IBM System Storage

N3300 Installation and Setup Instructions

Below is a copy of the N3300 system setup worksheet. If a worksheet has not yet been completed for this setup, remove this sheet and fill in the following information that is needed for the setup before unpacking the system unit.

System setup worksheet

Setup Parameters		**Node A (top node)**	**Node B (bottom node)**
Hostname:			
Network Configuration Information for e0a			
	Virtual interfaces? [Y/N]		
	IP address for e0a		
	Netmask for e0a		
	Should interface e0a take over partner IP address during failover? [Y/N]		
	IP address or interface name to be taken over by e0a		
	Media type/speed (100tx-fd, 100tx, auto [100/1000])		
	Flow control (none, receive, send, full):		
	Enable jumbo frames [Y/N]		
Network Configuration Information for e0b			
	IP address for e0b		
	Netmask for e0b		
	Should interface e0b take over partner IP address during failover? [Y/N]		
	IP address or interface name to be taken over by e0b		
	Media type/speed (100tx-fd, 100tx, auto [100/1000])		
	Flow control (none, receive, send, full)		
	Enable jumbo frames? [Y/N]		
Complete setup through Web interface? [Y/N]			
Default Gateway IP Address			
Administration Host Connection Setup		Note: The administration host is given root access to the filer's /etc files for system administration. To allow access to /etc root access to all NFS clients, enter RETURN below.	
	Name or IP address of the administration host		
Timezone (name of city or region in /etc/zoneinfo file) [EST5EDT]			

System setup worksheet (continued)

Setup Parameters		**Node A (top node)**	**Node B (bottom node)**
Filer location			
Enter the root directory for HTTP files [/vol/vol0/home/http]			
Do you want to run DNS resolver? [Y/N]			
	DNS domain name (You can enter up to three nameservers.)		
	IP address for DNS first nameserver		
	Do you want another nameserver? [Y/N]		
	IP address for alternate nameserver		
	Do you want another nameserver? [Y/N]		
	IP address for alternate nameserver		
Do you want to run NIS client? [Y/N] (default is no)			
The Baseboard Management Controller (BMC) provides remote management capabilities including console redirection, logging and power control. It also extends Autosupport by sending down filer event alerts.			
	Would you like to configure the BMC? [Y/N] (default is Y)		
	Enable DHCP on the BMC LAN interface? [Y/N] (default is N)		
	IP address for the BMC		
	Netmask for the BMC		
	IP address for the BMC Gateway		
	Gratuitous ARP interval for the BMC [10 sec (max 60)]		
The mail host is required by your system to enable BMC to sense ASUP messages when the filer is down.			
	IP address or name of the mail host		
	IP address for the mail host		
You may use Autosupport options to configure alert destinations.			

This document provides installation and setup instructions for the IBM® System Storage™ N3300 storage system. Additional information about this product can be found in the *IBM System Storage N3300 and N3600 Hardware and Service Guide*. Additional information about expansion units can be found in the *Installation and Setup Instructions* and *Hardware and Service Guide* for your expansion units.

Read the safety notices:

Before continuing, make sure that you have reviewed the safety notices on the documentation CD that came with this system. Do not plug any cables into the system, adapters, or any electrical outlets until you have reviewed the safety information and followed the procedures in this document.

Need help?

If you encounter any difficulties while setting up your system, contact IBM service and support for assistance. Information can also be found at the following Web site:

www.ibm.com/storage/support/nas/

Customer-supplied items needed for setup:

- Ethernet LAN cables
- Fibre Channel cables
- Console (for example, a PC or laptop)
- #2 Phillips screwdriver and slotted screwdriver
- ESD wrist strap

IMPORTANT:

The following instructions are for a basic configuration with onboard ports set to initiator mode.

IMPORTANT:

The rack installation instructions provided in this document apply specifically to the installation of the N series product in an IBM 19-inch rack. IBM service personnel cannot install the N series product in a non-IBM rack.

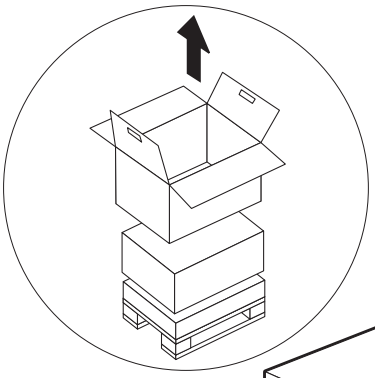
If the N series product is being installed in a non-IBM rack, the rails shipped with the N series product may or may not work with the non-IBM rack. Physical installation of the N series product in a non-IBM rack is the customer's responsibility.

1 Unpacking the N3300

Important:

If your system was shipped already assembled and cabled in a rack, go directly to Step 8, "Setting up and booting the system" on page 18.

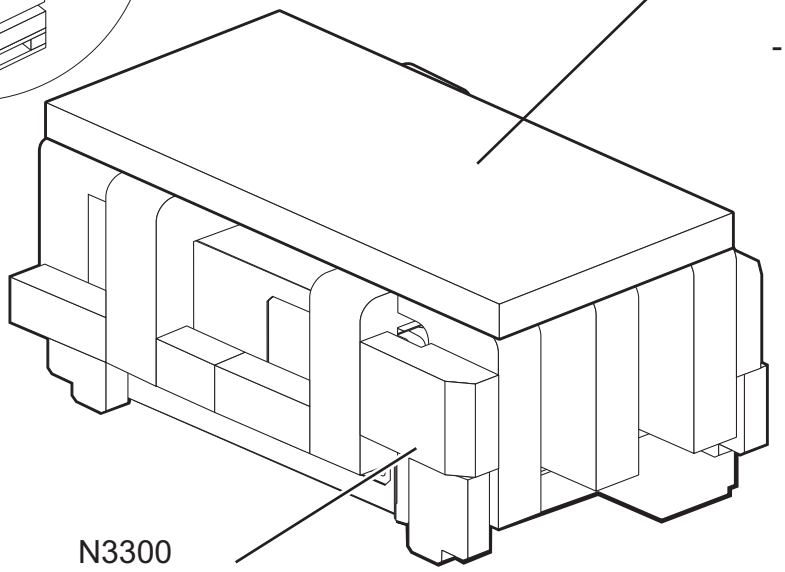
Note: Lift box from crate. The contents will remain in place.



