

NAME

postconf – Postfix configuration parameters

SYNOPSIS

postconf *parameter* ...

postconf -e "*parameter=value*" ...

DESCRIPTION

The Postfix main.cf configuration file specifies a small subset of all the parameters that control the operation of the Postfix mail system. Parameters not specified in main.cf are left at their default values.

The general format of the main.cf file is as follows:

- Each logical line has the form "parameter = value". Whitespace around the "=" is ignored, as is whitespace at the end of a logical line.
- Empty lines and whitespace-only lines are ignored, as are lines whose first non-whitespace character is a '#'.
 - A logical line starts with non-whitespace text. A line that starts with whitespace continues a logical line.
- A parameter value may refer to other parameters.
 - The expressions "\$name", "\${name}" or "\$(name)" are recursively replaced by the value of the named parameter.
 - The expression "\${name?value}" expands to "value" when "\$name" is non-empty. This form is supported with Postfix version 2.2 and later.
 - The expression "\${name:value}" expands to "value" when "\$name" is empty. This form is supported with Postfix version 2.2 and later.
 - Specify "\$\$" to produce a single "\$" character.
- When the same parameter is defined multiple times, only the last instance is remembered.
- Otherwise, the order of main.cf parameter definitions does not matter.

The remainder of this document is a description of all Postfix configuration parameters. Default values are shown after the parameter name in parentheses, and can be looked up with the "**postconf -d**" command.

Note: this is not an invitation to make changes to Postfix configuration parameters. Unnecessary changes can impair the operation of the mail system.

2bounce_notice_recipient (default: postmaster)

The recipient of undeliverable mail that cannot be returned to the sender. This feature is enabled with the notify_classes parameter.

access_map_defer_code (default: 450)

The numerical Postfix SMTP server response code for an **access(5)** map "defer" action, including "defer_if_permit" or "defer_if_reject". Prior to Postfix 2.6, the response is hard-coded as "450".

Do not change this unless you have a complete understanding of RFC 2821.

This feature is available in Postfix 2.6 and later.

access_map_reject_code (default: 554)

The numerical Postfix SMTP server response code for an **access(5)** map "reject" action.

Do not change this unless you have a complete understanding of RFC 2821.

address_verify_default_transport (default: \$default_transport)

Overrides the default_transport parameter setting for address verification probes.

This feature is available in Postfix 2.1 and later.

address_verify_local_transport (default: \$local_transport)

Overrides the local_transport parameter setting for address verification probes.

This feature is available in Postfix 2.1 and later.

address_verify_map (default: empty)

Optional lookup table for persistent address verification status storage. The table is maintained by the **verify(8)** service, and is opened before the process releases privileges.

By default, the information is kept in volatile memory, and is lost after "**postfix reload**" or "**postfix stop**".

Specify a location in a file system that will not fill up. If the database becomes corrupted, the world comes to an end. To recover delete the file and do "**postfix reload**".

As of version 2.5, Postfix no longer uses root privileges when opening this file. The file should now be stored under the Postfix-owned data_directory. As a migration aid, an attempt to open the file under a non-Postfix directory is redirected to the Postfix-owned data_directory, and a warning is logged.

Examples:

```
address_verify_map = hash:/var/lib/postfix/verify
address_verify_map = btree:/var/lib/postfix/verify
```

This feature is available in Postfix 2.1 and later.

address_verify_negative_cache (default: yes)

Enable caching of failed address verification probe results. When this feature is enabled, the cache may pollute quickly with garbage. When this feature is disabled, Postfix will generate an address probe for every lookup.

This feature is available in Postfix 2.1 and later.

address_verify_negative_expire_time (default: 3d)

The time after which a failed probe expires from the address verification cache.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks).

This feature is available in Postfix 2.1 and later.

address_verify_negative_refresh_time (default: 3h)

The time after which a failed address verification probe needs to be refreshed.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks).

This feature is available in Postfix 2.1 and later.

address_verify_poll_count (default: 3)

How many times to query the **verify(8)** service for the completion of an address verification request in progress.

By default, the Postfix SMTP server polls the **verify(8)** service up to three times under non-overload conditions, and only once when under overload. With Postfix version 2.5 and earlier, the SMTP server always polls the **verify(8)** service up to three times by default.

Specify 1 to implement a crude form of greylisting, that is, always defer the first delivery request for a never seen before address.

Example:

```
address_verify_poll_count = 1
```

This feature is available in Postfix 2.1 and later.

address_verify_poll_delay (default: 3s)

The delay between queries for the completion of an address verification request in progress.

The default polling delay is 3 seconds.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks).

This feature is available in Postfix 2.1 and later.

address_verify_positive_expire_time (default: 31d)

The time after which a successful probe expires from the address verification cache.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks).

This feature is available in Postfix 2.1 and later.

address_verify_positive_refresh_time (default: 7d)

The time after which a successful address verification probe needs to be refreshed. The address verification status is not updated when the probe fails (optimistic caching).

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks).

This feature is available in Postfix 2.1 and later.

address_verify_relay_transport (default: \$relay_transport)

Overrides the relay_transport parameter setting for address verification probes.

This feature is available in Postfix 2.1 and later.

address_verify_relayhost (default: \$relayhost)

Overrides the relayhost parameter setting for address verification probes. This information can be overruled with the **transport(5)** table.

This feature is available in Postfix 2.1 and later.

address_verify_sender (default: \$double_bounce_sender)

The sender address to use in address verification probes; prior to Postfix 2.5 the default was "postmaster". To avoid problems with address probes that are sent in response to address probes, the Postfix SMTP server excludes the probe sender address from all SMTPD access blocks.

Specify an empty value (address_verify_sender =) or <> if you want to use the null sender address. Beware, some sites reject mail from <>, even though RFCs require that such addresses be accepted.

Examples:

```
address_verify_sender = <>
address_verify_sender = postmaster@my.domain
```

This feature is available in Postfix 2.1 and later.

address_verify_sender_dependent_relayhost_maps (default: \$sender_dependent_relayhost_maps)

Overrides the sender_dependent_relayhost_maps parameter setting for address verification probes.

This feature is available in Postfix 2.3 and later.

address_verify_service_name (default: verify)

The name of the **verify(8)** address verification service. This service maintains the status of sender and/or recipient address verification probes, and generates probes on request by other Postfix processes.

address_verify_transport_maps (default: \$transport_maps)

Overrides the transport_maps parameter setting for address verification probes.

This feature is available in Postfix 2.1 and later.

address_verify_virtual_transport (default: \$virtual_transport)

Overrides the virtual_transport parameter setting for address verification probes.

This feature is available in Postfix 2.1 and later.

alias_database (default: see postconf -d output)

The alias databases for **local(8)** delivery that are updated with "**newaliases**" or with "**sendmail -bi**".

This is a separate configuration parameter because not all the tables specified with \$alias_maps have to be local files.

Examples:

```
alias_database = hash:/etc/aliases
alias_database = hash:/etc/mail/aliases
```

alias_maps (default: see postconf -d output)

The alias databases that are used for **local(8)** delivery. See **aliases(5)** for syntax details.

The default list is system dependent. On systems with NIS, the default is to search the local alias database, then the NIS alias database.

If you change the alias database, run "**postalias /etc/aliases**" (or wherever your system stores the mail alias file), or simply run "**newaliases**" to build the necessary DBM or DB file.

The **local(8)** delivery agent disallows regular expression substitution of \$1 etc. in alias_maps, because that would open a security hole.

The **local(8)** delivery agent will silently ignore requests to use the **proxymap(8)** server within alias_maps. Instead it will open the table directly. Before Postfix version 2.2, the **local(8)** delivery agent will terminate with a fatal error.

Examples:

```
alias_maps = hash:/etc/aliases, nis:mail.aliases
alias_maps = hash:/etc/aliases
```

allow_mail_to_commands (default: alias, forward)

Restrict **local(8)** mail delivery to external commands. The default is to disallow delivery to "|command" in :include: files (see **aliases(5)** for the text that defines this terminology).

Specify zero or more of: **alias**, **forward** or **include**, in order to allow commands in **aliases(5)**, .forward files or in :include: files, respectively.

Example:

```
allow_mail_to_commands = alias,forward,include
```

allow_mail_to_files (default: alias, forward)

Restrict **local(8)** mail delivery to external files. The default is to disallow "/file/name" destinations in :include: files (see **aliases(5)** for the text that defines this terminology).

Specify zero or more of: **alias**, **forward** or **include**, in order to allow "/file/name" destinations in **aliases(5)**, .forward files and in :include: files, respectively.

Example:

```
allow_mail_to_files = alias,forward,include
```

allow_min_user (default: no)

Allow a sender or recipient address to have '-' as the first character. By default, this is not allowed, to avoid accidents with software that passes email addresses via the command line. Such software would not be able to distinguish a malicious address from a bona fide command-line option. Although this can be prevented by inserting a "--" option terminator into the command line, this is difficult to enforce consistently and globally.

As of Postfix version 2.5, this feature is implemented by **trivial-rewrite(8)**. With earlier versions this feature was implemented by **qmgr(8)** and was limited to recipient addresses only.

allow_percent_hack (default: yes)

Enable the rewriting of the form "user%domain" to "user@domain". This is enabled by default.

Note: with Postfix version 2.2, message header address rewriting happens only when one of the following conditions is true:

- The message is received with the Postfix **sendmail(1)** command,
- The message is received from a network client that matches \$local_header_rewrite_clients,
- The message is received from the network, and the remote_header_rewrite_domain parameter specifies a non-empty value.

To get the behavior before Postfix version 2.2, specify "local_header_rewrite_clients = static:all".

Example:

```
allow_percent_hack = no
```

allow_untrusted_routing (default: no)

Forward mail with sender-specified routing (user[@% !]remote[@% !]site) from untrusted clients to destinations matching \$relay_domains.

By default, this feature is turned off. This closes a nasty open relay loophole where a backup MX host can be tricked into forwarding junk mail to a primary MX host which then spams it out to the world.

This parameter also controls if non-local addresses with sender-specified routing can match Postfix access tables. By default, such addresses cannot match Postfix access tables, because the address is ambiguous.

alternate_config_directories (default: empty)

A list of non-default Postfix configuration directories that may be specified with "-c config_directory" on the command line, or via the MAIL_CONFIG environment parameter.

This list must be specified in the default Postfix configuration directory, and is used by set-gid Postfix commands such as **postqueue**(1) and **postdrop**(1).

always_add_missing_headers (default: no)

Always add (Resent-) From:, To:, Date: or Message-ID: headers when not present. Postfix 2.6 and later add these headers only when clients match the local_header_rewrite_clients parameter setting. Earlier Postfix versions always add these headers; this may break DKIM signatures that cover non-existent headers.

always_bcc (default: empty)

Optional address that receives a "blind carbon copy" of each message that is received by the Postfix mail system.

Note: if mail to the BCC address bounces it will be returned to the sender.

Note: automatic BCC recipients are produced only for new mail. To avoid mailer loops, automatic BCC recipients are not generated for mail that Postfix forwards internally, nor for mail that Postfix generates itself.

anvil_rate_time_unit (default: 60s)

The time unit over which client connection rates and other rates are calculated.

This feature is implemented by the **anvil**(8) service which is available in Postfix version 2.2 and later.

The default interval is relatively short. Because of the high frequency of updates, the **anvil**(8) server uses volatile memory only. Thus, information is lost whenever the process terminates.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

anvil_status_update_time (default: 600s)

How frequently the **anvil**(8) connection and rate limiting server logs peak usage information.

This feature is available in Postfix 2.2 and later.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

append_at_myorigin (default: yes)

With locally submitted mail, append the string "@\$myorigin" to mail addresses without domain information. With remotely submitted mail, append the string "@\$remote_header_rewrite_domain" instead.

Note 1: this feature is enabled by default and must not be turned off. Postfix does not support domain-less addresses.

Note 2: with Postfix version 2.2, message header address rewriting happens only when one of the following conditions is true:

- The message is received with the Postfix **sendmail**(1) command,

- The message is received from a network client that matches `$local_header_rewrite_clients`,
- The message is received from the network, and the `remote_header_rewrite_domain` parameter specifies a non-empty value.

To get the behavior before Postfix version 2.2, specify `"local_header_rewrite_clients = static:all"`.

append_dot_mydomain (default: yes)

With locally submitted mail, append the string `$.mydomain` to addresses that have no `".domain"` information. With remotely submitted mail, append the string `$.remote_header_rewrite_domain` instead.

Note 1: this feature is enabled by default. If disabled, users will not be able to send mail to `"user@partial-domainname"` but will have to specify full domain names instead.

Note 2: with Postfix version 2.2, message header address rewriting happens only when one of the following conditions is true:

- The message is received with the Postfix **sendmail(1)** command,
- The message is received from a network client that matches `$local_header_rewrite_clients`,
- The message is received from the network, and the `remote_header_rewrite_domain` parameter specifies a non-empty value.

To get the behavior before Postfix version 2.2, specify `"local_header_rewrite_clients = static:all"`.

application_event_drain_time (default: 100s)

How long the **postkick(1)** command waits for a request to enter the server's input buffer before giving up.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.1 and later.

authorized_flush_users (default: static:anyone)

List of users who are authorized to flush the queue.

By default, all users are allowed to flush the queue. Access is always granted if the invoking user is the super-user or the `$mail_owner` user. Otherwise, the real UID of the process is looked up in the system password file, and access is granted only if the corresponding login name is on the access list. The username `"unknown"` is used for processes whose real UID is not found in the password file.

Specify a list of user names, `"/file/name"` or `"type:table"` patterns, separated by commas and/or whitespace. The list is matched left to right, and the search stops on the first match. A `"/file/name"` pattern is replaced by its contents; a `"type:table"` lookup table is matched when a name matches a lookup key (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify `"!pattern"` to exclude a name from the list. The form `"!/file/name"` is supported only in Postfix version 2.4 and later.

This feature is available in Postfix 2.2 and later.

authorized_mailq_users (default: static:anyone)

List of users who are authorized to view the queue.

By default, all users are allowed to view the queue. Access is always granted if the invoking user is the super-user or the `$mail_owner` user. Otherwise, the real UID of the process is looked up in the system password file, and access is granted only if the corresponding login name is on the access list. The username `"unknown"` is used for processes whose real UID is not found in the password file.

Specify a list of user names, `"/file/name"` or `"type:table"` patterns, separated by commas and/or whitespace. The list is matched left to right, and the search stops on the first match. A `"/file/name"` pattern is replaced by its contents; a `"type:table"` lookup table is matched when a name matches a lookup key (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify `"!pattern"` to exclude a user name from the list. The form `"!/file/name"` is supported only in Postfix version 2.4 and later.

This feature is available in Postfix 2.2 and later.

authorized_submit_users (default: static:anyone)

List of users who are authorized to submit mail with the **sendmail(1)** command (and with the privileged **postdrop(1)** helper command).

By default, all users are allowed to submit mail. Otherwise, the real UID of the process is looked up in the system password file, and access is granted only if the corresponding login name is on the access list. The username "unknown" is used for processes whose real UID is not found in the password file. To deny mail submission access to all users specify an empty list.

Specify a list of user names, "/file/name" or "type:table" patterns, separated by commas and/or whitespace. The list is matched left to right, and the search stops on the first match. A "/file/name" pattern is replaced by its contents; a "type:table" lookup table is matched when a name matches a lookup key (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify "!pattern" to exclude a user name from the list. The form "!/file/name" is supported only in Postfix version 2.4 and later.

Example:

```
authorized_submit_users = !www, static:all
```

This feature is available in Postfix 2.2 and later.

authorized_verp_clients (default: \$mynetworks)

What SMTP clients are allowed to specify the XVERP command. This command requests that mail be delivered one recipient at a time with a per recipient return address.

By default, only trusted clients are allowed to specify XVERP.

This parameter was introduced with Postfix version 1.1. Postfix version 2.1 renamed this parameter to `smtpd_authorized_verp_clients` and changed the default to none.

Specify a list of network/netmask patterns, separated by commas and/or whitespace. The mask specifies the number of bits in the network part of a host address. You can also specify hostnames or .domain names (the initial dot causes the domain to match any name below it), "/file/name" or "type:table" patterns. A "/file/name" pattern is replaced by its contents; a "type:table" lookup table is matched when a table entry matches a lookup string (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify "!pattern" to exclude an address or network block from the list. The form "!/file/name" is supported only in Postfix version 2.4 and later.

Note: IP version 6 address information must be specified inside [] in the `authorized_verp_clients` value, and in files specified with "/file/name". IP version 6 addresses contain the ":" character, and would otherwise be confused with a "type:table" pattern.

backwards_bounce_logfile_compatibility (default: yes)

Produce additional **bounce(8)** logfile records that can be read by Postfix versions before 2.0. The current and more extensible "name = value" format is needed in order to implement more sophisticated functionality.

This feature is available in Postfix 2.1 and later.

berkeley_db_create_buffer_size (default: 16777216)

The per-table I/O buffer size for programs that create Berkeley DB hash or btree tables. Specify a byte count.

This feature is available in Postfix 2.0 and later.

berkeley_db_read_buffer_size (default: 131072)

The per-table I/O buffer size for programs that read Berkeley DB hash or btree tables. Specify a byte count.

This feature is available in Postfix 2.0 and later.

best_mx_transport (default: empty)

Where the Postfix SMTP client should deliver mail when it detects a "mail loops back to myself" error condition. This happens when the local MTA is the best SMTP mail exchanger for a destination not listed in `$mydestination`, `$inet_interfaces`, `$proxy_interfaces`, `$virtual_alias_domains`, or `$virtual_mailbox_domains`.

By default, the Postfix SMTP client returns such mail as undeliverable.

Specify, for example, "best_mx_transport = local" to pass the mail from the Postfix SMTP client to the **local**(8) delivery agent. You can specify any message delivery "transport" or "transport:nexthop" that is defined in the master.cf file. See the **transport**(5) manual page for the syntax and meaning of "transport" or "transport:nexthop".

However, this feature is expensive because it ties up a Postfix SMTP client process while the **local**(8) delivery agent is doing its work. It is more efficient (for Postfix) to list all hosted domains in a table or database.

biff (default: yes)

Whether or not to use the local biff service. This service sends "new mail" notifications to users who have requested new mail notification with the UNIX command "biff y".

For compatibility reasons this feature is on by default. On systems with lots of interactive users, the biff service can be a performance drain. Specify "biff = no" in main.cf to disable.

body_checks (default: empty)

Optional lookup tables for content inspection as specified in the **body_checks**(5) manual page.

Note: with Postfix versions before 2.0, these rules inspect all content after the primary message headers.

body_checks_size_limit (default: 51200)

How much text in a message body segment (or attachment, if you prefer to use that term) is subjected to body_checks inspection. The amount of text is limited to avoid scanning huge attachments.

This feature is available in Postfix 2.0 and later.

bounce_notice_recipient (default: postmaster)

The recipient of postmaster notifications with the message headers of mail that Postfix did not deliver and of SMTP conversation transcripts of mail that Postfix did not receive. This feature is enabled with the notify_classes parameter.

bounce_queue_lifetime (default: 5d)

The maximal time a bounce message is queued before it is considered undeliverable. By default, this is the same as the queue life time for regular mail.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is d (days).

Specify 0 when mail delivery should be tried only once.

This feature is available in Postfix 2.1 and later.

bounce_service_name (default: bounce)

The name of the **bounce**(8) service. This service maintains a record of failed delivery attempts and generates non-delivery notifications.

This feature is available in Postfix 2.0 and later.

bounce_size_limit (default: 50000)

The maximal amount of original message text that is sent in a non-delivery notification. Specify a byte count. With Postfix 2.4 and later, a message is returned as either message/rfc822 (the complete original) or as text/rfc822-headers (the headers only). With earlier Postfix versions, a message is always returned as message/rfc822 and is truncated when it exceeds the size limit.

Notes:

- If you increase this limit, then you should increase the mime_nesting_limit value proportionally.
- Be careful when making changes. Excessively large values will result in the loss of non-delivery notifications, when a bounce message size exceeds a local or remote MTA's message size limit.

bounce_template_file (default: empty)

Pathname of a configuration file with bounce message templates. These override the built-in templates of delivery status notification (DSN) messages for undeliverable mail, for delayed mail, successful delivery, or delivery verification. The **bounce**(5) manual page describes how to edit and test template files.

Template message body text may contain \$name references to Postfix configuration parameters. The result of \$name expansion can be previewed with "**postconf -b file_name**" before the file is placed into the Postfix configuration directory.

This feature is available in Postfix 2.3 and later.

broken_sasl_auth_clients (default: no)

Enable inter-operability with SMTP clients that implement an obsolete version of the AUTH command (RFC 4954). Examples of such clients are MicroSoft Outlook Express version 4 and MicroSoft Exchange version 5.0.

Specify "broken_sasl_auth_clients = yes" to have Postfix advertise AUTH support in a non-standard way.

canonical_classes (default: envelope_sender, envelope_recipient, header_sender, header_recipient)

What addresses are subject to canonical_maps address mapping. By default, canonical_maps address mapping is applied to envelope sender and recipient addresses, and to header sender and header recipient addresses.

Specify one or more of: envelope_sender, envelope_recipient, header_sender, header_recipient

This feature is available in Postfix 2.2 and later.

canonical_maps (default: empty)

Optional address mapping lookup tables for message headers and envelopes. The mapping is applied to both sender and recipient addresses, in both envelopes and in headers, as controlled with the canonical_classes parameter. This is typically used to clean up dirty addresses from legacy mail systems, or to replace login names by Firstname.Lastname. The table format and lookups are documented in **canonical(5)**. For an overview of Postfix address manipulations see the ADDRESS_REWRITING_README document.

If you use this feature, run "**postmap /etc/postfix/canonical**" to build the necessary DBM or DB file after every change. The changes will become visible after a minute or so. Use "**postfix reload**" to eliminate the delay.

Note: with Postfix version 2.2, message header address mapping happens only when message header address rewriting is enabled:

- The message is received with the Postfix **sendmail(1)** command,
- The message is received from a network client that matches \$local_header_rewrite_clients,
- The message is received from the network, and the remote_header_rewrite_domain parameter specifies a non-empty value.

To get the behavior before Postfix version 2.2, specify "local_header_rewrite_clients = static:all".

Examples:

```
canonical_maps = dbm:/etc/postfix/canonical
canonical_maps = hash:/etc/postfix/canonical
```

cleanup_service_name (default: cleanup)

The name of the **cleanup(8)** service. This service rewrites addresses into the standard form, and performs **canonical(5)** address mapping and **virtual(5)** aliasing.

This feature is available in Postfix 2.0 and later.

command_directory (default: see postconf -d output)

The location of all postfix administrative commands.

command_execution_directory (default: empty)

The **local(8)** delivery agent working directory for delivery to external command. Failure to change directory causes the delivery to be deferred.

The following \$name expansions are done on command_execution_directory before the directory is changed. Expansion happens in the context of the delivery request. The result of \$name expansion is

filtered with the character set that is specified with the `execution_directory_expansion_filter` parameter.

\$user The recipient's username.

\$shell The recipient's login shell pathname.

\$home The recipient's home directory.

\$recipient
The full recipient address.

\$extension
The optional recipient address extension.

\$domain
The recipient domain.

\$local The entire recipient localpart.

\$recipient_delimiter
The system-wide recipient address extension delimiter.

\${name?value}
Expands to *value* when *\$name* is non-empty.

\${name:value}
Expands to *value* when *\$name* is empty.

Instead of *\$name* you can also specify *\${name}* or *\$(name)*.

This feature is available in Postfix 2.2 and later.

command_expansion_filter (default: see `postconf -d output`)

Restrict the characters that the **local(8)** delivery agent allows in *\$name* expansions of *\$mailbox_command* and *\$command_execution_directory*. Characters outside the allowed set are replaced by underscores.

command_time_limit (default: 1000s)

Time limit for delivery to external commands. This limit is used by the **local(8)** delivery agent, and is the default time limit for delivery by the **pipe(8)** delivery agent.

Note: if you set this time limit to a large value you must update the global `ipc_timeout` parameter as well.

config_directory (default: see `postconf -d output`)

The default location of the Postfix `main.cf` and `master.cf` configuration files. This can be overruled via the following mechanisms:

- The `MAIL_CONFIG` environment variable (daemon processes and commands).
- The `-c` command-line option (commands only).

With Postfix command that run with set-gid privileges, a `config_directory` override requires either root privileges, or it requires that the directory is listed with the `alternate_config_directories` parameter in the default `main.cf` file.

connection_cache_protocol_timeout (default: 5s)

Time limit for connection cache connect, send or receive operations. The time limit is enforced in the client.

This feature is available in Postfix 2.3 and later.

connection_cache_service_name (default: `scache`)

The name of the **scache(8)** connection cache service. This service maintains a limited pool of cached sessions.

This feature is available in Postfix 2.2 and later.

connection_cache_status_update_time (default: 600s)

How frequently the **scache(8)** server logs usage statistics with connection cache hit and miss rates for logical destinations and for physical endpoints.

connection_cache_ttl_limit (default: 2s)

The maximal time-to-live value that the **scache**(8) connection cache server allows. Requests that specify a larger TTL will be stored with the maximum allowed TTL. The purpose of this additional control is to protect the infrastructure against careless people. The cache TTL is already bounded by \$max_idle.

content_filter (default: empty)

The name of a mail delivery transport that filters mail after it is queued.

This parameter uses the same syntax as the right-hand side of a Postfix **transport**(5) table. This setting has a lower precedence than a content filter that is specified with an **access**(5) table or in a **header_checks**(5) or **body_checks**(5) table.

cyrus_sasl_config_path (default: empty)

Search path for Cyrus SASL application configuration files, currently used only to locate the \$smtpd_sasl_path.conf file. Specify zero or more directories separated by a colon character, or an empty value to use Cyrus SASL's built-in search path.

This feature is available in Postfix 2.5 and later when compiled with Cyrus SASL 2.1.22 or later.

daemon_directory (default: see postconf -d output)

The directory with Postfix support programs and daemon programs. These should not be invoked directly by humans. The directory must be owned by root.

daemon_timeout (default: 18000s)

How much time a Postfix daemon process may take to handle a request before it is terminated by a built-in watchdog timer.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

data_directory (default: see postconf -d output)

The directory with Postfix-writable data files (for example: caches, pseudo-random numbers). This directory must be owned by the mail_owner account, and must not be shared with non-Postfix software.

This feature is available in Postfix 2.5 and later.

debug_peer_level (default: 2)

The increment in verbose logging level when a remote client or server matches a pattern in the debug_peer_list parameter.

debug_peer_list (default: empty)

Optional list of remote client or server hostname or network address patterns that cause the verbose logging level to increase by the amount specified in \$debug_peer_level.

Specify domain names, network/netmask patterns, "/file/name" patterns or "type:table" lookup tables. The right-hand side result from "type:table" lookups is ignored.

Pattern matching of domain names is controlled by the parent_domain_matches_subdomains parameter.

Examples:

```
debug_peer_list = 127.0.0.1
debug_peer_list = example.com
```

debugger_command (default: empty)

The external command to execute when a Postfix daemon program is invoked with the -D option.

Use "command .. & sleep 5" so that the debugger can attach before the process marches on. If you use an X-based debugger, be sure to set up your XAUTHORITY environment variable before starting Postfix.

Example:

```
debugger_command =
    PATH=/usr/bin:/usr/X11R6/bin
    ddd $daemon_directory/$process_name $process_id & sleep 5
```

default_database_type (default: see postconf -d output)

The default database type for use in **newaliases(1)**, **postalias(1)** and **postmap(1)** commands. On many UNIX systems the default type is either **dbm** or **hash**. The default setting is frozen when the Postfix system is built.

Examples:

```
default_database_type = hash
default_database_type = dbm
```

default_delivery_slot_cost (default: 5)

How often the Postfix queue manager's scheduler is allowed to preempt delivery of one message with another.

Each transport maintains a so-called "available delivery slot counter" for each message. One message can be preempted by another one when the other message can be delivered using no more delivery slots (i.e., invocations of delivery agents) than the current message counter has accumulated (or will eventually accumulate - see about slot loans below). This parameter controls how often is the counter incremented - it happens after each `default_delivery_slot_cost` recipients have been delivered.

The cost of 0 is used to disable the preempting scheduling completely. The minimum value the scheduling algorithm can use is 2 - use it if you want to maximize the message throughput rate. Although there is no maximum, it doesn't make much sense to use values above say 50.

The only reason why the value of 2 is not the default is the way this parameter affects the delivery of mailing-list mail. In the worst case, their delivery can take somewhere between $(cost+1/cost)$ and $(cost/cost-1)$ times more than if the preemptive scheduler was disabled. The default value of 5 turns out to provide reasonable message response times while making sure the mailing-list deliveries are not extended by more than 20-25 percent even in the worst case.

Use `transport_delivery_slot_cost` to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

Examples:

```
default_delivery_slot_cost = 0
default_delivery_slot_cost = 2
```

default_delivery_slot_discount (default: 50)

The default value for transport-specific `_delivery_slot_discount` settings.

This parameter speeds up the moment when a message preemption can happen. Instead of waiting until the full amount of delivery slots required is available, the preemption can happen when `transport_delivery_slot_discount` percent of the required amount plus `transport_delivery_slot_loan` still remains to be accumulated. Note that the full amount will still have to be accumulated before another preemption can take place later.

Use `transport_delivery_slot_discount` to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

default_delivery_slot_loan (default: 3)

The default value for transport-specific `_delivery_slot_loan` settings.

This parameter speeds up the moment when a message preemption can happen. Instead of waiting until the full amount of delivery slots required is available, the preemption can happen when `transport_delivery_slot_discount` percent of the required amount plus `transport_delivery_slot_loan` still remains to be accumulated. Note that the full amount will still have to be accumulated before another preemption can take place later.

Use `transport_delivery_slot_loan` to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

default_destination_concurrency_failed_cohort_limit (default: 1)

How many pseudo-cohorts must suffer connection or handshake failure before a specific destination is considered unavailable (and further delivery is suspended). Specify zero to disable this feature. A destination's pseudo-cohort failure count is reset each time a delivery completes without connection or handshake failure for that specific destination.

A pseudo-cohort is the number of deliveries equal to a destination's delivery concurrency.

Use *transport_destination_concurrency_failed_cohort_limit* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5. The default setting is compatible with earlier Postfix versions.

default_destination_concurrency_limit (default: 20)

The default maximal number of parallel deliveries to the same destination. This is the default limit for delivery via the **lmtp**(8), **pipe**(8), **smtp**(8) and **virtual**(8) delivery agents. With per-destination recipient limit > 1, a destination is a domain, otherwise it is a recipient.

Use *transport_destination_concurrency_limit* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

default_destination_concurrency_negative_feedback (default: 1)

The per-destination amount of delivery concurrency negative feedback, after a delivery completes with a connection or handshake failure. Feedback values are in the range 0..1 inclusive. With negative feedback, concurrency is decremented at the beginning of a sequence of length 1/feedback. This is unlike positive feedback, where concurrency is incremented at the end of a sequence of length 1/feedback.

As of Postfix version 2.5, negative feedback cannot reduce delivery concurrency to zero. Instead, a destination is marked dead (further delivery suspended) after the failed pseudo-cohort count reaches *\$default_destination_concurrency_failed_cohort_limit* (or *\$transport_destination_concurrency_failed_cohort_limit*). To make the scheduler completely immune to connection or handshake failures, specify a zero feedback value and a zero failed pseudo-cohort limit.

Specify one of the following forms:

number

number / number

Constant feedback. The value must be in the range 0..1 inclusive. The default setting of "1" is compatible with Postfix versions before 2.5, where a destination's delivery concurrency is throttled down to zero (and further delivery suspended) after a single failed pseudo-cohort.

number / concurrency

Variable feedback of "*number / (delivery concurrency)*". The *number* must be in the range 0..1 inclusive. With *number* equal to "1", a destination's delivery concurrency is decremented by 1 after each failed pseudo-cohort.

A pseudo-cohort is the number of deliveries equal to a destination's delivery concurrency.

Use *transport_destination_concurrency_negative_feedback* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5. The default setting is compatible with earlier Postfix versions.

default_destination_concurrency_positive_feedback (default: 1)

The per-destination amount of delivery concurrency positive feedback, after a delivery completes without connection or handshake failure. Feedback values are in the range 0..1 inclusive. The concurrency increases until it reaches the per-destination maximal concurrency limit. With positive feedback, concurrency is incremented at the end of a sequence with length 1/feedback. This is unlike negative feedback, where concurrency is decremented at the start of a sequence of length 1/feedback.

Specify one of the following forms:

number

number / number

Constant feedback. The value must be in the range 0..1 inclusive. The default setting of "1" is compatible with Postfix versions before 2.5, where a destination's delivery concurrency doubles after each successful pseudo-cohort.

number / concurrency

Variable feedback of "*number* / (delivery concurrency)". The *number* must be in the range 0..1 inclusive. With *number* equal to "1", a destination's delivery concurrency is incremented by 1 after each successful pseudo-cohort.

A pseudo-cohort is the number of deliveries equal to a destination's delivery concurrency.

Use *transport_destination_concurrency_positive_feedback* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5 and later.

default_destination_rate_delay (default: 0s)

The default amount of delay that is inserted between individual deliveries to the same destination; with per-destination recipient limit > 1, a destination is a domain, otherwise it is a recipient.

To enable the delay, specify a non-zero time value (an integral value plus an optional one-letter suffix that specifies the time unit).

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

NOTE: the delay is enforced by the queue manager. The delay timer state does not survive "postfix reload" or "postfix stop".

Use *transport_destination_rate_delay* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5 and later.

default_destination_recipient_limit (default: 50)

The default maximal number of recipients per message delivery. This is the default limit for delivery via the **lmtp**(8), **pipe**(8), **smtp**(8) and **virtual**(8) delivery agents.

Setting this parameter to a value of 1 changes the meaning of the corresponding per-destination concurrency limit from concurrency per domain into concurrency per recipient.

Use *transport_destination_recipient_limit* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

default_extra_recipient_limit (default: 1000)

The default value for the extra per-transport limit imposed on the number of in-memory recipients. This extra recipient space is reserved for the cases when the Postfix queue manager's scheduler preempts one message with another and suddenly needs some extra recipients slots for the chosen message in order to avoid performance degradation.

Use *transport_extra_recipient_limit* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

default_minimum_delivery_slots (default: 3)

How many recipients a message must have in order to invoke the Postfix queue manager's scheduling algorithm at all. Messages which would never accumulate at least this many delivery slots (subject to slot cost parameter as well) are never preempted.

Use *transport_minimum_delivery_slots* to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

default_privs (default: nobody)

The default rights used by the **local**(8) delivery agent for delivery to external file or command. These rights are used when delivery is requested from an **aliases**(5) file that is owned by **root**, or when delivery is done on behalf of **root**. **DO NOT SPECIFY A PRIVILEGED USER OR THE POSTFIX OWNER.**

default_process_limit (default: 100)

The default maximal number of Postfix child processes that provide a given service. This limit can be overruled for specific services in the master.cf file.

default_rbl_reply (default: see postconf -d output)

The default SMTP server response template for a request that is rejected by an RBL-based restriction. This template can be overruled by specific entries in the optional rbl_reply_maps lookup table.

This feature is available in Postfix 2.0 and later.

The template is subject to exactly one level of \$name substitution:

\$client The client hostname and IP address, formatted as name[address].

\$client_address

The client IP address.

\$client_name

The client hostname or "unknown". See reject_unknown_client_hostname for more details.

\$reverse_client_name

The client hostname from address->name lookup, or "unknown". See reject_unknown_reverse_client_hostname for more details.

\$helo_name

The hostname given in HELO or EHLO command or empty string.

\$rbl_class

The blacklisted entity type: Client host, Helo command, Sender address, or Recipient address.

\$rbl_code

The numerical SMTP response code, as specified with the maps_rbl_reject_code configuration parameter. Note: The numerical SMTP response code is required, and must appear at the start of the reply. With Postfix version 2.3 and later this information may be followed by an RFC 3463 enhanced status code.

\$rbl_domain

The RBL domain where \$rbl_what is blacklisted.

\$rbl_reason

The reason why \$rbl_what is blacklisted, or an empty string.

\$rbl_what

The entity that is blacklisted (an IP address, a hostname, a domain name, or an email address whose domain was blacklisted).

\$recipient

The recipient address or <> in case of the null address.

\$recipient_domain

The recipient domain or empty string.

\$recipient_name

The recipient address localpart or <> in case of null address.

\$sender

The sender address or <> in case of the null address.

\$sender_domain

The sender domain or empty string.

