

DXi V5000, DXi4800 and DXi9000 Series Release Notes 4.5.0.2

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Purpose of This Release

DXi 4.5.0.2 Software is a maintenance release supporting DXi V5000, DXi4800 and DXi9000/9100 disk backup systems.

What's New in DXi 4.5.0.2?

This software release contains the following new features:

Role-Based Access Control - DXi System Administrators can create user groups and assign users to those groups as Operators or Administrators, with access specified for NAS shares, OST LSUs, and (for physical systems) VTL Partitions. New commands are added as applicable in the new *User Access* section in the *DXi-Series Command Line Interface (CLI)* topic.

100 GB Ethernet Card - Previously available as an upgrade option only in DXi9100 systems, this card is now available as an option in DXi9000 SD and HD systems and DXi4800.

DXi Secure Snapshots - Secure Snapshots allows you to create point-in-time snapshots of shares, VTL partitions, or OST LSUs.

For more information, see the following reference material in your DXi V5000, DXi4800 and DXi9000 Series Documentation Center:

- *DXi Secure Snapshots and Manage Secure Snapshots* in the *DXi-Series Command Line Interface (CLI)* topic.
- *DXi Secure Snapshots Best Practices Guide* on the *DXi Best Practices Guides* page.

***i* Note: Quantum strongly recommends upgrading to the latest version of DXi software before installing capacity upgrades, regardless of the capacity increment.**

Product Compatibility List

The following table provides information about DXi hardware compatibility with DXi 4.5.0.2 Software.

Component	Description
DXi4800	<ul style="list-style-type: none"> • 1 Node • 1 to 2 RAID controller cards. • 0 to 4 Expansion modules (JBODs) • 1 x 1 GbE Ethernet ports • (Optional) 2 x 10 GbE Ethernet ports • (Optional) Up to 8 x 25 GbE Ethernet ports (SFP28 optical or DAC Copper) • (Optional) Up to 16 x 10 GbE SFP Ethernet ports or 16 x 10GbE Base-T Ethernet ports. • (Optional) Up to 8 x 16 Gb Fibre Channel ports (for VTL or PTT) • (Optional) Up to 8 x 100 GbE Ethernet ports (Optical or DAC Copper) • 8 TB - 315 TB usable capacity
DXi9000 SD	<ul style="list-style-type: none"> • 1 Node • 1 Array module (RBOD) • 0 to 9 Expansion modules (EBODs) • 1 x 1 GbE Ethernet ports • (Optional) 2 x 10 GbE Ethernet ports • (Optional) Up to 8 x 25 GbE Ethernet ports (SFP28 optical or DAC Copper) • (Optional) Up to 16 x 10 GbE SFP Ethernet ports or 16 x 10GbE Base-T Ethernet ports. • (Optional) Up to 8 x 16 Gb Fibre Channel ports (for VTL or PTT) • (Optional) Up to 8 x 100 GbE Ethernet ports (Optical or DAC Copper) • 51 TB - 1020 TB usable capacity

Component	Description
DXi9000 HD	<ul style="list-style-type: none"> • 1 Node • 1 Array module (RBOD) • 1 Expansion module (EBOD) • 1 x 1 GbE Ethernet ports • (Optional) 2 x 10 GbE Ethernet ports • (Optional) Up to 8 x 25 GbE Ethernet ports (SFP28 optical or DAC Copper) • (Optional) Up to 16 x 10 GbE SFP Ethernet ports or 16 x 10GbE Base-T Ethernet ports. • (Optional) Up to 8 x 16 Gb Fibre Channel ports (for VTL or PTT) • (Optional) Up to 8 x 100 GbE Ethernet ports (Optical or DAC Copper) • 204 TB - 1020 TB usable capacity
DXi9100	<ul style="list-style-type: none"> • 1 Node • 1-2 Array modules (RBODs) • 0-2 Expansion modules (EBODs) • 1 x 1 GbE Ethernet ports • 2 x 10 GbE Ethernet ports • (Optional) 2 x 10 GbE Ethernet ports • (Optional) Up to 8 x 25 GbE Ethernet ports (SFP28 optical or DAC Copper) • (Optional) Up to 16 x 10 GbE SFP Ethernet ports or 16 x 10GbE Base-T Ethernet ports. • (Optional) Up to 8 x 16 Gb Fibre Channel ports (for VTL or PTT) • (Optional) Up to 8 x 100 GbE Ethernet ports (Optical or DAC Copper) • 204 TB - 2 PB usable capacity

Supported Web Browsers

The DXi GUI is compatible with Chromium-based web browsers. Quantum-tested Chromium-based browsers include Brave, Google Chrome, Microsoft Edge, Opera and Vivaldi. Mozilla Firefox is also compatible with the DXi GUI.

