Host port protocol conversion

E-Series storage systems

NetApp
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Host port protocol conversion

Requirements to convert host protocol - EF300 or EF600

Before converting the host protocol for an EF300, EF600, EF300C, or EF600C array, review the following requirements.

- You have scheduled a downtime maintenance window for this procedure.
- You must stop host I/O operations when you perform the conversion. You cannot access data on the storage array until you have successfully completed the conversion.
- You are using out-of-band management. (You cannot use in-band management to complete this procedure.)
- You have obtained the necessary hardware for the conversion, which may include a new set of HICs and/or SFPs. Your NetApp Sales Representative can help you determine what hardware you need and help you order the correct parts.
- The dual-protocol SFP transceivers support 16Gb and 8Gb FC, as well as 10Gb iSCSI. Therefore, you may not need to change SFPs if you have the dual-protocol and are simply switching between FC and iSCSI or vice versa.
- Some host port protocol conversions may require a host interface card addition, or upgrade.

Change the host protocol - EF300 and EF600

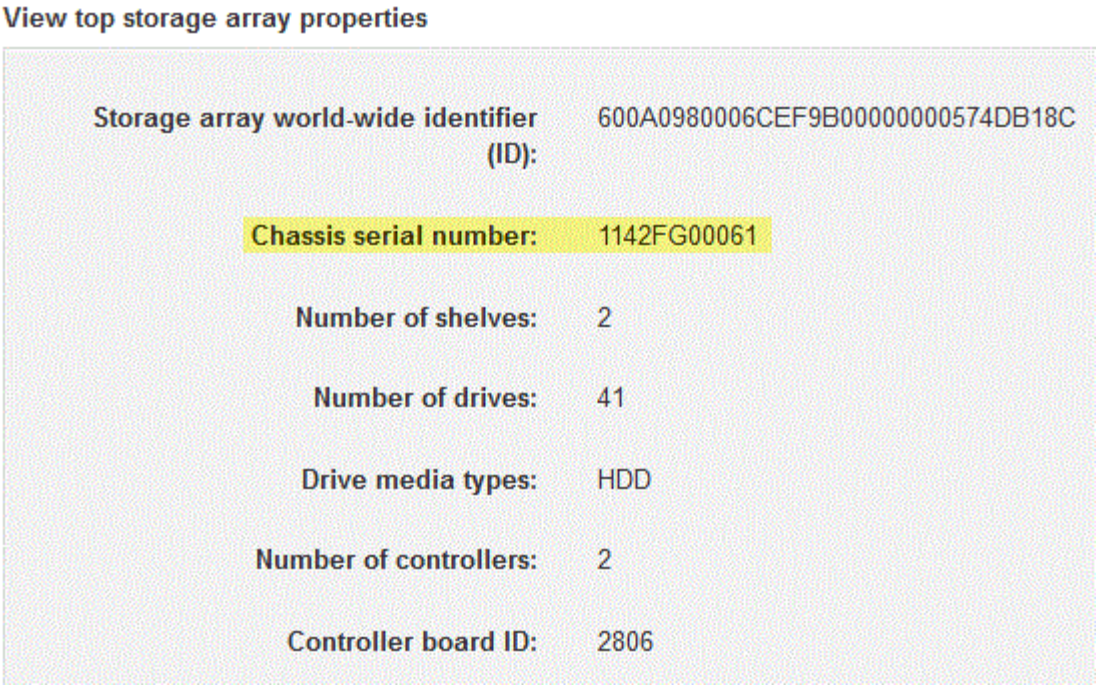
Follow this procedure to change the host port protocol in an EF300, EF600, EF300C, or EF600C array. This procedure applies only to host interface cards (HICs) using either Infiniband (IB) or Fibre Channel (FC).

