ASUS Storage
DS300f, DS300i
Quick Start Guide

Version 1.0

ASUS Storage Task List

Task 1: Unpacking tthe ASUS Storage

The ASUS Storage product box contains the following items:

- ASUS Storage DS300f or DS300i subsystem
- *Quick Start Guide* printed
- RJ11-to-DB9 serial data cable
- Screws for disk drives (70 pieces)

- 1.5m (4.9 ft) Power cords (2)
- CD with SNMP files, *User Manual,* and *Quick Start Guide* in PDF format

A Battery Backup Unit (BBU) is optional on the ASUS Storage subsystem. In the event of a power failure, the BBU powers the controller cache to preserve any data it contains.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Warning

The electronic components within the ASUS Storage enclosure are sensitive to damage from Electro-Static Discharge (ESD). Observe appropriate precautions at all times when handling the ASUS Storage or its subassemblies.

Caution

- There is a risk of explosion if the battery is replaced by the incorrect type.
- Dispose of used batteries according to the instructions that accompany the battery.

Figure 1. ASUS Storage front view

Drive Carrier LEDs

Drive Carriers   **Power and Status LEDs**
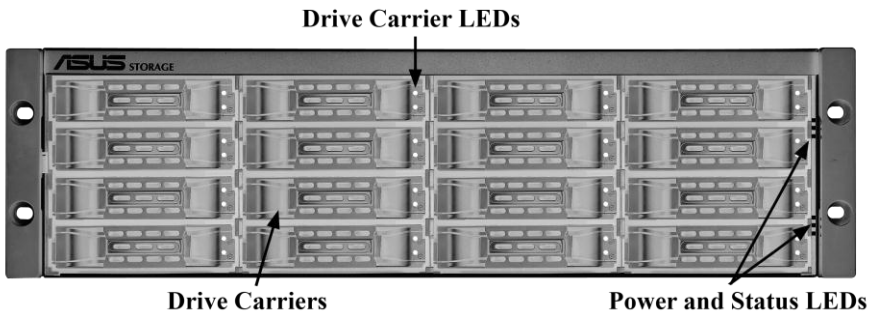
A defective drive may be replaced without interruption of data availability to the host computer. If so configured, a hot spare drive will automatically replace a failed drive, securing the fault-tolerant integrity of the logical drive. The self-contained hardware-based RAID logical drive provides maximum performance in a compact external enclosure.

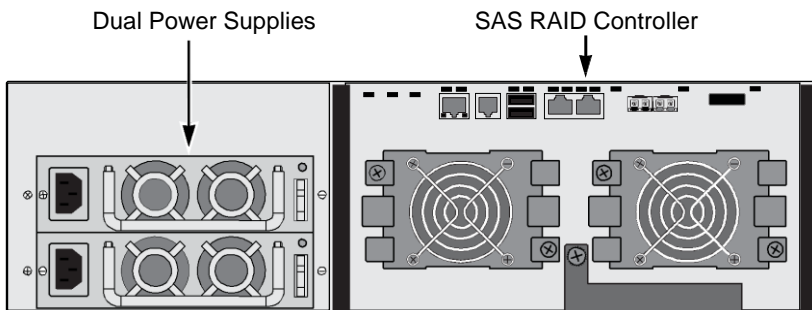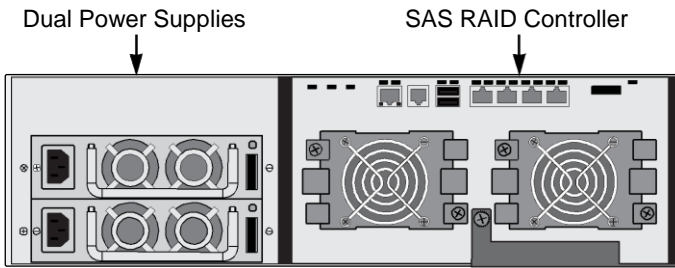*Figure 2. ASUS Storage DS300f rear view*

Dual Power Supplies   SAS RAID Controller

Figure 3. ASUS Storage DS300i rear view

Dual Power Supplies   SAS RAID Controller

For a description of the LEDs, see pages 28 and 30.

# *Task 2: Installing the LCD Panel (Optional)*

Cautions

⚠

- The LCD panel is NOT a hot-swap device. Be sure the ASUS Storage is powered down before you connect or disconnect the LCD panel.
- You must install the LCD panel before you mount the ASUS Storage subsystem in a rack.

The LCD panel mounts to the left ear of the ASUS Storage enclosure.

1. Align the connector on the left bracket of the ASUS Storage enclosure to the connector on the back of the LCD panel, as shown in Figure 4.

Figure 4. Align the connectors on the enclosure and the LCD panel

Connector on
the enclosure

Connector on
the LCD panel
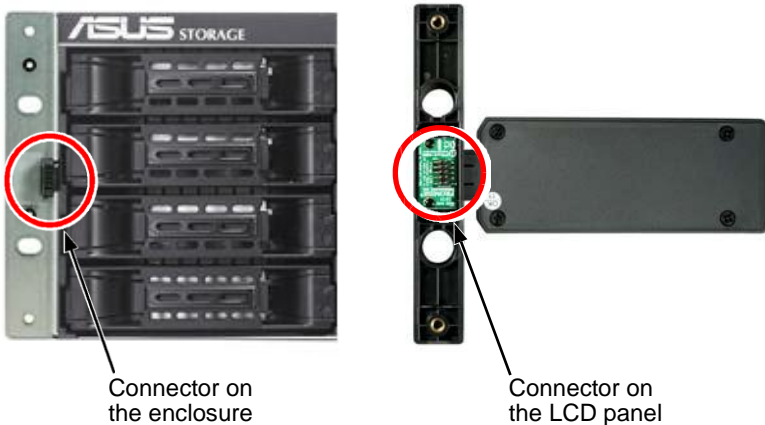
2. Insert the two screws that you removed in step 1 through the holes in the left bracket and into the threaded holes in the LCD panel, as shown in page 6, Figure 5.

Tighten the screws to secure the LCD panel to the bracket.

Figure 5.   Attach the LCD panel to the ASUS Storage enclosure

The LCD screen activates when the ASUS Storage boots. See "Task 7: Connecting the Power" on page 28.

Go to "Task 3: Mounting ASUS Storage in a Rack" on page 7.

# *Task 3: Mounting ASUS Storage in a Rack*

Cautions

- At least two persons are required to safely lift, place, and attach the ASUS Storage unit into a rack system.

- Do not lift or move the ASUS Storage unit by the handles, power supplies or the controller units. Hold the subsystem itself.

- Do not install the ASUS Storage unit into a rack without rails to support the subsystem.

- Only a qualified technician who is familiar with the installation procedure should mount and install the ASUS Storage unit.

- Be sure all switches are OFF before installing the ASUS Storage unit or exchanging components.

- Mount the rails to the rack using the appropriate screws and flange nuts, fully tightened, at each end of the rail.

- Do not load the rails unless they are installed with screws as instructed.

- The rails that ship with the ASUS Storage unit are designed to safely support that ASUS Storage unit when properly installed. Additional loading on the rails is at the customer's risk.

- ASUSTek COMPUTER INC. (Taiwan) cannot guarantee that the mounting rails will support your ASUS Storage unit unless you install them as instructed.

Note

To lighten the ASUS Storage enclosure, remove the power supplies. Replace the power supplies after the ASUS Storage unit is mounted in your rack.
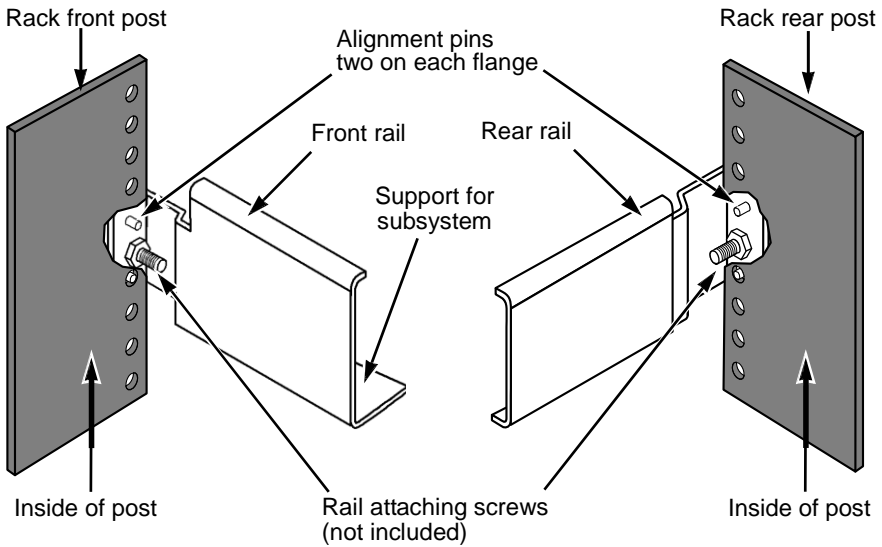
Figure 6. Subsystem mounted in a rack with the available rails
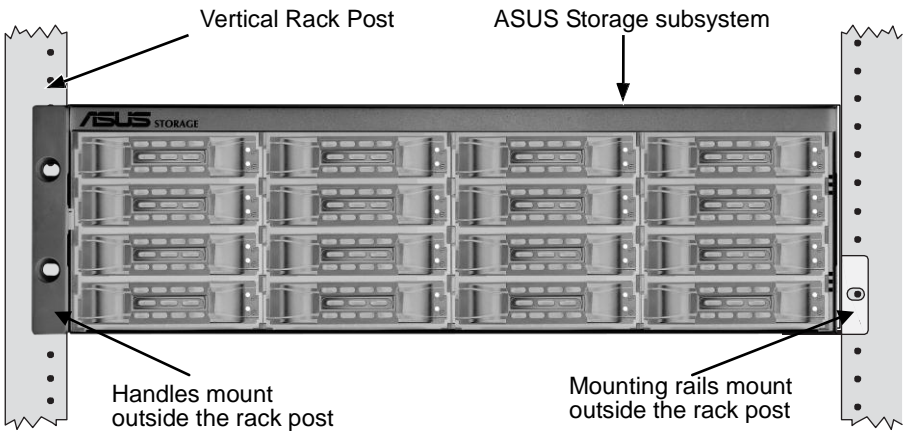
To install the ASUS Storage subsystem into a rack with the supplied mounting rails:

1. Check the fit of the mounting rails in your rack system.

    See page 9, Figure 7.

