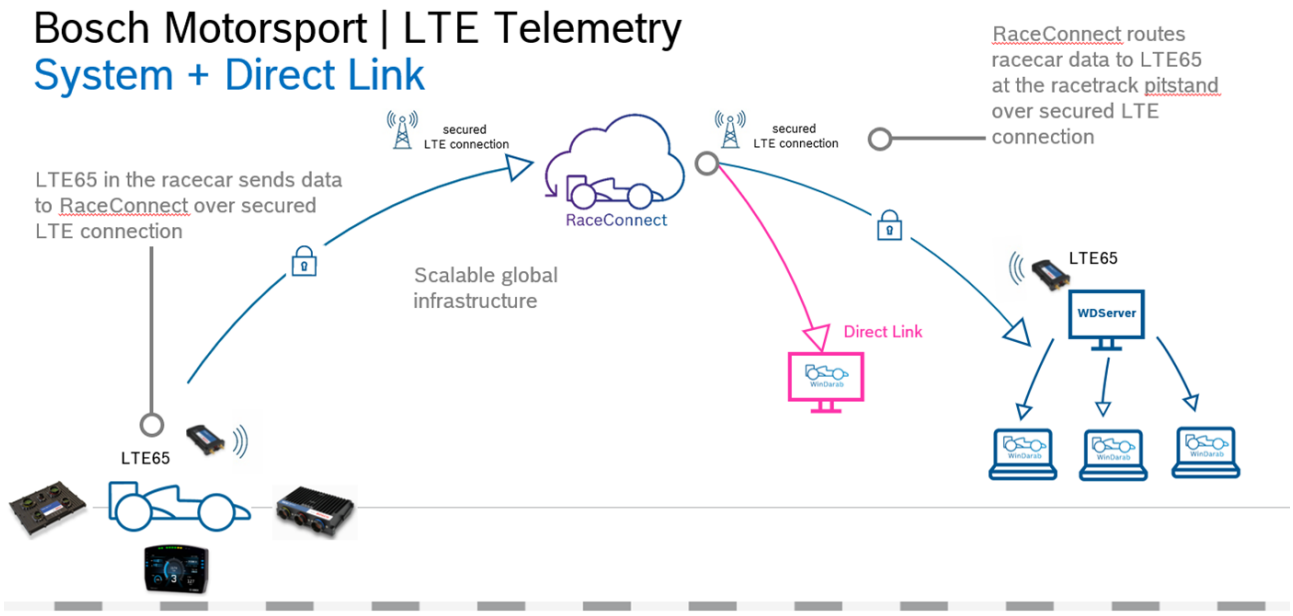

WDServer V3

Quick Start Manual

Version 1.0 17/09/2024

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1 About WDServer V3

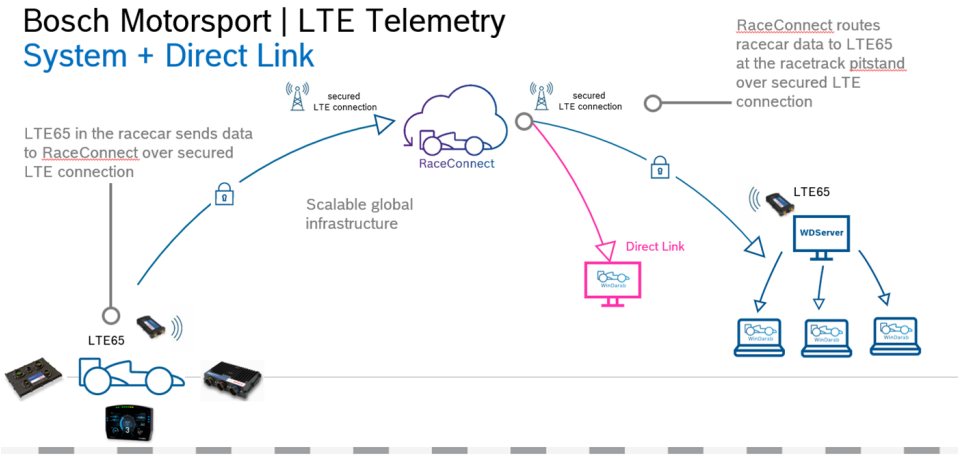
WDServer V3 is a data decoding and forwarding software for different types of telemetry data streams. It is used with Bosch Motorsport telemetry products, such as hardware and cloud services.

Example use cases include:

- Receive a live data stream from a Bosch data logger in the Bosch telemetry data format. Data can be transmitted using a Bosch telemetry modem, a DirectLink connection (Internet-based), or a third-party device telemetry modem.
- Receive a live data stream in a third-party data format, using a source such as a Bosch telemetry modem or a DirectLink connection (Internet-based). Then, forward the data stream to a third-party application for data analysis.

Key Changes in WDServer V3:

- Support for DirectLink services.
  - DirectLink provides the ability to receive telemetry using a secure connection with the Bosch RaceConnect cloud.
  - Data is received through the local PC internet connection.
- End of support for serial / RS232 data interfaces on the local PC.
  - WDServer V3 no longer decodes data from serial devices on the local PC, such as a USB to RS232 adapter connected to an LTE65 receiver.
    This means data must be received on the WDServer side using a local Ethernet device, such as an LTE65 Receiver, or via DirectLink
  - Data from the source, i.e., the vehicle logging system, can still be serial / RS232
- Web-browser based GUI.
- Auto-forwarding of the .ini configuration file for DirectLink users.
  - Requires Ethernet connection between the data logger and telemetry gateway.
  - Requires latest logger and LTE65 firmware



Software Installation Notes

1. Launch the Windows installer executable delivered in the WDServer zip-file.
   Note: Microsoft .NET Core 6.0.32 or higher is required. An internet connection may be required, if Microsoft .NET Core 6.0.32 Windows Server Hosting is not already installed on the PC.
2. Follow the setup instructions to install WDServer V3.

The option is available to choose the installation folder.

There are two options to install WDServer V3, either as a new version in a separate folder on the computer, or to replace the existing version.

Note: For users with WDServer V2 already installed, it is recommended to install WDServer V3 to a new folder.

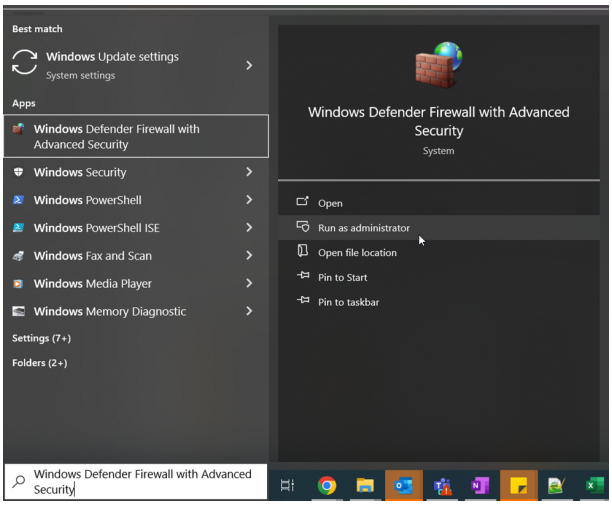
2 Firewall Rules

To ensure proper communication with other data analysis tools on the PC, it is strongly recommended to set firewall rules which allow free inbound and outbound communication.