Note: Small Form Factor Pluggable (SFP) modules will either be in the accessory box or will be installed on the fiber ports of the system unit.

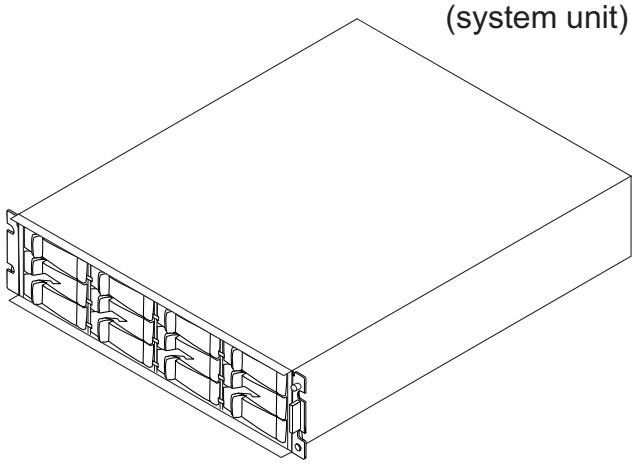
Note: The contents of the box will differ based on the model you purchased. See Step 1.1 for a list of contents for specific models.

Accessory kit:
- IBM rail kit
- Power cable
- DB-9 to RJ-45 console adapter
- Serial null modem cable



N3300
(system unit)

N3300
(system unit)



1.1 Verify that the shipping packages include the following items:

N3300 (2859-A10)

1	Single-controller N3300
1	System bezel
1	Console adapter, RJ-45 to DB-9
1	Serial null modem cable
1	ESD wrist strap
2	Power cords
1	Publications

There will also be at least one envelope with the software EULA and license keys.

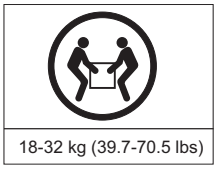
May be present: Rack Mount Kit

N3300 (2859-A20)

1	Dual-controller N3300
1	System bezel
2	Console adapter, RJ-45 to DB-9
1	Serial null modem cable
2	ESD wrist strap
4	Power cords
1	Publications

There will also be at least one envelope with the software EULA and license keys.

May be present: Rack Mount Kit



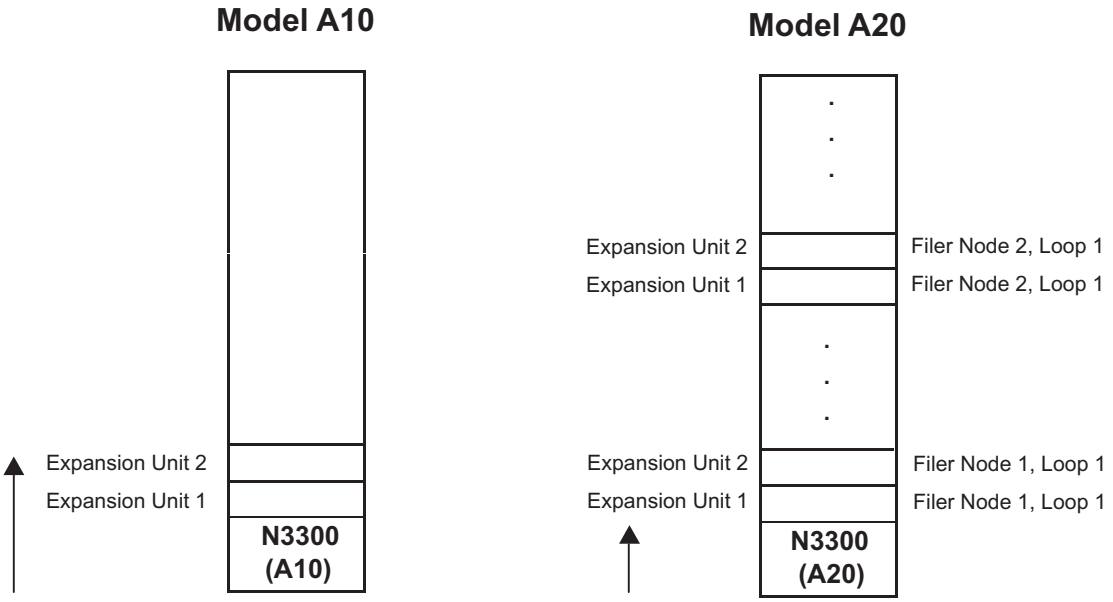
Caution: The weight of this part or unit is between 18 and 32 kg (39.7 and 70.5 lb). It takes 2 persons to safely lift this part or unit. (C009)

