



CYPEX 2.1: Installation Guide

Build applications faster

Created by
CYPEX Team

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Introduction

Welcome to CYPEX, a cutting-edge tool that will improve software development and help you build applications more quickly.

In this document, you will learn how to get started with CYPEX and deploy the software in your infrastructure quickly and efficiently to ensure you can get started promptly.

Getting started with CYPEX

Running CYPEX in your environment is easy. This section will give you an overview of how things work and how you can get started with CYPEX. Please follow the steps outlined in this document to start your development process. Before you begin, you have the flexibility to choose between two editions suited to meet your needs.

Choose Your Edition:

1. Free Trial Edition:

Experience the power of CYPEX with our Free Trial Edition. This option allows you to:

- **Try Before You Buy:** Explore the features and functionalities with a demo version of CYPEX
- **Demo Data:** Benefit from pre-loaded demo data to get a feel for how the app works in different scenarios.
- **Limits Apply:** Please note that the Free Trial Edition comes with certain usage limits. These limits are in place to provide you with a comprehensive trial experience.

To start with the Free Trial Edition, follow the installation steps outlined in this guide.

2. Enterprise Edition:

For users seeking the full potential of CYPEX without any limitations, we offer the Enterprise Edition. With the Enterprise Edition:

- **Unlimited Access:** Enjoy unrestricted access to all features and capabilities of CYPEX.
- **Customization:** Tailor the app to your specific requirements and workflows.
- **Priority Support:** Benefit from priority customer support for timely assistance.
- **License Purchase Required:** A valid license purchase is required to unlock the Enterprise Edition's limitless possibilities.

If you've decided that the Enterprise Edition is the right fit for you, contact sales@cybertec.at to discuss licensing options and initiate the purchasing process.

Contact CYBERTEC for Access and Assistance.

CYPEX is a product of CYBERTEC PostgreSQL International GmbH (www.cybertec-postgresql.com). Whether interested in the Enterprise Edition or the Free Trial Demo, our team is here to assist you — contact sales@cybertec.at. Express your interest in the Enterprise Edition; our team will guide you through the following steps. You will receive a set of documentation and access to our worldwide support team. This includes:

- Access to the application repository.
- Access to the support ticket system.
- Regular software updates.

Or experience the capabilities of CYPEX with our Free Trial Demo.:

- Email Request: Email sales@cybertec.at to convey your interest in the Free Trial Demo.
- Demo Version Delivery: Upon receiving your request, we'll send you the trial demo version of CYPEX. This version comes pre-loaded with demo data, allowing you to explore the app's functionalities and assess their suitability.
- Trial Experience: Take advantage of the trial period to evaluate how CYPEX aligns with your requirements. Note that the Free Trial Edition comes with certain usage limits.

Understanding Infrastructure and Database Choices

CYPEX is distributed as a set of Docker images brought by Docker Compose, each fulfilling a distinct role within the system. Let's explore these key components:

- **API Container:** This container forms the foundation of the application, controlling its essential functionalities.
- **UI Container:** Responsible for managing the User Interface, ensuring a seamless and engaging user experience.
- **PostgREST Container:** A standalone web server transforming your PostgreSQL database into a RESTful API. Structural constraints and permissions in the database determine the API endpoints and operations.

These containers are integral and **mandatory** components.

Database Options:

- **Internal Database Container:** It ships with the application and provides a self-contained option. It's ideal when avoiding external database connections.
- **External Database:** Utilize your own **PostgreSQL** database (**version 13 or higher**). CYPEX seamlessly integrates, offering flexibility in database choices.

LDAP Integration:

While there isn't a dedicated LDAP container, CYPEX fully supports LDAP connections. Setting up Single Sign-on transforms into a smooth process if an LDAP server is already operational.