\$sender_name

The sender address localpart or <> in case of the null address.

`${name?text}`

Expands to ‘text’ if \$name is not empty.

`${name:text}`

Expands to ‘text’ if \$name is empty.

Instead of \$name you can also specify `${name}` or `$(name)`.

Note: when an enhanced status code is specified in an RBL reply template, it is subject to modification. The following transformations are needed when the same RBL reply template is used for client, helo, sender, or recipient access restrictions.

- When rejecting a sender address, the Postfix SMTP server will transform a recipient DSN status (e.g., 4.1.1-4.1.6) into the corresponding sender DSN status, and vice versa.
- When rejecting non-address information (such as the HELO command argument or the client host-name/address), the Postfix SMTP server will transform a sender or recipient DSN status into a generic non-address DSN status (e.g., 4.0.0).

default_recipient_limit (default: 20000)

The default per-transport upper limit on the number of in-memory recipients. These limits take priority over the global `qmgr_message_recipient_limit` after the message has been assigned to the respective transports. See also `default_extra_recipient_limit` and `qmgr_message_recipient_minimum`.

Use `transport_recipient_limit` to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

default_recipient_refill_delay (default: 5s)

The default per-transport maximum delay between recipients refills. When not all message recipients fit into the memory at once, keep loading more of them at least once every this many seconds. This is used to make sure the recipients are refilled in timely manner even when `$default_recipient_refill_limit` is too high for too slow deliveries.

Use `transport_recipient_refill_delay` to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.4 and later.

default_recipient_refill_limit (default: 100)

The default per-transport limit on the number of recipients refilled at once. When not all message recipients fit into the memory at once, keep loading more of them in batches of at least this many at a time. See also `$default_recipient_refill_delay`, which may result in recipient batches lower than this when this limit is too high for too slow deliveries.

Use `transport_recipient_refill_limit` to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.4 and later.

default_transport (default: smtp)

The default mail delivery transport and next-hop destination for destinations that do not match `$mydestination`, `$inet_interfaces`, `$proxy_interfaces`, `$virtual_alias_domains`, `$virtual_mailbox_domains`, or `$relay_domains`. In order of decreasing precedence, the nexthop destination is taken from `$default_transport`, `$sender_dependent_relayhost_maps`, `$relayhost`, or from the recipient domain. This information can be overruled with the **transport(5)** table.

Specify a string of the form *transport:nexthop*, where *transport* is the name of a mail delivery transport defined in master.cf. The *:nexthop* part is optional. For more details see the **transport(5)** manual page.

Example:

```
default_transport = uucp:relayhostname
```


default_verp_delimiters (default: +=)

The two default VERP delimiter characters. These are used when no explicit delimiters are specified with the SMTP XVERP command or with the "**sendmail -V**" command-line option. Specify characters that are allowed by the `verp_delimiter_filter` setting.

This feature is available in Postfix 1.1 and later.

defer_code (default: 450)

The numerical Postfix SMTP server response code when a remote SMTP client request is rejected by the "defer" restriction.

Do not change this unless you have a complete understanding of RFC 2821.

defer_service_name (default: defer)

The name of the defer service. This service is implemented by the **bounce(8)** daemon and maintains a record of failed delivery attempts and generates non-delivery notifications.

This feature is available in Postfix 2.0 and later.

defer_transports (default: empty)

The names of message delivery transports that should not deliver mail unless someone issues "**sendmail -q**" or equivalent. Specify zero or more names of mail delivery transports names that appear in the first field of `master.cf`.

Example:

```
defer_transports = smtp
```

delay_logging_resolution_limit (default: 2)

The maximal number of digits after the decimal point when logging sub-second delay values. Specify a number in the range 0..6.

Large delay values are rounded off to an integral number seconds; delay values below the `delay_logging_resolution_limit` are logged as "0", and small delay values are logged with at most two-digit precision.

The format of the "delays=a/b/c/d" logging is as follows:

- a = time from message arrival to last active queue entry
- b = time from last active queue entry to connection setup
- c = time in connection setup, including DNS, EHLO and TLS
- d = time in message transmission

This feature is available in Postfix 2.3 and later.

delay_notice_recipient (default: postmaster)

The recipient of postmaster notifications with the message headers of mail that cannot be delivered within `$delay_warning_time` time units.

This feature is enabled with the `delay_warning_time` parameter.

delay_warning_time (default: 0h)

The time after which the sender receives the message headers of mail that is still queued.

To enable this feature, specify a non-zero time value (an integral value plus an optional one-letter suffix that specifies the time unit).

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is h (hours).

deliver_lock_attempts (default: 20)

The maximal number of attempts to acquire an exclusive lock on a mailbox file or **bounce(8)** logfile.

deliver_lock_delay (default: 1s)

The time between attempts to acquire an exclusive lock on a mailbox file or **bounce(8)** logfile.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

destination_concurrency_feedback_debug (default: no)

Make the queue manager's feedback algorithm verbose for performance analysis purposes.

This feature is available in Postfix 2.5 and later.

detect_8bit_encoding_header (default: yes)

Automatically detect 8BITMIME body content by looking at Content-Transfer-Encoding: message headers; historically, this behavior was hard-coded to be "always on".

This feature is available in Postfix 2.5 and later.

disable_dns_lookups (default: no)

Disable DNS lookups in the Postfix SMTP and LMTP clients. When disabled, hosts are looked up with the getaddrinfo() system library routine which normally also looks in /etc/hosts.

DNS lookups are enabled by default.

disable_mime_input_processing (default: no)

Turn off MIME processing while receiving mail. This means that no special treatment is given to Content-Type: message headers, and that all text after the initial message headers is considered to be part of the message body.

This feature is available in Postfix 2.0 and later.

Mime input processing is enabled by default, and is needed in order to recognize MIME headers in message content.

disable_mime_output_conversion (default: no)

Disable the conversion of 8BITMIME format to 7BIT format. Mime output conversion is needed when the destination does not advertise 8BITMIME support.

This feature is available in Postfix 2.0 and later.

disable_verp_bounces (default: no)

Disable sending one bounce report per recipient.

The default, one per recipient, is what ezmlm needs.

This feature is available in Postfix 1.1 and later.

disable_vrfy_command (default: no)

Disable the SMTP VRFY command. This stops some techniques used to harvest email addresses.

Example:

```
disable_vrfy_command = no
```

dont_remove (default: 0)

Don't remove queue files and save them to the "saved" mail queue. This is a debugging aid. To inspect the envelope information and content of a Postfix queue file, use the **postcat(1)** command.

double_bounce_sender (default: double-bounce)

The sender address of postmaster notifications that are generated by the mail system. All mail to this address is silently discarded, in order to terminate mail bounce loops.

duplicate_filter_limit (default: 1000)

The maximal number of addresses remembered by the address duplicate filter for **aliases(5)** or **virtual(5)** alias expansion, or for **showq(8)** queue displays.

empty_address_recipient (default: MAILER-DAEMON)

The recipient of mail addressed to the null address. Postfix does not accept such addresses in SMTP commands, but they may still be created locally as the result of configuration or software error.

empty_address_relayhost_maps_lookup_key (default: <>)

The sender_dependent_relayhost_maps search string that will be used instead of the null sender address.

This feature is available in Postfix 2.5 and later. With earlier versions, sender_dependent_relayhost_maps lookups were skipped for the null sender address.

enable_errors_to (default: no)

Report mail delivery errors to the address specified with the non-standard Errors-To: message header, instead of the envelope sender address (this feature is removed with Postfix version 2.2, is turned off by default with Postfix version 2.1, and is always turned on with older Postfix versions).

enable_original_recipient (default: yes)

Enable support for the X-Original-To message header. This header is needed for multi-recipient mailboxes.

When this parameter is set to yes, the **cleanup**(8) daemon performs duplicate elimination on distinct pairs of (original recipient, rewritten recipient), and generates non-empty original recipient queue file records.

When this parameter is set to no, the **cleanup**(8) daemon performs duplicate elimination on the rewritten recipient address only, and generates empty original recipient queue file records.

This feature is available in Postfix 2.1 and later. With Postfix version 2.0, support for the X-Original-To message header is always turned on. Postfix versions before 2.0 have no support for the X-Original-To message header.

error_notice_recipient (default: postmaster)

The recipient of postmaster notifications about mail delivery problems that are caused by policy, resource, software or protocol errors. These notifications are enabled with the `notify_classes` parameter.

error_service_name (default: error)

The name of the **error**(8) pseudo delivery agent. This service always returns mail as undeliverable.

This feature is available in Postfix 2.0 and later.

execution_directory_expansion_filter (default: see `postconf -d` output)

Restrict the characters that the **local**(8) delivery agent allows in \$name expansions of \$command_execution_directory. Characters outside the allowed set are replaced by underscores.

This feature is available in Postfix 2.2 and later.

expand_owner_alias (default: no)

When delivering to an alias "aliasname" that has an "owner-aliasname" companion alias, set the envelope sender address to the expansion of the "owner-aliasname" alias. Normally, Postfix sets the envelope sender address to the name of the "owner-aliasname" alias.

export_environment (default: see `postconf -d` output)

The list of environment variables that a Postfix process will export to non-Postfix processes. The TZ variable is needed for sane time keeping on System-V-ish systems.

Specify a list of names and/or name=value pairs, separated by whitespace or comma. The name=value form is supported with Postfix version 2.1 and later.

Example:

```
export_environment = TZ PATH=/bin:/usr/bin
```

extract_recipient_limit (default: 10240)

The maximal number of recipient addresses that Postfix will extract from message headers when mail is submitted with "**sendmail -t**".

This feature was removed in Postfix version 2.1.

fallback_relay (default: empty)

Optional list of relay hosts for SMTP destinations that can't be found or that are unreachable. With Postfix 2.3 this parameter is renamed to `smtp_fallback_relay`.

By default, mail is returned to the sender when a destination is not found, and delivery is deferred when a destination is unreachable.

The fallback relays must be SMTP destinations. Specify a domain, host, host:port, [host]:port, [address] or [address]:port; the form [host] turns off MX lookups. If you specify multiple SMTP destinations, Postfix will try them in the specified order.

Note: before Postfix 2.2, do not use the `fallback_relay` feature when relaying mail for a backup or primary MX domain. Mail would loop between the Postfix MX host and the `fallback_relay` host when the final destination is unavailable.

- In `main.cf` specify `"relay_transport = relay"`,
- In `master.cf` specify `"-o fallback_relay ="` (i.e., empty) at the end of the relay entry.
- In transport maps, specify `"relay:nexthop..."` as the right-hand side for backup or primary MX domain entries.

Postfix version 2.2 and later will not use the `fallback_relay` feature for destinations that it is MX host for.

fallback_transport (default: empty)

Optional message delivery transport that the **local(8)** delivery agent should use for names that are not found in the **aliases(5)** or UNIX password database.

The precedence of **local(8)** delivery features from high to low is: `aliases`, `.forward` files, `mailbox_transport_maps`, `mailbox_transport`, `mailbox_command_maps`, `mailbox_command`, `home_mailbox`, `mail_spool_directory`, `fallback_transport_maps`, `fallback_transport` and `luser_relay`.

fallback_transport_maps (default: empty)

Optional lookup tables with per-recipient message delivery transports for recipients that the **local(8)** delivery agent could not find in the **aliases(5)** or UNIX password database.

The precedence of **local(8)** delivery features from high to low is: `aliases`, `.forward` files, `mailbox_transport_maps`, `mailbox_transport`, `mailbox_command_maps`, `mailbox_command`, `home_mailbox`, `mail_spool_directory`, `fallback_transport_maps`, `fallback_transport` and `luser_relay`.

For safety reasons, this feature does not allow `$number` substitutions in regular expression maps.

This feature is available in Postfix 2.3 and later.

fast_flush_domains (default: \$relay_domains)

Optional list of destinations that are eligible for per-destination logfiles with mail that is queued to those destinations.

By default, Postfix maintains "fast flush" logfiles only for destinations that the Postfix SMTP server is willing to relay to (i.e. the default is: `"fast_flush_domains = $relay_domains"`; see the `relay_domains` parameter in the **postconf(5)** manual).

Specify a list of hosts or domains, `"/file/name"` patterns or `"type:table"` lookup tables, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. A `"/file/name"` pattern is replaced by its contents; a `"type:table"` lookup table is matched when the domain or its parent domain appears as lookup key.

Specify `"fast_flush_domains ="` (i.e., empty) to disable the feature altogether.

fast_flush_purge_time (default: 7d)

The time after which an empty per-destination "fast flush" logfile is deleted.

You can specify the time as a number, or as a number followed by a letter that indicates the time unit: `s=seconds`, `m=minutes`, `h=hours`, `d=days`, `w=weeks`. The default time unit is days.

fast_flush_refresh_time (default: 12h)

The time after which a non-empty but unread per-destination "fast flush" logfile needs to be refreshed. The contents of a logfile are refreshed by requesting delivery of all messages listed in the logfile.

You can specify the time as a number, or as a number followed by a letter that indicates the time unit: `s=seconds`, `m=minutes`, `h=hours`, `d=days`, `w=weeks`. The default time unit is hours.

fault_injection_code (default: 0)

Force specific internal tests to fail, to test the handling of errors that are difficult to reproduce otherwise.

flush_service_name (default: flush)

The name of the **flush**(8) service. This service maintains per-destination logfiles with the queue file names of mail that is queued for those destinations.

This feature is available in Postfix 2.0 and later.

fork_attempts (default: 5)

The maximal number of attempts to fork() a child process.

fork_delay (default: 1s)

The delay between attempts to fork() a child process.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

forward_expansion_filter (default: see postconf -d output)

Restrict the characters that the **local**(8) delivery agent allows in \$name expansions of \$forward_path. Characters outside the allowed set are replaced by underscores.

forward_path (default: see postconf -d output)

The **local**(8) delivery agent search list for finding a .forward file with user-specified delivery methods. The first file that is found is used.

The following \$name expansions are done on forward_path before the search actually happens. The result of \$name expansion is filtered with the character set that is specified with the forward_expansion_filter parameter.

\$user The recipient's username.

\$shell The recipient's login shell pathname.

\$home The recipient's home directory.

\$recipient

The full recipient address.

\$extension

The optional recipient address extension.

\$domain

The recipient domain.

\$local The entire recipient localpart.

\$recipient_delimiter

The system-wide recipient address extension delimiter.

\${name?value}

Expands to *value* when *\$name* is non-empty.

\${name:value}

Expands to *value* when *\$name* is empty.

Instead of \$name you can also specify \${name} or \$(name).

Examples:

```
forward_path = /var/forward/$user
forward_path =
    /var/forward/$user/.forward$recipient_delimiter$extension,
    /var/forward/$user/.forward
```

frozen_delivered_to (default: yes)

Update the **local**(8) delivery agent's idea of the Delivered-To: address (see prepend_delivered_header) only once, at the start of a delivery attempt; do not update the Delivered-To: address while expanding aliases or .forward files.

This feature is available in Postfix 2.3 and later. With older Postfix releases, the behavior is as if this parameter is set to "no". The old setting can be expensive with deeply nested aliases or .forward files. When an

alias or .forward file changes the Delivered-To: address, it ties up one queue file and one cleanup process instance while mail is being forwarded.

hash_queue_depth (default: 1)

The number of subdirectory levels for queue directories listed with the hash_queue_names parameter.

After changing the hash_queue_names or hash_queue_depth parameter, execute the command **"postfix reload"**.

hash_queue_names (default: deferred, defer)

The names of queue directories that are split across multiple subdirectory levels.

Before Postfix version 2.2, the default list of hashed queues was significantly larger. Claims about improvements in file system technology suggest that hashing of the incoming and active queues is no longer needed. Fewer hashed directories speed up the time needed to restart Postfix.

After changing the hash_queue_names or hash_queue_depth parameter, execute the command **"postfix reload"**.

header_address_token_limit (default: 10240)

The maximal number of address tokens are allowed in an address message header. Information that exceeds the limit is discarded. The limit is enforced by the **cleanup(8)** server.

header_checks (default: empty)

Optional lookup tables for content inspection of primary non-MIME message headers, as specified in the **header_checks(5)** manual page.

header_size_limit (default: 102400)

The maximal amount of memory in bytes for storing a message header. If a header is larger, the excess is discarded. The limit is enforced by the **cleanup(8)** server.

helpful_warnings (default: yes)

Log warnings about problematic configuration settings, and provide helpful suggestions.

This feature is available in Postfix 2.0 and later.

home_mailbox (default: empty)

Optional pathname of a mailbox file relative to a **local(8)** user's home directory.

Specify a pathname ending in "/" for qmail-style delivery.

The precedence of **local(8)** delivery features from high to low is: aliases, .forward files, mailbox_transport_maps, mailbox_transport, mailbox_command_maps, mailbox_command, home_mailbox, mail_spool_directory, fallback_transport_maps, fallback_transport and luser_relay.

Examples:

```
home_mailbox = Mailbox
home_mailbox = Maildir/
```

hopcount_limit (default: 50)

The maximal number of Received: message headers that is allowed in the primary message headers. A message that exceeds the limit is bounced, in order to stop a mailer loop.

html_directory (default: see postconf -d output)

The location of Postfix HTML files that describe how to build, configure or operate a specific Postfix sub-system or feature.

ignore_mx_lookup_error (default: no)

Ignore DNS MX lookups that produce no response. By default, the Postfix SMTP client defers delivery and tries again after some delay. This behavior is required by the SMTP standard.

Specify "ignore_mx_lookup_error = yes" to force a DNS A record lookup instead. This violates the SMTP standard and can result in mis-delivery of mail.

import_environment (default: see postconf -d output)

The list of environment parameters that a Postfix process will import from a non-Postfix parent process. Examples of relevant parameters:

TZ Needed for sane time keeping on most System-V-ish systems.

DISPLAY

Needed for debugging Postfix daemons with an X-windows debugger.

XAUTHORITY

Needed for debugging Postfix daemons with an X-windows debugger.

MAIL_CONFIG

Needed to make "**postfix -c**" work.

Specify a list of names and/or name=value pairs, separated by whitespace or comma. The name=value form is supported with Postfix version 2.1 and later.

in_flow_delay (default: 1s)

Time to pause before accepting a new message, when the message arrival rate exceeds the message delivery rate. This feature is turned on by default (it's disabled on SCO UNIX due to an SCO bug).

With the default 100 SMTP server process limit, "in_flow_delay = 1s" limits the mail inflow to 100 messages per second above the number of messages delivered per second.

Specify 0 to disable the feature. Valid delays are 0..10.

inet_interfaces (default: all)

The network interface addresses that this mail system receives mail on. Specify "all" to receive mail on all network interfaces (default), and "loopback-only" to receive mail on loopback network interfaces only (Postfix version 2.2 and later). The parameter also controls delivery of mail to user@[ip.address].

Note 1: you need to stop and start Postfix when this parameter changes.

Note 2: address information may be enclosed inside [], but this form is not required here.

When inet_interfaces specifies just one IPv4 and/or IPv6 address that is not a loopback address, the Postfix SMTP client will use this address as the IP source address for outbound mail. Support for IPv6 is available in Postfix version 2.2 and later.

On a multi-homed firewall with separate Postfix instances listening on the "inside" and "outside" interfaces, this can prevent each instance from being able to reach servers on the "other side" of the firewall. Setting smtp_bind_address to 0.0.0.0 avoids the potential problem for IPv4, and setting smtp_bind_address6 to :: solves the problem for IPv6.

A better solution for multi-homed firewalls is to leave inet_interfaces at the default value and instead use explicit IP addresses in the master.cf SMTP server definitions. This preserves the Postfix SMTP client's loop detection, by ensuring that each side of the firewall knows that the other IP address is still the same host. Setting \$inet_interfaces to a single IPv4 and/or IPV6 address is primarily useful with virtual hosting of domains on secondary IP addresses, when each IP address serves a different domain (and has a different \$myhostname setting).

See also the proxy_interfaces parameter, for network addresses that are forwarded to Postfix by way of a proxy or address translator.

Examples:

```
inet_interfaces = all (DEFAULT)
inet_interfaces = loopback-only (Postfix version 2.2 and later)
inet_interfaces = 127.0.0.1
inet_interfaces = 127.0.0.1, [::1] (Postfix version 2.2 and later)
inet_interfaces = 192.168.1.2, 127.0.0.1
```

inet_protocols (default: all)

The Internet protocols Postfix will attempt to use when making or accepting connections. Specify one or more of "ipv4" or "ipv6", separated by whitespace or commas. The form "all" is equivalent to "ipv4, ipv6" or "ipv4", depending on whether the operating system implements IPv6.

This feature is available in Postfix 2.2 and later.

Note: you **MUST** stop and start Postfix after changing this parameter.

On systems that pre-date IPV6_V6ONLY support (RFC 3493), an IPv6 server will also accept IPv4 connections, even when IPv4 is turned off with the `inet_protocols` parameter. On systems with IPV6_V6ONLY support, Postfix will use separate server sockets for IPv6 and IPv4, and each will accept only connections for the corresponding protocol.

When IPv4 support is enabled via the `inet_protocols` parameter, Postfix will do DNS type A record lookups, and will convert IPv4-in-IPv6 client IP addresses (::ffff:1.2.3.4) to their original IPv4 form (1.2.3.4). The latter is needed on hosts that pre-date IPV6_V6ONLY support (RFC 3493).

When IPv6 support is enabled via the `inet_protocols` parameter, Postfix will do DNS type AAAA record lookups.

When both IPv4 and IPv6 support are enabled, the Postfix SMTP client will attempt to connect via IPv6 before attempting to use IPv4.

Examples:

```
inet_protocols = ipv4
inet_protocols = all (DEFAULT)
inet_protocols = ipv6
inet_protocols = ipv4, ipv6
```

initial_destination_concurrency (default: 5)

The initial per-destination concurrency level for parallel delivery to the same destination. With per-destination recipient limit > 1, a destination is a domain, otherwise it is a recipient.

Use `transport_initial_destination_concurrency` to specify a transport-specific override, where *transport* is the master.cf name of the message delivery transport (Postfix 2.5 and later).

Warning: with concurrency of 1, one bad message can be enough to block all mail to a site.

internal_mail_filter_classes (default: empty)

What categories of Postfix-generated mail are subject to before-queue content inspection by `non_smtpd_milters`, `header_checks` and `body_checks`. Specify zero or more of the following, separated by whitespace or comma.

bounce Inspect the content of delivery status notifications.

notify Inspect the content of postmaster notifications by the `smtp(8)` and `smtpd(8)` processes.

NOTE: It's generally not safe to enable content inspection of Postfix-generated email messages. The user is warned.

This feature is available in Postfix 2.3 and later.

invalid_hostname_reject_code (default: 501)

The numerical Postfix SMTP server response code when the client HELO or EHLO command parameter is rejected by the `reject_invalid_helo_hostname` restriction.

Do not change this unless you have a complete understanding of RFC 2821.

ipc_idle (default: version dependent)

The time after which a client closes an idle internal communication channel. The purpose is to allow servers to terminate voluntarily after they become idle. This is used, for example, by the address resolving and rewriting clients.

With Postfix 2.4 the default value was reduced from 100s to 5s.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

ipc_timeout (default: 3600s)

The time limit for sending or receiving information over an internal communication channel. The purpose is to break out of deadlock situations. If the time limit is exceeded the software aborts with a fatal error.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

ipc_ttl (default: 1000s)

The time after which a client closes an active internal communication channel. The purpose is to allow servers to terminate voluntarily after reaching their client limit. This is used, for example, by the address resolving and rewriting clients.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.1 and later.

line_length_limit (default: 2048)

Upon input, long lines are chopped up into pieces of at most this length; upon delivery, long lines are reconstructed.

lmtp_assume_final (default: no)

When an LMTP server announces no DSN support, assume that the server performs final delivery, and send "delivered" delivery status notifications instead of "relayed". The default setting is backwards compatible to avoid the infinitesimal possibility of breaking existing LMTP-based content filters.

lmtp_bind_address (default: empty)

The LMTP-specific version of the smtp_bind_address configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_bind_address6 (default: empty)

The LMTP-specific version of the smtp_bind_address6 configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_cache_connection (default: yes)

Keep Postfix LMTP client connections open for up to \$max_idle seconds. When the LMTP client receives a request for the same connection the connection is reused.

This parameter is available in Postfix version 2.2 and earlier. With Postfix version 2.3 and later, see `lmtp_connection_cache_on_demand`, `lmtp_connection_cache_destinations`, or `lmtp_connection_reuse_time_limit`.

The effectiveness of cached connections will be determined by the number of LMTP servers in use, and the concurrency limit specified for the LMTP client. Cached connections are closed under any of the following conditions:

- The LMTP client idle time limit is reached. This limit is specified with the Postfix `max_idle` configuration parameter.
- A delivery request specifies a different destination than the one currently cached.
- The per-process limit on the number of delivery requests is reached. This limit is specified with the Postfix `max_use` configuration parameter.
- Upon the onset of another delivery request, the LMTP server associated with the current session does not respond to the RSET command.

Most of these limitations will be removed after Postfix implements a connection cache that is shared among multiple LMTP client programs.

lmtp_cname_overrides_servername (default: yes)

The LMTP-specific version of the smtp_cname_overrides_servername configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_connect_timeout (default: 0s)

The LMTP client time limit for completing a TCP connection, or zero (use the operating system built-in time limit). When no connection can be made within the deadline, the LMTP client tries the next address on the mail exchanger list.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

Example:

```
lmtp_connect_timeout = 30s
```

lmtp_connection_cache_destinations (default: empty)

The LMTP-specific version of the smtp_connection_cache_destinations configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_connection_cache_on_demand (default: yes)

The LMTP-specific version of the smtp_connection_cache_on_demand configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_connection_cache_time_limit (default: 2s)

The LMTP-specific version of the smtp_connection_cache_time_limit configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_connection_reuse_time_limit (default: 300s)

The LMTP-specific version of the smtp_connection_reuse_time_limit configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_data_done_timeout (default: 600s)

The LMTP client time limit for sending the LMTP ".", and for receiving the server response. When no response is received within the deadline, a warning is logged that the mail may be delivered multiple times.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_data_init_timeout (default: 120s)

The LMTP client time limit for sending the LMTP DATA command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_data_xfer_timeout (default: 180s)

The LMTP client time limit for sending the LMTP message content. When the connection stalls for more than \$lmtp_data_xfer_timeout the LMTP client terminates the transfer.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_defer_if_no_mx_address_found (default: no)

The LMTP-specific version of the smtp_defer_if_no_mx_address_found configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_destination_concurrency_limit (default: \$default_destination_concurrency_limit)

The maximal number of parallel deliveries to the same destination via the lmtp message delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

lmtp_destination_recipient_limit (default: \$default_destination_recipient_limit)

The maximal number of recipients per message for the lmtp message delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

Setting this parameter to a value of 1 changes the meaning of `lmtp_destination_concurrency_limit` from concurrency per domain into concurrency per recipient.

lmtp_discard_lhlo_keyword_address_maps (default: empty)

Lookup tables, indexed by the remote LMTP server address, with case insensitive lists of LHLO keywords (pipelining, starttls, auth, etc.) that the LMTP client will ignore in the LHLO response from a remote LMTP server. See `lmtp_discard_lhlo_keywords` for details. The table is not indexed by hostname for consistency with `smtpd_discard_ehlo_keyword_address_maps`.

This feature is available in Postfix 2.3 and later.

lmtp_discard_lhlo_keywords (default: empty)

A case insensitive list of LHLO keywords (pipelining, starttls, auth, etc.) that the LMTP client will ignore in the LHLO response from a remote LMTP server.

This feature is available in Postfix 2.3 and later.

Notes:

- Specify the **silent-discard** pseudo keyword to prevent this action from being logged.
- Use the `lmtp_discard_lhlo_keyword_address_maps` feature to discard LHLO keywords selectively.

lmtp_enforce_tls (default: no)

The LMTP-specific version of the `smtp_enforce_tls` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_generic_maps (default: empty)

The LMTP-specific version of the `smtp_generic_maps` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_host_lookup (default: dns)

The LMTP-specific version of the `smtp_host_lookup` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_lhlo_name (default: \$myhostname)

The hostname to send in the LMTP LHLO command.

The default value is the machine hostname. Specify a hostname or [ip.add.re.ss].

This information can be specified in the `main.cf` file for all LMTP clients, or it can be specified in the `master.cf` file for a specific client, for example:

```
/etc/postfix/master.cf:
    mylmtp ... lmtp -o lmtp_lhlo_name=foo.bar.com
```

This feature is available in Postfix 2.3 and later.

lmtp_lhlo_timeout (default: 300s)

The LMTP client time limit for sending the LHLO command, and for receiving the initial server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_line_length_limit (default: 990)

The LMTP-specific version of the `smtp_line_length_limit` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_mail_timeout (default: 300s)

The LMTP client time limit for sending the MAIL FROM command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_mx_address_limit (default: 5)

The LMTP-specific version of the `smtp_mx_address_limit` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_mx_session_limit (default: 2)

The LMTP-specific version of the `smtp_mx_session_limit` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_pix_workaround_delay_time (default: 10s)

The LMTP-specific version of the `smtp_pix_workaround_delay_time` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_pix_workaround_maps (default: empty)

The LMTP-specific version of the `smtp_pix_workaround_maps` configuration parameter. See there for details.

This feature is available in Postfix 2.4 and later.

lmtp_pix_workaround_threshold_time (default: 500s)

The LMTP-specific version of the `smtp_pix_workaround_threshold_time` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_pix_workarounds (default: empty)

The LMTP-specific version of the `smtp_pix_workaround` configuration parameter. See there for details.

This feature is available in Postfix 2.4 and later.

lmtp_quit_timeout (default: 300s)

The LMTP client time limit for sending the QUIT command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_quote_rfc821_envelope (default: yes)

The LMTP-specific version of the `smtp_quote_rfc821_envelope` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_randomize_addresses (default: yes)

The LMTP-specific version of the `smtp_randomize_addresses` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_rcpt_timeout (default: 300s)

The LMTP client time limit for sending the RCPT TO command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_rset_timeout (default: 20s)

The LMTP client time limit for sending the RSET command, and for receiving the server response. The LMTP client sends RSET in order to finish a recipient address probe, or to verify that a cached connection is still alive.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

lmtp_sasl_auth_cache_name (default: empty)

The LMTP-specific version of the `smtp_sasl_auth_cache_name` configuration parameter. See there for details.

This feature is available in Postfix 2.5 and later.

lmtp_sasl_auth_cache_time (default: 90d)

The LMTP-specific version of the `smtp_sasl_auth_cache_time` configuration parameter. See there for details.

This feature is available in Postfix 2.5 and later.

lmtp_sasl_auth_enable (default: no)

Enable SASL authentication in the Postfix LMTP client.

lmtp_sasl_auth_soft_bounce (default: yes)

The LMTP-specific version of the `smtp_sasl_auth_soft_bounce` configuration parameter. See there for details.

This feature is available in Postfix 2.5 and later.

lmtp_sasl_mechanism_filter (default: empty)

The LMTP-specific version of the `smtp_sasl_mechanism_filter` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_sasl_password_maps (default: empty)

Optional LMTP client lookup tables with one `username:password` entry per host or domain. If a remote host or domain has no `username:password` entry, then the Postfix LMTP client will not attempt to authenticate to the remote host.

lmtp_sasl_path (default: empty)

Implementation-specific information that is passed through to the SASL plug-in implementation that is selected with **lmtp_sasl_type**. Typically this specifies the name of a configuration file or rendezvous point.

This feature is available in Postfix 2.3 and later.

lmtp_sasl_security_options (default: noplaintext, noanonymous)

SASL security options; as of Postfix 2.3 the list of available features depends on the SASL client implementation that is selected with **lmtp_sasl_type**.

The following security features are defined for the **cyrus** client SASL implementation:

noplaintext

Disallow authentication methods that use plaintext passwords.

noactive

Disallow authentication methods that are vulnerable to non-dictionary active attacks.

nodictionary

Disallow authentication methods that are vulnerable to passive dictionary attack.

noanonymous

Disallow anonymous logins.

Example:

```
lmtp_sasl_security_options = noplaintext
```

lmtp_sasl_tls_security_options (default: \$lmtp_sasl_security_options)

The LMTP-specific version of the `smtp_sasl_tls_security_options` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_sasl_tls_verified_security_options (default: \$lmtp_sasl_tls_security_options)

The LMTP-specific version of the `smtp_sasl_tls_verified_security_options` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_sasl_type (default: cyrus)

The SASL plug-in type that the Postfix LMTP client should use for authentication. The available types are listed with the "**postconf -A**" command.

This feature is available in Postfix 2.3 and later.

lmtp_send_xforward_command (default: no)

Send an XFORWARD command to the LMTP server when the LMTP LHLO server response announces XFORWARD support. This allows an **lmtp(8)** delivery agent, used for content filter message injection, to forward the name, address, protocol and HELO name of the original client to the content filter and downstream queuing LMTP server. Before you change the value to yes, it is best to make sure that your content filter supports this command.

This feature is available in Postfix 2.1 and later.

lmtp_sender_dependent_authentication (default: no)

The LMTP-specific version of the `smtp_sender_dependent_authentication` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_skip_5xx_greeting (default: yes)

The LMTP-specific version of the `smtp_skip_5xx_greeting` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_skip_quit_response (default: no)

Wait for the response to the LMTP QUIT command.

lmtp_starttls_timeout (default: 300s)

The LMTP-specific version of the `smtp_starttls_timeout` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tcp_port (default: 24)

The default TCP port that the Postfix LMTP client connects to.

lmtp_tls_CAfile (default: empty)

The LMTP-specific version of the `smtp_tls_CAfile` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_CApith (default: empty)

The LMTP-specific version of the `smtp_tls_CApith` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_cert_file (default: empty)

The LMTP-specific version of the `smtp_tls_cert_file` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_ciphers (default: export)

The LMTP-specific version of the `smtp_tls_ciphers` configuration parameter. See there for details.

This feature is available in Postfix 2.6 and later.

lmtp_tls_dcert_file (default: empty)

The LMTP-specific version of the `smtp_tls_dcert_file` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_dkey_file (default: \$lmtp_tls_dcert_file)

The LMTP-specific version of the `smtp_tls_dkey_file` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_eccert_file (default: empty)

The LMTP-specific version of the `smtp_tls_eccert_file` configuration parameter. See there for details.

This feature is available in Postfix 2.6 and later, when Postfix is compiled and linked with OpenSSL 0.9.9 or later.

lmtp_tls_eckey_file (default: empty)

The LMTP-specific version of the smtp_tls_eckey_file configuration parameter. See there for details.

This feature is available in Postfix 2.6 and later, when Postfix is compiled and linked with OpenSSL 0.9.9 or later.

lmtp_tls_enforce_peername (default: yes)

The LMTP-specific version of the smtp_tls_enforce_peername configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_exclude_ciphers (default: empty)

The LMTP-specific version of the smtp_tls_exclude_ciphers configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_fingerprint_cert_match (default: empty)

The LMTP-specific version of the smtp_tls_fingerprint_cert_match configuration parameter. See there for details.

This feature is available in Postfix 2.5 and later.

lmtp_tls_fingerprint_digest (default: md5)

The LMTP-specific version of the smtp_tls_fingerprint_digest configuration parameter. See there for details.

This feature is available in Postfix 2.5 and later.

lmtp_tls_key_file (default: \$lmtp_tls_cert_file)

The LMTP-specific version of the smtp_tls_key_file configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_loglevel (default: 0)

The LMTP-specific version of the smtp_tls_loglevel configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_mandatory_ciphers (default: empty)

The LMTP-specific version of the smtp_tls_mandatory_ciphers configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_mandatory_exclude_ciphers (default: empty)

The LMTP-specific version of the smtp_tls_mandatory_exclude_ciphers configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_mandatory_protocols (default: SSLv3, TLSv1)

The LMTP-specific version of the smtp_tls_mandatory_protocols configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_note_starttls_offer (default: no)

The LMTP-specific version of the smtp_tls_note_starttls_offer configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_per_site (default: empty)

The LMTP-specific version of the smtp_tls_per_site configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_policy_maps (default: empty)

The LMTP-specific version of the `smtp_tls_policy_maps` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_protocols (default: empty)

The LMTP-specific version of the `smtp_tls_protocols` configuration parameter. See there for details.

