dap TECHNOLOGY

1394 Analyzer Quickstart Guide

FS810bN

Table of Contents

Chapter 1. Introduction

Welcome to the 1394 Analyzer Quickstart Guide for the enter value here. For a quick start, please read the Getting Started chapter. If you need help installing the software, please refer to the Installation chapter.

The analyzer software contains the following functionality, which is explained in the corresponding chapters of the FireDiagnostics Suite Manual. Please be aware that available Analyzer Modules depend on the specific Analyzer model used.

- Monitor
- Recorder
- Symbol Recorder (licensed separately)
- Commander
- Generator
- Scriptor
- Filter/Trigger
- Mil1394 Signal Monitor (licensed separately)

The analyzer is in fact a protocol analyzer, which currently supports the following higher-level protocols:

- Automotive Multimedia Interface Collaboration (AMI-C)
- Serial Bus Protocol (SBP)
- Audio Video / Control Protocol (AV/C)
- Internet Protocol version 4 (IP4)
- Industrial / Instrumentation Digital Camera Protocol (IIDC)
- Mil1394 Protocol
- Custom Protocols

For information on the licensing model, please refer to the License Manager chapter.

Chapter 2. Hardware

2.1. Stealth Series

2.1.1. FireStealth 810bN

DapTechnology's FireStealth810bN© with its patent pending non-intrusive bus monitoring technology, is the industry's first "Stealth Mode" IEEE 1394b analyzer. The FireStealth IEEE 1394b analyzer is a bus monitoring device that is attached to the IEEE 1394b bus leaving the existing topology unaffected. The device does not participate in the bus configuration and thus, no topology reconfiguration and node ID reassignments occur. The FireStealth's passive personality and non-intrusive behavior renders it invisible to all other devices on the IEEE 1394b bus.
Also, it does not participate in any bus management activities such as root contention, cycle start generation & transmission arbitration.

The FireStealth is a small, compact instrument that is equipped with 1 GB internal memory. The unit offers extensive hardware filtering and trigger possibilities due to efficient programmable logic and an on-board processor. It supports up to 800Mb transfer rate (beta Mode only). Two 1394b connectors allow for convenient connection to the system under test.

The FireStealth may be connected to a host computer via the USB 2.0 interface. Furthermore, an Ethernet port allows for easy network integration and remote control. The graphical user interface runs on Windows™ XP and Windows™ 7. It is intuitive and offers a user-friendly way of data presentation and user control.

Additionally the included API even allows you to build your own control software by using its interfaces to several programming languages like C++, LabView™ and LabWindows™. The seamless integration of the AS5643 protocol (based on SAE AS5643) makes the FireStealth a great tool for many Aerospace & Defense development tasks. DapTechnology has taken considerable efforts to fully support the SAE AS5643 protocol in all major functional areas of the FireStealth and continuously updates the analyzer functionality according to implementation requirements and ongoing standardization efforts.

2.1.1.1. Main Feature Summary

General

- Supports 100(B), 200(B), 400(B) and 800(B) Mbps transfer rates
- Connects to host using USB2.0 interface or to LAN via 10/100 BaseT
- Electrical isolation between IEEE 1394 and host (USB)
- 992 MByte memory for packet and data storage
- Firmware field upgradeable to enable future expansions
- AUX connector for:
    - Trigger input and output functions
    - Recording external events
- Software runs on Windows™ XP and Windows™ 7

Monitor

- Displays bus activity:
- Counts packets according to type, speed, ack and error condition
- Counts number of bus resets

Recorder

- Time stamping of all packets and status events with 10ns resolution
- Packets hidden by slower connections are visible as 'prefix only' packets
- Extensive packet/event filtering/trigger/search capabilities
- Adjustable trigger position within programmable record buffer size
- Cyclic pre-trigger buffer management option
- Different kinds of packet display views
- Precise time measurements
- Marking of individual packets or packet ranges
- Export format for re-generation of packets with non-Stealth analyzer

Symbol Recorder (valid module license required)
- Record RAW 1394 data at the bit level
- Advanced software analysis decodes bits into symbols
- IRIG-B122 Time synchronization
- Adjustable trigger position within programmable record buffer size
- Cyclic pre-trigger buffer management option
- Different kinds of views