Download CYPEX

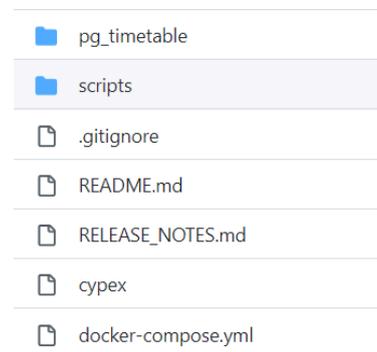
CYBERTEC provides two convenient methods for obtaining the application:

Method 1: Download using Git. (access to the CYPEX repository is required)

Use the following link to access our Git repository: [CYPEX](#).

Simply clone the repository to get a copy of CYPEX. Use a Personal Access Token (PAT) instead of a password for GitHub authentication via the command line or API. Treat PATs like passwords; consider fine-grained PATs over classic ones for added security. Note that PATs are user-specific and will become inactive if the user loses access to the resource. For organization-specific control, owners can set policies for classic PAT access. Refer to GitHub documentation for token security and usage details: [Managing your personal access tokens](#).

The repository will contain a set of scripts to help you deploy CYPEX by automating access to DockerHub.



There are three ways to clone the repository:

- Using HTTPS

To download via HTTPS, use the following instructions:

```
git clone https://github.com/cybertec-postgresql/cybertec_cypex.git
```

- Using SSH

If you prefer SSH, consider the following command:

```
git clone git@github.com:cybertec-postgresql/cybertec_cypex.git
```

- Using the GitHub CLI

Alternatively, you can make use of the GitHub CLI, which works as follows:

```
gh repo clone cybertec-postgresql/cybertec_cypex
```

Checking your local copy

Cloning the repositories will download all these files onto your local machine, as illustrated in the image below:

```
cypex@LAPTOP-RFD3JM7E:~/CYPEX$ git clone https://github.com/cybertec-postgresql/cybertec_cypex.git
Cloning into '.'...
Username for 'https://github.com': biacsics
Password for 'https://biacsics@github.com':
remote: Enumerating objects: 398, done.
remote: Counting objects: 100% (183/183), done.
remote: Compressing objects: 100% (91/91), done.
remote: Total 398 (delta 122), reused 126 (delta 92), pack-reused 215
Receiving objects: 100% (398/398), 83.78 KiB | 2.09 MiB/s, done.
Resolving deltas: 100% (202/202), done.
```

After completing this process, you will discover several files necessary for the following steps:

```
cypex@LAPTOP-RFD3JM7E:~/CYPEX$ dir -l
total 44
-rwxr-xr-x 1 cypex cypex 20078 Oct 11 09:25 cypex
-rw-r--r-- 1 cypex cypex 2686 Oct 11 09:25 docker-compose.yml
drwxr-xr-x 3 cypex cypex 4096 Oct 11 09:25 pg_timetable
-rw-r--r-- 1 cypex cypex 1139 Oct 11 09:25 README.md
-rw-r--r-- 1 cypex cypex 4329 Oct 11 09:25 RELEASE_NOTES.md
drwxr-xr-x 2 cypex cypex 4096 Oct 11 09:25 scripts
cypex@LAPTOP-RFD3JM7E:~/CYPEX$
```

Congratulations. You have successfully cloned the CYPEX repository. You can now continue with the installation process and configure the infrastructure.

Method 2: Download from the CYBERTEC Server. (via download link)

Access the provided download link. Save the downloaded file to your preferred location on your local machine. Untar, replacing <tag> with the latest provided version, e.g. v0.0.1:

```
mkdir cybertec_cypex
tar -xzvf cybertec_cypex-<tag>.tar.gz -C cybertec_cypex
--strip-components=1
cd cybertec_cypex
```

Pre-Installation System Check: Ensuring Compatibility and Requirements

Before processing the installation, make sure the following system requirements are met:

- [Docker](#)
- [docker-compose](#) (>= 1.27.0)
- [git](#) (>= 2.20.1)
- [bash](#) (>= 4.0)
- [jq](#)

To run the application on the **MacOS**:

The `sed` program on Mac is not a standard (GNU) one. To get the normal one, use `brew`:

```
brew install gnu-sed
```

After this, alter `PATH`. For example, add the following line to your `~/.bash_profile`:

```
PATH="/usr/local/opt/gnu-sed/libexec/gnubin:$PATH"
```

To run the application on **Windows**:

- [Docker \(with WSL 2 feature on Windows\)](#) .
- [git](#)
- [make](#)
- [jq](#)

Install CYPEX

Generate Configuration:

After downloading an App folder, open a console and navigate to the CYPEX folder using the `cd` command.

