



What's New With the Network Server

This document describes new features in and additions to the Apple Network Server product line. It also supplements and corrects information contained in the manuals in this accessory kit, *Setting Up the Network Server* and *Using AIX[®], AppleTalk Services, and Mac OS Utilities on the Apple Network Server*. For further late-breaking information, see the online Read Me file on your AIX installation CD-ROM disc. You can open this file at any time by typing the following command:

```
/usr/lpp/bos/README
```



Network Server 700/200 Available

Powered by a 200-megahertz (MHz) PowerPC 604e microprocessor, the Network Server 700/200 is now the highest-performance member of the Network Server product line. The 33% increase in clock speed over the 150-MHz microprocessor in the Network Server 700/150 provides significant performance enhancement for many applications.

AIX 4.1.4.1

The AIX for Apple Network Servers accessory kit now includes AIX version 4.1.4.1. There are no human interface differences between this version and earlier version 4 software. The new release is, however, faster and more reliable. In addition, the following software packages, which were not previously installed on the Network Server, are installed with the current version:

- bos.loc.utf Base System Locale UTF Code Set for Simplified Chinese
- bos.powermgt Power Management Software
- bos.som Distributed SOM Framework (DSOM)
- xlC.cpp C for AIX Preprocessor

Check the Read Me file provided on your AIX installation CD-ROM disc for any additions to this list.

IMPORTANT Apple recommends doing a full installation of this software. An upgrade installation cannot be performed successfully, and a preservation installation won't preserve the root volume group.

New Hardware Support

The following hardware enhancements have been made to all models of the Network Server:

- Support has been added for up to 512 megabytes (MB) of RAM.
- Support has been added for the Seagate 9 gigabyte (GB) hard drive and for 8x CD-ROM drives.
- Support has been added for Ultra-SCSI drives.
- Support has been added for external connection of differential devices to Symbios Logic PCI cards.
- Ethernet performance and reliability have been improved.
- Full PCI device driver binary compatibility has been achieved.
- Common I/O subsystem support for FDDI, ATM, and Token Ring has been added.

New AppleTalk Support

Some users reported system hangs while printing over an AppleTalk network, particularly when using the Apple LaserWriter Pro 810. These problems have been corrected, as have system crashes associated with the ADSP driver. In addition, support for AppleTalk over FDDI has been added.

Disk Management Utility Enhancements

The following enhancements have been made to the Disk Management Utility:

- The striped pop-up item in the logical volume allocation view has been disabled.
- File systems that exceed the total size of the logical volume group can no longer be created.
- The maximum number of logical partitions increases automatically when necessary.
- The Mirror Write Consistency Check now works properly.
- Log volumes for newly created file systems are displayed.

Driver and Operating System Enhancements

The following enhancements have been made:

- Write-behind I/O scheduling now works properly for nonsequential writes and for overwrites.
- The Network System will not boot if the fan fails.
- The serial driver can now support characters smaller than 8 bits.

Online Read Me Files

The Read Me file on the AIX installation CD-ROM disc includes much of the information provided in this document. In addition, it includes late-breaking information not available when this document was printed. Finally, it includes information provided by IBM on migrating from older versions of the AIX operating system.

There are also a number of licensed program packages on the installation disc, each of which is installed separately and includes its own Read Me file. These Read Me files, like the InfoExplorer database provided with the AIX operating system, were written by IBM and include information on hardware, installation, and networking that doesn't apply to the Network Server. For more information, see the manual *Using AIX®*, *AppleTalk Services*, and *Mac OS Utilities on the Apple Network Server*.

Available Peripherals

The following accessory kits are available for all models of the Network Server. Depending on the configuration you choose, some of these are preinstalled on your Network Server enclosure. The others may be purchased separately from your Apple-authorized Network Server dealer.

Memory Upgrades

- 16 MB Memory Upgrade M4017Z/A
- 32 MB Memory Upgrade M4018Z/A
- 64 MB Memory Upgrade M4019Z/A

Hard Disk Drives

- 2 GB Fast and Wide (F/W) SCSI Disk Drive and Tray M4022Z/A
- 4 GB F/W SCSI Disk Drive and Tray M4023Z/A
- 9 GB SCSI Disk Drive and Tray M5178Z/A

The following hard disk drives are available for the Network Server 700 models only:

- 2 GB Rear Disk Drive and Tray M4818Z/A
- 4 GB Rear Disk Drive and Tray M4819Z/A

Tape Drives

- DAT2 Tape Drive and Tray M4025Z/A
- 8mm Tape Drive and Tray M4026Z/A

CD-ROM Drives

- 4x CD-ROM Drive and Tray M4024Z/A

The following CD-ROM drive is a standard feature of the Network Server 700/200. It is not currently available for other models:

