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1 Why Use An Electronic Mail System?

An electronic mail system is a tool used for inter-person communications. It is a fast, reliable and extremely valuable aid and can make the job of getting messages to your colleagues a lot easier.

Other examples of inter-person communication tools are the telephone, a "personal" visit, telex and a hand written letter. Each of the systems has disadvantages, but it is my hope to be able to show you how best to use an electronic mailing system, so that the disadvantages will be minimised. The one major disadvantage that will remain is "What if the person I am sending mail to won't read their mail?". This one is just too hard to solve at this point in time.

Let's look at the disadvantages of the other systems:

- o Telephone: There is a game often called "telephone tag" where you ring somebody and leave a message for them to ring back. They ring you back, but you have just ducked out for the moment. When you return you try the original phone call again, only to find they are unavailable (and so on). The telephone can also be a source of interruption, as you must completely stop what you are doing to receive any messages. There is no easy way to "save" the message until you are ready (except a phone answering machine, and a lot of people won't leave a message on them).
- o Personal visit: This is always a nice touch, but sometimes, it can be quite a long way to go only to find out that the person you wished to see is not there. Once again the interruption factor plays a very important role here. The recipient must stop whatever they were doing to receive the message.
- o Telex: Sometimes a telex can take days to arrive, and therefore, can be too slow. Typically, the telex will take several hours to arrive. This is a simple form of electronic messaging. The mail systems we use are far more sophisticated than the telex. Soon (a few years yet), electronic mail will be able to reach as many people as the telex currently does.
- o A letter: Once again, a nice touch. In an office environment, the hand written letter is sometimes required. Technologists are finding new ways to improve on that system by installing electronic systems. The letter once written may take hours (or days/weeks) to arrive, and even when it does, the writing may be illegible.

An electronic mail system makes attempts to get around most of these problems. The mail will usually arrive within minutes of being sent, sometimes as little as one second. You don't have to read it straight away if you are busy and it will wait until you can read it. If you are working at night and there is some information you need from someone, you can leave a request for them, and pick up the answer the next time you are in. The mail system doesn't require you to be present at the same time that the recipient of your message is.

An electronic mail system will still suffer from the "axe through the cable" problem. There is no way to stop this, but fortunately, computer networks are becoming extremely reliable, and the downtime is quite small.

2 What Can I Use A Mail System For?

A mail system is used for communication with people! An electronic mail system provides a fast, efficient and reliable method of communicating with your colleagues. It can be used to communicate between people on shifts or those who prefer to work late, people who are temporarily occupied (meetings etc.), reporting faults to a known central point, sending prepared articles to a newsletter editor and so on. The options are as boundless as the number of people actually connected to the mail system. There are even higher level mail facilities that provide that little bit extra, and these will be discussed a little later.

3 Philosophy Of Our Mail Systems.

Some time ago, (say 3 years), the only mail systems that we ran were on the KL and KA (NIH mail), and the VAX/VMS systems (VMS mail). Since then, we have added the VAX 8650, and the IBM 3083. With the importance being placed on internetworking, especially at an international level, a lot of work is being done on getting mail systems to link together. This not only involves getting mail systems based on one type of computer to communicate with each other, but getting computers from different manufacturers to communicate together.

A lot of work is going into implementing protocols for the International Standards Organisation's (ISO) Open Systems Interconnect (OSI) seven layer reference model. The bottom three layers are defined by a CCITT specification called X.25 (which some of you have heard of). We have been running X.25 networks at the University since about 1982 because of the work that Arthur Hartwig performed at the University of York. The mail system being worked on will be defined by the CCITT recommendation X.400 (which I will be working on in Oxfordshire over the next year).

However, the mail protocols are not yet defined and so products are not yet available. In the interim, the United Kingdom's Joint Network Team (JNT) have funded a project to implement a suite of protocols to link computers from different manufacturers together. The protocols they defined are called the Coloured Book protocols (because each set of protocols is defined in a book with a particular coloured cover!).

These protocols have been available for about 5 years now, and run on a wide variety of machines. Once again due to Arthur's work in the UK, we have been running these protocols for about 3 years now,

and the mail protocol (Grey Book) forms the backbone of our mail system. Most mail destined for off-campus sites is converted into this grey book format, which allows us to communicate with a large number of systems.

The second major mail protocol we run is called VMS mail. This is Digital's proprietary protocol used to link the VAX/VMS mail systems together. The next is the VM/CMS NOTE facility that communicates over RSCS. All of these mail systems have been networked together through work performed at the centre here, so that any user on any major host system can send electronic mail to any other user. These are linked together in the format given by the following diagram:

```
World <-----> UQKL10 <-----> UQVAX <-----> UQVM
```

We will be installing the Coloured Book software on the VAX 11-780 in the very near future (chances are it will be running by the time you read these notes). This will create a link between the UQVAX and the rest of the world.

These mail systems can produce some strange behaviour at times, and a little explanation on how they work may help you to understand what is really happening.

VMS mail: This mail system accepts the address from the user, and then attempts to make a connection to the remote node straight away. If it cannot make that connection and verify that the username is correct on the remote system, then you will not be able to send the mail. Also, if the connection is accepted initially, but the network fails while you are typing in your message, then the mail will not be sent, and the file lost.

Grey Book mail (DECsystem-10): This is a "store and forward" mail system. Here, the mail system will accept your address as being correct (it assumes that you know what you are doing), and will allow you to type in your message. If it is a local user on the DECsystem-10, then the mail will be delivered there, else it will be routed to one of 3 programs for delivery to the correct network (depending on which machine you sent the mail to). If the mail cannot be delivered because there was an error in the address, then it will be returned to you stating what went wrong. If the node you specify is not currently reachable, then the mail will be held for you, and an attempt will be made "every now and then" to send the mail until it is successfully sent. On the DECsystem-10, the mailbox files are stored on a system area. When you are running the mail program, your mailbox is busy, and any new mail cannot be delivered to it. If this happens, then your mail will be requeued, and processed about every 10 minutes. To process it sooner than this tends to tie up system resources, (and also fill up the log files).

