

Quantum[®]

User's Guide

Quantum Vision 4.3.x

For Web and Mobile Clients



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Preface

This manual introduces Quantum Vision 4.3.2 and discusses:

- The Vision Web-based user interface
- Vision management and configuration
- Vision operation
- Mobile Clients

Audience

This manual is written for Vision operators and administrators.

Document Organization

Following is a brief description of chapter contents:

- [Chapter 1, Vision Introduction](#) provides an overview of Quantum Vision features and system requirements.
- [Chapter 2, Vision Navigation](#) provides information about logging on to Quantum Vision and the Vision Web-based user interface.
- [Chapter 3, Vision Management](#) provides information about managing alert notifications, storage devices, reports, and groups and users.
- [Chapter 4, Vision Configuration](#) provides information about configuring settings in Quantum Vision.

- [Chapter 5, Devices](#) provides information about using Quantum Vision to monitor the status of storage devices and to visualize performance information.
- [Chapter 6, Topology](#) provides a topology map for all monitored Quantum DXi disk backup systems in your storage environment.
- [Chapter 7, Analytics](#) provides information about using the interactive reports to view and analyze critical device statistics.
- [Chapter 8, Reporting](#) provides information about viewing and working with reports.
- [Chapter 9, DXi Advanced Reporting](#) provides performance data logging, visual reporting, and graphing features for Quantum DXi Series systems.
- [Chapter 10, Media](#) provides information for tape media in Scalar libraries monitored by Quantum Vision.
- [Appendix A, DXi Data Series](#) provides a description of the data presented in the various data series that are available from reporting.
- [Appendix B, Uninstalling Vision 4](#) provides steps for uninstalling earlier versions of Quantum Vision.

Notational Conventions

This manual uses the following conventions:

| Convention | Example |
|--|--|
| User input is shown in bold font. | cd /tmp/VISION/ |
| Computer output and command line examples are shown in monospace font. | Sample output |
| User input variables are enclosed in angle brackets. | http://<ip_address> |
| For UNIX and Linux commands, the command prompt is implied. | <code>./setup-linux.bin</code> is the same as <code># ./setup-linux.bin</code> |

| Convention | Example |
|---|-------------------------------------|
| File and directory names, menu commands, button names, and window names are shown in bold font. | /tmp/VISION/ |
| Menu names separated by arrows indicate a sequence of menus to be navigated. | Configuration > Licensing |

The following formats indicate important information:

Note: Note emphasizes important information related to the main topic.

Caution: Caution indicates potential hazards to equipment or data.

WARNING: Warning indicates potential hazards to personal safety.

Related Documents

The following Quantum documents are also available for Quantum Vision:

| Document Number | Document Title | Document Description |
|-----------------|--|---|
| 6-66901 | <i>Quantum Vision Quick Start Guide</i> | Describes installing and configuring the Quantum Vision software. |
| 6-67108 | <i>Quantum Vision Open Source Licenses</i> | Lists the open source software components used in Quantum Vision |

For the most up to date information on Quantum Vision, see:

<http://www.quantum.com/visiondocs>

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Chapter 1

Vision Introduction

This chapter introduces Quantum® Vision™ and includes the following sections:

- [Features and Benefits](#)
- [Overview](#)
- [Quantum Vision Requirements](#)
- [Supported Storage Devices](#)
- [Vision for Mobile Clients](#)

Features and Benefits

Quantum Vision provides powerful monitoring, reporting, and analysis tools for all of the Quantum storage devices in your backup environment. You can view the status and track the performance of multiple DXi® disk backup systems, vmPRO 4000, vmPRO software and DXi V-Series virtual appliances (DXi V1000 and DXi V4000), Scalar LTFs devices, and Scalar® libraries using a single flexible interface.

Quantum Vision gives you the following capabilities:

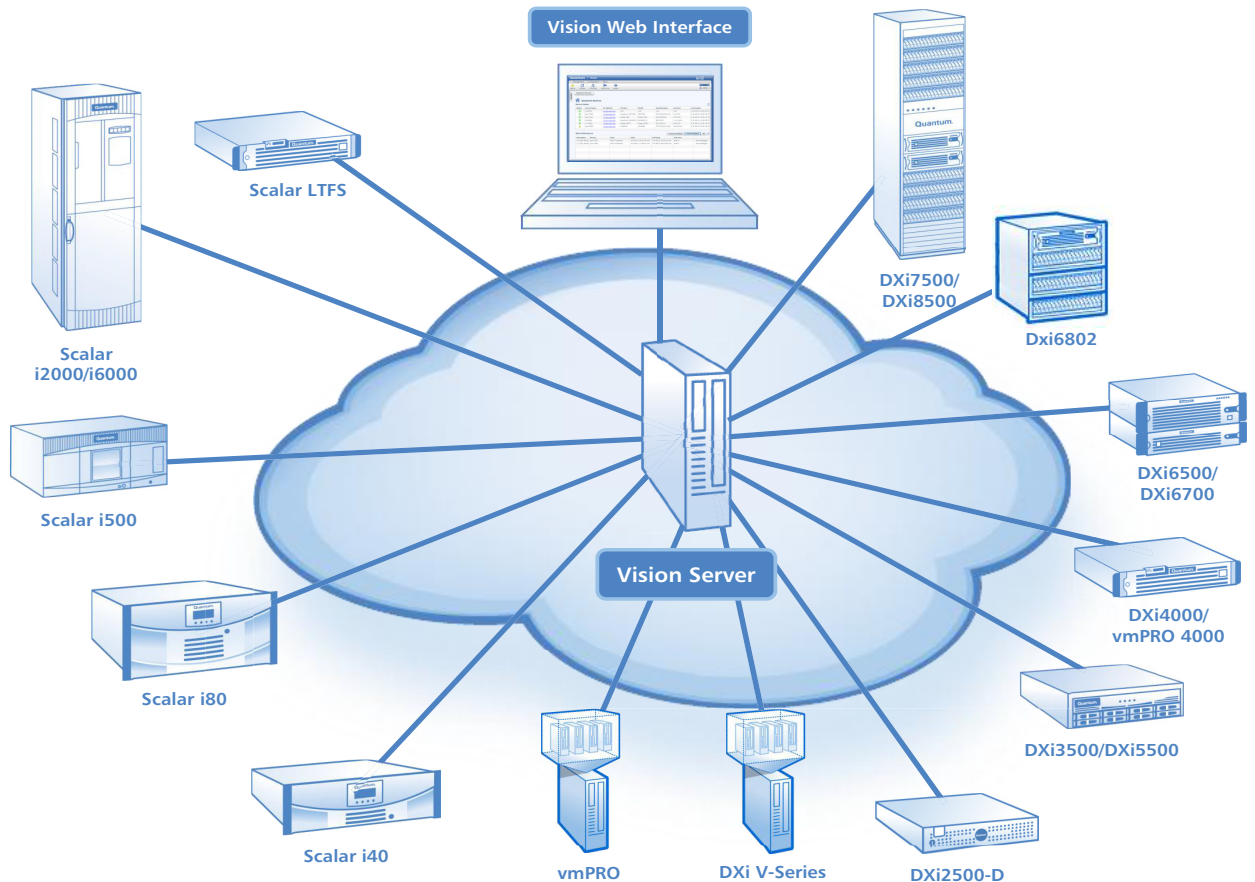
- Identify and initiate software updates for one or more vmPRO appliances from Vision.

- Receive notification of and initiate a Vision software update using the Vision GUI (virtual appliance only).
- Provide a per customer chargeback report based on individual shares, partitions, or OST LSU system usage in both print and e-mail versions. The report includes data size ingested, size of unique data ingested, and compressed size of unique data ingested.
- Monitor the status and health of up to 300 DXi, Scalar, Scalar LTFs, and vmPRO devices.
- Visualize data on-demand to track capacity usage, analyze performance, and identify trends.
- Access a Topology display to view the devices and their relationships.
- Automatically generate reports and graphs, and send them to multiple recipients.
- Define alert rules to monitor thresholds and manage alert notifications.
- Access the native management interface of any monitored Quantum device.
- View and compare DXi Advanced Reporting graphs for one or more DXi disk backup systems.
- Generate a Capacity Upgrade Estimate for DXi devices, this is an estimate regarding when your RAID may need to be expanded.
- Monitor the usage and health of media in Scalar libraries (including Extended Data Life Management (EDLM) status), change media location, and deleted media.

Overview

Quantum Vision is a data protection solution that allows you to manage, configure, monitor, analyze, and report on an entire backup environment (see [Figure 1](#)).

Figure 1 Quantum Vision Data Center Overview



Quantum Vision Requirements

This section describes the following hardware and software requirements for Quantum Vision:

- [Server Requirements](#) on page 4
- [Server Port Requirements](#) on page 5
- [Browser Requirements](#) on page 6
- [Supported Storage Devices](#) on page 6

Server Requirements

The Quantum Vision software runs on the Vision server. Before installing the Quantum Vision software, make sure the Vision server meets the requirements in [Table 1](#).

Table 1 Vision Server System Requirements

| Server Component | System Requirement |
|----------------------|---|
| Processor | Intel or AMD server class processor <ul style="list-style-type: none">• 2 CPUs for up to 50 devices• 4 CPUs for more than 50 devices |
| Memory | 4 GB for monitoring up to 50 devices 8 GB for monitoring more than 50 devices |
| Available Disk Space | 200 GB for monitoring up to 50 devices 400 GB for monitoring more than 50 devices |
| Operating System | One of the following operating systems: <ul style="list-style-type: none">• Windows Server 2003 32-bit• Windows Server 2003 R2 64-bit• Windows Server 2008 32-bit• Windows Server 2008 R2 64-bit• Windows Server 2012 Standard 64-bit• Red Hat Enterprise Linux 5 32-bit• Red Hat Enterprise Linux 5 64-bit |

| Server Component | System Requirement |
|----------------------------|---|
| Virtual Appliance | <ul style="list-style-type: none"> • Server system with at least an i7 quad-core Intel processor (or AMD equivalent) <ul style="list-style-type: none"> • 2 virtual CPUs for up to 50 devices • 4 virtual CPUs for more than 50 devices • At least one IP address available for use by the Vision appliance • One or more ESX4, ESXi4, or ESXi5 servers • Same memory requirements as that of a physical server installation |
| Additional Software | (Windows only) Microsoft .NET Framework 2.0 or higher |

Note: Quantum Vision supports installation and operation on a virtual machine (VM) if all other system requirements are met.

Server Port Requirements

For correct operation of Quantum Vision, the following firewall ports must be open on the Vision server:

- **Port 80** - Web server (http)
- **Port 443** - Web server (https)
- **Port 162** - SNMP

To enable monitoring of storage devices, the following firewall ports on the Vision server must allow outgoing traffic:

- **Port 80** - Web server (http)
- **Port 443** - Web server (https)
- **Port 22** - SSH

Note: Ports 80 and 443 are the default web server ports. If you specified different web server ports when installing the Quantum Vision software, open those ports in the firewall instead. For more information about specifying the web server ports during installation, see the *Quantum Vision Quick Start Guide*.

Browser Requirements

Quantum Vision 4 is designed to run in any modern Web browser that supports the Adobe Flash Player plug-in. Quantum Vision 4.3 requires Adobe Flash Player version 11.1 or higher. Web browser software is not included with Quantum Vision. You must obtain and install it separately.

Caution: Quantum Vision does not support the 64-bit version of the Flash Player plug-in on Linux. Instead, use the 32-bit Flash Player plug-in and a 32-bit browser. For 64-bit Linux, the Chrome browser and its built in *pepper* flash player are compatible with Quantum Vision.

Supported Storage Devices

To discover and monitor a Quantum backup system in Quantum Vision, it must be a supported device. Quantum Vision supports the following Quantum storage devices:

- DXi8500 disk backup system
- DXi7500 disk backup system
- DXi6802 disk backup system
- DXi6701 and DXi6702 disk backup systems
- DXi6700 disk backup system
- DXi6500 disk backup family
- DXi5500 disk backup system
- DXi4701 disk backup system

- DXi4600 disk backup system
- DXi4500 disk backup system
- DXi3500 disk backup system
- DXi2500-D disk backup system
- DXi V-Series virtual backup systems
- Scalar i6000 library
- Scalar i2000 library
- Scalar i500 library
- Scalar i80 library
- Scalar i40 library
- Scalar LTFS
- vmPRO 4000 (software/hardware backup solution)
- vmPRO virtual backup system

Vision for Mobile Clients

A Vision mobile client is available for the Apple iPhone and other iOS devices, as well as for Android phones and devices. With Vision for iPhone or Android, you can monitor the status and performance of Quantum tape libraries and DXi disk backup systems from your mobile device.

Note: To use Vision for iPhone or Android, the Vision server must be running Quantum Vision version 4.1 or later.

Use the Vision mobile client to:

- View monitored Quantum devices and device status
- View and acknowledge alerts, and view service tickets
- Run reports and view graphs to assess device health and performance

For more information about system requirements for mobile clients or to download Vision for mobile clients, see the following sections:

- [Vision for iPhone](#)
- [Vision for Android](#)

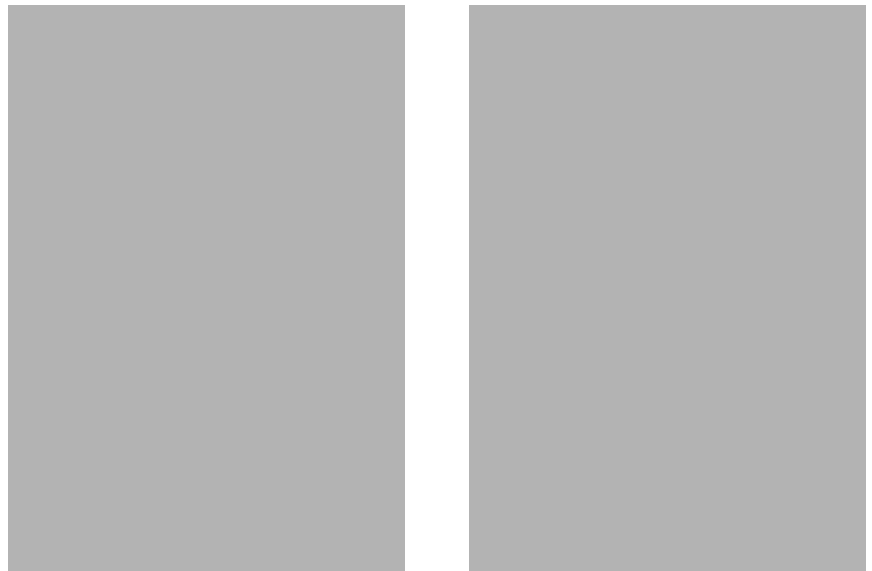
Vision for iPhone

To download Vision for iPhone (see [Figure 2](#)), launch the **App Store** on your iPhone or other iOS device and search for **Quantum Vision**. Alternately, access the Vision product page (<http://www.quantum.com/vision>) and click the **Vision iPhone App** link.

For information about using Vision for iPhone, launch Vision for iPhone and tap **Help** at the bottom of the screen.

Note: To use Vision for iPhone to monitor Quantum devices, your iPhone, iPad, or iPod touch must have local Wi-Fi or VPN (virtual private network) connectivity to the Quantum Vision server. To configure your iOS device to connect to your company's VPN, see the following Apple support article: <http://support.apple.com/kb/ht1424>

Figure 2 Vision for iPhone



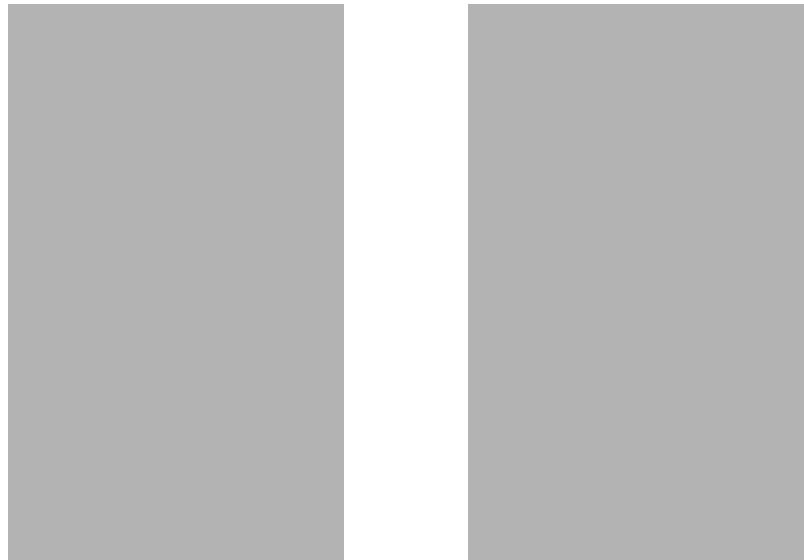
Vision for Android

To download Vision for Android (see [Figure 3](#)), launch **Google Play** on your phone or device and search for **Quantum Vision**. Alternately, access the Vision product page (<http://www.quantum.com/vision>) and click the **Get Quantum Vision for Android** link.

For information about using Vision for Android, launch Vision for Android and tap **Help** at the top of the screen.

Note: To use Vision for Android to monitor Quantum devices, your Android phone or device must have local Wi-Fi or VPN (virtual private network) connectivity to the Quantum Vision server.

Figure 3 Vision for Android





Chapter 2

Vision Navigation

Quantum Vision provides a flexible Web-based user interface that allows you to perform configuration and management tasks on a network that has access to the Vision server from a remote workstation.

This chapter includes the following information:

- [Accessing Quantum Vision](#)
- [The Vision Window](#)
- [Working in Quantum Vision](#)

Note: The information you see in Quantum Vision depends on your user role, your user group, and the devices assigned to your user group. You can only view and work with information and devices that your assigned role and group has access to. For more information, see [User Management](#) on page 39.

Accessing Quantum Vision

Access Quantum Vision using a Web browser on a workstation that has network access to the Vision server. See the following sections for more information about accessing Quantum Vision:

Note: When accessing Vision, use only one browser and tab per session. (Logging out using Vision's **Log Off** button ends your session.). If you use multiple browsers or tabs during the same session (even as a different user), they will all use the same user credentials.

- [Logging On to Quantum Vision](#)
- [Logging Off of Quantum Vision](#)

Logging On to Quantum Vision

To log on to Quantum Vision:

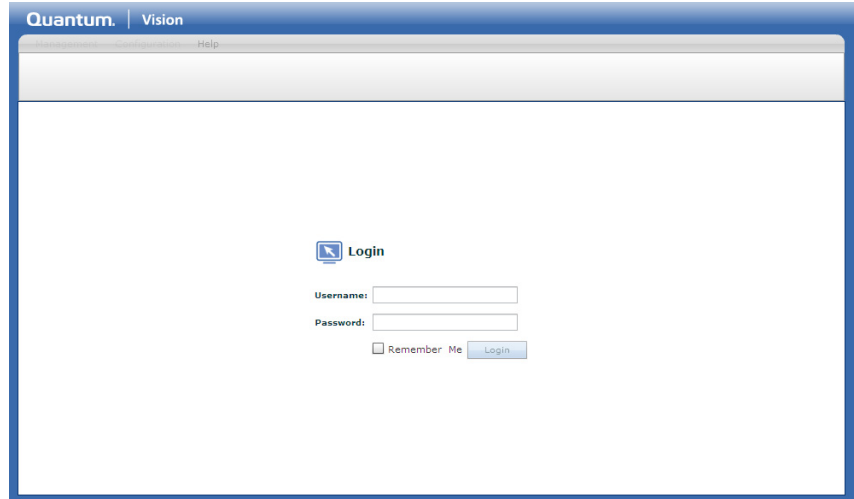
Note: This procedure assumes that Quantum Vision has been installed and configured on the Vision server by a Vision administrator, and that a login profile for the user has been defined.

- 1 Launch a supported Web browser on a workstation that has network access to the Vision server.
- 2 In the browser address box, type the IP address of the Vision server, and then press **<Enter>**.

The **Login** window displays (see [Figure 4](#)).

If the **Login** window does not display, verify that the IP address is correct and that the network path to the Vision server is valid. Also verify that you are using a supported Web browser and that the correct version of Adobe Flash Player is installed. If you are still unable to access the **Login** window, contact your Vision administrator.

Figure 4 Login Window



3 Enter your Username and Password.

Note: The default username is **admin** and the default password is **password**.

4 (Optional) Select the **Remember Me check box to have Vision remember your username and password the next time you log in.**

Note: The username and password are encrypted when they are stored on the client workstation. As a best practice, we recommend using the **Remember Me** option only on a workstation that is in a secured location.

5 Click **Login.**

After a successful login, the **Devices** console displays (see [Figure 5](#)).

If you are unable to log on, verify that your username and password are correct. If you are still unable to log on, contact your Vision administrator.

Note: After you have logged into Quantum Vision, do not use the browser's **Refresh** button. This will terminate your session and you will be logged out of Quantum Vision.

Logging Off of Quantum Vision

When you are finished working in Quantum Vision, click **Log Off** on the upper right corner of the Vision window to end your session.

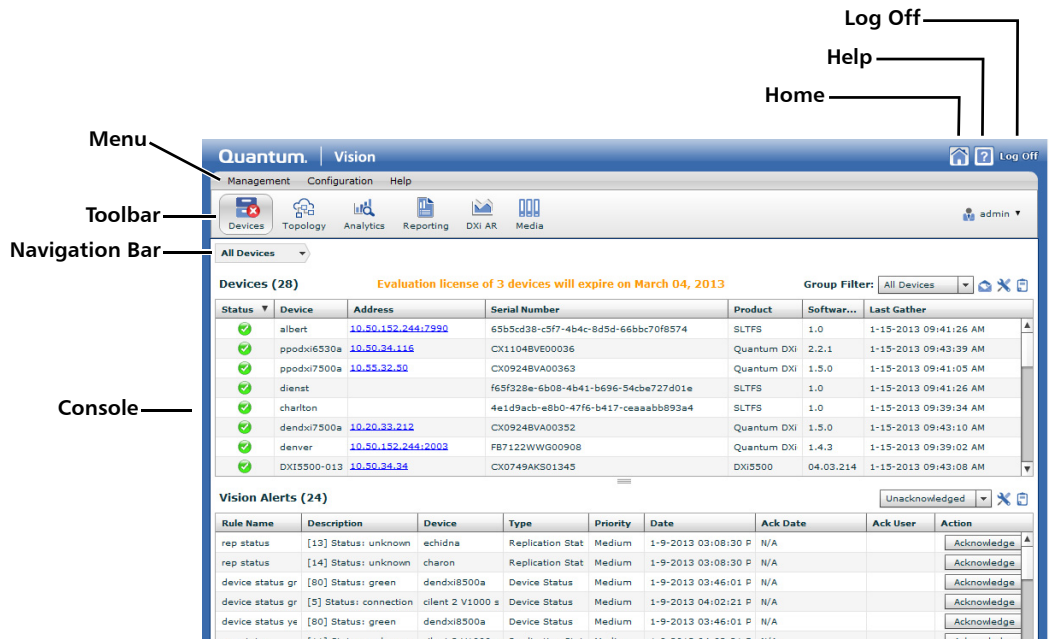
Note: If you do not log off Vision at the end of your session, messages continue to be queued on the Vision server, and the server will slowly become unresponsive and eventually restart.

The Vision Window

After you log on to Quantum Vision, the Vision window displays (see [Figure 5](#)). The Vision window includes the following features:

- [Menu](#)
- [Toolbar](#)
- [Navigation Bar](#)
- [Console](#)
- [Home, Help, and Log Off Buttons](#)

Figure 5 The Vision Window



Menu

The menu displays at the top of the Vision window and allows you to access [Vision Management](#), [Vision Configuration](#), and **Help** features.

The **Help** menu provides access to the following features:

- **About Vision** - displays the version of Vision that you are accessing and the Vision End-User License Agreement (EULA)
- **Send Us Feedback** - displays a feedback form in which you can evaluate various Vision features and provide comments that can be sent to the Vision development team
- **Training and Documentation** - displays the Quantum.com support Web site

Toolbar

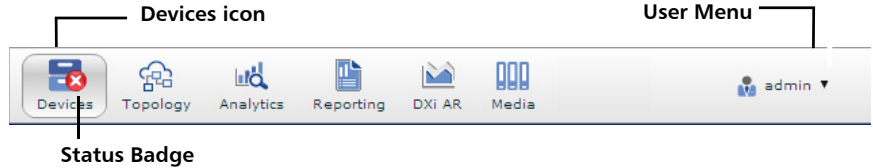
The toolbar displays below the menu (see [Figure 6](#)) and allows you to access the **Devices**, **Topology**, **Analytics**, **Reporting**, **DXi AR**, and **Media** consoles.

- Use the **Devices** console to view the status of all monitored devices and software, and to work with notifications (see [Devices](#) on page 79).

The status badge (on top of the device icon) in the toolbar changes appearance depending on the status of monitored devices (see [Figure 6](#)). Hold the cursor over the status badge to see a status summary of all the devices that are being monitored by Vision:

- **Green** - All devices are operating correctly.
 - **Yellow** - There is a problem with one or more devices.
 - **Red** - One or more devices has either a major problem, or the Vision server cannot establish a connection with the device.
 - **Gray** - The device is discovered but no data has been collected yet, or the status is unknown.
- Use the **Topology** console to see important information at a glance, such as DXi replication relationships, PTT, vmPRO-DXi, and Scalar LTFS-scalar relationships, capacity usage, and deduplication percentage (see [Topology](#) on page 117).
 - Use the **Analytics** console to view and work with Vision interactive reports for DXi, Scalar, and vmPRO devices (see [Analytics](#) on page 121).
 - Use the **Reporting** console to view and work with reports (see [Reporting](#) on page 141).
 - Use the **DXi AR** console to view and compare DXi Advanced Reporting graphs for one or more DXi devices (see [DXi Advanced Reporting](#) on page 157).
 - Use the **Media** console to view the status of media in libraries (see [Media](#) on page 163).

Figure 6 Vision Toolbar



User Menu

The User Menu, located on the right side of the toolbar, displays the username of the currently logged on user. Click the User Menu icon to display a pop-up menu of account and system options (see [Figure 6](#)). The following options are available:

- **Log Off** - Logs the current user off Quantum Vision.
- **Change Password** - Displays the **Change Password** dialog box.
To change your password, enter your original password, enter the new password, and then enter the new password again to confirm it. When you are finished, click **Save**.
- **Setup User Accounts** - Displays the **User Management** dialog box (see [User Management](#) on page 39).

Navigation Bar

The navigation bar displays above the Vision console window. The navigation bar graphically depicts your current location within the Vision application. Click on any of the navigation bar's tabs to view the associated information in the Vision Console.

The navigation bar can be used to display the **Consolidated Console** (a list of all the devices for a specific device family) either by clicking on the family name tab, or by selecting the family name from the **All Devices** drop-down list.

Console

The console is the main area of the Vision window and displays the currently selected console. When you first log on to Quantum Vision, it displays the **Devices** console.

Home, Help, and Log Off Buttons

The **Home**, **Help**, and **Log Off** buttons appear at the top right of the Vision window.

- Click **Home** to return to the Devices console.
- Click **Help** (question mark “?” icon) to display the online help.
- Click **Log Off** to end your Vision session.

Working in Quantum Vision

Quantum Vision provides a rich interface for working with information, as the following concepts discuss:

- [Tooltips](#)
- [Tables](#)
- [System Messages](#)
- [Quantum Device Names](#)

Tooltips

Tooltips (small pop-up windows) appear when you hold the cursor over various objects in Quantum Vision and provide helpful information.

For example, hold the cursor over a field or button to learn more about using it. Or hold the cursor over a line or bar on a chart to see details about the underlying data.

Tables

You can sort tabular data based on any of the available column headings. For example, on the **Devices** console, click the **Status** column heading to sort all storage devices according to status. Or click the **Product** column heading to sort all storage devices according to product family.

Configuring Columns

For most tables that display information, Quantum Vision allows you to choose the columns of data that you want to display.

To configure the data columns for display:

- 1 Click the configure columns button (crossed tools icon) on the upper right of the table.
- 2 On the **Configure Columns** dialog menu, select the columns you want to display, and then click **Save**.

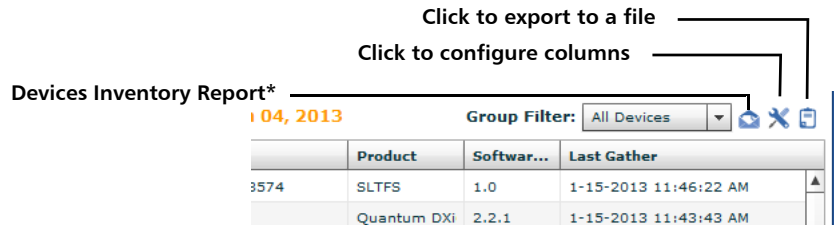
Exporting to a File

For most tables that display information, Quantum Vision allows you to export the information in the table to a file. You can then import the information into other applications.

To export the information in a table to a file:

- 1 Click the file export button (small clipboard) on the upper right of the table, and then click a file format (**CSV**, **Text**, or **XML**).

Figure 7 Export To a File



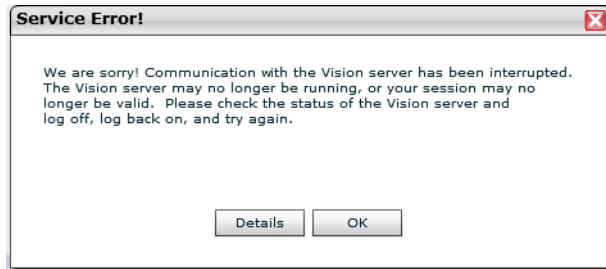
* (see [Devices Inventory Report](#) on page 83)

- 2 Select a location to save the file, type a name for the file, and then click **Save**.

System Messages

If there are communication problems between the browser and the Vision server, Vision will display a **Service Error** message (see [Figure 8](#)). For example, a timeout error can result when the browser makes a request to the server, and the server does not respond in time.

Figure 8 Service Error



Quantum Device Names

In some cases, Quantum Vision refers to Quantum storage devices by their product family name. Use the following information to understand how the product family name relates to specific device models:

- **DXi** - DXi V-Series appliances (virtual backup systems), DXi2500-D, DXi4500, DXi4701, DXi6500, DXi6700 (including DXi6701 and DXi6702), DXi6802, DXi7500, and DXi8500 disk backup systems
- **DXi 35/55** - DXi3500 and DXi5500 disk backup systems
- **Scalar** - i40, i80, i500, i2000, and i6000 libraries
- **Scalar LTFS** - Scalar linear tape file system
- **vmPRO** - Virtual backup system



Chapter 3

Vision Management

Use the management capabilities in Quantum Vision to add, edit, and delete the following types of information:

- [Alert Management](#)
- [Device Management](#)
- [Groups Management](#)
- [User Management](#)

Alert Management

Alerts are notifications that Quantum Vision sends regarding the status of a device. Alert rules define the conditions when the alert is generated and specify the recipients of the alert. With alerts, Quantum Vision can automatically notify users and administrators by e-mail about important changes in device status. Quantum Vision can also send an e-mail in response to SNMP traps generated by devices.

Note: Before Quantum Vision can send alert notifications to recipients, you must configure e-mail server settings (see [E-mail Configuration](#) on page 60).

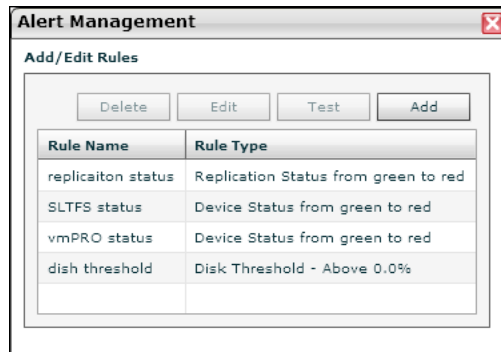
The **Alert Management** dialog box (see [Figure 9](#)) lists all current rules and displays the **Rule Name**, the **Rule Type**, and the **Number of Devices** the rule applies to.

Use the **Alert Management** dialog box to perform the following tasks:

- [Adding an Alert Rule](#)
- [Editing an Alert Rule](#)
- [Deleting an Alert Rule](#)

To access the **Alert Management** dialog box, click **Alert Management** on the **Management** menu.

Figure 9 Alert Management Dialog Box



Adding an Alert Rule

Use the **Alert Management** dialog box to add an alert rule. After you add a rule, it appears in the list of alert rules and is used to send notifications.

Note: An administrator or a user can add a rule; however, users can add a rule only for devices to which they have access.

To add an alert rule:

- 1 On the **Management** menu, click **Alert Management**.
The **Alert Management** dialog box displays.
- 2 Click **Add**.
The **Add New Rule** dialog box displays (see [Figure 10](#)).

Figure 10 Add New Rule
Dialog Box

3 Enter information about the rule:

- **Rule Name** - Enter a name to identify the rule.
- **Retry Frequency** - Enter the retry frequency for unacknowledged alert notifications in minutes. If an alert notification has not been acknowledged after this amount of time, then it is resent.
- **Priority** - Select the priority of the alert (**Low**, **Medium**, or **High**).
- **Device Type** - Select the devices the rule applies to:
 - To apply the rule to all discovered sources of the same type, select **All DXi**, **All DXi 35/55**, **All Scalar**, **All vmPRO**, or **All Scalar LTFS**.
 - To apply the rule to one or more sources of the same type, select **Custom DXi**, **Custom DXi 35/55**, **Custom Scalar**, **Custom vmPRO**, or **Custom Scalar LTFS**. (You will select the devices in the next step.)

- **Rule Type** - Select the type of rule and specify any related parameters: (**Rule Type** options vary depending on the **Device Type** selected.)
 - **Device Status** - An alert is sent when the device status changes from one status to another, for example, from green to red.
Use the **From** and **To** lists to specify the change in status that triggers the alert.
 - **Replication Status** - (DXi devices only) An alert is sent when the replication status of the device changes from one status to another, for example, from success to failure.
Use the **From** and **To** lists to specify the change in status that triggers the alert.
 - **Disk Threshold** - (DXi devices only) An alert is sent when used disk capacity rises above or falls below the specified percentage.
In the **Threshold** list, select **Above** or **Below**, and then enter a threshold percentage in the box. For example, to send an alert when the used disk capacity level rises above 80%, select **Above** in the list and enter **80** in the box.
 - **After Reduction** - (DXi devices only) An alert is sent when the size of all deduplicated, compressed data stored on the DXi rises above the specified threshold value.
In the **Above** box, specify the threshold value (in GB).
 - **Total Reduction Ratio** - (DXi devices only) An alert is sent when the total reduction ratio on the DXi falls below the specified threshold value.
In the **Below** box, specify the threshold value (as a multiple).
 - **Space Reclamation Duration** - (DXi devices only) An alert is sent when the duration of space reclamation activity on the DXi exceeds the specified threshold value.
In the **Above** box, specify the threshold value (in **Minutes**, **Hours**, or **Days**).
 - **SNMP Trap** - An alert is sent when an SNMP (Simple Network Management Protocol) trap is received from the device.

