Application Note

Author: HBr, JTi
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EasyOne Connect Database Options

This application note describes the various database options available with EasyOne Connect, as well as how to set up and use a Microsoft SQL Server database with ndd software. The version used in the testing was Microsoft SQL Server 2014, but any version 2012 or newer is expected to function as described in this document. The amount of required storage space is not high. If you use 30 devices daily for 5 years, they will create around 16 GB of data. This information applies to EasyOne Pro/LAB V5 as well.

1   Prerequisites

The following are prerequisites for making use of the EasyOne Connect database options described in this application note:

- EasyOne Connect software 3.X OR
- EasyOne Pro/LAB V5*

EasyOne Pro/LAB V4 runs on Windows XP Embedded and, therefore, does not support a connection to Azure SQL Server databases. We do not recommend attempting to use the EasyOne Pro/LAB V4 with an SQL Server database, since Windows XP is no longer supported by Microsoft.

2   Database Options

EasyOne Connect offers three database options:

1. Local SQLite file-based database.
2. On-premise Microsoft SQL Server database.
3. Azure cloud-hosted Microsoft SQL Server database.

The default data storage solution that is configured on a first-time use of the software is the local SQLite file-based database. This is a good solution for smaller practices where there is no need to access the data stored by EasyOne Connect on multiple PCs. A Microsoft SQL Server solution is needed in order for multiple users to access the same data, or when the volume of data stored in an SQLite database becomes large enough to have an impact on the application's performance (example: >5,000 patients in the database) . The Microsoft SQL Server can be either on-premise or an Azure-hosted Microsoft SQL Server database.
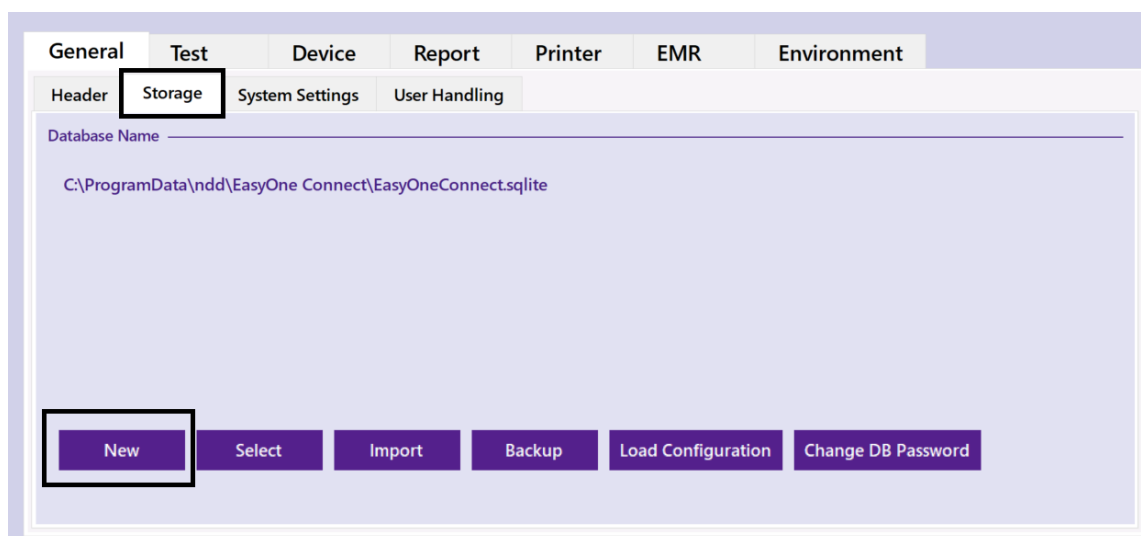
3   File-Based Database

To create, select, and update an SQLite file-based database with EasyOne Connect, please follow the instructions below.
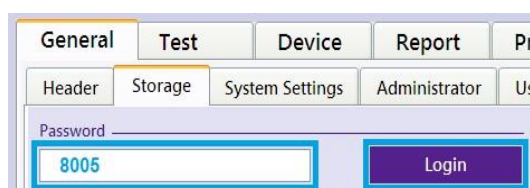
3.1   Create a New SQLite File-Based Database

