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Open Transport 1.1: Network Compatibility Q & A (9/96)

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TOPIC -----

This article is the Reference Q & A (questions and answers) on network compatibility for Open Transport 1.1.

DISCUSSION -----

Question: Is Open Transport interoperable with installed AppleTalk and TCP/IP networks?

Answer: Open Transport 1.0.x is compatible with existing AppleTalk and TCP/IP networks at the "packets on the wire" level. Organizations can introduce one, a few, or hundreds of new Mac OS systems running Open Transport into their environment without worrying about interoperability with existing networking services.

Question: There have been reports of problems with the PCI Mac OS systems when transferring large files over Ethernet networks. Is this due to running Open Transport software?

Answer: Apple has received reports describing problems transferring large files from PCI Macintosh systems to a variety of AFP servers. The reports state that file transfers stop and a -1072 error is generated. The reports also state that after the problem occurs, both AppleTalk and TCP/IP services are lost and systems must be restarted to restore them. If Ethernet traces are taken, they show that the system disappears from the network.

This problem has been identified as a bug in the Ethernet driver that can exhibit itself if there is a lot of PCI bus activity. In this case, it is possible that Ethernet DMA will start to transmit a packet, and an under run will occur because DMA cannot get enough bandwidth to transfer the entire packet to the Ethernet controller. If this condition occurs more than 10 times in sequence, the bug in the driver causes it to not recover the buffers associated with the under run. The driver allocates 10 buffers; when they are gone the transmitter will not longer be able to send packets. This problem could occur in some normal situations with a lot of disk activity.

This problem is present only in the built-in Ethernet drivers that shipped with

the Power Macintosh 7200, 7500, 8500, and 9500 systems prior to the availability of System 7.5.3. (The first Power Macintosh 9500 systems shipped with v1.0 of this driver; the Power Macintosh 7200, 7500, and 8500 systems shipped with v1.0.1.)

Apple has released an updated driver that fixes this problem, first available as version 1.0.2 of the "Ethernet (Built-in)". The most current version of this driver is included with System 7.5.3.

Question: There have been reports of problems with the Power Mac 7200/90 and its operation on Ethernet networks. Is this due to running Open Transport software?

Answer: Apple has determined that under certain network conditions, independent of the protocol being utilized, a Power Macintosh 7200/90 may fail to send large packets over its built-in Ethernet. The trouble mode is that the 7200/90 may lock-up, time-out, or have extremely slow Ethernet performance under certain conditions. These conditions generally occur only when transferring large packets of data over large and busy networks.

The problem has been isolated to the 7200/90 system logic board, and is limited to the subset of 7200/90 systems with a serial number lower than "XX544XXXXXXXX". No other Power Macintosh, Power Macintosh LC, Performa or PowerBook models experience this problem, including the 7200/75. The problem is not related to Open Transport.

Apple has proactively notified customers of this issue, and has instituted troubleshooting procedures to make it easy to determine if a system is impacted. All manufacturing sites have implemented a logic board change and Power Macintosh 7200/90 systems currently available should not be affected by this issue.

If a customer has completed the troubleshooting procedures and finds that their 7200/90 experiences the trouble mode, they should contact their local Apple Authorized service provider or call Apple (1-800-SOS-APPLE in the US) to be advised on how to have the logic board replaced free of charge.

Question: Is Open Transport compatible with existing Internet Service Provider offerings?

Answer: Open Transport/TCP currently supports dial-up connectivity to TCP/IP networks, including the Internet, through backward compatibility with select third party software modules known as mdevs.

With the appropriate software installed, end-nodes can use either SLIP or PPP to connect to Internet Service Providers and other dial-up IP-access points. Not all versions of all mdevs are supported by Open Transport compatibility services, thus it is important that recommended versions of software be installed for the greatest level of compatibility.

It is also very important that TCP/IP addressing and other configuration information be properly configured. As there is a new human interface provided

by Open Transport/TCP, there are some differences in the process as compared to the older MacTCP software. In particular, when running TCP/IP over a SLIP or PPP link only, it is recommended that the "router address" and "subnet mask" fields be left blank in the TCP/IP control panel.

Question: Which MacTCP dial-up extensions ("mdevs") are supported by Open Transport/TCP?

Answer: Apple has worked together with third party developers to test a variety of mdevs with Open Transport 1.1. The following mdevs, when installed, will appear listed by name in the "Connect Via:" pop-up menu in the TCP/IP control panel:

- FreePPP - Apple and the developer recommend that you use version 1.0.5 or more recent.
- InterPPP II - Apple and the developer recommend that you use version 1.1 or more recent.
- InterSLIP - Apple and the developer recommend that you use version 1.0.1 or more recent.
- MacSLIP - Apple and the developer recommend that you use version 3.0.2 or more recent.
- MacPPP - Apple and the developer recommend that you use version 2.1.4 SD or more recent (version 2.2.0 is not recommended).
- SonicPPP - Apple and the developer recommend that you use version 1.0.2 or more recent.
- VersaTerm SLIP - Apple and the developer recommend that you use version 1.1.4 or most recent.

Question: Are any other mdevs recognized by Open Transport?

Answer: There are a number of third party PPP mdevs that are all derived from a common technology base, FCR PPP. The derivative implementations have not been individually tested by Apple, although Apple and FCR have worked closely together in testing the core technology.

