

Configure Proxmox VE no-subscription updates for a homelab

Point a Proxmox VE node without a subscription at the official pve-no-subscription repository, keep the Debian base and security streams intact, settle the separate Ceph repository decision, and finish with a verified update. The procedure uses official Proxmox and Debian repositories only.

PROXMOX VE 9.2 · DEBIAN 13 TRIxie · PVE-NO-SUBSCRIPTION · CEPH REPOSITORIES · HOW-TO GUIDE

General educational guidance, not affiliated with or endorsed by Proxmox Server Solutions GmbH. Written for a non-production homelab; a production system normally belongs on a subscription and the Enterprise Repository. Validated on Proxmox VE 9.2.10 on Debian 13. Published 2026-09-11.

3 PVE package streams

the homelab runs on pve-no-subscription; enterprise and test stay disabled

9 steps, backup to validation

official repositories only; the subscription notice stays intact

A Proxmox VE homelab without a subscription still needs its updates: Debian security fixes and the Proxmox packages themselves. This guide points the node at the official `pve-no-subscription` repository, disables the enterprise stream an unsubscribed node cannot authenticate to, settles the Ceph repository as its own decision, and finishes with a verified `apt update` and upgrade. Nothing here installs a fake subscription key, patches the interface, or suppresses the subscription notice: those modifications are unsupported, updates can overwrite them, and they change no repository entitlement.

CONTEXT Subscription and repository are separate decisions

What a subscription buys

Access to the Enterprise Repository and, depending on the level, commercial support. It is priced per occupied CPU socket, and the code is open source under the AGPLv3 either way. The paid Community level suits non-critical systems: it includes Enterprise Repository access and no support tickets. No subscription is required to run Proxmox VE or to use the No-Subscription repository.

What the repository decides

Which package stream `apt` pulls from. An unsubscribed node pointed at the enterprise stream gets authorization errors, and a node with no PVE repository at all gets no Proxmox updates. The homelab answer is exactly one stream: `pve-no-subscription`.

What a production system needs instead

This guide is for a non-production homelab. A client production system normally carries an appropriate subscription, the Enterprise Repository, a tested maintenance process, and a defined vendor-support path. Reassess the choice if the server starts hosting production, revenue-generating, or contractually supported workloads.

MAP The three PVE streams and the validated state

REPOSITORY	SUBSCRIPTION	PROXMOX'S INTENDED USE	THIS HOMELAB
pve-enterprise	Required	The most stable packages, suitable for production	Disable while no valid subscription exists
pve-no-subscription	Not required	Testing and non-production use; packages "not always as heavily tested and validated"	Enable
pve-test	Not required	Latest packages, primarily for developers	Leave disabled, or absent

The validated node ended in this state, which the rest of the guide builds and checks:

ITEM	OBSERVED STATE	ASSESSMENT
PVE No-Subscription	Enabled; <code>download.proxmox.com/debian/pve</code> , suite <code>trixie</code>	Correct for this homelab
PVE Enterprise	Disabled; <code>enterprise.proxmox.com/debian/pve</code>	Correct without a subscription
Debian base	Enabled; suites <code>trixie</code> and <code>trixie-updates</code>	Required
Debian security	Enabled; suite <code>trixie-security</code>	Required
Ceph No-Subscription	Ceph Squid enabled	Past Proxmox's estimated end of life of September 2026; move the entry to Ceph Tentacle, as the Ceph step sets out
Ceph Enterprise	Disabled	Correct without a subscription
Tailscale (third-party)	Enabled	Unrelated to the subscription; keep only if used

The repository page's **You get updates for Proxmox VE** line means Proxmox found an enabled PVE repository; the `apt update` in the validation step proves the repository is reachable. The yellow warnings that the PVE and Ceph No-Subscription streams are "not recommended for production use" are expected on this configuration and do not indicate a failure.

01 Confirm the release and back up the repository configuration

This procedure applies to Proxmox VE 9 on Debian 13, code name trixie. Suites and file formats differ on earlier releases, so confirm what is installed from **Shell** on the node:

```
pveversion --verbose
grep -E '^(PRETTY_NAME|VERSION_CODENAME)= ' /etc/os-release
```

The output must identify Proxmox VE 9 and `VERSION_CODENAME=trixie`. On any other major release, stop and use that release's repository instructions: changing a repository suite is never a substitute for the official major-version upgrade procedure.