This feature is available in Postfix 2.6 and later.

lmtp_tls_scert_verifydepth (default: 9)

The LMTP-specific version of the `smtp_tls_scert_verifydepth` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_secure_cert_match (default: nexthop)

The LMTP-specific version of the `smtp_tls_secure_cert_match` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_security_level (default: empty)

The LMTP-specific version of the `smtp_tls_security_level` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_session_cache_database (default: empty)

The LMTP-specific version of the `smtp_tls_session_cache_database` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_session_cache_timeout (default: 3600s)

The LMTP-specific version of the `smtp_tls_session_cache_timeout` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_tls_verify_cert_match (default: hostname)

The LMTP-specific version of the `smtp_tls_verify_cert_match` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_use_tls (default: no)

The LMTP-specific version of the `smtp_use_tls` configuration parameter. See there for details.

This feature is available in Postfix 2.3 and later.

lmtp_xforward_timeout (default: 300s)

The LMTP client time limit for sending the XFORWARD command, and for receiving the server response.

In case of problems the client does NOT try the next address on the mail exchanger list.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.1 and later.

local_command_shell (default: empty)

Optional shell program for `local(8)` delivery to non-Postfix command. By default, non-Postfix commands are executed directly; commands are given to `/bin/sh` only when they contain shell meta characters or shell built-in commands.

"sendmail's restricted shell" (`smrsh`) is what most people will use in order to restrict what programs can be run from e.g. `.forward` files (`smrsh` is part of the Sendmail distribution).

Note: when a shell program is specified, it is invoked even when the command contains no shell built-in commands or meta characters.

Example:

```
local_command_shell = /some/where/smrsh -c
```

local_destination_concurrency_limit (default: 2)

The maximal number of parallel deliveries via the local mail delivery transport to the same recipient (when "local_destination_recipient_limit = 1") or the maximal number of parallel deliveries to the same local domain (when "local_destination_recipient_limit > 1"). This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

A low limit of 2 is recommended, just in case someone has an expensive shell command in a .forward file or in an alias (e.g., a mailing list manager). You don't want to run lots of those at the same time.

local_destination_recipient_limit (default: 1)

The maximal number of recipients per message delivery via the local mail delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

Setting this parameter to a value > 1 changes the meaning of local_destination_concurrency_limit from concurrency per recipient into concurrency per domain.

local_header_rewrite_clients (default: permit_inet_interfaces)

Rewrite message header addresses in mail from these clients and update incomplete addresses with the domain name in \$myorigin or \$mydomain; either don't rewrite message headers from other clients at all, or rewrite message headers and update incomplete addresses with the domain specified in the remote_header_rewrite_domain parameter.

See the append_at_myorigin and append_dot_mydomain parameters for details of how domain names are appended to incomplete addresses.

Specify a list of zero or more of the following:

permit_inet_interfaces

Append the domain name in \$myorigin or \$mydomain when the client IP address matches \$inet_interfaces. This is enabled by default.

permit_mynetworks

Append the domain name in \$myorigin or \$mydomain when the client IP address matches any network or network address listed in \$mynetworks. This setting will not prevent remote mail header address rewriting when mail from a remote client is forwarded by a neighboring system.

permit_sasl_authenticated

Append the domain name in \$myorigin or \$mydomain when the client is successfully authenticated via the RFC 4954 (AUTH) protocol.

permit_tls_clientcerts

Append the domain name in \$myorigin or \$mydomain when the client TLS certificate fingerprint is listed in \$relay_clientcerts. The fingerprint digest algorithm is configurable via the smtpd_tls_fingerprint_digest parameter (hard-coded as md5 prior to Postfix version 2.5).

permit_tls_all_clientcerts

Append the domain name in \$myorigin or \$mydomain when the client TLS certificate is successfully verified, regardless of whether it is listed on the server, and regardless of the certifying authority.

check_address_map *type:table*

type:table

Append the domain name in \$myorigin or \$mydomain when the client IP address matches the specified lookup table. The lookup result is ignored, and no subnet lookup is done. This is suitable for, e.g., pop-before-smtp lookup tables.

Examples:

The Postfix < 2.2 backwards compatible setting: always rewrite message headers, and always append my

own domain to incomplete header addresses.

```
local_header_rewrite_clients = static:all
```

The purist (and default) setting: rewrite headers only in mail from Postfix sendmail and in SMTP mail from this machine.

```
local_header_rewrite_clients = permit_inet_interfaces
```

The intermediate setting: rewrite header addresses and append \$myorigin or \$mydomain information only with mail from Postfix sendmail, from local clients, or from authorized SMTP clients.

Note: this setting will not prevent remote mail header address rewriting when mail from a remote client is forwarded by a neighboring system.

```
local_header_rewrite_clients = permit_mynetworks,
    permit_sasl_authenticated permit_tls_clientcerts
    check_address_map hash:/etc/postfix/pop-before-smtp
```

local_recipient_maps (default: proxy:unix:passwd.byname \$alias_maps)

Lookup tables with all names or addresses of local recipients: a recipient address is local when its domain matches \$mydestination, \$inet_interfaces or \$proxy_interfaces. Specify @domain as a wild-card for domains that do not have a valid recipient list. Technically, tables listed with \$local_recipient_maps are used as lists: Postfix needs to know only if a lookup string is found or not, but it does not use the result from table lookup.

If this parameter is non-empty (the default), then the Postfix SMTP server will reject mail for unknown local users.

To turn off local recipient checking in the Postfix SMTP server, specify "local_recipient_maps =" (i.e. empty).

The default setting assumes that you use the default Postfix local delivery agent for local delivery. You need to update the local_recipient_maps setting if:

- You redefine the local delivery agent in master.cf.
- You redefine the "local_transport" setting in main.cf.
- You use the "luser_relay", "mailbox_transport", or "fallback_transport" feature of the Postfix **local(8)** delivery agent.

Details are described in the LOCAL_RECIPIENT_README file.

Beware: if the Postfix SMTP server runs chrooted, you need to access the passwd file via the **proxymap(8)** service, in order to overcome chroot access restrictions. The alternative, maintaining a copy of the system password file in the chroot jail is not practical.

Examples:

```
local_recipient_maps =
```

local_transport (default: local:\$myhostname)

The default mail delivery transport and next-hop destination for final delivery to domains listed with mydestination, and for [ipaddress] destinations that match \$inet_interfaces or \$proxy_interfaces. This information can be overruled with the **transport(5)** table.

By default, local mail is delivered to the transport called "local", which is just the name of a service that is defined in the master.cf file.

Specify a string of the form *transport:nexthop*, where *transport* is the name of a mail delivery transport defined in master.cf. The *:nexthop* part is optional. For more details see the **transport(5)** manual page.

Beware: if you override the default local delivery agent then you need to review the LOCAL_RECIPIENT_README document, otherwise the SMTP server may reject mail for local recipients.

luser_relay (default: empty)

Optional catch-all destination for unknown **local**(8) recipients. By default, mail for unknown recipients in domains that match \$mydestination, \$inet_interfaces or \$proxy_interfaces is returned as undeliverable.

The following \$name expansions are done on luser_relay:

\$domain

The recipient domain.

\$extension

The recipient address extension.

\$home The recipient's home directory.

\$local The entire recipient address localpart.

\$recipient

The full recipient address.

\$recipient_delimiter

The system-wide recipient address extension delimiter.

\$shell The recipient's login shell.

\$user The recipient username.

\${name?value}

Expands to *value* when *\$name* has a non-empty value.

\${name:value}

Expands to *value* when *\$name* has an empty value.

Instead of \$name you can also specify \${name} or \$(name).

Note: luser_relay works only for the Postfix **local**(8) delivery agent.

Note: if you use this feature for accounts not in the UNIX password file, then you must specify "local_recipient_maps =" (i.e. empty) in the main.cf file, otherwise the Postfix SMTP server will reject mail for non-UNIX accounts with "User unknown in local recipient table".

Examples:

```
luser_relay = $user@other.host
luser_relay = $local@other.host
luser_relay = admin+$local
```

mail_name (default: Postfix)

The mail system name that is displayed in Received: headers, in the SMTP greeting banner, and in bounced mail.

mail_owner (default: postfix)

The UNIX system account that owns the Postfix queue and most Postfix daemon processes. Specify the name of a user account that does not share a group with other accounts and that owns no other files or processes on the system. In particular, don't specify nobody or daemon. PLEASE USE A DEDICATED USER ID AND GROUP ID.

When this parameter value is changed you need to re-run "**postfix set-permissions**" (with Postfix version 2.0 and earlier: "**/etc/postfix/post-install set-permissions**").

mail_release_date (default: see postconf -d output)

The Postfix release date, in "YYYYMMDD" format.

mail_spool_directory (default: see postconf -d output)

The directory where **local**(8) UNIX-style mailboxes are kept. The default setting depends on the system type. Specify a name ending in / for maildir-style delivery.

Note: maildir delivery is done with the privileges of the recipient. If you use the mail_spool_directory setting for maildir style delivery, then you must create the top-level maildir directory in advance. Postfix will

not create it.

Examples:

```
mail_spool_directory = /var/mail
mail_spool_directory = /var/spool/mail
```

mail_version (default: see postconf -d output)

The version of the mail system. Stable releases are named *major.minor.patchlevel*. Experimental releases also include the release date. The version string can be used in, for example, the SMTP greeting banner.

mailbox_command (default: empty)

Optional external command that the **local(8)** delivery agent should use for mailbox delivery. The command is run with the user ID and the primary group ID privileges of the recipient. Exception: command delivery for root executes with \$default_privs privileges. This is not a problem, because 1) mail for root should always be aliased to a real user and 2) don't log in as root, use "su" instead.

The following environment variables are exported to the command:

CLIENT_ADDRESS

Remote client network address. Available in Postfix version 2.2 and later.

CLIENT_HELO

Remote client EHLO command parameter. Available in Postfix version 2.2 and later.

CLIENT_HOSTNAME

Remote client hostname. Available in Postfix version 2.2 and later.

CLIENT_PROTOCOL

Remote client protocol. Available in Postfix version 2.2 and later.

DOMAIN

The domain part of the recipient address.

EXTENSION

The optional address extension.

HOME

The recipient home directory.

LOCAL

The recipient address localpart.

LOGNAME

The recipient's username.

ORIGINAL_RECIPIENT

The entire recipient address, before any address rewriting or aliasing.

RECIPIENT

The full recipient address.

SASL_METHOD

SASL authentication method specified in the remote client AUTH command. Available in Postfix version 2.2 and later.

SASL_SENDER

SASL sender address specified in the remote client MAIL FROM command. Available in Postfix version 2.2 and later.

SASL_USER

SASL username specified in the remote client AUTH command. Available in Postfix version 2.2 and later.

SENDER

The full sender address.

SHELL

The recipient's login shell.

USER The recipient username.

Unlike other Postfix configuration parameters, the `mailbox_command` parameter is not subjected to `$name` substitutions. This is to make it easier to specify shell syntax (see example below).

If you can, avoid shell meta characters because they will force Postfix to run an expensive shell process. If you're delivering via Procmail then running a shell won't make a noticeable difference in the total cost.

Note: if you use the `mailbox_command` feature to deliver mail system-wide, you must set up an alias that forwards mail for root to a real user.

The precedence of **local(8)** delivery features from high to low is: aliases, `.forward` files, `mailbox_transport_maps`, `mailbox_transport`, `mailbox_command_maps`, `mailbox_command`, `home_mailbox`, `mail_spool_directory`, `fallback_transport_maps`, `fallback_transport` and `luser_relay`.

Examples:

```
mailbox_command = /some/where/procmail
mailbox_command = /some/where/procmail -a "$EXTENSION"
mailbox_command = /some/where/maildrop -d "$USER"
                  -f "$SENDER" "$EXTENSION"
```

mailbox_command_maps (default: empty)

Optional lookup tables with per-recipient external commands to use for **local(8)** mailbox delivery. Behavior is as with `mailbox_command`.

The precedence of **local(8)** delivery features from high to low is: aliases, `.forward` files, `mailbox_transport_maps`, `mailbox_transport`, `mailbox_command_maps`, `mailbox_command`, `home_mailbox`, `mail_spool_directory`, `fallback_transport_maps`, `fallback_transport` and `luser_relay`.

mailbox_delivery_lock (default: see postconf -d output)

How to lock a UNIX-style **local(8)** mailbox before attempting delivery. For a list of available file locking methods, use the "**postconf -l**" command.

This setting is ignored with **maildir** style delivery, because such deliveries are safe without explicit locks.

Note: The **dotlock** method requires that the recipient UID or GID has write access to the parent directory of the mailbox file.

Note: the default setting of this parameter is system dependent.

mailbox_size_limit (default: 51200000)

The maximal size of any **local(8)** individual mailbox or maildir file, or zero (no limit). In fact, this limits the size of any file that is written to upon local delivery, including files written by external commands that are executed by the **local(8)** delivery agent.

This limit must not be smaller than the message size limit.

mailbox_transport (default: empty)

Optional message delivery transport that the **local(8)** delivery agent should use for mailbox delivery to all local recipients, whether or not they are found in the UNIX passwd database.

The precedence of **local(8)** delivery features from high to low is: aliases, `.forward` files, `mailbox_transport_maps`, `mailbox_transport`, `mailbox_command_maps`, `mailbox_command`, `home_mailbox`, `mail_spool_directory`, `fallback_transport_maps`, `fallback_transport` and `luser_relay`.

mailbox_transport_maps (default: empty)

Optional lookup tables with per-recipient message delivery transports to use for **local(8)** mailbox delivery, whether or not the recipients are found in the UNIX passwd database.

The precedence of **local**(8) delivery features from high to low is: aliases, .forward files, mailbox_transport_maps, mailbox_transport, mailbox_command_maps, mailbox_command, home_mailbox, mail_spool_directory, fallback_transport_maps, fallback_transport and luser_relay.

For safety reasons, this feature does not allow \$number substitutions in regular expression maps.

This feature is available in Postfix 2.3 and later.

mailq_path (default: see postconf -d output)

Sendmail compatibility feature that specifies where the Postfix **mailq**(1) command is installed. This command can be used to list the Postfix mail queue.

manpage_directory (default: see postconf -d output)

Where the Postfix manual pages are installed.

maps_rbl_domains (default: empty)

Obsolete feature: use the reject_rbl_client feature instead.

maps_rbl_reject_code (default: 554)

The numerical Postfix SMTP server response code when a remote SMTP client request is blocked by the reject_rbl_client, reject_rhsbl_client, reject_rhsbl_sender or reject_rhsbl_recipient restriction.

Do not change this unless you have a complete understanding of RFC 2821.

masquerade_classes (default: envelope_sender, header_sender, header_recipient)

What addresses are subject to address masquerading.

By default, address masquerading is limited to envelope sender addresses, and to header sender and header recipient addresses. This allows you to use address masquerading on a mail gateway while still being able to forward mail to users on individual machines.

Specify zero or more of: envelope_sender, envelope_recipient, header_sender, header_recipient

masquerade_domains (default: empty)

Optional list of domains whose subdomain structure will be stripped off in email addresses.

The list is processed left to right, and processing stops at the first match. Thus,

```
masquerade_domains = foo.example.com example.com
strips "user@any.thing.foo.example.com" to "user@foo.example.com", but strips
"user@any.thing.else.example.com" to "user@example.com".
```

A domain name prefixed with ! means do not masquerade this domain or its subdomains. Thus,

```
masquerade_domains = !foo.example.com example.com
does not change "user@any.thing.foo.example.com" or "user@foo.example.com", but strips
"user@any.thing.else.example.com" to "user@example.com".
```

Note: with Postfix version 2.2, message header address masquerading happens only when message header address rewriting is enabled:

- The message is received with the Postfix **sendmail**(1) command,
- The message is received from a network client that matches \$local_header_rewrite_clients,
- The message is received from the network, and the remote_header_rewrite_domain parameter specifies a non-empty value.

To get the behavior before Postfix version 2.2, specify "local_header_rewrite_clients = static:all".

Example:

```
masquerade_domains = $mydomain
```

masquerade_exceptions (default: empty)

Optional list of user names that are not subjected to address masquerading, even when their address matches \$masquerade_domains.

By default, address masquerading makes no exceptions.

Specify a list of user names, "/file/name" or "type:table" patterns, separated by commas and/or whitespace. The list is matched left to right, and the search stops on the first match. A "/file/name" pattern is replaced by its contents; a "type:table" lookup table is matched when a name matches a lookup key (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify "!pattern" to exclude a name from the list. The form "!/file/name" is supported only in Postfix version 2.4 and later.

Examples:

```
masquerade_exceptions = root, mailer-daemon
masquerade_exceptions = root
```

master_service_disable (default: empty)

Selectively disable **master**(8) listener ports by service type or by service name and type. Specify a list of service types ("inet", "unix", "fifo", or "pass") or "name.type" tuples, where "name" is the first field of a master.cf entry and "type" is a service type. As with other Postfix matchlists, a search stops at the first match. Specify "!pattern" to exclude a service from the list. By default, all **master**(8) listener ports are enabled.

Note: this feature does not support "/file/name" or "type:table" patterns, nor does it support wildcards such as "*" or "all". This is intentional.

Examples:

```
# Turn on all master(8) listener ports (the default).
master_service_disable =
# Turn off only the main SMTP listener port.
master_service_disable = smtp.inet
# Turn off all TCP/IP listener ports.
master_service_disable = inet
# Turn off all TCP/IP listener ports except "foo".
master_service_disable = !foo.inet, inet
```

This feature is available in Postfix 2.6 and later.

max_idle (default: 100s)

The maximum amount of time that an idle Postfix daemon process waits for an incoming connection before terminating voluntarily. This parameter is ignored by the Postfix queue manager and by other long-lived Postfix daemon processes.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

max_use (default: 100)

The maximal number of incoming connections that a Postfix daemon process will service before terminating voluntarily. This parameter is ignored by the Postfix queue manager and by other long-lived Postfix daemon processes.

maximal_backoff_time (default: 4000s)

The maximal time between attempts to deliver a deferred message.

This parameter should be set to a value greater than or equal to \$minimal_backoff_time. See also \$queue_run_delay.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

maximal_queue_lifetime (default: 5d)

The maximal time a message is queued before it is sent back as undeliverable.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is d (days).

Specify 0 when mail delivery should be tried only once.

message_reject_characters (default: empty)

The set of characters that Postfix will reject in message content. The usual C-like escape sequences are recognized: `\a \b \f \n \r \t \v \ddd` (up to three octal digits) and `\\`.

Example:

```
message_reject_characters = \0
```

This feature is available in Postfix 2.3 and later.

message_size_limit (default: 10240000)

The maximal size in bytes of a message, including envelope information.

Note: be careful when making changes. Excessively small values will result in the loss of non-delivery notifications, when a bounce message size exceeds the local or remote MTA's message size limit.

message_strip_characters (default: empty)

The set of characters that Postfix will remove from message content. The usual C-like escape sequences are recognized: `\a \b \f \n \r \t \v \ddd` (up to three octal digits) and `\\`.

Example:

```
message_strip_characters = \0
```

This feature is available in Postfix 2.3 and later.

militer_command_timeout (default: 30s)

The time limit for sending an SMTP command to a Militer (mail filter) application, and for receiving the response.

Specify a non-zero time value (an integral value plus an optional one-letter suffix that specifies the time unit).

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.3 and later.

militer_connect_macros (default: see `postconf -d` output)

The macros that are sent to Militer (mail filter) applications after completion of an SMTP connection. See `MILTER_README` for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

militer_connect_timeout (default: 30s)

The time limit for connecting to a Militer (mail filter) application, and for negotiating protocol options.

Specify a non-zero time value (an integral value plus an optional one-letter suffix that specifies the time unit).

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.3 and later.

militer_content_timeout (default: 300s)

The time limit for sending message content to a Militer (mail filter) application, and for receiving the response.

Specify a non-zero time value (an integral value plus an optional one-letter suffix that specifies the time unit).

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.3 and later.

militer_data_macros (default: see `postconf -d` output)

The macros that are sent to version 4 or higher Militer (mail filter) applications after the SMTP DATA command. See `MILTER_README` for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

militer_default_action (default: tempfail)

The default action when a Militer (mail filter) application is unavailable or mis-configured. Specify one of the following:

accept Proceed as if the mail filter was not present.

reject Reject all further commands in this session with a permanent status code.

tempfail

Reject all further commands in this session with a temporary status code.

quarantine

Like "accept", but freeze the message in the "hold" queue. Available with Postfix 2.6 and later.

This feature is available in Postfix 2.3 and later.

militer_end_of_data_macros (default: see postconf -d output)

The macros that are sent to Militer (mail filter) applications after the message end-of-data. See MILITER_README for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

militer_end_of_header_macros (default: see postconf -d output)

The macros that are sent to Militer (mail filter) applications after the end of the message header. See MILITER_README for a list of available macro names and their meanings.

This feature is available in Postfix 2.5 and later.

militer_helo_macros (default: see postconf -d output)

The macros that are sent to Militer (mail filter) applications after the SMTP HELO or EHLO command. See MILITER_README for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

militer_macro_daemon_name (default: \$myhostname)

The {daemon_name} macro value for Militer (mail filter) applications. See MILITER_README for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

militer_macro_v (default: \$mail_name \$mail_version)

The {v} macro value for Militer (mail filter) applications. See MILITER_README for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

militer_mail_macros (default: see postconf -d output)

The macros that are sent to Militer (mail filter) applications after the SMTP MAIL FROM command. See MILITER_README for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

militer_protocol (default: 6)

The mail filter protocol version and optional protocol extensions for communication with a Militer application; prior to Postfix 2.6 the default protocol is 2. Postfix sends this version number during the initial protocol handshake. It should match the version number that is expected by the mail filter application (or by its Militer library).

Protocol versions:

- 2 Use Sendmail 8 mail filter protocol version 2 (default with Sendmail version 8.11 .. 8.13 and Postfix version 2.3 .. 2.5).
- 3 Use Sendmail 8 mail filter protocol version 3.

4 Use Sendmail 8 mail filter protocol version 4.

6 Use Sendmail 8 mail filter protocol version 6 (default with Sendmail version 8.14 and Postfix version 2.6).

Protocol extensions:

`no_header_reply`

Specify this when the Milter application will not reply for each individual message header.

This feature is available in Postfix 2.3 and later.

`milter_rcpt_macros` (default: see `postconf -d output`)

The macros that are sent to Milter (mail filter) applications after the SMTP RCPT TO command. See `MILTER_README` for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

`milter_unknown_command_macros` (default: see `postconf -d output`)

The macros that are sent to version 3 or higher Milter (mail filter) applications after an unknown SMTP command. See `MILTER_README` for a list of available macro names and their meanings.

This feature is available in Postfix 2.3 and later.

`mime_boundary_length_limit` (default: 2048)

The maximal length of MIME multipart boundary strings. The MIME processor is unable to distinguish between boundary strings that do not differ in the first `$mime_boundary_length_limit` characters.

This feature is available in Postfix 2.0 and later.

`mime_header_checks` (default: `$header_checks`)

Optional lookup tables for content inspection of MIME related message headers, as described in the `header_checks(5)` manual page.

This feature is available in Postfix 2.0 and later.

`mime_nesting_limit` (default: 100)

The maximal recursion level that the MIME processor will handle. Postfix refuses mail that is nested deeper than the specified limit.

This feature is available in Postfix 2.0 and later.

`minimal_backoff_time` (default: 300s)

The minimal time between attempts to deliver a deferred message; prior to Postfix 2.4 the default value was 1000s.

This parameter also limits the time an unreachable destination is kept in the short-term, in-memory, destination status cache.

This parameter should be set greater than or equal to `$queue_run_delay`. See also `$maximal_backoff_time`.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

`multi_instance_directories` (default: empty)

An optional list of non-default Postfix configuration directories; these directories belong to additional Postfix instances that share the Postfix executable files and documentation with the default Postfix instance, and that are started, stopped, etc., together with the default Postfix instance. Specify a list of pathnames separated by comma or whitespace.

When `$multi_instance_directories` is empty, the `postfix(1)` command runs in single-instance mode and operates on a single Postfix instance only. Otherwise, the `postfix(1)` command runs in multi-instance mode and invokes the multi-instance manager specified with the `multi_instance_wrapper` parameter. The multi-instance manager in turn executes `postfix(1)` commands for the default instance and for all Postfix instances in `$multi_instance_directories`.

Currently, this parameter setting is ignored except for the default `main.cf` file.

This feature is available in Postfix 2.6 and later.

multi_instance_enable (default: no)

Allow this Postfix instance to be started, stopped, etc., by a multi-instance manager. By default, new instances are created in a safe state that prevents them from being started inadvertently. This parameter is reserved for the multi-instance manager.

This feature is available in Postfix 2.6 and later.

multi_instance_group (default: empty)

The optional instance group name of this Postfix instance. A group identifies closely-related Postfix instances that the multi-instance manager can start, stop, etc., as a unit. This parameter is reserved for the multi-instance manager.

This feature is available in Postfix 2.6 and later.

multi_instance_name (default: empty)

The optional instance name of this Postfix instance. This name becomes also the default value for the `syslog_name` parameter.

This feature is available in Postfix 2.6 and later.

multi_instance_wrapper (default: empty)

The pathname of a multi-instance manager command that the **postfix(1)** command invokes when the `multi_instance_directories` parameter value is non-empty. The pathname may be followed by initial command arguments separated by whitespace; shell metacharacters such as quotes are not supported in this context.

The **postfix(1)** command invokes the manager command with the **postfix(1)** non-option command arguments on the manager command line, and with all installation configuration parameters exported into the manager command process environment. The manager command in turn invokes the **postfix(1)** command for individual Postfix instances as "`postfix -c config_directory command`".

This feature is available in Postfix 2.6 and later.

multi_recipient_bounce_reject_code (default: 550)

The numerical Postfix SMTP server response code when a remote SMTP client request is blocked by the `reject_multi_recipient_bounce` restriction.

Do not change this unless you have a complete understanding of RFC 2821.

This feature is available in Postfix 2.1 and later.

mydestination (default: \$myhostname, localhost.\$mydomain, localhost)

The list of domains that are delivered via the `$local_transport` mail delivery transport. By default this is the Postfix **local(8)** delivery agent which looks up all recipients in `/etc/passwd` and `/etc/aliases`. The SMTP server validates recipient addresses with `$local_recipient_maps` and rejects non-existent recipients. See also the local domain class in the `ADDRESS_CLASS_README` file.

The default `mydestination` value specifies names for the local machine only. On a mail domain gateway, you should also include `$mydomain`.

The `$local_transport` delivery method is also selected for mail addressed to `user@[the.net.work.address]` of the mail system (the IP addresses specified with the `inet_interfaces` and `proxy_interfaces` parameters).

Warnings:

- Do not specify the names of virtual domains - those domains are specified elsewhere. See `VIRTUAL_README` for more information.
- Do not specify the names of domains that this machine is backup MX host for. See `STANDARD_CONFIGURATION_README` for how to set up backup MX hosts.
- By default, the Postfix SMTP server rejects mail for recipients not listed with the `local_recipient_maps` parameter. See the **postconf(5)** manual for a description of the `local_recipient_maps` and `unknown_local_recipient_reject_code` parameters.

Specify a list of host or domain names, `"/file/name"` or `"type:table"` patterns, separated by commas and/or

whitespace. A `"/file/name"` pattern is replaced by its contents; a `"type:table"` lookup table is matched when a name matches a lookup key (the lookup result is ignored). Continue long lines by starting the next line with whitespace.

Examples:

```
mydestination = $myhostname, localhost.$mydomain $mydomain
mydestination = $myhostname, localhost.$mydomain www.$mydomain, ftp.$mydomain
```

mydomain (default: see `postconf -d` output)

The internet domain name of this mail system. The default is to use `$myhostname` minus the first component. `$mydomain` is used as a default value for many other configuration parameters.

Example:

```
mydomain = domain.tld
```

myhostname (default: see `postconf -d` output)

The internet hostname of this mail system. The default is to use the fully-qualified domain name from `gethostname()`. `$myhostname` is used as a default value for many other configuration parameters.

Example:

```
myhostname = host.example.com
```

mynetworks (default: see `postconf -d` output)

The list of "trusted" SMTP clients that have more privileges than "strangers".

In particular, "trusted" SMTP clients are allowed to relay mail through Postfix. See the `smtpd_recipient_restrictions` parameter description in the **postconf(5)** manual.

You can specify the list of "trusted" network addresses by hand or you can let Postfix do it for you (which is the default). See the description of the `mynetworks_style` parameter for more information.

If you specify the `mynetworks` list by hand, Postfix ignores the `mynetworks_style` setting.

Specify a list of network addresses or network/netmask patterns, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace.

The netmask specifies the number of bits in the network part of a host address. You can also specify `"/file/name"` or `"type:table"` patterns. A `"/file/name"` pattern is replaced by its contents; a `"type:table"` lookup table is matched when a table entry matches a lookup string (the lookup result is ignored).

The list is matched left to right, and the search stops on the first match. Specify `"!pattern"` to exclude an address or network block from the list. The form `"/file/name"` is supported only in Postfix version 2.4 and later.

Note: IP version 6 address information must be specified inside `[]` in the `mynetworks` value, and in files specified with `"/file/name"`. IP version 6 addresses contain the `":"` character, and would otherwise be confused with a `"type:table"` pattern.

Examples:

```
mynetworks = 127.0.0.0/8 168.100.189.0/28
mynetworks = !192.168.0.1, 192.168.0.0/28
mynetworks = 127.0.0.0/8 168.100.189.0/28 [::1]/128 [2001:240:587::]/64
mynetworks = $config_directory/mynetworks
mynetworks = hash:/etc/postfix/network_table
```

mynetworks_style (default: `subnet`)

The method to generate the default value for the `mynetworks` parameter. This is the list of trusted networks for relay access control etc.

- Specify `"mynetworks_style = host"` when Postfix should "trust" only the local machine.
- Specify `"mynetworks_style = subnet"` when Postfix should "trust" SMTP clients in the same IP subnetworks as the local machine. On Linux, this works correctly only with interfaces specified

with the "ifconfig" command.

- Specify "mynetworks_style = class" when Postfix should "trust" SMTP clients in the same IP class A/B/C networks as the local machine. Don't do this with a dialup site - it would cause Postfix to "trust" your entire provider's network. Instead, specify an explicit mynetworks list by hand, as described with the mynetworks configuration parameter.

myorigin (default: \$myhostname)

The domain name that locally-posted mail appears to come from, and that locally posted mail is delivered to. The default, \$myhostname, is adequate for small sites. If you run a domain with multiple machines, you should (1) change this to \$mydomain and (2) set up a domain-wide alias database that aliases each user to user@that.users.mailhost.

Example:

```
myorigin = $mydomain
```

nested_header_checks (default: \$header_checks)

Optional lookup tables for content inspection of non-MIME message headers in attached messages, as described in the **header_checks(5)** manual page.

This feature is available in Postfix 2.0 and later.

newaliases_path (default: see postconf -d output)

Sendmail compatibility feature that specifies the location of the **newaliases(1)** command. This command can be used to rebuild the **local(8)** **aliases(5)** database.

non_fqdn_reject_code (default: 504)

The numerical Postfix SMTP server reply code when a client request is rejected by the reject_non_fqdn_helo_hostname, reject_non_fqdn_sender or reject_non_fqdn_recipient restriction.

non_smtpd_milters (default: empty)

A list of Milter (mail filter) applications for new mail that does not arrive via the Postfix **smtpd(8)** server. This includes local submission via the **sendmail(1)** command line, new mail that arrives via the Postfix **qmqpd(8)** server, and old mail that is re-injected into the queue with "postsuper -r". See the MIL-TER_README document for details.

This feature is available in Postfix 2.3 and later.

notify_classes (default: resource, software)

The list of error classes that are reported to the postmaster. The default is to report only the most serious problems. The paranoid may wish to turn on the policy (UCE and mail relaying) and protocol error (broken mail software) reports.

NOTE: postmaster notifications may contain confidential information such as SASL passwords or message content. It is the system administrator's responsibility to treat such information with care.

The error classes are:

bounce (also implies **2bounce**)

Send the postmaster copies of the headers of bounced mail, and send transcripts of SMTP sessions when Postfix rejects mail. The notification is sent to the address specified with the bounce_notice_recipient configuration parameter (default: postmaster).

2bounce

Send undeliverable bounced mail to the postmaster. The notification is sent to the address specified with the 2bounce_notice_recipient configuration parameter (default: postmaster).

delay Send the postmaster copies of the headers of delayed mail. The notification is sent to the address specified with the delay_notice_recipient configuration parameter (default: postmaster).

policy Send the postmaster a transcript of the SMTP session when a client request was rejected because of (UCE) policy. The notification is sent to the address specified with the error_notice_recipient configuration parameter (default: postmaster).

protocol

Send the postmaster a transcript of the SMTP session in case of client or server protocol errors. The notification is sent to the address specified with the `error_notice_recipient` configuration parameter (default: postmaster).

resource

Inform the postmaster of mail not delivered due to resource problems. The notification is sent to the address specified with the `error_notice_recipient` configuration parameter (default: postmaster).

software

Inform the postmaster of mail not delivered due to software problems. The notification is sent to the address specified with the `error_notice_recipient` configuration parameter (default: postmaster).

Examples:

```
notify_classes = bounce, delay, policy, protocol, resource, software
notify_classes = 2bounce, resource, software
```

owner_request_special (default: yes)

Give special treatment to owner-listname and listname-request address localparts: don't split such addresses when the `recipient_delimiter` is set to "-". This feature is useful for mailing lists.

parent_domain_matches_subdomains (default: see postconf -d output)

What Postfix features match subdomains of "domain.tld" automatically, instead of requiring an explicit ".domain.tld" pattern. This is planned backwards compatibility: eventually, all Postfix features are expected to require explicit ".domain.tld" style patterns when you really want to match subdomains.

permit_mx_backup_networks (default: empty)

Restrict the use of the `permit_mx_backup` SMTP access feature to only domains whose primary MX hosts match the listed networks. The parameter value syntax is the same as with the `mynetworks` parameter; note, however, that the default value is empty.

pickup_service_name (default: pickup)

The name of the **pickup**(8) service. This service picks up local mail submissions from the Postfix maildrop queue.

This feature is available in Postfix 2.0 and later.

plaintext_reject_code (default: 450)

The numerical Postfix SMTP server response code when a request is rejected by the **reject_plaintext_session** restriction.

This feature is available in Postfix 2.3 and later.

postmulti_control_commands (default: reload flush)

The **postfix**(1) commands that the **postmulti**(1) instance manager treats as "control" commands, that operate on running instances. For these commands, disabled instances are skipped.

This feature is available in Postfix 2.6 and later.

postmulti_start_commands (default: start)

The **postfix**(1) commands that the **postmulti**(1) instance manager treats as "start" commands. For these commands, disabled instances are "checked" rather than "started", and failure to "start" a member instance of an instance group will abort the start-up of later instances.

This feature is available in Postfix 2.6 and later.

postmulti_stop_commands (default: see postconf -d output)

The **postfix**(1) commands that the **postmulti**(1) instance manager treats as "stop" commands. For these commands, disabled instances are skipped, and enabled instances are processed in reverse order.

This feature is available in Postfix 2.6 and later.

prepend_delivered_header (default: command, file, forward)

The message delivery contexts where the Postfix **local**(8) delivery agent prepends a Delivered-To: message header with the address that the mail was delivered to. This information is used for mail delivery loop detection.

By default, the Postfix local delivery agent prepends a Delivered-To: header when forwarding mail and when delivering to file (mailbox) and command. Turning off the Delivered-To: header when forwarding mail is not recommended.

Specify zero or more of **forward**, **file**, or **command**.

Example:

```
prepend_delivered_header = forward
```

process_id (read-only)

The process ID of a Postfix command or daemon process.

process_id_directory (default: pid)

The location of Postfix PID files relative to \$queue_directory. This is a read-only parameter.

process_name (read-only)

The process name of a Postfix command or daemon process.

propagate_unmatched_extensions (default: canonical, virtual)

What address lookup tables copy an address extension from the lookup key to the lookup result.

For example, with a **virtual**(5) mapping of *"joe@example.com => joe.user@example.net"*, the address *"joe+foo@example.com"* would rewrite to *"joe.user+foo@example.net"*.

Specify zero or more of **canonical**, **virtual**, **alias**, **forward**, **include** or **generic**. These cause address extension propagation with **canonical**(5), **virtual**(5), and **aliases**(5) maps, with **local**(8) .forward and :include: file lookups, and with **smtp**(8) generic maps, respectively.

Note: enabling this feature for types other than **canonical** and **virtual** is likely to cause problems when mail is forwarded to other sites, especially with mail that is sent to a mailing list exploder address.

Examples:

```
propagate_unmatched_extensions = canonical, virtual, alias,
                                forward, include
propagate_unmatched_extensions = canonical, virtual
```

proxy_interfaces (default: empty)

The network interface addresses that this mail system receives mail on by way of a proxy or network address translation unit.