Load necessary Docker Images for off-line installer scenarios:

```
./cypex load-docker-images
```

Generate default configuration, executing:

```
./cypex configure
```

This command offers the following scenarios:

- Do you want to install the enterprise version of CYPEX? - **Yes/No**
(Enterprise requires a license for the Trial choose No)
- Do you want to install CYPEX with an existing database? - **Yes/No**
(If No - the PostgreSQL database will be installed within a Docker container. No extra configuration is needed).

You must provide the database connection information for the existing one:

```
./cypex config database.host <host-name or IP>  
./cypex config database.port <port-number>  
./cypex config database.name <db-name>  
./cypex config database.install.user.name <user-name>  
./cypex config-database-install-user-password
```

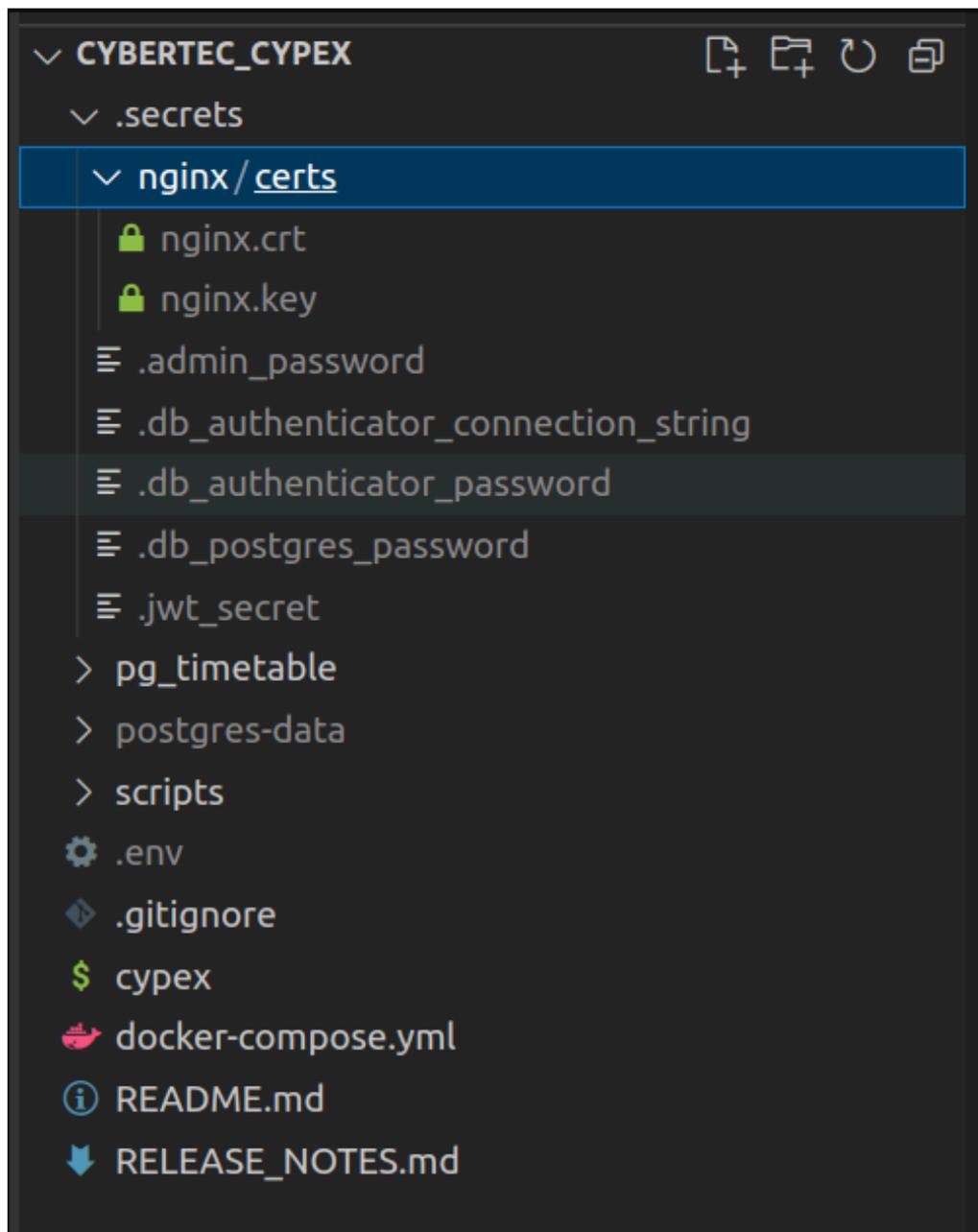
Note: The database host should be the hostname or IP address, and it should be reachable by the docker containers. **Do not** use localhost or similar because the docker containers will resolve their own host as a localhost.

