

# MediCollector CENTRAL

## Getting Started Guide

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### Purpose

This document explains how to get started using MediCollector CENTRAL.

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## Overview

MediCollector CENTRAL is a server-based software product for acquiring, recording and streaming data from connected medical devices. It is installed on a central Windows computer and can connect to multiple medical devices either locally or across a network. Data that is captured by MediCollector CENTRAL can be recorded to disk and/or streamed to external systems, such as hospital information systems (HIS) or electronic medical records systems (EMR) or external applications such as Matlab and LabVIEW. MediCollector CENTRAL is designed to run on a central server on your network and will continuously record and/or stream data generated by connected medical devices.

Please read this document carefully to get started using the software.

## System Requirements

Before installing the software on your computer, review the following minimum system requirements:

- Microsoft Windows 7 or newer (64 bit only)
- 2.0 GHz CPU (x86 only – ARM processors are NOT SUPPORTED)
- 1.0 GB RAM

## Connecting your medical devices

MediCollector CENTRAL can connect to **local** or **remote** medical devices, as shown in the diagram below.

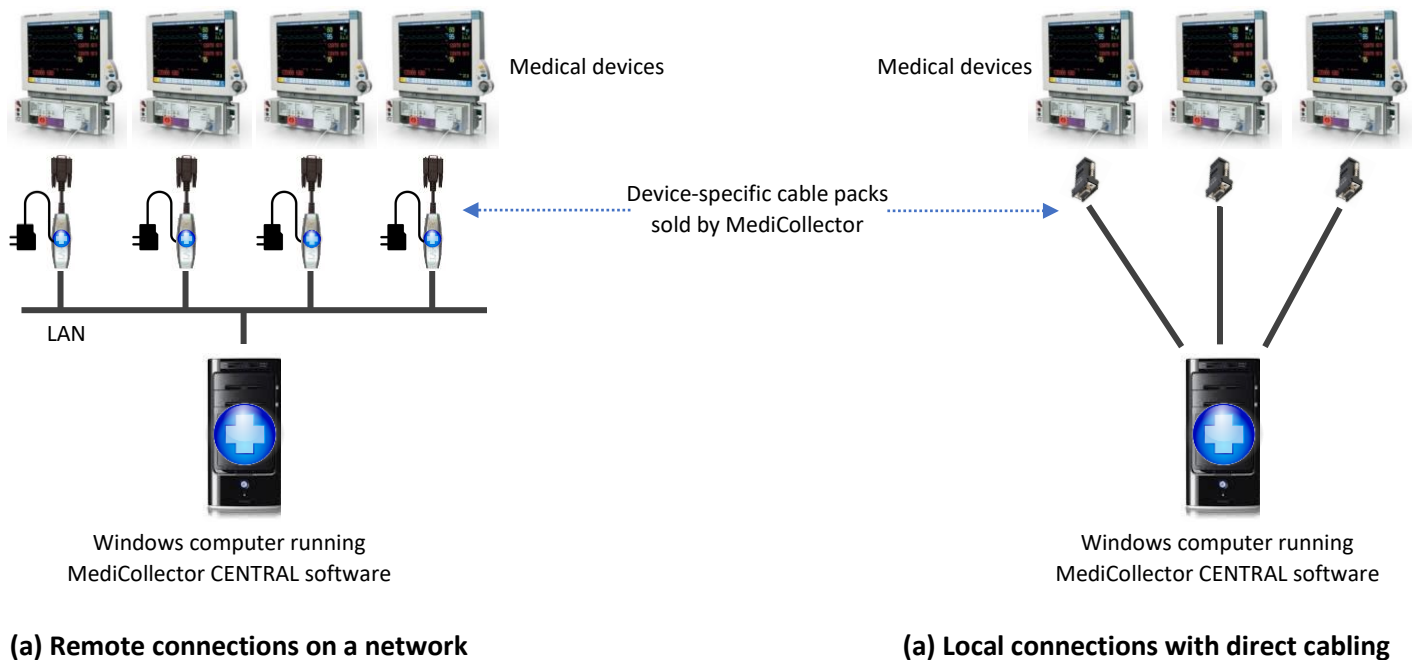


Figure 1 System Architecture (remote or local)

The cables required for connecting your medical devices are complex and device-specific. To make it easier for our customers, we provide cables packs with everything you need to connect your device. Follow the instructions below to connect your device.

**For local connections:**

1. First, make sure your device is on our [list of supported devices](#).
2. On that list, you will see a corresponding “Direct Cable Pack” required for your device.
3. Review the requirements for the cable pack. For example, your device may need a special communications card.
4. Purchase the cable pack from MediCollector.
5. You may also need to purchase a USB-to-Serial adapter if your computer doesn’t have a serial port (most don’t).
6. Follow the instructions that come with the cable pack to connect your device directly to the computer running MediCollector software.

