NETORYX
NETWORK MONITORING

# Documentation

## Locally hosted network monitoring

| Item | Value |
|---|---|
| **Product** | NETORYX – Network Monitoring |
| **Version** | 1.0.1 (full release) |
| **Editions** | Ubuntu · Debian · Docker · Windows |
| **As of** | November 2026 (version 1.0.1 of 18 Nov 2026) |
| **Publisher** | NETORYX – Luca Lindner & Thiemo Hechenblaikner |
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**Important note on functionality**

We cannot guarantee that NETORYX will work 100 % error-free in every environment.

If you encounter any errors, please report them **as soon as possible** – either on the website in the **Community** section or by email to **info@netoryx.at**. We will look into every problem as quickly as we can.

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# 1. What is NETORYX?

**NETORYX** is a locally hosted network monitoring system. It runs on your own server inside your own network, needs **no cloud**, sends **no telemetry** and checks devices at fixed intervals (from 15 seconds). Backend, frontend and setup are delivered in a single package.

The interface is a web application (React) in **German and English** with a light and a dark theme. Data is stored in a local SQLite database; credentials and backups are AES-encrypted.

## 1.1 Key features

- **Real network checks:** PING, TCP, HTTP/HTTPS, NTP, SMTP and SNMP (v1/v2c/v3).
- **System resources:** CPU, RAM, disk, temperature and PoE load via SNMP; Windows machines via WinRM without an agent.
- **Windows updates** via WinRM – without administrator rights, using a normal service account.
- **Overview:** dashboard, custom dashboards, tree view, events and a network log per device.
- **Secure sign-in:** local, Active Directory/LDAP or single sign-on (OpenID Connect) with two-factor authentication (authenticator app, Duo Push).
- **Notifications** by email and webhook with rules per folder, status and risk level.
- **Administration in the browser:** certificates, backup, update, restart and factory reset.
- **Scalable** up to 10,000 devices with all eight check types (depending on the edition).

## 1.2 Key terms

| Term | Meaning |
|---|---|
| **Device** | Anything that is monitored or documented (switch, access point, server, client …). |
| **Check (monitor)** | A specific monitoring job on a device, e.g. “PING every 60 s”. A device can have any number of checks. |
| **Risk level** | How critical a device is (Critical, High, Medium, Low). Assigned manually. |
| **State** | How a device is doing right now (OK, Warning, Down, Paused) – derived from its checks. |
| **Event** | A confirmed status change of a check, e.g. from “reachable” to “down”. |
| **Tile** | A check in the tree view, coloured by state (UP, WARNING, DOWN, PAUSED). |
| **Template** | Presets for a device type, including all checks and credentials. |
| **Channel / rule** | Where (email, webhook) and when notifications are sent. |

# 2. The four editions

NETORYX 1.0.1 is available in four editions. The feature set is practically identical; the editions differ in operating system, installation and update.

| Edition | Target system | Installation | Devices (recommended) |
|---|---|---|---|
| **Ubuntu** | Ubuntu Server 22.04 LTS and 24.04 LTS | `sudo bash install.sh --domain <name>` | up to 10,000 |

| Edition | Target system | Installation | Devices (recommended) |
|---|---|---|---|
| **Debian** | Debian 12 (bookworm) and Debian 13 (trixie) | `bash install.sh --domain <name>` as root | up to 10,000 |
| **Docker** | Linux host with Docker Engine 24+ and Compose v2 | `docker compose up -d --build` | up to 10,000 (host network from ~2,500) |
| **Windows** | Windows Server 2016, 2019, 2022, 2025 | `windows\install.ps1` in PowerShell as administrator | up to 5,000 |

- **Packages:** `Netoryx-Ubuntu-1.0.1.zip`, `Netoryx-Debian-1.0.1.zip`, `Netoryx-Docker-1.0.1.zip` and `Netoryx-Windows-1.0.1.zip`. Each ZIP contains a folder of the same name.
- **Web update:** The Linux editions only accept packages of their own edition (file `EDITION`); beta packages and packages of other editions are rejected.
- **Docker:** update via a new image; Docker Desktop (Windows/macOS) for testing only, up to about 250 devices.
- **Windows:** from about 2,500 devices additional network settings are required because Windows only provides 16,384 free TCP source ports. For 5,000 to 10,000 devices the Ubuntu or Docker edition is recommended.
- **Switching from the beta:** install the package like an update – data, domain and certificate are kept.