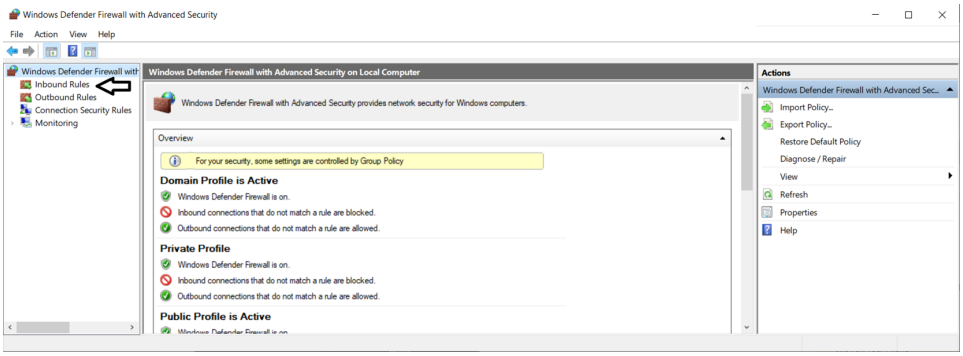
- Inbound and Outbound rules are needed for WDServer and WinDarab (if you are using WinDarab as your data analysis tool).

Inbound Rule

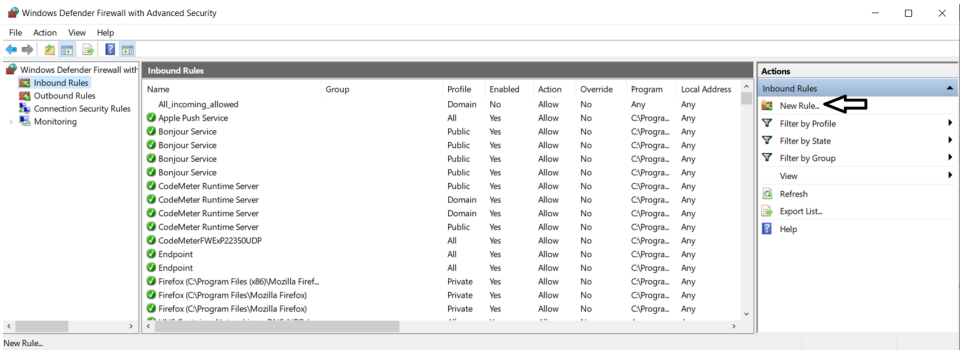
1. Open Windows Defender Firewall with Advanced Security, using *Run as administrator*.



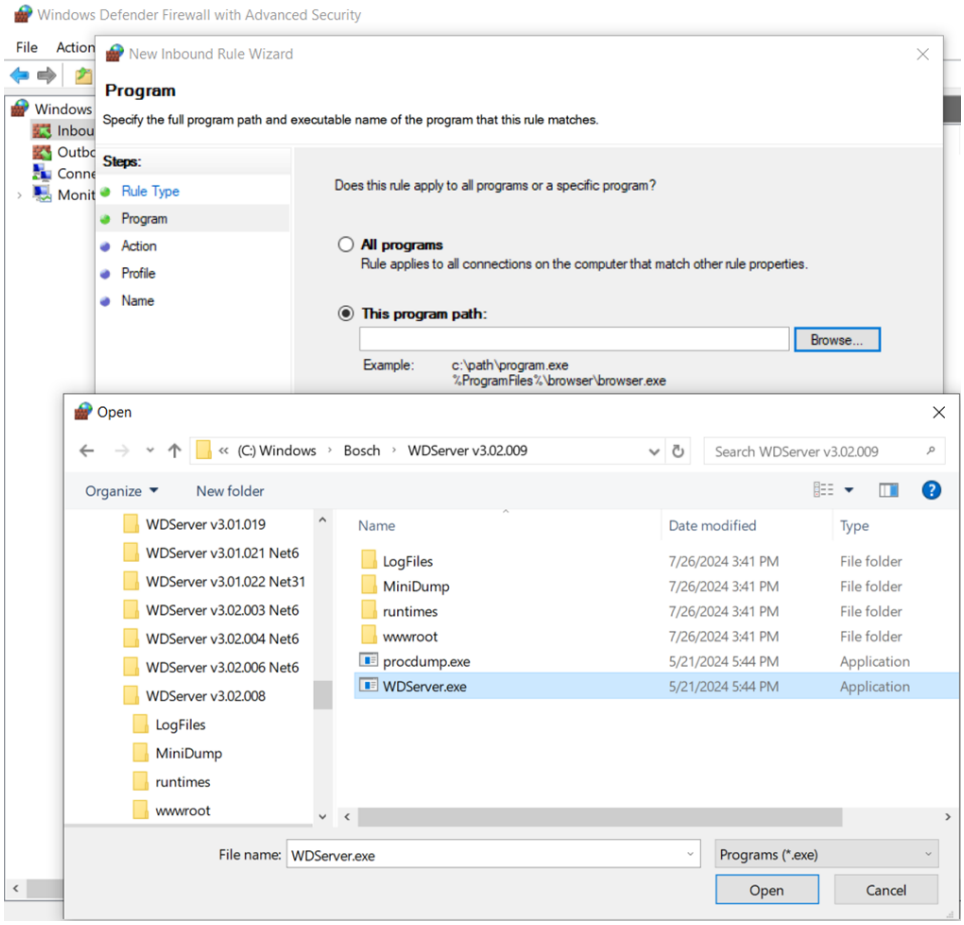
2. Create a new Inbound Rule for WDServer.
   On the left side of the window, click on *Inbound Rules*.



On the right side of the window, click on *New Rule*.



1. Next, choose to add a rule for *Program*.
   Choose to add *This program path* and navigate to your WDServer installation folder. By default, this will be C:/Bosch/WDServer. Select WDServer.exe as the program to allow, then click on *Open*.



2. Optionally, at this step look for the part of the file path that says %SystemDrive%\, and replace with the drive letter, for example, C:\
3. Then, click Next again to allow the connection.
4. Click Next again to apply the rule for all network types.
5. Create a name for the rule and click Finish.

Outbound Rule

Once the Inbound Rule is created, repeat the same steps in the Outbound Rules menu, to create a rule allowing outbound traffic for the WDServer.exe program.

Note: The difference in steps between Inbound Rule and Outbound Rule setup, is to change "Block the connection" to "Allow the connection" on the screen after selecting the WDServer.exe program.