Scriptor

- Script Editor
- Data Editor
- Control Panel
- Several Sample Scripts

Topology

- Graphical Display of current Bus Topology
- Live topology updates upon Bus Reset Detection

2.1.1.2. *Specifications*

|	
Dimensions:	125 mm x 48 mm x 224 mm
Weight:	770 g
Operating Range:	0 – 45 C
Power Requirements:	12 V, 10 Watt maximum
Compliance:	FCC Class A
Connections:	• USB2.0-connector for host-computer
	• RJ45 Ethernet connector
	• 2 IEEE 1394-connectors (Beta)
Indicators:	• Green LEDs for: Sync, Speed , USB, Power, Ethernet, Trigger
	• Red LEDs for: Record, Scriptor Active, Ready
	• Bicolor LEDs for: Port Polarity, Port Signal
	• Buzzer
Switches:	Tumble switch for Power On/Off
Package Content:	FireStealth810bN
	Power adapter (12V, 1250mA)
	1394b Cable (Beta9 – Beta9), 1meter
	Trigger Cable
Product warranty:	36 months limited warranty
Part Number:	FS081bN or FS081bNAS5643 (w.AS5643 SW protocol package)
Optional Configuration:	-
SW Add-on modules:	SBP2 protocol software package
	IIDC protocol software package
	AV/C protocol software package
	IP1394 protocol software package
	AS5643 protocol software package

FCC Class A Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the

equipment under FCC rules.

