

Advanced installation of NoiseTools



Cirrus Research plc
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1 Overview

The NoiseTools program is used to download measurement data from a range of Cirrus Research noise measurement instruments.

Measurements are stored within a database with audio recordings stored as individual files.

The configuration file used by NoiseTools, settings.xml, contains the location of these files that the program should use and this information can be edited to suit a range of different installation environments.

The following sections contain information for advanced users and network administrators that may be useful when installing NoiseTools for multiple users.

2 NoiseTools System Requirements

The NoiseTools software (supplied with the optimus sound level meters, doseBadge Noise Dosimeter, Trojan Noise Nuisance Recorder, CR:800C and CR:260A sound level meters) can be run on most modern PCs. To get the best from the software the PC should meet the minimum specifications below and where possible meet the recommended specifications.

If you are using functions such as the FFT analysis or 3D playback of audio recordings, having a faster PC with a dedicated NVIDIA graphics card will be beneficial.

Please note that NoiseTools is not compatible with the Apple Mac Operating system.

2.1 Operating System

2.2 Minimum System Requirements

- Windows 7 SP1 *
- CPU: 2GHz Dual Core
- Memory: 2GB
- Storage: 10GB free space
- Display: 1280x800

2.3 Recommended System Specification

- Windows 7 SP1 Professional/Enterprise (x64)
- CPU: 3GHz Dual Core
- Memory: 4GB
- Storage: 50GB free space
- Display: 1280x1024

2.4 Ideal System Specification

- Windows 8.1 Pro/Enterprise (x64)
- CPU: 3GHz Quad Core
- Memory: 8GB
- Storage: 100GB free space
- Display: 2x 1920x1080
- Dedicated NVIDIA graphics card with CUDA support
- Dedicated sound card and external speakers

2.5 Storage requirements for NoiseTools installation & measurement data

- Approximately 1GB for installing NoiseTools and dependencies
- Up to 512MB for temporary files during measurement download
- 1GB per instrument per year for measurements and time history data, assuming typical usage

Where an instrument is storing and downloading audio recordings, additional storage space will be required. The amount of storage will depend upon the length of recordings and the audio quality chosen. Audio recordings require the following amounts of space:

Standard Quality	120MB/hr
Studio Quality	1.4GB/hr

2.6 Sound card for audio playback

NoiseTools can work with on-board sound cards and internal laptop speakers.

However for best results a dedicated card and external speakers are required.

Some on-board sound cards will not be capable of playing the studio quality 96kHz audio. In these cases an external sound card will be required that is capable of playing back this type of file.

In some cases internal speakers are sufficient, however to playback at realistic levels, such as when using the speaker calibration feature, good quality external speakers are required.

Audio files created by the Cirrus instruments and downloaded to the NoiseTools software are stored as WAV files.

2.7 Graphics Card

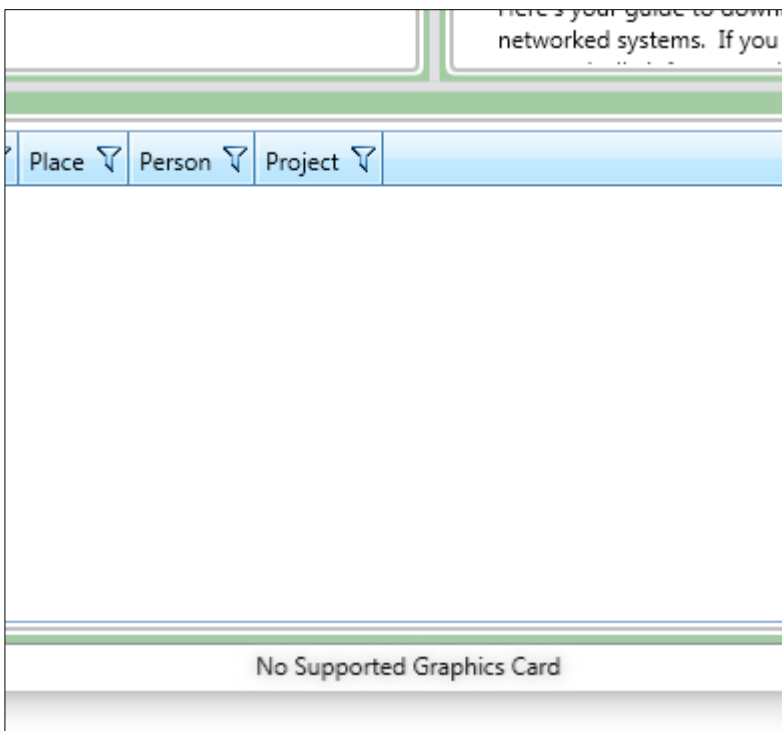
NoiseTools uses the latest technologies to draw the user interface directly using the graphics card. This gives a much better looking more responsive experience and allows us to easily provide certain advanced features, such as the 3D frequency analysis view.