# 3. Feature overview

| Area | Implementation |
|---|---|
| **Checks** | PING, HTTP/HTTPS, NTP, SNMP v1/v2c/v3, SMTP, TCP; system resources and Windows updates. Interval from 15 seconds. |
| **Devices** | Name plus IP, hostname, MAC, location, vendor, description and tags; can be paused. Device page with statistics (CPU, RAM, disk, temperature, response times, availability up to 30 days). |
| **Templates** | Set up device types once (including checks and credentials); six sample templates at the click of a button. |
| **Dashboard** | Clickable key figures, filters and a list of all outages. Custom dashboards built from widgets (key figures, device lists, history chart with up to 8 lines, notes, clock …), private or shared with everyone. |
| **Tree view** | Folder → devices → one coloured tile per check; counter bar as filter, tile size S to XL, moving via drag & drop. |
| **Events & network log** | Status changes filterable by UP/WARNING/DOWN/PAUSED; per device every single check over several days, with CSV export. |
| **Folders** | Nested to any depth; a click opens a folder dashboard including all subfolders. |
| **Import/export** | Folders, templates and devices as JSON or CSV (Excel); import with preview, without credentials. |
| **Search** | The header search (Ctrl+K) finds devices, folders, dashboards – for admins also templates, users and settings. |

| Area | Implementation |
|---|---|
| **Command line (CLI)** | Everything the interface can do is also available as a command – in the browser (>_ icon) and via SSH (`ssh netoryx-cli@<server>`). Help with `?`, tab completion, history, scripts. |
| **Users** | Administrator, Read & Write, Read only – with folder permissions. |
| **Sign-in** | Local, Active Directory/LDAP, single sign-on (e.g. Microsoft Entra ID, ADFS, Keycloak); two-factor via authenticator app (TOTP) and/or Duo Push. |
| **Notifications** | Email and webhook, switchable per device, rules per folder/status/risk level; emails with signature. |
| **Administration** | Certificates (own CA, Let's Encrypt, upload), backup, restore, update, logs, restart, factory reset. |
| **Security** | AES-encrypted credentials and backups, downloads optionally with password (AES-256 ZIP), Content Security Policy, lockout after failed attempts. |
| **Privacy** | GDPR: privacy notices, retention periods, IP truncation, data subject access, pseudonymisation. |

# 4. Architecture

NETORYX consists of a static web interface, a web server for HTTPS, a Python backend with a scheduler and a local database. The backend runs the checks actively.




**Check protocols:** ICMP · HTTP/S · NTP · SNMP · SMTP · TCP · WinRM

| Component | Choice and rationale |
|---|---|
| **Backend** | Python 3.10+ / FastAPI – good libraries for real protocol checks (icmplib, pysnmp, ntplib, pypsrp), asynchronous scheduler. |
| **Database** | SQLite (WAL) – no separate service, consistent online backups; PostgreSQL prepared via `NETORYX_DATABASE_URL`. |
| **Frontend** | React 18, Vite, TypeScript, TailwindCSS – can be served statically by nginx. |
| **Charts** | Custom SVG components, no chart library. |
| **Authentication** | JWT (HS256) and bcrypt, TOTP, ldap3, OpenID Connect. |
| **Fonts** | IBM Plex Sans/Mono, bundled locally – no external servers. |

**Per edition:** On Ubuntu and Debian, nginx and systemd services do the work; in the Docker image nginx, backend, check workers and a helper run under `supervisord`. On Windows the **NETORYX** service (HTTPS directly via uvicorn) works together with the **NETORYX-Helper** service (certificates, restart) – without IIS and nginx.

