

# Upgrading Dovecot CE from 2.3 to 2.4

## Upgrade Path

Before upgrading, please look at the list of removed features carefully.

If you are doing in-place upgrade, ensure that you first upgrade to latest 2.3 release, and then upgrade to 2.4.

Alternatively, you can [migrate](#) your data to new setup.

## Dovecot CE

## Configuration Changes

### WARNING

Dovecot 2.3.x settings will NOT work unless the configuration is changed as described in this section.

### Required Settings

The first setting in `dovecot.conf` **MUST** now be [dovecot\\_config\\_version](#). This helps to avoid unexpected configuration changes in the future.

Another new required setting is [dovecot\\_storage\\_version](#). This helps to avoid unexpected storage file format incompatibilities.

Note that the configuration syntax has been changed, and your old configuration **will not** work without changes.

### Variable expansion

A new [Settings Variables](#) syntax has been introduced. All old one-letter

%variables have been removed, and some old variable aliases have been dropped too.

### List of common short variables and their replacements.

Old variable	New syntax
%a	%{local_port}
%b	%{remote_port}
%c	%{certificate}
%c	%{secured}
%d	%{user   domain }
%h	%{home}
%l	%{local_ip }
%m	%{mechanism}
%n	%{user   username }
%p	%{client_pid }
%r	%{remote_ip }
%s	%{protocol}
%u	%{user}
%w	%{password}

### Common modifier syntaxes and their replacements.

Old syntax	New syntax
%1Mu	%{user   md5   hexlify(1)}
%2.1Mu	%{user   md5   hexlify   substr(2,1)}
%2.256N	%{ user   md5   substr(0, 8) % 256   hex(2)}
%256Nu	%{ user   md5   substr(0, 8) % 256   hex}
%Hu	No conversion available, use one of the syntaxes.
%Ln	%{user   username   lower }
%Lu	%{user   lower }
%Mu	%{user   md5}

### Common long variables and their replacements.

Old variable	New syntax
--------------	------------

<code>%{auth_domain}</code>	<code>%{auth_user   domain}</code>
<code>%{auth_username}</code>	<code>%{auth_user   username}</code>
<code>%{lip}</code>	<code>%{local_ip}</code>
<code>%{lport}</code>	<code>%{local_port}</code>
<code>%{mech}</code>	<code>%{mechanism}</code>
<code>%{orig_domain }</code>	<code>%{original_user   domain }</code>
<code>%{orig_username}</code>	<code>%{original_user   username }</code>
<code>%{orig_user}</code>	<code>%{original_user}</code>
<code>%{real_lip}</code>	<code>%{real_local_ip}</code>
<code>%{real_lport}</code>	<code>%{real_local_port }</code>
<code>%{real_rip}</code>	<code>%{real_remote_ip }</code>
<code>%{real_rport}</code>	<code>%{real_remote_port}</code>
<code>%{rip}</code>	<code>%{remote_ip}</code>
<code>%{rport}</code>	<code>%{remote_port }</code>
<code>%{service}</code>	<code>%{protocol}</code>

## Directory hashing

If you have been using `/home/%2.256N/%u` or similar constructs:

- How to replace `%N` in new format:
  - `%2.256Nu` becomes `%{ user | md5 | substr(0, 8) % 256 | hex(2) }` to return maximum 256 different hashes in range `00..ff`.
  - `%256Nu` becomes `%{ user | md5 | substr(0, 8) % 256 | hex }` to return maximum 256 different hashes in range `0..ff` (without 0-padding in the front).
- How to replace `'%M'` in new format:
  - `%1Mu/%2.1Mu/%u` becomes `%{user | md5 | hexlify(1)}/%{user | md5 | hexlify | substr(2,1)}/%{user}` to returns directories from `0/0/user` to `f/f/user`.

- There is no way to use '%H' anymore.

## Unknown/Invalid Variables

Unknown/invalid %{variables} cause Dovecot errors. This may cause, e.g., authentication failures if the old (broken) behavior was relied on.