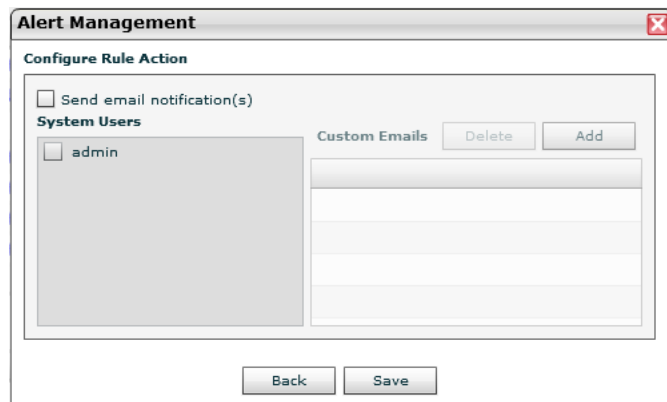
(Optional) In the **OID** box, enter the OID (object identifier) for the trap. Enter an OID to filter traps for a specific component.

(Optional) In the **Trap Value** box, enter a value to filter traps for a specific trap value.

- **Custom Message Text** - (Optional) Enter a message to send with the alert.
- 4 If you selected a **Custom** option for **Device Type**, under **Select Devices**, select the check box for each device that the rule applies to.
 - 5 Click **Next**.

The **Configure Rule Action** dialog box displays (see [Figure 11](#)).

Figure 11 Configure Rule Action Dialog Box



- 6 To send an e-mail notification when the alert is generated, select **Send email notification(s)**, and then specify recipients:
 - Under **System Users**, select the check box for each user who will receive the e-mail notification.
 - To add a custom recipient, click **Add**. Select the **New Email** item in the list, and then enter the e-mail address of the recipient.
To delete a custom recipient, select the recipient and click **Delete**.

- 7 Click **Save**.

The rule is added to the **Alert Management** dialog box.

- 8 (Optional) To verify that the rule is working correctly, select the rule on the **Alert Management** dialog box and click **Test**.
- 9 Click the close button (x) to close the **Alert Management** dialog box.

Editing an Alert Rule

Edit an alert rule to change the properties or actions for the rule.

Note: An administrator or a user can edit a rule; however, users can edit a rule only for devices to which they have access.

To edit an alert rule:

- 1 On the **Management** menu, click **Alert Management**.
The **Alert Management** dialog box displays.
- 2 Select the rule you want to make changes to and click **Edit**, or double-click the rule.
The **Edit Existing Rule** dialog box displays (see [Figure 12](#)).

Figure 12 Edit Existing Rule Dialog Box

3 Enter information about the rule:

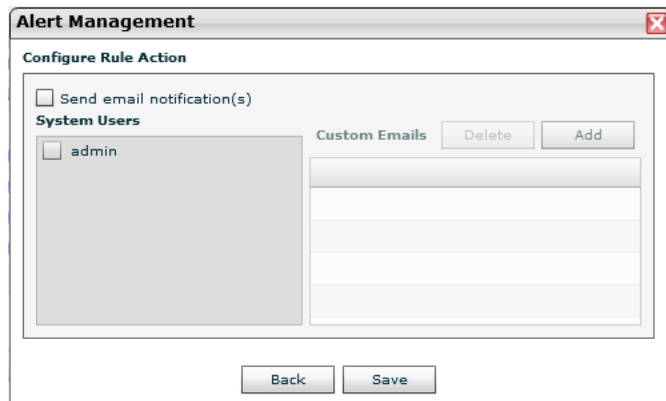
Note: When editing a rule, you cannot change the **Device Type** or **Rule Type**. If you need to make changes to these settings, first delete the rule, and then create a new rule with the correct settings (see [Deleting an Alert Rule](#) on page 29 and [Adding an Alert Rule](#) on page 22).

- **Rule Name** - Enter a name to identify the rule.
- **Retry Frequency** - Enter the retry frequency for unacknowledged alert notifications in minutes. If an alert notification has not been acknowledged after this amount of time, then it is resent.
- **Priority** - Select the priority of the alert (**Low**, **Medium**, or **High**).

- **Rule Type Parameters** - If necessary, specify parameters for the selected rule type. For more information about the parameters available for each rule type, see [Adding an Alert Rule](#) on page 22.
 - **Custom Message Text** - (Optional) Enter a message to send with the alert.
- 4 If you selected a **Custom** option for **Device Type**, under **Select Devices**, select the check box for each device that the rule applies to.
 - 5 Click **Next**.

The **Configure Rule Action** dialog box displays (see [Figure 13](#)).

Figure 13 Configure Rule Action Dialog Box



- 6 To send an e-mail notification when the alert is generated, select **Send email notification(s)**, and then specify recipients:
 - Under **System Users**, select the check box for each user who will receive the e-mail notification.
 - To add a custom recipient, click **Add**. Select the **New Email** item in the list, and then enter the e-mail address of the recipient.
To delete a custom recipient, select the recipient and click **Delete**.
- 7 Click **Save**.

The rule is updated in the **Alert Management** dialog box.

- 8 (Optional) To verify that the rule is working correctly, select the rule on the **Alert Management** dialog box and click **Test**.
- 9 Click the close button (x) to close the **Alert Management** dialog box.

Deleting an Alert Rule

Delete an alert rule to remove it from the list of active rules. After you delete a rule, it is no longer used to send notifications.

Note: An administrator or a user can delete a rule; however, users can delete a rule only for devices to which they have access.

To delete an alert rule:

- 1 On the **Management** menu, click **Alert Management**.
The **Alert Management** dialog box displays.
- 2 Select the rule, and then click **Delete**.
- 3 Click **Yes** to confirm the deletion.
The rule is removed from the **Alert Management** dialog box.
- 4 Click the close button (x) to close the **Alert Management** dialog box.

Device Management

A device is a system, such as a Scalar tape library, DXi disk backup system, vmPRO appliance, or Scalar LTFs appliance, that is monitored by Quantum Vision. Before you can use Quantum Vision to monitor a device, you must first discover the device.

The **Device Management** dialog box displays the current number of monitored devices as well as the maximum number authorized by the installed licenses (see [Licensing Configuration](#) on page 61).

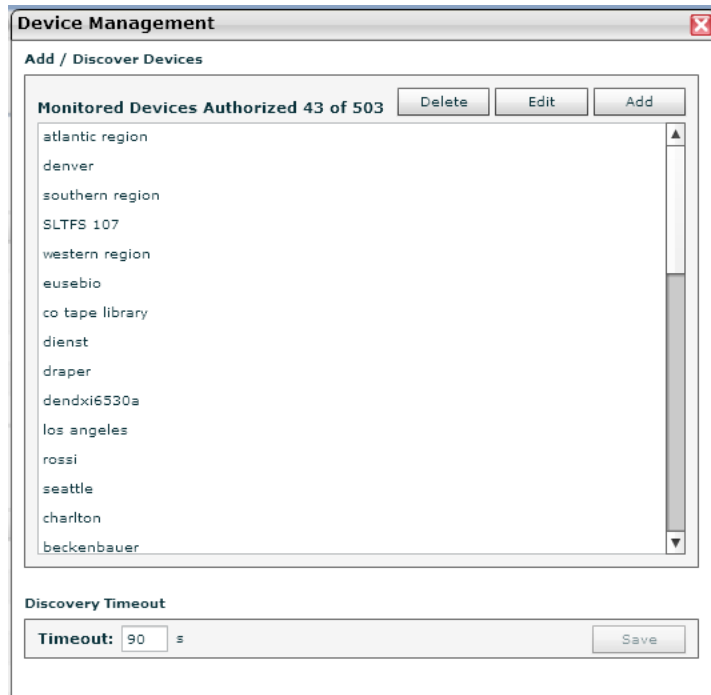
Use the **Device Management** dialog box (see [Figure 14](#)) to perform the following tasks:

- [Discovering a Device](#)

- [Editing a Device](#)
- [Deleting a Device](#)

To access the **Device Management** dialog box, on the **Management** menu, click **Device Management**.

Figure 14 Device Management Dialog Box



Discovering a Device

Use the **Device Management** dialog box to discover a supported Quantum backup system: DXi disk backup system, Scalar tape library, vmPRO appliance, or Scalar LTFS appliance. Discovering a device makes Quantum Vision aware of the device.

To discover a device, Quantum Vision must have network connectivity to the device. After you discover a device, it is added to the list of devices monitored by Quantum Vision.

Note: To discover a device, you must be an administrator.

Caution: Device discovery cannot be performed when running Internet Explorer 8 on the same server where the Vision software is installed. Instead use a browser running on a different network workstation to discover devices.

To discover a device:

- 1 On the **Management** menu, click **Device Management**.

The **Device Management** dialog box displays.

- 2 Click **Add**.

The **Discover New Device** dialog box displays (see [Figure 15](#)).

Figure 15 Discover New Device Dialog Box

The screenshot shows a dialog box titled "Device Management" with a sub-title "Discover New Device". It contains several input fields: "Device Name", "Device Address", "Device Username", and "Device Password", each with a required field asterisk. There is a "Gather Enabled" checkbox which is checked. To the right, there is a "Select Device Groups" section with a list box containing "user" and a "Discover" button. At the bottom of the dialog is a "Cancel" button.

- 3 Enter information about the device:

- **Device Name** - Enter a name to identify the device. This name displays on all status and report consoles.
- **Device Address** - Enter the IP address or hostname of the device.

The IP address can be in IPv4 or IPv6 format. If entering a hostname, the Vision server must be running a name service that will resolve the hostname to an IP address.

- **Device Username** - Enter the username to use when logging on to the device.

Note: The username must have administrator rights on the device.

- **Device Password** - Enter the password for the device username.
 - **Gather Enabled** - **Gather Enabled** is selected by default when discovering a device. It cannot be cleared. It can be modified once the device has been discovered.
- 4 Under **Select Device Groups**, select the check box for each user group to which to assign the device.

Users can access a device only if it is assigned to a group they belong to.

Note: If the list is empty, then no user groups have been defined. To add a user group, see [Adding a Group](#) on page 35.

5 Click **Discover**.

6 Click **OK**.

The device is added to the **Device Management** dialog box.

7 Click the close button (x) to close the **Device Management** dialog box.

Note: It may take a few minutes for information about the new device to display on the **Devices** console.

Editing a Device

Edit an existing device to change the properties or user access for the device.

Note: To edit a device, you must be an administrator.

To edit a device:

1 On the **Management** menu, click **Device Management**.

The **Device Management** dialog box displays.

2 Select the device you want to make changes to and click **Edit**, or double-click the device.

The **Edit Device** dialog box displays (see [Figure 15](#)).

Figure 16 Edit Device Dialog Box

The screenshot shows the 'Edit Device' dialog box within the 'Device Management' application. The dialog is titled 'Edit Device' and contains the following fields and options:

- Device Serial Number:** CX1111BVF00102
- Device Name:** dendxi8500a *
- Device Address:** 10.20.33.81 *
- Device Username:** administrator *
- Device Password:** ***** *
- Protocol:** HTTP HTTPS *
- Gather Enabled:**
- Select Device Groups:**
 - No-Sims
 - Production
 - tj group
 - Topo Demo

A 'Save' button is located at the bottom right of the dialog.

3 Enter information about the device:

Note: The **Device Serial Number** is informational only; it cannot be changed.

- **Device Name** - Enter a name to identify the device. This name displays on all status and report consoles.
- **Device Address** - Enter the IP address for the device.
- **Device Username** - Enter the username to use when logging on to the device.

Note: The username must have administrator rights on the device.

- **Device Password** - Enter the password for the device username.
- **Protocol** - Select either **HTTP** or **HTTPS**.
- **Gather Enabled** - Select the check box to enable gathering of status and configuration data from the device. Clear the check box to disable gathering of status and configuration data.

4 Under **Select Device Groups**, select the check box for each user group to which to assign the device.

Note: Users can access a device only if it is assigned to a group they belong to.

- 5 Click **Save** to save the changes to the device.
The device is updated in the **Device Management** dialog box.
- 6 Click the close button (x) to close the **Device Management** dialog box.

Deleting a Device

Delete a device to remove it from the list of monitored devices. After you delete a device, it is no longer monitored by Quantum Vision.

Note: To delete a device, you must be an administrator.

To delete a device:

- 1 On the **Management** menu, click **Device Management**.
The **Device Management** dialog box displays.
- 2 Select the device and click **Delete**.
- 3 Click **Yes** to confirm the deletion.
- 4 Click **OK**.
The device is removed from the **Device Management** dialog box.
- 5 Click the close button (x) to close the **Device Management** dialog box.

Groups Management

A group is a named collection of users. Quantum Vision uses groups to manage device access. When you discover a device, you can assign one or more groups to the device. Only users who belong to the assigned groups can access the device.

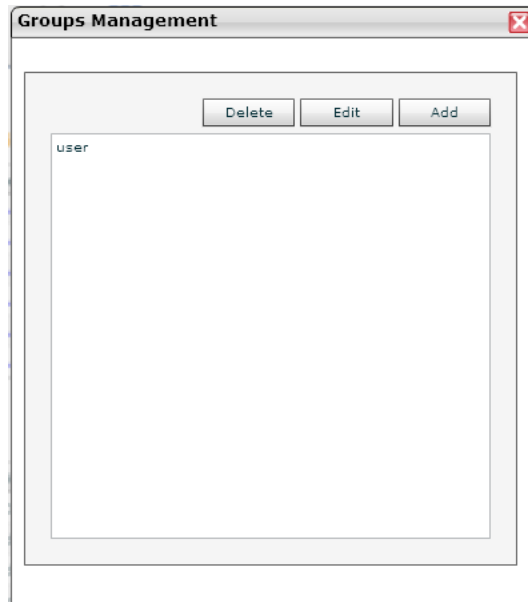
Note: A user can belong to more than one group.

Use the **Groups Management** dialog box (see [Figure 17](#)) to perform the following tasks.

- [Adding a Group](#)
- [Editing a Group](#)
- [Deleting a Group](#)

To access the **Groups Management** dialog box, on the **Management** menu, click **Groups Management**.

Figure 17 Groups Management Dialog Box



Adding a Group

Use the **Groups Management** dialog box to add a group. You can assign users and devices to the group. Users who are assigned to the group can access all devices that are assigned to the group.

Note: To add a group, you must be an administrator.

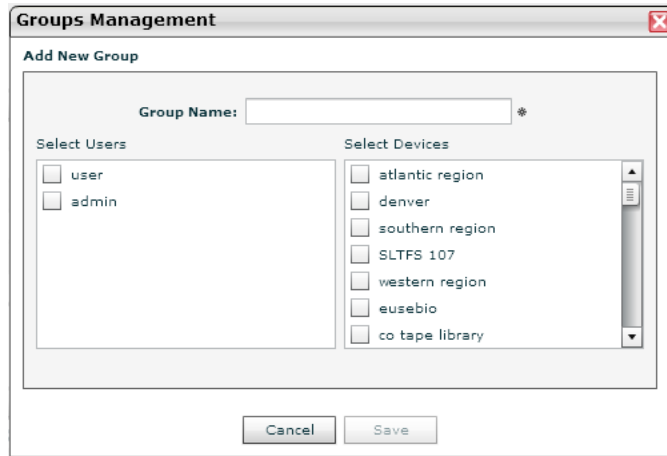
To add a group:

- 1 On the **Management** menu, click **Groups Management**.
The **Groups Management** dialog box displays.

2 Click **Add**.

The **Add New Group** dialog box displays (see [Figure 18](#)).

Figure 18 Add Group New
Dialog Box



3 In the **Group Name** box, enter a unique name for the group.

Note: Choose the group name carefully. After you create a group you cannot change its name.

4 (Optional) Under **Select Users**, select the check box for each user to assign in the group.

5 (Optional) Under **Select Devices**, select the check box for each device to assign to the group.

Users that are assigned to the group can access devices that are assigned to the group.

6 Click **Save**.

The group is added to the **Groups Management** dialog box.

7 Click the close button (x) to close the **Groups Management** dialog box.

Editing a Group

Edit an existing group to change user and device assignment.

Note: When editing a group, you cannot change the **Group Name**. If you need to change the group name, first delete the group, and then add a group with the correct name (see [Deleting a Group](#) on page 38 and [Adding a Group](#) on page 35).

Note: To edit a group, you must be an administrator.

To edit a group:

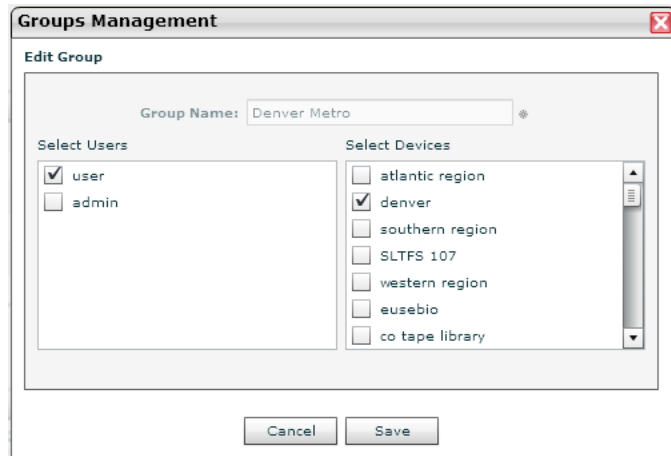
- 1 On the **Management** menu, click **Groups Management**.

The **Groups Management** dialog box displays.

- 2 Select the group you want to make changes to and click **Edit**, or double-click the group.

The **Edit Group** dialog box displays (see [Figure 19](#)).

Figure 19 Edit Group Dialog Box



- 3 (Optional) Under **Select Users**, select the check box for each user to assign in the group.
- 4 (Optional) Under **Select Devices**, select the check box for each device to assign to the group.
Users that are assigned to the group can access devices that are assigned to the group.
- 5 Click **Save**.

The group is updated in the **Groups Management** dialog box.

- 6 Click the close button (x) to close the **Groups Management** dialog box.

Deleting a Group

Delete a group to remove it from the **Groups Management** dialog box. After you delete a group, users who belonged to the group can no longer access the devices to which the group was assigned. (Users can still access a device if they belong to other groups that are assigned to the device).

Before you can delete a group you must remove all the users from the group. This is done by editing the group and saving it without any members selected.

Note: Deleting a group does not delete the users that are assigned to the group. All users are unaffected and can be assigned to other groups.

Note: To delete a group, you must be an administrator.

To delete a group:

- 1 On the **Management** menu, click **Groups Management**.

The **Groups Management** dialog box displays.

- 2 Select the group and click **Delete**.

- 3 Click **Yes** to confirm the deletion.

The group is removed from the **Groups Management** dialog box.

- 4 Click the close button (x) to close the **Groups Management** dialog box.

User Management

To log on to Quantum Vision, a user enters their username and password. The devices and features that are available to a user depends on the user's assigned role. Quantum Vision supports three user roles:

- **Admin** - An administrator has access to all devices. An administrator can also schedule reports, configure Quantum Vision, and manage users, groups, and devices.

Note: Multiple administrators can log on to Quantum Vision at the same time.

- **User** - A user has access to devices that are assigned to groups that the user belongs to. A user can view information in Vision but cannot make changes.
- **Monitor** - The monitor can view information in Vision but cannot make changes.

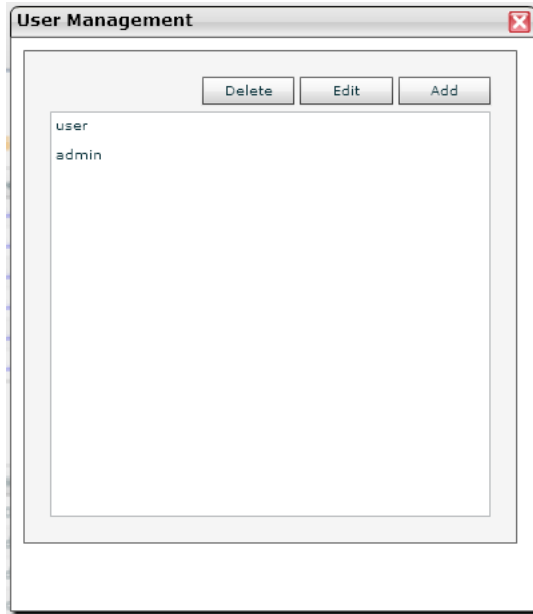
Note: Multiple users can log on as monitor at the same time. However, there is only one Monitor user account. To enable the Monitor user account, see [Authentication Configuration](#) on page 46.

Use the **User Management** dialog box (see [Figure 20](#)) to perform the following tasks:

- [Adding a User](#)
- [Editing a User](#)
- [Deleting a User](#)

To access the **User Management** dialog box, on the **Management** menu, click **User Management**.

Figure 20 User Management
Dialog Box



Adding a User

Use the **User Management** dialog box to add a user. You can specify the user role and assign the user to one or more groups. After you add the user, the user can log on to Quantum Vision with their username and password.

Note: To add a user, you must be an administrator.

To add a user:

- 1 On the **Management** menu, click **User Management**.

The **User Management** dialog box displays.

- 2 Click **Add**.

The **Add User** dialog box displays (see [Figure 21](#)).

Figure 21 Add User Dialog Box

3 Enter information about the user:

- **Username** - Enter a unique username. The user enters this username when logging on to Quantum Vision.
- **Password** - Enter the user's password.
- **Confirm Password** - Enter the user's password again to confirm it.
- **Email** - Enter the e-mail address of the user. Quantum Vision uses this e-mail address when sending alerts to the user.
- **First Name** - (Optional) Enter the first name of the user.
- **Last Name** - (Optional) Enter the last name of the user.
- **Login Enabled** - Select the check box to allow the user to log on to Quantum Vision.

If you clear the check box, the user cannot log on to Quantum Vision. However, the user can still receive alert notifications and report results.

- **Role** - Select the role to assign to the user:

- **Administrator** - An administrator has access to all devices. An administrator can also manage users, groups, and devices, and can configure Quantum Vision.
 - **User** - A user has access to devices that are assigned to groups to which the user belongs.
- 4 (Optional) Under **Select User Groups**, select the check box for each group to which to assign the user.
You can assign a user to more than one group.
 - 5 Click **Save**.
The user is added to the **User Management** dialog box.
 - 6 Click the close button (x) to close the **User Management** dialog box.

Editing a User

Edit an existing user to change the user's username, e-mail, name, roles, or groups. You can also enable or disable login access and change the user's password.

Note: To edit a user, you must be an administrator.

To edit a user:

- 1 On the **Management** menu, click **User Management**.
The **User Management** dialog box displays.
- 2 Select the user you want to edit and click **Edit**, or double-click the user.
The **Edit User** dialog box displays (see [Figure 22](#)).

Figure 22 Edit User Dialog Box

The screenshot shows a 'User Management' dialog box with the following fields and options:

- Username:** manthony
- Password:** *****
- Confirm Password:** (empty)
- Email:** mark.anthony@qu
- First Name:** Mark
- Last Name:** Anthony
- Login Enabled:**
- Role:** Administrator, User
- Select User Groups:**
 - user
 - Denver Metro

Buttons: Cancel, Save

3 Enter information about the user:

Note: When editing a user, you cannot change the **Username**. If you need to change the username, first delete the user, and then add a user with the correct name (see [Deleting a User](#) on page 44 and [Adding a User](#) on page 40).

- **Password** - Enter the user's password.
- **Confirm Password** - Enter the user's password again to confirm it.
- **Email** - Enter the e-mail address of the user. Quantum Vision uses this e-mail address when sending alerts to the user.
- **First Name** - (Optional) Enter the first name of the user.
- **Last Name** - (Optional) Enter the last name of the user.
- **Login Enabled** - Select the check box to allow the user to log on to Quantum Vision.

If you clear the check box, the user cannot log on to Quantum Vision. However, the user can still receive alert notifications and report results.

- **Role** - Select the role to assign to the user:

- **Administrator** - An administrator has access to all devices. An administrator can also manage users, groups, and devices, and can configure Quantum Vision.
 - **User** - A user has access to devices that are assigned to groups to which the user belongs.
- 4 (Optional) Under **Select User Groups**, select the check box for each group to which to assign the user.
You can assign a user to more than one group.
 - 5 Click **Save**.
The user is updated in the **User Management** dialog box.
 - 6 Click the close button (x) to close the **Groups Management** dialog box.

Deleting a User

Delete a user to remove it from the **User Management** dialog box. After you delete a user, they can no longer log on to Quantum Vision.

Note: To delete a user, you must be an administrator.

To delete a user:

- 1 On the **Management** menu, click **User Management**.
The **User Management** dialog box displays.
- 2 Select the user and click **Delete**.
- 3 Click **Yes** to confirm the deletion.
The user is removed from the **User Management** dialog box.
- 4 Click the close button (x) to close the **User Management** dialog box.



Chapter 4

Vision Configuration

Quantum Vision allows administrator-level users to specify configuration settings for authentication, data collection, data expiration, e-mail, licensing, group storage, security, and software updates.

Administrators can perform the following tasks:

- [Authentication Configuration](#)
- [Data Collection Configuration](#)
- [Data Expiration Configuration](#)
- [E-mail Configuration](#)
- [Licensing Configuration](#)
- [Group Storage](#)
- [Security](#)
- [Software Update](#)

Authentication Configuration

Use the **Vision Authentication Configuration** dialog box to configure authentication settings. You can perform the following tasks:

- [Enabling Monitor Access](#)
- [Configuring LDAP](#)
- [Vision Groups Management when using LDAP Authentication](#)
- [Assign Vision Role to LDAP Group](#)

Note: To configure authentication settings, you must be an administrator.

Enabling Monitor Access

Enable the Monitor account access to allow users to log on to Quantum Vision as a monitor. A monitor can view information but cannot make changes.

Note: Monitor access is enabled by default.

To enable Monitor account access:

- 1 On the **Vision Configuration** menu, click **Authentication**.

The **Vision Authentication Configuration** dialog box displays (see [Figure 23](#)).

Figure 23 Vision Authentication Configuration Dialog Box (Monitor Access)

- 2 In the **Monitoring** pane, select the **Enabled Monitor Account Access** check box to enable Monitor access to Quantum Vision.
- 3 Click **Save**.
- 4 Click the close button (x) to close the **Vision Authentication Configuration** dialog box.

Note: To log on as the Monitor user, on the **Login** page, enter **monitor** for username and enter **monitor** for password.

Configuring LDAP

Lightweight Directory Access Protocol (LDAP) stores information about users and groups in a hierarchical directory. Vision can use LDAP to provide authentication and authorization of users. Authentication is the act of validating a user's identity. Authorization is the act of determining access to data for authenticated users. In Vision, Authentication is

accomplished by providing a username and password to the authentication mechanism. Authorization in Vision is accomplished by assigning roles to authenticated users.

There are three roles in Vision: administrator, user, and monitor. The **User Management** section of the Users Guide describes the capabilities of the three roles.

When using LDAP with Vision, LDAP performs authentication, and reads information about the user from the LDAP, including the list of groups to which the user may belong. Part of the LDAP configuration for Vision is the mapping of group names to Vision administrator or user roles. Vision uses this mapping to assign administrator or user authorization to authenticated LDAP users.

To enable LDAP authentication:

Note: The narrative at the end of these steps will give you a better understanding of how Vision uses LDAP to authenticate Vision users.

- 1 In Vision, on the **Vision Configuration** menu, click **Authentication**. The **Vision Authentication Configuration** dialog box displays (see [Figure 24](#)).

Figure 24 Vision Authentication Configuration Dialog Box (LDAP)

The screenshot shows the 'Vision Authentication Configuration' dialog box. It has two tabs: 'Monitoring' and 'LDAP Config'. The 'Monitoring' tab is active, showing 'Enabled Monitor Account Access' with a checked checkbox. The 'LDAP Config' tab is selected, showing 'Enabled LDAP Authentication' with an unchecked checkbox. Below this are several text input fields, each with a '*' icon on the right: 'LDAP Server URL', 'LDAP Server Manager DN', 'LDAP Server Manager Password', 'LDAP Group Role Attribute', 'LDAP Group Search Base', 'LDAP Search Patterns', and 'LDAP Group Search Filter'. There are also two checkboxes: 'LDAP Search Subtree' (checked) and 'LDAP Dereference Flag' (unchecked). At the bottom center is a 'Save' button with an upward arrow icon.

2 In the **LDAP** pane, select the **Enabled LDAP Authentication** check box, and then enter the following information:

- **LDAP Server URL** - Enter the URL of the LDAP server in the following format: **ldap://<server_ip>:<port>**
For example: **ldap://10.10.10.10:389**
- **LDAP Server Manager DN** - Enter the distinguished name (DN) of a user with LDAP read access, possibly your LDAP server administrator.
For example: **cn=Manager,dc=vision,dc=com**
- **LDAP Server Manager Password** - Enter the password for the user that was specified in the **LDAP Server Manager DN** field.
- **LDAP Group Role Attribute** - This is the attribute in the group record that specifies the name of the group. This is usually **cn**.
For example: If a group lists a user as a member of the group, and the group record has an attribute **cn=sysadmin**, and the

LDAP Group Role Attribute has been configured to be **cn**, then when the user logs in, **sysadmin** will be in the user's list of groups.

- **LDAP Group Search Base** - Enter the full path in the LDAP directory for the organizational unit (or *containers*, if using Microsoft Active Directory) that contains the Vision group records.

For example: **ou=groups,dc=vision,dc=com**

- **LDAP Search Patterns** - Enter the user search pattern.

The user search pattern describes how to find a user record in the LDAP directory based on the username passed from the Vision server when a user logs on.

For example: **uid={0},ou=People,dc=vision,dc=com**

In this example, **uid** is the attribute in a user record that corresponds to the username that a user enters on the Vision **Login** window. The information following the comma is the full path in the LDAP directory for the organizational unit that contains the user records.

- **LDAP Group Search Filter** - Enter the group search filter.

The group search filter describes how to determine the groups the user is a member of.

For example: **memberUid={0}**

In this example, **memberUid** is the attribute in a group record that describes the users who are members of the group.

- **LDAP Search Subtree** - (Optional) It is recommended that you leave this option selected. It allows you to search for groups in all subtrees under the organizational unit (OU) specified by the **LDAP Group Search Base** value.
- **LDAP Dereference Flag** - This option is not used at this time.

3 Click **Save**.

4 Click the close button (x) to close the **Vision Authentication Configuration** dialog box.

Example 1: LDAP - Vision Basic Setup

In MyCompany, users are stored in an Organizational Unit (OU) called People. The Distinguished Name (DN) that uniquely identifies the People OU in the directory is OU=People,DC=mycompany,DC=com.

MyCompany has an employee named Mary Smith. LDAP stores an object containing information about Mary. The user object has an attribute called UID that stores a unique id for users. The full DN for Mary's user record is UID=msmith,OU=People,DC=mycompany,DC=com.

In MyCompany, System Administrators belong to an OU called SysAdmin, which is contained in an OU called Groups. The full DN for the system administrators group is OU=SysAdmin,OU=Groups,DC=mycompany,DC=com.

In MyCompany's LDAP deployment, groups enumerate members using the memberUid attribute in the group object.

In MyCompany, Mary Smith is a member of the SysAdmin group because the SysAdmin group object has an attribute:
memberUid UID=msmith,OU=People,DC=mycompany,DC=com

The SysAdmin group object also has a common name attribute:
cn=sysadmin.

To configure Vision to use LDAP to allow Mary Smith to login and have her SysAdmin group membership, the **Vision Authentication Configuration** form would be filled out as follows:

LDAP Group Role Attribute: cn

LDAP Group Search Base: OU=Groups,DC=mycompany,DC=com

LDAP Search Patterns: UID={0},OU=People,DC=mycompany,DC=com

LDAP Group Search Filter: memberUid={0}

In the **LDAP Search Patterns**, the {0} will be replaced with the value that the user types in the **username** field of the login screen.

In the **LDAP Group Search Filter**, the {0} will be replaced with the full DN of the user.

One additional piece is needed. To assign the Vision Administrator role to members of the LDAP sysadmin group (**cn=sysadmin**), select the **Vision Role to LDAP Group** tab on the **Vision Authentication Configuration** dialog box. Under **Vision Roles** select **Administrator**. Under **LDAP Groups** click **Add**, and then for the **LDAP group name**

enter **sysadmin**. This assigns the Vision Administrator role to any LDAP user that is a member of the sysadmin group.

When Mary Smith logs on to Vision with her LDAP credentials (name = msmith, password = <msmith's LAD password>), the following happens:

- Vision passes the name and password to LDAP.
- LDAP searches the directory for an object with a DN of UID=msmith,OU=People,DC=mycompany,DC=com, and if found, it validates msmith's password; if the password is validated, msmith is authenticated as a Vision user.
- If authenticated, LDAP now searches all of the group objects under OU=Groups,DC=mycompany,DC=com, looking for any groups that contain the attribute memberUid with a value of UID=msmith,OU=People,DC=mycompany,DC=com. For every group that has msmith as a member, the value of the **cn** attribute is added to msmith's list of groups. In this example, **sysadmin** would be added to msmith's list of groups.
- The Vision Role to LDAP Group table is consulted, the sysadmin group is mapped to the Administrator role, and msmith is assigned the Administrator role in Vision.

Example 2: Microsoft Active Directory Setup

Microsoft Active Directory (AD) uses LDAP to store information about Users and Groups. Vision can use Active Directory to authenticate logins and assign roles to Vision users.

A typical AD installation will store objects under some number of hierarchical domain components. These domain components often identify the company or organization, such as dc=mycompany, dc=com.

User objects and AD security groups will be stored in the directory, usually inside of a container or Organizational Unit (OU). The users and groups may be stored in a container or OU created by the installation of AD, or they may be stored in OU(s) created by the AD administrator.

Example:

In MyCompany, users are stored in the default container called Users. The Distinguished Name (DN) that uniquely identifies this container in the domain is CN=Users,DC=mycompany,DC=com.

MyCompany has an employee named Joel Smith. AD stores an object containing information about Joel. The full DN for Joel's user record is CN=jsmith,CN=Users,DC=mycompany,DC=com.

In MyCompany, System Administrators belong to the default Administrators group in the Builtin container. The full DN for the group is CN=Administrators,CN=Builtin,DC=mycompany,DC=com.

In AD, groups enumerate members using the member attribute in the group object.

