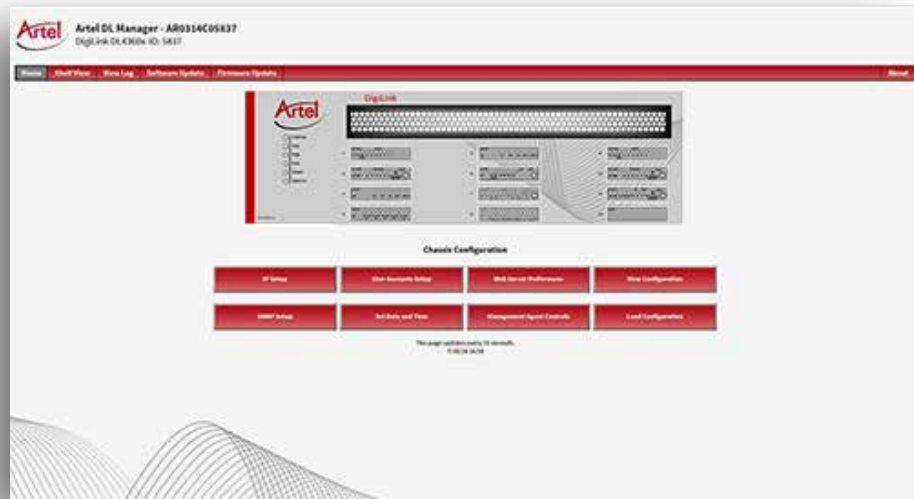




DIGILINK MANAGER



**SNMP, HTTP Element
Management Systems**

**Installation and Operations
Manual**



SNMP, HTTP Element Management System [DigiLink Manager]

Setup and Operations Manual

Document Number: AR200-008090-B10_O
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K	AR200-008090-B00_K	January, 2012	Initial release.
L	AR200-008090-B00_L	August, 2013	New look and feel to GUI and guide covers. Support for DL4360x chassis added.
M	AR200-008090-B10_N	February, 2016	Updated Artel logo.
N	AR200-008090-B10_O	December, 2016	Updated Images



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About This Manual

This manual provides instructions for connecting to, configuring, and operating the DL Manager element management system.

Audience

This manual is intended for the following trained and qualified service personnel who are responsible for installing and operating DL Manager:

- System installer
- Hardware technician
- System operator

Related Documentation

The following documentation contains material related to DL Manager:

Document	Provides ...
<i>DigiLink Video Platform Chassis Installation and Operations Manual</i>	Overview and installation procedures for the various chassis products available with the DigiLink video platform, including the following chassis models that enable you to use DL Manager: <ul style="list-style-type: none">• DL4000 (4-slot chassis)• DL4300 (12-slot chassis)• DL4360x (12-slot chassis with active routing capabilities)
Function Module Installation and Operations Manuals	Module-specific manuals for installing and configuring a DigiLink video platform function module.

Note: To obtain the latest versions of this guide and related documents, go to www.artel.com.

Symbols and Conventions

This manual uses the following symbols and conventions:

Caution

A caution means that a specific action you take or fail to take could cause harm to the equipment or to the data transmission.



Warning

A warning describes an action you take or fail to take that could result in death, serious physical injury, or destruction of property.

Note: Important related information, reminders, and recommendations.

Italics—used for emphasis, for indicating the first occurrence of a new term, and for book titles

1. Numbered list—where the order of the items is important
 - Bulleted list—where the items are of equal importance and their order is unimportant

Artel Customer Service

You can reach Customer Service by e-mail at customer@artel.com or by telephone:

In the US call (800) 225-0228, then select 1 for technical support.

Outside the US call (978) 263-5775, then select 1 for technical support.

When requesting assistance, please be ready to provide the following information:

- Your name and telephone number
- Product model and serial number
- Brief description of the problem
- List of symptoms
- Steps you have already taken to try to resolve the problem

DigiLink Manager

SNMP, HTTP Element Management System

Information About DigiLink Manager

This manual describes how to set up and operate DigiLink Manager (or *DL Manager*), which is a web-based graphical user interface (GUI) that provides a network management interface for a DigiLink chassis. Using DL Manager, you can monitor and configure the operations of the installed function modules. DL Manager includes a real-time preemptive, multitasking operating system, TCP/IP stack, web server, and SNMP master agent.

The DL Manager software resides on a single board computer on a module in the DigiLink chassis. Contact Artel for information on how to add DL Manager to your chassis (see the [Artel Customer Service \(page x\)](#)).

-
- Note:**
- This guide uses the following terms interchangeably:
 - “Chassis” and “shelf” when referring to any of the DigiLink chassis models.
 - “DL Manager” and “EMS” when referring to the DigiLink Manager element management system.
 - This guide uses the term *management module* when the information being presented applies to the DL Manager host module in your DigiLink chassis.
 - The DL Manager screens may vary in appearance depending on the browser that you use, the version of DL Manager, or the chassis model.
 - Unless otherwise indicated, the screen shots used in this guide are from DL Manager as hosted by the DL4360x chassis. The screens vary slightly when viewed from other DigiLink products.
-

DL Manager features include the following:

- Enables DL Manager Administrators to monitor the chassis operating status and configure module-specific parameters for all function modules installed in the chassis.
- Supports multiple management interfaces including:
 - Browser-based interface (for browser requirements, see the [“Configuring and Cabling the Client Device” section on page 3](#)).
 - Simple Network Management Protocol version 2c (SNMPv2c as defined in RFC 1901) interface for third-party monitoring applications.
- Eliminates the need for special software on browser-based clients.

- Allows three different user privilege levels for the browser interface: Administrator, Power User, and User.
- Provides all users with a coherent view of the hardware regardless of how many or which management interfaces are being used. One user can use a browser-based interface while another user simultaneously uses SNMP. Configuration changes executed by a user are seen by all users and all users see the same hardware state.

DL Manager Operational Considerations and Requirements

The DL Manager operating considerations are as follows:

- The management modules that host DL Manager have a standard 10/100 Mb Ethernet connection for user access to DL Manager. Artel ships DL Manager with a known fixed IP address (192.168.100.5). The hardware is initially configured in a two-node network of the hardware and a single client. You set the site-specific network address in the hardware by connecting a client to the management module Ethernet interface and accessing the integrated browser GUI. After specifying a new IP address and rebooting the software, you access DL Manager using the new IP address.
- DL Manager supports HTTP-type access using a web-based browser and third party SNMP network management systems. Additional features include the following:
 - SNMPv2 MIB-II NMS support
 - Static IP configuration using the GUI
 - SNMP configuration using the GUI
 - EMS provisioning of all module-specific parameters using the GUI
 - Support for all chassis function modules (excluding the passive optical modules, DLM010, and DLM020 function modules), shelf backplane, and power supplies
 - Reporting for all module status, including module serial number, hardware and firmware revisions, and shelf slot location
 - Monitoring and reporting for all module-specific major and minor alarms
 - Monitoring and reporting for module and SFP insertions and removals
 - Function module firmware upgrade support using the GUI
 - Management module software update using a PC application
- All function module configuration states persist across restarts of the DL Manager software, power cycles of the shelf, or function module firmware upgrades.