Additional Information

- For correct operation of the remote management console, enable JavaScript in your web browser.
- If you experience Web browser issues, update to the latest version of your web browser.

Plug-In Support

DXi 4.5.0.2 Software supports the following plug-Ins:

- [Accent File System Plug-In Support below](#)
- [OST Plug-In Support on the next page](#)
- [RMAN Plug-In Support on page 7](#)

Accent File System Plug-In Support

The Accent File System (Accent FS) performs deduplication to minimize bandwidth and sends only unique data over the network. Since the Accent File System appears as a native file system on the *media server* backup host, any program that can write to a file system can use the Accent File System.

The Accent File System uses FUSE (File System in User Space) to export file system requests to a custom daemon. The daemon converts file system requests as appropriate, and transports new user data to the DXi using the distributed deduplication features of the Blockpool API with the DXi's Blockpool (Accent).

The Accent File System is intended to be used by backup applications not supported directly by Quantum application-specific plugins - such as the OST plugin (which has its own share type).

For more information, including supported OS and software versions, see *Install > Accent Plug-in installation* in your DXi V5000, DXi4800 and DXi9000 Series Documentation Center.

The latest AccentFS Plug-in version is available for download from the *Service and Support > Client Plugins* page, at:

<http://www.quantum.com/serviceandsupport/softwareanddocumentationdownloads/ostclientplugin/index.aspx#accentfs>.

Required Components

The following components are required for Accent FS operation with the DXi-Series:

Server Requirements:

- DXi software version 4.0.1 or greater.
- One or more application-specific shares.

Client Server Requirements:

- FUSE-libs RPM must be installed.
- Supported platforms:
 - Red Hat Enterprise Linux (RHEL) OS 7
 - CentOS 7(Linux)

OST Plug-In Support

The Quantum OST plug-ins are based on Veritas OpenStorage API specification Version 11.1.

The latest OST Plug-in version is available for download from the *Service and Support > Client Plugins* page, at:

<https://www.quantum.com/serviceandsupport/softwareanddocumentationdownloads/ostclientplugin/index.aspx#ost>.

For more information on OST Plug-in installation, including supported OS and software versions, see *Install > OST Plug-in Installation* in your DXi V5000, DXi4800 and DXi9000 Series Documentation Center.

Required Components

The following components are required for OST (OpenStorage) operation with the DXi V5000, DXi4800 and DXi9000 Series:

- Veritas NetBackup 7.6.x or later or Backup Exec 2014 or later.
- If using the Veritas NetBackup 52xx Appliance platform, version 2.6.0.2 or later.
- Quantum OST Plug-in (downloaded separately through the remote management console or from the Quantum Service and Support website).
- Quantum OST storage server (included with the DXi software).

RMAN Plug-In Support

The Quantum RMAN plug-ins are based on Oracle Recovery Manager (RMAN) API specification Version 2.1.

The latest RMAN Plug-in version is available for download from the *Service and Support > Client Plugins* page, at:

<https://www.quantum.com/serviceandsupport/softwareanddocumentationdownloads/ostclientplugin/index.aspx#rman>.

For more information, including supported OS and software versions, see *Install > RMAN Plug-in installation* in your product's Documentation Center.

Required Components

The following components are required for RMAN operation with DXi V5000, DXi4800 and DXi9000 Series systems:

- Oracle 11, 12, 18 or 19
- Quantum RMAN Plug-in (downloaded separately through the remote management console or from the Quantum Service and Support website).

Replication Compatibility

The following DXi software releases can replicate data to the DXi appliance. DXi software releases not shown in the list are not recommended.