3 Getting started with WDServer V3

Launch the application WDServer.exe.

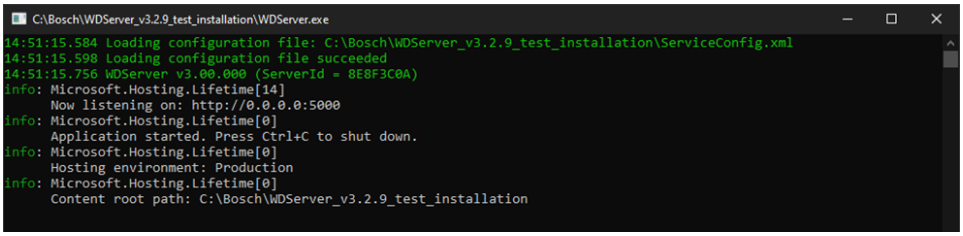
– It is helpful to pin the application to the taskbar after starting for the first time.

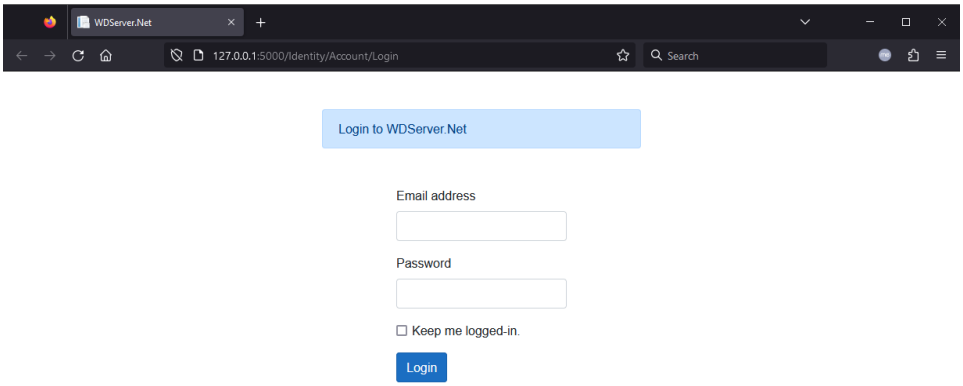
Two things should automatically happen:

– A command window will open for WDServer console.

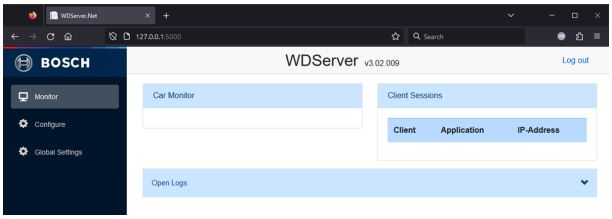
– A web browser should open with the following address and a login page: http://127.0.0.1:5000/Identity/Account/Login
Default login details, which can be changed later in the settings:
Email address: admin
Pass: password

Note: In case a web browser does not automatically open, go to http://localhost:5000/





After first installation and successful login, this is how WDServer looks in the web browser:

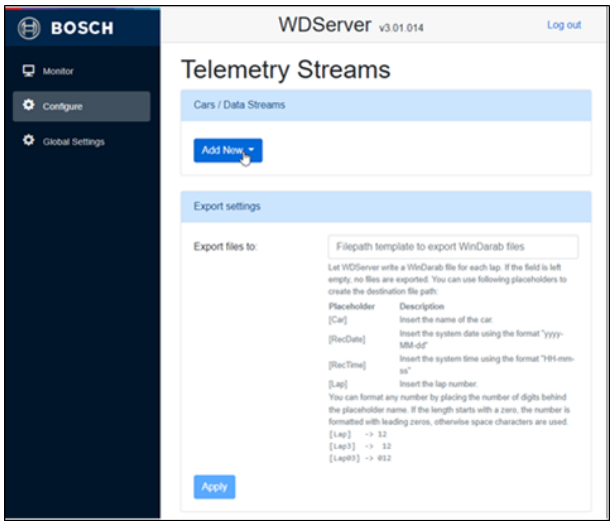


4 WDServer Configuration

Data streams may be added or changed in the *Configure* tab.

4.1 Configure a DirectLink Token

1. Click the *Configure* tab and select *Add New*

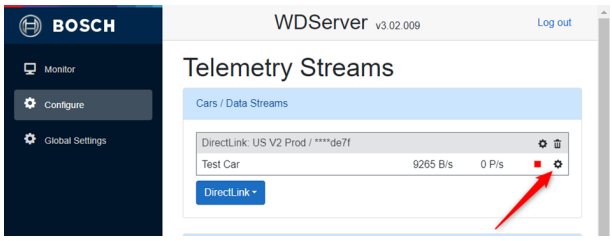


2. Select DirectLink
3. Select Region: such as US V2 Prod
4. *Token*: Enter the token: a specific value unique to each user, provided by Bosch

Note: Once the token is added, the remaining settings will only become when data is received from the source.