- 8x CD-ROM Drive and Tray na

RAID

- Network Server PCI RAID Controller Card M4030Z/A
- Network Server External SCSI Cables for RAID Card M4031Z/A

Network Cards

- Apple PCI 100 Megabit Ethernet Card M3906Z/A
- Apple PCI 10 Base T Ethernet Card M4709Z/A
- Apple PCI Dual-Attached FDDI Card M4808Z/A (Available late October)

Other

- Redundant Power Supply M4035Z/A (Available for Network Server 700 models only)
- 19" Rack Mount Kit M4036Z/A
- SCSI Drive Adapter Kit M4028Z/A
- SCSI Front Panel Bezel M4029Z/A

Third-Party Software Sampler

The AIX for Apple Network Servers accessory kit includes a package of CD-ROM discs containing third-party software. These best-of-class application programs from key AIX developers are fully compatible with AIX for the Apple Network Server. The wide range of applications includes backup solutions, file sharing, print management, and many more.

Some of the software is provided on a trial basis. If you want to continue to use the software after the trial period specified in the application's documentation, you must purchase a software key. Other applications are provided free and are fully functional when installed. Please consult the information booklets that accompany each CD for information on configuring and purchasing the software and getting technical support.

Safety Measures

Observe the following safety measures to help safeguard your data and the Network Server itself:

- Turn the power off before adding drives.

Unless you have installed and are using the Network Server PCI RAID Disk Array card, always shut down the server and turn power off before replacing or adding drives. For more information about adding drives with RAID, check the *Network Server PCI RAID Disk Array Card Administrator's Guide*.

- Replace only one drive at a time.

Do not insert more than one drive tray into the front drive bays at the same time.

- Ensure proper ventilation.

To ensure maximum airflow and cooling, don't leave any drive trays out or panels open while running the server.

- Exit properly from Install Assistant.

After completing installation, be sure to click Exit to exit Easy Install, then click Tasks Completed–Exit to AIX Login. If you fail to exit in this manner, certain system parameters, such as paging space, may not be configured correctly.

- Check applications after reinstalling AIX.

If you reinstall AIX for the Network Server from the CD, you may need to reinstall some or all of your server applications. When reinstalling, be sure to check the information that came with your server application software.

- Always unmount CD-ROM discs before removing them.

For instructions on mounting and unmounting CD-ROM discs, see *Using AIX®*, *AppleTalk Services*, and *Mac OS Utilities on the Apple Network Server*.

- Never use alcohol-style cleaning cartridges for tape drives.

Always use Apple-approved cleaning cassettes or cartridges.

- Avoid running out of paging space.

If paging space is inadequate, you may see the following error messages:

```
No more processes
```

```
killed
```

You may also unexpectedly log out. Type the following command to check paging space:

```
lspcs -a
```

You can increase paging space with the Install Assistant. For more information, see Chapter 6, “Using System Administration Tools,” in *Using AIX®*, *AppleTalk Services*, and *Mac OS Utilities on the Apple Network Server*. If you inadvertently log out and cannot restart from your hard disk, you can restart in maintenance mode. See the section “Booting From Maintenance Mode” in Chapter 10 of *Using AIX®*, *AppleTalk Services*, and *Mac OS Utilities on the Apple Network Server*.

Monitor Problems

If your Network Server does not display data correctly, make sure that the monitor is compatible. The Network Server requires a monitor with multiple scan support, and many older monitors do not work with it.

If the monitor is incompatible, and you experience “rolling” video, do the following:

- 1 Boot in maintenance mode.**

Follow the instructions in “Booting From Maintenance Mode” in Chapter 10 of *Using AIX®*, *AppleTalk Services*, and *Mac OS Utilities on the Apple Network Server*.

- 2 Select an appropriate video resolution.**

Hardware Identification

There are a number of hardware identification details that you should be aware of.

Serial I/O ports

The serial I/O ports are labeled s1 and s2 on the system back panel; the AIX software numbers these ports as sa1 and sa0, respectively. This is the reverse of the relationship on IBM systems with native serial I/O support. As with all adapters, the numbering of the associated TTYS depends on the order in which the TTYS are configured. During installation, you can define the console with a terminal connected to the serial I/O port labeled s1.

Quantum hard drives

SMIT and other device commands show the 1 GB and 1.2 GB Quantum hard drives as the type “other” instead of “1.0 (or 1.2)” GB disk drive.

The Network Server Diagnostic Utility

You can use the Diagnostic Utility to verify the hardware configuration and run a variety of system tests. For more information, see the Read Me file on the Network Server Diagnostic Utility floppy disk, or check the information available through the Network Server button at this World Wide Web site: <http://www.solutions.apple.com>

Interpreting the LCD

The liquid crystal display (LCD) screen on the Network Server displays a series of values while the Network Server starts up. These values are explained in the following table.

