

# Nox DB

Version 1.1.3  
Release Bulletin

LBL-0382-REV05



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LBL-0382-REV05  
Release Date: June, 2024  
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## Overview

This Release Bulletin announces the first version of the **Nox DB**, a **database** solution from Nox Medical. **Nox DB** collects statistics from Nox sleep study data (T3/A1) on a local/networked sleep facility storage. After collecting statistics, the tool can filter and query data for export to Excel (.xlsx and .csv) data formats for further data processing or reporting.

The **Nox DB** runs as a Microsoft Windows application but requires Noxturnal 6.3.1 and an SQL database installed on the same computer. The following are required to complete the setup of the Nox DB:

- Noxturnal 6.3.1 or later
- SQL Server 2019
- SQL Server Management (Optional with Nox DB 1.1.3)

## Download Nox DB

You can **download** the latest version of Nox DB from the [Nox Medical Website](#) or from this [Dropbox link](#).

**Note: The SQL Server and (optional) SQL Server Management Tool must be installed before Nox DB.**

### SQL Server 2019

The install file can be downloaded from the Microsoft [download center here](#).

### SQL Server Management Tool (Optional)

Install the SQL Server Management tool from the [Microsoft download center](#).

## Changelog for Nox DB 1.1.3:

- Implemented user authentication for database access; now able to create and manage user accounts.
- Enhanced the database's style and functionality for improved user experience.
- Added support for multi-night studies, enabling more versatile usage scenarios.
- Resolved issue where active datasets were not exporting correctly.
- Improved handling of parameters with same label
- Software now installs to the "Program Files" directory, with user profiles stored in the AppData/Roaming folder.
- Updated Electron and .NET Core frameworks for faster application startup times.
- Introduced a process check window to validate NoxDB functionality.
- Improved filter search functionality with input fields allowing users to input exact number ranges.
- Implemented handling for scenarios where other users simultaneously sign in and access NoxDB.
- Addressed various minor bugs reported by users to enhance overall software stability.
- Users can now select the database during the installation process.
- Added an information dialog for SQL Server, detailing its role in NoxDB and the format for the server name.
- Added an information dialog to explain the "Create New Database" option.
- Included an information message box to clarify that users can either use an existing database or create a new one in SQL Server.
- Moved the connection string from AppData to ProgramData, granting all users access to the same connection string.

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- Updated comparisons: "Greater than" changed to "Greater than or equal," and "Less than" to "Less than or equal."
  - Implemented a retry process for failed operations; controlled thread count and timeout settings in appsettings.
  - Removed the option to create or connect with SQL Server user credentials in the installer and database settings.
  - NoxDB now supports multiple instances.
  - The filter button defaults to off and toggles when a filter is set.
  - Corrected table width sizing issue.
  - Added a version check to ensure Noxturnal meets the requirements.
  - The default database name in the installer is now "noxdb."
  - Introduced automatic scanning via Windows Scheduler
  - Added notifications for automatic scanning.
  - Improved documentation within the Nox DB app.
  - Preset dropdown index issue resolved after deleting the third preset in the list.

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## Install Instructions

### Minimum Required Noxturnal 6.3.1 and Later for Nox DB Install

Noxturnal or Noxturnal US 6.3.1.34324 is required for Nox DB to function. The version on your Noxturnal installation can be found in the Help Menu – About.

The Noxturnal software is available at [www.noxmedical.com/download](http://www.noxmedical.com/download)

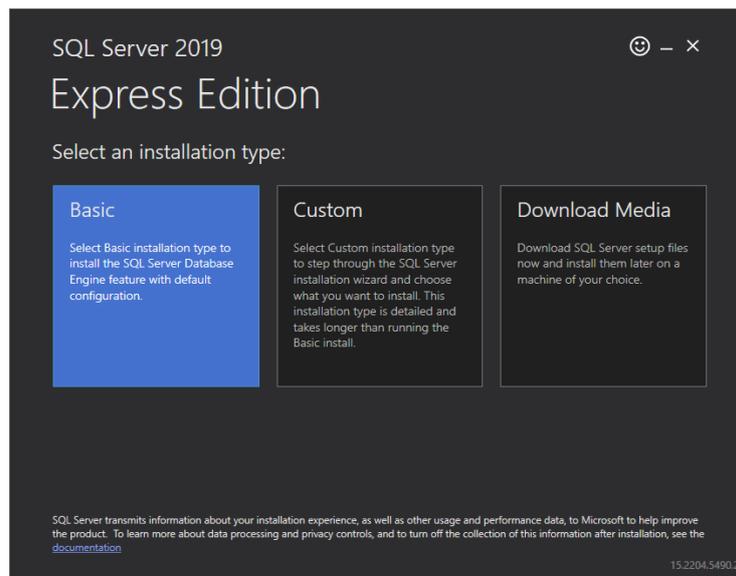
**Windows Administrative privileges are required to install Nox DB.**

### Install SQL Server 2019

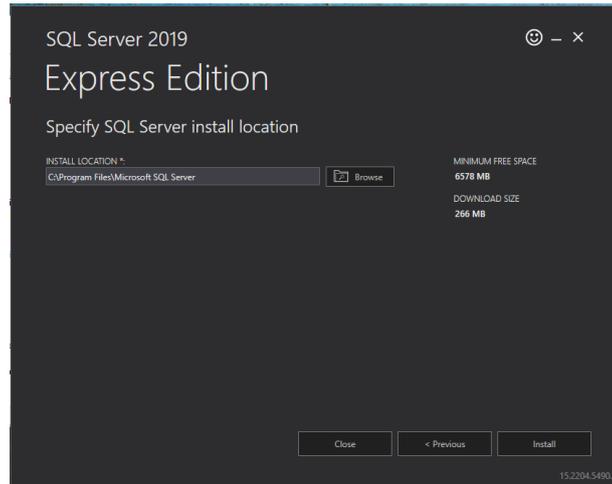
The user must install SQL Server 2019 Express for the database functionality of Nox DB. The recommended SQL server is a free version. Download the install file from the Microsoft [download center here](#).

To install SQL Server 2019:

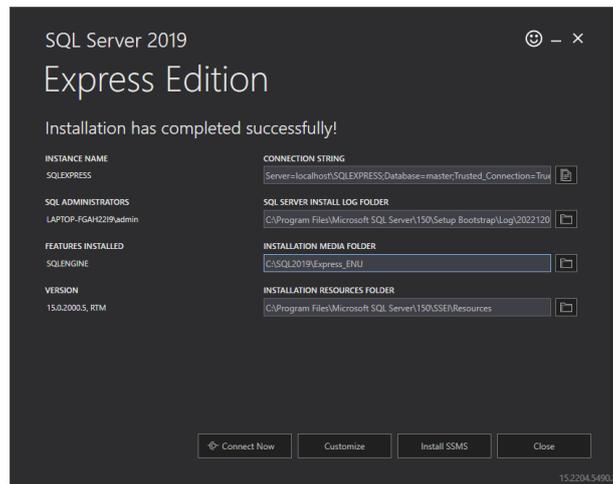
1. Run the install file (SQL2019-SSEI-Expr.exe)
2. Select the “Basic” installation type:



3. Accept the license agreement.
4. Select the default installation location:



5. The SQL Server 2019 Express edition has been successfully installed on the computer. Do not change the settings listed after the installation has been completed.

