

ADOxx 1.5 - Installation Instructions

This manual contains some guides for the installation of ADOxx and its necessary components.

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Typical installation

The typical installation should use the corresponding setup files or installation scripts provided. These guide the user through the installation process and take care of setting up the various components. Make sure to use the correct installer for your system, including operating system and CPU architecture:

- Windows (32-bit and 64-bit) - [setup.exe](#)
- Linux (32-bit and 64-bit) - [install_linux.sh](#)
- macOS (64-bit Intel) - [install_mac64x.sh](#)
- macOS (64-bit M1) - currently a manual installation is necessary.

In some cases (due to copying and zipping files) the necessary access rights for the files can be missing. On Linux and macOS you can add the necessary rights to the script files by:

1. Opening a Terminal and navigating to the installer directory.
2. Adding execution rights to the script files with the command `sudo chmod +x *.sh`

Sometimes the setup or installation scripts can encounter errors or problems leading to an unsuccessful installation. In such cases check the assumptions documented below and/or try a manual installation of the individual components and react to any errors accordingly. Note that the installation scripts for Linux and macOS don't react to every error and continue past some of them. Pay attention during the installation for any errors and resolve them as necessary.

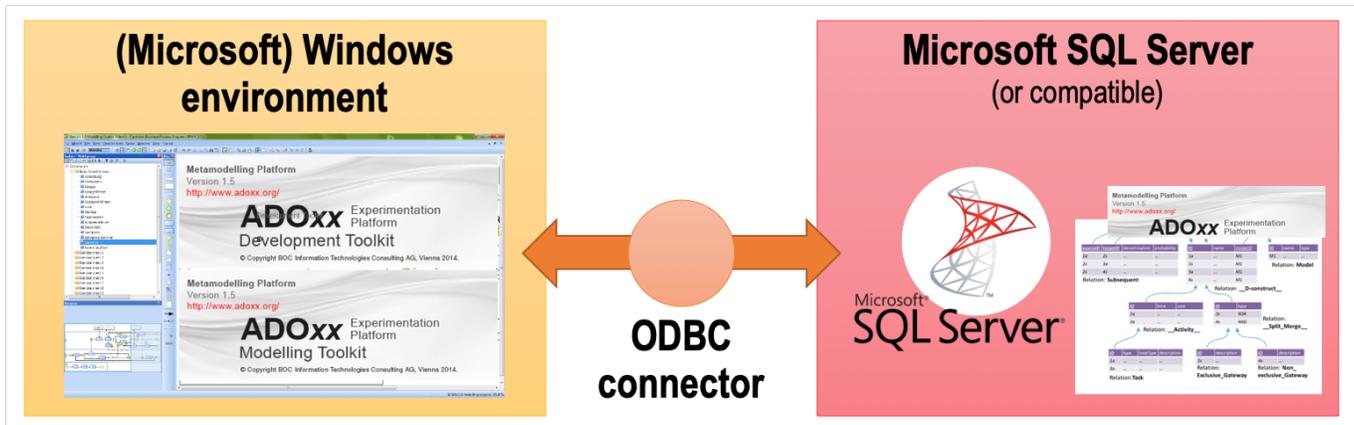
The major components installed by the typical installation are also set up to be used for ADOxx and ADOxx based tools. They can be used by several ADOxx and ADOxx based tools, but avoid using them for any other non-ADOxx applications or projects. The components in question are:

- The database management system (Windows, Linux and macOS).

- The Wine prefix (Linux and macOS).

Tool architecture

The following image shows a general overview of the architecture employed to run ADOxx or any ADOxx based tool:



General procedure

The general procedure of installing the ADOxx platform is:

1. Install required applications, frameworks and libraries. These can vary from OS to OS. For UNIX systems this typically includes something to run Windows applications (e.g. Wine), an MS SQL Server DBMS or similar and the ODBC driver and tools.
2. Create and configure the database for ADOxx in the DBMS.
3. Create an ODBC connection to the database.
4. Install ADOxx into the (MS) Windows environment.
5. Provide the license information.
6. Initialize the database with ADOxx's configuration.
7. Finishing touches, like creating shortcuts.

