NAME

smail, sendmail, mailq, runq, rmail, rsmtp, smtpd, newaliases – mail delivery system

SYNOPSIS

smail [*flags*] *address*...
/usr/sbin/smail [*flags*] *address* ...
mailq
runq
rmail *address* ...
rsmtp
smtpd
in.smtpd
newaliases

DESCRIPTION

Smail is a program used for receiving and delivering mail. Its job is to take mail from sources on the local or on remote hosts and deliver to the appropriate destinations. This may be either on remote hosts or on the local machine. It is not intended to be a user interface for reading and submitting mail. See *mailx*(1) on System V, *Mail*(1) on BSD systems, or *mail*(1) on other systems for information on user interfaces.

Smail is invoked under a wide variety of names, which serve to isolate some of its major uses: receiving local mail, receiving remote mail, attempting delivery of undelivered mail and displaying information about undelivered mail.

OPTIONS

All of these commands accept the same set of flags, differing mainly in their default mode of operation. Two exceptions are the *rmail* and *rsmtp* commands which support only a subset of the possible flags. These two commands are intended to be used from remote hosts through remote execution over UUCP (see *uux*(1)) and are thus limited in how much they can do.

The flags which are recognized by smail are:

–bc Display the file *COPYING*, distributed with the source, which details your rights and restrictions for distributing this software.

–bd Listen for connection requests on a socket bound in the internet domain. When a connection occurs, conduct an SMTP (Simple Mail Transfer Protocol) conversation with the peer process. Listening will only occur if BSD style internet networking functionality is available.

–bm Deliver mail to the recipient addresses. This is the default mode of operation if invoked as *sendmail*, *smail*, *rmail* or *send-mail*.

–bp List information about the messages currently in smail's input spool directories. This is the default mode of operation if invoked as *mailq*. With the **–v** or **–d** flag, a per-message transaction log is displayed for each message which shows what has happened to the message so far.

–bi Initialize the aliases file, or a YP aliases file. The specific behavior of this command depends upon whether an aliases file is specified in the command with **–oA** *file*. If such an aliases file is specified, the file specifies input that will be used to build a DBM database with the same basename. The resulting DBM database is intended to be usable as a YP database. If smail was compiled with the **sdbm** package, distributed with smail, then the resulting database will *not* be usable by YP. The DBM database is rebuilt by calling **mkdbm** (see *mkdbm*(8)) with the **–y** option.

If an aliases file was not specified with **–oA**, then the system default aliases file is rebuilt by calling the **mkaliases** program (see *mkaliases*(8) for more information).

Both the **mkdbm** and **mkaliases** programs are executed from the directory indicated by the **smail_util_dir** attribute (by default */usr/lib/smail*).

–bP Take the addresses given on the command line as *config* file variables (see *smail*(5) for more information) and write the values for each variable on the standard output. References to variables, such as *hostnames* or *uucp_name* which may be computed at run time, will yield the values that smail would compute normally. For example, on my workstation, the command:

smail -bP hostnames max_message_size

produces the output:

futatsu.uts.amdahl.com:futatsu.amdahl.com 102400

With the **−v** or **−d** flag the variable names are displayed as well, so that the command:

smail -bP -v max_message_size

produces the output:

max_message_size=102400

In addition to other config file variables, the name *primary_name* will output the primary (or canonical) name for the local host which will be used by smail, and *config_file* will output the name of the primary configuration file. Also, the name *help* will produce a verbose listing of all variables associated with their type, one variable per line, and the name *all* will produce a verbose listing of all variables along with their values. It is equivalent to *smail -bP -v* followed by a list of the names of all configuration variables.

−bR Enter the hostile mail domain of giant mail messages, and RFC standard scrolls. Attempt to make it down to protocol level 26 and back.

−bS Read SMTP commands on standard input, but do not produce SMTP replies on standard output. All failures are reported by return mail, rather than through reply codes. This is suitable for setting up a batched form of SMTP between machines over a remote execution service like UUCP. This is the default mode of operation if invoked as *rsmtp*.

−bs Read SMTP commands on standard input and produce SMTP replies on standard output. The currently implemented SMTP commands are **HELO**, **MAIL FROM**, **RCPT TO**, **DATA**, **RSET**, **NOOP**, **VRFY**, **EXPN** and **QUIT**. This is the default mode of operation if invoked as *smtpd* or *in.smtpd*. For compatibility with some implementations of *inetd*(8N), if *smtpd* is started with no standard output, standard input will be *dup*(2)'d to standard output.

−bt Enter address test mode. Read addresses on standard input and produce the parse results and host routing/resolving information on standard output. This is primarily useful for debugging smail or debugging new smail routers.