VM/CMS NOTE: Once again, this is a store and forward mail system. If you are sending a message to a local user, a check is made straight away to see if that user can be found. If so, you can then proceed to send the mail. If you are sending mail to a remote system, then the store and forward mechanism comes into play again. Here is where we run into trouble. If you send mail from UQVM to UQKL10 and the UQKL10 machine is not up, the following will happen. The network link (to UQVAX) is checked and found to be operational, so the mail is sent on. UQVAX gets the mail, and attempts to send it on to UQKL10. Because there is no store and forward (yet) on UQVAX, it will find that the UQKL10 machine is not available and will send an error message back to UQVM. We are looking at ways to get around this, but at this stage we can't see an immediate solution.

Off-campus: Mail to off campus sites is a tricky issue because it costs the centre money to transmit any data across network lines. Hence these charges must be sent back to the users. The only machine with these facilities in place (at present) is UQKL10. It is hoped to get UQVAX up to steam in the near future. Therefore, although it is technically possible to send mail from any major machine on campus to off-campus sites, we cannot do it due to the accounting restrictions.

4 Basic Facilities.

In this section we will describe the commands you need to be able to use the mail systems for "simple" use. If the only things you wish to do are send, receive and delete mail, then this is the section for you. We will look at the function you wish to perform, and then look at how it is implemented on each of the major systems.

4.1 Getting Into And Out Of The Mail Systems

The first lesson we need is on how to enter and depart the mail environment gracefully. There is no need to teach users all about the functions of a mail system if they don't know how to get into and out of the mail system.

4.1.1 The DECsystem-10: -

The get into the mail systems, you use the MAIL monitor command. This will open your mailbox and make available any messages that are present. If you have received some new mail since you were last in the mail system, you will be informed of this fact, and will be left ready to read the first new message. If there are no new messages, the mail system will tell you that, and leave you ready to read the first available message in your mailbox.

To exit the mail system, there are two ways. The first is via the EXIT command. This will tidy up your mailbox, close the mailbox and exit to the monitor. If you type ^C-C (two control-Cs), the mail system will close your mailbox, but will not update any information in it. This is like a "panic abort". The EXIT/NOUPDATE command has the same effect. As your mailbox increases in size, the time taken to enter and leave the mailbox will increase.

4.1.2 The VAX/VMS Systems: -

To enter the mail system on the VAX/VMS systems, you type the MAIL command to the "\$ " prompt. This will tell you if there is any new mail, and if so, will open up the new mail folder for you and leave you ready to read the first message. If there is no new mail, the "old" mail folder will be opened instead and you will be left ready to read the first message in it.

To exit the mail system, you use the EXIT command. This will exit the mail program and return you to the operating system. Because the VAX/VMS mail system updates your mailbox after each command, there is no way to "panic" abort as with the DECsystem-10. To put things back together requires a little more work. To do this refer to the VAX/VMS system specific section of this document.

4.1.3 The VM/CMS System: -

The VM/CMS mail system is heavily tied into the operating system. Therefore, most of the mail manipulation is done via operating system commands. New mail arriving will be entered into your "reader list". To open this reader list for manipulation, you use the RL command. You can then "receive" the new mail into your NOTEBOOK file. These NOTEBOOK files are stored on your A disk, and can be manipulated by the same operating system functions you use to manipulate any other file in the system. To send mail to a user, you use the NOTE command (see section on sending mail). To exit any of the menus used in the mail system, you can use the PF3 (quit /end) key.

4.2 Reading Your Mail.

There comes a point in time when you will wish to read any mail that is sent to you. Here we will describe how to read any new messages that you have received. If you wish to read mail that you have already read, then this is described in the "Enhanced Facilities" section.

4.2.1 The DECsystem-10: -

The command you need is READ. When you enter your mailbox, you will be pointing either to the first "new" message in your mailbox, or the first message in the mailbox (even though you have already read it). The READ command will display on your terminal the contents of the mail you are currently pointing to. If you issue a subsequent READ command, this will display the next message to be read until there are no more. If at command level you just type a single <CR> (return key), then this will act the same as if you had used the READ command.

4.2.2 The VAX/VMS Systems: -

The command you need is READ. When you enter the mailbox, you will be placed into the "new mail" folder if you have some new mail, or the "old mail" folder if you don't have new mail. The READ command will select the first available message and display it on your terminal. Subsequent READ commands will select the next message and display it. When there are no messages left, then a READ command will indicate "no more messages". If after this you issue a further READ command, you will start at the beginning again. If at command level you just type a single <CR> (return key), then this will act the same as if you had used the READ command.

4.2.3 The VM/CMS System: -

There are two ways to read your mail on the VM/CMS system. When you receive mail, it is entered into your "reader list". To look at this mail you must first open your reader list by using the RL command. This will display a list of any new mail messages (or network file transfers) that have arrived. To have a quick look at them you can type PF11 (peek) and this will open up the mail and let you look at it. PF7 (backward) and PF8 (forward) can be used to move around a long message. After you have (or haven't) had a peek at the message, you should "receive" it into your NOTEBOOK file. This is done by using the PF9 (receive) key. If I receive mail from CCDANNY then this mail will be entered into my CCDANNY NOTEBOOK file on my A disk. To look at the contents of this file after that, I can use the NB command (NoteBook). If I type NB CCDANNY this will open the CCDANNY NOTEBOOK file, and I can use PF7 (backward) or PF8 (forward) to move around each message, or PF10 (previous) or PF11 (next) to change to another message.

4.3 Deleting Mail.

Once you have read a mail message, it doesn't go away until you explicitly tell it to. You must "delete" the message when you have finished with it.

4.3.1 The DECsystem-10: -

Immediately after you have read the mail message, if you issue the DELETE command, this will mark the message indicating to the mail system that you want this message deleted. When you exit the mail system, all messages so marked will be removed from your mailbox. If you accidentally delete a message that you wished to keep, use the UNDELETE command and this will remove the delete mark placed against that message.