**For remote connections across a network,**

1. First, make sure your device is on our [list of supported devices](#).
2. On that list, you will see a corresponding “Network Cable Pack” required for your device.
3. Review the requirements for the cable pack. For example, your device may need a special communications card.
4. Purchase the cable pack from MediCollector.
5. Follow the instructions that come with the cable pack to connect your device to the same network as the computer running the MediCollector CENTRAL software.

When connecting remotely across a network, you will need to purchase a “Network Cable Pack” for each of your medical devices. These cable packs include a **Lantronix xDirect232 Serial-to-Ethernet Converter** as shown below. This Lantronix converter is a small “in-line” adapter which encrypts data and transmits it across the network to MediCollector CENTRAL. It is important that you purchase this Network Cable Pack from MediCollector because we will configure it for your specific medical device and it will include device-specific cables.

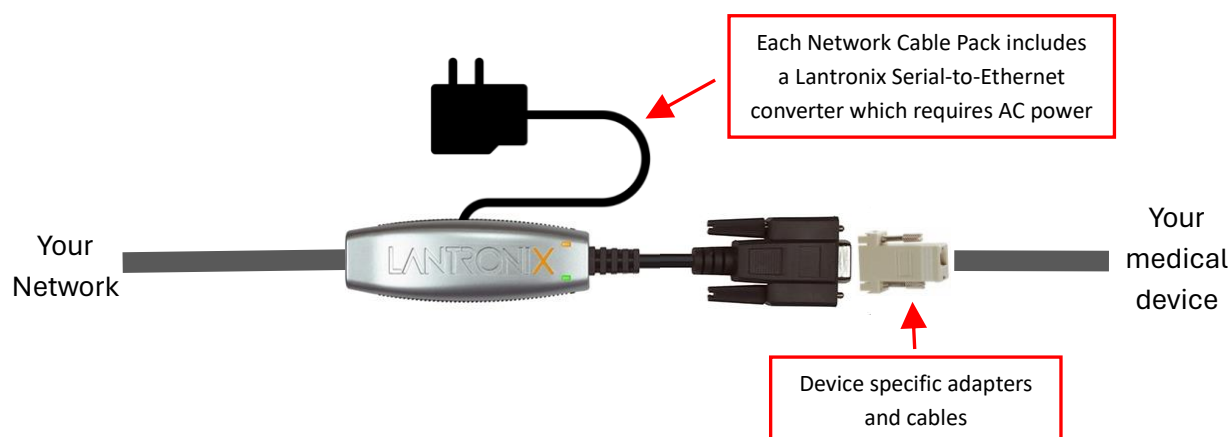


Figure 2 Network Cable Pack

If you are confused about cabling requirements, please [contact us](#). We'd be happy to guide you through the process.



**Please Note!** You can always test MediCollector **without connecting a physical medical device**. You can create a "Simulated Device" and generate simulated signals without connecting an actual device.

## Installing the software

Download the latest installer from the [MediCollector website](#). Install the software by double-clicking on the installer.

Because the core MediCollector CENTRAL software runs invisibly in the background, you must use the "MediCollector Central Manager" (included) to configure and monitor the system. Double-click on the shortcut on your desktop named "MediCollector Central Manager" to get started.

## Updating the software

It is recommended that you occasionally check the [MediCollector website](#) for software updates. The MediCollector Central Manager can also check for updates automatically by selecting *HELP>Check for update automatically* from the main menu.

We regularly release minor updates, improvements, and bug fixes via the website. To update an existing installation, simply download and run the latest installer. It will overwrite the existing installation automatically but will not affect your configuration or data files. There is no need to un-install the old version when upgrading. To stay up to date on the latest changes, you can also [join our mailing list](#).

## FREE evaluation version

After installation, the software will run in free "evaluation mode". While running in evaluation mode, there are some restrictions:

1. Each device connection is limited to 2 minutes.
2. When exporting data from a file that was recorded in eval mode, you will only be able to export 10 seconds of data.
3. You will not be able to use the software to configure a Lantronix xDirect 232 Serial-to-Ethernet Converter.

When you purchase and activate a subscription, these restrictions will be removed.

## Purchase a subscription

To purchase a subscription and unlock restrictions, please [see our website](#). We offer many ways to purchase a subscription (e.g. credit card, Purchase Order, wire transfer, etc). Once you have purchased a subscription, you will receive an email with instructions on how to activate it. This email will contain a *License ID* and *Password* which you enter into the software to activate your subscription (see below).

## Activate a subscription

To activate your subscription, follow these instructions:

1. Launch MediCollector Central Manager
  2. Select *HELP>Licenses* from main menu
  3. Click the *Activate* button
  4. Click the *Automatic Activation* button
  5. Enter the *License ID* and *Password* that was provided to you via email when you purchased the software.
- If you can't find this information, please [contact us](#) and we will re-send it.

6. Click the *Activate* button
7. Your license should be activated on your computer.

You can also activate your subscription on a computer that does not have Internet access. This is done by following the instructions above but click *Manual Activation* in Step 4.

Once your subscription is activated, it will appear in the window as shown below. The next step is to assign this license to a specific device. This can be done by right-clicking on the license and selecting **ASSIGN TO DEVICE**.

