

Medikro Spirometry Software

Installation Guide



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Introduction



1 Introduction

Installation Guide

for Medikro Spirometry Software



This document is intended for system administrators. This manual explains systems requirements and system and database configurations, and instructs for installation of Medikro Spirometry Software.

1.1 About this Manual

This manual contains instructions for installation of the Medikro Spirometry Software.

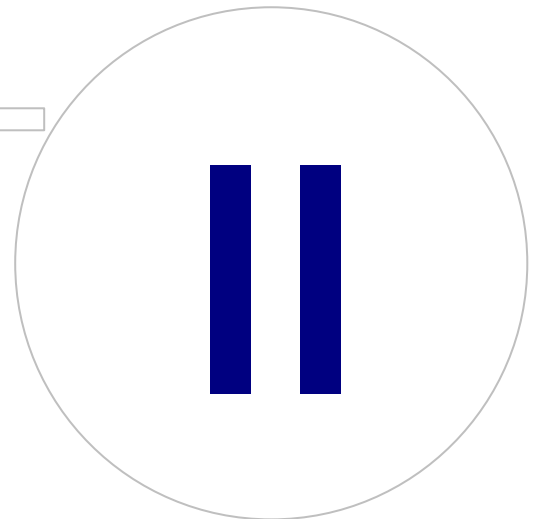
Before installation, the installing user should be familiar with the intended use of Medikro applications and plan the setup carefully. To become familiar with Medikro Spirometry Software, see "M8304 Medikro Spirometer User Manual". To become familiar with Medikro Administration Tool functionality, see "M8321, Medikro Administration Tool, User's manual".

1.2 Terminology, Acronyms and Abbreviations

Table: Terminology, acronyms and abbreviations

Term	Description
ODBC driver	Open Database Connectivity driver for accessing database management systems.
MSS	Medikro Spirometry Software.
SQL	Structured Query Language for managing data held in a relational database management system.
MS SQL Server	Relational database management system developed by Microsoft.
EULA	End-User Licence Agreement

General Information



2 General Information

This chapter gives an overview of the Medikro Spirometry Software, applications belonging to it, environment types, databases and installer structure.

2.1 System Requirements

Client operating system (32-bit/64bit)	Windows 7, Windows 8, Windows 8.1, Windows 10
Server operating system (32-bit/64bit)	Windows Server 2008, 2008 R2 or 2012 SP2
Database server version	Microsoft SQL Server 2008, 2012 Express/SP2 Enterprise
Microsoft .NET Framework	4.5 or newer (or v4.0 full version)
Flash	Flash installed to view user's manual video clips
Display resolution	1366x768 (minimum), 1920x1080 (recommended)
CPU	1 GHz or faster. Dual core, if incentive animation used
RAM	1 GB (minimum), 2 GB or more recommended
USB	USB port for Medikro spirometer
Bluetooth	Bluetooth v4.0. Optional connectivity method to use with Medikro Duo spirometer. <i>Not supported on Windows 7.</i>

2.2 Applications Description

Medikro Spirometry Software

Medikro Spirometry Software is divided into two parts: "Persons and Studies" and "Measurements and Results". Note that Measurements and Results does not work as standalone application.

Persons and Studies

Persons and Studies is used for person and study management. The following plugins are available for Persons and Studies:

- Medikro Screener for pulmonary function screening. Medikro Screener requires Medikro Duo device.
 - Medikro Serial Monitoring for pulmonary function monitoring. Medikro Serial Monitoring requires Medikro Duo device.

Measurements and Results

Measurements and Results is used for making spirometry measurements and viewing measurement results. Measurements and Results requires Medikro Pro, Medikro Primo, Medikro Nano or Medikro Ambi device.

Medikro Administration Tool

Administration Tool is a software for administrative purposes. It is used for:

- Customising Medikro Spirometry Software appearance and functionality.
- Managing Medikro Spirometry Software database connections.
- Managing Medikro Spirometry Software users.
- Auditing Medikro Software actions.

Medikro Database Transfer Tool

Tool for transferring health information and measurement data from old databases to new databases when upgrading MSS3.1 or older (see [Upgrading from old versions](#)^[68]).

2.3 Environment Types

Medikro Spirometry Software can be installed on a single workstation environment with local databases, or on a multiple workstation environment with external shared databases.

Local Database Environment

In this environment type, Medikro applications and databases are installed on a single workstation. This is the recommended setup, if there is no need to share databases between multiple workstations. See chapter [Install Workstation with Local Database](#)^[16]. Figure 1 illustrates an example of a local database environment and which applications are installed to the computer.

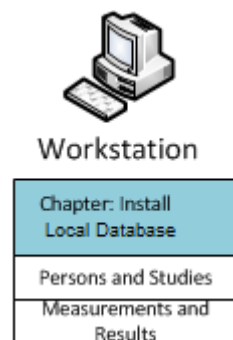


Figure 1: Local Database Environment example

Network Database Environment

In this environment type, Medikro applications are installed on separate workstations but they are connected to shared databases. See chapter [Install Workstation with Network Database](#)^[22]. Figure 2 illustrates an example of a network database environment and which applications are installed to the computer.

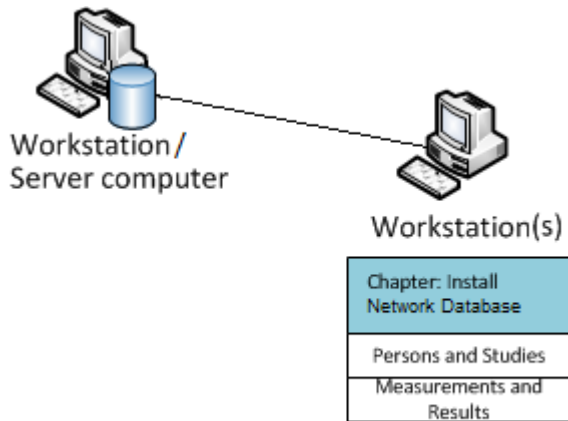


Figure 2: Network Database Environment example

Database Server Based Environment

In this environment type, Medikro applications are installed on multiple separate workstations (clients) and they are connected to shared databases that are running on the database server. Installation of this environment is divided into two parts: first installing server software and then installing client software (see [Install Database Server Based Environment](#)^[32]). Figures 3 and 4 illustrate two different examples of database server based environments and which applications are installed on different computers.

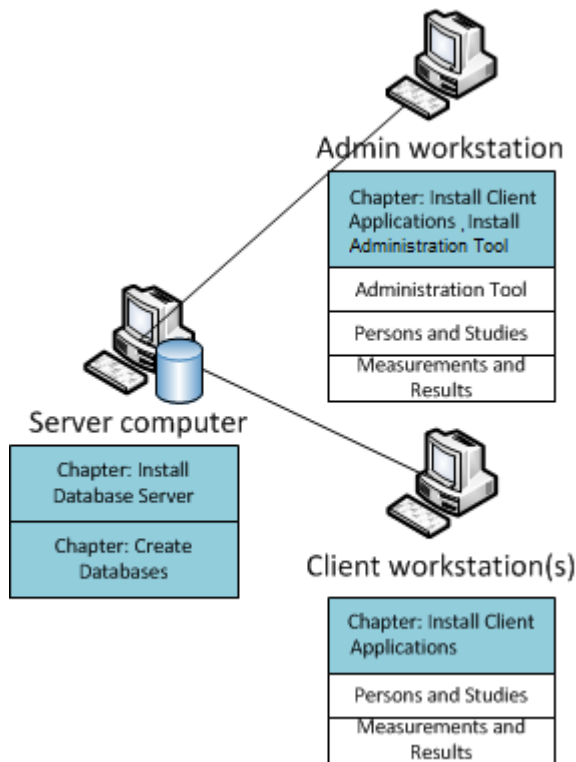


Figure 3: Database server based environment example 1

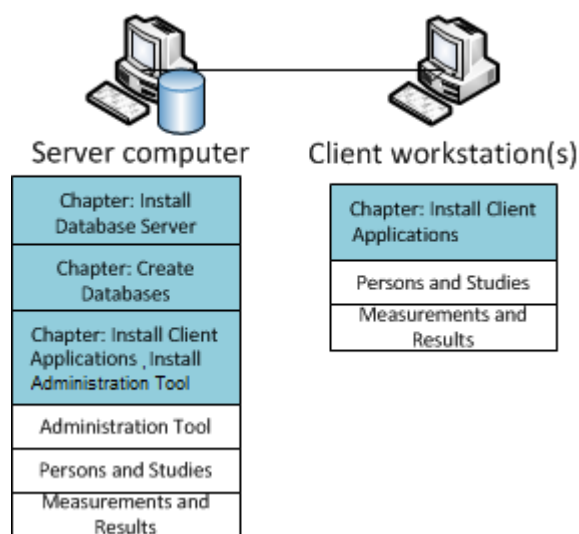


Figure 4: Database server based environment example 2

2.4 Database Description

Medikro Spirometry Software has four databases. Databases can be created with a database installation package (see [Create Databases](#)^[33]). Description and contents of each database are explained in the Databases and Tables-table.

Table: Databases and Tables

Database	Table	Description
actiondb	action_log	Storing user and system actions from Medikro applications.
	hash	
persondb	person	Storing person related information.
	person_custom	
studydb	operation	Storing study related information.
	study	
	study_custom	
supportdb	active_id	Database for shared settings and user management.
	department	
	operator	
	operator_roles	
	organisation	
	roles	
	settings	

Default SQL database users

By default, Medikro System needs two SQL database users that are created by the database installation package: “pbuser” and “adminuser”. Their database rights are described in the Database users rights -table. ”pbuser” is used by Medikro Spirometry Software and should not be deleted. “adminuser” username can be selected from the installer and is dedicated to administrative purposes. No other database users are needed in order to use Medikro Spirometry Software.

Table: Database users

Database	pbuser	adminuser
actiondb	INSERT (actiondb.action_log) SELECT (actiondb.hash)	INSERT SELECT
persondb	INSERT SELECT UPDATE DELETE (persondb.person_custom)	INSERT SELECT UPDATE DELETE
studydb	INSERT SELECT UPDATE	INSERT SELECT UPDATE DELETE
supportdb	SELECT	INSERT SELECT UPDATE DELETE

2.5 Installer Structure

Medikro Spirometry Software Installer structure is presented in Figure 4. Please note that the server side installation is done with separate installers (see [Install Database Server Based Environment](#)^[32]).

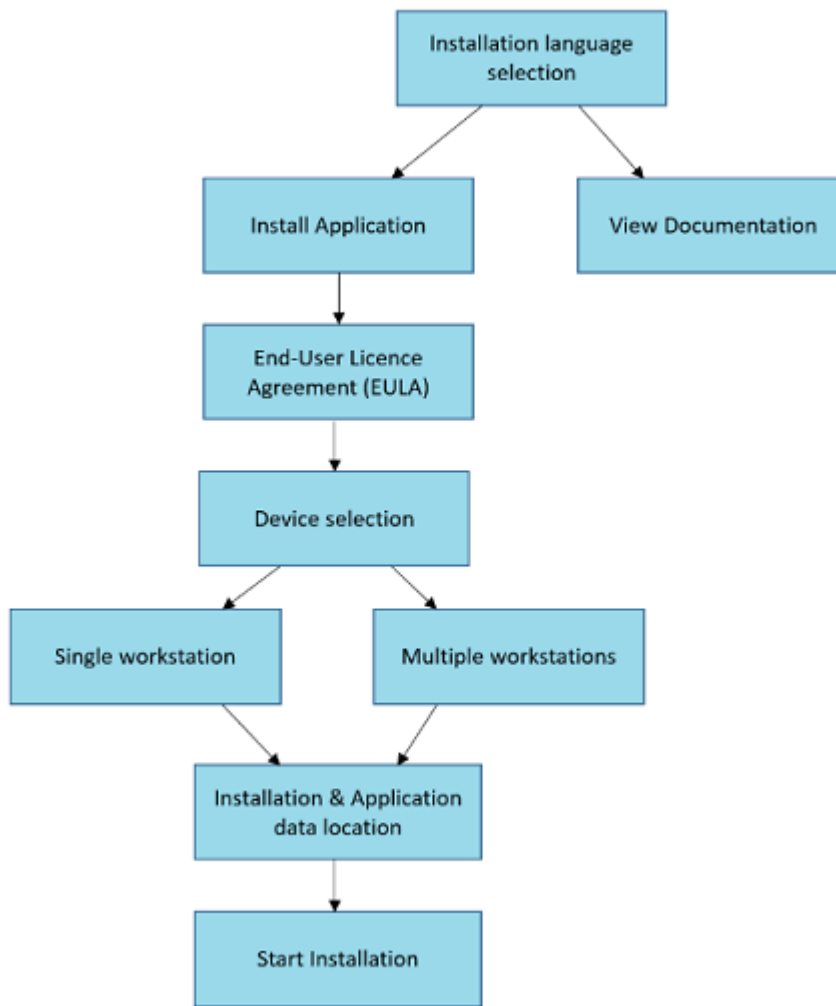
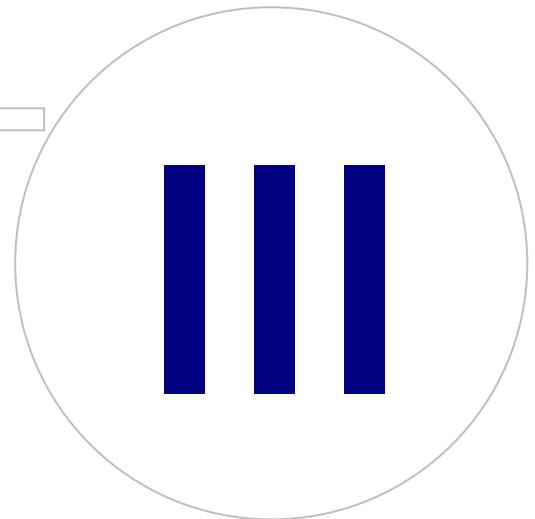


Figure 4: Medikro Spirometry Software Installer structure

Install Medikro Spirometry Software



3 Install Medikro Spirometry Software

To install Medikro Spirometry Software which uses [local databases](#)^[9], follow the instructions in chapter [Install Workstation with Local Database](#)^[16].

To install Medikro Spirometry Software which uses [network databases](#)^[9] without external database server, follow the instructions in chapter [Install Workstation with Network Database](#)^[22].

If you are planning to build-up a [database server based environment](#)^[9], see chapter [Install Database Server Based Environment](#)^[32].

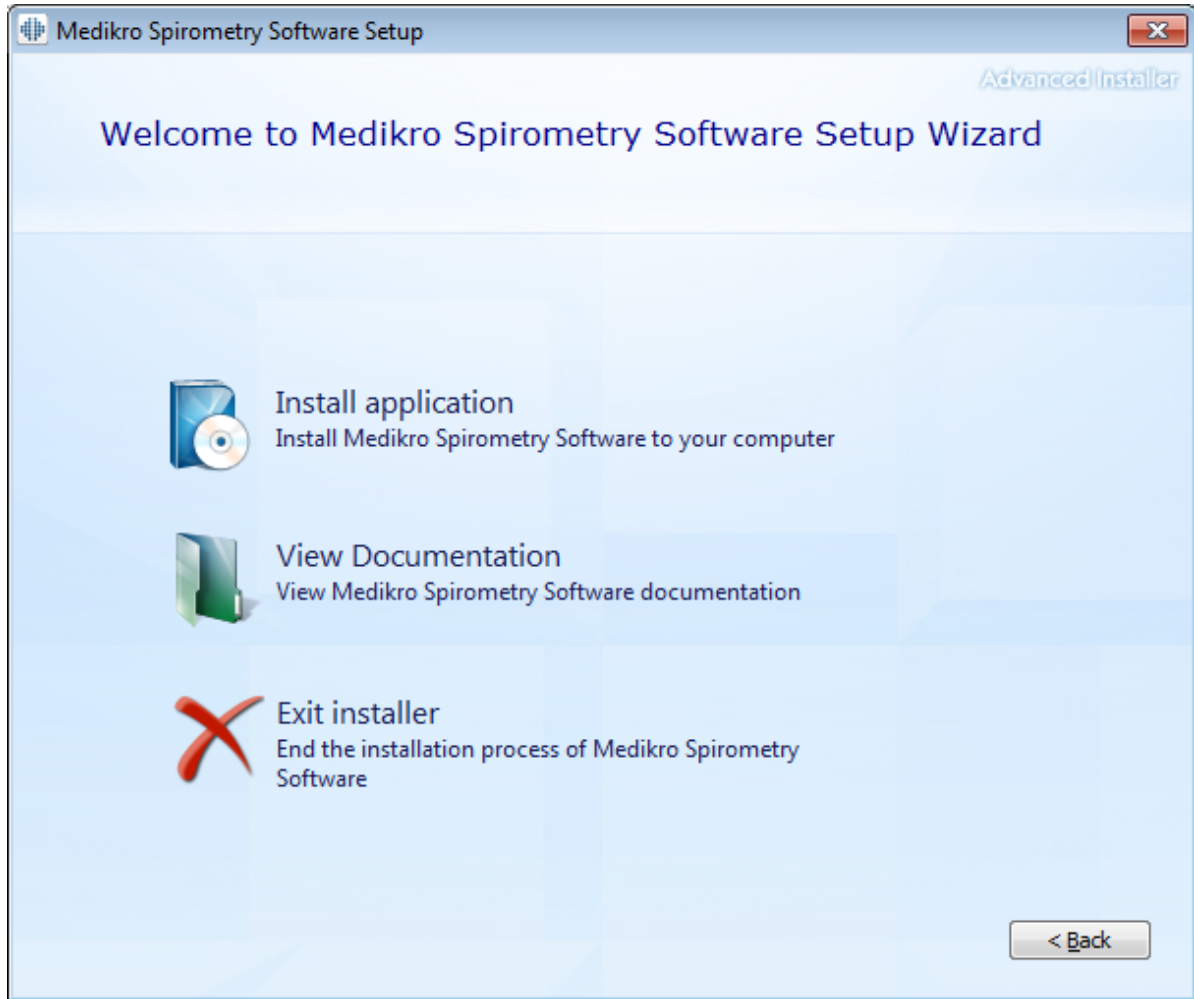
If you already have an older version of Medikro Spirometry Software and wish to upgrade your system, see chapter [Upgrading from old versions](#)^[68].