- Function modules require a minimum firmware version level installed to enable management by DL Manager. DL Manager's Flash Update screen indicates when a module's firmware needs to be upgraded. You perform an upgrade by using the Flash Upgrade screen and the module's upgrade file, which you can download from the Artel website (artel.com). For more information, see the ["Upgrading Function Module Firmware" section on page 16](#).
- Note:** As Artel introduces new function modules for the DigiLink video platform, you may have to upgrade the management module firmware before DL Manager can recognize, monitor, and configure the new modules. For more information, see the ["Upgrading the DL Manager Agent Software" section on page 17](#).

Configuring and Cabling the Client Device

You must access DL Manager locally using a client device before you can connect the management module's Ethernet interface directly to your management network. Using a local client device, you configure DL Manager with the information required for a network connection, such as the static IP address that is specific to your network.

Before a local client device can communicate with DL Manager, you must configure the client with an IP address that will enable communication between the client and DL Manager.

The client must have one of the following browsers loaded on it for communication with DL Manager:

- MS Internet Explorer, version 8 or later
- Firefox 12.0 or later
- Chrome 21 or later

The process for configuring a client's IP address will vary depending on the operating system installed on the client. The following example procedure shows how to configure the client IP address when using MS Windows Vista, Windows 7, and Windows_8:

1. From the Start menu search for "Network Connections."
The Network Connections window appears.
2. Right-click on Local Area Connection and choose **Properties**.
The Local Area Connection Properties dialog box opens.
3. From the Networking tab, double-click on **Internet Protocol Version 4 (TCP/IPv4)**.
The Internet Protocol (TCP/IP) Properties dialog box appears.
4. Choose the **Use the following IP address** option if it is not already selected.
5. Enter the following IP address: **192.168.100.50**
6. Enter the following Subnet mask: **255.255.255.0**
7. Click **OK**.
The Internet Protocol (TCP/IP) Properties dialog box closes.
8. From the Local Area Connection Properties dialog box, click **OK**.
The window closes. The client device is configured and ready for cabling.

9. Attach an Ethernet cable from the client device to the RJ45 connector labeled **10/100MB MGMT Port** on the chassis management module.

The client is now ready to access the DL Manager GUI (see the [“Accessing the DL Manager Home Page”](#) section on page 4).

Accessing the DL Manager Home Page

This section describes how to access the DL Manager GUI and explains the options available from its home page.

To access the DL Manager web-based GUI, perform the following steps:

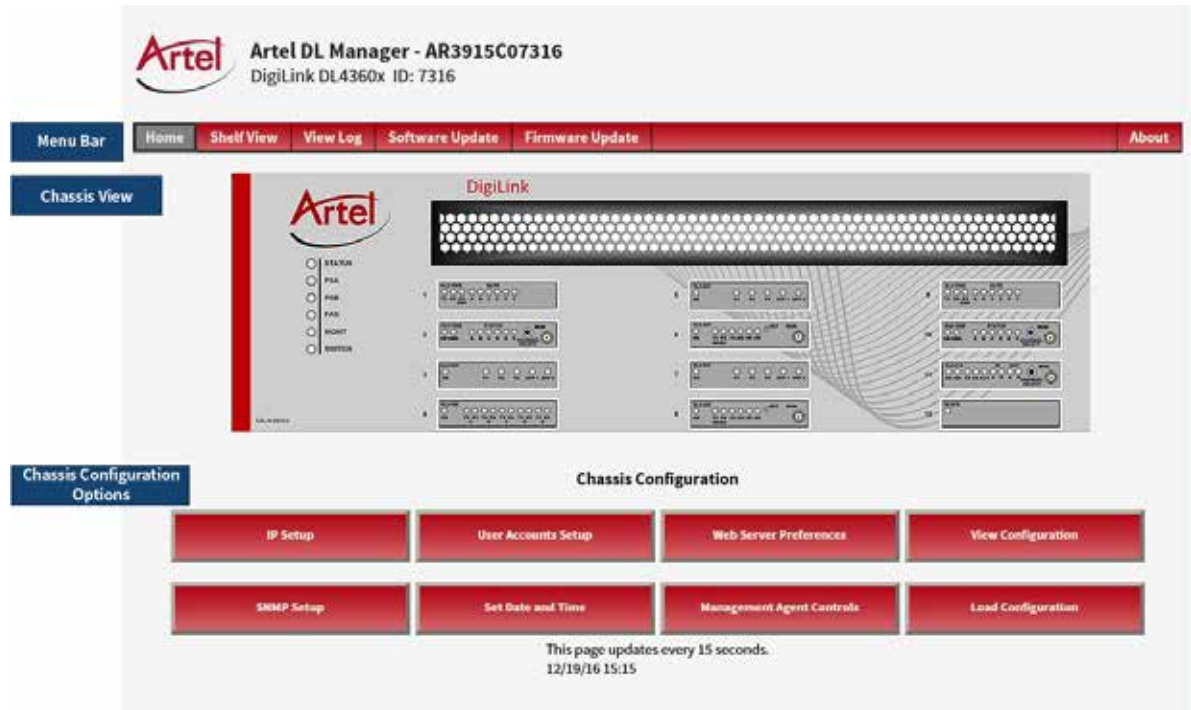
1. Ensure that you have attached an Ethernet cable between the RJ45 connector on the management module and your client device.
2. Ensure that you have configured the client device with an IP address that will allow communication with DL Manager (see the [“Configuring and Cabling the Client Device”](#) section on page 3).
3. Open the client web browser.
4. Apply power to the chassis.
5. Perform one of the following tasks:
 - **New installation**—If you have not yet configured DL Manager with a site-specific IP address, enter the DL Manager default IP address **192.168.100.5** (<http://192.168.100.5/index.htm>) in the address window of the browser.
 - **Existing installation**—If you have already configured DL Manager with a site-specific IP address, enter the IP address.

The Home page appears (see [Figure 1](#)), displaying the following GUI components:

- **Menu Bar**—Main menu options that change depending on the GUI page displayed.
- **Chassis View**—Chassis front panel that displays the chassis type that DL Manager resides on and the installed function modules.
- **Chassis Configuration Options**—Configuration options that you use to configure the chassis. These options are specific to the Home page.

See [Table 1](#) for details about the Home page menu bar and chassis configuration options.

Figure 1. DL Manager Home Page



[Table 1](#) describes the options available from the Home page.