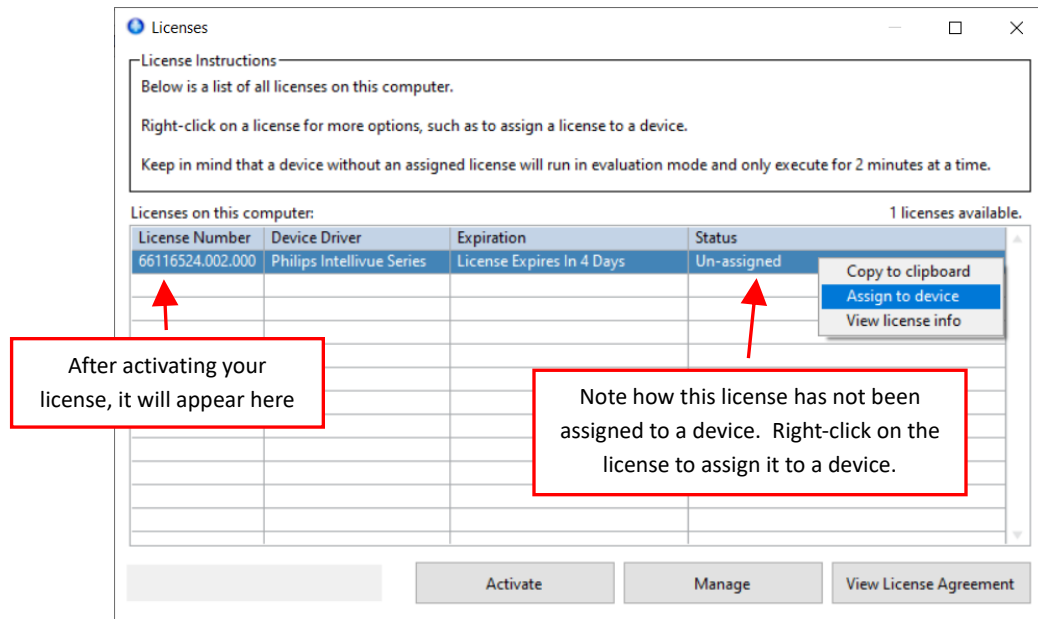


Figure 3 License window

After you right-click on the license and select **ASSIGN TO DEVICE**, it will show a list of devices that are compatible with that specific license. Licenses are device-specific, so you can only assign a PHILIPS license to a PHILIPS device, as shown below. Click **ASSIGN** to assign to a device.

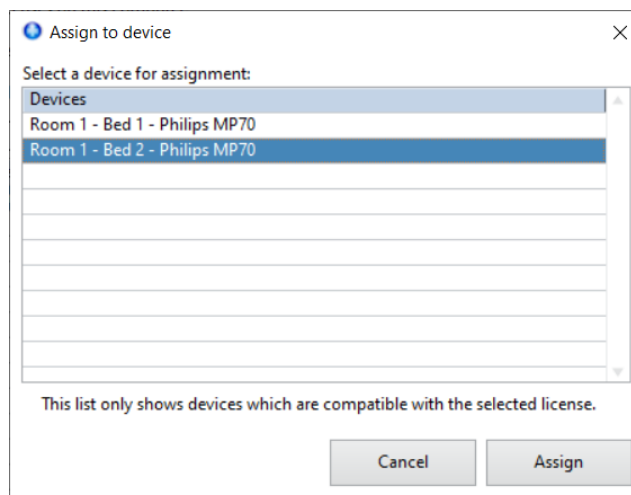


Figure 4 Assign a license to a device

## Renew a subscription

As your subscription approaches expiration, you will begin to receive emails providing a simple way to renew your subscription. The MediCollector Central Manager software will also prompt you to renew your subscription. We offer many ways to renew. The easiest way to renew your subscription is login to our [License Portal](#) and purchase a renewal online using a credit card. Your software installation will then automatically detect the renewal and extend your subscription immediately. We also accept Purchase Orders and Wire Transfers and other methods for renewal. Please [contact us](#) for assistance.

## Using the software

Launch the **MediCollector Central Manager** and follow the instructions below to get started.

### Launch the service

The core software in MediCollector CENTRAL runs as a “Windows Service” which runs invisibly in the background. By default, this service is configured to launch automatically when the computer starts up. This means that the computer will launch the service and begin communicating with your medical device(s) as soon as Windows launches (no login required). This is convenient because it will autorecover from power loss or a system reboot and begin streaming data again immediately.

The service can also be launched manually by clicking the START button as shown below.