Step 1: Obtain the feature pack key

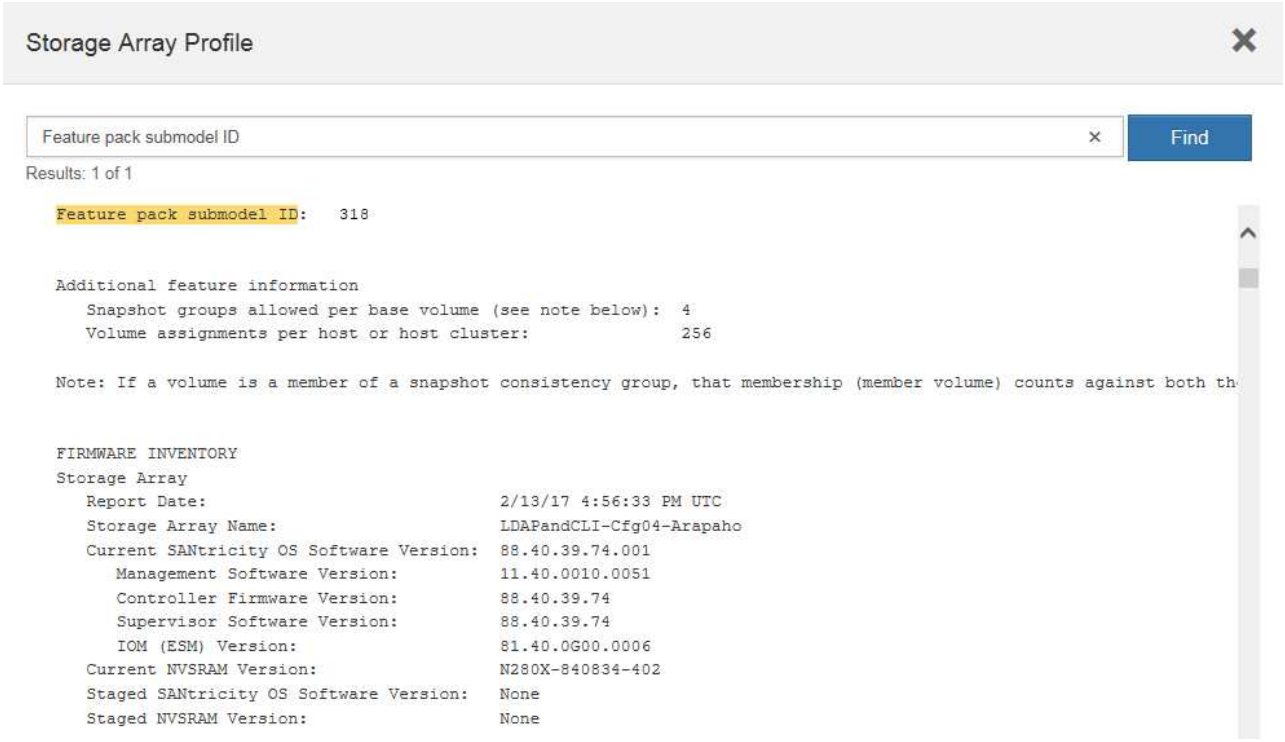
To obtain the feature pack key, you need the serial number from the controller shelf, a Feature Activation Code, and the Feature Enable Identifier for the storage array.

Steps

1. Locate the serial number.
   a. From SANtricity System Manager, select **Support › Support Center**.
   b. With the **Support Resources** tab selected, scroll to the **View top storage array properties** section.
   c. Locate the **Chassis Serial Number**, and copy this value to a text file.



2. Locate the **feature pack submodel ID**.
   a. From the SANtricity System Manager, select **Support**.
   b. Select the **Support Center** tile.
   c. On the Support Resources tab, locate and select the **Storage Array Profile** link.
   d. Type **feature pack submodel ID** in the text box, and click **Find**.
   e. Locate the feature pack submodel ID for the starting configuration.



3. Using the feature pack submodel ID, locate the corresponding Controller submodel ID for the starting configuration and find the Feature Activation Code for the desired ending configuration within the following

table. Then, copy that Feature Activation Code to a text file.