3.1 Install Workstation with Local Database

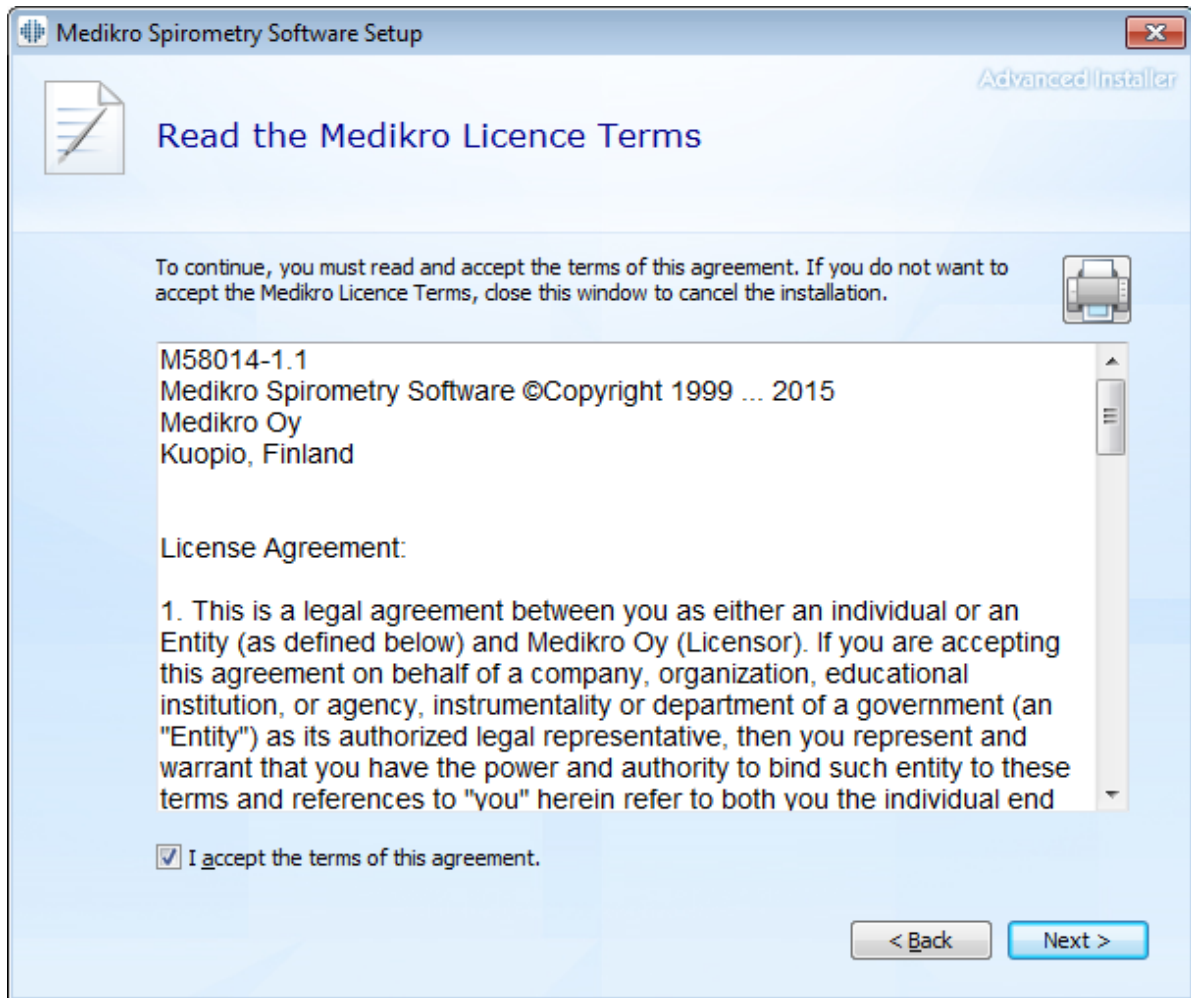
This is the simplest environment type, meant for organisations having single workstations dedicated to spirometry and having no need for sharing the databases with other workstations.

Installation steps

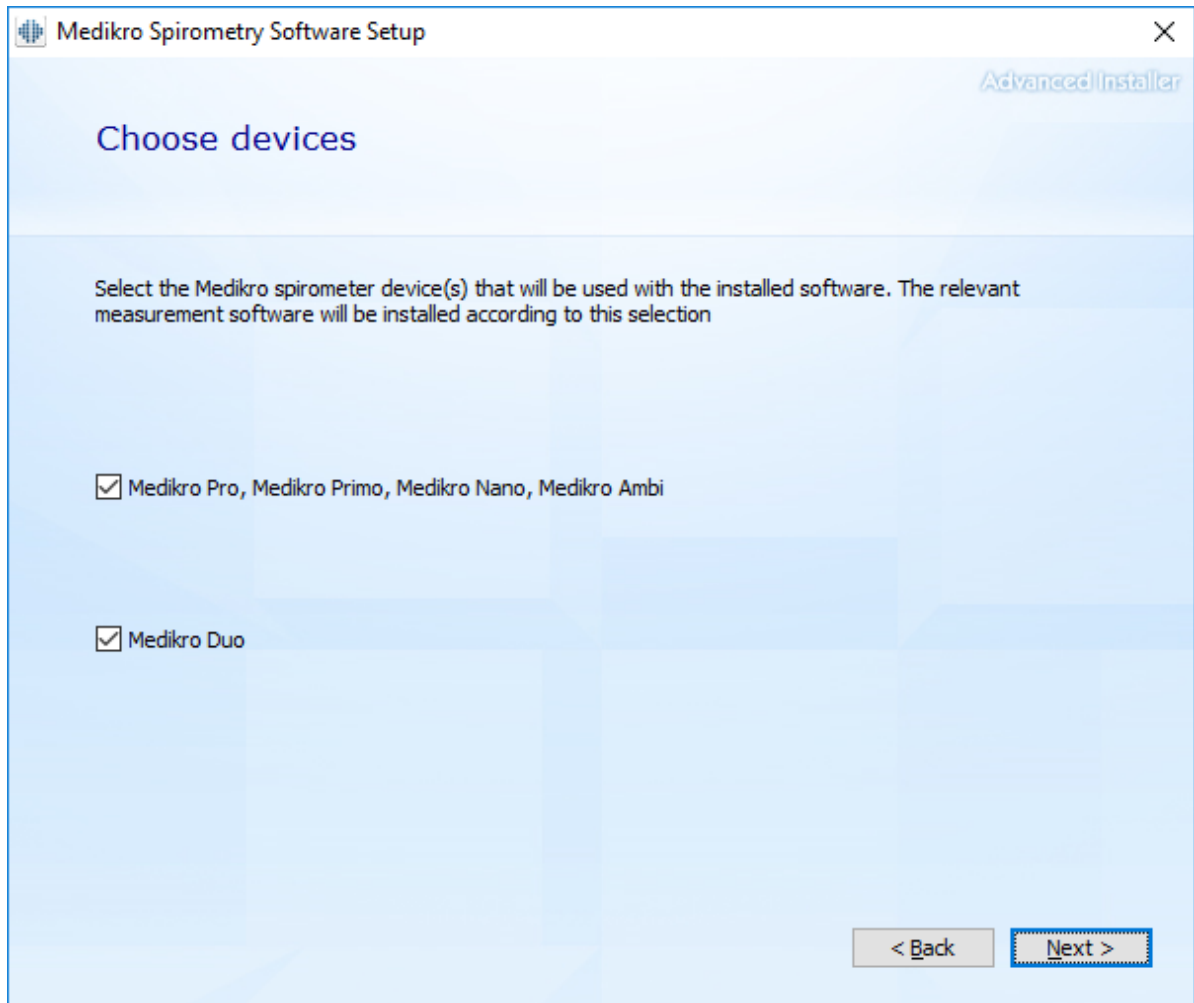
1. To start installation, insert installation media into the workstation, and installation should start automatically. If it does not, execute Install.exe manually from installation media.
2. Choose language. The selected language is set as default language for Persons and Studies.
3. On the Welcome screen, select "Next" to continue with the installation, and select "Install application".



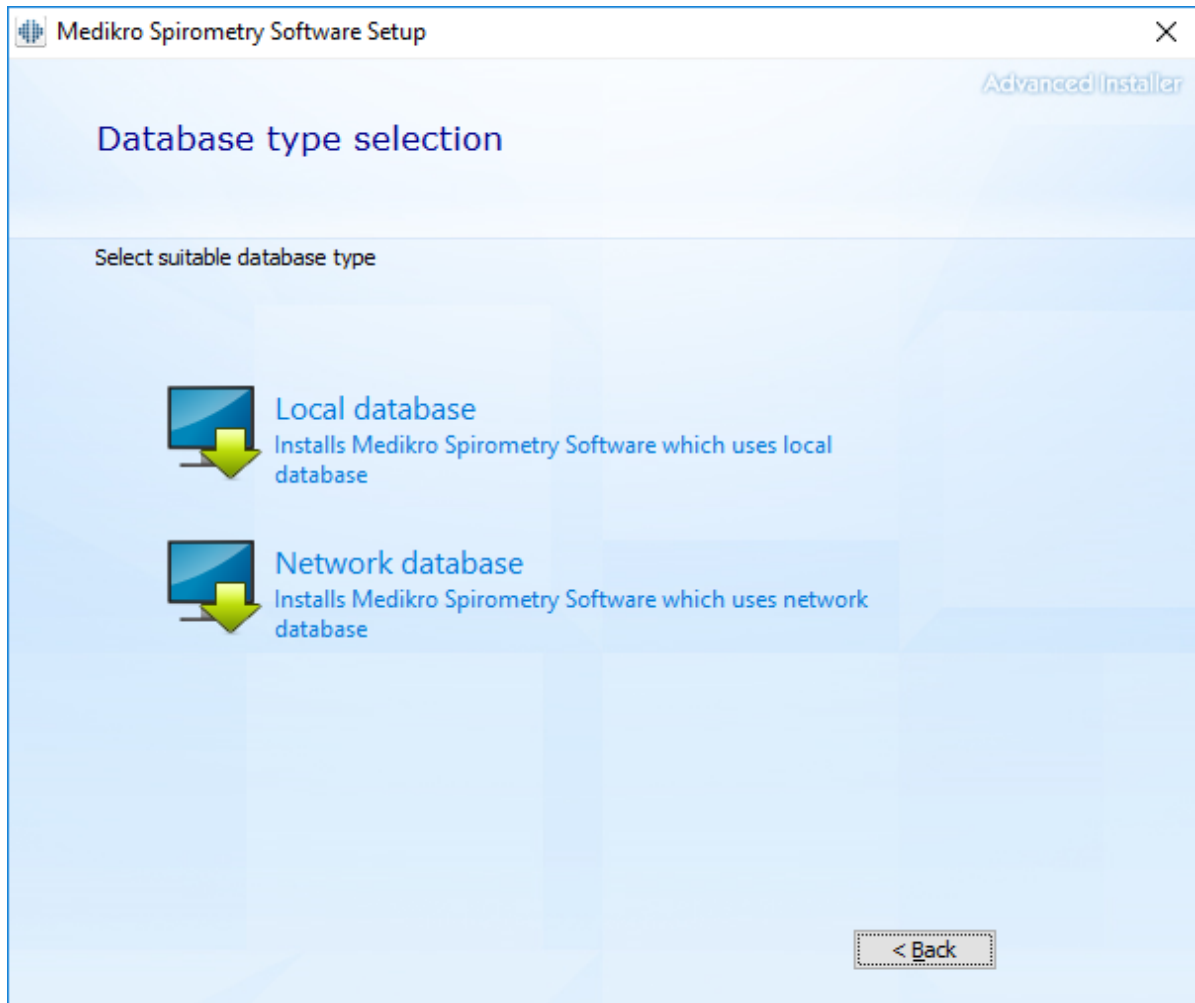
4. To proceed, you have to accept EULA and select "Next".



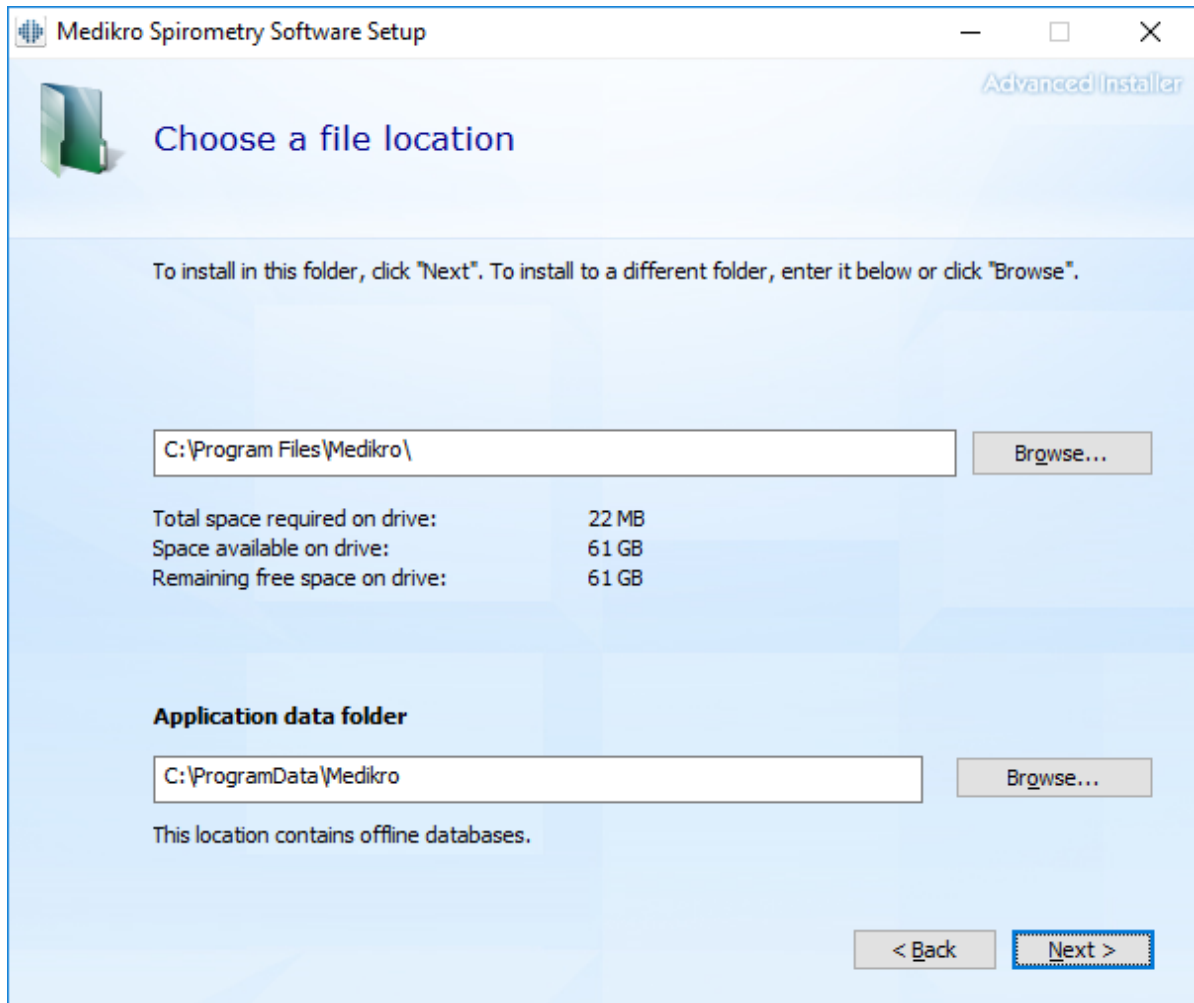
5. Select the Medikro spirometer device(s) that will be used with the installed software. The relevant measurement software will be installed according to this selection:
 - Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi: Measurements and Results
 - Medikro Duo: Medikro Screener and Medikro Serial Monitoring



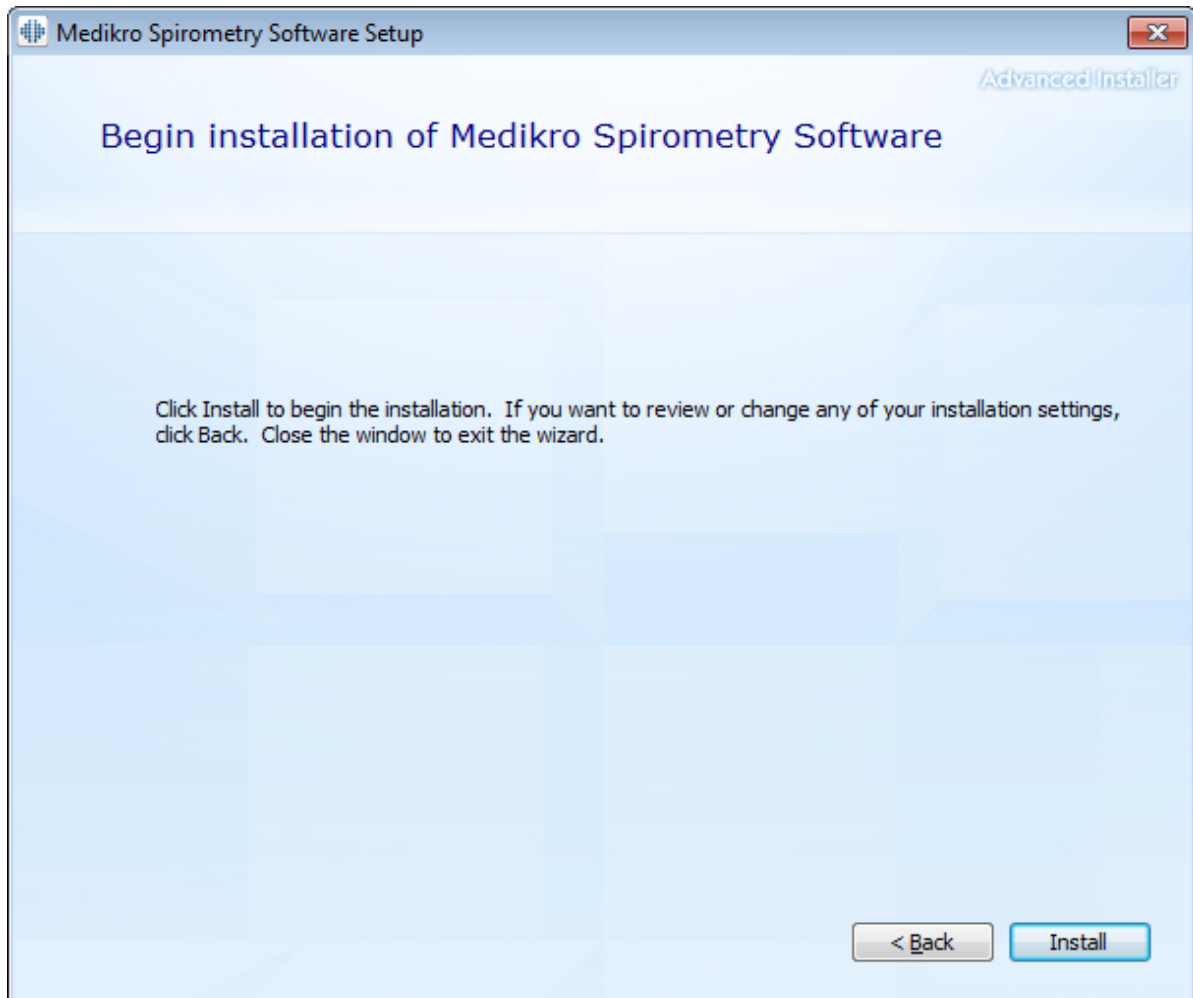
6. On the database type selection, select "Local database".



7. You can choose the installation location by clicking "browse", but it is recommended to use the default folder. Select folder for the application data. Click "next" to continue.



8. To start installation, select "Install". If you still want to make changes, you can step back to earlier phases by clicking "Back".



9. In case if Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi is selected in step 5, a separate installer for Measurement and Results is launched during the installation. Follow the instruction in chapter [Install Measurements and Results](#)^[45].