Table 1. DL Manager Home Page Options

Menu Bar Option	Available Features	Description
Home	Chassis front panel	Displays detected installed modules.
	Chassis Configuration options	Configures the following parameters: <ul style="list-style-type: none"> • Static IP Setup—Configure the DL Manager IP address and optional NTP server IP address. See the “Setting Up the DL Manager Static and Chassis IP Addresses” section on page 9. • SNMP Setup—Configure SNMP parameters. See the “Setting Up the SNMP Configuration” section on page 11. • User Accounts—Manage user access to DL Manager. See the “Setting Up User Accounts” section on page 10. • Set Date and Time—Set the time for DL Manager. See the “Setting the Date and Time” section on page 11. • Web Server Preferences—Configure the chassis view refresh rate. See the “Setting the Web Server Preferences” section on page 12. • Management Agent Controls—View current operating mode and reset the DL Manager configuration, including the IP address. See the “Using the Management Agent Controls to Reboot or Reset the Agent” section on page 21. • View Configuration—View current configuration attributes or save a configuration to a local PC. See the “Viewing and Saving the DL Manager Configuration” section on page 14. • Load Configurations—Load a configuration. See the “Loading a Configuration” section on page 20.
Shelf View	Chassis rear panel	Displays the detected installed modules. Hover over a module to view module type/chassis slot number. Click on a module to view the Module Status screen.
	Module status table	Displays the following module status information: <ul style="list-style-type: none"> • Slot—Chassis slot number. • State—Communication state with DL Manager. • Module Type—Module model. Click to view the Module Status screen. • Slot Name—Name assigned to slot. Click to view the Edit Labels screen. • Configuration—Click to view the module Configuration screen.
	Unique menu bar option	Edit Labels —Edit the shelf name. Click to view the Edit Shelf ID screen. See the “Setting the Shelf Labels” section on page 13.

Table 1. DL Manager Home Page Options (Continued)

Menu Bar Option	Available Features	Description
Directory View	Network Directory View table	Displays the following chassis information: <ul style="list-style-type: none"> • Chassis Name—Name assigned to the chassis. • Chassis—Chassis model. • Status—Operating status. The cell displays as follows when an alarm condition exists: yellow = minor alarm, red = major alarm. • Static IP Address—Chassis/DL Manager static IP address. Click to view the Home screen and chassis configuration options. See the “Using the Directory View Screen” section on page 23.
	Unique menu bar options	<ul style="list-style-type: none"> • Edit Directory—Configures the list of chassis in the directory list. • Controls—Controls polling for chassis status and allows you to obtain a copy of the directory list from another management module. • View Entries—Displays directory entries and allows you to save the directory list to a file on the local PC. • Load Entries—Loads a saved directory list from the file to a management module (Administrator function). See the “Using the Directory View Screen” section on page 23.
View Log	Log table	View DL Manager log files. See the “Viewing the DL Manager Log File” section on page 15.
	Log View Settings pane	Manage logging function and log page displayed.
	Unique menu bar options	<ul style="list-style-type: none"> • Add Comment—Add a comment to the log. • Save to File—Save the log to a file.
Flash Update	Chassis rear panel	Display the detected installed modules. Hover over a module to view module type. Click on a module to view the Module Status screen.
	Module table	Module selection table that displays the following information: <ul style="list-style-type: none"> • Slot—Chassis slot number. • Module Type—Module model. Click to view the Module Status screen. • Slot Name—Name assigned to the chassis slot. • Current Rev—Current firmware revision installed in the module. • Min Req’d Rev—Minimum required firmware revision level to operate with DL Manager. See the “Upgrading Function Module Firmware” section on page 16.

Table 1. DL Manager Home Page Options (Continued)

Menu Bar Option	Available Features	Description
About	About DL Manager table	Display information about DL Manager such as its operating mode, software version number, SNMP version number, and so on. See the “Viewing the Management Agent Details” section on page 19.
	Chassis slot table	Display the following information: <ul style="list-style-type: none"> • Slot—Chassis slot number. • Module Type—Module model. • Serial Number—Module serial number. • F/W Rev.—Module firmware revision level.

Configuring DL Manager

This section describes how to configure the operation of DL Manager. Use the procedures in this section to initially set up DL Manager for your particular application or when the needs of your application change.

Note: You must have administrative privileges to access and modify the DL Manager configuration options. The default values for the Administrator account are as follows: User Name: **admin**, Password: **admin**. We strongly recommend that you change the password for the Administrator account from its default value (see the [“Setting Up User Accounts”](#) section on page 10).

The general process by which you configure the operations of DL Manager is as follows:

1. [Setting Up the DL Manager Static and Chassis IP Addresses \(page 9\)](#)¹
2. [Setting Up User Accounts \(page 10\)](#)
3. [Setting Up the SNMP Configuration \(page 11\)](#)
4. [Setting the Date and Time \(page 11\)](#)
5. [Setting the Web Server Preferences \(page 12\)](#)
6. [Setting the Shelf Labels \(page 13\)](#)
7. [Setting the Shelf Slot Labels \(page 13\)](#)
8. [Viewing and Saving the DL Manager Configuration \(page 14\)](#)

¹ Required setup operations; all other setup operations are optional or application specific.

Setting Up the DL Manager Static and Chassis IP Addresses

Artel ships DL Manager with the following default IP address configurations:

- IP address—192.168.100.5
- Net Mask—255.255.255.0
- Gateway IP Address—0.0.0.0
- DNS IP Address—0.0.0.0
- NTP IP address—Blank

You can change the address information for security or site-specific network requirements.

Note the following:

- DL Manager does not support DHCP; you must specify a static IP address that is appropriate for your network. The IP address is typically from a reserved address range but it can be an Internet address.
- New static IP parameters do not take effect until DL Manager reboots (see Step 3).
- To reset the address configuration back to the default values, you can use the procedure in this section or use the reset button on the management module (see the [“Using the DL Manager Reset Button” section on page 22](#)).

To change the DL Manager static IP address configuration, perform the following steps:

1. From the Home page Chassis Configuration options, click **Static IP Setup**.
Log in as the Administrator if you haven't already.
The Static IP Setup screen appears, displaying the current (active) settings.
2. In the Shelf IP Settings pane, enter the following address information using dotted-decimal format (for example, 10.10.10.1):
 - IP Address—IP address of the chassis management module. The default is 192.168.100.5.
 - NetMask—Subnet mask for the EMS IP address (for example, 255.255.0.0). The default is 255.255.255.0.
 - Gateway IP—(Optional) IP address of the network gateway. The default is 0.0.0.0.
 - DNS IP—(Optional) IP address of the network domain name server. The default is 0.0.0.0.
 - NTP IP—(Optional) IP address of the Network Time Protocol (NTP) server used to synchronize the DL Manager date and time. The default is blank.

Note: If you use NTP, you must check the **Reboot after saving settings** option (see Step 3). After the reboot, DL Manager accesses the NTP server to obtain the date and time.

If you chose not to use NTP, you can manually set the DL Manager date and time (see the [“Setting the Date and Time” section on page 11](#)).
3. (Optional) Check the **Reboot after saving settings** check box if you want the EMS to reboot when you click the Submit button.

4. Click one of the following:
 - **Submit**—Saves the new configuration parameters and DL Manager reboots if you checked the **Reboot after saving** box.
 - **Reset**—Resets the configuration fields back to their previously saved values.
5. (Optional) If you are connected locally to DL Manager, you can now connect DL Manager to your management network and access the software using the IP addresses that you specified in Step 2.