This feature is available in Postfix 2.0 and later.

You must specify your "outside" proxy/NAT addresses when your system is a backup MX host for other domains, otherwise mail delivery loops will happen when the primary MX host is down.

Example:

```
proxy_interfaces = 1.2.3.4
```

proxy_read_maps (default: see postconf -d output)

The lookup tables that the **proxymap**(8) server is allowed to access for the read-only service. Table references that don't begin with proxy: are ignored.

This feature is available in Postfix 2.0 and later.

proxy_write_maps (default: see postconf -d output)

The lookup tables that the **proxymap**(8) server is allowed to access for the read-write service. Postfix-owned local database files should be stored under the Postfix-owned data_directory. Table references that don't begin with proxy: are ignored.

This feature is available in Postfix 2.5 and later.

proxymap_service_name (default: proxymap)

The name of the proxymap read-only table lookup service. This service is normally implemented by the **proxymap(8)** daemon.

This feature is available in Postfix 2.6 and later.

proxywrite_service_name (default: proxywrite)

The name of the proxywrite read-write table lookup service. This service is normally implemented by the **proxymap(8)** daemon.

This feature is available in Postfix 2.6 and later.

qmgr_clog_warn_time (default: 300s)

The minimal delay between warnings that a specific destination is clogging up the Postfix active queue. Specify 0 to disable.

This feature is enabled with the `helpful_warnings` parameter.

This feature is available in Postfix 2.0 and later.

qmgr_fudge_factor (default: 100)

Obsolete feature: the percentage of delivery resources that a busy mail system will use up for delivery of a large mailing list message.

This feature exists only in the **oqmgr(8)** old queue manager. The current queue manager solves the problem in a better way.

qmgr_message_active_limit (default: 20000)

The maximal number of messages in the active queue.

qmgr_message_recipient_limit (default: 20000)

The maximal number of recipients held in memory by the Postfix queue manager, and the maximal size of the size of the short-term, in-memory "dead" destination status cache.

qmgr_message_recipient_minimum (default: 10)

The minimal number of in-memory recipients for any message. This takes priority over any other in-memory recipient limits (i.e., the global `qmgr_message_recipient_limit` and the per transport `_recipient_limit`) if necessary. The minimum value allowed for this parameter is 1.

qmqpd_authorized_clients (default: empty)

What clients are allowed to connect to the QMQP server port.

By default, no client is allowed to use the service. This is because the QMQP server will relay mail to any destination.

Specify a list of client patterns. A list pattern specifies a host name, a domain name, an internet address, or a network/mask pattern, where the mask specifies the number of bits in the network part. When a pattern specifies a file name, its contents are substituted for the file name; when a pattern is a "type:table" table specification, table lookup is used instead.

Patterns are separated by whitespace and/or commas. In order to reverse the result, precede a pattern with an exclamation point (!). The form `!/file/name` is supported only in Postfix version 2.4 and later.

Example:

```
qmqpd_authorized_clients = !192.168.0.1, 192.168.0.0/24
```

qmqpd_client_port_logging (default: no)

Enable logging of the remote QMQP client port in addition to the hostname and IP address. The logging format is "host[address]:port".

This feature is available in Postfix 2.5 and later.

qmqpd_error_delay (default: 1s)

How long the QMQP server will pause before sending a negative reply to the client. The purpose is to slow down confused or malicious clients.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

qmqpd_timeout (default: 300s)

The time limit for sending or receiving information over the network. If a read or write operation blocks for more than \$qmqpd_timeout seconds the QMQP server gives up and disconnects.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

queue_directory (default: see postconf -d output)

The location of the Postfix top-level queue directory. This is the root directory of Postfix daemon processes that run chrooted.

queue_file_attribute_count_limit (default: 100)

The maximal number of (name=value) attributes that may be stored in a Postfix queue file. The limit is enforced by the **cleanup(8)** server.

This feature is available in Postfix 2.0 and later.

queue_minfree (default: 0)

The minimal amount of free space in bytes in the queue file system that is needed to receive mail. This is currently used by the SMTP server to decide if it will accept any mail at all.

By default, the Postfix version 2.1 SMTP server rejects MAIL FROM commands when the amount of free space is less than 1.5*\$message_size_limit. To specify a higher minimum free space limit, specify a queue_minfree value that is at least 1.5*\$message_size_limit.

With Postfix versions 2.0 and earlier, a queue_minfree value of zero means there is no minimum required amount of free space.

queue_run_delay (default: 300s)

The time between deferred queue scans by the queue manager; prior to Postfix 2.4 the default value was 1000s.

This parameter should be set less than or equal to \$minimal_backoff_time. See also \$maximal_backoff_time.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

queue_service_name (default: qmgr)

The name of the **qmgr(8)** service. This service manages the Postfix queue and schedules delivery requests.

This feature is available in Postfix 2.0 and later.

rbl_reply_maps (default: empty)

Optional lookup tables with RBL response templates. The tables are indexed by the RBL domain name. By default, Postfix uses the default template as specified with the default_rbl_reply configuration parameter. See there for a discussion of the syntax of RBL reply templates.

This feature is available in Postfix 2.0 and later.

readme_directory (default: see postconf -d output)

The location of Postfix README files that describe how to build, configure or operate a specific Postfix subsystem or feature.

receive_override_options (default: empty)

Enable or disable recipient validation, built-in content filtering, or address mapping. Typically, these are specified in master.cf as command-line arguments for the **smtpd(8)**, **qmqpd(8)** or **pickup(8)** daemons.

Specify zero or more of the following options. The options override main.cf settings and are either implemented by **smtpd(8)**, **qmqpd(8)**, or **pickup(8)** themselves, or they are forwarded to the cleanup server.

no_unknown_recipient_checks

Do not try to reject unknown recipients (SMTP server only). This is typically specified AFTER an external content filter.

no_address_mappings

Disable canonical address mapping, virtual alias map expansion, address masquerading, and automatic BCC (blind carbon-copy) recipients. This is typically specified BEFORE an external content filter.

no_header_body_checks

Disable header/body_checks. This is typically specified AFTER an external content filter.

no_milters

Disable Milter (mail filter) applications. This is typically specified AFTER an external content filter.

Note: when the "BEFORE content filter" `receive_override_options` setting is specified in the `main.cf` file, specify the "AFTER content filter" `receive_override_options` setting in `master.cf` (and vice versa).

Examples:

```
receive_override_options =
    no_unknown_recipient_checks, no_header_body_checks
receive_override_options = no_address_mappings
```

This feature is available in Postfix 2.1 and later.

recipient_bcc_maps (default: empty)

Optional BCC (blind carbon-copy) address lookup tables, indexed by recipient address. The BCC address (multiple results are not supported) is added when mail enters from outside of Postfix.

This feature is available in Postfix 2.1 and later.

The table search order is as follows:

- Look up the "user+extension@domain.tld" address including the optional address extension.
- Look up the "user@domain.tld" address without the optional address extension.
- Look up the "user+extension" address local part when the recipient domain equals `$myorigin`, `$mydestination`, `$inet_interfaces` or `$proxy_interfaces`.
- Look up the "user" address local part when the recipient domain equals `$myorigin`, `$mydestination`, `$inet_interfaces` or `$proxy_interfaces`.
- Look up the "@domain.tld" part.

Specify the types and names of databases to use. After change, run **"postmap /etc/postfix/recipient_bcc"**.

Note: if mail to the BCC address bounces it will be returned to the sender.

Note: automatic BCC recipients are produced only for new mail. To avoid mailer loops, automatic BCC recipients are not generated for mail that Postfix forwards internally, nor for mail that Postfix generates itself.

Example:

```
recipient_bcc_maps = hash:/etc/postfix/recipient_bcc
```

recipient_canonical_classes (default: envelope_recipient, header_recipient)

What addresses are subject to `recipient_canonical_maps` address mapping. By default, `recipient_canonical_maps` address mapping is applied to envelope recipient addresses, and to header recipient addresses.

Specify one or more of: `envelope_recipient`, `header_recipient`

This feature is available in Postfix 2.2 and later.

recipient_canonical_maps (default: empty)

Optional address mapping lookup tables for envelope and header recipient addresses. The table format and lookups are documented in **canonical(5)**.

Note: `$recipient_canonical_maps` is processed before `$canonical_maps`.

Example:

```
recipient_canonical_maps = hash:/etc/postfix/recipient_canonical
```

recipient_delimiter (default: empty)

The separator between user names and address extensions (user+foo). See **canonical(5)**, **local(8)**, **relocated(5)** and **virtual(5)** for the effects this has on aliases, canonical, virtual, relocated and on .forward file lookups. Basically, the software tries user+foo and .forward+foo before trying user and .forward.

Example:

```
recipient_delimiter = +
```

reject_code (default: 554)

The numerical Postfix SMTP server response code when a remote SMTP client request is rejected by the "reject" restriction.

Do not change this unless you have a complete understanding of RFC 2821.

reject_tempfail_action (default: defer_if_permit)

The Postfix SMTP server's action when a reject-type restriction fails due to a temporary error condition. Specify "defer" to defer the remote SMTP client request immediately. With the default "defer_if_permit" action, the Postfix SMTP server continues to look for opportunities to reject mail, and defers the client request only if it would otherwise be accepted.

For finer control, see: `unverified_recipient_tempfail_action`, `unverified_sender_tempfail_action`, `unknown_address_tempfail_action`, and `unknown_helo_hostname_tempfail_action`.

This feature is available in Postfix 2.6 and later.

relay_clientcerts (default: empty)

List of tables with remote SMTP client-certificate fingerprints for which the Postfix SMTP server will allow access with the `permit_tls_clientcerts` feature. The fingerprint digest algorithm is configurable via the `smtpd_tls_fingerprint_digest` parameter (hard-coded as md5 prior to Postfix version 2.5).

Postfix lookup tables are in the form of (key, value) pairs. Since we only need the key, the value can be chosen freely, e.g. the name of the user or host: D7:04:2F:A7:0B:8C:A5:21:FA:31:77:E1:41:8A:EE:80 lutzpc.at.home

Example:

```
relay_clientcerts = hash:/etc/postfix/relay_clientcerts
```

For more fine-grained control, use `check_ccert_access` to select an appropriate **access(5)** policy for each client. See `RESTRICTION_CLASS_README`.

This feature is available with Postfix version 2.2.

relay_destination_concurrency_limit (default: \$default_destination_concurrency_limit)

The maximal number of parallel deliveries to the same destination via the relay message delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

This feature is available in Postfix 2.0 and later.

relay_destination_recipient_limit (default: \$default_destination_recipient_limit)

The maximal number of recipients per message for the relay message delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

Setting this parameter to a value of 1 changes the meaning of `relay_destination_concurrency_limit` from concurrency per domain into concurrency per recipient.

This feature is available in Postfix 2.0 and later.

relay_domains (default: \$mydestination)

What destination domains (and subdomains thereof) this system will relay mail to. Subdomain matching is controlled with the `parent_domain_matches_subdomains` parameter. For details about how the `relay_domains` value is used, see the description of the `permit_auth_destination` and `reject_unauth_destination` SMTP recipient restrictions.

Domains that match `$relay_domains` are delivered with the `$relay_transport` mail delivery transport. The SMTP server validates recipient addresses with `$relay_recipient_maps` and rejects non-existent recipients. See also the relay domains address class in the `ADDRESS_CLASS_README` file.

Note: Postfix will not automatically forward mail for domains that list this system as their primary or backup MX host. See the `permit_mx_backup` restriction in the **postconf(5)** manual page.

Specify a list of host or domain names, `"/file/name"` patterns or `"type:table"` lookup tables, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. A `"/file/name"` pattern is replaced by its contents; a `"type:table"` lookup table is matched when a (parent) domain appears as lookup key. Specify `"!pattern"` to exclude a domain from the list. The form `"!/file/name"` is supported only in Postfix version 2.4 and later.

relay_domains_reject_code (default: 554)

The numerical Postfix SMTP server response code when a client request is rejected by the `reject_unauth_destination` recipient restriction.

Do not change this unless you have a complete understanding of RFC 2821.

relay_recipient_maps (default: empty)

Optional lookup tables with all valid addresses in the domains that match `$relay_domains`. Specify `@domain` as a wild-card for domains that have no valid recipient list, and become a source of backscatter mail: Postfix accepts spam for non-existent recipients and then floods innocent people with undeliverable mail. Technically, tables listed with `$relay_recipient_maps` are used as lists: Postfix needs to know only if a lookup string is found or not, but it does not use the result from table lookup.

If this parameter is non-empty, then the Postfix SMTP server will reject mail to unknown relay users. This feature is off by default.

See also the relay domains address class in the `ADDRESS_CLASS_README` file.

Example:

```
relay_recipient_maps = hash:/etc/postfix/relay_recipients
```

This feature is available in Postfix 2.0 and later.

relay_transport (default: relay)

The default mail delivery transport and next-hop destination for remote delivery to domains listed with `$relay_domains`. In order of decreasing precedence, the `nexthop` destination is taken from `$relay_transport`, `$sender_dependent_relayhost_maps`, `$relayhost`, or from the recipient domain. This information can be overruled with the **transport(5)** table.

Specify a string of the form `transport:nexthop`, where `transport` is the name of a mail delivery transport defined in `master.cf`. The `:nexthop` part is optional. For more details see the **transport(5)** manual page.

See also the relay domains address class in the `ADDRESS_CLASS_README` file.

This feature is available in Postfix 2.0 and later.

relayhost (default: empty)

The next-hop destination of non-local mail; overrides non-local domains in recipient addresses. This information is overruled with `relay_transport`, `default_transport`, `sender_dependent_relayhost_maps` and with the **transport(5)** table.

On an intranet, specify the organizational domain name. If your internal DNS uses no MX records, specify the name of the intranet gateway host instead.

In the case of SMTP, specify a domain name, `hostname`, `hostname:port`, `[hostname]:port`, `[hostaddress]` or

[hostaddress]:port. The form [hostname] turns off MX lookups.

If you're connected via UUCP, see the UUCP_README file for useful information.

Examples:

```
relayhost = $mydomain
relayhost = [gateway.example.com]
relayhost = uucphost
relayhost = [an.ip.add.ress]
```

relocated_maps (default: empty)

Optional lookup tables with new contact information for users or domains that no longer exist. The table format and lookups are documented in **relocated(5)**.

If you use this feature, run "**postmap /etc/postfix/relocated**" to build the necessary DBM or DB file after change, then "**postfix reload**" to make the changes visible.

Examples:

```
relocated_maps = dbm:/etc/postfix/relocated
relocated_maps = hash:/etc/postfix/relocated
```

remote_header_rewrite_domain (default: empty)

Don't rewrite message headers from remote clients at all when this parameter is empty; otherwise, rewrite message headers and append the specified domain name to incomplete addresses. The `local_header_rewrite_clients` parameter controls what clients Postfix considers local.

Examples:

The safe setting: append "domain.invalid" to incomplete header addresses from remote SMTP clients, so that those addresses cannot be confused with local addresses.

```
remote_header_rewrite_domain = domain.invalid
```

The default, purist, setting: don't rewrite headers from remote clients at all.

```
remote_header_rewrite_domain =
```

require_home_directory (default: no)

Whether or not a **local(8)** recipient's home directory must exist before mail delivery is attempted. By default this test is disabled. It can be useful for environments that import home directories to the mail server (NOT RECOMMENDED).

resolve_dequoted_address (default: yes)

Resolve a recipient address safely instead of correctly, by looking inside quotes.

By default, the Postfix address resolver does not quote the address localpart as per RFC 822, so that additional @ or % or ! operators remain visible. This behavior is safe but it is also technically incorrect.

If you specify "`resolve_dequoted_address = no`", then the Postfix resolver will not know about additional @ etc. operators in the address localpart. This opens opportunities for obscure mail relay attacks with `user@domain@domain` addresses when Postfix provides backup MX service for Sendmail systems.

resolve_null_domain (default: no)

Resolve an address that ends in the "@" null domain as if the local hostname were specified, instead of rejecting the address as invalid.

This feature is available in Postfix 2.1 and later. Earlier versions always resolve the null domain as the local hostname.

The Postfix SMTP server uses this feature to reject mail from or to addresses that end in the "@" null domain, and from addresses that rewrite into a form that ends in the "@" null domain.

resolve_numeric_domain (default: no)

Resolve "user@ipaddress" as "user@[ipaddress]", instead of rejecting the address as invalid.

This feature is available in Postfix 2.3 and later.

rewrite_service_name (default: rewrite)

The name of the address rewriting service. This service rewrites addresses to standard form and resolves them to a (delivery method, next-hop host, recipient) triple.

This feature is available in Postfix 2.0 and later.

sample_directory (default: /etc/postfix)

The name of the directory with example Postfix configuration files.

send_cyrus_sasl_authzid (default: no)

When authenticating to a remote SMTP or LMTP server with the default setting "no", send no SASL authentication ID (authzid); send only the SASL authentication ID (authcid) plus the authcid's password.

The non-default setting "yes" enables the behavior of older Postfix versions. These always send a SASL authzid that is equal to the SASL authcid, but this causes inter-operability problems with some SMTP servers.

This feature is available in Postfix 2.4.4 and later.

sender_based_routing (default: no)

This parameter should not be used. It was replaced by sender_dependent_relayhost_maps in Postfix version 2.3.

sender_bcc_maps (default: empty)

Optional BCC (blind carbon-copy) address lookup tables, indexed by sender address. The BCC address (multiple results are not supported) is added when mail enters from outside of Postfix.

This feature is available in Postfix 2.1 and later.

The table search order is as follows:

- Look up the "user+extension@domain.tld" address including the optional address extension.
- Look up the "user@domain.tld" address without the optional address extension.
- Look up the "user+extension" address local part when the sender domain equals \$myorigin, \$mydestination, \$inet_interfaces or \$proxy_interfaces.
- Look up the "user" address local part when the sender domain equals \$myorigin, \$mydestination, \$inet_interfaces or \$proxy_interfaces.
- Look up the "@domain.tld" part.

Specify the types and names of databases to use. After change, run "**postmap /etc/postfix/sender_bcc**".

Note: if mail to the BCC address bounces it will be returned to the sender.

Note: automatic BCC recipients are produced only for new mail. To avoid mailer loops, automatic BCC recipients are not generated for mail that Postfix forwards internally, nor for mail that Postfix generates itself.

Example:

```
sender_bcc_maps = hash:/etc/postfix/sender_bcc
```

sender_canonical_classes (default: envelope_sender, header_sender)

What addresses are subject to sender_canonical_maps address mapping. By default, sender_canonical_maps address mapping is applied to envelope sender addresses, and to header sender addresses.

Specify one or more of: envelope_sender, header_sender

This feature is available in Postfix 2.2 and later.

sender_canonical_maps (default: empty)

Optional address mapping lookup tables for envelope and header sender addresses. The table format and lookups are documented in **canonical(5)**.

Example: you want to rewrite the SENDER address "user@ugly.domain" to "user@pretty.domain", while still being able to send mail to the RECIPIENT address "user@ugly.domain".

Note: \$sender_canonical_maps is processed before \$canonical_maps.

Example:

```
sender_canonical_maps = hash:/etc/postfix/sender_canonical
```

sender_dependent_relayhost_maps (default: empty)

A sender-dependent override for the global relayhost parameter setting. The tables are searched by the envelope sender address and @domain. A lookup result of DUNNO terminates the search without overriding the global relayhost parameter setting (Postfix 2.6 and later). This information is overruled with relay_transport, default_transport and with the **transport(5)** table.

For safety reasons, this feature does not allow \$number substitutions in regular expression maps.

This feature is available in Postfix 2.3 and later.

sendmail_path (default: see postconf -d output)

A Sendmail compatibility feature that specifies the location of the Postfix **sendmail(1)** command. This command can be used to submit mail into the Postfix queue.

service_throttle_time (default: 60s)

How long the Postfix **master(8)** waits before forking a server that appears to be malfunctioning.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

setgid_group (default: postdrop)

The group ownership of set-gid Postfix commands and of group-writable Postfix directories. When this parameter value is changed you need to re-run "**postfix set-permissions**" (with Postfix version 2.0 and earlier: "**/etc/postfix/post-install set-permissions**").

show_user_unknown_table_name (default: yes)

Display the name of the recipient table in the "User unknown" responses. The extra detail makes trouble shooting easier but also reveals information that is nobody else's business.

This feature is available in Postfix 2.0 and later.

showq_service_name (default: showq)

The name of the **showq(8)** service. This service produces mail queue status reports.

This feature is available in Postfix 2.0 and later.

smtp_always_send_ehlo (default: yes)

Always send EHLO at the start of an SMTP session.

With "smtp_always_send_ehlo = no", Postfix sends EHLO only when the word "ESMTP" appears in the server greeting banner (example: 220 spike.porcupine.org ESMTP Postfix).

smtp_bind_address (default: empty)

An optional numerical network address that the Postfix SMTP client should bind to when making an IPv4 connection.

This can be specified in the main.cf file for all SMTP clients, or it can be specified in the master.cf file for a specific client, for example:

```
/etc/postfix/master.cf:
    smtp ... smtp -o smtp_bind_address=11.22.33.44
```

Note 1: when inet_interfaces specifies no more than one IPv4 address, and that address is a non-loopback address, it is automatically used as the smtp_bind_address. This supports virtual IP hosting, but can be a

problem on multi-homed firewalls. See the `inet_interfaces` documentation for more detail.

Note 2: address information may be enclosed inside `[]`, but this form is not required here.

smtp_bind_address6 (default: empty)

An optional numerical network address that the Postfix SMTP client should bind to when making an IPv6 connection.

This feature is available in Postfix 2.2 and later.

This can be specified in the `main.cf` file for all SMTP clients, or it can be specified in the `master.cf` file for a specific client, for example:

```
/etc/postfix/master.cf:
    smtp ... smtp -o smtp_bind_address6=1:2:3:4:5:6:7:8
```

Note 1: when `inet_interfaces` specifies no more than one IPv6 address, and that address is a non-loopback address, it is automatically used as the `smtp_bind_address6`. This supports virtual IP hosting, but can be a problem on multi-homed firewalls. See the `inet_interfaces` documentation for more detail.

Note 2: address information may be enclosed inside `[]`, but this form is not recommended here.

smtp_body_checks (default: empty)

Restricted `body_checks(5)` tables for the Postfix SMTP client. These tables are searched while mail is being delivered. Actions that change the delivery time or destination are not available.

This feature is available in Postfix 2.5 and later.

smtp_cname_overrides_servername (default: version dependent)

Allow DNS CNAME records to override the servername that the Postfix SMTP client uses for logging, SASL password lookup, TLS policy decisions, or TLS certificate verification. The value "no" hardens Postfix `smtp_tls_per_site` hostname-based policies against false hostname information in DNS CNAME records, and makes SASL password file lookups more predictable. This is the default setting as of Postfix 2.3.

This feature is available in Postfix 2.2.9 and later.

smtp_connect_timeout (default: 30s)

The SMTP client time limit for completing a TCP connection, or zero (use the operating system built-in time limit).

When no connection can be made within the deadline, the Postfix SMTP client tries the next address on the mail exchanger list. Specify 0 to disable the time limit (i.e. use whatever timeout is implemented by the operating system).

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_connection_cache_destinations (default: empty)

Permanently enable SMTP connection caching for the specified destinations. With SMTP connection caching, a connection is not closed immediately after completion of a mail transaction. Instead, the connection is kept open for up to `$smtp_connection_cache_time_limit` seconds. This allows connections to be reused for other deliveries, and can improve mail delivery performance.

Specify a comma or white space separated list of destinations or pseudo-destinations:

- if mail is sent without a relay host: a domain name (the right-hand side of an email address, without the `[]` around a numeric IP address),
- if mail is sent via a relay host: a relay host name (without `[]` or non-default TCP port), as specified in `main.cf` or in the transport map,
- if mail is sent via a UNIX-domain socket: a pathname (without the `unix:` prefix),
- a `/file/name` with domain names and/or relay host names as defined above,

- a "type:table" with domain names and/or relay host names on the left-hand side. The right-hand side result from "type:table" lookups is ignored.

This feature is available in Postfix 2.2 and later.

smtp_connection_cache_on_demand (default: yes)

Temporarily enable SMTP connection caching while a destination has a high volume of mail in the active queue. With SMTP connection caching, a connection is not closed immediately after completion of a mail transaction. Instead, the connection is kept open for up to \$smtp_connection_cache_time_limit seconds. This allows connections to be reused for other deliveries, and can improve mail delivery performance.

This feature is available in Postfix 2.2 and later.

smtp_connection_cache_reuse_limit (default: 10)

When SMTP connection caching is enabled, the number of times that an SMTP session may be reused before it is closed.

This feature is available in Postfix 2.2. In Postfix 2.3 it is replaced by \$smtp_connection_reuse_time_limit.

smtp_connection_cache_time_limit (default: 2s)

When SMTP connection caching is enabled, the amount of time that an unused SMTP client socket is kept open before it is closed. Do not specify larger values without permission from the remote sites.

This feature is available in Postfix 2.2 and later.

smtp_connection_reuse_time_limit (default: 300s)

The amount of time during which Postfix will use an SMTP connection repeatedly. The timer starts when the connection is initiated (i.e. it includes the connect, greeting and helo latency, in addition to the latencies of subsequent mail delivery transactions).

This feature addresses a performance stability problem with remote SMTP servers. This problem is not specific to Postfix: it can happen when any MTA sends large amounts of SMTP email to a site that has multiple MX hosts.

The problem starts when one of a set of MX hosts becomes slower than the rest. Even though SMTP clients connect to fast and slow MX hosts with equal probability, the slow MX host ends up with more simultaneous inbound connections than the faster MX hosts, because the slow MX host needs more time to serve each client request.

The slow MX host becomes a connection attractor. If one MX host becomes N times slower than the rest, it dominates mail delivery latency unless there are more than N fast MX hosts to counter the effect. And if the number of MX hosts is smaller than N, the mail delivery latency becomes effectively that of the slowest MX host divided by the total number of MX hosts.

The solution uses connection caching in a way that differs from Postfix version 2.2. By limiting the amount of time during which a connection can be used repeatedly (instead of limiting the number of deliveries over that connection), Postfix not only restores fairness in the distribution of simultaneous connections across a set of MX hosts, it also favors deliveries over connections that perform well, which is exactly what we want.

The default reuse time limit, 300s, is comparable to the various smtp transaction timeouts which are fair estimates of maximum excess latency for a slow delivery. Note that hosts may accept thousands of messages over a single connection within the default connection reuse time limit. This number is much larger than the default Postfix version 2.2 limit of 10 messages per cached connection. It may prove necessary to lower the limit to avoid interoperability issues with MTAs that exhibit bugs when many messages are delivered via a single connection. A lower reuse time limit risks losing the benefit of connection reuse when the average connection and mail delivery latency exceeds the reuse time limit.

This feature is available in Postfix 2.3 and later.

smtp_data_done_timeout (default: 600s)

The SMTP client time limit for sending the SMTP ".", and for receiving the server response.

When no response is received within the deadline, a warning is logged that the mail may be delivered

multiple times.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_data_init_timeout (default: 120s)

The SMTP client time limit for sending the SMTP DATA command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_data_xfer_timeout (default: 180s)

The SMTP client time limit for sending the SMTP message content. When the connection makes no progress for more than \$smtp_data_xfer_timeout seconds the Postfix SMTP client terminates the transfer.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_defer_if_no_mx_address_found (default: no)

Defer mail delivery when no MX record resolves to an IP address.

The default (no) is to return the mail as undeliverable. With older Postfix versions the default was to keep trying to deliver the mail until someone fixed the MX record or until the mail was too old.

Note: Postfix always ignores MX records with equal or worse preference than the local MTA itself.

This feature is available in Postfix 2.1 and later.

smtp_destination_concurrency_limit (default: \$default_destination_concurrency_limit)

The maximal number of parallel deliveries to the same destination via the smtp message delivery transport.

This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

smtp_destination_recipient_limit (default: \$default_destination_recipient_limit)

The maximal number of recipients per message for the smtp message delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

Setting this parameter to a value of 1 changes the meaning of smtp_destination_concurrency_limit from concurrency per domain into concurrency per recipient.

smtp_discard_ehlo_keyword_address_maps (default: empty)

Lookup tables, indexed by the remote SMTP server address, with case insensitive lists of EHLO keywords (pipelining, starttls, auth, etc.) that the Postfix SMTP client will ignore in the EHLO response from a remote SMTP server. See smtp_discard_ehlo_keywords for details. The table is not indexed by hostname for consistency with smtpd_discard_ehlo_keyword_address_maps.

This feature is available in Postfix 2.2 and later.

smtp_discard_ehlo_keywords (default: empty)

A case insensitive list of EHLO keywords (pipelining, starttls, auth, etc.) that the Postfix SMTP client will ignore in the EHLO response from a remote SMTP server.

This feature is available in Postfix 2.2 and later.

Notes:

- Specify the **silent-discard** pseudo keyword to prevent this action from being logged.
- Use the smtp_discard_ehlo_keyword_address_maps feature to discard EHLO keywords selectively.

smtp_enforce_tls (default: no)

Enforcement mode: require that remote SMTP servers use TLS encryption, and never send mail in the clear. This also requires that the remote SMTP server hostname matches the information in the remote server certificate, and that the remote SMTP server certificate was issued by a CA that is trusted by the Postfix SMTP client. If the certificate doesn't verify or the hostname doesn't match, delivery is deferred and mail stays in the queue.

The server hostname is matched against all names provided as dNSNames in the SubjectAlternativeName.

If no dNSNames are specified, the CommonName is checked. The behavior may be changed with the `smtp_tls_enforce_peername` option.

This option is useful only if you are definitely sure that you will only connect to servers that support RFC 2487 and that provide valid server certificates. Typical use is for clients that send all their email to a dedicated mailhub.

This feature is available in Postfix 2.2 and later. With Postfix 2.3 and later use `smtp_tls_security_level` instead.

smtp_fallback_relay (default: \$fallback_relay)

Optional list of relay hosts for SMTP destinations that can't be found or that are unreachable. With Postfix 2.2 and earlier this parameter is called `fallback_relay`.

By default, mail is returned to the sender when a destination is not found, and delivery is deferred when a destination is unreachable.

The fallback relays must be SMTP destinations. Specify a domain, host, host:port, [host]:port, [address] or [address]:port; the form [host] turns off MX lookups. If you specify multiple SMTP destinations, Postfix will try them in the specified order.

To prevent mailer loops between MX hosts and fall-back hosts, Postfix version 2.2 and later will not use the fallback relays for destinations that it is MX host for (assuming DNS lookup is turned on).

smtp_generic_maps (default: empty)

Optional lookup tables that perform address rewriting in the SMTP client, typically to transform a locally valid address into a globally valid address when sending mail across the Internet. This is needed when the local machine does not have its own Internet domain name, but uses something like *localdomain.local* instead.

The table format and lookups are documented in **generic(5)**; examples are shown in the ADDRESS_REWRITING_README and STANDARD_CONFIGURATION_README documents.

This feature is available in Postfix 2.2 and later.

smtp_header_checks (default: empty)

Restricted **header_checks(5)** tables for the Postfix SMTP client. These tables are searched while mail is being delivered. Actions that change the delivery time or destination are not available.

This feature is available in Postfix 2.5 and later.

smtp_helo_name (default: \$myhostname)

The hostname to send in the SMTP EHLO or HELO command.

The default value is the machine hostname. Specify a hostname or [ip.add.re.ss].

This information can be specified in the `main.cf` file for all SMTP clients, or it can be specified in the `master.cf` file for a specific client, for example:

```
/etc/postfix/master.cf:
    mysmtp ... smtp -o smtp_helo_name=foo.bar.com
```

This feature is available in Postfix 2.0 and later.

smtp_helo_timeout (default: 300s)

The SMTP client time limit for sending the HELO or EHLO command, and for receiving the initial server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_host_lookup (default: dns)

What mechanisms when the Postfix SMTP client uses to look up a host's IP address. This parameter is ignored when DNS lookups are disabled.

Specify one of the following:

dns Hosts can be found in the DNS (preferred).

native Use the native naming service only (nsswitch.conf, or equivalent mechanism).

dns, native

Use the native service for hosts not found in the DNS.

This feature is available in Postfix 2.1 and later.

smtp_line_length_limit (default: 990)

The maximal length of message header and body lines that Postfix will send via SMTP. Longer lines are broken by inserting "<CR><LF><SPACE>". This minimizes the damage to MIME formatted mail.

By default, the line length is limited to 990 characters, because some server implementations cannot receive mail with long lines.

smtp_mail_timeout (default: 300s)

The SMTP client time limit for sending the MAIL FROM command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_mime_header_checks (default: empty)

Restricted **mime_header_checks(5)** tables for the Postfix SMTP client. These tables are searched while mail is being delivered. Actions that change the delivery time or destination are not available.

This feature is available in Postfix 2.5 and later.

smtp_mx_address_limit (default: 5)

The maximal number of MX (mail exchanger) IP addresses that can result from mail exchanger lookups, or zero (no limit). Prior to Postfix version 2.3, this limit was disabled by default.

This feature is available in Postfix 2.1 and later.

smtp_mx_session_limit (default: 2)

The maximal number of SMTP sessions per delivery request before giving up or delivering to a fall-back relay host, or zero (no limit). This restriction ignores sessions that fail to complete the SMTP initial handshake (Postfix version 2.2 and earlier) or that fail to complete the EHLO and TLS handshake (Postfix version 2.3 and later).

This feature is available in Postfix 2.1 and later.

smtp_nested_header_checks (default: empty)

Restricted **nested_header_checks(5)** tables for the Postfix SMTP client. These tables are searched while mail is being delivered. Actions that change the delivery time or destination are not available.

This feature is available in Postfix 2.5 and later.

smtp_never_send_ehlo (default: no)

Never send EHLO at the start of an SMTP session. See also the **smtp_always_send_ehlo** parameter.

smtp_pix_workaround_delay_time (default: 10s)

How long the Postfix SMTP client pauses before sending "<CR><LF>" in order to work around the PIX firewall "<CR><LF>.<CR><LF>" bug.

Choosing a too short time makes this workaround ineffective when sending large messages over slow network connections.

smtp_pix_workaround_maps (default: empty)

Lookup tables, indexed by the remote SMTP server address, with per-destination workarounds for CISCO PIX firewall bugs. The table is not indexed by hostname for consistency with **smtp_discard_ehlo_keyword_address_maps**.

This feature is available in Postfix 2.4 and later.

smtp_pix_workaround_threshold_time (default: 500s)

How long a message must be queued before the Postfix SMTP client turns on the PIX firewall "<CR><LF>.<CR><LF>" bug workaround for delivery through firewalls with "smtp fixup" mode turned

on.

By default, the workaround is turned off for mail that is queued for less than 500 seconds. In other words, the workaround is normally turned off for the first delivery attempt.

Specify 0 to enable the PIX firewall "<CR><LF>.<CR><LF>" bug workaround upon the first delivery attempt.

smtp_pix_workarounds (default: disable_esmtp, delay_dotcrlf)

A list that specifies zero or more workarounds for CISCO PIX firewall bugs. These workarounds are implemented by the Postfix SMTP client. Workaround names are separated by comma or space, and are case insensitive. This parameter setting can be overruled with per-destination `smtp_pix_workaround_maps` settings.

delay_dotcrlf

Insert a delay before sending "<CR><LF>" after the end of the message content. The delay is subject to the `smtp_pix_workaround_delay_time` and `smtp_pix_workaround_threshold_time` parameter settings.

disable_esmtp

Disable all extended SMTP commands: send HELO instead of EHLO.

This feature is available in Postfix 2.4 and later. The default settings are backwards compatible with earlier Postfix versions.

smtp_quit_timeout (default: 300s)

The SMTP client time limit for sending the QUIT command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_quote_rfc821_envelope (default: yes)

Quote addresses in SMTP MAIL FROM and RCPT TO commands as required by RFC 2821. This includes putting quotes around an address localpart that ends in ".".

The default is to comply with RFC 2821. If you have to send mail to a broken SMTP server, configure a special SMTP client in `master.cf`:

```
/etc/postfix/master.cf:
    broken-smtp . . . smtp -o smtp_quote_rfc821_envelope=no
```

and route mail for the destination in question to the "broken-smtp" message delivery with a **transport(5)** table.

This feature is available in Postfix 2.1 and later.

smtp_randomize_addresses (default: yes)

Randomize the order of equal-preference MX host addresses. This is a performance feature of the Postfix SMTP client.

smtp_rcpt_timeout (default: 300s)

The SMTP client time limit for sending the SMTP RCPT TO command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtp_rset_timeout (default: 20s)

The SMTP client time limit for sending the RSET command, and for receiving the server response. The SMTP client sends RSET in order to finish a recipient address probe, or to verify that a cached session is still usable.