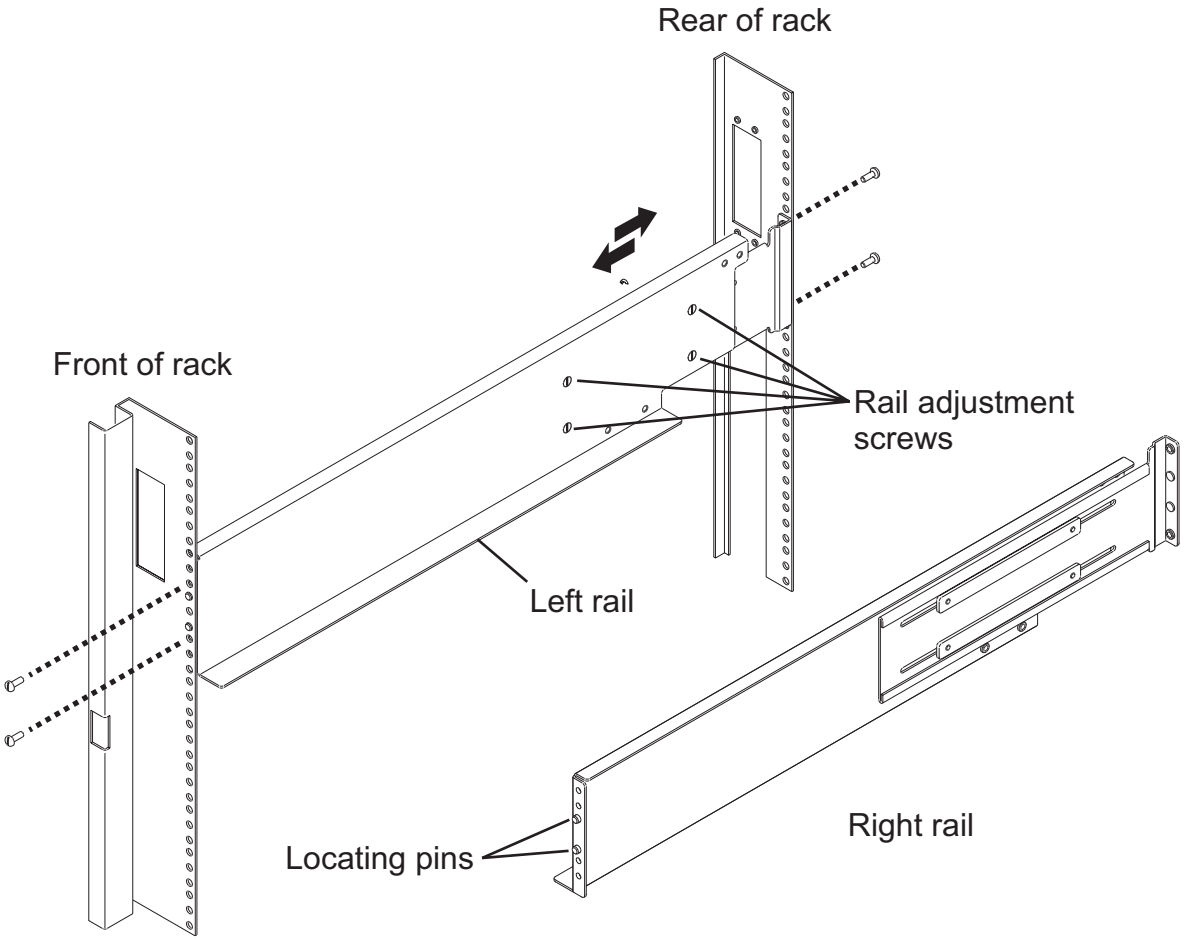
1.2 Remove the foam hardware protectors and the plastic surrounding the storage system.

2 Installing the rails in an IBM 19-inch rack

Note: Read this document in its entirety before proceeding.

Note: It is recommended that the N3300 be placed in the lowest position available in a rack. For example:





2.1 Loosen (but do not remove) the four rail adjustment screws on each rail.

2.2 Use the figure on the next page for reference. At the front of the rack, position the right-hand rail into the rack at the appropriate EIA location. Make sure that the two locating pins seat properly in holes H3 and H4. The bottom of the rail should line up with the bottom EIA boundary.

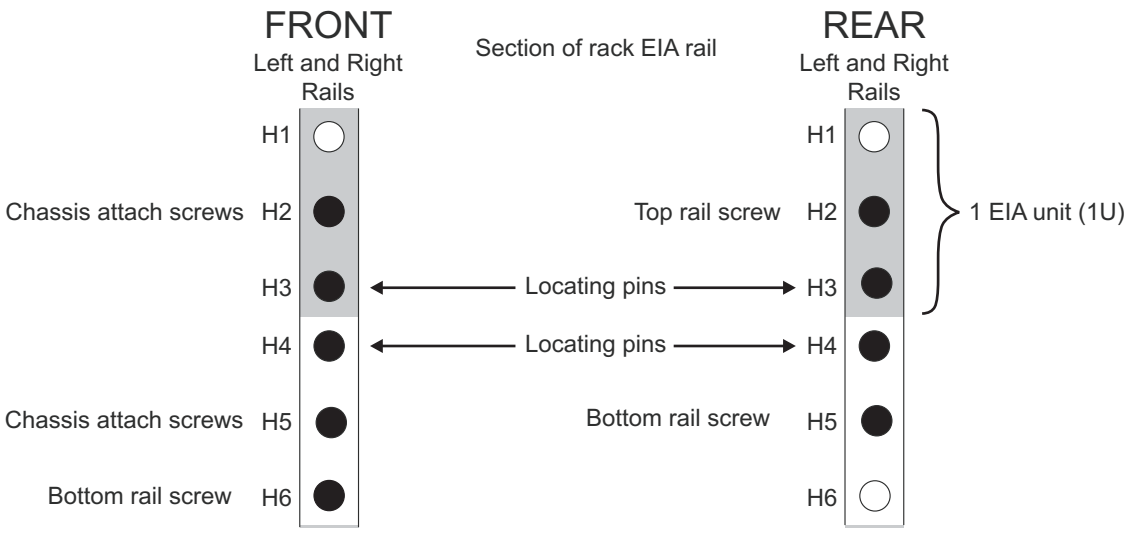
Note: When installed, each N3300 will occupy a 2U space.

Using one silver pan head M5 screw, attach the right-hand rail to the front of the rack using hole H6. Tighten this screw with a screwdriver.

2.3 At the rear of the rack, position the right-hand rail at the same EIA location used in step 2.2. Make sure that the locating pins seat properly in holes H3 and H4. Using two silver pan head M5 screws, attach the rail to the rack using holes H2 and H5. Tighten these screws with a screwdriver.