Setting Up User Accounts

You manage access to DL Manager by configuring user accounts, which consist of the following three classifications: Administrator, Power User, or User. The guidelines for each classification are as follows:

- Administrator account—Enables full access to all administrative and device functions and is the only user account that can configure the DL Manager operating parameters, such as the IP address, SNMP setup, time, and user account information. DL Manager has one Administrator account.
- Power User accounts—Enables viewing and configuring of device settings. DL Manager has two Power User accounts.

Note: Leaving both Power User usernames blank permits unrestricted access to changing and viewing device state on any function module. We recommend that you configure at least one power user.

- User accounts—Enables view-only access to the device settings. DL Manager has two User accounts.

Note: Leaving both User usernames blank permits unrestricted access to viewing device state on any module.

To configure the DL Manager user accounts, perform the following steps:

1. From the Home page Chassis Configuration options, click **User Accounts Setup**.
Log in as the Administrator if you haven't already.
The DL Manager User Account Setup screen appears, displaying the current configured user accounts.
2. In the Administrator, Power User, and normal User panes, enter a username and password for each user account.
Usernames and passwords can consist of up to 16 characters each and are case sensitive. Spaces are allowed.
3. Click one of the following:
 - **Save**—Saves the new user account information.
 - **Reset**—Resets the user account information fields back to their previously saved values.

Setting Up the SNMP Configuration

You can configure DL Manager to communicate with your SNMP server, enabling you to monitor the traps that DL Manager issues.

To configure the EMS for SNMP operation, perform the following steps:

1. From the Home page Chassis Configuration options, click **SNMP Setup**.
Log in as the Administrator if you haven't already.
The SNMP Setup screen appears, displaying the current SNMP communities and trap hosts.
2. In the Communities Names pane, configure the communities parameters (up to six) as follows:
 - Access control—Choose one of the following options for each community string that you want to configure:
 - **Read-Only**—Specifies a read-only community string.
 - **Read-Write**—Specifies a read-write community string.
 - Community strings—Enter the community string to use. The community string can contain 1 to 64 characters.
3. In the Trap Hosts pane, define the trap host parameters for each community as follows:
 - IP Address—Enter the trap host IP address using dotted-decimal format (for example, 10.10.10.1).
 - Port—Enter the trap host port number.
 - Community—Choose the associated community string number.
4. (Optional) Check the **Restart agent after saving settings** check box if you want to restart the SNMP service when you click the Submit button.
Note: The SNMP service must be restarted before the new SNMP parameters take effect.
5. Click one of the following:
 - **Submit**—Saves the new configuration parameters and DL Manager restarts if you checked the **Restart agent after saving settings** option.
 - **Reset**—Resets the SNMP parameters back to their previously saved values.

Setting the Date and Time

You can manually set the DL Manager internal date and time settings.

Note: You can use an NTP server to synchronize the DL Manager date and time rather than setting it manually. For details, see the [“Setting Up the DL Manager Static and Chassis IP Addresses” section on page 9](#).

To manually configure the date and time settings, perform the following steps:

1. From the Home page Chassis Configuration options, click **Set Date and Time**.
Log in as the Administrator if you haven't already.
The DL Manager Set Time screen appears, displaying the current system date and time settings.

2. In the Enter New Time pane, set the following parameters:
 - a. Current date using the yyyy-mm-dd (year-month-day) format.
For example, 2008-01-15.
 - b. Current time using the hh:mm (hour:minute) format, in which the hh value can be 0 to 23 and the mm value can be 01 to 59. For example 21:30.
3. Click the **Submit** button to save the new date and time settings.
The Settings Save screen appears.

Setting the Web Server Preferences

You can configure the following web server preferences:

- **Screen Refresh Rate**—Setting that determines how often DL Manager refreshes the screen display. When you select **ShelfView** from the home page, DL Manager displays a list of the installed function modules and the current operating status of each module. DL Manager refreshes the display periodically according to the refresh rate setting.
- **Module View Auto Refresh**—Setting that applies to the DLT710 module only, which is a multi-format digital video physical layer tester. This administrative option sets an automatic screen refresh rate for the DLT710 status and log screens. For more information about this module, see the *DLT710 Generator/Test Module Installation and Operations Guide*.
- **Home Page Network Directory Link**—Administrative option that controls when the Network Directory link displays on the DL Manager home page. For more information about the home page links, see the [“Accessing the DL Manager Home Page”](#) section on page 4.

To set the web preferences, perform the following steps:

1. From the Home page Chassis Configuration options, click **Web Server Preferences**.
Log in as the Administrator if you haven't already.
The Web Server Preferences screen appears.
2. In the DL Manager Web Server Preferences pane, enter a new refresh rate in the refresh rate box.
The range of valid refresh rates is 1 to 3600 seconds. The default is 15 seconds.
3. (DLT710 module only) Set the operation of the module view auto-refresh feature by clicking one of the following radio buttons:
 - **Allow**—Enables the feature, allowing users to set the refresh rate of the DLT710 status and log screens from each of the screens.
 - **Disallow**—Disables the feature (default).
4. Set the availability of the Network Directory link on the home page by clicking one of the following radio buttons:
 - **Enable**—Link is shown (default).
 - **Disable**—Link is hidden.

5. Click one of the following:
 - **Submit**—Saves the new refresh rate. The Settings Saved screen appears.
 - **Reset**—Resets the refresh rate back to its default value (15 seconds).

Setting the Shelf Labels

You can edit the labels assigned to the shelf to provide information such as the shelf function and location. The shelf label editor also contains a note section for recording items such as maintenance dates or special operating notes.

To edit the shelf labels, perform the following steps:

1. From the Home page menu bar, click **Shelf View**.
The Shelf View screen appears.
2. From the Shelf View screen menu bar, click **Edit Labels**.
The Edit Labels screen appears.
3. From the Edit Shelf Labels pane, define the labels as follows using the specified number of alphanumeric characters (special characters are permitted):
 - **Shelf Name**—Provides a customer-specific shelf name for the shelf (16 characters maximum). This label appears across the top of the Shelf View screen and in the Shelf/Backplane Data screen.
 - **Shelf's Description**—Provides a shelf description, such as the function of the shelf within the network (40 characters maximum). This label appears in the Shelf/Backplane Data screen.
 - **Shelf Location**—Indicates the location of the shelf within the network, such as the building and equipment rack numbers (40 characters maximum). This label appears in the Shelf/Backplane Data screen.
 - **Notes**—Provides a place for recording additional shelf information, such as maintenance dates or special operating notes (40 characters maximum). This information appears on this screen only.
4. Click one of the following:
 - **Submit**—Saves the displayed label information.
 - **Reset**—Resets the information that you modified back to its previous value.

Setting the Shelf Slot Labels

You can edit the shelf slot labels to provide information such as the function of the module located in the slot. The default slot name is the factory-supplied serial number.

Note: Specific shelf slot labels vary for each module type.