Then copy the repository files aside. The web-interface workflow below is the normal path, and the backup makes any manual troubleshooting reversible:

```
backup_dir="/root/apt-repository-backup-$(date +%Y%m%d-%H%M%S)"
install -d -m 0700 "$backup_dir"
cp -a /etc/apt/sources.list.d "$backup_dir/"
[ ! -e /etc/apt/sources.list ] || cp -a /etc/apt/sources.list "$backup_dir/"
printf 'Repository backup: %s\n' "$backup_dir"
```

- Sign in as `root@pam` for the complete web-interface workflow, including the **Upgrade** action; delegate repository or shell access only through an approved role design.
- Confirm working DNS and outbound access to the Debian and Proxmox hosts, and check that the VM, container, and configuration backups are current, before installing updates.
- In a cluster, repeat the checks and configuration on every node: APT configuration is local to each node.

02 Review every enabled repository

Select the node (the example uses `pve01`) and open **Updates > Repositories**. Expand each repository-file group and review every enabled row. Judge each entry by its URI, suite, component, enabled state, and signing key, never by the file name alone.

A node upgraded from Proxmox VE 8 may still carry one-line entries. That release kept the No-Subscription line in `/etc/apt/sources.list` itself and the enterprise line in `/etc/apt/sources.list.d/pve-enterprise.list`, so check both places; the interface manages either format, and the manual reference at the end shows the older one. A `pve-dbgsym` entry is a fourth Proxmox stream holding debug symbol packages, unrelated to the subscription, so leave it as you find it.

03 Disable the enterprise repository

Complete this step only on a node without a valid subscription. **Subscription** on the node shows the status, and `pvesubscription get` shows it from the shell. Locate the enterprise entry, normally `/etc/apt/sources.list.d/pve-enterprise.sources`, and verify it before touching it:

FIELD	EXPECTED VALUE
URI	https://enterprise.proxmox.com/debian/pve
Suite	trixie
Component	pve-enterprise

Select the row, select **Disable**, and confirm the enabled column changes. The interface adds an **Enabled** field set to **false** to the deb822 entry (the multi-line **Field: value** format of `.sources` files) without deleting the definition, so it can be re-enabled after a subscription is installed. APT reads **no** and **false** the same way, so the manual reference below writes **Enabled: no**.

• Why it cannot stay enabled

A fresh installation comes with this repository enabled, so finding it active on a new node is expected. An unsubscribed node cannot authenticate to `enterprise.proxmox.com`, and `apt update` reports a **401 Unauthorized** error for that repository until it is disabled or a valid subscription key is installed.

04 Enable pve-no-subscription

If an entry with component `pve-no-subscription` already exists, verify the suite is `trixie` and the URI is the official Proxmox download host, then select **Enable** if it is disabled. If it is absent, select **Add**, choose **No-Subscription** for Proxmox VE in the repository list (a Ceph repository is a separate decision, made in the next step), confirm, and **Reload** if

the table does not refresh. An entry the interface adds on Proxmox VE 9 lands in `/etc/apt/sources.list.d/proxmox.sources` and reads:

```
Types: deb
URIs: http://download.proxmox.com/debian/pve
Suites: trixie
Components: pve-no-subscription
Signed-By: /usr/share/keyrings/proxmox-archive-keyring.gpg
```

- **HTTP is expected here; APT still checks the signature**
Proxmox's published No-Subscription entries use HTTP. APT authenticates the repository and its packages through signed metadata and the named Proxmox archive keyring, so keep the `Signed-By` line and never substitute an untrusted mirror.

An entry that was already there stays in the file that holds it, which on a node upgraded from Proxmox VE 8 is usually `/etc/apt/sources.list`. Exactly one normal PVE stream stays enabled: `pve-no-subscription` on, `pve-enterprise` disabled, and no `pve-test` entry enabled. Where no `pve-test` entry exists, nothing needs adding: it exists for developer testing, and routine homelab updates never need it.