2.4 Tighten the four rail adjustment screws on the installed rail.

2.5 Repeat steps 2.2 through 2.4 for the left-hand rail.



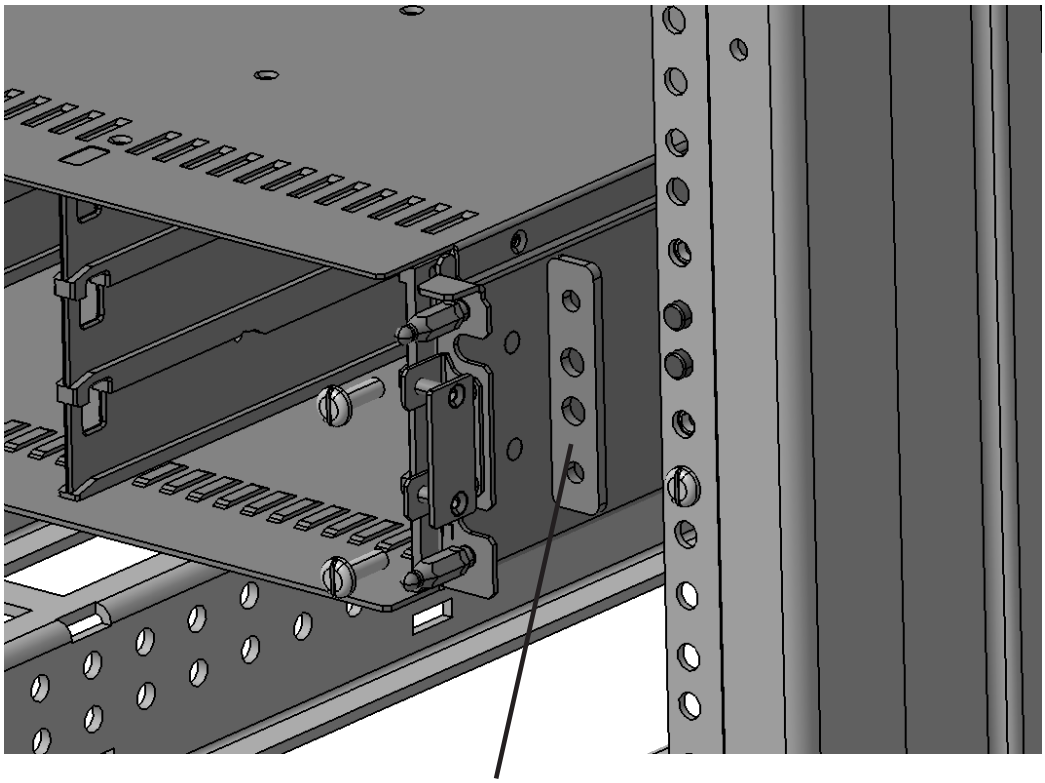
3 Installing the system in the rack

Caution: The weight of this part or unit is between 18 and 32 kg (39.7 and 70.5 lb). It takes 2 persons to safely lift this part or unit. (C009)

3.1 If the N3300 system bezel is attached to the system, carefully remove the front bezel of the N3300 by pulling out on the rectangular openings (marked by blue stripes) on either side of the bezel.

3.2 From the front of the rack, place the storage system onto the rails and slide it in until the front mounting bracket of the storage system is a few inches from the rack frame.

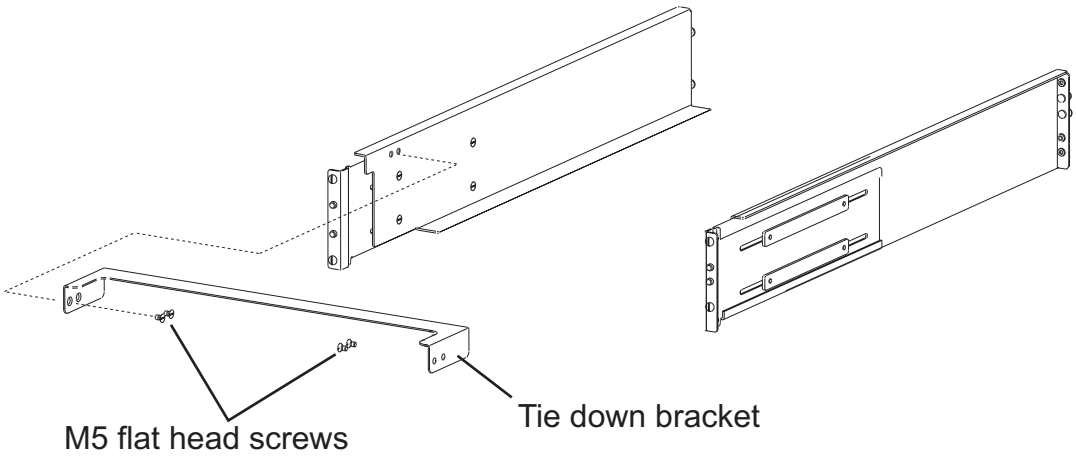
3.2.1 As shown below, at the front of the rack, position the spacer plates over the locating pins (holes H3 and H4) on the left and right rails. Slowly slide the chassis into the rack until the front mounting bracket of the storage system is flush against the spacer plates.



3.3 As shown in the previous illustration, at the front of the rack, use four black M5x40 screws (two for each rail) in the H2 and H5 holes to secure the system unit to the rack. Thread the screws through the system unit bracket, the spacer plate, and the rack frame rail into the threaded rail nuts. Tighten the screws using a screwdriver.

3.4 Replace the front bezel of the N3300 by snapping it onto the storage system chassis.

3.5 From the rear of the rack, attach the rear tie down bracket in the orientation shown to the rails using four M5 flat head screws. The tie down bracket should be over the rear of the system unit.