Most on-board graphics chips can provide more than enough power to display the basic user interface but the more advanced screens will be noticeably smoother on more powerful hardware.

NoiseTools is also able to use the latest CUDA graphics cards, from NVIDIA, to do FFT and other complex calculations. This can be many times faster than running these calculations on the main processor.

This feature requires a CUDA capable card and 64bit version of Windows.

If a suitable graphics card is not detected, NoiseTools will display a message at the bottom of the main screen as shown below:



NoiseTools will operate as normal without a CUDA capable graphics card.

2.8 .NET 4.0 Framework

All versions of the NoiseTools software use the Microsoft .NET Framework and this is installed as part of the Windows operating system. The version of the .NET Framework installed by depend upon the version of the Windows operating system that is installed.

When NoiseTools was updated from v1.4.6 to v1.5, the .NET Framework used was changed from 3.5 to 4.0 to allow for new functions and features to be added.

By default, .NET 4.0 is not included with Windows XP (as this was released before .NET 4.0 was available) and so to run NoiseTools v1.5 or later on Windows XP, the .NET Framework 4.0 must be installed manually.

Please note that Cirrus Research plc is not responsible for the loss of any data or any issues caused by the installation of the .NET 4.0 Framework.

Users must ensure that their systems meet the minimum requirements before installation and all data should be backed up before installing this update. The requirements are given on the Microsoft website on the download page for .NET 4.0

The .NET 4.0 installer is available from this link.

Note that certain versions of Windows 7 may also not include the .NET 4.0 Framework and must be updated before they can run NoiseTools v1.5 or later.

3 Connectivity requirements

3.1 USB Download of measurement data

Most data is downloaded from the noise measurement instruments via a USB connection.

The Optimus sound level meters present the internal data as a storage device within Windows. Users' systems must be able to read from a connected USB storage device.

Please note that the local system cannot write to the memory card as the instrument prevents this. The device cannot be encrypted by external services.

Other instruments may require an additional driver to be installed. This will be carried out when the device is connected to the local PC for the first time.

The user's system must be able to install drivers for connected devices.

All drivers supplied by Cirrus Research plc are signed.

3.2 Internet access for the NoiseTools program

In order to function properly NoiseTools requires access to the following locations:

- sms.crplc.co.uk
- optimus-cloud.co.uk
- s3.amazonaws.com

NoiseTools only uses outgoing HTTP connections to port 80.

3.2.1 sms.crplc.co.uk

NoiseTools can determine if a newer version of the software is available. The program will connect to sms.crplc.co.uk (Port 80) and check if a new version is available.

A notification will be displayed in the NoiseTools software.

If the user has sufficient access rights to install programs, NoiseTools can download and automatically install updates.

If sms.crplc.co.uk is not available, NoiseTools will continue to run as normal but will not be able to alert the user to new versions of the software.

3.2.2 optimus-cloud.co.uk

The Optimus Cloud service is used in conjunction with the CK:680 outdoor measurement kits.

