configured the default restoration time.

- The **Default Restoration Times (minutes)** column displays the number of minutes to be used for the default restoration time for this control zone-device class combination.

Buttons

- The ➕ **Add** button opens the Add Default Restoration Time dialog.

- The ✖ **Remove** button marks the selected default restoration time for deletion.

- The 💾 **Save** button saves any changes you have made.

- The 🔄 **Refresh** button refreshes the screen. If you have any unsaved changes, the system asks if you want to save them.

- The ⬆ **Export Configuration** button opens the Generated Configuration window, which displays the SQL statements used to generate the current configuration.

Row Highlighting

The table uses row highlighting to indicate changes that have not been saved. Red indicates that the row is marked for removal, green indicates the row has been edited, and light blue indicates that the row has been added.

Adding a Device/Zone-Based Default Restoration Time

To add a default restoration time for a specific device class-control zone combination, follow these steps:

1. Click ✚ **Add**. The Add Default Restoration Time window appears.
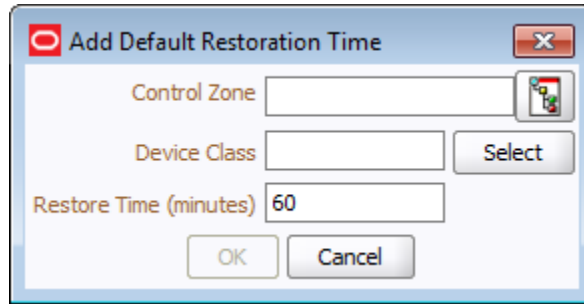
2. Click the **Control Zone Selection** button ( ) to display a list of control zones.
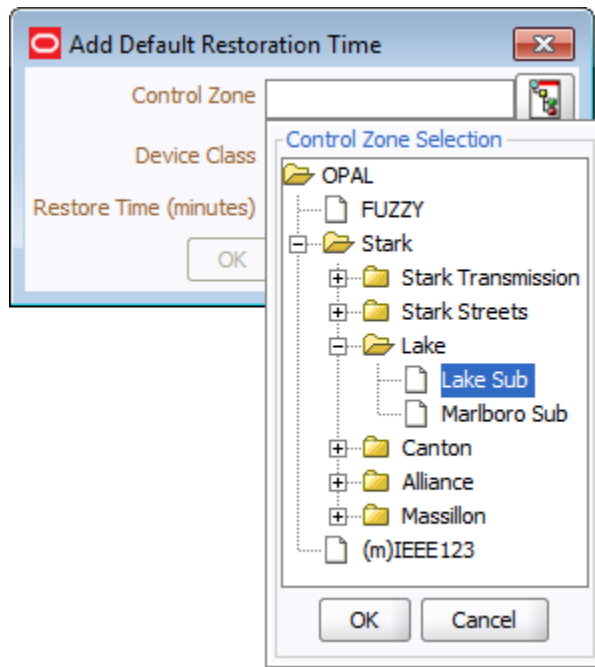
3. Select a Control Zone and click **OK**.

4.   Click the **Select** button to display a list of device classes.
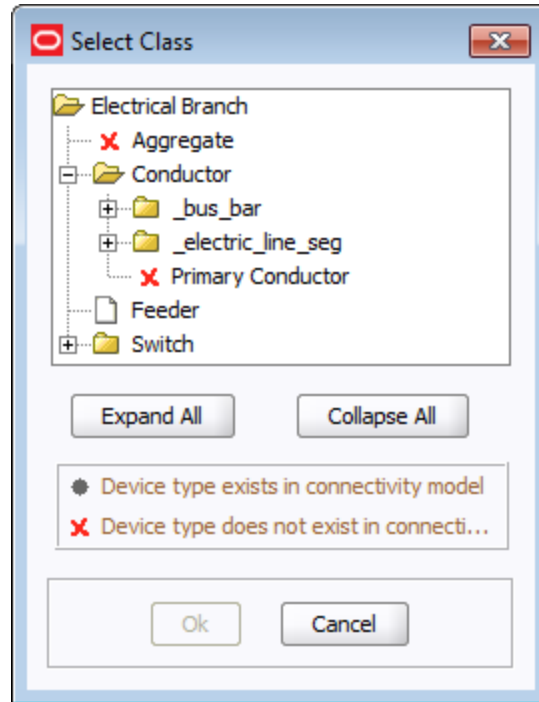
5.   Select a device class and click **OK.**