2.1.1.3. FireStealth Front
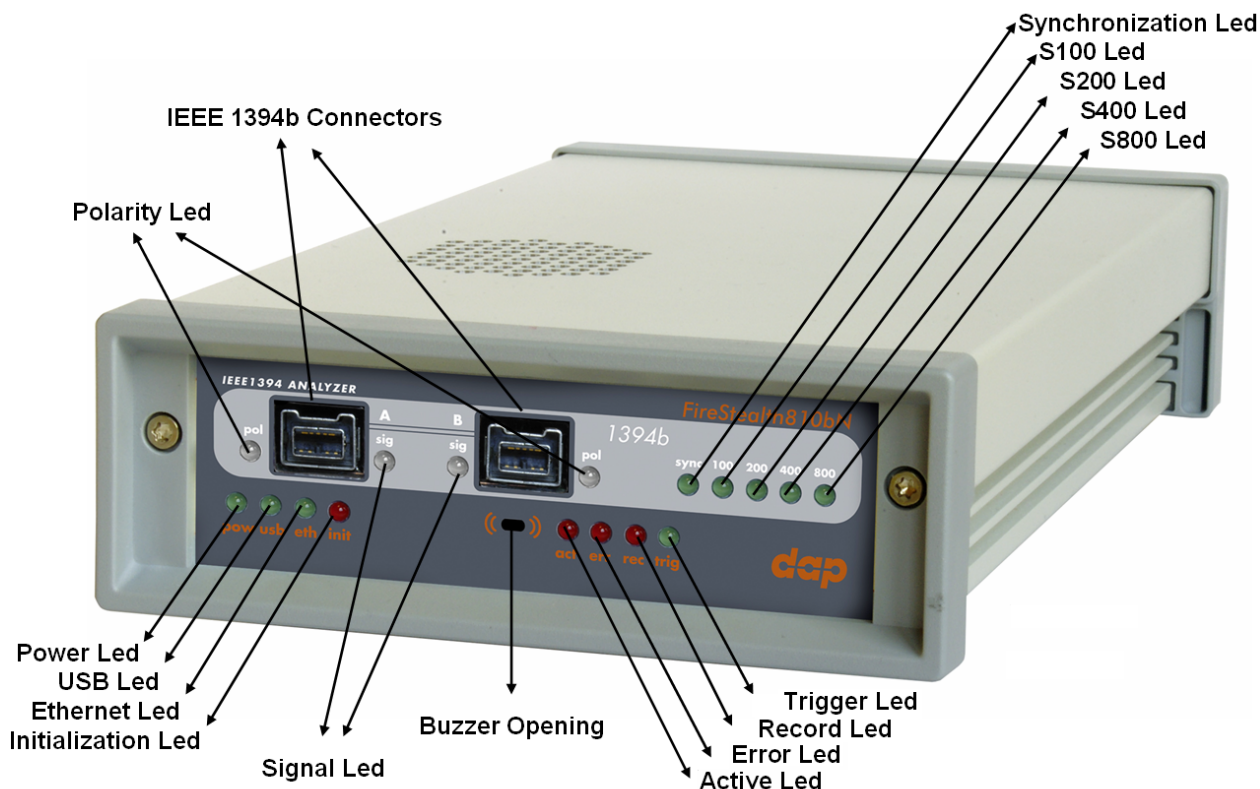
Polarity led

This dual colored (green/red) led will light up green whenever the FireStealth has participated in the connection setup of the IEEE 1394b bus and has detected that the polarity of the cable is normal.
This dual colored (green/red) led will light up red whenever the FireStealth has participated in the connection setup of the IEEE 1394b bus and has detected that the polarity of the cable is inverted.
This dual colored (green/red) led will light up orange whenever the FireStealth has participated in the connection setup of the IEEE 1394b bus and has detected that the there is no polarity switching inside the cable although the polarity settings selected in the dialog window of the Data Pickup Logic Connection Settings are set to inverted.
This dual colored (green/red) led will not light up whenever the FireStealth has not participated in the connection setup of the IEEE 1394b bus and has not been able to detect any information about the cable polarity. (This will always be the case whenever configuration of the FireStealth is done after configuration of the 1394b bus.)

Signal led

This dual colored (green/red) led will light up green whenever the FireStealth has detected that the IEEE 1394b bus is operational.
This dual colored (green/red) led will light up red for 10 milliseconds whenever the FireStealth has detected a bus reset or an asynchronous packet on the respective port.
This dual colored (green/red) led will light up orange whenever the FireStealth has detected isochronous packets on the respective port. The intensity of the orange will range from orange to more red the more isochronous packets are detected on the respective port.

Synchronization led

This green led will light up when the FireStealth has found synchronization to the IEEE 1394b bus.

S100 led

This green led will light up when the line speed of the FireStealth has been set to S100 in the Data Pickup Logic Connection Settings dialog window.

S200 led

This green led will light up when the line speed of the FireStealth has been set to S200 in the Data Pickup Logic Connection Settings dialog window.

S400 led
This green led will light up when the line speed of the FireStealth has been set to S400 in the Data Pickup Logic Connection Settings dialog window.

S800 led
This green led will light up when the line speed of the FireStealth has been set to S800 in the Data Pickup Logic Connection Settings dialog window.

Power led
This green led will light up when the power supply is connected to the FireStealth (see 'FireStealth Rear' below) and the 'FireStealth is switched on. It indicates the availability of power from the power supply

USB led
This green led will light up when the FireStealth is connected to the USB port of your computer (see 'FireStealth Rear' below) and the computer is switched on. It indicates the availability of USB bus power.

Ethernet led
This green led will light up when the FireStealth is connected through its ethernet port (see 'FireStealth Rear' below) and the network is active.

The initialization led
This red led will light up when the FireStealth is performing an initialization of the firmware.

IEEE 1394b connectors (2x)
With these connectors the FireStealth can be connected to the IEEE1394b bus to be analyzed. One or both connectors may be connected to the bus.
Both connectors are beta ports. This means that they can only be connected to a 1394b (beta) port.

Buzzer opening
Behind this hole a buzzer is installed.

Active led
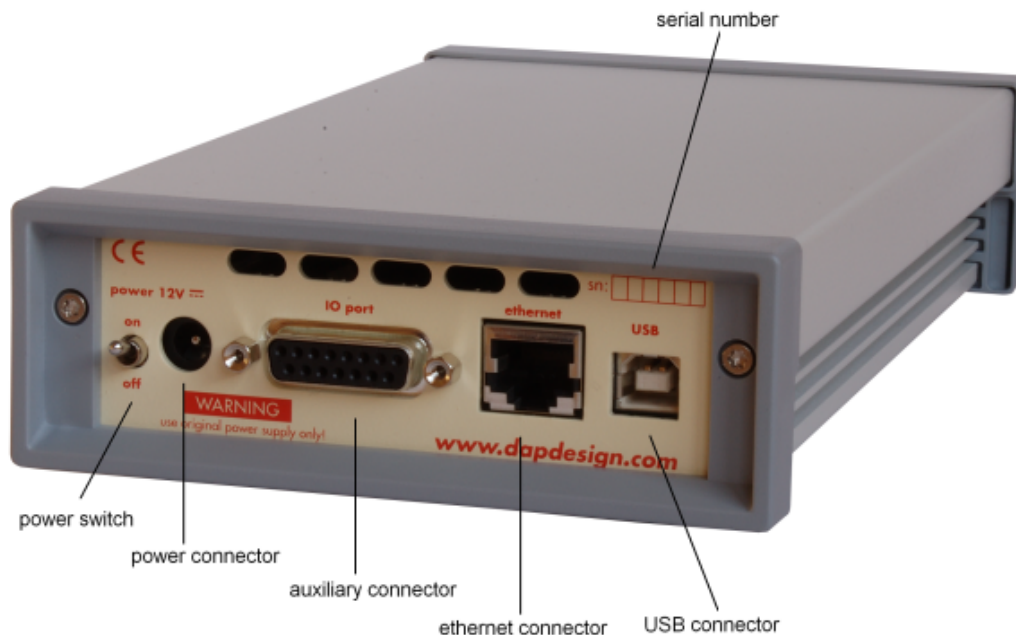This red led will light up when the Scriptor is active. See Scriptor.