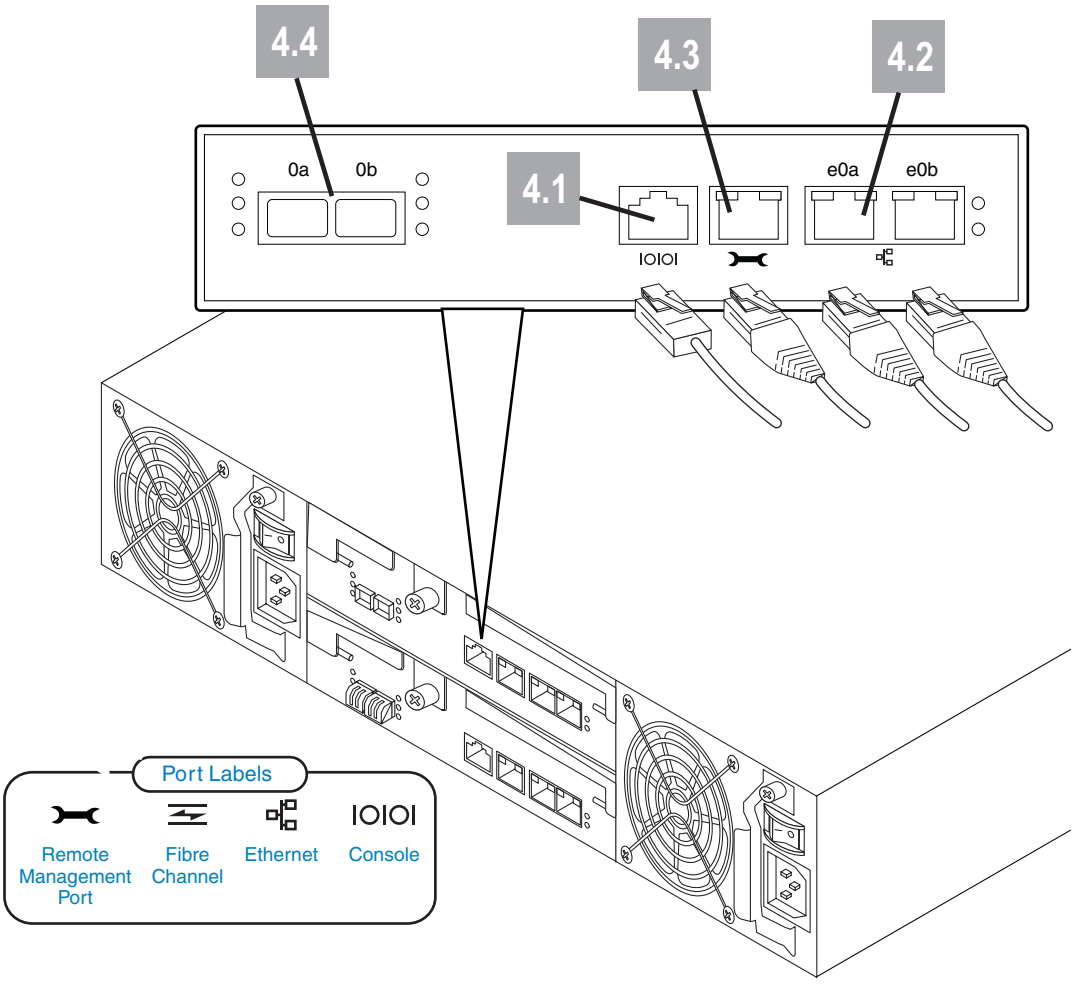
3.6 Any expansion units should be installed. Verify that all expansion unit IDs are correct and sequential in the individual loop(s). Also verify the speed switches are set correctly. Refer to the *Installation and Setup Instructions* for the N series expansion unit to which you are connecting.

If this system was configured by/at manufacturing, there are labels on the outside of the packaging carton and on the side of the expansion unit chassis to indicate the order of expansion units and on which node (1 or 2) expansion units should be located. Make certain the expansion units are placed and cabled according to these labels.

4 Connecting the N3300 to a network

4.1 Connect the RJ-45 to DB-9 adapter from the adapter kit to the console port on the system. Connect the serial null modem cable from your console to the DB-9 end of the adapter.

4.2 Connect your system to the network by plugging the network cable into the networking port, labeled e0a. If you are connecting a second network cable to the network, connect port e0b.



4.3 Connect the Remote Management port to the network (if applicable).

Note: The Remote Management port gives you the capability to remotely manage your system from anywhere within a network connection. See the *Data ONTAP System Administration Guide* for Remote Management configuration information.

Important: The network for remote management must negotiate down to 10/100 or auto-negotiate.

4.4 Make sure that SFPs are installed and firmly seated in the Fibre Channel ports (0a through 0b) of the system and the In port of the first expansion unit of the loop(s) before attaching a Fibre Channel cable.

Attention: Do not change the system ID when you set the disk shelf IDs. Use the factory setting for the system ID and set your disk shelf IDs accordingly.

5 Connecting the N3300 to expansion units

IMPORTANT:

- When using onboard ports to connect to EXN expansion units, onboard ports *must* be set to initiator mode. See "Configuring for initiator mode" in the *N3300 and N3600 Hardware and Service Guide* for more information.
- SFPs *must* be used when connecting fiber cables.
- If you are connecting your configuration to a fibre channel switch, see "Cabling your N3300 system to a fibre channel switch" in the *N3300 and N3600 Hardware and Service Guide* for more information.

  Note: Software disk ownership is activated at boot for all disks on the system.

The following cabling instructions describe expansion unit cabling using the onboard Fibre Channel ports on your N3300 system.

5.1 Make sure that all expansion unit 1Gb/2Gb(/4Gb) speed switches are set to the correct position. If necessary, refer to the documents that came with the expansion unit for information about checking and/or setting the switch.

5.2 Cable the Fibre Channel ports according to your configuration:
- For a single-node A10, go to step 5.3 on page 12.
- For a dual-node A20 (clustered), go to step 5.4 on page 13.

5.3 To cable a single-node A10, complete the following steps, using the diagram for reference.

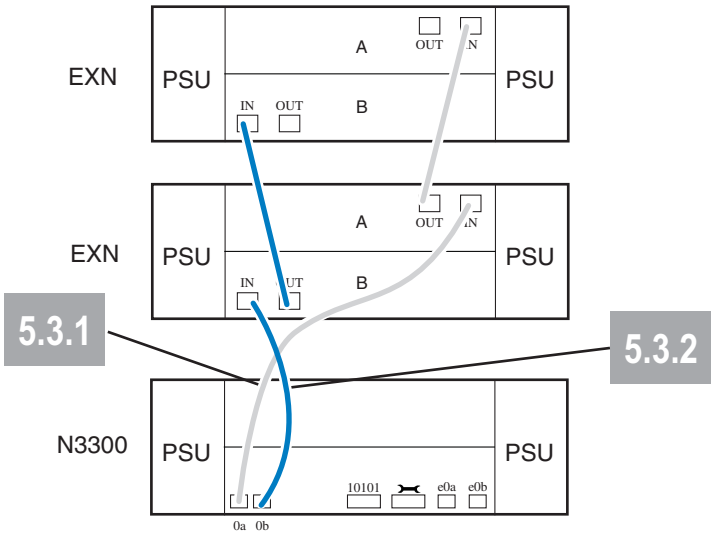
5.3.1 Cable the N3300 port 0a to the first expansion unit module A ESH2/ESH4 or AT-FCX In port.