6.   Modify the Restore Time (minutes) field, as necessary.
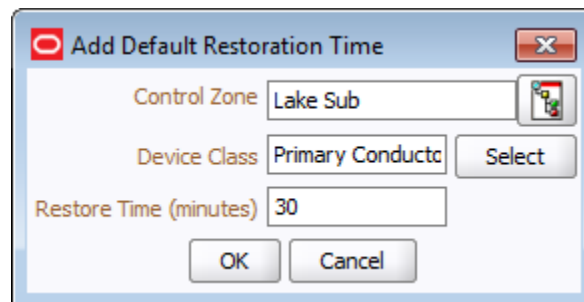
7.   Click **OK**. The Device/Zone Default Restoration Times pane refreshes with a new row, which is highlighted in light blue to show the addition.

8.   Click 🖫 **Save** to commit the addition.

> **Note:** if you decide against adding the new Default Restoration Time, click 🔁 **Refresh**. The system will prompt you to save changes; click **No**.

Modifying a Device/Zone-Based Default Restoration Time

To edit an existing default restoration time, do the following:

1. Double-click the Default Restoration Time cell to open it for editing.

2. Edit the value.

3. Click anywhere outside the cell to finish the edit. The row will be highlighted in green to indicate the pending change.

4. Click 💾 **Save** to commit the change.

> **Note:** if you decide not to save changes, click 🔄 **Refresh**. The system will prompt you to save changes; click **No**.

Deleting a Device/Zone-Based Default Restoration Time

To edit an existing default restoration time, do the following:

1. Select the row to be removed.

2. The ❌ **Remove**. The row will be marked for removal pending saving changes. **T**he row will be highlighted in red to indicate the pending change.

3. Click 💾 **Save** to commit the change.

> **Note:** if you decide against deleting the row, click 🔄 **Refresh**. The system will prompt you to save changes; click **No** to confirm the refresh.

Saving an Exported Default Restoration Time Configuration

To generate and save SQL statements for the current state of the configuration associated with the Default Restoration Times tab, complete the following steps:

1. Click the 🔼 E**xport Configuration...** button beneath the Device/Zone Default Restoration Times table.

2. Once the generation is finished, the Generated Configuration dialog appears.

    *   To save the generated SQL statements to a file, click 💾 **Save**. The Save Configuration File dialog appears. Type a name for the file into the File name field. The Save Configuration File dialog disappears.

    *   To print out the generated SQL statements, click 🖨 **Print**. The Print Preview dialog appears.

    *   Click the 🗑 **Cancel** button to close the Generated Configuration dialog.

Using the Customer Administration Tab

The Customer Administration tab allows you to define a weighted priority for a customer. The weighted priority may be used for sorting events in the Work Agenda or viewed in the Trouble Info Customers view.

Menus and Toolbar

When the Customer Administration tab is active, the Configuration Assistant's Actions menu and toolbar change to provide functions for Customer Administration. The Options menu provides search methods.

Actions Menu

Menu Option	Description	Icon
Customer Search	Initiates a search when criteria has been added to the Searchable Information table in the Customer Weighted Priority Editor pane.	
Save	Saves information entered in the Customer Weighted Priority Editor.	
Reset to default	Used to reset a Customer weighted priority to the default value.	--
Clear Form	Clears all data from the Customer Weighted Priority Editor pane.	

Options Menu

Menu Option	Description
Set Wild Card Searching • Before • After • Both	Options for setting a wild card searches: Before, After, or Both. Note that you do not have to add a wild card character (*e.g.,* *). **Example:** using the "After" wild card search. **Name**: *Mary S* returns: • Mary S Abbott • ... • Mary Szbrinski

Menu Option	Description
Use Sound Search	Returns searches with "sounds like" matches. **Example:** Use Sound Search **Name**: *Fredric* returns: • Fredric • Fredrick • Frederick • Fred • Freda
Use Exact Match Search	Returns only exact matches.
Set Max Searching Results	Opens the Set Maximum Searching Result dialog where you can set the limit for matches to return. The system will display a message when a search returns over 200 results, which is the maximum allowed by default.