4.3.2 The VAX/VMS Systems: -

Immediately after you have read the message, if you issue the DELETE command, this will move the mail message to another "folder" in the mail system that is out of the way. When you exit the mail system, all messages that have been moved to this "folder" will be removed from your mailbox. If you delete a message that you wanted to keep, then you should read the section in VAX/VMS system specific topics on undeleting mail.

4.3.3 The VM/CMS System: -

After having a peek at the note and deciding that you don't want it, you can type DISCARD next to the file name, and after you type <enter>, this file will no longer be available. If you have already received it into a NOTEBOOK file, then use the NB command to open the NOTEBOOK, use the PF keys to find the message that you wish to delete, and type the DELETE * command. If you want to delete ALL messages in one NOTEBOOK file, then you can just delete the entire file from CMS. Example: ERASE CCDANNY NOTEBOOK

4.4 Copying Mail to a File

There are times that you wish to copy mail into a file for either printing on the printer, storing for later use or perhaps sending across a different network (e.g., Kermit).

4.4.1 The DECsystem-10: -

After reading your message, you can copy the message into a file by using the COPY <filename> command. If the file name you specify does not exist, a new file will be created. If it does exist, then the message will be appended to the end of the file. The message is still left in your mailbox so you may now delete it if you wish.

4.4.2 The VAX/VMS Systems: -

After reading your message, you can copy the message into a file by using the EXTRACT <filename> command. This will create a new version of the file name you specify unless you use the EXTRACT/APPEND <filename> command. You may optionally remove the mail header by using the EXTRACT/NOHEADER command. If you use the /ALL switch, then all messages in the currently selected folder will be copied to the file. Once again, mail is not deleted from your mail box by writing it to a file.

4.4.3 The VM/CMS System: -

Copying mail to a file is easy for the VM/CMS system because that is how the mail system works. When new mail arrives, it is placed in your "reader list". To receive the mail, you type PF9 (receive) and this will copy the mail into a NOTEBOOK file. Thereafter, your mail is on the disk.

4.5 ~~Printing Mail On The Printer~~

Sometimes it is useful to be able to read a message and copy it straight onto the printer without first having to make a file. This way, you can get a hard copy of your message to use for other purposes.

4.5.1 ~~The DECsystem-10: -~~

To copy mail to the line printer you once again use the copy command, but instead of a filename, you specify the line printer device. So after reading the message that you want printed, issue the COPY LPT: command, and this will spool your mail to the line printer. The mail is not deleted out of the mailbox, so you may do that now if you wish.

4.5.2 ~~The VAX/VMS Systems: -~~

The VAX/VMS systems have an easy method for sending mail to the line printer. Once you have read the message you wish to be printed, issue the PRINT command, and this will spool the mail to the printer. Note that the print job is not placed on the queue until you exit mail. Once again the mail is not deleted from your mailbox, and you will need to do that sometime.

4.5.3 The VM/CMS System: -

After you have received the mail out of your reader list, then it is stored just like any other file on the VM/CMS system. Any mail that I receive from user CCFRED will be stored in the file CCFRED NOTEBOOK on my A disk. If I wish to print a copy of all my mail from CCFRED, I will use the CMS command PRINT CCFRED NOTEBOOK and this will print the entire contents of the file CCFRED NOTEBOOK.

What is more useful is to be able to select just a few messages for printing. The best way to do this is to "peruse" your NOTEBOOK file to find the desired messages. The command to do this is NB (NoteBook). To use it type NB <filename> to CMS, and this will place you into the NB environment. As described before, you can move about your mail messages by using the PF keys. Once you have found a message to be printed, type PF4 (print). This will copy the message to a new file which has a file type of NBPRINT (if I used NB CCFRED, the file would be called CCFRED NBPRINT). When you have selected all the messages to be printed, exit NB (use PF3), and issue the PRINT command on the newly created NBPRINT file.

4.6 Forwarding Mail To Another User

Sometimes, you may get a query that could be better handled by someone else. Rather than type in the message again, you can simply forward a copy of the message you are looking at to another person.

4.6.1 The DECsystem-10: -

To forward mail on to another person, you use the FORWARD command after you have read the appropriate mail. The basic command is FORWARD <user>. This will not allow any other input than already exists in the original mail message. Sometimes you may wish to add a subject to the mail or comment on the mail. To do this, use the /SUBJECT or /COMMENT switches. E.g.,

```
FORWARD/COMMENT:"can you handle this please" CCFRED
```

Once again, the mail is not deleted, and you may wish to do that now.

4.6.2 The VAX/VMS Systems: -

Once you have read the message that you wish to forward, you can type the FORWARD command. This command will then prompt you for a user by saying "To:". There are two switches that are useful here. The first is /NOHEADER. This will remove the mail header prior to sending the mail onto the next person. The second is /EDIT. This will enter EDT and allow you to edit the message, and add some text of your own. E.g., FORWARD/EDIT

4.6.3 The VM/CMS System: -

The VM/CMS system has the ability to forward mail to another user from one of two sources. The first is when you are inside your reader list. After entering the RL command and using PF11 (peek) to open up your note, type the FWD <user> command. The other method is to use NB to go through your NOTEBOOK file to find the note you wish to forward, then use the FWD <user> command. This command will set up the header for you, then leave you in XEDIT at a place where you can type in some extra text for sending to the recipient. After you have added all you wish, you can type PF5 (send) to send the message on.

4.7 Forwarding Files To Another User As Mail

There are times that you will wish to send a complete file as a mail message. A simple example of this is to send a prepared document to someone for their use. Each of the three systems can do this as described below.

4.7.1 The DECsystem-10: -

Once you have entered the mail system, you can use the SEND <filename> <user> to get the file and send it on. This command will queue the message immediately for delivery to the user.

4.7.2 The VAX/VMS Systems: -

Once you have entered the mail system, you can use the SEND <filename> command. This command will then prompt you for the user you wish to send the file to by typing "To:". Then you will be asked for a subject by the line "Subj:". After this the mail will be delivered immediately.

4.7.3 The VM/CMS System: -

Because the mail system on the VM/CMS system is so heavily integrated into the rest of operating system, it is very easy to send files as mail. All you need to do is start a mail message off to the user you wish to send to (E.g., NOTE CCFRED), and then you will be placed in XEDIT. A simple command of the form GET <filename> <filetype> to XEDIT will insert the file into your XEDIT buffer ready to be sent to the user.