		DXi 3.0.x	DXi 3.1.x	DXi 3.2.x	DXi 3.4.x	DXi 4.x
Replication Target	DXi 3.0.x	Yes	Yes	Yes	Yes	Yes
	DXi 3.1.x	Yes	Yes	Yes	Yes	Yes
	DXi 3.2.x	Yes	Yes	Yes	Yes	Yes
	DXi 3.4.x	Yes	Yes	Yes	Yes	Yes
	DXi 4.x	Yes	Yes	Yes	Yes	Yes

Note: The default number of allowed DXi replication sources is 10. If you need to change these default settings, contact Quantum Customer Support.

DXi REST API Compatibility

DXi software version 4.5.0.2 is compatible with DXi REST API version 1.2.

The following table provides the applicable DXi REST API version for each DXi software version.

DXi REST API VERSION	DXi Software Version
1.1	4.0.3
1.2	4.1
1.2	4.1.1
1.2	4.2
1.2.1	4.3
1.2.2	4.5.x.x

Resolved Issues

The following issues were resolved in DXi 4.5.0.2 Software.

Bug Number	SR Number	Description
51518	556452 590457 632598 634355	Truncate no longer deadlocks if no free pages are available.
51781	571306 586306	Veeam secondary copy with fastclone employed performance has been optimized.
52313	586088	Fixed a case where source and target replication could get out of sync if the network connection was broken for a long time and source has more files to replicate.

Bug Number	SR Number	Description
52805	610923 610971 616981	Starting <i>DART loggerd</i> was exceeding the default 90 second timeout, which on some customer systems was too short.
53550	628337	OSTD: Fixed certain race conditions that could cause an AccentFS mount to hang.
53662		VTL: Read Element Status may return a hardware error in special circumstances.
53839	628337	AccentFS: Reread the directory on illegal seek. Fixed in AccentFS plugin version 10.
53954		Kernel upgrades no longer cause IP6 activation on network ports.

Known Issues

DXi 4.5.0.2 Software has the following known issues:

- [Replication Known Issues](#)
- [GUI Known Issues](#)
- [NAS Known Issues](#)
- [VDMS Known Issues](#)
- [DXi Advanced Reporting Known Issues](#)

Replication Known Issues

Bug Number	SR Number	Description	Workaround
36811		Some chargeback reporting statistics are not maintained for failback operations.	<p>The Input Bytes for the failback operation can be viewed on the source for the failback operation. On the Replication > Send page, hold the cursor over the job status and note the value displayed for Original Data Size.</p> <p>i Note: After the failback operation is complete, chargeback reporting on the target for the failback operation will accurately report the User Data Size of the data replicated.</p>
37000	A0599191	If replication is disabled and the re-enabled for a share or partition on the Replication > Send page, previously configured Directory/File or Cartridge Based Replication settings are lost.	<p>This is expected behavior. When replication is disabled, all replication settings for the share or partition are cleared. To re-configure the share or partition for Directory/File or Cartridge Based replication, select it and click Configure.</p> <p>i Note: You can disable or enable replication for all shares or partitions on the Replication > Actions page. This method preserves replication settings for all shares or partitions.</p>

GUI Known Issues

Bug Number	SR Number	Description	Workaround
30999		When creating or editing an event on the Configuration > Scheduler page, all times are relative to the workstation from which the GUI is accessed, rather than the DXi.	If the DXi is in a different time zone than the workstation used to access the GUI, make sure to account for the time zone differences when scheduling events.
35426		On the Configuration > OST > Storage Servers page, if there are multiple pages of storage servers, the Delete button is unavailable (gray) if all storage servers on a page are selected even if all the storage servers meet the deletion criteria (no backup images or active connections).	This occurs if a storage server on another page does not meet the deletion criteria. De-select at least one storage server on the displayed page, and the Delete button will be available.
36926		When adding a scheduled event on the Scheduler page, the message Saving, please wait displays, but the save action does not complete, and the schedule is not set.	Refresh the browser window, and add the scheduled event again.
39824		On the Status > Hardware > Details > Storage Arrays page, an Attention link displays next to Controllers and Volumes , but clicking the link displays an empty list of non-normal controllers or volumes.	Even though the Attention link displays, drives that are rebuilding are considered normal by the system. Click the Controllers or Volumes link to see a list of all drives.
42779		The PTT page allows any number concurrent PTT backup jobs to be configured. When more concurrent backup jobs are started than the PTT license allows (3), the additional jobs fail.	Do not configure more than 3 concurrent PTT backup jobs.