Using the Customer Administration Weighted Priority Editor

The Customer Weighted Priority Editor is divided into two panes: **Searchable Information** and **Additional Customer Information**. As the name suggests, the **Searchable Information** pane is used to search for and load customer information. Once the customer is found and selected, the **Additional Customer Information** is populated with current information and the **New Weighted Priority** field becomes editable.

> **Note:** the Configuration Assistant Customer Administration search functions are much like Web Call Entry's search behavior.

Searching for a Customer

To set a weighted priority for a customer, perform the following steps:

1. Set your search option; see **Options Menu** on page 17-35 for more information on search options.

2. Enter Search Criteria. You can search for a customer based on any of the fields in the Searchable Information pane:

   • Account Number

   • Telephone Number

   • Name

   • Address

   • City

3. Press Enter (or click the search toolbar button).

   • If the search does not return a value, the system will return "*No customers matched your search criteria.*" Click **OK** to dismiss the message.

   • If the search returns more than 200 records (or your defined Max Searching Results value), the system will return the "Too Many Customers Found" message, which will remind you of the option to set a higher maximum searching results. Click **OK** to dismiss the message. The Customer Selection dialog opens listing the search results up to the maximum searching results value.

4. Select the customer to edit and click **OK**.

Editing a Customer Weighted Priority

Once you have selected a customer from the search results, the customer account information is loaded into the Customer Weighted Priority Editor. The **New Weighted Priority** field, which is at the bottom of the Additional Customer Information pane, is the only editable field.

1. Enter an integer value in the **New Weighted Priority** field. Notice that the Save button becomes enabled.

   Note: If you decide against editing the selected customer, click to reset the form.

2. Click .

Resetting Weighted Priority

If you need to set a customer's weighted priority back to its original value, perform the following steps:

1. Search for the customer to load their data into the Customer Weighted Priority Editor.

2. From the Actions menu, select **Reset to default**. The **New Weighted Priority** field will be populated with the customer's original weighted priority value.

3. Click .

Chapter 18

NMS Training Simulator: Trainer Environment

Oracle Utilities Network Management System Training Simulator is set of tools to help train users in control room Outage Management System / Distribution Management System (OMS/DMS) operations. Training may include:

- prioritizing and managing outages

- assessing system load and taking corrective actions

The Oracle Utilities Network Management System Training Simulator is useful for new hires, training on new releases, and for refresher training.

This chapter includes the following topics:

- **NMS Training Simulator Overview**

- **Getting Started with the Trainer Environment**

- **Creating Training Scenarios**

- **Creating Training Scenarios**

- **Conducting Training Sessions**

- **Evaluating Trainee Performance**

NMS Training Simulator Overview

The Training Simulator (**NTS**) provides a sandboxed Oracle Utilities Network Management System (NMS) environment that mimics common scenarios that occur in the production system. The **NTS** provides a *Trainer* environment via a new Trainer user type with special features that trainers may use to create a library of training scenarios for outages, overloads, etc. These scenarios may be replayed during training sessions. Trainees log in to the **NTS** as a standard user type (**User Types** on page 1-2). Trainers are able to monitor trainees as they react to simulations complete with customer calls, AMI power-offs, wire-downs, device operations, SCADA updates, and other elements. The Trainer user type is also an Administration and can change configuration options and system parameters.

Getting Started with the Trainer Environment

This section includes the following topics:

- **Accessing the Training Simulator Environment**
- **Logging In as Trainer**
- **Creating Training Scenarios**
- **Conducting Training Sessions**
- **Evaluating Trainee Performance**

Accessing the Training Simulator Environment

The **NTS** will typically be based on your particular **NMS** implementation. Consequently, your system administrator will need to provide the details for accessing your **NTS** environment. Trainers will log in to the **NTS** environment as a "Trainer" user type, which will provide an enhanced version of the Web Workspace for an Administration user environment with additional tools for developing training scenarios and administering training sessions. Trainees will log in to an **NTS** workspace as a user type that is applicable for the simulation, such as the Full Operations plus Web Switching user type. For trainees, it should mimic the configuration and roles they would see in production.

Logging In as Trainer

1. To log in, enter the following information in the Login window:

   User ID: enter the user name provided to you by your system administrator.

   Password: enter the password provided to you by your system administrator.