- Do you want to enable SSL connection for the database? - **Yes/No**
If Yes, an additional configuration is needed:
 - CA-CERT file name, example: `root.crt`, otherwise, leave it blank.
Ensure to copy the file to the `./certs` directory.
 - CA-CERT file name: Use the `sslrootcert` parameter to reference the certificate, for example, `sslrootcert=rds-ssl-ca-cert.pem`.

Note: The file should be copied to the `certs` folder referenced in the containers via a predefined internal path. Do not use paths, only file names.

The configuration will store the credentials and certificates inside the `.secrets` directory.

It contains the password files and the `nginx/certs` directory containing the server-side certificates. To update those certificates, replace them with new ones with the same name:



Execute:

To pull the necessary docker images and install the application, run the following:

```
./cypex install
```

```
cypex@LAPTOP-RFD3JM7E:~/CYPEX$ ./cypex install
./cypex install
Pulling cypex_data_api ... done
Pulling cypex_database ... extracting (1.1%)
Pulling cypex_api ... waiting
Pulling cypex_gui ... waiting
Pulling pg_timetable ... done
```

In case this is successful, all the status information should show “done”:

```
cypex@LAPTOP-RFD3JM7E:~/CYPEX$ ./cypex install
./cypex install
Pulling cypex_data_api ... done
Pulling cypex_database ... done
Pulling cypex_api ... done
Pulling cypex_gui ... done
Pulling pg_timetable ... done
[INFO] Run './cypex up' to start Cypex
cypex@LAPTOP-RFD3JM7E:~/CYPEX$
```

Start the Application

To initiate CYPEX, proceed with the final step. The system will automatically generate an admin user within the APP, generate a password, and present it on the screen for your convenience. Simply run:

```
./cypex up
```

```
cypex@LAPTOP-RFD3JM7E:~/CYPEX$ ./cypex up
./cypex up
Creating network "cypex_default" with the default driver
Creating cypex_cypex_database_1 ... done
the setup will be deployed now
Waiting for cypex_database...
Creating cypex_cypex_api_1 ... done
cypex_cypex_api_1 is up-to-date
cypex_cypex_database_1 is up-to-date
Creating cypex_cypex_data_api_1 ... done
Creating cypex_pg_timetable_1 ... done
Creating cypex_cypex_gui_1 ... done
[OK] Started on 'http://172.24.5.220'
[OK] The cypex admin user: admin
[OK] The cypex admin user password: ZKwVxNosK6gbLeT9KIaZ65HDY61rqFn3qSrMV43I44
cypex@LAPTOP-RFD3JM7E:~/CYPEX$
```

Please copy and securely store this password. It is essential. Its importance lies in granting access to the system. Be aware that it cannot be recovered once lost for security reasons.