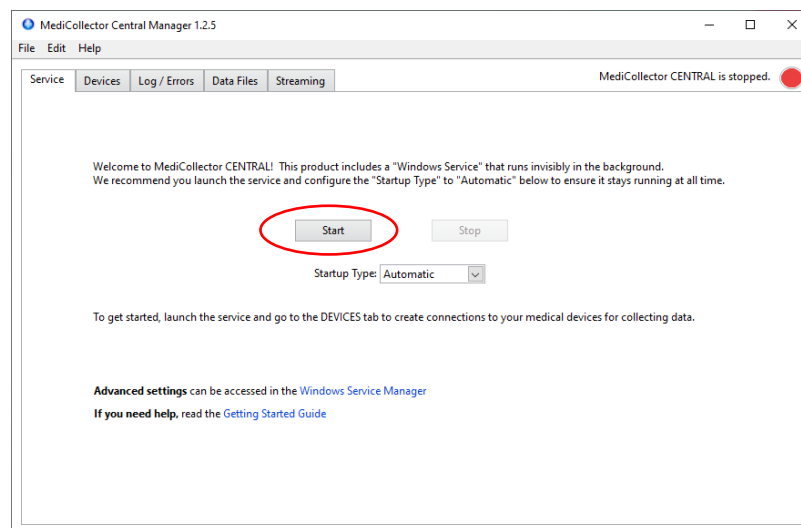


Figure 5 Starting the service

If you do not want the service to launch automatically, you can change the startup type as shown below.

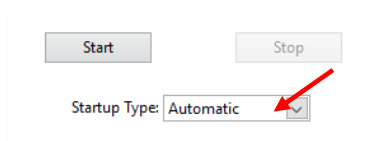


Figure 6 Changing how the MediCollector CENTRAL service launches

The following startup types are supported:

#### 1. Delayed Start.

The computer will launch the MediCollector CENTRAL service automatically, but will wait approximately 2 minutes before doing so. This delay can be convenient because it gives other critical services time to launch.

## 2. Automatic.

The computer will launch the MediCollector CENTRAL service automatically.

## 3. Manual

The service must be manually (or programmatically) launched.

## 4. Disabled

The service can not be launched in this mode.



**IMPORTANT!** MediCollector CENTRAL is designed to run continuously. To ensure continuous streaming of data, modify the POWER & SLEEP SETTINGS in Windows to make sure the computer **never goes to sleep**.

## Configure your system

The next step is to create a device as shown below.

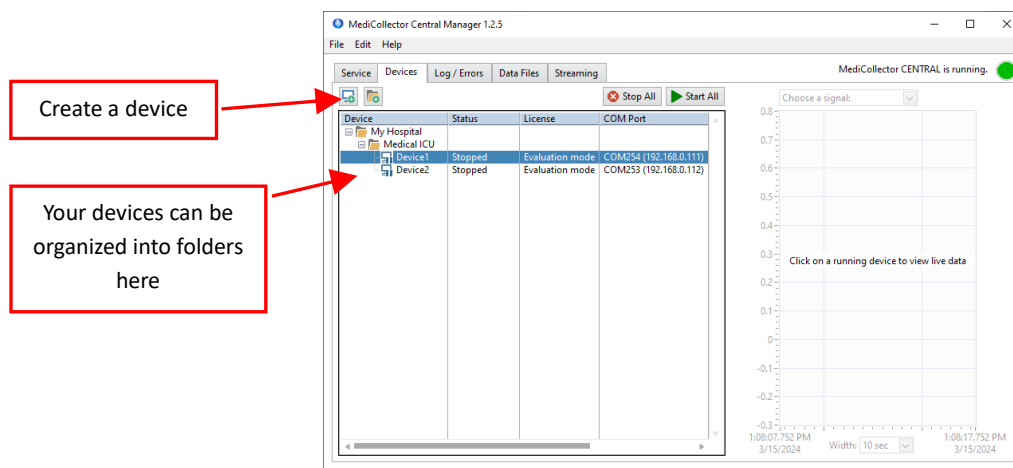
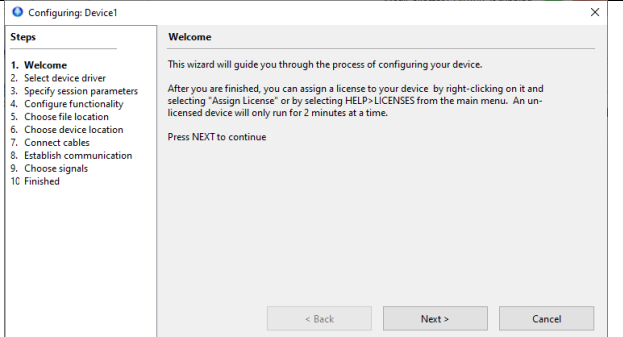
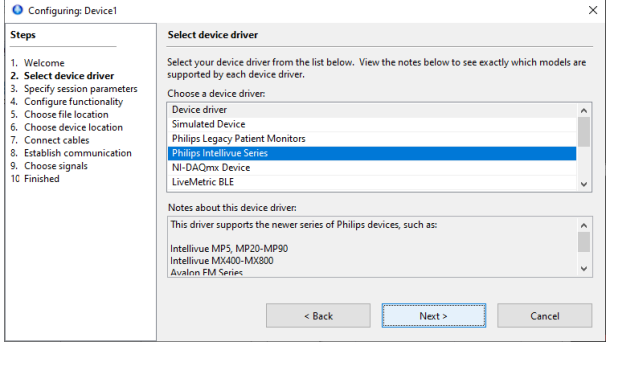
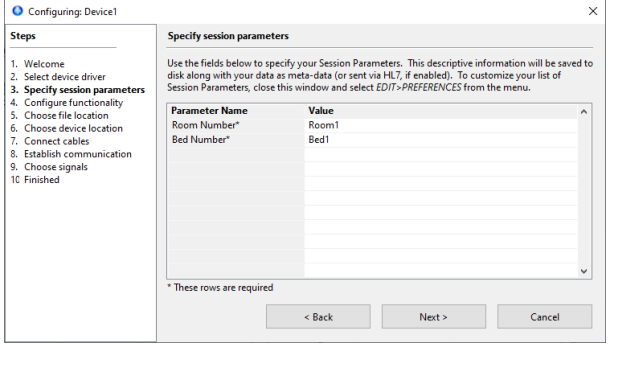
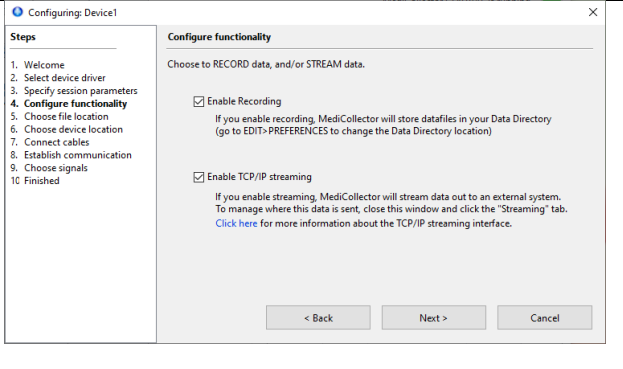