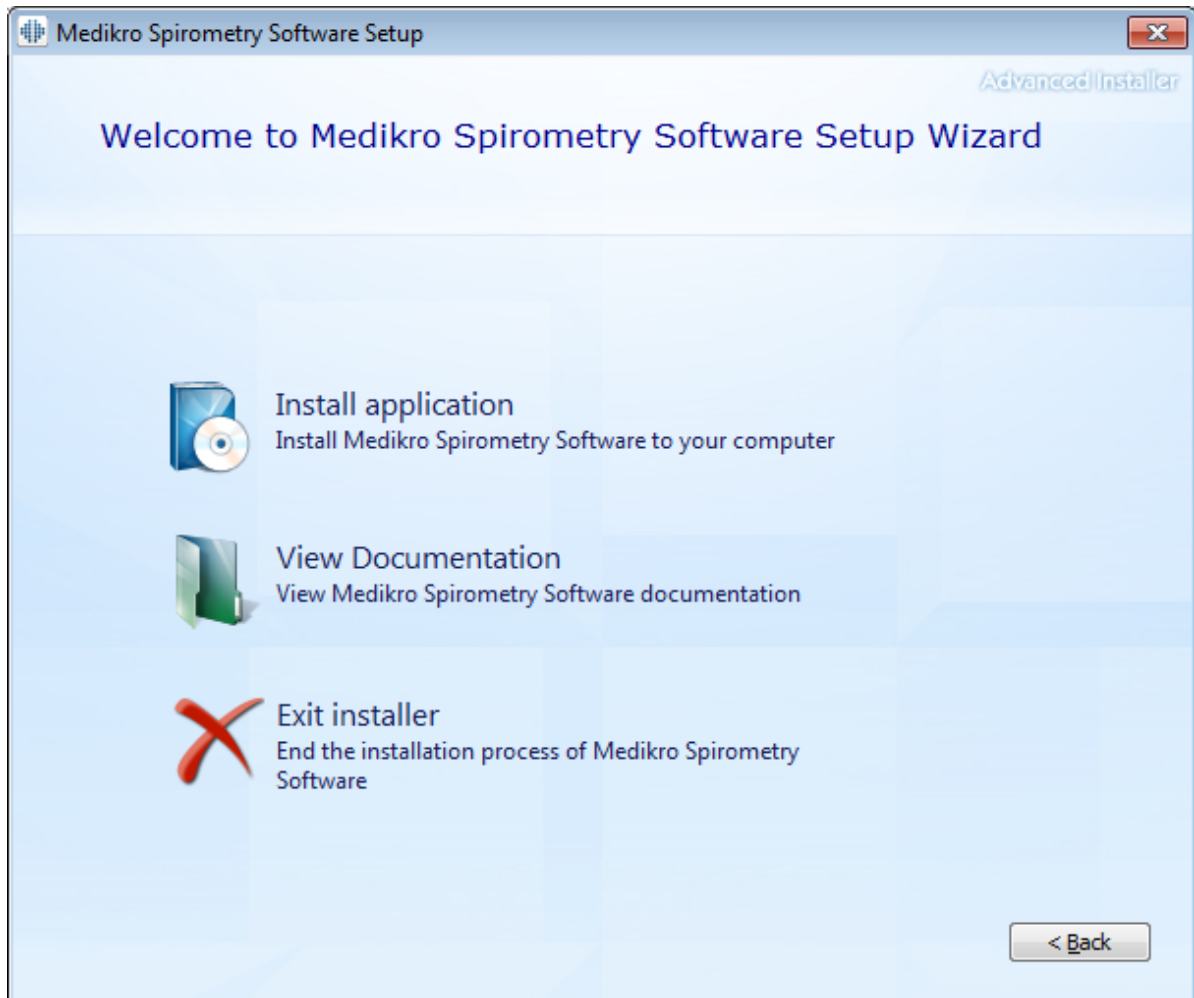
3.2 Install Workstation with Network Database

This environment type is meant for organisations having multiple workstations connected together and sharing databases.

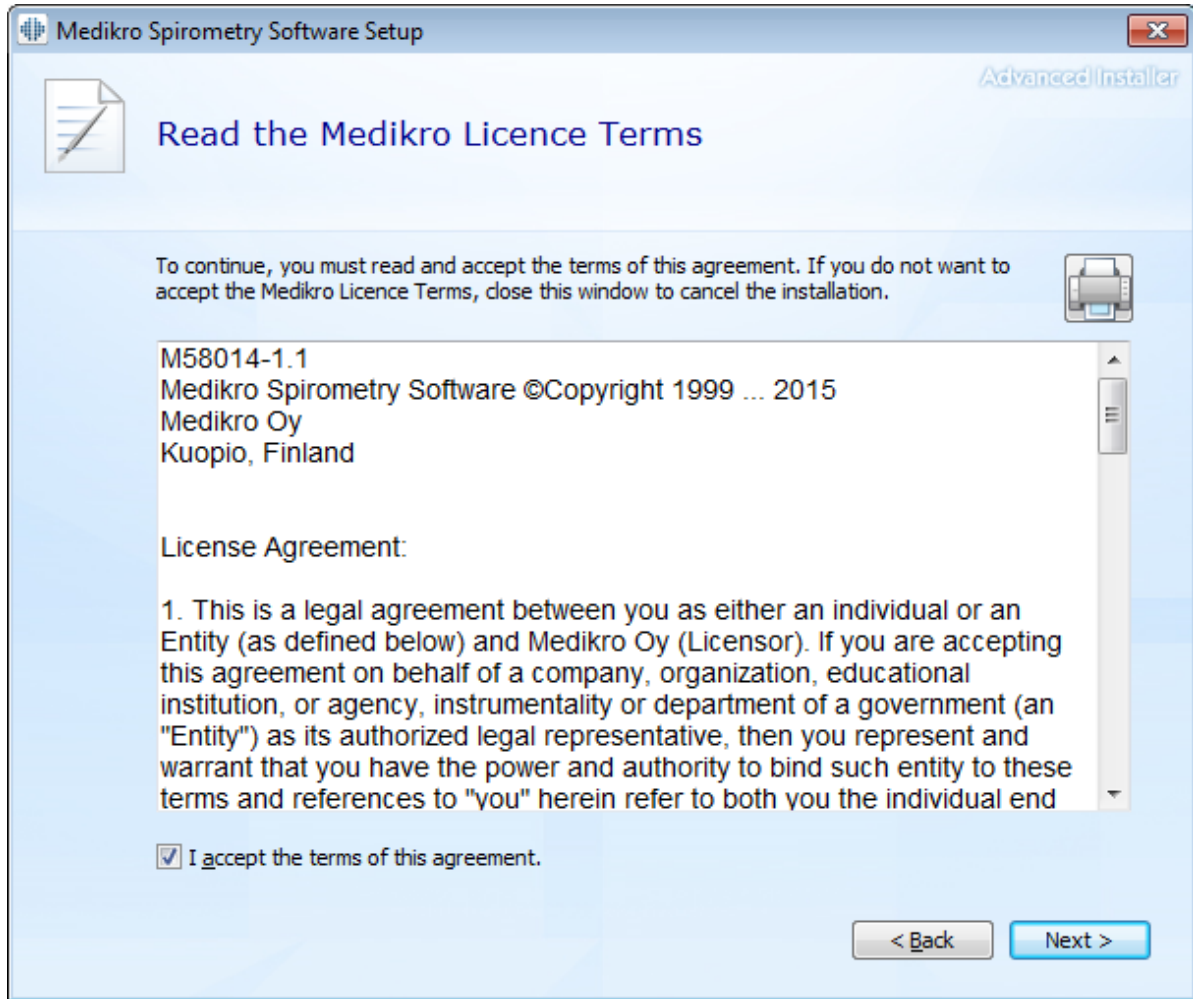
Installation steps

1. To start installation, insert installation media into the workstation, and installation should start automatically. If it does not, execute Install.exe manually from installation media.
2. Choose language. The selected language is set as default language for Persons and Studies.

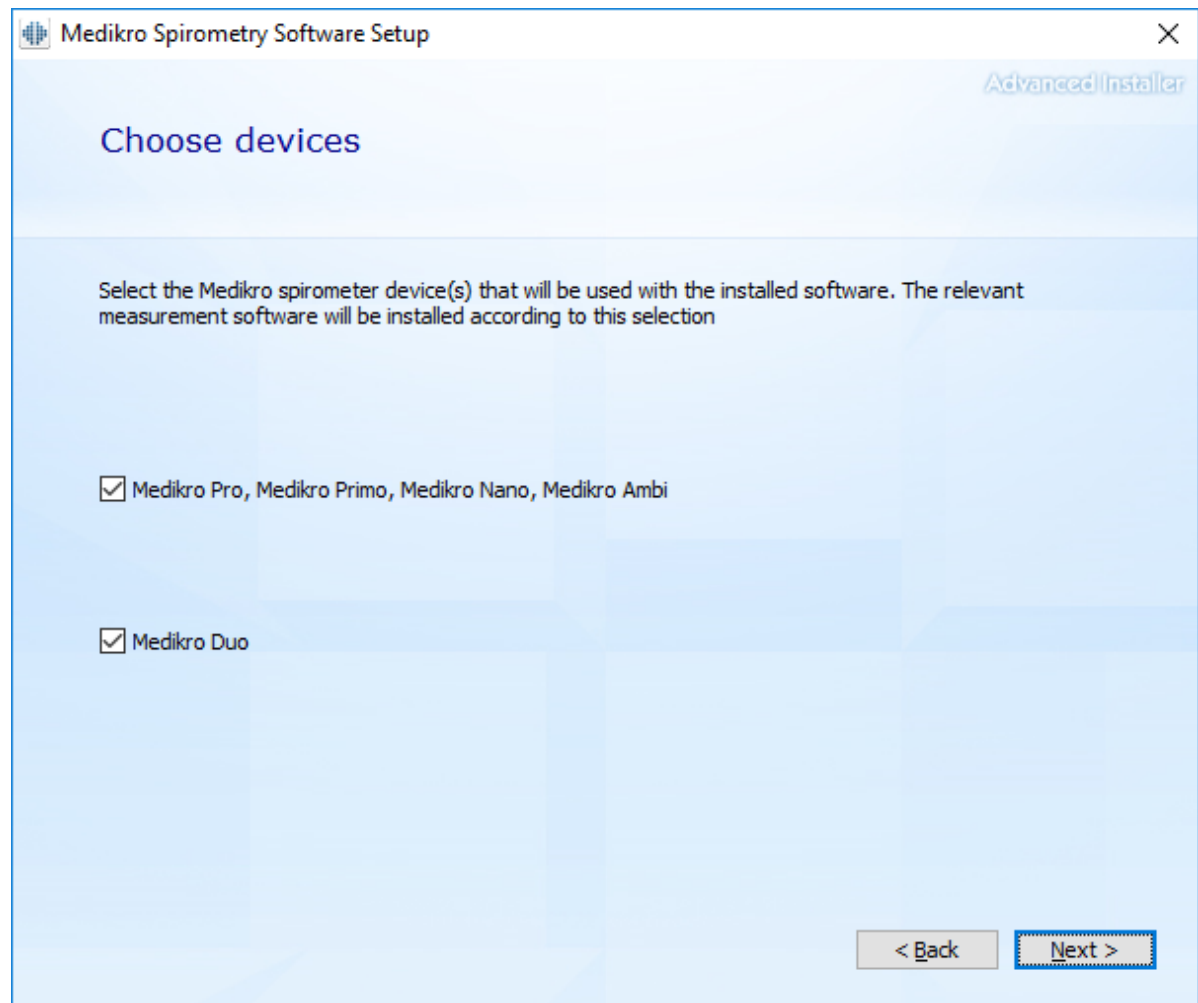
3. On the Welcome screen, select "Next" to continue with the installation, and select "Install application".



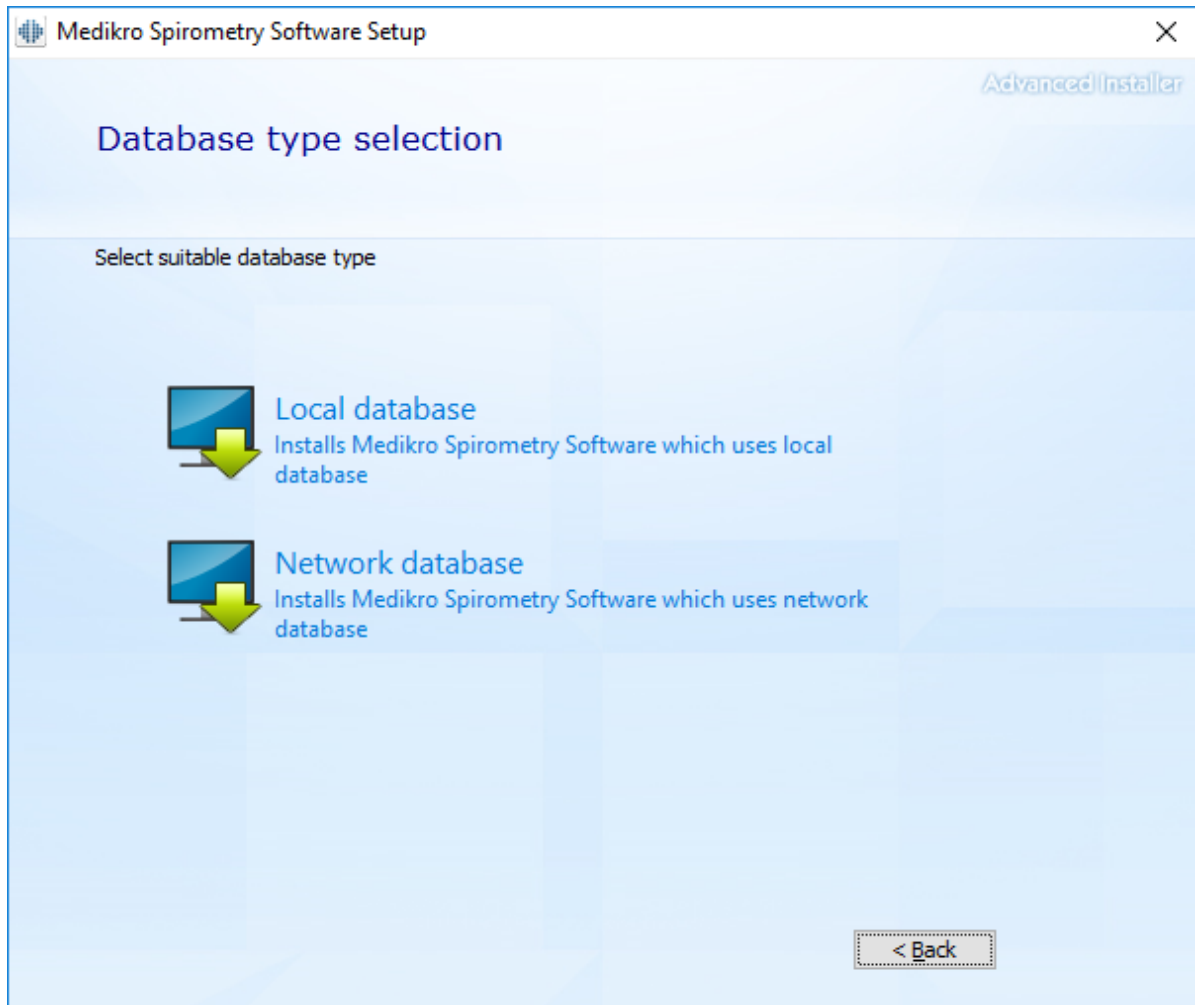
4. Accept EULA, and select "Next".



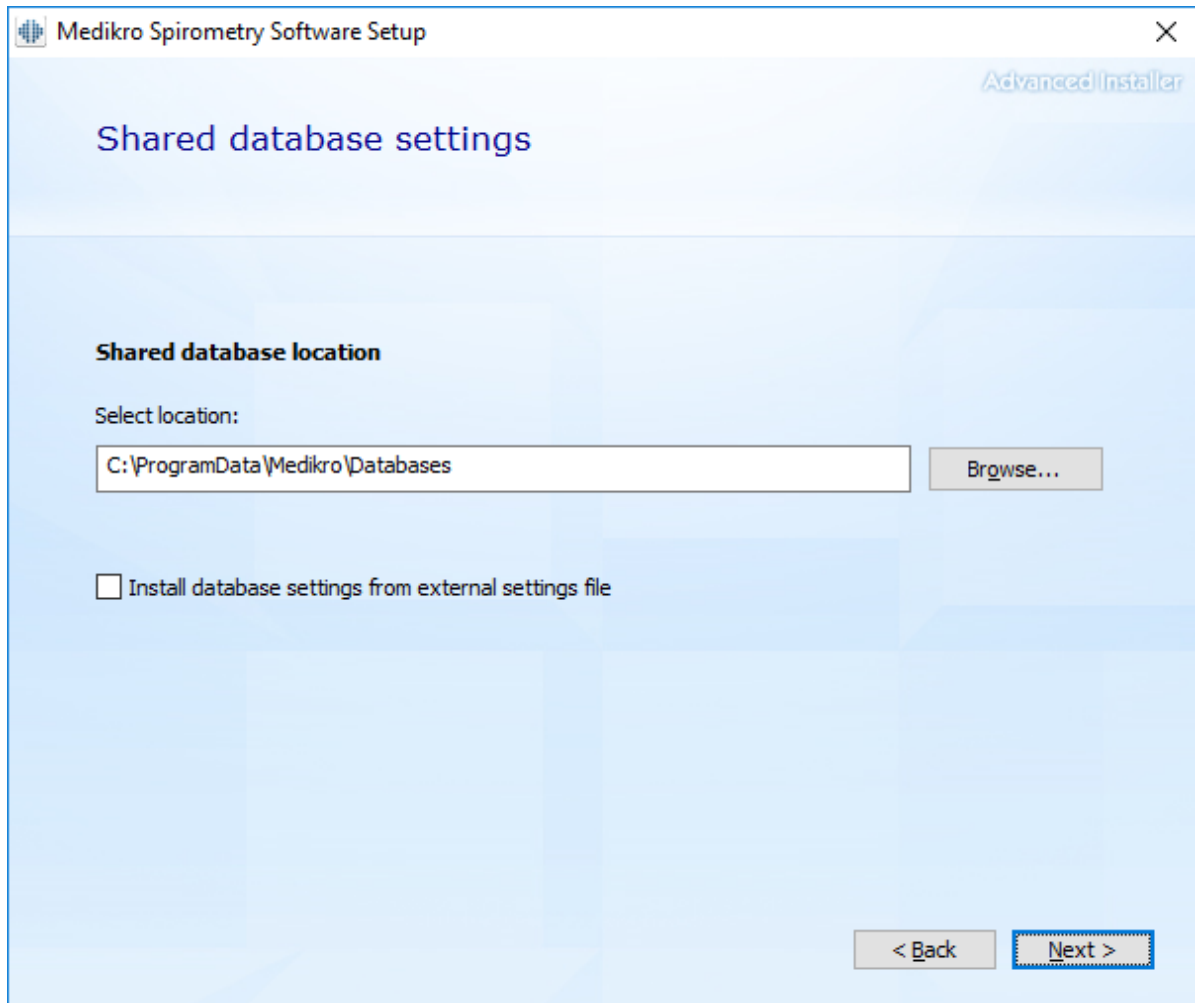
5. Select the Medikro spirometer device(s) that will be used with the installed software. The relevant measurement software will be installed according to this selection:
 - Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi: Measurements and Results
 - Medikro Duo: Medikro Screener and Medikro Serial Monitoring



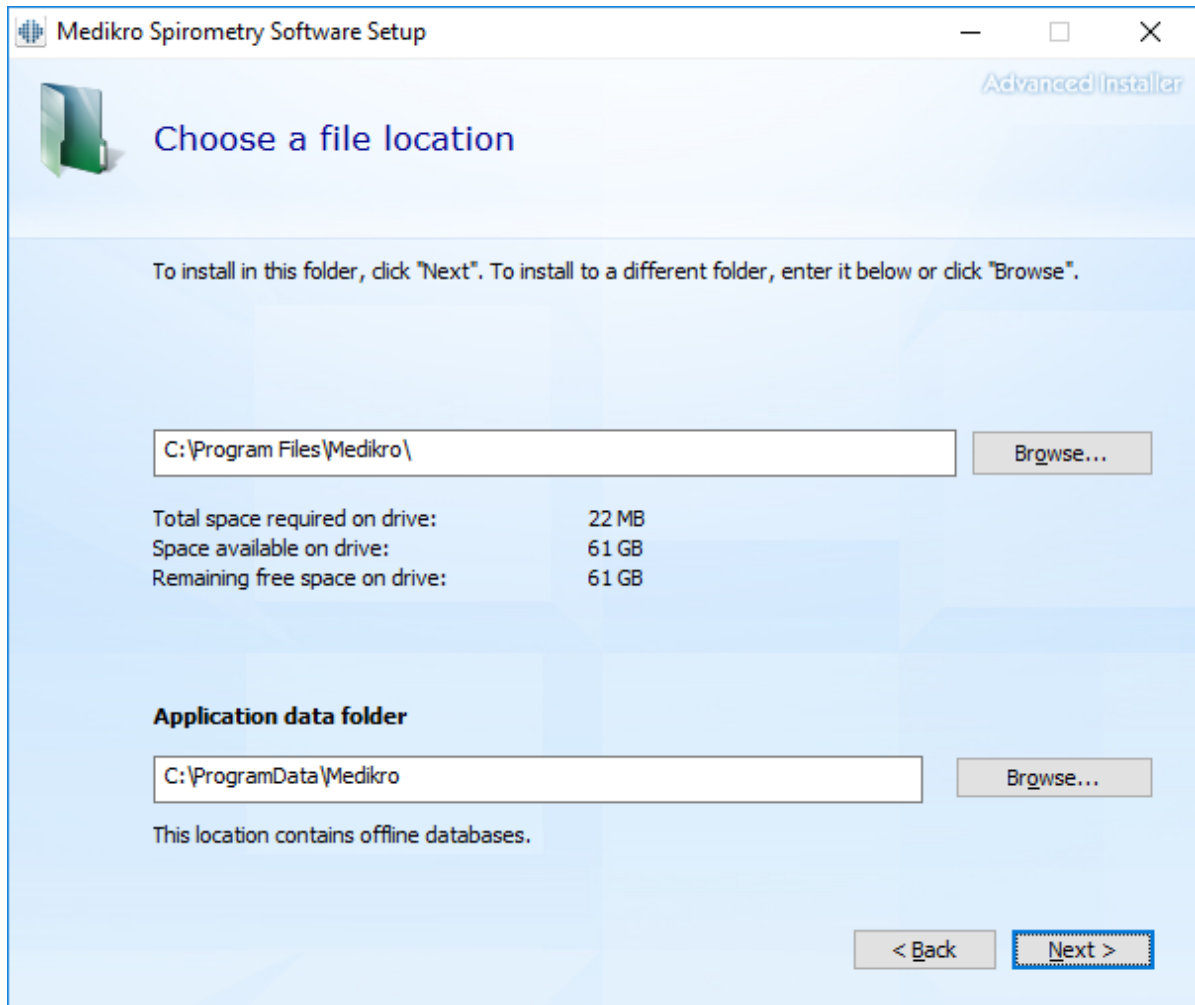
6. On the database type selection, select "Network database".