Starting configuration		Ending configuration		Feature Activation Code
Controller submodel ID	HIC ports	Controller submodel ID	HIC ports	
443	NVMe/FC, NVMe/RoCE, or iSCSI	444	NVME/FC or NVMe/IB	LHS-RB4-ZDV29
		448	FC	JHX-UB4-ZGTP1
		491	iSER/IB	0H1-675-Z5SII
		492	SRP/IB	NHD-V75-ZB6ZX
444	NVMe/FC or NVMe/IB	443	NVMe/FC, NVMe/RoCE, or iSCSI	2HU-BB4-ZFCG5
		448	FC	YH3-XB4-ZJRIZ
		491	iSER/IB	2H3-P75-Z6AQG
		492	SRP/IB	5HG-G75-ZDNEZ
448	FC	443	NVMe/FC, NVMe/RoCE, or iSCSI	7HZ-EB4-ZHAYW
		444	NVMe/FC or NVMe/IB	DH5-HB4-ZK9QH
		491	iSER/IB	FH6-975-Z7Q7H
		492	SRP/IB	0HI-Z75-ZE4L5

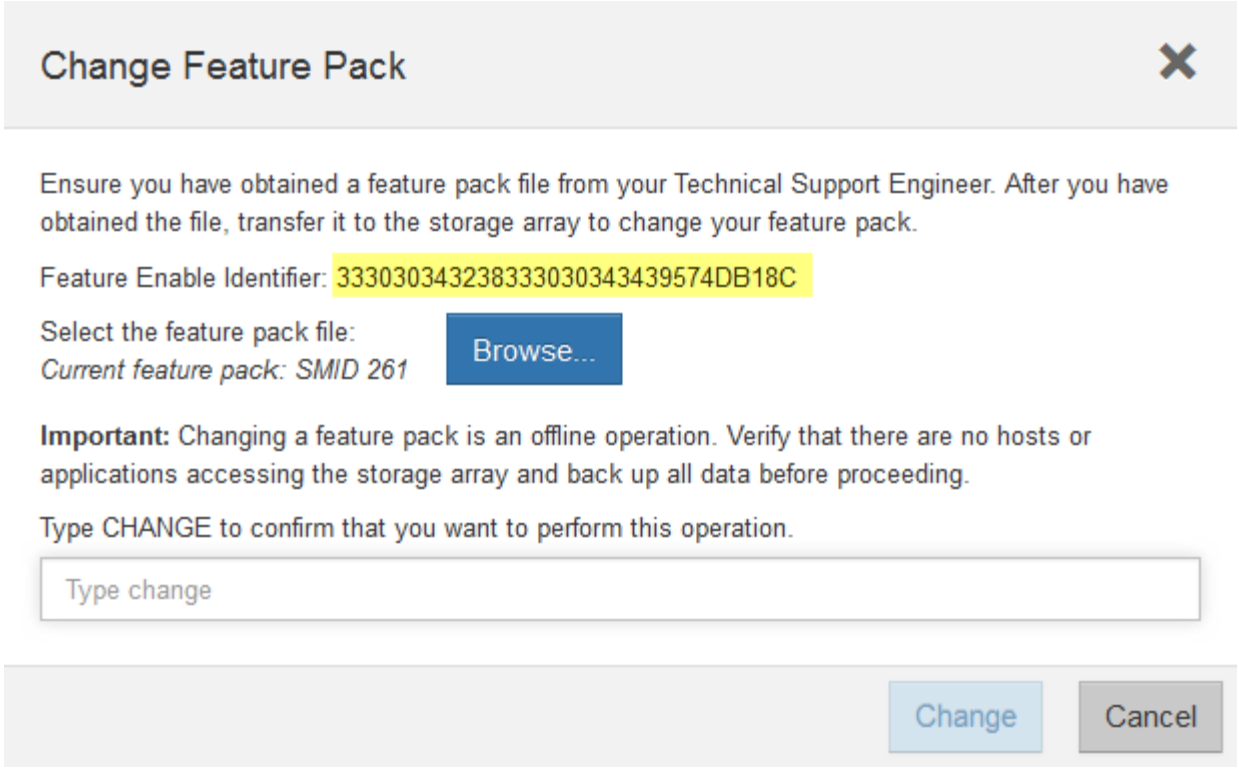
Starting configuration		Ending configuration		Feature Activation Code
491	iSER/IB	443	NVMe/FC, NVMe/RoCE, or iSCSI	MHQ-M85-ZIJNT
		444	NVMe/FC or NVMe/IB	4HS-685-ZJZ1U
		448	FC	YHU-P85-ZLHCX
		465	FC/PTL	AHX-985-ZMXMI
		492	SRP/IB	ZHZ-S85-ZNF4J
492	SRP/IB	443	NVMe/FC, NVMe/RoCE, or iSCSI	EH3-C85-Z0V93
		444	NVMe/FC or NVMe/IB	BH5-V85-ZQDQJ
		448	FC	1H8-F85-ZRT1V
		465	FC/PTL	1HA-Y85-ZSB7S
		491	iSER/IB	KHD-I85-ZUSMI
465	FC/PTL	491	iSER	6H8-S75-Z98FH
		492	SRP	NHL-J75-ZFL3W
516	NVMe/FC, NVMe/RoCE, or iSCSI	517	NVMe/IB or NVMe/FC	LHF-285-ZV9YZ
		518	FC	IHI-L85-ZXQEP
		519	iSER/IB	RHK-585-ZY7P5
		520	FC-PTL	NHN-095-ZZ0XF
		521	SRP/IB	GHP-895-Z25BD