Figure 7 Creating and organizing devices

To configure the device, double-click on it. This will open a configuration wizard as shown below. Follow through all the instructions in the wizard to configure your device. Each step is explained in the table below.

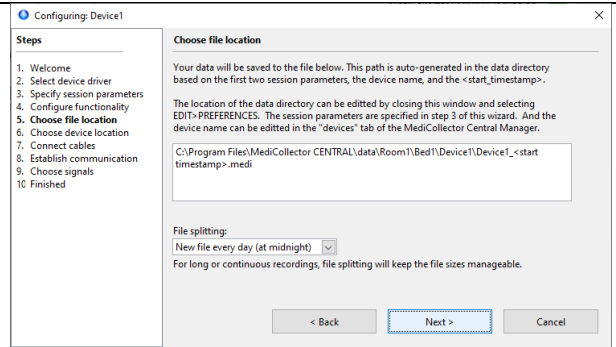
**Table 1. Device Configuration Wizard**

<p><b>1. Select Device Driver</b></p> <p>Choose what type of medical</p>	
<p><b>2. Select Device Driver</b></p> <p>Choose what type of medical device you are connecting.</p>	
<p><b>3. Specify Session Parameters</b></p> <p>Enter the Room and Bed number for this device. If you are going to stream live data out to an external system, these session parameters will be sent with the data so that the recipient can identify where the data originates.</p>	
<p><b>4. Configure Functionality</b></p> <p>Choose to <b>record data to disk</b> and/or <b>stream live data out</b> to an external system.</p>	



## 5. Choose File Location

If you have enabled recording in the previous step, this window will inform you where the data will be saved. We recommend you leave these settings as default.

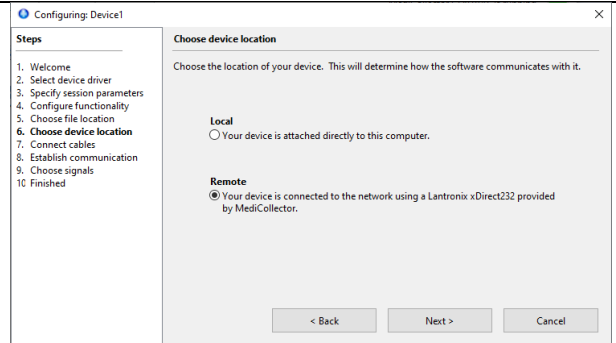


The screenshot shows the 'Configuring: Device1' window with the 'Choose file location' step selected. The 'Steps' list on the left includes: 1. Welcome, 2. Select device driver, 3. Specify session parameters, 4. Configure functionality, 5. Choose file location (highlighted), 6. Choose device location, 7. Connect cables, 8. Establish communication, 9. Choose signals, 10. Finished. The main area shows the file path: C:\Program Files\MediCollector CENTRAL\data\Room1\Bed1\Device1\_Device1\_<start timestamp>.medi. Below the path is a 'File splitting' section with a dropdown set to 'New file every day (at midnight)' and a note: 'For long or continuous recordings, file splitting will keep the file sizes manageable.' At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

## 6. Choose Device Location

**LOCAL:** Choose this option for devices connected directly to the computer via a COM port.

**REMOTE:** Choose this option for devices on your network. MediCollector will then create a virtual COM port for you in the next step.