2. Adjust the length of the mounting rails as needed.

    The rear rail slides inside the front rail. The rail halves are riveted together and use no adjustment screws.

3. Attach the mounting rail assemblies to the outside of the rack posts, using the attaching screws and flange nuts from your rack system.

    Be sure the front rail support is on the bottom facing inward.

    The alignment pins fit into the rack holes above and below the attaching screws.

    Use the attaching screws and flange nuts from your rack system. Tighten the screws and flange nuts according to your rack system instructions.

4. Place the ASUS Storage subsystem onto the rails.

5. Secure the ASUS Storage subsystem to the rack.

    One screw each side, in the upper hole only. Use the attaching screws and flange nuts from your rack system. Tighten the screws and flange nuts according to your rack system instructions.

Figure 7. Rack mount assembly diagram

Rack front post

Alignment pins
two on each flange

Rack rear post

Front rail

Rear rail

Support for
subsystem

Inside of post

Rail attaching screws
(not included)

Inside of post

Note that only the front rail has a support for the subsystem.

This completes rack mounting. Go to "Task 4: Installing Disk Drives" on page 10.

Task 4: Installing Disk Drives

The ASUS Storage DS300f and DS300i subsystems and DS300j expansion units support:

• SAS and SATA hard disk drives
• 3.5-inch hard disk drives

For a list of supported physical drives, download the latest compatibility list from the ASUS support web site http://support.asus.com/.

Number of Drives Required

The table below shows the number of drives required for each RAID level

Level	Number of Drives		Level	Number of Drives
RAID 0	1 or more		RAID 6	4 to 32*
RAID 1	2 only		RAID 10	4 or more**
RAID 1E	2 or more		RAID 30	6 or more
RAID 3	3 to 32*		RAID 50	6 or more
RAID 5	3 to 32*		RAID 60	8 or more

* A JBOD expansion unit may be required.
** Must be an even number of drives.

Drive Slot Numbering

You can install any suitable disk drive into any slot in the enclosure. The diagram below shows how ASUS Storage's drive slots are numbered. Whether you have the original or plus carriers, the slots are numbered the same.

Slot numbering is reflected in the ASUS Storage Management and CLU user interfaces. See page 11, Figure 8.

Figure 8. ASUS Storage drive slot numbering
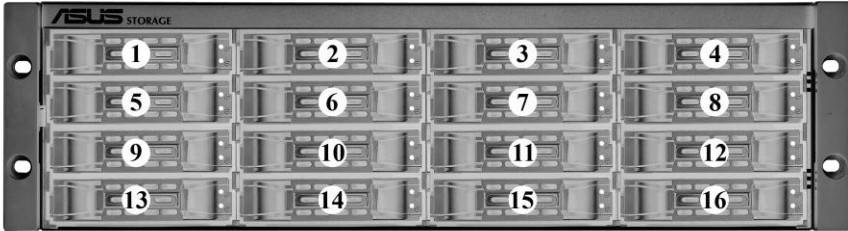
Install all of the drive carriers o the ASUS Storage enclosure to ensure proper airflow, even if you do not populate all the carriers with disk drives.

Installing Your Disk Drives

To install your disk drives:

1.   Remove a disk drive carrier.
2.   Carefully lay the disk drive into the drive carrier at the front, so that the screw holes on the sides line up.

     See page 12, Figure 9.

3.   Insert the screws through the holes in the drive carrier and into the sides of the disk drive.

     •   Install only the counter-sink screws supplied with the ASUS Storage.

     •   Install four screws per drive.

     •   Snug each screw. Be careful not to over-tighten.

4.   Reinstall the drive carrier into the ASUS Storage enclosure.

Repeat steps 1 through 3 until all of your disk drives are installed.

Figure 9. Disk drive mounted in a drive carrier

Disk drive

mounting screw

mounting screw
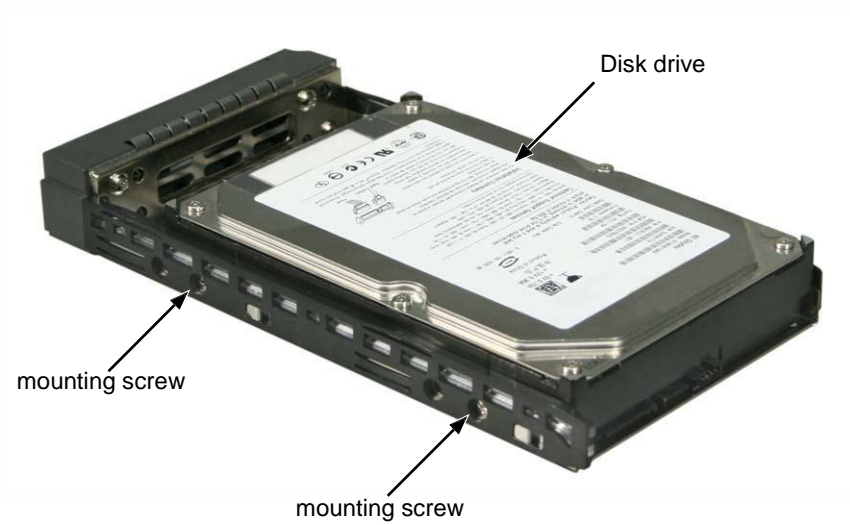
This completes disk drive installation. Go to "Task 5: Making Data and Management Connections" on page 13.

	Caution
	ASUS Storage supports disk drive hot-swapping. To avoid hand contact with an electrical hazard, do not remove more than one drive carrier a time.

Task 5: Making Data and Management Connections

You can configure your ASUS Storage for:

- Fibre Channel Direct Attached Storage (DAS), see below
- Fibre Channel Storage Area Network (SAN) (page 16)
- iSCSI Direct Attached Storage (DAS) (page 19)
- iSCSI Storage Area Network (SAN) (page 22)
- SAS JBOD Expansion (page 25)
- SAS JBOD Expansion (page 25)

Important

For a list of supported FC HBAs, Switches and SFPs, download the latest compatibility list from the ASUS support web site http://support.asus.com/.

ASUS Storage does not support cascading of multiple RAID subsystems. Cascading is planned for a future release.

Fibre Channel Direct Attached Storage (DAS)

This arrangement requires:

- A Fibre Channel (FC) interface card in the Host PC
- At least one FC transceiver for each ASUS Storage subsystem
- A network interface card (NIC) in the Host PC
- A standard network switch

Note

ASUS Storage Fibre Channel subsystems also have two (2) Ethernet RJ45 iSCSI Port connectors. See "iSCSI Direct Attached Storage (DAS)" on page 19 for connection instructions.

Data Path

The ASUS Storage DS300f controller has two (2) FC Port connectors and one (1) SFF-8088 SAS Expansion Port connector. See page 14, Figure 10.

To establish the data path:

1. Install an FC transceiver into the FC data port on the ASUS Storage controller.

   See page 15, Figure 11.

2. Connect the FC transceiver on the ASUS Storage DS300f controller to the Host PC or Server.

    See also "SAS JBOD Expansion" on page 25.

Management Path

The ASUS Storage DS300f controller has one (1) Ethernet RJ-45 Management Port connector. See page 14, Figure 10.

To establish the management path:

1. Attach one end of an Ethernet cable to the network connector or standard NIC in the Host PC.

    Attach the other end of the Ethernet cable to one of the ports on the standard network switch.

    See page 15, Figure 11.

2. Attach one end of an Ethernet cable to one of the ports on the standard network switch.

    Attach the other end of the Ethernet cable to the Management Port on the ASUS Storage DS300f subsystem.