4.8 Sending Mail

Now that we can read, save, forward and delete our mail, we are ready to learn how to send mail to someone else. In each of the examples in this section, we are only looking at sending mail to a person on the same system as us. In a later section, we will see how to send mail to a person on another system.

4.8.1 The DECsystem-10: -

As we saw in the philosophy of the mail systems, the DECsystem-10 grey book system is a store and forward mail system. Hence, it will "queue" the mail for delivery without doing any checks on the validity of the address, and expect to generate an error reply if a problem is encountered. Therefore, it is advisable to check your address prior to sending the mail. There are two ways of doing this.

The first is to use the WHO command to the monitor. An example of this is to type WHO DANNY. This will tell you that DANNY is PPN [10,113], and there is only one DANNY in the system. Therefore, this name is alright to use, as long as I wanted to send mail to [10,113]. If I type WHO FRED, the system will reply "I don't know FRED". If I type WHO SMITH, the system will reply with several names that start with SMITH. Because this name is not unique, I cannot send mail to it. To get around this problem, I will use the information supplied to me by the WHO command to decide which PPN is the correct one. Looking at the list, I decide that [10,113] is the person I wanted, so I will address my mail to [10,113]. If I type WHO A this will list all users whose names start with A. By checking the address first, this will save you some time and headache by avoiding the need to resend the mail.

The second method is very similar to the first. Instead of using the WHO command, you use the FINGER command, E.g., FINGER DANNY. This command has the same function as the WHO command, but supplies more information. It not only lists the name and PPN, but also if the user is logged in, where and when they logged in, any new mail they haven't read yet and some information that the user can specify for themselves to help identify them to any mail senders. There is more information given on this "user profile" in the DECsystem-10 specific section of this document.

Back to what I am supposed to tell you. To send mail, (after deciding on the appropriate address), you enter the mail system by typing the MAIL command to the monitor. Then the command you need to send mail is TELL. After this you will be prompted for the user to send to by the "To:" prompt, then for a subject by the "Subject:" prompt. You will be asked to type in your message, and type a -Z (control-Z) when you have finished. This will queue your mail, and it will be delivered in about 15 seconds. The SEND command (without anything following it), will produce the same results. You can then use the EXIT command to leave the mail system.

4.8.2 The VAX/VMS Systems: -

With the VAX/VMS systems, a connection is made immediately the address is known, and therefore, the mail system will indicate any problems before you go too far. To send mail on the VAX/VMS systems, you enter the mail system by typing the MAIL command to the "\$" prompt. Then you use the SEND command to start your message. You will be asked for the address by the "To:" prompt, and after entering this, you will either get an error message saying "No such user", or you will be prompted for the subject by the "Subj:" prompt indicating that everything is alright. After entering the subject, you are asked to type in your message, and type a ^Z (control-Z) when you have finished. The mail message is then delivered immediately to the recipient. The EXIT command will return you to the operating system level.

4.8.3 The VM/CMS System: -

The VM/CMS system works in a similar fashion to the VAX/VMS systems. The address you specify is checked immediately, and if any problems are found, they are reported straight away. The command you need to start your message is NOTE <user>. This will place you in XEDIT, with the cursor at the Subject: line waiting for input. At this stage, you are in an environment that is just the same as any other XEDIT environment. You "edit" your mail message as you type it in, moving up and down the screen at will, until you are ready to send the message. Type <enter> to position the cursor at the command prompt, then type a PF5 (send) key. This will send the note to the user immediately. You will be returned to CMS automatically.

5 Enhanced Facilities

Each of the mail systems will support more functions than just the "basic" ones. The facilities described in this section are those that are common to all the mail systems. They include some details on how to manipulate your mail a little better, how to edit your mail and how to send mail across the networks that we use here.

5.1 Help Facilities

Each of the systems supports some form of "help" facility to aid the user with using the mail system.

5.1.1 The DECsystem-10: -

Once you are inside the mail system, you can type HELP to gain some more information. Also supported is the HELP <command> command to gain some extra help on <command>. For example, HELP SCAN will give more detail on the SCAN command.

There is a manual on the mail system which can be printed off. The file is DOC:MAIL.DOC. This contains a lot of useful information.

5.1.2 The VAX/VMS Systems: -

Once you are inside the mail program, you can get help via the HELP command. This will guide through the help menus (as in VMS HELP command) to provide more information on the mail system and it's commands.

5.1.3 The VM/CMS System: -

Because the VM/CMS system uses XEDIT a lot when controlling it's menus for the mail system, typing the HELP command is not as helpful because this will give help on XEDIT, and not necessarily the function of mail that you were seeking help for. The better way is to use the PF1 (help) key which will give you help on the mail facility you are using. For example, if I am typing in a NOTE to go to someone, I will be using XEDIT to do this. If I type HELP, I will get help on XEDIT. If I type PF1 (help) then I will get help on NOTE.

5.2 Editing The Message To Be Sent

Rather than just typing in the text and sending it off, some people prefer to have the option of editing the text to correct errors. Each of the mail systems has this facility as described below.

5.2.1 The DECsystem-10: -

The DECsystem-10 mail system uses an interesting setup to allow the editing of the mail message. To do this, you will need to set up a few things first. Firstly, you will need to select the editor you wish to use. The editor you choose must be able to support a CCL entry point. The three main editors that do this are XTEC, TECO and QEDIT. SED cannot support this feature. Having decided on an editor, enter the mail system and type the SET EDITOR <editor> command. (This command may be placed in your MAIL.INI file - see the DECsystem-10 specific section for more details). Next, instead of using the SEND command to send to the user, you will need to use the COMPOSE command.