   Validate: click the **Validate** button to verify your login credentials.

   > **Note:** If your user name and password are not entered correctly, the system will display a "Login Error" message.

   Once you have entered your user name and password, the **Validate** button will become activated.

2. Click **Validate** (or press **Enter** while in the password field) to validate your credentials.

3. Select **Trainer** from the **User Type** drop-down menu. The Web Workspace environment will launch with the extended trainer toolset. This includes the ability to bring up the Configuration Assistant directly from the Web Workspace **Tools** menu if modification of any rule settings is needed; see **Chapter 18**, **Configuration Assistant**, for more information on using the Configuration Assistant.

Creating Training Scenarios

The **NTS** allows trainers to create training scenarios in a *Training Scenario* sheet, which may be stored as templates to build up a training library. Trainers can record simulated device operations, customer calls, and other system events in the training scenario sheet.

Creating a Training Scenario Sheet

To create a Training Scenario sheet, do the following:

1. Select **New** and then **Switching Sheet...** from the Web Workspace **File** menu.

2. In the New Switching Sheet dialog, select the **Training Scenario** type.

3. Click **Create**.

The new Training Scenario sheet will open.

Understanding the Training Scenario Sheet

The Training Scenario sheet is a specialized switching sheet type that contains only the fields and tabs necessary to record and conduct training scenarios.

Training Menu and Toolbar Options

Training Scenario actions are available through the **Training** menu, which is only visible with a Training Scenario sheet.

- **Play Scenario...:** plays each step in the scenario. See **Playing a Training Scenario** on page 18-7.

- **Play Scenario to Here...:** plays the scenario up to and including a selected step. See **Playing a Training Scenario** on page 18-7.

- **Pause Scenario:** pauses scenario execution. See **Pausing a Training Scenario** on page 18-7.

- **Reset Model:** resets the **NTS** back to the nominal state. See **Resetting the Model** on page 18-6.

Request Tab

The trainer can fill out the Request tab to describe the type of scenario and specify a default offset that will be used for playback of recorded steps.

The Request tab includes the following fields:

- **Owner:** allows the trainer to take ownership of the sheet.

- **Start Date:** beginning date and time when training scenario is played.

- **Finish Date:** date and time when training scenario is executed.

- **Default Offset:** the **Default Offset** field is an editable text field in the format that allows you to add a default wait period (hours:minutes:seconds) for the scenario steps.

- **Description of Scenario:** text field for adding information about the scenario.

Steps Tab

Each step in the steps tab has an editable Offset Time that allows the trainer to adjust the timing of the step execution during playback. The Offset Time is in the format of hours:minutes:seconds.

Recording Scenario Steps

Once you have created a new Training Scenario sheet, you will be able to record actions that trainees will respond to during a training session. Scenarios may show operational situations such as customer calls coming in, predicted outages occurring, AMI last gasps received, repredictions occurring, SCADA devices operating, and other elements.

Using the Training Environment Control Tool

The Trainer Control Tool provides unique device operations and customer call simulation options.

Trainer Control Tool Options

- **Operate...**

  - **Simulate Open/Close**: Simulates an *Open* or *Close* operation. The simulated event is tagged in the Trainer environment, but not visible to trainees. The simulated operation impacts SCADA and Power Flow data as if it were an actual change to the network.

  - **Clear Simulated Operation**: clears the simulated open/close.

- **Calls**

  - **For customer transformers:**

    - **Submit Call…**

    - **Submit Calls…**

    - **Submit Power Out Calls for 20%**

    - **Simulate AMI Inputs…**

    - **Submit AMI Power-offs for 70%**.

  - **For upstream devices:**

    - **Submit Calls…**

    - **Submit Power Out Calls for 20%**

    - **Simulate AMI Inputs…**

    - **Submit AMI Power-offs for 70%**.

    The **Submit Calls…** and **Simulate AMI Inputs…** launch the Trouble Info **Customers** or **AMI Customers** pages, respectively, allowing you to create events for selected customers.

Submitting Customer Calls

The Trainer may add calls or AMI power off events to the scenario using the Control Tool in conjunction with Web Call Entry and Trouble Info.

Submitting a Singular Call

1. Select a device in the Viewer and launch the Control Tool.

2. Under the **Calls...** menu, select **Submit Call...** Web Call Entry will open and immediately display the Customer Selection window.