Optionally, you can also deploy CYPEX extensions. However, this is only needed in case you want to use extensions later on:

```
cypex@LAPTOP-RFD3JM7E:~/CYPEX$ ./cypex install-extensions
./cypex install-extensions
installing cypex extensions...
cypex@LAPTOP-RFD3JM7E:~/CYPEX$
```

First Login

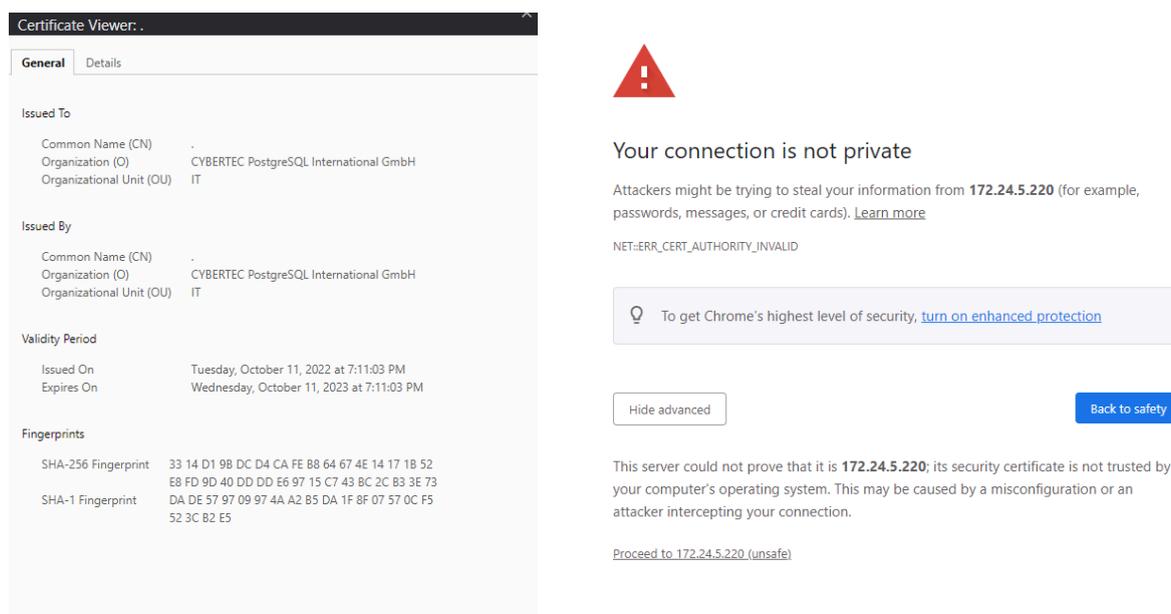
Upon completing the installation script, you will receive a URL guiding you to the system's login interface. Utilize the login credentials supplied by the installer to access the intuitive graphical user interface offered by the CYPEX.

The following screen will open, allowing you to get started quickly.

Handling certificates and browser security:

Your browser might complain about security-related issues. Note that this is NOT a CYPEX deficiency but a necessary security precaution made by browsers that fancy secure communication.

Open your browser configuration and take a look at the following site. Note that the certificate is not right if the error pops up, as shown in the next listing.



The image shows two side-by-side screenshots. On the left is a 'Certificate Viewer' window with the following details:

| Issued To | |
|--------------------------|--|
| Common Name (CN) | . |
| Organization (O) | CYBERTEC PostgreSQL International GmbH |
| Organizational Unit (OU) | IT |

| Issued By | |
|--------------------------|--|
| Common Name (CN) | . |
| Organization (O) | CYBERTEC PostgreSQL International GmbH |
| Organizational Unit (OU) | IT |

| Validity Period | |
|-----------------|---|
| Issued On | Tuesday, October 11, 2022 at 7:11:03 PM |
| Expires On | Wednesday, October 11, 2023 at 7:11:03 PM |