4.2 DirectLink with Bosch Data Stream

1. Click on the settings gear next to the data stream statistics.



2. Set the settings for the stream.

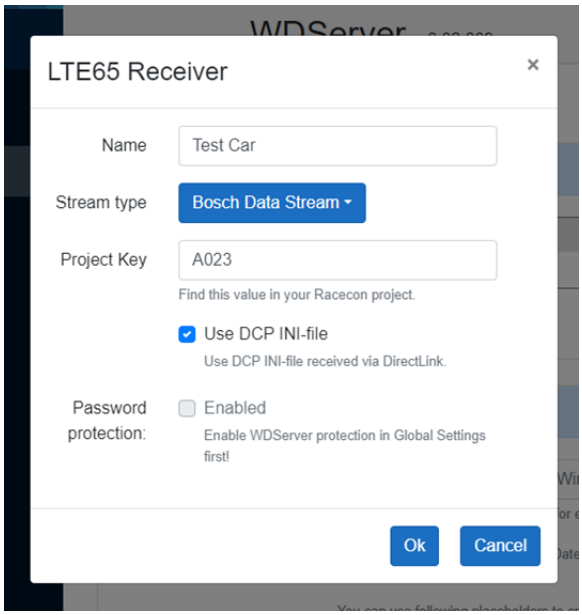
Select *Stream Type*: Bosch Data Stream

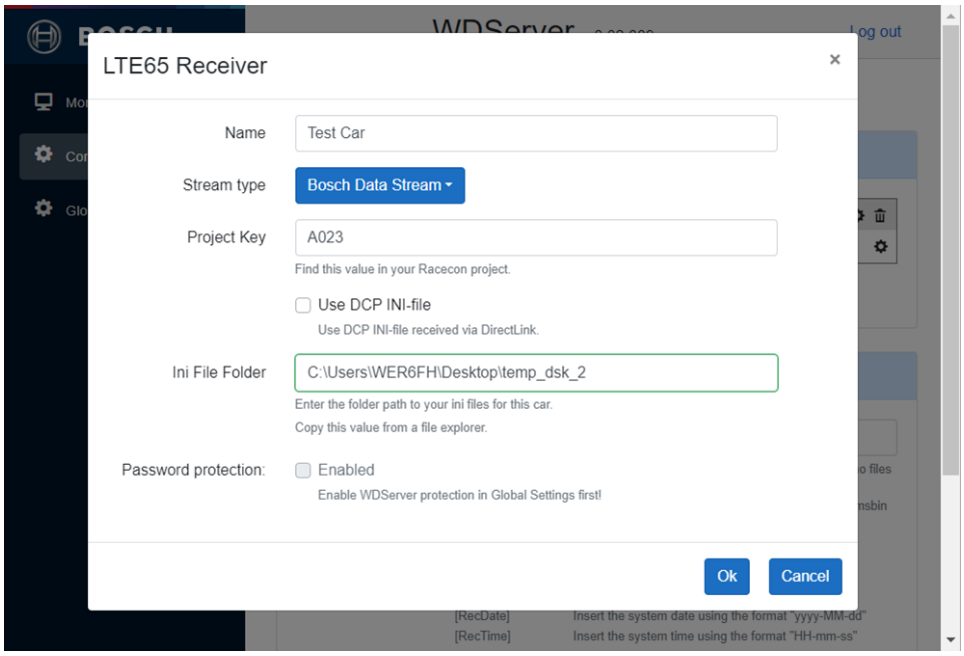
Project Key: Provide the Telemetry Project Key from RaceCon.

- Location in RaceCon project:
- Logger -> Telemetry -> Settings -> Project Key

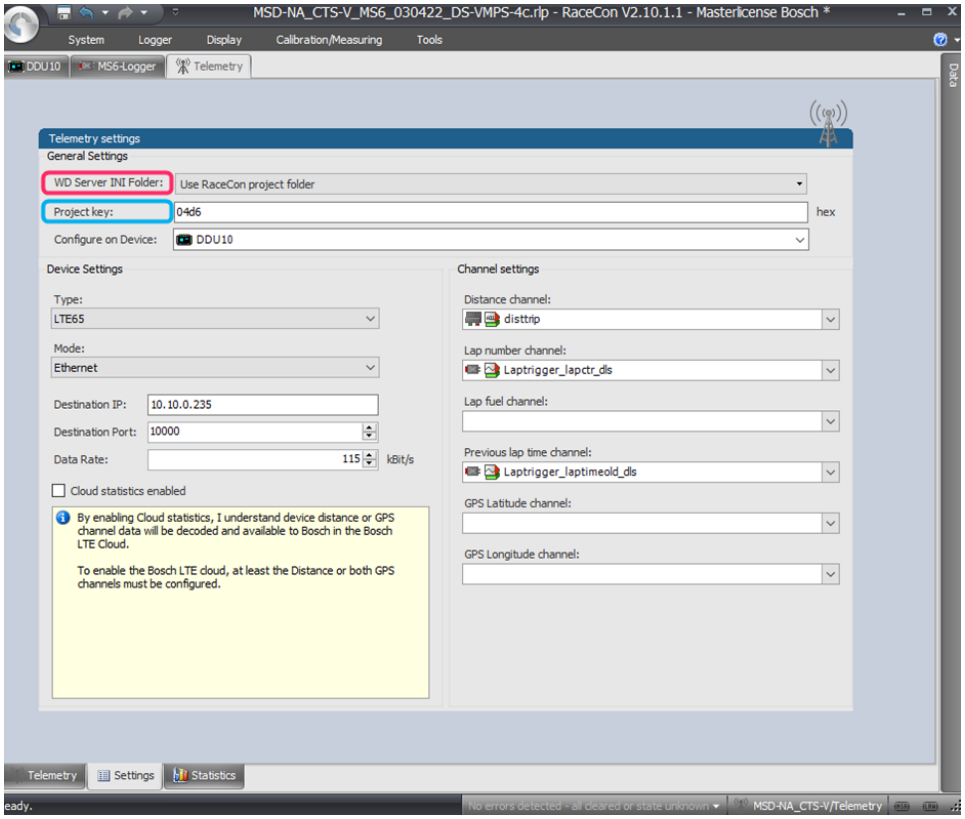
– *Ini File Folder*: Provide the file path to the .ini file generated by RaceCon is saved. The INI file is written by RaceCon to the PC that most recently updated the vehicle configuration.
„Auto-INI": INI files can be automatically transferred via the RaceConnect cloud, if supported by the data logger. If Auto-INI is not available, the file path must be provided here.

Below, two examples are below, where Auto-INI is enabled and disabled, respectively.

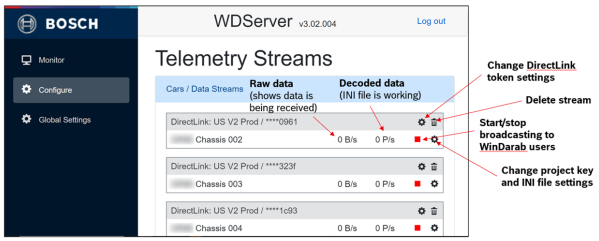




Reference Information: Location of INI File Folder and Project Key from within RaceCon



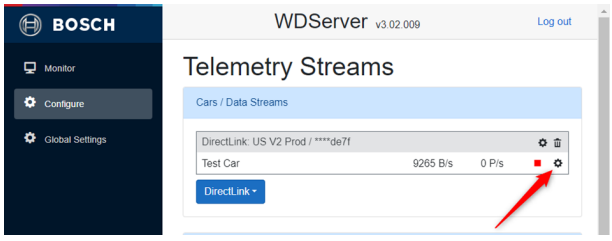
Lastly, below is a summary of the user interface and functions in the DirectLink configuration view.



4.3 DirectLink as UDP Proxy / Port forwarding

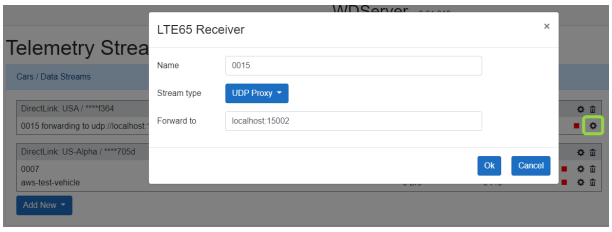
The UDP Proxy function allows a data stream to be forwarded to an external application.