This command puts you into COMPOSE mode and allows you to do a variety of things. After you enter your message, type a ^Z (control-Z). Instead of queueing the message straight away, you will be given a "Compose>" prompt. At this point you can either send the mail with the SEND command, or edit the mail with the EDIT command. If you edit your mail, you will be placed into the editor with the mail file ready for modification. To return from the editor to the mail system, simply exit the editor to the monitor and type the MAIL command again. This will place you back at the "Compose>" prompt. To continue typing, you can type the MESSAGE command at compose level. To exit the text type in sequence, type a ^Z (control-Z) and you will be back at compose level. When you have finished "composing" your message, you can finally send it with the SEND command. This will return you to the outer level of the mail system. EXIT here will return you to the monitor. If you wish to return to outer mail level without sending the message, type the RETURN command (as in R-E-T-U-R-N keys) and this will abort your message.

If you use the SET COMPOSE IMPLIED command, then any time you use the SEND or REPLY commands, you will automatically entered into the compose mode. This command can be placed in your MAIL.INI file.

5.2.2 The VAX/VMS Systems: -

The VAX/VMS system uses a simpler method to edit the message you are sending. There are two ways to do this. The first is that instead of typing MAIL to the operating system to get into the mail system, you type MAIL/EDIT. After this, any messages that you send will cause the mail system to enter EDT when it comes time to type in the message. When you exit EDT, the message will be sent. If you forget to type MAIL/EDIT, all is not lost! Instead of typing SEND to send your mail, type SEND/EDIT instead, and this will have the same effect. If you wish to have this feature set up permanently, put the line \$ MAIL:==MAIL/EDIT in your LOGIN.COM file.

5.2.3 The VM/CMS System: -

The VM/CMS system has an even simpler way to edit your message that you are preparing as mail. The story is that because you are already in XEDIT when typing in your message, you don't need to do anything different. Simple, isn't it!

5.3 Replying To Mail

The mail systems try to make things a little easier for you by attempting to untangle the mess called the "message header" for you. Each of the systems support a "reply" function that will construct a return address on your behalf. Sometimes they even get it right!

5.3.1 The DECsystem-10: -

To use the reply facility, you use the REPLY command after you have read your mail. This will construct the reply address, make the subject of the mail message as "Re: <previous subject>" and ask you for text.

If you wish to use compose mode on your reply so that you can edit it, then you will need to use the COMPOSE REPLY command instead.

5.3.2 The VAX/VMS Systems: -

The reply facility of VAX/VMS mail system has the same command structure as for the DECsystem-10 mail system. After you have read the mail message, you can reply to it by using the REPLY command. This will construct a reply address, make the subject of the mail as "RE: <previous subject>" and will prompt you for the message to be sent.

5.3.3 The VM/CMS System: -

There is a reply facility on the VM/CMS system but it will only work correctly for mail that originated on another VM/CMS system that is directly connected to us or the user was on the same machine as us. This command is REPLY and can be used when "peeking" at mail in your reader list, or examining messages with the NB facility. The problem with mail coming in from the network is due to a limitation in the software package on the VAX/VMS system that provides the network connection. This package tells the VM/CMS system that any mail it sends that originally came from somewhere else on the network, actually came from the POSTMASTER at UQVAX, not from the person who really sent it. Hence if you reply to that mail, the POSTMASTER at UQVAX will receive the reply, not the person you intended it for. Mail originating from node UQVAX is handled correctly.

5.4 Automatic Carbon Copy Of All Messages Sent

Many a time I have sent mail to somebody asking them a question. I get a reply saying "Yes!". I send upwards of a dozen messages a day!! Eventually I have no idea what the original question was about, and hence confusion results. The way to get around that is to keep a copy of everything that transpires in the electronic conversation.

5.4.1 The DECsystem-10: -

The DECsystem-10 mail can automatically send you a copy of your mail if you request it. The way to do this is to enter the mail system and type SET AUTOFILE before you send any mail messages. This will give you a carbon copy of any mail you send. Note that this command is only in effect for the time you are in the mail system. If you leave the mail program and restart it, you will have to type the command again. A better way is to create a MAIL.INI file and put SET AUTOFILE in it. To disable this feature you type SET NOAUTOFILE.

5.4.2 The VAX/VMS Systems: -

The command you need on the VAX/VMS systems to get an automatic copy of your mail is SET COPY_SELF. This command can take one of two arguments (or both). You can say SET COPY_SELF SEND to get a copy of all messages sent using the SEND command. You can use SET COPY_SELF REPLY to get a copy of all messages sent using the REPLY command. You can type SET COPY_SELF SEND,REPLY to get a copy of all messages sent. Note that unlike the DECsystem-10, this command is "permanent". That is you only need type it once and it will stay in effect until you disable it with either the SET COPY_SELF NOSEND, the SET COPY_SELF NOREPLY or the SET COPY_SELF NOSEND,NOREPLY commands.

5.4.3 The VM/CMS System: -

The VM/CMS system has a facility to copy any mail you send into a NOTEBOOK file for future reference. The filename is the same as the username of the person you are sending the note to. For example, if I am sending to user CCFRED, then the copy of my mail will be entered into my CCFRED NOTEBOOK file. There are two ways to get a copy of your mail. The first is done on a per message basis. The format of this is to set it up as you enter the NOTE command. For example NOTE CCFRED (NOTEBOOK. The NOTEBOOK option tells the system to keep a copy for you. Another way to do it this way is to change the NOTEBOOK setting "on the fly". To do this, go to the top of the message file you are typing in, and in the list of options change NONOTEBOOK to NOTEBOOK. You can also change it in the other direction. The second method is to have the system do it for you each time you send a note. To make an automatic copy the default, use the DEFAULTS command to CMS. The format of this command is DEFAULTS SET NOTE NOTEBOOK and this will keep a copy of all mail that you send.

5.5 Directory Facilities Of Mail Messages

As we saw before, there is a way of keeping mail messages for handling later. At some stage we would like to see what mail messages we have left, without having to read the contents of each message. The way to do this is to have a directory facility that will look at

your mail, and list items like the sender and the subject of the mail.