## passdb/userdb Section Naming

[passdb](#) and [userdb](#) sections now require a name, i.e.:

```
# This gives an error:
```

```
passdb {  
    ...  
}
```

```
# Use this instead:
```

```
passdb some_name {  
}
```

## Empty userdb Variables

userdb fields can be set to empty value. Previously they became changed to yes value.

## Added Features

### Auth Policy Parameters

See [authentication policy](#).

Parameter	Notes
%{fail_type} variable to <a href="#">auth_policy_request_attributes</a>	Variable was added.

## Cryptographic Features

Feature	Notes
ARGON2 password scheme	Support for the ARGON2 password scheme was added.
SCRAM-SHA-1, SCRAM-SHA-256	Support SASL mechanisms for outgoing connections.
X25519, X448	<a href="#">mail-crypt plugin</a> and <a href="#">Mail Crypt Plugin: fs-crypt</a> now support these curves.

## imapc\_features Parameters

See [imapc\\_features](#).

Feature	Notes
no-qresync	Parameter was added.

## Settings

- [auth\\_internal\\_failure\\_delay](#)
- [fts\\_message\\_max\\_size](#)
- [login\\_socket\\_path](#)
- [quota\\_mailbox\\_count](#)
- [quota\\_mailbox\\_message\\_count](#)
- [submission\\_add\\_received\\_header](#)
- [cassandra\\_log\\_retries](#)

## Deprecated Features

Feature	Notes
<a href="#">acl_global_path</a>	Using ACL file is deprecated, see below for details on migration.
fs-sis	Saving new mails' attachments via fs-sis is disabled, but reading SIS attachments is still supported. Missing SIS attachments are replaced with files filled with spaces.

## Removed Features

Feature	Notes
fts-lucene, fts-squat	Use <a href="#">fts-flatcurve plugin</a> or <a href="#">fts-solr plugin</a> .
dsync: Remove -D parameter	Parameter for disabling mailbox rename syncing removed. It hasn't been necessary for a long time, and it is broken.
dsync	Use <code>doveadm sync</code> instead. <code>dsync</code> has been a symlink to <code>doveadm</code> already, this release removed the symlink completely.
director	Support for the Dovecot Director architecture has been removed. For a small-scale, unsupported replacement, see <a href="#">Lua Director</a> .
replicator	Use <a href="#">NFS</a> or some other shared filesystem instead.
Dovecot director role	Replaced with the <a href="#">Dovecot Pro Palomar architecture</a> .
Global ACL directory	Use <a href="#">acl</a> instead. See below for details on migration.
IMAP SETQUOTA command	Quota limits can no longer be modified using the IMAP SETQUOTA command. The <code>set_quota</code> setting has been removed.
IPC process	Has been merged to <code>anvil</code> .
OpenSSL support for older than 1.0.2	Older versions are not supported anymore.
Sieve extensions: <code>notify</code> , <code>imapflags</code> , <code>vnd.dovecot.duplicate</code>	These deprecated Sieve extensions have been removed.
<code>ssl-parameters.dat</code>	This file is no longer converted automatically by <code>config</code> process, you need to set <a href="#">ssl_server_dh_file</a> setting if you need non-ECC Diffie-Hellman.
TCP wrapper support	Use <a href="#">Lua authentication database</a> instead.
Weak password schemes	Weak password schemes are disabled by default; you need to use <a href="#">auth_allow_weak_schemes</a> to enable them.

## Cassandra Parameters

See [Cassandra configuration](#).

Parameter	Notes
Cassandra ssl_verify=cert-dns setting	Removed, as it was deprecated by Cassandra cpp-driver due to it being insecure against MITM attacks.