Error led
This red led will light up when a device error has occurred.

Record led
This red led will light when recording is in progress. See Recorder.

2.1.1.4. FireStealth Rear

power switch
Using this switch the FireStealth can be switched on (powered) and off. When switched on the 'power led' on the front will light up. Note that the power supply needs to be connected to the FireStealth (see below) to be able to switch the FireStealth on.

power connector
The power supply must be connected to the FireStealth, using this connector. Note that, for safety reasons, only the original power supply should be used.

auxiliary connector
The auxiliary port will be discussed in a separate chapter. See Auxiliary connector ports.

ethernet connector
This is a standard ethernet port. it is used for network access to the FireStealth.

USB connector
The FireStealth must be connected to the computer using this connector. A USB cable, which is part of the FireStealth-package, is connected between this connector and the USB port of the computer.
The USB interface is electrically isolated from the IEEE1394b logic to prevent ground loops.

serial number
Each FireStealth has a 5 character serial number. This number is also programmed into the FireStealth and can be read with the License Manager of the FireStealth application. Part of the software will only work when license keys are installed for the serial number of the currently connected FireStealth. See License Manager for more information on license keys.

2.1.2. General Operation

2.1.2.1. Connecting the FireStealth

The FireStealth IEEE 1394b analyzer is a bus monitoring device that is attached to the IEEE 1394b bus leaving the existing topology unaffected. The device does not participate in the bus configuration and