5.5.1 The DECsystem-10: -

You can get a directory of all your mail messages by using the SCAN command. This command when it lists the mail message will include the flags set for the mail, the message number, the size of the message in characters, the person who sent the mail and the subject of the mail. The flags take the following values: D - deleted, R - replied to, H - on hold, A - marked for action, * - message is unread. From here, you can select which messages are scanned. The commands are SCAN ACTIONED, SCAN HELD, SCAN DELETED, SCAN REPLIED and SCAN UNREAD. The SCAN command on its own, will list all messages except those marked as on hold, and those marked for deleting.

5.5.2 The VAX/VMS Systems: -

The VAX/VMS system has a simpler method of getting directories of mail messages. Once you are in the mail system, you use the DIRECTORY command. This will list the messages including the message number, the person who sent the message, the date it was sent and the subject of the mail. The DIRECTORY command can be modified by a selection of switches. The /BEFORE switch will list mail received before a specified date. The /FULL switch not only lists the standard items, but will also list the number of records in the mail, and whether or not you have replied to it. The /NEW switch will list any messages that have not been read yet. The /SINCE switch will list all messages that were received on or after the specified date. The /START switch will start listing messages from the specified message number.

5.5.3 The VM/CMS System: -

The VM/CMS system is a little tricky because not all of your mail is in one place. Mail is stored in various files, all with a filetype of NOTEBOOK. The best way to get a directory of your mail messages is to decide which notebook file the message you are looking for is in. For example, if I am looking for a message that was sent to me from user CCFRED, then I would look in the file CCFRED NOTEBOOK. To do this, use the NB command by typing NB CCFRED. Once inside the NB environment, you will be looking at the full message. By typing PF12 (summary), the screen will change to a "condensed" mode, listing the mail entries with the date, the sender, the receiver and the subject of the mail message. Typing PF12 again will return the screen to "full message" mode. You can use the PF7 and PF8 keys to move around inside the mail message when reading it, or use the PF10 and PF11 keys to move to different mail messages.

DIC
LIP/olders

5.6 Rereading Old Mail

Once you have started keeping old mail for future reference, it is useful to be able to go back and read it again.

5.6.1 The DECsystem-10: -

After entering your mailbox and finding the number of the message that you wish to read, you can issue the READ <n> command. This will then display on your terminal the contents of message number <n>.

5.6.2 The VAX/VMS Systems: -

After doing a directory of your mail to find the number of the message that you wish to read, you can use the READ <n> command. This will redisplay the contents of message numbered <n>. Note that if you use the message number as a command on it's own, this will have the same effect.

5.6.3 The VM/CMS System: -

The VM/CMS system uses a slightly different way than the other systems to reread your old mail. Here you peruse your old mail with the NB command (described before) and this will help you step through the mail files. The PF7 and PF8 keys will move you around a long message, while the PF10 and PF11 keys will move you between messages.

5.7 Network Mail On Campus

Now we get to the good bits. Once we can use the mail system, we can work out how to send mail to other machines that we run at the centre. All the mail systems on the major hosts are linked up via the network, and therefore it is possible to send mail from a user on one machine to a user on another machine. Supported machines at this stage are UQKL10, UQVAX, UQVM, UQADM, EXSTUD, PHVAX, WOMBAT, COVAX, MV1, MV2, MV3, BANANA, GUMNUT, PAHOSP and DPVAX.

5.7.1 The DECsystem-10: -

To address mail to a user on another host, we use a slightly different address format. When asked for the person to send to (by the "To:" prompt), instead of typing in <user>, we type in <user>@<host>. For example, if CCFRED is receiving mail on the WOMBAT machine, the address would be CCFRED@WOMBAT.

5.7.2 The VAX/VMS Systems: -

The VAX/VMS system uses a DECnet style addressing scheme. That is, the node path comes first, followed by the user. So instead of typing in <user> at the "To:" prompt, we type in <node>::<user>. Using the same example that we used for the DECsystem-10, the address would be WOMBAT::CCFRED. Remember that the VAX/VMS systems will attempt to make the connection immediately, and if the remote system is busy, this may take a little time.

Because the VM/CMS system requires a special mail handler, we also need a special mail address from the VAX/VMS systems. The gateway is on node UQVAX, so the address is UQVAX::JNET%"<user>@UQVM". If you are already on node UQVAX, then you don't need the UQVAX:: part.

5.7.3 The VM/CMS System: -

The VM/CMS system uses an addressing structure similar to the DECsystem-10. Due to work done jointly between the IBM programmers and some PCC programmers, we have been able to overcome some limitations of the software package that runs on the VAX/VMS system to link the VM/CMS system into the network. Instead of saying NOTE <user>, you will need to say NOTE <user> AT <node>. So to use the example that we used in the DECsystem-10 section, the command would be NOTE CCFRED AT WOMBAT.

Note: All networked mail (other than to UQVAX) is currently directed to the DECsystem-10 for further action. If this machine is unavailable, then the mail will not be delivered.

5.8 Network Mail To Off-campus Sites

This is a really tricky issue due to the variety of mail systems in existence. We have the ability to send mail to other sites running the coloured book software and to sites on ACSnet and hence, to networks that can be reached by this network. Most of the Australian institutions are in the process of buying the coloured book software so that they can begin to participate in a new network venture called SPEARnet. Although it is technically possible to send mail to a lot of sites off campus from any of our hosts, it is not a feasible possibility. The problem concerns money (doesn't it always?). When we transfer data to off campus sites, we usually need to use someone else's lines and equipment, and like anybody else in this world, they want money for it. Somehow, we need to charge that money back to the person that spent it. Because the DECsystem-10 is directly connected to the outside world, it has the accounting in place to do this. We can't allow networked machines to use these facilities because of the inability to control and charge who can use it and who cannot. We have recently installed new software on the UQVAX system which will allow us to connect to off campus sites. It is hoped that

this software will be available for use in the extremely near future.

If you have a particular need to reach an off campus site, please contact the Engineering and Communications section for more details.

Note: ACSnet is a network that has very little in the way of strict accounting. The Computer Science department is currently running a gateway from our mail system into ACSnet mail. At this point in time we are not charged any money for this service. This situation will change in about two weeks time. In the past, access to ACSnet was "free" for our use, and therefore the DECsystem-10, VAX/VMS and VM/CMS systems could all send and receive mail. Soon this may not be the case.