    If you have multiple DS300f subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

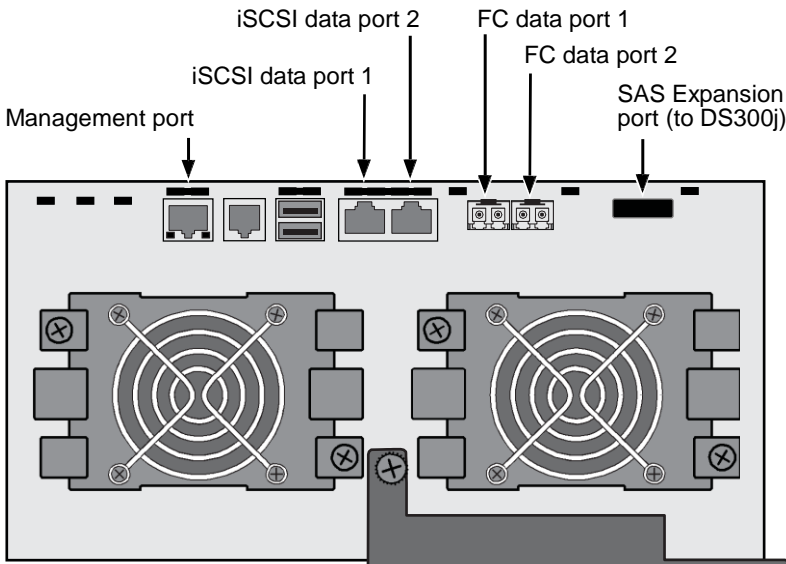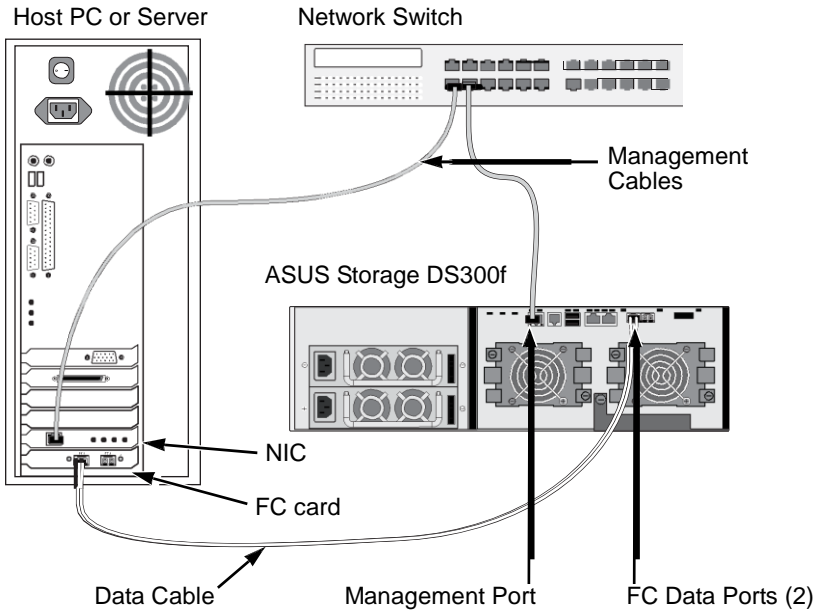*Figure 10. ASUS Storage D300f data and management ports*

Figure 11. FC DAS data and management connections

Host PC or Server   Network Switch

Management
Cables

ASUS Storage DS300f

NIC

FC card

Data Cable   Management Port   FC Data Ports (2)

Fibre Channel Storage Area Network (SAN)

This arrangement requires:

- A Fibre Channel (FC) interface card in each Host PC
- At least one FC transceiver for each ASUS Storage subsystem
- A network interface card (NIC) in each Host PC
- A standard network switch

Note

ASUS Storage DS300f subsystems also have two (2) Ethernet RJ45 iSCSI Port connectors. See "iSCSI Storage Area Network (SAN)" on page 22 for connection instructions.

Data Path

The ASUS Storage DS300f controller has two (2) FC Port connectors and two (2) Ethernet RJ45 iSCSI Port connectors. See page 14, Figure 10.

To establish the data path:

1. Install an FC transceiver into the FC data port on the ASUS Storage controller.

   See page 18, Figure 12.
2. Connect the FC transceiver on the ASUS Storage subsystem to the FC switch.
3. Connect the FC switch to the FC HBA card in the Host PC or Server.

   If you have multiple ASUS Storage subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

   See also "SAS JBOD Expansion" on page 25.

Management Path

The ASUS Storage DS300f controller has one (1) Ethernet RJ-45 Management Port connector. See page 14, Figure 10.
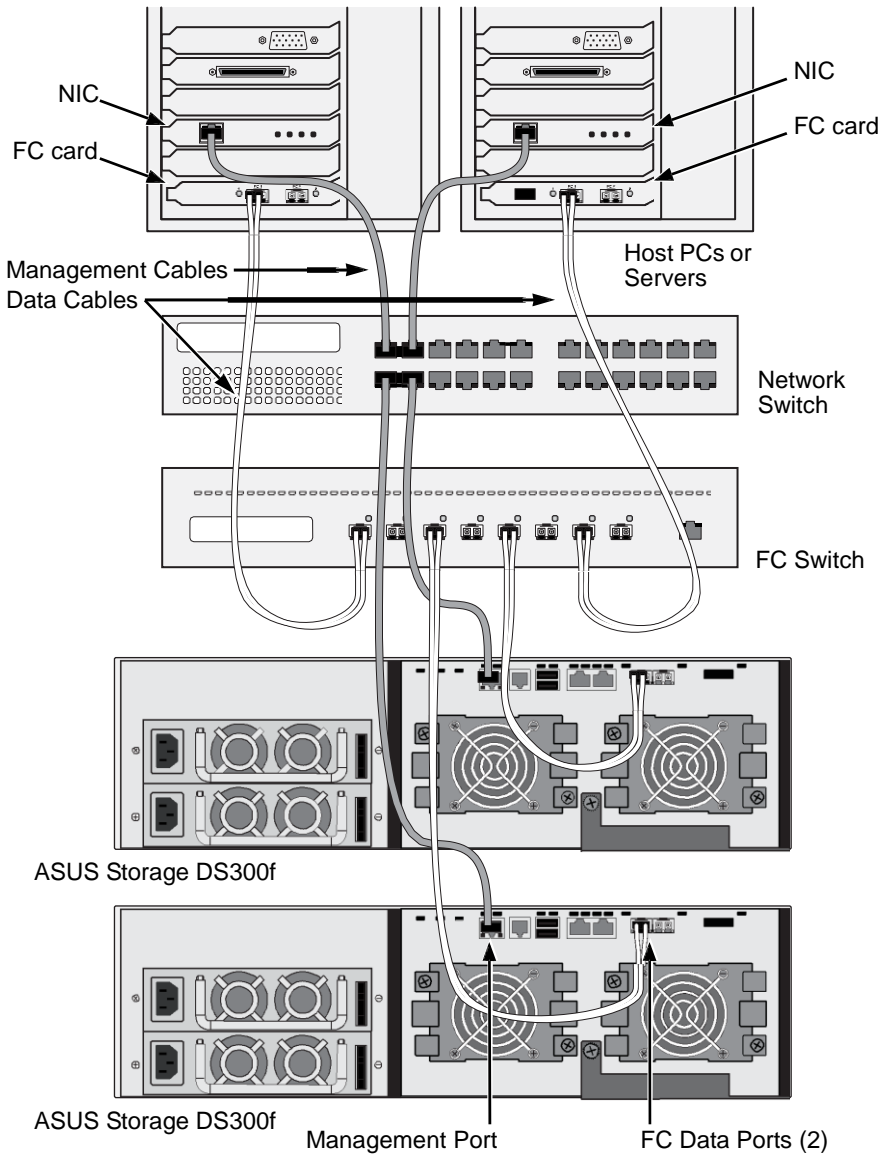
To establish the management path:

1. Attach one end of an Ethernet cable to the network connector or standard NIC in the Host PC.

   Attach the other end of the Ethernet cable to one of the ports on the standard network switch.

   See page 18, Figure 12.
2. Attach one end of an Ethernet cable to one of the ports on the standard network switch.

Attach the other end of the Ethernet cable to the Management Port on the ASUS Storage DS300f subsystem.

If you have multiple ASUS Storage subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

Figure 12. FC SAN data and management connections

NIC

FC card

NIC

FC card

Host PCs or
Servers

Management Cables
Data Cables

Network
Switch

FC Switch

ASUS Storage DS300f

ASUS Storage DS300f

Management Port

FC Data Ports (2)

iSCSI Direct Attached Storage (DAS)

This arrangement requires:

- A Gigabit Ethernet network interface card (GbE NIC) in the Host PC or Server with iSCSI support in hardware or in software
- A standard network switch
- A network interface connector on the motherboard or network interface card (NIC) in the Host PC

	Note
	These instructions also apply to the iSCSI Ports on ASUS Storage Fibre Channel subsystems.

Configuring a Data Path

The ASUS Storage DS300i controller has four (4) Ethernet RJ45 iSCSI Port connectors. See page 20, Figure 13.

To establish the data path:

1. Attach one end of an Ethernet cable to the GbE (iSCSI) NIC in the Host PC.

   See page 21, Figure 14.

2. Attach the other end of the Ethernet cable to one of the four iSCSI ports on the ASUS Storage DS300i controller.

   If you have multiple ASUS Storage DS300i subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

   See also "SAS JBOD Expansion" on page 25.