NAS Known Issues

Bug Number	SR Number	Description	Workaround
27908	1387940 1408612 1465392 1493203	Files copied to exported NFS and CIFS shares do not retain their original creation time.	To determine the creation time, examine the original file rather than the copy on the share.

VDMS Known Issues

Bug Number	SR Number	Description	Workaround
47806		VDMS cannot be enabled if a "veeam" account is defined on a connected or disconnected windows workgroup.	Delete the "Veeam" account from the windows workgroup.

DXi Advanced Reporting Known Issues

Bug Number	SR Number	Description	Workaround
39487		On the Replication Ingest report, data for small replication jobs is not graphed accurately, especially when longer time ranges are selected.	See the exported CSV file (Reports > Replication Ingest > Export Replication Chargeback) for the correct data.

Documentation

For the latest DXi V5000, DXi4800 and DXi9000 Series documentation using 4.5.0.2 software, see the following DXi Documentation Centers:

- **DXi V5000 Documentation Center:** www.quantum.com/dxiv5000docs
- **DXi4800 Documentation Center:** www.quantum.com/DXi4800Docs
- **DXi9000 Series Documentation Center:** www.quantum.com/DXi9000Docs

Supported Backup Applications

For the current list of backup applications supported for use with DXi 4.5.0.2 Software:

1. Click on <https://www.quantum.com/swcompguide.aspx>

The **Support > Software Compatibility With Tape Libraries** page appears.

2. In the **Compatibility Guide** list, select **Software / Disk-Based Backup Systems**.
3. (Optional) Select your system and software from the **Storage Device** and **Application Software** lists.

i Note: If the storage device and application software are not selected, a full list of all available devices and software will appear and requires a minute or two to populate. Select your system and software for a faster-appearing, shorter list.

4. Click **Submit**.

i Note: Contact the backup application vendor for the latest software revision information.

DXi Additional Notes

For additional information about DXi 4.5.0.2 Software, refer to the following sections.

- [Email Reports](#)
- [Configuring a Constant Replication Bandwidth Throttle](#)
- [System Metadata](#)
- [Date & Time Configuration](#)
- [Network Hostname Restrictions](#)
- [Internet Explorer Security Level](#)
- [Changing the Number of Allowed Sources](#)
- [Quantum Vision](#)
- [Cloud Based Analytics \(CBA\)](#)
- [Running Healthchecks](#)
- [DXi Advanced Reporting - Decrease in Before Reduction Data](#)

Email Reports

Quantum recommends enabling **Email Reports** after upgrading to DXi 4.5.0.2 Software (if not already enabled). When enabled, **Email Reports** periodically sends system configuration and status information to Quantum, including any software upgrades you have installed using the new **Software Upgrade Utility**. Quantum Support can use this information to provide a better support experience in the future.

To configure Email Reports:

1. Make sure a valid outgoing e-mail server is specified on the **Configuration > Notifications > Email > Server** page.
2. (Optional) Specify any additional recipients to receive the reports on the **Configuration > Notifications > Email > Email Reports > Recipients** page.
3. Make sure a weekly **Email Reports** schedule is configured on the **Configuration > Scheduler** page. Configure two weekly recurring events: one for **Status** reports and one for **Configuration** reports.

System Metadata

The **System Metadata** statistic appears in two locations in the DXi remote management console:

- On the **Home** page, under **Disk Usage > Show More**.
- On the **Status > Disk Usage** page, under **Used**.