Access to the Optimus Cloud server is required to allow NoiseTools to configure email and twitter alerts and to store audio trigger templates.

This is not required for the CR:15x (Optimus Yellow), CR:16x (Optimus Red) or Trojan Noise Nuisance Recorders.

If optimus-cloud.co.uk is not available, NoiseTools will continue to run as normal

3.2.3 Access to s3.amazonaws.com

NoiseTools will backup and store instrument settings to a database on the amazon aws platform.

This is not essential for software updates. No measurements, recordings or user data is stored.

If s3.amazon.com is not available, NoiseTools will continue to run as normal

3.3 Remote data access

Please note that this functionality is only required when a CR:17x series (Optimus Green) is used with a CK:680 outdoor measurement kit.

This is not required for the CR:15x (Optimus Yellow), CR:16x (Optimus Red) or Trojan Noise Nuisance Recorders.

When NoiseTools connects to a CK:680 outdoor kit using a remote connection, it requires access to the following:

- dynamic.optimus-cloud.co.uk
- The instrument IP Address

You can find your instrument's IP address via the Optimus Cloud website, once it has been linked to your account. Most instruments use a static IP address so this will not change over time.

Note 1: Connections to the optimus/CK:680 instrument use an outgoing TCP connection to port 22850. These do not currently support forwarding through a proxy server.

Note 2: These connections can be made from any available port in the range 49152 to 65535. The ports are allocated and controlled by Windows.

Note 3: If the NoiseTools PC or network has a firewall that blocks outgoing connections, it will need to be configured to allow connections from NoiseTools to the Optimus/CK:680.

This can be done by allowing any connection to the known IP and Port of the instrument(s). It can be further restricted to the IP address of the NoiseTools PC if required.

4 Installation

Installation of NoiseTools is usually carried out from the DVD supplied with the measurement instrument.

The latest version of the NoiseTools software can be downloaded from the Cirrus Research website at www.cirrusresearch.co.uk/library/software

If the software has sufficient access, it can download and install updates automatically. See section 3.2 for details of the connectivity required.

4.1 Default data storage locations

During installation, a default settings.xml file will be created which will use the default file locations listed below.

When NoiseTools is run for the first time, the settings.xml file will be read.

Where no record for a database is found, the program will create an empty database and store it in the default location. The program will also create a folder for audio records and trigger templates in the default locations.

The default locations are:

Measurement database:	\AppData\Roaming\Cirrus Research\NoiseTools
Audio recordings:	\AppData\Roaming\Cirrus Research\NoiseTools\audio
Trigger templates:	\AppData\Roaming\Cirrus Research\NoiseTools\Trigger Templates

If the settings.xml file contains different locations to the defaults, NoiseTools will use these instead.

NoiseTools allows for data to be accessed from local drives, shared or mapped drives or network paths.

Please note that if NoiseTools cannot to connect to the primary database, for example when a laptop is disconnected from the network, it will attempt to store the measurement data into the next available local database.

If no local database exists, the measurement information cannot be stored and will not be downloaded.

4.2 NoiseTools settings & configuration information

NoiseTools stores the location of the measurement database(s), the audio files and the trigger templates within a configuration file called settings.xml.

Additional information may also be stored in this file depending upon the type of instruments that have been connected to the software.

This configuration file is stored in the current users roaming appdata folder (CSIDL_APPDATA).

An example of a settings.xml file for a local user is shown below:

```
<?xml version="1.0" encoding="utf-8"?>
<goldfish xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <Databases>
    <Database>
      <Path>C:\Users\Bob Smith\Documents\NoiseTools\Test Data.crntd</Path>
      <Enabled>>true</Enabled>
    </Database>
  </Databases>
  <AudioPath>C:\Users\Bob Smith\Documents\NoiseTools\audio</AudioPath>
```

```
<TriggerPath>C:\Users\Bob Smith\Documents\NoiseTools\Trigger Templates\</TriggerPath>
<EnableCUDA_NEW>>false</EnableCUDA_NEW>
</goldfish>
```

4.3 Using multiple measurement databases

NoiseTools can use multiple databases to store data although only one can be active at any time. This allows measurement data to be organised more efficiently.

