

UULINKTM

TECHNICAL SPECIFICATIONS

COMPREHENSIVE UUCP NETWORKING, MAIL, NETNEWS, AND REMOTE ACCESS FOR DOS

The **UULINK** software package turns DOS PCs into UUCP network nodes for comprehensive communications with UNIX-based systems (including UNIX and XENIX) and between PCs, including unattended file transfer, electronic mail, and many other features.

UULINK provides users of MS-DOS/PC-DOS on the IBM PC, XT, AT, PS/2, 386, and 486 families (and hardware compatible with those families) with the ability to turn their systems into comprehensive UUCP network nodes, able to communicate with standard UNIX UUCP systems without the need for any special software at the UNIX sites. **UULINK** provides for unattended, automated connections to/from multiple remote sites, including file transfers, comprehensive electronic mail operations, and a wide variety of other functions. The package is an ideal method to network PCs in varied locations through dialup modems or hardwired connections either to other PCs running **UULINK** or to standard UNIX systems of whatever size and hardware type. The package can be used for a wide variety of private networking applications and for accessing the international public **UUCP/Usenet** networks and many other interconnected networks, including the **global Internet** (Arpanet, Milnet, Csnnet, Bitnet, etc.), both via cooperating local and distant sites, and via commercial network service providers such as PSI/PSINet, UUNET, and NETCOM.

UUCP Communications

- Fully automated and/or manual text and binary transmission/reception of files from full or partial direct paths or via spool directories to/from other systems with UUCP capabilities. Automatically handles both locally and remotely queued file transfer requests, with various special extensions for cooperating hosts. Communications are compatible with all standard versions of UNIX UUCP, including support of full-duplex, multiple packet transmission/reception windows for optimum communications throughput.
- Full logging (if desired) of all transfers, call attempts, successful and failed logins by remote systems/users, etc., including timestamps, full file transfer information, corrected error rate for calls, trouble records, etc.
- Full handling of manual and automatic incoming and outgoing calls including automatic speed selection (if desired), login/password controls, etc. Suitable for use with multiple speed modems, and for direct lines. Configurable for various complex login sequences including port selectors/switches, etc. Can operate fully unattended.

- Complete table-driven read/write file access permission controls.
- Various automatic "call-back" provisions for extra security if desired.
- Automatic scheduling of outgoing UUCP calls (or other local work) and table-driven modem dialing that can be user-customized for most autodial modems. The scheduling mechanism can be used to trigger virtually any desired local programs at user-specified dates and/or times. Various utilities have been included to simplify the setup of complex multiple site polling schedules, to handle outgoing call time restrictions (to save on call costs), etc.
- Error conditions reported via detailed local/remote return mail.

Mail and Netnews Generation/Handling

- Can send and receive both local and remote mail via standard UUCP ("!") and/or RFC 920/976 Internet domain ("@") routing. Both incoming and outgoing mail handlers support the complex domain mail specifications designed to integrate Internet and UUCP mail.

- Supports fully automated delivery and routing of domain-style addresses (e.g. “user@site.domain”, “user@site.subdomain.domain”, etc.) where “domain” might be “COM”, “EDU”, “GOV”, “UUCP”, “ARPA”, etc.) via a domain path routing table which may be customized by the site.
- Routing can be specified differently for both incoming (pass-through to other sites) and direct outgoing mail. Gateway addressing is fully supported, as is support for subdomain routing and addressing. Provides the DOS user with the capability of joining the international UUCP/Usenet/Internet mail networks for mail sending, receiving, forwarding, pass-through, etc., and/or to set up private networks as desired.
- Full handling of both locally generated and remote mail, both for local delivery and for “pass-through” to other sites via both “!” and/or Internet domain (“@”) routing syntax. Ready for operation both as a normal UUCP mail site or as a complex domain/subdomain mail generator and handler for Internet compatibility.
- Generates and handles both standard UUCP message header lines and also Internet (e.g. Arpanet, Milnet, UUCPnet, Bitnet, etc.) [RFC 822/920/976] “From:”, “Date:”, “CC:”, “To:”, “Subject:”, “In-Reply-To:”, “Reply-To:”, and other Internet header lines as appropriate.
- Compatible with both standard UUCP and applicable Internet 822/920/976 standards. RFC 822 headers, with RFC 920/976 domain addresses, are generated for all non-local mail. Users' real names and other extended information is included on all messages whenever possible.
- Complete error messages are automatically mailed back to the specified UUCP return-address point in cases of undeliverable local mail or rejected pass-through mail (e.g. unknown users, sitenames, etc.) whenever possible. Failed delivery text and control files are saved for manual operator delivery or handling when desired.
- Distribution (mailing) lists are supported and are available both to locally generated and incoming mail. These distribution lists may generate both local and remote addresses, with special features provided to simplify list handling from outside gateways.
- Address aliasing is provided. “Global” aliases may be specified which apply to all users system-wide and are also available to incoming remote mail.
- Each local user may also have their own individual aliases list which applies only to their own outgoing (both local and remote address destinations) mail traffic. Entries in distribution lists and in both individual and global alias files may call each other and recurse.
- All remote incoming mail transactions (both for local delivery and pass-through to other sites) are fully logged when desired.
- Built-in capability to generate and transmit Usenet “netnews” articles, allowing the site to join the international “Usenet” network.
- Headers may be modified/changed by the user, and the user may drop into any selected text editor for full message text editing as desired, as well as run other programs from within the mail program.
- Complete handling of text saving, etc. in cases of bad mail addressing, delivery problems, etc.
- Facilities to support the sending of mail from multiple local users on the same **UULINK** system, with completely independent mailboxes, mail and netnews signature files, default editor selections, etc.
- “MORE”-type screen scrolling control for message displays when desired.

