



Enabling Port-to-LUN Mapping Feature

StorNext QD7000

Firmware 8.40.xx.xx



Enabling Port-to-LUN Mapping Feature, 6-68658-01 Rev A, March 2018 Product of USA.

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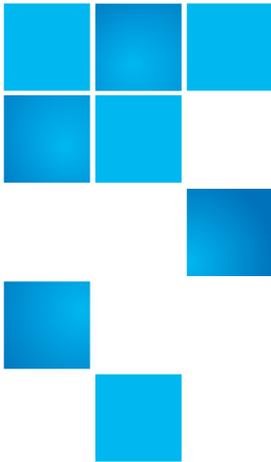
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Preface

Note: The 8.40.xx.xx firmware (Madrid) is used in the QD7000 (E5600, Titan RAID controller, only). Refer to the [NetApp to Quantum Naming Decoder](#) section for additional information.

This section provides the following information:

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Audience

This manual is intended for storage customers and technicians.

Prerequisites

Prerequisites for installing and using this product include knowledge of:

- Servers and computer networks
- Network administration
- Storage system installation and configuration
- Storage area network (SAN) management and direct attach storage (DAS)
- Fibre Channel (FC) and Ethernet protocols

NetApp to Quantum Naming Decoder

Use [Table 1](#) to correlate the NetApp product nomenclature to the equivalent Quantum-storage naming conventions.

Table 1 Product Nomenclature

E-Series NetApp Product	Quantum-Storage	Description
Controller-Drive Tray	Base System	Quantum uses Base System when referring to a drive tray with the RAID controllers.
Drive Tray	Expansion Unit	Quantum uses Expansion Unit when referring to a drive tray with the environmental services modules (ESMs).
E5600 (Code Name: Titan)	RAID Controller	Four 16Gb/s FC SFP+ host ports
E5500 (Code Name: Soyuz)	RAID Controller	Four 16Gb/s FC SFP+ host ports
E5400 (Code Name: Pikes Peak)	RAID Controller	Four 8Gb/s FC SFP+ host ports
DE6600 (Code Name: Wembley)	4U 60-drive enclosure	Sixty 3.5 inch disk drives

E-Series NetApp Product	Quantum-Storage	Description
<p>E5660</p> <ul style="list-style-type: none"> • DE6600 4U drive enclosure • With E5600 RAID controllers (Titan) 	<p>Quantum StorNext QD7000</p>	
<p>E5560</p> <ul style="list-style-type: none"> • DE6600 4U drive enclosure • With E5500 RAID controllers (Soyuz) 	<p>Quantum StorNext QD7000</p>	
<p>E5460</p> <ul style="list-style-type: none"> • DE6600 4U drive enclosure • With E5400 RAID controllers (Pikes Peak) 	<p>Quantum StorNext QD6000</p>	

E-Series NetApp Product	Quantum-Storage	Description
<p>E5424</p> <ul style="list-style-type: none"> • DE5600 24-drive 2U drive enclosure • Code Name: Camden • With E5400 RAID controllers (Pikes Peak) 	<p>Quantum StorNext QS2400</p>	
<p>E5412</p> <ul style="list-style-type: none"> • DE1600 12-drive 2U drive enclosure • Code Name: Ebbets • With E5400 RAID controllers (Pikes Peak) 	<p>Quantum StorNext QS1200</p>	

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Enabling the Port-to-LUN Mapping Feature

You can apply a feature pack in SANtricity Storage Manager or SANtricity System Manager to preassign logical unit numbers (LUNs) to available Fibre Channel (FC) base ports or host interface card (HIC) ports, allowing you to ensure that a volume is exposed through only one target port on the controller.

Note: The Port-to-LUN mapping feature is available through FPVR only.

This feature is intended for limited use cases, such as media editing and streaming, which require maximum I/O bandwidth and capacity, but not I/O path redundancy.

Considerations for enabling the Port-to-LUN mapping feature

Before you apply the feature pack key file to preassign logical unit numbers (LUNs) to available Fibre Channel (FC) base ports or host interface card (HIC) ports, you must understand the conditions that must exist on your storage array or flash array. You also must understand how this feature affects the existing features in your storage array or flash array.

Be aware of the following:

- This feature is supported only on FC ports on the controllers as well as the HIC. If your storage array or flash array also has non-FC ports, the feature does not apply to them.
- You must ensure that the controller you choose to expose a volume on also owns that volume for optimum performance. Ownership is not automatically assigned by the controller firmware.
- You should not use a multipath driver on the host connected to the storage array. If a failover occurs, the multipath driver might cause the volume ownership of all the volumes on the storage array to change.
- If you have enabled synchronous or asynchronous mirroring over FC, an FC port on each storage array is reserved for inter-array communication, and the range of LUNs assigned to this port is not available for host I/O requests. This feature is not supported on the port reserved for mirroring.
- You cannot use in-band management after you enable this feature.
- You must manually reassign LUNs to volumes if the number of FC ports in your storage array or flash array changes at any time. The number of FC ports changes if you add or remove a HIC from either controller or change the protocol on an existing HIC.
- If one of the controllers fails, you must remap the volumes connected to that controller to the available LUNs on the online controller to maintain host access to the data. You must also change the volume ownership to the online controller.
- If you replace both the controllers, you must reapply the feature pack key file to re-enable the feature.
- If you create a new volume, you must choose the option to “map later.” This ensures that a LUN is not automatically assigned to the volume.