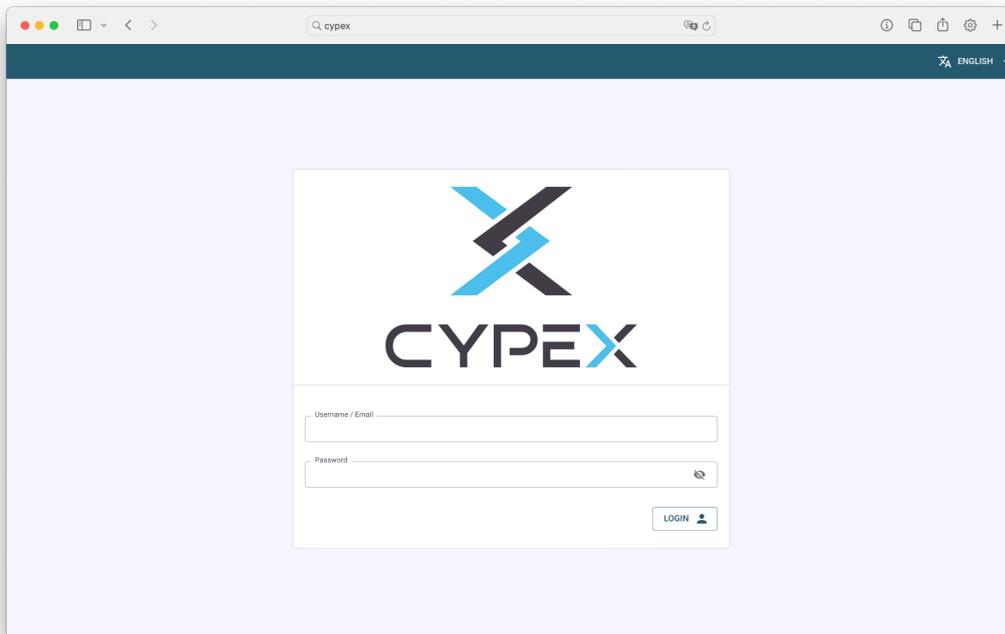
| Fingerprints | |
|---------------------|--|
| SHA-256 Fingerprint | 33 14 D1 98 DC D4 CA FE B8 64 67 4E 14 17 18 52 E8 FD 9D 40 DD DD E6 97 15 C7 43 BC 2C 83 3E 73 |
| SHA-1 Fingerprint | DA DE 57 97 09 97 4A A2 B5 DA 1F 8F 07 57 0C F5 52 3C B2 E5 |

On the right is a browser security warning for the URL 172.24.5.220. It features a red warning triangle icon and the text: 'Your connection is not private'. Below this, it states: 'Attackers might be trying to steal your information from 172.24.5.220 (for example, passwords, messages, or credit cards). Learn more'. The error code 'NET::ERR_CERT_AUTHORITY_INVALID' is displayed. A lightbulb icon suggests turning on enhanced protection. At the bottom, there are buttons for 'Hide advanced', 'Back to safety', and a link to 'Proceed to 172.24.5.220 (unsafe)'.