−bv Verify a list of addresses by producing the list of addresses produced by aliasing and forwarding expansions and by host routing or resolving. Addresses which cannot be resolved are also displayed, along with the reasons why.

−C *filename* or **-oC** *filename*
Sets the pathname of the primary config file to use in reading global attribute values. If specified, then smail sets the effective uid and gid back to the real uid and gid, to avoid problems when installations allow smail to be set uid to the superuser. If the filename is **−** then no primary config file is read. This should only be used for debugging purposes.

−d*[number]* or **−v***[number]*
turn on debugging. If a number is given, set the debugging level to that value, otherwise the debugging level is set to 1. No white space is allowed before the optional number. There is no differentiation between use of **−d** and **−v**.

−D *file* Redirect debugging output to the indicated file. Normally, debugging output will disable background delivery because programs should not continue to write to standard error after the mail process exits. However, if a debug output file is specified, then background delivery can occur.

−em or **−oem**
Mail errors back to the sender (default).

−ee or **−oee**
These forms refer to a berkenet error processing style which is not supported. If used, errors will be mailed back to the sender.

−ep or **−oep**
Write errors to the standard error output.

−eq or **−oeq**
Do not send notification of errors to the sender. This only works for mail delivered locally. Errors encountered on remote hosts mail still result in returned mail. Supply a **Precedence: junk** header field to set this behavior on local *and* remote hosts.

−ew or **−oew**
Write errors to the sender's terminal using the *write*(1) command, if he is logged in. Otherwise, mail errors back to the sender. (This is currently not supported and is treated in the same manner as *−oem*)

−F *fullname*
Explicitly set the full name of the sender for incoming mail, used only if the operation mode is reception of a single mail message on standard input.

−f *sender* or **−r** *sender*
Explicitly set the sender address for incoming mail, used only if the operation mode is reception of a single mail message on standard input.

−h *number*
Sets the *hopcount* for a single message. If this is not specified, the hop count is computed from the number of **Received:** fields in the message header. The hopcount is used for a primitive form of infinite loop detection: a sufficiently large hop count will cause mail to be rejected.

−I or **−oI**
Use the hidden dot algorithm in reading the message. Lines with one or more dots at the beginning have the leading dot removed, while a line containing only a single dot ends the input message. This is always set for messages received using SMTP.

−i or **−oi**
Do not allow a single '.' to end an incoming message. Otherwise, a dot on a line by itself will end a message. This is the default if smail is invoked as *rmail*.

−m or **−om**
Allow retention of the sender as a recipient for alias and mailing list expansions that include the sender. If this is *Not* set, the sender will not receive a copy of the message only as a result of being in an alias or mailing list.

−N Disable delivery of this message. All other processing is performed, and transports are expected to go through most of the steps involved in delivery. This is useful for debugging smail when you do not actually wish to have messages delivered.

−n Do not perform alias processing. This only prevents expansion of entries in alias files. Mailing list files and forward files may still be expanded.

−odb Deliver mail in background, if mail delivery is to be performed. Background delivery is not currently supported in the SMTP modes; foreground delivery is used instead.

−odf Deliver mail in foreground, if mail delivery is to be performed.

−oD *filename*
Sets the pathname of the director file. This overrides the default name of the director file as well as any name set in a config file. If specified, then smail sets the effective uid and gid back to the real uid and gid, to avoid problems when installations allow smail to be set uid to the superuser. If the filename is **−** then no director file is read. This should only be used for debugging purposes.

−oE *filename*
Sets the pathname of the delivery retry control file. This overrides the default name of the retry file as well as any name set in a config file. If specified, then smail sets the effective uid and gid back to the real uid and gid, to avoid problems when installations allows smail to be set uid to the superuser (the normal case). If the filename is **−** then no retry file is read. This should only be used for debugging purposes.

−oG *grade_range*
Sets the range of grades of messages processed by a queue run. This overrides the default value of *runq_grades* compiled into the smail binary, as well as any name set in a config file. This may be used to allow queue processing to only process specific grades of mail, so that (for example) mailing list mail can be defered during peak periods until a time when the system load will be much lighter. Typically the config file version of the *runq_grades* value would be used most of the time, with the occaisional off-peak invocation of **runq** from cron with the **-oG** option set to process low priority mail. The parameter is a grade range string as used for the *delivery_grades* and *runq_grades* configuration variables.

−oL *directory name*
Sets the pathname of the smail library directory. This overrides the default value of *smail_lib_dir* compiled into the smail binary, as well as any name set in a config file. This string may be used to locate configuration files, such as the director, router and transport files, alias and path files, and mailing list directories.