1. Click on the settings gear next to the data stream statistics.

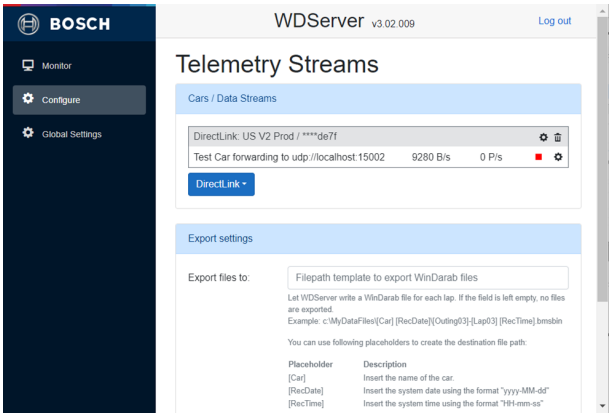


2. Select *Stream Type*: UDP Proxy
3. *Forward* to: Enter the IP address and port where the external application will listen for data. Use a colon „:“ to separate the IP address and port.
   Examples:
   localhost:15002
   127.0.0.1:15002
   192.168.1.25:15002

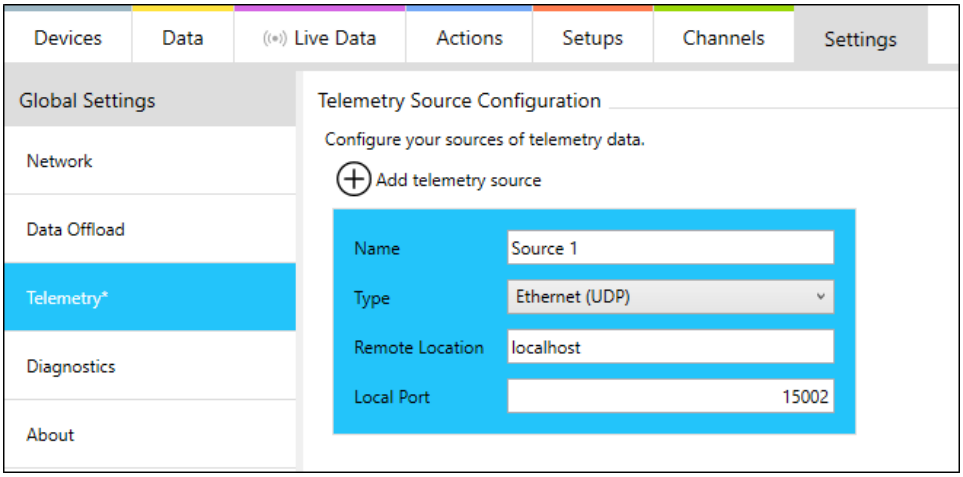
Where 150xx is an arbitrary port also set up in the other application.



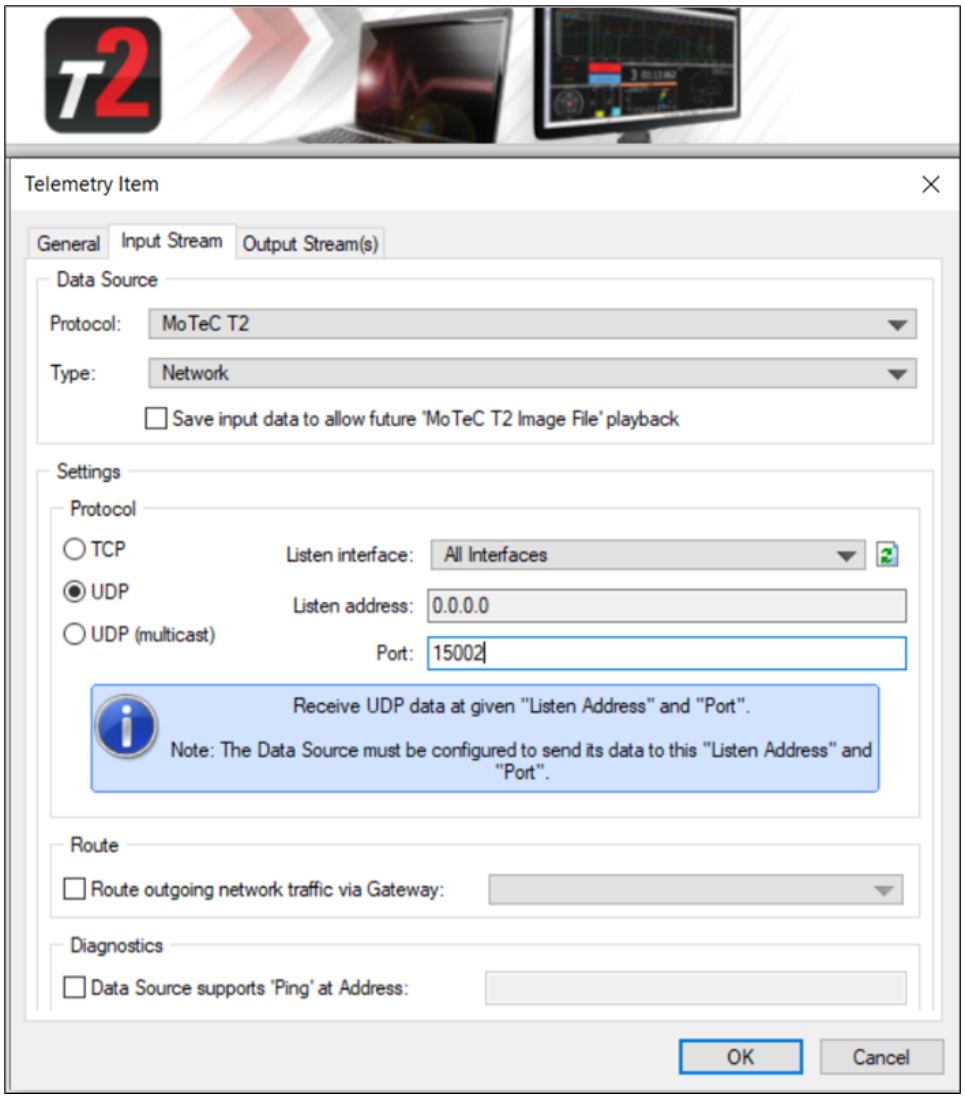
After the setup, WDServer will report where data is being forwarded:



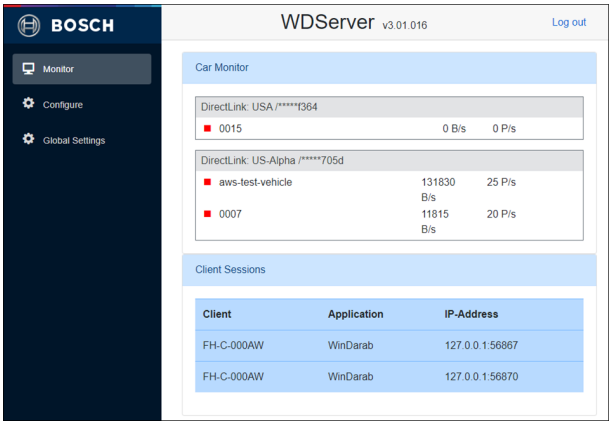
Example of matching Cosworth Pi Toolset configuration:



Example of matching MoTeC T2 Server configuration:



5 Monitoring the Data Stream



Car Monitor

For each stream:

- *B/s* is the raw Bytes / second
  - Indicates if any data is being received to the PC.
- *P/s* is the decoded Packets / sec
  - For Bosch Data Streams (non-UDP Proxy / Port Forwarding mode), indicates that data is being decoded properly using the .INI file, and can be viewed by WinDarab users.