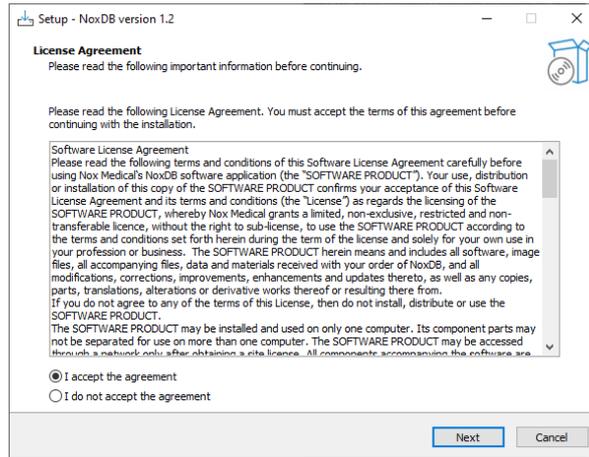


6. Close SQL Server Installation

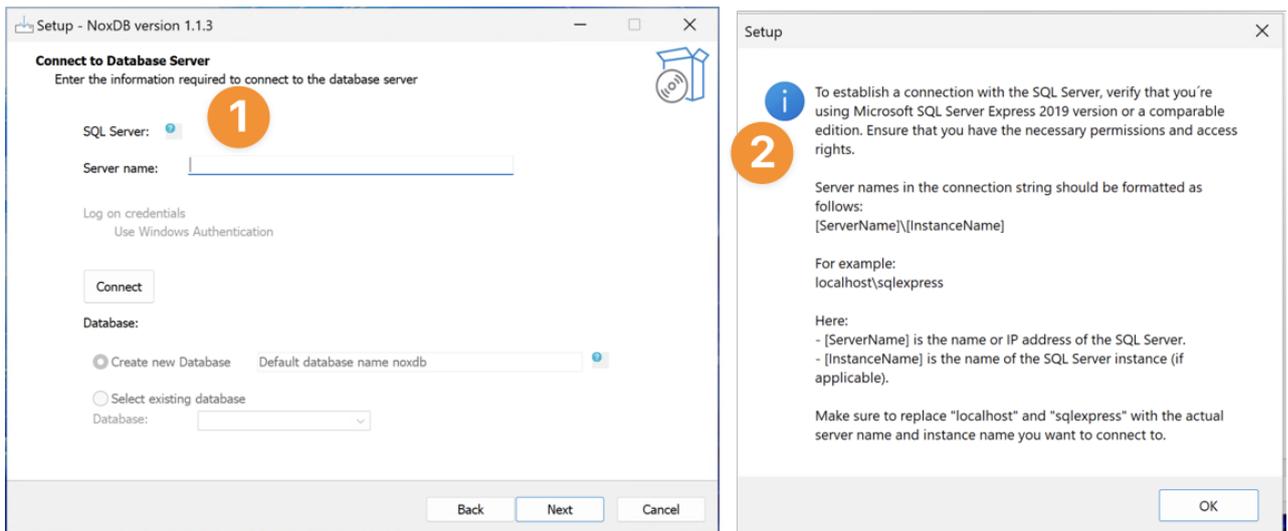
## Install Nox DB

To install Nox DB:

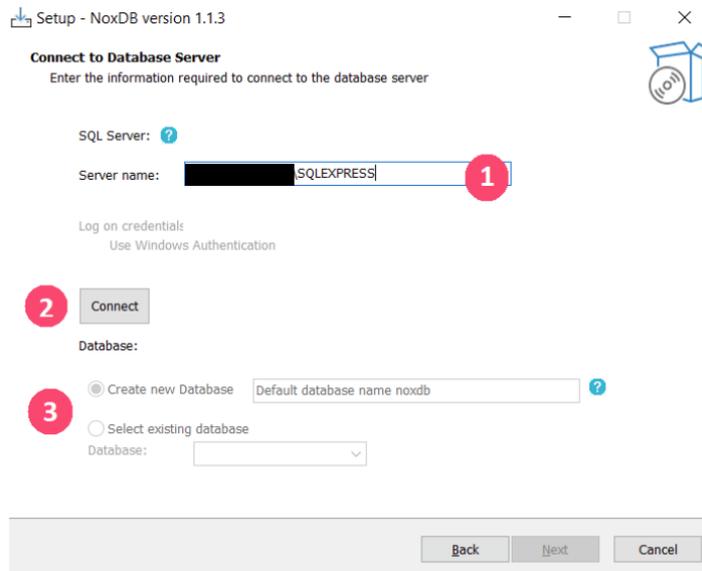
1. Run the executable file (NoxDB\_1.0.X.exe)
2. Accept the license agreement.



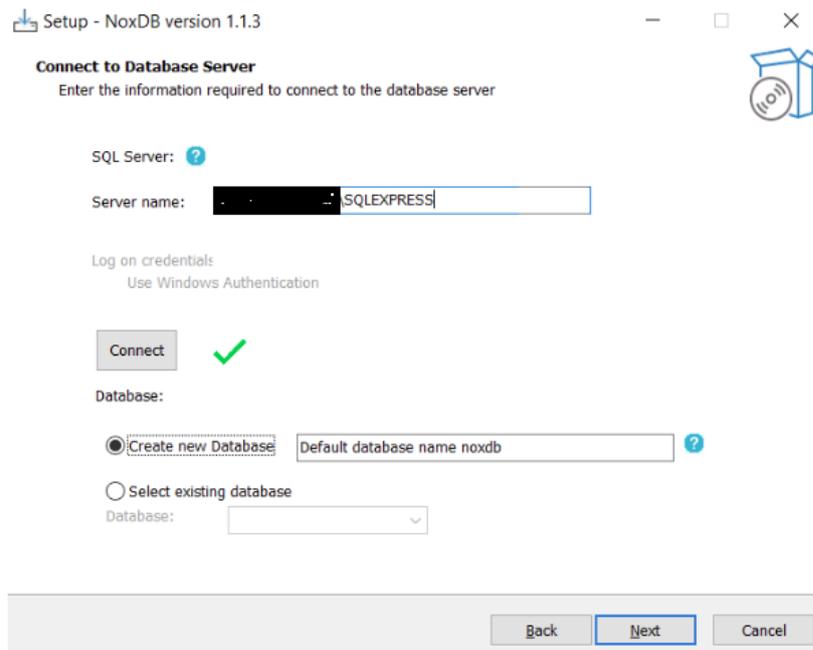
3. Insert the server's name into the SQL Version field. The string snipped from the SQL Server 2019 Express install is an example below. Windows Authentication will suffice to connect to the database. Users can click on the blue help icon (1) to find details (2) for the default server and other details to help set up the local server.



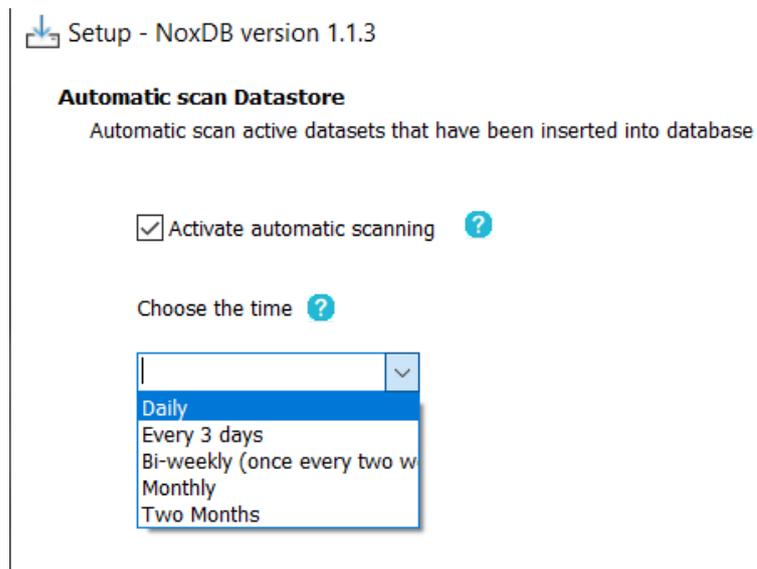
4. Paste the server's name into the server' name section (1) and click Connect (2). A green tick will appear when the connection to the database is made.