thus, no topology reconfiguration and node ID reassignments are performed. The FireStealth's passive personality and non-intrusive behavior renders it invisible to all other devices on the IEEE 1394b bus. Also, it does not participate in any bus management activities such as root contention, cycle start generation & transmission arbitration.
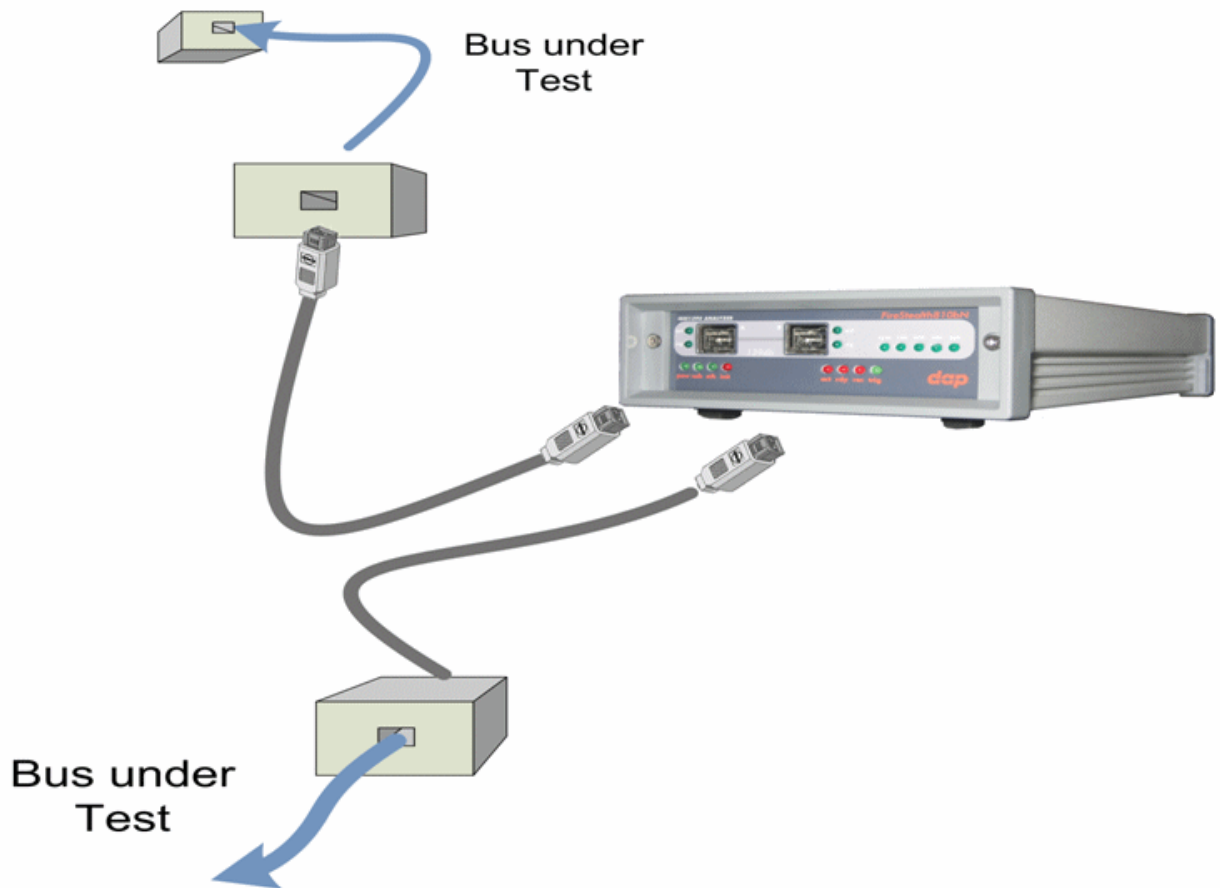
### 2.1.2.2. Data-Pickup Logic Connection-Settings

With the application software's dedicated tab page of the settings dialog window it is possible to set the Data Pickup Logic Connection Settings.

Setting the line speed can be done by making a selection in the Speed box between S800, S400, S200 and S100.

Setting the cable polarity of the cable connected to port A of the FireStealth can be done by making a selection in the PolarityA box between Normal and Inverted.

Setting the cable polarity of the cable connected to port B of the FireStealth can be done by making a selection in the PolarityB box between Normal and Inverted.