In MyCompany, Joel Smith is a member of the Administrators group because the Administrators group object has an attribute:

```
member      CN=jsmith,CN=Users,DC=mycompany,DC=com
```

To configure Vision to use AD to allow Joel Smith to login and have his Domain Administrators group membership, the **Vision Authentication Configuration** form would be filled out as follows:

LDAP Group Role Attribute: cn

LDAP Group Search Base: CN=Builtin,DC=mycompany,DC=com

LDAP Search Patterns: CN={0},CN=Users,DC=mycompany,DC=com

LDAP Group Search Filter: member={0}

In the **LDAP Search Patterns**, the {0} will be replaced with the value that the user types in the username field of the login screen.

IMPORTANT: This value must match the CN attribute of the user object for the user who is attempting to log in. This is not the same attribute that is used for logging in to the Windows domain, and it may have a different value. So the user may use a different name to log in to Windows as opposed to logging in to Vision.

In the **LDAP Group Search Filter**, the {0} will be replaced with the full DN of the user.

One additional piece is needed. To assign the Vision Administrator role to members of the AD Administrators group, select the **Vision Role to LDAP Group** tab on the **Vision Authentication Configuration** dialog box. Under **Vision Roles** select **Administrator**. Under **LDAP Groups** click **Add**, and then for the **LDAP group name** enter **sysadmin**. This assigns the Vision Administrator role to any LDAP user that is a member of the sysadmin group.

Now, when Joel Smith logs in to Vision with his Active Directory credentials (name= jsmith, password = <jsmith's AD password>), the following happens:

- Vision passes the name and password to AD.
- AD searches the directory for an object with a DN of CN=jsmith,CN=Users,DC=mycompany,DC=com and if found, it validates jsmith's password; if the password is validated, jsmith is authenticated as a Vision user.
- If authenticated, AD now searches all of the group objects under CN=BuiltIn,DC=mycompany,DC=com, looking for any groups that contain the attribute member with a value of CN=jsmith,CN=Users,DC=mycompany,DC=com. For every group that has jsmith as a member, the value of the cn attribute is added to jsmith's list of groups. In this example, Administrators would be added to jsmith's list of groups.
- The Vision Role to LDAP Group table is consulted, the Administrators group is mapped to the Administrator role, and jsmith is assigned the Administrator role in Vision.

Note: Due to implementation limitations, an Active Directory user's Primary Group as specified by the user's primaryGroupID is NOT consulted for Vision privileges.

Vision Groups Management when using LDAP Authentication

When using the Groups Management feature when LDAP Authentication is NOT enabled (i.e., using standard Vision user management), you define a group name, and then assign users and devices to the group. When using LDAP for authentication, the group membership for users is defined in the LDAP as explained in the examples above. If you want to create groups of devices and associate them with the LDAP user groups, you must create a group name that is the same as the LDAP group name; however, all characters must be upper-case. Example: If LDAP assigns a group name of **SysAdmin**, you will create a group in Vision called **SYSADMIN**. In the **Groups Management** dialog box, click **Add**, enter the **Group Name**, and under **Select Devices**, select the devices.

Note: Under **Select Users** you will not select users; the user-to-group association is already defined in the LDAP.

Assign Vision Role to LDAP Group

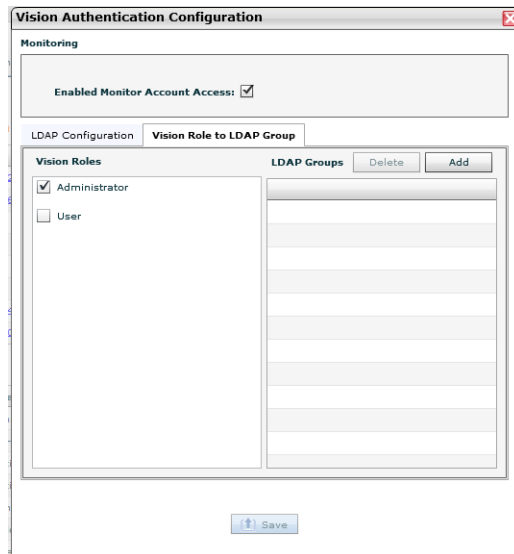
The **Vision Role to LDAP Group** table is used to assign Vision roles to LDAP group names.

Note: The **Vision Role to LDAP Group** tab is not active until a valid LDAP configuration is entered.

To assign a Vision role:

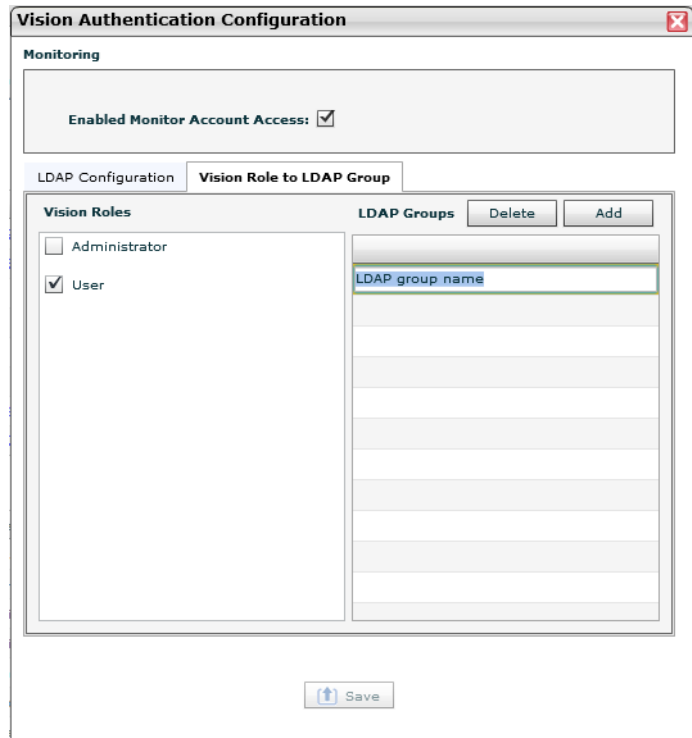
- 1 On the **Vision Authentication Configuration** dialog box, select the **Vision Role to LDAP Group** tab (see [Figure 25](#)).

Figure 25 Vision Role to LDAP Group Dialog Box



- 2 From the **Vision Roles** pane, select the Vision role.
- 3 From the **LDAP Groups** pane, select **Add**.
- 4 Type the name of the LDAP group in the text box (see [Figure 26](#)).

Figure 26 LDAP Group



5 Click **Save**.

To delete a Vision role that was assigned to an LDAP group:

- 1 From the **LDAP Groups** pane, select the assignment to be deleted.
- 2 Select **Delete**.
- 3 Click **Yes** to confirm the deletion.
- 4 Click the close button (x) to close the **Vision Authentication Configuration** dialog box.

Data Collection Configuration

Use the **Vision Data Collection Configuration** dialog box to configure the frequency at which Quantum Vision collects status and reporting data from monitored devices.

Note: To configure data collection settings, you must be an administrator.

To configure data collection settings:

- 1 On the **Vision Configuration** menu, click **Data Collection**.

The **Vision Data Collection Configuration** dialog box displays (see [Figure 27](#)).

Figure 27 Vision Data Collection Configuration Dialog Box

The screenshot shows a dialog box titled "Vision Data Collection Configuration". It is divided into three sections: "Status", "Replication", and "Performance".
- In the "Status" section, there is a field labeled "Alert Gather Retry Count" with the value "3".
- In the "Replication" section, there is a field labeled "Replication Summary Gather Frequency" with the value "1" and a dropdown menu set to "days".
- In the "Performance" section, there is a label "Specify the day of the week and hour of the day to execute performance tuning". Below this, there are two fields: "Day of Week" with a dropdown menu set to "Sunday", and "Hour of Day" with a spinner box set to "2" and a range "(0-23)".
- At the bottom of the dialog is a "Save" button with a blue arrow icon.

- 2 In the **Status** pane, specify the data collection settings:

Alert Gather Retry Count - Enter the number of consecutive connection failures before Vision will consider a device to be in a *connection failed* state.

- 3 In **Replication** pane, specify the replication settings:

Replication Summary Gather Frequency - Enter the frequency at which you want Vision to collect DXi replication information by entering a number and then selecting a time interval, **days** or

hours. Replication information includes statistics for namespace, source, and target replication. This information is displayed in replication reports.

4 In the **Performance** pane, specify the performance tuning settings:

Database maintenance is automatically performed on the Vision server on a daily basis to maintain database performance over time with large configurations. By default, database maintenance is performed each day at 2:00 a.m. server time. The database maintenance takes less than 5 minutes to run; however, if you have upgraded to Vision 4.2 and have old data in your database, then it can take up to 240 minutes for the database maintenance to complete. When the old data is expired from your database, the database maintenance will take 5 minutes or less each week.

Caution: During this time frame, all Vision features will be unavailable. It is recommended that you set your **Performance Tuning** schedule to be during your facilities' off-hours so that you do not impact your work schedule.

- **Day of Week** - Enter the day of the week to perform database maintenance.
- **Hour of Day** - Enter the time (hour of the day) to begin database maintenance.

5 Click **Save**.

Quantum Vision uses the configured data collection settings.

6 Click the close button (x) to close the **Vision Data Collection Configuration** dialog box.

Data Expiration Configuration

Use the **Vision Data Expiration Configuration** dialog box to configure the amount of time Quantum Vision retains data collected from monitored devices. Any data that is older than a specified age is expired.

After data is expired, it is removed from the Vision database and is no longer available for reporting.

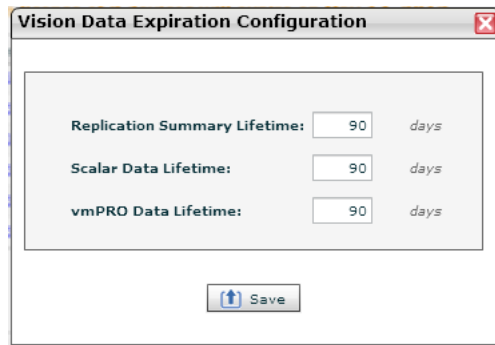
Note: To configure data expiration settings, you must be an administrator.

To configure data expiration settings:

- 1 On the **Vision Configuration** menu, click **Data Expiration**.

The **Vision Data Expiration Configuration** dialog box displays (see [Figure 28](#)).

Figure 28 Vision Data Expiration Configuration Dialog Box



- 2 Specify the data expiration settings:

- **Replication Summary Lifetime** - Enter the time in days that replication summary values are retained in the Vision database.
- **Scalar Data Lifetime** - Enter the time in days that Scalar library data is retained in the Vision database.
- **vmPRO Value Lifetime** - Enter the time in days that vmPRO values are retained in the Vision database.

Note: Aggregated values are retained in the Vision database for a predefined time. 15 minute values are retained for 6 months. 1 hour values are retained for 12 months. 1 day values are retained for 18 months.

- 3 Click **Save**.

Quantum Vision uses the configured data expiration settings.

- 4 Click the close button (x) to close the **Vision Data Expiration Configuration** dialog box.

E-mail Configuration

Use the **Vision Email Configuration** dialog box to configure settings for the outgoing e-mail server. Quantum Vision uses this server to send e-mail notifications and reports. Quantum Vision cannot send notifications and reports until you configure an outgoing e-mail server.

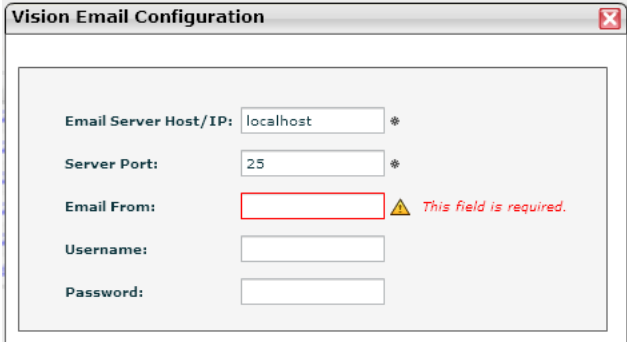
Note: To configure e-mail server settings, you must be an administrator.

To configure e-mail server settings:

- 1 On the **Vision Configuration** menu, click **Email**.

The **Vision Email Configuration** dialog box displays (see [Figure 29](#)).

Figure 29 Vision Email Configuration Dialog Box



The screenshot shows a dialog box titled "Vision Email Configuration" with a close button in the top right corner. The dialog box contains the following fields and labels:

- Email Server Host/IP:** A text input field containing "localhost" with an asterisk (*) to its right.
- Server Port:** A text input field containing "25" with an asterisk (*) to its right.
- Email From:** An empty text input field with a red border and a warning icon (triangle with exclamation mark) to its right, followed by the text "This field is required."
- Username:** An empty text input field.
- Password:** An empty text input field.

- 2 Enter information about the outgoing e-mail server:
 - **Email Server Host/IP** - Enter the hostname or IP address of the e-mail server.
 - **Server Port** - Enter the TCP port number of the e-mail server. The default value is 25.
 - **Email From** - Enter the e-mail address that will appear in the From field of e-mails sent by Quantum Vision.

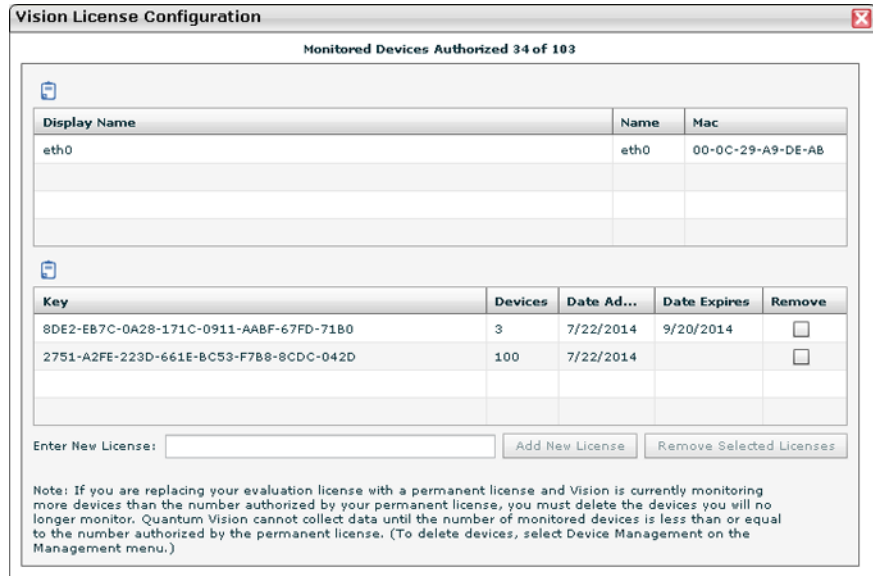
- **Username** - (Optional) If the e-mail server uses authentication, enter the server username.
 - **Password** - (Optional) If the e-mail server uses authentication, enter the password for the server username.
- 3 Click **Save**.
- Quantum Vision uses the configured e-mail server to send notifications and reports.
- 4 Click the close button (x) to close the **Vision Email Configuration** dialog box.

Licensing Configuration

Use the **Vision License Configuration** dialog box (see [Figure 30](#)) to perform the following tasks:

- [Viewing Installed Licenses](#)
- [Adding a New License](#)
- [Deleting a License](#)

Figure 30 Vision License Configuration Dialog Box



Viewing Installed Licenses

To view information about installed licenses:

- 1 On the **Vision Configuration** menu, click **Licensing**.

The **Vision License Configuration** dialog box displays.

- 2 Review the following information about installed licenses:

- **Monitored Devices Authorized** - The current and maximum number of monitored devices.

The maximum number of devices Quantum Vision can monitor is based on all currently added licenses. If the current number of monitored devices equals the maximum number of devices, you should delete an existing device before you add a new device.

- **Display Name** - The display name of the network interface card (NIC) on the Vision Enterprise Server.
- **Name** - The name of the NIC on the Vision Enterprise Server.
- **Mac** - The Media Access Control (MAC) address of the NIC on the Vision Enterprise Server.

- **Key** - The license key.
- **Devices** - The number of monitored devices allowed by the license.
- **Date Added** - The date the license was added.
- **Date Expires** - The date the license expires.
- **Remove** - If selected, the license will be removed when the **Remove Selected Licenses** button is clicked (see [Deleting a License](#) on page 69).

Note: Only administrators can remove Vision licenses.

- 3 Click the close button (x) to close the **Vision License Configuration** dialog box.

Adding a New License

The temporary license installed with Quantum Vision authorizes you to monitor up to 3 devices for up to 60 days. To monitor more devices, or to use Quantum Vision for more than 60 days, you must add a permanent license.

To add a license to Quantum Vision, contact your Quantum Sales representative for information about purchasing a license. After you receive the License Certificate, perform the following steps to obtain a license key and add it to Quantum Vision.

- 1 [Gathering Required Information](#)
- 2 [Obtaining a License Key](#)
- 3 [Entering the License Key](#)

Gathering Required Information

You will need the following information:

- Quantum Vision serial number
- Quantum Vision authorization code
- Quantum Vision MAC address (The MAC address will not be available until the Vision application has been installed.)

You will enter the serial number, authorization code, and Vision MAC address into the Quantum Licensing Website

(<http://www.quantum.com/licensekeys>) to generate your License Key. The License Key will then be entered into the Vision application. The License Key allows you to monitor additional devices.

1 Locate your Vision software serial number:

If you have downloaded your Vision software, you will be e-mailed a copy of your **License Key Certificate & Download Document** that will contain your serial number and authorization code (see [Figure 31](#)).

If you requested a Vision Media Kit, the serial number can be found on the back of the sleeve that contains the Vision installation disk (see [Figure 32](#)).

Note: Be sure to record/keep your serial number for future use and upgrades.

Figure 31 Serial Number and Authorization Code for Downloaded Vision Software

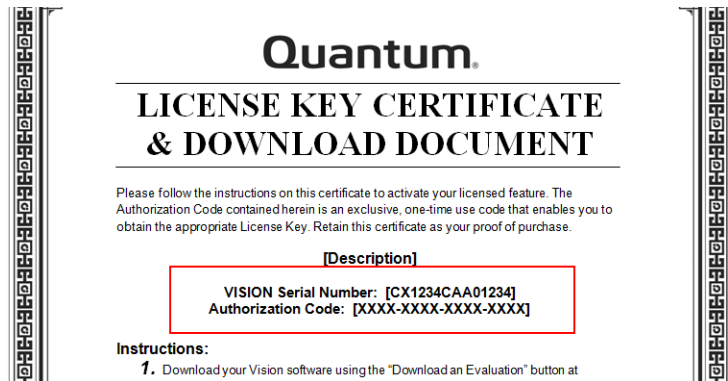
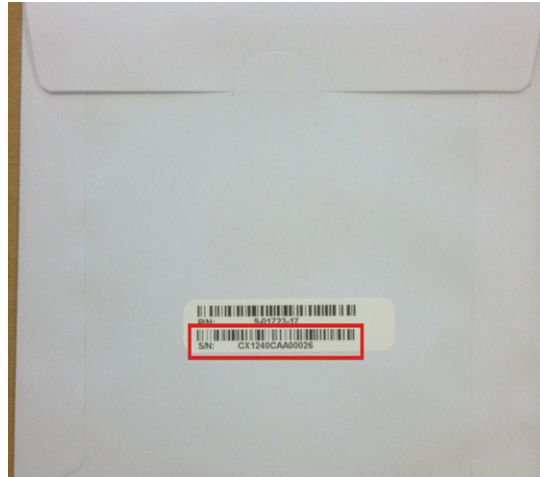


Figure 32 Vision Serial
Number

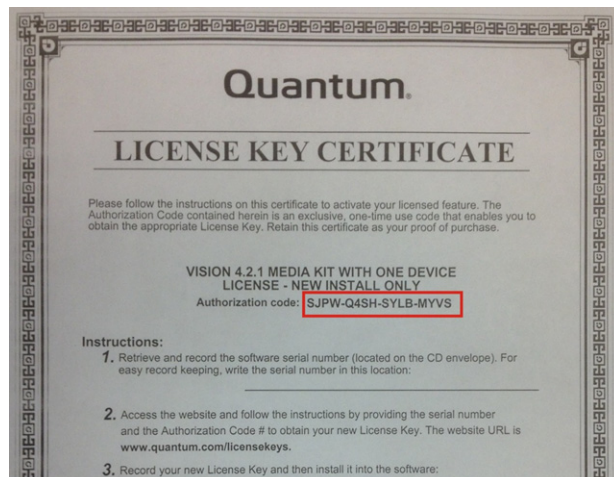


2 Locate the authorization code:

If you have downloaded your Vision software, you will be e-mailed a copy of your **License Key Certificate & Download Document** that will contain your serial number and authorization code (see [Figure 31](#)).

If you have requested a Vision Media Kit. The authorization code is found on the License Key Certificate that is included in your media kit (see [Figure 33](#)).

Figure 33 License Certificate
and Authorization Code

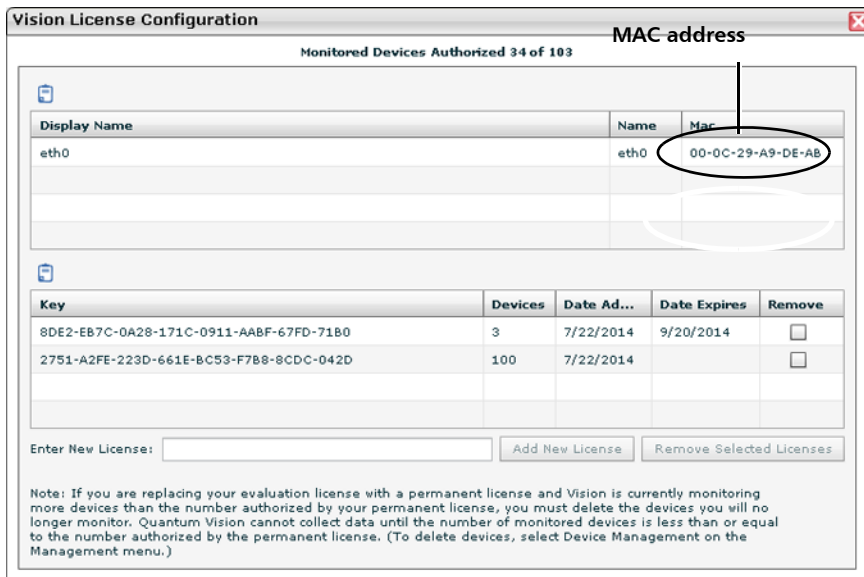


- 3 Locate the MAC address of the Vision server.
 - a In Quantum Vision, on the **Vision Configuration** menu, click **Licensing**.
The **Vision License Configuration** dialog box displays.
 - b Write down the MAC address displayed in the upper table (see [Figure 34](#)).

Note: Instead of writing down the MAC address, you can export it to a text file instead. To do this, click the file export button (small clipboard) on the upper left of the table, and then click **Text**. Select a location to save the file, type a name for the file, and then click **Save**. When you perform the following procedure, you can copy the MAC address from this text file instead of typing it.

 - c Click the close button (x) to close the **Vision License Configuration** dialog box.

Figure 34 Determining the
MAC Address



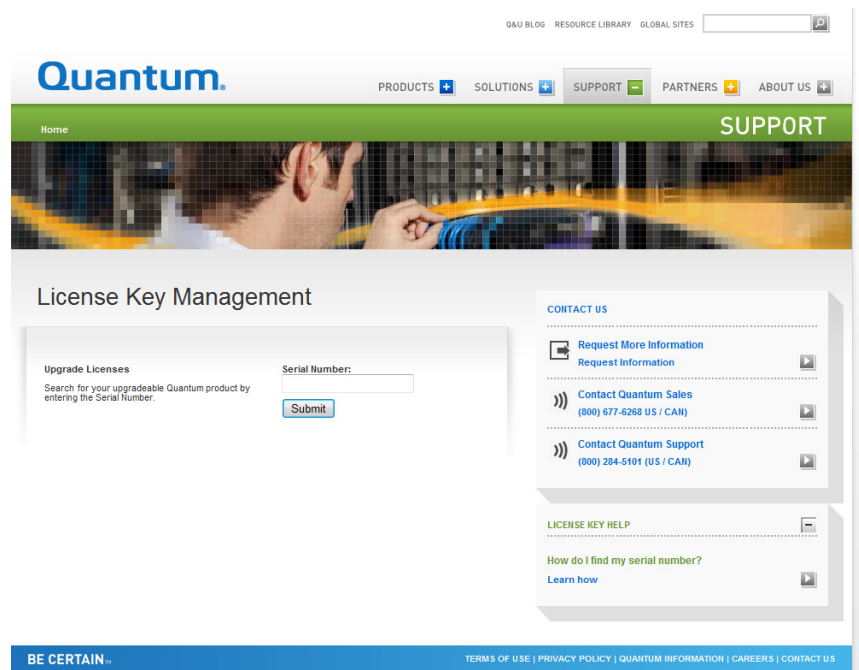
Obtaining a License Key

To obtain a license key:

- 1 Open a Web browser on a computer with Internet access.
- 2 Navigate to the Web address printed on the License Certificate (<http://www.quantum.com/licensekeys>).

The License Key Management page displays (see [Figure 35](#)).

Figure 35 License Key Management Page



- 3 Enter the Quantum Vision serial number in the **Serial Number** box and click **Submit**.

The **Enter MAC Address** page displays.

- 4 Enter the MAC address of the Vision server and click **Submit**.

The serial number is associated with MAC address of the Vision server. In the future, when adding additional licenses, you will only need to enter the serial number.

The **Licensed Feature** page displays.

- 5 Enter the authorization code (printed on the License Certificate) and click **Get License Key**.

The **Licensed Feature** page returns a license key. Print out or write down the license key, or save it to a text file.

- 6 (Optional) If you are adding multiple licenses, repeat [Step 5](#) for each License Certificate.

Entering the License Key

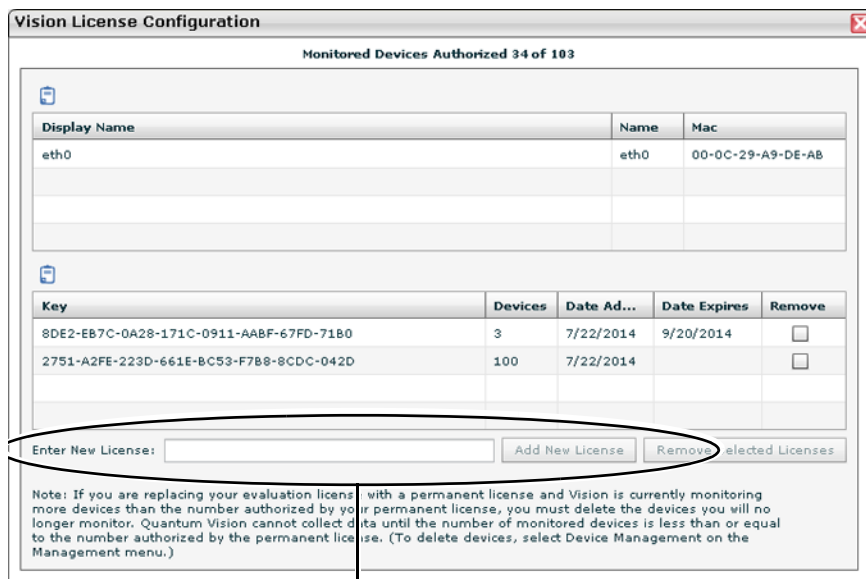
To add a license key:

Note: To add a new license, you must be an administrator.

- 1 In Quantum Vision, on the **Vision Configuration** menu, click **Licensing**.

The **Vision License Configuration** dialog box displays.

Figure 36 Vision License Configuration Dialog Box



Enter License Key

- 2 Enter the license key in the box and click **Add New License**.

The license is added to Quantum Vision, and the maximum number of devices is increased by the device count of the license.

Note: If Vision is currently monitoring more devices than the number authorized by your permanent license, Vision will display a violation of license agreement notification. You will continue to receive the violation notification until the number of monitored devices is less than or equal to the number authorized by the permanent license. (To delete devices, select **Device Management** on the **Management** menu.)

- 3 (Optional) If you are adding multiple licenses, repeat [Step 2](#) for each license key.
- 4 Click the close button (x) to close the **Vision License Configuration** dialog box.

Deleting a License

If you purchase a permanent license, you can delete the evaluation license from the **Vision License Configuration** dialog box to stop the server from warning you that the evaluation license will expire.

Caution: If you delete an evaluation license, you cannot re-enter it. Make sure that you have a permanent license for your Vision server before deleting an evaluation license.

Note: If you inadvertently delete a permanent license, you can re-enter it in the **Vision License Configuration** dialog box.

To delete a license:

Note: To delete a license, you must be an administrator.

- 1 In Quantum Vision, on the **Vision Configuration** menu, click **Licensing**.

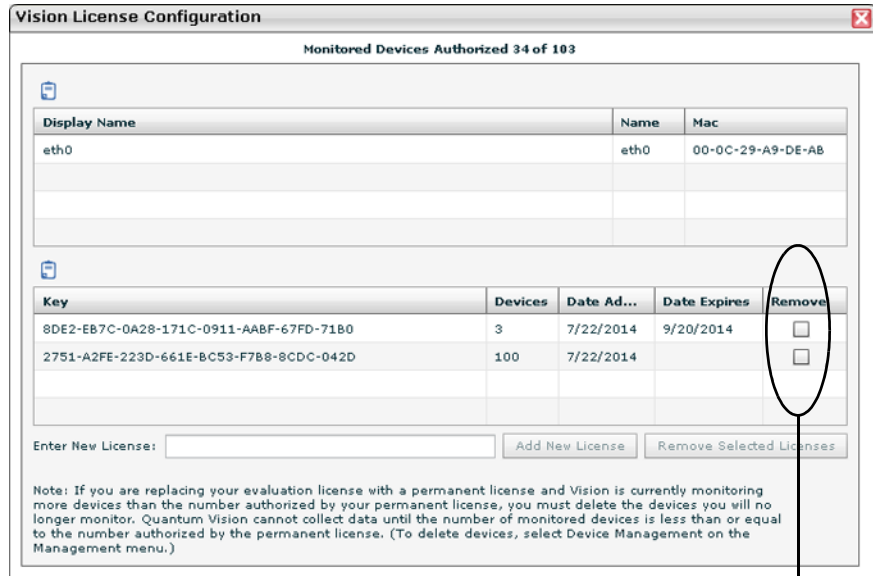
The **Vision License Configuration** dialog box displays.

- 2 Select the **Remove** check box for each license that you want to delete (see [Figure 37](#)).

- 3 Click the **Remove Selected Licenses** button to delete the selected license(s).

Vision removes the license(s) from the dialog box.

Figure 37 Vision License Configuration Dialog Box



Remove Check Boxes

Group Storage

Vision License Configuration ✖

Monitored Devices Authorized 34 of 103

| Display Name | Name | Mac |
|--------------|------|-------------------|
| eth0 | eth0 | 00-0C-29-A9-DE-AB |
| | | |
| | | |

| Key | Devices | Date Ad... | Date Expires | Remove |
|---|---------|------------|--------------|--------------------------|
| 8DE2-EB7C-0A28-171C-0911-AABF-67FD-71B0 | 3 | 7/22/2014 | 9/20/2014 | <input type="checkbox"/> |
| 2751-A2FE-223D-661E-BC53-F7B8-8CDC-042D | 100 | 7/22/2014 | | <input type="checkbox"/> |
| | | | | |

Enter New License:

Note: If you are replacing your evaluation license with a permanent license and Vision is currently monitoring more devices than the number authorized by your permanent license, you must delete the devices you will no longer monitor. Quantum Vision cannot collect data until the number of monitored devices is less than or equal to the number authorized by the permanent license. (To delete devices, select Device Management on the Management menu.)

Use the **Vision Group Storage** dialog box to configure the devices' or data groups' historical data or latest data that will be used by Vision to generate its **Reporting** and **Analytics** results. **Group Storage** allows you to improve performance and increase scalability by reducing the amount of data stored in the Vision database.

In Vision reporting, some of the reports are labeled as *Historical* reports. (See [Table 2](#) for a listing of historical reports and their data groups.) With these reports, you can see changes in the values over time, providing insight into things like trends or events. Viewing trends can help with things like capacity planning; for example, the DXi Percent Full history may indicate that the rate of disk usage on the DXi has increased, perhaps due to additional backup servers making use of the device. Observing events in historical reports can help with troubleshooting of problems; for example, the Ethernet or Fibre Channel history may show a period when no data was coming into the DXi during a regular backup window, indicating potential problems

with the network or with the source of the expected data stream. Historical data is also used in the graphs in Vision's Analytics view.

Vision allows the user to specify whether or not historical data should be stored for different groups of data. By default, Vision is configured to store historical information related to disk usage (storage), network usage, replication, and Accent deduplication. Vision is configured to store only the latest value (*snapshot* data) for information related to CPU usage, memory usage, and internal sensors. These default data storage policies should be optimal for most users.

Historical reports require that the data group that provides the report data is configured to **Store Historical Data**. If a data group is set to **Store Latest Data Only**, and the user attempts to generate a Historical report on the data, the user will be informed that Vision does not have sufficient data to generate the report, and the user may need to change the data storage policy to **Store Historical Data**.

To configure the **Group Storage** settings:

- 1 On the **Vision Configuration** menu, click **Group Storage**.

The **Vision Group Storage Policy** dialog box displays (see [Figure 38](#)). Vision's default configuration, which it uses to create its current **Reporting** and **Analytics**, is shown.

- 2 For the appropriate **Devices** or **Data Groups** select the data you want to use to generate **Vision Reporting** and **Vision Analytics** results.

- **Store Historical Data** - Store the latest value, with history.

Note: Historical data is saved in 15 minute, 1 hour, and 1 day aggregations (Aggregations contain minimum, maximum, and average values for the aggregation period.) for 6, 12, and 18 months respectively.

- **Store Latest Data Only** - Store the latest observed value only, no history.

Note: **Analytics** cannot be produced from **Latest Data Only**.

- 3 Click **OK** to store the new configuration or **Cancel** to retain the current configuration.
- 4 To return to the Quantum default configuration, click **Restore Defaults**.

- 5 Click the close button (x) to close the **Vision Group Storage** dialog box.