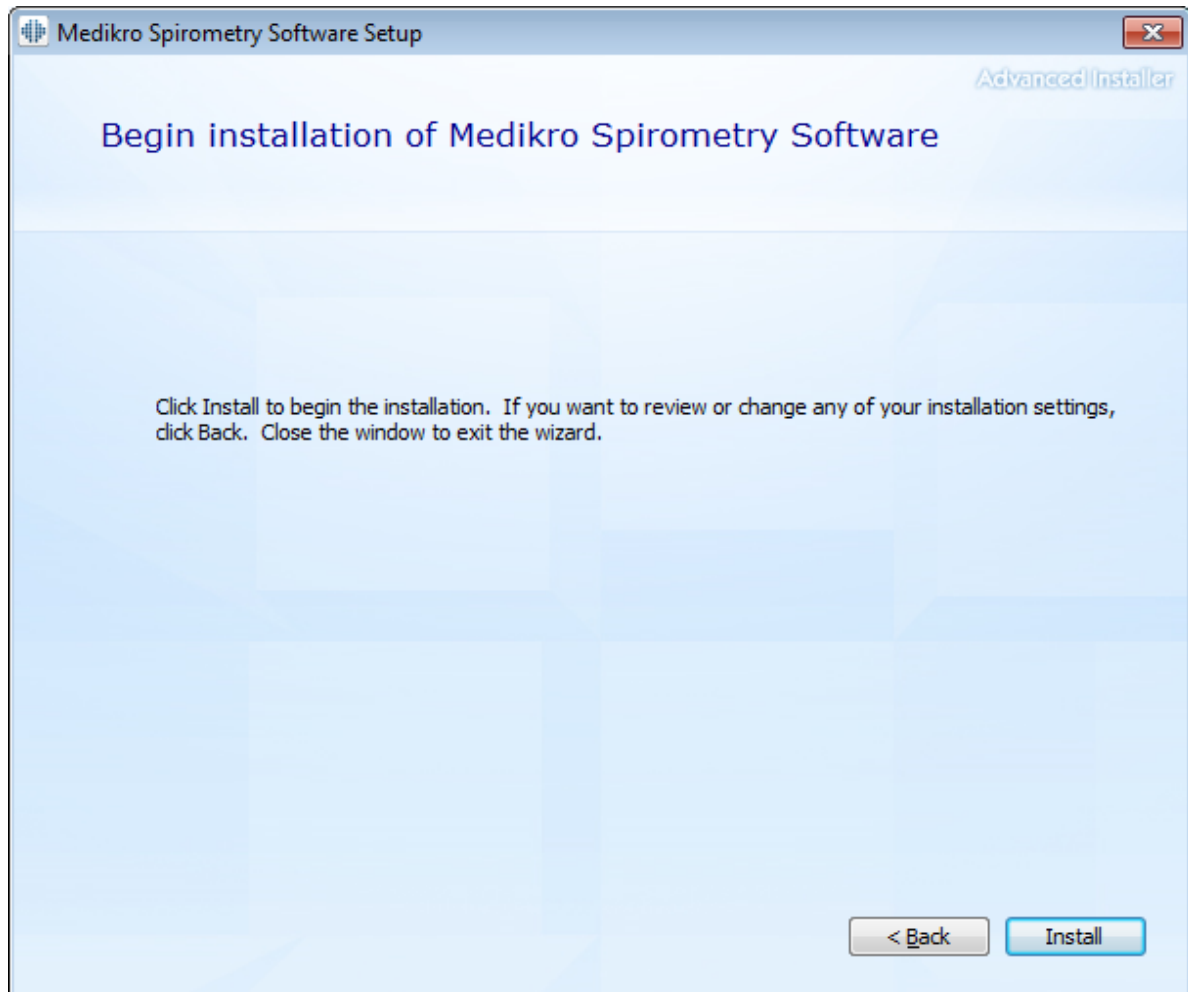
7. If you are installing a network database environment without external database server, enter the location where the installer creates a shared database. If you are installing an environment with database server and a DBConnection.ini file (created during database creation) is available, tick the checkbox and locate the settings file. This is highly recommended because otherwise the connection settings have to be configured manually after installation. Select "Next".



8. Choose installation location. Select folder for the application data. Select "Next".




9. To start installation, select "Install".



10. In case if Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi is selected in step 5, a separate installer for Measurement and Results is launched during the installation. Follow the instruction in chapter [Install Measurements and Results](#)⁴⁵.

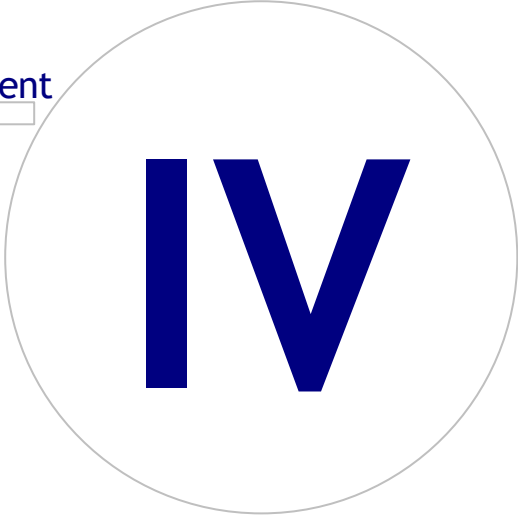
Post-installation tasks

Check that client is connected to database. In Persons and Studies the application connection indicator is showing connected status .

If the Measurements and Results application prompts missing version of .NET when started, check that workstation has correct version of .NET framework installed.

If the Measurements and Results application informs that software is not activated, see “Medikro Spirometer User Manual” chapter Activating Medikro Spirometry Software.

Install Database Server Based Environment



IV

4 Install Database Server Based Environment

This environment type is meant for organisations having multiple workstations connected together and sharing databases that are running on the database server.

Installation is divided into two parts, building up a server environment and installing client software.

Server side installation steps

Medikro Spirometry Software Server Tools provides tools for server side installations but they have to be run separately according to the organisation's needs.

It is recommended to perform server side installation in the following order:

1. Install database management system (see chapter [Install Database Management System](#)^[32]).
2. Create databases (see chapter [Create Databases](#)^[33]).
3. Install Medikro Administration Tool (see chapter [Install Administration Tool](#)^[37]).

When the server side is installed and configured, client side applications can be installed (see chapter [Install Client Applications](#)^[40]).

Client side installation steps

For the client side, there is an automatic installation sequence to install client applications, Medikro Persons and Studies and Medikro Measurements and Results.

1. Install client applications (see chapter [Install Client Applications](#)^[40])

4.1 Install Database Management System

Medikro Spirometry Software Server Tools installation media contains installation package of Microsoft SQL Server 2012 Express edition (32-bit and 64-bit versions). If you wish to install other supported database systems, use installer and installation instructions provided by the database system manufacturer.

If your organisation has a database server already installed and running, you can skip this installation and proceed to creating databases (see chapter [Create Databases](#)^[33]).

Pre-installation tasks

Before starting installation, check that you have a required system in use and that the required software components are installed in your system. These can be checked from Microsoft web page "Hardware and Software Requirements for Installing SQL Server 2012"

[https://msdn.microsoft.com/library/ms143506\(v=SQL.110\).aspx](https://msdn.microsoft.com/library/ms143506(v=SQL.110).aspx)

Installation steps

These instructions are for the Microsoft SQL Server 2012 Express (English) edition but can be applied for other versions of Microsoft SQL Server:

1. Start the installation and follow the instructions of the database server product.

2. In the "Instance Configuration" step it is recommended to give a descriptive name for the instance (server name). If you select to use the default instance name, your server will be listed as "(local)".
3. In the "Server Configuration" step you have possibility to change how SQL Server services start. For "SQL Server Browser" service change "Startup Type" to "Automatic" . This will help finding your database server when creating databases into it.
4. If you are installing the SQL Server on Microsoft Server operating system, you may need to change the "Account name" of "SQL Server Database Engine" from "NT Service\your SQL server name" to "NT AUTHORITY\NETWORK SERVICE\[your SQL server name]"
5. In the "Database Engine Configuration" step, you have possibility to change "Authentication mode". Select "Mixed mode (SQL Server authentication and Windows authentication)".
6. Specify the password for the SQL Server system administrator (sa) account.

It is recommended to also install SQL Server 2012 Management Studio (not included in Medikro Spirometry Software installation media) for managing database server.

Post-installation tasks

You have to ensure that client applications can connect to SQL Server with TCP/IP-protocol:

1. Start "SQL Server Configuration Manager"
2. Select "SQL Server Network Configuration"
3. Select "Protocols for [your SQL server name]"
4. Enable status of "TCP/IP"

Check that database server is installed and running.

Continue to create databases to the database server (see chapter [Create Databases](#)^[33]).

4.2 Create Databases

Medikro Spirometry Software Server Tools installation media contains installation package to create databases to MS SQL Server.

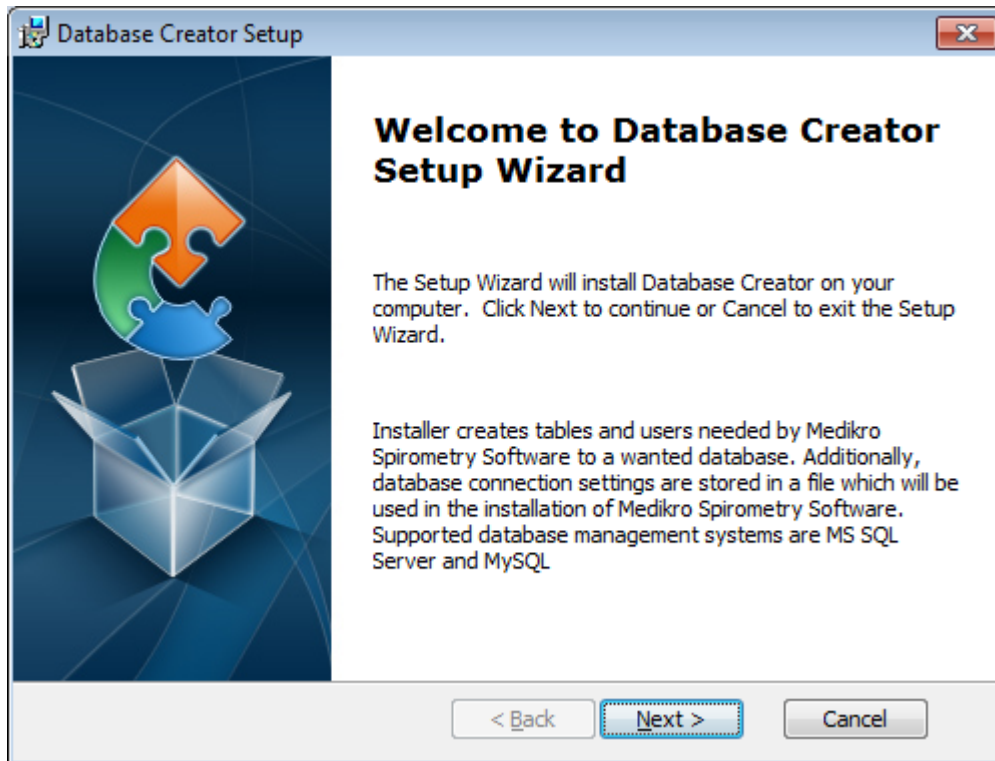
Pre-installation tasks

Preconditions for creating databases:

- Database management system has to be installed and running successfully (see chapter [Install Database Management System](#)^[32]).
- Database management system has to support SQL authentication.
- A login who has rights to create new tables and users to database management system.

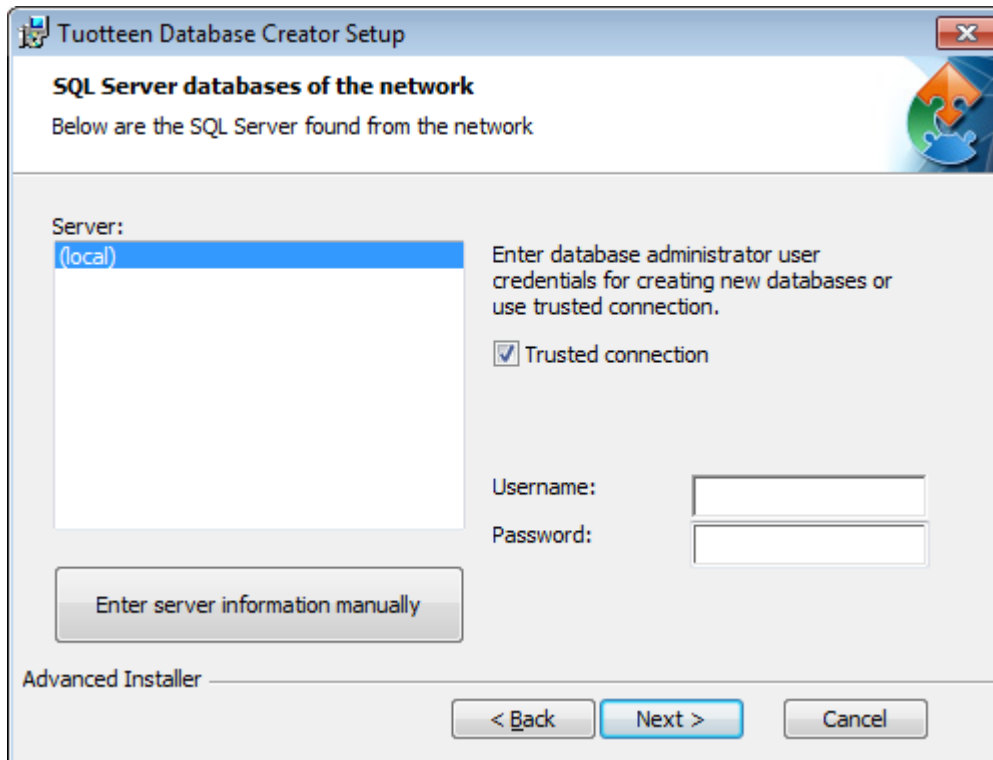
Installation steps

1. To start installation, select "DatabaseCreator_32bit.exe" (if you have a 32-bit operating system) or "DatabaseCreator_64bit.exe" (if you have a 64-bit operating system) from installation media.
2. On Welcome screen, select "Next" to continue.

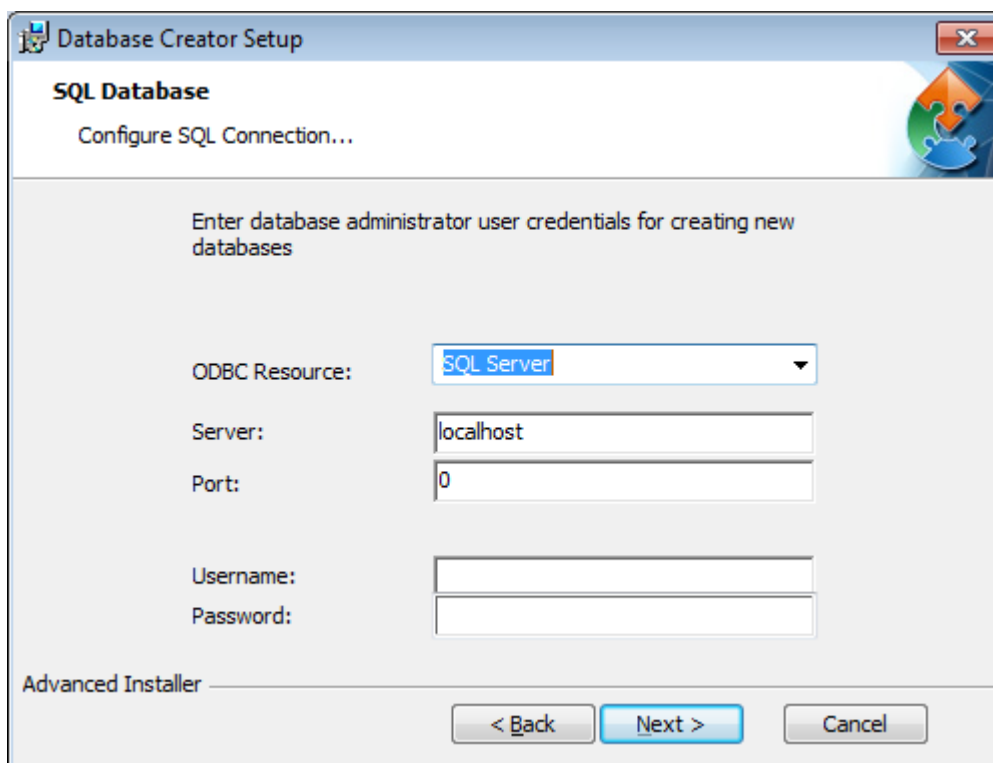


3. Textbox lists all the Microsoft SQL database servers found in the network. Select the desired server from the list and provide access credentials to server either by entering username and password or select trusted connection from the checkbox.

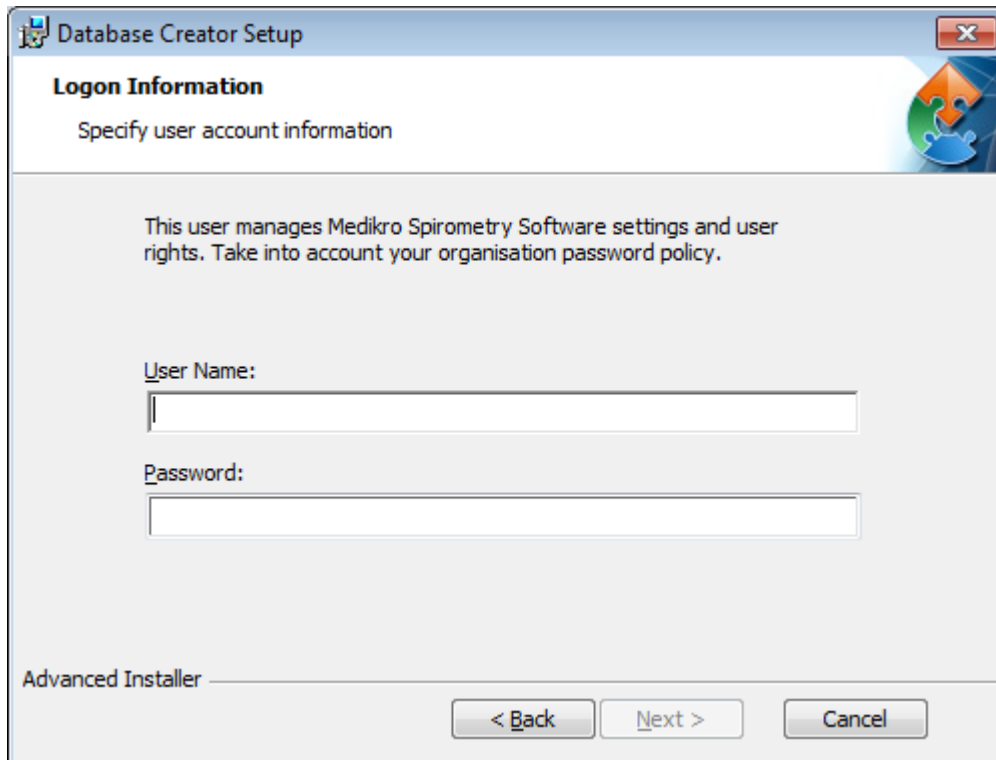
If your Microsoft SQL database server is not listed, you have to start the "SQL Server Browser" service from the Windows Services and restart the installer or select "Enter server information manually".