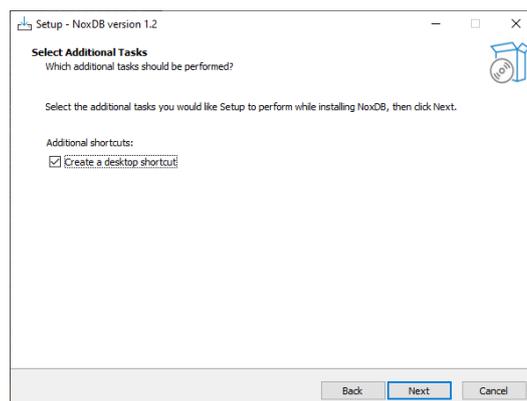
5. Select an existing database or create a new one. The default database name is noxdb.



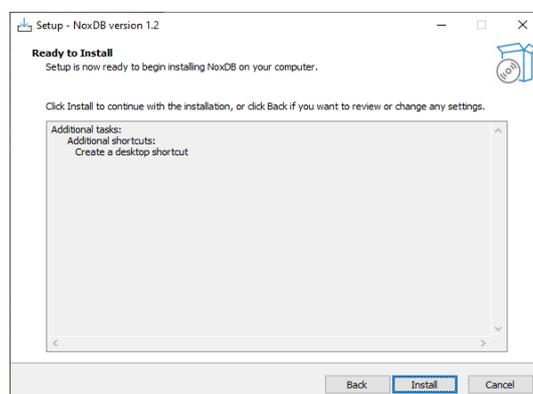
6. Optional feature to execute scans automatically (See more detailed description: [Automatic Scans](#))



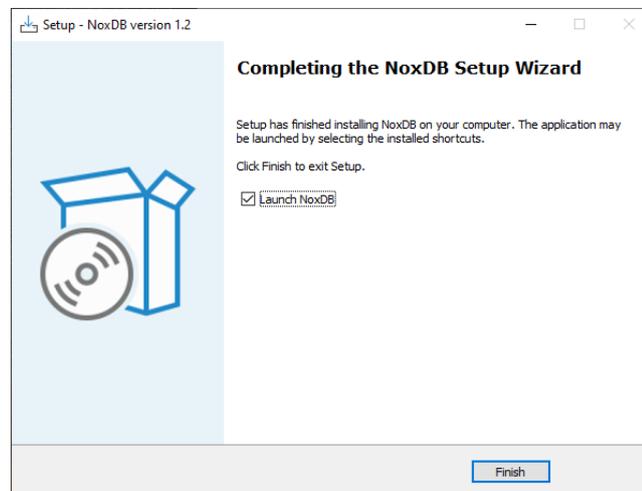
7. Proceed to the next page using the default shortcut settings.



8. The settings have now been configured for connecting the Nox DB interface to the SQL Express database. Click Install to continue with the installation.



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9. The software is now ready to be launched. **Note that Nox DB can take a while to load initially. It is recommended to wait and not try to load the program again, as two instances of the Nox DB program will eventually load.**



## Automatic Scans

**Important Security Notice:** Enabling this feature allows the task to run automatically even when the user is signed off. This could pose a security risk, as it may allow unauthorized access to local computer resources. Please notify your system administrator before enabling this feature to ensure proper security measures are in place.

Follow these steps to modify a task in Task Scheduler to run even when the user is signed off.

Note: The default installation path is: **C:\Program Files (x86)\Nox Medical\NoxDB\**.

### 1. Open Task Scheduler:

- Click the Start menu and search for **Task Scheduler**.
- Right-click on **Task Scheduler** and select Run as administrator.

### 2. Create the Task:

- In the Task Scheduler window, click on "Create Task."
- In the dialog box, set the Name to **NoxDB\_Scan**.
- In the Security options section, select the radio button "Run whether user is logged on or not."
- Check the box for "Do not store password. The task will only have access to local computer resources."
- It's recommended to use a different location than the username and specify a service account with the necessary permissions. This account should also be authenticated in SQL Server and have access to the NoxDB database.

### 3. Configure the Task Triggers:

- Go to the "Triggers" tab and click "New."

- b. Choose the desired time when the task will repeat itself and click "OK."

#### 4. Configure the Task Actions:

- a. Go to the "Actions" tab and click "New."
- b. In the "Program/script" field, set: **(installPath)\NoxDB.exe**
- c. In the "Add arguments (optional)" field, insert: **/args --arg1=sync.**
- d. Click "OK."

The task is now successfully added to the Task Scheduler.

#### Edit the Configuration File:

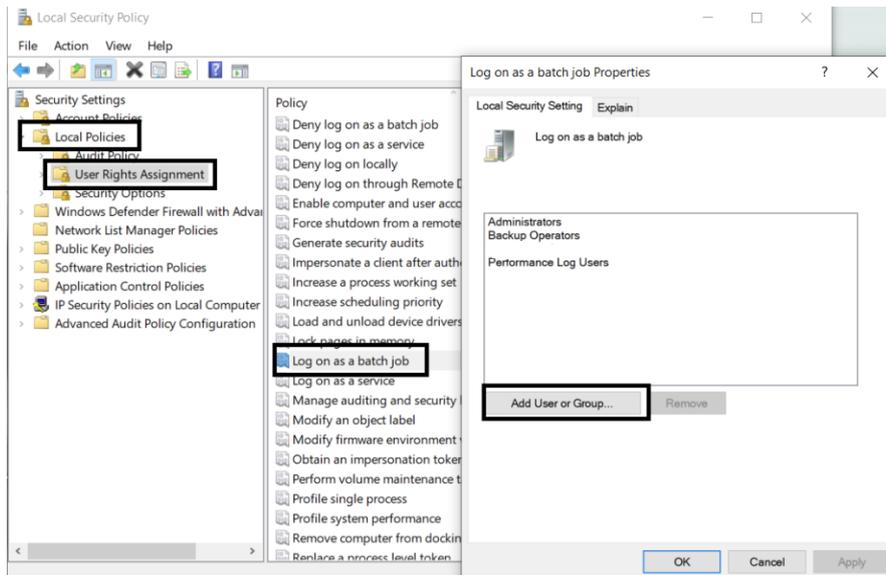
- Open **(installPath)\Shared\appsettings.json** with Notepad.
- Change "IsAutomaticScanning" property from false to true

#### Configure Local Security Policy:

- a. Open the Start menu and search for **Administrative Tools**.
- b. Find and open **Local Security Policy** as an administrator.

#### 5. Modify User Rights Assignment:

- a. In the Local Security Policy window, navigate to **Local Policies -> User Rights Assignment**.
- b. Locate and double-click **Log on as a batch job**.
- c. In the **Log on as a batch job Properties** window, click Add User or Group.
- d. Enter the name of the location that runs the task from the task scheduler and has access to the database and click **Check Names** to validate.
- e. Click **OK** to add the user and then click Apply and OK to save the changes.