This feature is available in Postfix 2.1 and later.

smtp_sasl_auth_cache_name (default: empty)

An optional table to prevent repeated SASL authentication failures with the same remote SMTP server hostname, username and password. Each table (key, value) pair contains a server name, a username and

password, and the full server response. This information is stored when a remote SMTP server rejects an authentication attempt with a 535 reply code. As long as the `smtp_sasl_password_maps` information does not change, and as long as the `smtp_sasl_auth_cache_name` information does not expire (see `smtp_sasl_auth_cache_time`) the Postfix SMTP client avoids SASL authentication attempts with the same server, username and password, and instead bounces or defers mail as controlled with the `smtp_sasl_auth_soft_bounce` configuration parameter.

Use a per-destination delivery concurrency of 1 (for example, "`smtp_destination_concurrency_limit = 1`", "`relay_destination_concurrency_limit = 1`", etc.), otherwise multiple delivery agents may experience a login failure at the same time.

The table must be accessed via the proxywrite service, i.e. the map name must start with "proxy:". The table should be stored under the directory specified with the `data_directory` parameter.

This feature uses cryptographic hashing to protect plain-text passwords, and requires that Postfix is compiled with TLS support.

Example:

```
smtp_sasl_auth_cache_name = proxy:btree:/var/lib/postfix/sasl_auth_cache
```

This feature is available in Postfix 2.5 and later.

smtp_sasl_auth_cache_time (default: 90d)

The maximal age of an `smtp_sasl_auth_cache_name` entry before it is removed.

This feature is available in Postfix 2.5 and later.

smtp_sasl_auth_enable (default: no)

Enable SASL authentication in the Postfix SMTP client. By default, the Postfix SMTP client uses no authentication.

Example:

```
smtp_sasl_auth_enable = yes
```

smtp_sasl_auth_soft_bounce (default: yes)

When a remote SMTP server rejects a SASL authentication request with a 535 reply code, defer mail delivery instead of returning mail as undeliverable. The latter behavior was hard-coded prior to Postfix version 2.5.

Note: the setting "yes" overrides the global `soft_bounce` parameter, but the setting "no" does not.

Example:

```
# Default as of Postfix 2.5
smtp_sasl_auth_soft_bounce = yes
# The old hard-coded default
smtp_sasl_auth_soft_bounce = no
```

This feature is available in Postfix 2.5 and later.

smtp_sasl_mechanism_filter (default: empty)

If non-empty, a Postfix SMTP client filter for the remote SMTP server's list of offered SASL mechanisms. Different client and server implementations may support different mechanism lists. By default, the Postfix SMTP client will use the intersection of the two. `smtp_sasl_mechanism_filter` further restricts what server mechanisms the client will take into consideration.

Specify mechanism names, "/file/name" patterns or "type:table" lookup tables. The right-hand side result from "type:table" lookups is ignored. Specify "!"pattern" to exclude a mechanism name from the list. The form "!/file/name" is supported only in Postfix version 2.4 and later.

This feature is available in Postfix 2.2 and later.

Examples:

```
smtp_sasl_mechanism_filter = plain, login
```

```
smtp_sasl_mechanism_filter = /etc/postfix/smtp_mechs
smtp_sasl_mechanism_filter = !gssapi, !login, static:rest
```

smtp_sasl_password_maps (default: empty)

Optional SMTP client lookup tables with one username:password entry per remote hostname or domain, or sender address when sender-dependent authentication is enabled. If no username:password entry is found, then the Postfix SMTP client will not attempt to authenticate to the remote host.

The Postfix SMTP client opens the lookup table before going to chroot jail, so you can leave the password file in /etc/postfix.

smtp_sasl_path (default: empty)

Implementation-specific information that the Postfix SMTP client passes through to the SASL plug-in implementation that is selected with **smtp_sasl_type**. Typically this specifies the name of a configuration file or rendezvous point.

This feature is available in Postfix 2.3 and later.

smtp_sasl_security_options (default: noplaintext, noanonymous)

Postfix SMTP client SASL security options; as of Postfix 2.3 the list of available features depends on the SASL client implementation that is selected with **smtp_sasl_type**.

The following security features are defined for the **cyrus** client SASL implementation:

Specify zero or more of the following:

noplaintext

Disallow methods that use plaintext passwords.

noactive

Disallow methods subject to active (non-dictionary) attack.

nodictionary

Disallow methods subject to passive (dictionary) attack.

noanonymous

Disallow methods that allow anonymous authentication.

mutual_auth

Only allow methods that provide mutual authentication (not available with SASL version 1).

Example:

```
smtp_sasl_security_options = noplaintext
```

smtp_sasl_tls_security_options (default: \$smtp_sasl_security_options)

The SASL authentication security options that the Postfix SMTP client uses for TLS encrypted SMTP sessions.

This feature is available in Postfix 2.2 and later.

smtp_sasl_tls_verified_security_options (default: \$smtp_sasl_tls_security_options)

The SASL authentication security options that the Postfix SMTP client uses for TLS encrypted SMTP sessions with a verified server certificate.

When mail is sent to the public MX host for the recipient's domain, server certificates are by default optional, and delivery proceeds even if certificate verification fails. For delivery via a submission service that requires SASL authentication, it may be appropriate to send plaintext passwords only when the connection to the server is strongly encrypted **and** the server identity is verified.

The `smtp_sasl_tls_verified_security_options` parameter makes it possible to only enable plaintext mechanisms when a secure connection to the server is available. Submission servers subject to this policy must either have verifiable certificates or offer suitable non-plaintext SASL mechanisms.

This feature is available in Postfix 2.6 and later.

smtp_sasl_type (default: cyrus)

The SASL plug-in type that the Postfix SMTP client should use for authentication. The available types are listed with the **"postconf -A"** command.

This feature is available in Postfix 2.3 and later.

smtp_send_xforward_command (default: no)

Send the non-standard XFORWARD command when the Postfix SMTP server EHLO response announces XFORWARD support.

This allows an "smtp" delivery agent, used for injecting mail into a content filter, to forward the name, address, protocol and HELO name of the original client to the content filter and downstream queuing SMTP server. This can produce more useful logging than localhost[127.0.0.1] etc.

This feature is available in Postfix 2.1 and later.

smtp_sender_dependent_authentication (default: no)

Enable sender-dependent authentication in the Postfix SMTP client; this is available only with SASL authentication, and disables SMTP connection caching to ensure that mail from different senders will use the appropriate credentials.

This feature is available in Postfix 2.3 and later.

smtp_skip_4xx_greeting (default: yes)

Skip SMTP servers that greet with a 4XX status code (go away, try again later).

By default, Postfix moves on the next mail exchanger. Specify "smtp_skip_4xx_greeting = no" if Postfix should defer delivery immediately.

This feature is available in Postfix 2.0 and earlier. Later Postfix versions always skip SMTP servers that greet with a 4XX status code.

smtp_skip_5xx_greeting (default: yes)

Skip SMTP servers that greet with a 5XX status code (go away, do not try again later).

By default, the Postfix SMTP client moves on the next mail exchanger. Specify "smtp_skip_5xx_greeting = no" if Postfix should bounce the mail immediately. The default setting is incorrect, but it is what a lot of people expect to happen.

smtp_skip_quit_response (default: yes)

Do not wait for the response to the SMTP QUIT command.

smtp_starttls_timeout (default: 300s)

Time limit for Postfix SMTP client write and read operations during TLS startup and shutdown handshake procedures.

This feature is available in Postfix 2.2 and later.

smtp_tls_CAfile (default: empty)

A file containing CA certificates of root CAs trusted to sign either remote SMTP server certificates or intermediate CA certificates. These are loaded into memory before the **smtp(8)** client enters the chroot jail. If the number of trusted roots is large, consider using smtp_tls_CApolicy instead, but note that the latter directory must be present in the chroot jail if the **smtp(8)** client is chrooted. This file may also be used to augment the client certificate trust chain, but it is best to include all the required certificates directly in \$smtp_tls_cert_file.

Example:

```
smtp_tls_CAfile = /etc/postfix/CAcert.pem
```

This feature is available in Postfix 2.2 and later.

smtp_tls_CApolicy (default: empty)

Directory with PEM format certificate authority certificates that the Postfix SMTP client uses to verify a remote SMTP server certificate. Don't forget to create the necessary "hash" links with, for example, "\$OPENSSL_HOME/bin/c_rehash /etc/postfix/certs".

To use this option in chroot mode, this directory (or a copy) must be inside the chroot jail.

Example:

```
smtp_tls_CApath = /etc/postfix/certs
```

This feature is available in Postfix 2.2 and later.

smtp_tls_cert_file (default: empty)

File with the Postfix SMTP client RSA certificate in PEM format. This file may also contain the Postfix SMTP client private RSA key, and these may be the same as the Postfix SMTP server RSA certificate and key file.

Do not configure client certificates unless you **must** present client TLS certificates to one or more servers. Client certificates are not usually needed, and can cause problems in configurations that work well without them. The recommended setting is to let the defaults stand:

```
smtp_tls_cert_file =
smtp_tls_key_file =
smtp_tls_dcert_file =
smtp_tls_dkey_file =
smtp_tls_eccert_file =
smtp_tls_eckey_file =
```

The best way to use the default settings is to comment out the above parameters in main.cf if present.

To enable remote SMTP servers to verify the Postfix SMTP client certificate, the issuing CA certificates must be made available to the server. You should include the required certificates in the client certificate file, the client certificate first, then the issuing CA(s) (bottom-up order).

Example: the certificate for "client.example.com" was issued by "intermediate CA" which itself has a certificate issued by "root CA". Create the client.pem file with "cat client_cert.pem intermediate_CA.pem root_CA.pem > client.pem".

If you also want to verify remote SMTP server certificates issued by these CAs, you can add the CA certificates to the smtp_tls_CAfile, in which case it is not necessary to have them in the smtp_tls_cert_file, smtp_tls_dcert_file or smtp_tls_eccert_file.

A certificate supplied here must be usable as an SSL client certificate and hence pass the "openssl verify -purpose sslclient ..." test.

Example:

```
smtp_tls_cert_file = /etc/postfix/client.pem
```

This feature is available in Postfix 2.2 and later.

smtp_tls_cipherlist (default: empty)

Obsolete Postfix < 2.3 control for the Postfix SMTP client TLS cipher list. As this feature applies to all TLS security levels, it is easy to create inter-operability problems by choosing a non-default cipher list. Do not use a non-default TLS cipher list on hosts that deliver email to the public Internet: you will be unable to send email to servers that only support the ciphers you exclude. Using a restricted cipher list may be more appropriate for an internal MTA, where one can exert some control over the TLS software and settings of the peer servers.

Note: do not use "" quotes around the parameter value.

This feature is available in Postfix version 2.2. It is not used with Postfix 2.3 and later; use smtp_tls_mandatory_ciphers instead.

smtp_tls_ciphers (default: export)

The minimum TLS cipher grade that the Postfix SMTP client will use with opportunistic TLS encryption. Cipher types listed in smtp_tls_exclude_ciphers are excluded from the base definition of the selected cipher grade. The default value "export" ensures maximum inter-operability. Because encryption is optional, stronger controls are not appropriate, and this setting **SHOULD NOT** be changed unless the change is

essential.

When TLS is mandatory the cipher grade is chosen via the `smtp_tls_mandatory_ciphers` configuration parameter, see there for syntax details. See `smtp_tls_policy_maps` for information on how to configure ciphers on a per-destination basis.

Example:

```
smtp_tls_ciphers = export
```

This feature is available in Postfix 2.6 and later. With earlier Postfix releases only the `smtp_tls_mandatory_ciphers` parameter is implemented, and opportunistic TLS always uses "export" or better (i.e. all) ciphers.

smtp_tls_dcert_file (default: empty)

File with the Postfix SMTP client DSA certificate in PEM format. This file may also contain the Postfix SMTP client private DSA key.

See the discussion under `smtp_tls_cert_file` for more details.

Example:

```
smtp_tls_dcert_file = /etc/postfix/client-dsa.pem
```

This feature is available in Postfix 2.2 and later.

smtp_tls_dkey_file (default: \$smtp_tls_dcert_file)

File with the Postfix SMTP client DSA private key in PEM format. This file may be combined with the Postfix SMTP client DSA certificate file specified with `$smtp_tls_dcert_file`.

The private key must be accessible without a pass-phrase, i.e. it must not be encrypted. File permissions should grant read-only access to the system superuser account ("root"), and no access to anyone else.

This feature is available in Postfix 2.2 and later.

smtp_tls_eccert_file (default: empty)

File with the Postfix SMTP client ECDSA certificate in PEM format. This file may also contain the Postfix SMTP client ECDSA private key.

See the discussion under `smtp_tls_cert_file` for more details.

Example:

```
smtp_tls_eccert_file = /etc/postfix/ecdsa-ccert.pem
```

This feature is available in Postfix 2.6 and later, when Postfix is compiled and linked with OpenSSL 0.9.9 or later.

smtp_tls_eckey_file (default: \$smtp_tls_eccert_file)

File with the Postfix SMTP client ECDSA private key in PEM format. This file may be combined with the Postfix SMTP client ECDSA certificate file specified with `$smtp_tls_eccert_file`.

The private key must be accessible without a pass-phrase, i.e. it must not be encrypted. File permissions should grant read-only access to the system superuser account ("root"), and no access to anyone else.

This feature is available in Postfix 2.6 and later, when Postfix is compiled and linked with OpenSSL 0.9.9 or later.

smtp_tls_enforce_peername (default: yes)

With mandatory TLS encryption, require that the remote SMTP server hostname matches the information in the remote SMTP server certificate. As of RFC 2487 the requirements for hostname checking for MTA clients are not specified.

This option can be set to "no" to disable strict peer name checking. This setting has no effect on sessions that are controlled via the `smtp_tls_per_site` table.

Disabling the hostname verification can make sense in closed environment where special CAs are created. If not used carefully, this option opens the danger of a "man-in-the-middle" attack (the CommonName of this attacker will be logged).

This feature is available in Postfix 2.2 and later. With Postfix 2.3 and later use `smtp_tls_security_level` instead.

smtp_tls_exclude_ciphers (default: empty)

List of ciphers or cipher types to exclude from the Postfix SMTP client cipher list at all TLS security levels. This is not an OpenSSL cipherlist, it is a simple list separated by whitespace and/or commas. The elements are a single cipher, or one or more "+" separated cipher properties, in which case only ciphers matching **all** the properties are excluded.

Examples (some of these will cause problems):

```
smtp_tls_exclude_ciphers = aNULL
smtp_tls_exclude_ciphers = MD5, DES
smtp_tls_exclude_ciphers = DES+MD5
smtp_tls_exclude_ciphers = AES256-SHA, DES-CBC3-MD5
smtp_tls_exclude_ciphers = kEDH+aRSA
```

The first setting, disables anonymous ciphers. The next setting disables ciphers that use the MD5 digest algorithm or the (single) DES encryption algorithm. The next setting disables ciphers that use MD5 and DES together. The next setting disables the two ciphers "AES256-SHA" and "DES-CBC3-MD5". The last setting disables ciphers that use "EDH" key exchange with RSA authentication.

This feature is available in Postfix 2.3 and later.

smtp_tls_fingerprint_cert_match (default: empty)

List of acceptable remote SMTP server certificate fingerprints for the "fingerprint" TLS security level (`smtp_tls_security_level = fingerprint`). At this security level, certificate authorities are not used, and certificate expiration times are ignored. Instead, server certificates are verified directly via their "fingerprint". The fingerprint is a message digest of the server certificate. The digest algorithm is selected via the `smtp_tls_fingerprint_digest` parameter.

When an `smtp_tls_policy_maps` table entry specifies the "fingerprint" security level, any "match" attributes in that entry specify the list of valid fingerprints for the corresponding destination. Multiple fingerprints can be combined with a "|" delimiter in a single match attribute, or multiple match attributes can be employed.

Example: Certificate fingerprint verification with internal mailhub. Two matching fingerprints are listed. The relayhost may be multiple physical hosts behind a load-balancer, each with its own private/public key and self-signed certificate. Alternatively, a single relayhost may be in the process of switching from one set of private/public keys to another, and both keys are trusted just prior to the transition.

```
relayhost = [mailhub.example.com]
smtp_tls_security_level = fingerprint
smtp_tls_fingerprint_digest = md5
smtp_tls_fingerprint_cert_match =
    3D:95:34:51:24:66:33:B9:D2:40:99:C0:C1:17:0B:D1
    EC:3B:2D:B0:5B:B1:FB:6D:20:A3:9D:72:F6:8D:12:35
```

Example: Certificate fingerprint verification with selected destinations. As in the example above, we show two matching fingerprints:

```
/etc/postfix/main.cf:
    smtp_tls_policy_maps = hash:/etc/postfix/tls_policy
    smtp_tls_fingerprint_digest = md5

/etc/postfix/tls_policy:
    example.com    fingerprint
        match=3D:95:34:51:24:66:33:B9:D2:40:99:C0:C1:17:0B:D1
        match=EC:3B:2D:B0:5B:B1:FB:6D:20:A3:9D:72:F6:8D:12:35
```

This feature is available in Postfix 2.5 and later.

smtp_tls_fingerprint_digest (default: md5)

The message digest algorithm used to construct remote SMTP server certificate fingerprints. At the "fingerprint" TLS security level (**smtp_tls_security_level** = fingerprint), the server certificate is verified by directly matching its *fingerprint*. The fingerprint is the message digest of the server certificate using the selected algorithm. With a digest algorithm resistant to "second pre-image" attacks, it is not feasible to create a new public key and a matching certificate that has the same fingerprint.

The default algorithm is **md5**; this is consistent with the backwards compatible setting of the digest used to verify client certificates in the SMTP server.

The best practice algorithm is now **sha1**. Recent advances in hash function cryptanalysis have led to md5 being deprecated in favor of sha1. However, as long as there are no known "second pre-image" attacks against md5, its use in this context can still be considered safe.

While additional digest algorithms are often available with OpenSSL's libcrypto, only those used by libssl in SSL cipher suites are available to Postfix. For now this means just md5 or sha1.

To find the fingerprint of a specific certificate file, with a specific digest algorithm, run:

```
$ openssl x509 -noout -fingerprint -digest -in certfile.pem
```

The text to the right of "=" sign is the desired fingerprint. For example:

```
$ openssl x509 -noout -fingerprint -sha1 -in cert.pem
SHA1 Fingerprint=D4:6A:AB:19:24:79:F8:32:BB:A6:CB:66:82:C0:8E:9B:EE:29:A8:1A
```

This feature is available in Postfix 2.5 and later.

smtp_tls_key_file (default: \$smtp_tls_cert_file)

File with the Postfix SMTP client RSA private key in PEM format. This file may be combined with the Postfix SMTP client RSA certificate file specified with `$smtp_tls_cert_file`.

The private key must be accessible without a pass-phrase, i.e. it must not be encrypted. File permissions should grant read-only access to the system superuser account ("root"), and no access to anyone else.

Example:

```
smtp_tls_key_file = $smtp_tls_cert_file
```

This feature is available in Postfix 2.2 and later.

smtp_tls_loglevel (default: 0)

Enable additional Postfix SMTP client logging of TLS activity. Each logging level also includes the information that is logged at a lower logging level.

- 0 Disable logging of TLS activity.
- 1 Log TLS handshake and certificate information.
- 2 Log levels during TLS negotiation.
- 3 Log hexadecimal and ASCII dump of TLS negotiation process.
- 4 Log hexadecimal and ASCII dump of complete transmission after STARTTLS.

Use "smtp_tls_loglevel = 3" only in case of problems. Use of loglevel 4 is strongly discouraged.

This feature is available in Postfix 2.2 and later.

smtp_tls_mandatory_ciphers (default: medium)

The minimum TLS cipher grade that the Postfix SMTP client will use with mandatory TLS encryption. The default value "medium" is suitable for most destinations with which you may want to enforce TLS, and is beyond the reach of today's crypt-analytic methods. See `smtp_tls_policy_maps` for information on how to configure ciphers on a per-destination basis.

The following cipher grades are supported:

- export** Enable the mainstream "EXPORT" grade or better OpenSSL ciphers. This is always used for opportunistic encryption. It is not recommended for mandatory encryption unless you must enforce TLS with "crippled" peers. The underlying cipherlist is specified via the `tls_export_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_export_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the client is configured to verify server certificates. If you must exclude anonymous ciphers also at the "encrypt" security level, set `"smtp_tls_mandatory_exclude_ciphers = aNULL"`.
- low** Enable the mainstream "LOW" grade or better OpenSSL ciphers. This setting is only appropriate for internal mail servers. The underlying cipherlist is specified via the `tls_low_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_low_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the client is configured to verify server certificates. If you must exclude anonymous ciphers also at the "encrypt" security level, set `"smtp_tls_mandatory_exclude_ciphers = aNULL"`.
- medium** Enable the mainstream "MEDIUM" grade or better OpenSSL ciphers. The underlying cipherlist is specified via the `tls_medium_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_medium_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the client is configured to verify server certificates. If you must exclude anonymous ciphers also at the "encrypt" security level, set `"smtp_tls_mandatory_exclude_ciphers = aNULL"`.
- high** Enable only the mainstream "HIGH" grade OpenSSL ciphers. This setting is appropriate when all mandatory TLS destinations support some of "HIGH" grade ciphers, this is not uncommon. The underlying cipherlist is specified via the `tls_high_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_high_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the client is configured to verify server certificates. If you must exclude anonymous ciphers also at the "encrypt" security level, set `"smtp_tls_mandatory_exclude_ciphers = aNULL"`.
- null** Enable only the "NULL" OpenSSL ciphers, these provide authentication without encryption. This setting is only appropriate in the rare case that all servers are prepared to use NULL ciphers (not normally enabled in TLS servers). A plausible use-case is an LMTP server listening on a UNIX-domain socket that is configured to support "NULL" ciphers. The underlying cipherlist is specified via the `tls_null_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_null_cipherlist` excludes anonymous ciphers (OpenSSL 0.9.8 has NULL ciphers that offer data integrity without encryption or authentication).

This feature is available in Postfix 2.3 and later.

smtp_tls_mandatory_exclude_ciphers (default: empty)

Additional list of ciphers or cipher types to exclude from the SMTP client cipher list at mandatory TLS security levels. This list works in addition to the exclusions listed with `smtp_tls_exclude_ciphers` (see there for syntax details).

Starting with Postfix 2.6, the mandatory cipher exclusions can be specified on a per-destination basis via the TLS policy "exclude" attribute. See `smtp_tls_policy_maps` for notes and examples.

This feature is available in Postfix 2.3 and later.

smtp_tls_mandatory_protocols (default: SSLv3, TLSv1)

List of SSL/TLS protocols that the Postfix SMTP client will use with mandatory TLS encryption. In `main.cf` the values are separated by whitespace, commas or colons. In the policy table "protocols" attribute (see `smtp_tls_policy_maps`) the only valid separator is colon. An empty value means allow all protocols. The valid protocol names, (see `fBfBSSL_get_version(3)`), are "SSLv2", "SSLv3" and "TLSv1".

With Postfix \geq 2.5 the parameter syntax is expanded to support protocol exclusions. One can now explicitly exclude SSLv2 by setting `"smtp_tls_mandatory_protocols = !SSLv2"`. To exclude both SSLv2 and SSLv3 set `"smtp_tls_mandatory_protocols = !SSLv2, !SSLv3"`. Listing the protocols to include, rather than

protocols to exclude, is still supported; use the form you find more intuitive.

Since SSL version 2 has known protocol weaknesses and is now deprecated, the default setting excludes "SSLv2". This means that by default, SSL version 2 will not be used at the "encrypt" security level and higher.

See the documentation of the `smtp_tls_policy_maps` parameter and `TLS_README` for more information about security levels.

Example:

```
smtp_tls_mandatory_protocols = TLSv1
# Alternative form with Postfix >= 2.5:
smtp_tls_mandatory_protocols = !SSLv2, !SSLv3
```

This feature is available in Postfix 2.3 and later.

smtp_tls_note_starttls_offer (default: no)

Log the hostname of a remote SMTP server that offers STARTTLS, when TLS is not already enabled for that server.

The logfile record looks like:

```
postfix/smtp[pid]: Host offered STARTTLS: [name.of.host]
```

This feature is available in Postfix 2.2 and later.

smtp_tls_per_site (default: empty)

Optional lookup tables with the Postfix SMTP client TLS usage policy by next-hop destination and by remote SMTP server hostname. When both lookups succeed, the more specific per-site policy (NONE, MUST, etc) overrides the less specific one (MAY), and the more secure per-site policy (MUST, etc) overrides the less secure one (NONE). With Postfix 2.3 and later `smtp_tls_per_site` is strongly discouraged: use `smtp_tls_policy_maps` instead.

Use of the bare hostname as the per-site table lookup key is discouraged. Always use the full destination `nexthop` (enclosed in [] with a possible `":port"` suffix). A recipient domain or MX-enabled transport next-hop with no port suffix may look like a bare hostname, but is still a suitable *destination*.

Specify a next-hop destination or server hostname on the left-hand side; no wildcards are allowed. The next-hop destination is either the recipient domain, or the destination specified with a **transport(5)** table, the `relayhost` parameter, or the `relay_transport` parameter. On the right hand side specify one of the following keywords:

NONE Don't use TLS at all. This overrides a less specific **MAY** lookup result from the alternate host or next-hop lookup key, and overrides the global `smtp_use_tls`, `smtp_enforce_tls`, and `smtp_tls_enforce_peername` settings.

MAY Try to use TLS if the server announces support, otherwise use the unencrypted connection. This has less precedence than a more specific result (including **NONE**) from the alternate host or next-hop lookup key, and has less precedence than the more specific global `"smtp_enforce_tls = yes"` or `"smtp_tls_enforce_peername = yes"`.

MUST_NOPEERMATCH

Require TLS encryption, but do not require that the remote SMTP server hostname matches the information in the remote SMTP server certificate, or that the server certificate was issued by a trusted CA. This overrides a less secure **NONE** or a less specific **MAY** lookup result from the alternate host or next-hop lookup key, and overrides the global `smtp_use_tls`, `smtp_enforce_tls` and `smtp_tls_enforce_peername` settings.

MUST Require TLS encryption, require that the remote SMTP server hostname matches the information in the remote SMTP server certificate, and require that the remote SMTP server certificate was issued by a trusted CA. This overrides a less secure **NONE** and **MUST_NOPEERMATCH** or a less specific **MAY** lookup result from the alternate host or next-hop lookup key, and overrides the global `smtp_use_tls`, `smtp_enforce_tls` and `smtp_tls_enforce_peername` settings.

The above keywords correspond to the "none", "may", "encrypt" and "verify" security levels for the new `smtp_tls_security_level` parameter introduced in Postfix 2.3. Starting with Postfix 2.3, and independently of how the policy is specified, the `smtp_tls_mandatory_ciphers` and `smtp_tls_mandatory_protocols` parameters apply when TLS encryption is mandatory. Connections for which encryption is optional typically enable all "export" grade and better ciphers (see `smtp_tls_ciphers` and `smtp_tls_protocols`).

As long as no secure DNS lookup mechanism is available, false hostnames in MX or CNAME responses can change the server hostname that Postfix uses for TLS policy lookup and server certificate verification. Even with a perfect match between the server hostname and the server certificate, there is no guarantee that Postfix is connected to the right server. See `TLS_README` (Closing a DNS loophole with obsolete per-site TLS policies) for a possible work-around.

This feature is available in Postfix 2.2 and later. With Postfix 2.3 and later use `smtp_tls_policy_maps` instead.

smtp_tls_policy_maps (default: empty)

Optional lookup tables with the Postfix SMTP client TLS security policy by next-hop destination; when a non-empty value is specified, this overrides the obsolete `smtp_tls_per_site` parameter. See `TLS_README` for a more detailed discussion of TLS security levels.

The TLS policy table is indexed by the full next-hop destination, which is either the recipient domain, or the verbatim next-hop specified in the transport table, `$local_transport`, `$virtual_transport`, `$relay_transport` or `$default_transport`. This includes any enclosing square brackets and any non-default destination server port suffix. The LMTP socket type prefix (`inet:` or `unix:`) is not included in the lookup key.

Only the next-hop domain, or `$myhostname` with LMTP over UNIX-domain sockets, is used as the nexthop name for certificate verification. The port and any enclosing square brackets are used in the table lookup key, but are not used for server name verification.

When the lookup key is a domain name without enclosing square brackets or any `:port` suffix (typically the recipient domain), and the full domain is not found in the table, just as with the **transport(5)** table, the parent domain starting with a leading "." is matched recursively. This allows one to specify a security policy for a recipient domain and all its sub-domains.

The lookup result is a security level, followed by an optional list of whitespace and/or comma separated `name=value` attributes that override related `main.cf` settings. The TLS security levels in order of increasing security are:

none No TLS. No additional attributes are supported at this level.

may Opportunistic TLS. Since sending in the clear is acceptable, demanding stronger than default TLS security merely reduces inter-operability. The optional "ciphers", "exclude" and "protocols" attributes (available for opportunistic TLS with Postfix \geq 2.6) override the `smtp_tls_ciphers`, `smtp_tls_exclude_ciphers` and `smtp_tls_protocols` configuration parameters. When opportunistic TLS handshakes fail, Postfix retries the connection with TLS disabled. This allows mail delivery to sites with non-interoperable TLS implementations.

encrypt

Mandatory TLS encryption. At this level and higher, the optional "protocols" attribute overrides the `main.cf smtp_tls_mandatory_protocols` parameter, the optional "ciphers" attribute overrides the `main.cf smtp_tls_mandatory_ciphers` parameter, and the optional "exclude" attribute (Postfix \geq 2.6) overrides the `main.cf smtp_tls_mandatory_exclude_ciphers` parameter. In the policy table, multiple protocols or excluded ciphers must be separated by colons, as attribute values may not contain whitespace or commas.

fingerprint

Certificate fingerprint verification. Available with Postfix 2.5 and later. At this security level, there are no trusted certificate authorities. The certificate trust chain, expiration date, ... are not checked. Instead, the optional **match** attribute, or else the `main.cf smtp_tls_fingerprint_cert_match` parameter, lists the valid "fingerprints" of the server certificate. The digest algorithm used to calculate the fingerprint is selected by the `smtp_tls_fingerprint_digest` parameter. Multiple fingerprints

can be combined with a "|" delimiter in a single match attribute, or multiple match attributes can be employed. The ":" character is not used as a delimiter as it occurs between each pair of fingerprint (hexadecimal) digits.

- verify** Mandatory TLS verification. At this security level, DNS MX lookups are trusted to be secure enough, and the name verified in the server certificate is usually obtained indirectly via unauthenticated DNS MX lookups. The optional "match" attribute overrides the main.cf smtp_tls_verify_cert_match parameter. In the policy table, multiple match patterns and strategies must be separated by colons. In practice explicit control over matching is more common with the "secure" policy, described below.
- secure** Secure-channel TLS. At this security level, DNS MX lookups, though potentially used to determine the candidate next-hop gateway IP addresses, are **not** trusted to be secure enough for TLS peername verification. Instead, the default name verified in the server certificate is obtained directly from the next-hop, or is explicitly specified via the optional **match** attribute which overrides the main.cf smtp_tls_secure_cert_match parameter. In the policy table, multiple match patterns and strategies must be separated by colons. The match attribute is most useful when multiple domains are supported by common server, the policy entries for additional domains specify matching rules for the primary domain certificate. While transport table overrides routing the secondary domains to the primary nexthop also allow secure verification, they risk delivery to the wrong destination when domains change hands or are re-assigned to new gateways. With the "match" attribute approach, routing is not perturbed, and mail is deferred if verification of a new MX host fails.

Example:

```
/etc/postfix/main.cf:
smtp_tls_policy_maps = hash:/etc/postfix/tls_policy
# Postfix 2.5 and later
smtp_tls_fingerprint_digest = md5

/etc/postfix/tls_policy:
example.edu           none
example.mil           may
example.gov           encrypt protocols=TLSv1
example.com           verify ciphers=high
example.net           secure
.example.net          secure match=.example.net:example.net
[mail.example.org]:587 secure match=nexthop
# Postfix 2.5 and later
[thumb.example.org]   fingerprint
                      match=EC:3B:2D:B0:5B:B1:FB:6D:20:A3:9D:72:F6:8D:12:35
                      match=3D:95:34:51:24:66:33:B9:D2:40:99:C0:C1:17:0B:D1
```

Note: The **hostname** strategy if listed in a non-default setting of smtp_tls_secure_cert_match or in the **match** attribute in the policy table can render the **secure** level vulnerable to DNS forgery. Do not use the **hostname** strategy for secure-channel configurations in environments where DNS security is not assured.

This feature is available in Postfix 2.3 and later.

smtp_tls_protocols (default: !SSLv2)

List of TLS protocols that the Postfix SMTP client will exclude or include with opportunistic TLS encryption. Starting with Postfix 2.6, the Postfix SMTP client will by default not use the obsolete SSLv2 protocol.

In main.cf the values are separated by whitespace, commas or colons. In the policy table (see smtp_tls_policy_maps) the only valid separator is colon. An empty value means allow all protocols. The valid protocol names, (see `\fBfBSSL_get_version(3)`), are "SSLv2", "SSLv3" and "TLSv1".

To include a protocol list its name, to exclude it, prefix the name with a "!" character. To exclude SSLv2 even for opportunistic TLS set "smtp_tls_protocols = !SSLv2". To exclude both "SSLv2" and "SSLv3" set

"smtp_tls_protocols = !SSLv2, !SSLv3". Explicitly listing the protocols to include, is supported, but not recommended. OpenSSL provides no mechanisms for excluding protocols not known at compile-time. If Postfix is linked against an OpenSSL library that supports additional protocol versions, they cannot be excluded using either syntax.

Example:

```
# TLSv1 only!
smtp_tls_protocols = !SSLv2, !SSLv3
```

This feature is available in Postfix 2.6 and later.

smtp_tls_scert_verifydepth (default: 9)

The verification depth for remote SMTP server certificates. A depth of 1 is sufficient if the issuing CA is listed in a local CA file.

The default verification depth is 9 (the OpenSSL default) for compatibility with earlier Postfix behavior. Prior to Postfix 2.5, the default value was 5, but the limit was not actually enforced. If you have set this to a lower non-default value, certificates with longer trust chains may now fail to verify. Certificate chains with 1 or 2 CAs are common, deeper chains are more rare and any number between 5 and 9 should suffice in practice. You can choose a lower number if, for example, you trust certificates directly signed by an issuing CA but not any CAs it delegates to.

This feature is available in Postfix 2.2 and later.

smtp_tls_secure_cert_match (default: nexthop, dot-nexthop)

The server certificate peername verification method for the "secure" TLS security level. In a "secure" TLS policy table (\$smtp_tls_policy_maps) entry the optional "match" attribute overrides this main.cf setting.

This parameter specifies one or more patterns or strategies separated by commas, whitespace or colons. In the policy table the only valid separator is the colon character.

For a description of the pattern and strategy syntax see the smtp_tls_verify_cert_match parameter. The "hostname" strategy should be avoided in this context, as in the absence of a secure global DNS, using the results of MX lookups in certificate verification is not immune to active (man-in-the-middle) attacks on DNS.

Sample main.cf setting:

```
smtp_tls_secure_cert_match = nexthop
```

Sample policy table override:

```
example.net      secure match=example.com:.example.com
.example.net     secure match=example.com:.example.com
```

This feature is available in Postfix 2.3 and later.

smtp_tls_security_level (default: empty)

The default SMTP TLS security level for the Postfix SMTP client; when a non-empty value is specified, this overrides the obsolete parameters smtp_use_tls, smtp_enforce_tls, and smtp_tls_enforce_peername.