Figure 38 Vision Group Storage Policy Dialog Box

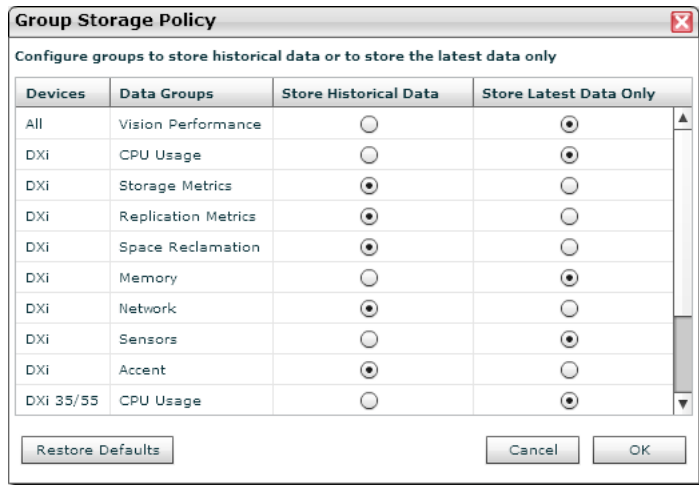


Table 2 Historical Reports and Data Groups

| Historical Report | Data Group |
|--------------------------------------|--|
| All Percent Full History | DXi Storage Metrics for DXi 25/55 Storage Metrics |
| DXi Capacity Growth History | DXi Storage Metrics |
| DXi Ethernet Received History | DXi Network |
| DXi Ethernet Transmitted History | DXi Network |
| DXi FibreChannel Received History | DXi Network |
| DXi FibreChannel Transmitted History | DXi Network |
| DXi Space Reclamation History | DXi Space Reclamation |
| DXi CPU Usage History | DXi CPU Usage |
| DXi Deduplication History | DXi Storage Metrics |

| Historical Report | Data Group |
|--------------------------------|-------------------------------|
| DXi Disk Usage History | DXi Storage Metrics |
| DXi Percent Full History | DXi Storage Metrics |
| DXi 35/55 Usage History | DXi 35/55 Storage Metrics |
| DXi 35/55 Replication History | DXi 35/55 Replication Metrics |
| DXi 35/55 Fans History | DXi 35/55 Sensors |
| DXi 35/55 Sensors History | DXi 35/55 Sensors |
| DXi 35/55 Percent Full History | DXi 35/55 Storage Metrics |
| Analytics Graph | Data Group |
| Space Reclamation | DXi Space Reclamation |
| Disk Used by Reduced Data | DXi Storage Metrics |

Security

Use the Vision **Network Ports** dialog box to configure your HTTP and HTTPS port assignments.

On Windows or Linux installed Vision servers, when changing your network ports, be sure to check your existing firewall configuration and make sure the appropriate firewall ports are open.

For a Vision appliance, do not use the **Security** feature. Log on to the Vision Console Command Line (see **Accessing the Console Command Line** in the **Quantum Vision 4.3 Quick Start Guide**) and run the **net ports** command. The **net ports** command opens the firewall and updates the ports.

To configure HTTP and HTTPS port assignments:

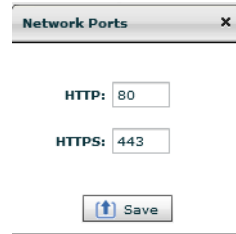
- 1 On the **Vision Configuration** menu, click **Security**.

The **Network Ports** dialog box displays (see [Figure 39](#)).

- 2 Enter your port numbers, and then click **Save**.

- 3 Reboot the Vision server.

Figure 39 Vision Security Dialog Box

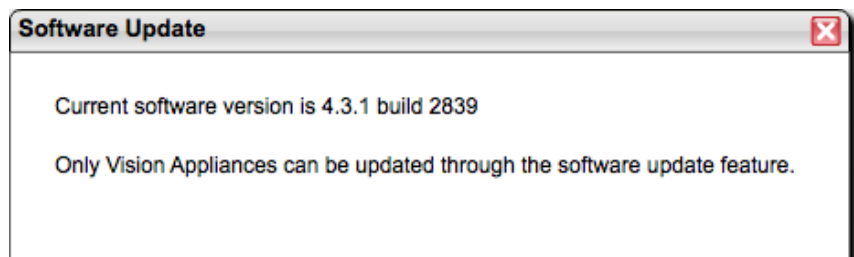


Software Update

The **Software Update** dialog box allows you to update your Vision virtual appliance when software updates are available. It also allows you to choose whether you want the Vision server to automatically check for and notify you of updates that are available.

Note: The **Software Update** feature supports only the Vision virtual appliance (installations from an OVF). The **Software Update** feature does not update Vision when it has been installed using the standard installer (see [Figure 40](#)).

Figure 40 Software Update –
Vision Appliance Only
Notification



To install software updates for your Vision virtual appliance:

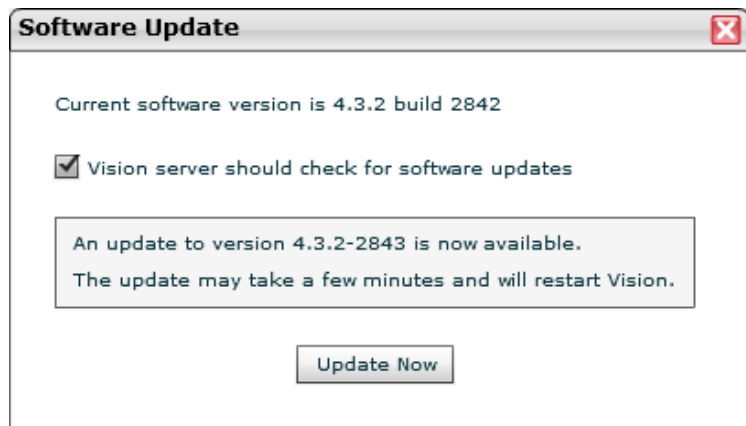
- 1 On the **Vision Configuration** menu, click **Software Update**.

The **Software Update** dialog box displays (see [Figure 41](#)).

Note: If updates are available, you will see an **Update Now** button; otherwise, you will see an **OK** button.

- 2 To install software updates, click **Update Now**.

Figure 41 Software Update



Checking for Updates

To check for updates:

- 1 On the **Software Update** dialog box, do one of the following:
 - Select the **Vision server should check for software updates** check box (default) to have your Vision server automatically check for updates (see [Figure 42](#)). If you select this check box, a notification banner, which tells you that a software update is available, displays to the right of the toolbar (see [Figure 43](#)).
 - Clear the **Vision server should check for software updates** check box to stop your Vision server from automatically contacting a Quantum server to check for updates.
- 2 Click **OK** to activate your selection.

Note: You will only see the OK button if updates are not available.

Figure 42 Software Update Configuration

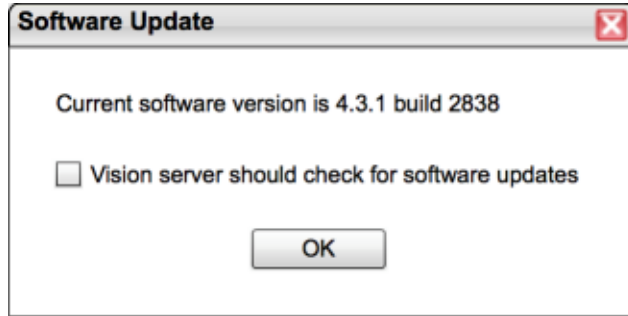
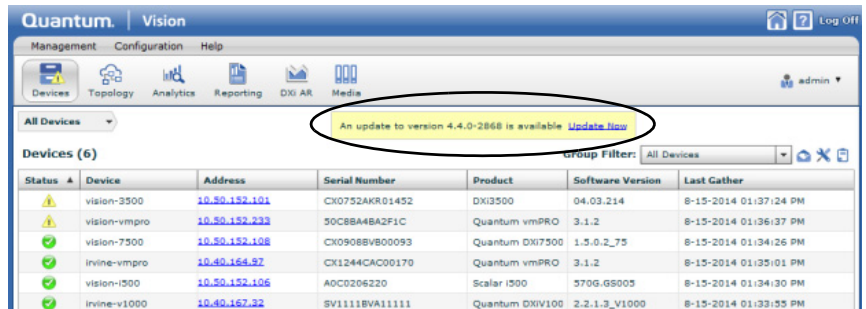


Figure 43 Software Update Notification





Chapter 5 Devices

Quantum Vision has various tools designed to help you monitor your devices. The tools include device consoles, configuration displays, and replication displays. The device consoles include the following:

- **Devices** console - displays all monitored Quantum devices.
- **Consolidated Console** - displays all monitored Quantum devices for a specified device family.
- **Device Console** - displays device specific information for a device.

This chapter describes the following monitoring tools:

- [The Devices Console](#)
- [DXi Device Console](#)
- [Scalar Device Console](#)
- [Scalar LTFS Device Console](#)
- [vmPRO Device Console](#)
- [Configuration](#)
- [Replication](#)
- [Chargeback](#)

Vision and Device Status Icons

The **Devices** console (see [Figure 44](#)) and each device **Consolidated Console** (see [Figure 49](#)) use a colored icon in the left most column of each row to show the status of a device. This status icon can also be seen at the top left of the **Device Console** (see [Figure 46](#)). Vision uses the following status icons:

- **Green** - The device is operating correctly.
- **Yellow** - There is a problem with the device.
- **Red** - There is either a serious issue with the device or there is a connection failure (the device is not responding). There is a specific icon to indicate that the connection has failed. It is a red (circular) icon with a broken-chain.
- **Gray** - The device is discovered but no data has been collected yet, or the status is unknown.

Consolidated Console

You can display a **Consolidated Console** for all the devices of the same family. From the Navigation Bar, click the device family tab (see [Figure 44](#)) and select from **All Devices**, **DXi Devices**, **DXi 35/55 Devices**, **Scalar Devices**, **vmPRO Devices**, or **Scalar LTFs Devices**.

To view the **Device Console** for a device, double-click the device on the **Devices** console or the **Consolidated Console**.

The Devices Console

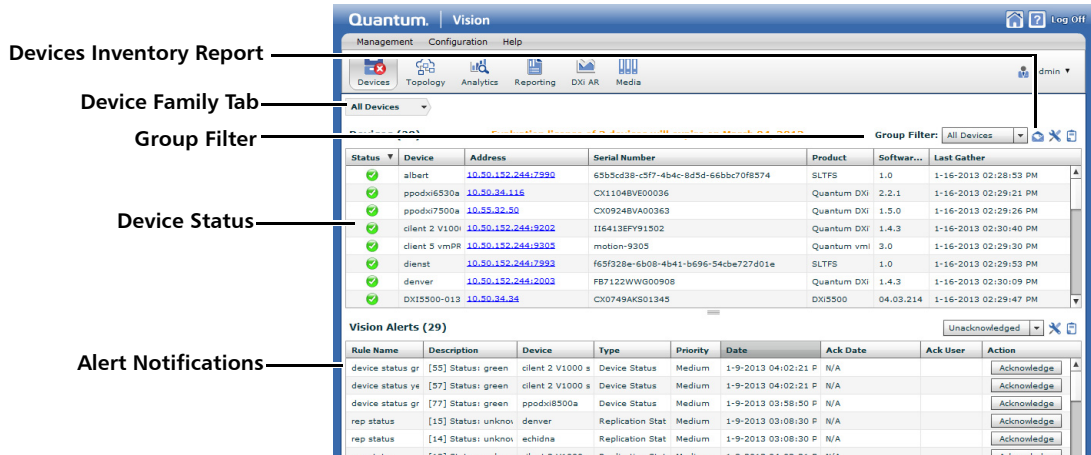
The **Devices** console (see [Figure 44](#)) displays all monitored Quantum devices: DXi, Scalar, Scalar LTFs, or vmPRO systems. Use the **Devices** console to view the overall health of all monitored Quantum devices, get detailed status information for a single device, or schedule a devices inventory report to be e-mailed to you. You can also view and acknowledge alert notifications for devices.

To access the **Devices** console, click **Devices** on the Vision toolbar. You can also click the **Home** button at the top of the Vision window.

The **Devices** console includes the following panes:

- [Devices Status](#)
- [Alerts](#)

Figure 44 Devices Console



Devices Status

Select a group in the **Group Filter** list to filter the list of devices that are displayed in the **Devices** status pane. Only those devices assigned to the selected group are displayed. (To assign devices to a group, see [Groups Management](#) on page 34).

The **Devices** status pane displays the following information for each monitored Quantum device:

- **Status** - The status of the device.
- **Device** - The name assigned to the device when it was discovered in Quantum Vision.
- **Address** - The IP address or hostname of the device.

Note: Click the IP address or hostname to launch the native management interface for the device.

- **Serial Number** - The serial number of the device.
- **Product** - The Quantum product model.

- **Software Version** - The software version currently installed on the device.
- **Last Gather** - The last time status data was received from the device.

Note: To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).

Alerts

The **Vision Alerts** pane displays alerts generated for all monitored devices. Alerts are notifications regarding the status of a device. When Quantum Vision detects an error or problem, it generates an alert.

Note: Quantum Vision generates notification for devices based on alert rules. To configure alert rules, see [Alert Management](#) on page 21.

The table displays the **Rule Name**, **Description**, **Device**, **Type**, **Priority**, and **Date** for each alert. It also indicates if the alert was acknowledged, and if so, the date it was acknowledged (**Ack Date**) and by which user (**Ack User**), and the **Action** taken to address the alert.

Use the **Alerts** pane to work with notifications:

- To view notifications by grouping (**Acknowledged**, **Unacknowledged**, or **ALL**), select an option from the drop-down list.
- To view detailed information about a notification, double-click the notification. Click **Close** when you are finished.
- To acknowledge a notification, click the **Acknowledge** button in the **Action** column. You can also double-click the notification, and then click **Acknowledge** in the **Notification Details** dialog box. Click **Close** when you are finished.

Note: To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).

Devices Inventory Report

From the **Devices** console and each consolidated devices console, you can create a schedule to have a report depicting the information for that view e-mailed to designated recipients.

To schedule a Devices Inventory Report, do the following:

- 1 Click the **Devices Inventory Report** button (see [Figure 44](#)). The **Schedule <selected devices console> Devices Inventory Report** dialog box displays.
- 2 On the **Schedule <> Devices Inventory Report** dialog box, make the appropriate entries or selections (see [Figure 45](#)).
 - **Schedule Report Every** - Enter the frequency for which you want a report created, and then select the time interval: **Minutes**, **Hours**, **Days**, or **Months**.
 - **Starting** - Select the date and time on which you want the report to begin.
 - **Output** - Select the output format: **XML**, **CSV**, or **Text**.
 - **Send To Email Recipients** - For each recipient you want to add, click **Add**, and then enter their e-mail address.
- 3 When you have finished creating your report schedule, click **Save**.

Figure 45 Schedule Devices Inventory Report Dialog Box

The screenshot shows a dialog box titled "Schedule All Devices Inventory Report". It features the following elements:

- Frequency:** Radio buttons for "Never" and "Every" (selected). A text input field contains "1" and a dropdown menu is set to "Days".
- Starting:** A date picker shows "04/26/2013", a time picker shows "16:03", and a dropdown menu is set to "3".
- Output:** A dropdown menu is set to "CSV".
- Send to Email Recipients:** A "+ADD" button.
- Email Address:** A text input field containing "brian.szozorek@quantum.com".
- Buttons:** "Save" and "Cancel" buttons at the bottom.

DXi Device Console

Use the DXi **Device Console** to view information about a DXi disk backup system, including component status, disk usage, and alert notifications (see [Figure 46](#) and [Figure 47](#)). You can also launch the native management interface of the device.

To view the **Device Console** for a DXi device, on the **Devices** console, double-click the device.

The **Device Console** includes the following panes:

- [Device](#)
- [Capacity Upgrade Estimate](#)
- [Space Usage](#)
- [Libraries](#) (for DXi3500 and DXi5500 systems)
- [Device Alerts](#)

Note: To change the size of a pane, drag the resize handle on the edge of the pane. If you log off of Vision, the panes are reset to their default sizes after you log on again.

Figure 46 DXi Device Console - DXi System

Status Icon — points to the green checkmark icon in the top left of the device console.

Device Status — points to the text "ppodxi8500a Device Console : Normal".

Space Usage Chart — points to the line graph showing space usage over time.

DXi Tickets — points to the "DXi Tickets (5)" section header.

Alert Notifications — points to the table of tickets below.

| Ticket No. | Device | Priority | Open Date | Summary | Last Update |
|------------|-------------|----------|-----------------------|---|-----------------------|
| 59 | ppodxi8500a | high | 6-15-2013 01:03:01 PM | Replication source : Namespace replication failure | 6-15-2013 01:03:01 PM |
| 58 | ppodxi8500a | high | 6-15-2013 12:01:01 AM | QUANTUM software OS component : System resource warning | 6-15-2013 12:01:01 AM |
| 37 | ppodxi8500a | high | 6-14-2013 11:01:27 PM | DXi8500 : General DXi8500 Software : Operation failure | 6-15-2013 12:01:28 AM |
| 56 | ppodxi8500a | high | 6-9-2013 07:40:14 AM | Replication source : Namespace replication failure | 6-9-2013 07:40:14 AM |

Figure 47 DXi Device Console - DXi 35/55 System

Status Icon — points to the yellow warning icon in the top left of the device console.

Device Status — points to the text "kopros-dxi5500 Device Console : Warning".

Usage Map — points to the "Total System Capacity (20187.03 GB)" section.

Device Libraries — points to the "Libraries" table.

Alert Notifications — points to the "Vision Alerts" section.

| Status | Name | Host Name | IP Address | Capacity | Partition |
|--------|--------------|-----------|---------------|------------|--------------|
| ✓ | V12 | Kopros | 10.20.163.174 | 6729.00 GB | V12 |
| ✓ | test_kateryn | Kopros | 10.20.163.174 | 6729.00 GB | test_kateryn |
| ✓ | temp | Kopros | 10.20.163.174 | 6729.00 GB | temp |

Device

Use the **Device** pane to view status information for components within a DXi system.

- Click the arrow next to a component to show or hide a list of sub-components.
- Double-click a sub-component to view detailed information. On the **Details** dialog box, use the **Selected Item** list to view a different sub-component. Click **Close** when you are finished.

Status Icon

See [Vision and Device Status Icons](#) on page 80.

Monitored Components

For DXi systems, the **Device Status** pane displays status information for the following monitored components:

Note: The monitored components depend on the DXi system configuration. Not all components are present in all DXi configurations, and the DXi V-Series virtual appliances are software-only systems; hence, they have no physical components such as fans and batteries.

- **Device** - Displays the overall DXi system status as well as system information such as name, IP address/hostname, model, model number, vendor, serial number, uptime, revision, software version, and time of last gather.

Note: Click the IP address/hostname to launch the native management interface for the DXi system.

- **Total Capacity** - A usage bar graph displays the **Total Capacity** above the usage bar, and the bar itself shows **Used** (blue) and **Available** (light gray) disk space represented by proportionally sized blocks. Disk space for **Used**, **Dedupe**, **Non Dedupe**, **System Metadata**, **Available** space, and the **Total Reduction Ratio** are also displayed in text below the graph.

Note: On DXi systems that predate version 2.3, **Used + Free** might be greater than **Capacity**. (Reclaimable space was being counted in both categories: **Used** and **Free**.) In DXi versions 2.3 and newer, reclaimable space is only being included in **Free**; thus, all reported numbers and sums are now correct.

- **Accent** - Displays the total bandwidth savings achieved when Accent is enabled.

Note: Accent information is displayed only when Accent is configured on the DXi.

- **Drives** - Displays disk drives.
- **Ports** - Displays Fibre Channel and Ethernet ports.
- **Sensors** - Displays voltage, temperature, and IPMI sensors.
- **Switches** - Displays Ethernet and Fibre Channel switches.
- **VTL Partitions** - Displays configured virtual tape library (VTL) partitions.
- **PTT Devices** - Displays attached libraries and drives configured for path-to-tape.
- **NAS Shares** - Displays configured network attached storage (NAS) shares.
- **Adapters** - Displays installed hardware compression cards, Fibre Channel controllers, and network interface cards (NICs).
- **Fans** - Displays cooling fans.
- **Batteries** - Displays RAID controller backup batteries.
- **Power Supplies** - Displays power supplies.
- **Licenses** - Displays installed feature licenses.

Space Usage

For DXi V-Series virtual appliances, DXi2500-D, DXi4500, DXi4600, DXi4701, DXi6500, DXi6700, DXi6802, DXi7500, and DXi8500 systems, the **Space Usage** pane displays up to 12 months of data history for the selected DXi. This graph displays the following capacity data: **Disk Usage** (blue), **Data Protected** (light blue), and **Total Capacity** (green).

Note: Maximum values are used for the before and after reduction rates, and a maximum of 12 months of data can be displayed.

Capacity Upgrade Estimate

Vision can calculate an estimate (called the capacity upgrade estimate) of when the current capacity is consumed. The capacity upgrade estimate is a calculation that evaluates compound growth between your starting point and your ending point. The capacity upgrade estimate displays for the number of weeks until a capacity upgrade might be needed. The following information will help you obtain the most reliable capacity upgrade estimate:

- For its most appropriate use, you should identify a time period of capacity consumption that reflects only annual growth. If you elect to include that period of time when you are first populating your DXi, then the compound growth will seem aggressive and your capacity upgrade estimate will be low. If you identify a time period after that initial DXi loading, when you have a backup expiring for each new backup stored, and the increase in capacity reflects annual growth of your data, then you have isolated what is referred to as a *steady state* time period. Steady state time periods will yield the most reliable capacity upgrade estimates.
- The capacity upgrade estimate cannot be run if the starting point is higher than the end point. By definition, this is a decline in capacity consumption. Since it is unknown how long such a decline will continue, it is impossible to estimate when a capacity upgrade may be required.
- The capacity upgrade estimate will not be calculated if the **After Reduction** value is beyond the point for which capacity is considered *full* for that DXi. If the DXi is in the *full zone*, then you are already in need of a capacity upgrade.
- The capacity upgrade estimate will not be run if there are fewer than 5 data points (5 weeks of DART After Reduction data); 5 data points are not enough data for a confident capacity upgrade estimate. The following will help you understand when reliable capacity upgrade estimates can be calculated:
 - The capacity upgrade estimate uses the maximum **After Reduction** value for each week between starting point and end point. Weeks are constructed from right-to-left and are defined

to be 7-day increments starting at the right and moving to the left. The right-most point will always be the most recent week of After Reduction information available. If your starting date falls on a day that is not an exact multiple of 7 days, that is acceptable; it will be used in the calculation.

- The capacity upgrade estimate calculation looks at the compound growth rate from your starting point to each of the weekly points from left to right. It uses that growth rate to estimate the number of weeks before a capacity upgrade is required. Less desirable starting points would be in the time range when the DXi is first being populated with backup data. The growth rate from that time range would be exaggerated and yield a shorter time estimate before capacity upgrade is required. A more desirable starting point would be when steady-state retention of backups has been achieved and capacity consumed by future backups is offset by expiration and space reclamation of older backups. In this latter case, growth in DART After Reduction would reflect annual growth and would be more suited for estimating when capacity expansion should occur.
- Different types of growth rates can affect your capacity upgrade estimate.
 - Annual growth of the data backed up: for example, you will have 10% more e-mail data to backup in 12 months
 - Growth related to initial DXi startup period: for example, the backups need to be retained for 30 days. For the first month it will appear that the data is growing rapidly. The apparent rapid growth is due to the fact that no data is being deleted.
 - Growth related to adding new data sources: for example, the initial backup group for e-mail is at steady state and achieving good deduplication. A new backup group of database data is sent to the DXi; you will see growth similar to the growth seen during your DXi's initial startup period. This will continue until the new data backups begin to be expired and the new group of database data reaches its *steady state*.

Note: A Galaxy 1.x version DXi is considered to be full when it has reached 80% of its capacity; a Galaxy 2.x version DXi is considered to be full when it has reached 90% of its capacity.

To calculate and graph the capacity upgrade estimate:

- 1 On the **Space Usage** pane, select to display either **Total Capacity TB** or **Data Protected** data, as needed.
- 2 Under **Time Estimate for Capacity Upgrade**, click the calendar button to select a **Start Date**. For the best results, use a **Start Date** that reflects a steady state. Once the **Start Date** is selected, the capacity upgrade estimate graph is plotted, and the capacity upgrade estimate textual information is displayed under the **Start Date** (see [Figure 48](#)).

Move the cursor over various sections of the graph to see the estimated number of weeks until a capacity upgrade might be needed.

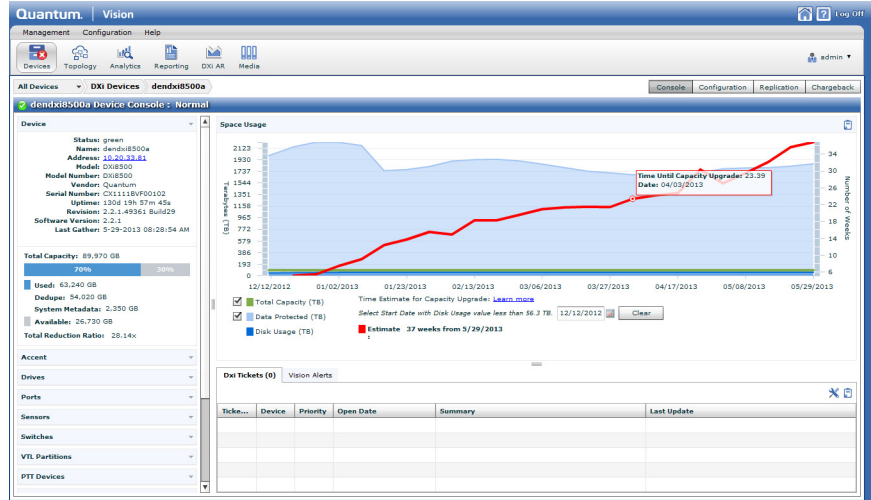
The red line is the key to Capacity Upgrade Estimator. It shows the history and trends of the weeks until an upgrade is needed. You can derive the following information from the graph and the red line:

- The intersection of the red line and the right axis, **Number of Weeks**, shows the current (today's) estimate as to when you should upgrade.
- Each point on the line shows an historical estimate. The points are not prominent; however, since a straight line estimate between points is calculated, the *hinges* in the line indicate the relationship between the current estimate and prior (historical) estimates.
- The following information regarding *trends* is presented:
 - If the slope of the line is positive (sloping up, left to right), it means that for that period of time the amount of data being stored on the DXi is low enough that the time frame to buy more capacity is increasing. The total amount of data stored may be positive in this case, just increasing slowly enough that the prior estimate is higher than the current estimate.
 - If the slope of the line is flat or decreasing, it means the current estimate is equal or lower than the prior estimate. A steady progression of these is normal and indicates a DXi that is in a *steady state*, that is, any net increase in data stored is the result of natural data growth and not growth caused by adding new backup sources where reclamation policies have not yet reached their maximum retention period.

- A mix of several positive and negative sloped lines throughout a period could be the result of several factors:
 - New data sources being added
 - Interruptions in reclamation policies
 - Interruption or introduction of new replications into a target
 - Changes in retention policies (e.g. indefinite legal holds or reduction in the number of daily, weekly, or monthly backups required)
- Comparison to capacity and after reduction trends

Note: It could take up to 1 week to collect 12 months worth of data for existing DXi installations before data will be displayed in this graph.

Figure 48 DXi Device Console - Capacity Upgrade Estimate



Note: To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).

Recommended Actions for low Capacity Usage

When the capacity upgrade estimate shows that you are approaching the point at which you will exceed your capacity, the following recommendations can help extend the time you have before a capacity upgrade is required:

- Run Reclamation more often (weekly at minimum).
- Reduce excess scratch tapes (percentage of scratch tapes should not be much greater than anticipated year over year growth rate).
- Re-label scratch tapes using your backup application and run DXi reclamation to free up space.
- Reduce the number of NameSpace snapshot versions retained, if applicable.
- Shorten retention policies, if appropriate.
- Make sure compressed, encrypted, and multiplexed jobs are not being sent to the DXi.
- Verify that the size of your cartridges are not too big. The cartridge size should be the size of your average backup job.
- If your DXi's software version pre-dates 2.2, and you are running Trigger Based Replication, run Replication Synchronizations weekly or after a known network disruption.
- For a full customized assessment to get specific recommendations, request a HealthCheck assessment through your account team.

Libraries

The **Libraries** pane displays on the **Device Console** for DXi3500 and DXi5500 systems. It displays information about all virtual tape libraries (VTLs) configured on the DXi. The table displays the **Status**, **Name**, **Host Name**, **IP Address**, **Capacity**, and **Partition** for each VTL.

Device Alerts

The Device Alerts pane displays information about **DXi Tickets** and **Vision Alerts**. Click the appropriate tab to display the information you want to see.

The **DXi Tickets** tab displays on the **Device Console** for DXi V-Series virtual appliances, DXi2500-D, DXi4500, DXi4600, DXi4701, DXi6500, DXi6700, DXi6802, DXi7500, and DXi8500 systems running software

version 1.4 or higher. It displays information about all service tickets on selected DXi devices. The table displays the following (configurable, see [Configuring Columns](#) on page 19) information about the ticket: **Ticket #, Device, Priority, Open Date, Summary, Last Update, Open, and Requested** for each ticket.

The **Vision Alerts** tab displays alerts generated for the selected DXi device. Alerts are notifications regarding the status of the DXi system. When Quantum Vision detects an error or problem, it generates an alert.

Note: Quantum Vision generates notification for devices based on alert rules. To configure alert rules, see [Alert Management](#) on page 21.

To use this table, see [Alerts](#) on page 82.

Note: To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).

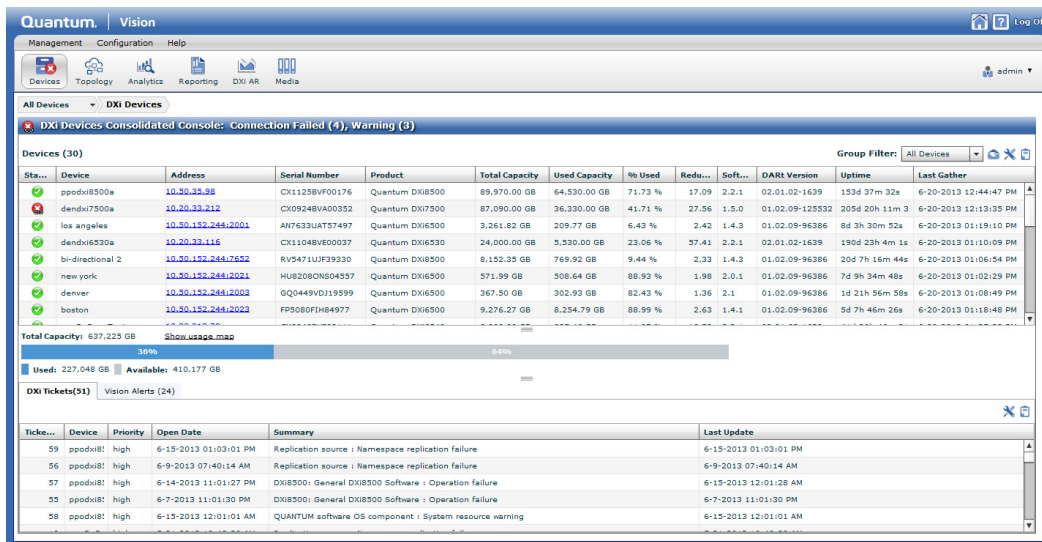
DXi Devices Consolidated Console

You can access the **DXi Devices Consolidated Console** by selecting **DXi Devices** from the **All Devices** drop-down list (see [Figure 49](#)). The **DXi Consolidated Console** presents the following (configurable, see [Configuring Columns](#) on page 19) information about the DXis that are displayed: **Status, Device (name), Address, Serial Number, Product, Total Capacity, Used Capacity, % Used, Reduction Ratio, Software Version, DART Version, Uptime, and Last Gather**.

A usage bar graph that displays the **Total Capacity** above the usage bar, and the bar itself shows **Used** (blue) and **Available** (light gray) disk space represented by proportionally sized blocks (depicting % usage). The disk space for **Used** and **Available** is also show in numeric terms at the bottom of the bar graph. Click the **Show usage map** link to see the usage information displayed in visual terms.

The Device Alerts pane, which displays information about **DXi Tickets** and **Vision Alerts**, is also displayed.

Figure 49 DXi Devices
Consolidated Console



There is also a consolidated console for DXi 35/55 devices. This consolidated console is accessed in the same fashion as the **DXi Devices Consolidated Console**. The **DXi 35/55 Consolidated Console** presents the following (configurable, see [Configuring Columns](#) on page 19) information about the DXi 35/55s that are displayed: **Status**, **Device** (name), **Address**, **Serial Number**, **Model**, **Total Capacity**, **Used Capacity**, **Software Version**, **DART Version**, and **Last Gather**. The **Device Alerts** pane, which displays information about **Vision Alerts**, is also displayed.

Note: The default consolidated console view displays all devices for the selected family; however, this view can be filtered.

Scalar Device Console

Use the Scalar **Device Console** (see [Figure 50](#)) to view information about a Scalar tape library, including component status, capacity usage, tickets, and alert notifications. You can also launch the native management interface of the device.

To view the **Device Console** for a Scalar device, use one of the following methods:

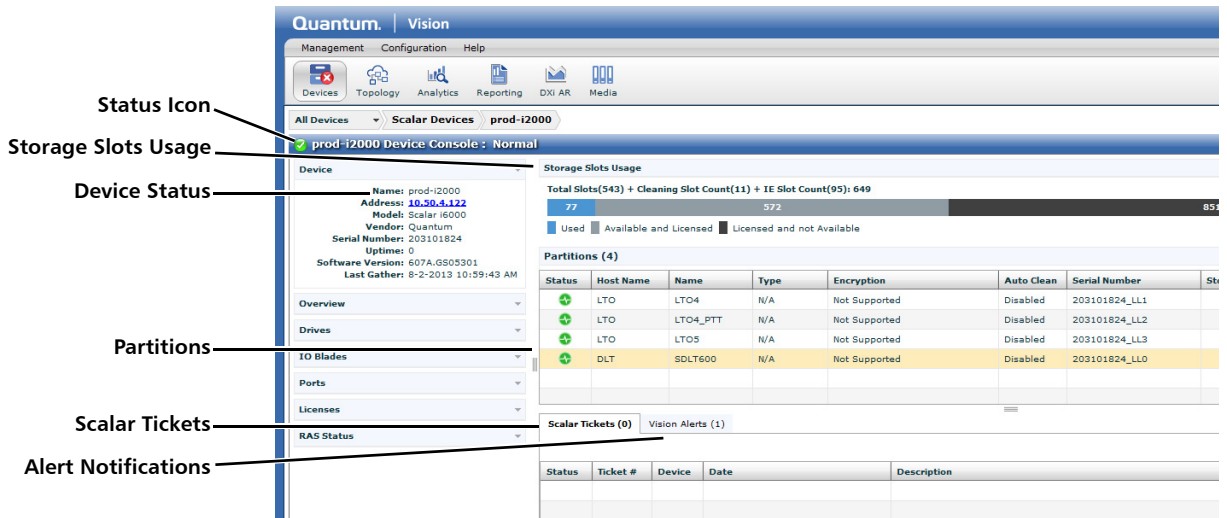
- Click the **Devices** icon on the Vision toolbar, and then double-click the device.
- Click the **Home** icon at the top right of the Vision window, and then double-click the device.