Attention: You must schedule a downtime maintenance window because this procedure can temporarily disrupt data connectivity between the host and storage array. You will not be able to access data until you have successfully completed the procedure.

Confirming SANtricity OS version

You must make sure that your controllers are running the latest version of SANtricity OS.

Steps

1. Determine the storage array you will use. Based on the storage array, determine which firmware you have by doing the following:

Option	Description
E2600, E2700, E5400, EF540, E5500, EF550, E5600, and EF560 storage arrays	<p>SANtricity OS (controller firmware) version 08.20.11.00 or later.</p> <ol style="list-style-type: none">a. From the Array Management window, select Summary. The current firmware for the array is displayed.
E2800, E5700, and EF570 storage arrays	<p>SANtricity OS (controller firmware) version 08.40.00.01 or later</p> <ol style="list-style-type: none">a. From the System Manager, select Support > Support Center > Support Resources tabb. Scroll down to Launch detailed storage array information, and then select Software and Firmware Inventory.

2. You can also download new firmware, if needed, by performing the following:

- a. Go to [NetApp Downloads](#)
- b. Select **Downloads > Software**.
- c. Download the correct version of **E-series/EF-Series SANtricity OS (Controller Firmware)**.

When the controllers reboot after you apply the feature pack key file, ranges of LUNs are assigned to each available FC port. You can use SANtricity Storage Manager or SANtricity System Manager to select which volumes map to which controller target port.

Planning volume mappings

Before you apply a feature pack key file to preassign logical unit numbers (LUNs) to available Fibre Channel (FC) base ports or host interface card (HIC) ports, you must determine the target port on the controller on which you want to expose a volume, identify the LUN assigned to that volume, and create the mapping.

Steps

1. Determine the target port on the controller on which you want to expose a volume. You must ensure that this controller is also the “preferred” owner of the volume.

To verify the preferred controller owner of a volume is listed, perform the following:

Option	Description
SANtricity Storage Manager	Select Storage > Volume > Change > Ownership/Preferred Path to confirm the designation of preferred.
SANtricity System Manager	Select Storage > Volumes > After > Change ownership to confirm the designation of preferred.

2. Identify the LUN assigned to the target port on the controller on which you want to expose the volume.

See the following tables for LUN range assignments specific to your storage system.

Table 1: Two-Port FC HIC for E2700, E5500, and EF550

	LUN range		
	Port 1	Port 2	Unavailable
Controller A	0-15	16-31	32-127
Controller B	128-143	144-159	160-255

Table 2: Four-Port FC Base for E5400 and EF540 and Four-Port FC HIC for E2600, E2700, E5500, E5600, EF550, and EF560

	LUN range				
	Port 1	Port 2	Port 3	Port 4	Unavailable
Controller A	0-15	16-31	32-47	48-63	64-127
Controller B	128-143	144-159	160-175	176-191	192-255

Table 3: Four-Port FC Base and Four-Port FC HIC for E5400 and EF540

	LUN range							
	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
Controller A	0-15	16-31	32-47	48-63	64-79	80-95	96-111	112-127
Controller B	128-143	144-159	160-175	176-191	192-207	208-223	224-239	240-255

Table 4: Two-Port FC Base and Four-Port FC HIC for E2800, E5700 and EF570

	LUN range						
	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Unavailable
Controller A	0-15	16-31	32-47	48-63	64-79	80-95	96-127
Controller B	128-143	144-159	160-175	176-191	192-207	208-223	224-255

After you finish

For E2600, E2700, E5400/EF540, E5500/EF540, and E5600/EF560 platforms only, use the SANshare Partitioning Wizard to create the mapping. For more information, see the Array Management Window online Help.

E2800 and E5700/EF570 LUN Mapping setup

After determining which target port to expose the volume for your E2800 or E5700/EF570 controller, you can change the assigned LUN mapping for the volume through the SANtricity System Manager. If the default host group (Default Cluster) does not display for E2800 for E5700/EF570 controllers using SANtricity System Manager, you can use the SMcli or the SANtricity Script Editor to assign a volume. After the volume is assigned, the default host group is displayed under the SANtricity System Manager.

Displaying the default host group on SANtricity System Manager

Assign a volume using SMcli or from the SANtricity Script Editor to display the default host group under the SANtricity System Manager.