Basic troubleshooting for data streams:

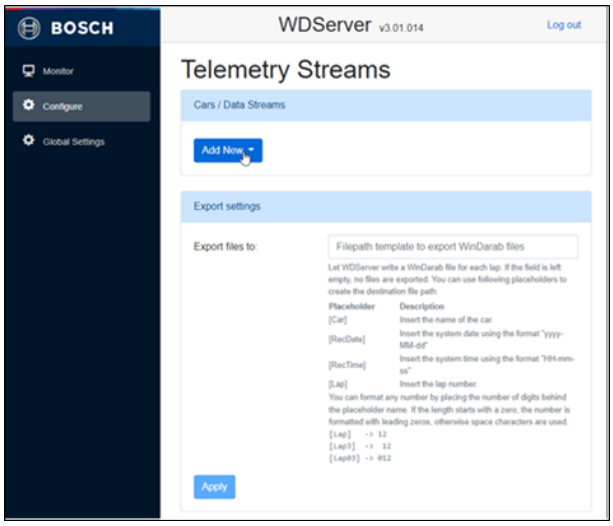
- If *B/s* is 0 and *P/s* is 0:
  - No data is being received.
- If *B/s* is populated and *P/s* is 0:
  - Data is being received, but the .ini file is missing or does not match.
- *If B/s* is populated and *P/s* is populated:
  - WDServer is decoding data.

Client Sessions

- For Bosch Data Streams (non-UDP Proxy / Port Forwarding mode):
  - A list of PCs viewing the decoded data stream in WinDarab
- The list will include the PC that is hosting WDServer, if this PC is also viewing the data stream in WinDarab.

6 Configure an LTE65 Receiver

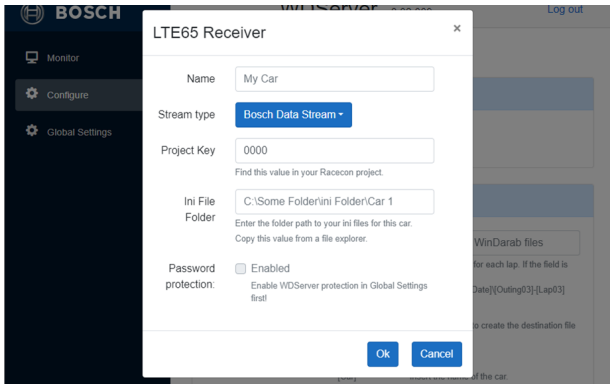
1. Connect an LTE65 Receiver to an open Ethernet port on the WDServer PC.
2. Click on the *Configure* tab and click on *Add New*.



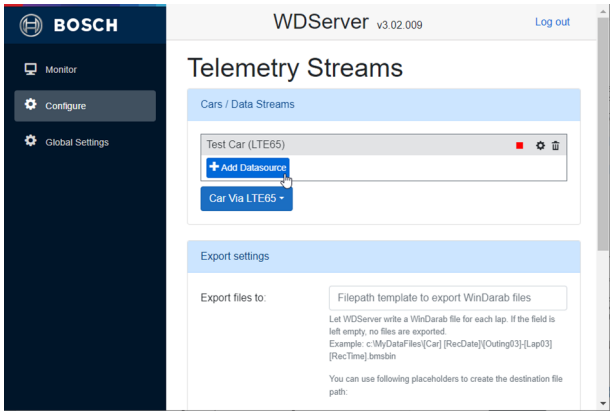
3. Select *Car* Via *LTE65*.

6.1 Configure an LTE65 Receiver with Bosch Data Stream

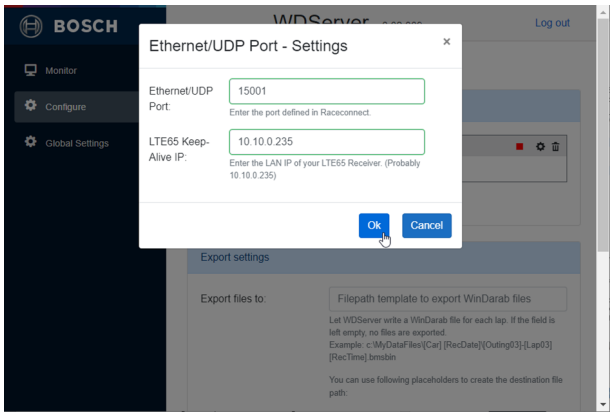
1. Provide a name for the data stream, the RaceCon telemetry project key, and the path to the local folder containing the INI file.
   Refer to the section *DirectLink with Bosch Data Stream* for information regarding where to find the RaceCon telemetry project key, and the INI file folder location.
   The INI file is written by RaceCon to the PC that most recently updated the vehicle configuration.



2. Click on *Ok*, then *Add Datasource*.



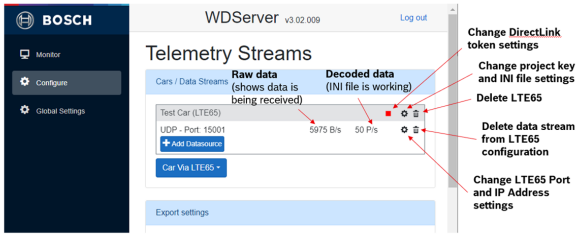
3. Provide the UDP Port (configured in RaceConnect) and the IP address of the LTE65 Receiver.
   In most cases, the IP address is 10.10.0.235
   If unsure about the UDP Port defined in RaceConnect, contact your Bosch representative or your dealer.



Note: Multiple data streams can be received via the same LTE65 Receiver. To set up multiple data streams, with different INI files and project keys, add a second LTE65 Receiver in the *Configure* page by clicking on *Add New -> Car Via LTE65*, and define another stream using the information of the same LTE65.

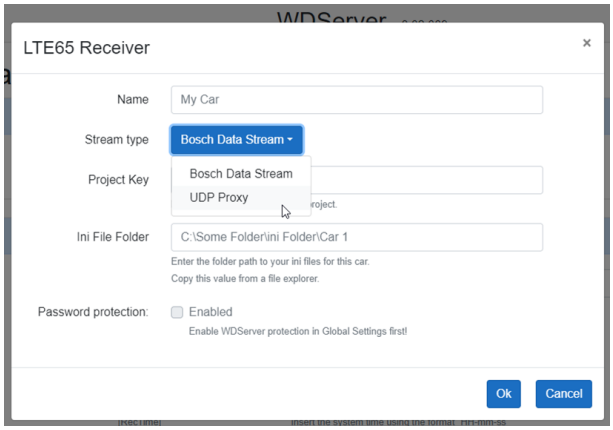
Lastly, below is a summary of the user interface and functions in the LTE65 configuration view.