# 5. System requirements

The values apply to **all eight checks per device** (ping, TCP, HTTP, NTP, SMTP, SNMP, system resources, Windows updates) with default intervals and default retention. The smallest server needs 2 CPU cores, 2 GB RAM and 30 GB SSD.

## 5.1 Linux (Ubuntu, Debian, Docker)

| Devices | Measurements/min | Cores | RAM | SSD | Check workers | Recommended |
|---|---|---|---|---|---|---|
| **100** | 440 | 2 | 2 GB | 30 GB | 0 | 2 cores · 4 GB · 50 GB |
| **500** | 2,200 | 2 | 2 GB | 50 GB | 0 | 2 cores · 4 GB · 80 GB |
| **1,000** | 4,400 | 2 | 4 GB | 60 GB | 0 | 4 cores · 8 GB · 100 GB |
| **2,500** | 11,000 | 4 | 4 GB | 80 GB | 2 | 4 cores · 8 GB · 150 GB |
| **5,000** | 22,000 | 6 | 8 GB | 120 GB | 4 | 8 cores · 12 GB · 200 GB |
| **7,500** | 33,000 | 6 | 8 GB | 140 GB | 5 | 10 cores · 16 GB · 250 GB |
| **10,000** | 44,000 | 8 | 12 GB | 160 GB | 7 | 12 cores · 16 GB · 300 GB |

- An **SSD** is mandatory from about 500 devices because every measurement is written to the database.
- From 2,500 devices, with more cores than listed in the table: check workers = cores − 1.
- Static IP address; internet access during installation (packages, Python, Node.js).

## 5.2 Windows Server

| Devices | Check workers | Minimum (CPU · RAM · SSD) and notes |
|---|---|---|
| **100** | 0 | 2 cores · 4 GB · 50 GB |
| **500** | 0 | 2 cores · 4 GB · 70 GB |
| **1,000** | 0 | 4 cores · 6 GB · 80 GB – antivirus exclusion recommended |
| **2,500** | 2 | 4 cores · 8 GB · 100 GB – adjust TCP ports/TIME_WAIT, antivirus exclusion |
| **5,000** | 4 | 8 cores · 12 GB · 140 GB – as for 2,500 |

Requirements on Windows: 64-bit Server 2016–2025, free ports 80 and 443 (no IIS on them), internet access during installation (Python 3.12, Node.js 22) and PowerShell “Run as administrator”.

# 6. Installation

## 6.1 Ubuntu Server 22.04 / 24.04

```
unzip Netoryx-Ubuntu-1.0.1.zip && cd Netoryx-Ubuntu-1.0.1
sudo bash install.sh --domain netoryx.corp.example.at
```

In ten steps the script installs system packages, the service user, program files, the Python environment, the frontend, systemd services, nginx with HTTPS and the firewall rules. At the end it prints the **address and the start password** – the password is not stored anywhere and must be changed at the first sign-in. Running `install.sh` again updates an existing installation and keeps the database, domain and certificate.

| Option | Meaning |
|---|---|
| `--domain <name>` | Host name of the interface (goes into the certificate and the nginx configuration). |
| `--tls <mode>` | `self-signed` (default), `custom`, `letsencrypt` or `none`. |
| `--cert` / `--key` | Own certificate and key (PEM) for `--tls custom`. |
| `--email <address>` | Contact address for Let's Encrypt. |
| `--dir`, `--data`, `--user`, `--port` | Program directory (`/opt/netoryx`), data (`/var/lib/netoryx`), service user, internal API port (8000). |

## 6.2 Debian 12 / 13

```
su -                                    # or: sudo -i
apt install -y unzip
unzip Netoryx-Debian-1.0.1.zip && cd Netoryx-Debian-1.0.1
bash install.sh --domain netoryx.corp.example.at
```

On Debian, `install.sh` runs as root without `sudo`. The script checks the Debian version (Debian 11 is too old), takes Node.js from the signed Debian packages and installs `sudo` and `procps` if needed.