5.3.2 Cable the N3300 port 0b to the first expansion unit module B ESH2/ESH4 or AT-FCX In port.

5.3.3 For any additional expansion units in a loop, connect the module A Out port to the next expansion unit's module A In port. Repeat for module B.

Note: Both the ESH2/ESH4 and the AT-FCX modules are self-terminating.The ESH2/ESH4 does not have a terminate switch.

5.3.5 Go to Step 6 on page 16.



Notes:

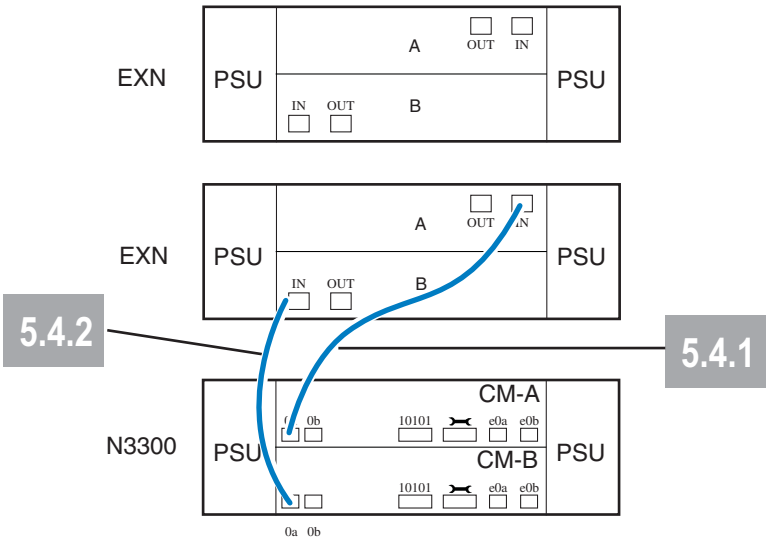
1. Illustrations in this document show storage system connections to EXN2000/EXN4000 expansion units. On EXN1000 expansion units, the positions of the In and Out ports are reversed from those of the EXN2000/EXN4000.
2. This illustration shows only the first two expansion units in a loop. The number of expansion units per loop might be different for your configuration.

5.4 To cable the Channel A paths in a dual-node A20 (cluster), complete the following steps, using the diagram for reference. The numbers in the diagram correspond to the step numbers below.

5.4.1 Cable the N3300 CM-A port 0a to the first expansion unit module A ESH2/ESH4 or AT-FCX In port.

5.4.2 Cable the N3300 CM-B port 0a to the first expansion unit module B ESH2/ESH4 or AT-FCX In port.

5.4.3 Go to step 5.5 on page 14.



Notes:

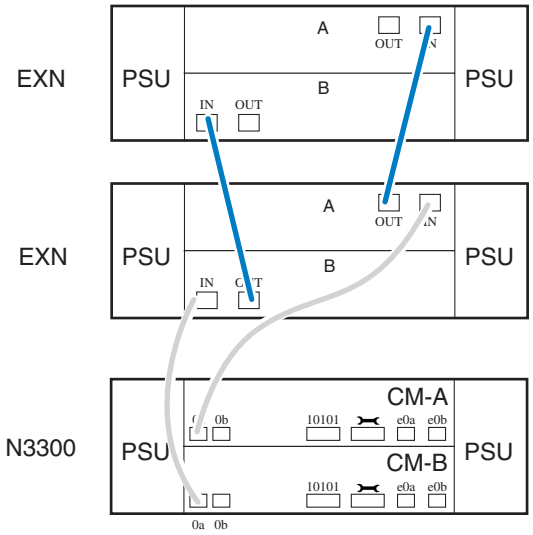
1. Illustrations in this document show storage system connections to EXN2000/EXN4000 expansion units. On EXN1000 expansion units, the positions of the In and Out ports are reversed from those of the EXN2000/EXN4000.
2. This illustration shows only the two first expansion units in a loop. The number of expansion units might be different for your configuration.

5.5 For any additional expansion units in a loop, connect the module A Out port to the next expansion unit's module A In port. Repeat for module B.

Note: Both the ESH2/ESH4 and the AT-FCX modules are self-terminating. The ESH2/ESH4 does not have a terminate switch.

If you have ordered the “Dual-Path FC Cabling” feature, go to step 5.6 on page 15.

If you have not ordered the “Dual-Path FC Cabling” feature, go to step 6 on page 16.

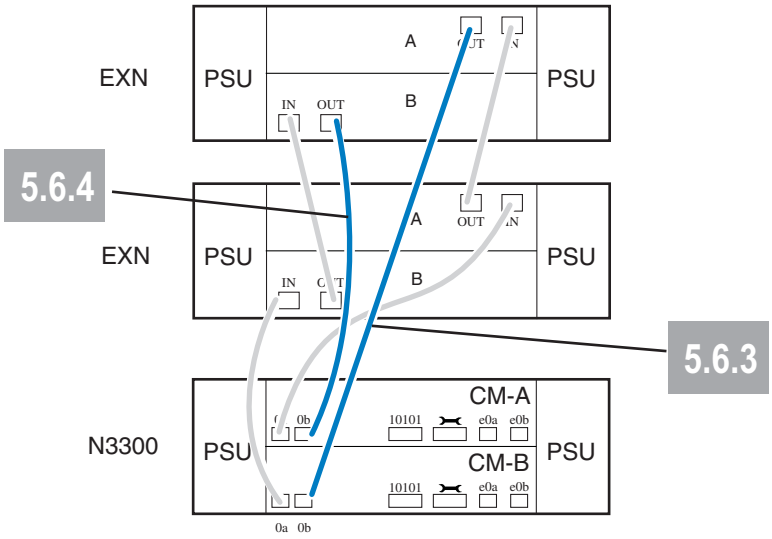


Notes:

1. Illustrations in this document show storage system connections to EXN2000/EXN4000 expansion units. On EXN1000 expansion units, the positions of the In and Out ports are reversed from those of the EXN2000/EXN4000.
2. This illustration shows only the first two expansion unit in a loops. The number of expansion units per loop might be different for your configuration.