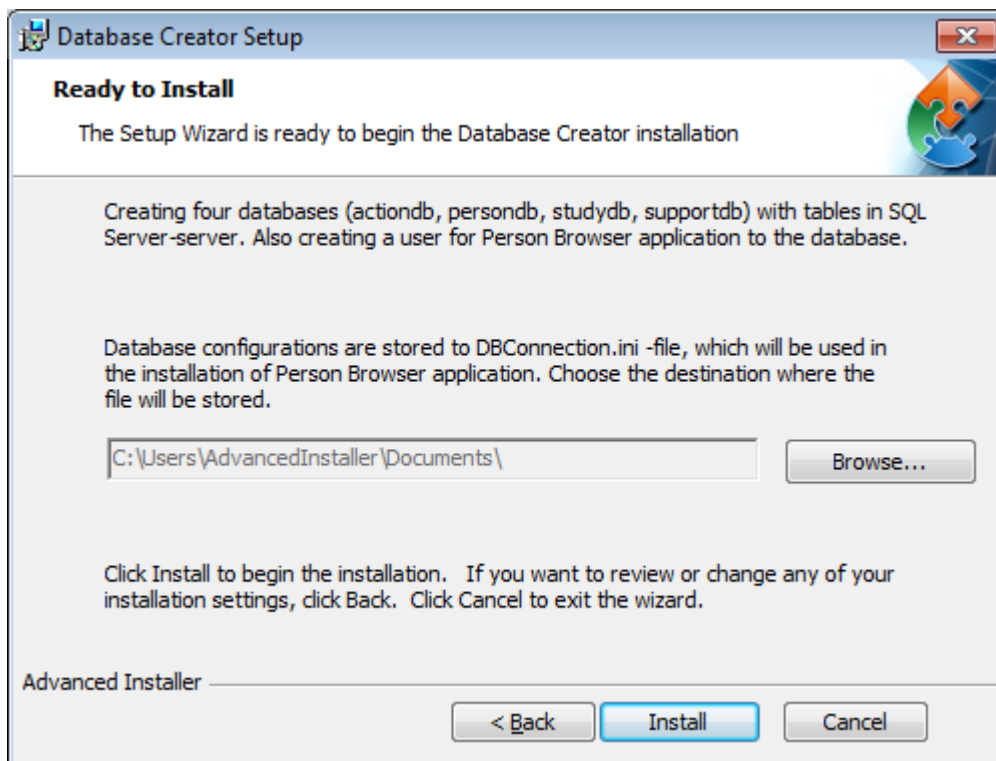
- If you selected to enter server information manually, select the database server type (MS SQL), enter server address (localhost, IP-address or network name), and port (MS SQL default=1433). Provide authorisation to create databases to server by entering database server administrator credentials (username and password). Select "Next".



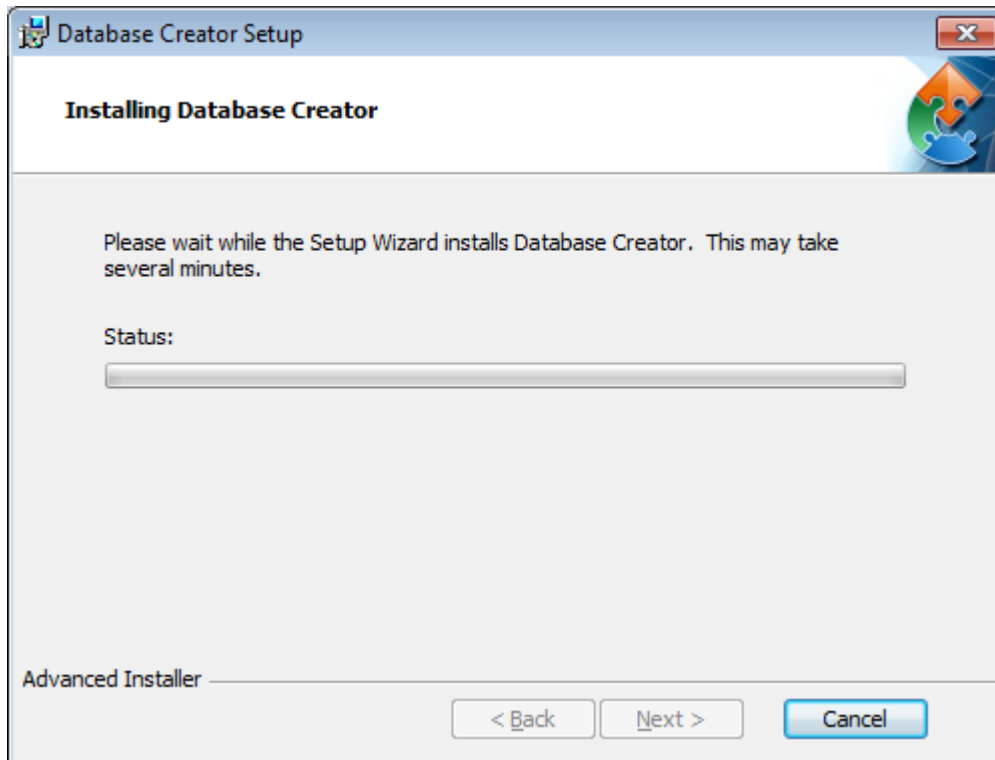
- Installer will create a user to the database server for managing settings and user privileges of the Medikro Spirometry Software. You have to take the password policy of the used database management system into account.



6. Select the location where to create the settings file (DBConnection.ini). Settings file contains connection settings of created databases and is used when installing other Medikro applications. Select "Install" to start database creation.



7. Creating databases starts. Progress bar is shown as installation proceeds.



Post-installation tasks

Take backup of DBConnection.ini settings file. This file is needed when installing client software.

Check that databases, tables and users are correctly created (see chapter [Database Description](#)^[11]).

4.3 Install Administration Tool

Medikro Administration Tool is a necessary tool to manage database server based environments and it is recommended to install it along with the server side applications. Depending on the organisation's practices, it can be installed on the server computer or on the administrator's workstation or even on client workstations.

This chapter gives instructions on how to install the Admin tool using guided installation. It is also possible to install this application silently using msi-packages (see chapter [Silent Installation](#)^[52]).

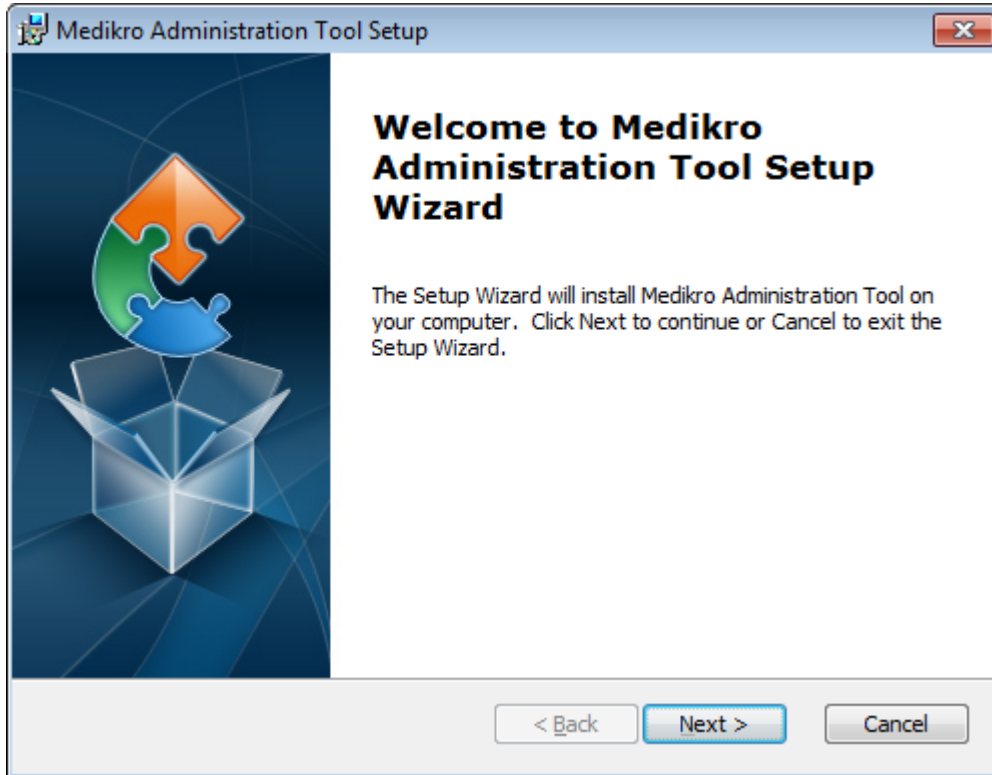
Pre-installation tasks

Before installing the Administration tool, it is recommended to have a database server installed (see chapter [Install Database Management System](#)^[32]) and databases created (see chapter [Create Databases](#)^[33]).

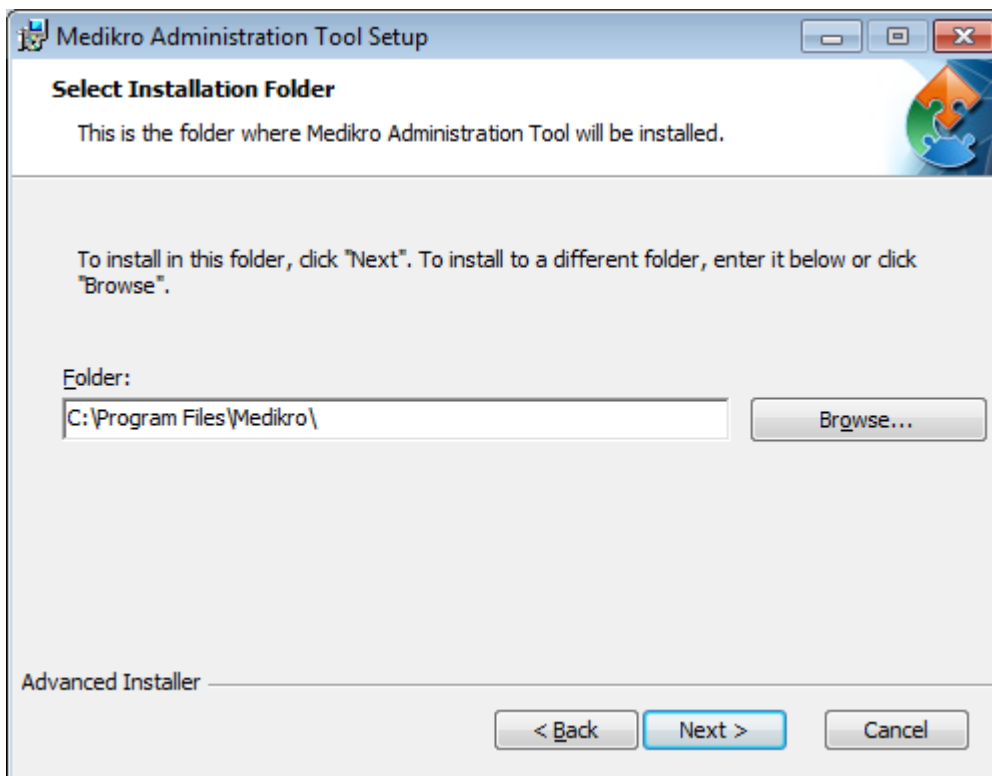
The DBConnection.ini file, created during database creation, is used during Administration Tool installation. Check that it has the correct server network address and port for all databases.

Installation steps

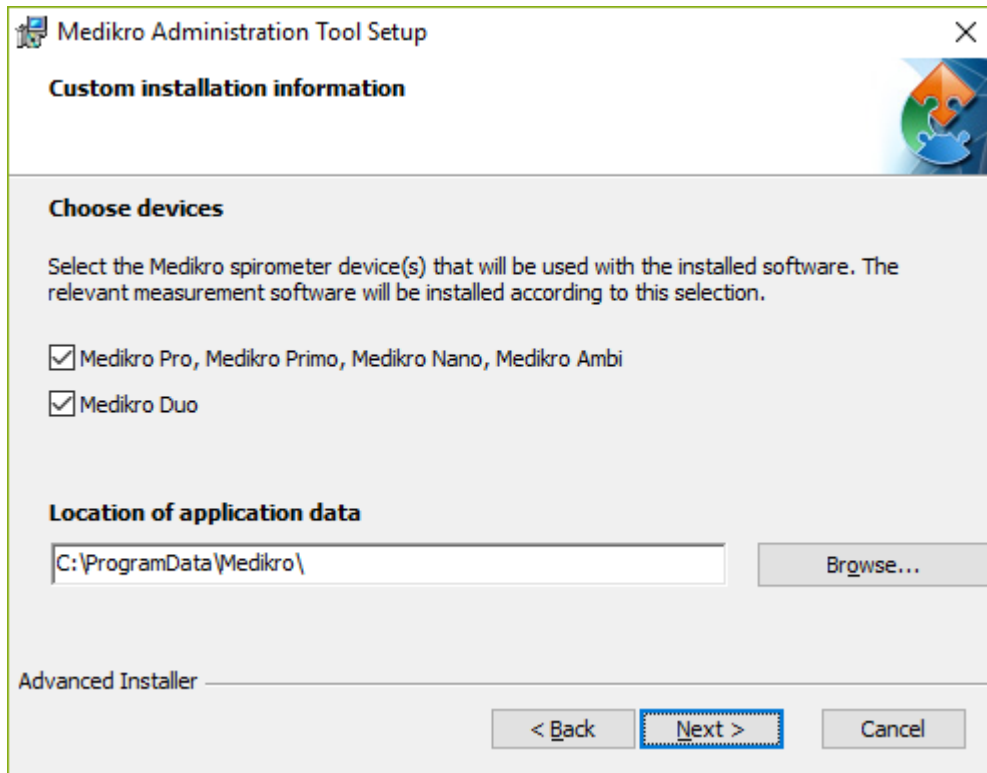
1. To start installation, select "AdminTool_32bit.exe" (if you have a 32-bit operating system) or "AdminTool_64bit.exe" (if you have a 64-bit operating system) from Medikro Spirometry Software Server Tools installation media.
2. On the Welcome screen, select "Next" to continue with the installation.



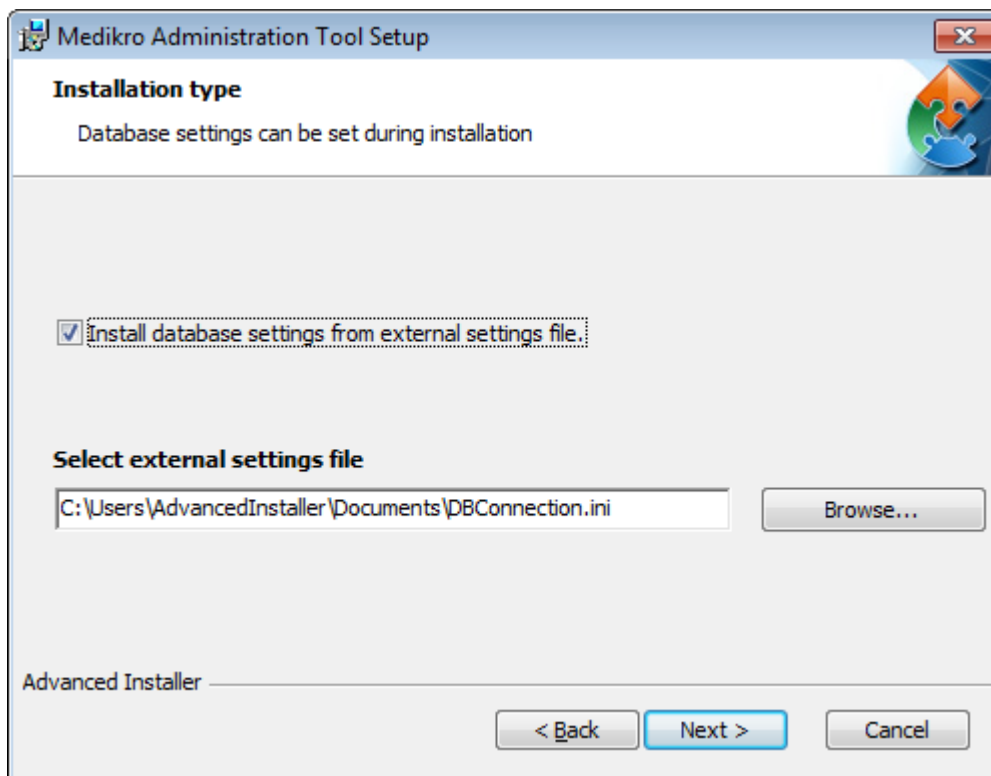
3. Choose installation location and select "Next".



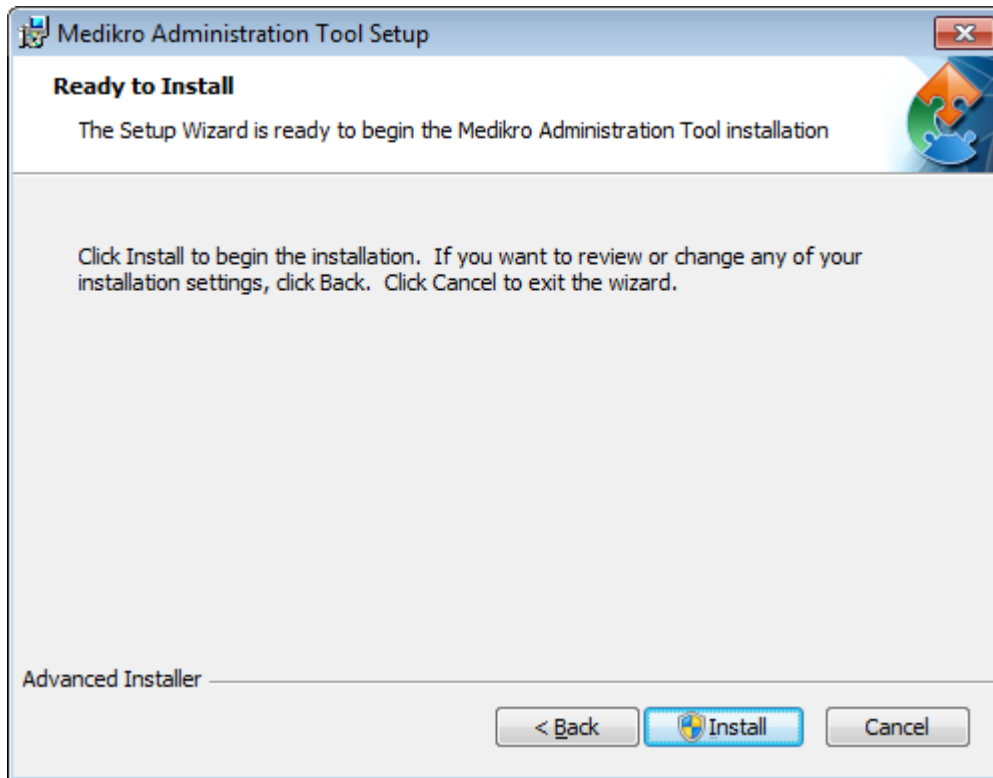
4. Select the Medikro spirometer device(s) that will be used with the installed software. The relevant software plugins will be installed according to this selection.