Each of these derivatives registers with Open Transport using the same "signature". When any one is installed, it will appear as "TCP/IP PPP" in the menu, rather than as it's own brand name. These include:

- About Software FCR PPP
- 4-Sight 4-Sight PPP
- InterCon InterPPP
- Network Telesystems NTS PPP
- Pacer Software PacerPPP
- SAT/SAGEM PlanetPPP

- Tribe TribePPP
- White Pine Software WhitePine PPP

Users are always encouraged to check with the third party developer of interest for the most recent information on versions and compatibility.

Question: Is PPP connectivity distributed as a bundled component of Open Transport v1.1?

Answer: No, not at this time. AppleTalk and TCP/IP connectivity using Open Transport/PPP is planned as a feature of future products, with PPP support for Open Transport/TCP expected first to be followed by AppleTalk/PPP later.

Apple plans to merge remote access client and personal server capabilities with Open Transport capabilities, to offer an integrated support for LANs, WANs, and remote networking. These capabilities are also expected as a part of a future Mac OS update. Details will be announced at a later date.

Question: Does Apple currently offer a solution for SLIP or PPP dial-up to the Internet?

Answer: Yes. The Apple Internet Connection Kit (AICK) is a selection of the most popular Internet applications from third party companies, including the Netscape Navigator and RealAudio Player from Progressive Networks, as well as Claris EMailer Lite.

AICK 1.1 includes MacPPP 2.5 (Version 1.0 included MacPPP 2.1.4) along with the Apple Internet Dialer - software designed to make it simpler for Mac OS customers to register with a qualified Internet Service Provider (ISP) and get connected to the Internet. To help users work with their Internet applications, the Apple Internet Connection Kit includes AppleGuide software for on-line assistance.

Question: Does the Apple Internet Connection Kit require Open Transport?

Answer: The Apple Internet Connection Kit (AICK) can support either MacTCP 2.0.6 or Open Transport/TCP 1.x.

Note that the Apple Internet Dialer 1.0 (part of the Apple Internet Connection Kit 1.0) should not be used with System 7.5.3 unless the following procedure is first performed (note that this procedure is not required on PowerPC PCI Mac OS systems):

- Use the Network Software Selector utility to specify classic networking
- Restart the system
- Remove MacTCP from the control panels folder
- Use the Network Software Selector utility to specify Open Transport networking
- Restart the system

The Apple Internet Dialer 1.0 will now work correctly with System 7.5.3. Alternately, Customers should update their copy of AICK with the Apple Internet Dialer 1.1. This revision of the dialer is fully compatible with Open Transport 1.1 and System 7.5.3

Question: What is MacPPP 2.5 / 2.1.4? Is it available on the Internet?

Answer: MacPPP 2.5 and 2.1.4 are derivatives of the MacPPP 2.1.x SD versions of Merit's PPP. They include code contributed by Apple engineering to enhance compatibility with Open Transport/TCP.

Question: There have been reports of problems with Open Transport, PPP, and the use of Virtual Memory. Is Open Transport compatible with Virtual Memory?

Answer: Open Transport fully supports the use of virtual memory. However there were some problems with MacPPP versions 2.1.x SD and versions of FreePPP prior to 1.0.4; MacPPP 2.5 and FreePPP 1.0.5 have corrected these problems. Users are advised to update to the most recent version of the software, or temporarily turn VM off.

Question: Are there known limitations to backward compatibility mdev support?

Answer: Due to some shortcomings in the Open Transport 1.0.x backward compatibility services, there were some additional limitations with earlier versions of Open Transport:

- Some mdevs were not be able to auto-dial, that is, automatically connect to the service provider when launching a TCP/IP application. This has been addressed with updated versions of mdevs.
- Once a TCP/IP application launched and used a SLIP or PPP mdev, use of a different mdev could have required restarting the Macintosh. Disconnecting from and re-dialing a service provider could also have the same effect. This has been corrected in Open Transport v1.1.

Question: Are there differences in configuring Open Transport/TCP and MacTCP for Internet Service Providers (ISPs)?

Answer: Some ISPs do not strictly follow standards, which call for assigning end-node IP addresses on the same subnet as the router (gateway). Open Transport strictly enforced this requirement in versions prior to 1.0.7. In versions since OT 1.0.7 (including 1.1), the TCP/IP Control Panel automatically generates a compatible router address to facilitate connectivity to the ISP. To take advantage of this feature, the user simply leaves the router and subnet mask fields empty when configuring Open Transport/TCP for dial-up access.

Question: If a user needs an updated copy of an mdev, where can they find the software?

Answer: Sources for software vary, as some products are commercial, and some are shareware or public domain.

- FreePPP is shareware and can be found on a variety of Internet sites; typically at "info-mac" mirror sites in the comm/tcp directory. A list of info-mac mirror sites can currently be found at:

<http://www.mcp.com.hayden/iskm/info-mac-mirrors.html>

Some sites where FreePPP can be found currently include:

<ftp://mirrors.aol.com/pub/info-mac/comm/tcp/>
<ftp://mirror.apple.com/mirrors/Info-Mac.Archive/comm/tcp/>

- InterPPP and InterPPP II are commercial software products. For availability and ordering information contact InterCon Systems, US +1-800-468-7266 or 703-709-5500.
- MacSLIP is commercial software developed by Hyde Park Software. For availability and ordering information contact TriSoft, US +1-800-531-5170 or 512-472-0744.
- VersaTerm SLIP is commercial software developed by Synergy Software. For availability and ordering information contact Synergy, US +1-610-779-0522.
- MacPPP (v2.1.4) is available as a part of the Apple Internet Connection Kit, Apple Computer Inc., US +1-800-462-4396 for fax information or +1-800-538-9696 to locate an Apple reseller near you.

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