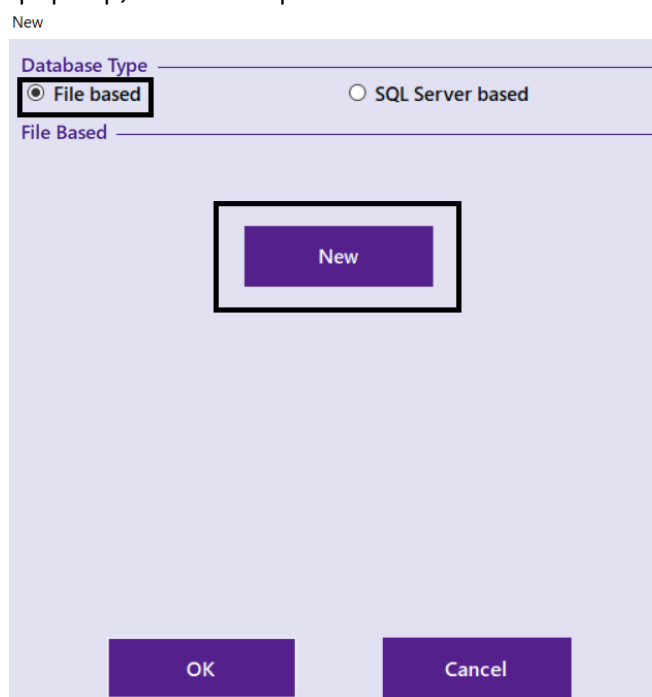1. Launch EasyOne Connect and go to Utilities ›› Configuration:
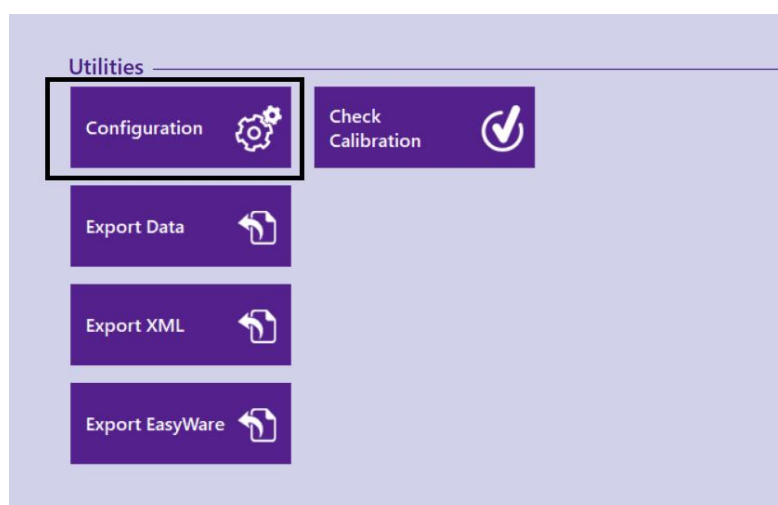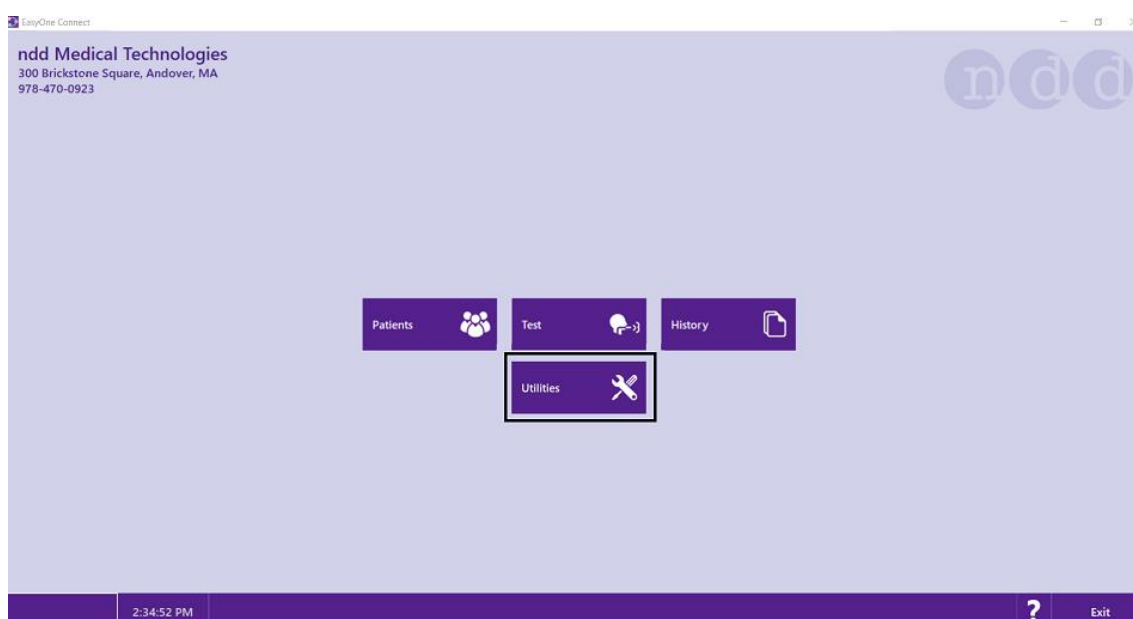
2. In the sub-tab under **General**, select the tab called **Storage** and click **New**:

   a. If prompted to enter a password, enter either the default password **8005** or the admin password for your installation of the software. If you do not have an admin password, please consult your local IT for assistance.
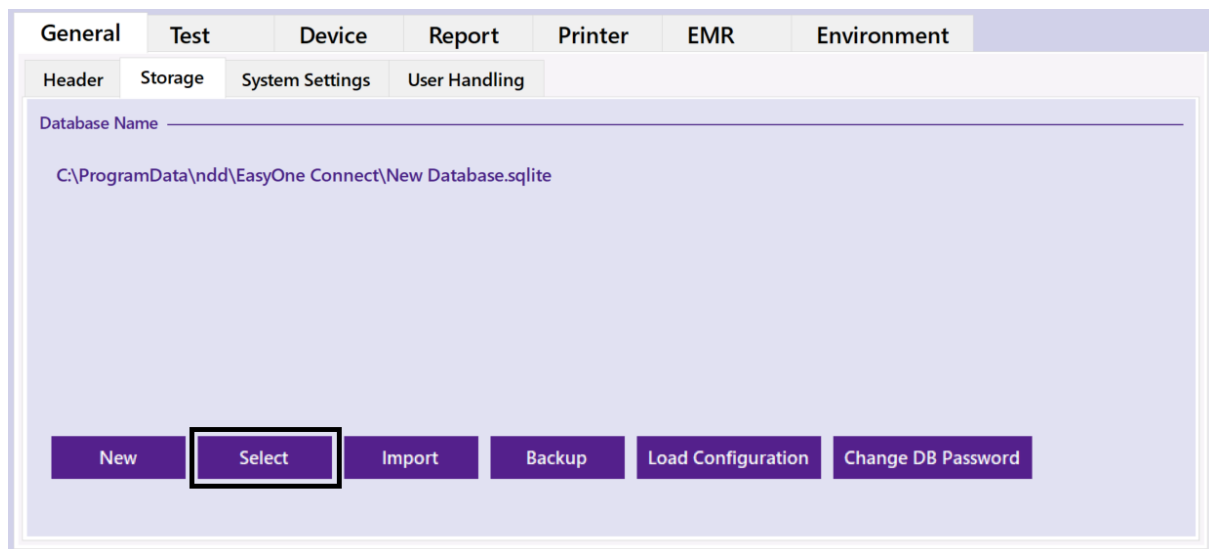

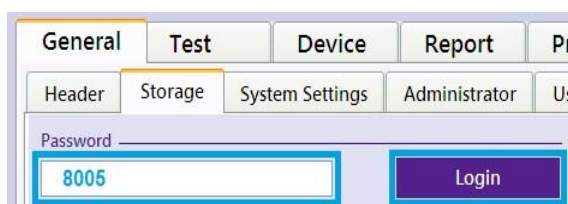3. In the window that pops up, select the option **File based** and click **New**:

4. In the window that pops up, select the folder where you want the database to be stored.
    You can also change the name of the database. Once that is set, click **Save**.