Note that any change in the Data Pickup Logic Connection Settings will result in a resynchronization attempt of the FireStealth to the IEEE 1394b bus.
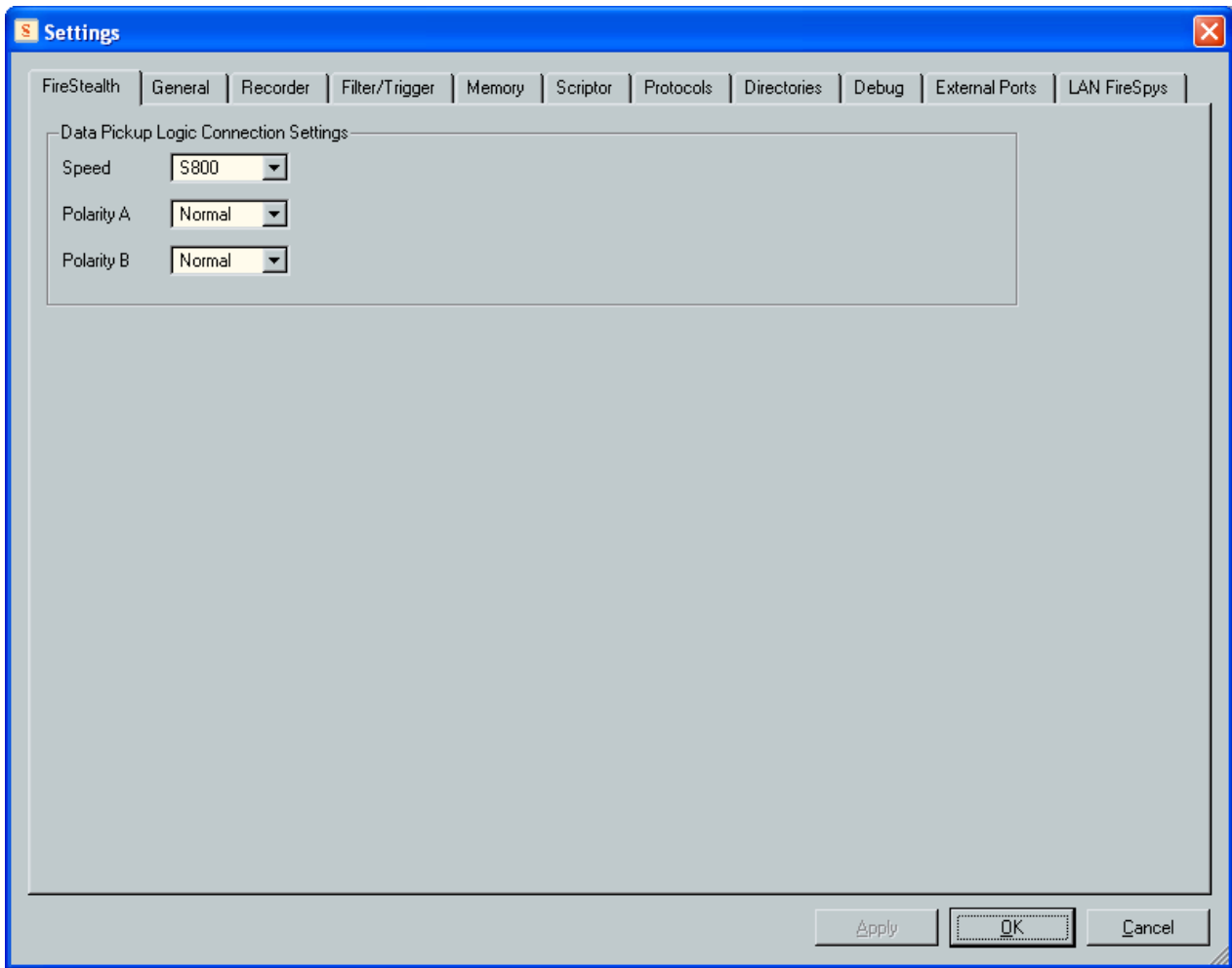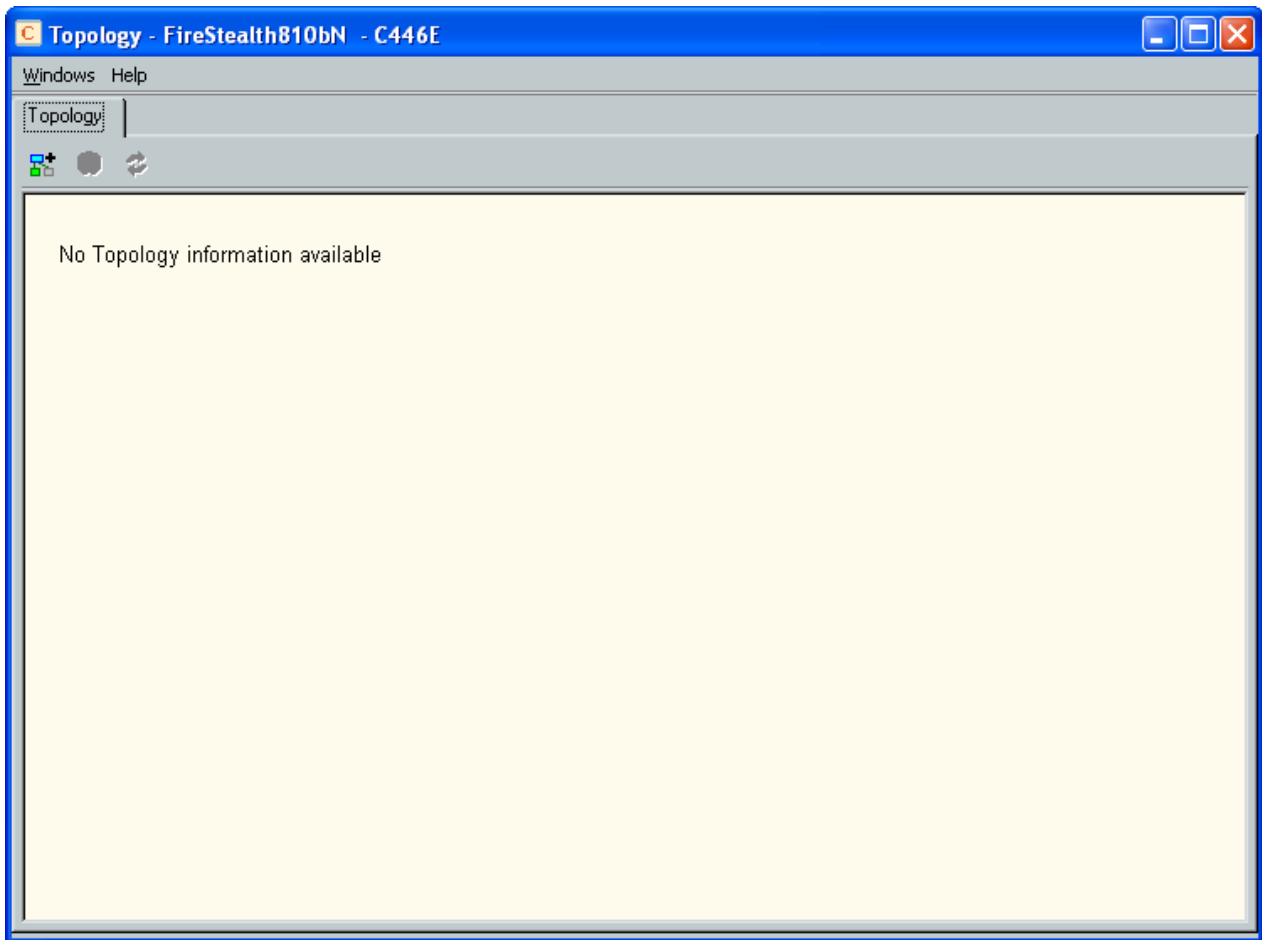
2.1.2.3. Configuration of the FireStealth