Assumptions made for the typical installation

- (Windows only) The "Language for non-Unicode programs" is set to **English, German** or some similar language.
 - Languages using vastly different characters (e.g. Greek, Cyrillic, Asian, Arabic) can cause problems.
 - On Linux and macOS the installation scripts set the used language for the individual commands to **English**.
- The instance of the database management system is named **ADOXX15EN**.
- Other, not yet documented (work in progress).

Manual installation

This section describes the steps to manually install and setup ADOxx on various operating systems.

While a manual installation is more tedious, it allows to better react to possible errors by looking for solutions related to the specific parts that fail.

A successful installation was possible using the here described steps. However, note that the manual installations are not 100% proof. Various computers can have other settings or applications installed which can interfere or break some of the needed components, but you won't know unless you try. Also some of the required components are managed by other organizations and there is always the possibility that new versions of these components introduce problems or bugs. Where possible the versions of used tools / applications are documented.

The major components installed during the manual installation should only be used for ADOxx and ADOxx based tools. They can be used by several ADOxx and ADOxx based tools, but avoid using them for any other non-ADOxx applications or projects. The components in question are:

- The database management system (Windows, Linux and macOS).
- The Wine prefix (Linux and macOS).

macOS - Apple M1

Tested with macOS Monterey (12.2.1)

General information

For the installation on macOS with an Apple M1 chip use the 64-bit prototype for macOS.

The installation and setup of several components requires the execution of various commands. These can be executed using the macOS native Terminal app with its default shell (zsh).

Some of the commands have to be executed from inside the tool's installer directory. The guides state where this is the case. Use the `cd` command in the terminal to "change directory" and navigate to the specific directory, e.g. `cd Downloads/adoxx-15-64bit-master/`. Commands where no explicit execution location is specified should work from anywhere. However, we have executed them from inside the tool's installer directory as well.

Several of the components also have to explicitly use macOS Rosetta 2. This is achieved by their commands using `arch -x86_64`. The commands that have to use Rosetta 2 already contain that part where necessary.

Installation steps

The installation steps can be categorized into two types and are also ordered like this in the steps described below:

1. Installing necessary applications. Install them only if they are missing. If they are already installed and any of the steps fail it might be necessary to update them.
2. Configuration of the environment and applications.

To perform the manual installation follow these steps:

1. Install Rosetta 2.

- Run the command `softwareupdate --install-rosetta`
- An error like "Package Authoring Error: 002-66270: Package reference com.apple.pkg.RosettaUpdateAuto is missing installKBytes attribute" can appear during the installation of Rosetta 2, but so far it has not been detrimental to the rest of the installation as long as it also stated "Install of Rosetta 2 finished successfully".
- Rosetta 2 is necessary to execute some of the applications that expect an Intel/AMD CPU architecture.

2. Install Homebrew through Rosetta 2.

- Run the command `arch -x86_64 /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"`
- The "Your Homebrew's prefix is not /opt/homebrew." warning has so far not caused any problems.
- After Homebrew is installed run the command `arch -x86_64 brew update`
- Used version checked with `arch -x86_64 brew --version`: Homebrew 3.4.0 Homebrew/homebrew-core (git revision d731ada6fb4; last commit 2022-03-04)
- Homebrew is a package management system and is used to simplify the installation of various components.
- Further details are available on [their website](#).

3. Tap the MS SQL ODBC driver with Homebrew.

- Run the command `arch -x86_64 brew tap microsoft/mssql-release https://github.com/Microsoft/homebrew-mssql-release`
- Afterwards run the command `arch -x86_64 brew update`
- This allows to install the Microsoft ODBC Driver for SQL Server 17 and MS SQL tools through Homebrew.
- Further details are available on [their GitHub page](#).

4. Install XQuartz through Homebrew.

- Run the command `arch -x86_64 brew install xquartz`
- Used version checked through the XQuartz app (`/Application/Utilities/`) under "About X11": XQuartz 2.8.1 (xorg-server 1.20.11)
- XQuartz is used by Wine as the window system, to display and interact with windows on the screen.
- Further details are available on [their website](#).