<i>Value</i>	<i>Meaning</i>
510	The system has started the configuration manager.
511	The configuration manager has completed.
517	The system is attempting to mount the <code>/ (root)</code> and <code>/usr</code> file systems.
538	The configuration manager is passing control to a configuration method.
539	The configuration method has completed.
551	The system is attempting to vary on the root volume group.
553	The system has completed phase one of the boot process.
591	The system is configuring the Logical Volume Manager (LVM).
593	The system is configuring the low-function graphics terminal.
594	The system is configuring the rendering context manager.
704	The system is configuring a SCSI disk drive.
723	The system is configuring a CD-ROM drive or other SCSI device.
727	The system is configuring an asynchronous device.
731	The system is configuring a pseudo TTY.
811	The system is configuring the system planar (motherboard).
812	The system is configuring the standard I/O adapter.
814	The system is configuring the NVRAM.
821	The system is configuring the standard keyboard adapter.
823	The system is configuring the standard mouse adapter.
826	The system is configuring serial port 1.
828	The system is configuring the standard floppy disk adapter.

<i>Value</i>	<i>Meaning</i>
831	The system is configuring serial port 2.
868	The system is configuring the integrated SCSI adapter.
874	The system is configuring the graphics subsystem adapter.
890	The system is configuring a SCSI-2 adapter.
921	The system is configuring a keyboard.
925	The system is configuring a mouse.
935	The system is configuring a 3.5-inch diskette drive.

Printer Driver Installation

The Easy Install procedure detailed in *Using AIX®*, *AppleTalk Services*, and *Mac OS Utilities on the Apple Network Server* does not install all the printer drivers that some users may need. If the drivers you require are not installed, the following steps will install them.

IMPORTANT Before proceeding with the installation, be sure that you are logged in as root and that the AIX installation CD-ROM disc is inserted in the Network Server.

- 1 **Type `smit install` and press Return at the prompt in a terminal window.**
The installation utility opens.
- 2 **Click the Install and Update Software checkbox.**
A software installation screen appears.
- 3 **Click the Install and Update Selectable Software (Custom Install) checkbox.**
The custom install screen appears.
- 4 **Click the Install Additional Printer/Plotter Software checkbox.**
A dialog box appears, asking you to specify the software source.

- 5 Type `/dev/cd0` and press Return.**

You can also click the List button (or press F4) and choose `/dev/cd0` from the list that appears.

The Install Additional Printer/Plotter Software screen appears.

- 6 Click the List checkbox next to Software to Install.**

A pop-up menu appears.

- 7 Select the printer drivers you want to install by clicking their names in the pop-up list.**

If you want to select all printer drivers, click All @@ printers.

- 8 Click OK.**

The Install Additional Printer/Plotter Software screen reopens.

- 9 Click OK.**

A confirmation dialog box appears.

- 10 Click OK.**

The installation process begins.

- 11 When installation is complete, click Done.**

- 12 Choose Exit SMIT from the Exit menu to return to the Common Desktop Environment.**

Ethernet Problems

Follow these guidelines to eliminate or avoid Ethernet problems:

- Connect an Apple PCI Ethernet card to only one network at a time.

Although the card has three connectors, it should not be connected to more than one network.

- Do not install an Apple PCI Ethernet card without connecting a network cable.

If you configure an Apple PCI Ethernet card by assigning it an IP address or by enabling the AppleTalk stack on it, the card attempts to determine which of the three possible media types is connected to it. If you have not connected a network cable, you will hear clicking sounds every few seconds. These clicking sounds continue until the cable is connected.

Although this should cause no serious problems, the lack of a cable may cause long pauses during system booting, as the system attempts to contact other servers on the network.

- For maximum performance, always install Ethernet cards from the lowest slot up—slot 6 before slot 5, and so on.

Accessing Printers or Zones with Apostrophes in Their Names

The AIX System Management Interface Tool (SMIT) prevents you from selecting an AppleTalk printer if the printer name or the zone name contains an apostrophe. To solve this problem, do this:

- 1 Log in as root.**

This gives you the necessary write permission to the `/etc/atalk` directory.

- 2 Locate the printer and zone names.**

You can view the zone name and printer name by using the SMIT menu path `Communications/AppleTalk/AppleTalk Services/AppleTalk Printing/Change or Select AppleTalk Printer Settings`.

3 Click the List button.

Do not click OK to run the command.

4 At the command line, enter the following:

```
/usr/sbin/at_printer_cfg "zone" "printer"
```

Replace “zone” and “printer” with the correct zone and printer from step 2. Be sure to include the double quotes.