To edit a shelf slot label, perform the following steps:

1. From the Home page menu bar, click **Shelf View**.
The Shelf View screen appears.

2. Access the shelf slot label editor screen using one of the following methods:
 - From the Module Type column, click the desired module. The associated Module Data screen appears, then click **Edit Labels** in the sidebar menu.
 - From the Slot Name column, click the desired shelf slot.
3. Define the labels as follows using the specified number of alphanumeric characters (special characters are permitted):
 - Name—Provides a customer-specific module name (16 characters maximum).
 - Description—Provides a module description (40 characters maximum).
4. Click one of the following:
 - **Submit**—Saves the displayed label information.
 - **Reset**—Resets the information that you modified back to its previous value.

Viewing and Saving the DL Manager Configuration

You can view the current configuration of DL Manager and save the information to a file on a PC. You can then use the file as a backup for the current management module or you can use the file to configure another management module of the same model type (see the [“Loading a Configuration”](#) section on page 20). The information that displays will vary depending on your particular configuration.

Note: You must have administrative privileges to view and save configuration settings.

To view and save the current DL Manager configuration, perform the following steps:

1. From the Home page Chassis Configuration options, click **View Configuration**.
 1. The View Configuration screen appears, displaying current DL Manager configuration attributes.
2. (Optional) To save the configuration to a file, click **Save Configuration to File** and perform one of the following tasks depending on the browser type:
 - Firefox—The Opening dumpCfg.htm dialog window appears. In this window, choose **Save File** and click **OK**. Firefox saves the DL Manager configuration to the dumpCfg.htm file in the Downloads folder.
 - Internet Explorer—The File Download dialog window appears. In this window, click **Save** to open the **Save As** dialog window. In this window, browse to the location where you want to save the configuration file, then click **Save**.
3. (Optional) To reboot DL Manager using the displayed configuration settings, click **Reboot with these Configuration settings**.

The following message appears:

Rebooting... This may take up to 15 seconds or you may click here after 15 seconds.

Performing Other Administrative Tasks

This section describes the administrative tasks that you can perform after configuring DL Manager.

This section includes the following topics:

- [Viewing the DL Manager Log File \(page 15\)](#)
- [Upgrading Function Module Firmware \(page 16\)](#)
- [Upgrading the DL Manager Agent Software \(page 17\)](#)
- [Viewing the Management Agent Details \(page 19\)](#)
- [Loading a Configuration \(page 20\)](#)
- [Enabling or Disabling the Management Module Power Alarm \(page 20\)](#)
- [Using the Management Agent Controls to Reboot or Reset the Agent \(page 21\)](#)
- [Using the DL Manager Reset Button \(page 22\)](#)

Viewing the DL Manager Log File

DL Manager uses a circular buffer to maintain a log file of the events that it detects, enabling you to track when events take place, such as module removals and insertions, configuration changes, and alarm conditions.

To display the DL Manager log file, from the Home page menu bar, click **View Log**. The Log screen appears.

To minimize the time required to display the log entries, DL Manager restricts the number of entries that can be viewed at a given time to 200.

The DL Manager log displays the following information:

- Entry #—Sequential log entry number.
- Date Time—Date and time of the recorded event.
- Type—Event type.
- Slot—Shelf slot number.
- Module—Module model number.
- Serial Number—Module serial number.
- Description—Alarm condition description. The Description and Type table cells may display in color to indicate the following:
 - Green—Major and minor alarm clearing
 - Yellow—Minor alarm
 - Red—Major alarm
 - Orange—Internal error (such as, failure to get the management module slot ID)
 - Light blue—Informational message (such as, module configuration change or flash update)
 - Dark blue—Set date/time

Log entries are CRC checked. When an entry has a CRC error, an asterisk (*) displays along with an explanatory note below the log table.

To manage the DL Manager log display, perform the following steps:

1. From the Log View Settings pane, configure the following parameters:
 - Entries per Page—Enter the number of log entries that you want to display in each screen.
 - Slot Filters—Select the desired chassis slots, or click **Select All** or **De-select All**.
 - Event Filters—Select the desired alarms or events, or click **Select All** or **De-select All**.
2. Click **Apply**.

The display updates using the selected filters.
3. Click the **Previous Page**, **Most Recent Page**, and **Next Page** buttons to navigate through the log display.

Upgrading Function Module Firmware

You can use DL Manager to view the revision level of the installed firmware in each function module, power supply module, and shelf backplane. The display highlights any function module that has firmware loaded on it that cannot support the DL Manager function. If a module firmware needs upgrading, perform the upgrade using the procedure in this section and the upgrade file, which you can download from the Artel website (artel.com).

This section contains the following topics:

- [Displaying the Function Module Firmware Revision Level \(page 16\)](#)
- [Performing a Function Module Firmware Upgrade \(page 17\)](#)

Displaying the Function Module Firmware Revision Level

To display the revision level of the installed firmware in each function module, from the Home page menu bar, click **Flash Update**. Log in as the Administrator or Power User if you haven't already.

The Flash Update screen appears and displays the following information:

- Rear Panel View—Illustration that shows the Installed modules. Hover over a module to view the module model and chassis slot number. Click a module to view the selected module's Module Status page.
- Chassis Slot Table—Contains the following information:
 - Chassis slot number of the installed function module. Slot 0 is reserved for the chassis backplane.
 - Module Type—Function module model or backplane indicator.
 - Slot Name—User-defined name for the shelf slot.
 - Current Rev—Installed firmware revision level. If a module's firmware revision level is below the required minimum level for DL Manager operation, it displays in red.
 - Min Required Rev—Minimum firmware revision level for DL Manager operation.

Performing a Function Module Firmware Upgrade

This section describes how to upgrade the firmware of an installed function module. During this process, you need to know the module type and the chassis slot location (see the “Displaying the Function Module Firmware Revision Level” section).

To upgrade the firmware on a functional module, perform the following steps:

1. From the Home page menu bar, click **Flash Update**.

Log in as the Administrator or Power User if you haven't already. The Flash Update screen appears.

2. Click the radio button to the left of the desired module to update.
3. Click **Browse** to browse to the location of the firmware file and select the required file.
4. Click **Send File**.

DL Manager performs a type check to ensure that the firmware file that you selected is the correct type for the selected function module. If the type check passes, the upgrade process begins. When the upgrade process is complete, the Flash Complete screen appears.

Caution

Do not interrupt the firmware upgrade process. Interruptions can corrupt the function module firmware, which will require you to ship the function module back to Artel for repair.

Upgrading the DL Manager Agent Software

This section describes how to upgrade the DL Manager agent software on the management module and how to troubleshoot any issues that may occur during the upgrade process.

This section contains the following topics:

- [Displaying the DL Manager Agent Software Revision Level \(page 17\)](#)
- [Performing a DL Manager Agent Software Upgrade \(page 17\)](#)

Displaying the DL Manager Agent Software Revision Level

To display the revision level of the installed DL Manager software, from the Home page menu bar, click **About**. The About screen appears and displays the revision level information of the installed DL Manager agent software and the SNMP MIB (for more information, see the “[Viewing the Management Agent Details](#)” section on page 19).

Performing a DL Manager Agent Software Upgrade

Before you begin the DL Manager agent upgrade process, you must obtain the zip file containing the latest set of DL Manager agent upgrade files, which you can get from the Artel website (artel.com). When you get the zip file, extract the files to the client device that you will use for the upgrade process.

