System 7.5 Update 2.0: FAQ - Open Transport (3 of 6) (11/96)

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TOPIC ---

This article provides the answers to commonly asked questions about System 7.5 Update 2.0. Specifically, this article provides information about Open Transport.

DISCUSSION ---

Open Transport
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1) What is Apple Open Transport and how does it benefit users?

Apple Open Transport is the modern networking and communications subsystem for the Mac OS. Open Transport is based on industry standards and brings a new level of networking connectivity, control, and interoperability to Mac OS– based systems, while preserving and enhancing the hallmark of Macintosh computers: built-in, easy-to-use networking. Open Transport provides individual computer users with many benefits. Two of the most immediately visible and import-ant benefits relate to making networking more accessible. First, Open Transport makes it easy to switch from one net-work configuration to another. A computer user "on the go" might want to hook up to the Internet in various locations, each requiring a different network configuration. With Open Transport, settings for each network location can be stored for easy access. Changed configuration settings are available immediately; no reboot of the computer is required to use them. Second, Open Transport integrates on-line help—based on Apple Guide technology—to make it easier for an individual to hook up to a network, with fewer demands on network manager and support resources. Lastly, some cust-omers, primarily those using Power Macintosh computers, will see an improvement in networking performance by upgrading to Open Transport.

2) What Mac OS technologies, components, and products will Open Transport replace?

When installed, Open Transport replaces the current Mac OS implementations of AppleTalk and TCP/IP (including the protocols and the Network, MacTCP, and Admin TCP control panels). Open Transport is also designed to replace the Connection Manager and the Communications Resource Manger of the current Communications

Toolbox architecture. Over time, Open Transport is planned to replace the "AppleTalk Connection for Macintosh" and "TCP/IP Connection for Macintosh" shrink-wrap software products.

3) How would a user establish a preference for a specific network software system after installing System 7.5 Update 2.0?

As a part of this update, Apple supplies a utility called the "Network Software Selector." This utility allows a user to indicate a preference for classic or Open Transport networking, if different from the default choice that would otherwise be made by the system. The Network Software Selector utility is located in the Apple Extras folder.

4) Why does System 7.5 Update 2.0 include classic and Open Transport networking?

System 7.5.3 (the version delivered in System 7.5 Update 2.0) includes both classic and Open Transport networking in order to support a universal System Folder—on, for example, an external hard drive—that can be booted and provide networking services for any Macintosh from the Macintosh Classic to the most powerful Power Macintosh computer.

5) When might a user want to override the default selection of Open Transport, and specify a preference for classic networking?

The Network Software Selector provides an easy way to temporarily drop back to classic LocalTalk networking, if needed, on computers that support both networking models. Here are two reasons why there may be a need to do so:

• A need to maximize available system RAM; which may possibly be an issue in systems with less than 8 megabytes of memory—especially when virtual memory needs to be turned off for some reason.

• A need to run an older networking application that is not yet Open Transport–compatible. Before dropping back to classic LocalTalk networking, users are encouraged to check with the application developer to find out if an Open Transport–compatible or Open Transport–ready version of the application is available.

6) When this update is installed, will I get Open Transport AppleTalk or classic AppleTalk?

System 7.5.3 supports both classic and Open Transport networking. Completing an "Easy Install" of System 7.5 Update 2.0 on a 68030, 68040, or PowerPC-based Macintosh automatically installs Open Transport v1.1. The networking software used when a system starts up depends upon the specific Macintosh computer being booted, the amount of system memory available, and the user's specified preference (if any).

• If a customer was using classic networking before installing the update, the networking software that will be active after rebooting the system will still be classic networking.

• If a customer was using Open Transport before installing the update, the networking software that will be active after rebooting the system will still be Open Transport.

• Classic networking will always load and run on 68000 and 68020 based Macintosh systems, even if Open Transport is also installed; PCI-bus Power Macintosh systems require Open Transport for full networking support.

• On most 68030, 68040, and NuBus Power Macintosh computers, both classic and Open Transport options are available; customers running classic networking can update to Open Transport by using the Network Software Selector, which is located in the Apple Extras folder. However, the base requirement for Open Transport to be active is an Apple Macintosh or PowerBook with at least 5 MB of total system RAM; or a Power Macintosh computer with at least 8MB of total system RAM. If virtual memory is turned on, the additional amount of RAM made available by the feature will be added to the total system RAM to determine if Open Transport will load. If disk cache or a RAM disk is being used, the additional amount of RAM reserved by these features will be subtracted from the total system RAM to determine if Open Transport will load.

• Open Transport v1.1 (and native ASLM) is not available on the Performa and Power Macintosh 5200, 5300, 6200, and 6300 series of desktop computers. Apple is evaluating the changes necessary to have this technology run on these systems. At this time we have no announcements to make on when this will be available.

7) Can I use the Network Software Selector to switch frequently between classic networking and Open Transport?

Apple does not recommend this. The Network Software Selector was designed to make it easy for you to transition to Open Transport, and is expected to be used infrequently by customers. Understanding they way the Installer and the Network Software Selector works will help you better understand the recommendation made by Apple.