The **System Metadata** statistic represents all internal usage of disk space on the DXi . This statistic is calculated using the following formula:

$$\text{System Metadata} = [\text{File System Used Space}] - [\text{Reclaimable Space}] - [\text{Blockpool Reduced Data Size}] - [\text{Non-Deduplicated Data Size}]$$

The following values are used in this formula:

- **File System Used Space** - All space used by all parts of the system. This includes temporary files (such as those used by replication, space reclamation, and healthchecks), as well as cached files that have not yet been truncated.
- **Reclaimable Space** - The disk space that can be used for new deduplicated data. The DXi will automatically compact reclaimable space to create more free space as needed.
- **Blockpool Reduced Data Size** - The amount of deduplicated data in the blockpool that has non-zero reference counts (that is, data that the blockpool is protecting). During space reclamation, this value will decrease as the reconciliation process removes the protection for data that is no longer needed by the users' objects.
- **Non-Deduplicated Data Size** - The size of data stored on shares that do not have data deduplication enabled. This value increases or decreases as data is added to or removed from these shares.

Because **System Metadata** is affected by many values and represents the internal operations of the system, you might not always be able to easily correlate changes in this statistic to your typical usage patterns.

Date & Time Configuration

The date and time settings are configured using either the **Getting Started Wizard** at installation or the **Configuration > System > Date & Time** page in the remote management console.

Although you may specify the date and time manually for your system, we highly recommend that you configure your system to use NTP (Network Time Protocol) to maintain accurate date and time settings.

If you have configured at least one DNS (Domain Name Server) IP address during network configuration, then you should select one of the Timeserver Pools. The Timeserver Pool most appropriate for your system will depend upon your geographical location. For example, if you are located in the United States we recommend you select **us.pool.ntp.org**.

If you have not configured your system to utilize at least one DNS IP address, then you cannot use a timeserver pool and must specify an NTP timeserver IP address, directly. The **Date & Time** page will provide a recommended default timeserver address of **129.6.15.30**; however, it is possible that the default timeserver may occasionally fail to respond to an NTP query. In this case you may receive an error message attempting to apply NTP settings using the default timeserver address. If you experience an issue with the default timeserver, we recommend that you try an alternate timeserver address (such as **108.61.73.244**) or select another timeserver address from the NTP support Web site at: <http://support.ntp.org>.

Network Hostname Restrictions

The network hostname must not exceed 64 characters.

Changing the Number of Allowed Sources

The default number of allowed DXi V5000, DXi4800 and DXi9000 Series replication sources is 10. If you need to change these default settings, contact Quantum Customer Support.

Quantum Vision

You must update to the latest version of Quantum Vision (4.4.1 or later) to operate with DXi 4.5.0.2 Software.

Cloud Based Analytics (CBA)

i Note: For DXi V5000 systems this feature is available in the licensed subscription version with Quantum Service and Support.

Configuring and enabling CBA requires that you update your system to the latest version of Quantum Software (4.1 or later).

i Note: Cloud-Based Analytics (CBA) is the latest technology for ensuring world class support for Quantum DXi products. CBA will eventually replace StorageCare Guardian but customers familiar with StorageCare Guardian may wish to continue using it for your DXi V5000, DXi4800 and DXi9000 Series. Quantum does not recommend using CBA and StorageCare Guardian at the same time.

Running Healthchecks

Quantum recommends that you ensure the system is running the default **Healthcheck** utility (**Utilities > Diagnostics > Healthchecks**) daily to ensure data integrity.

DXi Advanced Reporting - Decrease in Before Reduction Data

Backup expiration by your backup application causes the Before Reduction data to decrease immediately in graphs like Data Volume Overview. In earlier versions of the software, backup expiration was not reflected in Before Reduction data until space reclamation was run. The effect of this change is an immediate drop in Before Reduction data any time you expire backups.

Contacting Quantum

More information about this product is available on the Service and Support website at <http://www.quantum.com/serviceandsupport/get-help/index.aspx>. The Service and Support Website contains a collection of information, including answers to frequently asked questions (FAQs). You can also access software, firmware, and drivers through this site.

For further assistance, or if training is desired, contact the Quantum Customer Support Center:

Region	Support Contact
North America	1-800-284-5101 (toll free) +1-720-249-5700
EMEA	+800-7826-8888 (toll free) +49 6131 324 185
Asia Pacific	+800-7826-8887 (toll free) +603-7953-3010

For worldwide support:

<https://www.quantum.com/serviceandsupport/get-help/index.aspx#contact-support>