Configuring a Management Path

The ASUS Storage DS300i controller has one (1) Ethernet RJ-45 Management Port connector. See page 20, Figure 13.

To establish the management path:

1. Attach one end of an Ethernet cable to the network connector or standard NIC in the Host PC.

   Attach the other end of the Ethernet cable to one of the ports on the standard network switch. See page 21, Figure 14.

2. Attach one end of an Ethernet cable to one of the ports on the standard network switch.

   Attach the other end of the Ethernet cable to the Management Port on the ASUS Storage DS300i subsystem.

   If you have multiple ASUS Storage subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

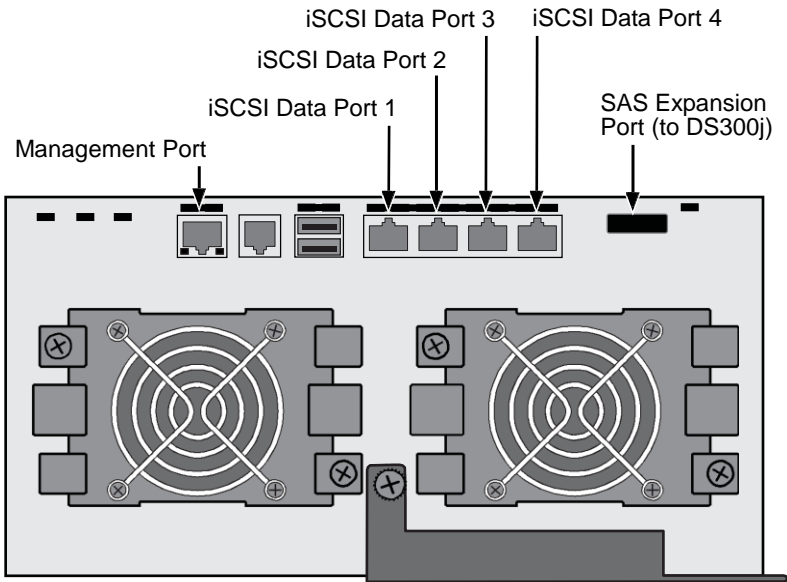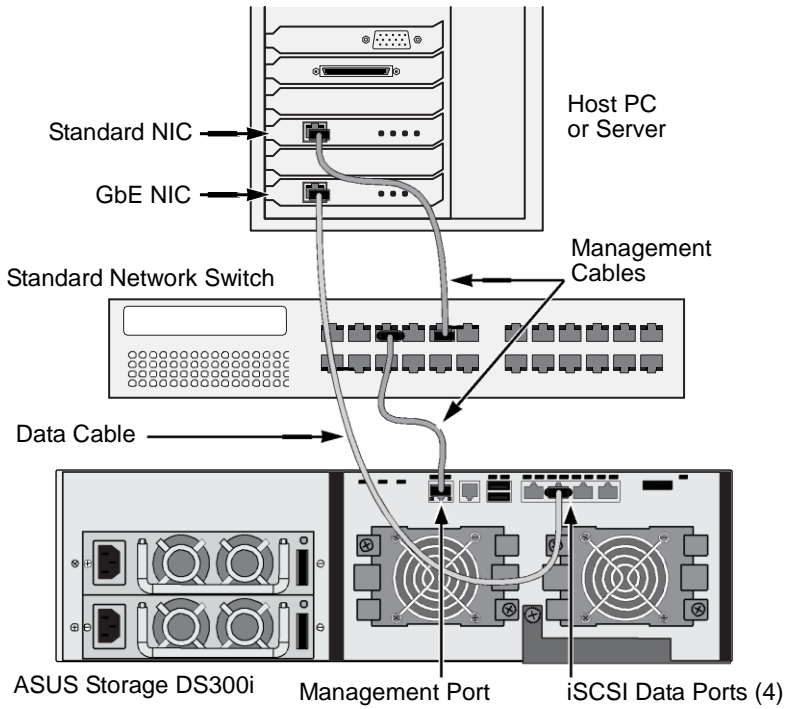**Figure 13. ASUS Storage D300i data and management ports**

Figure 14.iSCSI DAS data and management connections

Host PC
or Server

Standard NIC

GbE NIC

Management
Cables

Standard Network Switch

Data Cable

ASUS Storage DS300i   Management Port   iSCSI Data Ports (4)

iSCSI Storage Area Network (SAN)

This arrangement requires:

- A Gigabit Ethernet network interface card (GbE NIC) in the Host PC or Server with iSCSI support in hardware or in software
- A GbE network switch
- A standard network switch
- A network interface connector on the motherboard or network interface card (NIC) in the Host PC

Note

These instructions also apply to the iSCSI Ports on ASUS Storage D300f subsystems.

Use this configuration if you plan to set up Network Attached Storage (NAS). See "Task 8: Installing Smart NAS Console" on page 32.

Configuring a Data Path

Depending on the model, the ASUS Storage DS300i controller has two (2) or four (4) Ethernet RJ45 iSCSI Port connectors. See page 20, Figure 13.

To establish the data path:

1. Attach one end of an Ethernet cable to the GbE (iSCSI) NIC in the Host PC.

   Attach the other end of the Ethernet cable to one of the ports on the GbE network switch. See page 24, Figure 15.

   If you have multiple ASUS Storage DS300i subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

2. Attach one end of an Ethernet cable to one of the ports on the GbE network switch.

   Attach the other end of the Ethernet cable to one of the four iSCSI ports on the ASUS Storage DS300i controller.

   Only one iSCSI data cable is required between the ASUS Storage DS300i and GbE network switch. However, you can attach multiple cables to create redundant data paths.

   If you have multiple ASUS Storage DS300i subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

   See also "SAS JBOD Expansion" on page 25.

Configuring a Management Path

The ASUS Storage DS300i controller has one (1) Ethernet RJ-45 Management Port connector. See page 20, Figure 13.
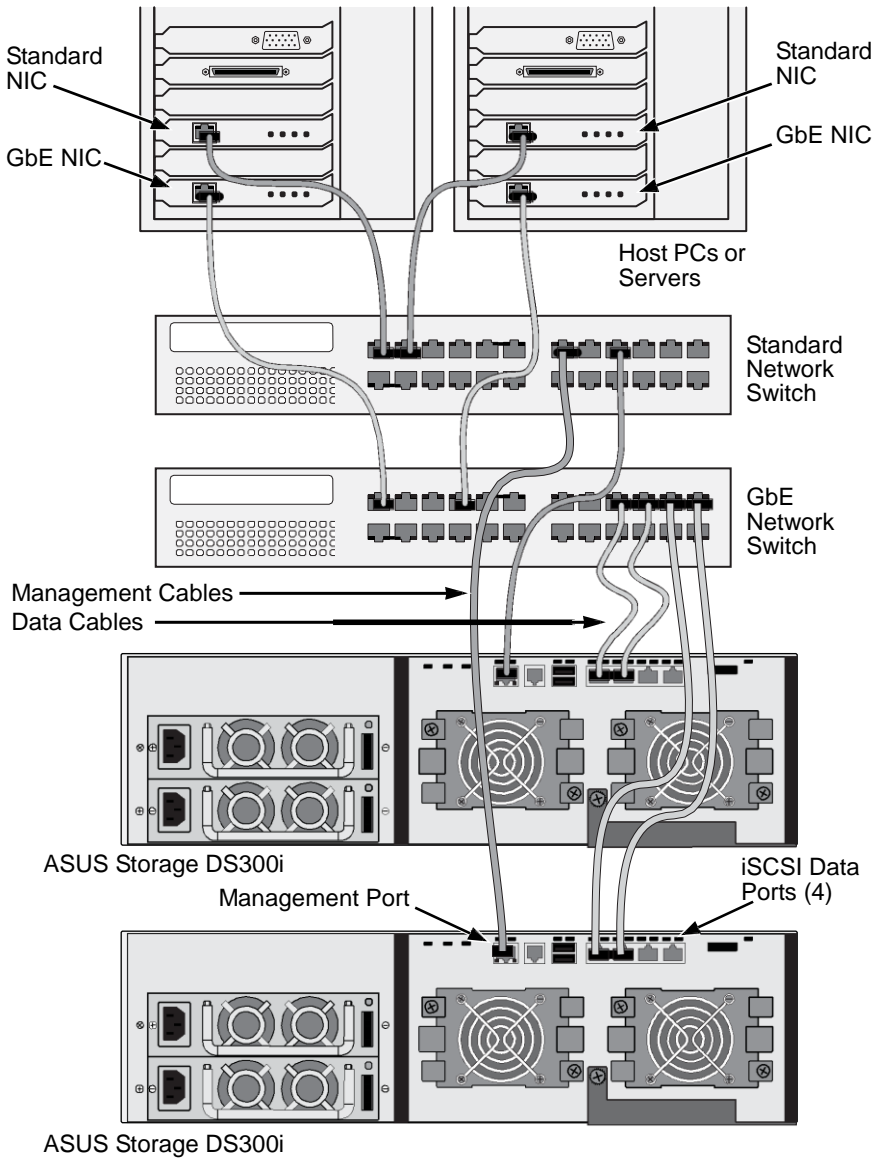
To establish the management path:

1. Attach one end of an Ethernet cable to the standard NIC in the Host PC.

   Attach the other end of the Ethernet cable to one of the ports on the standard network switch. See page 24, Figure 15.