5. Back in EasyOne Connect, click **Save** again to apply the changes. The software will restart
    automatically and load the new database. You will then be ready to use your new database.

## 3.2 Select an SQLite File-Based Database

1. Go to Utilities ›› Configuration ›› Storage, and click **Select**:

a. If prompted to enter a password, enter either the default password **8005** or the admin password for your installation of the software. If you do not have an admin password, please consult your local IT for assistance.
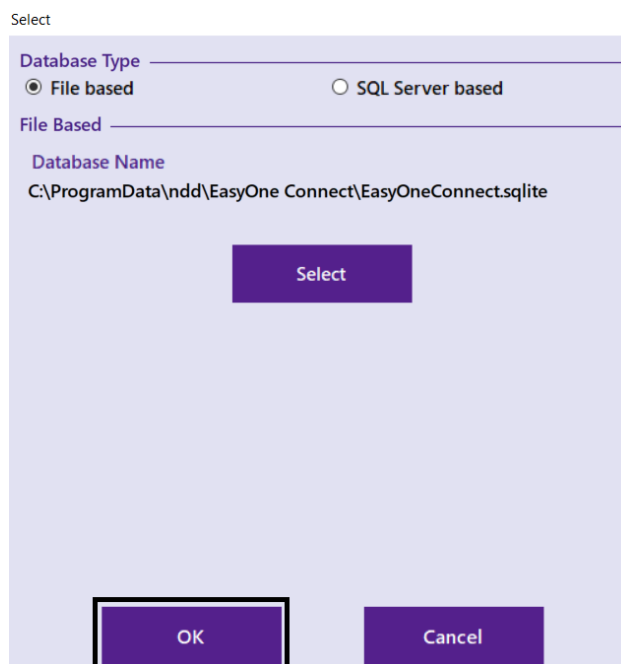