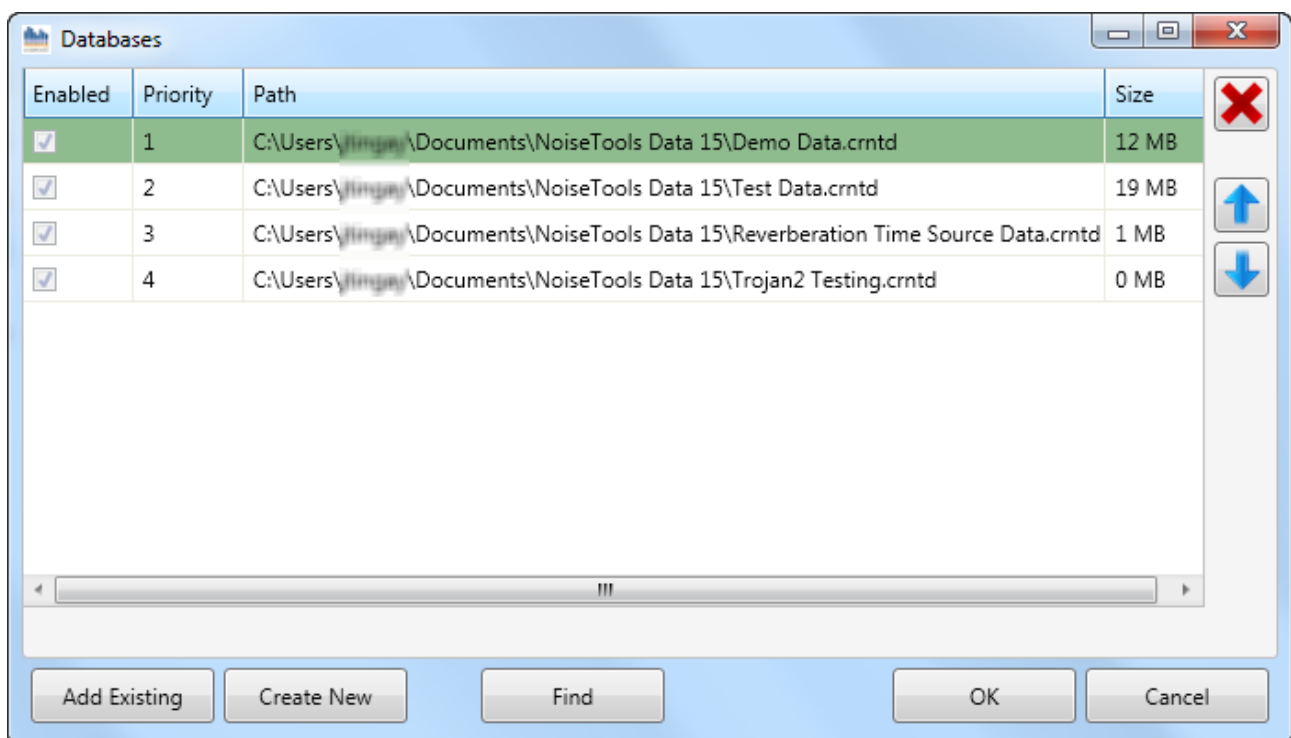
For example, a new database may be created every year or for a different client.

The Database Manager in NoiseTools allows the user to create new databases or to change the active database. The database that is at the top of the list in the Database Manager is active.

To add, create or delete databases, use the Tools, Database Manager option from within NoiseTools.

If the default database is not available, NoiseTools will use the next available database in the list.