−oQ *filename*
Sets the pathname of the hostname qualification file. This overrides the default name of the qualify file as well as any name set in a config file. If specified, then smail sets the effective uid and gid back to the real uid and gid, to avoid problems when installations allows smail to be set uid to the superuser (the normal case). If the filename is **−** then no qualify file is read. This should only be used for debugging purposes.

−oR *filename*
Sets the pathname of the router file. This overrides the default name of the router file as well as any name set in a config file. If specified, then smail sets the effective uid and gid back to the real uid and gid, to avoid problems when installations allows smail to be set uid to the superuser (the normal case). If the filename is **−** then no router file is read. This should only be used for debugging purposes.

−oT *filename*
Sets the pathname of the transport file. This overrides the default name of the transport file as well as any name set in a config file. If specified, then smail sets the effective uid and gid back to the real uid and gid, to avoid problems when installations allow smail to be set uid to the superuser. If the filename is **−** then no transport file is read. This should only be used for debugging purposes.

−Q or **−odq**
Spool incoming messages but do not actually perform delivery until a later queue. This mode of operation is somewhat more efficient in terms of CPU usage, though it does slow down the flow of mail.

−q*[interval]*
Cause smail to process its input spool directory. If an interval is given, smail will repeatedly check its input spool directory, sleeping for the given interval between checks. The interval is in seconds, though it can be defined as a sequence of numbers with suffixes of ‘s’ for seconds, ‘m’ for minutes, ‘h’ for hours, ‘d’ for days, ‘w’ for weeks and ‘y’ for years. For example, **−q2h30m** specifies an interval of two hours and 30 minutes. This flag is useful in conjunction with the **−bd** mode of operation and will cause the daemon process to wake up on these intervals and perform queue processing. Performing a single queue run is the default mode of operation if smail is invoked as *runq*.

−t Extract addresses from the **To:**, **Cc:** and **Bcc:** fields of the message header. This is useful for user agents that do not wish to compute the recipient addresses themselves. In this mode, any addresses given on the command line are addresses that explicitly will *NOT* receive mail, even as a result of aliasing or forwarding expansions. This option is ignored unless smail is in the mode set by the **−bm** flag (which is the default mode).

−V or **−bV**
Print the *smail* version on the standard output.

−oU Report memory usage when smail exits.

−oX *mail-service*
Set the TCP/IP service name or port number to be used for listening for SMTP requests. This can used in conjunction with the **−bd** mode to define alternate debugging versions of the smail SMTP listening daemon, which may be useful in testing a new installation.

−oMs *sender_host*
Specify the name of the system that send the mail message. This value can be included in expansion strings through the variable **$sender_host**.

−oMr *sender_proto*
Specify the protocol that was used by the sending host to deliver the mail message. This value can be included in expansion strings through the variable **$sender_proto**.

−oMt *ident_sender*
Specify the user that intitiated the message transfer on the previous host to get to this host. This value is set by the SMTP receiver when a message is received from a host supporting the **RFC1413** protocol. This value can be included in expansion strings through the variable **$ident_sender**.

−oMu *ident_method*
Specify the method used to determine *ident_sender* (above). A mail receiver that has a transmitting user identity associated with it could call smail with these flags to have that information included in the message data. This value can be included in expansion strings through the variable **$ident_method**.

NORMAL USAGE

Under normal usage, one smail daemon exists which receives requests from remote hosts and processes the input spool directory at intervals. Such a daemon can be started from /etc/rc with a command such as

smail −bd −q1h

which will cause queue runs at one hour intervals.

New mail can be submitted from user agents by calling smail directly and passing a message on standard input. Mailers such as BSD *Mail*(1) and some System V *mailx*(1) programs submit mail by invoking smail with a command such as

smail −em −i recipient-address ...

Because smail also works correctly if invoked as *sendmail* it is common to install smail as */usr/lib/sendmail* so that existing binaries on BSD systems, or other systems that current run sendmail, do not need to be modified to run smail instead.

Some user agents, such as GNU Emacs may wish to have smail decipher the recipient list from the header. These programs may invoke smail with a command such as

smail −em −t −i

To receive mail over UUCP, *smail* can be invoked directly from *uuxqt* as */bin/rmail.* Alternately, */bin/rmail* can be another program that invokes smail directly as

smail −em −i −fsender-address recipient address ...

It is common for the System V based */bin/rmail* program to perform delivery by itself, resulting in mail bypassing *smail* altogether. Such systems should replace */bin/rmail* with a copy of *smail* or modify */bin/rmail* so that it executes a copy of *smail* with the arguments as given above.

NOTE: In the future, a separate program may be distributed with smail to serve the function of rmail at a lower cost. This program will only write the input spool file, while allowing a smail daemon to process messages at a later time. This will save the cost of a complete *exec*(2) of smail for each incoming message.