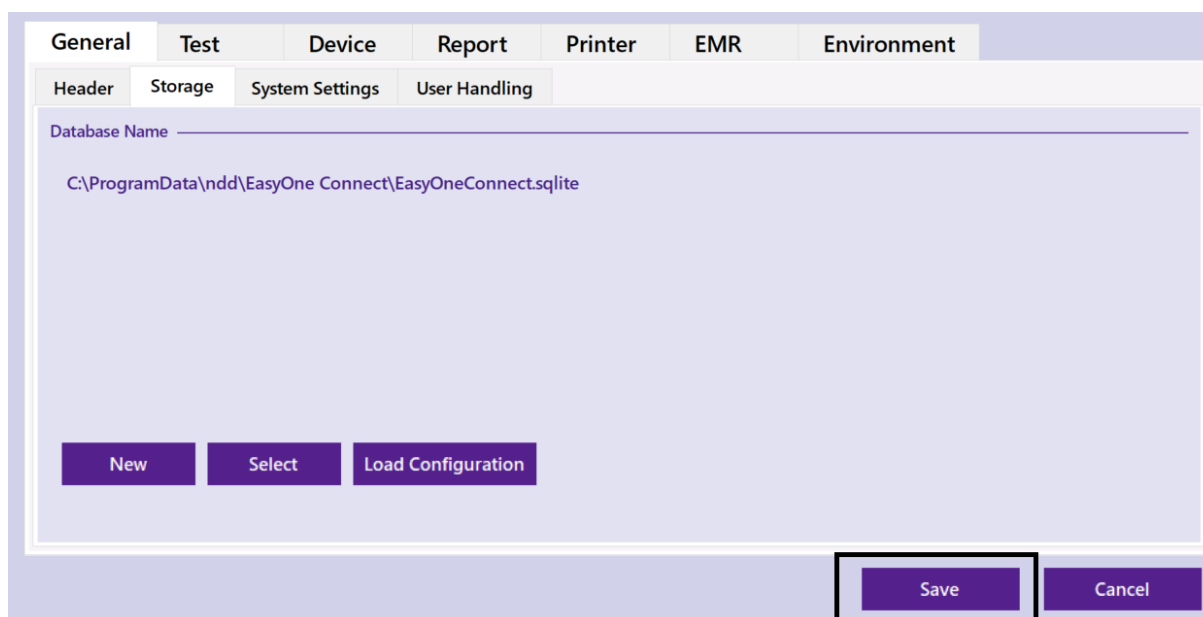2. In the window that pops up, select the option **File based** and click **Select**:
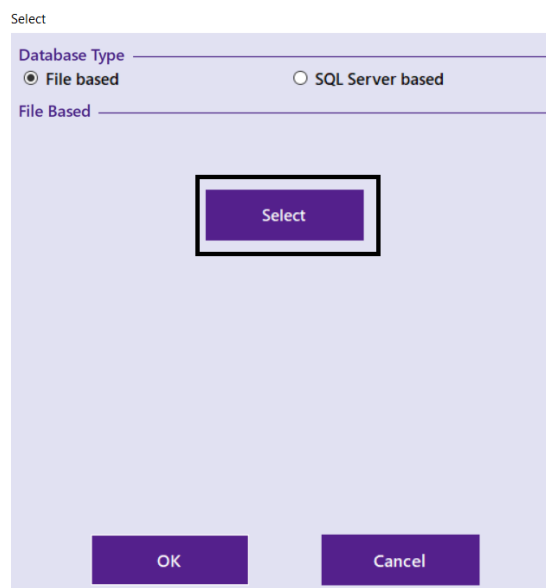
3. Navigate to and select the ndd database you want to use, then click **Open**:
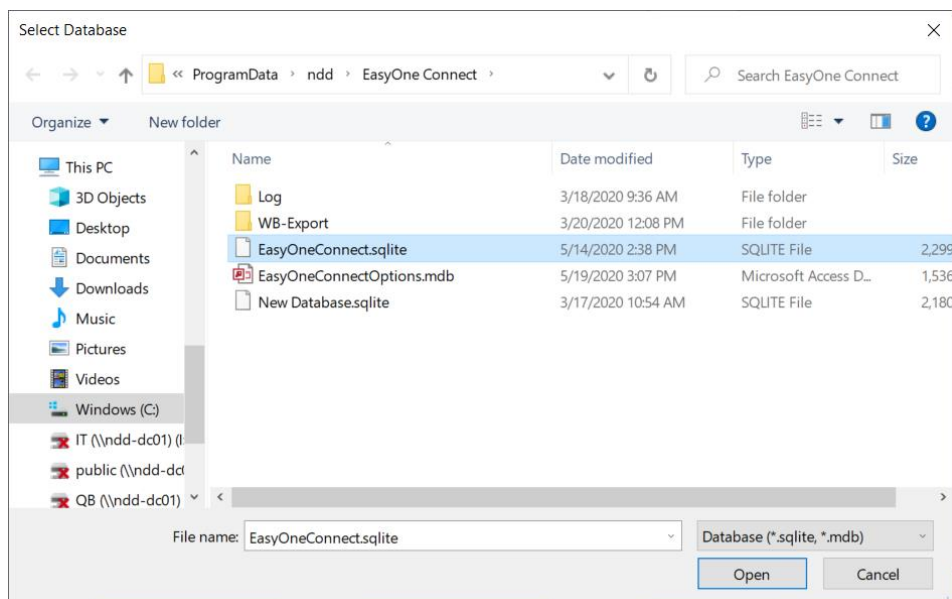
4. Double-check the path to make sure it is the database you wanted, then click **OK**:

5. Click **Save**:

6. EasyOne Connect will automatically restart. Depending on the version of the database you selected, EasyOne Connect may prompt you to update the database to the latest version. **Please note that this update cannot be undone and you will no longer be able to open the database in earlier versions of EasyOne Connect if you proceed with the update.** If you are not sure about updating, we recommend you create a copy of the database before updating.