## Backends and Plugins

Backend	Notes
checkpassword auth database	Use <a href="#">Lua authentication database</a> instead.
Dict passdb & userdb driver	Use <a href="#">Lua authentication database</a> instead.
Dict quota; Dirsize quota	These drivers are removed. You should use <a href="#">Quota Driver: Count</a> instead along with <a href="#">quota-clone plugin</a> . Note that switching to quota count can cause all users' indexes to update, so reserve time for this.
imap-zlib plugin	The IMAP COMPRESS extension is now automatically enabled.
listescape plugin	Use <a href="#">mailbox_list_storage_escape_char</a> instead.
mailbox-alias plugin	Depending on the use case, replacement may be the <a href="#">mailbox_special_use</a> mailbox setting and/or <a href="#">Sieve</a> filters.
Memcached dict driver	Use <a href="#">Redis</a> instead.
old-stats plugin	Use <a href="#">Statistics</a> instead. auth_stats setting has been removed too.
shadow auth driver	Use <a href="#">PAM authentication database</a> instead.
XZ Compression	You need to perform migration using a different compression format. With <a href="#">Maildir</a> , you can try uncompressing all your mail and compressing them with another algorithm while Dovecot is not running.
zlib plugin	Use <a href="#">mail-compress plugin</a> with the <a href="#">mail_compress_write_method</a> setting instead.

## Settings

Setting	Notes
auth_stats	
dict_db_config	Berkeley DB is not supported anymore.
imap_id_log	Replaced by the <a href="#">imap_id_received</a> event.
login_access_sockets	Use <a href="#">Lua authentication database</a> instead. Dovecot will fail to start if this setting is present in configuration.
quota_set	
sieve_dir	See <a href="#">Script storage</a> .
sieve_global_dir	See <a href="#">Script storage</a> .
sieve_global_path	See <a href="#">Script storage</a> .
sieve_vacation_max_subject_codepoints	

## Changed Features

### Settings

Setting	Notes
<a href="#">ssl</a>	Connections from <a href="#">login_trusted_networks</a> are now also required to be SSL/TLS encrypted with the setting <code>ssl=required</code> .
<a href="#">ssl_min_protocol</a>	The SSLv3 option was removed, as it is no longer secure.

### Converted Settings

Setting	Notes
acl	Replaced by <a href="#">acl_driver</a> .
acl_anyone	Renamed to <a href="#">imap_acl_allow_anyone</a> .
auth_debug	Use <a href="#">log_debug</a> filter instead. Example: <code>log_debug=category=auth</code> .
auth_default_realm	Replaced by <a href="#">auth_default_domain</a> .
	Replaced by <a href="#">http_client_request_tin</a>



auth_policy_server_timeout_msecs	inside <a href="#">auth_policy</a> named filter.
auth_worker_max_count	Use <a href="#">service-specific process limit</a> .
default_idle_kill	Renamed to <a href="#">default_idle_kill_inter</a>
disable_plaintext_auth	Replaced by <a href="#">auth_allow_cleartext</a> .
doveadm_http_rawlog_dir	Replaced by <a href="#">http_client_rawlog_dir</a> and <a href="#">doveadm_server</a> named filter.
event_exporter_format_args	Replaced by <a href="#">event_exporter_time_for</a>
event_exporter_transport	Renamed to <a href="#">event_exporter_driver</a> .
event_exporter_transport_args	Split off to driver-specific settings, see <a href="#">Export</a> .
event_exporter_transport_timeout	Replaced by <a href="#">http_client_request_timeout</a> and <a href="#">event_exporter_unix_connect_timeout</a>
push_notification_backend	Use <a href="#">push_notification_driver</a> instead.
mail_crypt_require_encrypted_user_key	Replaced by <a href="#">crypt_user_key_require_encrypted</a> , <a href="#">crypt_user_key_password</a> and <a href="#">crypt_user_key_encryption_key</a> .
verbose_ssl	Use <a href="#">log_debug = category=ssl</a> instead.
mail_attachment_dir	Renamed to <a href="#">mail_ext_attachment_path</a>
mail_attachment_fs	Use <a href="#">fs</a> inside <a href="#">mail_ext_attachment</a> named filter.
mail_attachment_hash	Renamed to <a href="#">mail_ext_attachment_hash</a>
mail_attachment_min_size	Renamed to <a href="#">mail_ext_attachment_min_size</a>
mail_attribute_dict	Use <a href="#">dict</a> inside <a href="#">mail_attribute</a> named filter.
mail_location setting & mail userdb field	Split into multiple <a href="#">mail_*</a> settings.
namespace { location } setting	Use <a href="#">mail_*</a> settings inside <a href="#">namespace</a> named filter.
notify_status_dict	Use <a href="#">dict</a> inside <a href="#">notify_status</a> named filter.
notify_status_mailbox	Use <a href="#">mailbox_notify_status</a> inside <a href="#">mailbox</a> named list filters.
fts	Replaced by <a href="#">fts</a> named filter.
	Replaced by boolean property <a href="#">fts_auth</a> nested inside <a href="#">mailbox</a> blocks. Note that