A message appears stating that this printer is now the default printer.

Keyboard Problems

If you have problems with keyboards that use a variety of language mappings, try the following suggestions. If none of them solves the problem, contact Apple support for more information. (See the Apple support brochure in your accessory kit.)

Problems using standard keyboards

It is sometimes possible to use a standard Apple keyboard with the Network Server, using the upper row of keys on the numeric keypad to stand for the first four function keys, as described in *Using AIX*®, *AppleTalk Services*, and *Mac OS Utilities on the Apple Network Server*. This method does not work for all languages.

IMPORTANT It is strongly recommended that you use an Apple Extended Keyboard or an equivalent third-party keyboard with all models of the Network Server.

For more information on keyboard mapping, see the *AIX Technical Reference*, available through InfoExplorer.

Problems with number keys

The number keys on most keyboards require you to press only the number key itself to type the number, with the Shift key also pressed to type the second symbol, such as * or ^. Other keyboard maps, however, use the opposite scheme, requiring you to press the Shift key when typing a number. If this is the case, you may encounter occasional conflicts. To solve the problem, do the following:

- 1 **Press the number lock key on the numeric keypad on the right of the keyboard.**
- 2 **Enter all numbers from the numeric keypad.**

For more information on keyboard mapping, see the *AIX Technical Reference*, available through InfoExplorer.

Problems generating third symbols on keys

Apple keyboards include no more than two symbols on keys, while some IBM keys have three. To generate the third symbol, hold down the Alternate Graphic (AltGr) key while pressing the key you need.

The AltGr key is always in positions 60 and 62 on the keyboard, on either side of the space bar. On Apple keyboards, it is the Command key.

For more information on keyboard mapping, see the *AIX Technical Reference*, available through InfoExplorer.

Open Firmware

Open Firmware can be used to set basic Network Server parameters and to complete some diagnostic procedures. To boot the system into Open Firmware, restart the server while holding down these keys:

Command-Option-O-F

You can use the following commands while in Open Firmware:

- `printenv`
Lists the current (left column) and default (right column) values for all the Open Firmware variables.
- `set-defaults`
Sets all the Open Firmware variables to their default values.
- `setenv variable`
Sets the Open Firmware variable to the value listed. Note that some variable changes take effect immediately, others only after rebooting.
- `setenv input-device ttya:9600`
Sets the input device to serial port “a” at 9600 baud.
- `setenv output-device ttya:9600`
Sets the output device to serial port “a” at 9600 baud.
- `setenv input-device kbd`
Sets the input device to the attached ADB keyboard.
- `setenv output-device screen`
Sets the output device to an attached monitor.
- `probe-scsi0`
Lists all the devices connected to the external SCSI bus.
- `probe-scsi1`
Lists all the devices connected to the first (top) internal SCSI bus.

- `probe-scsi2`
Lists all the devices connected to the second (bottom) internal SCSI bus.
- `password`
Sets the Open Firmware password. By default the Open Firmware password is the same as the AIX root password. If you change the Open Firmware password, changing the AIX password no longer changes the Open Firmware password.
- `boot`
When the front key on the server is turned to the upright (normal) or right (locked) position, the server boots from the device listed as `boot-device`. When the front key is turned to the left (service) position, the server boots from the device listed as `diag-device`.
- `shut-down`
Turns off server power.
- `reset-all`
Reboots the server and forces changed variables into effect.
- `.keyswitch`
Note the leading period. Reports the position of the front keyswitch (service, normal, or locked).

Open Firmware Password

If you forget the Open Firmware password, do this:

- 1 **Turn the front key to the left (service) position.**
- 2 **Reboot the system, then immediately hold down the following keys:**
Command-Option-P-R
This resets the parameter RAM (PRAM).
- 3 **Reboot the system in maintenance mode.**
See “Booting From Maintenance Mode” in Chapter 10 of *Using AIX*[®], *AppleTalk Services, and Mac OS Utilities on the Apple Network Server*.
- 4 **Reset the system date.**
- 5 **Reset the AIX root password to null.**

When you reassign an AIX password, the Open Firmware password will be the same.

Corrections

The following are corrections to the information in *Using AIX*[®], *AppleTalk Services, and Mac OS Utilities on the Apple Network Server*.

- In Chapter 4, page 48, the manual provides the following incorrect command for starting the Common Desktop Environment:

```
xinit /usr/dt/bin/dtsession
```

The correct command is:

```
xinit /usr/dt/bin/Xsession
```
- On page 86, the keystroke esc-esc should be esc.
- On page 87, in the second table, in the description for “Return or Enter,” the phrase “advances to the next field” should read “goes back to the first field.”

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