4 On-Premise Microsoft SQL Server Database

For most customers looking for a data storage option which provides centralized data access and enhanced cybersecurity, an on-premise Microsoft SQL Server database will be the best choice.

4.1 Authentication Options

EasyOne Connect can connect to a Microsoft SQL Server database using two different authentication mechanisms:

1. **Microsoft Windows Authentication:** with your Windows account login. Make sure that the user has been created and that Windows authentication is used.

2. **Microsoft SQL Server Authentication:** with a username and password combination as defined in the SQL Server.

Note: *You can configure, create users, and adjust database permissions with Microsoft SQL Server Management Studio. The free version offered by Microsoft is enough for most customers.*

4.2   Connecting to On-Premise Microsoft SQL Server

1. Launch EasyOne Connect
2. Go to Utilities ›› Configuration ›› Storage, and click either **New** or **Select**:
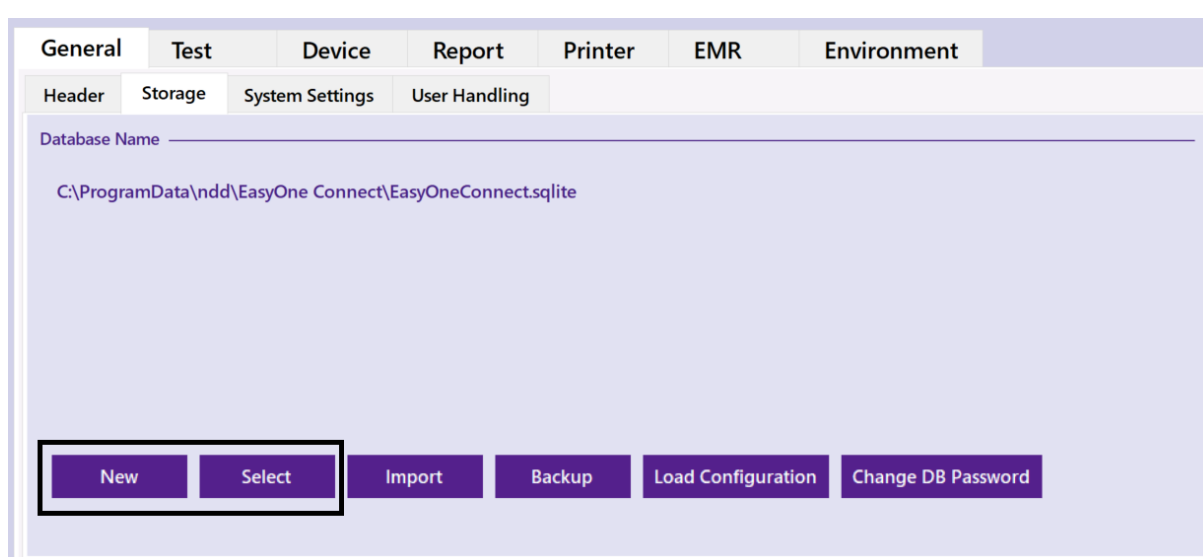
a. If prompted to enter a password, enter either the default password **8005** or the admin password for your installation of the software. If you do not have an admin password, please consult your local IT for assistance.
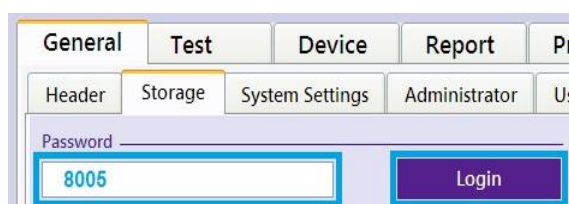
3. Select the option **SQL Server based** and enter the server name. If you are not using the default instance, also enter the instance name as SERVER_NAME\INSTANCE_NAME. **Do not click the Refresh button.**
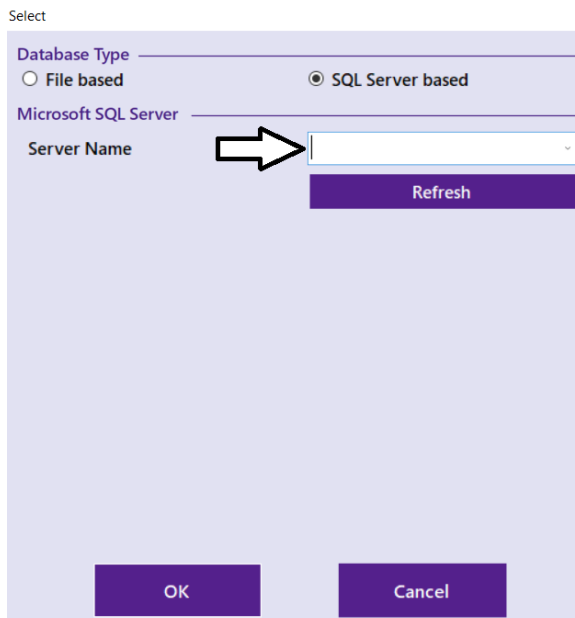