5. Install Wine through Homebrew.

- Run the command `arch -x86_64 brew install wine-stable`
- Allow the Wine-stable app to be executed. One way to achieve this is to start the Wine-stable app through the context menu, selecting the "Open" option and allow it to execute in the following popup.
- Used version checked with `arch -x86_64 wine64 --version`: wine-7.0
- Wine is a system which allows the execution of Windows applications like the ADOxx platform on other operating systems.
- Further details are available on [their website](#).

6. Install Microsoft ODBC Driver for SQL Server 17 and MS SQL tools through Homebrew.
 - Run the command `arch -x86_64 brew install msodbcsql17 mssql-tools`
 - Used ODBC version checked with `arch -x86_64 odbcinst --version`: unixODBC 2.3.9
 - Used MS SQL tools version checked with `arch -x86_64 sqlcmd "-?"`: Version 17.9.0001.1 Linux
 - The ODBC driver is necessary to allow the ADOxx platform to connect to the MS SQL compatible database.
 - The MS SQL tools are necessary to create and configure the database.
 - Further details are available on [Microsoft's documentation page](#).
7. Install the Docker Desktop app.
 - The download link is available in the [Docker documentation](#) or through the [direct link](#).
 - Used version checked with `docker --version`: Docker version 20.10.12, build e91ed57
 - Docker is used to run the Docker container with the MS SQL compatible database. ADOxx uses the database to store the relevant configuration and models.
 - Further details are available on [their website](#).
8. Start the Docker Desktop app to finish its installation.
 - It is typically available through `/Applications/Docker`.
 - Docker has to be running for the remainder of the installation and when using the tool.
9. Pull the Docker container with the database management system.
 - Run the command `docker pull mcr.microsoft.com/azure-sql-edge:latest`
 - Used container version: latest -> 1.0.5
 - The sha256 code of the version was `sha256:7c203ad8b240ef3bff81ca9794f31936c9b864cc165dd187c23c5bfe06cf0340` (checked with `docker images --digests`).
 - For additional details about the container (requirements, license etc.) check the [container's Docker Hub page](#).
10. Add and run the Docker container with the database management system.
 - Run the command `docker run --cap-add SYS_PTRACE -e 'ACCEPT_EULA=1' -e 'MSSQL_SA_PASSWORD=12+*AD0xx*+34' -p 1433:1433 --name ADOXX15EN --restart unless-stopped -d mcr.microsoft.com/azure-sql-edge:latest`
 - This will create a new container where the database management system is running inside with the basic configuration. The container has the name `ADOXX15EN`, listens to the port `1433` and restarts whenever Docker is running but the container is not. The DBMS system administrator (`sa` user) uses the password `12+*AD0xx*+34`.
11. Make sure that the container is running before continuing.
 - For example check the status of the `ADOXX15EN` container in the Docker Desktop Dashboard.
 - The container has to be running for the remainder of the installation and when using ADOxx.
12. Create and prepare the basic database in the container.
 - From inside the installer's directory run the command `arch -x86_64 sudo sqlcmd -S 127.0.0.1 -U SA -P '12+*AD0xx*+34' -i support/createUser.sql`
 - Afterwards, from inside the installer's directory run the command `arch -x86_64 sudo`

```
sqlcmd -S 127.0.0.1 -U SA -P '12+*ADOxx*+34' -i support/createDB.sql
```

- This creates a user and a database which is then used by the ADOxx platform to access its configuration and models.

13. Add the ODBC connector to make the database accessible via ODBC.

- From inside the ADOxx installer directory run the command `arch -x86_64 odbcinst -i -s adoxx15 -f support/odbctemplate.ini`
- This registers the ODBC connection that is then used by ADOxx to access the database.
- Further details are available in [Microsoft's documentation](#)

14. Create the necessary Wine prefix.

- Run the command `LANG=en_US WINEARCH=win64 WINEPREFIX="${HOME}/.wine_adoxx64" WINEDEBUG=all arch -x86_64 wine64 cmd /k exit`
- The typical installation uses the `.wine_adoxx64` prefix in the user's home folder.
- The prefix is used to store the files relevant to execute Windows applications like ADOxx and the applications themselves.
- Further details are available in [the WineHQ Wiki](#).