– Refer to section *Monitoring the Data Stream* for information about the user interface and basic troubleshooting.

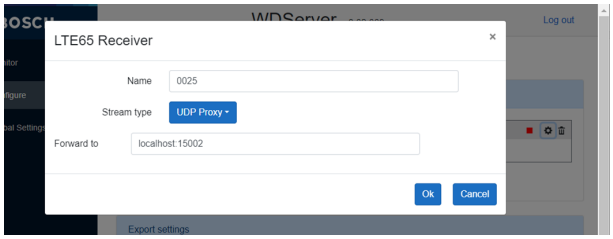


6.2 LTE65Receiver with UDP Proxy

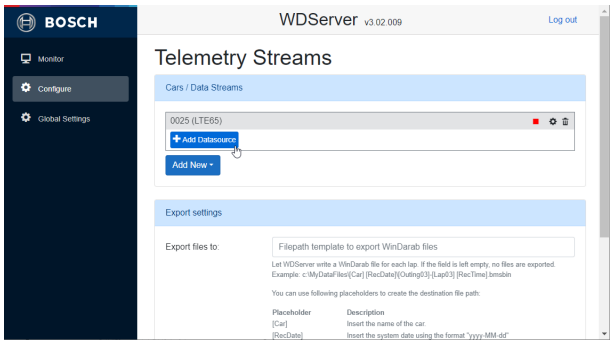
1. After following the steps from section Configure an LTE65 Receiver, change the *Stream type* to UDP Proxy.



2. Provide a Name for the data stream.
3. Forward to: Enter the IP address and port where an external application will listen for data. Use a colon „:“ to separate the IP address and port.
   Examples:
   localhost:15002
   127.0.0.1:15002
   192.168.1.25:15002
   Where 150xx is an arbitrary port also set up in the other application.



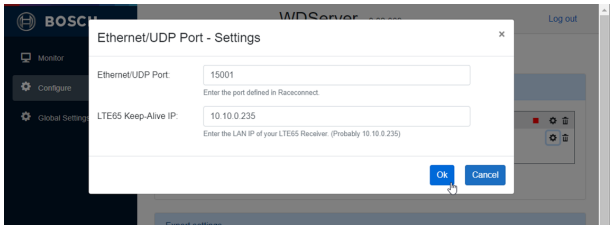
Click Ok, then *Add Datasource*.

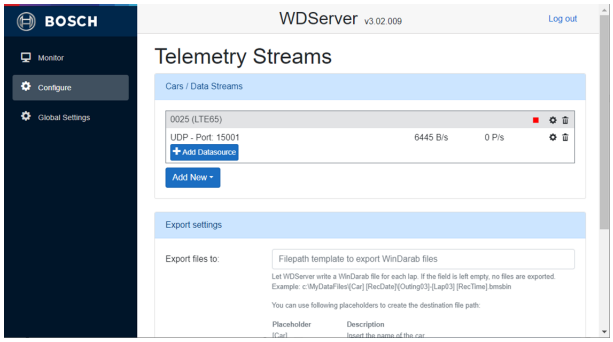


1. Provide the UDP Port (configured in RaceConnect) and the IP address of the LTE65 Receiver.

In most cases, the IP address is 10.10.0.235

If unsure about the UDP Port defined in RaceConnect, contact your Bosch representative or your dealer.





Note: Multiple data streams can be received via the same LTE65 Receiver. To set up multiple data streams, in order to forward multiple streams to another application, add a second LTE65 Receiver in the *Configure* page by clicking on *Add New -> Car Via LTE65*, and define another UDP Proxy. The information defining the LTE65, will have to be entered again for each desired additional stream.

7 Configure a Third Party Receiver

A third-party telemetry system which supports Ethernet may be used in place of the LTE65.

In this case, the instructions in the sections *LTE65 Receiver with Bosch Data Stream* or *LTE65 Receiver with UDP Proxy* should be followed, by declaring the local/LAN IP address of the third-party telemetry receiver, and the corresponding UDP port which data is being sent to the PC, during the data stream configuration steps.

However, Bosch makes no guarantee of the compatibility of WDServer with third-party telemetry systems.

8 WDServer Export Settings

For streams with data type Bosch Data Streams, a folder path may be specified for WD-Server to save telemetry files to disk, in WinDarab .bmsbin file format. Files are written upon laptrigger (end of each lap as configured in RaceCon), or when the red stop icon is clicked in the WDServer interface for a given data stream.

The configuration is set in the *Configure* tab of WDServer. Using placeholders, file names can be specified using a field from the telemetry data itself.

Note: If the configuration is left empty, no files are written by WDServer.

Be sure to click *Apply* for the settings to take effect.

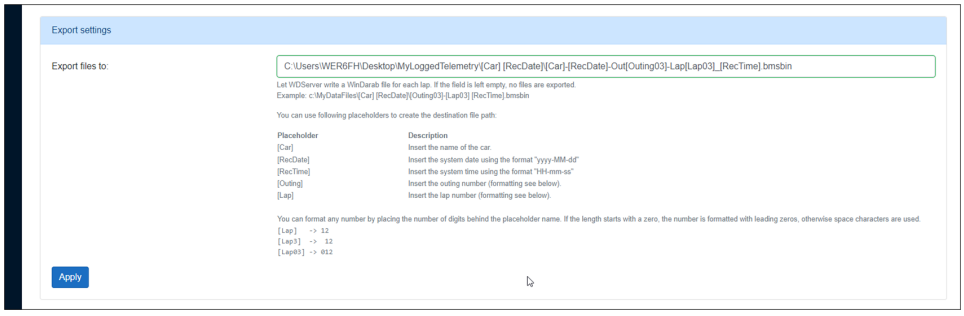
Example:

C:\Users\TelemetryUser\Desktop\MyLoggedTelemetry\[Car] [RecDate]\[Car]-[RecDate]-Out[Outing03]-Lap[Lap03]_[RecTime].bmsbin

Placeholder	Description
[Car]	Inserts the name of the car.
[RecDate]	Inserts the system date using the format "yyyy-MM-dd"
[RecTime]	Inserts the system time using the format "HH-mm-ss"
[Outing]	Inserts the outing number (formatting see below).
[Lap]	Inserts the lap number (formatting see below).

Lap and outing numbers may be formatted by placing the number of digits behind the placeholder name. If the length starts with a zero, the number is formatted with leading zeros, otherwise space characters are used.

Placeholder	Example Result
[Lap]	12
[Lap3]	12
[Lap03]	012



9 WDServer Global Settings

In the Global Settings window, additional options are available that modify the functionality of WDServer.

9.1 Login name and password

Specify the username and password required when connecting to the WDServer V3 browser window.