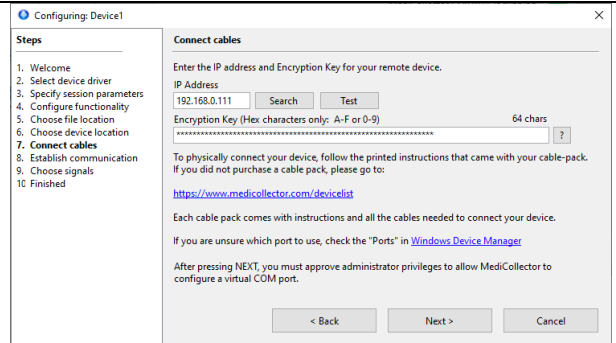
The screenshot shows the 'Configuring: Device1' window with the 'Choose device location' step selected. The 'Steps' list on the left includes: 1. Welcome, 2. Select device driver, 3. Specify session parameters, 4. Configure functionality, 5. Choose file location, 6. Choose device location (highlighted), 7. Connect cables, 8. Establish communication, 9. Choose signals, 10. Finished. The main area shows two options: 'Local' (radio button) with the text 'Your device is attached directly to this computer.' and 'Remote' (radio button) with the text 'Your device is connected to the network using a Lantronix xDirect232 provided by MediCollector.' At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

## 7. Connect Cables

Enter the IP address and encryption key for your remote device.

You must ensure the encryption matches what is configured on your Lantronix xDirect232 Serial-to-Ethernet converter.

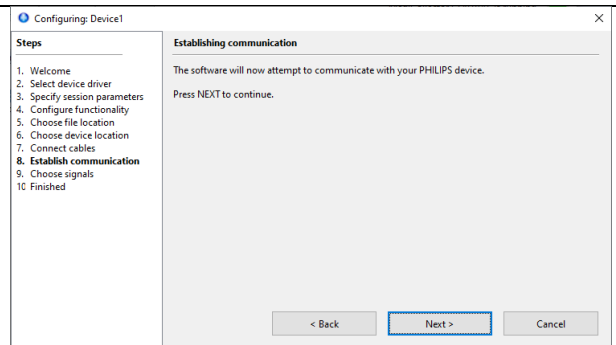
When you press NEXT, a virtual COM port will be created.



The screenshot shows the 'Configuring: Device1' window with the 'Connect cables' step selected. The 'Steps' list on the left includes: 1. Welcome, 2. Select device driver, 3. Specify session parameters, 4. Configure functionality, 5. Choose file location, 6. Choose device location, 7. Connect cables (highlighted), 8. Establish communication, 9. Choose signals, 10. Finished. The main area shows fields for 'IP Address' (192.168.0.111) and 'Encryption Key' (Hex characters only: A-F or 0-9). There are 'Search' and 'Test' buttons next to the IP field. Below the fields is a note: 'To physically connect your device, follow the printed instructions that came with your cable-pack. If you did not purchase a cable pack, please go to: https://www.medicollector.com/devicelist'. At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

## 8. Establish Communication

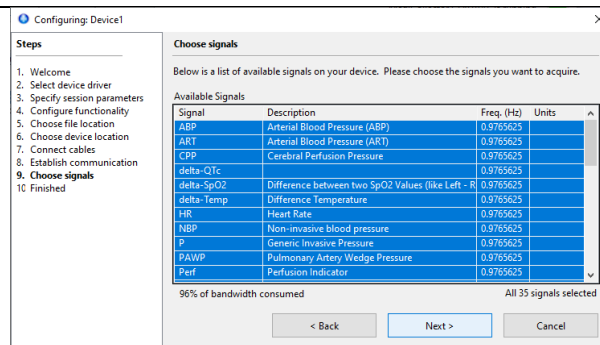
Press NEXT to establish communication with your remote device.



The screenshot shows the 'Configuring: Device1' window with the 'Establishing communication' step selected. The 'Steps' list on the left includes: 1. Welcome, 2. Select device driver, 3. Specify session parameters, 4. Configure functionality, 5. Choose file location, 6. Choose device location, 7. Connect cables, 8. Establish communication (highlighted), 9. Choose signals, 10. Finished. The main area shows the text: 'The software will now attempt to communicate with your PHILIPS device. Press NEXT to continue.' At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

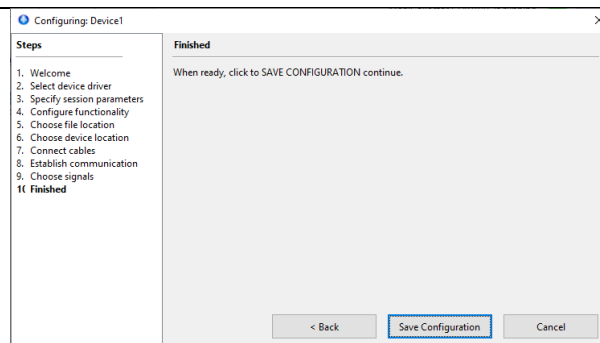
## 9. Choose Signals

A list of available signals will be presented. Select the signals you want to capture.