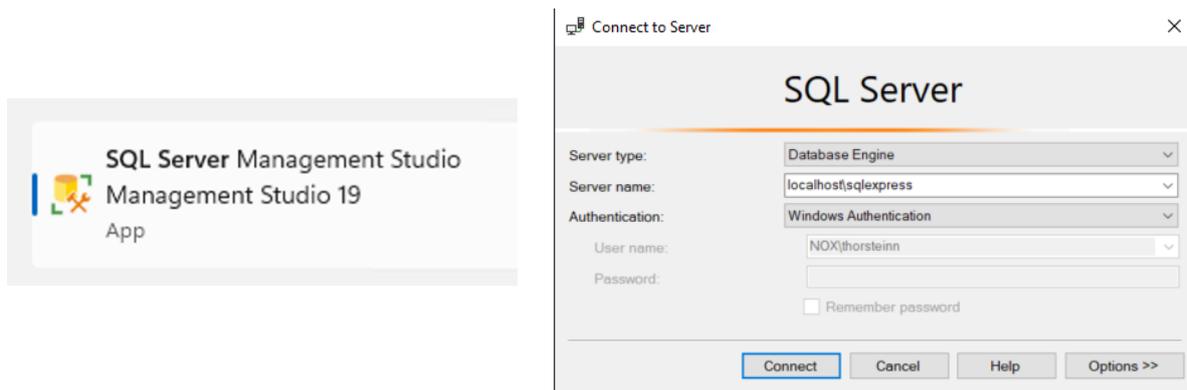
Your task NoxDB\_Scan should now be configured to run automatically even when the user is signed off.

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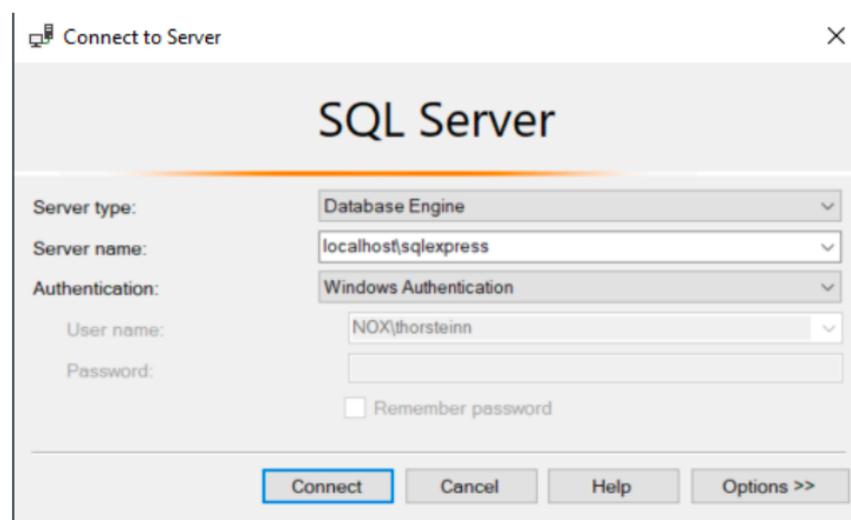
## Install SQL Server Setup (optional, adding new user is also available in NoxDB)

Now, it's time to set up user access for the SQL server. Depending on how user access is set up on the PC, this is the trickiest part of the installation. If it's a local PC with local user access, it's relatively easy to set up, as per below.

- Install SQL Server Management tool from [Microsoft](#). Note, scroll down to the **Download SSMS** section of the webpage. **Installing SQL Server requires Admin privileges.**

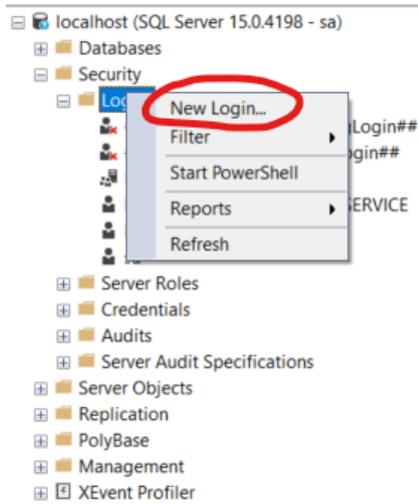


- Copy the server location specifier below in the Server name menu (This server name will differ between installations). Below is an example and your Server name will be different. Click **Connect** to connect to the server.

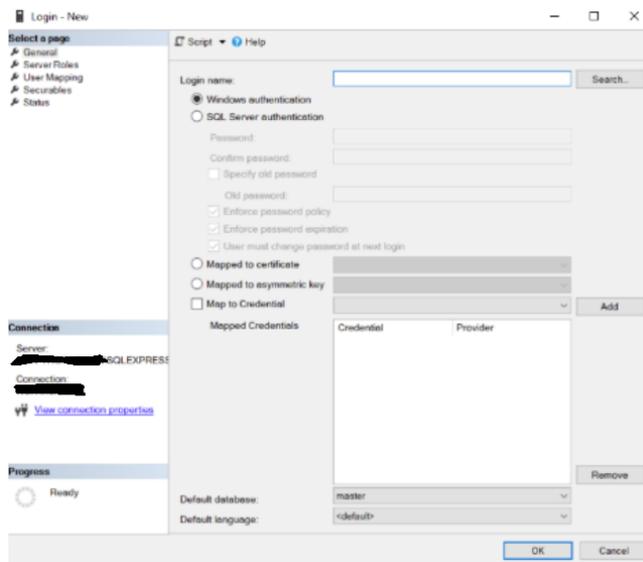


## Create a new Login for users that will operate the Nox DB

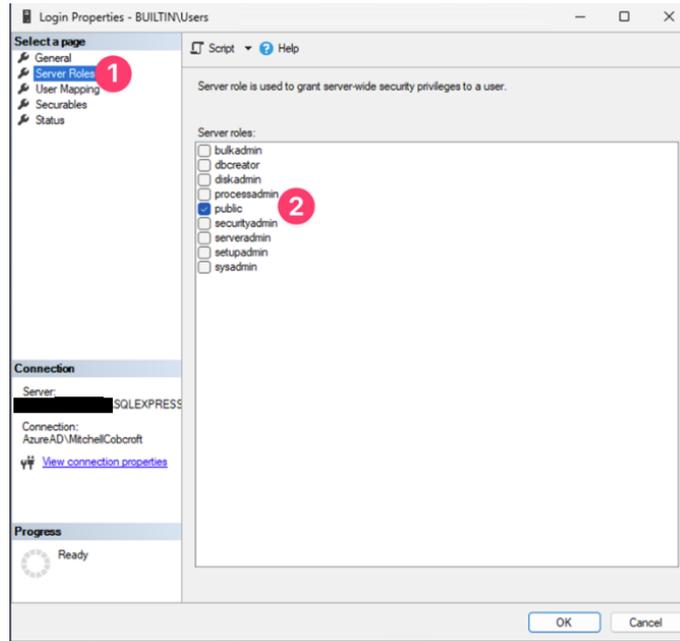
- Next, we need to add security access for the user to access the server tools and database. We first need to give the user access to the server database to do this. Navigate to "Security", go to Login, right click, and select "New Login" from the context menu.



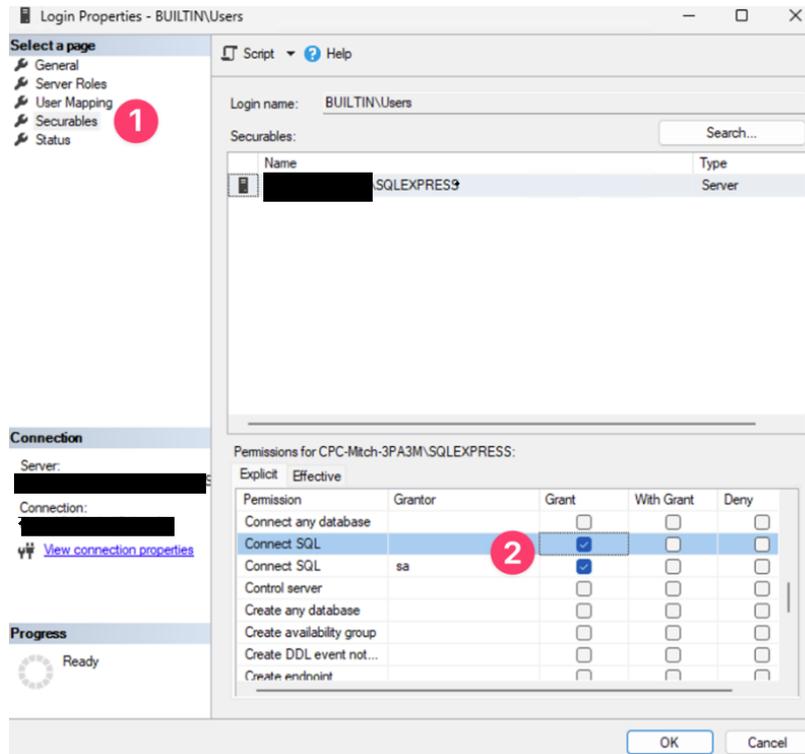
- Click Search, type in the user account name (Windows login username or user group) for the Nox DB user and click OK.