3. Select a customer row in the Customer Selection window.

4. Click OK. The selected customer data will load in Web Call Entry.

5. Click the **Submit Call** () button. This action will submit a Power Out call for the selected customer.

Submitting Multiple Calls

1. Select a device in the Viewer and launch the Control Tool.

2. Under the **Calls...** menu, select **Submit Calls...** Trouble Info opens with the Customers view displayed.

3. Select customer rows in the Trouble Info **Customers** table

4. Click the **Submit Call** () button. This action will submit Power Out calls for each selected row.

Submitting AMI Power-off Commands

1. Select a device in the Viewer and launch the Control Tool.

2. Under the **Calls...** menu, select **Simulate AMI Inputs…** Trouble Info opens with the AMI Customers view displayed.

3. Select customer rows in the Trouble Info **AMI Customers** table.

4. Click the **Submit AMI Power-off** () button.

Submitting AMI Power-on Commands

1. Select a device in the Viewer and launch the Control Tool.

2. Under the **Calls...** menu, select **Simulate AMI Inputs…** Trouble Info opens with the AMI Customers view displayed.

3. Select customer rows in the Trouble Info **AMI Customers** table.

4. Submit **AMI Power-on** (). The Work Agenda's # Power Ups column will update as the power ups are processed.

Adding Customer Calls with Web Call Entry

The Trainer may add calls to the scenario directly in Web Call Entry by selecting **Web Call Entry...** from the Workspace Tools menu. Each saved call is added as a step in the Training Scenario switching sheet.

> **Note:** The device field can be populated by selecting a device in the Viewer.

Resetting the Model

Once all steps have been added to the Training Scenario sheet, select **Reset Model...** from the **Training** menu to return the to the nominal state. The system will present a dialog asking you to confirm the action and warn of the actions taken in the Reset Model operation.

Reset Model Actions

- Logout and unsubscribe all other users; the other users do not get the opportunity to save any unsaved work.

- Closes all open sheets for the user except for templates and training scenarios; closed sheets are not saved.

- Changes all sheets except for templates and training scenarios to the *Training-Completed* state.

- Cancels all pending momentary operations and expected actions

- Closes all study sessions.

- Resets all delegated zones.

- Removes all tags and conditions.

- Resets all digital and analog measurements.

- Resets all commissioning/decommissioning to nominal.

- Resets all devices to their nominal state.

- Releases all crews.

- Cancels all active or incomplete events.

- Rolls back all model edits.

Click **Yes** to confirm that you want to reset the model. When the model has reset, the system will present the Reset Model Finished dialog; click **OK** to close the dialog.

Saving the Training Scenario Sheet

Once you have recorded the training scenario, you may save and close the sheet. The saved sheet can then be copied and used as a template for subsequent training sessions.

Conducting Training Sessions

When conducting a training session, the trainer will log in as a Trainer user type and the trainees will log in as standard operations user types. Although it is possible to record a training scenario during a training session, the trainer will typically create a new training scenario sheet from a previously developed training scenario sheet. This allows the trainer to focus on the trainee's actions.

Running the Training Scenario

Starting the Training Scenario

The trainer begins a training session by creating a new training scenario sheet from an existing training scenario sheet.

1. Select **Open** and then **Switching Sheet...** from the Web Workspace **File** menu.

2. Select a Training Scenario from the Open Switching Sheet dialog.

3. Select **Copy As...** from the Training Scenario's **File** menu.

4. Select **Training Scenario** in the Switching Sheet Types table and click **Create a Copy**. The trainer can then complete information in the **Request** tab about the training session prior to playing the training scenario.

Playing a Training Scenario

Scenarios may be played from start to finish or to a selected step.

- When you wish to play the scenario to a certain point, do the following:

    1. Select the row where you wish to complete and then pause.

    2. Click the **Play Scenario to Here** ( ) button. The **NTS** will present a dialog asking if you wish to override the default offset to add time to each step.

- When you wish to play the entire scenario, do the following:

    1. Click the **Play Scenario** ( ) button. The **NTS** will present a dialog asking if you wish to override the default offset to add time to each step.

In either play scenario, the steps will proceed and the synchronized training environment will change according to the steps.