5. If the DBConnection.ini file (created during table creation) is available, tick the checkbox and locate the settings file. This is highly recommended because otherwise the connection settings have to be configured manually after installation. Select "Next".



6. To begin installation select "Install".



Post-installation tasks

See “Medikro Administration Tool, User’s manual” for details how to use the Administration Tool.

4.4 Install Client Applications

Pre-installation tasks

Before starting client application installation on a database server based environment, databases have to be created successfully on a SQL database management system.

Before starting client installation make sure that the client workstation and server are connected to the same network.

Check that DBConnection.ini file (created during table creation) has the correct server network address and port for all databases. It is recommended to use the DBConnection.ini file in client installation step 7. If DBConnection.ini file was not entered, client cannot create a connection to database server. Connection settings have to be configured using Medikro Administration Tool (See Administration Tool, User’s Manual, Chapter Connection Settings).

Installation steps

Follow the instruction of chapter [Install Workstation with Network Database](#)^[22]

Installing applications separately



5 Installing applications separately

In some cases there may be a need to install some applications separately without using the Medikro Spirometry Software Installer, for example when distributing installations remotely to client workstations. Also, there may be a need to add applications afterwards to an existing setup.

Note that measurement software are device-specific:

- Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi: Measurements and Results
- Medikro Duo: Medikro Screener and Medikro Serial Monitoring

If you are using Medikro Pro, Medikro Primo, Medikro Nano or Medikro Ambi and wish to add Measurements and Results into your existing Medikro Spirometry Software setup, follow the instructions in chapter [Install the Measurements and Results](#)^[45]. If you are using Medikro Duo and wish to add Medikro Screener and Medikro Serial Monitoring into your existing Medikro Spirometry Software setup, follow the instructions in chapter [Install measurement plugins](#)^[50].

Note that applications and plugins should be installed separately only from the same installation media version as your current Medikro Spirometry Software setup.

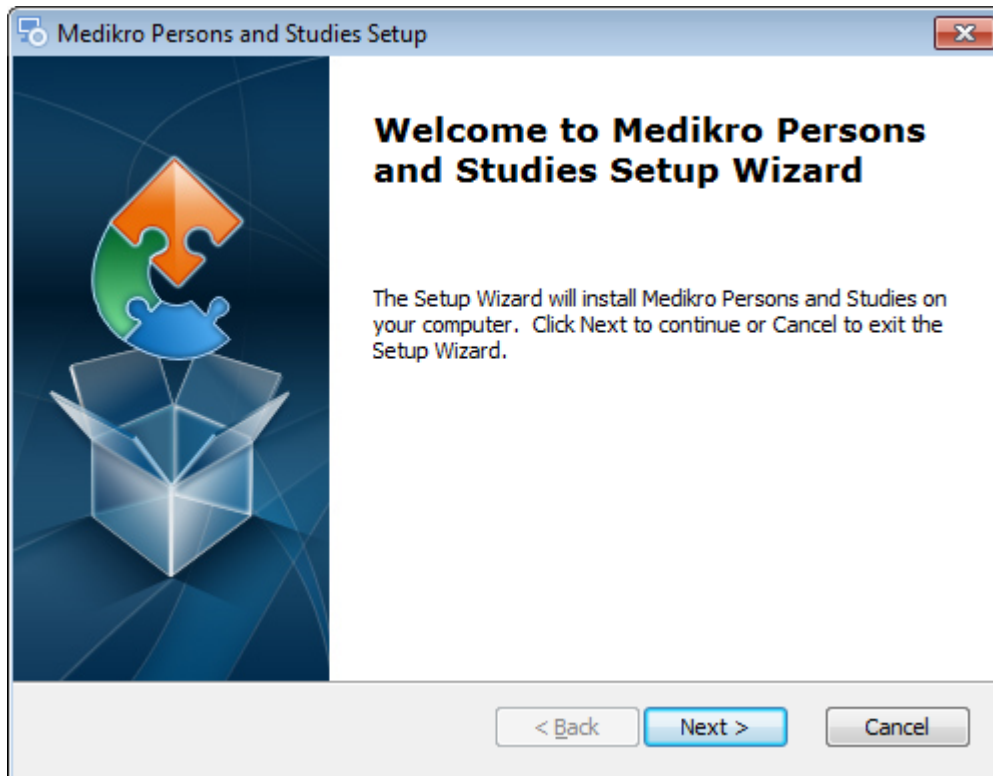
5.1 Install Persons and Studies

Pre-installation tasks

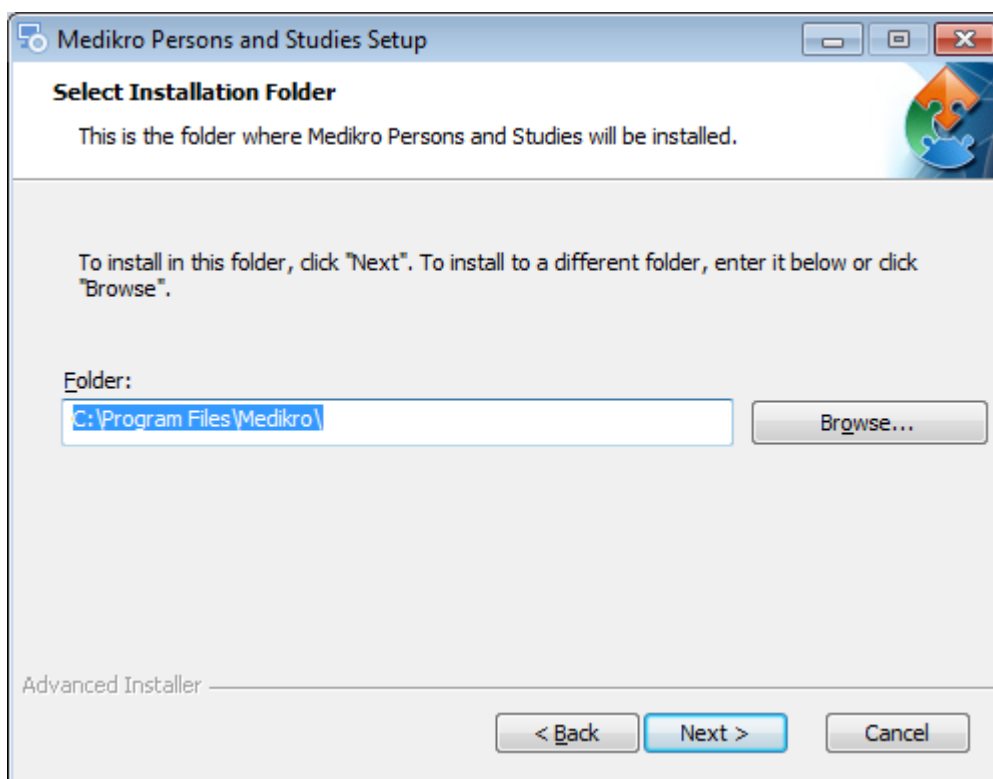
When installing this application on a database server based environment, check that the DBConnection.ini file (created during databases creation) has the correct server network address and port for all databases. It is recommended to use the DBConnection.ini file in installation step 6.

Installation steps

1. To start installation, select "PersonsAndStudies_32bit.exe" (if you have a 32-bit operating system) or "PersonsAndStudies_64bit.exe" (if you have a 64-bit operating system) from installation media.
2. On the Welcome screen, select "Next" to continue with the installation.

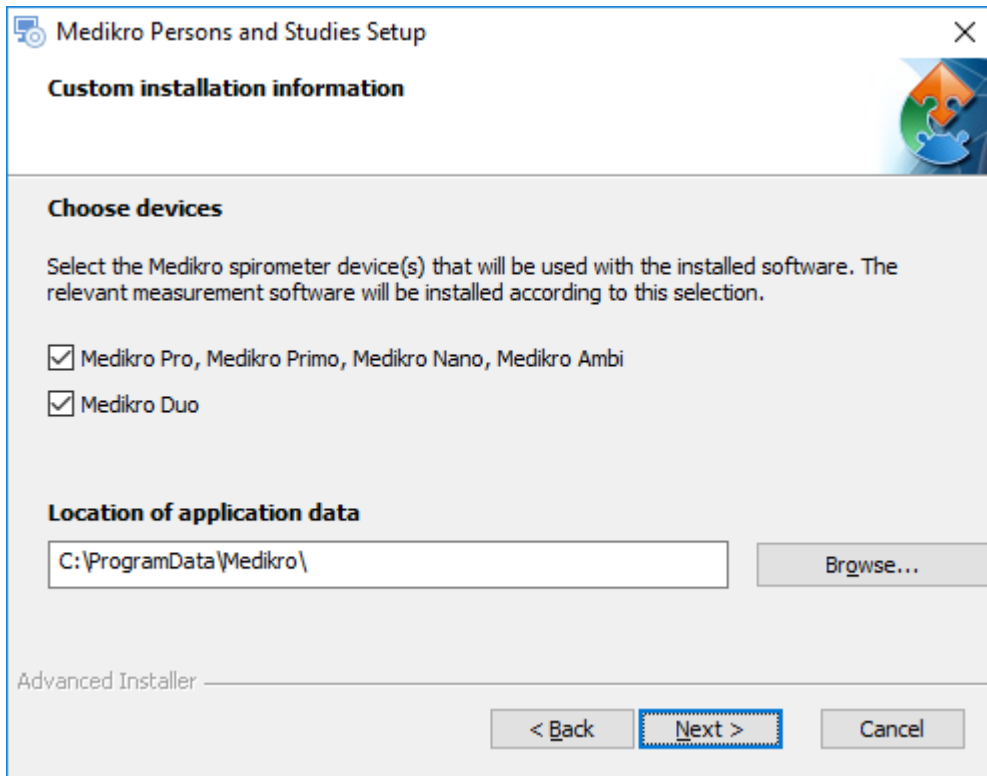


3. Choose installation location and select "Next".

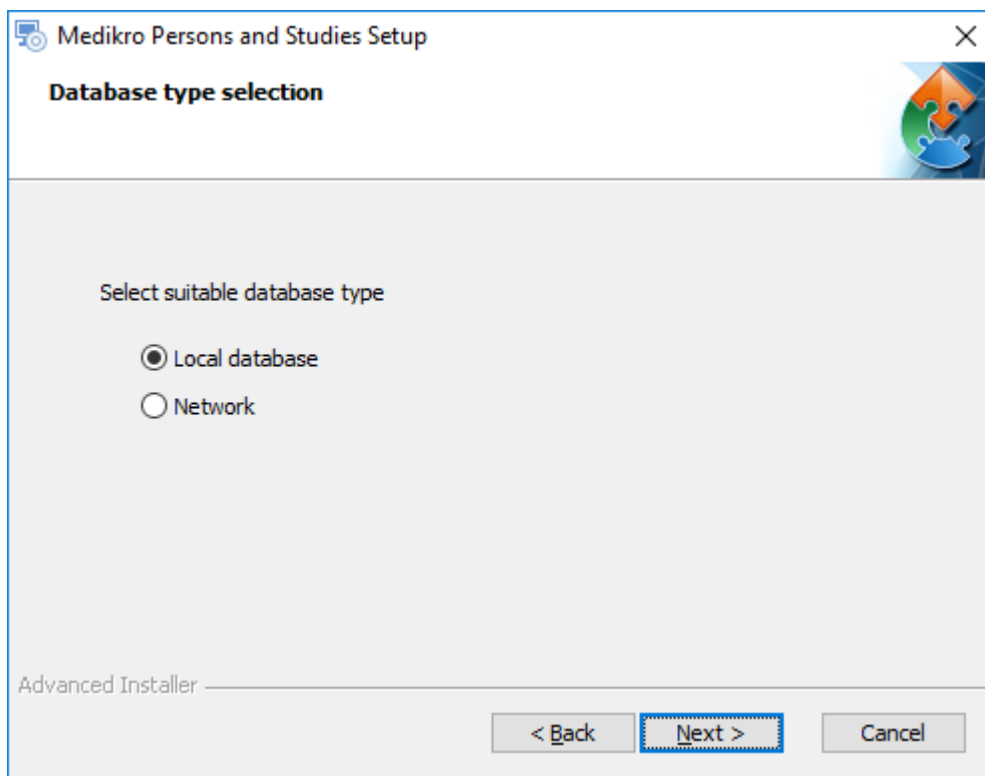


4. Select the Medikro spirometer device(s) that will be used with the installed software. The relevant measurement software will be installed according to this selection:

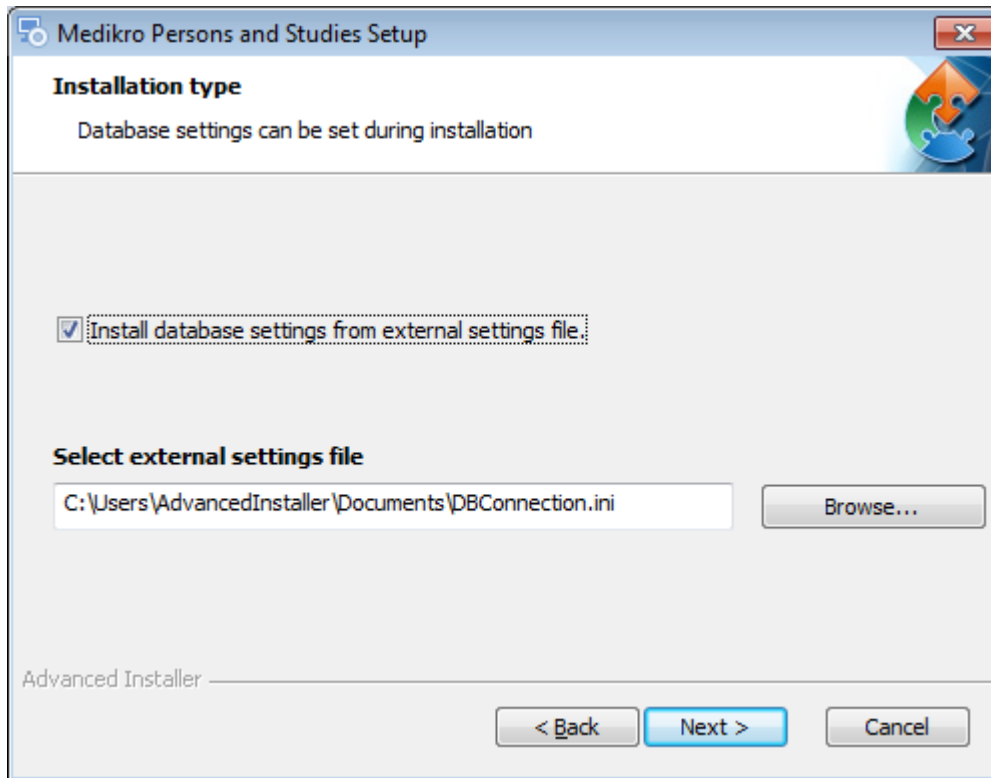
- Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi: Measurements and Results
- Medikro Duo: Medikro Screener and Medikro Serial Monitoring



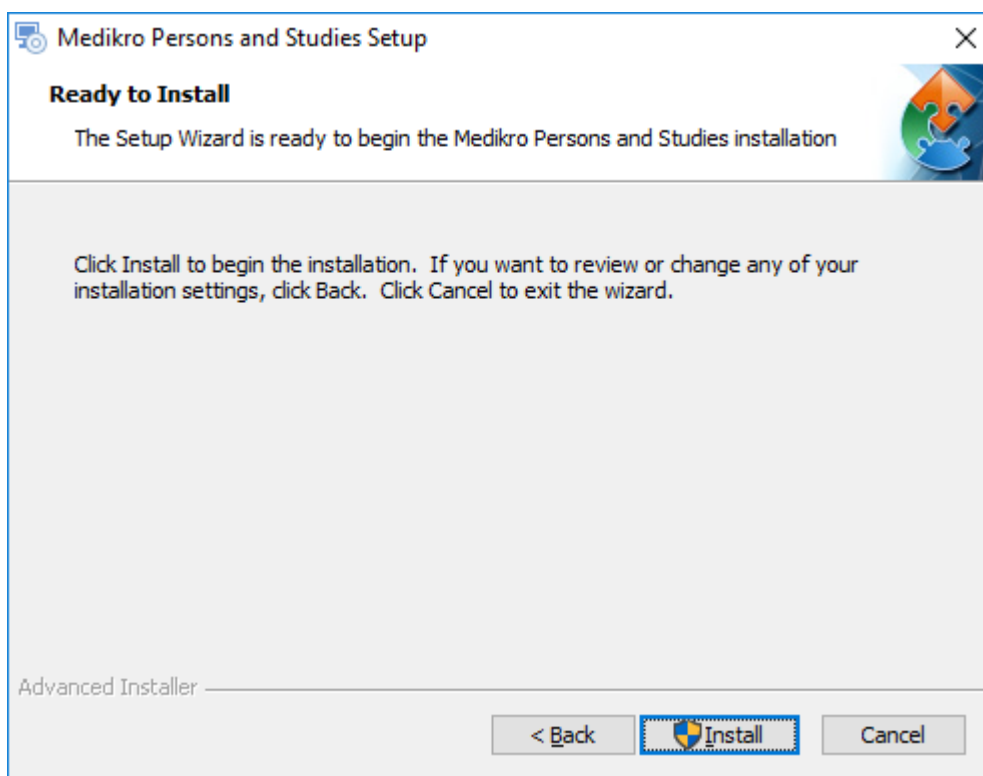
5. Select suitable database type (see [Environment Types](#)⁹⁾)



6. If the application is installed in the database server based environment, and if the DBConnection.ini file (created during database creation) is available, tick the checkbox and locate the settings file. If the file is not available, connection settings have to be input manually after installation. Select "Next".