## 10. Save Configuration

Press SAVE CONFIGURATION to save your settings.



## Start device

Now that your device is configured, right-click on it and select START as shown below.

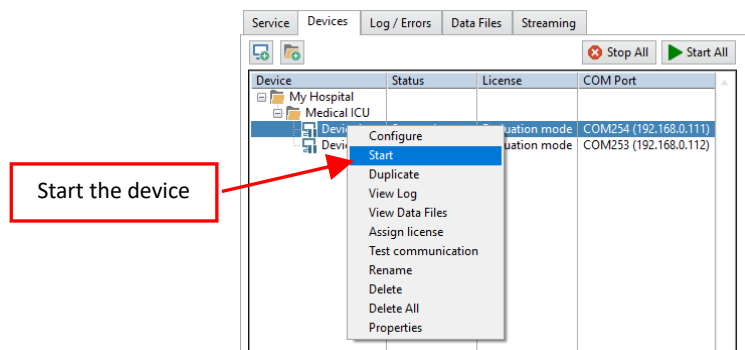


Figure 8 Start the device

## View live data

Once the device has started, you can view live data as shown below.

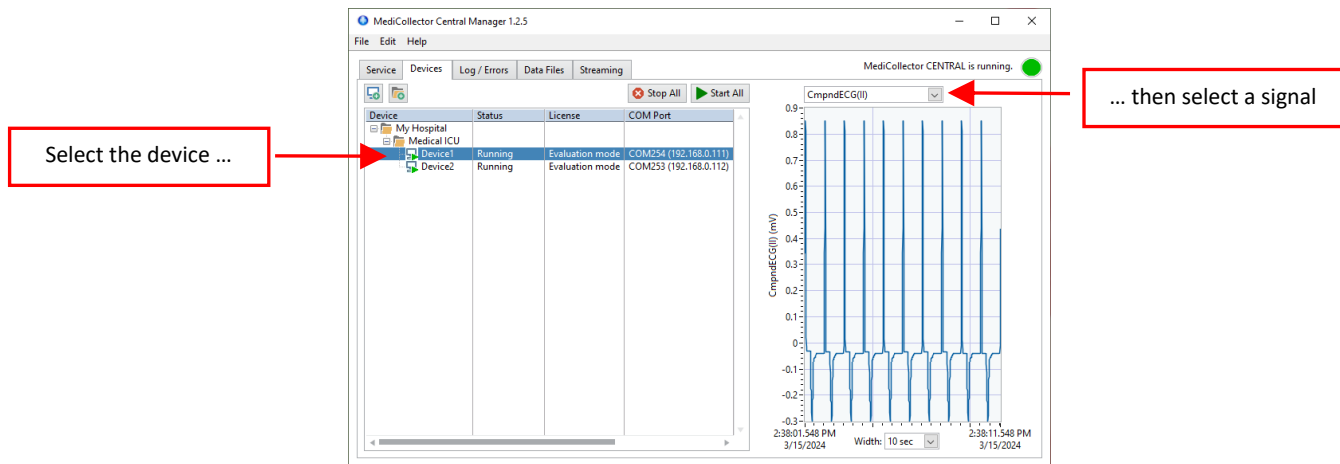


Figure 9 View Live Data

## View recorded data

If you configured the device to record data, it will save data to files that ends with a “.medi” extension. These files will be stored in the Data Directory whose default location is:

C:\Program Files\MediCollector CENTRAL\data

To manage your .medi files, click on the DATA FILES tab as shown below.

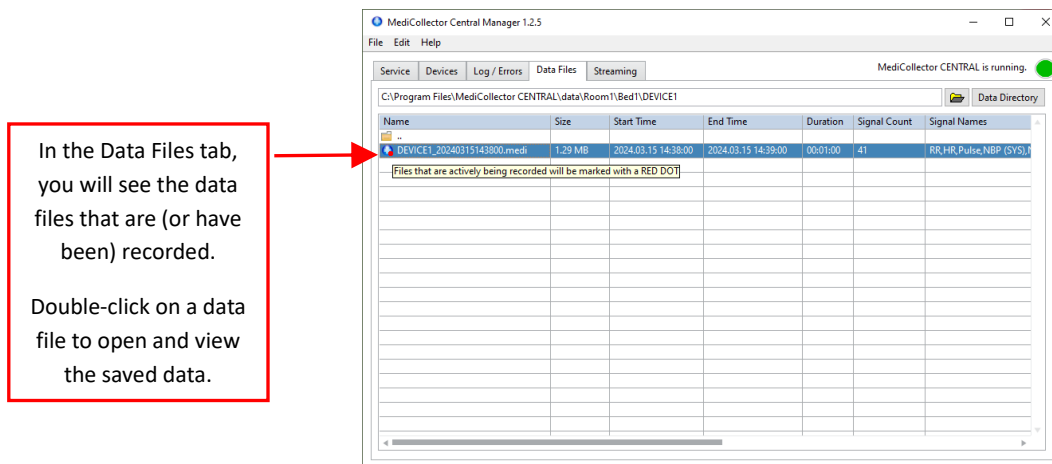


Figure 10 Recorded Data Files

In the DATA FILES tab, you can double-click on a file to open and view recorded data as shown below. When you double-click, the file will open in a separate VIEWER application.



