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Open Transport 1.1.1: System Requirements FAQ (10/96)

Revised: 10/23/96
Security: Everyone

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Article Created: 16 October 1996
Article Reviewed/Updated: 23 October 1996

TOPIC -----

This article is the Open Transport 1.1.1, System Requirements FAQ (frequently asked questions).

DISCUSSION -----

Question: Which MacOS systems can take advantage of Open Transport?

Answer: Open Transport is designed to work on portable and desktop Apple Macintosh or MacOS compatible computers with a Motorola 68030 or 68040 family microprocessor, or a PowerPC 601, 603(e), or 604 microprocessor.

Apple recommends running MacOS System 7.5.3 with Open Transport, although the earlier System 7.1, 7.1.1 and 7.1.2 releases are also compatible. System 7.5.3 requires a minimum of 4 MB (680x0) or 8 MB (PowerPC) total memory; Open Transport requires a minimum of 5 MB (680x0) or 8 MB (PowerPC).

Systems running Open Transport may be able to benefit from larger than minimum memory configurations when using FDDI or ATM, as these datalinks can provide increased performance by taking advantage of larger datagrams and buffer sizes. Effective use of additional system RAM for buffers is application dependent.

Question: How do settings such as Virtual Memory and RAM disk affect Open Transport's minimum memory requirements.

Answer: Open Transport minimum memory requirements are based on total system memory including VM, less the size of any RAM disk and Disk Cache defined.

Question: How is the Memory Available as reported by the "About this Macintosh..." dialog related to Open Transport's actual memory requirements.

Answer: The "About this Macintosh..." dialog reports on both the total free memory and the largest block of contiguous free memory. In practice, the latter figure is a better indicator of whether an additional application can be launched.

If a user repeatedly opens (launches) and closes (quits) multiple applications that use Internet networking services, and if the user has set Open Transport TCP/IP preferences to load networking services only when needed, this can, over time, result in a situation where Open Transport loads into memory "between" other running applications. This "memory fragmentation", in turn, can result in a smaller value reported by "About this Macintosh..." for free contiguous memory. In extreme cases, this could limit the number of concurrent applications that a user could run.

If this situation arises, Apple recommends use of the Advanced Mode of the TCP/IP Control Panel to access the Options dialog; remove the "X" in the "Load only when needed" option. After restarting the system, Open Transport TCP/IP will load when called on by an application for the first time, but will then remain loaded. This will help avoid memory fragmentation.

Open Transport 1.1.1 includes some additional internal changes designed to reduce the frequency and significance of memory fragmentation due to the dynamic loading and unloading of TCP/IP. Depending on the pattern of use, however, it may still be desirable to disable the "load only when needed" option as discussed above

Question: Does Open Transport require more system RAM than classic networking? If so, how much more, and why?

Answer: Open Transport provides many new features and capabilities to MacOS customers and, in general, will require more system memory (RAM) than does classic networking. However, the actual memory requirements of Open Transport are dynamic; they vary depending upon the networking services in use at a given time. This is different from classic networking, which allocates memory to networking services and keeps it allocated even after networking services are no longer in use.

Factors which contribute to differences in memory requirements include:

- Open Transport provides implementations of networking as both 680x0 and native PowerPC code; RISC code is typically larger - but also faster - than CISC programming,
- Open Transport provides "mixed-mode" applications support, making it possible for both PowerPC native and 680x0 applications to use native networking on PowerPC MacOS systems,
- Open Transport includes both the new implementations of networking and the libraries required to provide backward compatibility support for the older AppleTalk and MacTCP programming interfaces,

- Open Transport is very "VM-friendly", and has a lower memory footprint on systems with virtual memory enabled; classic network has about the same footprint regardless of the VM setting,
- Open Transport is based on the cross-platform standard STREAMS environment, which increases the total size of the implementation as compared to the proprietary classic networking implementation, and,
- To lay the groundwork for Copland's protected memory model, Open Transport allocates memory for TCP/IP applications in the system area; MacTCP allocated memory in each application.