2.1.2.3.1 Bus Topology information

Whenever configuration of the FireStealth is done before configuration of the IEEE 1394b bus, the FireStealth will be able to analyze the IEEE 1394b bus configuration and will gather the bus topology information.
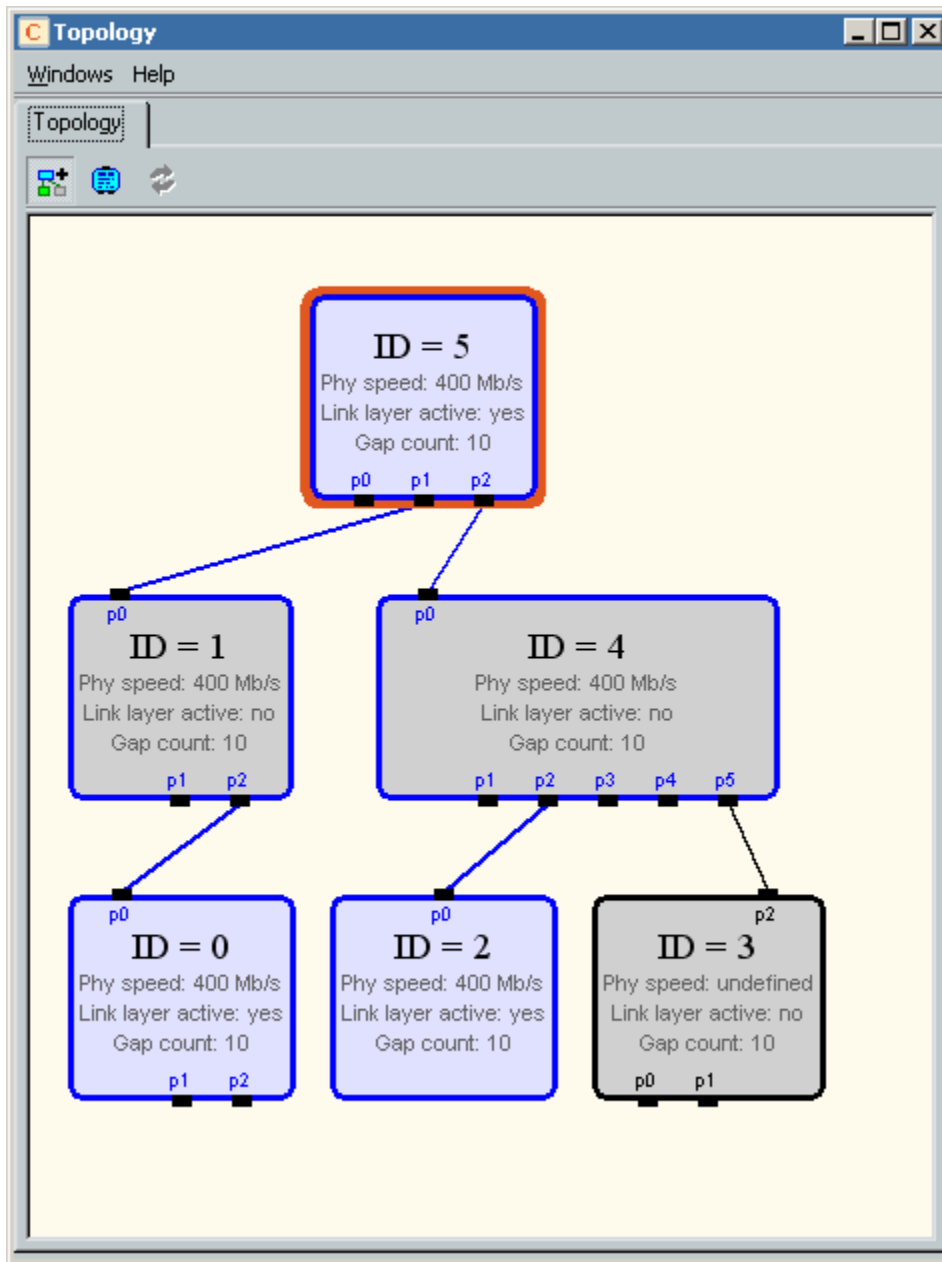
Whenever configuration of the FireStealth is done after configuration of the 1394b bus, the FireStealth will have missed the IEEE 1394b bus configuration and will not be able to gather the bus topology information.

