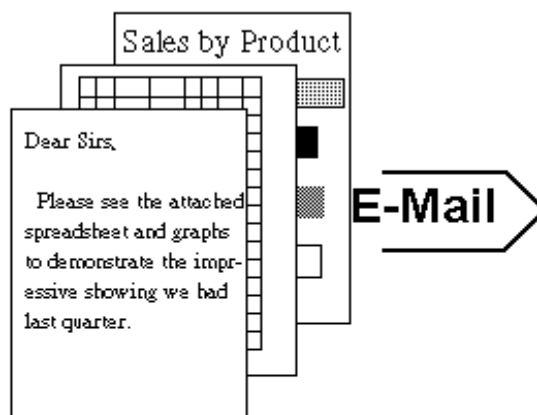


# Introduction

## What is Electronic Mail?

Basically, electronic mail is a means of communication very similar to traditional letter writing, with some modern twists and some very real advances over traditional correspondence.

Electronic mail systems allow people to exchange information with other people using the same (or a connected) electronic mail system very quickly. The two biggest differences between electronic correspondence and the more traditional correspondence methods are the much greater speed of “E-mail”, and the ability to transfer more than the traditional “written” or “text” messages commonly associated with traditional mail. Computers today (and computer users) use much more than simple text messages, and correspondence today requires an increased capability in communicating information. “E-mail” systems of today allow transfer of the traditional text messages, but also allow users to exchange computer data in many forms. This data might be in the form of spreadsheets, binary computer data, or even computer programs.



Still, at the root of all electronic mail systems there are two primary functions -- Sending mail, and Reading mail. Each person using the E-mail system has his or her own “mailbox” to which incoming mail is delivered, and from which he or she selects and reads messages.

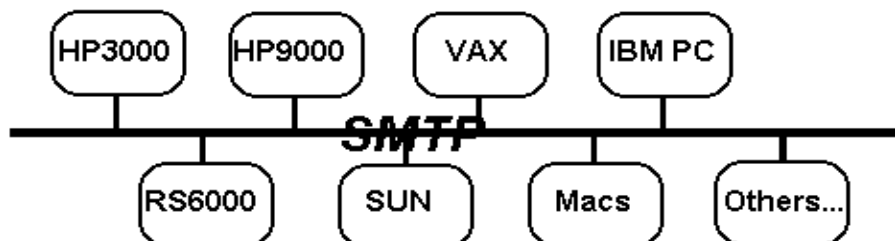
Sending mail requires that there be something prepared to send. In computer terms, this means that there must be a file to transmit. This file can be a text message created using a word processing or text-editor program, or a special file created by some other program (NetMail/3000 will help create a text message if that’s what needs to be sent). In addition, NetMail/3000 needs the address of the person to whom the message is to be sent. E-mail addresses for computer users are a little different from traditional mail -- see the section on MAIL ADDRESSES for details.

Electronic mail can be “read” just like a traditional piece of mail. Electronic mail messages are each assigned a unique number to aid in specifying which message is to be read, in the event there are several messages in the “mailbox” at the same time. After having read a message, it can be held for future reference, or DELETED from the mailbox. In addition, some messages

may require responses, or some manner of confirmation. A copy of the message can be printed on a local printer, or a copy can even be forwarded to someone else, electronically.

## What NetMail/3000 Does

NetMail/3000 is an electronic mail system for the HP3000 family of computers, but has been designed to meet the needs of a much larger family of computer systems. NetMail/3000 is designed to the specifications of the “SMTP” (Simple Mail Transfer Protocol) standard, a “language” by the designers of the Internet (a worldwide communications network). “SMTP” was designated as a standard which all mail systems that communicate on the Internet must meet. “SMTP” has since become the standard of choice on many computer platforms.