To upgrade the DL Manager agent software, perform the following steps:

1. Apply power to the Artel chassis where DL Manager resides.

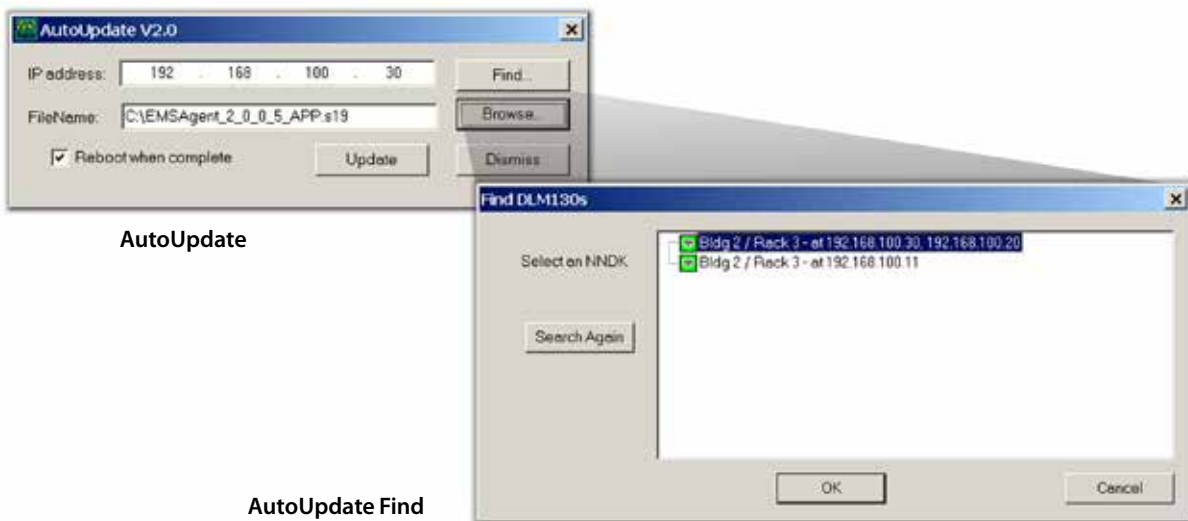
- From your client device, navigate to the DL Manager agent software files that you obtained from Artel and double-click on the **AutoUpdate.exe** file.

The AutoUpdate dialog box appears (see [Figure 2](#)).

- Click **Find**. The auto-search process for the management module IP address begins and the Find dialog box appears (see [Figure 2](#)).

If the Windows Security Alert window appears, click **Unblock** to disable the firewall temporarily for the upgrade process.

Figure 2. AutoUpdate



AutoUpdate

AutoUpdate Find

- Choose the IP address of the management module to update and click **OK**.

The Find dialog box closes and the AutoUpdate dialog box displays the selected IP address.

Note: If there are multiple DLM130's on the same IP subnet, make sure that you select the unit that you want to upgrade.

- From the AutoUpdate dialog box, click **Browse**.

The browse window appears.

- Navigate to, and choose, the DL Manager agent *.s19 file (for example, EMSAgent_1_0_1_3_APP.s19).

- Click **Open**.

The browse window closes and the AutoUpdate dialog box displays the path and filename of the DL Manager Agent file.

- (Optional) Select **Reboot when complete**.

This option enables an automatic reboot of the DL Manager software after the upgrade file is installed.

Note: The DL Manager agent software upgrade does not take effect until DL Manager is rebooted. If you do not choose this option, you must manually reboot DL Manager after the software upgrade file has been uploaded to the module (see the [“Using the DL Manager Reset Button”](#) section on page 22).

9. Click **Update**.

The progress bar displays, indicating the progress of the software upgrade. The “Programming Complete” message displays when the upgrade is complete.

If you enabled the **Reboot when complete** option in Step 8, the EMS software status LED on the rear panel turns yellow to indicate that the EMS (DL Manager) is rebooting. The LED turns green when the reboot process is complete. This process takes several seconds, during which time attempts to access a DL Manager screen may be slowed or may time out. Retry a screen that times out to correct the problem.

Viewing the Management Agent Details

You can view details about the DL Manager agent (such as the agent operating mode and version) and general information about the management module (such as the installed slot number and module IP addresses).

To view the management agent details screen, from the Home page menu bar, click **About**. The About DL Manager screen appears. The information that displays in the management agent details screen varies depending on whether you have a single management module installed in the chassis or have dual modules installed to provide redundant power supplies and DL Manager functionality.

The management agent information that displays is as follows:

- Slot location—Chassis slot location where the management module is installed.
- Operating mode—Management agent’s operating mode:
 - Active Mode—Management agent is operating in the active state.
 - Standby Mode—Management agent is operating in the standby state. This mode displays only when you are viewing a standby management agent.
- Artel Agent—Installed management agent version number.
- SNMPv2 MIB II—SNMP MIB version.
- IP Address(es)—DL Manager static IP address.
- MAC Address—Ethernet port MAC address.
- Shelf Time: Time as determined by the DL Manager or NTP server (if configured to use).
- Hardware table—Table that displays only for a management agent operating in the active state. This table displays the following information for the hardware detected by the DL Manager:
 - Slot—Chassis slot location of the detected function module or power module (A or B). This cell is blank for the shelf (chassis).
 - Module Type—Hardware type, which can be Shelf, DC Power Supply, or a function module that has DL Manager functionality.
 - Serial Number—Hardware serial number.
 - F/W Rev—Installed firmware revision level.

Loading a Configuration

You can configure a management module by uploading a backup DL Manager configuration file to the module.

Note the following restrictions for loading a configuration:

- You must have administrative privileges.
- The IP address setting in the configuration file is specific to the management module that is the configuration file source module. Each management module in your network must have a unique IP address to which only it responds. For this reason, be sure to exclude the IP address settings when loading a configuration file that was created on another management module. For more information, see the [“Setting Up the DL Manager Static and Chassis IP Addresses”](#) section on page 9.
- The backup file that you use must match the model of management module being configured as follows:
 - You must use a DLM130 backup to configure a DLM130 module.
 - You must use a DLM301 or DLM302 backup to configure either a DLM301 or DLM302 module. For example, you can use a DLM301 backup to configure a DLM302 module.
 - You must use a DLM205 backup to configure a DLM205 module.
 - You must use a DLFM010 backup to configure a DLFM010 module.

For information about creating a backup file, see the [“Viewing and Saving the DL Manager Configuration”](#) section on page 14.

To load a DL Manager configuration file, perform the following steps:

1. From the Home page Chassis Configuration options, click **Load Configuration**.
 1. The Load DL Manager Configuration screen appears.
2. In the Load DL Manager Configuration pane, click **Browse** and browse to your saved configuration.
3. Specify whether or not to load the IP address configuration that the configuration file contains.
By default, this parameter is set to **Don't Load IP settings**.
4. Specify whether or not to reboot DL Manager after the configuration loads.
By default, this parameter is set to **Reboot after saving settings**.

Note: DL Manager must be rebooted before any configuration changes will take effect.