Pausing a Training Scenario

At any point when running a scenario, you may pause the steps by selecting **Pause Scenario** from the **Training** menu or clicking the pause ( ) button. This allows flexibility to take breaks or discuss the training steps.

Evaluating Trainee Performance

The trainer can evaluate trainee performance using the **NTS** enhanced User Log. The User Log allows the trainer to view trainee logs as well as open the trainee's switching sheets.

1. Select **User Log...** from the Web Workspace **Tools** menu.

2. Enter the trainee name in the **User ID** field.

3. Select **Load User Log** from the **Actions** menu. All of the actions taken by the trainee will be displayed in the User Log table.

4. To view the trainee's switching sheets, select **User's Switching Sheets...** from the **Actions** menu. The Open Switching Sheet dialog will open listing any switching sheets. Enter the user name in the table header to filter the list. Select a sheet in the table and click **Open**. The sheet will open in the Web Workspace.

Appendix A

Event Status and Event Type Codes

This appendix lists and describes coded information that appears in Oracle Utilities Network Management System screens, including:

- **Event Status Codes**
- **Event Type Codes**

Event Status Codes

Work Agenda displays the current status of each event listed. The event status is also displayed on the Call Information window. The following table provides the event status codes, their descriptions, and the associated icons used in the Work Agenda and associated tools.:

Status Code	Description	Icon
ASN	Crew is assigned to the event	
C-CAN	CVR event has been cancelled by the user from the Work Agenda.	
C-CMP	CVR event has been completed. Both job and documentation are complete.	
C-INC	CVR event has been completed, but documentation still remains.	
C-NEW	New unacknowledged CVR event.	
CMP	Event has been completed (job and event details are complete)	
CNL	Event has been cancelled by a user (using the Cancel Event button in the Work Agenda window)	
CRT	Acknowledged critical meet	--
ENR	Crew is en route to the event	
F-ASN	Crew is assigned to the fault current event	--
F-CMP	Fault current event has been completed (job and event details are complete)	--

Status Code	Description	Icon
F-CNL	Fault current event has been cancelled	--
F-ENR	Crew is en route to the fault current event	--
F-NEW	New fault current event	--
F-ONS	Crew is onsite at the fault current event	--
F-UAS	Unassigned fault event.	--
INC	Event has been completed, but information needs to be entered in the Event Details window	
M-CMP	Momentary event has been completed (job and event details are complete)	
M-INC	Momentary event has been restored, but information needs to be entered in the Event Details window	
M-NEW	New unacknowledged momentary event	--
M-RCVD	Momentary event was received by mobile system and receipt was acknowledged by the MQ adapter.	--
M-SNT	Unassigned (acknowledged) momentary event manually sent to the mobile system	
M-UAS	Unassigned (acknowledged) momentary event	
MNP	Maintenance pending	
NEW	New unacknowledged event	--
NFY	Notify alarm	
ONS	Crew is onsite at the event	
P-CMP	Planned event has been completed (job and event details are complete)	
P-INC	Planned job has been completed, but information needs to be entered in the Event Details window	
P-NEW	New unacknowledged planned event	--
P-RCVD	Planned event was received by mobile system and receipt was acknowledged by the MQ adapter.	--
P-SNT	Unassigned (acknowledged) planned event manually sent to the mobile system	
P-UAS	Unassigned (acknowledged) planned event	

Status Code	Description	Icon
RCVD	Order was received by mobile system and receipt was acknowledged by the MQ adapter.	
RED	New critical meet	--
RSCH	Rescheduled meet	--
RST	Event has been restored and a crew is still associated with the event	
S-ASN	Crew is assigned to the SCADA event	
S-CMP	SCADA event has been completed (job and event details are complete)	
S-ENR	Crew is en route to the SCADA event	
S-INC	SCADA event has been completed, but information needs to be entered in the Event Details window	
S-MNP	Maintenance pending (SCADA event)	
S-NEW	New unacknowledged SCADA event	--
S-ONS	Crew is onsite at the SCADA event	
S-RCVD	SCADA event was received by mobile system and receipt was acknowledged by the MQ adapter.	--
S-RST	SCADA event has been restored and a crew is still associated with the event	
S-SNT	Unassigned (acknowledged) SCADA event manually sent to the mobile system	
S-SUS	Crew has been re-dispatched to another event, but is still assigned to this SCADA event	
S-UAS	Unassigned (acknowledged) SCADA event	
SNT	Unassigned (acknowledged) event manually sent to the mobile system	
SUS	Crew has been re-dispatched to another event, but is still assigned to this one	
UAS	Unassigned (acknowledged) event	