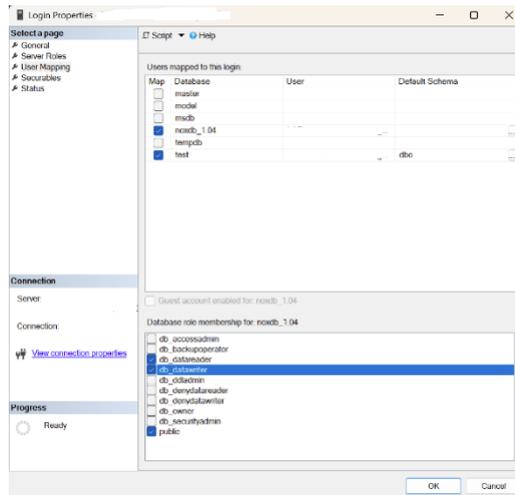
- Now, we need to access the server for the user. In the left menu for the user, go to server roles (1) and select public (2).



- Next, go to the Securables menu (1) and scroll through the permissions to find connect SQL and grant access.



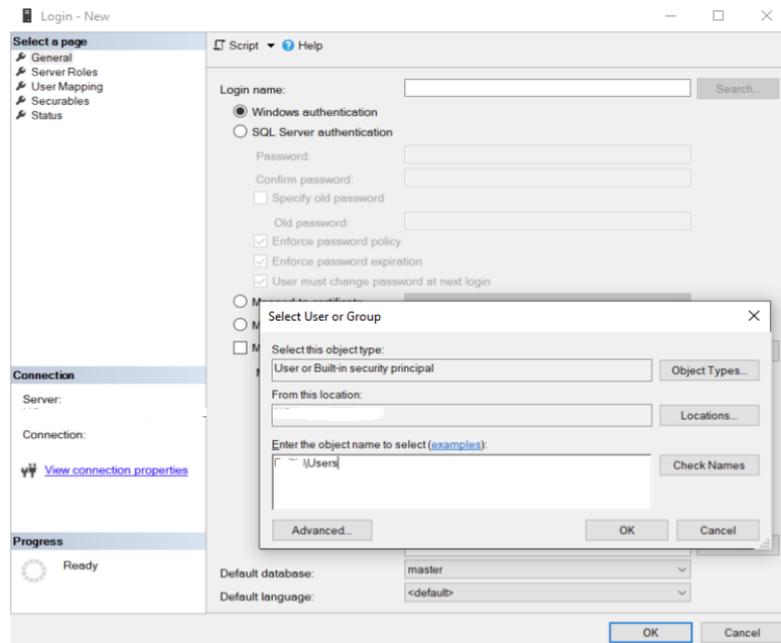
Next, go to the “User Mapping” menu and mark the checkbox next to the Nox DB database. In the role membership settings, check db\_datareader and db\_datawriter as shown below.



## Granting User Group Permissions in SQL Server

Follow these steps to grant a user group permission to access an SQL Server database and store procedures using SQL Server Management Studio (SSMS).

1. **Open SQL Server Management Studio (SSMS).**
2. **Navigate to Security:**
  - a. In the Object Explorer, expand the **Security** folder.
  - b. Right-click on **Logins** and select **New Login**.
3. **Create a New Login:**
  - a. In the Login - New window, click the **Search** button next to the Login name field.
  - b. In the Select User or Group dialog, click Object Types and ensure **Groups** are checked.
  - c. Click **Locations** to specify the location if necessary.
  - d. Enter the name of the user group and click **Check Names** to validate.
  - e. Click **OK** to close the Select User or Group dialog.



#### 4. Configure Authentication:

- a. Ensure the **Windows authentication** option is selected.

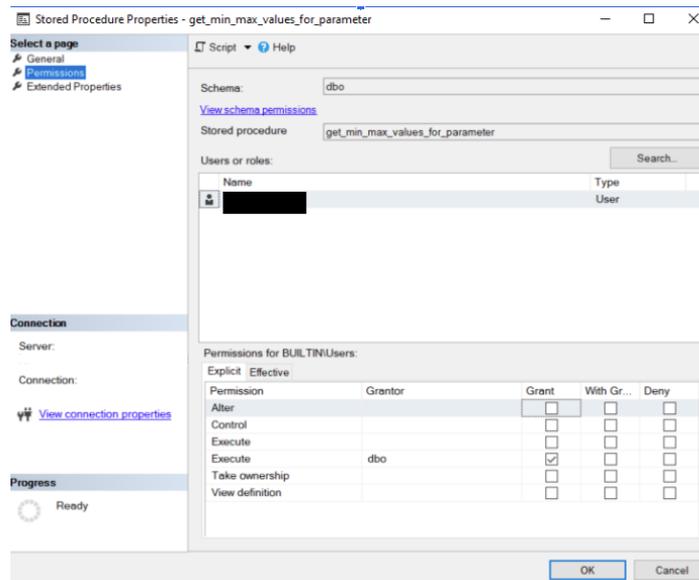
#### 5. Map the User to a Database:

- a. In the Login - New window, select **User Mapping** from the left menu.
- b. In the Users mapped to this login list, check the box for the database you want to assign permissions to.
- c. In the Database role membership for section, check the roles **db\_datareader** and **db\_datawriter**.
- d. Click **OK** to create the login.

#### 6. Grant Stored Procedure Permissions:

- a. In the Object Explorer, expand the database (e.g., **noxdb**).
- b. Expand the **Programmability** folder, then the Stored Procedures folder.

Right-click on each stored procedure you want to grant permissions to and select **Properties**.



## 7. Assign Execute Permission:

- a. In the Stored Procedure Properties window, go to the **Permissions** page.
- b. Click **Search** to find the user group.
- c. Repeat the process of selecting **Object Types**, ensuring Groups is checked, and locating the user group.
- d. Click Check Names to validate and **OK** to select the user group.
- e. In the Explicit Permissions for <user group> list, check the **Grant** box for Execute.
- f. Click **OK** to save the permissions.

The user group should now have the correct permissions to access and execute the specified stored procedures in the database.