The example below shows



An example settings.xml file for multiple databases is shown below:

```
<?xml version="1.0" encoding="utf-8"?>
<goldfish xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <Databases>
    <Database>
      <Path>C:\Users\Bob Smith\Documents\NoiseTools\Test Data.crntd</Path>
      <Enabled>true</Enabled>
    </Database>
    <Database>
      <Path>C:\Users\Bob Smith\Documents\NoiseTools\Old Data.crntd</Path>
      <Enabled>true</Enabled>
    </Database>
    <Database>
      <Path>C:\Users\Bob Smith\Documents\NoiseTools\Customer Data.crntd</Path>
      <Enabled>true</Enabled>
    </Database>
  </Databases>
  <AudioPath>C:\Users\Bob Smith\Documents\NoiseTools\audio\</AudioPath>
  <TriggerPath>C:\Users\Bob Smith\Documents\NoiseTools\Trigger Templates\</TriggerPath>
  <EnableCUDA_NEW>>false</EnableCUDA_NEW>
</goldfish>
```

4.4 Enabling & disabling databases

Databases can be enabled and disabled by editing the settings.xml file.

Change the <Enabled> tag to false to disable a dataset and to true to enable a database:

```
<?xml version="1.0" encoding="utf-8"?>
<goldfish xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <Databases>
    <Database>
      <Path>C:\Users\Bob Smith\Documents\NoiseTools\Test Data.crntd</Path>
      <Enabled>true</Enabled>
    </Database>
    <Database>
      <Path>C:\Users\Bob Smith\Documents\NoiseTools\Old Data.crntd</Path>
      <Enabled>false</Enabled>
    </Database>
  </Databases>
  <AudioPath>C:\Users\Bob Smith\Documents\NoiseTools\audio\</AudioPath>
  <TriggerPath>C:\Users\Bob Smith\Documents\NoiseTools\Trigger Templates\</TriggerPath>
  <EnableCUDA_NEW>>false</EnableCUDA_NEW>
</goldfish>
```

4.5 Installation for multiple users

Installation of NoiseTools for multiple users requires that an instance is installed for the first user. The settings.xml file can then be edited and deployed for each subsequent user.

It may be advisable to create a local fall back database that can be used if NoiseTools cannot access the default locations.

Please note that if NoiseTools cannot access the location specified for the storage of audio recordings, these will not be downloaded. Users should be aware of the limitations of downloading data when the PC is not connected to a network.

Section 5 covers importing data from an external source such as a laptop that is not connected to the main database.

To install NoiseTools for multiple users:

1. Create a folder in shared location (network path, mapped drive etc)
2. Create a sub-folder within this location for audio files
3. Create a sub-folder within this location for trigger templates
4. Ensure all users have read & write access to this folder & sub folders
5. Install NoiseTools for the 1st user
6. Open the settings.xml file users roaming appdata folder & edit:
 - a. Database location (defined in step 1)
 - b. Audio file location (defined in step 2)
 - c. Trigger template location (defined in step 3)
7. Run the NoiseTools program and verify that the program is using the locations from 6a, 6b & 6c. NoiseTools will read the location for the database and create the appropriate files.
8. Install NoiseTools for each subsequent user
9. Copy the settings.xml file edited in step 6 into each users roaming appdata folder (CSIDL_APPDATA)
10. Run the NoiseTools program and verify that the program is using the locations from 6a, 6b & 6c

4.6 Silent installation of NoiseTools

NoiseTools can be deployed using a silent installation to allow it to be remotely installed over a network or through a management system.

The NoiseTools installer supports a /S flag to enable silent install.

Optionally you can also specify the installation path using the /D statement.

For example:

```
/D=C:\Program Files\Cirrus Research\NoiseTools\
```

Please note that the installer requires Administrator access rights.

5 Transferring measurements between local and shared/networked locations

It may be necessary to transfer measurements between NoiseTools installations that are not using the same database.

For example it may be necessary to download measurements at a remote location or when playing back a measurement or recordings away from the office.

In this instance, NoiseTools should be installed on to the laptop with the data storage locations setup as shown in example 6.1 for local use.