The **Device Console** includes the following panes:

- [Device](#)
- [Storage Slots Usage](#)
- [Partitions](#)
- [Device Alerts](#)

Note: To change the size of a pane, drag the resize handle on the edge of the pane. If you log off of Vision, the panes are reset to their default sizes after you log on again.

Figure 50 Scalar Device Console



Device

Use the **Device** pane to view status information for components within a Scalar tape library.

- Click the arrow next to a component to show or hide a list of sub-components.
- Double-click a sub-component to view detailed information. On the **Details** dialog box, use the **Selected Item** list to view a different sub-component. Click **Close** when you are finished.

Status Icon

See [Vision and Device Status Icons](#) on page 80.

Monitored Components

For Scalar systems, the **Device Status** pane displays status information for the following monitored components:

Note: The monitored components depend on the Scalar tape library configuration. Not all components are present in all library configurations.

- **Device** - Displays system information such as name, IP address, model, vendor, serial number, uptime, software version, and time of last gather.

Note: Click the IP address to launch the native management interface for the Scalar tape library.

- **Overview** - Displays library information such as the total number of slots, licensed slots, I/E slots, drives, media, blades, and cleaning slots and cleaning media.
- **Drives** - Displays tape drives installed in the library.
- **IO Blades** - Displays I/O blades installed in the library.
- **Ports** - Displays Fibre Channel ports.
- **Licenses** - Displays licensed features.
- **RAS Status** - Displays status information for library subsystems, such as drives, media, power, cooling, control, connectivity, and robotics. Double-click an RAS status item to see the **RAS Status Details** dialog box for that item.

Note: The RAS status subsystems depend on the Scalar tape library model. Not all subsystems are present in all library models.

Storage Slots Usage

The **Storage Slots Usage** pane displays information about storage slot usage in the library. **Used** (blue), **Available and Licensed** (gray), **Available and not Licensed** – physical slots for which there is no license – (lt. gray), and **Licensed and not Available** (dark gray) storage slots are represented on the bar graph by proportionally sized blocks. Use the graph to see how storage capacity is currently allocated on the library.

If the number of physical slots equals the number of licensed slots, neither **Licensed and not Available** nor **Available and not Licensed** displays.

If the number of physical slots is less than the number of licensed slots, **Licensed and not Available** displays.

If the number of physical slots is greater than the number licensed slots, **Available and not Licensed** displays.

Partitions

The **Partitions** pane displays all configured partitions in the library. The table displays the **Status, Host Name, Name, Type, Encryption** status, **Auto Clean** status, **Serial Number**, number of **Storage Slots, Drives, IE Slots**, and **Media** in the partition.

Device Alerts

The Device Alerts pane displays information about **Scalar Tickets** and **Vision Alerts**. Click the appropriate tab to display the information you want to see.

The **Scalar Tickets** tab displays the current tickets generated by the library. The table displays the following (configurable, see [Configuring Columns](#) on page 19) information about the ticket: **Status, Host Name, Name, Type, Encryption, Auto Clean, Serial Number, Storage Slots, Drives, IE Slots**, and **Media** for each ticket.

The **Vision Alerts** tab displays alerts generated for the selected Scalar device. Alerts are notifications regarding the status of a Scalar tape library. When Quantum Vision detects an error or problem, it generates an alert.

Note: Quantum Vision generates notification for devices based on alert rules. To configure alert rules, see [Alert Management](#) on page 21.

To use this table, see [Alerts](#) on page 82.

Note: To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).

Scalar Consolidated Console

You can access the **Scalar Consolidated Console** by selecting **Scalar Devices** from the **All Devices** drop-down list. The **Scalar Consolidated Console** presents the following (configurable, see [Configuring Columns](#)

on page 19) information about the Scalar devices that are displayed: **Status, Device, Address, Serial Number, Product, Robotics Model, Storage Slots, COD Licensed Slots, Drives, Media, Partitions, Uptime, and Last Gather.**

The Device Alerts pane, which displays information about **Scalar Tickets** and **Vision Alerts**, is also displayed.

Note: The default consolidated console view displays all devices for the selected family; however, this view can be filtered.

Scalar LTFS Device Console

Use the Scalar LTFS **Device Console** (see [Figure 51](#)) to view information about a Scalar Linear Tape File System, including component status, information about the partitions, and alert notifications. You can also launch the native management interface of the device.

To view the **Device Console** for a Scalar LTFS device, use one of the following methods:

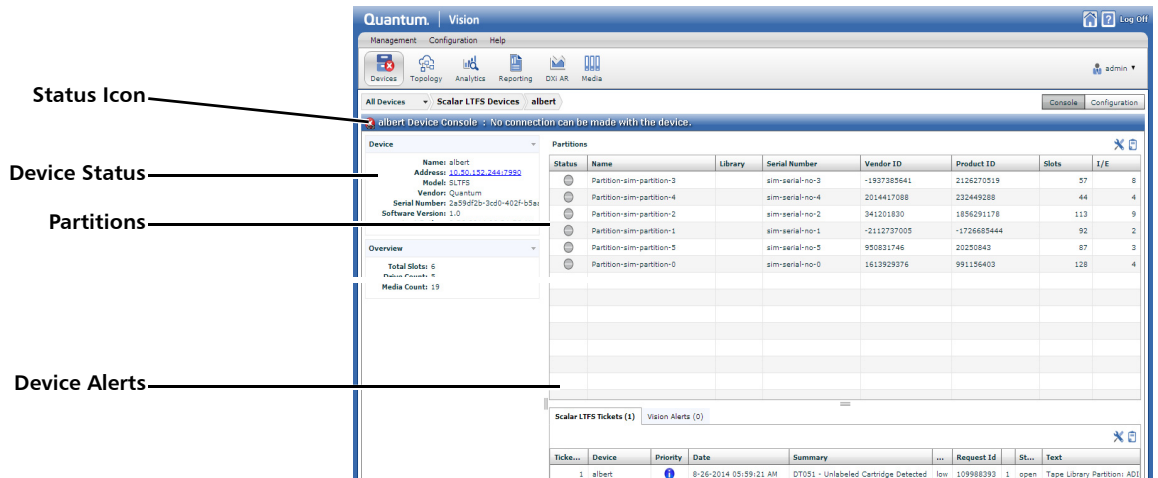
- Click the **Devices** icon on the Vision toolbar, and then double-click the device.
- Click the **Home** icon at the top right of the Vision window, and then double-click the device.

The **Device Console** includes the following panes:

- [Device](#)
- [Partitions](#)
- [Device Alerts](#)

Note: To change the size of a pane, drag the resize handle on the edge of the pane. If you log off of Vision, the panes are reset to their default sizes after you log on again.

Figure 51 Scalar Linear Tape
File System Device Console



Device

Use the **Device** pane to view status information for components within a Scalar LTFs device.

- Click the arrow next to a component to show or hide a list of sub-components.
- Double-click a sub-component to view detailed information. On the **Details** dialog box, use the **Selected Item** list to view a different sub-component. Click **Close** when you are finished.

Status Icon

See [Vision and Device Status Icons](#) on page 80.

Monitored Components

For Scalar LTFs devices, the **Device Status** pane displays status information for the following monitored components:

- **Device** - Displays system information such as name, IP address, model, vendor, serial number, software version, and time of the last gather.

Note: Click the IP address to launch the native management interface for the Scalar LTFS device.

- **Overview** - Displays system information such as the total number of slots, drive count, and media count.

Partitions

The **Partitions** pane displays all configured partitions in the device. The table displays the **Status, Name, Library, Serial Number, Vendor ID, Product ID, Slots,** and **I/E** for each partition.

Device Alerts

The Device Alerts pane displays information about **SLTFS Tickets** and **Vision Alerts**. Click the appropriate tab to display the information you want to see.

The **SLTFS Tickets** tab displays the current tickets generated by the device. The table displays the following (configurable, see [Configuring Columns](#) on page 19) information about the ticket: **Ticket number, Device, Priority, Date, Summary, Alert Text, Request Id, Status Type, Status Text, Text,** and **Time** for each ticket.

The **Vision Alerts** tab displays alerts generated for the selected Scalar LTFS device. Alerts are notifications regarding the status of a Scalar LTFS device. When Quantum Vision detects an error or problem, it generates an alert.

Note: Quantum Vision generates notification for devices based on alert rules. To configure alert rules, see [Alert Management](#) on page 21.

To use this table, see [Alerts](#) on page 82.

Note: To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).

Scalar LTFS Consolidated Console

You can access the **Scalar LTFS Consolidated Console** by selecting **Scalar LTFS Devices** from the **All Devices** drop-down list. The **Scalar LTFS Consolidated Console** presents the following (configurable, see [Configuring Columns](#) on page 19) information about the Scalar LTFS devices that are displayed: **Status, Device, Address, Serial Number, Slots, Drives, Media, and Partitions.**

The Device Alerts pane, which displays information about **SLTFS Tickets** and **Vision Alerts**, is also displayed.

Note: The default consolidated console view displays all devices for the selected family; however, this view can be filtered.

vmPRO Device Console

Use the **vmPRO Device Console** to view information about a vmPRO virtual backup system, including device status, virtual machines (VMs) data, and alert notifications (see [Figure 52](#)). You can also launch the native management interface of the device.

To view the Device Console for a vmPRO device, use one of the following methods:

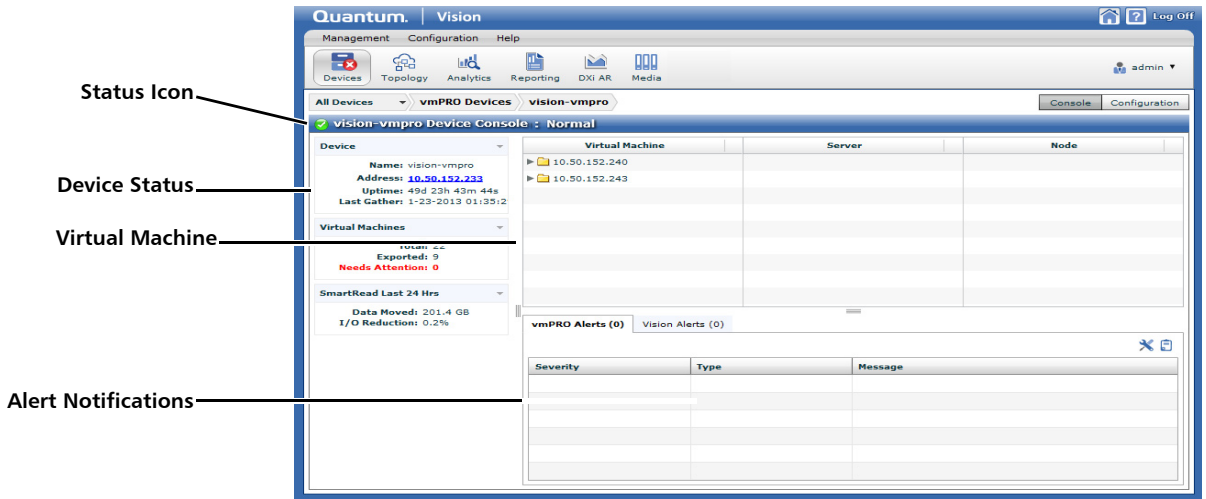
- Click the Devices icon on the Vision toolbar, and then double-click the device.
- Click the Home icon at the top right of the Vision window, and then double-click the device.

The **Device Console** includes the following panes:

- [Device](#)
- [Virtual Machine](#)
- [Device Alerts](#)

Note: To change the size of a pane, drag the resize handle on the edge of the pane. If you log off Vision, the panes are reset to their default sizes when you log on again.

Figure 52 vmPRO Device Console - DXi System



Device

Use the **Device** pane to view status information for components within a vmPRO device.

- Click the arrow next to a component to show or hide a list of sub-components.
- Double-click a sub-component to view detailed information. On the **Details** dialog box, use the **Selected Item** list to view a different sub-component. Click **Close** when you are finished.

Status Icon

See [Vision and Device Status Icons](#) on page 80.

Monitored Components

For vmPRO devices, the **Device** pane displays status information for the following monitored components:

- **Device** - Displays the overall status, as well as system information such as name, IP address, uptime, and time of the last gather.

Note: Click the IP address to launch the native management interface for the vmPRO device.

- **Virtual Machines** - Displays summary information about the physical and virtual machines that are being backed up by the vmPRO device, such as the total number of VMs, number of machines (physical and virtual) that have been exported, and the number of machines that need attention.
- **SmartRead Last 24 Hrs** - (vmPRO 3.0 and later) Displays SmartRead information that was collected for the past 24 hours such as data moved and I/O reduction.

Virtual Machine

The Virtual Machine pane displays a list of the hypervisors, which are the host systems where the VMs being backed up by vmPRO reside. Click the arrow next to the hypervisor to see the VMs that have been configured on the hypervisor. For each VM, its name, **Server**, and **Node** are listed.

Device Alerts

The Device Alerts pane displays information about **vmPRO Alerts** and **Vision Alerts**. Click the appropriate tab to display the information you want to see.

The **vmPRO Alerts** tab displays vmPRO alerts for the selected vmPRO device. The table displays the following (configurable, see [Configuring Columns](#) on page 19) information about the alert: the **Severity**, **Device**, **Type**, **Message**, **Cleared By**, **Cleared Time**, **HV Host**, **V Host**, **Managed Alert**, **Node**, **Node UUID**, **Object Id**, and **Posted** for each alert.

The **Vision Alerts** tab displays alerts generated for the selected vmPRO device. Alerts are notifications regarding the status of the vmPRO system. When Quantum Vision detects an error or problem, it generates an alert.

Note: Quantum Vision generates notification for devices based on alert rules. To configure alert rules, see [Alert Management](#) on page 21.

To use this table, see [Alerts](#) on page 82.

Note: To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).

vmPRO Consolidated Console

You can access the **vmPRO Consolidated Console** by selecting **vmPRO Devices** from the **All Devices** drop-down list. The **vmPRO Consolidated Console** presents the following (configurable, see [Configuring Columns](#) on page 19) information about the vmPRO appliances that are displayed: **Status**, **Device**, **Address**, **Serial Number**, **Product**, **VMs**, **Software Version**, **Uptime**, **Last Gather**, and **Software Update**.

The Device Alerts pane, which displays information about **vmPRO Alerts** and **Vision Alerts**, is also displayed.

Note: The default consolidated console view displays all devices for the selected family; however, this view can be filtered.

vmPRO Software Updates

The **Software Update** column on **vmPRO Consolidated Console** shows which vmPRO appliances have an available software update (see [Figure 53](#)).

Note: The **vmPRO Software Update** feature is only available for vmPRO versions 3.1 and newer.

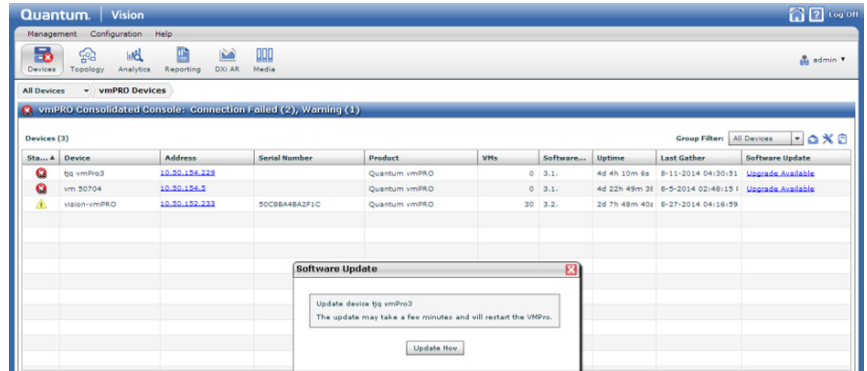
Figure 53 vmPRO Software Update Available

The screenshot shows the Quantum Vision interface. At the top, there are navigation tabs for Management, Configuration, and Help. Below that are icons for Devices, Topology, Analytics, Reporting, DIX AR, and Media. The main content area is titled 'All Devices' and 'vmPRO Devices'. A status bar indicates 'vmPRO Consolidated Console: Connection Failed (2), Warning (1)'. Below this is a table with the following columns: Status, Device, Address, Serial Number, Product, VMs, Software..., Uptime, Last Gather, and Software Update. The table contains three rows of data:

| Status | Device | Address | Serial Number | Product | VMs | Software... | Uptime | Last Gather | Software Update |
|--------|--------------|---------------|---------------|---------------|-----|-------------|---------------|---------------------|-----------------------------------|
| 🔴 | lga-vmPro3 | 10.50.154.223 | | Quantum vmPRO | 0 | 3.1. | 46 4h 10m 6s | 8-11-2014 04:30:51 | Upgrade Available |
| 🔴 | vm-50754 | 10.50.154.3 | | Quantum vmPRO | 0 | 3.1. | 46 22h 49m 3s | 8-9-2014 00:48:15.1 | Upgrade Available |
| 🟡 | vision-vmPRO | 10.50.152.232 | S0CB8A4B2F1C | Quantum vmPRO | 30 | 3.2. | 2d 7h 25m 23s | 8-27-2014 03:53:42 | |

To apply the vmPRO's software update, click the **Update Available** link, and then click **Update Now** (see [Figure 54](#)).

Figure 54 Apply vmPRO Software Update



When the upgrade has finished, the message in the **Software Update** column will change to **Upgrade has finished**.

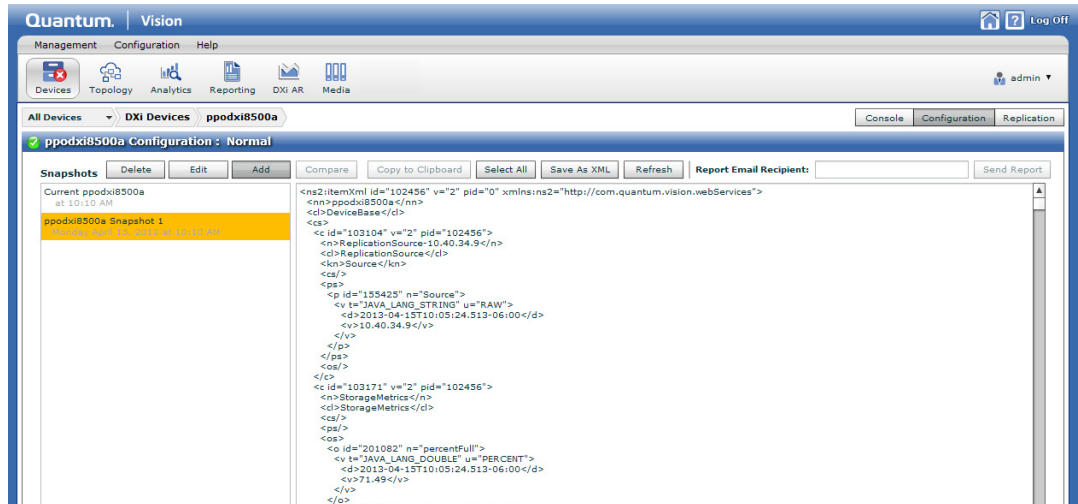
Configuration

Use the **Configuration** tab to view the configuration XML for all device types. The configuration XML contains information about how the settings for a device are currently configured. You can copy the configuration XML or send it to Quantum support to assist in troubleshooting. In addition, you can save the current XML configuration as a snapshot for later reference.

To view or save the configuration XML for a device:

- 1 Access the **Devices** console using one of the following methods:
 - Click the **Devices** icon on the Vision toolbar, and then double-click the device.
 - Click the **Home** icon at the top right of the Vision window, and then double-click the device.
- 2 Click the **Configuration** tab (see [Figure 55](#)).

Figure 55 Device
Configuration XML Tab



- 3 In the **Snapshots** list, double-click the snapshot that you want to view. (To see the current configuration XML, double-click the current snapshot at the top of the list.)
- 4 Do one or more of the following actions:
 - To copy the configuration XML to the clipboard, click **Select All**, and then click **Copy to Clipboard**.
 - To save the configuration XML to an XML format file, click **Save As XML**. Select a location to save the file, type a name for the file, and then click **Save**.
 - To update the configuration XML display, click **Refresh**.
 - To send a copy of the configuration XML in an e-mail, enter the e-mail address of the recipient in the **Report Email Recipient** box, and then click **Send Report**.
 - To add, edit, delete, or compare snapshots, see [Working With Snapshots](#) on page 108.

Working With Snapshots

The current configuration XML for a device can be saved as a snapshot. A snapshot contains a record of the configuration XML for the device as it was at the time the snapshot was saved. Use the compare feature to see the differences (if any) between two snapshots.

To work with snapshots, do one or more of the following actions:

- To save the current configuration XML as a snapshot, click **Add**.
Type a name for the snapshot and click **Yes**. The snapshot is added to the **Snapshots** list.
- To edit the name of the selected snapshot, click **Edit**.
Type a new name for the snapshot and click **Yes**. The snapshot is updated in the **Snapshots** list.
- To delete the selected snapshot, click **Delete**.
Click **Yes** to confirm the deletion. The snapshot is removed from the **Snapshots** list.
- To compare two snapshots:
 - 1 In the **Snapshots** list, click a snapshot to select it.
 - 2 While holding down the **<Ctrl>** (Windows, Linux) or **<Command>** key (Mac), click the snapshot to compare with the first snapshot you selected.
 - 3 Click **Compare**.
Any differences in the configuration XML display in the right pane.
 - 4 Expand the **Add**, **Changes**, and **Removes** folders in the tree to view details about the differences in the configuration XML.

Replication

Use the **Replication** tab on the DXi **Device Console** to display replication reports for a DXi device.

Note: You can display replication reports only for DXi V-Series virtual appliances, DXi2500-D, DXi4500, DXi4701, DXi6500, DXi6700, DXi6802, DXi7500, and DXi8500 devices.

To display replication reports:

- 1 Access the **Devices** console using one of the following methods:
 - Click the **Devices** icon on the Vision toolbar, and then double-click the device.
 - Click the **Home** icon at the top right of the Vision window, and then double-click the device.
- 2 Click the **Replication** tab (see [Figure 56](#)).

Figure 56 Replication Report Tab

| Node T... | Partition or ... | Cartridge barcode or User File Name | Status | Start Time | End Time |
|-----------|------------------|---|------------|--------------------------|--------------------------|
| Share | dennas01 | pancetera-sync/smartmotion.mysqlidump | Replicated | Wed Jan 23 11:00:32 2013 | Wed Jan 23 11:00:36 2013 |
| Share | dennas01 | NA | Replicated | Wed Jan 23 11:00:32 2013 | Wed Jan 23 11:00:36 2013 |
| Share | dennas01 | pancetera-sync/smartmotion.mysqlidump | Replicated | Tue Jan 22 11:00:33 2013 | Tue Jan 22 11:00:45 2013 |
| Share | dennas01 | NA | Replicated | Tue Jan 22 11:00:33 2013 | Tue Jan 22 11:00:45 2013 |
| Share | dennas01 | pancetera-sync/smartmotion.mysqlidump | Replicated | Mon Jan 21 11:00:03 2013 | Mon Jan 21 11:00:17 2013 |
| Share | dennas01 | NA | Replicated | Mon Jan 21 11:00:03 2013 | Mon Jan 21 11:00:17 2013 |
| Share | dennas02 | pancetera-sync/smartmotion.mysqlidump | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |
| Share | dennas02 | pancetera-sync/2012-12/2012-12-18-1800/DI | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |
| Share | dennas02 | pancetera-sync/2012-12/2012-12-18-1800/DI | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |
| Share | dennas02 | pancetera-sync/2012-12/2012-12-18-1800/DI | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |
| Share | dennas02 | pancetera-sync/2012-12/2012-12-18-1800/DI | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |
| Share | dennas02 | pancetera-sync/2012-12/2012-12-18-1800/DI | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |
| Share | dennas02 | pancetera-sync/2012-12/2012-12-19-1800/DI | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |
| Share | dennas02 | pancetera-sync/2012-12/2012-12-19-1800/DI | Replicated | Wed Jan 23 11:00:38 2013 | Wed Jan 23 11:01:29 2013 |

- 3 Do one or more of the following actions:
 - In the list, select the report to display (**Namespace Detail**, **Namespace Summary**, **Source Detail**, **Source Summary**, **Target Detail**, or **Target Summary**).
 - To update the data in the report, click **Update Replication**. Select the report again in the **Replication Report** list to display the updated data.

Note: Updating the report data can take up to 30 minutes.

- To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).
- To specify the number of rows displayed on a page, enter a value in the **Page Size** box and click **Refresh**.
- To navigate between pages, use the controls in the lower right of the report. To navigate to a specific page, enter the page number in the **Page** box and click **Refresh**.

Chargeback

Use the **Chargeback** tab on the **DXi Device Console** to display customer reports based on individual shares, partitions, or OST shares for a DXi device.

When viewing chargeback data, keep the following in mind:

- All reported statistics are for your selected timeframe.
- The numbers are subject to timing. Chargeback is reported by the DXi in one or five minute intervals; hence, the display will always lag by at least one or five minutes. If a replication starts and completes between one 5 minute reporting point and the next 5 minute reporting point, no Ingest data will show up on the graph or legend.
- Changes in rounding and granularity can cause small differences in the values displayed in the GUI, graph summaries, and file outputs. There may also be small differences in graph summary values as the time granularity is changed. This is normal behavior.
- Chargeback is not meant to be used for short time intervals. Because of the way the statistics are estimated, chargeback yields the best results when the time span is greater than 7 days.
- The **t_total** entry of **Per Share** and **Per Partition** Chargeback reports is the same report. It represents the total of all ingest, share and partition.

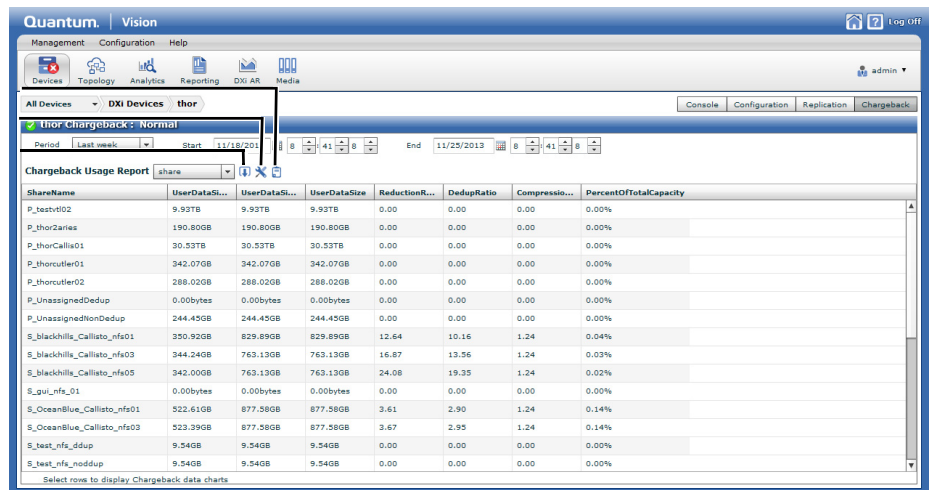
To display the Chargeback Usage Report:

- 1 Access the **Devices** console using one of the following methods:
 - Click the **Devices** icon on the Vision toolbar, and then double-click the device.
 - Click the **Home** icon at the top right of the Vision window, and then double-click the device.
- 2 From the **All Devices** drop-down list, select **DXi Devices**. The **DXi Devices Consolidated Console** displays. Double-click a DXi device that has a software version of 2.3 or greater.
- 3 Click the **Chargeback** tab (see [Figure 57](#)). The Chargeback Usage Report displays. The columns that are displayed are configurable (see [Configuring Columns](#) on page 19).

Note: The Chargeback Usage Report displays all the columns contained in the CSV file except the **Hostname**, **SystemSerialNumber**, and **Start** and **End** times (see [Table 3](#)).

Figure 57 Chargeback Usage Report

Click to export to a file
Click to configure columns
Click to download a file



Before performing any Chargeback Usage Report function:

- 1 Select the time **Period**: **Last week**, **Last Month**, **Last Quarter**, or **Custom**.

If you select **Custom**, use the corresponding calendar and hours, minutes, and seconds time controls to select the **Start** and **End** dates and times for your Chargeback Usage Report.

- 2 Select the **Chargeback Usage Report** type: **share**, **replication** or **partition**.

Note: Selecting a new **Period** or Chargeback Usage Report type will update the report data.

To download a Chargeback Usage Report:

- 1 Click the Download Chargeback icon (file with down arrow), and then select your preferred format: **CSV** or **PDF**.
- 2 Browse to the location where you want to save the file, and then click **Save**.

The downloaded report contains all the information associated with the Chargeback Usage Report (i.e., all columns whether visibly displayed in the chart) along with the **Hostname**, **SystemSerialNumber**, and **Start** and **End** times of the report (see [Table 3](#)).

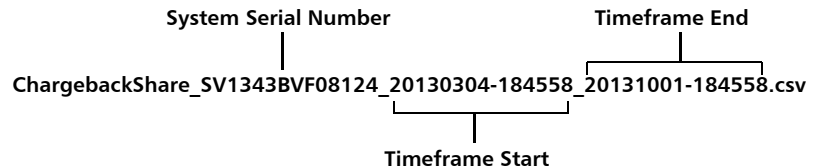
Table 3 Chargeback Usage CSV
Content

| Field | Description |
|--------------------|--|
| Hostname | System hostname. |
| SystemSerialNumber | System Serial Number. |
| Start | The start time of the timeframe selected. |
| End | The end time of the timeframe selected. |
| Name | NAS share or VTL partition names configured in the DXi as shown in the DXi GUI for the ingest csv. Share or partition replicated to the target DXi. Note: An entry with a P_ prefix is a VTL partition; an entry with a S_ prefix is a NAS or OST share. |

| Field | Description |
|----------------------------|---|
| UserDataSize | The amount of user data at the end of the selected timeframe. This is for the share or partition and represents the sum of the file sizes in the share/partition prior to data reduction. For replication target the value also includes the size of the replication copies in the share. |
| UserDataSizeAvg | A calculated value determined by dividing the sum of all observed UserDataSize by the number of observations for the period. |
| UserDataSizeMax | The maximum observation of UserDataSize in the selected timeframe. |
| InputBytes | The size of the data as it arrives at the DXi during the selected timeframe. Note: This is only ingested data and does not take into account deletes. Appears on the share ingest graph. |
| UniqueBytesPreCompression | The total amount of data ingested after deduplication only during the selected timeframe. Note: This is only ingested data and does not take into account deletes. |
| UniqueBytesPostCompression | The total amount of data after total reduction during the selected timeframe. Note: This is only ingested data and does not take into account deletes. |
| ReductionRatio | A calculated value determined by dividing the sum of all observed UserData by the sum of all UniqueBytesPostCompression . |
| DedupRatio | A calculated value determined by dividing the sum of all observed UserData by the sum of all UniqueBytesPreCompression . |
| CompressionRatio | A calculated value determined by dividing ReductionRatio by DedupRatio . |
| OnDisk | The effective disk usage at the end of the selected timeframe. |
| OnDiskAvg | The average data OnDisk during the selected timeframe. |
| PercentOfTotalCapacity | The percent of the total capacity the data OnDisk is using for the selected timeframe. |

The filename is an aggregate of the Chargeback Usage Report type, **SystemSerialNumber** and the **Start** and **End** times of the selected **Period** (see [Figure 58](#)).

Figure 58 Chargeback CSV
Filename



To export a chargeback usage report:

- 1 Click the file export button (small clipboard), and then select the format: **CSV**, **Text**, or **XML**.

Note: The exported report contains only the information that is visibly displayed on the Chargeback Usage Report chart.

- 2 Browse to the location where you want to save the file, and then click **Save**.

The filename is the word **report** and the selected report format is appended as the file extension: example, **report.txt**.

To graph chargeback data:

In the Chargeback Usage Report, select the row you want to graph. Both Ingest and Capacity graphs are displayed for the selected share (see [Figure 59](#) and [Figure 60](#)).

Note: If you change the **Period** of the report, the selected share will remain selected.

- For Ingest:

The graph displays:

InputBytes (dark blue)

UniqueBytesPreCompression (green)

UniqueBytesPostCompression (blue-green).

On a per share basis, the data shown is data ingested prior to reduction or compression (**InputBytes**), data after deduplication

(**UniqueBytesPreCompression**), and data after compression and deduplication (**UniqueBytesPostCompression**).

Ingest totals in the legend of the graphs correspond to the values with the same names in the Chargeback Usage Report.

- For Capacity:

The graph displays **User Data Size: first, last, and delta** (first and last data points, with the delta between them).

The Capacity graph shows the **User Data Size** over each minute of the selected timeframe.

Capacity in the last minute of the graph corresponds to the **UserDataSize** value in the Chargeback Usage Report.

Figure 59 Share Ingest

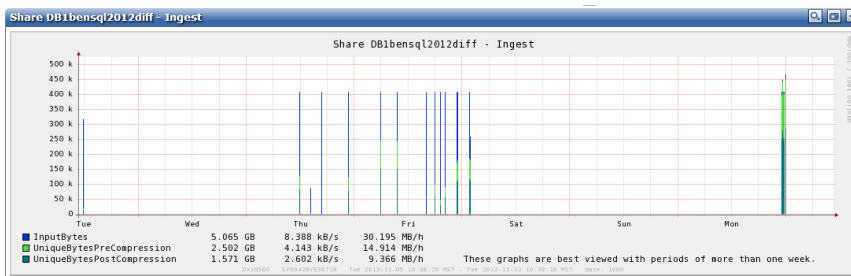
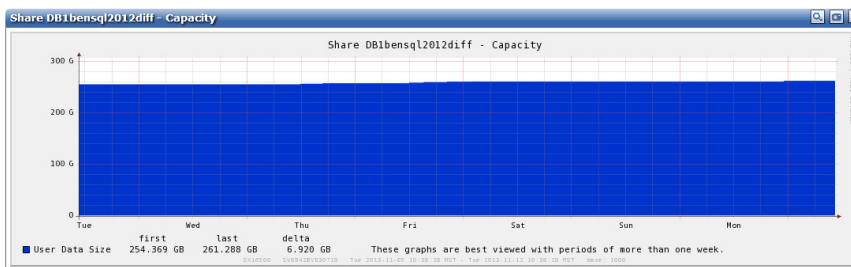


Figure 60 Share Capacity





Chapter 6

Topology

The **Topology** console displays a topology map for all monitored Quantum DXi disk backup systems in your storage environment. The topology map shows a visual representation of the source and target relationships of all DXi systems configured for replication. The map also indicates path to tape (PTT) relationships between DXi systems and Scalar libraries. For discovered libraries, the map shows a visual representation of the relationship between the Scalar LTFS server and the physical libraries for which it provides an LTFS interface. For vmPRO 3.0 and later, relationships between vmPRO and any other DXi is shown when the DXi has been discovered in Vision. Devices, DXi, Scalar, Scalar LTFS, or vmPRO, which do not have any relationships with a discovered device, are known as **Unbound Devices**, and they are shown on the topology display.