15. Copy ADOxx into the previously created Wine prefix at the right place.

- Run the command `mkdir -p "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/`
- Afterwards run the command from inside the ADOxx installer directory `cp -rf "ADOxx15_EN_SA" "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/`
- After that run the command `sudo xattr -r -d com.apple.quarantine "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/ADOxx15_EN_SA"`
- This creates the necessary directory structure in the Wine prefix, copies the files of the ADOxx platform into the Wine prefix and allows them to be executed on macOS.

16. Provide the ADOxx license information.

- Run the command `LANG=en_US WINEARCH=win64 WINEPREFIX="${HOME}/.wine_adoxx64" WINEDEBUG=all arch -x86_64 wine64 "C:/Program Files/BOC/ADOxx15_EN_SA/asetlic.exe" -plicense.ini -Lalicdat.ini`
- Afterwards two files must be copied, using the commands `cp -f alicdat.ini "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/ADOxx15_EN_SA/` and `cp -f license.ini "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/ADOxx15_EN_SA/`
- This creates the necessary license files and copies them to the ADOxx directory.

17. Initialize the tool's configuration into the previously created database.

- Replace in the following command the `{license-number}` with your own license number and run it: `LANG=en_US WINEARCH=win64 WINEPREFIX="${HOME}/.wine_adoxx64" WINEDEBUG=all arch -x86_64 wine64 "C:/Program Files/BOC/ADOxx15_EN_SA/adbinst.exe" -dadoxx15 -l{license-nukber} -sSQLServer -iNO_SS0 -lang2057`
- The `-dadoxx15` parameter must correspond with the name of the ODBC connector (`-d[ODBC connector name]`).

- This initializes the necessary elements (classes, relation classes attributes etc.) used by ADOxx into the database.
18. Copy the ADOxx start applications to the `/Applications/` folder.
 - It is located in the installer's `support` folder.
 - Also after it has been copied it is necessary to run the commands `sudo xattr -r -d com.apple.quarantine "/Applications/ADOxx 1.5 Development Toolkit (64-bit).app"` and `sudo xattr -r -d com.apple.quarantine "/Applications/ADOxx 1.5 Modelling Toolkit (64-bit).app"` to allow starting the application.
 19. Disable the forced password change in ADOxx.
 - From inside the installer's directory run the command `arch -x86_64 sudo sqlcmd -S 127.0.0.1 -U SA -P '12*ADOxx*+34' -i support/postprocess.sql`
 20. Start modelling and enjoy ADOxx!

Some additional notes:

- Docker and the container `ADOXX15EN` must be running for ADOxx to work. Whether Docker is running can usually be seen in the top right of the menu bar next to the clock. The status of the container can be checked in the Docker Desktop Dashboard.
- An alternative to start ADOxx is to run the following commands:
 - Development Toolkit: `WINEARCH=win64 WINEPREFIX="${HOME}/.wine_adoxx64" arch -x86_64 wine64 "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/ADOxx15_EN_SA/aadma.exe" -dadoxx15 2>/dev/null`
 - Modelling Toolkit: `WINEARCH=win64 WINEPREFIX="${HOME}/.wine_adoxx64" arch -x86_64 wine64 "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/ADOxx15_EN_SA/areena.exe" -dadoxx15 2>/dev/null`

Removal / uninstall

This section describes the steps to remove or uninstall ADOxx on various operating systems.

Back up any relevant data (models etc.) before removal using the available export functionalities.

The architecture used to run the ADOxx platform uses several components, some of which can be reused by other applications, e.g. other ADOxx based tools. Ascertain that these components are no longer needed before removing any of them.

Remove a typical installation

Removal of a typical installation should use the corresponding setup files or installation scripts provided. These guide the user through the removal process. Make sure to use the correct removal / uninstall approach for your system, including operating system and CPU architecture:

- Windows (32-bit and 64-bit) - currently a manual removal is necessary.
- Linux (32-bit and 64-bit) - `uninstall_linux.sh`
- macOS (64-bit Intel) - `uninstall_mac64x.sh`
- macOS (64-bit M1) - currently a manual removal is necessary.