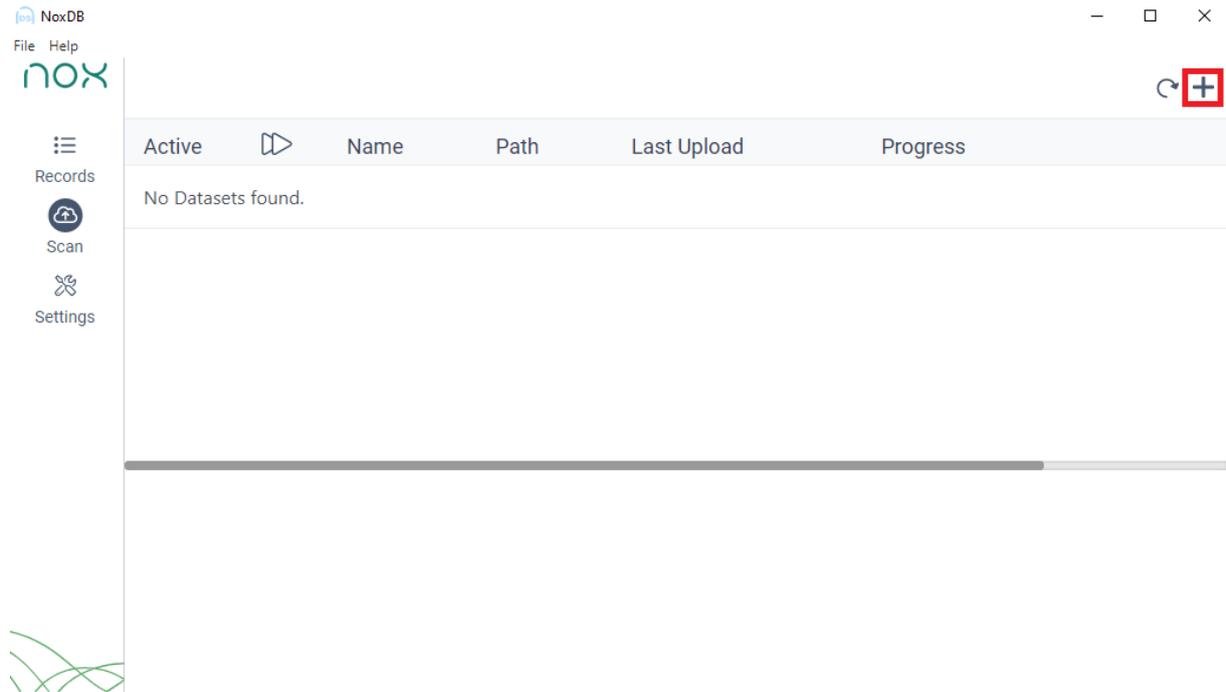
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## Getting Started with Nox DB

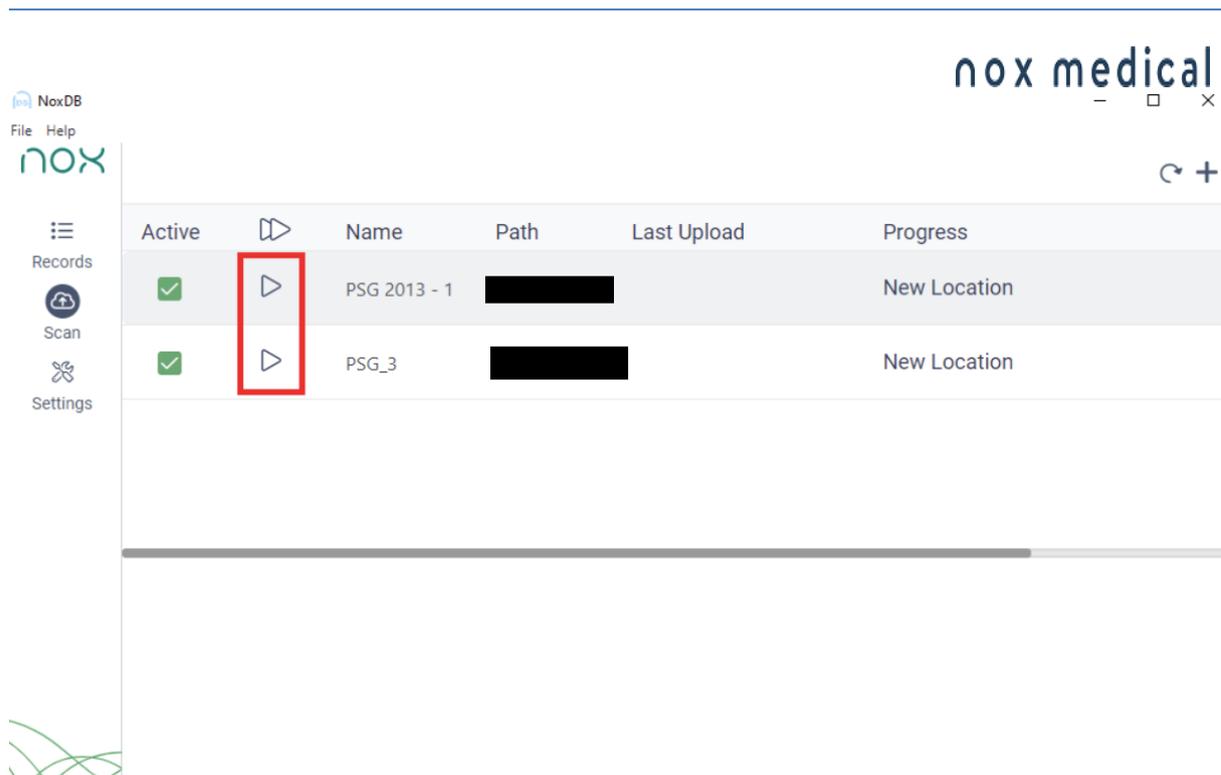
Below are the main steps for successfully operating the Nox DB.

### Scan the data locations

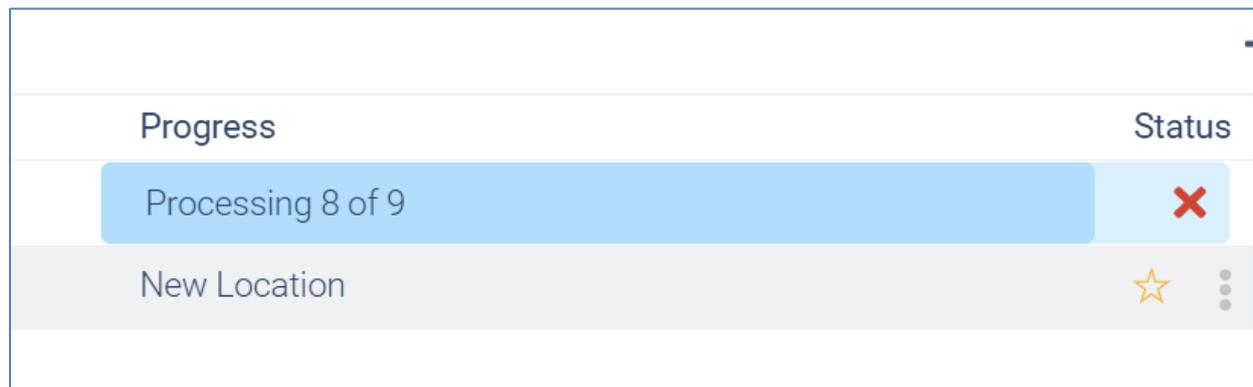
The first step is to scan the data location with PSG studies that the user wants to extract statistical information. Multiple locations can be selected, and a new location can be added via the “plus” icon in the top right corner.



Scanning is initiated by pressing the Play icon, and the status is displayed in the “Progress” column.



After scanning has been initiated, a status bar will be displayed about the progress of scanning.