5. Click **Load File**.

Enabling or Disabling the Management Module Power Alarm

Some management modules also contain a chassis power supply, in which case, you can enable or disable its power alarm depending on whether or not you use the module's power supply function. Enable the power alarm when you use the module for its EMS functionality and also to provide power to the chassis. Disable the power alarm when you use the module for its DL Manager functionality only and a second module provides power to the chassis.

To enable or disable the management module power alarm, perform the following steps:

1. From the Home page menu bar, click **Shelf View**.
 1. Log in as the Administrator or Power User if you haven't already.

The DLM130 Shelf View screen appears, displaying the chassis back panel view and the chassis slot table of the currently installed function modules.
2. Select the management module by doing one of the following:
 - From the rear panel illustration, click on the management module.
 - From the chassis slot table's Module Type column, click on the management module model number.
 - The Module Status screen appears, displaying the current operating status of the module and the revision level of its installed firmware.
3. From the menu bar, click **Configuration**.
 4. The module's Configuration screen appears, displaying the current Wall Power Alarms setting: Enable or Disable.
5. Choose one of the following options:
 - **Enable**—Enables the power alarm (default setting).
 - **Disable**—Disables the power alarm.
6. Click one of the following:
 - **Submit**—Saves the selected alarm power setting.
 - **Reload Page**—Reloads the screen to display the current power alarm setting.

Using the Management Agent Controls to Reboot or Reset the Agent

You can use the management agent controls to do the following tasks:

- View the chassis slot location where the management module is installed: A or B.
- View the management agent's operating mode:
 - Active—Management agent is operating in the active state.
 - Standby—Management agent is operating in the standby state. This mode displays only when dual management modules are installed and you are viewing the standby management agent.
- Reboot the agent.
- Reset the the agent's configuration to the factory defaults, which includes setting the IP address to the default value of 192.168.100.5.

Note: Some configuration changes, such as the IP address, do not take effect until after you reboot management agent (see the previous bullet).

Caution

Resetting the agent's configuration includes setting the agent's static IP address back to its default value. The IP address is reset after you reboot the management module. If you are connected to DL Manager over your network, you may lose your connection to DL Manager. To restore your connection, see the ["Accessing the DL Manager Home Page" section on page 4](#).

To use the management agent controls, perform the following steps:

1. From the Home page Chassis Configuration options, click **Management Agent Controls**.

The Management Agent Controls screen appears, displaying the agent's slot location and operating mode.

2. (Optional) Do one of the following:
 - Click **Reboot Agent** to reboot the agent, which can take up to 15 seconds.
 - Click **Reset Config to Factory Defaults** to reset the agent's configuration back to its default values.

Using the DL Manager Reset Button

The management module has a pin hole reset button on the rear panel that enables you to restart DL Manager and optionally reset the DL Manager IP address configuration back to its default settings.

You control the DL Manager reset function as follows:

- Restart DL Manager—Press and release the reset button. When the reset button is pushed in, the EMS status LED located on the rear panel changes from green to red to indicate that DL Manager has stopped monitoring the chassis and the installed function modules. When you release the reset button, DL Manager restarts and uses the current IP address configuration.
- Restart DL Manager and reset the static IP address configuration—Press and hold the reset button in for more than eight seconds. While the reset button is pushed in, the EMS LED turns from green to red and then to yellow at the eight-second point, indicating that the static IP address configuration has been reset to the factory default values as follows:
 - IP address—192.168.100.5
 - Net Mask—255.255.255.0
 - Gateway IP Address—0.0.0.0
 - DNS IP Address—0.0.0.0

When you release the reset button, DL Manager restarts using this default IP address configuration.

Managing the Chassis and Function Modules

This section describes how to use DL Manager to monitor and configure the function modules and includes the following topics:

- [Using the Directory View Screen \(page 23\)](#)
- [Using the ShelfView Screen \(page 25\)](#)
- [Investigating Module Alarm Conditions \(page 27\)](#).
- [Viewing and Modifying a Module Configuration \(page 28\)](#)

Using the Directory View Screen

You can display a high level summary of a list of chassis on the network by using the Directory View screen. In addition to viewing the chassis summary list, this screen includes unique main menu options for performing directory-related tasks (see [Table 2](#)).

To display the screen, from the Home page menu bar, click **Directory View**. The Network Directory View screen appears and displays the following information:

- Chassis Name—Name assigned to the chassis.
- Chassis—Chassis type: DL4360x, DL4300, or DL4000.
- Status—Chassis operating status. The possible states are as follows:
 - OK
 - Minor alarm
 - Major alarm
 - Not responding on the network
 - In Standby mode
 - Module Initializing
 - Module not responding
 - Chassis Initializing
- IP address—IP address of the management module. This address provides a link to the DL Manager home page for the corresponding chassis.

The ShelfView refresh rate controls the refresh rate of the Directory screen.

[Table 2](#) describes the main menu options available from the Directory View screen.

Table 2. Directory Screen Main Menu Options

Menu Option	Description
Edit Directory	Configures the list of chassis in the directory list. The chassis hosting the directory list is always the first entry in the directory list. Administrators can add additional chassis to the list by adding them from the Find and Add list by entering their IP address or by using the Find button to search for the chassis on the network. Administrators can also remove a chassis from the list by selecting the appropriate delete box and clicking Submit .
Controls	<p>Controls polling for chassis status and allows you to obtain a copy of the directory list from another management module.</p> <p>The DL Manager uses UDP port 20034 to poll for chassis status. The polling interval is fixed at about 1.5 seconds. You can enable or disable polling and specify when polling takes place when enabled.</p> <p>The possible polling settings are as follows:</p> <ul style="list-style-type: none"> • Enable • Enable only in Active mode • Enable only in Standby mode • Disable <p>Administrators can also retrieve a copy of a directory list from another management module by entering the targeted module's IP address. You can do the following with a directory list:</p> <ul style="list-style-type: none"> • Copy the list to an Active or Standby unit. • Copy the list to a unit with polling enabled for redundancy. • Copy the list to a unit with polling disabled for redundancy.
View Entries	<p>Displays directory entries and allows you to save the directory list to a file on the local PC. Saved lists can be used as backups that you can reload into the same management module or to another module. You can also propagate a list to other management modules.</p> <p>To save the directory list to a file, perform the following steps:</p> <ol style="list-style-type: none"> 1. From your browser's tool bar, click View. 2. Select Source in Internet Explorer or Page Source in FireFox. 3. Save the file as <i>filename.txt</i> in Internet Explorer or <i>filename.htm</i> in FireFox.
Load Entries	Loads a saved directory list from the file to a management module (Administrator function). You can either enter the path to the file manually or browse to the file. After loading a directory list, you should review the polling settings to enable or disable polling as appropriate so as to have only the UDP network traffic desired.

Using the Shelf View Screen

You can monitor the current operating status of the chassis by using the ShelfView option, which enables you to access the following information:

- Current operating status of the shelf and the installed power supply and function modules. When a module is experiencing an alarm condition, the shelf view displays the associated shelf slot number and module type in red to indicate that a major alarm condition exists or yellow to indicate that a minor alarm condition exists. If a module is experiencing both a minor and major alarm, the DL Manager display gives the major alarm priority.
- Shelf-specific and module-specific information, such as alarm conditions, installed firmware revision level, and the current operating configuration.