5.6 **Note:** This step is optional. You must have ordered the "Dual-Path FC Cabling" feature and/or additional fiber cables and SFP GBICs to implement this feature. Dual-path FC cabling only applies to dual-node clustered A20 models. The purpose of dual-path FC cabling is to provide each node in a dual-node cluster with redundant FC paths (Loop A and Loop B) to each stack of expansion units. It improves reliability and availability by providing redundant FC paths from each node of a dual-node cluster model to each stack of storage expansion units.

The additional SFP GBICs (two) and FC cables (two) are used to connect the last storage expansion unit in a stack of storage expansion units to the other node of the dual-node cluster.



Do the following for each stack of storage expansion units:

5.6.1 Insert an SFP GBIC into the FC OUT port of upper controller A of the last disk storage expansion unit in the stack of expansion units.

5.6.2 Insert an SFP GBIC into the FC OUT port of lower controller B of the last disk storage expansion unit in the stack of expansion units.

5.6.3 Connect a Fibre Channel cable from the FC OUT port on the upper controller A of the last disk storage expansion unit of the stack to FC port 0b of the lower processor controller module (CM-B) of the N3300.

5.6.4 Connect a Fibre Channel cable from the FC OUT port on the lower controller B of the last disk storage expansion unit of the stack to FC port 0b of the upper processor controller module (CM-A) of the N3300.

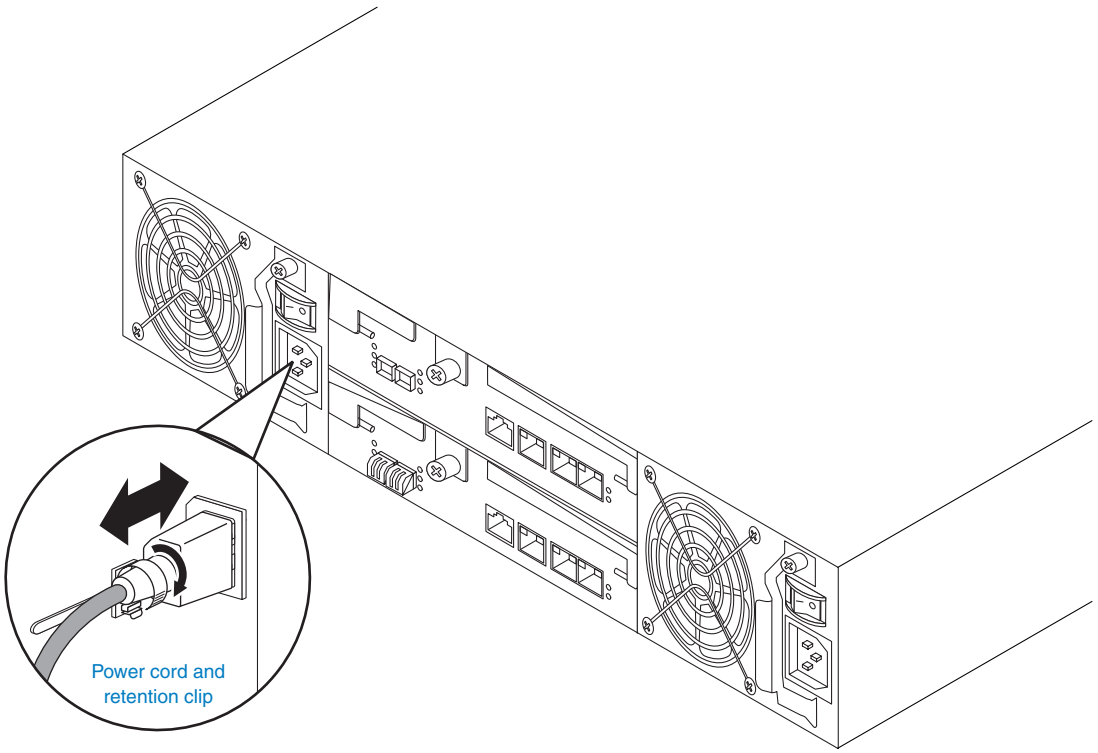
6 Installing the power cables

6.1 Make sure all power supply switches on the N3300 and any attached expansion units(s) are in the Off position.

6.2 Connect the power cords to all power supply 1 and power supply 2 power receptacles for all system units that are being installed using power cord retainer clips as shown below.

6.3 Connect the power cords to the power sources, making sure that the power supplies on the left and right sides of the system are connected to separate and independent AC power sources.

Caution: Do not power on the system at this time.



7 Grounding the N3300

Note: The N3300 has no requirement or provision for grounding.

For proper grounding of expansion units, refer to the *Installation and Setup Instructions* for the expansion unit.

8 Setting up and booting the system

8.1 Make sure the "System setup worksheet" has been completed and available for use in the following steps.

8.2 Check that your system is properly set up. Make sure that the expansion unit IDs and speed switches are properly set, and that the cabling is correct for your configuration.

Note: Make sure that the network and fibre channel switches are powered on and configured before you turn on your system.

8.3 Turn on the power to any switches, and then turn on only the expansion units, making sure you turn them on within 5 minutes of each other. Turn on the N3300.

Note: It takes the LEDs on the system power supplies a few seconds to illuminate.

The system begins to boot, and then it stops at the first setup question, which is displayed on the console.

8.4 Check the console for NVMEM battery messages. Data ONTAP checks the battery charge when booting. If the battery is not charged enough to hold the NVMEM contents for a sufficient period, the boot process is stopped until the battery is properly recharged. However, you can resume booting by following the console messages. You can check the battery charge level by accessing the Baseboard Management Controller (BMC) by pressing Ctrl-G and the entering the **sensor show** command. The battery status is displayed on the console. Exit the BMC by entering the **system console** command to return to the system console.