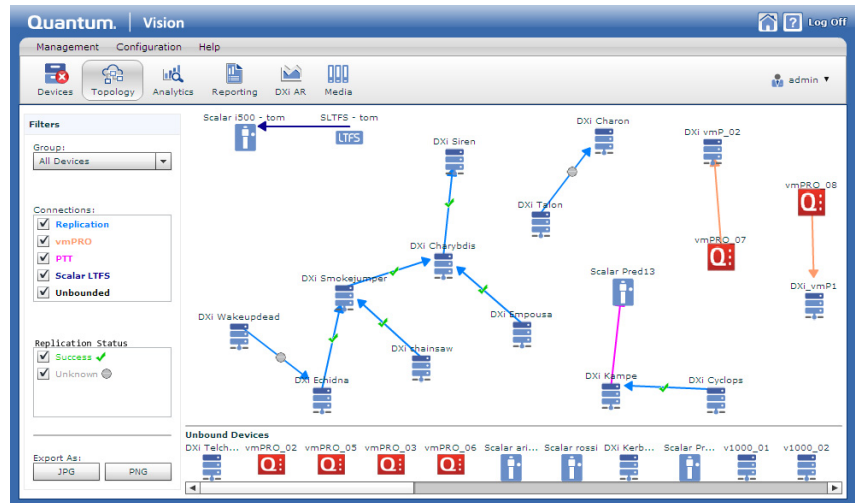
Replication allows multiple source DXi systems to replicate backup data on a target DXi system over an encrypted network connection. For example, DXi6500 systems in several remote offices can replicate their data to a DXi8500 system in a central datacenter. Replication provides enhanced data security and disaster protection.

Path to tape allows you to move data from a DXi to physical tape cartridges in an attached physical tape library using a Network Data Management Protocol (NDMP) connection.

Note: For more information about configuring a DXi system for replication or PTT, refer to the *User's Guide* that came with your DXi product.

To access the **Topology** console, click **Topology** on the Vision toolbar (see [Figure 61](#)).

Figure 61 Topology Console



Use the **Topology** console to view replication sources and targets and PTT relationships:

- Each DXi device that is a replication source or target, each Scalar library configured for PTT, each vmPRO, and each Scalar LTF5 is represented by an icon in the topology.
- To display only the devices in a particular group (to create Groups, see [Groups Management](#) on page 34), select the group in the **Group** drop-down box.
- To display only the devices by connection type, select the appropriate check boxes in the **Connections** pane: **PTT**, **Replication**, **Unbounded**, **vmPRO**, and **Scalar LTF5**. (**Connections** check boxes display only when Vision finds connections of that type.)
- To display only the devices by replication **Status** type, select the appropriate check boxes in the **Status** pane: **Success**, **Unknown**, or **Failure**. (**Status** check boxes display only when that status exists.)
- The topology displays the name of each device. Click a device to see the product model, the device's serial number, the amount

of available disk space on the device, and a link (**Go to Device Console**) to access the device's management console.

Note: Free disk space is disk space that is not allocated. Available disk space is Free + Reclaimable (space that is allocated but can be reclaimed once Space Reclamation has been run on the DXi.)

- A blue line connecting two DXi devices indicates that the corresponding DXi systems are configured for source-target replication. Click a device to see additional replication information:
 - Arrows on the line indicate the direction of replication from source systems to target systems.
 - The color of the status mark on the line indicates the status of the most recent replication job: success (green) or failure (red). Click the status mark for more information and for a link (**Go to Replication Report**) to display the most recent replication report.
- A magenta line connecting a DXi device and a Scalar library indicates that the corresponding devices are configured for path to tape (PTT). Click the status mark on the line to see PTT information.
- Click the Scalar library icon to see the product model, device's serial number, number of **Slots**, **Drives**, **Media**, and **Partitions** that reside on the device.
- DXi devices that are not configured to replicate to another currently displayed device, as well as Scalar libraries that are not configured for PTT with a currently displayed device, display in the **Unbound Devices** pane. Click an unbound device to see information unique to that device.
- Click a Scalar LTFS device to see information about the slot fill rate for the LTFS partitions.
- To export the topology as a graphic file for use in other applications, click a graphic file format (**JPG** or **PNG**) button. Select a location to save the graphic file, type a name for the file, and then click **Save**.



Chapter 7

Analytics

Quantum Vision includes a set of interactive, graphical reports that allow you to quickly visualize and compare key statistics for DXi disk backup systems, Scalar libraries, and vmPRO virtual appliances. You can access the interactive reports at any time on the **Analytics** console. To access the **Analytics** console, click **Analytics** on the Vision toolbar.

Use the interactive reports to see, at a glance, if exceptional conditions exist for any monitored devices. Each report displays information about core device functionality, such as replication status on DXi disk backup systems, vmPRO virtual appliances, or tape alerts on Scalar libraries. This information is displayed in a graphical manner so you can easily visualize the status of core functionality for one or multiple devices.

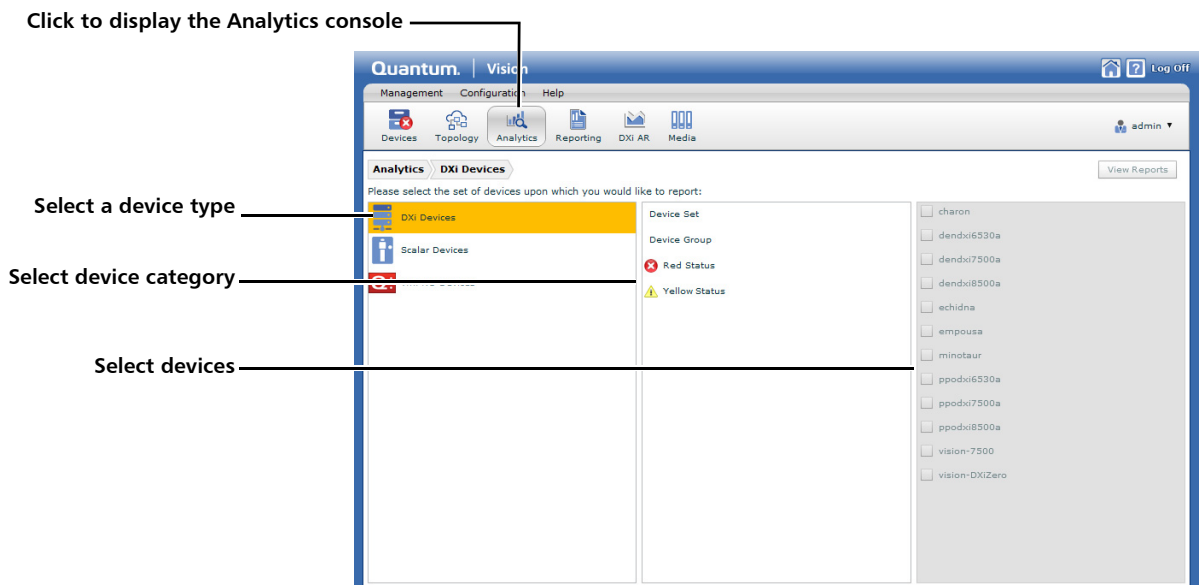
This chapter includes the following information:

- [Viewing Interactive Reports](#)
- [DXi Analytics](#)
- [Scalar Analytics](#)
- [vmPRO Analytics](#)

Viewing Interactive Reports

Use the **Analytics** console to view interactive, graphical reports for DXi, Scalar, and vmPRO devices (see [Figure 62](#)).

Figure 62 Analytics Console -
Select Devices



To view interactive reports:

- 1 Click **Analytics** on the Vision toolbar.
- 2 In the left pane, select **DXi Devices**, **Scalar Devices**, or **vmPRO Devices**.

Note: Analytics graphs are not available for DXi35/55 devices.

- 3 In the center pane, select an option for displaying graphs:
 - **Device Set** - View graphs for one or more selected devices.In the right pane, select the devices to display graphs for.

- **Device Group** - View graphs for all devices in a group.
In the right pane, select the groups to display graphs for. (For information about creating groups, see [Groups Management](#) on page 34.)
- **Red Status** - View graphs for all devices with a status of Red.
- **Yellow Status** - View graphs for all devices with a status of Yellow.

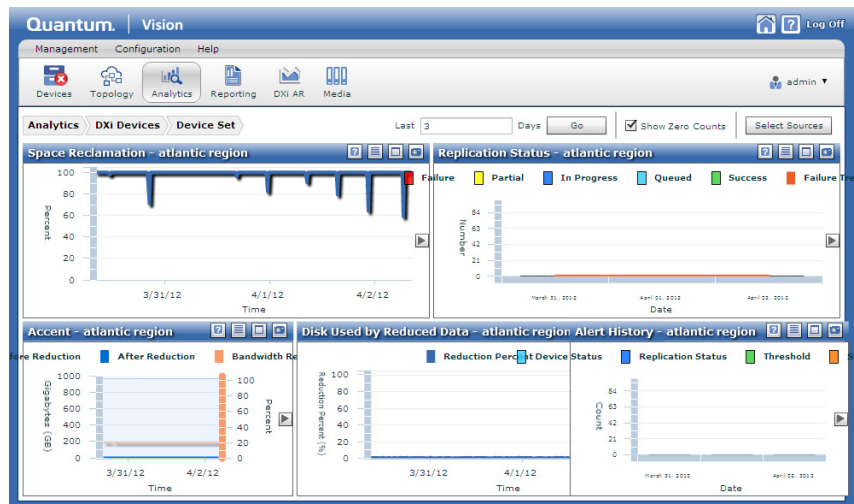
4 Click View Reports.

Vision displays analytics graphs for the specified devices (see [Figure 63](#)).

Note: For a newly discovered device, the reports cannot be generated and displayed until one data collection cycle has been completed.

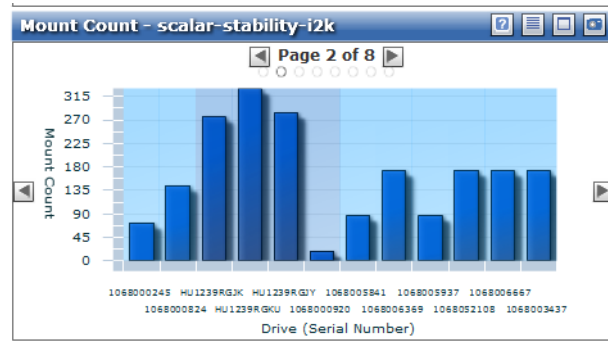
The graphs displayed in the interactive reports depend on the device type selected on the Analytics console. For a description of the graphs, see [DXi Analytics](#) on page 126 or [Scalar Analytics](#) on page 131.

Figure 63 Analytics Console - View Graphs



- Should any graph have more than a page of data, you can page through the data by clicking the next and previous page control icons that are at the top of the graph (see [Figure 64](#)).

Figure 64 Multiple Pages of Data



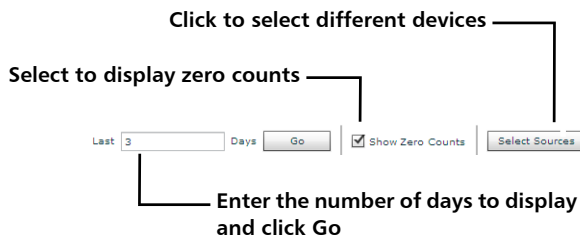
- (Optional) Use the analytics toolbar to change the time range or devices that are displayed, or to show or hide zero counts (see [Analytics Toolbar](#) on page 124).
- (Optional) Use the graph controls to work with or export analytics graphs (see [Analytics Graph Controls](#) on page 125).

Analytics Toolbar

When viewing graphs on the **Analytics** console, use the toolbar at the top of the console to change the time range or devices that are displayed, or to show or hide zero counts (see [Figure 65](#)).

- To change the time range displayed in the graphs, enter the number of days to display in the **Last** box, and then click **Go**. By default, graphs show the last 3 days of data.
- To display data points with a value of zero on graphs, select the **Show Zero Counts** check box. Or to hide data points with a value of zero, clear the check box.
- (Scalar devices only) To show library partitions on the **Mount Count** graph, select the **Show Partitions** check box. Or to hide library partitions, clear the check box.
- To select different devices to display, click **Select Sources**. You are returned to the device selection view.

Figure 65 Analytics Toolbar



Analytics Graph Controls

Use the graph controls to work with or export analytics graphs. The following controls are available on each analytics graph (see [Figure 66](#)):

- **Help** - View a description of the graph.
- **Show Vertical/Horizontal Stacked View** - Arrange graphs for all currently selected devices in a vertical stack or horizontal stack.

Use the horizontal stacked view to visualize statistics for one device at a time. Click the arrows on the left or right side of the graph to navigate between devices.

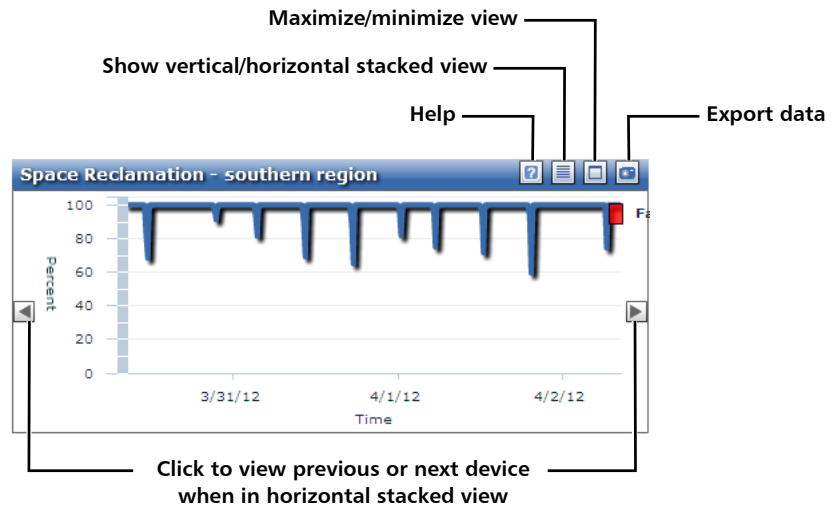
Use the vertical stacked view to compare statistics between multiple devices at once.

Note: Selecting a stacked view option also maximizes the graph view.

- **Maximize/Minimize View** - Enlarges the graph to take up the full width of the Vision window (maximize) or returns the graph to its original, smaller size (minimize).
- **Export Data** - Select a graphic file format (**JPG** or **PNG**) to export the chart to a graphic file for use in other applications.

Select a location to save the graphic file, type a name for the file, and then click **Save**.

Figure 66 Analytics Graph Controls



DXi Analytics

For DXi devices, the interactive report displays the following graphs:

- [Space Reclamation](#)
- [Replication Status](#)
- [Disk Used by Reduced Data](#)
- [Data Deduplication with Accent Enabled](#)
- [Alert History](#)

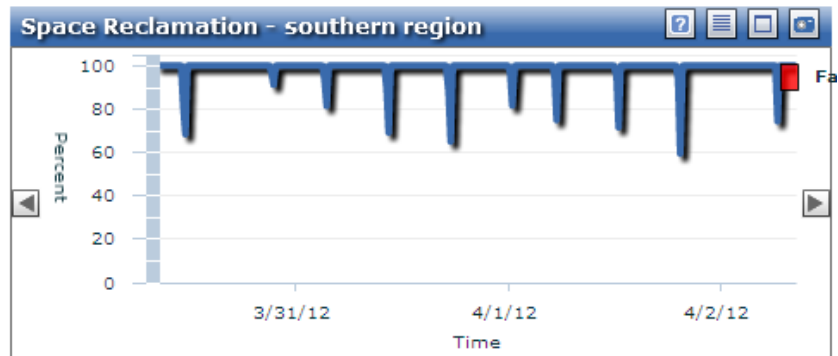
Space Reclamation

The **Space Reclamation** graph displays the progress of space reclamation over time (see [Figure 67](#)). During space reclamation, the DXi searches the blockpool for tags that are no longer referenced and then deletes the unneeded tags to free up space.

The graph displays the progress of all space reclamation activity as a percentage completed during the specified time range. Use the **Space Reclamation** graph to visualize when space reclamation activity is

occurring on the DXi. Hold the cursor over the graph to see a tooltip with additional information about the space reclamation percentage. If space reclamation continues to run for long periods of time without completing (reaching 100%), it may indicate that other activities are contending for system resources.

Figure 67 DXi Analytics - Space Reclamation



Replication Status

The **Replication Status** graph displays a summary of replication job statuses over time (see [Figure 68](#)). During data replication, data is sent from one system (the source) to another system, usually in another location (the target).

A replication job can have one of the following statuses.

- **Failure** - (Red) The replication job was not completed.
- **Partial** - (Yellow) The replication job was partially completed.
- **In Progress** - (Dark Blue) The replication job is in progress.
- **Queued** - (Light Blue) The replication job is queued and will continue when the system is ready.
- **Success** - (Green) The replication job was completed successfully.

The graph displays the count for each status type that occurred during the specified time range. For each day, the status counts are stacked in a single bar.

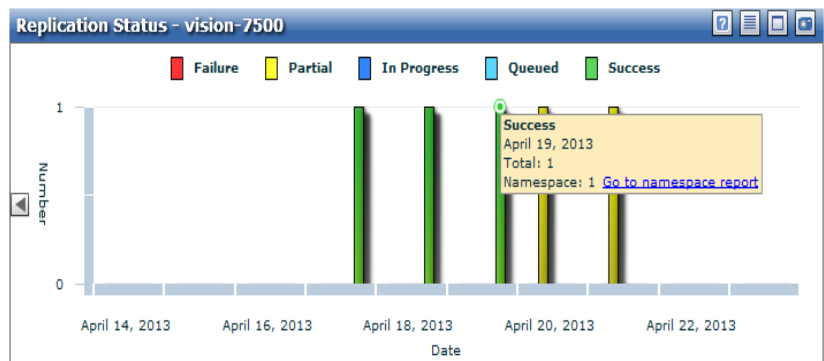
Click a status count bar to see a tooltip with additional information about the status counts. Status counts are reported for namespace replication as well as source and target replication (trigger replication).

You can display the status report associated with a namespace or target replication when you click the **Go to namespace report** link that is displayed in the tooltip.

Note: Trigger replication is also referred to as Directory/File or Cartridge Based replication.

Use the **Replication Status** graph to visualize when replication is occurring and to identify possible problems.

Figure 68 DXi Analytics -
Replication Status

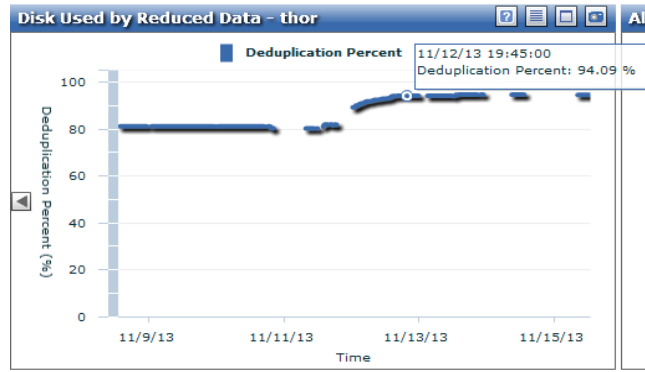


Disk Used by Reduced Data

The **Disk Used by Reduced Data** graph displays the amount of unique, compressed data stored on the DXi over time (see [Figure 69](#)). The value for **Percent Disk Used** represents the final, reduced size of all data that has been processed by the data deduplication and compression engines. This value is expressed as percentage of the total disk capacity of the DXi. Hold the cursor over a point to see the duplication percentage.

Use the **Disk Used by Reduced Data** graph to visualize the growth of deduplicated, compressed data on the DXi. Hold the cursor over any part of the graph to see the deduplication percentage for that date and time.

Figure 69 DXi Analytics - Disk Used by Reduced Data



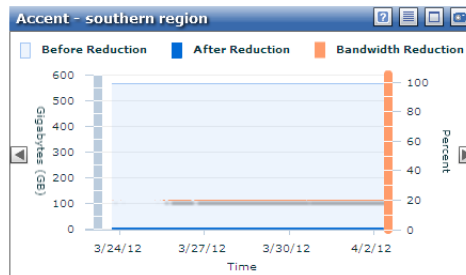
Data Deduplication with Accent Enabled

This graph displays only for Accent configured and enabled DXi servers. The graph displays the amount of data both before and after deduplication with Accent enabled on the DXi over time. The percentage value represents the final, reduced size of all data that has been processed by the data deduplication and compression engines. The graph also displays the following information (see [Figure 70](#)):

- **Before Reduction** - (Light Blue) Amount of data before deduplication with Accent enabled.
- **After Reduction** - (Blue) Amount of data after deduplication with Accent enabled.
- **Bandwidth Reduction** - (Orange) Percentage representation depicting the amount of data reduction that was achieved using Accent.

Hold the cursor over a point on the **Before Reduction** or **After Reduction** graph to see a tooltip with additional information for a specific date and time.

Figure 70 DXi Analytics - Data Deduplication with Accent Enabled



Alert History

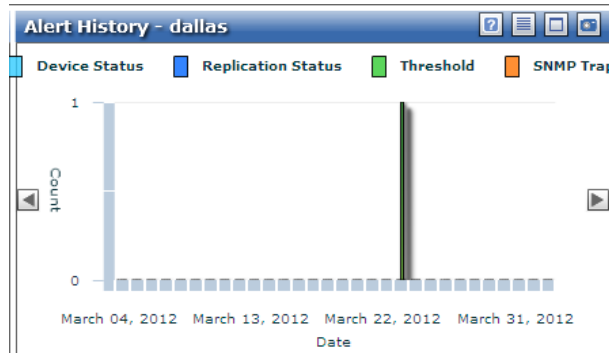
The **Alert History** graph displays a summary of alerts over time (see [Figure 71](#)). Alerts are notifications that Quantum Vision sends when the conditions defined in the alert rule are met (see [Alert Management](#) on page 21).

The graph displays the following alert types:

- **Device Status** - (Light blue) An alert is sent when the device status changes from one status to another, for example, from green to red.
- **Replication Status** - (Dark blue) An alert is sent when the replication status of the device changes from one status to another, for example, from green to red.
- **Disk Threshold** - (Green) An alert is sent when used disk capacity rises above or falls below the specified percentage.
- **SNMP Trap** - (Orange) An alert is sent when a Simple Network Management Protocol (SNMP) trap is received from the device.

The graph displays the count for each alert type that occurred during the specified time range. For each day, the alert counts are stacked in a single bar. Use the **Alert History** graph to visualize when alerts are occurring and to identify possible problems. Hold the cursor over a bar to see **Device Status** information.

Figure 71 DXi Analytics - Alert History



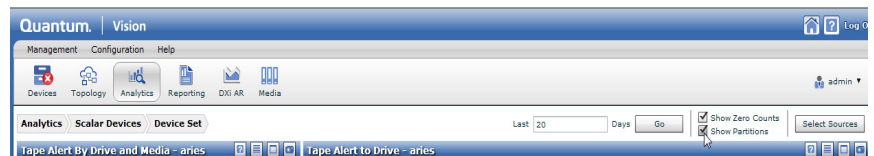
Scalar Analytics

With Scalar devices, you have the option of viewing the partitions. From the Analytics, Scalar Devices console, select **Show Partitions** (see [Figure 72](#)).

For Scalar devices, the interactive report displays the following graphs:

- [Tape Alert By Drive and Media](#)
- [Tape Alert to Drive](#)
- [Tape Alert to Media](#)
- [Mount Count](#)
- [Alert History](#)

Figure 72 Show Partitions



Tape Alert By Drive and Media

The **Tape Alert By Drive and Media** graph displays a summary of tape alerts generated by media (tape cartridges, vertical axis) and drives (horizontal axis) (see [Figure 73](#)). Tape alerts are issued by a drive whenever there is a problem in the drive that relates to a tape cartridge. The problem can be with the drive or with the cartridge. A tape alert can have one of the following severity levels: Good (G), Info (I), Warning (W), or Critical (C).

The graph displays a heat map that indicates the number of tape alerts that have occurred for each tape cartridge in each drive. A colored square indicates that tape alerts have occurred with that specific combination of media barcode (row) and drive serial number (column). The color of the shaded square indicates the number and severity of the alerts that have occurred. Hold the cursor over a shaded square to display a tooltip showing the **Severity** and the number of each severity-level alert that has been issued for the tape cartridge (see [Figure 73](#)).

Overall tape alert severity is rated from 1 (green) to 10 (red). [Table 4](#) describes the criteria by which overall severity is calculated.

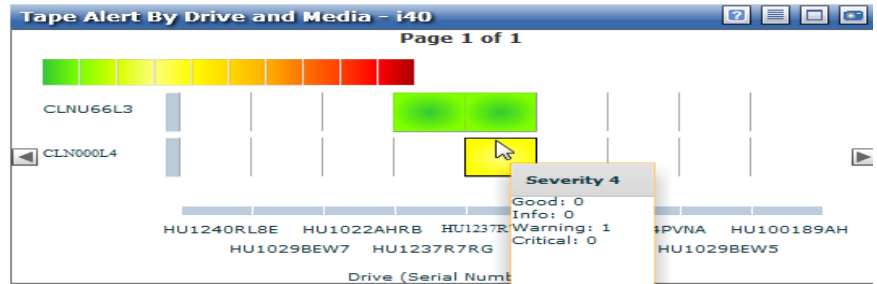
Table 4 Tape Alert By Drive and Media - Calculating Severity

| Severity | Rating | Color | Criteria |
|----------|----------|--------|--|
| 1 | Good | Green | Any number of Good (G) or Info (I) tape alerts |
| 4 | Warning | Yellow | One Warning (W) tape alert |
| 5 | Warning | Yellow | Two Warning (W) tape alerts |
| 6 | Warning | Yellow | Three or more Warning (W) tape alerts |
| 7 | Critical | Orange | One Critical (C) tape alert |
| 8 | Critical | Orange | Two Critical (C) tape alerts |
| 9 | Critical | Red | Three Critical (C) tape alerts |
| 10 | Critical | Red | Four or more Critical (C) tape alerts |

Use the **Tape Alert By Drive and Media** graph to cross-reference tape alerts for tape cartridges and drives over the specified period of time. This can help you determine if the problem belongs to the drive or to a

tape cartridge. Typically, tape alerts point to a drive problem if a specific drive exhibits tape alerts against multiple cartridges. Conversely, tape alerts point to a media problem if a specific cartridge exhibits tape alerts against multiple drives.

Figure 73 Scalar Analytics -
Tape Alert By Drive and Media

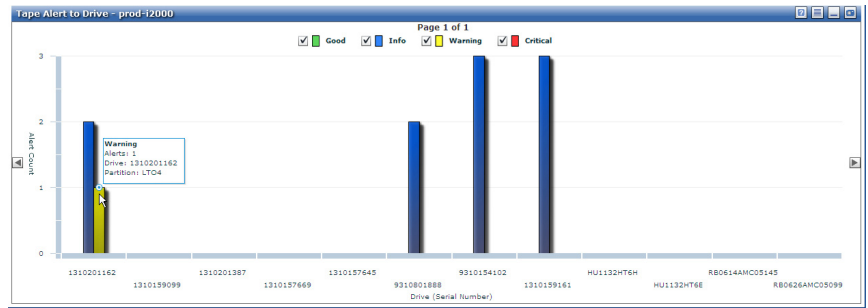


Tape Alert to Drive

The **Tape Alert to Drive** graph displays a summary of tape alerts generated by tape drives (see [Figure 74](#)). Tape alerts are issued by a drive whenever there is a problem in the drive that relates to a tape cartridge. The problem can be with the drive or with the cartridge. A tape alert can have one of the following types: Good (G), Info (I), Warning (W), or Critical (C). You can choose which alerts you want to view; just select the appropriate alert name at the top of the graph.

The graph displays the count for each tape alert type that occurred per drive during the specified time range. For each drive, the tape alert counts are stacked in a single bar. Use the **Tape Alert to Drive** graph to visualize which drives are generating the most tape alerts. Typically, tape alerts point to a drive problem if a specific drive exhibits tape alerts against multiple cartridges. Hold the cursor over the appropriate bar to see a tooltip with additional information about the alert type, number of alerts, drive and partition information (see [Figure 74](#)).

Figure 74 Scalar Analytics -
Tape Alert to Drive



Tape Alert to Media

The **Tape Alert to Media** graph displays a summary of tape alerts generated by tape cartridges (see [Figure 75](#)). Tape alerts are issued by a drive whenever there is a problem in the drive that relates to a tape cartridge. The problem can be with the drive or with the cartridge. A tape alert can have one of the following types: Good (G), Info (I), Warning (W), or Critical (C). You can choose which alerts you want to view; just select the appropriate alert name at the top of the graph.

The graph displays the count for each tape alert type that occurred per media barcode during the specified time range. For each cartridge, the tape alert counts are stacked in a single bar. Use the **Tape Alert to Media** graph to visualize which tape cartridges are generating the most tape alerts. Typically, tape alerts point to a media problem if a specific cartridge exhibits tape alerts against multiple drives. Hold the cursor over the appropriate bar to see a tooltip with additional information about the barcode and tape alerts (see [Figure 75](#)). Click the bar to see the **Tape Alerts** (see [Figure 76](#)).

Figure 75 Scalar Analytics -
Tape Alert to Media

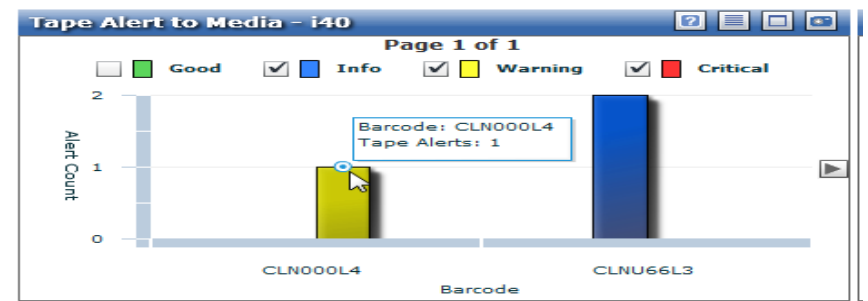
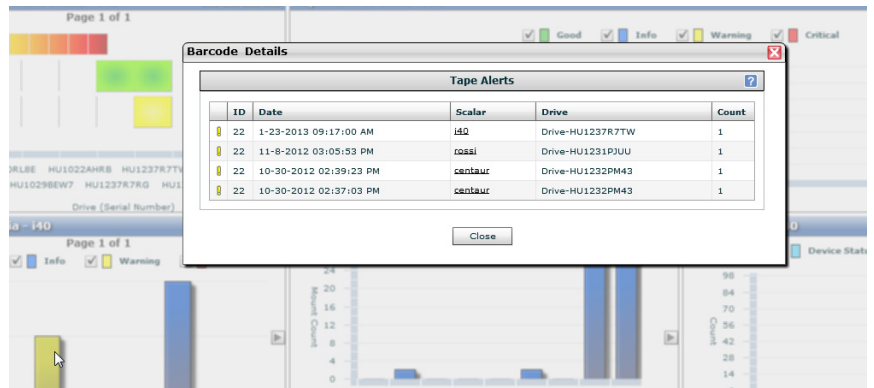


Figure 76 Barcode Details



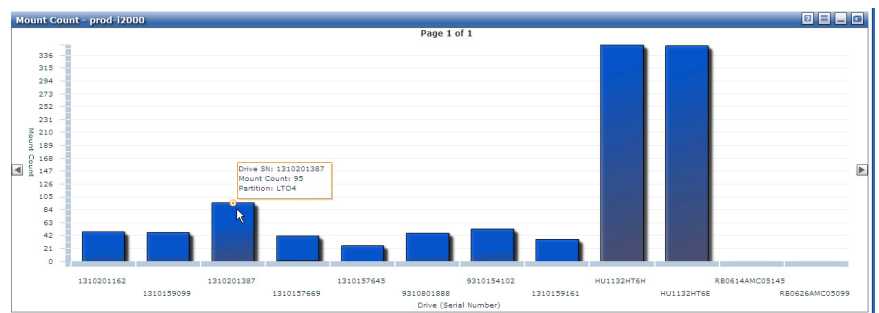
Mount Count

The **Mount Count** graph displays the mount count for tape drives (see [Figure 77](#)). The mount count is incremented for a drive each time a tape cartridge is mounted in the drive.

The graph displays the number of mounts for each drive that occurred during the specified time range. Use the **Mount Count** graph to visualize the utilization of tape drives in Scalar libraries. Hold the cursor over the appropriate bar to see a tooltip with additional information about the drive serial number, mount count, and partition (see [Figure 77](#)).

Note: To show library partitions on the graph, select the **Show Partitions** check box on the toolbar. Or to hide library partitions, clear the check box.

Figure 77 Scalar Analytics - Mount Count



Alert History

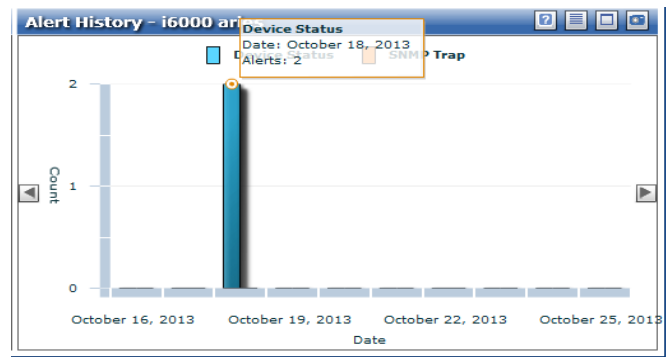
The **Alert History** graph displays a summary of alerts over time (see [Figure 78](#)). Alerts are notifications that Quantum Vision sends when the conditions defined in the alert rule are met (see [Alert Management](#) on page 21).

The graph displays the following alert types:

- **Device Status** - (Light blue) An alert is sent when the device status changes from one status to another, for example, from green to red.
- **SNMP Trap** - (Orange) An alert is sent when an Simple Network Management Protocol (SNMP) trap is received from the device.

