New Technical Notes

Macintosh

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Developer Support

X.25 and X.400 Q&As
Networking

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This Technical Note contains a collection of Q&As relating to a specific topic—questions you've sent the Developer Support Center (DSC) along with answers from the DSC engineers. While DSC engineers have checked the Q&A content for accuracy, the Q&A Technical Notes don't have the editing and organization of other Technical Notes. The Q&A function is to get new technical information and updates to you quickly, saving the polish for when the information migrates into reference manuals.

Q&As are now included with Technical Notes to make access to technical updates easier for you. If you have comments or suggestions about Q&A content or distribution, please let us know by sending an AppleLink to DEVFEEDBACK. Apple Partners may send technical questions about Q&A content to DEVSUPPORT for resolution.

Which A/ROSE version to use
Date Written: 6/2692
Last reviewed: 8/17/92

What should I be doing with A/ROSE versions? My application links with X.25_Interface_Library.o, IPCGlue.o, and FSDES.o. Should I be using the latest IPCGlue.o that is on the Developer CD, or should I use the one that came with the X.25 Developers Kit? Also what about A/ROSE itself? Can I safely replace the existing one in my Extensions folder with the latest one from the CD? If I do should I relink the app with the corresponding IPCGlue.o? What about the MacX25 Admin? Will it be happy with the latest copy of A/ROSE in the Extensions folder? My code resources also link with IPCGlue.o. I assume I should link the code resources and app with the same IPCGlue.o, right?

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Changes to A/ROSE are typically made to A/ROSE itself. In general, you should follow the guideline that you describe—link with the library file for the version of A/ROSE you plan to ship with. Interestingly, the A/ROSE IPCGlue.o file shipped with MacX25 1.0.1 is still fine for linking with. You should also relink your application with the (MacX25 1.1) X.25_Interface_Library.o as there are a number of memory management bugs fixed between 1.0.1 and 1.1, some of which caused system crashes.

Over the past several years, new releases of A/ROSE have been made to fix bugs and to support new hardware. If you plan to be compatible with new CPUs, you might want to supply the latest release of A/ROSE.

Locking X.25 segments
Date Written: 6/2692
Last reviewed: 8/17/92

Are there any of the X.25 segments from X25_Interface_Library.o that need to be locked or should be specified as resident in my application's 'res!' resource? In, particular I am wondering about the segment X25_VBL.

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The X25_VBL segment contains code that is executed at interrupt time, and the rules for dealing with interrupt driver code should be followed—that is, the VBL code and VBL task record should be locked down.

Segmenting data for X25_Write
Date Written: 6/2692
Last reviewed: 8/17/92

When writing data with the X25_Write routine, I seem to need to break up the data to write according to the current packet size and then make separate calls for each data chunk/packet. I had hoped the X25_Write would have figured that out by itself. Am I missing something? What about when using X25_Read? Should I be reassembling packets with the M_Bit set, into big chunks of data?

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No, At present, the X25_Write routine does not do anything very useful in the domain of segmentation and reassembly of X.25 data. The routine only handles the segmentation and assembly of *one* packet's worth of data. Unfortunately, the same comment applies to the X25_Read routine.

Depending on A/ROSE to correctly queue a message
Date Written: 6/2692
Last reviewed: 8/17/92

Is it possible to intercept an A/ROSE message from the X.25 server that was destined for the X.25_Interface_Library? The server and the client are running on the same machine, and I connect to the server with X25_Server_Connect(gTcb, connect_via_best).

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A/ROSE is dependable for delivering messages to your task, that are sent to *your* task, and not to other tasks. To date, there have not been any problems reported on this subject.

Translating 8-bit Macintosh text to 7-bit ASCII

Translating 8-bit Macintosh text to 7-bit ASCII

Date Written: 12/20/90
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Is there an Apple-recommended method for converting 8-bit Apple text characters to that which can be sent over 7-bit media while observing X.400 rules, and only submit 7-bit text into the x.400 IA5Text body parts?

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There is no Apple-recommended method to translate 8-bit characters to 7-bit characters. You'll need to check around and see if someone has implemented this already. This would save you some time trying to figure out a formula for this. Unfortunately, there are some differences between the IBM-based environment and the Macintosh environment that are extremely hard to overcome and this is one of them.

The following are some possible methods:
1. Strip the 8th bit off and send the character in 7-bit mode. Doing this will cause you to lose half of the normal 8-bit ASCII code, but there is still enough for people to work with. Most of the missing characters are special ones that usually require the option key to obtain.

This limitation should not be restrictive for most users, except for those writing in foreign languages that may require such characters. This is another area that requires some thought. How do you handle foreign languages? If they are using 8-bit ASCII to get their special characters then they are out of luck. If they use the Script Manager they may be able to get what they need in the first 128 characters. You would have to check in the Script Manager of *Inside Macintosh* to know for sure if this is the case.

2. Just transfer 7 bits at a time. Break after every 7th character and then put the characters back together again at the other end. This might require a Macintosh-to-Macintosh connection, but it will provide you with the method of retaining the entire 8-bit ASCII character set and still get the file transferred.

Finally, You might want to check with user groups and bulletin boards to see if someone has done anything that is suitable to your needs.

Where to find X.400 & X.500 references
Date Written: 1/23/91
Last reviewed: 8/17/92

Where can I find documentation on the X.400 and X.500 electronic-mail standard?

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There are a few interesting articles about X.400 in the Technical Information Library on AppleLink. One of them mentions that Apple has a forthcoming X.400 solution that is an X.400-compliant MTA (Message Transfer Agent) that runs on any modular Macintosh under

System 7. It includes the seven layers of the OSI model. It works either over X.25 (on top of the MacX25 product) or over 802.3. (This is the most used link in the U.S.) It lets Macintosh users gain access to public X.400 networks or to connect to their private X.400 backbone.

For standards and specifications on X.400 and X.500, check with your local library for an IEEE periodical index. IEEE documents this type of stuff fairly regularly.

Feasibility of MacX25 AppleTalk internet routers
Date Written: 3/26/91
Last reviewed: 8/17/92

What's the feasibility of developing internet routers for AppleTalk networks over MacX25?

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This has been done at Apple, and tested between Cupertino and Paris. The problem is ITMP packets are a burden on the X.25 network. Too much bandwidth is used by AppleTalk router protocol. The throughput goes way down, and the monetary cost of these undesirable packets is high. Efforts are underway to improve throughput. In other words, it is feasible but not practical to do this until modifications are rolled into the AppleTalk and router protocols.

Providing general "listeners" on MacX25 servers
Date Written: 3/26/91
Last reviewed: 8/17/92

Is it feasible to develop general "listeners" on the MacX25 servers? This would allow users to connect to MacX25 servers and request specific services to be provided. Other non-Macintosh systems could also communicate with such listeners.

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MacX25 does indeed provide a listener agent. Please refer to the MacX25 product documentation. If, however, you want to develop your own listener, one could be provided via access to A/ROSE.

How to increase Macintosh X.25 user list size
Date Written: 7/25/91
Last reviewed: 8/17/92

How do we go beyond the Macintosh X.25 user list entry limit of 256?

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The size of the X.25 user list can be modified by modifying the 'Maxu' resource in the X.25 Admin program using ResEdit. If you're using the latest revision of ResEdit version 2.1, a template for the 'Maxu' resource exists to assist with this modification. The other recommended change is to increase the program partition size of X.25 Admin by 32 bytes for each additional user to ensure that there is enough memory to hold all of the names. Note that this change does not increase the number of simultaneous connections.