Starting configuration		Ending configuration		Feature Activation Code
517	NVMe/IB or NVMe/FC	516	NVMe/FC, NVMe/RoCE, or iSCSI	7HS-R95-Z3M06
		518	FC	UHU-B95-Z43X2
		519	FC-PTL	8HX-U95-Z5K6F
		520	iSER/IB	UHZ-E95-Z71LH
		521	SRP/IB	SH2-X95-Z8IVS
518	FC	516	NVMe/FC, NVMe/RoCE, or iSCSI	UH5-H95-Z9Z58
		517	NVMe/FC or NVMe/IB	XH7-195-ZBGJC
		519	FC-PTL	FHA-K95-ZCXX0
		520	iSER/IB	JHC-595-ZDE3X
		521	SRP/IB	0HF-095-ZFVFN
519	FC-PTL	516	NVMe/FC, NVMe/RoCE, or iSCSI	YHH-895-ZGCXS
		517	NVMe/FC or NVMe/IB	2HK-R95-ZHT83
		518	FC	1HM-BA5-ZJALA
		520	iSER/IB	YHP-UA5-ZKRXA
		521	SRP/IB	MHR-EA5-ZL83V

Starting configuration		Ending configuration		Feature Activation Code
520	iSER/IB	516	NVMe/FC, NVMe/RoCE, or iSCSI	HHU-XA5-ZNPLT
		517	NVMe/FC or NVMe/IB	YHW-HA5-Z07QK
		518	FC	WHZ-1A5-ZPN4U
		519	FC/PTL	7H2-KA5-ZR5C3
		521	SRP	3H5-4A5-ZSLVX
521	SRP/IB	516	NVMe/FC, NVMe/RoCE, or iSCSI	1H7-NA5-ZT31W
		517	NVMe/FC or NVMe/IB	XHA-7A5-ZVJGC
		518	FC	KHC-QA5-ZW1P3
		519	FC/PTL	CHE-AA5-ZXH2F
		520	iSER/IB	SHH-TA5-ZZYHS

If your controller submodel ID is not listed, contact NetApp Support.