5.8.1 The DECsystem-10: -

To address mail to off campus sites on the DECsystem-10, you use the same format as for networked mail to hosts on the campus. That is <user>@<host>. It is the host name that distinguishes where the mail goes.

5.8.2 The VAX/VMS Systems: -

At the time of writing this document, the UQVAX system was not able to network to off campus sites. This situation will change within about two weeks time. The address structure will need to change slightly to the normal networked mail structure. Because the mail system needs a "special" handler to send the mail across the network, you need to call this handler by specifying a different address. The address will be of the form SPEARNET%<host>::<user>. This mail will use the coloured book software designed for VAX/VMS systems and will connect the UQVAX system directly to SPEARNET.

5.8.3 The VM/CMS System: -

The VM/CMS system can technically connect to hosts off campus, but the accounting problems prevent us from allowing this to happen. If we could do it, then the address would be of the same form as for mail going to hosts on the campus. That is, <user> AT <host>.

6 System Specific Facilities.

Each of the mail systems has some function that it can perform that is unique to that system. This section lists these facilities with some explanation of their use.

6.1 The DECsystem-10:

The DECsystem-10 system has a special "command line scanner" that provides an on-line help facility when entering your commands. The way it works is via two characters. The most important is the "?". You can type this following any part of the command you are entering (you should make sure you have finished one part by terminating it with a <space>). When you type the "?", you will be told the options that are available to you at this point. For example, TELL ? will return "/TERMINAL: or list of people to send to".

The second character is the <ESC> character. When you have partially completed a command, type the <ESC> and it will complete the command if it can. If the abbreviation is not unique, typing the <ESC> will cause a <beep> to be sent to you. E.g., COMP<ESC> returns COMPOSE.

COMPOSE mode also supports an INSERT command. This command is used to insert either a file or a mail message from your mailbox into the compose buffer. The use is INSERT FILE <filename> or INSERT MESSAGE <n>. There is an optional switch /INDENT which will indent the text being inserted by one tab stop. (E.g., INSERT/INDENT MESSAGE 5).

The mail system supports an initialisation file that can set up the environment that you wish to work in. This file is called MAIL.INI and contains a list of commands that you want executed each time you enter the mail system.

The NEXT command deletes the message you are currently pointing to (just read?), and will read the next available message for you. Note, that if the message you had just read is marked for action or hold, then the NEXT command will not delete it.

The ACTION command will mark the current mail message for action at a later date. This does no more than assign the "A" flag to it, but this should remind you that you have marked this message for further action.

The HOLD command places the current message on hold. This assigns the "H" flag to it, and thereafter the message will not appear in any normal SCANS or if you just issue the READ command. You can still find the message with the SCAN HELD command, and you can still read it with the READ <n> command where <n> is the message number.

The RELEASE command will remove flag settings from a mail message. Note that if both ACTION and HOLD have been set, you need to type the RELEASE command twice.

When you use the REPLY command on a message, this message then receives the "R" flag indicating that you have replied to it. This is useful in reminding yourself if you have replied to a mail message or not.

The OPTIONS command will list on your terminal the options that are currently in effect. This includes all the values of the SET commands (detailed later).

The TAKE command will take a file name for an argument, and will execute the contents of that file as mail commands. If you type the command TAKE without a file name, then the file will default to MAIL.CMD.

The HEADER command allows you to just examine the header of the mail, without reading the message.

A lot of the commands (READ, SCAN, DELETE, UNDELETE, HEADER - any command that acts upon a message), can take a numeric argument. This can be in the form of "n" - a single number, "n:m" - a range of numbers, "." - the current message or "*" - the last message in the buffer. For example, DELETE 1:* will delete all the messages in your mail file.

The GRIPE command is useful to system programmers who are maintaining software. If you have a problem with a system program, type the GRIPE command, and it will prompt you with a series of questions. These are the questions that the programmer will need answers to before they start looking at your problem. The mail is addressed to mail name SUPPORT.

The DAYTIME command is as useful as your watch (unless somebody typed the system time in wrong).

An interesting command is the POM command (nothing to do with the English!). This command lists the current "phase of the moon". Everything a mail system needs (and more)!

The BBOARD command will enter you into the Bulletin Board feature of the mail system. This bulletin board is a special mailbox that anyone can read but cannot delete from. You place entries into the bulletin board by addressing a normal mail message to BBOARD. Once you are in the bulletin board (using the BBOARD command), you can move around the board as you would for your own mail box. You can exit the mail program straight from the bulletin board, or you can return you your mailbox with the RETURN command.

The STATUS command can be used to get the current status of your mailbox. —It will give you a list of the current number of deleted, held, replied to and unread messages in you mailbox.

There are numerous other SET commands which I will briefly detail here.

The SET ABORT command affects what the mail system will do if you type a ^G (control-G) to abort your message. The arguments are ALWAYS (always abort), IGNORE (never abort) and QUERY (ask if you really want to abort). For example, the command SET ABORT QUERY will ask you if you really want to abort your mail. Note that if you are composing a letter, then aborting it returns you to the COMPOSE

prompt. If you want to start the whole letter again, you need to type the RETURN command first.

The SET BUFFER command is not as useful to most people, and really only has a specialised use. The arguments are DISK and ROOT. SET BUFFER DISK tells the mail program to write it's work files to the current path that you have set, whilst SET BUFFER ROOT (the default) tell the mail system to write it's work files to your login directory.

The SET CLEAR-SCREEN command tells mail to clear your screen at various points in time, like when you start to SCAN, or READ a message (if it knows what terminal you have via the SET TTY command to the monitor). The opposite command is SET NOCLEAR-SCREEN.

The SET COMPOSE-MODE IMPLIED command tells mail that you want to enter compose mode even if you use the TELL, SEND or REPLY commands. The opposite command is SET COMPOSE-MODE COMMAND.

The SET CONTROL-Z AUTO-SEND command tells mail to queue the message immediately you type a -Z (control-Z) to end your mail input. This is not useful if you are using compose mode so that you can edit the message.