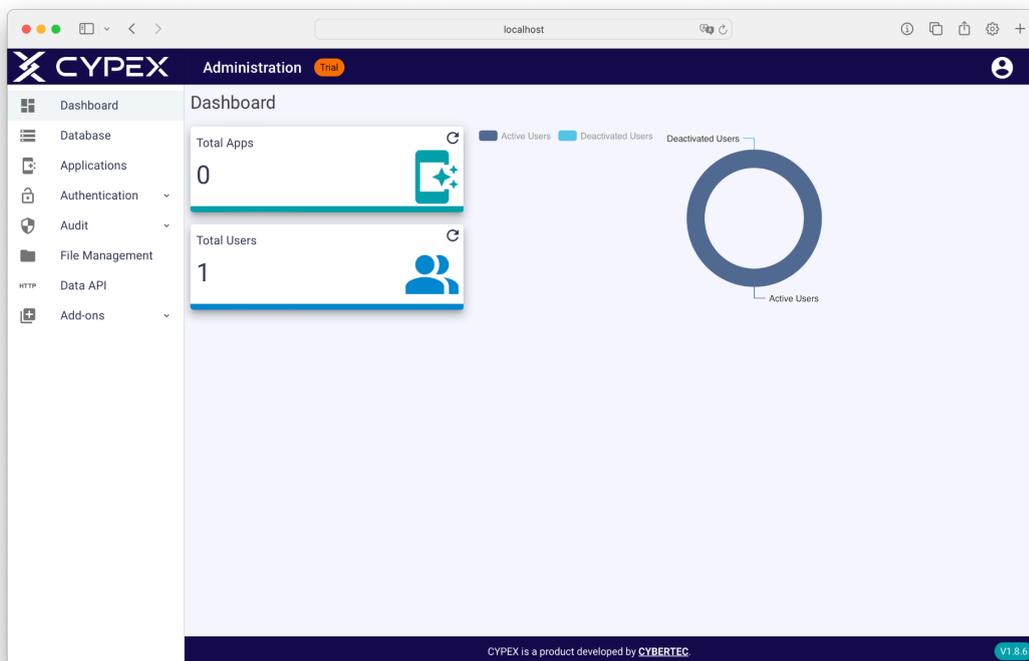
This problem can be fixed by replacing the certificates on the server (see above) during the installation process. Make sure that you have valid certificates in place. Your IT department will be aware of those requirements.

Alternatively, you can set certificates in your browser. However, in a large-scale organization, this is usually not feasible. Still, it is a good option often used for testing purposes.

Once your certificates are set, you will see the login screen without security warnings:

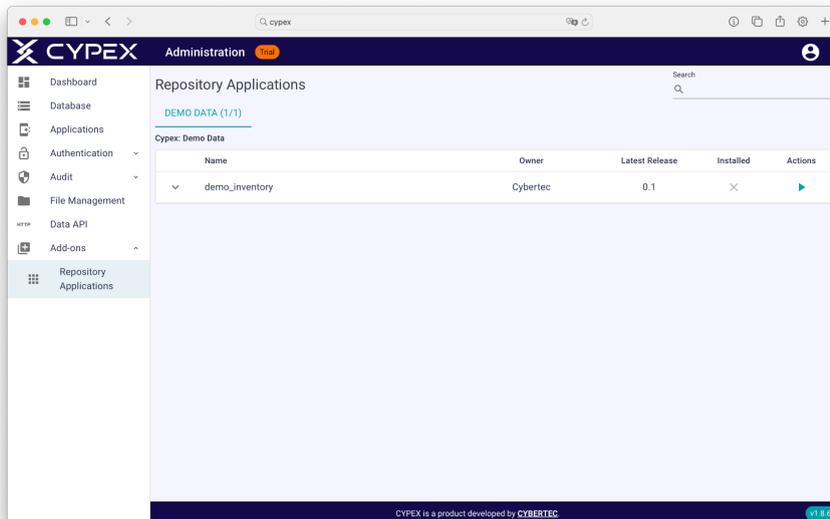


Log in to the application using the provided prompt credentials in the console.