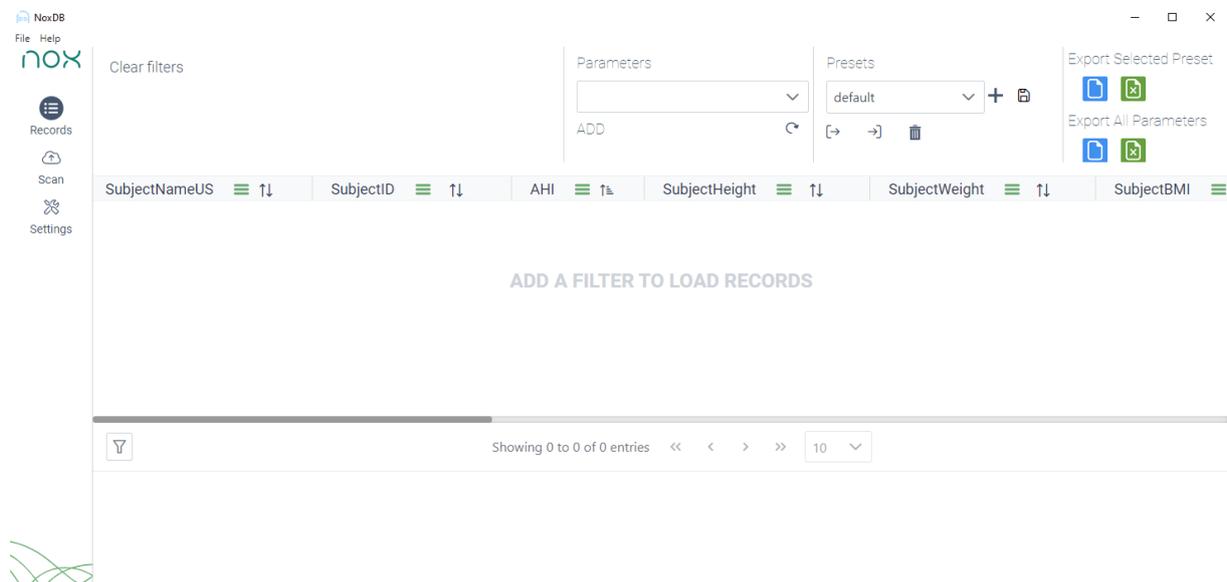
Note that each study scan will take about 4 seconds, so when scanning big data libraries, it can take quite some time to process as multiple parameters are being gathered. The Nox DB will scan all parameters and custom fields that are a part of the studies being scanned.

In some cases, the Nox DB is unable to process specific data folders, and that is displayed with a message if that is the case that a study is incomplete. Reasons can be empty study folders e.g.

96 of 97 Processed - 6 incomplete studies

## Working with statistical data and exporting

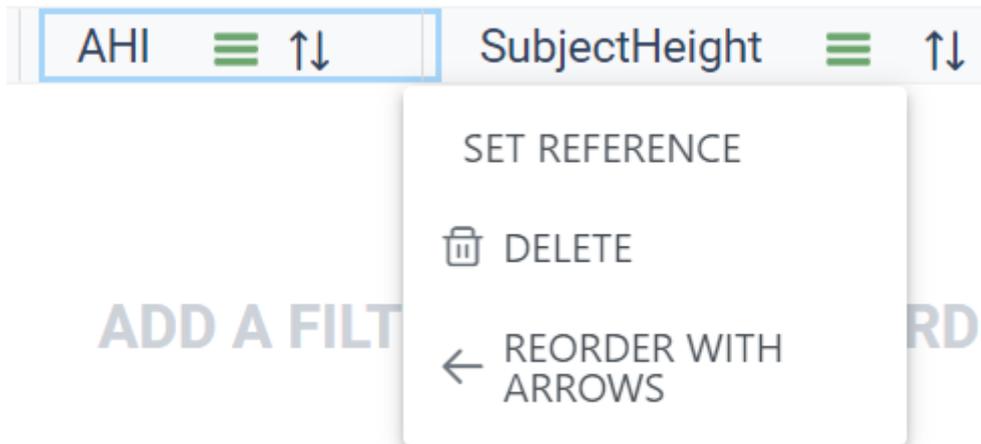
After scanning is completed, the “Records” tab will be populated with the information from the scanned locations. The “Records” tab is where the data is displayed, processed, and exported.



The “Records” tab pre-defines the most common parameters in the default Nox Medical reports. New Parameters can be added by selecting one or more from the list at the top right of the “Records” sheet.



The order of the parameters can be changed by dragging the parameter labels. They can also be reordered with arrows by right-clicking on the label and selecting “REORDER WITH ARROWS.” They can be removed by right-clicking on the label and selecting DELETE. You can also set what parameter is a REFERENCE parameter. Setting the reference parameter will freeze that single parameter while scrolling through the records library.

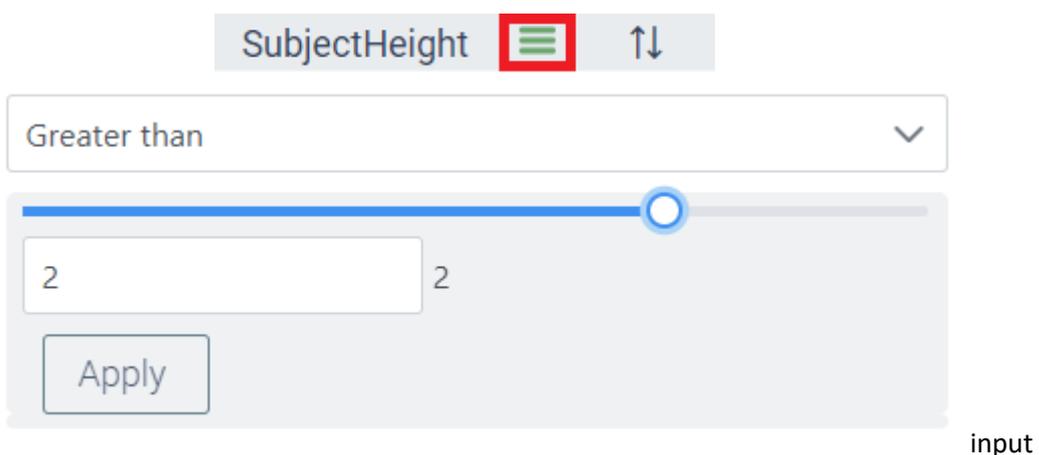


### Displaying Data in Nox DB

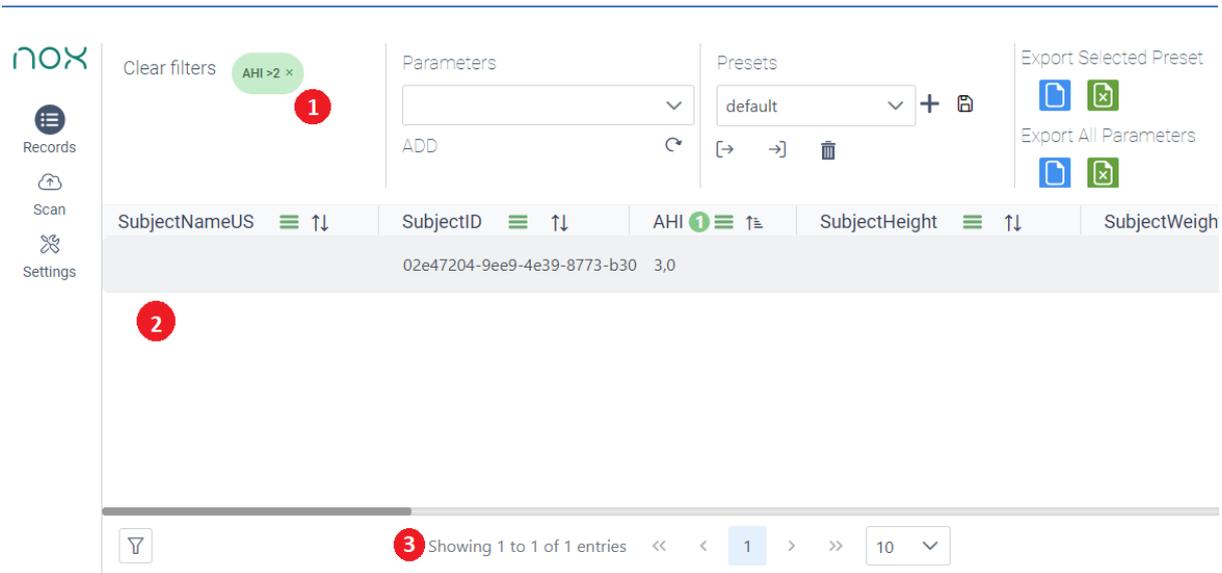
A filter needs to be applied to display data. To activate the filter, click the hamburger button and define it.