The WDServer browser page may be accessible to other users on your local network. This option is available to provide an additional level of authorization, preventing others on the local network from accessing data stream settings.

9.2 Network adapters

Set which specific network adapters on the PC will serve data for WinDarab users.

9.3 TCP/UDP Server Ports

Change the TCP/UDP port used by WDServer to communicate with WinDarab.

Primary/Default port is currently recommended.

9.4 Proxy Settings

Set the URL of a network proxy. Optionally, provide authentication to access the proxy.

By default, the proxy of the PC / system is used, if one is active.

9.5 Other Settings

Alias name: Set the name of the WDServer instance, which is displayed in WinDarab when users connect to a data stream.

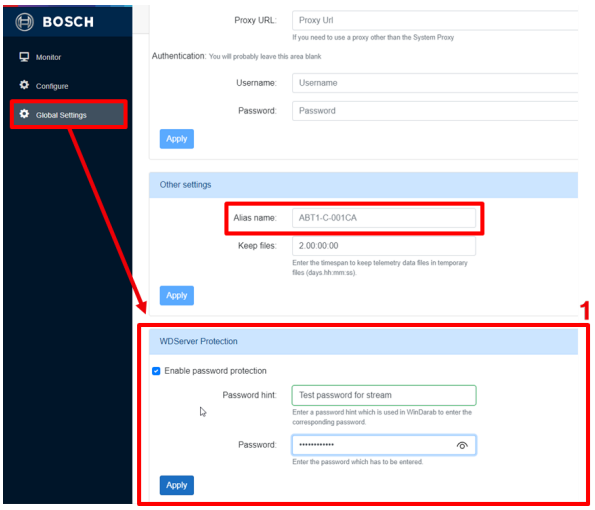
Keep files: Enter the timespan to keep telemetry data files in temporary files (days.hh:mm:ss). See section *.tmp Files* for more information.

9.6 WDServer Password Protection

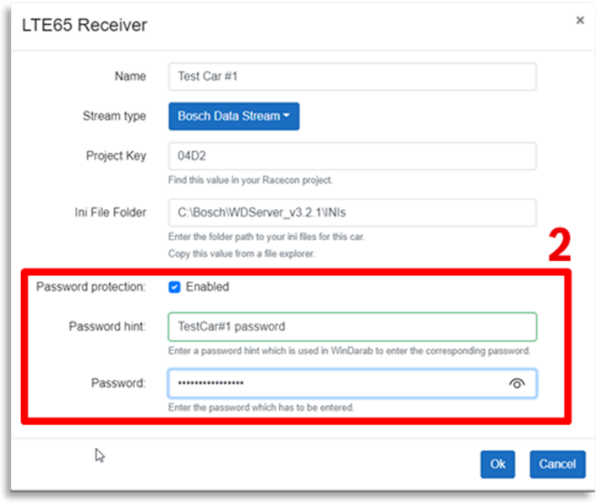
Enables password protection for WinDarab. This requires WinDarab users to enter a password before being able to connect to a Bosch data stream.

- WinDarab v7.9.26 is the first client supporting the new WDServer V3.2 with enabled access protection and data encyption.
- After access protection is enabled in WDServer V3.2, WinDarab v7.9.026 or later is capable to detect, connect to WDServer V3.2 and show its telemetry streams:
- If a protected WDServer V3.2 is detected, WinDarab shows the WDServer in the “new files” section at the bottom of the “File Explorer” view. When double-clicking the entry, the user can enter the correct password to allow WinDarab to receive the WDServer configuration.
- After unlocking the WDServer connection, all streams of the WDServer are shown in the “New files” section. Again, a double-click on an entry opens (if required) the password dialog to connect with the specific telemetry stream. See next slide for details.

1. Enable password protection 1st in global settings then individual streams can be protected!
   Alias name for stream source can be used instead of computer name.



2. Set the password for the individual stream.

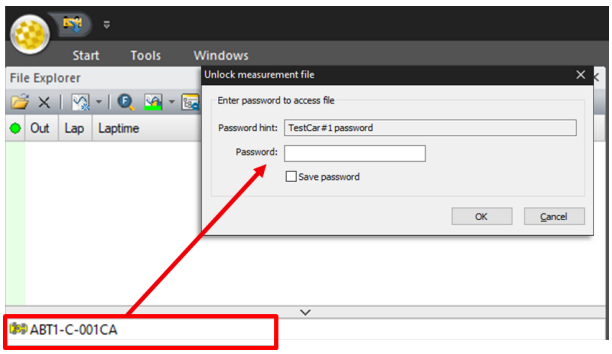


3. Opening password protected stream in WinDarab

   – The password hint/password can be stored in the password safe of WinDarab. If a matching password is found in the password safe, the WDServer and/or telemetry stream is immediately unlocked/established.

   – If a WDServer is unlocked and the same password hint/password is used to protect a telemetry stream, the password is not required to be entered again.

   – As long as WinDarab is opened, a stream which was connected before won't ask for the password again when reconnecting.



10 Troubleshooting: WDServer Command Window does not start (.NET Version)

Observed behavior:

When launching WDServer, the application terminal window appears for only an instant. The window crashes and is immediately closed.

Cause:

.NET Desktop Runtime 6 is not installed, or the currently installed version is incompatible.

Solution:

Install the latest official version of .NET Desktop Runtime 6.

https://dotnet.microsoft.com/en-us/download/dotnet/6.0

11 Troubleshooting: Browser Loading Issues (Error 404, Port Conflicts)

Observed behavior:

WDServer reports a 404 error in your browser or does not load in the browser, and there are no errors in the running WDServer application terminal.

Cause:

Another application or process on the PC tries to use the same port as WDServer for the browser interface (TCP port 5000). A common conflict is Vector tools (CANalyzer, etc.)

Solution:

Find the the application or service which is also trying to use the same port, and close it.

Open Windows Command Prompt and run the command:
netstat -noa | find "5000"

Look for multiple entries in the list marked as "LISTENING". This indicates a conflicting application.

Use the rightmost column, the PID, and then open Task Manager (Ctrl-Alt-Delete).

The PID of the offending process or application will be shown in the Details column in Task Manager.

12 General Troubleshooting

WDServer V3 supports minidumps like WinDarab and stores important events in log files which can help debugging issues.

For issues not resolved by the troubleshooting steps or through this manual, contact your Bosch representative. The following supporting information is useful to provide:

.tmp files and log files.

12.1 .tmp files

WDServer saves important runtime files in the following location:
C:\Users\YOUR_USERNAME\AppData\Local\Temp\WDServer.Net

Locate the files which have the problem data stream in the file name. Provide the files to your Bosch representative.

12.2 WDServer log files

WDServer saves log files of the application terminal window in its installation directory, in the LogFiles folder.

Example directory: C:\Bosch\WDServer V3.02.011\LogFiles

Provide these files to your Bosch representative.

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