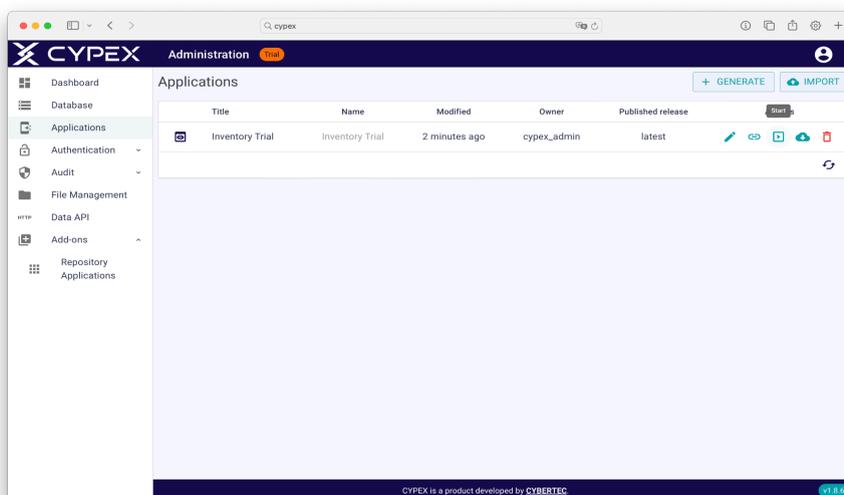


Deploy Demo Data

Additionally, for demo purposes, deploying the data model is accessible from the UI. Use the “Add-ons” menu to navigate to the “Repository Applications””.



In the Actions column, click a button to install the latest version of the demo model. After you get the message about the successful data installation, move to the “Applications” page.



This Demo Data Model contains not only tables and data but also generated Queries (from tables) and a small demo Application. However, Queries and App creation can always be done manually.

Uninstall CYPEX

Open the terminal and navigate to the folder with cypex scripts using the `cd` command. Run the following commands:

```
./cypex cleanup-cypex-database  
./cypex uninstall
```

- In the newest version, you need to delete the `postgres-data` folder manually, only in case the database was installed within the Docker container.

```
sudo rm -rf postgres-data
```

- Additionally, ensure your PostgreSQL database instance doesn't contain `cypex` or `cypex_*` related schemas and tables in case of existing database usage.

Remove the folder with the previous CYPEX version, including all scripts. After successful completion, the newest version can be installed.

Getting Help and Support

Thank you for using CYPEX.

If you need more information or if you are facing issues, consider reaching out to our team.

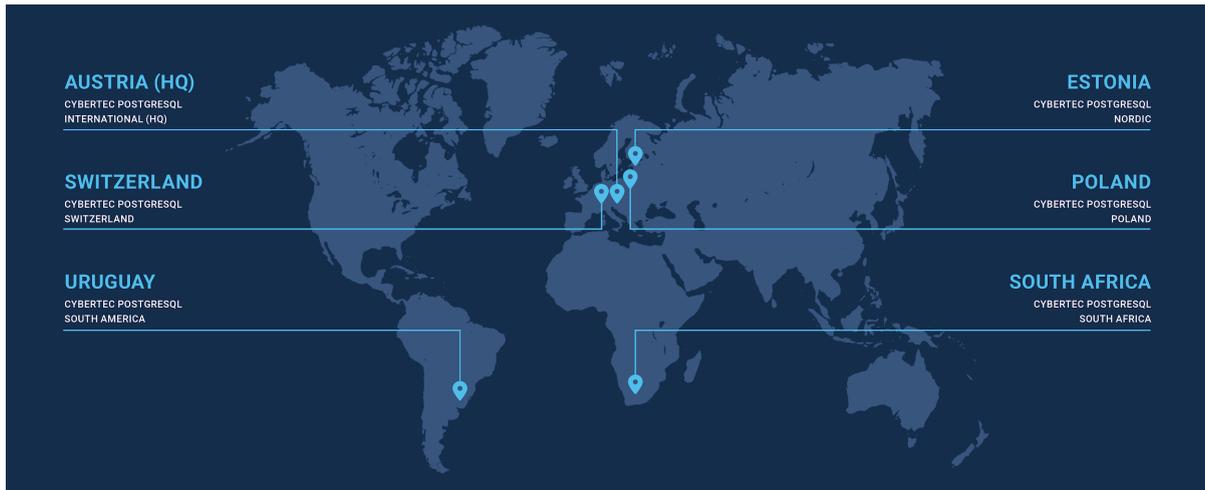
More information: sales@cybertec.at
Defects and bugs: support@cybertec.at

Unlock the Full Potential of CYPEX: Dive into our Comprehensive Documentation:

- [Official Documentation](#)
- [Official Videos Tutorials](#)

Those resources will provide you with all the information needed to build more powerful applications.

We look forward to your feedback and are working hard to improve the product to satisfy your needs.



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