Measurements can be exported from the main database using any PC that is connected to it and the resulting MTP file imported into the local database.

Measurements can also be exported from the local PC to a main database using an MTP file which includes all of the measurement data and any associated audio recordings.

MTP files can contain single measurements or multiple measurements. Note that MTP files can become very large if they contain multiple audio recordings.

5.1 Exporting a single measurement

To export a single measurement, open the measurement and click Tools, Export, Measurement Transfer Package.

The Export window shows the measurements that are open. Ensure that the Export Options are checked to include all of the measurement data.

Click Export and choose the location and filename for the MTP file.

5.2 Exporting multiple measurements

Multiple measurements can be exported by either;

- a. Opening all required measurements and using the export function above or
- b. Opening measurements as a group and using the Actions, Export button

5.3 Exporting an entire database

It is possible to export an entire measurement database and all audio recordings to a single MTP package. This may be useful to transfer data to a new PC or to create a single backup file.

Click Tools, Transfer Measurements.

Select Main Noise Tools Database as the source and MTP File as the Destination. Choose a filename and location for the MTP file.

Click Next and use the options to select the measurement required. To choose all measurements use the Date option and select the Start Date as 01/01/1999.

Click the search button to identify the measurements and click Select All.

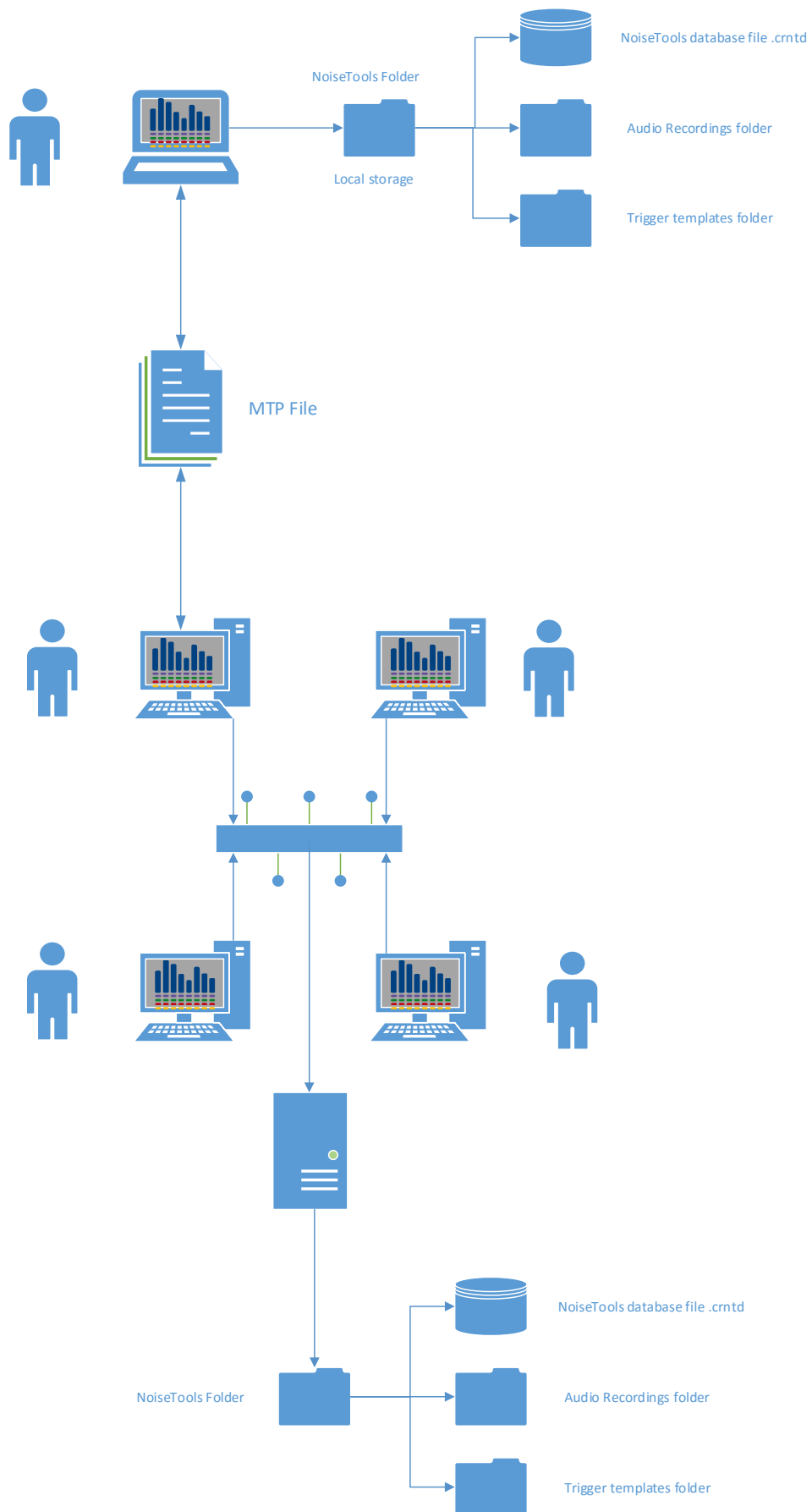
This function is available in NoiseTools version 1.5 or later.