To monitor the operating status of the installed modules, from the Home page menu bar, click **Shelf View**. The Shelf View screen appears, displaying the components described in [Table 3](#).

Table 3. DL Manager Shelf View Components

Component	Description
Rear Panel View	<p>Illustration that displays installed modules. Do the following:</p> <ul style="list-style-type: none"> • Hover over a module to display its module type and chassis slot number. • Click a module to display the Module Status page (see the “Investigating Module Alarm Conditions” section on page 27). <p>Slots A and B represent power module locations. Each slot will be one of the following:</p> <ul style="list-style-type: none"> • Empty • Contain either an AC or DC power module • Contain a management module <p>Slots 1 to 4 (DL4000) or 1 to 12 (DL4300 or DL4360x) represent function module locations.</p> <p>Status indicators are as follows:</p> <ul style="list-style-type: none"> • Yellow shelf slot—Indicates that a minor alarm condition exists with the installed module (see Item 3 below). • Red shelf slot—Indicates that a major alarm condition exists with the installed module (see Item 3 below). • Not present—Indicates that DL Manager does not detect a module in the shelf slot. • No response—DL Manager detects a module in the slot but the module is not responding to DL Manager queries. This can occur when the module does not have the correct version firmware installed.

Table 3. DL Manager Shelf View Components (Continued)

Component	Description
Chassis Slot Table	<p>Table that displays the following information:</p> <ul style="list-style-type: none"> • Slot—Shelf slot number. If DL Manager does not detect a module in a shelf slot, then it does not list that slot number in this display. • State—Status of the communication link between DL Manager and the module. Possible states are as follows: <ul style="list-style-type: none"> – Responding—DL Manager has detected the module and the module is responding to EMS queries. – No response—DL Manager detects a module in the slot but the module is not responding to DL Manager queries. This can occur when the module does not have the correct version firmware installed. – Initializing—DL Manager is initializing management data for the module. • Module Type—Module model number and operating status. Possible operating status indicators are as follows: <ul style="list-style-type: none"> – White—No alarm conditions exist and the module is operating normally. – Yellow—A minor alarm condition exists that requires attention. – Red—A major alarm condition exists that requires immediate attention. <p>Click on the module type to get detailed module configuration and operating statistics (see the “Investigating Module Alarm Conditions” section on page 27).</p> • Slot Name—Shelf slot description and direct link to the shelf slot label editor. The default slot name is the factory-supplied serial number. You can edit this label (see the “Setting the Shelf Slot Labels” section on page 13). • Configuration—Link to the Override screen if the module permits EMS (DL Manager) override (see the “Viewing and Modifying a Module Configuration” section on page 28).

Investigating Module Alarm Conditions

You can access details about alarm conditions that a module detects and reports to DL Manager. When a module is experiencing an alarm condition, DL Manager does the following:

- The ShelfView screen, which contains the installed module table, displays a table cell in color when the associated module is experiencing a minor (yellow) or major (red) alarm condition. A module experiencing both a minor and major alarm condition is indicated by a red cell on the Shelf View screen.
- The Module Status screen displays details about the alarm conditions. Sample alarm messages are as follows:
 - SFP Module Not Present
 - SFP Loss Of RX Signal
 - SFP TX Reported Fault

To display module alarm condition details, perform the following steps:

1. From the Home page menu bar, click **Shelf View**.

The Shelf View screen appears, displaying the chassis rear panel view and the chassis slot table, which highlights alarm conditions by displaying the Module Type cell in red or yellow for any module with an alarm condition.

2. From the chassis slot table, click the module model number in a red or yellow colored cell.

The selected module's Module Status screen appears, displaying the module's alarm conditions, current configuration, and optical status (if the module contains optics).

Viewing a Module's Diagnostics Data and Operating Conditions

You can view a module's diagnostic information, which includes current operating conditions such as voltage and temperature levels, module runtime, and module data. The information that displays varies depending on the module type that you select.

Common information that displays includes the following:

- Serial Number—Serial number of the backplane or module.
- Firmware Revision—Revision level of the firmware.
- Date of Manufacture—Date that backplane or module was manufactured.
- Hardware Revision—Revision level of the hardware.
- Module Runtime—Amount of time that power has been applied to the backplane or module.
- Part Number—Part number of the backplane or module.
- CPLD Rev—Complex Programmable Logic Device revision level.
- CLEI—Common Language Equipment Identification code, which is an industry-standard identifier used to identify telecommunications equipment.
- Temperature—Temperature detected by the backplane or module.

- Voltages—DC voltages detected by the backplane or module.

Additional operating information that can display depending on the selected device includes the following:

- EMS override setting
- Configuration mode setting
- Optical connection information
- Electrical connection information
- Channel information

To view a module's diagnostic information, perform the following steps:

1. From the Home page menu bar, click **Shelf View**.
The Shelf View screen appears, displaying the chassis rear panel view and the chassis slot table.
2. From the chassis slot table's Module Type column, click the model number of the desired module.
The Module Status page appears.
3. From the menu bar, click **Diagnostics**.
The Diagnostics screen appears, displaying the module's data and current operating conditions.
4. (Optional) Click **Refresh Data from Module** to refresh the displayed information.

Viewing and Modifying a Module Configuration

You can view and modify the configuration of a module that permits configuration changes.

Note: Modifying a module configuration requires either the Administrator or Power User privilege level.

To display a module's configuration, perform the following steps:

1. From the Home page menu bar, click **Shelf View**.
The Shelf View screen appears, displaying the chassis rear panel view and the chassis slot table.
2. From the chassis slot table, click the **Configuration** link (in the far right column) of the module configuration that you want to view.
The module's Configuration page appears, displaying its current configuration.
3. Modify the module configuration as needed.
4. Click one of the following:
 - **Submit**—Saves the displayed configuration information. The Setting Complete page appears, indicating that the configuration was successfully saved.
 - **Reload Page**—Ignores any modifications that you made and reloads the module's current configuration.

To save the configuration to a file, see the ["Saving a Module Configuration to File"](#) section on page 29.

Saving a Module Configuration to File

You can save the current configuration of a module to a file to use as a backup or to configure another module of the same type.

To save a module configuration, perform the following steps:

1. From the Home page menu bar, click **Shelf View**.

The Shelf View screen appears, displaying the chassis rear panel view and the installed module table.

2. From the installed module table view, click the **Configuration** link (in the far right column) of the module configuration that you want to view.

The module Configuration page appears, displaying its current configuration.

3. From the menu bar, click **Save to File**.

Depending on browser type, do the following:

- Firefox—The Opening modulefilename.htm dialog window appears. From the window, choose **Save File**, then click OK. The file is saved to the Downloads folder.
- IE—The File Download dialog window appears. From this window, click **Save** to open the Save As dialog window. From this window, browse to the location where you want to save the file and click **Save**.



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