2. Attach one end of an Ethernet cable to one of the ports on the standard network switch.

   Attach the other end of the Ethernet cable to the Management Port on the ASUS Storage DS300i subsystem. See page 24, Figure 15.

   If you have multiple ASUS Storage DS300i subsystems, Host PCs or Servers, repeat steps 1 and 2 as required.

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Figure 15. iSCSI SAN data and management connections

Standard
NIC

GbE NIC

Standard
NIC

GbE NIC

Host PCs or
Servers

Standard
Network
Switch

GbE
Network
Switch

Management Cables
Data Cables

ASUS Storage DS300i

iSCSI Data
Ports (4)

Management Port

ASUS Storage DS300i

SAS JBOD Expansion

This arrangement requires:

- One (1) or more ASUS DS300j expansion units
- One (1) SFF-8088 to SFF-8088 SAS cable for each ASUS DS300j expansion unit

Configuring the Data Path

All ASUS Storage subsystems have one (1) SFF-8088 SAS Expansion Port connector.

To expand the data path:

1. Attach one end of a SFF-8088 to SFF-8088 SAS cable to the SAS Expansion Port on the ASUS Storage subsystem.

   See page 26, Figure 16.

2. Attach the other end of the SFF-8088 to SFF-8088 SAS cable to the SAS IN Port on the ASUS DS300j expansion units.

   If you have another ASUS DS300j expansion unit, attach one end of the SFF-8088 to SFF-8088 SAS cable to the SAS OUT Port of the first ASUS DS300j to the SAS IN Port of the second ASUS DS300j.

Important

ASUS Storage DS300j expansion units have one SAS IN port and one SAS OUT port. If you connect them incorrectly, the ASUS Storage does not recognize the ASUS Storage DS300j expansion units.

For more information, see the ASUS Storage DS300j *User Manual* on the CD that came with the ASUS DS300j expansion unit.

Configuring a Management Path

The ASUS Storage controller manages the ASUS DS300j expansion unit. No additional management connections are required for JBOD expansion.

Figure 16. ASUS Storage DS300j expansion data connections

SAS Expansion Port

ASUS Storage DS300i   SAS data cable   SAS OUT Port

ASUS DS300j   SAS IN Port

ASUS DS300j
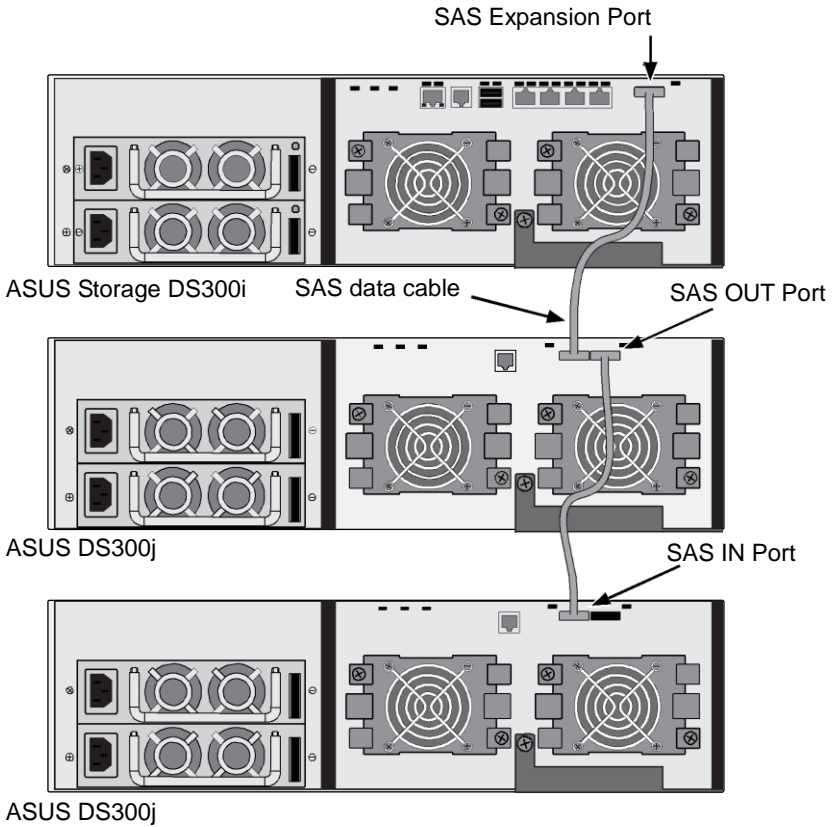
After you complete your data and management connection, go to "Task 6: Setting Up Serial Cable Connections" on page 27.

Task 6: Setting Up Serial Cable Connections

Serial communication enables the Command Line Interface (CLI) and Command Line Utility (CLU) on your PC to monitor and control the ASUS Storage subsystem. The ASUS Storage package includes a RJ11-to-DB9 serial data cable.

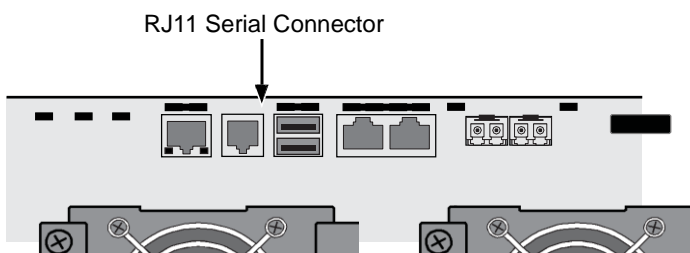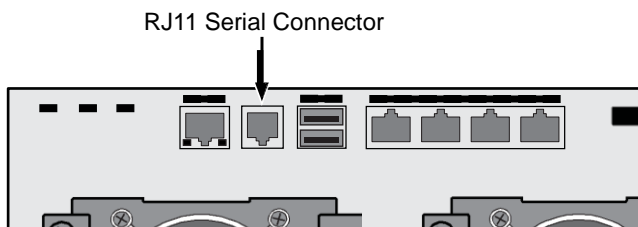**Figure 17. Serial connector on a DS300f controller**

RJ11 Serial Connector

Figure 18. Serial connector on a DA300i controller

RJ11 Serial Connector

To set up a serial cable connection:

1. Attach the RJ11 end of the serial data cable to the RJ11 serial connector on the controller.
2. Attach the DB9 end of the serial data cable to a serial port on the Host PC or Server.

This completes the serial cable connection. Go to "Task 7: Connecting the Power" on page 28.

Task 7: Connecting the Power

Plug-in the power cords and turn on the switches on both power supplies.

Important

If you have a SAN, DAS, or JBOD expansion, always power on the JBOD expansion units first.

When the power is switched on, the LEDs and LCD screen light up.

Front Panel LEDs

When boot-up is finished and the ASUS Storage DS300f or DS300i subsystem is functioning normally:

•   Power, Global Enclosure Status, and Global RAID Status LEDs display green continuously.

•   Controller Activity LED flashes green when there is controller activity.

•   System Heartbeat LED blinks green seven times in three seconds, goes dark for six seconds, then repeats the pattern.

Figure 19. ASUS Storage subsystem front panel LED display

Power

Global Enclosure Status

Global RAID Status

Controller Activity

Reserved

System Heartbeat
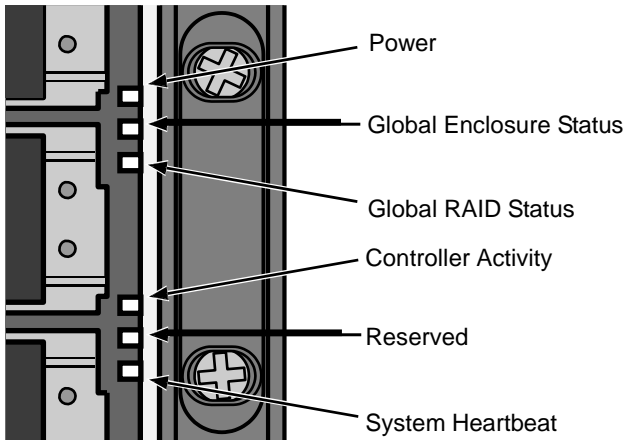
Controller LEDs

When boot-up is finished and the ASUS Storage subsystem is functioning normally:

- Battery, and Controller status LEDs display green continuously.
- Ethernet LEDs display green or flash depending on your network connection.
- The FC, iSCSI, SAS, and Expansion LEDs display green or flash during port activity.