05 **Decide the Ceph repository on its own**

Ceph repositories are separate from the main PVE repository. A fresh install carries a Ceph entry set to Ceph Enterprise. The preinstalled Ceph client packages let the node connect to an external Ceph cluster's block-device (RBD) or shared-filesystem (CephFS) storage, and a hyper-converged deployment, meaning one that runs Ceph storage on the same machines as the virtual machines, installs Ceph from that same repository.

Without a valid subscription the enterprise entry fails with the same 401 error as the main enterprise stream: disable it the same way. Proxmox keeps the Ceph entries in `/etc/apt/sources.list.d/ceph.sources`, or `ceph.list` on a node upgraded from Proxmox VE 8. The yellow warning for an enabled Ceph No-Subscription entry is expected.

Pick the row that matches the node:

SITUATION	GUIDANCE
Standalone homelab, no Ceph in use	Keep one Ceph No-Subscription entry for the release Proxmox marks as recommended, Ceph Tentacle 20.2, so the preinstalled client packages keep receiving updates. The PVE repository holds the same package names, but its copies have not moved past 19.2.3-pve1 (July 2025), so a node with no Ceph entry has nothing newer to install. The entry configures no Ceph services, so do not install Ceph because it exists.
New Ceph deployment on PVE 9	Proxmox's repository table marks Tentacle's enterprise repository as the recommended one, so Ceph Tentacle 20.2 is the release to pick. Select the release and the No-Subscription stream through the Proxmox Ceph installation workflow.
Existing Ceph Squid cluster	Never switch the repository entry by itself. Follow the official Ceph Squid to Tentacle upgrade guide, which sequences health checks, repositories, packages, and service restarts.
External Ceph cluster	Confirm client and server compatibility, follow the external-Ceph repository procedure, and verify with <code>ceph --version</code> .
Valid subscription in use	Use the matching Ceph Enterprise repository for the selected release.

A node with no Ceph in use keeps one entry for the release Proxmox marks as recommended:

```
Types: deb
URIs: http://download.proxmox.com/debian/ceph-tentacle
Suites: trixie
Components: no-subscription
Signed-By: /usr/share/keyrings/proxmox-archive-keyring.gpg
```

The validated node carries the same entry with `ceph-squid` in the URI. Proxmox's repository table gives Ceph Squid 19.2 an estimated end of life of September 2026, and upstream Ceph estimates 31 October 2026, so that entry has reached the point where it needs changing: a node with no Ceph in use moves to `ceph-tentacle`.

The repository panel can add, enable, and disable entries, and has no edit action, so the release moves in two steps: disable the Ceph Squid No-Subscription row first, then select **Add** and choose **Ceph Tentacle No-Subscription**. Both write to `ceph.sources`. Editing that file by hand changes the URI in one step, and that is the route the Squid to Tentacle guide takes for a cluster.

The next `apt full-upgrade` then takes the installed Ceph client packages from 19.2 to 20.2, which is a few hundred megabytes and safe on a node running no Ceph. Leave one Ceph release enabled once the move is finished; the external-Ceph procedure above has both enabled while the packages update and then has you disable the old one.

Never change an active Ceph cluster's major release just to clear a repository warning. Proxmox's table gives each release an estimated end of life, so record that date wherever the homelab's maintenance notes live and read it at each review.

06 Keep the Debian base repositories

The No-Subscription repository does not replace Debian: Proxmox states the base Debian repositories are always needed alongside a PVE repository. Verify both are enabled:

PURPOSE	OFFICIAL HOST	EXPECTED SUITES
Debian base and point updates	deb.debian.org/debian	trixie trixie-updates
Debian security updates	security.debian.org/debian-security	trixie-security

Only rebuild these entries when they are missing or demonstrably wrong; after backing up, the reference in the current Proxmox documentation for `/etc/apt/sources.list.d/debian.sources` is:

```
Types: deb deb-src
URIs: http://deb.debian.org/debian/
Suites: trixie trixie-updates
Components: main non-free-firmware
Signed-By: /usr/share/keyrings/debian-archive-keyring.gpg

Types: deb deb-src
URIs: http://security.debian.org/debian-security/
Suites: trixie-security
Components: main non-free-firmware
Signed-By: /usr/share/keyrings/debian-archive-keyring.gpg
```

Working entries that differ cosmetically stay as they are. `Types: deb` without `deb-src` is valid (source packages are optional), an intentionally enabled `contrib` component is valid, and nothing needs rewriting to match a sample. Rule out one thing: an entry that names a Debian release other than trixie.