For example, if you want to show all the studies in the database with an ODI greater than 10:

1. Click the green hamburger icon highlighted above (1 in the image above).
2. Set the parameter to Greater than
3. Adjust the numeric value to 10
4. Click Apply

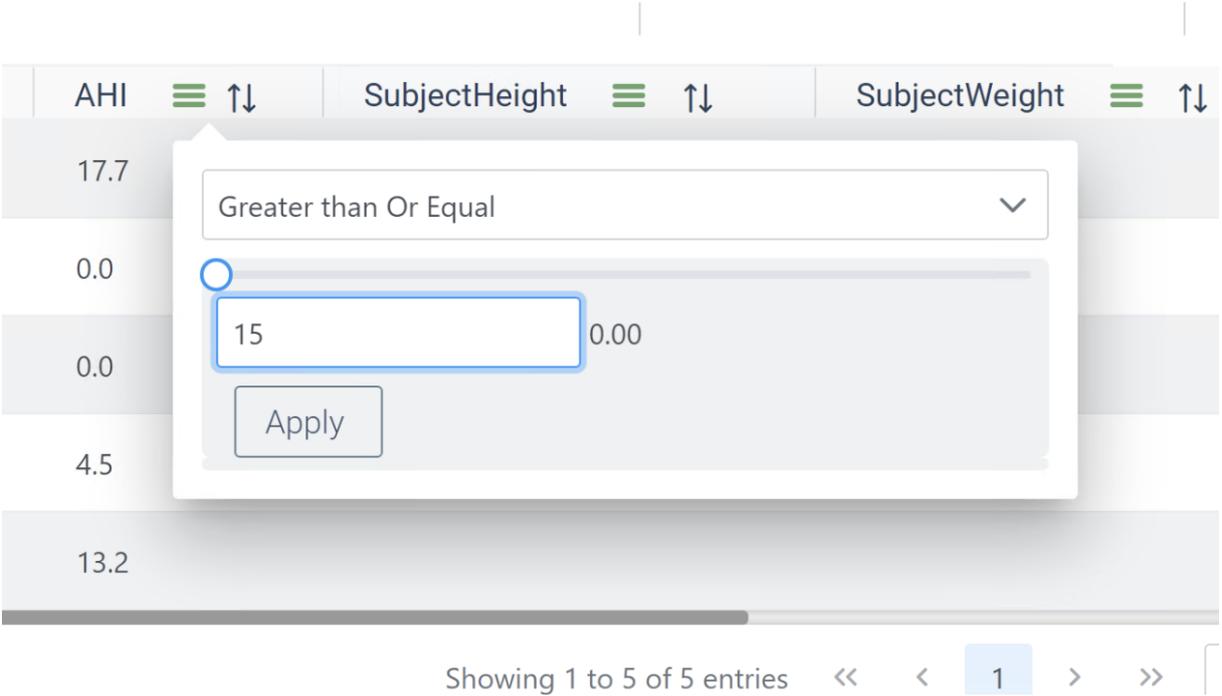


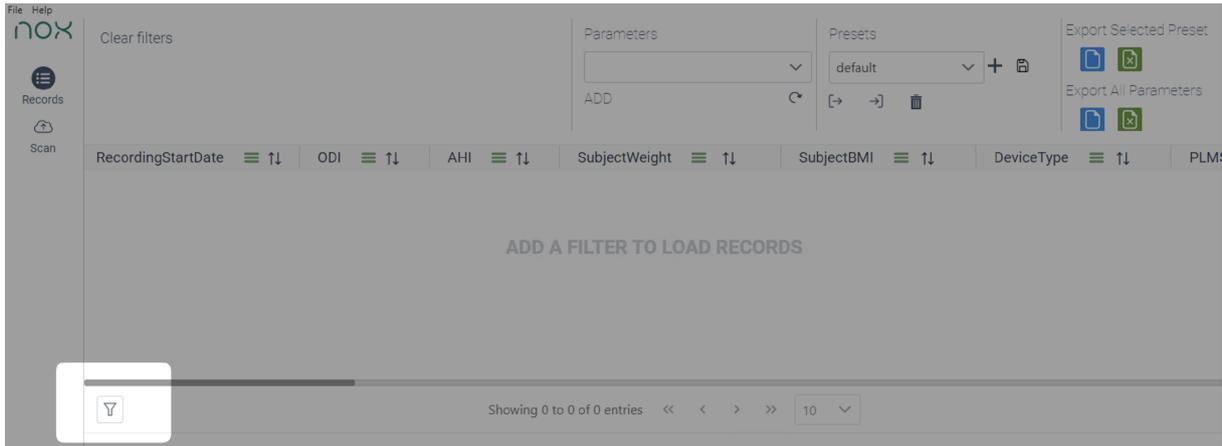
The filter is now shown in Nox DB (1) in the example below. The studies that meet the filter requirements are now in the database (2). The number of studies that meet the filter requirement is shown at the bottom of the database outline (3).



Note it is possible to show all data from a dataset without a filter. Click the show all button as shown below. This can be toggled on and off to display data.

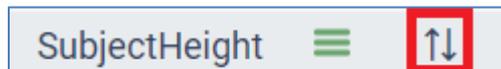
With Nox DB 1.1.3, users can now input values with the keyboard:



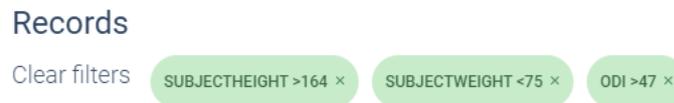


The filters have different functionalities depending on if the data is numeric values, dates or text strings.

The data can also be sorted using the shortcut below.



The active filters will be displayed at the top of the page.



The drop-down menu at the top right of the page allows you to save a combination of filter setups for future use.



The “plus” icon allows you to create a new filter preset, while the “save” icon merges the changes done on the active filtering to the active filter presets.

The “arrow icons” allow the user to import and export filter presets from other users, and the “trash can” lets the user delete the active filter preset.

After completing the filter adjustments, the final step would be to export the data to either .csv format or .xlsx from the icons on the top right of the “Records” page for further statistical processing or reporting. There are two options, export selected Preset or all parameters.

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## Export Selected Preset



## Export All Parameters



### Managing Database settings

You can establish connections with other databases in the database settings by configuring the form in the settings tab. Additionally, you have the option to apply new configurations for database connections.

1. **Connection Status:** Displays the status of the NoxDB application's connection to the database.
2. **Server Name Input:** Users can enter the server name in the input field. After entering the server name, clicking the "Connect" button will verify if the database connection is successful.
3. **Existing Databases Dropdown:** Users can select a database from the dropdown list, connect to it, and verify if they have permission to access the database.
4. **Connect Button:** Attempts to connect to the database using the current configuration.
5. **Apply Configuration:** Users can apply the database configuration and reload the workspace.
6. **Create New User:** Users can create a new user with a Windows domain in the SQL Database and be granted read and write permissions to the selected database.
7. **Create New NoxDB Database:** Users can create a new NoxDB database and start with a clean database. Creating a new user or database is only feasible if the current user holds sysadmin privileges.