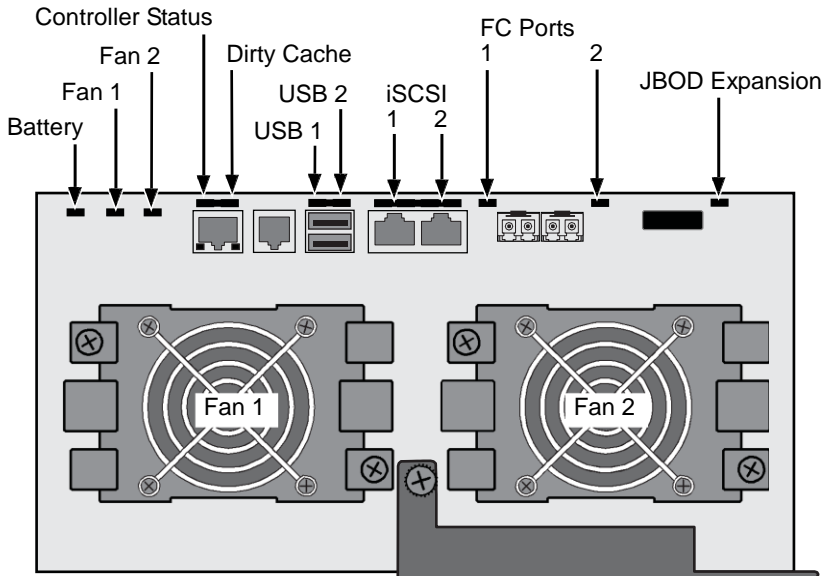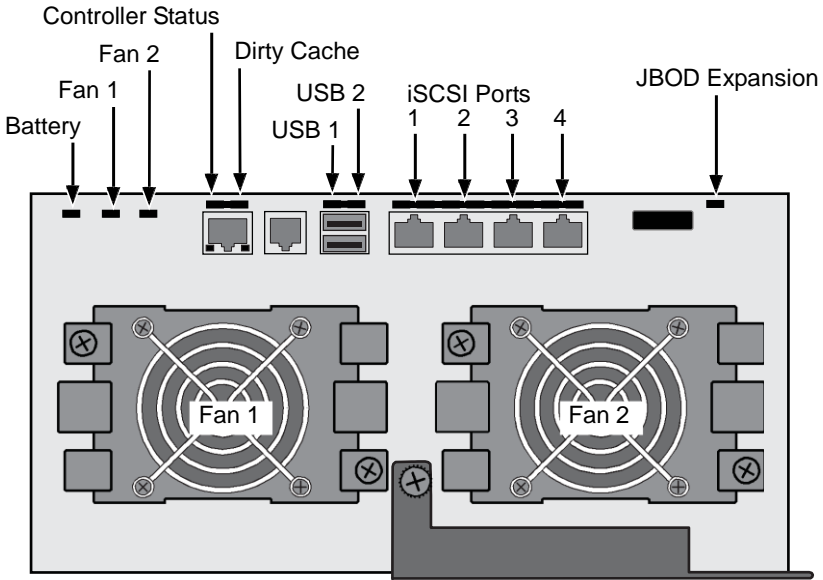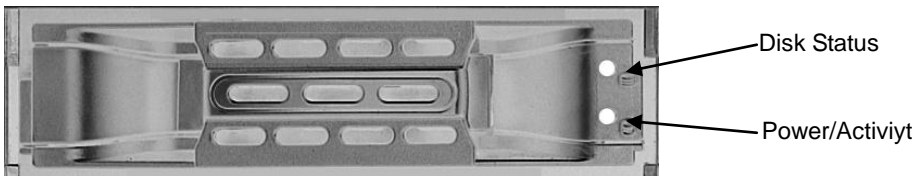***Figure 20. ASUS Storage DS300f controller LEDs***

Figure 21. ASUS Storage DS300i Controller LEDs

There are two LEDs on each Drive Carrier. They report the presence of a disk drive, activity of the drive, and the drive's current condition.

Figure 22. ASUS Storage drive carrier LEDs

If there is a disk drive in the carrier, the Power/Activity LED displays Green. If not, the Power/Activity LED remains dark. The Power/Activity LED flashes during drive activity.

LCD Panel

The LCD panel activates approximately 35 seconds after you switch on the ASUS Storage's power supply.

At first, the LCD screen displays System is Initializing.

When the ASUS Storage DS300f or DS300i subsystem is fully booted and running under normal conditions, the LCD screen shows *ASUS Storage* and IP address, as shown in Figure 23.

Figure 23. ASUS Storage optional LCD display
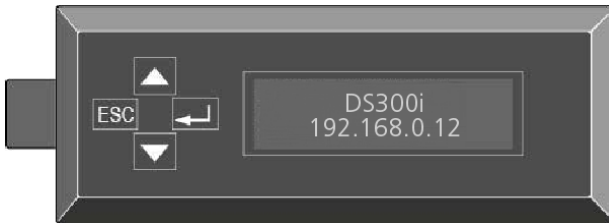
This completes the power and start-up.

For setup instructions, see "Chapter 3: ASUS Storage Setup" in the *ASUS Storage DS300f, DS300i User Manual*.

Task 8: Installing Smart NAS Console

Smart NAS Console software enables you to manage your ASUS Storage subsystem when it is configured as Network Attached Storage (NAS). The NAS option requires:

• An iSCSI SAN data connection, see page 22.

• Logical drives configured for NAS, see page 51.

To install Smart NAS Console:

1. Open the software CD, find the Smart NAS Console install icon (right),

   SmartNAVI.exe

   and drag it to your PC's desktop.

2. Double-click the **Smart NAS Console Install** icon to begin installation.

3. In the Welcome screen, click the **Next** button.

4. In the License screen, choose the **I accept the terms...** option and click the **Next** button.

5. In the Choose Destination folder, click the **Browse...** button if you do not agree with the proposed destination folder.

   When you have chosen the destination folder, click the **Next** button.

6. In the Ready to Install screen, click the **Install** button.

7. In the first Installation Complete screen, click the **Finish** button.

   To register your software online, your PC must have an Internet connection. Thank you for registering.

8. In the second Installation Complete screen, choose whether you want to restart your PC now. When you restart your PC, Smart NAS Console runs automatically.

   Then click the **Finish** button.

For more information, see "Chapter 5: Smart NAS Console" and "Appendix A: Setting-up
NAS Network Drives" In the *ASUS Storage DS300f, DS300i User Manual*.

Task 9: Setting the IP Address

Setting up the Serial Connection

ASUS Storage has a Command Line Interface (CLI) to manage all of its functions, including customizing. A subset of the CLI is the Command Line Utility (CLU), a user-level interface that manages your ASUS Storage via your PC's terminal emulation program, such as Microsoft HyperTerminal. This procedure uses the serial cable connection you made in "Task 6: Setting Up Serial Cable Connections" on page 27.

You must use the CLI or CLU to assign an IP address to the ASUS Storage to enable a network connection for ASUS Storage Management.

1. Change your terminal emulation program settings to match the following specifications:
   - Bits per second: 115200
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: none
2. Start your PC's terminal VT100 or ANSI emulation program.
3. Press Enter once to launch the CLI.
4. At the Login prompt, type **administrator** and press Enter.
5. At the Password prompt, type **password** and press Enter.

   At this point, you are in the CLI.

   You can continue using the CLI to make network settings. See the *ASUS Storage DS300f, DS300i User Manual* for more information.

   Or you can switch to Setting up with the CLU on page 35.

Choosing DHCP or a Static IP Address

When you setup your ASUS Storage, you have the option of:
- Enabling DHCP and letting your DHCP server assign the IP address to the ASUS Storage's management port.
- Specifying a static IP address for the ASUS Storage's management port.

If you choose to enable DHCP, have your Network Administrator dedicate an IP address for the ASUS Storage, linked to the ASUS Storage's MAC address. This action will prevent the DHCP server from assigning a new IP address when the ASUS Storage restarts, with the result that users can no longer log in.

To access the MAC address for ASUS Storage's management port:

1. At the administrator@cli> prompt, type **menu** and press Enter.

    The CLU main menu appears.

2. In the CLU Main Menu, highlight *Network Management* and press Enter, then highlight the management port and press Enter