Figure 11 Viewing recorded data

## Export data

To export data to a 3<sup>rd</sup> party application such as Matlab or Excel, you must first open the .medi file for viewing (see above). Once the file is open, select FILE>EXPORT from the main menu. Or click the EXPORT button in the toolbar. An export wizard will then appear to guide you through the process. Please note the following about exporting data:

- **Choose how to group the signals**

When exporting your data, the first question you will encounter in the Export Wizard is how to group your exported signals. You must choose whether you want to group your signals into one file, or to export one file for each signal. This choice is up to you. Your choice will depend on how to want to work with your data after exporting it.

- **File format**

MediCollector can export data in 3 different file formats. The advantages and disadvantages of these file formats are explained below:

- TXT/CSV (Delimited Text File)

Text files are exported as universal tab-delimited files (also known as CSV files). Choosing this format will allow you to import your data into virtually any third-party application like Excel, Matlab, R, and SAS. The downside is that text files consume a lot of disk space, and the export process is fairly slow.

- EDF

EDF and EDF+ files are a common way of storing physiological signal recordings. EDF files can be imported into many third-party applications, but they are not as widely accepted as text files. The advantage to EDF and EDF+ files is that they consume less disk space and the export process is very fast. If you choose EDF, annotations will be exported as a separate text file.

- EDF+

The only difference between EDF and EDF+ formats is that annotations are included inside EDF+ files.

## Stream live data to external systems

To stream live data out to external systems, follow these steps:

1. First, follow the instructions earlier in this document to **create a device** and make sure to **enable streaming** in the Configuration Wizard (Step 4 in Table 1 earlier in this document).
2. **Start the device** (as explained earlier in this document)
3. Confirm you are **seeing live data** (as explained earlier in this document)

Once you have completed these 3 steps, you are ready to proceed to the STREAMING tab as shown below. In this tab, you can monitor the flow of data to your external system.

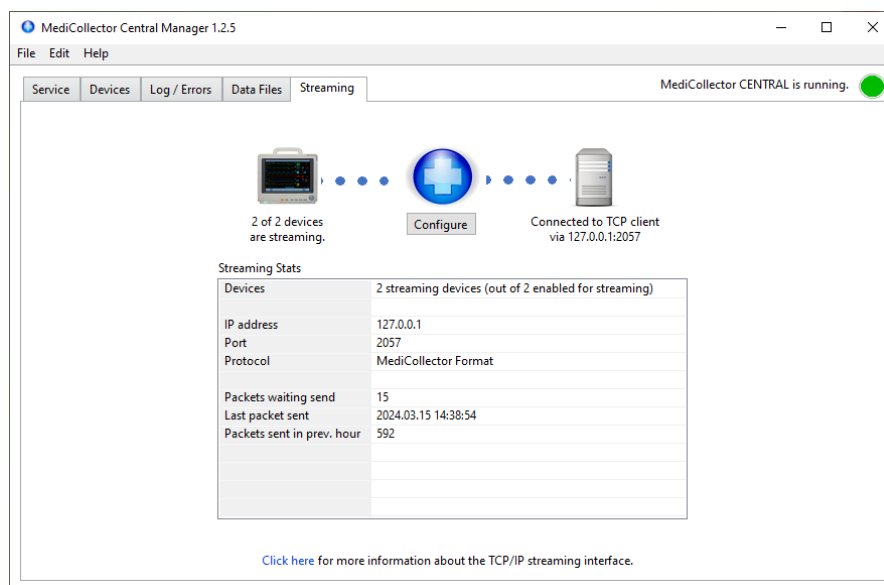


Figure 12 Viewing recorded data

If you press the CONFIGURE button in this window, you can choose which protocol to use when streaming data out to external systems:

- **HL7 2.6:** Choose HL7 2.6 (Health Level 7) to stream data to a hospital information systems (HIS), electronic medical records systems (EMR), or integration engine, etc. The HL7 interface is explained in more detail in the [TCP & HL7 Streaming Guide](#).
- **HL7 FHIR:** Choose HL7 FHIR to stream your data in bundles of FHIR Resources to an external FHIR Server.
- **MediCollector Format:** Choose the MediCollector Format to stream data quickly and easily to external applications such as Matlab or LabVIEW (example code included). The MediCollector Format is explained in more detail in the [TCP & HL7 Streaming Guide](#).

MediCollector CENTRAL comes with some **example code** and an **example executable** that you can use to get started receiving the stream of data in your external system. Look in this folder for examples:

C:\Program Files\MediCollector CENTRAL\streaming