Note: If the battery needs charging, you must leave the system power on.

8.5 Go to the system console for each node and answer the installation questions for that node, using the information recorded in the "System setup worksheet" from this document or from the *N3000 Series Hardware and Service Guide*.

Note: If you configured the RLM during setup, the setup script pauses for a short time while the RLM reboots and sets its configuration.

Note: You will be asked to continue setup through the Web interface. If you select **No**, you will continue setup through the command line interface. If you select **Yes**, you can log in to the N3300 using the IP address specified earlier in the setup or you can continue through the command line interface. Refer to the *IBM System Storage N series Data ONTAP Software Setup Guide* for your version of Data ONTAP for more information about choosing a setup method.

8.6 Check the licenses on the node(s) by entering the following command:

license

Add any missing licenses by entering the following command for each missing license:

license add *xxxx*

where xxxx is the license code for the product.

Note: Clustering must be licensed on both nodes in a dual-node N3300.

8.7 Continue with post-setup configuration as needed.

8.8 Reboot the node(s) by entering the following command:

Reboot

Initial setup is now complete for a single-node N3300. Refer to the *IBM System Storage N series Data ONTAP Software Setup Guide* for your version of Data ONTAP to verify that the system is set up correctly and ready to operate. Give all documentation (including this document) and all hardware to the customer.

To complete the initial setup of a dual-node N3300, continue with Step 8.9.

8.9 Enable clustering by entering the following command on one node's console:

cf enable

8.10 Check each node's status by entering the following command:

cf status

Initial setup is now complete for a dual-node N3300. Refer to the *IBM System Storage N series Data Active-Active Configuration Guide* for your version of Data ONTAP to verify that the system is set up correctly and ready to operate. Give all documentation (including this document) and all hardware to the customer.

9 Troubleshooting tips

If your storage system does not boot when you power it on, follow these troubleshooting tips in the given order.

1. Look for a description of the problem on the console. Follow the instructions, if provided, on the console.

2. Check all cables and connections, making sure that they are secure.

3. Ensure that power is supplied and is reaching your system from the power source.

4. Check the power supplies on your system and attached expansion units. If the LEDs on a power supply are not illuminated, remove the power supply and reinstall it, making sure that it connects with the backplane.

5. Verify expansion unit compatibility and check the disk shelf IDs.

6. Ensure that the expansion unit speeds are set correctly:
   - EXN1000, set to 2 Gb
   - EXN2000, set to 2 Gb
   - EXN4000, set to 4Gb or 2 Gb, as necessary
   - EXN2000s and EXN4000s mixed in the same loop, set to 2 Gb

7. Check disk ownership:
   a. Make sure there are disks assigned to the system. Enter **disk show**.
   b. Verify that there is storage attached to the system. Enter **disk show -v**.
   c. Verify that changes were made. Enter **disk show - v**.

8. Turn off your system and expansion units, and then turn on the expansion units. Check the quick reference card that came with the EXN units for information about LED responses.

9. Use the onboard diagnostics to check the disks.

To check SAS disks:
   a. Turn on your system and press Ctrl-C. Enter **boot_diags** at the firmware (LOADER) prompt.
   b. Enter **mb** in the Diagnostic Monitor program.
   c. Enter **6** to select the SAS test menu.
   d. Enter **42** to scan and show disks on the selected SAS. This displays the number of SAS disks.
   e. Enter **72** to show the attached SAS devices.
   f. Exit the Diagnostic Monitor by entering **99** at the prompt. Enter the **exit** command to return to LOADER. Start Data ONTAP by entering **autoboot** at the prompt.

To check Fibre Channel disks:
   a. Enter **mb** in the Diagnostic Monitor program
   b. Enter **5** to select the Onboard FC-AL test menu.
   c. Enter **72** at the prompt to show attached FC-AL devices.
   d. Exit the Diagnostic Monitor by entering **99** at the prompt. Enter the **exit** command to return to LOADER. Start Data ONTAP by entering **autoboot** at the prompt.

10. If your system does not boot successfully, it might not have the boot image downloaded on the CompactFlash card. Call IBM Service and Support at 1-800-IBM-SERV (1-800-426-7378).

10 Additional resources

For information about...	Refer to...
New features, enhancements, known issues, and late-breaking news for your version of Data ONTAP software	The *Release Notes* for your version of Data ONTAP
Setting up and verifying software configuration	*Data ONTAP Software Setup Guide*
Configuring and managing the iSCSI or FCP protocol, and creating and managing LUNs and initiator groups with the iSCSI or FCP service	*Data ONTAP Block Access Management Guide for iSCSI and FCP*
Cabling, configuring,and disk ownership	*Data ONTAP Active/Active Configuration Guide* *Data ONTAP System Administration Guide* *Data ONTAP Data Protection Guides* *Data ONTAP Storage Management Guide*
Testing field-replaceable units and diagnosing and correcting system hardware problems	*IBM System Storage N series Diagnostics Guide*
Hardware configuration options for your system	*IBM System Storage N series Introduction and Planning Guide* *IBM System Storage N3300 and N3600 Hardware and Service Guide*
Troubleshooting the system	*IBM System Storage N series Platform Monitoring Guide*
Configuring your RLM after initial setup	*Data ONTAP System Administration Guide*

The following N series publications and Web site contain additional information about N series hardware and software products.

- *IBM System Storage N3300 and N3600 Hardware and Service Guide,* GC27-2087
- *IBM System Storage EXN1000 Hardware and Service Guide*, GC26-7802
- *IBM System Storage EXN2000 Hardware and Service Guide*, GA32-0516
- *IBM System Storage EXN4000 Hardware and Service Guide*, GC27-2080
- *IBM System Storage EXN1000 Installation and Setup Instructions*, GC26-7786
- *IBM System Storage EXN2000 Installation and Setup Instructions*, GC27-2064
- *IBM System Storage EXN4000 Installation and Setup Instructions*, GC27-2079
- *IBM System Storage N series Introduction and Planning Guide*, GA32-0543
- *IBM Systems Safety Notices*, G229-9054
- Www.ibm.com/storage/support/nas/

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