The SET HEADER-DISPLAY command allows you to adjust how much of the mail header you see when you read a message. The arguments are NONE (see no header), ALL (see the whole header) or STANDARD (see the From: line, the To: line and the Subject: line). You can still view the entire header by using the HEADER command.

The SET LINE-MODE command is used to turn of single character recognition when entering a command. This is mainly used when logged in across a network. A side effect is that the "?" and <ESC> facilities will no longer work. The opposite command is SET NOLINE-MODE.

The SET PROMPT INFORMATIVE is an extremely useful command. This modifies the mail prompt from "MAIL>" to "[1]>" if I am currently pointing to message 1. The number in the brackets is the message number that you are currently pointing to (hence the ">"), and this is the message that will be affected if you don't specify any arguments to commands like READ, DELETE, SCAN and so on. If there is a "%" next to the prompt ("%[23]>"), then this indicates that this is the last message in the mailbox. The opposite command is SET PROMPT NORMAL.

The SET QUERY is also quite a useful command. The argument is a message size in characters. If the message you go to read is equal to or greater than the QUERY size, you will be asked if you really want to read it. The prompt looks like

"? Message is 10372 characters, Proceed ?"

You can then decide to read the message or take different action (such as dumping it on the printer for reading later). A message size of about 1500 characters will just about fill the screen with the content of the message, with the header scrolled off the top of the page.

The last SET command is SET VERBOSITY. This command takes an argument of 1 to 5, and this sets up a different level of information given to you as you use the mail system. 1 - minimal information (default). 2 - Will type (Message n) when you read you mail. 3 - Will confirm the action after each command ([Message 2 deleted]). 4 - will display the file specifications of the files used in the SEND, COPY and INSERT commands. 5 - will also list the recipients of the mail that you send.

The BLANK command will clear your screen if the mail system knows what sort of terminal you have, via the SET TTY command to the monitor.

As mentioned before, there is a way for people to specify a "mail profile" for themselves that is typed out when somebody uses the FINGER command. This file is called MAIL.PRF. It must have the following format:

;Header-fields

Address: my address - anything here as long as it conforms to RFC822

;Finger-profile

This is my profile area that I can use to tell people about me.

The header-fields will be inserted into your mail header when you COMPOSE a message to someone. If you use the SEND command, then this information will not be included.

6.2 The VAX/VMS Systems:

The VAX/VMS mail system supports a "folder" system. That is, you can file your mail into different folders so that some logical grouping can be achieved. The way to do this is via the COPY command. When you have read the mail and decided which folder you want it in, type COPY <folder>. If the folder does not exist, then you will be asked if you wish to create it. After that, you can issue further COPY commands to that folder, and the messages will be copied into it. The original message is not deleted, so you may wish to delete it now. You can find out what folders you have with the DIRECTORY/FOLDER command. To read messages that are in a folder, you first need to "select" that folder with the SELECT <folder> command. Then you can use the DIR, READ etc., commands to move around the folder. The folder is deleted when all the messages in it are deleted.

To undelete mail, this requires a little knowledge of folders. Any new mail arrives in a folder called NEWMAIL. After you have read this mail, it is automatically copied into your MAIL folder. When you delete the mail it is copied to your WASTEBASKET folder. To "undelete" mail, select the wastebasket folder (BEFORE you exit the mail system), and copy any mail you want undeleted back into your MAIL folder.

The command SET PERSONAL_NAME "name" will set up a name that can be used to identify you a little better than usual. For instance, you could have a personal name of "Fred Bloggs, PCC", and this would be

entered at the top of all your outgoing mail.

The SET FORWARD <address> is probably the most useful of all the commands. This command will allow you to set up a forwarding address for all of your mail. For instance, CCFRED on a VAX/VMS system sets up his forwarding address as UQKL10::CCFRED. Then, when anybody tries to send mail to CCFRED on the VAX/VMS system, it will automatically be sent to CCFRED on the UQKL10 node. Note that this connection is made immediately. If the UQKL10 node is not in the network, then the mail cannot be sent.

The mail system sets up the function keys on some smarter terminals to perform a variety of commands with a single keystroke. More details can be found on the setting of these keys by using the HELP KEYPAD command.

6.3 The VM/CMS System:

The VM/CMS system supports a "nick names" file. If my username is CCFRED, then this file will be called CCFRED NAMES. This file is manipulated by the NAMES command. For example, if I type NAMES JOE, then the file will be consulted and if I have a nick name of JOE set up, the contents of this entry will be displayed. If I have JOE set up as a nick name, I can then say NOTE JOE, and the mail system will consult the NAMES file for me, to pick up JOE's full address. Once you have opened the file with the NAMES command, you use the function keys to move around, locate entries, delete entries and create new entries.

The mail system can be setup to either use a "long header" (one line per recipient, or a "short" header (several recipients per line). This is set up in your defaults. You can change the default with the command DEFAULTS SET NOTE SHORT (or LONG). You can also change it on a "per note" basis by specifying the option when you issue the NOTE command. E.g., NOTE CCFRED (SHORT

It is often useful to be able to tell if somebody has read the mail that you have sent them. The VM/CMS system has a facility where you can specify that you want an acknowledgement sent back when the other person reads the message that you sent them. This is the ACK option, and can be specified by the (ACK option to NOTE or by using the DEFAULTS command to set it up permanently. E.g., DEFAULTS SET NOTE ACK

Instead of addressing the note to several people, it is nice to be able to distinguish who is receiving the note, and who is just getting a copy for their own reference. This can be done by the CC: option in the NOTE command. E.g., NOTE CCFRED CC: CCJOE (ACK This will send the note to CCFRED, send a complimentary copy (carbon copy) to CCJOE and tell the mail system that you want a reply when they read the note.

The VM/CMS system (as mentioned before) can change some of the mail settings "on the fly". Suppose that you are halfway through typing in a message and you decide that you really want to know when this mail is read but you don't have ACK set as a default, then you can go to the top of the mail message, find the options line, and change NOACK to ACK. The same can be done for the NOTEBOOK and NONOTEBOOK option. The only option that you cannot change here is the SHORT/LONG header option. This is because the header has already been read in and formatted, so changing this option will have no effect.