## 6.3 Docker

```
unzip Netoryx-Docker-1.0.1.zip && cd Netoryx-Docker-1.0.1
cp .env.example .env     # then set NETORYX_DOMAIN and NETORYX_EXTRA_NAMES
docker compose up -d --build
docker compose logs netoryx   # address and start password of the admin
```

The image is built on the host (3–8 minutes). Data, certificates and keys are stored in the volumes `netoryx-data` and `netoryx-config`. Up to about 2,500 devices `docker-compose.yml` (bridge network) is sufficient; above that use `docker-compose.host.yml` (host network) with the kernel settings from `docker/99-netoryx-host.conf`. The CLI is opened with `docker exec -it netoryx netoryx`.

## 6.4 Windows Server

```
Expand-Archive .\Netoryx-Windows-1.0.1.zip -DestinationPath C:\Temp
cd C:\Temp\Netoryx-Windows-1.0.1
powershell -ExecutionPolicy Bypass -File .\windows\install.ps1 -Domain
netoryx.corp.example.at
```

The script downloads Python 3.12 and Node.js (signature and checksum are verified) and sets up the services **NETORYX** and **NETORYX-Helper**. Program files are located in `C:\Program Files\NETORYX`, data and configuration in `C:\ProgramData\NETORYX`. The CA certificate for the clients is available at `http://<server>/netoryx-ca.crt`; in a domain network the easiest way to distribute it is via GPO.

## 6.5 First sign-in and setup

A new installation is **empty**: no sample folders, no templates; Active Directory, single sign-on, two-factor, Duo and email are switched off.

1. Open `https://<domain>/` or `https://<server-ip>/`.

2. Sign in with `admin` and the **start password** from the installation output.
3. The **setup wizard** starts: set your own password (at least 12 characters), basic settings (language, address), privacy (controller), done – optionally with the introduction tour.
4. Recommended: switch on two-factor, distribute the CA certificate to the clients under *System* → *Certificate* and add sample templates under *Templates*.

> **Emergency access**
> The local `admin` account is the emergency access: restore, update, certificates and factory reset are only possible with local administrator accounts – even if Active Directory, SSO or Duo are used later.

### 6.6 Firewall

NETORYX checks actively – inbound, the server only needs web access.

| Direction | Protocol / port | Purpose |
|---|---|---|
| **inbound** | TCP 80, 443 | Interface (80 redirects to 443 and serves the CA certificate) |
| **outbound** | ICMP echo | PING |
| **outbound** | UDP 161 | SNMP, system resources |
| **outbound** | UDP 123 | NTP |
| **outbound** | TCP 5985 / 5986 | WinRM (system resources, Windows updates) |
| **outbound** | TCP 25 / 465 / 587 | SMTP check and email delivery |
| **outbound** | TCP 80 / 443 | HTTP check, webhooks, single sign-on |
| **outbound** | TCP 636 (389) | Active Directory: LDAPS or LDAP with StartTLS |
| **outbound** | TCP 443 | Duo Security (only if enabled) |
| **inbound (internet)** | TCP 80 | Only for Let’s Encrypt (domain validation) |
| **outbound** | UDP/TCP 53 | DNS |

## 7. Using NETORYX

### 7.1 Interface

- **Dashboard:** key figures, filters and the list of all outages; custom dashboards can be assembled from widgets via drag & drop.
- **Tree view:** folders, devices and one coloured tile per check – ideal as an overview on a wall monitor.
- **Events:** all confirmed status changes, filterable by UP, WARNING, DOWN and PAUSED.
- **Templates:** set up device types once and pick them when adding devices.
- **Search (Ctrl+K):** finds devices, folders, dashboards and – for admins – users and settings.
- **Introduction tour:** separate introductions for admins and users.