NetMail/3000 will allow the exchange of electronic information with any computer system having an electronic mail system which either conforms to the “SMTP” standard, or provides a “gateway” to translate “SMTP” to its own local mail format. This translation is possible on almost all computers using Unix@ variations, as well as most other major computer systems in the world and most major PC based e-mail systems. Some examples:

Unix “sendmail” (comes with all Unix systems) - SMTP compatible

Lotus’ cc:Mail - has (at least) two different SMTP gateways available for it

Microsoft MS Mail - has (at least) two different SMTP gateways available for it

Microsoft Exchange - has SMTP capability

WordPerfect Office - has an SMTP gateway available

Pegasus mail (freeware) - has two SMTP gateways available (also shareware)

Banyan Vines has an SMTP gateway available from Banyan

All MHS (Message Handling System)-based PC Mail systems - MHS to SMTP gateway available

Examples of some MHS based PC Mail packages:

**Table 1: MHS Compatible mailers**

Beyond Mail	Supertime	Noteworks	Ticemail
Calendar	Workman	DaVinci	Winmail
Complete	Electronic Campus	Coordinator	Prime Time Network
Einstein	Xpost	Monitrix	ELF forms
Magic Mail	Executive	InocuLAN	Expressit
Frameworks 4			

For those with large enterprise networks comprising many disparate mail systems, various companies have mail “hubs” that link multiple systems together through one “hub” (including X.400 - based systems).

### NetMail/3000's Primary Features

- NetMail/3000 is built on the industry standard Internet SMTP (Simple Mail Transfer Protocol) - probably the most commonly implemented electronic mail protocol in the world. The SMTP standard was defined by the Internet community to support multi-vendor, platform independent electronic mail, and is endorsed by the DOD for electronic mail communication on the DDN (Defense Data Network).
- NetMail/3000 provides a PC-like menu interface complete with pull-down menus, pop-up windows, picklists, and context sensitive help (all available to any HP terminal).
- NetMail/3000 is MIME compatible. MIME (Multipurpose Internet Mail Extensions) is the new electronic mail standard for transmitting multi-media electronic messages, including audio, video, fax, and any other type of electronic data. Though standard HP terminals have no way of entering or displaying multimedia items, NetMail/3000 can be used to transmit such items. PC emulator users can attach and save multimedia attachments and use pc-tools to view or play them.
- NetMail/3000 can automatically process multimedia message attachments. PC terminal emulator users can select a message attachment, and NetMail/3000 will automatically download the attachment to his or her PC, launch the appropriate application on the PC, giving the application the attachment as input data. For example: An Excel(c) spreadsheet has been attached to a mail message. When it is read by the user, NetMail/3000 will automatically download the spreadsheet to the user's PC and "run" Excel (c) telling it that the spreadsheet is to be displayed.
- NetMail/3000 Sends and receives mail between your HP3000 and other HP3000s, HP9000s, UNIX systems, and IBM, DEC, and other platforms with SMTP compatible mail systems or compliant gateways.
- Users may read their mail from PC clients using the POP client-server protocol. Mail is received and held on the HP3000 and retrieved on demand by PC, Macintosh, or Unix clients. Client users do not need any logon or training regarding the host (HP3000) platform, they only use their local mail client programs. To the PC user, the mail system looks and feels like a PC lan e-mail package.
- HP9000s with HP's ARPA services already have the software needed for the HP9000 to communicate with NetMail/3000.
- NetMail/3000 can communicate with other systems over any NS/3000 supported network link (802.3 LAN, X.25, Point-to-Point/Router, X.25-DDN, etc.).
- Users can attach any number (and type) of file to a mail message, including both HP3000 and PC or Macintosh files. PC or Macintosh files are automatically retrieved from the client and attached to the message.
- Incoming messages with attachments can be saved to the HP3000 or directly to the PC or Macintosh client. Both ascii and special (binary) files (of all types) are supported.

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- For HPOpenDesk customers, an HPDesk FSC gateway option (DeskLink) is available, supporting bidirectional message transfer between HPOpenDesk and any SMTP compatible mailer(s), including transfer of MIME encoded binary and special file attachments. The gateway is available as a stand-alone product, or as an option along with the NetMail/3000 user interface and POP server.
- NetMail/3000 features an easily maintained directory of mail users.
- NetMail/3000 now supports automatic directory synchronization among any number of systems running NetMail/3000.
- For VESoft Security\*3000 customers, NetMail's directory can be loaded and updated from your Security database automatically.
- For USS Security/Plus customers, NetMail's directory can be loaded and updated from your Security database automatically.
- Mail users can have mail automatically routed to a local printer if desired, with or without saving a copy in their mailbox.
- Mailing lists can be set up for easy message distribution including local and remote mail users.
- Mail can be automatically forwarded to other users, mailing lists, users on remote systems, or even remote fax machines (if you have local HP3000 fax software like Office Extend Fax).
- Users can create any number of 'folders' to file messages in to aid in organizing messages in the mailbox.
- Mail to other NetMail/3000 systems can request an automatic confirmation message when mail is delivered as well as when it is read.
- Native language support - NetMail/3000 will be available in several languages.
- Messages are time-stamped, identify the sender and intended recipient of the message, and the message subject.
- Internet-style message "REPLY" command allows a detailed response to a message and automatic delivery to the original sender. It also allows additional recipients as well as a "FORWARD" command to route a message from the current mailbox to another user(s).