The graph displays the count for each alert type that occurred during the specified time range. For each day, the alert counts are stacked in a single bar. Use the **Alert History** graph to visualize when alerts are occurring and to identify possible problems. Hold the cursor over a bar to see **Device Status** information.

Figure 78 Scalar Analytics -
Alert History



vmPRO Analytics

For vmPRO devices, the interactive report displays the following graphs:

- [SmartRead I/O Reduction](#)
- [SmartRead Data Move](#)
- [SmartMotion Status](#)

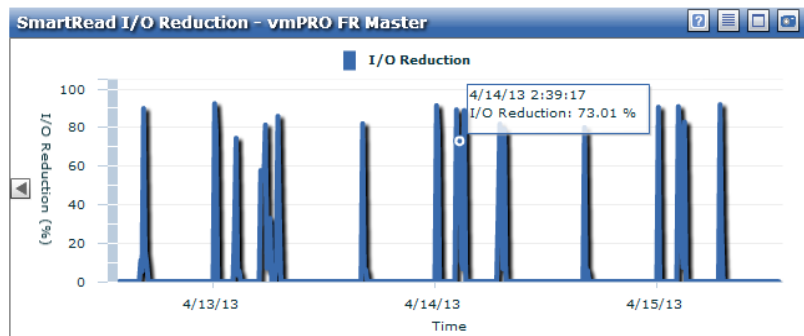
- [Alert History](#)

SmartRead I/O Reduction

(For vmPRO 3.0 and later) The **SmartRead I/O Reduction** graph displays the percentage of I/O data reduction over time (see [Figure 79](#)).

Hold the cursor over the appropriate bar to see a tooltip with additional information about the I/O Reduction percentage.

Figure 79 vmPRO Analytics - SmartRead I/O Reduction

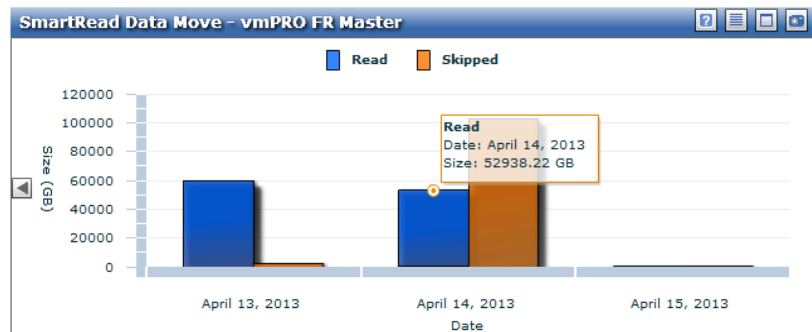


SmartRead Data Move

(For vmPRO 3.0 and later) The **SmartRead Data Move** graph displays **Read** and **Skipped** data over time (see [Figure 80](#)).

Hold the cursor over the appropriate bar to see a tooltip with additional information about the amount of data that was **Read** or **Skipped**.

Figure 80 vmPRO Analytics - SmartRead Move

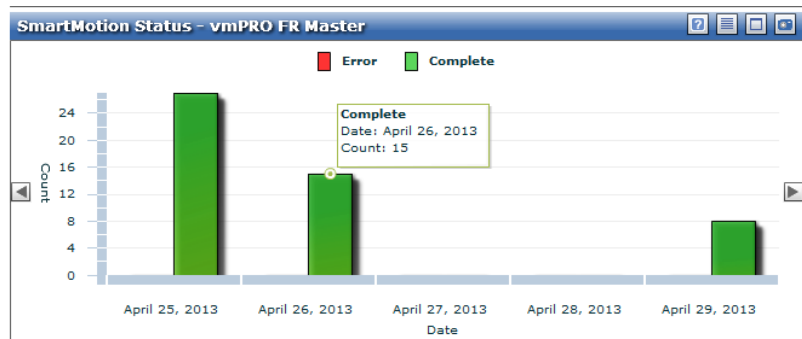


SmartMotion Status

(For vmPRO 3.0 and later) The graph displays **Error** and **Complete** counts over time (see [Figure 81](#)).

Hold the cursor over the appropriate bar to see a tooltip with additional information about the number of **Error** and **Complete** virtual machines (VMs) backed up.

Figure 81 vmPRO Analytics - SmartMotion Status



Alert History

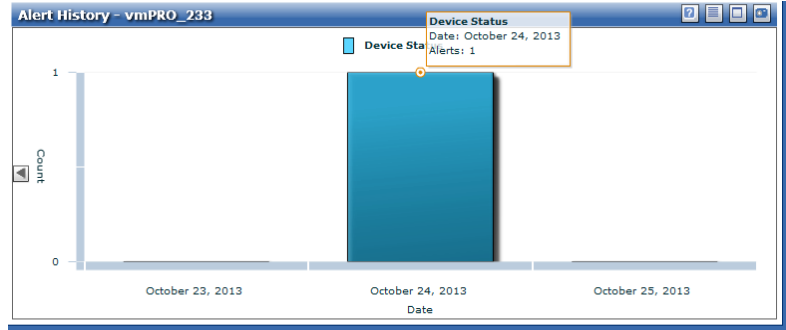
The **Alert History** graph displays a summary of alerts over time (see [Figure 82](#)). Alerts are notifications that Quantum Vision sends when the conditions defined in the alert rule are met (see [Alert Management](#) on page 21).

The graph displays alerts about Device Status, which are alerts sent when the device status changes from one status to another, for example, from green to red.

The graph displays the count for each alert type that occurred during the specified time range. For each day, the alert counts are stacked in a single bar. Use the **Alert History** graph to visualize when alerts are occurring and to identify possible problems.

Hold the cursor over the appropriate bar to see a tooltip with additional information about the number of alerts issued for the device on a specific day. Hold the cursor over a bar to see **Device Status** information.

Figure 82 vmPRO Analytics -
Alert History





Chapter 8

Reporting

Reports present capacity, performance, and configuration information for devices. Quantum Vision includes a set of standard reports. You can run the standard reports from the **Reporting** console at any time. In addition, Quantum Vision can generate reports on a recurring basis and send them to a list of recipients.

To access the **Reporting** console, click **Reporting** on the Vision toolbar.

Use the **Reporting** console to perform the following tasks:

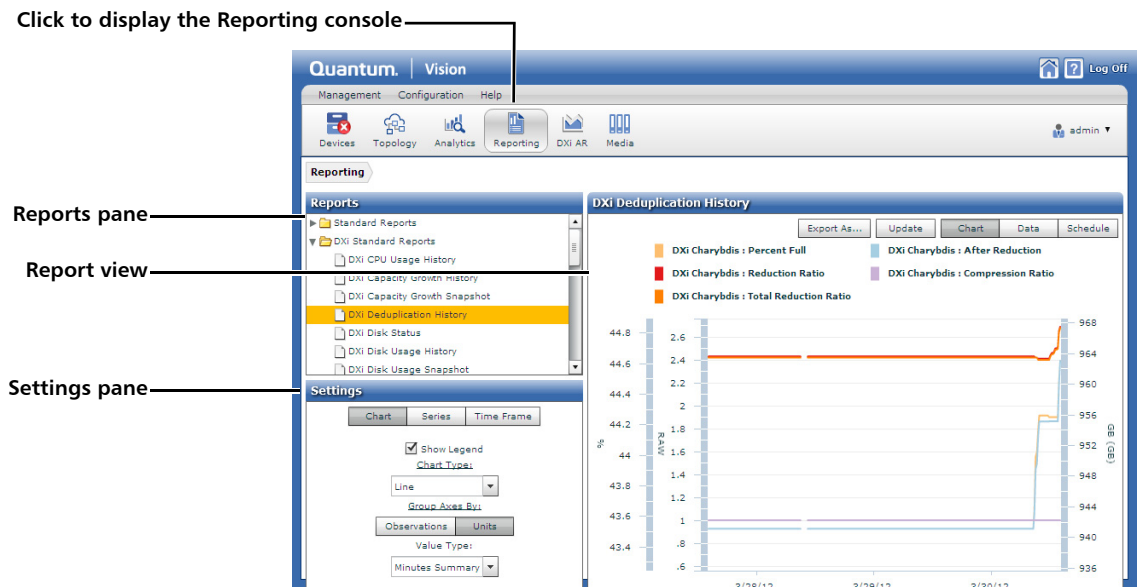
- [Viewing Reports](#)
- [Working With Reports](#)
- [Modifying Report Settings](#)
- [Setting Up a Report Schedule](#)

For DXi devices, Vision also allows you to access DXi Advanced Reporting graphs to view a wide variety of detailed performance information (see [DXi Advanced Reporting](#) on page 157).

Viewing Reports

The **Reporting** console ([Figure 83](#)) displays the standard performance reports for devices.

Figure 83 Reporting Console



There are three main types of reports:

- **Properties** - Displays a table of device properties.
- **Observable History** - Displays a chart showing data for a specified time frame.
- **Observable Snapshot** - Displays a chart showing data for the time that the report is run.

Note: The Alert Acknowledgement History report and the DXi Replication reports are unique and do not report on properties or data series. The Alert Acknowledgement History report displays a history of acknowledged alerts. The DXi Replication reports display status counts and summary statistics for replication activity.

Reports are run against all available sources (devices) of the appropriate type (Scalar, DXi, or DXi 35/55). To view data for a device, you must have access to the device based on your assigned user group (see [User Management](#) on page 39).

For more information, see the following sections:

- [Viewing a Report](#) on page 143
- [Standard Reports](#) on page 144

Viewing a Report

Use the **Reporting** console to view a standard report. After you view a report, you can modify or schedule the report.

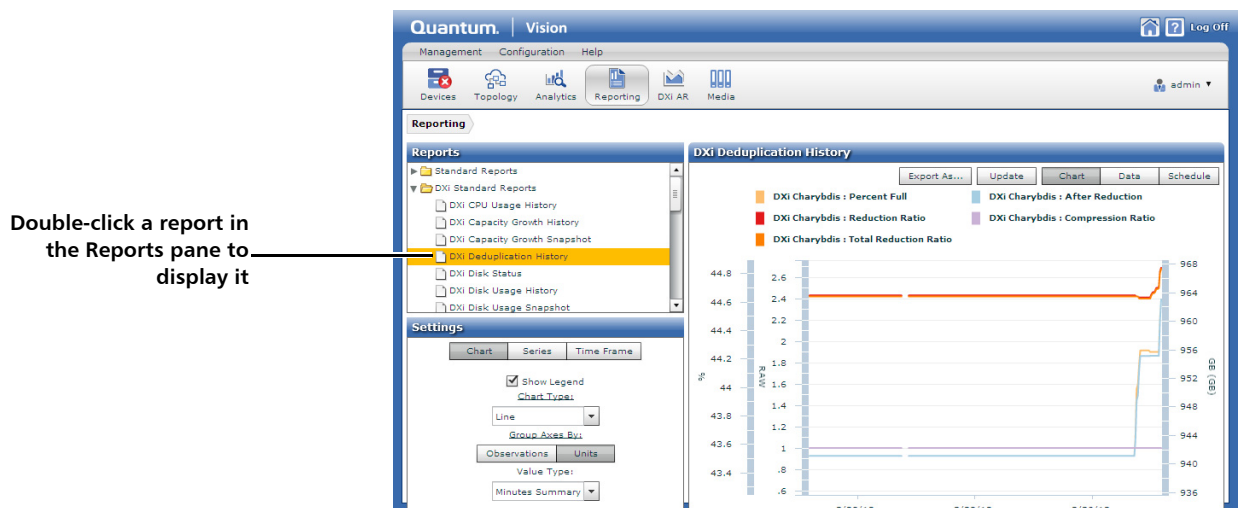
To view a report:

- 1 Click **Reporting** on the Vision toolbar.
- 2 In the **Reports** pane, click the arrow to expand a report category, and then double-click a report (see [Figure 84](#)).

The console displays the standard report. The report shows data for all appropriate devices that are assigned to your user group.

- 3 (Optional) Adjust the report view or select report options (see [Working With Reports](#) on page 149).
- 4 (Optional) Use the **Settings** pane to customize the report (see [Modifying Report Settings](#) on page 151).

Figure 84 Viewing a Report



Standard Reports

[Table 5](#) lists the standard reports in Quantum Vision, as well as the report type and the data series included in each report.

Note: The available data series vary depending upon the device. Not all data series are available for all DXi disk backup systems.

Note: For a description of the information presented in the various data series, see [Appendix A, DXi Data Series](#) on page 169.

Note: You cannot add or remove data series from the standard reports.

Table 5 Vision Standard Reports

| Report Name | Report Type | Included Data Series/ Displayed Information |
|--|-----------------------|--|
| Standard Reports | | |
| Alert Ack History | Alert Acknowledgement | (none) |
| All Percent Full History | Observable History | Storage Metrics - Percent Full |
| DXi Standard Reports | | |
| DXi CPU Usage History DEPRECATED | Observable History | Node - CPU Status - Busy Percentage Node - CPU Status - Busy Ticks Node - CPU Status - Other Ticks |
| DXi Capacity Growth History | Observable History | Storage Metrics - Capacity Storage Metrics - Total Reduction Ratio Storage Metrics - Used |
| DXi Capacity Growth Snapshot DEPRECATED | Observable Snapshot | Storage Metrics - Capacity Storage Metrics - Total Reduction Ratio Storage Metrics - Used |

| Report Name | Report Type | Included Data Series/ Displayed Information |
|---|---------------------|--|
| DXi Deduplication History | Observable History | Storage Metrics - Compression Ratio Disk Usage Detail - After Reduction Storage Metrics - Deduplication Ratio Storage Metrics - Percent Full Storage Metrics - Total Reduction Ratio |
| DXi Disk Status | Properties | Disk Status - Index Disk Status - Name Disk Status - Status Disk Status - Location |
| DXi Disk Usage History | Observable History | Disk Usage Detail - After Reduction Disk Usage Detail - Available ^a Disk Usage Detail - Used |
| DXi Disk Usage Snapshot | Observable Snapshot | Disk Usage Detail - After Reduction Disk Usage Detail - Available ^a Disk Usage Detail - Used |
| DXi Ethernet Received History | Observable History | Port Group - Port - Received |
| DXi Ethernet Transmitted History | Observable History | Port Group - Port - Transmitted |
| DXi FibreChannel Received History | Observable History | Port Group - Port - Received |
| DXi FibreChannel Transmitted History | Observable History | Port Group - Port - Transmitted |
| DXi NAS Status | Properties | NAS Group - Share - Name NAS Group - Share - Type NAS Group - Share - Replication Enabled NAS Group - Share - Deduplication Enabled |

| Report Name | Report Type | Included Data Series/ Displayed Information |
|---|--------------------|---|
| DXi Percent Full History DEPRECATED | Observable History | Storage Metrics - Percent Full |
| DXi Port Status | Properties | Port Status - Name Port Status - Type Port Status - Status |
| DXi Replication Namespace Status Counts | Observable History | Namespace - Success Namespace - Partial Namespace - Failure |
| DXi Replication Namespace Summary | Replication | Namespace - Date Namespace - Name Namespace - nodeType Namespace - Status Namespace - startTime Namespace - endTime Namespace - totalBytes Namespace - mbPersecond |
| DXi Replication Namespace Summary Unsuccessful | Replication | Namespace - Date Namespace - endTime Namespace - Name Namespace - nodeType Namespace - startTime Namespace - mbPersecond Namespace - Status Namespace - totalBytes |

| Report Name | Report Type | Included Data Series/ Displayed Information |
|--|--------------------|--|
| DXi Replication Source Summary | Replication | Namespace - Date Namespace - Name Namespace - nodeType Namespace - dataTarget Namespace - mostSevereStatus Namespace - lastStartTime Namespace - lastEndTime |
| DXi Replication Source Summary Unsuccessful | Replication | Namespace - Date Namespace - Name Namespace - nodeType Namespace - dataTarget Namespace - lastEndTime |
| DXi Replication Target Summary | Replication | Namespace - Date Namespace - Name Namespace - nodeType Namespace - dataSource Namespace - mostSevereStatus Namespace - lastStartTime Namespace - lastEndTime |
| DXi Replication Target Summary Unsuccessful | Replication | (none) |
| DXi Sensor Status DEPRECATED | Properties | Node - Sensor Group - Index Node - Sensor Group - Name Node - Sensor Group - Type Node - Sensor Group - Status |
| DXi Space Reclamation History | Observable History | Data Scanned Space Reclaimed |

| Report Name | Report Type | Included Data Series/ Displayed Information |
|--|---------------------|--|
| DXi Virtual Tape Library Status | Properties | Name Index Status Deduplication Enabled Replication Enabled |
| DXi 35/55 Standard Reports | | |
| DXi 35/55 Fans History | Observable History | Fan Group - Fans - Value |
| DXi 35/55 Percent Full History | Observable History | Storage Metrics - Percent Full |
| DXi 35/55 Replication History | Observable History | Replication - Source - Average Received Replication - Source - Average Sent Replication - Source - Replications Received Replication - Target - Replications Sent Replication - Target - Total Received Replication - Target - Total Sent |
| DXi 35/55 Sensors History | Observable History | Sensor Group - Sensor - Value |
| DXi 35/55 Usage History | Observable History | Library - Capacity Library - Free Library - Throughput Library - Used |
| DXi 35/55 Usage Snapshot | Observable Snapshot | Library - Capacity Library - Free Library - Throughput Library - Used |
| Scalar Standard Reports | | |
| Scalar Blade Ports | Properties | IO Blade - Serial Number IO Blade - Port Index IO Blade - Port Status |

| Report Name | Report Type | Included Data Series/ Displayed Information |
|-----------------------|-------------|--|
| Scalar Blade Status | Properties | IO Blade - Serial Number IO Blade - Index IO Blade - Status |
| Scalar Drive Status | Properties | Drive - Serial Number Drive - Status Drive - Type Drive - Interface Type Drive - Mount Status Drive - Encryption Drive - Owner |
| Scalar Library Status | Properties | (Status rollup) |
| Scalar Licensing | Properties | License - Name License - Quantity |
| Scalar Partitions | Properties | Partition - Name Partition - Mode |
| Scalar RAS Status | Properties | RAS Status - Sub System RAS Status - Status |

a. Free disk space is disk space that is not allocated. Available disk space is Free + Reclaimable (space that is allocated but can be reclaimed once Space Reclamation has been run on the DXi.)

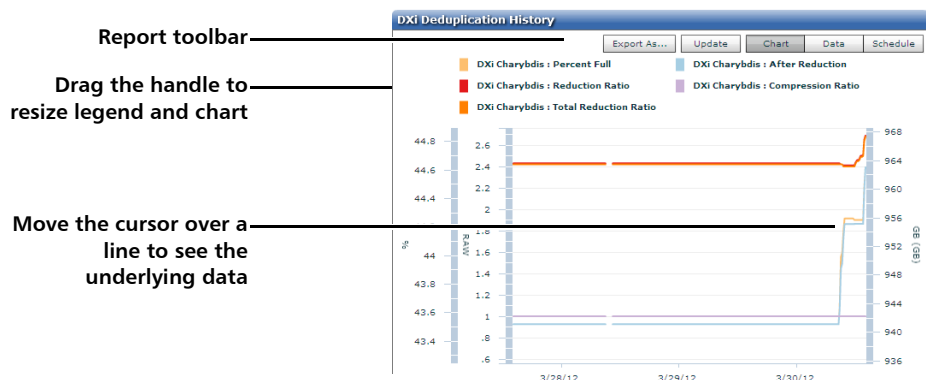
Working With Reports

Reports use charts or tables to present capacity, performance, and configuration information for devices and media. A report can include information for a specified time frame or provide a snapshot of the device at the time the report is run.

To work with a report, view it on the **Reporting** console. You can work with reports in the following ways (see [Figure 85](#)):

- Move the cursor over an object on the graph to see a tooltip with more information.
- To change the size of the chart or legend, drag the resize handle between them.
- By default, charts show the most recent three days of data. To view charts that display data for time frames longer than three days, or to display historical data, modify the report time frame (see [Time Frame Settings](#) on page 153).
- Select report options on the report toolbar (see [Selecting Report Options](#) on page 150).

Figure 85 Working With Reports



Selecting Report Options

The following options are available on the report toolbar:

- **Export As** - Select a graphic file format (**JPG** or **PNG**) to export the chart to a graphic file for use in other applications.
Select a location to save the graphic file, type a name for the file, and then click **Save**.
- **Update** - Updates the report with the latest data from the device.
- **Chart** - (Not available for Properties reports) View all data points in a chart format.

- **Data** - (Not available for Properties reports) View all data points in a tabular format.
 - To view data points for a different data series, select it in the **Data Series** list.
 - To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19).
 - To return to chart view, click **Chart**.

Note: A data value reported as **NaN** (not a number) indicates that no value was collected for that data point. These values appear as gaps in a chart.

- **Schedule** - Configure report recurrence (see [Setting Up a Report Schedule](#) on page 154).

Modifying Report Settings

Use the **Settings** pane to customize the currently displayed report (see [Figure 86](#)). You can modify report settings such as the chart type, source systems, data series, and time frame. After you modify settings, the report is immediately updated to reflect the new settings.

Note: If you log off of Vision, all report settings are changed to their defaults after you log on again.

For more information about the available report settings, see the following sections:

- [Chart Settings](#) on page 152
- [Series Settings](#) on page 153
- [Time Frame Settings](#) on page 153

Figure 86 Modifying Report Settings

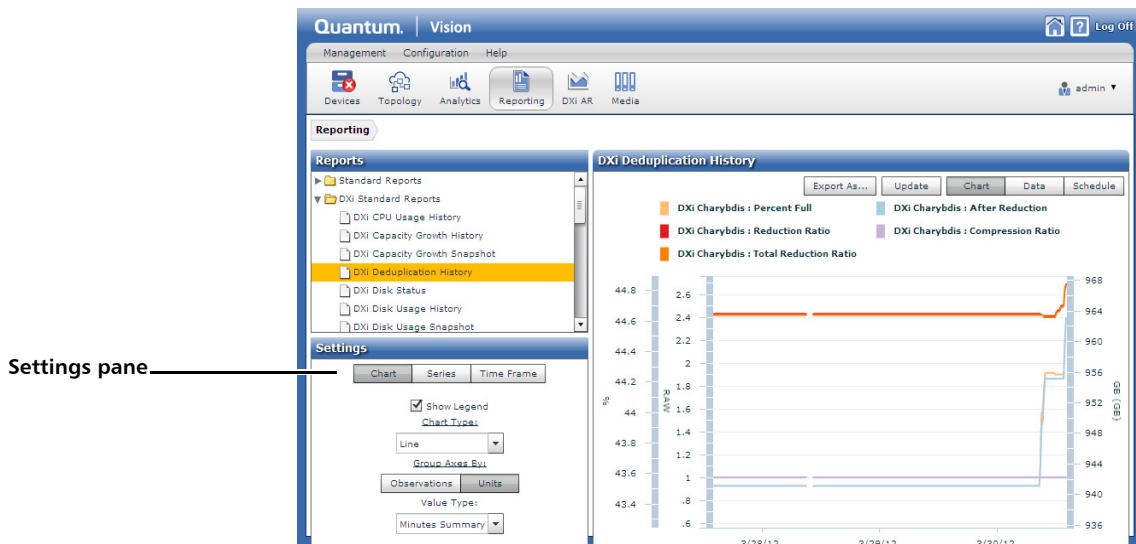


Chart Settings

To modify the appearance of the report, click **Chart** on the **Settings** pane. The following settings are available:

Note: Chart settings only affect Observable History and Observable Snapshot reports.

- **Show Legend** - Clear the check box to hide the chart legend, or select the check box to display the chart legend.
- **Chart Type** - Select the type of chart the report uses.
 - For Observable History reports, the options are **Line**, **Area**, or **Plot**.
 - For Observable Snapshot reports, the options are **Bar** or **Column**.
- **Group Axes By** - Select how data is grouped on the Y-axis of the chart.
 - **Observations** - Data is grouped on the Y-axis according to data series.

- **Units** - Data is grouped on the Y-axis according to data unit type.
- **Value Type** - (Observable History reports only) Select the type of values presented in the report (**Minutes Summary**, **Hours Summary**, or **Days Summary**).

Series Settings

To select the sources and data series to display in the report, click **Series** on the **Settings** pane. You can perform the following actions:

Note: Data series settings are available only for Observable History and Observable Snapshot reports.

- In the left column, select or deselect a device to add it to or remove it from the report.
- In the right column, select or deselect a data series to add it to or remove it from the report.

Click **All Data** to display data for all data series.

Note: The available data series are determined by the report selected.

Time Frame Settings

To modify the time frame displayed in the chart, click **Time Frame** on the **Settings** pane. The following options are available:

Note: Time frame settings are available only for Observable History, Alert Acknowledgement History, and DXi Replication reports.

- For general time frames, specify the **Duration** of the time frame in the **Last** field, and then select **Minutes**, **Hours**, **Days**, or **Months** in the drop-down list.
- For specific time frames, select **Custom** in the **Duration** drop-down list, and then specify the **Start** and **End** date and time of the time frame.

To apply the new time frame settings to the chart, click **Update**.

Setting Up a Report Schedule

Quantum Vision can generate reports on a recurring basis and send the report data to a list of recipients.

Note: Before Quantum Vision can send recurring reports to recipients, you must configure e-mail server settings (see [E-mail Configuration](#) on page 60).

To set up a report schedule:

- 1 Click **Reporting** on the Vision toolbar.
- 2 In the **Reports** pane, click the arrow to expand a report category, and then double-click a report.

The console displays the standard report.

- 3 Click **Schedule** on the report toolbar.

The report schedule pane displays (see [Figure 87](#)).

Figure 87 Report Schedule Pane

The screenshot shows the 'DXi Capacity Growth History' report schedule configuration pane. At the top, there are buttons for 'Export As...', 'Update', 'Chart', 'Data', and 'Schedule'. The main configuration area includes:

- Frequency:** Radio buttons for 'Never' and 'Every'. 'Every' is selected with a value of '3' and a unit of 'Days'.
- Starting:** A date field set to '04/22/2013' with a calendar icon, and two spinners for '13' and '50'.
- Report Time Frame:** A field set to '3' with a unit of 'Days'.
- Report Values:** A dropdown menu set to 'Hours Summary'.
- Output:** A dropdown menu set to 'XML'.
- Send Results To:** A section with an '+ADD' button and a list of email addresses. The first address is 'address'.
- Name:** A list of report names: 'StorageMetrics:capacity', 'StorageMetrics:used', and 'StorageMetrics:totalReductionRatio'.
- Buttons:** 'Cancel' and 'Save' buttons at the bottom.

- 4 To enable report recurrence, select **Every**, and then specify the frequency of recurrence in **Minutes, Hours, Days, or Months**.

Note: To disable report recurrence, select **Never**. Quantum Vision does not automatically generate or send the report.

- 5 Configure additional report settings:

- **Starting** - Specify the start date and time of the schedule.
- **Report Time Frame** - (Observable History and Alert Acknowledgement reports only) Specify the length of the time frame presented in the report in **Minutes, Hours, Days, or Months**.
- **Report Values** - (Observable History reports only) Select the type of values presented in the report (**Minutes Summary, Hours Summary, or Days Summary**).
- **Output** - Select the output format for the report (**XML, CSV, Text, or Graph**).

Note: The **Graph** option is only available for Observable History reports.

- 6 Specify the recipients to send the report to:

- To add a recipient, click **Add**. Select the **New Email** item in the list, and then enter the e-mail address of the recipient.
- To delete a recipient, select the recipient in the list and click **Delete**.

- 7 Click **Save**.

If report recurrence is enabled, Quantum Vision generates and sends the report at the specified frequency.



Chapter 9

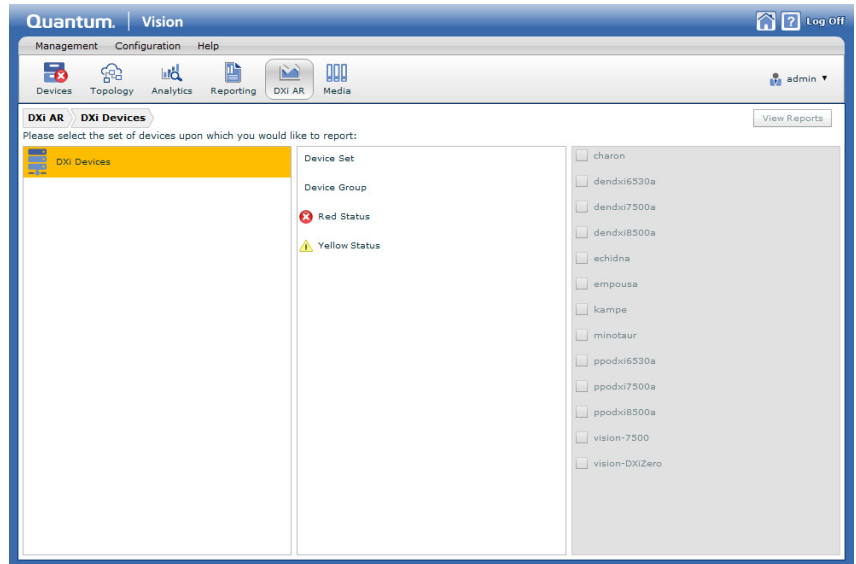
DXi Advanced Reporting

DXi Advanced Reporting is a powerful visual reporting and analysis tool integrated with DXi V-Series virtual appliances, DXi2500-D, DXi4500, DXi4701, DXi6500, DXi6700, DXi6800, DXi7500, and DXi8500 disk backup systems. You can access DXi Advanced Reporting reports from within Vision, as well as view and compare graphs for multiple DXi devices.

To access the **DXi Advanced Reporting** console, click **DXi AR** on the Vision toolbar (see [Figure 88](#)).

Note: The reports and graphs that are available on the DXi Advanced Reporting console differ depending on the DXi model and the version of software installed on the DXi. For detailed information about each of the available reports and graphs, refer to the *DXi Advanced Reporting User's Guide* (6-67353).

Figure 88 DXi Advanced Reporting Console - Select Devices



To view DXi Advanced Reporting reports and graphs:

- 1 Click **DXi AR** on the Vision toolbar.
- 2 In the left pane, select **DXi Devices**.

Note: DXi Advanced Reporting graphs are not available for DXi35/55 devices or Scalar devices.

- 3 In the center pane, select an option for displaying reports and graphs:
 - **Device Set** - View advanced reporting for one or more selected devices.
In the right pane, select the devices to display graphs for.
 - **Device Group** - View advanced reporting for all devices in a group.
In the right pane, select the groups to display graphs for. (For information about creating groups, see [Groups Management](#) on page 34.)
 - **Red Status** - View advanced reporting for all devices with a status of **Red**.

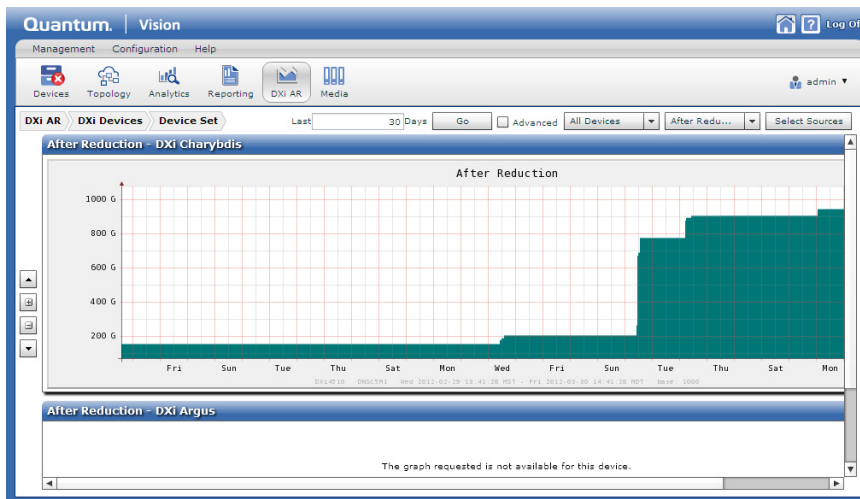
- **Yellow Status** - View advanced reporting for all devices with a status of **Yellow**.

4 Click View Reports.

Vision displays advanced reporting graphs for the specified devices (see [Figure 89](#)).

- When viewing a single device, the standard DXi Advanced Reporting reports are displayed. Each report contains two or more graphs. To view a different report, select it in the list on the toolbar (see [Figure 91](#)).
- When viewing multiple devices, only one type of graph is displayed at a time (with one instance of the graph for each device). To view a different graph, select it in the list on the toolbar (see [Figure 91](#)).

Figure 89 DXi Advanced Reporting Console - View Graphs



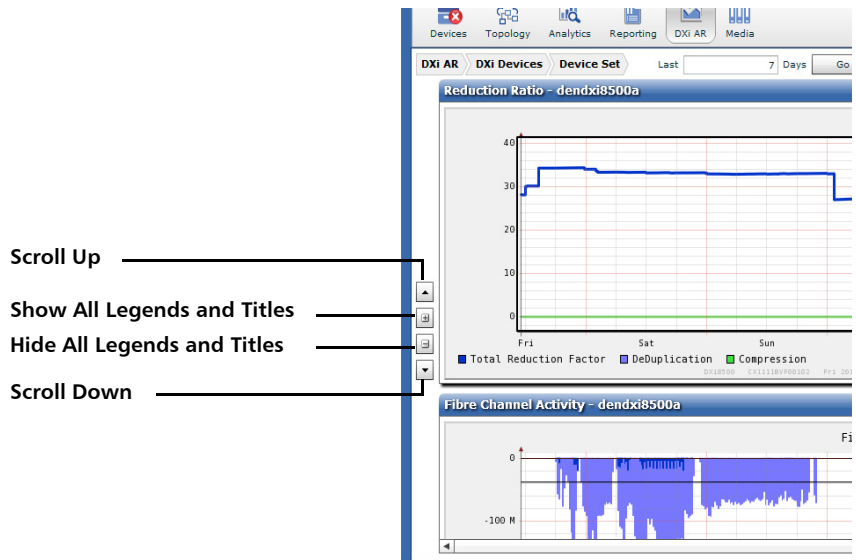
- 5 (Optional) Use the view controls to modify the graph display (see [View Controls](#) on page 160).
- 6 (Optional) Use the advanced reporting toolbar to change the time range, devices, or graphs that are displayed (see [Advanced Reporting Toolbar](#) on page 160).