Figure 24. Viewing the management port's MAC address.
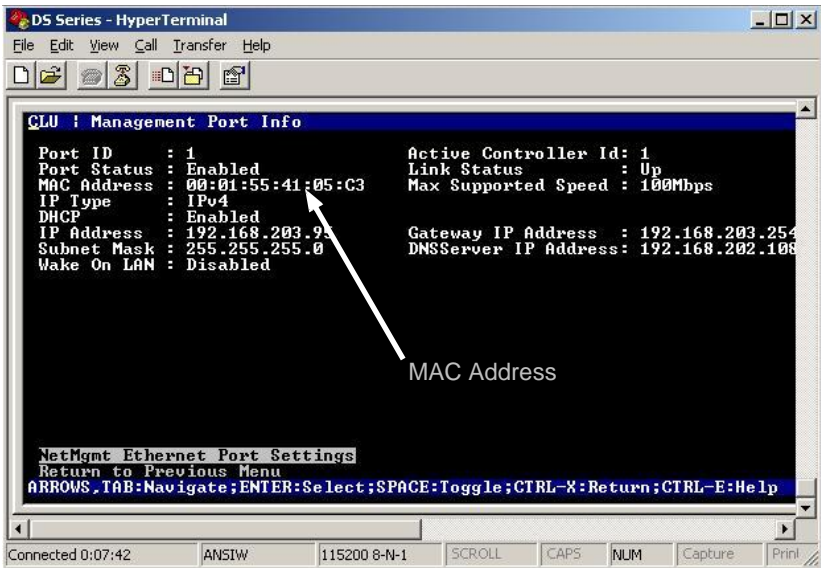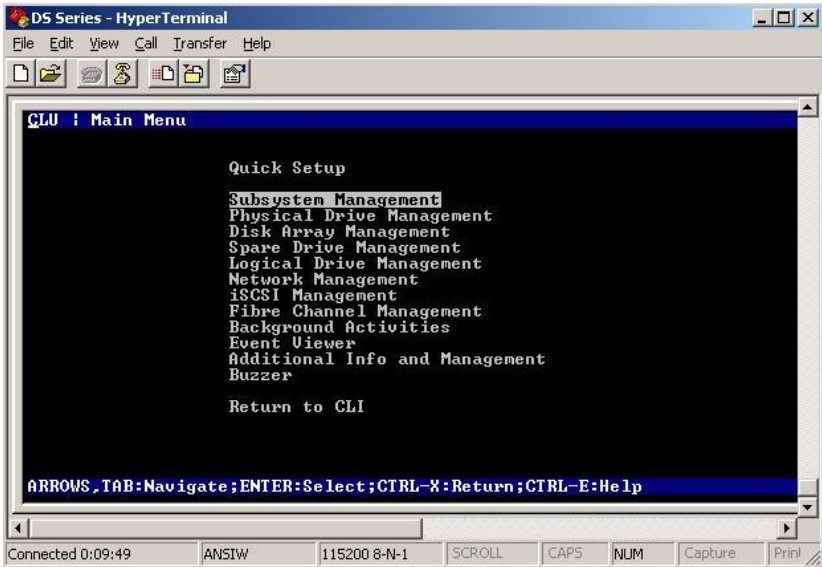

Default IP Addresses

ASUS Storage ships from the factory a default Management Port IP address of 192.168.0.1 and default iSCSI Port IP addresses of 10.0.0.2 through 10.0.0.5. You must change these addresses to work with your network.

Setting up with the CLU

1. At the administrator@cli> prompt, type **menu** and press Enter.

   The CLU main menu appears.

Figure 25. CLU main menu

2. With *Quick Setup* highlighted, press Enter.

   The first Quick Setup screen enables you to make Date and Time settings.

Setting system date and time

To make date and time settings:

1. Press the arrow keys to highlight *System Date*.
2. Press the backspace key to erase the current date.
3. Type the new date.
4. Follow the same procedure to set the System Time.
5. Press Ctrl-A to save these settings and move to the Management Port configuration screen.

Making Manual IP Settings

To make Management Port and iSCSI Port settings manually:

1. Press the arrow keys to highlight *IP Address*.
2. Press the backspace key to erase the current IP Address.

---

3. Type the new IP Address.

4. Follow the same procedure to specify the Subnet Mask, Gateway IP Address and DNS Server IP Address.

   If you do not have a DNS server, skip the DNS Server IP address.

5. Highlight *TCP Port Number* to change the entry.

   3260 is the default and recommended for most applications.

6. Press Ctrl-A to save these settings and move to the RAID configuration screen.

Making Automatic IP Settings

To make Management Port and iSCSI Port settings automatically:

1. Press the arrow keys to highlight *DHCP.*

2. Press the spacebar to toggle to *Enable.*

3. Highlight *TCP Port Number* to change the entry.

   3260 is the default and recommended for most applications.

4. Press Ctrl-A to save these settings and move to the RAID configuration screen.

Configuring the RAID

You can configure your RAID arrays and logical drives using the CLU at this time. ASUS suggests that you highlight *Skip the Step and Finish* and press Enter. Then create your disk array using ASUS Storage Management. See "Task 10: Creating Logical Drives with ASUS Storage Management" on page 39.

Viewing IP Address and Settings

To view the current IP address and network settings when using DHCP:

1. In the CLU Main Menu, highlight *Network Management* and press Enter.

2. Highlight the Management Port or iSCSI Port you want and press Enter.

3. Highlight *DHCP* and press the spacebar to toggle to *Disable*.

   The current Management or iSCSI Port settings are displayed.

4. Press the spacebar to toggle DHCP back to *Enable*.

5. Press Ctrl-A to save these settings and move to the RAID configuration screen.

Exiting the CLU

In the CLU Main Menu, highlight *Return to CLI* and press Enter.

This completes the Management Port setup.

Go to "Task 10: Creating Logical Drives with ASUS Storage Management" on page 39

Setting up with the LCD

The LCD Panel displays the current IP address during normal operation. If you did not install the LCD Panel, see "Task 2: Installing the LCD Panel (Optional)" on page 5. The LCD does not have a date and time function.

Figure 26. LCD Panel default view
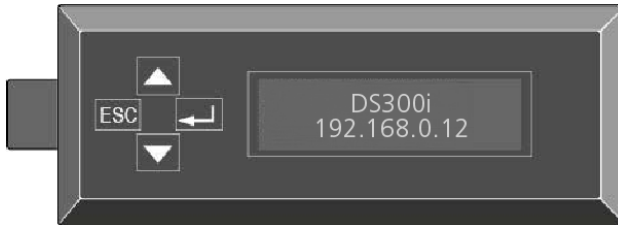

Making Manual IP Settings

To make Management Port settings manually:

1. Press the ▲ or ▼ button until the display says *Management Port*.

2. Press the ↵ button and the display says *Link Status Up*.

    If it says *Link Status Down*, reconnect to the network before preceding.

3. Press the ▲ or ▼ button and the display says *IP Address.*

4. Press the ↵ button to make a change.

    The current IP Address displays with the cursor under the first (extreme left) digit.

5. Press the ▲ button to increment and the ▼ button decrement.

    Press the ESC button to move left and the ↵ button to move right.

    To set an IP address with double- or single-digit octets, for example, 192.168.1.50, type zeros as placeholders, **192.168.001.050**.

    After you have set the last (extreme right) digit, press the ↵ button.

    The current Subnet Mask displays with the cursor under the first (extreme left) digit.

6. Make the needed changes the same as in step 5.

    After you have set the last (extreme right) digit, press the ↵ button.

    The current Gateway displays with the cursor under the first (extreme left) digit.

7.   Make the needed changes the same as in step 5.

After you have set the last (extreme right) digit, press the ⏎ button.

The display says *Save Network Setting?*

8.   Press the ⏎ button to confirm.
The display shows the new IP address you set.

Making Automatic IP Settings

To make Management Port settings automatically:

1.   Press the ▲ or ▼ button until the display says *Management Port*.

2.   Press the ⏎ button and the display says *Link Status Up*.
If it says *Link Status Down*, reconnect to the network before preceding.

3.   Press the ▲ or ▼ button and the display says *DHCP Disable.*

4.   Press the ⏎ button to make a change.

5.   Press the ⏎ button to Enable.

6.   Press the ⏎ button to confirm.
The display shows the new IP address set by the DHCP server.

This completes the Management Port setup. Go to "Task 10: Creating Logical Drives with ASUS Storage Management" on page 39.

Task 10: Creating Logical Drives with ASUS Storage Management

Setting up ASUS Storage Management consists of the following actions:

- Logging into ASUS Storage Management (below)
- Choosing a Language (page 40)
- Creating Your Logical Drives (page 41)
- Logging out of ASUS Storage Management (page 45)
- Using ASUS Storage Management over the Internet (page 45)

Logging into ASUS Storage Management

1. Launch your Browser.
2. In the Browser address field, type the IP address of the ASUS Storage subsystem.

   Use the IP address you obtained in Task 7 (see page 35). Note that the IP address shown below is only an example. The IP address you type into your browser will be different.

Regular Connection

- ASUS Storage Management uses an HTTP connection . . . . . .http://
- Enter the ASUS Storage's IP address 192.168.10.85

Together, your entry looks like this:

   http://192.168.10.85

Secure Connection

- ASUS Storage Management uses a secure
  HTTP connection . . . . .https://
- Enter the ASUS Storage's IP address 192.168.10.85

Together, your entry looks like this:

   https://192.168.10.85

Note
Whether you choose a regular or a secure connection, your login to ASUS Storage Management and your user password are always secure.

3. When the log-in screen appears:
   - Type **administrator** in the User Name field.
   - Type **password** in the Password field.

• Click the **Login** button.

The User Name and Password are case sensitive.

Figure 27. ASUS Storage Management log-in screen
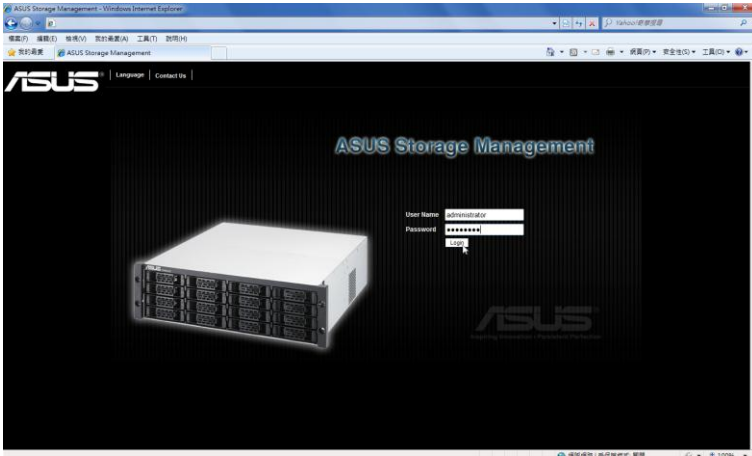
After sign-in, the ASUS Storage Management opening screen appears. If there are any unconfigured physical drives in the enclosure, an Array Configuration menu will also appear. See page 41, Figure 29.