7. Select "Install".



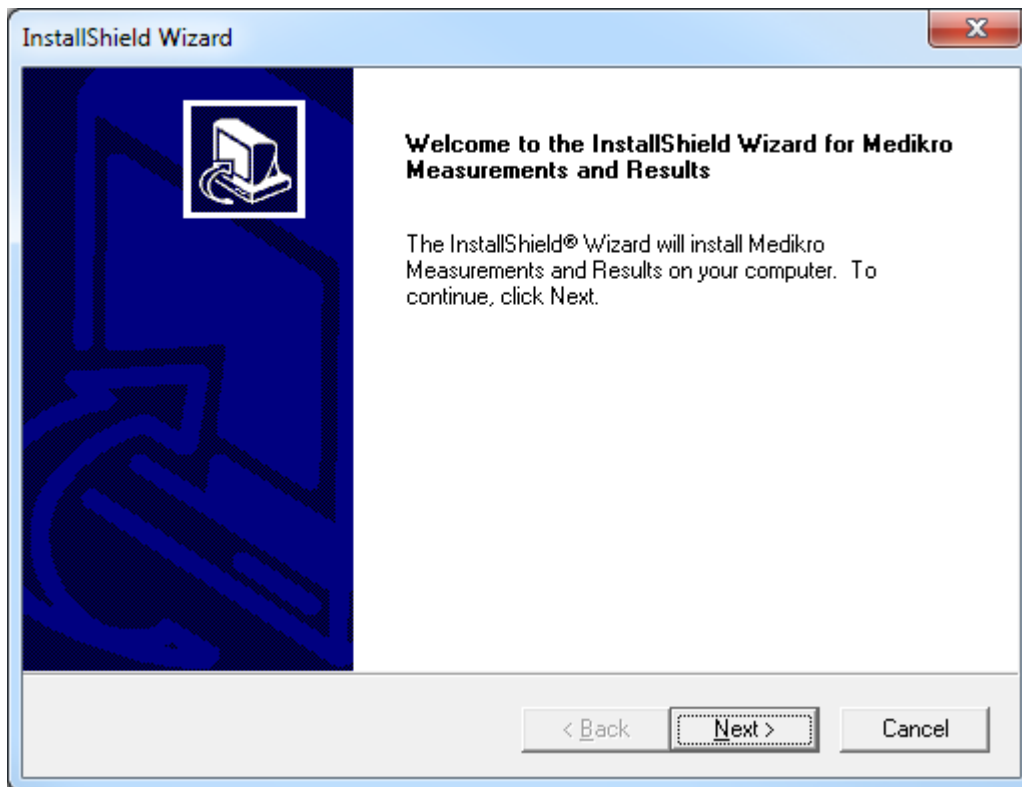
5.2 Install Measurements and Results

Pre-installation tasks

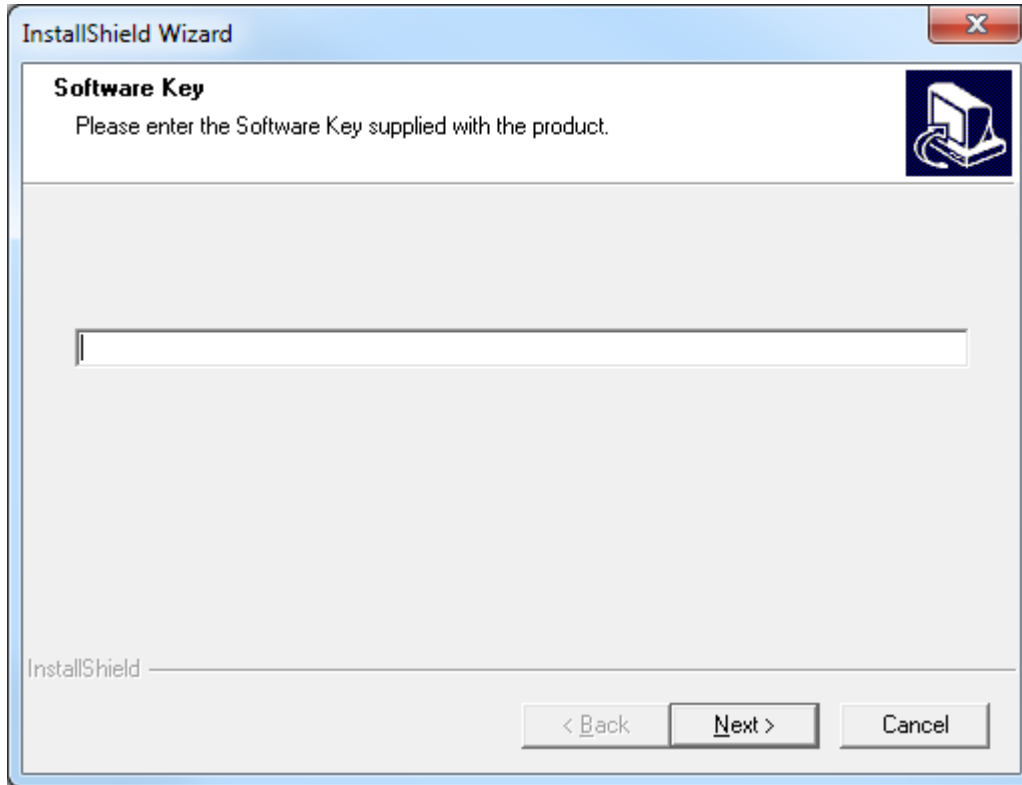
Persons and Studies has to be installed before Measurements and Results can be installed.

Installation steps

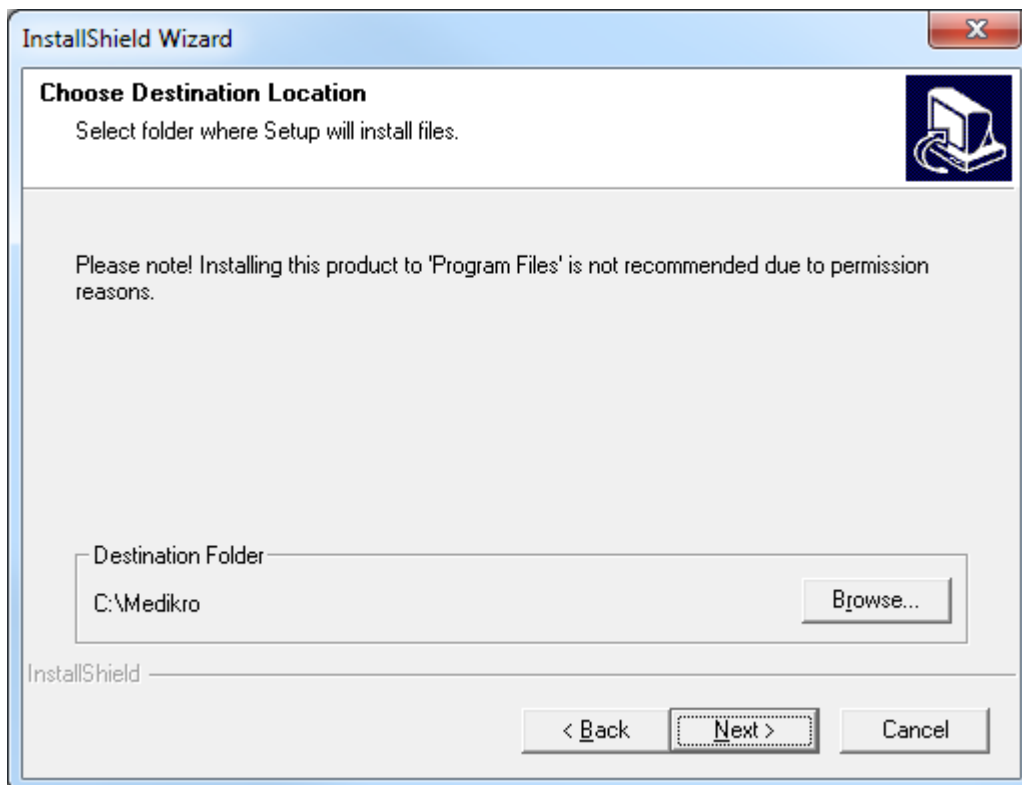
1. To start installation, select "Setup.exe" from installation media. Please note that Measurements and Results installation is in English only.
2. On the Welcome screen, select "Next" to continue with the installation.



3. Enter the software key (Software Key) supplied with the product and select "Next".

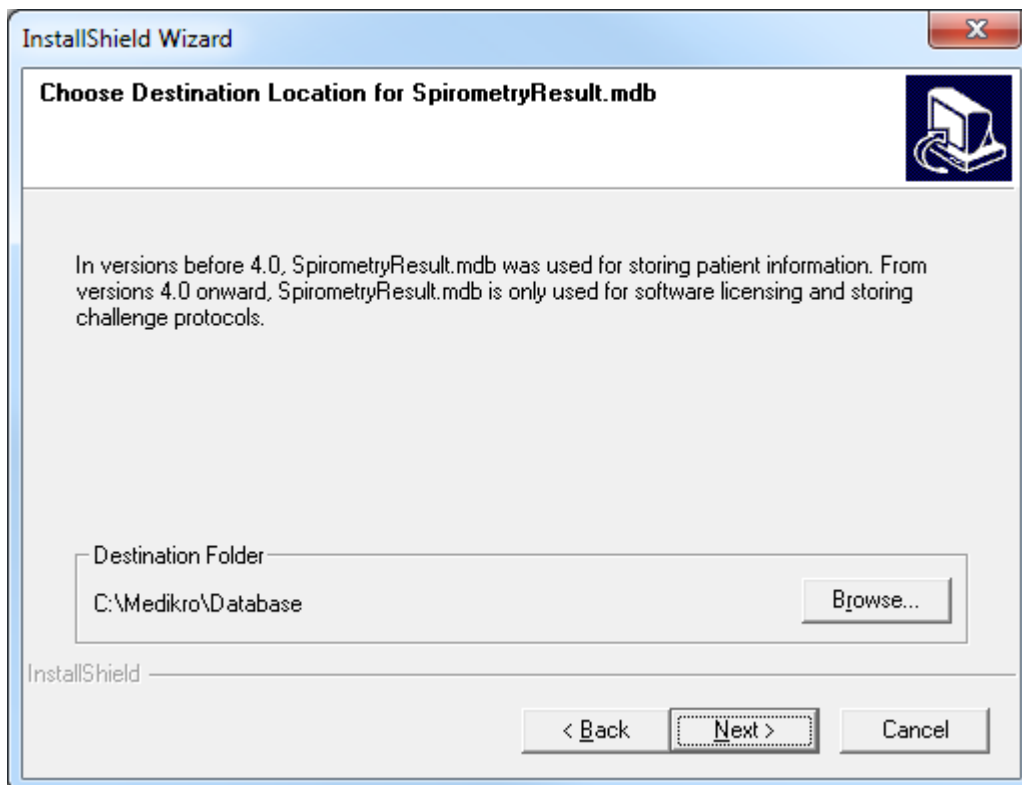


4. Choose installation location and select "Next".

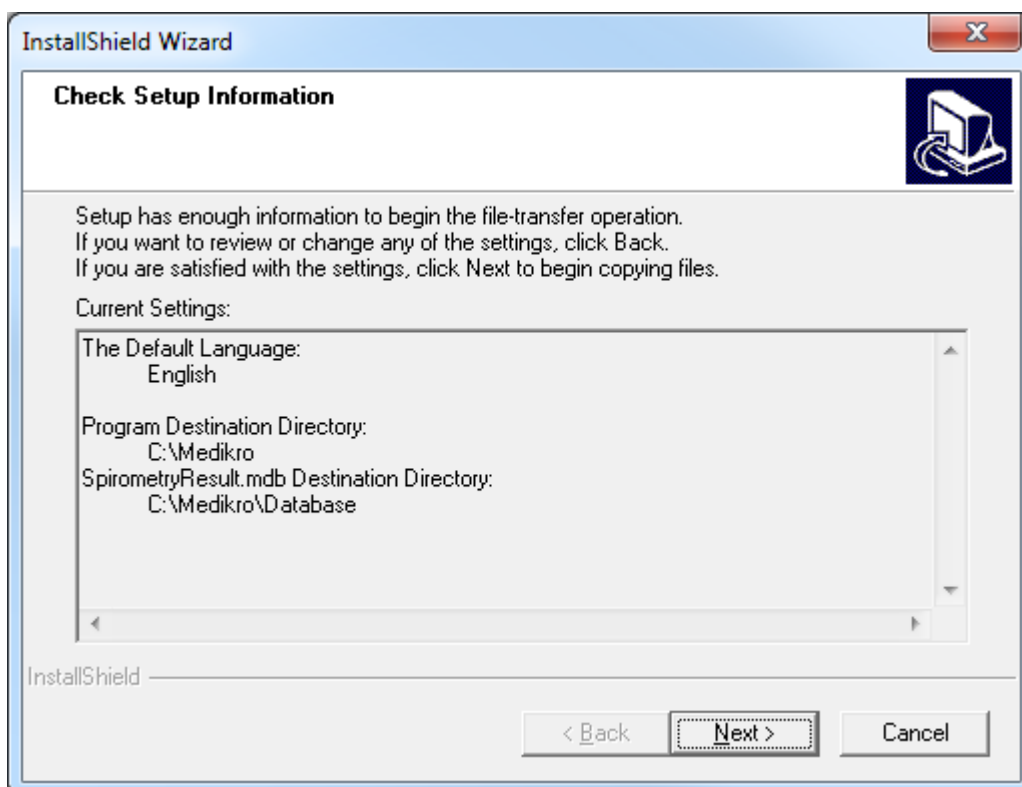


5. Choose the location of the database. This database is not used for storing health information or measurement results. It is used for storing software licensing information and challenge protocols. In the multiple workstation environment it is strongly recommended to place the

database to a shared network location to manage licenses centrally. In the single workstation environment, use the default location. Select "Next" to continue with the installation.



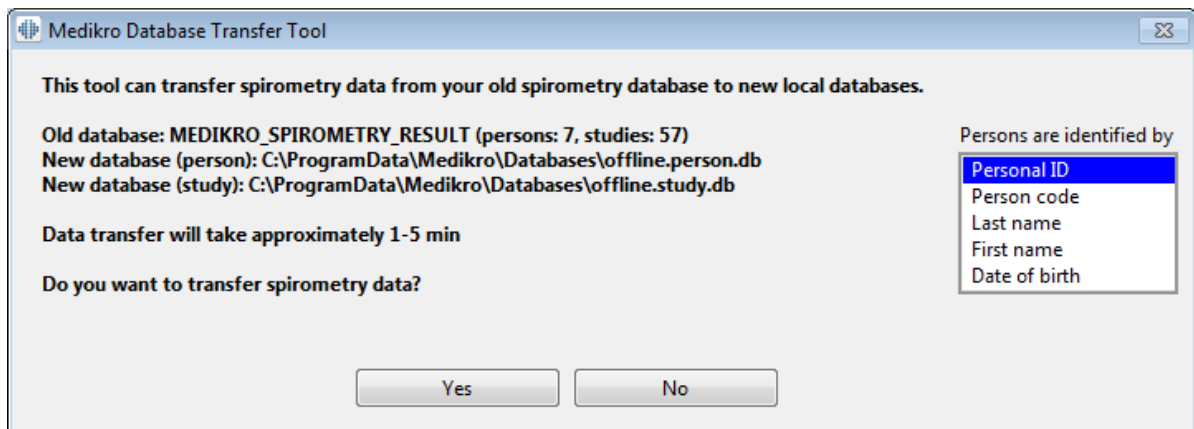
6. Summary step shows the made selections. Select "Next" to continue with the installation.



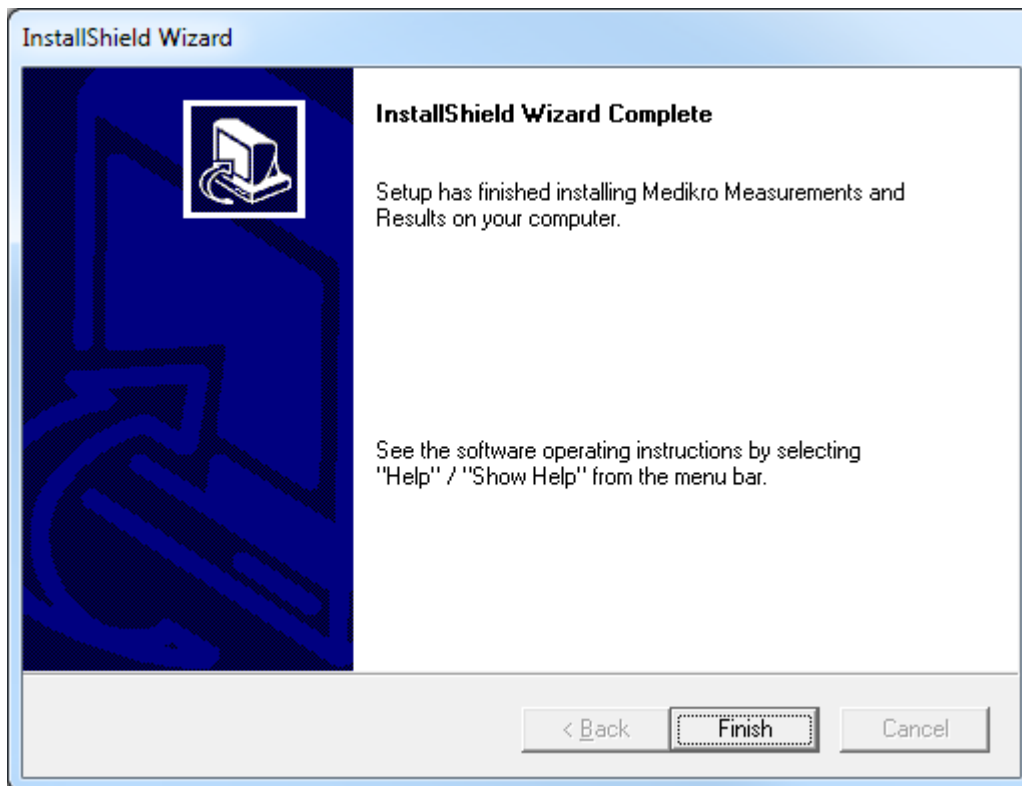
7. If you are upgrading from MSS version 3.1 or older and have a local spirometry database (MS Access) containing health information and measurement data, the installer asks to transfer them

to a new offline database. The dialog shows the number of persons and studies in the old database and the estimated transfer time. It is recommended to transfer only small databases in this step.

- If you have installed a multiple workstation environment, the new offline database will be synchronised to the online database when the Medikro Spirometry Software is launched the first time.
- If you choose not to transfer the health information and measurement data, it can be done later with "Medikro Database Transfer Tool". It is provided on Medikro Spirometry Software installation media. Follow the instructions provided with the tool.



8. Installation of Measurements and Results is complete. Select "Finish".



Post-installation tasks

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If Measurements and Results has been installed separately, it cannot be used with Persons and Studies unless measurement plugin is installed. To install the plugin, follow the instructions in chapter [Install measurement plugins](#)⁵⁰.

5.3 Install Measurement Plugins

If you wish to add measurement plugins to Persons and Studies installation, go to Windows Control Panel -> Programs and features, and select Persons and Studies. Select "Change".

1. Select "Modify"
2. Select the Medikro spirometer device(s) that will be used with the installed software. The relevant plugins will be installed according to this selection:
 - Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi: Measurements and Results - specific plugin (Measurements and Results application has to be installed separately)
 - Medikro Duo: Medikro Screener and Medikro Serial Monitoring -specific plugins (does not require separate measurement application)
3. Select "Install"

Silent Installation



6 Silent Installation

Persons and Studies

Persons and Studies application can be installed silently. The installation media contains two .msi packets for installing Persons and Studies:

- PersonsAndStudies_32bit.msi for 32-bit systems.
- PersonsAndStudies_64bit.msi for 64-bit systems.

To install Persons and Studies, you have to be a Windows Administrator. Install silently for 64-bit systems from command line:

```
msiexec /qn /i PersonsAndStudies_64bit.msi <ApplicationParameters>
```

If you are upgrading an old software version, it is not necessary to give any application parameters.

Below are the mandatory and optional parameters for Persons and Studies -installer:

Mandatory parameters for new installation:

- MAIN_APPDIR="[APPDIR]"
 - [APPDIR] = Absolute path to Installation directory of Persons and Studies.
 - Recommended value: "C:\Program Files\Medikro"
- MAIN_DATADIR="[DATADIR]"
 - [DATADIR] = Absolute path to Application data directory.
 - Recommended value: "C:\ProgramData\Medikro"

Optional parameters:

- DUO_DEVICE="[DUO_DEVICE]"
 - Whether Medikro Duo is used. (Whether to install Medikro Screener and Medikro Serial Monitoring plugins)
 - Accepted values: true, false
 - Default value : true
- PRO_DEVICE="[PRO_DEVICE]"
 - Whether Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi is used (Whether to install Measurements and Results -specific plugin).
 - Accepted values: true, false
 - Default value : true
- SELECTED_LANGUAGE="[SELECTED_LANGUAGE]"
 - ID for language used in Persons and Studies
 - Default value: 2057

- Supported languages:
 - ✓ 1028 for Chinese Traditional
 - ✓ 1029 for Czech
 - ✓ 1030 for Danish
 - ✓ 1031 for German
 - ✓ 1032 for Greek
 - ✓ 1033 for English US
 - ✓ 1035 for Finnish
 - ✓ 1036 for French
 - ✓ 1038 for Hungarian
 - ✓ 1040 for Italian
 - ✓ 1041 for Japanese
 - ✓ 1043 for Dutch
 - ✓ 1044 for Norwegian (Bokmål)
 - ✓ 1045 for Polish
 - ✓ 1049 for Russian
 - ✓ 1053 for Swedish
 - ✓ 1055 for Turkish
 - ✓ 1061 for Estonian
 - ✓ 2052 for Chinese Simplified
 - ✓ 2057 for English UK
 - ✓ 2067 for Dutch (Belgium)
 - ✓ 3076 for Chinese (Hong Kong)
 - ✓ 3079 for German (Austria)
 - ✓ 3082 for Spanish
- OFFLINE_MODE=[OFFLINE_MODE]
 - true for single workstation installation, false for multiple workstation installation
 - Default value: true
- DATABASE_LOCATION="[DATABASE_LOCATION]"
 - Absolute path to shared database directory
 - NOTE: Use it if you have a multiple workstation installation without external database server.
- DB_INI_PATH_INT="[DB_INI_PATH_INT]"

- Full path to DBConnection.ini -file.
 - NOTE: Use this if using database server based multiple workstation installation to have the connection settings.
- ODBC_DRIVER="[ODBC_DRIVER]"
- Name of the ODBC driver to use.
 - NOTE: Use it if you have a database server based multiple workstation installation.