Status Code	Description	Icon
VFY	A probable service outage is in this state if the system reports that the meter at the outage location has power. This state provides an indication for the operator to verify that the customer indeed is out of power.	--
W-ASN	Crew is assigned to the switching job	
W-CMP	Switching job has been completed (the corresponding switching plan has been completed)	
W-CNL	Switching job has been cancelled (the corresponding switching plan has been rescheduled)	
W-ENR	Crew is en route to the switching job	
W-ONS	Crew is onsite at the switching job	
W-RCVD	Switching job was received by mobile system and receipt was acknowledged by the MQ adapter.	--
W-SNT	Unassigned (acknowledged) switching job manually sent to the mobile system	
W-SUS	Crew has been re-dispatched to another event, but is still assigned to this switching job	
W-UAS	Unassigned (acknowledged) switching job	

Event Type Codes

Event Type codes are displayed on the Trouble Call Entry Lists. Below is a complete list of event type codes and their descriptions:

Event Type Code	Description
CSCO	confirmed secondary outage
CSVO	confirmed service outage
FUZZY	fuzzy event
MEET	meet
NFY	notify alarm
NON	non-outage
PDO	probable device outage
PLAN	planned outage
PMO	probable momentary outage
PSO	probable service outage
RDO	real device outage
RMO	real momentary outage
SWP	switching job

Appendix B

Color Coding

This appendix lists and describes color coding that appears in Oracle Utilities Network Management System screens, including:

- **Crew Status**
- **Conductor Symbology**
- **Event Status**
- **FLISR Status**
- **Callback Status**
- **Feeder/Device Condition Names and Colors**
- **SCADA Data Quality Codes and Colors**

> **Note**: All color coding is configurable and your site may use different colors than those shown in this appendix.

Crew Status

The table below describes the color coding used on the Crew Actions and Crew List windows to indicate crew status when cell coloring is enabled in the Web Workspace **Preferences** menu (see **Color Coding Options** on page 1-8). These colors are also used for AVL crew symbols in the Viewer.

Color	Crew Status
Green	En Route
Dark Green	Onsite
Yellow	Unavailable
Cyan	Assigned
Orange	Suspended
Brown	Crew has no control zone (i.e., the crew's assigned control zone has been removed from the control zone hierarchy).
White	Available

Event Status

The table below identifies the color coding used on the Work Agenda list to indicate the event status when cell or row coloring is enabled in the Web Workspace **Preferences** menu (see **Color Coding Options** on page 1-8).

Row Color	Event Status
White text on dark red background	NEW
White text on light red background	M-NEW
White text on red-orange background	P-NEW
White text on red background	S-NEW
White text on bright red background	RED
Red text on white background	NFY
Black text on yellow background	SNT
	UAS
Black text on pale yellow background	M-SNT
	M-UAS
Black text on gold background	P-SNT
	P-UAS
	W-SNT
	W-UAS
Black text on dark gold background	S-SNT
	S-UAS
Black text on cyan background	ASN
	S-ASN
	W-ASN
Black text on green background	ENR
	S-ENR
	W-ENR
Black text on dark green background	ONS
	S-ONS
	W-ONS
White text on blue background	RST
	S-RST

Row Color	Event Status
Black text on gray background	CMP
	P-CMP
	W-CMP
	S-CMP
	M-CMP
Black text on orange background	SUS
	S-SUS
	W-SUS
White text on purple background	INC
White text on orchid background	P-INC
Black text on plum background	S-INC
White text on violet background	M-INC
Black text on white background	MNP
	S-MNP
Black text on light green background	C-CNL
White text on brown background	CNL
	S-CNL
	W-CNL

FLISR Status

The Work Agenda is the starting point for viewing the status and results of the FLISR calculations. Each outage row is color-coded to represent the FLISR status of a job. The background color of the "Event #" field in the Work Agenda list indicates the FLISR status:

• **Yellow** - The job is currently being processed as a FLISR job and a solution is being searched for.