Debian's release notes ask for the `.gpg` form of the keyring path, because the `.gpg` names are compatibility symlinks that will eventually go. Proxmox's reference still prints `.gpg`, and both resolve to the same key, so either is correct.

07 Review third-party repositories

Every repository beyond Proxmox and Debian is another vendor you have allowed to install software on this node. The validated node carries a Tailscale repository, which stays because Tailscale is intentionally installed there. For each third-party entry, confirm it is still required, its suite matches the installed release, it uses a dedicated trusted signing key, and the vendor still supports Debian 13. Troubleshoot its errors separately from the Proxmox repositories. Identify what owns an unfamiliar entry before deleting it.

08 Refresh, review, and upgrade

The repository page's **Reload** only refreshes the display. Updates install from **Updates**: select **Refresh**, wait for the task, and stop on any repository, signature, DNS, TLS, suite, or authorization error. Review the available packages and changelogs, select **Upgrade**, review the proposed actions, and let the upgrade finish uninterrupted. The shell equivalent is:

```
apt update
apt full-upgrade
```

- **full-upgrade, never plain upgrade**

Proxmox documents `apt full-upgrade`, which can remove packages when changed dependencies require it; plain `apt upgrade` cannot, and can leave a partially upgraded or broken system. Review proposed removals before accepting, and cancel and investigate the repository configuration if a transaction proposes removing core Proxmox packages or the `proxmox-ve` metapackage.

Reboot in an approved maintenance window when a new kernel or similar update requires it, after shutting down or migrating workloads; most package updates need no immediate reboot. Proxmox checks for updates daily and emails `root@pam` about available ones, so read that mailbox rather than assuming the check succeeded.

09 Validate the result

Back on **Updates > Repositories**, the target state reads: **You get updates for Proxmox VE**; No-Subscription enabled; Enterprise disabled and no test entry enabled; both Debian entries enabled; one intentional Ceph stream; no parsing or suite errors; and one or two expected yellow No-Subscription warnings. Then prove it from the shell:

```
apt update
apt-cache policy pve-manager
pveversion --verbose
```

- `apt update` finishes without errors, and `pve-manager` shows an installed version and a candidate from the intended Proxmox repository.
- The node still reports Proxmox VE 9 on trixie, and the web interface and workloads behave normally after updating.

To review the repository fields that decide what APT trusts and where it fetches from, without changing anything:

```
grep -RiE --line-number --no-messages \
-e '^(Types|URIs|Suites|Components|Signed-By|Enabled):' \
-e '^(Trusted|Architectures|Check-Valid-Until|InRelease-Path):' \
-e '^Allow-(Insecure|Weak|Downgrade-To-Insecure):' \
-e '^[[:space:]]*deb(-src)? ' \
/etc/apt/sources.list /etc/apt/sources.list.d
```

`Trusted: yes`, `Allow-Insecure: yes`, `Allow-Weak: yes`, and `Allow-Downgrade-To-Insecure: yes` each tell APT to accept a repository its signature checks would reject. Remove them rather than leaving them in place. APT reads these field names in any case, so the search ignores case.

Manual file reference

Edit the files by hand only when the interface cannot add or disable a standard repository. Inspect the whole file before saving. Disabling the enterprise stream by hand means keeping its definition and adding one line, and the No-Subscription entry is the same block the interface writes:

```
# /etc/apt/sources.list.d/pve-enterprise.sources : add the last line
Types: deb
URIs: https://enterprise.proxmox.com/debian/pve
Suites: trixie
Components: pve-enterprise
Signed-By: /usr/share/keyrings/proxmox-archive-keyring.gpg
Enabled: no

# /etc/apt/sources.list.d/proxmox.sources
Types: deb
URIs: http://download.proxmox.com/debian/pve
Suites: trixie
Components: pve-no-subscription
Signed-By: /usr/share/keyrings/proxmox-archive-keyring.gpg
```

A node upgraded from Proxmox VE 8 may still carry the older one-line format. A leading `#` disables an entry there; the interface writes that `#` when you disable one. The same No-Subscription entry reads:

```
# /etc/apt/sources.list, on a node upgraded from Proxmox VE 8
deb http://download.proxmox.com/debian/pve trixie pve-no-subscription
```

It needs no `Signed-By` option because `proxmox-archive-keyring` also installs the release key under `/etc/apt/trusted.gpg.d`; converting it to deb822 adds that line. Run `apt update` after any manual edit.