Mail and Netnews Reading and Replies

- Allows reading and automatic reply generation for local mail, conventional UUCP routing (“!”) mail, Internet 822/920/976 domain-based (“@”) routing mail, and netnews.
- A wide variety of commands to scan message headers, generate replies of various sorts, forward messages, save and sort messages in a variety of manners, jump to external programs, manage mailboxes, etc.
- Messages may be viewed via display-oriented or line-oriented text editors when desired.
- Special handling and reply generation for incoming Usenet netnews messages including built-in netnews message de-rotation (when desired). Netnews is handled as a special class of mail (via a “netnews mailbox”). In

general, given the hardware and operating system limitations of these small systems, it is usually not deemed desirable for such sites to support netnews forwarding of other than locally generated netnews to other sites; the volumes of data are simply too large. It is possible to add general netnews forwarding via outboard programs to requeue news messages if desired, but given the massive volumes of data involved with netnews, few small sites would be expected to possess sufficient disk capability to support such netnews forwarding in a practical sense. Please contact us if you're interested in pursuing the issues involved in general netnews forwarding from these systems. Note that **UULINK** as distributed provides comprehensive forwarding capabilities for all non-netnews mail messages to/from remote sites as described earlier, providing extensive single-hop and multiple-hop mail processing features for both outbound and inbound mail.

- Special features for handling complex "sendmail" headers from remote Internet sites.
- Facilities to support the receiving and processing of mail by multiple local users on the same **UULINK** system, with completely independent mailboxes, etc.
- "MORE"-type screen scrolling control for message displays when desired.

Interactive Remote Access

- Facilities are provided to allow the user flexible, interactive remote dialup access to their system, permitting the user to remotely execute commands/programs (as long as those programs do not require direct (non-BIOS) access to the PC keyboard or display). For example, most standard DOS commands can be run remotely, as can the **UULINK** mail generation and reading programs, allowing the user to send or read mail at their site remotely via direct login. When sending mail via a remote dialup, the user may elect to automatically use a line-oriented editor rather than locally-oriented display editors. **UULINK's** interactive remote access is also extremely useful for remote maintenance purposes, allowing remote PCs running **UULINK** to be conveniently maintained from a central location via dialup. The interactive remote access capabilities co-exist with the **UULINK** UUCP dialup capabilities and are fully password protected.

Miscellaneous

- A wide variety of miscellaneous utilities are provided to provide integration of the various programs, to simplify complex polling setups, handle systems without realtime clocks, deal with special communications or compatibility situations, handle file transfer queuing requests, etc. Extensive diagnostic capabilities in case of problems, with creation of tracing audit files, etc. if desired.

UULINK will operate with as little as 256K bytes of memory, and while a hard disk is recommended it is not required. The package runs with MS-DOS/PC-DOS versions 2.0 or later, on the IBM PC, XT, AT, PS/2, 386, and 486 families and compatibles.

If you have any questions or desire more technical information regarding **UULINK**, or for ordering details, please contact us and we'll be glad to be of assistance. Thank you.

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