## Technical Features

NetMail/3000 has a few technical features that are not apparent to the end users (or even the administrator), but affect the overall performance and usefulness of the electronic mail system.

- Storage and forwarding of mail.
- A NetMail/3000 system can be designated as the e-mail gateway for networks that only the host machine has access to.
- NetMail/3000 can interoperate with a wide variety of Internet/Intranet “firewalls”.
- Directory structure that simplifies mail addressing for users anywhere in the organization.
- Compatibility with non HP systems.
- Mail enabled applications via routing mail to message files or piping to command files.
- EDI (Electronic Data Interchange) can be facilitated via electronic mailing of special files.
- Bulletin board services via mailing lists.
- Mail receipt for users that don't log onto the system (automatically routed to a printer, command file, or disc file).
- Mail can be held for PC users and retrieved by POP2 or POP3 client programs.
- Interrupt driven background processes for minimal cpu use.
- Automatic grouping of mail messages for delivery to any remote system.
- No need for NS configuration of remote systems for mail delivery (if default gateway is used).
- Computer systems can be added to NetMail/3000's configuration database on-line at any time.
- Simple JCL can be added to job streams to 'MAIL' a message to a coordinator upon completion (or in the event of an error).
- NetMail/3000 automatically re-tries to send electronic mail in the event a receiving system goes down for a period of time.
- Message headers (sender and timestamp) are generated by NetMail/3000 after it verifies the identity of the mail user (counterfeit messages are minimized).
- NetMail/3000 supports primary recipients, carbon copy (cc) recipients, and blind carbon copy (bcc) recipients.



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- Mail messages transmitted across a network are broken into large blocks to minimize turnaround delays in slow networks and reduce overhead.
- NetMail/3000 automatically recovers with no loss of messages in the event a communications line or network link fails.
- NetMail/3000 can notify users immediately when mail is delivered for them via :TELL messages or non-destructive messages for V/Plus users.
- NetMail/3000 internally stores messages in a compact and efficient manner, minimizing disc space usage and optimizing system efficiency.
- NetMail/3000 allows the user to 'mail' messages (files) which are already existing, or to create an ad hoc message with any editor.
- Users can change their own mail system passwords (configurable). Pop mail users using the Eudora client can also change their own passwords from Eudora.
- Users can designate a printer to be used for the printing of their mail messages, including slaved PC or terminal printers.
- Users can send messages of normal or urgent priority (if permitted by the mail system administrator).

## How NetMail/3000 Works

NetMail/3000 is an electronic mail system for HP3000 computer systems that incorporates a background message transfer system for routing messages to other computer systems. To the end user, NetMail/3000 provides the standard electronic mail features one would expect, but adds the ability to transmit messages to other mail users on systems other than the local user's "home" system.

NetMail/3000 uses a "protocol" or computer language for passing data between computer systems that was designed to work between as many different computer systems as possible. This protocol, called "SMTP", was designed in the early 1980s, and has since been implemented on almost all Unix@ based computer systems, DEC VAX, IBM mainframes and RS/6000 systems, SUN workstations, PCs, Macintosh, and many more. Large networks and the educational community have been utilizing "SMTP" based electronic mail systems for many years now, and it has become an international electronic mail exchange standard.

For the technically minded, SMTP is a protocol based on TCP/IP. It is a "socket" level protocol, which means logical connections are established without the need for any "logon" - socket level communications requires a "server" program listening for connections, and a "client" program which makes a connection request to a server.

In NetMail/3000's case, the server is a process run by the MAILMAN background job which stays logged on your system as long as you want your mail system active (If the job is not running, no incoming or outgoing mail will be sent, though NetMail/3000 will queue all mail requests until the background job becomes active).