4. Select the authentication mode you will use, enter credentials if prompted, and then click **Connect**:
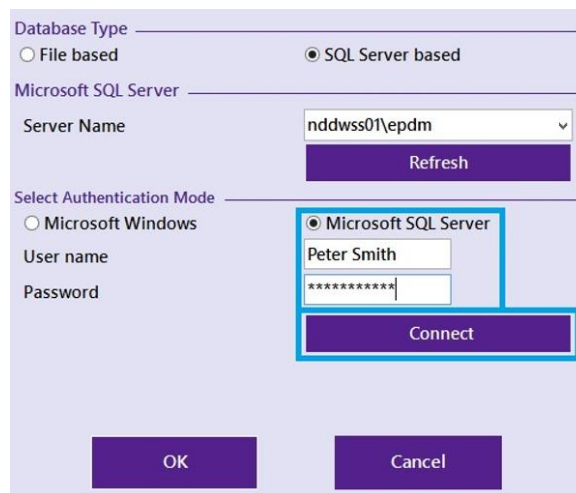
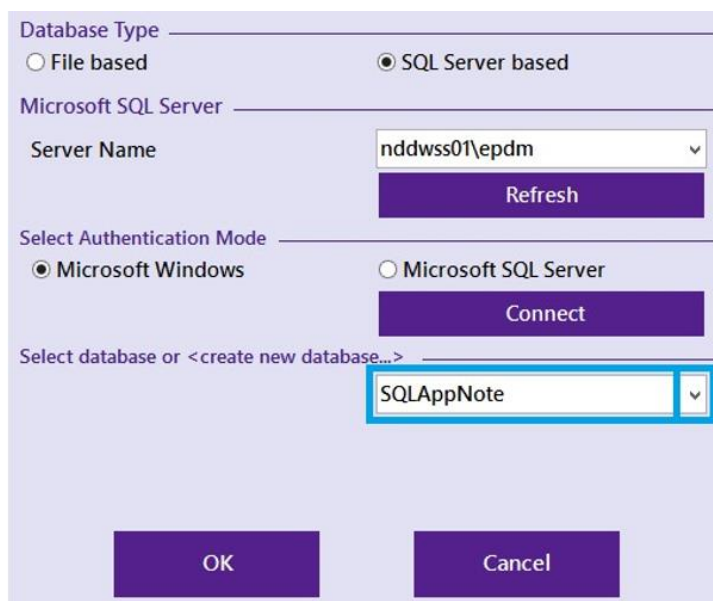5. After successfully connecting, you can either select your database from the dropdown list or select **‹create new database…›** to create a new database. If you already have created a database in the SQL Server and clicked **Select** in step 2 under 4.2, please continue with section 4.2.1. Otherwise, proceed to section 4.2.2 to see how to create a new database.