• **Green** - A FLISR solution has been found for the job.

• **Light Red** - A FLISR solution has been found but it overloads the restoring feeder – manual intervention will be required.

• **None** - No FLISR solution can be found for this job.

Conductor Symbology

In the Viewer, conductor symbology changes color and line style (*e.g.*, pattern, thickness) for different types of conductors and topology states. Conductor symbology is configurable. The following table shows the default color coding used for conductor symbology:

Line Style	Color	Description
Thin	Red	A Phase
Thin	Yellow	B Phase
Thin	Blue	C Phase
Dashed	Black and white	De-energization
Dashed	Black and gray	Partial energization
Thick	Light blue overlay	In Trace mode, indicates a conductor that is part of the path from a selected device
Thick	Dark pink	Grounded
Thick	Dark red	Different color codes for individual phases
Thick	Magenta overlay	Loop, bi-directional flow
Thick	Purple overlay	Parallel
Solid	Varies	Overhead line.
Dashed	Varies	Underground cable.

Callback Status

The Callback Status field on the Perform Callbacks List Window and the Perform Next Callback window is color-coded to indicate whether a callback attempt has been made and the result of the last attempt. The following table shows the default color coding used for callback status:

Color	Description
White	**Not Called** - indicates you have not yet called the customer (default). The callback remains in the callbacks list.
Blue	**Restored** - indicates the customer confirmed their service was restored. The callback is considered complete and is removed from the callbacks list the next time it is brought up.
Red	**Not Restored** - indicates you called the customer, and the customer indicated that service was not restored. The callback is considered complete and is removed from the callbacks list the next time it is brought up. The call is re-introduced into the Oracle Utilities Network Management System for re-analysis and restoration and a new callback will be generated when that event is restored.
Green	Indicates one of the following: **No Answer** - indicates you attempted to reach the customer, but nobody answered the telephone. The callback remains in the callbacks list. **Busy** - indicates you attempted to reach the customer, but the line was busy. The callback remains in the callbacks list.
Brown	**Cancel** - cancels the callback. The callback is considered complete and is removed from the callbacks list the next time it is brought up.

Feeder/Device Condition Names and Colors

The Feeder Load Summary and Feeder Load Management windows use color coding to indicate violations or warnings associated with feeders and devices. The following table lists the feeder/device condition number, name, and corresponding cell background and text coloring.

Condition Number	Condition Name	Condition Color
0	Normal	Black text on Green background
1	Backfeed Warning	Black text on Yellow background
2	Not currently used.	
3	Under Voltage Warning	Black text on Yellow background
4	Over Voltage Warning	Black text on Yellow background
5	Switch Overload Warning	Black text on Yellow background
6	DistTrans Overload Warning	Black text on Yellow background
7	Feeder Capacity Warning	Black text on Yellow background
8	Conductor Overload Warning	Black text on Yellow background
9	PowerTrans Overload Warning	Black text on Yellow background
10	DistGen Overload Warning	Black text on Yellow background
11	DistGen Time-to-live Warning	Black text on Yellow background
50	Not a valid violation type; used for non-violations that need operator attention.	
100	Not a valid violation type; used to distinguish between warnings and violations.	
101	Backfeed	Black text on Light Gray background
102	Not currently used.	
103	Under Voltage	Black text on Light Brown background
104	Over Voltage	Black text on Gold background
105	Switch Overload	Black text on Cyan background
106	DistTrans Overload	Black text on Magenta background
107	Feeder Capacity	Black text on Pink background
108	Conductor Overload	White text on Orange background
109	PowerTrans Overload	White text on Red background
110	DistGen Overload Violation	White text on Red background
111	DistGen Time-to-live Violation	White text on Red background
201	Model Error	Black text on Red background
202	Inconclusive	Black text on Red background
203	SCADA Inconclusive	Black text on Yellow background

Condition Number	Condition Name	Condition Color
204	SCADA Suspect	Black text on Red background

SCADA Data Quality Codes and Colors

The following color codes are used for SCADA data quality cells in Feeder Load Management.

Data Status	Data Quality Color Indicators
Valid	Black text on Green background
Suspect	Black text on Red background
Invalid	Black text on Red background
Load	Black text on Red background
Profile	Black text on Red background