5.4 Importing an MTP file

An MTP file can be imported by either;

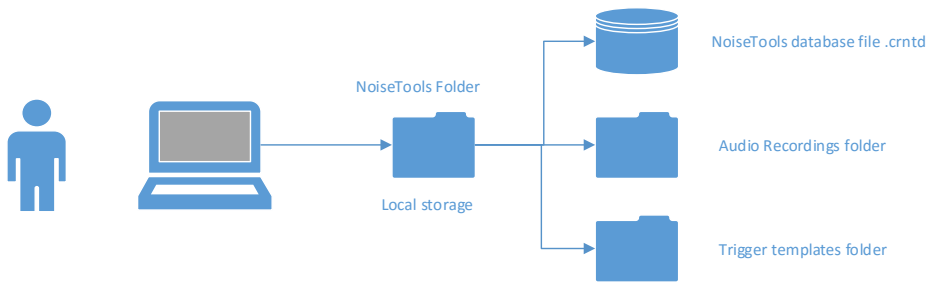
- a. Double clicking on the file or
- b. Clicking Tool, Import, Measurement Transfer Package

The data contained within the MTP will be imported into the currently active database and any audio recordings stored in the audio recordings folder.

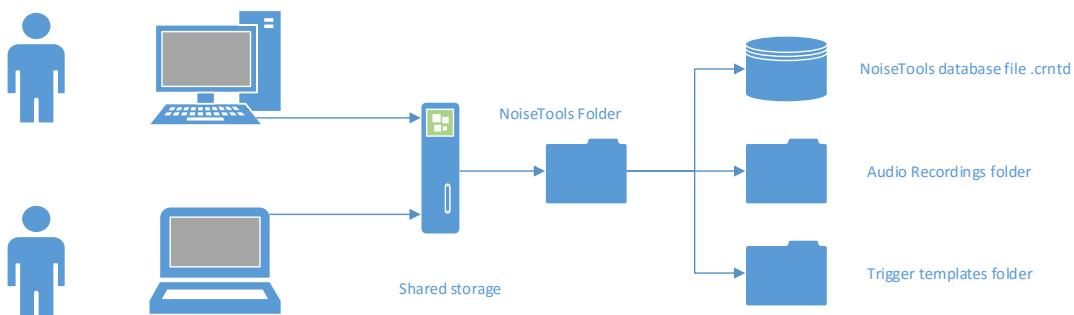


6 Example installations

6.1 NoiseTools installed onto a single PC with all data stored locally



6.2 NoiseTools installed onto 2 PC's with data stored on a shared drive



6.3 NoiseTools installed onto multiple PC's with data stored onto a network location