<code>fts_autoindex_exclude</code>	values are inverted as compared to the old <code>fts_autoindex_exclude</code> .
<code>fts_decoder</code>	Replaced by <a href="#">fts_decoder_driver</a> and <a href="#">fts_decoder_script_socket_path</a> .
<code>fts_enforced</code>	Replaced by <a href="#">fts_search_add_missing</a> and <a href="#">fts_search_read_fallback</a> .
<code>fts_index_timeout</code>	Renamed to <a href="#">fts_search_timeout</a> . The value is set to 30 secs.
<code>fts_solr</code>	Replaced by <a href="#">fts_solr_url</a> , <a href="#">fts_solr_batch_size</a> , <a href="#">fts_solr_soft_max</a> , and <a href="#">http_client_rawlog_dir</a> settings.
<code>fts_tika</code>	Replaced by <a href="#">fts_decoder_driver</a> and <a href="#">fts_decoder_tika_url</a> .
<code>fts_language_config</code>	Renamed to <a href="#">textcat_config_path</a> .
<code>fts_languages</code>	Converted into <a href="#">language</a> blocks.
<code>fts_filters</code>	Split into <a href="#">language_filters</a> , <a href="#">language_filter_normalizer_icu_id</a> , and <a href="#">language_filter_stopwords_dir</a> .
<code>fts_tokenizers</code>	Split into <a href="#">language_tokenizers</a> , <a href="#">language_tokenizer_address_token_map</a> , <a href="#">language_tokenizer_generic_algorithm</a> , <a href="#">language_tokenizer_generic_token_map</a> , <a href="#">language_tokenizer_generic_wb5a</a> , <a href="#">language_tokenizer_kuromoji_icu_id</a> , <a href="#">language_tokenizer_kuromoji_split</a> , and <a href="#">language_tokenizer_kuromoji_tokenizer</a> .
<code>lazy_expunge</code>	Renamed to <a href="#">lazy_expunge_mailbox</a> .
<code>service { idle_kill }</code>	Renamed to <a href="#">service_idle_kill_interval</a> .
<code>service { service_count }</code>	Renamed to <a href="#">service_restart_request</a> . The default value is set to unlimited. It is now a configuration error.
<code>oauth2 username_format</code>	Renamed to <a href="#">oauth2_username_validation_format</a> .
<code>oauth2 pass_attrs</code>	Replaced by <a href="#">oauth2_fields</a> .
<code>oauth2 local_validation_key_dict</code>	Replaced by <a href="#">dict</a> inside <a href="#">oauth2_local_validation</a> named filter.