Step

1. Assign the appropriate volume to the default group.

Method	Command
SMcli	<pre>SMcli <IP_A> <IP_B> -c 'set volume ["<volumeName>"] logicalUnitNumber=<lun> hostGroup=defaultGroup;'</pre>
SANtricity Script Editor	<pre>set volume ["<volumeName>"] logicalUnitNumber=<lun> hostGroup=defaultGroup;</pre>

Changing the assigned LUN mapping

You can change the assigned LUN mapping for a volume through the All Volumes tab of the SANtricity System Manager.

Steps

1. From the SANtricity System Manager, select **Storage > Volumes**.
2. Select the **All Volumes** tab.
3. Locate the desired volume and click the **Edit (pencil)** icon.
4. Change the assigned LUN value for the volume as appropriate.
5. Click **Save** to apply your changes to the volume.

Note: You can also change the assigned LUN mapping through the Volume Settings dialog box under the Volumes page of the SANtricity System Manager. For more information, refer to the *Change settings for a volume* topic under the SANtricity System Manager Online Help.

Obtaining the feature pack key file

You can apply a feature pack in SANtricity Storage Manager and SANtricity System Manager to preassign logical unit numbers (LUNs) to available Fibre Channel (FC) base ports or host interface card (HIC) ports. To obtain the key file for the feature pack, you need a Feature Activation Code, the serial number for your storage system enclosure, and the Feature Enable Identifier for your storage system.

Steps

1. From the following table, locate the Feature Activation Code that applies to your storage system and copy the value to a text file.

Storage system	Feature Activation Code
E2600	ZF8-ZKR-ZXRNK
E2700	3FA-JKR-ZY9Y9

Storage system	Feature Activation Code
E2800	CG6-RSB-Z6434
E5400 and EF540	3FD-3KR-ZZP5V
E5500	AFF-MKR-Z27J8
E5600	RFI-6KR-Z3NX9
EF550	7FK-PKR-Z4598
EF560	PFN-9LR-Z6LIU
E5700/EF570	RGB-USB-Z92SW

2. Locate the serial number for your storage system. You can look at the silver label affixed to the top of your system enclosure, or you can get the serial number from your platform's software as follows:

Option	Description
SANtricity Storage Manager	<ol style="list-style-type: none"> From the Array Management Window, select the Summary tab, and click View Storage Array Profile in the Monitor area. On the Storage Array tab, locate the Chassis Serial Number. Copy and paste the value into a text file.
SANtricity System Manager	<ol style="list-style-type: none"> From System Manager, select Support > Support Center > Support Resources tab. Scroll down to Launch detailed storage array information, and then select Storage Array Profile. Under the Storage Array Profile, locate the Chassis Serial Number. Copy and paste the value into a text file.

3. Locate and record the Feature Enable Identifier for your storage system:

Option	Description
SANtricity Storage Manager	<ol style="list-style-type: none"> From the Array Management Window, select the Storage Array > Premium Features to display the Premium Features and Feature Pack Information window. The 32-digit Feature Enable Identifier is displayed under Storage Array Feature Information. Copy and paste this 32-digit identifier into a text file.
SANtricity System Manager	<ol style="list-style-type: none"> From System Manager, select Settings > System, and then scroll down to Add-ons. The 32-digit Feature Enable Identifier is displayed under Add-ons. Copy and paste this 32-digit identifier into a text file.

4. Go to [NetApp License Activation: Storage Array Premium Feature Activation](#), and enter the information required to obtain the feature pack.

- Feature Activation Code from the table
- Serial number for the storage system
- Feature Enable Identifier

Note: The Premium Feature Activation web site includes a link to "Premium Feature Activation Instructions." Do not attempt to use those instructions for this procedure.

5. Choose whether to receive the key file for the feature pack in an email or to download it directly from the site.

Applying the feature pack key file

You can apply a key file for a feature pack in SANtricity Storage Manager to preassign logical unit numbers (LUNs) to available Fibre Channel (FC) base ports or host interface card (HIC) ports.

Step

1. Perform the following to apply the feature pack key file to a single storage array:

Option	Description
SANtricity Storage Manager	<ol style="list-style-type: none">a. From the Array Management Window, select Storage Array > Features.b. In the Feature Pack section at the bottom of the screen, click Change. Note: Do not click the Use Key File button in the Enable a Premium Feature section. The Select Feature Key File dialog box opens, which lets you select the generated key file.c. Select the folder in which you placed the generated key file.d. Select the key file, and click OK.e. Click Close. Both controllers automatically reboot to allow the new feature pack to take effect. The storage array returns to a responsive state after the reboot is complete.
SANtricity System Manager	<ol style="list-style-type: none">a. From the System Manager, select Settings > System.b. Under Add-ons, select Change Feature Pack.c. Click Browse, and then select the key file. The file name is displayed in the dialog box.d. Type CHANGE in the field.e. Click Change. The feature pack migration begins and the controllers reboot. Unwritten cache data is deleted, which ensures no I/O activity. Both controllers automatically reboot for the new feature pack to take effect. The storage array returns to a responsive state after the reboot is complete.

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