Specify one of the following security levels:

- none** TLS will not be used unless enabled for specific destinations via smtp_tls_policy_maps.
- may** Opportunistic TLS. Use TLS if this is supported by the remote SMTP server, otherwise use plaintext. Since sending in the clear is acceptable, demanding stronger than default TLS security merely reduces inter-operability. The "smtp_tls_ciphers" and "smtp_tls_protocols" (Postfix >= 2.6) configuration parameters provide control over the protocols and cipher grade used with opportunistic TLS. With earlier releases the opportunistic TLS cipher grade is always "export" and no protocols are disabled. When TLS handshakes fail, the connection is retried with TLS disabled. This allows mail delivery to sites with non-interoperable TLS implementations.

encrypt

Mandatory TLS encryption. Since a minimum level of security is intended, it is reasonable to be specific about sufficiently secure protocol versions and ciphers. At this security level and higher, the `main.cf` parameters `smtp_tls_mandatory_protocols` and `smtp_tls_mandatory_ciphers` specify the TLS protocols and minimum cipher grade which the administrator considers secure enough for mandatory encrypted sessions. This security level is not an appropriate default for systems delivering mail to the Internet.

fingerprint

Certificate fingerprint verification. Available with Postfix 2.5 and later. At this security level, there are no trusted certificate authorities. The certificate trust chain, expiration date, ... are not checked. Instead, the `smtp_tls_fingerprint_cert_match` parameter lists the valid "fingerprints" of the server certificate. The digest algorithm used to calculate the fingerprint is selected by the `smtp_tls_fingerprint_digest` parameter.

verify

Mandatory TLS verification. At this security level, DNS MX lookups are trusted to be secure enough, and the name verified in the server certificate is usually obtained indirectly via unauthenticated DNS MX lookups. The `smtp_tls_verify_cert_match` parameter controls how the server name is verified. In practice explicit control over matching is more common at the "secure" level, described below. This security level is not an appropriate default for systems delivering mail to the Internet.

secure

Secure-channel TLS. At this security level, DNS MX lookups, though potentially used to determine the candidate next-hop gateway IP addresses, are **not** trusted to be secure enough for TLS peername verification. Instead, the default name verified in the server certificate is obtained from the next-hop domain as specified in the `smtp_tls_secure_cert_match` configuration parameter. The default matching rule is that a server certificate matches when its name is equal to or is a sub-domain of the nexthop domain. This security level is not an appropriate default for systems delivering mail to the Internet.

Examples:

```
# No TLS. Formerly: smtp_use_tls=no and smtp_enforce_tls=no.
smtp_tls_security_level = none

# Opportunistic TLS.
smtp_tls_security_level = may
# Postfix >= 2.6:
# Do not tweak opportunistic ciphers unless it is essential
# to do so (if a security vulnerability is found in the SSL library that
# can be mitigated by disabling a particular protocol or raising the
# cipher grade from "export" to "low" or "medium").
smtp_tls_ciphers = export
smtp_tls_protocols = !SSLv2

# Mandatory (high-grade) TLS encryption.
smtp_tls_security_level = encrypt
smtp_tls_mandatory_ciphers = high

# Mandatory TLS verification of hostname or nexthop domain.
smtp_tls_security_level = verify
smtp_tls_mandatory_ciphers = high
smtp_tls_verify_cert_match = hostname, nexthop, dot-nexthop

# Secure channel TLS with exact nexthop name match.
smtp_tls_security_level = secure
smtp_tls_mandatory_protocols = TLSv1
smtp_tls_mandatory_ciphers = high
smtp_tls_secure_cert_match = nexthop
```

```
# Certificate fingerprint verification (Postfix >= 2.5).
# The CA-less "fingerprint" security level only scales to a limited
# number of destinations. As a global default rather than a per-site
# setting, this is practical when mail for all recipients is sent
# to a central mail hub.
relayhost = [mailhub.example.com]
smtp_tls_security_level = fingerprint
smtp_tls_mandatory_protocols = !SSLv2, !SSLv3
smtp_tls_mandatory_ciphers = high
smtp_tls_fingerprint_cert_match =
    3D:95:34:51:24:66:33:B9:D2:40:99:C0:C1:17:0B:D1
    EC:3B:2D:B0:5B:B1:FB:6D:20:A3:9D:72:F6:8D:12:35
```

This feature is available in Postfix 2.3 and later.

smtp_tls_session_cache_database (default: empty)

Name of the file containing the optional Postfix SMTP client TLS session cache. Specify a database type that supports enumeration, such as **btree** or **sdbm**; there is no need to support concurrent access. The file is created if it does not exist. The **smtp(8)** daemon does not use this parameter directly, rather the cache is implemented indirectly in the **tlsmgr(8)** daemon. This means that per-smtp-instance master.cf overrides of this parameter are not effective. Note, that each of the cache databases supported by **tlsmgr(8)** daemon: `$smtpd_tls_session_cache_database`, `$smtp_tls_session_cache_database` (and with Postfix 2.3 and later `$lmtpl_tls_session_cache_database`), needs to be stored separately. It is not at this time possible to store multiple caches in a single database.

Note: **dbm** databases are not suitable. TLS session objects are too large.

As of version 2.5, Postfix no longer uses root privileges when opening this file. The file should now be stored under the Postfix-owned `data_directory`. As a migration aid, an attempt to open the file under a non-Postfix directory is redirected to the Postfix-owned `data_directory`, and a warning is logged.

Example:

```
smtp_tls_session_cache_database = btree:/var/lib/postfix/smtp_scache
```

This feature is available in Postfix 2.2 and later.

smtp_tls_session_cache_timeout (default: 3600s)

The expiration time of Postfix SMTP client TLS session cache information. A cache cleanup is performed periodically every `$smtp_tls_session_cache_timeout` seconds. As with `$smtp_tls_session_cache_database`, this parameter is implemented in the **tlsmgr(8)** daemon and therefore per-smtp-instance master.cf overrides are not possible.

This feature is available in Postfix 2.2 and later.

smtp_tls_verify_cert_match (default: hostname)

The server certificate peername verification method for the "verify" TLS security level. In a "verify" TLS policy table (`$smtp_tls_policy_maps`) entry the optional "match" attribute overrides this master.cf setting.

This parameter specifies one or more patterns or strategies separated by commas, whitespace or colons. In the policy table the only valid separator is the colon character.

Patterns specify domain names, or domain name suffixes:

example.com

Match the *example.com* domain, i.e. one of the names the server certificate must be *example.com*, upper and lower case distinctions are ignored.

.example.com

Match subdomains of the *example.com* domain, i.e. match a name in the server certificate that consists of a non-zero number of labels followed by a *.example.com* suffix. Case distinctions are ignored.

Strategies specify a transformation from the next-hop domain to the expected name in the server certificate:

nexthop

Match against the next-hop domain, which is either the recipient domain, or the transport next-hop configured for the domain stripped of any optional socket type prefix, enclosing square brackets and trailing port. When MX lookups are not suppressed, this is the original nexthop domain prior to the MX lookup, not the result of the MX lookup. For LMTP delivery via UNIX-domain sockets, the verified next-hop name is \$myhostname. This strategy is suitable for use with the "secure" policy. Case is ignored.

dot-nexthop

As above, but match server certificate names that are subdomains of the next-hop domain. Case is ignored.

hostname

Match against the hostname of the server, often obtained via an unauthenticated DNS MX lookup. For LMTP delivery via UNIX-domain sockets, the verified name is \$myhostname. This matches the verification strategy of the "MUST" keyword in the obsolete `smtp_tls_per_site` table, and is suitable for use with the "verify" security level. When the next-hop name is enclosed in square brackets to suppress MX lookups, the "hostname" strategy is the same as the "nexthop" strategy. Case is ignored.

Sample main.cf setting:

```
smtp_tls_verify_cert_match = hostname, nexthop, dot-nexthop
```

Sample policy table override:

```
example.com      verify  match=hostname:nexthop
.example.com     verify  match=example.com:.example.com:hostname
```

This feature is available in Postfix 2.3 and later.

smtp_use_tls (default: no)

Opportunistic mode: use TLS when a remote SMTP server announces STARTTLS support, otherwise send the mail in the clear. Beware: some SMTP servers offer STARTTLS even if it is not configured. With Postfix < 2.3, if the TLS handshake fails, and no other server is available, delivery is deferred and mail stays in the queue. If this is a concern for you, use the `smtp_tls_per_site` feature instead.

This feature is available in Postfix 2.2 and later. With Postfix 2.3 and later use `smtp_tls_security_level` instead.

smtp_xforward_timeout (default: 300s)

The SMTP client time limit for sending the XFORWARD command, and for receiving the server response.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.1 and later.

smtpd_authorized_verp_clients (default: \$authorized_verp_clients)

What SMTP clients are allowed to specify the XVERP command. This command requests that mail be delivered one recipient at a time with a per recipient return address.

By default, no clients are allowed to specify XVERP.

This parameter was renamed with Postfix version 2.1. The default value is backwards compatible with Postfix version 2.0.

Specify a list of network/netmask patterns, separated by commas and/or whitespace. The mask specifies the number of bits in the network part of a host address. You can also specify hostnames or .domain names (the initial dot causes the domain to match any name below it), "/file/name" or "type:table" patterns. A "/file/name" pattern is replaced by its contents; a "type:table" lookup table is matched when a table entry matches a lookup string (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify "!pattern" to exclude an address or network block from the list. The form "!/file/name" is supported only in Postfix version 2.4 and later.

Note: IP version 6 address information must be specified inside [] in the `smtpd_authorized_verp_clients` value, and in files specified with `"/file/name"`. IP version 6 addresses contain the ":" character, and would otherwise be confused with a "type:table" pattern.

`smtpd_authorized_xclient_hosts` (default: empty)

What SMTP clients are allowed to use the XCLIENT feature. This command overrides SMTP client information that is used for access control. Typical use is for SMTP-based content filters, fetchmail-like programs, or SMTP server access rule testing. See the `XCLIENT_README` document for details.

This feature is available in Postfix 2.1 and later.

By default, no clients are allowed to specify XCLIENT.

Specify a list of network/netmask patterns, separated by commas and/or whitespace. The mask specifies the number of bits in the network part of a host address. You can also specify hostnames or .domain names (the initial dot causes the domain to match any name below it), `"/file/name"` or "type:table" patterns. A `"/file/name"` pattern is replaced by its contents; a "type:table" lookup table is matched when a table entry matches a lookup string (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify `"!pattern"` to exclude an address or network block from the list. The form `"/file/name"` is supported only in Postfix version 2.4 and later.

Note: IP version 6 address information must be specified inside [] in the `smtpd_authorized_xclient_hosts` value, and in files specified with `"/file/name"`. IP version 6 addresses contain the ":" character, and would otherwise be confused with a "type:table" pattern.

`smtpd_authorized_xforward_hosts` (default: empty)

What SMTP clients are allowed to use the XFORWARD feature. This command forwards information that is used to improve logging after SMTP-based content filters. See the `XFORWARD_README` document for details.

This feature is available in Postfix 2.1 and later.

By default, no clients are allowed to specify XFORWARD.

Specify a list of network/netmask patterns, separated by commas and/or whitespace. The mask specifies the number of bits in the network part of a host address. You can also specify hostnames or .domain names (the initial dot causes the domain to match any name below it), `"/file/name"` or "type:table" patterns. A `"/file/name"` pattern is replaced by its contents; a "type:table" lookup table is matched when a table entry matches a lookup string (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify `"!pattern"` to exclude an address or network block from the list. The form `"/file/name"` is supported only in Postfix version 2.4 and later.

Note: IP version 6 address information must be specified inside [] in the `smtpd_authorized_xforward_hosts` value, and in files specified with `"/file/name"`. IP version 6 addresses contain the ":" character, and would otherwise be confused with a "type:table" pattern.

`smtpd_banner` (default: `$myhostname ESMTP $mail_name`)

The text that follows the 220 status code in the SMTP greeting banner. Some people like to see the mail version advertised. By default, Postfix shows no version.

You MUST specify `$myhostname` at the start of the text. This is required by the SMTP protocol.

Example:

```
smtpd_banner = $myhostname ESMTP $mail_name ($mail_version)
```

`smtpd_client_connection_count_limit` (default: 50)

How many simultaneous connections any client is allowed to make to this service. By default, the limit is set to half the default process limit value.

To disable this feature, specify a limit of 0.

WARNING: The purpose of this feature is to limit abuse. It must not be used to regulate legitimate mail traffic.

This feature is available in Postfix 2.2 and later.

smtpd_client_connection_rate_limit (default: 0)

The maximal number of connection attempts any client is allowed to make to this service per time unit. The time unit is specified with the `anvil_rate_time_unit` configuration parameter.

By default, a client can make as many connections per time unit as Postfix can accept.

To disable this feature, specify a limit of 0.

WARNING: The purpose of this feature is to limit abuse. It must not be used to regulate legitimate mail traffic.

This feature is available in Postfix 2.2 and later.

Example:

```
smtpd_client_connection_rate_limit = 1000
```

smtpd_client_event_limit_exceptions (default: \$mynetworks)

Clients that are excluded from connection count, connection rate, or SMTP request rate restrictions. See the `mynetworks` parameter description for the parameter value syntax.

By default, clients in trusted networks are excluded. Specify a list of network blocks, hostnames or .domain names (the initial dot causes the domain to match any name below it).

Note: IP version 6 address information must be specified inside [] in the `smtpd_client_event_limit_exceptions` value, and in files specified with `"/file/name"`. IP version 6 addresses contain the ":" character, and would otherwise be confused with a "type:table" pattern.

This feature is available in Postfix 2.2 and later.

smtpd_client_message_rate_limit (default: 0)

The maximal number of message delivery requests that any client is allowed to make to this service per time unit, regardless of whether or not Postfix actually accepts those messages. The time unit is specified with the `anvil_rate_time_unit` configuration parameter.

By default, a client can send as many message delivery requests per time unit as Postfix can accept.

To disable this feature, specify a limit of 0.

WARNING: The purpose of this feature is to limit abuse. It must not be used to regulate legitimate mail traffic.

This feature is available in Postfix 2.2 and later.

Example:

```
smtpd_client_message_rate_limit = 1000
```

smtpd_client_new_tls_session_rate_limit (default: 0)

The maximal number of new (i.e., uncached) TLS sessions that a remote SMTP client is allowed to negotiate with this service per time unit. The time unit is specified with the `anvil_rate_time_unit` configuration parameter.

By default, a remote SMTP client can negotiate as many new TLS sessions per time unit as Postfix can accept.

To disable this feature, specify a limit of 0. Otherwise, specify a limit that is at least the per-client concurrent session limit, or else legitimate client sessions may be rejected.

WARNING: The purpose of this feature is to limit abuse. It must not be used to regulate legitimate mail traffic.

This feature is available in Postfix 2.3 and later.

Example:

```
smtpd_client_new_tls_session_rate_limit = 100
```

smtpd_client_port_logging (default: no)

Enable logging of the remote SMTP client port in addition to the hostname and IP address. The logging format is "host[address]:port".

This feature is available in Postfix 2.5 and later.

smtpd_client_recipient_rate_limit (default: 0)

The maximal number of recipient addresses that any client is allowed to send to this service per time unit, regardless of whether or not Postfix actually accepts those recipients. The time unit is specified with the `anvil_rate_time_unit` configuration parameter.

By default, a client can make as many recipient addresses per time unit as Postfix can accept.

To disable this feature, specify a limit of 0.

WARNING: The purpose of this feature is to limit abuse. It must not be used to regulate legitimate mail traffic.

This feature is available in Postfix 2.2 and later.

Example:

```
smtpd_client_recipient_rate_limit = 1000
```

smtpd_client_restrictions (default: empty)

Optional SMTP server access restrictions in the context of a client SMTP connection request. See `SMTPD_ACCESS_README`, section "Delayed evaluation of SMTP access restriction lists" for a discussion of evaluation context and time.

The default is to allow all connection requests.

Specify a list of restrictions, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. Restrictions are applied in the order as specified; the first restriction that matches wins.

The following restrictions are specific to client hostname or client network address information.

check_ccert_access *type:table*

Use the client certificate fingerprint as lookup key for the specified **access(5)** database; with Postfix version 2.2, also require that the SMTP client certificate is verified successfully. The fingerprint digest algorithm is configurable via the `smtpd_tls_fingerprint_digest` parameter (hard-coded as md5 prior to Postfix version 2.5). This feature is available with Postfix version 2.2 and later.

check_client_access *type:table*

Search the specified access database for the client hostname, parent domains, client IP address, or networks obtained by stripping least significant octets. See the **access(5)** manual page for details.

check_reverse_client_hostname_access *type:table*

Search the specified access database for the unverified reverse client hostname, parent domains, client IP address, or networks obtained by stripping least significant octets. See the **access(5)** manual page for details. Note: a result of "OK" is not allowed for safety reasons. Instead, use DUNNO in order to exclude specific hosts from blacklists. This feature is available in Postfix 2.6 and later.

permit_inet_interfaces

Permit the request when the client IP address matches `$inet_interfaces`.

permit_mynetworks

Permit the request when the client IP address matches any network or network address listed in `$mynetworks`.

permit_sasl_authenticated

Permit the request when the client is successfully authenticated via the RFC 4954 (AUTH) protocol.

permit_tls_all_clientcerts

Permit the request when the remote SMTP client certificate is verified successfully. This option must be used only if a special CA issues the certificates and only this CA is listed as trusted CA, otherwise all clients with a recognized certificate would be allowed to relay. This feature is available with Postfix version 2.2.

permit_tls_clientcerts

Permit the request when the remote SMTP client certificate fingerprint is listed in `$relay_clientcerts`. The fingerprint digest algorithm is configurable via the `smtpd_tls_fingerprint_digest` parameter (hard-coded as md5 prior to Postfix version 2.5). This feature is available with Postfix version 2.2.

reject_rbl_client *rbl_domain=d.d.d.d*

Reject the request when the reversed client network address is listed with the A record "*d.d.d.d*" under *rbl_domain* (Postfix version 2.1 and later only). If no "*=d.d.d.d*" is specified, reject the request when the reversed client network address is listed with any A record under *rbl_domain*.

The `maps_rbl_reject_code` parameter specifies the response code for rejected requests (default: 554), the `default_rbl_reply` parameter specifies the default server reply, and the `rbl_reply_maps` parameter specifies tables with server replies indexed by *rbl_domain*. This feature is available in Postfix 2.0 and later.

reject_rhsbl_client *rbl_domain=d.d.d.d*

Reject the request when the client hostname is listed with the A record "*d.d.d.d*" under *rbl_domain* (Postfix version 2.1 and later only). If no "*=d.d.d.d*" is specified, reject the request when the client hostname is listed with any A record under *rbl_domain*. See the `reject_rbl_client` description above for additional RBL related configuration parameters. This feature is available in Postfix 2.0 and later.

reject_unknown_client_hostname (with Postfix < 2.3: `reject_unknown_client`)

Reject the request when 1) the client IP address->name mapping fails, 2) the name->address mapping fails, or 3) the name->address mapping does not match the client IP address.

This is a stronger restriction than the `reject_unknown_reverse_client_hostname` feature, which triggers only under condition 1) above.

The `unknown_client_reject_code` parameter specifies the response code for rejected requests (default: 450). The reply is always 450 in case the address->name or name->address lookup failed due to a temporary problem.

reject_unknown_reverse_client_hostname

Reject the request when the client IP address has no address->name mapping.

This is a weaker restriction than the `reject_unknown_client_hostname` feature, which requires not only that the address->name and name->address mappings exist, but also that the two mappings reproduce the client IP address.

The `unknown_client_reject_code` parameter specifies the response code for rejected requests (default: 450). The reply is always 450 in case the address->name lookup failed due to a temporary problem.

This feature is available in Postfix 2.3 and later.

In addition, you can use any of the following generic restrictions. These restrictions are applicable in any SMTP command context.

check_policy_service *servername*

Query the specified policy server. See the `SMTPD_POLICY_README` document for details. This feature is available in Postfix 2.1 and later.

defer Defer the request. The client is told to try again later. This restriction is useful at the end of a restriction list, to make the default policy explicit.

The `defer_code` parameter specifies the SMTP server reply code (default: 450).

defer_if_permit

Defer the request if some later restriction would result in an explicit or implicit PERMIT action. This is useful when a blacklisting feature fails due to a temporary problem. This feature is available in Postfix version 2.1 and later.

defer_if_reject

Defer the request if some later restriction would result in a REJECT action. This is useful when a whitelisting feature fails due to a temporary problem. This feature is available in Postfix version 2.1 and later.

permit Permit the request. This restriction is useful at the end of a restriction list, to make the default policy explicit.

reject_multi_recipient_bounce

Reject the request when the envelope sender is the null address, and the message has multiple envelope recipients. This usage has rare but legitimate applications: under certain conditions, multi-recipient mail that was posted with the DSN option NOTIFY=NEVER may be forwarded with the null sender address.

Note: this restriction can only work reliably when used in `smtpd_data_restrictions` or `smtpd_end_of_data_restrictions`, because the total number of recipients is not known at an earlier stage of the SMTP conversation. Use at the RCPT stage will only reject the second etc. recipient. The `multi_recipient_bounce_reject_code` parameter specifies the response code for rejected requests (default: 550). This feature is available in Postfix 2.1 and later.

reject_plaintext_session

Reject the request when the connection is not encrypted. This restriction should not be used before the client has had a chance to negotiate encryption with the AUTH or STARTTLS commands.

The `plaintext_reject_code` parameter specifies the response code for rejected requests (default: 450). This feature is available in Postfix 2.3 and later.

reject_unauth_pipelining

Reject the request when the client sends SMTP commands ahead of time where it is not allowed, or when the client sends SMTP commands ahead of time without knowing that Postfix actually supports ESMTP command pipelining. This stops mail from bulk mail software that improperly uses ESMTP command pipelining in order to speed up deliveries.

With Postfix 2.6 and later, the SMTP server sets a per-session flag whenever it detects illegal pipelining, including pipelined EHLO or HELO commands. The `reject_unauth_pipelining` feature simply tests whether the flag was set at any point in time during the session.

With older Postfix versions, `reject_unauth_pipelining` checks the current status of the input read queue, and its usage is not recommended in contexts other than `smtpd_data_restrictions`.

reject Reject the request. This restriction is useful at the end of a restriction list, to make the default policy explicit. The `reject_code` configuration parameter specifies the response code for rejected requests (default: 554).

sleep *seconds*

Pause for the specified number of seconds and proceed with the next restriction in the list, if any. This may stop zombie mail when used as:

```
/etc/postfix/main.cf:
    smtpd_client_restrictions =
        sleep 1, reject_unauth_pipelining
    smtpd_delay_reject = no
```

This feature is available in Postfix 2.3.

warn_if_reject

Change the meaning of the next restriction, so that it logs a warning instead of rejecting a request (look for logfile records that contain "reject_warning"). This is useful for testing new restrictions in a "live" environment without risking unnecessary loss of mail.

Other restrictions that are valid in this context:

- SMTP command specific restrictions that are described under the `smtpd_helo_restrictions`, `smtpd_sender_restrictions` or `smtpd_recipient_restrictions` parameters. When `helo`, `sender` or `recipient` restrictions are listed under `smtpd_client_restrictions`, they have effect only with "`smtpd_delay_reject = yes`", so that `$smtpd_client_restrictions` is evaluated at the time of the `RCPT TO` command.

Example:

```
smtpd_client_restrictions = permit_mynetworks, reject_unknown_client_hostname
```

smtpd_data_restrictions (default: empty)

Optional access restrictions that the Postfix SMTP server applies in the context of the SMTP DATA command. See `SMTPD_ACCESS_README`, section "Delayed evaluation of SMTP access restriction lists" for a discussion of evaluation context and time.

This feature is available in Postfix 2.0 and later.

Specify a list of restrictions, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. Restrictions are applied in the order as specified; the first restriction that matches wins.

The following restrictions are valid in this context:

- Generic restrictions that can be used in any SMTP command context, described under `smtpd_client_restrictions`.
- SMTP command specific restrictions described under `smtpd_client_restrictions`, `smtpd_helo_restrictions`, `smtpd_sender_restrictions` or `smtpd_recipient_restrictions`.

Examples:

```
smtpd_data_restrictions = reject_unauth_pipelining
smtpd_data_restrictions = reject_multi_recipient_bounce
```

smtpd_delay_open_until_valid_rcpt (default: yes)

Postpone the start of an SMTP mail transaction until a valid `RCPT TO` command is received. Specify "no" to create a mail transaction as soon as the SMTP server receives a valid `MAIL FROM` command.

With sites that reject lots of mail, the default setting reduces the use of disk, CPU and memory resources. The downside is that rejected recipients are logged with `NOQUEUE` instead of a mail transaction ID. This complicates the logfile analysis of multi-recipient mail.

This feature is available in Postfix 2.3 and later.

smtpd_delay_reject (default: yes)

Wait until the `RCPT TO` command before evaluating `$smtpd_client_restrictions`, `$smtpd_helo_restrictions` and `$smtpd_sender_restrictions`, or wait until the `ETRNL` command before evaluating `$smtpd_client_restrictions` and `$smtpd_helo_restrictions`.

This feature is turned on by default because some clients apparently mis-behave when the Postfix SMTP server rejects commands before `RCPT TO`.

The default setting has one major benefit: it allows Postfix to log recipient address information when rejecting a client name/address or sender address, so that it is possible to find out whose mail is being rejected.

smtpd_discard_ehlo_keyword_address_maps (default: empty)

Lookup tables, indexed by the remote SMTP client address, with case insensitive lists of EHLO keywords (pipelining, starttls, auth, etc.) that the SMTP server will not send in the EHLO response to a remote SMTP client. See `smtpd_discard_ehlo_keywords` for details. The table is not searched by hostname for robustness reasons.

This feature is available in Postfix 2.2 and later.

smtpd_discard_ehlo_keywords (default: empty)

A case insensitive list of EHLO keywords (pipelining, starttls, auth, etc.) that the SMTP server will not send in the EHLO response to a remote SMTP client.

This feature is available in Postfix 2.2 and later.

Notes:

- Specify the **silent-discard** pseudo keyword to prevent this action from being logged.
- Use the `smtpd_discard_ehlo_keyword_address_maps` feature to discard EHLO keywords selectively.

smtpd_end_of_data_restrictions (default: empty)

Optional access restrictions that the Postfix SMTP server applies in the context of the SMTP END-OF-DATA command. See SMTPD_ACCESS_README, section "Delayed evaluation of SMTP access restriction lists" for a discussion of evaluation context and time.

This feature is available in Postfix 2.2 and later.

See `smtpd_data_restrictions` for syntax details.

smtpd_enforce_tls (default: no)

Mandatory TLS: announce STARTTLS support to SMTP clients, and require that clients use TLS encryption. According to RFC 2487 this MUST NOT be applied in case of a publicly-referenced SMTP server. This option is off by default and should be used only on dedicated servers.

Note 1: "smtpd_enforce_tls = yes" implies "smtpd_tls_auth_only = yes".

Note 2: when invoked via "**sendmail -bs**", Postfix will never offer STARTTLS due to insufficient privileges to access the server private key. This is intended behavior.

This feature is available in Postfix 2.2 and later. With Postfix 2.3 and later use `smtpd_tls_security_level` instead.

smtpd_error_sleep_time (default: 1s)

With Postfix version 2.1 and later: the SMTP server response delay after a client has made more than `$smtpd_soft_error_limit` errors, and fewer than `$smtpd_hard_error_limit` errors, without delivering mail.

With Postfix version 2.0 and earlier: the SMTP server delay before sending a reject (4xx or 5xx) response, when the client has made fewer than `$smtpd_soft_error_limit` errors without delivering mail.

smtpd_etrn_restrictions (default: empty)

Optional SMTP server access restrictions in the context of a client ETRN request. See SMTPD_ACCESS_README, section "Delayed evaluation of SMTP access restriction lists" for a discussion of evaluation context and time.

The Postfix ETRN implementation accepts only destinations that are eligible for the Postfix "fast flush" service. See the ETRN_README file for details.

Specify a list of restrictions, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. Restrictions are applied in the order as specified; the first restriction that matches wins.

The following restrictions are specific to the domain name information received with the ETRN command.

check_etrn_access *type:table*

Search the specified access database for the ETRN domain name or its parent domains. See the **access(5)** manual page for details.

Other restrictions that are valid in this context:

- Generic restrictions that can be used in any SMTP command context, described under `smtpd_client_restrictions`.
- SMTP command specific restrictions described under `smtpd_client_restrictions` and `smtpd_helo_restrictions`.

Example:

```
smtpd_etrn_restrictions = permit_mynetworks, reject
```

smtpd_expansion_filter (default: see postconf -d output)

What characters are allowed in \$name expansions of RBL reply templates. Characters not in the allowed set are replaced by "_". Use C like escapes to specify special characters such as whitespace.

This parameter is not subjected to \$parameter expansion.

This feature is available in Postfix 2.0 and later.

smtpd_forbidden_commands (default: CONNECT, GET, POST)

List of commands that causes the Postfix SMTP server to immediately terminate the session with a 221 code. This can be used to disconnect clients that obviously attempt to abuse the system. In addition to the commands listed in this parameter, commands that follow the "Label:" format of message headers will also cause a disconnect.

This feature is available in Postfix 2.2 and later.

smtpd_hard_error_limit (default: normal: 20, stress: 1)

The maximal number of errors a remote SMTP client is allowed to make without delivering mail. The Postfix SMTP server disconnects when the limit is exceeded. Normally the default limit is 20, but it changes under overload to just 1 with Postfix 2.6 and later.

smtpd_helo_required (default: no)

Require that a remote SMTP client introduces itself at the beginning of an SMTP session with the HELO or EHLO command.

Example:

```
smtpd_helo_required = yes
```

smtpd_helo_restrictions (default: empty)

Optional restrictions that the Postfix SMTP server applies in the context of the SMTP HELO command. See SMTPD_ACCESS_README, section "Delayed evaluation of SMTP access restriction lists" for a discussion of evaluation context and time.

The default is to permit everything.

Specify a list of restrictions, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. Restrictions are applied in the order as specified; the first restriction that matches wins.

The following restrictions are specific to the hostname information received with the HELO or EHLO command.

check_helo_access *type:table*

Search the specified **access(5)** database for the HELO or EHLO hostname or parent domains, and execute the corresponding action.

check_helo_mx_access *type:table*

Search the specified **access(5)** database for the MX hosts for the HELO or EHLO hostname, and execute the corresponding action. Note: a result of "OK" is not allowed for safety reasons. Instead, use DUNNO in order to exclude specific hosts from blacklists. This feature is available in Postfix 2.1 and later.

check_helo_ns_access *type:table*

Search the specified **access(5)** database for the DNS servers for the HELO or EHLO hostname, and execute the corresponding action. Note: a result of "OK" is not allowed for safety reasons. Instead, use DUNNO in order to exclude specific hosts from blacklists. This feature is available in Postfix 2.1 and later.

reject_invalid_helo_hostname (with Postfix < 2.3: **reject_invalid_hostname**)

Reject the request when the HELO or EHLO hostname syntax is invalid.

The `invalid_hostname_reject_code` specifies the response code for rejected requests (default: 501).

reject_non_fqdn_helo_hostname (with Postfix < 2.3: reject_non_fqdn_hostname)

Reject the request when the HELO or EHLO hostname is not in fully-qualified domain form, as required by the RFC.

The `non_fqdn_reject_code` parameter specifies the response code for rejected requests (default: 504).

reject_rhsbl_helo *rbl_domain=d.d.d.d*

Reject the request when the HELO or EHLO hostname is listed with the A record "*d.d.d.d*" under *rbl_domain* (Postfix version 2.1 and later only). If no "*d.d.d.d*" is specified, reject the request when the HELO or EHLO hostname is listed with any A record under *rbl_domain*. See the `reject_rbl_client` description for additional RBL related configuration parameters. This feature is available in Postfix 2.0 and later.

reject_unknown_helo_hostname (with Postfix < 2.3: reject_unknown_hostname)

Reject the request when the HELO or EHLO hostname has no DNS A or MX record.

The `unknown_hostname_reject_code` parameter specifies the numerical response code for rejected requests (default: 450).

The `unknown_helo_hostname_tempfail_action` parameter specifies the action after a temporary DNS error (default: `defer_if_permit`).

Other restrictions that are valid in this context:

- Generic restrictions that can be used in any SMTP command context, described under `smtpd_client_restrictions`.
- Client hostname or network address specific restrictions described under `smtpd_client_restrictions`.
- SMTP command specific restrictions described under `smtpd_sender_restrictions` or `smtpd_recipient_restrictions`. When sender or recipient restrictions are listed under `smtpd_helo_restrictions`, they have effect only with "`smtpd_delay_reject = yes`", so that `$smtpd_helo_restrictions` is evaluated at the time of the RCPT TO command.

Examples:

```
smtpd_helo_restrictions = permit_mynetworks, reject_invalid_helo_hostname
smtpd_helo_restrictions = permit_mynetworks, reject_unknown_helo_hostname
```

smtpd_history_flush_threshold (default: 100)

The maximal number of lines in the Postfix SMTP server command history before it is flushed upon receipt of EHLO, RSET, or end of DATA.

smtpd_junk_command_limit (default: normal: 100, stress: 1)

The number of junk commands (NOOP, VRFY, ETRN or RSET) that a remote SMTP client can send before the Postfix SMTP server starts to increment the error counter with each junk command. The junk command count is reset after mail is delivered. See also the `smtpd_error_sleep_time` and `smtpd_soft_error_limit` configuration parameters. Normally the default limit is 100, but it changes under overload to just 1 with Postfix 2.6 and later.

smtpd_milters (default: empty)

A list of Militer (mail filter) applications for new mail that arrives via the Postfix **smtpd(8)** server. See the `MILTER_README` document for details.

This feature is available in Postfix 2.3 and later.

smtpd_noop_commands (default: empty)

List of commands that the Postfix SMTP server replies to with "250 Ok", without doing any syntax checks and without changing state. This list overrides any commands built into the Postfix SMTP server.

smtpd_null_access_lookup_key (default: <>)

The lookup key to be used in SMTP **access(5)** tables instead of the null sender address.

smtpd_peername_lookup (default: yes)

Attempt to look up the remote SMTP client hostname, and verify that the name matches the client IP address. A client name is set to "unknown" when it cannot be looked up or verified, or when name lookup is disabled. Turning off name lookup reduces delays due to DNS lookup and increases the maximal inbound delivery rate.

This feature is available in Postfix 2.3 and later.

smtpd_policy_service_max_idle (default: 300s)

The time after which an idle SMTPD policy service connection is closed.

This feature is available in Postfix 2.1 and later.

smtpd_policy_service_max_ttl (default: 1000s)

The time after which an active SMTPD policy service connection is closed.

This feature is available in Postfix 2.1 and later.

smtpd_policy_service_timeout (default: 100s)

The time limit for connecting to, writing to or receiving from a delegated SMTPD policy server.

This feature is available in Postfix 2.1 and later.

smtpd_proxy_ehlo (default: \$myhostname)

How the Postfix SMTP server announces itself to the proxy filter. By default, the Postfix hostname is used.

This feature is available in Postfix 2.1 and later.

smtpd_proxy_filter (default: empty)

The hostname and TCP port of the mail filtering proxy server. The proxy receives all mail from the Postfix SMTP server, and is supposed to give the result to another Postfix SMTP server process.

Specify "host:port" or "inet:host:port" for a TCP endpoint, or "unix:pathname" for a UNIX-domain endpoint. The host can be specified as an IP address or as a symbolic name; no MX lookups are done. When no "host" or "host:" are specified, the local machine is assumed. Pathname interpretation is relative to the Postfix queue directory.

This feature is available in Postfix 2.1 and later.

The "inet:" and "unix:" prefixes are available in Postfix 2.3 and later.

smtpd_proxy_timeout (default: 100s)

The time limit for connecting to a proxy filter and for sending or receiving information. When a connection fails the client gets a generic error message while more detailed information is logged to the maillog file.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

This feature is available in Postfix 2.1 and later.

smtpd_recipient_limit (default: 1000)

The maximal number of recipients that the Postfix SMTP server accepts per message delivery request.

smtpd_recipient_overshoot_limit (default: 1000)

The number of recipients that a remote SMTP client can send in excess of the limit specified with \$smtpd_recipient_limit, before the Postfix SMTP server increments the per-session error count for each excess recipient.

smtpd_recipient_restrictions (default: permit_mynetworks, reject_unauth_destination)

The access restrictions that the Postfix SMTP server applies in the context of the RCPT TO command. See SMTPD_ACCESS_README, section "Delayed evaluation of SMTP access restriction lists" for a discussion of evaluation context and time.

By default, the Postfix SMTP server accepts:

- Mail from clients whose IP address matches \$mynetworks, or:
- Mail to remote destinations that match \$relay_domains, except for addresses that contain sender-specified routing (user@elsewhere@domain), or:

- Mail to local destinations that match `$inet_interfaces` or `$proxy_interfaces`, `$mydestination`, `$virtual_alias_domains`, or `$virtual_mailbox_domains`.

IMPORTANT: If you change this parameter setting, you must specify at least one of the following restrictions. Otherwise Postfix will refuse to receive mail:

`reject, defer, defer_if_permit, reject_unauth_destination`

Specify a list of restrictions, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. Restrictions are applied in the order as specified; the first restriction that matches wins.