An alternative method of receiving mail over UUCP is through the *rsmtp* command, which receives batched SMTP requests. This can be used between two sites running smail to gain many of the benefits of the SMTP protocol, such as the ability to use recipient addresses which UUX cannot correctly pass to a remote rmail program. For example, addresses containing quotes or spaces cannot be expected to pass correctly over an uux/rmail link. However a uux/rsmtp link can handle such cases.

SENDMAIL COMPATIBILITY

Smail was designed to be a plug-in replacement for the BSD *sendmail* program, in that external programs can call smail in the same manner that they previously called *sendmail* and expect similar results. However, smail is completely different internally and has entirely different configuration files. As a result, the **−o** option to smail only sets a few configuration parameters which were felt to be commonly used by other programs. Also, for convenience, some new (upper case only) parameters are defined only in smail. Attempts to set other options using this flag are ignored. See the **OPTIONS** section for the complete list of supported **−o** options.

Because *smail* can be called in a manner very similar to *sendmail* it is common to install smail as */usr/lib/sendmail* so that no other program need be modified to use the new mailer. Thus, once properly configured, smail can be installed into a current sendmail-based environment, including an environment without access to source, with minimal effort.

SMAIL UNDER SYSTEM V

The easiest way to install smail on a System V host is to install it as */bin/rmail*. An alternative is cause *mailx*(1) to call */usr/lib/sendmail* by changine the *mailx*(1) configuration file */usr/lib/mailx/mailx.rc* to include a line such as:

```
sendmail=/usr/lib/sendmail
```

System V's *mail*(1) command attempts to perform delivery by itself. Use of *mail*(1) to send mail should thus be discouraged unless *mail*(1) is modified to call *smail* to perform delivery.

FILES

For many sites, the compiled in configuration of *smail* is sufficient and thus no configuration files are needed. The following files and directories are from the default smail configuration:

/etc/smail/config	Optional general smail configuration. This file can override compiled-in configuration.
/etc/smail/qualify	Optional hostname qualification configuration file.
/etc/smail/directors	Optional configuration for smail directors, i.e., configured methods for resolving local addresses. This file replaces the compiled-in director configuration.
/etc/smail/routers	Optional configuration for smail routers, i.e., configured methods for resolving or routing to remote hosts. This file replaces the compiled-in router configuration.
/etc/smail/transports	Optional configuration for smail transports; i.e., configured methods of mail delivery. This file replaces the compiled-in transport configuration.
/etc/smail/retry	Optional delivery retry configuration file; i.e., minimum time between retries, and maximum time to retry before giving up.

The following files are commonly used to locally redirect mail and to give paths to remote sites.

/etc/smail/aliases	A file of aliases for local addresses.
/etc/smail/paths	A file of paths to remote hosts.
/etc/smail/lists	A directory of mailing list files.
/var/spool/mail	The directory for user mailbox files.
~/.forward	Lists of forwarding addresses for local users.

The *smail* mailer typically uses the following directories for working storage, and to hold incoming mail messages.

/var/spool/smail	The top of the spool directory hierarchy.
/var/spool/smail/input	Smail's spool directory for incoming messages.
/var/spool/smail/error	A directory for messages which failed for some reason that the site administrator should investigate.
/var/spool/smail/msglog	A directory of transaction logs for individual messages.
/var/spool/smail/lock	A directory used in smail input spool files.

The following files log the activity of the *smail* mailer. The system administrator should check and truncate these files from time.

/var/spool/smail/log/logfile	A log of smail transactions.
/var/spool/smail/log/paniclog	A log of configuration or system errors encountered by smail.

DIAGNOSTICS

Exits with 0 if no errors, non−0 otherwise. See */usr/include/sysexits.h* or *src/exitcodes.h* in the smail source for the list of possible exit codes.

If the −*bd* option was used, then *bind() failed: Address already in use* implies that another process is already listening on the SMTP socket.

SEE ALSO

binmail(1), *mailx*(1) under System V, *Mail*(1) under BSD, *pathto*(1), *smail*(5), *Smail Administration and Installation Guide*, *Smail Design Document*, DARPA Internet Requests for Comments, RFC821, RFC822 and RFC976.

BUGS

Many mail bugs are not smail bugs. Smail can't help it if remote sites trash your mail messages.

If you find any bugs, please mail a description to the address *smail-bugs@veritas.com,* along with any code fixes that you may have.

Setting the input spool directory processing interval to a period of more than 2147483647 seconds is silly and will result in an incorrectly calculated processing interval.

Route-addrs on protocol level 1 are too strong.

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