## 7.2 Checks

| Check | Description |
|---|---|
| **PING** | ICMP reachability; the response time is the ping value. |
| **TCP** | Reachability of a TCP port. |
| **HTTP/HTTPS** | Fetching a page, e.g. an internal web server or an internet site. |
| **NTP** | Response of a time server and the offset. |
| **SMTP** | Connection to a mail server. |
| **SNMP** | Query via SNMP v1/v2c/v3. |
| **System resources** | CPU, RAM, disk, temperature and PoE – via SNMP (profiles Cisco, Linux, generic) or via WinRM on Windows. |
| **Windows updates** | Restart required, last installation, installation errors – via WinRM, without an agent. |

## 7.3 System resources and Windows updates

On **Linux** and **Cisco devices** the values are read via SNMP; on the target devices the SNMP service must allow the NETORYX server (community or v3 user, ACL). **Windows machines** are queried via WinRM – CPU, RAM and all drives, without an SNMP service. A service account (e.g. `SVC-…`) without administrator rights is sufficient; the required permissions are granted via group and GPO. A detailed list of permissions is in the manual, chapter 18.

## 7.4 Users and sign-in

- **Roles:** Administrator, Read & Write, Read only – with folder permissions including subfolders.
- **Sign-in:** local, Active Directory/LDAP or single sign-on (OpenID Connect). Role and folders can come from group rules.
- **Two-factor:** authenticator app (Microsoft Authenticator, Google Authenticator …) and/or Duo Push; the second method is reachable via *Sign in another way*.
- **User data:** can be downloaded (data subject access).

## 7.5 Notifications

Email (via the configured mail server, with signature) and webhook. Notifications are sent on UP and on DOWN; **rules** define the folder, status and risk level they apply to. Notifications can be switched on per device and contain a link to the detail page.

## 7.6 Command line (CLI)

The CLI offers everything the interface can do – devices (also many at once), checks, folders, templates, dashboards, users, notifications, settings, backups, update, restart and certificates. It opens in the browser via the **>_** icon (Ctrl+^) or via SSH: on the server with the command `netoryx` (sign-in with the NETORYX account) or – optionally set up with `deploy/ssh-cli.sh on` – directly through the SSH account `netoryx-cli`. Context help is available with `?` as on Cisco devices, for example `device ?`.

# 8. Operation and maintenance

## 8.1 Certificates

Under *System → Certificate* there are three options: an **own NETORYX CA** (default, adjustable validity), **Let's Encrypt** and the **upload** of your own certificate. The CA certificate must be imported as trusted on the clients (in a domain network via GPO).

## 8.2 Backup and restore

- **Daily automatic backups**, AES-256 encrypted.
- **Block-level deduplication:** 14 backups need only 15–36 % of the space.
- **Retention** according to the grandfather-father-son principle.
- **Download** encrypted (AES-256 ZIP with password) or unencrypted.
- **External storage:** mirror to a NAS/file server via SMB; SAN, NFS or USB as a mounted folder.
- **Restore** in the interface or on the command line – also for moving to a new server.

## 8.3 Update, restart, factory reset

- **Update:** upload the new package under *System → Update* (with progress bar) or run `install.sh` / `install.ps1` again. With Docker, use a new image.
- **Restart:** either only NETORYX or the whole server.
- **Factory reset:** returns the installation to its empty state – always create a backup first.
- **Logs:** under *System → Logs*; in addition an audit log.

## 8.4 Large installations

For up to 10,000 devices NETORYX uses an evenly distributed scheduler with limits per protocol, batched writes, hourly values for long periods and **check workers** for multiple CPU cores. The page *System → Load* shows the current load; a load test can be run with `app.cli loadtest` (Docker: `netoryx-manage loadtest`).

# 9. Custom check types (plugins)

Monitoring is built as a **plugin system**: one file per protocol. The API, database and frontend do not have to be touched – the form in the frontend is generated from the plugin's field declaration.