The following restrictions are specific to the recipient address that is received with the RCPT TO command.

check_recipient_access *type:table*

Search the specified **access(5)** database for the resolved RCPT TO address, domain, parent domains, or localpart@, and execute the corresponding action.

check_recipient_mx_access *type:table*

Search the specified **access(5)** database for the MX hosts for the RCPT TO domain, and execute the corresponding action. Note: a result of "OK" is not allowed for safety reasons. Instead, use DUNNO in order to exclude specific hosts from blacklists. This feature is available in Postfix 2.1 and later.

check_recipient_ns_access *type:table*

Search the specified **access(5)** database for the DNS servers for the RCPT TO domain, and execute the corresponding action. Note: a result of "OK" is not allowed for safety reasons. Instead, use DUNNO in order to exclude specific hosts from blacklists. This feature is available in Postfix 2.1 and later.

permit_auth_destination

Permit the request when one of the following is true:

- Postfix is mail forwarder: the resolved RCPT TO domain matches `$relay_domains` or a subdomain thereof, and the address contains no sender-specified routing (`user@elsewhere@domain`),
- Postfix is the final destination: the resolved RCPT TO domain matches `$mydestination`, `$inet_interfaces`, `$proxy_interfaces`, `$virtual_alias_domains`, or `$virtual_mailbox_domains`, and the address contains no sender-specified routing (`user@elsewhere@domain`).

permit_mx_backup

Permit the request when the local mail system is backup MX for the RCPT TO domain, or when the domain is an authorized destination (see `permit_auth_destination` for definition).

- Safety: `permit_mx_backup` does not accept addresses that have sender-specified routing information (example: `user@elsewhere@domain`).
- Safety: `permit_mx_backup` can be vulnerable to mis-use when access is not restricted with `permit_mx_backup_networks`.
- Safety: as of Postfix version 2.3, `permit_mx_backup` no longer accepts the address when the local mail system is primary MX for the recipient domain. Exception: `permit_mx_backup` accepts the address when it specifies an authorized destination (see `permit_auth_destination` for definition).
- Limitation: mail may be rejected in case of a temporary DNS lookup problem with Postfix prior to version 2.0.

reject_non_fqdn_recipient

Reject the request when the RCPT TO address is not in fully-qualified domain form, as required by the RFC.

The `non_fqdn_reject_code` parameter specifies the response code for rejected requests (default: 504).

reject_rhsbl_recipient *rbl_domain=d.d.d.d*

Reject the request when the RCPT TO domain is listed with the A record "*d.d.d.d*" under *rbl_domain* (Postfix version 2.1 and later only). If no "*d.d.d.d*" is specified, reject the request when the RCPT TO domain is listed with any A record under *rbl_domain*.

The `maps_rbl_reject_code` parameter specifies the response code for rejected requests (default: 554); the `default_rbl_reply` parameter specifies the default server reply; and the `rbl_reply_maps` parameter specifies tables with server replies indexed by *rbl_domain*. This feature is available in Postfix version 2.0 and later.

reject_unauth_destination

Reject the request unless one of the following is true:

- Postfix is mail forwarder: the resolved RCPT TO domain matches `$relay_domains` or a subdomain thereof, and contains no sender-specified routing (`user@elsewhere@domain`),
- Postfix is the final destination: the resolved RCPT TO domain matches `$mydestination`, `$inet_interfaces`, `$proxy_interfaces`, `$virtual_alias_domains`, or `$virtual_mailbox_domains`, and contains no sender-specified routing (`user@elsewhere@domain`).
The `relay_domains_reject_code` parameter specifies the response code for rejected requests (default: 554).

reject_unknown_recipient_domain

Reject the request when Postfix is not final destination for the recipient domain, and the RCPT TO domain has no DNS A or MX record, or when it has a malformed MX record such as a record with a zero-length MX hostname (Postfix version 2.3 and later).

The `unknown_address_reject_code` parameter specifies the numerical response code for rejected requests (default: 450). The response is always 450 in case of a temporary DNS error.

The `unknown_address_tempfail_action` parameter specifies the action after a temporary DNS error (default: `defer_if_permit`).

reject_unlisted_recipient (with Postfix version 2.0: `check_recipient_maps`)

Reject the request when the RCPT TO address is not listed in the list of valid recipients for its domain class. See the `smtpd_reject_unlisted_recipient` parameter description for details. This feature is available in Postfix 2.1 and later.

reject_unverified_recipient

Reject the request when mail to the RCPT TO address is known to bounce, or when the recipient address destination is not reachable. Address verification information is managed by the **verify(8)** server; see the `ADDRESS_VERIFICATION_README` file for details.

The `unverified_recipient_reject_code` parameter specifies the numerical response code when an address is known to bounce (default: 450, change into 550 when you are confident that it is safe to do so).

The `unverified_recipient_defer_code` parameter specifies the numerical response code when an address probe failed due to a temporary problem (default: 450).

The `unverified_recipient_tempfail_action` parameter specifies the action after address probe failure due to a temporary problem (default: `defer_if_permit`).

This feature is available in Postfix 2.1 and later.

Other restrictions that are valid in this context:

- Generic restrictions that can be used in any SMTP command context, described under `smtpd_client_restrictions`.
- SMTP command specific restrictions described under `smtpd_client_restrictions`, `smtpd_helo_restrictions` and `smtpd_sender_restrictions`.

Example:

```
smtpd_recipient_restrictions = permit_mynetworks, reject_unauth_destination
```


smtpd_reject_unlisted_recipient (default: yes)

Request that the Postfix SMTP server rejects mail for unknown recipient addresses, even when no explicit `reject_unlisted_recipient` access restriction is specified. This prevents the Postfix queue from filling up with undeliverable MAILER-DAEMON messages.

- The recipient domain matches `$mydestination`, `$inet_interfaces` or `$proxy_interfaces`, but the recipient is not listed in `$local_recipient_maps`, and `$local_recipient_maps` is not null.
- The recipient domain matches `$virtual_alias_domains` but the recipient is not listed in `$virtual_alias_maps`.
- The recipient domain matches `$virtual_mailbox_domains` but the recipient is not listed in `$virtual_mailbox_maps`, and `$virtual_mailbox_maps` is not null.
- The recipient domain matches `$relay_domains` but the recipient is not listed in `$relay_recipient_maps`, and `$relay_recipient_maps` is not null.

This feature is available in Postfix 2.1 and later.

smtpd_reject_unlisted_sender (default: no)

Request that the Postfix SMTP server rejects mail from unknown sender addresses, even when no explicit `reject_unlisted_sender` access restriction is specified. This can slow down an explosion of forged mail from worms or viruses.

- The sender domain matches `$mydestination`, `$inet_interfaces` or `$proxy_interfaces`, but the sender is not listed in `$local_recipient_maps`, and `$local_recipient_maps` is not null.
- The sender domain matches `$virtual_alias_domains` but the sender is not listed in `$virtual_alias_maps`.
- The sender domain matches `$virtual_mailbox_domains` but the sender is not listed in `$virtual_mailbox_maps`, and `$virtual_mailbox_maps` is not null.
- The sender domain matches `$relay_domains` but the sender is not listed in `$relay_recipient_maps`, and `$relay_recipient_maps` is not null.

This feature is available in Postfix 2.1 and later.

smtpd_restriction_classes (default: empty)

User-defined aliases for groups of access restrictions. The aliases can be specified in `smtpd_recipient_restrictions` etc., and on the right-hand side of a Postfix **access(5)** table.

One major application is for implementing per-recipient UCE control. See the `RESTRICTION_CLASS_README` document for other examples.

smtpd_sasl_application_name (default: smtpd)

The application name that the Postfix SMTP server uses for SASL server initialization. This controls the name of the SASL configuration file. The default value is **smtpd**, corresponding to a SASL configuration file named **smtpd.conf**.

This feature is available in Postfix 2.1 and 2.2. With Postfix 2.3 it was renamed to `smtpd_sasl_path`.

smtpd_sasl_auth_enable (default: no)

Enable SASL authentication in the Postfix SMTP server. By default, the Postfix SMTP server does not use authentication.

If a remote SMTP client is authenticated, the `permit_sasl_authenticated` access restriction can be used to permit relay access, like this:

```
smtpd_recipient_restrictions =
    permit_mynetworks, permit_sasl_authenticated, ...
```

To reject all SMTP connections from unauthenticated clients, specify `"smtpd_delay_reject = yes"` (which is the default) and use:

```
smtpd_client_restrictions = permit_sasl_authenticated, reject
```

See the SASL_README file for SASL configuration and operation details.

smtpd_sasl_authenticated_header (default: no)

Report the SASL authenticated user name in the **smtpd(8)** Received message header.

This feature is available in Postfix 2.3 and later.

smtpd_sasl_exceptions_networks (default: empty)

What remote SMTP clients the Postfix SMTP server will not offer AUTH support to.

Some clients (Netscape 4 at least) have a bug that causes them to require a login and password whenever AUTH is offered, whether it's necessary or not. To work around this, specify, for example, `$mynetworks` to prevent Postfix from offering AUTH to local clients.

Specify a list of network/netmask patterns, separated by commas and/or whitespace. The mask specifies the number of bits in the network part of a host address. You can also `"/file/name"` or `"type:table"` patterns. A `"/file/name"` pattern is replaced by its contents; a `"type:table"` lookup table is matched when a table entry matches a lookup string (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify `"!pattern"` to exclude an address or network block from the list. The form `"/file/name"` is supported only in Postfix version 2.4 and later.

Note: IP version 6 address information must be specified inside `[]` in the `smtpd_sasl_exceptions_networks` value, and in files specified with `"/file/name"`. IP version 6 addresses contain the `":"` character, and would otherwise be confused with a `"type:table"` pattern.

Example:

```
smtpd_sasl_exceptions_networks = $mynetworks
```

This feature is available in Postfix 2.1 and later.

smtpd_sasl_local_domain (default: empty)

The name of the Postfix SMTP server's local SASL authentication realm.

By default, the local authentication realm name is the null string.

Examples:

```
smtpd_sasl_local_domain = $mydomain
```

```
smtpd_sasl_local_domain = $myhostname
```

smtpd_sasl_path (default: smtpd)

Implementation-specific information that the Postfix SMTP server passes through to the SASL plug-in implementation that is selected with **smtpd_sasl_type**. Typically this specifies the name of a configuration file or rendezvous point.

This feature is available in Postfix 2.3 and later. In earlier releases it was called **smtpd_sasl_application_name**.

smtpd_sasl_security_options (default: noanonymous)

Postfix SMTP server SASL security options; as of Postfix 2.3 the list of available features depends on the SASL server implementation that is selected with **smtpd_sasl_type**.

The following security features are defined for the **cyrus** server SASL implementation:

Restrict what authentication mechanisms the Postfix SMTP server will offer to the client. The list of available authentication mechanisms is system dependent.

Specify zero or more of the following:

noplaintext

Disallow methods that use plaintext passwords.

noactive

Disallow methods subject to active (non-dictionary) attack.

nodictionary

Disallow methods subject to passive (dictionary) attack.

noanonymous

Disallow methods that allow anonymous authentication.

forward_secret

Only allow methods that support forward secrecy (Dovecot only).

mutual_auth

Only allow methods that provide mutual authentication (not available with Cyrus SASL version 1).

By default, the Postfix SMTP server accepts plaintext passwords but not anonymous logins.

Warning: it appears that clients try authentication methods in the order as advertised by the server (e.g., PLAIN ANONYMOUS CRAM-MD5) which means that if you disable plaintext passwords, clients will log in anonymously, even when they should be able to use CRAM-MD5. So, if you disable plaintext logins, disable anonymous logins too. Postfix treats anonymous login as no authentication.

Example:

```
smtpd_sasl_security_options = noanonymous, noplain
```

smtpd_sasl_tls_security_options (default: \$smtpd_sasl_security_options)

The SASL authentication security options that the Postfix SMTP server uses for TLS encrypted SMTP sessions.

This feature is available in Postfix 2.2 and later.

smtpd_sasl_type (default: cyrus)

The SASL plug-in type that the Postfix SMTP server should use for authentication. The available types are listed with the **"postconf -a"** command.

This feature is available in Postfix 2.3 and later.

smtpd_sender_login_maps (default: empty)

Optional lookup table with the SASL login names that own sender (MAIL FROM) addresses.

Specify zero or more "type:table" lookup tables. With lookups from indexed files such as DB or DBM, or from networked tables such as NIS, LDAP or SQL, the following search operations are done with a sender address of *user@domain*:

1) *user@domain*

This table lookup is always done and has the highest precedence.

2) *user*

This table lookup is done only when the *domain* part of the sender address matches \$myorigin, \$mydestination, \$inet_interfaces or \$proxy_interfaces.

3) *@domain*

This table lookup is done last and has the lowest precedence.

In all cases the result of table lookup must be either "not found" or a list of SASL login names separated by comma and/or whitespace.

smtpd_sender_restrictions (default: empty)

Optional restrictions that the Postfix SMTP server applies in the context of the MAIL FROM command. See SMTPD_ACCESS_README, section "Delayed evaluation of SMTP access restriction lists" for a discussion of evaluation context and time.

The default is to permit everything.

Specify a list of restrictions, separated by commas and/or whitespace. Continue long lines by starting the next line with whitespace. Restrictions are applied in the order as specified; the first restriction that matches wins.

The following restrictions are specific to the sender address received with the MAIL FROM command.

check_sender_access *type:table*

Search the specified **access(5)** database for the MAIL FROM address, domain, parent domains, or localpart@, and execute the corresponding action.

check_sender_mx_access *type:table*

Search the specified **access(5)** database for the MX hosts for the MAIL FROM address, and execute the corresponding action. Note: a result of "OK" is not allowed for safety reasons. Instead, use DUNNO in order to exclude specific hosts from blacklists. This feature is available in Postfix 2.1 and later.

check_sender_ns_access *type:table*

Search the specified **access(5)** database for the DNS servers for the MAIL FROM address, and execute the corresponding action. Note: a result of "OK" is not allowed for safety reasons. Instead, use DUNNO in order to exclude specific hosts from blacklists. This feature is available in Postfix 2.1 and later.

reject_authenticated_sender_login_mismatch

Enforces the reject_sender_login_mismatch restriction for authenticated clients only. This feature is available in Postfix version 2.1 and later.

reject_non_fqdn_sender

Reject the request when the MAIL FROM address is not in fully-qualified domain form, as required by the RFC.

The non_fqdn_reject_code parameter specifies the response code for rejected requests (default: 504).

reject_rhsbl_sender *rbl_domain=d.d.d.d*

Reject the request when the MAIL FROM domain is listed with the A record "*d.d.d.d*" under *rbl_domain* (Postfix version 2.1 and later only). If no "*=d.d.d.d*" is specified, reject the request when the MAIL FROM domain is listed with any A record under *rbl_domain*.

The maps_rbl_reject_code parameter specifies the response code for rejected requests (default: 554); the default_rbl_reply parameter specifies the default server reply; and the rbl_reply_maps parameter specifies tables with server replies indexed by *rbl_domain*. This feature is available in Postfix 2.0 and later.

reject_sender_login_mismatch

Reject the request when \$smtpd_sender_login_maps specifies an owner for the MAIL FROM address, but the client is not (SASL) logged in as that MAIL FROM address owner; or when the client is (SASL) logged in, but the client login name doesn't own the MAIL FROM address according to \$smtpd_sender_login_maps.

reject_unauthenticated_sender_login_mismatch

Enforces the reject_sender_login_mismatch restriction for unauthenticated clients only. This feature is available in Postfix version 2.1 and later.

reject_unknown_sender_domain

Reject the request when Postfix is not final destination for the sender address, and the MAIL FROM address has no DNS A or MX record, or when it has a malformed MX record such as a record with a zero-length MX hostname (Postfix version 2.3 and later).

The unknown_address_reject_code parameter specifies the numerical response code for rejected requests (default: 450). The response is always 450 in case of a temporary DNS error.

The unknown_address_tempfail_action parameter specifies the action after a temporary DNS error (default: defer_if_permit).

reject_unlisted_sender

Reject the request when the MAIL FROM address is not listed in the list of valid recipients for its domain class. See the smtpd_reject_unlisted_sender parameter description for details. This feature is available in Postfix 2.1 and later.

reject_unverified_sender

Reject the request when mail to the MAIL FROM address is known to bounce, or when the sender address destination is not reachable. Address verification information is managed by the **verify(8)** server; see the ADDRESS_VERIFICATION_README file for details.

The `unverified_sender_reject_code` parameter specifies the numerical response code when an address is known to bounce (default: 450, change into 550 when you are confident that it is safe to do so).

The `unverified_sender_defer_code` specifies the numerical response code when an address address probe failed due to a temporary problem (default: 450).

The `unverified_sender_tempfail_action` parameter specifies the action after address probe failure due to a temporary problem (default: `defer_if_permit`).

This feature is available in Postfix 2.1 and later.

Other restrictions that are valid in this context:

- Generic restrictions that can be used in any SMTP command context, described under `smtpd_client_restrictions`.
- SMTP command specific restrictions described under `smtpd_client_restrictions` and `smtpd_helo_restrictions`.
- SMTP command specific restrictions described under `smtpd_recipient_restrictions`. When recipient restrictions are listed under `smtpd_sender_restrictions`, they have effect only with "`smtpd_delay_reject = yes`", so that `$smtpd_sender_restrictions` is evaluated at the time of the RCPT TO command.

Examples:

```
smtpd_sender_restrictions = reject_unknown_sender_domain
smtpd_sender_restrictions = reject_unknown_sender_domain,
    check_sender_access hash:/etc/postfix/access
```

smtpd_soft_error_limit (default: 10)

The number of errors a remote SMTP client is allowed to make without delivering mail before the Postfix SMTP server slows down all its responses.

- With Postfix version 2.1 and later, the Postfix SMTP server delays all responses by `$smtpd_error_sleep_time` seconds.
- With Postfix versions 2.0 and earlier, the Postfix SMTP server delays all responses by (number of errors) seconds.

smtpd_starttls_timeout (default: 300s)

The time limit for Postfix SMTP server write and read operations during TLS startup and shutdown handshake procedures.

This feature is available in Postfix 2.2 and later.

smtpd_timeout (default: normal: 300s, stress: 10s)

The time limit for sending a Postfix SMTP server response and for receiving a remote SMTP client request. Normally the default limit is 300s, but it changes under overload to just 10s with Postfix 2.6 and later.

Note: if you set SMTP time limits to very large values you may have to update the global `ipc_timeout` parameter.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

smtpd_tls_CAfile (default: empty)

A file containing (PEM format) CA certificates of root CAs trusted to sign either remote SMTP client certificates or intermediate CA certificates. These are loaded into memory before the **smtpd(8)** server enters the chroot jail. If the number of trusted roots is large, consider using `smtpd_tls_CAp` instead, but note that the latter directory must be present in the chroot jail if the **smtpd(8)** server is chrooted. This file may also be used to augment the server certificate trust chain, but it is best to include all the required certificates

directly in the server certificate file.

By default (see `smtpd_tls_ask_ccert`), client certificates are not requested, and `smtpd_tls_CAfile` should remain empty. If you do make use of client certificates, the distinguished names (DNs) of the certificate authorities listed in `smtpd_tls_CAfile` are sent to the remote SMTP client in the client certificate request message. MUAs with multiple client certificates may use the list of preferred certificate authorities to select the correct client certificate. You may want to put your "preferred" CA or CAs in this file, and install other trusted CAs in `$smtpd_tls_CAp`.

Example:

```
smtpd_tls_CAfile = /etc/postfix/CAcert.pem
```

This feature is available in Postfix 2.2 and later.

smtpd_tls_CAp (default: empty)

A directory containing (PEM format) CA certificates of root CAs trusted to sign either remote SMTP client certificates or intermediate CA certificates. Do not forget to create the necessary "hash" links with, for example, "`$OPENSSL_HOME/bin/c_rehash /etc/postfix/certs`". To use `smtpd_tls_CAp` in chroot mode, this directory (or a copy) must be inside the chroot jail.

By default (see `smtpd_tls_ask_ccert`), client certificates are not requested, and `smtpd_tls_CAp` should remain empty. In contrast to `smtpd_tls_CAfile`, DN of certificate authorities installed in `$smtpd_tls_CAp` are not included in the client certificate request message. MUAs with multiple client certificates may use the list of preferred certificate authorities to select the correct client certificate. You may want to put your "preferred" CA or CAs in `$smtpd_tls_CAfile`, and install the remaining trusted CAs in `$smtpd_tls_CAp`.

Example:

```
smtpd_tls_CAp = /etc/postfix/certs
```

This feature is available in Postfix 2.2 and later.

smtpd_tls_always_issue_session_ids (default: yes)

Force the Postfix SMTP server to issue a TLS session id, even when TLS session caching is turned off (`smtpd_tls_session_cache_database` is empty). This behavior is compatible with Postfix < 2.3.

With Postfix 2.3 and later the Postfix SMTP server can disable session id generation when TLS session caching is turned off. This keeps clients from caching sessions that almost certainly cannot be re-used.

By default, the Postfix SMTP server always generates TLS session ids. This works around a known defect in mail client applications such as MS Outlook, and may also prevent interoperability issues with other MTAs.

Example:

```
smtpd_tls_always_issue_session_ids = no
```

This feature is available in Postfix 2.3 and later.

smtpd_tls_ask_ccert (default: no)

Ask a remote SMTP client for a client certificate. This information is needed for certificate based mail relaying with, for example, the `permit_tls_clientcerts` feature.

Some clients such as Netscape will either complain if no certificate is available (for the list of CAs in `$smtpd_tls_CAfile`) or will offer multiple client certificates to choose from. This may be annoying, so this option is "off" by default.

This feature is available in Postfix 2.2 and later.

smtpd_tls_auth_only (default: no)

When TLS encryption is optional in the Postfix SMTP server, do not announce or accept SASL authentication over unencrypted connections.

This feature is available in Postfix 2.2 and later.

smtpd_tls_ccert_verifydepth (default: 9)

The verification depth for remote SMTP client certificates. A depth of 1 is sufficient if the issuing CA is listed in a local CA file.

The default verification depth is 9 (the OpenSSL default) for compatibility with earlier Postfix behavior. Prior to Postfix 2.5, the default value was 5, but the limit was not actually enforced. If you have set this to a lower non-default value, certificates with longer trust chains may now fail to verify. Certificate chains with 1 or 2 CAs are common, deeper chains are more rare and any number between 5 and 9 should suffice in practice. You can choose a lower number if, for example, you trust certificates directly signed by an issuing CA but not any CAs it delegates to.

This feature is available in Postfix 2.2 and later.

smtpd_tls_cert_file (default: empty)

File with the Postfix SMTP server RSA certificate in PEM format. This file may also contain the Postfix SMTP server private RSA key.

Public Internet MX hosts without certificates signed by a "reputable" CA must generate, and be prepared to present to most clients, a self-signed or private-CA signed certificate. The client will not be able to authenticate the server, but unless it is running Postfix 2.3 or similar software, it will still insist on a server certificate.

For servers that are **not** public Internet MX hosts, Postfix 2.3 supports configurations with no certificates. This entails the use of just the anonymous TLS ciphers, which are not supported by typical SMTP clients. Since such clients will not, as a rule, fall back to plain text after a TLS handshake failure, the server will be unable to receive email from TLS enabled clients. To avoid accidental configurations with no certificates, Postfix 2.3 enables certificate-less operation only when the administrator explicitly sets "smtpd_tls_cert_file = none". This ensures that new Postfix configurations will not accidentally run with no certificates.

Both RSA and DSA certificates are supported. When both types are present, the cipher used determines which certificate will be presented to the client. For Netscape and OpenSSL clients without special cipher choices the RSA certificate is preferred.

To enable a remote SMTP client to verify the Postfix SMTP server certificate, the issuing CA certificates must be made available to the client. You should include the required certificates in the server certificate file, the server certificate first, then the issuing CA(s) (bottom-up order).

Example: the certificate for "server.example.com" was issued by "intermediate CA" which itself has a certificate of "root CA". Create the server.pem file with "cat server_cert.pem intermediate_CA.pem root_CA.pem > server.pem".

If you also want to verify client certificates issued by these CAs, you can add the CA certificates to the smtpd_tls_CAfile, in which case it is not necessary to have them in the smtpd_tls_cert_file or smtpd_tls_dcert_file.

A certificate supplied here must be usable as an SSL server certificate and hence pass the "openssl verify -purpose sslserver ..." test.

Example:

```
smtpd_tls_cert_file = /etc/postfix/server.pem
```

This feature is available in Postfix 2.2 and later.

smtpd_tls_cipherlist (default: empty)

Obsolete Postfix < 2.3 control for the Postfix SMTP server TLS cipher list. It is easy to create inter-operability problems by choosing a non-default cipher list. Do not use a non-default TLS cipherlist for MX hosts on the public Internet. Clients that begin the TLS handshake, but are unable to agree on a common cipher, may not be able to send any email to the SMTP server. Using a restricted cipher list may be more appropriate for a dedicated MSA or an internal mailhub, where one can exert some control over the TLS software and settings of the connecting clients.

Note: do not use "" quotes around the parameter value.

This feature is available with Postfix version 2.2. It is not used with Postfix 2.3 and later; use `smtpd_tls_mandatory_ciphers` instead.

smtpd_tls_ciphers (default: export)

The minimum TLS cipher grade that the Postfix SMTP server will use with opportunistic TLS encryption. Cipher types listed in `smtpd_tls_exclude_ciphers` are excluded from the base definition of the selected cipher grade. The default value "export" ensures maximum inter-operability. Because encryption is optional, stronger controls are not appropriate, and this setting **SHOULD NOT** be changed unless the change is essential.

When TLS is mandatory the cipher grade is chosen via the `smtpd_tls_mandatory_ciphers` configuration parameter, see there for syntax details.

Example:

```
smtpd_tls_ciphers = export
```

This feature is available in Postfix 2.6 and later. With earlier Postfix releases only the `smtpd_tls_mandatory_ciphers` parameter is implemented, and opportunistic TLS always uses "export" or better (i.e. all) ciphers.

smtpd_tls_dcert_file (default: empty)

File with the Postfix SMTP server DSA certificate in PEM format. This file may also contain the Postfix SMTP server private DSA key.

See the discussion under `smtpd_tls_cert_file` for more details.

Example:

```
smtpd_tls_dcert_file = /etc/postfix/server-dsa.pem
```

This feature is available in Postfix 2.2 and later.

smtpd_tls_dh1024_param_file (default: empty)

File with DH parameters that the Postfix SMTP server should use with EDH ciphers.

Instead of using the exact same parameter sets as distributed with other TLS packages, it is more secure to generate your own set of parameters with something like the following command:

```
openssl gendh -out /etc/postfix/dh_1024.pem -2 1024
```

Your actual source for entropy may differ. Some systems have `/dev/random`; on other system you may consider using the "Entropy Gathering Daemon EGD", available at <http://egd.sourceforge.net/>

Example:

```
smtpd_tls_dh1024_param_file = /etc/postfix/dh_1024.pem
```

This feature is available with Postfix version 2.2.

smtpd_tls_dh512_param_file (default: empty)

File with DH parameters that the Postfix SMTP server should use with EDH ciphers.

See also the discussion under the `smtpd_tls_dh1024_param_file` configuration parameter.

Example:

```
smtpd_tls_dh512_param_file = /etc/postfix/dh_512.pem
```

This feature is available with Postfix version 2.2.

smtpd_tls_dkey_file (default: \$smtpd_tls_dcert_file)

File with the Postfix SMTP server DSA private key in PEM format. This file may be combined with the Postfix SMTP server DSA certificate file specified with `$smtpd_tls_dcert_file`.

The private key must be accessible without a pass-phrase, i.e. it must not be encrypted. File permissions should grant read-only access to the system superuser account ("root"), and no access to anyone else.

This feature is available in Postfix 2.2 and later.

smtpd_tls_eccert_file (default: empty)

File with the Postfix SMTP server ECDSA certificate in PEM format. This file may also contain the Postfix SMTP server private ECDSA key.

See the discussion under `smtpd_tls_cert_file` for more details.

Example:

```
smtpd_tls_eccert_file = /etc/postfix/ecdsa-scert.pem
```

This feature is available in Postfix 2.6 and later, when Postfix is compiled and linked with OpenSSL 0.9.9 or later.

smtpd_tls_eckey_file (default: \$smtpd_tls_eccert_file)

File with the Postfix SMTP server ECDSA private key in PEM format. This file may be combined with the Postfix SMTP server ECDSA certificate file specified with `$smtpd_tls_eccert_file`.

The private key must be accessible without a pass-phrase, i.e. it must not be encrypted. File permissions should grant read-only access to the system superuser account ("root"), and no access to anyone else.

This feature is available in Postfix 2.6 and later, when Postfix is compiled and linked with OpenSSL 0.9.9 or later.

smtpd_tls_eecdh_grade (default: see `postconf -d` output)

The Postfix SMTP server security grade for ephemeral elliptic-curve Diffie-Hellman (EECDH) key exchange.

The available choices are:

- none** Don't use EECDH. Ciphers based on EECDH key exchange will be disabled. This is the default in official Postfix releases (`mail_version = major.minor.patchlevel`).
- strong** Use EECDH with approximately 128 bits of security at a reasonable computational cost. This is the current best-practice trade-off between security and computational efficiency. This is the default in Postfix snapshot releases (`mail_version = major.minor-releasedate`).
- ultra** Use EECDH with approximately 192 bits of security at computational cost that is approximately twice as high as 128 bit strength ECC. Barring significant progress in attacks on elliptic curve crypto-systems, the "strong" curve is sufficient for most users.

This feature is available in Postfix 2.6 and later, when it is compiled and linked with OpenSSL 0.9.9 or later.

smtpd_tls_exclude_ciphers (default: empty)

List of ciphers or cipher types to exclude from the SMTP server cipher list at all TLS security levels. Excluding valid ciphers can create interoperability problems. DO NOT exclude ciphers unless it is essential to do so. This is not an OpenSSL cipherlist; it is a simple list separated by whitespace and/or commas. The elements are a single cipher, or one or more "+" separated cipher properties, in which case only ciphers matching **all** the properties are excluded.

Examples (some of these will cause problems):

```
smtpd_tls_exclude_ciphers = aNULL
smtpd_tls_exclude_ciphers = MD5, DES
smtpd_tls_exclude_ciphers = DES+MD5
smtpd_tls_exclude_ciphers = AES256-SHA, DES-CBC3-MD5
smtpd_tls_exclude_ciphers = kEDH+aRSA
```

The first setting disables anonymous ciphers. The next setting disables ciphers that use the MD5 digest algorithm or the (single) DES encryption algorithm. The next setting disables ciphers that use MD5 and DES together. The next setting disables the two ciphers "AES256-SHA" and "DES-CBC3-MD5". The last setting disables ciphers that use "EDH" key exchange with RSA authentication.

This feature is available in Postfix 2.3 and later.

smtpd_tls_fingerprint_digest (default: md5)

The message digest algorithm used to construct client-certificate fingerprints for **check_ccert_access** and **permit_tls_clientcerts**. The default algorithm is **md5**, for backwards compatibility with Postfix releases prior to 2.5.

The best practice algorithm is now **sha1**. Recent advances in hash function cryptanalysis have led to md5 being deprecated in favor of sha1. However, as long as there are no known "second pre-image" attacks against md5, its use in this context can still be considered safe.

While additional digest algorithms are often available with OpenSSL's libcrypto, only those used by libssl in SSL cipher suites are available to Postfix. For now this means just md5 or sha1.

To find the fingerprint of a specific certificate file, with a specific digest algorithm, run:

```
$ openssl x509 -noout -fingerprint -digest -in certfile.pem
```

The text to the right of "=" sign is the desired fingerprint. For example:

```
$ openssl x509 -noout -fingerprint -sha1 -in cert.pem
SHA1 Fingerprint=D4:6A:AB:19:24:79:F8:32:BB:A6:CB:66:82:C0:8E:9B:EE:29:A8:1A
```

Example: client-certificate access table, with sha1 fingerprints:

```
/etc/postfix/main.cf:
    smtpd_tls_fingerprint_digest = sha1
    smtpd_client_restrictions =
        check_ccert_access hash:/etc/postfix/access,
        reject
/etc/postfix/access:
    # Action folded to next line...
    AF:88:7C:AD:51:95:6F:36:96:F6:01:FB:2E:48:CD:AB:49:25:A2:3B
    OK
    85:16:78:FD:73:6E:CE:70:E0:31:5F:0D:3C:C8:6D:C4:2C:24:59:E1
    permit_auth_destination
```

This feature is available in Postfix 2.5 and later.

smtpd_tls_key_file (default: \$smtpd_tls_cert_file)

File with the Postfix SMTP server RSA private key in PEM format. This file may be combined with the Postfix SMTP server RSA certificate file specified with \$smtpd_tls_cert_file.

The private key must be accessible without a pass-phrase, i.e. it must not be encrypted. File permissions should grant read-only access to the system superuser account ("root"), and no access to anyone else.

smtpd_tls_loglevel (default: 0)

Enable additional Postfix SMTP server logging of TLS activity. Each logging level also includes the information that is logged at a lower logging level.

- 0 Disable logging of TLS activity.
- 1 Log TLS handshake and certificate information.
- 2 Log levels during TLS negotiation.
- 3 Log hexadecimal and ASCII dump of TLS negotiation process.
- 4 Also log hexadecimal and ASCII dump of complete transmission after STARTTLS.

Use "smtpd_tls_loglevel = 3" only in case of problems. Use of loglevel 4 is strongly discouraged.

This feature is available in Postfix 2.2 and later.

smtpd_tls_mandatory_ciphers (default: medium)

The minimum TLS cipher grade that the Postfix SMTP server will use with mandatory TLS encryption. Cipher types listed in smtpd_tls_mandatory_exclude_ciphers or smtpd_tls_exclude_ciphers are excluded

from the base definition of the selected cipher grade. See `smtpd_tls_ciphers` for cipher controls that apply to opportunistic TLS.

The following cipher grades are supported:

export Enable the mainstream "EXPORT" grade or better OpenSSL ciphers. This is the most appropriate setting for public MX hosts, and is always used with opportunistic TLS encryption. The underlying cipherlist is specified via the `tls_export_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_export_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the server is configured to ask for client certificates. If you must always exclude anonymous ciphers, set `"smtpd_tls_exclude_ciphers = aNULL"`. To exclude anonymous ciphers only when TLS is enforced, set `"smtpd_tls_mandatory_exclude_ciphers = aNULL"`.

low Enable the mainstream "LOW" grade or better OpenSSL ciphers. The underlying cipherlist is specified via the `tls_low_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_low_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the server is configured to ask for client certificates. If you must always exclude anonymous ciphers, set `"smtpd_tls_exclude_ciphers = aNULL"`. To exclude anonymous ciphers only when TLS is enforced, set `"smtpd_tls_mandatory_exclude_ciphers = aNULL"`.

medium

Enable the mainstream "MEDIUM" grade or better OpenSSL ciphers. These are essentially the 128-bit or stronger ciphers. This is the default minimum strength for mandatory TLS encryption. MSAs that enforce TLS and have clients that do not support any "MEDIUM" or "HIGH" grade ciphers, may need to configure a weaker ("low" or "export") minimum cipher grade. The underlying cipherlist is specified via the `tls_medium_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_medium_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the server is configured to ask for client certificates. If you must always exclude anonymous ciphers, set `"smtpd_tls_exclude_ciphers = aNULL"`. To exclude anonymous ciphers only when TLS is enforced, set `"smtpd_tls_mandatory_exclude_ciphers = aNULL"`.

high Enable only the mainstream "HIGH" grade OpenSSL ciphers. The underlying cipherlist is specified via the `tls_high_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_high_cipherlist` includes anonymous ciphers, but these are automatically filtered out if the server is configured to ask for client certificates. If you must always exclude anonymous ciphers, set `"smtpd_tls_exclude_ciphers = aNULL"`. To exclude anonymous ciphers only when TLS is enforced, set `"smtpd_tls_mandatory_exclude_ciphers = aNULL"`.

null Enable only the "NULL" OpenSSL ciphers, these provide authentication without encryption. This setting is only appropriate in the rare case that all clients are prepared to use NULL ciphers (not normally enabled in TLS clients). The underlying cipherlist is specified via the `tls_null_cipherlist` configuration parameter, which you are strongly encouraged to not change. The default value of `tls_null_cipherlist` excludes anonymous ciphers (OpenSSL 0.9.8 has NULL ciphers that offer data integrity without encryption or authentication).