4. In System Manager, locate the Feature Enable Identifier.
   a. Go to **Settings › System**.
   b. Scroll down to **Add-ons**.
   c. Under **Change Feature Pack**, locate the **Feature Enable Identifier**.
   d. Copy and paste this 32-digit number to a text file.



5. Go to NetApp License Activation: Storage Array Premium Feature Activation, and enter the information required to obtain the feature pack.
   - Chassis Serial Number
   - Feature Activation Code
   - Feature Enable Identifier

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

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

Step 2: Stop host I/O

Stop all I/O operations from the host before converting the protocol of the host ports.

You cannot access data on the storage array until you successfully complete the conversion.

Steps

1. Ensure that no I/O operations are occurring between the storage array and all connected hosts. For example, you can perform these steps:
   - Stop all processes that involve the LUNs mapped from the storage to the hosts.
   - Ensure that no applications are writing data to any LUNs mapped from the storage to the hosts.
   - Unmount all file systems associated with volumes on the array.

   The exact steps to stop host I/O operations depend on the host operating system and the configuration, which are beyond the scope of these instructions. If you are not sure how to stop host I/O operations in your environment, consider shutting down the host.

Possible data loss — If you continue this procedure while I/O operations are occurring, you might lose data.

2. Wait for any data in cache memory to be written to the drives.

   The green Cache Active LED on the back of each controller is on when cached data needs to be written to the drives. You must wait for this LED to turn off.

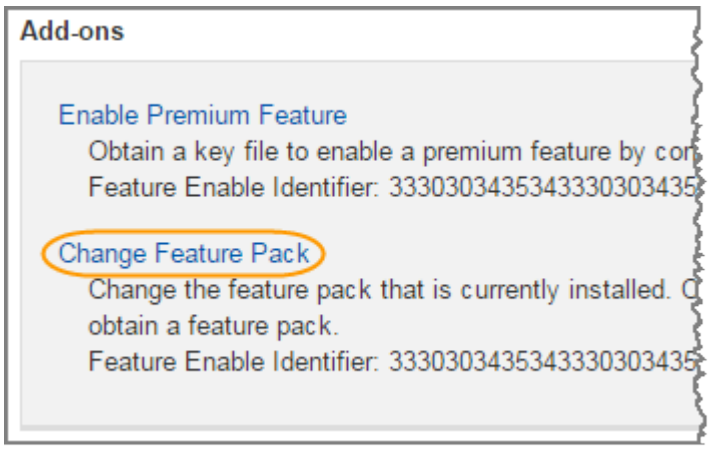
3. From the Home page of SANtricity System Manager, select **View Operations in Progress**.
4. Wait for all operations to complete before continuing with the next step.

Step 3: Change the feature pack

Change the feature pack to convert the host protocol of your host ports.

Steps

1. From SANtricity System Manager, select **Settings › System**.
2. Under **Add-ons**, select **Change Feature Pack**.



3. Click **Browse**, and then select the feature pack you want to apply.
4. Type **CHANGE** in the field.
5. Click **Change**.

   The feature pack migration begins. Both controllers automatically reboot twice to allow the new feature pack to take effect. The storage array returns to a responsive state after the reboot is complete.

6. Confirm the host ports have the protocol you expect.
   a. From SANtricity System Manager, select **Hardware**.
   b. Click **Show back of shelf**.
   c. Select the graphic for either Controller A or Controller B.
   d. Select **View settings** from the context menu.
   e. Select the **Host Interfaces** tab.
   f. Click **Show more settings**.

What's next?

Go to Complete host protocol conversion.

Complete host protocol conversion - EF300 and EF600

After you apply the feature pack key to convert the protocol, you must configure the host to use the appropriate protocol.

For step-by-step instructions, see the guide appropriate for your system:

- Linux express configuration
- VMware express configuration
- Windows express configuration

  Specific settings might vary. Check the NetApp Interoperability Matrix for specific instructions and additional recommended settings for your solution.

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