In some cases (due to copying and zipping files) the necessary access rights for the files can be missing. On Linux and macOS you can add the necessary rights to the script files by:

1. Opening a Terminal and navigating to the installer directory.
2. Adding execution rights to the script files with the command `sudo chmod +x *.sh`

Sometimes the setup or scripts can encounter errors or problems leading to an unsuccessful removal. In such cases check the documented assumptions and/or try a manual removal of the individual components and react to any errors accordingly. Note that the uninstall scripts for Linux and macOS don't react to every error and continue past some of them. Pay attention during the removal for any errors and resolve them as necessary.

macOS - Apple M1

Tested with macOS Monterey (12.2.1)

General information

The removal of several components requires the execution of various commands. These can be executed using the macOS native Terminal app with the default shell (zsh).

Some of the commands have to be executed from inside the tool's installer directory. The guides state where this is the case. Use the `cd` command in the terminal to "change directory" and navigate to the specific directory, e.g. `cd Downloads/adoxx-15-64bit-master/`. Commands where no explicit execution location is specified should work from anywhere. However, we have executed them from inside the tool's installer directory as well.

Removal / uninstall steps

1. Remove the tool folder from the Wine prefix.
 - Run the command `sudo rm -rf "${HOME}/.wine_adoxx64/drive_c/Program Files/BOC/AD0xx15_EN_SA"`
 - Other ADOxx installations or ADOxx based tools are not changed by this.
2. Remove the tool's shortcuts.
 - The modelling toolkit shortcut can be removed with the command `rm -rf "/Applications/AD0xx 1.5 Modelling Toolkit (64-bit).app"`
 - The development toolkit shortcut can be removed with the command `rm -rf "/Applications/AD0xx 1.5 Development Toolkit (64-bit).app"`
 - Alternatively move the shortcuts to the Bin.
3. If it is no longer needed, then remove the Wine prefix.
 - Only remove the Wine prefix when there are no other ADOxx or ADOxx-based tool installations and no other applications / programs used with the Wine prefix.
 - To remove the Wine prefix run the command `rm -dr "${HOME}/.wine_adoxx64"`
4. Drop the tools database.
 - Make sure that Docker and the **ADOXX15EN** Docker container are running.

- If the **ADOXX15EN** container has already been removed then this step can be skipped.
 - From inside the installer's directory run the command `arch -x86_64 sudo sqlcmd -S 127.0.0.1 -U SA -P '12+*ADOxx*+34' -i support/removedb.sql`
5. Remove the ODBC connector.
- Run the command `odbcinst -u -s -n adoxx15`
6. If it is no longer needed, then remove the **ADOXX15EN** Docker container.
- Only remove the **ADOXX15EN** Docker container when there are no other ADOxx or ADOxx-based tool installations and no other applications / programs that rely on the Docker container.
 - Make sure that Docker is running.
 - Run the command `docker rm -v ADOXX15EN`
 - This removes the container and its volumes.
7. If they are no longer needed, then remove any of the other applications.
- These are not specific to ADOxx or ADOxx-based tools, so make sure that you don't need them any more before removing them!
 - Remove Docker. An "Uninstall" option is available in Docker Desktop under "Troubleshoot". Afterwards move Docker (under `/Applications/`) to the Bin.
 - Remove the Microsoft ODBC Driver and MS SQL tools. Run the command `arch -x86_64 brew uninstall msodbcsql17 mssql-tools`
 - Remove Wine. Run the command `arch -x86_64 brew uninstall wine-stable`
 - Remove XQuartz. Run the command `arch -x86_64 brew uninstall xquartz`
 - Remove Homebrew. To uninstall homebrew run the command `arch -x86_64 sudo /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/uninstall.sh)"` Additionally run the command `sudo rm -rd /usr/local/Homebrew` to remove some of the remnants of Homebrew.

Note: according to the Homebrew installer it:

- Installs:
 - `/usr/local/bin/brew`
 - `/usr/local/share/doc/homebrew`
 - `/usr/local/share/man/man1/brew.1`
 - `/usr/local/share/zsh/site-functions/_brew`
 - `/usr/local/etc/bash_completion.d/brew`
 - `/usr/local/Homebrew`
- Creates the following directories:
 - `/usr/local/var/homebrew`
 - `/usr/local/var/homebrew/linked`
 - `/usr/local/Cellar`
 - `/usr/local/Caskroom` Removing other directories can be dangerous.

Additional information

For praise, feedback, questions etc. please contact the ADOxx team via download@adoxx.org