View Controls

The view controls, on the left edge of the **DXi Advanced Reporting** console (see [Figure 90](#)), allow you to do the following:

- **Scroll Up** – Scrolls the graph order up by one graph.
- **Show All Legends And Titles** – Shows the title and footer on all graphs in the report.
- **Hide All Legends And Titles** – Hides the title and footer on all graphs in the report.
- **Scroll Down** – Scrolls the graph order down by one graph.

Figure 90 View Controls



Advanced Reporting Toolbar

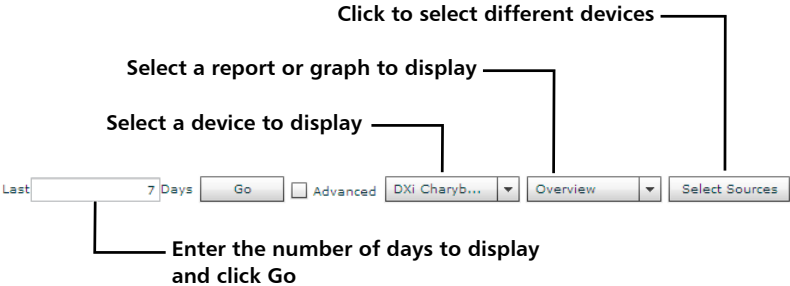
When viewing graphs on the **DXi Advanced Reporting** console, use the graph toolbar at the top of console to change the time range displayed in the graph, or to select the devices and graphs to view (see [Figure 91](#)).

- To change the time range displayed in the graphs, enter the number of days to display in the box, and then click **Go**. By default, graphs show the last 7 days of data.

Note: Select the **Advanced** check box to display a button bar with additional tools for controlling the time range in the graph. For more information about using the button bar, see "Working With Time Ranges" in the *DXi Advanced Reporting User's Guide* (6-67353).

- To view reports for a single device, select the device in the list. Or select **All Devices** to display graphs for all of the currently selected devices.
- To view a different report (single device) or graph (multiple devices), select it in the list.
- To select different devices to display, click **Select Sources**. You are returned to the device selection view.

Figure 91 Graph Toolbar



Chapter 10 Media

The **Media** console displays information for tape media in Scalar libraries monitored by Quantum Vision. The **Media** console contains two panes: **Filters** and the media table. To access the **Media** console, click **Media** on the Vision toolbar (see [Figure 92](#)).

Figure 92 Media Console

The screenshot shows the Quantum Vision Media Console interface. At the top, there is a navigation menu with 'Management', 'Configuration', and 'Help'. Below this is a toolbar with icons for 'Devices', 'Topology', 'Analytics', 'Reporting', 'DXI AR', and 'Media'. The 'Media' icon is highlighted. The main area is divided into two panes: 'Filters' on the left and a table of media on the right. The 'Filters' pane includes sections for 'Barcode', 'Last Scalar', 'Tape Type', 'Location', and 'Health'. The 'Health' section shows a summary: 'Total: 1216', 'Healthy: 1207', 'Warning: 9', and 'Critical: 0'. The table on the right has the following columns: Barcode, Last Scalar, Tape Type, Location, Threat Count, Serial Number, Manufacturer, Manufacture Date, Tape Alerts, MBs Read, MBs Written, Encryption, Attribute, Recovery, Unrecovered, and Unrecoverable. The table contains 13 rows of data, with the first row highlighted in yellow. The bottom of the interface shows 'Page Size: 100', 'Page 1 of 13', and 'Pages: << 1 2 3 4 5 6 7 8 9 10 ... >>'.

| Barcode | Last Scalar | Tape Type | Location | Threat Count | Serial Number | Manufacturer | Manufacture Date | Tape Alerts | MBs Read | MBs Written | Encryption | Attribute | Recovery | Unrecovered | Unrecoverable |
|----------|---------------------|-----------|----------|--------------|---------------|--------------|-------------------|-------------|----------|-------------|------------|-----------|----------|-------------|---------------|
| TR1017L6 | scalar:stability:2k | LTO6 | library | 0 | 0000000003 | FUJIFILM | March 26, 2012 | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| TR1013L6 | scalar:stability:2k | LTO6 | library | 0 | 0000000066 | FUJIFILM | March 01, 2012 | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| IRV135L3 | prod:2000 | LTO3 | unknown | 79 | 2100361103 | MAXELL | September 19, 20 | 0 | 5,854 M | 4,550,6 | unknown | WORM | 0 | 0 | 0 |
| IRV050L3 | prod:2000 | LTO3 | unknown | 224 | 2120293051 | MAXELL | September 19, 20 | 0 | 5,366 M | 8,119,7 | unknown | WORM | 0 | 0 | 1 |
| IRV044L3 | prod:2000 | LTO3 | unknown | 180 | 2210056981 | MAXELL | September 19, 20 | 0 | 4,910 M | 7,887,9 | unknown | WORM | 0 | 0 | 1 |
| IRV010L3 | prod:2000 | LTO3 | unknown | 220 | 2110292886 | MAXELL | September 19, 20 | 0 | 134,674 | 7,744,2 | unknown | WORM | 0 | 0 | 1 |
| CX0398 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| CX0181 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| CX0139 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| CLNU01L2 | rossi | LTO1 | library | 0 | 0722301858 | FUJIFILM | February 03, 2007 | 0 | 0 MB | 0 MB | unknown | Cleaning | 0 | 0 | 0 |
| CLNU01CU | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| CLNU01L4 | prod:2000 | LTO1 | unknown | 182 | J20UPRH1RF | FUJIFILM | January 25, 2012 | 0 | 709 MB | 44,419 | unknown | Cleaning | 0 | 0 | 0 |
| CLNU01L4 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| CLNU00L4 | rossi | LTO1 | library | 0 | 103U303310 | FUJIFILM | April 02, 2010 | 1 | 0 MB | 0 MB | unknown | Cleaning | 0 | 0 | 0 |
| BY0731 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| BY0715 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| BY0426 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |
| BY0368 | | library | library | 0 | | | | 0 | 0 MB | 0 MB | unknown | WORM | 0 | 0 | 0 |

Filtering Media

The **Media** console's **Filters** pane allows you to input various criteria on which you can customize or tailor the data that is displayed in the media table. Only the media that matches your criteria will be displayed.

You can use the following criteria to customize your media table:

Note: Hold the cursor over the criteria for a tooltip regarding its content or use.

- **Barcode** - The barcode of the media. Wild card searches are supported; use either the percent sign, "%", or asterisk, "*".
- **Last Scalar** - The last physical device from which Vision received status for the media. Multiple items can be selected.
- **Tape Type** - Select tapes based on tape type. Select from **All**, **LTO1** through **LTO6**, **cleaning**, or **unknown**. Multiple items can be selected.
- **Location** - The media's current location. The possible locations can be seen in the **Location** column of the media table.
- **Health** - Health is a *roll up* of Threadcount, Tape Alert, and EDLM status. Select tapes based on health status. Select from **All**, **Healthy**, **Warning**, or **Critical**.
- The bottom left section of the **Filters** pane displays status information for the media that is currently displayed. In this area you can find the **Total** number of media and the number of media by status: **Healthy** (green), **Warning** (yellow), and **Critical** (red). Hold the cursor over the status bar to see more information regarding the information depicted by the status bar.
- **Reset Filters** - Clears filter criteria selections and reset them to their default state.

Media Table

The **Media** console's media table contains the following information:

Note: Click any column title to sort the media table by that data type.

- **Barcode** - Double-click a row to see the barcode details dialog box (see [Figure 93](#)).

- **Last Scalar** - The last physical device from which Vision received status for the media. Multiple items can be selected.

Note: Click the **Last Scalar** link to view the **Device Console** for the device (see [Scalar Device Console](#) on page 95).

- **Tape Type** - Possible tape type values can be: **LTO1** through **LTO6**, **cleaning**, or **unknown**.
- **Location** - The current location of the media (**library**, **exported**, or a custom location). The location value can be configured for the export on the Scalar device or manually set through Vision.

Note: To use custom locations, see [Updating Media Location](#) on page 167.

- **Thread Count** - The number of times the media has been threaded onto a tape drive. The thread count is used to determine the health of the media (Media health is not only determined by thread count but also tape alerts and EDLM status.):
 - **Healthy** - Thread count is less than 8,000.
 - **Warning** - Thread count is between 8,000 and 10,000.
 - **Critical** - Thread count is higher than 10,000.
- **Serial Number** - Media's serial number.
- **Manufacturer** - Media's Manufacturer.
- **Manufacture Date** - Date media was manufactured.
- **Tape Alerts** - Number of alerts associated with the tape. The **Tape Alert** icon can be a yellow exclamation mark (warning) or a red X (critical). Double-click the row to see the tape alerts information on the **Barcode Details** dialog box (see [Figure 94](#)), or hold the cursor over the tape alert icon to see a tooltip for the alert.
- **MBs Read** - The amount of data in MBs read from the media.
- **MBs Written** - The amount of data in MBs written to the data.
- **Last Scalar LTFS** - The last Scalar LTFS device that was using the media as an LTFS. Click the link to launch the native management interface for the device.

- **EDLM Type** - The type of Extended Data Life Management (EDLM) scan that was performed: **Quick Scan**, **Normal Scan**, or **N/A** (scan type not available).
- **EDLM Status** - The EDLM status for the device's media: **Not Complete**, **Good**, **Untested**, **Suspect**, **Failed/Bad**, or **N/A**.

Note: A status of **N/A** (not available) indicates that the information returned from the device did not allow Vision to determine the device's status.

- **EDLM Date** - The date that the last EDLM scan was completed.
- **Encryption** - Possible values are: **True**, **False**, or **Unknown**.
- **Attribute** - Possible values are: **WORM** (Write Once Read Many), **WORM** (Write Many Read Many), or **cleaning cart**.
- **Recovered Read Errors** - Number of recovered read errors.
- **Unrecovered Read Errors** - Number of unrecovered read errors.
- **Recovered Write Errors** - Number of recovered write errors.
- **Unrecovered Write Errors** - Number of unrecovered write errors.

To export the table to a file, click the file export button (see [Exporting to a File](#) on page 19). Only the currently displayed page of the table is exported.

To choose the columns of data that you want to display, click the configuring columns button (see [Configuring Columns](#) on page 19).

Figure 93 Barcode Details

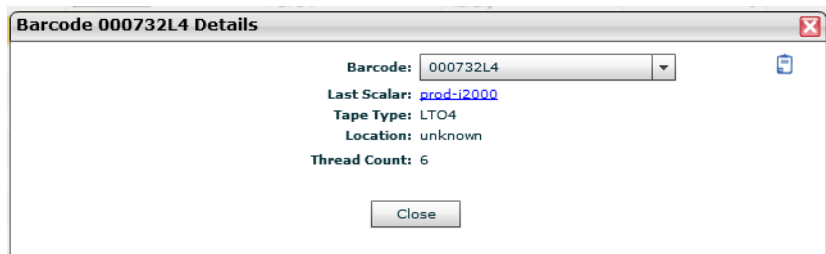
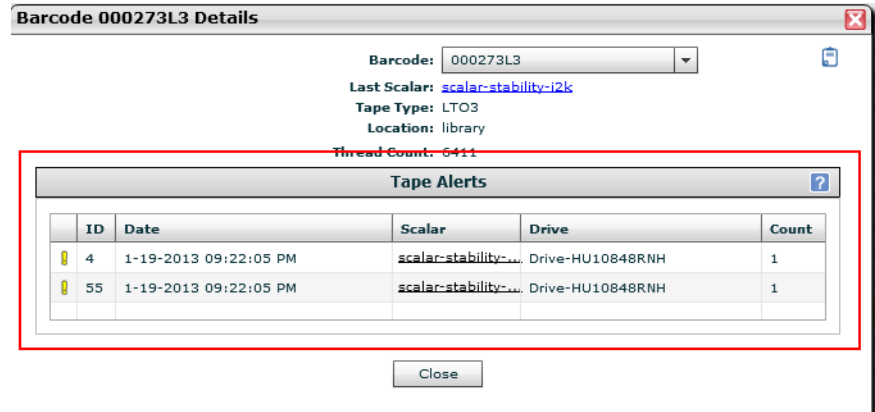


Figure 94 Tape Alerts



Navigating the Media

By default, the table on the **Media** console displays all media in all monitored Scalar devices. If there are more than 100 media (rows) to display, Quantum Vision displays them on multiple pages.

- To navigate to a specific page, enter the page number in the **Page** box at the bottom of the table, and then press **<enter>**.
- To navigate between pages, use the controls in the lower right of the table.

Updating Media Location

By default, the location of media is either **library** if it is located in a library (all libraries) or **exported** if it has been exported from the library (Scalar i2000/i6000 libraries only). You can also specify a custom location for a piece of media, for example, if it was exported to a remote location.

On the **Media** console, the location for a piece of media displays as **unknown** in the following situations:

- If the **Last Scalar** is listed and the media is located in the library I/E station or in a drive.
- If the **Last Scalar** is N/A and the media has been removed from the library.

Note: To track exported media, you must enable Media Security Notifications on the Scalar i2000/i6000 library. Access the LMC client for the library and select **Setup > Notifications > Media Security**. Select the notifications to track in Vision, and then click **OK**.

To update the location of a piece of media:

- 1 On the **Media** console, select the media in the table, and then click **Update Location**.

Note: To select multiple media, hold **<Ctrl>** (Windows, Linux) or **<Command>** (Mac OS X) while clicking. To select a range of media, hold **<SHIFT>** while clicking.

- 2 Enter the new location in the box.
- 3 Click **Submit**.

You can use the new location when filtering media.

Deleting Media

If one or more pieces of media are no longer used, you can delete them. Deleted media no longer displays on the **Media** console.

To delete a piece of media:

- 1 On the **Media** console, select the media in the table, and then click **Delete**.

Note: To select multiple media, hold **<Ctrl>** (Windows, Linux) or **<Command>** (Mac OS X) while clicking. To select a range of media, hold **<SHIFT>** while clicking.

- 2 Click **Yes** to confirm the deletion.



Appendix A DXi Data Series

Reports present status and performance data for devices as either a graph or a table. Each report includes one or more data series. To view and work with reports, use the **Reporting** console (see [Reporting](#) on page 141).

The following section presents information that describes the data that is presented in the various DXi data series.

Note: The units a data series is reported in appears on the chart legend when viewed on a graph or in the **Units** column when viewed in a table.

- [Table 6 - Default](#)
- [Table 7 - Disk Usage](#)
- [Table 8 - Space Reclamation](#)
- [Table 9 - Library](#)
- [Table 10 - Node n](#)
- [Table 11 - Replication](#)
- [Table 12 - Storage Array Group](#)
- [Table 13 - Storage Metrics](#)

Note: To view DXi Advanced Reporting data series, use the DXi Advanced Reporting console (see [DXi Advanced Reporting](#) on page 157).

Default

Table 6 DXi Data Series - Default

| Data Series | Description |
|-------------|---|
| Capacity | The total usable disk capacity of the system. |
| Free | The disk capacity that is available for data storage. |
| Throughput | The average data ingest throughput for the system. |
| Used | The disk capacity that already holds data. |

Disk Usage

Table 7 DXi Data Series - Disk Usage

| Data Series | Description |
|-----------------|---|
| Capacity | The total usable disk capacity of the system. |
| After Reduction | The amount of data that has been processed by the data deduplication and compression engines. |
| Free | The disk capacity that is available for data storage. |
| Unused | The disk capacity that is not being used to hold data. |
| Used | The disk capacity that already holds data. |

Space Reclamation

Table 8 DXi Data Series - Space Reclamation

| Data Series | Description |
|-----------------|---|
| Data Scanned | The amount of data processed during space reclamation. |
| Space Reclaimed | The amount of disk capacity freed during space reclamation. |

Library

Table 9 DXi Data Series - Library

| Data Series | Description |
|--------------------------|--|
| Virtual - <partition> | Throughput The average data ingest throughput for the partition (in bytes). |
| <media <i>n</i> > | Capacity The total usable capacity of the tape cartridge. |
| | Used The tape cartridge capacity that already holds data. |
| <drive <i>n</i> > | Average Read The average number of bytes/sec read from the tape drive per second. Note: This value is valid only if the barcode is not empty and there is currently I/O activity on the tape drive. |
| | Average Written The average number of bytes/sec written to the tape drive per second. Note: This value is valid only if the barcode is not empty and there is currently I/O activity on the tape drive. |

| Data Series | Description |
|-------------|---|
| Capacity | <p>The total usable capacity of the tape cartridge that is currently in the tape drive.</p> <p>Note: This value is valid only if the barcode is not empty.</p> |
| Used | <p>The used capacity of the tape cartridge that is currently in the tape drive</p> <p>Note: This value is valid only if the barcode is not empty.</p> |

Node *n*

Table 10 DXi Data Series - Node *n*

| Data Series | Description |
|--------------|--|
| CPU Status | <p>Busy Percentage</p> <p>The percentage of all observed ticks for all CPUs that are busy.</p> |
| | <p>Busy Ticks</p> <p>The number of observed ticks for all CPUs that are busy.</p> |
| | <p>Other Ticks</p> <p>The number of observed ticks for all CPUs that are not busy.</p> |
| CPU <i>n</i> | <p>Busy Percentage</p> <p>The percentage of all observed ticks for the CPU that are busy.</p> |
| | <p>Busy Ticks</p> <p>The number of observed ticks for the CPU that are busy.</p> |
| | <p>Other Ticks</p> <p>The number of observed ticks for the CPU that are not busy.</p> |
| Fan Group | <p>Fan <i>n</i> Value</p> <p>The speed of the fan (in RPM).</p> |
| Memory | <p>Free</p> <p>The amount of available memory in the system.</p> |

| Data Series | | | Description |
|--------------|------------------|-------------|--|
| | Page In | | The amount of memory paged in from the swap file. |
| | Page Out | | The amount of memory paged out to the swap file. |
| | Total | | The total amount of memory in the system. |
| Port Group | FC Port <i>n</i> | Received | The amount of data received since the last reset. |
| | | Transmitted | The amount of data transmitted since the last reset. |
| | ETH <i>n</i> | Received | The amount of data received since the last reset. |
| | | Transmitted | The amount of data transmitted since the last reset. |
| All PWR | Value | | The power supply status. |
| Sensor Group | <sensor> | Value | The status of the sensor. |

Replication

Table 11 - DXi Data Series - Replication

| Data Series | | | Description |
|-------------|-------------------|--|---|
| Source | Actual Total Sent | | The total amount of data (after deduplication) sent from this source. |
| | Average Sent | | The average rate of data sent from this source (in MB/sec). |
| | Replication Sent | | The number of replication jobs sent from this source. |

| Data Series | | Description | |
|-----------------------------|-----------------------------|---|---|
| Total Data Sent | | The total amount of data (before deduplication) sent from this source. | |
| Total Sent | | The total amount of data (before deduplication) sent from this source. | |
| <source share or partition> | Average Sent | The average rate of data sent from this share or partition (in MB/sec). | |
| | Remaining | The amount of data remaining to be sent from this share or partition. | |
| | Total Sent | The total amount of data sent from this share or partition. | |
| Target | Average Received | The average rate of data received by this target (in MB/sec). | |
| | Replications Received | The number of replication jobs received by this target. | |
| | Total Data Received | The total amount of data received by this target. | |
| | Total Received | The total number of replication jobs received by this target. | |
| | <target share or partition> | Average Received | The average rate of data received by this share or partition (in MB/sec). |
| | | Replications Received | The number of replication jobs received by this share or partition. |
| | | Total Received | The total amount of data received by this share or partition. |

Storage Array Group

Table 12 DXi Data Series -
Storage Array Group

| Data Series | Description |
|---|---------------------------------|
| <array <i>n</i> > Disk <i>n</i> Capacity | The total capacity of the disk. |

Storage Metrics

Table 13 DXi Data Series -
Storage Metrics

| Data Series | Description |
|----------------------------|---|
| Capacity | The total usable disk capacity of the system. |
| Compression Ratio | The compression ratio of all existing data that has been processed by the data deduplication and compression engines. |
| Deduplicated Original Area | The original, native size of all existing data that has been processed by the data deduplication and compression engines. |
| Deduplication Percent | The percentage of data that was reduced using both compression and data deduplication. |
| Deduplication Ratio | The deduplication ratio of all existing data that has been processed by the data deduplication engine. |
| Deduplication Reduced Area | The final, reduced size of all existing data that has been processed by the data deduplication and compression engines. |
| Free | The disk capacity that is available for data storage. |
| Percent Full | The percentage of the total disk capacity of the system that already holds data. |

| Data Series | Description |
|-----------------------|---|
| Total Reduction Ratio | The total reduction ratio of all existing data that has been processed by the data deduplication and compression engines. |
| Used | The disk capacity that already holds data. |



Appendix B

Uninstalling Vision 4

This appendix describes how to uninstall the Vision 4 software from the Vision server.

Uninstalling Vision 4

To uninstall the Quantum Vision 4 software, follow the procedure for the operating system running on the Vision server:

- [Uninstalling Vision 4 on Windows](#)
- [Uninstalling Vision 4 on Linux](#)

Uninstalling Vision 4 on Windows

To uninstall the Vision 4 software on a Vision server running Windows:

- 1 In Microsoft Windows, navigate to the **Control Panel**, and then double-click **Add or Remove Programs**.
- 2 In the list of currently installed programs, select **Quantum Vision**, and then click **Change/Remove**.

A message appears asking if you want to uninstall Quantum Vision.

- 3 Click **Yes** to continue.

Wait while the setup wizard uninstalls the software.

You will have an opportunity to save the Vision database. The database contains Vision configuration and status information. Click **Yes** to save the database, or click **No** to delete the database.

A message appears when the uninstall process is complete.

- 4 Click **OK** to close the setup wizard.

Depending on the version of Windows that you are using, a message stating that you must restart Windows to complete the setup process might display. If it does, click **Yes** to restart Windows.

Uninstalling Vision 4 on Linux

To uninstall the Vision 4 software on a Vision server running Linux:

- 1 In a terminal window, execute the following commands as **root**:

```
cd /opt/quantum-vision
```

```
./uninstall
```

A message appears asking if you want to uninstall Quantum Vision.

- 2 Click **Yes** to continue.

Wait while the setup wizard uninstalls the software.

You will have an opportunity to save the Vision database. The database contains Vision configuration and status information. Click **Yes** to save the database, or click **No** to delete the database.

A message appears when the uninstall process is complete.

- 3 Click **OK** to close the setup wizard.



Appendix C

Vision Database Backup, Restore and Migration Procedures

This appendix describes the following Vision procedures.

- [Backup and Restore the Vision Database](#)
- [Migrating Vision to a Different Server](#)

Backup and Restore the Vision Database

Vision's database consists of two separate data storage systems: a relational database management system (RDBMS) and a round-robin database (RRD). For Vision versions 4.2.1 and earlier, the RDBMS is Apache Derby. For Vision versions 4.3 and later, the RDBMS is PostgreSQL. The following instructions apply to only Vision 4.3 and later.

Users should regularly backup their databases to protect against data loss. The RDBMS and RRD databases should be backed up together to preserve consistency between the databases in the backup.

The following backup procedures are presented:

- [Backing Up the Vision Database \(non-appliance\)](#)
- [Restoring the Vision Database from a Backup \(non-appliance\)](#)
- [Backing Up the Vision Database - appliance](#)
- [Restoring the Backed Up Vision Database - appliance](#)

Backing Up the Vision Database (non-appliance)

Windows OS Database Backup

To back up your Vision (non-appliance) database on a Windows system, do the following:

- 1 Stop the Vision services.
 - a Log on to the Vision server as **administrator**.
 - b From the **Services** panel, stop the service named **Quantum Vision**.
- 2 Copy the Vision database.
 - a Change your directory location to:
C:\Program Files (x86)\Quantum Vision\database.
 - b In the **database** folder there is a sub-folder named **rrd**. Copy the **rrd** folder and all of its contents to a safe place, preferably another server. This is the backup of your RRD database.
- 3 Open a command window, and run the following command:
"C:\Program Files (x86)\Quantum Vision\database\PostgreSQL\8.4\bin\pg_dump" -U postgres -Fc visiondb > visiondb.pgdump

This creates a file called **visiondb.pgdump**, which is the backup of your PostgreSQL RDBMS database. Copy the **visiondb.pgdump** file to a safe place, preferably another server. Keep the **visiondb.pgdump** and **rrd** backups together.
- 4 Restart the Vision services.
 - a Log on to the Vision server as **administrator**.
 - b From the **Services** panel, start the service named **Quantum Vision**.

Linux OS Database Backup

To back up your Vision (non-appliance) database on a Linux system, do the following:

- 1 Stop the Vision services.
 - a Log on to the Vision server as **root**.
 - b Run the command **service vision stop**.
- 2 Copy the Vision database
 - a Change your directory location to:
/opt/quantum-vision/database
 - b In the **database** directory there is a subdirectory named **rrd**. Copy the **rrd** directory and all of its contents to a safe place, preferably another server. This is the backup of your RRD database.
- 3 Open a terminal window, and run the following command:

```
/opt/quantum-vision/database/PostgreSQL/8.4/bin/pg_dump -U postgres -Fc visiondb > visiondb.pgdump
```

This creates a file called **visiondb.pgdump**, which is the backup of your PostgreSQL RDBMS database. Copy the **visiondb.pgdump** file to a safe place, preferably another server. Keep the **visiondb.pgdump** and **rrd** backups together.
- 4 Start the Vision services.
 - a Log in to the Vision server as **root**.
 - b Run the command **service vision start**.

Restoring the Vision Database from a Backup (non-appliance)

Windows OS Database Restoration

To restore a backed up Vision (non-appliance) database on a Windows system, do the following:

- 1 Stop the Vision services.
 - a Log on to the Vision server as **administrator**.
 - b From the **Services** panel, stop the service named **Quantum Vision**.

- 2 Restore the Vision database.
 - a Change your directory location to:
C:\Program Files (x86)\Quantum Vision\database.
 - b In the **database** folder there is a sub-folder named **rrd**. Delete the existing **rrd** folder, and replace it with an **rrd** folder from a previous backup.
- 3 Open a command window, and run the following commands:
 - **"C:\Program Files (x86)\Quantum Vision\database\PostgreSQL\8.4\bin\dropdb" -U postgres visiondb**
 - **"C:\Program Files (x86)\Quantum Vision\database\PostgreSQL\8.4\bin\createdb" -U postgres visiondb**
 - **"C:\Program Files (x86)\Quantum Vision\database\PostgreSQL\8.4\bin\pg_restore" -U postgres -d visiondb visiondb.pgdump**

where **visiondb.pgdump** is the file created from a previous backup.

Note: When restoring the database you might encounter the following error message, if so, disregard it:

```
# /opt/quantum-vision/database/PostgreSQL/8.4/bin/pg_restore -
U postgres -d visiondb visiondb.pgdump
pg_reste: [archiver (db)] Error while PROCESSING TOC:
pg_restore: [archiver (db)] Error from TOC entry 578;
2612 16386 PROCEDURAL LANGUAGE plpgsql postgres
pg_restore: [archiver (db)] could not execute query:
ERROR: language "plpgsql" already exists
```

```
Command was: CREATE PROCEDURAL LANGUAGE plpgsql;
```

```
Note: WARNING: errors ignored on restore: 1
```

- 4 Restart the Vision services
 - a Log on to the Vision server as **administrator**.
 - b From the **Services** panel, start the service named **Quantum Vision**.

Linux OS Database Restoration

To restore a backed up Vision (non-appliance) database on a Linux system, do the following:

- 1 Stop the Vision services.
 - a Log on to the Vision server as **root**.
 - b Run the command **service vision stop**.
- 2 Restore the Vision database.
 - a Change your directory location to:
opt/quantum-vision/database.
 - b In the **database** directory there is a subdirectory named **rrd**. Delete the existing **rrd** database directory, and replace it with an **rrd** database directory from a previous backup.
- 3 Open a terminal window, and run the following commands:
 - **/opt/quantum-vision/database/PostgreSQL/8.4/bin/dropdb -U postgres visiondb**
 - **/opt/quantum-vision/database/PostgreSQL/8.4/bin/createdb -U postgres visiondb**
 - **/opt/quantum-vision/database/PostgreSQL/8.4/bin/pg_restore -U postgres -d visiondb visiondb.pgdump**

Note: When restoring the database you might encounter the following error message, if so, disregard it:

```
# /opt/quantum-vision/database/PostgreSQL/8.4/bin/pg_restore -
U postgres -d visiondb visiondb.pgdump
pg_restore: [archiver (db)] Error while PROCESSING TOC:
pg_restore: [archiver (db)] Error from TOC entry 578;
2612 16386 PROCEDURAL LANGUAGE plpgsql postgres
pg_restore: [archiver (db)] could not execute query:
ERROR: language "plpgsql" already exists
```

```
Command was: CREATE PROCEDURAL LANGUAGE plpgsql;  
Note: WARNING: errors ignored on restore: 1
```

- 4 Start the Vision services.
 - a Log on to the Vision server as **root**.
 - b Run the command **service vision start**.

Backing Up the Vision Database - appliance

Database Backup

To back up your Vision (appliance) database, do the following:

- a Log in to the appliance as the **sysadmin** user.
- b At the prompt, run the command **admin backup**.

You will be prompted for the following:

- the IP address of a remote server
- the user name and password on that server
- the destination directory on the server
- the SSH port number (default: 22) on that server.

The Vision appliance will create a backup archive and copy the archive to the remote server using secure copy with the provided credentials.

Note: The backup process generates a filename for the database backup. You will see a message similar to the following: **Database archive successfully saved at / tmp/vision_database.tar on server 12.34.567.890**
You can rename the backup file after it is exported. This allows you to save multiple backups.

Restoring the Backed Up Vision Database - appliance

Database Restoration

To restore your Vision (appliance) database, do the following:

- a Log in to the appliance as the **sysadmin** user.
- b At the prompt, run the command **admin restore**.

You will be prompted for the following:

- the IP address of the remote server
- the user name and password on that server
- the filename of the database backup that you want to restore
- the SSH port number (default: 22) on that server.

The Vision appliance will retrieve the backup archive using secure copy with the provided credentials, and restore the database on the appliance.

Migrating Vision to a Different Server

To move Vision from one server to another, do the following:

- 1 Install the Vision software on the new server.

Note: When migrating Vision from one server to another, you must install the same version of Vision on the new server.

- 2 Back up the Vision database on the current server; see the appropriate back up procedure in the [Backup and Restore the Vision Database](#) section.
- 3 Copy the Vision **.properties** file, which contains Vision configuration information, from the current server to the new server.

Windows: copy

C:\Program Files (x86)\Quantum Vision\config\vision.properties

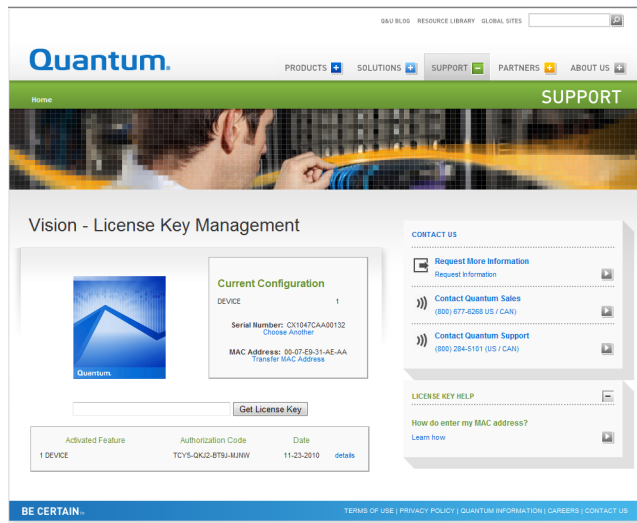
Linux: copy

/opt/quantum-vision/config/vision.properties.

- 4 Restore the Vision database on the new server; see the appropriate restoration procedure in the [Backup and Restore the Vision Database](#) section.

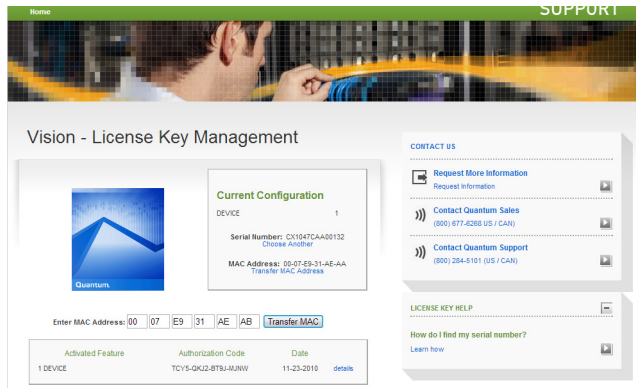
- 5 Update your Vision licenses for the new server. Vision licenses are tied to the MAC address of the server. When moving to a new server, you must update the license information.
 - a Open a Web browser on a computer with Internet access.
 - b Navigate to <http://www.quantum.com/licensekeys>.
 - c Enter your serial number, and then click submit. The License Key Management page displays (see [Figure 95](#)).

Figure 95 License Key Management



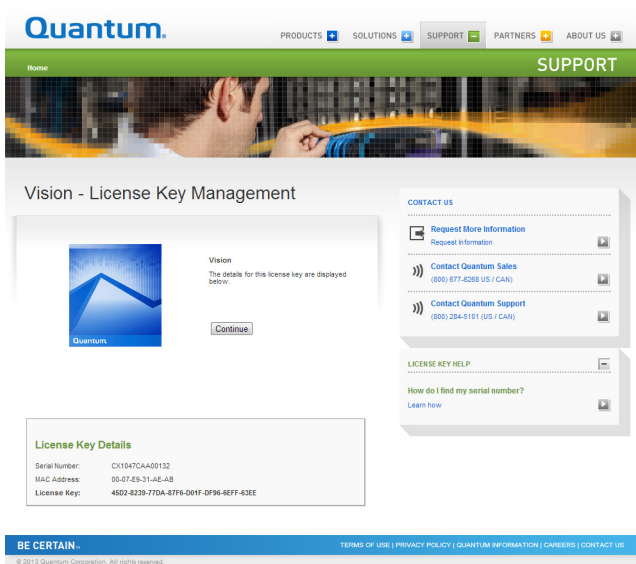
- d Select **Transfer MAC Address**. The Transfer MAC page displays (see [Figure 96](#)).

Figure 96 Transfer MAC



- e Enter the MAC address of your new (migrating to) server (see [Step 3](#) on page 66 to find the MAC address), and then select **Transfer MAC**. The License Key Details page displays (see [Figure 97](#)).

Figure 97 License Key Details



- f Take the new license key and follow the steps as presented in [Entering the License Key](#) on page 68.
- g Repeat steps 1 through 7 for all current licenses.

Appendix C: Vision Database Backup, Restore and Migration Procedures

Migrating Vision to a Different Server