This feature is available in Postfix 2.3 and later.

smtpd_tls_mandatory_exclude_ciphers (default: empty)

Additional list of ciphers or cipher types to exclude from the SMTP server cipher list at mandatory TLS security levels. This list works in addition to the exclusions listed with `smtpd_tls_exclude_ciphers` (see there for syntax details).

This feature is available in Postfix 2.3 and later.

smtpd_tls_mandatory_protocols (default: SSLv3, TLSv1)

The SSL/TLS protocols accepted by the Postfix SMTP server with mandatory TLS encryption. If the list is empty, the server supports all available SSL/TLS protocol versions. A non-empty value is a list of protocol

names separated by whitespace, commas or colons. The supported protocol names are "SSLv2", "SSLv3" and "TLSv1", and are not case sensitive.

With Postfix >= 2.5 the parameter syntax is expanded to support protocol exclusions. One can now explicitly exclude SSLv2 by setting "smtpd_tls_mandatory_protocols = !SSLv2". To exclude both SSLv2 and SSLv3 set "smtpd_tls_mandatory_protocols = !SSLv2, !SSLv3". Listing the protocols to include, rather than protocols to exclude, is still supported, use the form you find more intuitive.

Since SSL version 2 has known protocol weaknesses and is now deprecated, the default setting excludes "SSLv2". This means that by default, SSL version 2 will not be used at the "encrypt" security level.

Example:

```
smtpd_tls_mandatory_protocols = TLSv1
# Alternative form with Postfix >= 2.5:
smtpd_tls_mandatory_protocols = !SSLv2, !SSLv3
```

This feature is available in Postfix 2.3 and later.

smtpd_tls_protocols (default: empty)

List of TLS protocols that the Postfix SMTP server will exclude or include with opportunistic TLS encryption. This parameter SHOULD be left at its default empty value, allowing all protocols to be used with opportunistic TLS.

In main.cf the values are separated by whitespace, commas or colons. An empty value means allow all protocols. The valid protocol names, (see `\fBfBSSL_get_version(3)`), are "SSLv2", "SSLv3" and "TLSv1". In `smtp_tls_policy_maps` table entries, "protocols" attribute values are separated by a colon.

To include a protocol list its name, to exclude it, prefix the name with a "!" character. To exclude SSLv2 even for opportunistic TLS set "smtpd_tls_protocols = !SSLv2". To exclude both "SSLv2" and "SSLv3" set "smtpd_tls_protocols = !SSLv2, !SSLv3". Explicitly listing the protocols to include, is supported, but not recommended. OpenSSL provides no mechanisms for excluding protocols not known at compile-time. If Postfix is linked against an OpenSSL library that supports additional protocol versions, they cannot be excluded using either syntax.

Example:

```
smtpd_tls_protocols = !SSLv2
```

This feature is available in Postfix 2.6 and later.

smtpd_tls_received_header (default: no)

Request that the Postfix SMTP server produces Received: message headers that include information about the protocol and cipher used, as well as the client CommonName and client certificate issuer CommonName. This is disabled by default, as the information may be modified in transit through other mail servers. Only information that was recorded by the final destination can be trusted.

This feature is available in Postfix 2.2 and later.

smtpd_tls_req_ccert (default: no)

With mandatory TLS encryption, require a trusted remote SMTP client certificate in order to allow TLS connections to proceed. This option implies "smtpd_tls_ask_ccert = yes".

When TLS encryption is optional, this setting is ignored with a warning written to the mail log.

This feature is available in Postfix 2.2 and later.

smtpd_tls_security_level (default: empty)

The SMTP TLS security level for the Postfix SMTP server; when a non-empty value is specified, this overrides the obsolete parameters `smtpd_use_tls` and `smtpd_enforce_tls`. This parameter is ignored with "smtpd_tls_wrappermode = yes".

Specify one of the following security levels:

none TLS will not be used.

may Opportunistic TLS: announce STARTTLS support to SMTP clients, but do not require that clients use TLS encryption.

encrypt

Mandatory TLS encryption: announce STARTTLS support to SMTP clients, and require that clients use TLS encryption. According to RFC 2487 this MUST NOT be applied in case of a publicly-referenced SMTP server. Instead, this option should be used only on dedicated servers.

Note 1: the "fingerprint", "verify" and "secure" levels are not supported here. The Postfix SMTP server logs a warning and uses "encrypt" instead. To verify SMTP client certificates, see TLS_README for a discussion of the `smtpd_tls_ask_ccert`, `smtpd_tls_req_ccert`, and `permit_tls_clientcerts` features.

Note 2: The parameter setting "`smtpd_tls_security_level = encrypt`" implies "`smtpd_tls_auth_only = yes`".

Note 3: when invoked via "`sendmail -bs`", Postfix will never offer STARTTLS due to insufficient privileges to access the server private key. This is intended behavior.

This feature is available in Postfix 2.3 and later.

smtpd_tls_session_cache_database (default: empty)

Name of the file containing the optional Postfix SMTP server TLS session cache. Specify a database type that supports enumeration, such as **btree** or **sdbm**; there is no need to support concurrent access. The file is created if it does not exist. The `smtpd(8)` daemon does not use this parameter directly, rather the cache is implemented indirectly in the `tlsmgr(8)` daemon. This means that per-smtpd-instance `master.cf` overrides of this parameter are not effective. Note, that each of the cache databases supported by `tlsmgr(8)` daemon: `$smtpd_tls_session_cache_database`, `$smtp_tls_session_cache_database` (and with Postfix 2.3 and later `$lsmtp_tls_session_cache_database`), needs to be stored separately. It is not at this time possible to store multiple caches in a single database.

Note: **dbm** databases are not suitable. TLS session objects are too large.

As of version 2.5, Postfix no longer uses root privileges when opening this file. The file should now be stored under the Postfix-owned `data_directory`. As a migration aid, an attempt to open the file under a non-Postfix directory is redirected to the Postfix-owned `data_directory`, and a warning is logged.

Example:

```
smtpd_tls_session_cache_database = btree:/var/lib/postfix/smtpd_scache
```

This feature is available in Postfix 2.2 and later.

smtpd_tls_session_cache_timeout (default: 3600s)

The expiration time of Postfix SMTP server TLS session cache information. A cache cleanup is performed periodically every `$smtpd_tls_session_cache_timeout` seconds. As with `$smtpd_tls_session_cache_database`, this parameter is implemented in the `tlsmgr(8)` daemon and therefore per-smtpd-instance `master.cf` overrides are not possible.

This feature is available in Postfix 2.2 and later.

smtpd_tls_wrappermode (default: no)

Run the Postfix SMTP server in the non-standard "wrapper" mode, instead of using the STARTTLS command.

If you want to support this service, enable a special port in `master.cf`, and specify "`-o smtpd_tls_wrappermode=yes`" on the SMTP server's command line. Port 465 (smtps) was once chosen for this purpose.

This feature is available in Postfix 2.2 and later.

smtpd_use_tls (default: no)

Opportunistic TLS: announce STARTTLS support to SMTP clients, but do not require that clients use TLS encryption.

Note: when invoked via "`sendmail -bs`", Postfix will never offer STARTTLS due to insufficient privileges to access the server private key. This is intended behavior.

This feature is available in Postfix 2.2 and later. With Postfix 2.3 and later use `smtpd_tls_security_level`

instead.

soft_bounce (default: no)

Safety net to keep mail queued that would otherwise be returned to the sender. This parameter disables locally-generated bounces, and prevents the Postfix SMTP server from rejecting mail permanently, by changing 5xx reply codes into 4xx. However, `soft_bounce` is no cure for address rewriting mistakes or mail routing mistakes.

Example:

```
soft_bounce = yes
```

stale_lock_time (default: 500s)

The time after which a stale exclusive mailbox lockfile is removed. This is used for delivery to file or mailbox.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

stress (default: empty)

This feature is documented in the `STRESS_README` document.

This feature is available in Postfix 2.5 and later.

strict_7bit_headers (default: no)

Reject mail with 8-bit text in message headers. This blocks mail from poorly written applications.

This feature should not be enabled on a general purpose mail server, because it is likely to reject legitimate email.

This feature is available in Postfix 2.0 and later.

strict_8bitmime (default: no)

Enable both `strict_7bit_headers` and `strict_8bitmime_body`.

This feature should not be enabled on a general purpose mail server, because it is likely to reject legitimate email.

This feature is available in Postfix 2.0 and later.

strict_8bitmime_body (default: no)

Reject 8-bit message body text without 8-bit MIME content encoding information. This blocks mail from poorly written applications.

Unfortunately, this also rejects majordomo approval requests when the included request contains valid 8-bit MIME mail, and it rejects bounces from mailers that do not MIME encapsulate 8-bit content (for example, bounces from qmail or from old versions of Postfix).

This feature should not be enabled on a general purpose mail server, because it is likely to reject legitimate email.

This feature is available in Postfix 2.0 and later.

strict_mailbox_ownership (default: yes)

Defer delivery when a mailbox file is not owned by its recipient. The default setting is not backwards compatible.

This feature is available in Postfix 2.5.3 and later.

strict_mime_encoding_domain (default: no)

Reject mail with invalid Content-Transfer-Encoding: information for the message/* or multipart/* MIME content types. This blocks mail from poorly written software.

This feature should not be enabled on a general purpose mail server, because it will reject mail after a single violation.

This feature is available in Postfix 2.0 and later.

strict_rfc821_envelopes (default: no)

Require that addresses received in SMTP MAIL FROM and RCPT TO commands are enclosed with <>, and that those addresses do not contain RFC 822 style comments or phrases. This stops mail from poorly written software.

By default, the Postfix SMTP server accepts RFC 822 syntax in MAIL FROM and RCPT TO addresses.

sun_mailtool_compatibility (default: no)

Obsolete SUN mailtool compatibility feature. Instead, use "mailbox_delivery_lock = dotlock".

swap_bangpath (default: yes)

Enable the rewriting of "site!user" into "user@site". This is necessary if your machine is connected to UUCP networks. It is enabled by default.

Note: with Postfix version 2.2, message header address rewriting happens only when one of the following conditions is true:

- The message is received with the Postfix **sendmail(1)** command,
- The message is received from a network client that matches \$local_header_rewrite_clients,
- The message is received from the network, and the remote_header_rewrite_domain parameter specifies a non-empty value.

To get the behavior before Postfix version 2.2, specify "local_header_rewrite_clients = static:all".

Example:

```
swap_bangpath = no
```

syslog_facility (default: mail)

The syslog facility of Postfix logging. Specify a facility as defined in syslog.conf(5). The default facility is "mail".

Warning: a non-default syslog_facility setting takes effect only after a Postfix process has completed initialization. Errors during process initialization will be logged with the default facility. Examples are errors while parsing the command line arguments, and errors while accessing the Postfix main.cf configuration file.

syslog_name (default: see postconf -d output)

The mail system name that is prepended to the process name in syslog records, so that "smtpd" becomes, for example, "postfix/smtpd".

Warning: a non-default syslog_name setting takes effect only after a Postfix process has completed initialization. Errors during process initialization will be logged with the default name. Examples are errors while parsing the command line arguments, and errors while accessing the Postfix main.cf configuration file.

tcp_windowsize (default: 0)

An optional workaround for routers that break TCP window scaling. Specify a value > 0 and < 65536 to enable this feature. With Postfix TCP servers (**smtpd(8)**, **qmqpd(8)**), this feature is implemented by the Postfix **master(8)** daemon.

To change this parameter without stopping Postfix, you need to first terminate all Postfix TCP servers:

```
# postconf -e master_service_disable=inet
# postfix reload
```

This immediately terminates all processes that accept network connections. Next, you enable Postfix TCP servers with the updated tcp_windowsize setting:

```
# postconf -e tcp_windowsize=65535 master_service_disable=
# postfix reload
```

If you skip these steps with a running Postfix system, then the tcp_windowsize change will work only for Postfix TCP clients (**smtp(8)**, **lmtp(8)**).

This feature is available in Postfix 2.6 and later.

tls_daemon_random_bytes (default: 32)

The number of pseudo-random bytes that an **smtp(8)** or **smtpd(8)** process requests from the **tlsmgr(8)** server in order to seed its internal pseudo random number generator (PRNG). The default of 32 bytes (equivalent to 256 bits) is sufficient to generate a 128bit (or 168bit) session key.

This feature is available in Postfix 2.2 and later.

tls_eecdh_strong_curve (default: prime256v1)

The elliptic curve used by the SMTP server for sensibly strong ephemeral ECDH key exchange. This curve is used by the Postfix SMTP server when "smtpd_tls_eecdh_grade = strong". The phrase "sensibly strong" means approximately 128-bit security based on best known attacks. The selected curve must be implemented by OpenSSL (as reported by **ecparam(1)** with the "-list_curves" option) and be one of the curves listed in Section 5.1.1 of RFC 4492. You should not generally change this setting.

This default curve is specified in NSA "Suite B" Cryptography (see http://www.nsa.gov/ia/industry/crypto_suite_b.cfm) for information classified as SECRET.

Note: elliptic curve names are poorly standardized; different standards groups are assigning different names to the same underlying curves. The curve with the X9.62 name "prime256v1" is also known under the SECG name "secp256r1", but OpenSSL does not recognize the latter name.

This feature is available in Postfix 2.6 and later, when it is compiled and linked with OpenSSL 0.9.9 or later.

tls_eecdh_ultra_curve (default: secp384r1)

The elliptic curve used by the SMTP server for maximally strong ephemeral ECDH key exchange. This curve is used by the Postfix SMTP server when "smtpd_tls_eecdh_grade = ultra". The phrase "maximally strong" means approximately 192-bit security based on best known attacks. This additional strength comes at a significant computational cost, most users should instead set "smtpd_tls_eecdh_grade = strong". The selected curve must be implemented by OpenSSL (as reported by **ecparam(1)** with the "-list_curves" option) and be one of the curves listed in Section 5.1.1 of RFC 4492. You should not generally change this setting.

This default "ultra" curve is specified in NSA "Suite B" Cryptography (see http://www.nsa.gov/ia/industry/crypto_suite_b.cfm) for information classified as TOP SECRET.

This feature is available in Postfix 2.6 and later, when it is compiled and linked with OpenSSL 0.9.9 or later.

tls_export_cipherlist (default: ALL:+RC4:@STRENGTH)

The OpenSSL cipherlist for "EXPORT" or higher grade ciphers. This defines the meaning of the "export" setting in **smtpd_tls_mandatory_ciphers**, **smtp_tls_mandatory_ciphers** and **lmtp_tls_mandatory_ciphers**. This is the cipherlist for the opportunistic ("may") TLS client security level and is the default cipherlist for the SMTP server. You are strongly encouraged to not change this setting.

This feature is available in Postfix 2.3 and later.

tls_high_cipherlist (default: ALL:!EXPORT:!LOW:!MEDIUM:+RC4:@STRENGTH)

The OpenSSL cipherlist for "HIGH" grade ciphers. This defines the meaning of the "high" setting in **smtpd_tls_mandatory_ciphers**, **smtp_tls_mandatory_ciphers** and **lmtp_tls_mandatory_ciphers**. You are strongly encouraged to not change this setting.

This feature is available in Postfix 2.3 and later.

tls_low_cipherlist (default: ALL:!EXPORT:+RC4:@STRENGTH)

The OpenSSL cipherlist for "LOW" or higher grade ciphers. This defines the meaning of the "low" setting in **smtpd_tls_mandatory_ciphers**, **smtp_tls_mandatory_ciphers** and **lmtp_tls_mandatory_ciphers**. You are strongly encouraged to not change this setting.

This feature is available in Postfix 2.3 and later.

tls_medium_cipherlist (default: ALL:!EXPORT:!LOW:+RC4:@STRENGTH)

The OpenSSL cipherlist for "MEDIUM" or higher grade ciphers. This defines the meaning of the "medium" setting in `smtpd_tls_mandatory_ciphers`, `smtp_tls_mandatory_ciphers` and `lmtp_tls_mandatory_ciphers`. This is the default cipherlist for mandatory TLS encryption in the TLS client (with anonymous ciphers disabled when verifying server certificates). You are strongly encouraged to not change this setting.

This feature is available in Postfix 2.3 and later.

tls_null_cipherlist (default: eNULL:!aNULL)

The OpenSSL cipherlist for "NULL" grade ciphers that provide authentication without encryption. This defines the meaning of the "null" setting in `smtpd_mandatory_tls_ciphers`, `smtp_tls_mandatory_ciphers` and `lmtp_tls_mandatory_ciphers`. You are strongly encouraged to not change this setting.

This feature is available in Postfix 2.3 and later.

tls_random_bytes (default: 32)

The number of bytes that `tlsmgr(8)` reads from `$tls_random_source` when (re)seeding the in-memory pseudo random number generator (PRNG) pool. The default of 32 bytes (256 bits) is good enough for 128bit symmetric keys. If using EGD or a device file, a maximum of 255 bytes is read.

This feature is available in Postfix 2.2 and later.

tls_random_exchange_name (default: see `postconf -d output`)

Name of the pseudo random number generator (PRNG) state file that is maintained by `tlsmgr(8)`. The file is created when it does not exist, and its length is fixed at 1024 bytes.

As of version 2.5, Postfix no longer uses root privileges when opening this file, and the default file location was changed from `${config_directory}/prng_exch` to `${data_directory}/prng_exch`. As a migration aid, an attempt to open the file under a non-Postfix directory is redirected to the Postfix-owned `data_directory`, and a warning is logged.

This feature is available in Postfix 2.2 and later.

tls_random_prng_update_period (default: 3600s)

The time between attempts by `tlsmgr(8)` to save the state of the pseudo random number generator (PRNG) to the file specified with `$tls_random_exchange_name`.

This feature is available in Postfix 2.2 and later.

tls_random_reseed_period (default: 3600s)

The maximal time between attempts by `tlsmgr(8)` to re-seed the in-memory pseudo random number generator (PRNG) pool from external sources. The actual time between re-seeding attempts is calculated using the PRNG, and is between 0 and the time specified.

This feature is available in Postfix 2.2 and later.

tls_random_source (default: see `postconf -d output`)

The external entropy source for the in-memory `tlsmgr(8)` pseudo random number generator (PRNG) pool. Be sure to specify a non-blocking source. If this source is not a regular file, the entropy source type must be prepended: `egd:/path/to/egd_socket` for a source with EGD compatible socket interface, or `dev:/path/to/device` for a device file.

Note: on OpenBSD systems specify `/dev/arandom` when `/dev/urandom` gives timeout errors.

This feature is available in Postfix 2.2 and later.

trace_service_name (default: trace)

The name of the trace service. This service is implemented by the `bounce(8)` daemon and maintains a record of mail deliveries and produces a mail delivery report when verbose delivery is requested with `"sendmail -v"`.

This feature is available in Postfix 2.1 and later.

transport_delivery_slot_cost (default: \$default_delivery_slot_cost)

A transport-specific override for the default_delivery_slot_cost parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_delivery_slot_discount (default: \$default_delivery_slot_discount)

A transport-specific override for the default_delivery_slot_discount parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_delivery_slot_loan (default: \$default_delivery_slot_loan)

A transport-specific override for the default_delivery_slot_loan parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_destination_concurrency_failed_cohort_limit (default: \$default_destination_concurrency_failed_cohort_limit)

A transport-specific override for the default_destination_concurrency_failed_cohort_limit parameter value, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5 and later.

transport_destination_concurrency_limit (default: \$default_destination_concurrency_limit)

A transport-specific override for the default_destination_concurrency_limit parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_destination_concurrency_negative_feedback (default: \$default_destination_concurrency_negative_feedback)

A transport-specific override for the default_destination_concurrency_negative_feedback parameter value, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5 and later.

transport_destination_concurrency_positive_feedback (default: \$default_destination_concurrency_positive_feedback)

A transport-specific override for the default_destination_concurrency_positive_feedback parameter value, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5 and later.

transport_destination_rate_delay (default: \$default_destination_rate_delay)

A transport-specific override for the default_destination_rate_delay parameter value, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5 and later.

transport_destination_recipient_limit (default: \$default_destination_recipient_limit)

A transport-specific override for the default_destination_recipient_limit parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_extra_recipient_limit (default: \$default_extra_recipient_limit)

A transport-specific override for the default_extra_recipient_limit parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_initial_destination_concurrency (default: \$initial_destination_concurrency)

A transport-specific override for the initial_destination_concurrency parameter value, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.5 and later.

transport_maps (default: empty)

Optional lookup tables with mappings from recipient address to (message delivery transport, next-hop destination). See **transport(5)** for details.

Specify zero or more "type:table" lookup tables. If you use this feature with local files, run "**postmap /etc/postfix/transport**" after making a change.

For safety reasons, as of Postfix 2.3 this feature does not allow \$number substitutions in regular expression

maps.

Examples:

```
transport_maps = dbm:/etc/postfix/transport
transport_maps = hash:/etc/postfix/transport
```

transport_minimum_delivery_slots (default: \$default_minimum_delivery_slots)

A transport-specific override for the `default_minimum_delivery_slots` parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_recipient_limit (default: \$default_recipient_limit)

A transport-specific override for the `default_recipient_limit` parameter value, where *transport* is the master.cf name of the message delivery transport.

transport_recipient_refill_delay (default: \$default_recipient_refill_delay)

A transport-specific override for the `default_recipient_refill_delay` parameter value, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.4 and later.

transport_recipient_refill_limit (default: \$default_recipient_refill_limit)

A transport-specific override for the `default_recipient_refill_limit` parameter value, where *transport* is the master.cf name of the message delivery transport.

This feature is available in Postfix 2.4 and later.

transport_retry_time (default: 60s)

The time between attempts by the Postfix queue manager to contact a malfunctioning message delivery transport.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

transport_time_limit (default: \$command_time_limit)

A transport-specific override for the `command_time_limit` parameter value, where *transport* is the master.cf name of the message delivery transport.

trigger_timeout (default: 10s)

The time limit for sending a trigger to a Postfix daemon (for example, the **pickup**(8) or **qmgr**(8) daemon). This time limit prevents programs from getting stuck when the mail system is under heavy load.

Time units: s (seconds), m (minutes), h (hours), d (days), w (weeks). The default time unit is s (seconds).

undisclosed_recipients_header (default: To: undisclosed-recipients:;)

Message header that the Postfix **cleanup**(8) server inserts when a message contains no To: or Cc: message header. With Postfix 2.4 and later, specify an empty value to disable this feature.

unknown_address_reject_code (default: 450)

The numerical Postfix SMTP server response code when a sender or recipient address is rejected by the `reject_unknown_sender_domain` or `reject_unknown_recipient_domain` restriction. The response is always 450 in case of a temporary DNS error.

Do not change this unless you have a complete understanding of RFC 2821.

unknown_address_tempfail_action (default: \$reject_tempfail_action)

The Postfix SMTP server's action when `reject_unknown_sender_domain` or `reject_unknown_recipient_domain` fail due to a temporary error condition. Specify "defer" to defer the remote SMTP client request immediately. With the default "defer_if_permit" action, the Postfix SMTP server continues to look for opportunities to reject mail, and defers the client request only if it would otherwise be accepted.

This feature is available in Postfix 2.6 and later.

unknown_client_reject_code (default: 450)

The numerical Postfix SMTP server response code when a client without valid address <=> name mapping is rejected by the `reject_unknown_client_hostname` restriction. The SMTP server always replies with 450 when the mapping failed due to a temporary error condition.

Do not change this unless you have a complete understanding of RFC 2821.

unknown_helo_hostname_tempfail_action (default: \$reject_tempfail_action)

The Postfix SMTP server's action when reject_unknown_helo_hostname fails due to an temporary error condition. Specify "defer" to defer the remote SMTP client request immediately. With the default "defer_if_permit" action, the Postfix SMTP server continues to look for opportunities to reject mail, and defers the client request only if it would otherwise be accepted.

This feature is available in Postfix 2.6 and later.

unknown_hostname_reject_code (default: 450)

The numerical Postfix SMTP server response code when the hostname specified with the HELO or EHLO command is rejected by the reject_unknown_helo_hostname restriction.

Do not change this unless you have a complete understanding of RFC 2821.

unknown_local_recipient_reject_code (default: 550)

The numerical Postfix SMTP server response code when a recipient address is local, and \$local_recipient_maps specifies a list of lookup tables that does not match the recipient. A recipient address is local when its domain matches \$mydestination, \$proxy_interfaces or \$inet_interfaces.

The default setting is 550 (reject mail) but it is safer to initially use 450 (try again later) so you have time to find out if your local_recipient_maps settings are OK.

Example:

```
unknown_local_recipient_reject_code = 450
```

This feature is available in Postfix 2.0 and later.

unknown_relay_recipient_reject_code (default: 550)

The numerical Postfix SMTP server reply code when a recipient address matches \$relay_domains, and relay_recipient_maps specifies a list of lookup tables that does not match the recipient address.

This feature is available in Postfix 2.0 and later.

unknown_virtual_alias_reject_code (default: 550)

The SMTP server reply code when a recipient address matches \$virtual_alias_domains, and \$virtual_alias_maps specifies a list of lookup tables that does not match the recipient address.

This feature is available in Postfix 2.0 and later.

unknown_virtual_mailbox_reject_code (default: 550)

The SMTP server reply code when a recipient address matches \$virtual_mailbox_domains, and \$virtual_mailbox_maps specifies a list of lookup tables that does not match the recipient address.

This feature is available in Postfix 2.0 and later.

unverified_recipient_defer_code (default: 450)

The numerical Postfix SMTP server response when a recipient address probe fails due to a temporary error condition.

Unlike elsewhere in Postfix, you can specify 250 in order to accept the address anyway.

Do not change this unless you have a complete understanding of RFC 2821.

This feature is available in Postfix 2.6 and later.

unverified_recipient_reject_code (default: 450)

The numerical Postfix SMTP server response when a recipient address is rejected by the reject_unverified_recipient restriction.

Unlike elsewhere in Postfix, you can specify 250 in order to accept the address anyway.

Do not change this unless you have a complete understanding of RFC 2821.

This feature is available in Postfix 2.1 and later.

unverified_recipient_reject_reason (default: empty)

The Postfix SMTP server's reply when rejecting mail with `reject_unverified_recipient`. Do not include the numeric SMTP reply code or the enhanced status code. By default, the response includes actual address verification details.

Example:

```
unverified_recipient_reject_reason = Recipient address lookup failed
```

This feature is available in Postfix 2.6 and later.

unverified_recipient_tempfail_action (default: \$reject_tempfail_action)

The Postfix SMTP server's action when `reject_unverified_recipient` fails due to a temporary error condition. Specify "defer" to defer the remote SMTP client request immediately. With the default "defer_if_permit" action, the Postfix SMTP server continues to look for opportunities to reject mail, and defers the client request only if it would otherwise be accepted.

This feature is available in Postfix 2.6 and later.

unverified_sender_defer_code (default: 450)

The numerical Postfix SMTP server response code when a sender address probe fails due to a temporary error condition.

Unlike elsewhere in Postfix, you can specify 250 in order to accept the address anyway.

Do not change this unless you have a complete understanding of RFC 2821.

This feature is available in Postfix 2.6 and later.

unverified_sender_reject_code (default: 450)

The numerical Postfix SMTP server response code when a recipient address is rejected by the `reject_unverified_sender` restriction.

Unlike elsewhere in Postfix, you can specify 250 in order to accept the address anyway.

Do not change this unless you have a complete understanding of RFC 2821.

This feature is available in Postfix 2.1 and later.

unverified_sender_reject_reason (default: empty)

The Postfix SMTP server's reply when rejecting mail with `reject_unverified_sender`. Do not include the numeric SMTP reply code or the enhanced status code. By default, the response includes actual address verification details.

Example:

```
unverified_sender_reject_reason = Sender address lookup failed
```

This feature is available in Postfix 2.6 and later.

unverified_sender_tempfail_action (default: \$reject_tempfail_action)

The Postfix SMTP server's action when `reject_unverified_sender` fails due to a temporary error condition. Specify "defer" to defer the remote SMTP client request immediately. With the default "defer_if_permit" action, the Postfix SMTP server continues to look for opportunities to reject mail, and defers the client request only if it would otherwise be accepted.

This feature is available in Postfix 2.6 and later.

verp_delimiter_filter (default: -=+)

The characters Postfix accepts as VERP delimiter characters on the Postfix `sendmail(1)` command line and in SMTP commands.

This feature is available in Postfix 1.1 and later.

virtual_alias_domains (default: \$virtual_alias_maps)

Postfix is final destination for the specified list of virtual alias domains, that is, domains for which all addresses are aliased to addresses in other local or remote domains. The SMTP server validates recipient addresses with `$virtual_alias_maps` and rejects non-existent recipients. See also the virtual alias domain

class in the ADDRESS_CLASS_README file

This feature is available in Postfix 2.0 and later. The default value is backwards compatible with Postfix version 1.1.

The default value is \$virtual_alias_maps so that you can keep all information about virtual alias domains in one place. If you have many users, it is better to separate information that changes more frequently (virtual address -> local or remote address mapping) from information that changes less frequently (the list of virtual domain names).

Specify a list of host or domain names, "/file/name" or "type:table" patterns, separated by commas and/or whitespace. A "/file/name" pattern is replaced by its contents; a "type:table" lookup table is matched when a table entry matches a lookup string (the lookup result is ignored). Continue long lines by starting the next line with whitespace. Specify "!pattern" to exclude a host or domain name from the list. The form "!/file/name" is supported only in Postfix version 2.4 and later.

See also the VIRTUAL_README and ADDRESS_CLASS_README documents for further information.

Example:

```
virtual_alias_domains = virtual1.tld virtual2.tld
```

virtual_alias_expansion_limit (default: 1000)

The maximal number of addresses that virtual alias expansion produces from each original recipient.

This feature is available in Postfix 2.1 and later.

virtual_alias_maps (default: \$virtual_maps)

Optional lookup tables that alias specific mail addresses or domains to other local or remote address. The table format and lookups are documented in **virtual(5)**. For an overview of Postfix address manipulations see the ADDRESS_REWRITING_README document.

This feature is available in Postfix 2.0 and later. The default value is backwards compatible with Postfix version 1.1.

If you use this feature with indexed files, run "**postmap /etc/postfix/virtual**" after changing the file.

Examples:

```
virtual_alias_maps = dbm:/etc/postfix/virtual
virtual_alias_maps = hash:/etc/postfix/virtual
```

virtual_alias_recursion_limit (default: 1000)

The maximal nesting depth of virtual alias expansion. Currently the recursion limit is applied only to the left branch of the expansion graph, so the depth of the tree can in the worst case reach the sum of the expansion and recursion limits. This may change in the future.

This feature is available in Postfix 2.1 and later.

virtual_destination_concurrency_limit (default: \$default_destination_concurrency_limit)

The maximal number of parallel deliveries to the same destination via the virtual message delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

virtual_destination_recipient_limit (default: \$default_destination_recipient_limit)

The maximal number of recipients per message for the virtual message delivery transport. This limit is enforced by the queue manager. The message delivery transport name is the first field in the entry in the master.cf file.

Setting this parameter to a value of 1 changes the meaning of virtual_destination_concurrency_limit from concurrency per domain into concurrency per recipient.

virtual_gid_maps (default: empty)

Lookup tables with the per-recipient group ID for **virtual(8)** mailbox delivery.

In a lookup table, specify a left-hand side of "@domain.tld" to match any user in the specified domain that

does not have a specific "user@domain.tld" entry.

When a recipient address has an optional address extension (user+foo@domain.tld), the **virtual(8)** delivery agent looks up the full address first, and when the lookup fails, it looks up the unextended address (user@domain.tld).

Note 1: for security reasons, the **virtual(8)** delivery agent disallows regular expression substitution of \$1 etc. in regular expression lookup tables, because that would open a security hole.

Note 2: for security reasons, the **virtual(8)** delivery agent will silently ignore requests to use the **proxymap(8)** server. Instead it will open the table directly. Before Postfix version 2.2, the **virtual(8)** delivery agent will terminate with a fatal error.

virtual_mailbox_base (default: empty)

A prefix that the **virtual(8)** delivery agent prepends to all pathname results from \$virtual_mailbox_maps table lookups. This is a safety measure to ensure that an out of control map doesn't litter the file system with mailboxes. While virtual_mailbox_base could be set to "/", this setting isn't recommended.

Example:

```
virtual_mailbox_base = /var/mail
```

virtual_mailbox_domains (default: \$virtual_mailbox_maps)

Postfix is final destination for the specified list of domains; mail is delivered via the \$virtual_transport mail delivery transport. By default this is the Postfix **virtual(8)** delivery agent. The SMTP server validates recipient addresses with \$virtual_mailbox_maps and rejects mail for non-existent recipients. See also the virtual mailbox domain class in the ADDRESS_CLASS_README file.

This parameter expects the same syntax as the mydestination configuration parameter.

This feature is available in Postfix 2.0 and later. The default value is backwards compatible with Postfix version 1.1.

virtual_mailbox_limit (default: 51200000)

The maximal size in bytes of an individual mailbox or maildir file, or zero (no limit).

virtual_mailbox_lock (default: see postconf -d output)

How to lock a UNIX-style **virtual(8)** mailbox before attempting delivery. For a list of available file locking methods, use the "**postconf -l**" command.

This setting is ignored with **maildir** style delivery, because such deliveries are safe without application-level locks.

Note 1: the **dotlock** method requires that the recipient UID or GID has write access to the parent directory of the recipient's mailbox file.

Note 2: the default setting of this parameter is system dependent.

virtual_mailbox_maps (default: empty)

Optional lookup tables with all valid addresses in the domains that match \$virtual_mailbox_domains.

In a lookup table, specify a left-hand side of "@domain.tld" to match any user in the specified domain that does not have a specific "user@domain.tld" entry.

The **virtual(8)** delivery agent uses this table to look up the per-recipient mailbox or maildir pathname. If the lookup result ends in a slash ("/"), maildir-style delivery is carried out, otherwise the path is assumed to specify a UNIX-style mailbox file. Note that \$virtual_mailbox_base is unconditionally prepended to this path.

When a recipient address has an optional address extension (user+foo@domain.tld), the **virtual(8)** delivery agent looks up the full address first, and when the lookup fails, it looks up the unextended address (user@domain.tld).

Note 1: for security reasons, the **virtual(8)** delivery agent disallows regular expression substitution of \$1 etc. in regular expression lookup tables, because that would open a security hole.

Note 2: for security reasons, the **virtual**(8) delivery agent will silently ignore requests to use the **proxymap**(8) server. Instead it will open the table directly. Before Postfix version 2.2, the **virtual**(8) delivery agent will terminate with a fatal error.

virtual_maps (default: empty)

Optional lookup tables with a) names of domains for which all addresses are aliased to addresses in other local or remote domains, and b) addresses that are aliased to addresses in other local or remote domains. Available before Postfix version 2.0. With Postfix version 2.0 and later, this is replaced by separate controls: `virtual_alias_domains` and `virtual_alias_maps`.

virtual_minimum_uid (default: 100)

The minimum user ID value that the **virtual**(8) delivery agent accepts as a result from `$virtual_uid_maps` table lookup. Returned values less than this will be rejected, and the message will be deferred.

virtual_transport (default: virtual)

The default mail delivery transport and next-hop destination for final delivery to domains listed with `$virtual_mailbox_domains`. This information can be overruled with the **transport**(5) table.

Specify a string of the form *transport:nexthop*, where *transport* is the name of a mail delivery transport defined in `master.cf`. The *:nexthop* part is optional. For more details see the **transport**(5) manual page.

This feature is available in Postfix 2.0 and later.

virtual_uid_maps (default: empty)

Lookup tables with the per-recipient user ID that the **virtual**(8) delivery agent uses while writing to the recipient's mailbox.

In a lookup table, specify a left-hand side of "`@domain.tld`" to match any user in the specified domain that does not have a specific "`user@domain.tld`" entry.

When a recipient address has an optional address extension (`user+foo@domain.tld`), the **virtual**(8) delivery agent looks up the full address first, and when the lookup fails, it looks up the unextended address (`user@domain.tld`).

Note 1: for security reasons, the **virtual**(8) delivery agent disallows regular expression substitution of `$1` etc. in regular expression lookup tables, because that would open a security hole.

Note 2: for security reasons, the **virtual**(8) delivery agent will silently ignore requests to use the **proxymap**(8) server. Instead it will open the table directly. Before Postfix version 2.2, the **virtual**(8) delivery agent will terminate with a fatal error.

SEE ALSO

`postconf`(1), Postfix configuration parameter maintenance
`master`(5), Postfix daemon configuration maintenance

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AUTHOR(S)

Wietse Venema
 IBM T.J. Watson Research
 P.O. Box 704
 Yorktown Heights, NY 10598, USA