NetMail/3000 also provides a POP2 (Post Office Protocol, version 2) and POP3 (Post Office Protocol version 3) server for client-based retrieval of electronic mail. POP allows the HP3000 to accept and hold mail for PC, Macintosh, or other platform users who do not log onto the HP3000 to read their mail. This allows clients whose machines may not be available all the time to receive mail on demand, to have a central repository where their mail is received for them at all hours, and, where they can connect using a local application they are familiar with to retrieve any mail that has been received.

POP is also a TCP/IP based protocol. The protocol allows a client to connect to a POP2 or POP3 server by providing a mailbox name and password, then retrieve and optionally delete messages from the host (server). NetMail/3000's POP interface also handles read-receipts and delivery receipts on behalf of the client.

NetMail/3000 supports any client that supports the Post Office Protocol, version 2 (POP2) or version 3 (POP3). There are several commercial clients as well as some very nice public domain (free) IBM PC, Macintosh, and Unix based clients. You are free to use any POP client your users prefer. **(Please note that we cannot guarantee nor endorse any of the following packages; this list was merely compiled from a listing of known public domain POP clients. All packages listed are thought to be free, but as they are not in our control, we cannot guarantee them. Please check the ftp site(s) for details on distributions.)** Some of the public domain packages that we know of are:

Platform	Program	Available from
MSDOS	PC POP 2.1	(ftp) trident.arc.nasa.gov

Platform	Program	Available from
MSDOS	POPmail/PC 3.0	(ftp) boombox.micro.umn.edu
MSDOS	Minuet	(ftp) boombox.micro.umn.edu
MSDOS	NUPop	(ftp) ftp.acns.nwu.edu
MSDOS	POP3 0.9	(ftp) ftp.indiana.edu
MSDOS	UCDmail	(ftp) ucdavis.ucdavis.edu
MSDOS	PC ELM	(ftp) lister.cc.ic.ac.uk
Windows	Windows ELM	(ftp) lister.cc.ia.ac.uk
Windows	Trumpet	(ftp) ftp.psychol.utas.edu.au
Windows	Pseudora	(ftp) ftp.qualcomm.com
Windows	TechMail for Wind.	(ftp) net-dist.mit.edu
Windows	wnqvtnet	(ftp) ftp.cica.indiana.edu
OS/2	TechMail	(ftp) net-dist.mit.edu
MAC	MacPOP 1.5	(ftp) trident.arc.nasa.gov
MAC	MacPOP (Berkeley)	(ftp) ftp.cc.berkeley.edu
MAC	POPMail II	(ftp) boombox.micro.umn.edu
MAC	TechMail 2.0	(ftp) net-dist.mit.edu
MAC	MacMH	(ftp) jessica.stanford.edu
MAC	LeeMail 2.0.2	(ftp) chs.cusd.claremont.edu
MAC	Eudora	(ftp) ftp.qualcomm.com
UNIX	mh-6.7	(ftp) ftp.cc.berkeley.edu
NEXT	EasyMail	(ftp) ftp.cac.washington.edu

Several other commercial implementations are also available, including versions for Windows, DOS, Macintosh, X-servers, and others. ('ftp' means that the programs are accessible via the 'file transfer protocol' for free to any Internet-connected user. The name after the (ftp) is the name of the host computer on which the code is stored. Use 'anonymous' as the user id to log on to these systems, and enter your Internet e-mail address when prompted for a password.) You can also find some POP clients that are MIME compatible, which will assist you in transmitting non-text items. Spry's Airmail® for windows is a commercial package that includes a POP client, as does NetManage's Chameleon® package for windows (which is also MIME compatible in version 4.0 or later) NetScape's Navigator® mail client, Qualcomm's Eudora® package, and Microsoft Exchange® has a POP client available.

NetMail/3000 uses a central database to coordinate all incoming and outgoing mail, all the

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mail users on the network, as well as keeping track of other mail systems it may communicate with. You are provided with an interactive maintenance program with which to maintain and verify this information, as well as certain global mail system options that affect what capabilities and levels of security you want to enforce on your (mail) network.

Additionally, the NetMail/3000 user interface program (NETMAIL.SYS.THREEK) provides the user interface where users actually send and read mail, and maintain their local "mailbox". This program is a function key driven program (though all commands may be typed as well) with commands for the user to send, read, print, delete, and otherwise manipulate the mail messages in the user's mailbox. Special commands are provided to aid the user in locating other mail users, to join or verify special mailing "lists", to select a local printer, and to set a password for access to the user's mailbox.