When you initially install the System 7.5 Update 2.0, the install script will check the AppleTalk preferences, as well as the MacTCP preferences if this file is present. A matching Open Transport configuration(s) will then be created. Therefore, when Open Transport is first used, the same configuration settings that were previously in use will apply to Open Transport networking.

At any time after the installation of the update, there will be no interchange of configuration or preferences data between the two networking systems. When switching from classic networking to Open Transport networking, the preferences for classic networking will be "stored away" and left untouched by any configuration changes made while Open Transport is in operation. If classic networking is used at a later time, the Open Transport configurations would similarly be stored away, and the last-used classic settings would be restored along with classic networking.

8) Does Open Transport require more RAM than classic networking?

The actual memory requirements of Open Transport are dynamic, based on the networking services in use at a given time. This is different from classic networking, which allocates a fixed amount of memory to networking services and keeps this memory allocated even after networking services are no longer in use. Other factors that contribute to differences in memory requirements include the following:

• Open Transport provides native PowerPC code; RISC code is typically larger—but also faster—than CISC code.

• Open Transport is very "VM-friendly," and has a much lower memory requirement on systems with virtual memory enabled; classic networking has about the same footprint regardless of the virtual memory setting.

• Open Transport is based on the cross-platform standard STREAMs environment, which increases the total size of the implementation.

• Open Transport includes the new implementation of networking plus backward compatibility libraries.

• To lay the groundwork for Copland's protected memory model, Open Transport allocates memory for TCP/IP in the system area; MacTCP allocated memory in each application.

Thus the difference will depend on which configurations are measured. Some examples include:

• On a 680x0 system with virtual memory off, classic AppleTalk and MacTCP require about 350-450K total system memory; Open Transport will require about 700-800K; that is, Open Transport is about 350K larger.

• On a PowerPC system with virtual memory off, classic AppleTalk and MacTCP require about 350-450K; Open Transport can require up to 1.2 MB; that is, Open Transport is about 800K larger. With virtual memory on, the amount of memory reserved by the system software will decrease, and part of the RAM reserved will be in virtual memory—not the faster physical RAM.

9) What is the current version of Open Transport, and what are its key features?

Open Transport v1.1.1 is the current release of Open Transport. This release is an update to Open Transport v1.1, to address the most pressing customer requests, in advance of the next feature release of Open Transport (currently planned as OT 1.5 - see Future Directions). Open Transport v1.1.1 includes the following updates and new features as compared to the earlier Open Transport 1.1 release:

• now also supports the Performa 5200, 5300, 6200, and 6300 systems;

• includes internal changes to minimize memory fragmentation resulting from dynamic loading and unloading of TCP/IP;
• includes changes to the TCP/IP DNR for inter-operability with sites using the load-balancing name daemon;
• includes changes for support of the upcoming Open Transport/PPP release;
• includes all bug fixes available to date.

Open Transport v1.1 is the version which comes with System 7.5.3. This general release is recommended for all supported Mac OS systems, and includes the following updates and new features as compared to the earlier Open Transport 1.0.x releases:

Open Transport v1.1 is the version which comes with System 7.5 Update 2.0. This general release is recommended for all supported Mac OS systems, and includes the following updates and new features as compared to the earlier Open Transport 1.0.x releases:

• Now supports 68030 and 68040 based Macintosh systems
• Now supports Power Macintosh systems with NuBus
• Now supports NuBus, SCSI, and CommSlot network interface adapters
• Offers tuning to optimize performance of high-speed datalinks
• Offers tuning to support multi-client, multithreaded server applications
• Includes support for multi-node and multi-homed operation of AppleTalk protocols
• Adds support for raw packet access and promiscuous mode, to enable the development of Open Transport–ready network analyzers and other network management utilities
• Recognizes a significantly expanded selection of MacTCP dial-up network extensions (mdevs)
• Allows reconnection of a dial-up TCP/IP session without reloading networking and without system restart
• Provides display of the datalink Media Access Control address for Ethernet and Token Ring networks
• Provides notification in the event duplicate AppleTalk or TCP/IP addresses are established
• Automatically converts users' existing AppleTalk and MacTCP setting to Open Transport configuration files during installation
• Includes improved compatibility with Apple Remote Access 2.0.1
• Provides a basis for future support for PPP-based AppleTalk and TCP/IP remote networking
• Provides a basis for future support for modem and ISDN communications devices
• Includes support for System 7.5.3
• Includes support for the creation of a "universal System Folder," by allowing classic AppleTalk to run if an Open Transport System Folder is booted on a 68000 or 68020 based system
• Offers improved Balloon Help text for System 7 users
• Includes all bug fixes available to date

10) Where can I get more information about Open Transport in general, and specifically about version 1.1?

Please follow this AppleLink pathway for more information: AppleLink Services:

Apple Sales & Mktg: Apple Programs:

• Communications (Bulletins, Newsletters, etc.):
• Information Updates: System 7.5 Update 2.0 Info

11) Why don't Open Transport and Native ASLM run on the Performa and Power Macintosh 5200, 5300, 6200, and 6300 series of desktop computers?

The development and testing for these components could not be completed on these systems in time for the release of System 7.5 Update 2.0.

NOTE:
With the release of Open Transport 1.1.1, Performa and Power Macintosh 5200, 5300, 6200, and 6300 series computers are now supported.

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