4.2.1 On-Premise SQL Server Database Selection

1. Select your database from the dropdown list.
2. If the database was created outside of EasyOne Connect, you will need to create the schema. If the **Create Schema** button appears, click on it to configure the database for use by EasyOne Connect. **IMPORTANT:** In order to create the schema for a database, you will need to be running the EasyOne Connect software with administrative privileges, and have connected to the SQL Server with DBO privileges.
3. Once the schema is created, click **OK** and the software will restart automatically.
4. Depending on the version of the database you selected, EasyOne Connect may prompt you to update the database to the latest version. **Please note this update cannot be undone and you will no longer be able to open the database in earlier versions of Easy-One Connect if you proceed with the update.** If you are not sure about updating, we recommend you create a copy of the database before updating.
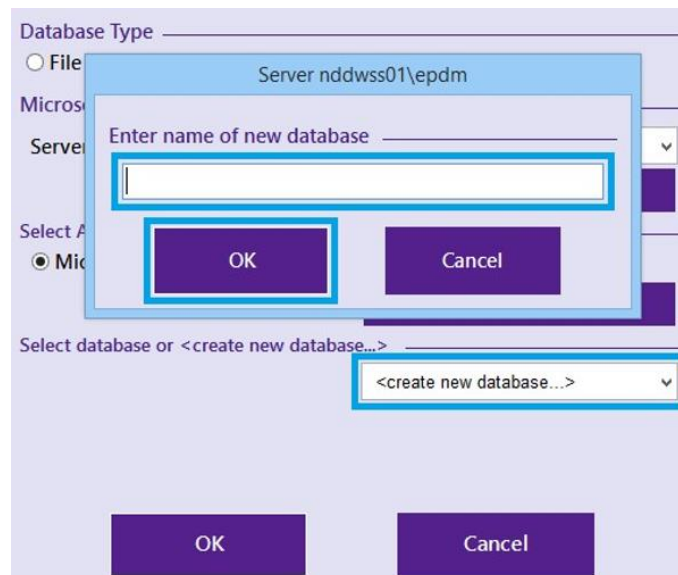
4.2.2 On-Premise SQL Server Database Creation

1. Select **‹create new database…›:**

2. Enter the name you want to give the database, then click **OK**:

5. Click **OK** to create the new database. **IMPORTANT:** In order to create the schema for a database, you will need to be running the EasyOne Connect software with administrative privileges, and have connected to the SQL Server with DBO privileges.

6. EasyOne Connect may prompt you to update the newly created database to the latest version. Click **OK** to allow the update. If you are not sure about updating, we recommend you create a copy of the database before updating. You can now use the database.

5   Azure-Hosted Microsoft SQL Server Database

Establishing a connection to an Azure SQL Server database using EasyOne Connect requires a nearly identical process to the one described above for an on-premise database. The only difference lies in how the **Server Name** field in EasyOne Connect is filled out*. You will need the connection string for your database, which can be retrieved from the Azure portal by going to the resource page for your database and checking the field **Connection String** from the overview. The input to the EasyOne Connect field which references an external server will be a portion of the connection string accessible in the Azure portal, using only the server name and port.

Example of connection string: tcp:ndds.database.windows.net,1433

* Depending on how your organization's Azure account is set up, you may need to ask IT to add firewall rules or other security configurations allowing your local machine to communicate with Azure via port 1433.

5.1 Encrypting Connections to Microsoft SQL Server

Enabling SSL/TLS encryption increases the security for data transmitted across networks between instances of Microsoft SQL Server and applications. Microsoft SQL Server can use SSL/TLS to encrypt data transmitted across a network between an instance of SQL Server and a client's application. EasyOne Connect and EasyOne Pro/LAB are able to make use of Microsoft SQL Server's encryption for data transmission. The SSL/TLS encryption is performed within the protocol layer and is available to all SQL Server clients, except DB Library and MDAC 2.53 clients.

The level of encryption used by EasyOne Connect when connecting to a server-based database is dictated by the server. EasyOne Connect will respect the security level required by the server up to and including TLS 1.2 encryption.