To roll a manual change back, delete any file in `/etc/apt/sources.list.d` that `"$backup_dir"/sources.list.d` does not hold, because the restore overwrites the files the backup saved and leaves anything added since. Then run `cp -a "$backup_dir"/sources.list.d/. /etc/apt/sources.list.d/`, restore `/etc/apt/sources.list` from the backup if the backup holds one and delete it if the backup holds none, then run `apt update`.

If APT reports duplicate definitions, inspect `/etc/apt/sources.list` and all of `sources.list.d/`: a legacy one-line entry and a deb822 `.sources` entry must not define the same repository.

Debian 13 may warn about legacy one-line entries and suggest `apt modernize-sources`. The command prints the files it will convert, asks before proceeding, and saves each original as a `.list.bak` file. It carries over `signed-by` and `trusted` options only, so transfer any other bracketed options by hand. Review its changes rather than running it mid-task.

Expected messages and failures

MESSAGE OR SYMPTOM	MEANING	ACTION
"The no-subscription repository is not recommended for production use!"	Expected policy warning for the enabled stream	None, for an approved non-production homelab
"The enterprise repository is enabled, but there is no active subscription!"	The interface found the enterprise entry enabled on a node with no subscription	Complete step 03, or install a valid subscription key

MESSAGE OR SYMPTOM	MEANING	ACTION
"The Ceph no-subscription/main repository is not recommended for production use!"	Expected for an enabled Ceph No-Subscription stream	Confirm exactly one intended Ceph stream; never disable it just to turn the icon green
"The Ceph enterprise repository is enabled, but there is no active subscription!"	The interface found the Ceph enterprise entry enabled on a node with no subscription	Disable it in step 05, or install a valid subscription key
401 Unauthorized from <code>enterprise.proxmox.com</code>	Enterprise stream enabled without a working subscription	Disable the entry, or install a valid subscription key
"No Proxmox VE repository is enabled, you do not get any updates!"	The node gets no PVE updates	Enable exactly one appropriate PVE stream
Suite or mixed-suite warning	A repository does not match the installed release, or a major upgrade is incomplete	Stop; correct the suite or follow the major-upgrade guide
Signature or missing-key error	Repository metadata cannot be authenticated	Verify the official URI and Signed-By path; never bypass signature validation
A third-party repository fails	A non-Proxmox source is unavailable or misconfigured	Fix that vendor's entry separately; never mask it with insecure APT options
Login notice about no valid subscription	Expected on an unsubscribed node	Leave the notice intact, or purchase and install a subscription

NEXT If a subscription arrives later

The configuration reverses cleanly. Open **Subscription** on the node, select **Upload Subscription Key**, and confirm the subscription reports active. Then in **Updates > Repositories**, disable `pve-no-subscription`, enable `pve-enterprise`, switch an in-use Ceph stream to its Enterprise counterpart without changing the Ceph release, and run **Refresh** to confirm a clean result; never leave the enterprise and No-Subscription variants enabled together. For a cluster, price the licensing first: every node covers its occupied sockets, and all nodes must use the same subscription level.

DONE What you achieved

- The node updates from the official `pve-no-subscription` stream, with the enterprise stream disabled, no test stream enabled, and the Debian base and security repositories intact.
- The Ceph repository matches actual Ceph use, exactly one release stream is enabled, and its end-of-life date is recorded with the homelab's maintenance notes.
- Third-party repositories are identified and deliberate, and the repository configuration is backed up.
- `apt update` completes cleanly, updates install through the **Upgrade** workflow or `apt full-upgrade`, and the expected No-Subscription warnings are documented rather than bypassed.

References

Proxmox VE documentation: Package Repositories, and Host System Administration (system software updates) · pve.proxmox.com/pve-docs

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