- Available are `ping`, `http`, `ntp`, `snmp`, `smtp`, `tcp`, `resources` and `winupdate`.
- Custom plugins are saved as `local_<name>.py` in the folder `backend/app/monitors` (e.g. `local_dns.py`). Such files are **not** overwritten by updates.
- For SNMP-based plugins the class `SnmpSession` from `_snmp_common.py` is a good basis; for Windows queries via PowerShell, `winupdate.py` is the template.
- The NETORYX licence expressly allows custom plugins in your own files; the bundled files themselves must not be modified.

A complete minimal example (DNS check) is in the file `docs/PROTOKOLLE.md` or in the document PROTOKOLLE.

# 10. Privacy, licence and third-party components

## 10.1 Privacy

NETORYX **does not send or receive any data to or from the developers**: no cloud service, no telemetry. The controller under the GDPR is the organisation that operates NETORYX. The document DATENSCHUTZ (privacy) contains templates for the record of processing activities (Art. 30), technical and organisational measures (Art. 32), the handling of data subject rights, a data protection impact assessment and the procedure for data breaches. It is **not legal advice**.

## 10.2 NETORYX Licence 1.0

© 2026 NETORYX – Luca Lindner & Thiemo Hechenblaikner. The source code can be viewed, but this is not an open-source licence in the sense of the OSI.

| Permitted | Not permitted |
|---|---|
| Use free of charge – also in companies and commercially, as an IT service provider also in customer networks. | Modifying NETORYX (editing the source code, reusing parts of it). |
| Configure via the settings, install official updates, custom plugins (`local_*.py`). | Selling, renting or offering NETORYX for a fee (also as a subscription, appliance or hosted service). |
| Pass on unchanged and free of charge (with `LICENSE` and copyright notice). | Removing copyright notices or presenting NETORYX as your own work. |
| Paid services around NETORYX (setup, support, training). | |

## 10.3 Third-party components

NETORYX uses open-source components (including FastAPI, React, pysnmp, icmplib, SQLite). The list with licences is in the document THIRD_PARTY_NOTICES.

# 11. Test environment and test results

NETORYX was tested in a dedicated test environment. This chapter shows what was tested, what works only to a limited extent and what has not been tested yet. Version 1.0.0 was tested. Version 1.0.1 only adds the backup upload (full and differential backups, also as ZIP) and was checked for it with the automated tests.

## 11.1 Test environment

| Area | Components |
|---|---|
| **VMware ESXi host** | Lenovo P510 workstation |
| **Virtual machines** | Domain controller · WIN11 client · Ubuntu web server · Mail server · NETORYX server (Ubuntu) |
| **Cisco devices** | Cisco Catalyst switch · Cisco access point (Gen 27) |

## 11.2 Protocols and checks

| Check | Result | Status |
|---|---|---|
| **Ping** | Works flawlessly. | **Tested** |
| **TCP** | Works flawlessly. | **Tested** |
| **HTTP/HTTPS** | Works via HTTP on the internal Ubuntu web server and on the netoryx.at site; not tested exhaustively. | **Partially tested** |
| **NTP** | Works. | **Tested** |
| **SMTP** | Works with the internal mail server; not tested exhaustively. | **Partially tested** |
| **SNMP – Ubuntu server** | CPU, RAM, storage and temperature work; temperature not always. | **Tested** |
| **SNMP – Cisco Catalyst switch** | CPU, RAM, storage, PoE load per port and temperature work. | **Tested** |
| **SNMP – Cisco access point (Gen 27)** | Does not work. Possible cause: the access point is a Gen 27 device. | **Limited** |
| **WinRM – system resources** | Reading from WIN11 clients without administrator rights using a service account (SVC account) works. | **Tested** |
| **WinRM – Windows updates** | Only tested briefly with an administrator account. It should also work without administrator rights; setup via GPO is described in the manual. | **Partially tested** |

## 11.3 Interface, notifications and users

| Area | Result | Status |
|---|---|---|
| **Dashboard** | Custom dashboard, tree view, events and templates. | **Tested** |
| **Notifications** | Tested with the existing mail server: emails arrive with signature – on UP, on DOWN and with rules. | **Tested** |
| **Sign-in** | Local, Active Directory sign-in and single sign-on. | **Tested** |
| **Two-factor** | Authenticator apps (Microsoft, Google, etc.) and Duo Push. | **Tested** |
| **User data** | Can be downloaded. | **Tested** |