Thus the difference in memory requirements will depend upon which configurations are measured. Some examples of base memory requirements include:

- On a PowerPC system with VM on, classic AppleTalk and MacTCP require about 350-450K; Open Transport will require about 200K to load; in other words, Open Transport base memory requirements are about 200K smaller.
- On a 680x0 system with VM off, classic AppleTalk and MacTCP require about 350-450K total system memory; Open Transport will require about 700-800K to load; in other words, Open Transport is about 350K larger.
- On a PowerPC system with VM off, classic AppleTalk and MacTCP require about 350-450K; Open Transport can require up to 1.2 MB to load, in other words, Open Transport is about 800K larger.

Question: Why does Apple recommend System 7.5.3 (System 7.5 Update 2.0)? What about System 7.5, 7.5.1, and 7.5.2?

Answer: Open Transport internal and external testing included work with all MacOS system software releases from System 7.1 forward, however, Apples testing was most concentrated on System 7.1.x and System 7.5.3.

In moving from earlier versions of System 7.5 to System 7.5.3 a users system will benefit from a number of updates and bug fixes that -- while not a part of Open Transport -- can improve system performance and reliability on the network for a variety of tasks, including printing and file transfers. The combination of the deeper test coverage and the important system updates that are a part of the system software update leads the Open Transport team to overall recommend System 7.5.3.

System 7.1.x users are encouraged to evaluate their needs and to consider updating to System 7.5.3.

Question: Was Open Transport 1.1 released in Japan for System 7.5.2? If so, why isn't this generally recommended?

Answer: Apple did not provide Kanji localized versions of Open Transport 1.0.8; thus, Kanji customers with PCI MacOS systems had not been able to benefit from the fixes released in OT 1.0.8. Because of the lead times required to localize

System 7.5.3 for Kanji, Apple elected to complete the localization and testing of Open Transport 1.1 independently of plans to localize System 7.5.3-J.

This decision resulted in delivery of Open Transport 1.1-J for System 7.5.2-J customers. This is a regional exception to Apple's overall recommendation to use Open Transport 1.1 in combination with System 7.5.3. When KanjiTalk 7.5.3 becomes available, Apple will recommend that all KanjiTalk 7.5.2 customers update to 7.5.3.

Question: Why didn't Open Transport 1.1 support Power Macintosh 5200/5300/6200/6300 desktop computers?

Answer: Very late in the final quality assurance cycle of Open Transport 1.1, the OT team was notified of a reproducible crash affecting some, but not all, customers with Power Macintosh or Performa 5200/5300/6200/6300 desktop computers.

Rather than delay the release of OT 1.1 and System Update 2.0 (System 7.5.3) further - which both brought many significant improvements to MacOS customers - the Performa, Open Transport, and System 7.5.3 teams working together decided that the best alternative was to disable OT 1.1 on these systems until the problem(s) were fully identified and an appropriate solution could be implemented and tested.

After additional research, this problem was isolated as a hardware issue. In response, Apple announced an Repair Extension program.

Open Transport 1.1.1 - which includes Apple Shared Library Manager 2.0.1 - (re-)enables Open Transport on these previously restricted MacOS systems. OT 1.1.1 now includes a hardware test that runs at boot time. If OT is called for on a system affected by the hardware problem, a new dialog alerts the user that classic networking is being substituted, and directs them to consult their Apple service provider for hardware service.

Question: What models are included in the Repair Extension program; that is, which models require Open Transport 1.1.1 to take advantage of Open Transport?

Answer: The models included are:

- Power Macintosh 5200/75 LC, 5300/100 LC
- Macintosh Performa 5200, 5215, 5300
- Macintosh Performa 6200, 6205, 6214, 6216, 6218, 6220, 6230, 6290, 6300

Question: What is the nature of the hardware issue that led to the original decision to disable Open Transport on these systems?

Answer: These systems might experience a system freeze upon start-up. The system freeze may be caused by known component problems on the logic board. The Repair Extension program includes replacing the logic board, as appropriate, to correct the system freezes.

Article Change History:

23 Oct 1996 - Changed distribution status.

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Tech Info Library Article Number:20558