	Note
	Make a Bookmark (Firefox) or set a Favorite (Internet Explorer) of the Login Screen so you can access it easily next time.

Choosing a Language

ASUS Storage Management displays in English, German, French, Italian, Spanish, Russian, Japanese, Chinese Traditional, Chinese Simple, and Korean.

1. Click **Language** on the ASUS Storage Management banner.

   The language list appears in the Header.

2. Click on the language you prefer.

   The ASUS Storage Management user interface displays in the selected language.

Figure 28.Clicking "Language" on the ASUS Storage Management banner
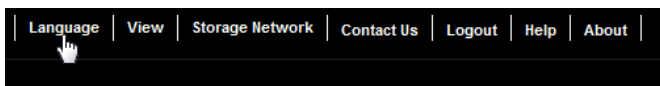
Creating Your Logical Drives

On a newly activated ASUS Storage subsystem, there are no disk arrays or logical drives. To create a logical drive:
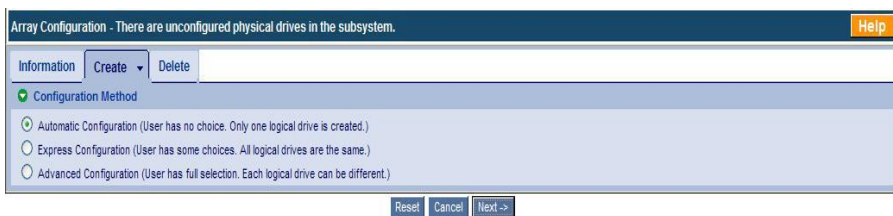
1.   Click the Disk Arrays 🗃 icon, then click the **Create** tab.

     The Array Configuration menu appears.

Figure 29.The Array Configuration menu

2.   Choose one of the options:

     •   **Automatic** – Creates a new disk array following a default set of parameters. Makes one logical drive automatically. Also makes a hot spare drive for all RAID levels except RAID 0, if at least four unconfigured physical drives are available. See page 42.

     •   **Express** – You choose the parameters for a new disk array by specifying the characteristics you want. You can create multiple logical drives at the same time, however they will all be identical. You can choose to make a hot spare drive for all RAID levels except RAID 0, if at least four unconfigured physical drives are available. See page 42.

     •   **Advanced** – You directly specify all parameters for a new disk array. Makes one logical drive automatically. You can create additional logical drives at a later time, if additional configurable capacity is available. Does not make a hot spare drive. See page 43.

3.   Click the **Next** button.

Automatic

When you choose the Automatic option, the following parameters appear on the screen:

- **Disk Arrays** – The number of physical drives in the disk array, their ID numbers, configurable capacity, and the number of logical drives to be created
- **Logical Drives** – The ID number of the logical drive(s), their RAID level, capacity, and stripe size
- **Spare Drives** – The physical drive slot number of the dedicated hot spare assigned to this disk array. A hot spare drive is created for all RAID levels except RAID 0, when five or more unconfigured physical drives are available

If you accept these parameters, click the **Submit** button.

The new disk array appears in the Disk Array List on the Information tab.

If you do NOT accept these parameters, use the **Express** (below) or **Advanced** (page 43) option to create your logical drive.

Express

When you choose the Express option, a set of characteristics and options appears on the screen.

1. Check the boxes to choose any one or a combination of:
    - **Redundancy** – The array will remain available if a physical drive fails
    - **Capacity** – The greatest possible amount of data capacity
    - **Performance** – The highest possible read/write speed
    - **Spare Drive** – A hot spare drive is created when you choose Redundancy, Spare Drive, and five or more unconfigured physical drives are available
    - **Mixing SATA/SAS Drive** – Check this box if you want to use both SATA and SAS drives in the same disk array

        If the box is unchecked, and you have both SATA and SAS drives, different arrays will be created for each type of drive.

2. In the Number of Logical Drives field, enter the number of logical drives you want to make from this disk array.

    The maximum possible number of logical drives appears to the right of this field.

3. From the Application Type menu, choose an application that best describes your intended use for this disk array:

    - File Server
    - Transaction Data
    - Other
    - Video Stream
    - Transaction Log

---

4. Click the **Update** button.

    Or check the Automatic Update box and updates will occur automatically.

    The following parameters display:

    •   **Disk Arrays** – The number of physical drives in the disk array, their slot numbers, configurable capacity, and the number of logical drives to be created

    •   **Logical Drives** – The slot number of the logical drive(s), their RAID level, capacity, and stripe size

    •   **Spare Drives** – The physical drive slot number of the dedicated hot spare assigned to this disk array (all RAID levels except RAID 0)

    If you accept these parameters, proceed to the next step.

    If you do NOT accept these parameters, review and modify your selections in the previous steps.

5. When you are done, click the **Submit** button.

    The new disk array appears in the Disk Array List on the Information tab.

Advanced

	Note
	For an explanation of the parameters under the Advanced option, see "Chapter 9: Technology Background" on page 319.

When you choose the Advanced option, the *Step 1 – Disk Array Creation* screen displays.

Step 1 – Disk Array Creation

1. Optional. Enter a name for the disk array in the field provided.

    Maximum of 31 characters; letters, numbers, space between characters, and underline.

2. Uncheck the boxes if you want to disable Media Patrol or PDM.

    ASUS recommends leaving these features enabled.

3. Highlight physical drives you want in the disk array from the Available list and press the **>>** button to move them to the Selected list.

    You can also double-click them to move them.

4. When you are done, click the **Next** button.

Step 2 – Logical Drive Creation

1. iSCSI only. If you plan to use this logical drive for NAS, click the **NAS** option beside LD Type.

2. Do one of the following actions:

- • For DAS and SAN, enter an Alias (name) for the logical drive.
  An Alias is optional. Use letters, numbers, space between words, and underscore. An Alias is optional.

- • iSCSI only. For NAS, enter a Mount Point (name) for the logical drive. Maximum of 20 characters. Use letters, numbers, space between words, and underscore. A Mount Point is *required*.

3. From the RAID Level dropdown list, choose a RAID level for this logical drive.

   All RAID levels supported by the disk array appear in the list. See "Choosing a RAID Level" on page 332

4. RAID 50 and 60 only – Specify the number of axles for your array.

5. Specify a Capacity and the unit of measure (B, KB, MB, GB, TB).

   This value will be the data capacity of the first logical drive in your new disk array. If you specify less than disk array's maximum capacity, the remaining capacity is available for additional logical drives that you can create now or later.

6. For the following items, accept the default or choose a new value from the dropdown menu:

   - • Stripe size. 128 KB is the default.

     64 KB, 128 KB, 256 KB, 512 KB, and 1 MB are available.

   - • Sector size. 512 B is the default.

     512 B, 1 KB, 2 KB, and 4 KB are available.

   - • Read (cache) Policy. Read Ahead is the default.

     Read Cache, Read Ahead Cache, and No Cache are available.

   - • Write (cache) Policy. Write Back is the default.

     Write Back and Write Through (Thru) are available.

7. Click the **Update** button.

   A new logical drive is displayed under New Logical Drives. If there is free capacity remaining, you can specify another logical drive now or wait until later.

8. When you are done specifying logical drives, click the **Next** button.

Step 3 – Summary

The Summary lists the disk array and logical drive information you specified.

To proceed with disk array and logical drive creation, click the **Submit** button.

	Note
	This function does not automatically create a hot spare drive. After you create the disk array, you should create a hot spare drive. See "Chapter 4: Management with ASUS Storage Management" on page 55.

Logging out of ASUS Storage Management

There are two ways to log out of ASUS Storage Management:

• Close your browser window

• Click **Logout** on the ASUS Storage Management banner

Figure 30. Clicking "Logout" on the ASUS Storage Management banner
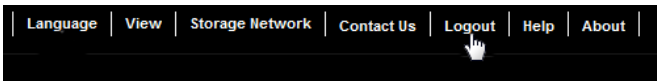
Clicking **Logout** brings you back to the Login Screen. See page 30.

After logging out, you must enter your user name and password in order to log in again.

Using ASUS Storage Management over the Internet

The above instructions cover connections between ASUS Storage and your company network. It is also possible to connect to a ASUS Storage from the Internet.

Your MIS Administrator can tell you how to access your network from outside the firewall. Once you are logged onto the network, you can access the ASUS Storage using its IP address.

Contacting Technical Support

ASUS Technical Support provides several support options for ASUS users to access information and updates. We encourage you to use one of our electronic services, which provide product information updates for the most efficient service and support.

If you decide to contact us, please have the following information available:

- Product model and serial number
- BIOS, firmware, and driver version numbers
- A description of the problem / situation
- System configuration information, including: motherboard and CPU type, hard drive model(s), SAS/SATA/ATA/ATAPI drives & devices, and other controllers.

Technical Support Services

ASUS Technical Support	http://support.asus.com/