oauth2 timeout_msecs, max_idle_time_msecs, max_parallel_connections, max_pipelined_requests, rawlog_dir	Replaced by http_client_* settings in <a href="#">oauth2</a> named filter.
oauth2 tls_*	Replaced by ssl_client_* settings in <a href="#">oauth2</a> named filter.
oauth2 debug	Use <a href="#">log_debug</a> filter instead. Example: log_debug=category=oauth2.
oauth use_grant_password	Replaced by <a href="#">passdb oauth2</a> `
passdb/userdb :protected	Renamed to :default
passdb { default_fields, override_fields }	Replaced by <a href="#">passdb_fields</a>
userdb { default_fields, override_fields }	Replaced by <a href="#">userdb_fields</a>
plugin	All plugin settings are now global setti
quota, quota_rule	Split into separate <a href="#">quota settings</a> .
quota_grace	Renamed to <a href="#">quota_storage_grace</a> .
quota_over_flag	Renamed to <a href="#">quota_over_status_curre</a>
quota_over_flag_lazy_check	Renamed to <a href="#">quota_over_status_lazy_</a>
quota_over_flag_value	Renamed to <a href="#">quota_over_status_mask</a> .
quota_over_script	Replaced by <a href="#">quota_over_status</a> name with <a href="#">execute</a> .
quota_max_mail_size	Renamed to <a href="#">quota_mail_size</a> . The def is set to unlimited.
ssl_alt_cert	Renamed to <a href="#">ssl_server_alt_cert_fil</a>
ssl_alt_key	Renamed to <a href="#">ssl_server_alt_key_file</a>
ssl_ca	Split to <a href="#">ssl_server_ca_file</a> and <a href="#">ssl_client_ca_file</a> .
ssl_ca_dir	Renamed to <a href="#">ssl_client_ca_dir</a> .
ssl_ca_file	Renamed to <a href="#">ssl_client_ca_file</a> .
ssl_cert	Renamed to <a href="#">ssl_server_cert_file</a> .
ssl_cert_username_field	Renamed to <a href="#">ssl_server_cert_usernam</a>
ssl_client_cert	Renamed to <a href="#">ssl_client_cert_file</a> .

<code>ssl_client_key</code>	Renamed to <a href="#">ssl_client_key_file</a> .
<code>ssl_dh</code>	Renamed to <a href="#">ssl_server_dh_file</a> .
<code>ssl_key</code>	Renamed to <a href="#">ssl_server_key_file</a> .
<code>ssl_key_password</code>	Renamed to <a href="#">ssl_server_key_password</a> .
<code>ssl_prefer_server_ciphers</code>	Replaced by <a href="#">ssl_server_prefer_ciphers</a> .
<code>ssl_require_crl</code>	Renamed to <a href="#">ssl_server_require_crl</a> .
<code>ssl_verify_client_cert</code>	Renamed to <a href="#">ssl_server_request_client_cert</a> .
<code>stats_http_rawlog_dir</code>	Replaced by <a href="#">http_client_rawlog_dir</a> and <a href="#">stats_server</a> named filter.

## Default Settings

Setting	Old Default	New Default
<a href="#">imapc_features</a>	Features "delay-login", "search", "fetch-headers", "fetch-bodystructure", "fetch-size" by default. Enable "acl" and "modseq" by default, if the remote server supports it.	
<a href="#">mail_cache_max_headers_count</a>	unlimited	100
<a href="#">mail_cache_max_header_name_length</a>	unlimited	100

<a href="#">mail_log_prefix</a>	%s(%u)<{%pid}><{%session}>:	%{protocol}(%{user})<{%process:pid}><{%session}>:
<a href="#">mailbox_list_drop_noselect</a>	no	yes
service/anvil/chroot	empty	<no value>
service/anvil/user	\$default_internal_user	<no value>
service/auth-worker/process_limit	1	30
<a href="#">protocols</a>	imap pop3 lmtp	``

## fs-crypt

[Mail Crypt Plugin: fs-crypt](#) now requires encryption keys by default.

## Changed types for FTS header settings

Setting Name	Update
<a href="#">fts_header_excludes</a>	Changed to <a href="#">Boolean List</a> .
<a href="#">fts_header_includes</a>	Changed to <a href="#">Boolean List</a> .

## Service defaults

### LMTP

Default LMTP proxy destination port is now 24.

# Event Changes

## Core Events

Event	Change
<a href="#">fts_flatcurve_expunge</a>	This event was added.
<a href="#">fts_flatcurve_index</a>	This event was added.
<a href="#">fts_flatcurve_last_uid</a>	This event was added.
<a href="#">fts_flatcurve_optimize</a>	This event was added.
<a href="#">fts_flatcurve_query</a>	This event was added.
<a href="#">fts_flatcurve_rescan</a>	This event was added.
<a href="#">fts_flatcurve_rotate</a>	This event was added.
auth_client_cache_flush_started	Event was removed.
auth_client_cache_flush_finished	Event was removed.
<a href="#">imap_id_received</a>	Event was added.
<a href="#">login_aborted</a>	Event was added.
<a href="#">mail_metadata_accessed</a>	Event was added.
<a href="#">pop3_command_finished</a>	Event was added.