Administration Tool

Administration Tool application can be installed silently. The installation media contains two .msi packets for installing Administration Tool:

- AdminTool_32bit.msi for 32-bit systems.
- AdminTool_64bit.msi for 64-bit systems.

To install Administration Tool, you have to be a Windows Administrator user. Install silently for 64-bit systems from command line:

```
msiexec /qn /i AdminTool_64bit.msi <ApplicationParameters>
```

If you are upgrading an old software version, it is not necessary to give any application parameters.

Below are the mandatory and optional parameters for Administration Tool installer:

Mandatory parameters for new installation:

- MAIN_APPDIR="[APPDIR]"
 - [APPDIR] = Absolute path to Installation directory of Administration Tool.
 - Recommended value : "C:\Program Files\Medikro"
- MAIN_DATADIR="[DATADIR]"
 - [DATADIR] = Absolute path to Application data directory.
 - Recommended value : "C:\ProgramData\Medikro"

Optional parameters:

- DUO_DEVICE="[DUO_DEVICE]"
 - Whether Medikro Duo is used. (Whether to install Medikro screener plugin)
 - Accepted values: true, false
 - Default value : true
- PRO_DEVICE="[PRO_DEVICE]"
 - Whether Medikro Pro, Medikro Primo, Medikro Nano, Medikro Ambi is used (Whether to install Measurements and Results -specific plugin).

- Accepted values: true, false
- Default value : true
- `SELECTED_LANGUAGE="[SELECTED_LANGUAGE]"`
 - ID for language used in Persons and Studies
 - Default value: 2057
 - Supported languages:
 - ✓ 1028 for Chinese Traditional
 - ✓ 1029 for Czech
 - ✓ 1030 for Danish
 - ✓ 1031 for German
 - ✓ 1032 for Greek
 - ✓ 1033 for English US
 - ✓ 1035 for Finnish
 - ✓ 1036 for French
 - ✓ 1038 for Hungarian
 - ✓ 1040 for Italian
 - ✓ 1041 for Japanese
 - ✓ 1043 for Dutch
 - ✓ 1044 for Norwegian (Bokmål)
 - ✓ 1045 for Polish
 - ✓ 1049 for Russian
 - ✓ 1053 for Swedish
 - ✓ 1055 for Turkish
 - ✓ 1061 for Estonian
 - ✓ 2052 for Chinese Simplified
 - ✓ 2057 for English UK
 - ✓ 2067 for Dutch (Belgium)
 - ✓ 3076 for Chinese (Hong Kong)
 - ✓ 3079 for German (Austria)
 - ✓ 3082 for Spanish
- `- DATABASE_LOCATION="[DATABASE_LOCATION]"`
 - Absolute path to shared database directory

- NOTE: Use it if you have a multiple workstation installation without external database server.
- DB_INI_PATH_INT="[DB_INI_PATH_INT]"
 - Full path to DBConnection.ini -file.
 - NOTE: Use this if using database server based multiple workstation installation to have the connection settings.
- ODBC_DRIVER="[ODBC_DRIVER]"
 - Name of the ODBC driver to use.
 - NOTE: Use it if you have a database server based multiple workstation installation.

Measurements and Results

Note that Persons and Studies has to be installed before Measurements and Results can be installed.

Measurements and Results can be installed silently. To install it silently, it needs "InstallShield Response File" (.iss) to define the installation process. The files can be generated by recording one installation done manually. The file is different depending on what the installation scenario is: installation, upgrading or uninstallation.

Recording .iss -file manually

To record the choices done in the dialogs, the installer must be run from the command line:

```
Setup.exe -r -f1"<main_iss_file_location>" LANGISS="<language_iss_file_location>"
```

Or for uninstall

```
Setup.exe -x -r -f1"<main_iss_file_location>"
```

Parameters:

- -r
 - Runs setup.exe in record mode.
- -f1"<main_iss_file_location>"
 - Path to the .iss -file where it will be generated. If not defined, the .iss -file will be generated to C:\Windows\setup.iss.
 - Note: No space between f1 and the location.
- LANGISS="<language_iss_file_location>"
 - The installer consists of two installers, the software installer and language pack installer. This parameter defines the path to the .iss -file for the language pack installer where it

will be generated. If not defined, the .iss -file will be generated to C:\Windows\setup_language.iss.

- This is not needed in case of uninstall.

- -x
 - For uninstalling use this switch.

Running silently

The installation can be run silently from the command line:

```
Setup.exe -s -f1"<main_iss_file_location>" LANGISS="<language_iss_file_location>"
```

Parameters:

- -s
 - Runs setup.exe in silent mode.
- -f1"<main_iss_file_location>"
 - Path to the .iss -file where it will be read. If not defined, the .iss -file will read from <Setup.exe path >\setup.iss.
- LANGISS="<language_iss_file_location>"
 - The installer consists of two installers, the software installer and language pack installer. This parameter defines path to the .iss -file for the language pack installer where it will be read. If not defined, the .iss -file will be read from <Setup.exe path >\LanguagePack\setup.iss.

Please note! If you are upgrading from an earlier MSS version and have a local spirometry database (MS Access) containing health information and measurement data, the installer will transfer them to a new offline database by using the Medikro Database Transfer Tool. That's why you have to include the Medikro Database Transfer Tool folder in your distribution package. Also, you must configure the DB Transfer.ini to use the suitable person identification criteria for your organisation. If needed, you can disable the transfer entirely or limit the maximum number of studies to be transferred. Follow the instructions provided with the tool.

Uninstalling silently

The uninstallation can be run silently from the command line:

```
Setup.exe -x -s -f1"<main_iss_file_location>"
```

- -x
 - Uninstall.
- -s

- Runs setup.exe in silent mode.
- -f1"<main_iss_file_location>"
 - Path where the .iss -file will be read. If not defined, the .iss -file will read from <Setup.exe path >\setup.iss.
- NOTE: No need to define language pack .iss -file for uninstallation.

Example .iss files

The .iss -file contains what choices have been made in the installation dialogs. Below are some examples of the files for installing, upgrading from older versions and uninstalling. It is still recommended to make one installation manually and to record the choices.

Example of the .iss file for Install

Application installer iss -file:

```
[InstallShield Silent]
```

```
Version=v6.00.000
```

```
File=Response File
```

```
[File Transfer]
```

```
OverwrittenReadOnly=NoToAll
```

```
[{FB923D60-0017-11D4-81C9-0050BAAF5441}-DlgOrder]
```

```
Dlg0={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdWelcome-0
```

```
Count=6
```

```
Dlg1={FB923D60-0017-11D4-81C9-0050BAAF5441}-AskText-0
```

```
Dlg2={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdAskDestPath-0
```

```
Dlg3={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdAskDestPath-1
```

```
Dlg4={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdStartCopy-0
```

```
Dlg5={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdFinish-0
```

```
[{FB923D60-0017-11D4-81C9-0050BAAF5441}-SdWelcome-0]
```

Result=1

[[FB923D60-0017-11D4-81C9-0050BAAF5441]-AskText-0]

szText=MSJH2K

Result=1

[[FB923D60-0017-11D4-81C9-0050BAAF5441]-SdAskDestPath-0]

szDir=C:\Medikro

Result=1

[[FB923D60-0017-11D4-81C9-0050BAAF5441]-SdAskDestPath-1]

szDir=C:\Medikro\Database

Result=1

[[FB923D60-0017-11D4-81C9-0050BAAF5441]-SdStartCopy-0]

Result=1

[Application]

Name=Spiro2000

Version=4.0.0

Company=Medikro

Lang=0009

[[FB923D60-0017-11D4-81C9-0050BAAF5441]-SdFinish-0]

Result=1

bOpt1=0

bOpt2=0

Modifiable parts:

- [[FB923D60-0017-11D4-81C9-0050BAAF5441]-AskText-0]
szText=MSJH2K

- Contains the software key which is supplied with the product (after szText=).
- *[[FB923D60-0017-11D4-81C9-0050BAAF5441]-SdAskDestPath-0]*
szDir=C:\Medikro
 - Contains the installation directory after szDir=.
 - Please note that installing this product to 'Program Files' is not recommended due to permission reasons.
- *[[FB923D60-0017-11D4-81C9-0050BAAF5441]-SdAskDestPath-1]*
szDir=C:\Medikro\Database
 - Destination location for SpirometryResults.mdb for software licensing and storing challenge protocols after szDir=.

Language pack iss -file:

[InstallShield Silent]

Version=v6.00.000

File=Response File

[File Transfer]

OverwrittenReadOnly=NoToAll

[[EC93F2F1-65A3-43C0-AB4E-39B4A68F994A]-DlgOrder]

Dlg0={EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}-SdAskOptionsList-0

Count=2

Dlg1={EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}--0

[[EC93F2F1-65A3-43C0-AB4E-39B4A68F994A]-SdAskOptionsList-0]

Component-type=string

Component-count=2

Component-0=English

Component-1=Finnish

Result=1

[{EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}--0]

DefLang=English

Result=1

nResult=0

[Application]

Name=Medikro Measurements and Results Language Pack

Version=4.0.0

Company=Medikro

Lang=0150

Modifiable parts:

- *Component-count=2*

Component-0=English

Component-1=Finnish

- Languages to install. For the Component-count, the number of languages to install.

- Component-x=< Language_name >

- Language name as they are in the < installation_media >\LanguagePack - folder.

- *[{EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}--0]*

DefLang=English

- Default language to use in Measurements and Results after DefLang=.

- Language name as they are in the < installation_media >\LanguagePack - folder.

Example of the .iss file for upgrading from older version

Application installer .iss -file:

[InstallShield Silent]

Version=v6.00.000

File=Response File

[File Transfer]

OverwrittenReadOnly=NoToAll

[{FB923D60-0017-11D4-81C9-0050BAAF5441}-DlgOrder]

Dlg0={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdWelcome-0

Count=5

Dlg1={FB923D60-0017-11D4-81C9-0050BAAF5441}-AskText-0

Dlg2={FB923D60-0017-11D4-81C9-0050BAAF5441}-MessageBox-0

Dlg3={FB923D60-0017-11D4-81C9-0050BAAF5441}-File Transfer

Dlg4={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdFinish-0

[{FB923D60-0017-11D4-81C9-0050BAAF5441}-SdWelcome-0]

Result=1

[{FB923D60-0017-11D4-81C9-0050BAAF5441}-AskText-0]

szText=MSJH2K

Result=1

[{FB923D60-0017-11D4-81C9-0050BAAF5441}-MessageBox-0]

Result=1

[{FB923D60-0017-11D4-81C9-0050BAAF5441}-File Transfer]

LockedFile=YesToAll

[Application]

Name=Spiro2000

Version=4.0.0

Company=Medikro

Lang=0009

[{FB923D60-0017-11D4-81C9-0050BAAF5441}-SdFinish-0]

Result=1

bOpt1=0

bOpt2=0

Modifiable parts:

- [{FB923D60-0017-11D4-81C9-0050BAAF5441}-AskText-0]

szText=MSJH2K

- Contains the software key which is supplied with the product (after szText=).

Language pack .iss -file:

[InstallShield Silent]

Version=v6.00.000

File=Response File

[File Transfer]

OverwrittenReadOnly=NoToAll

[{EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}-DlgOrder]

Dlg0={EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}-SdAskOptionsList-0

Count=2

Dlg1={EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}--0

[{EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}-SdAskOptionsList-0]

Component-type=string

Component-count=2

Component-0=English

Component-1=Finnish

Result=1

```
[[{EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}--0]
```

```
DefLang=English
```

```
Result=1
```

```
nResult=0
```

```
[Application]
```

```
Name=Medikro Measurements and Results Language Pack
```

```
Version=4.0.0
```

```
Company=Medikro
```

```
Lang=0150
```

Modifiable parts:

- *Component-count=2*

Component-0=English

Component-1=Finnish

- Languages to install. For the Component-count, the number of languages to install.

- Component-x=< Language_name >

-Language name as they are in the < installation_media >\LanguagePack - folder.

- ```
[[{EC93F2F1-65A3-43C0-AB4E-39B4A68F994A}--0]
```

*DefLang=English*

- Default language to use in Measurements and Results after DefLang=

- Language name as they are in the < installation\_media >\LanguagePack - folder.

### Example of the .iss file for uninstallation

Application installer .iss -file:

```
[InstallShield Silent]
```

```
Version=v6.00.000
```



*File=Response File*

*[File Transfer]*

*OverwrittenReadOnly=NoToAll*

*[{FB923D60-0017-11D4-81C9-0050BAAF5441}-DlgOrder]*

*Dlg0={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdWelcomeMaint-0*

*Count=5*

*Dlg1={FB923D60-0017-11D4-81C9-0050BAAF5441}-SprintfBox-0*

*Dlg2={FB923D60-0017-11D4-81C9-0050BAAF5441}-MessageBox-0*

*Dlg3={FB923D60-0017-11D4-81C9-0050BAAF5441}-File Transfer*

*Dlg4={FB923D60-0017-11D4-81C9-0050BAAF5441}-SdFinish-0*

*[{FB923D60-0017-11D4-81C9-0050BAAF5441}-SdWelcomeMaint-0]*

*Result=303*

*[{FB923D60-0017-11D4-81C9-0050BAAF5441}-SprintfBox-0]*

*Result=1*

*[{FB923D60-0017-11D4-81C9-0050BAAF5441}-MessageBox-0]*

*Result=1*

*[Application]*

*Name=Spiro2000*

*Version=4.0.0*

*Company=Medikro*

*Lang=0009*

*[{FB923D60-0017-11D4-81C9-0050BAAF5441}-File Transfer]*

*LockedFile=YesToAll*

*[{FB923D60-0017-11D4-81C9-0050BAAF5441}-SdFinish-0]*

---

*Result=1*

*bOpt1=0*

*bOpt2=0*

No modifiable parts.

Upgrading from old versions



## 7 Upgrading from old versions

### Upgrading from version 4.0 or newer

1. Make backups of your spirometry databases before upgrading.
2. Do not uninstall earlier versions of the Medikro Spirometry Software.
3. Install the Medikro Spirometry Software on client workstations by following the installation steps in chapters [Install Workstation with Local Database](#)<sup>[16]</sup> (in single workstation environment) or [Install Workstation with Network Database](#)<sup>[22]</sup> (in multiple workstation environment).

### Upgrading from version 3.1 or older

Because Medikro Spirometry Software from 4.0 onward uses new databases, health information and measurement data has to be transferred to new databases immediately after software upgrade. The Medikro system should not be used before the whole upgrade process is successfully carried out. Follow the upgrade process carefully:

1. Make backups of your spirometry databases before upgrading.
2. Do not uninstall earlier versions of the Medikro Spirometry Software.
3. Install the Medikro Spirometry Software as described in chapters [Install Medikro Spirometry Software](#)<sup>[16]</sup> or [Install Database Server Based Environment](#)<sup>[32]</sup>.
4. To transfer health information and measurement data from current database to new databases, use the "Medikro Database Transfer Tool" that is provided on Medikro Spirometry Software installation media. Follow the instructions provided with the tool.

Repair application



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## 8 Repair application

Repair function of the installer can be used if Medikro applications are already in use but have broken down (e.g. files or registries have gotten lost or corrupted). Repair will fix the broken item and leave other items untouched. Installation media is needed to execute repair.

Before running repairs, make backups of the offline databases and of Medikro.ini and Admintool.ini files.

To run a repair for Administration Tool or Persons and Studies, go to Windows Control Panel -> Programs and features, and select the application that needs to be repaired. Select "Repair". Repair is run on the background, no other user input is needed.

To run a repair for Measurements and Results, run Setup.exe from installation media. On the opened installation wizard, select "Repair", and select "Next". Follow instructions of the wizard to finish the repair.

After repair, verify that offline databases and .ini files have remained untouched during repair.

## Uninstallation



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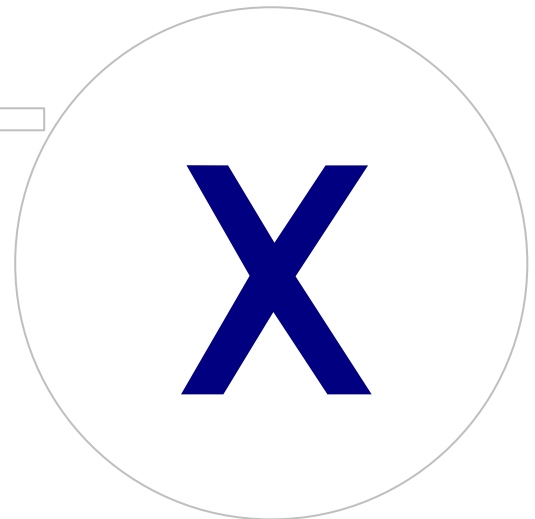
## 9 Uninstallation

To uninstall a single application, select the application from Windows Control Panel -> Programs and features and select "Uninstall".

If Medikro applications have been installed using Medikro Spirometry Software Installer, not using separate msi-packages, it is possible to uninstall all Medikro applications simultaneously. Select Medikro Spirometry Software from Windows Control Panel -> Programs and features and select "Uninstall".



## Troubleshooting



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## 10 Troubleshooting

### Installation fails

All required components have to be installed.

### Application does not connect to online server

Make sure that client workstation and server communicate. Ping both directions, and check that the Windows firewall is not blocking the connection. Please note that MS SQL Server uses UDP port 1434 to establish communication links from applications.

Make sure that MS SQL server allows SQL authentication.

Check that the server network address and port are correct for all databases in Medikro.ini and in the admintool.ini installed in the client workstation.

Check that client workstation and server both have the correct (MS SQL Server) ODBC driver installed. ODBC drivers can be checked in Windows Control Panel -> System and Security -> Administrative Tools -> ODBC Data Sources -> Drivers -tab.

Check that client software uses correct ODBC driver. Used ODBC driver can be checked from Medikro.ini and from Admintool.ini installed in the client workstation.

## Backups of Databases

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XI

## 11 Backups of Databases

Backups of offline and online databases should be created regularly. Additionally, the usage of data redundancy is strongly advised.

Backing up online databases happens at the database server. There are several methodologies available depending on the server technology. Please refer to the instructions made available by your server software provider.

Online databases that are recommended to be backed up:

- **actiondb:** Recommended if audit trail is in use and actions are logged to online database.
- **persondb and studydb:** Recommended if not a single workstation system which uses only offline databases.
- **supportdb:** Recommended if settings configurations are stored in online database or if online access control is in use.

Backing up offline and local databases happens at the workstations. Database files can be copied to backup locations once they are not in use.

Files in workstations that are recommended to be backed up:

- **Medikro.ini:** Contains settings configuration for the workstation. Persons And Studies cannot be started without a valid configuration file. Default location is: "C:\ProgramData\Medikro".
- **actionlog.db:** Contains action log for the audit trail. Recommended to be backed up if offline audit trail is in use. Default location is: "C:\ProgramData\Medikro\Databases".
- **offline.access.db:** Contains authorisation information. Recommended to be backed up if local access control is in use. Default location is: "C:\ProgramData\Medikro\Databases".
- **offline.person.db:** Contains person information. Recommended to be backed up if offline databases are used exclusively or if the workstation has been extracted from the network for a long period of time. Default location is: "C:\ProgramData\Medikro\Databases".
- **offline.study.db:** Contains study information. Recommended to be backed up if offline databases are used exclusively or if the workstation has been extracted from the network for a long period of time. Default location is: "C:\ProgramData\Medikro\Databases".
- **AdminActions\actionlog.db:** Contains action log from Administration Tool for the audit trail. Note that Administration Tool actions are never logged anywhere else. Recommended to be backed up if audit trail is in use. Default location is: "C:\ProgramData\Medikro".
- **SpirometryResults.mdb:** Contains software licensing information and challenge protocols. Please note that health information and spirometry measurement results are not stored here anymore. Default location is: "C:\Medikro\Database".