## 11.4 Settings and system

| Area | Result | Status |
|---|---|---|
| **Mail connection** | Works. | **Tested** |
| **Active Directory** | Connection tested with Windows Server 2025; permissions via groups tested. | **Tested** |
| **Single sign-on** | Connection tested with Microsoft Entra ID; permissions via groups tested. | **Tested** |
| **Duo Push** | Connection of the Duo API tested. | **Tested** |
| **Audit log** | Available and tested. | **Tested** |

| Area | Result | Status |
|---|---|---|
| **Backup (local)** | Block deduplication, daily automatic backup, AES-256 encryption; download encrypted and unencrypted; grandfather-father-son principle. | **Tested** |
| **Backup to file server etc.** | External storage (file server, NAS …). | **Not tested** |
| **Certificates – own CA** | Works. | **Tested** |
| **Certificates – Let's Encrypt** | Was not tested. | **Not tested** |
| **Certificates – PAM** | Was not tested. | **Not tested** |
| **Update** | More than 30 updates have already been installed. | **Tested** |
| **Restart** | Both variants (NETORYX and whole server) work. | **Tested** |
| **Load display, logs** | Work. | **Tested** |
| **Factory reset** | Was not tested. | **Not tested** |
| **CLI** | In the browser and via SSH (`netoryx-cli`); profile settings. | **Tested** |

### 11.5 Open items

- Backup to external storage (file server, NAS) is **not tested** yet.
- Certificates with **Let's Encrypt** and **PAM** are **not tested** yet.
- **Factory reset** is **not tested** yet – please create a backup before first use.
- **SNMP resources on the Cisco access point (Gen 27)** currently do not work.
- **HTTP/HTTPS, SMTP and Windows updates** were not tested exhaustively.

> **Important note on functionality**
> We cannot guarantee that NETORYX will work 100 % error-free in every environment.
> If you encounter any errors, please report them **as soon as possible** – either on the website in the **Community** section or by email to **info@netoryx.at**. We will look into every problem as quickly as we can.

## 12. Reporting errors and support

We are continuously working on NETORYX. To find and fix errors quickly, we depend on your feedback.

> **Important note on functionality**
> We cannot guarantee that NETORYX will work 100 % error-free in every environment.
> If you encounter any errors, please report them **as soon as possible** – either on the website in the **Community** section or by email to **info@netoryx.at**. We will look into every problem as quickly as we can.

### 12.1 How to report an error

| Channel | How |
|---|---|
| **Website – Community** | Create a post in the **Community** section of the NETORYX website. |
| **Email** | Send a message to **info@netoryx.at**. |

Please include in your report, where possible:

- the **version** and the **edition** (Ubuntu, Debian, Docker, Windows) – found in the file `VERSION`,
- what you did, what you expected and what happened instead,
- the affected devices and check types (e.g. SNMP on Cisco access point),
- excerpts from *System → Logs* – **without passwords and credentials**,
- a screenshot, if applicable.

## Appendix: Bundled documents

Each edition ships seven documents in German (`_de`) and English (`_en`) as Word files and PDF. The German version is authoritative. From 1.0.1, every package also contains this NETORYX documentation (NETORYX-Dokumentation_de and NETORYX-Documentation_en, as Word file and PDF).

| Document | Contents |
|---|---|
| **README** | Overview, installation in brief, licence. |
| **ANLEITUNG** | Complete manual with table of contents: installation, usage, operation, internals. |
| **CHANGELOG** | Change log. |
| **DATENSCHUTZ** | Privacy (GDPR), copyright, licence, liability. |
| **PROTOKOLLE** | Protocols and check messages; adding custom check types. |
| **THIRD_PARTY_NOTICES** | Third-party components used and their licences. |
| **LICENSE** | NETORYX Licence 1.0. |

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