## Event Fields

Event	Field	Change
<a href="#">dns_worker_request_finished</a>	cached	Field was added.
Mail user events	service	Field was added.
<a href="#">proxy_session_finished</a>	error_code	Field was added.
<a href="#">proxy_session_finished</a>	idle_usecs	Field was change from idle_secs.
<a href="#">smtp_server_transaction_rcpt_finished</a>	dest_host	Field was added.
<a href="#">smtp_server_transaction_rcpt_finished</a>	dest_ip	Field was added.
<a href="#">sql_query_finished</a>	consistency	Field was added.
<a href="#">sql_query_finished</a>	error_consistency	Field was added.

Various	net_bytes_in	Field was changed from bytes_in.
Various	net_bytes_out	Field was changed from bytes_out.
Various	transport	transport=trusted was changed to transport=secure. See also <a href="#">secure connections</a> .

## Event Filters

Size units are allowed when specifying event filter values. For example, 100kb is accepted as equivalent to 102400.

Interval units are allowed when specifying event filter values. For example, 1min is accepted as equivalent to 60000000.

Event filters support escaping wildcard \* and ? characters by prefixing them with \.

## Exports

Events can now be exported to a local file or a unix socket. See [Event Export: Drivers](#).

## ACLs

### Use ACL settings instead of Global ACL Directories or Global ACL File

With the following starting configuration:

You have to create the new ACLs to dovecot.conf:

```
namespace inbox {
    # previously from /etc/dovecot/acls/INBOX
```

```
mailbox INBOX {
  acl owner {
    rights = lrwstipekxa
  }
  acl anyone {
    rights = lr
  }
  acl user=kim {
    rights = l
  }
}
# previously from /etc/dovecot/acls/foo/.DEFAULT
mailbox INBOX/foo {
  acl user=timo {
    rights = lr
  }
  acl user=kim {
    rights = lrw
  }
}
# previously from /etc/dovecot/acls/foo/bar
mailbox INBOX/foo/bar {
  acl user=kim {
    rights = lrw
  }
}
```

Note that at this point you could simplify specific rules, e.g. use mailbox name wildcards to replace lines for a specific user:

```
mailbox INBOX/* {
  acl user=kim {
    rights = lrw
  }
}
```



And re-configure the ACL plugin:

```
acl_driver = vfile
acl_globals_only = yes
```

Afterwards you can remove the old global ACL directory parent:

```
sh
```

```
rm -rf /etc/dovecot/acls/
```

## Lua HTTP API

Some settings were renamed. See [lib-lua: HTTP Functions](#). The debug setting was removed - use [log\\_debug](#) instead to enable debugging.

## Lua Authentication

Lua passdb/userdb now passes all args key/values to an initialization function. See [Lua authentication initialization](#).

[Variable expansion](#) changes affect also auth\_request fields. For example auth\_request.service is now auth\_request.protocol.

## Doveadm

### doveadm batch

The doveadm batch command was removed.

### doveadm fs

[doveadm fs put](#) can now put metadata also.

## doveadm indexer

Added [doveadm indexer](#) command.

## doveadm save

Added `-r` `received-date` parameter. See [doveadm save](#).

## dsync

The `dsync` command symlink was removed. Use [doveadm sync](#) or [doveadm backup](#) commands directly instead.

## Mailbox Commands

USER environment variable can be used only with `--no-userdb-lookup` parameter.

All mail commands require providing `-u`, `-F`, `-A` parameter or `--no-userdb-lookup` parameter. This will always be subject to user database lookup and requires access to auth userdb socket, unless `--no-userdb-lookup` was used.

## Doveadm HTTP API

### Boolean Request Values

The doveadm HTTP API now requires valid boolean values. Providing invalid boolean values will result in a 400 response.