2.1.2.3.2 Cable Polarity Information

Whenever configuration of the FireStealth is done before configuration of the IEEE 1394b bus, the FireStealth will be able to detect, during connection setup of the IEEE 1394b bus, if the cable polarity is inverted compared to the polarity settings in the dialog window of the Data Pickup Logic Connection Settings.
For each port the information on the status of the cable polarity is indicated by the polarity led.
Whenever configuration of the FireStealth is done after configuration of the IEEE 1394b bus, the FireStealth will have missed the connection setup of the IEEE 1394b bus and will not be able to make an indication on the status of the cable polarity.

2.2. Auxiliary connector ports

All FireSpy devices have one or more auxiliary connector ports.
The signals on these ports are:

- A number of aux signals
- Ground (for aux signals and Power if available)
- Power (not on IDC connector)

The aux signals are all open drain CMOS output with a pullup resister to 3.3 Volts. To prevent a short it is best to only pull these signals low and allowing the internal (or an extra external pullup) resistor to pull the signal high.
When you are sure some aux signal is only used as input, it may be pulled high actively, but it may never be pulled higher then 3.7 Volts.
The current that may flow into an aux pin when driven low by the FireSpy is maximum 12 mA.

All aux signals can be controlled by the Scriptor and for some of the aux signals special functions can be selected.
See the description of the 'External Ports' tab of the 'Settings Dialog' for the possible functions.

The Voltage of the Power signal and the current that can be drawn from it is FireSpy type dependant. The table below shows the Voltage and the maximum current that can be drawn from the Power pin.

FireSpy type	Voltage	Max current all ports together
FireSpy400b	5 +- 10%	100mA (SUBD port)
FireSpy800	5 +- 10%	100mA (SUBD port)
FireSpy410b	12 +- 10%	100mA (SUBD port)
FireSpy810	12 +- 10%	100mA (SUBD port)
FireSpy381x	12 +- 10%	200mA (SUBD and VHDCI ports together)
FireSpy385x	12 +- 10%	200mA (VHDCI port)

Note that the Power on the VHDCI connector can be switched off. See the General tab of the Settings Dialog.

Each aux port can be configured to have an active /TriggerOut pin. (This can be configured in the settingsdialog.) When the recorder is triggered, this pin will be active low for a duration of about 160nS.

2.2.1. The SUBD connector

The 15 pin SUBD connector is available for the external FireSpy units.

It has 12 aux signals and power.
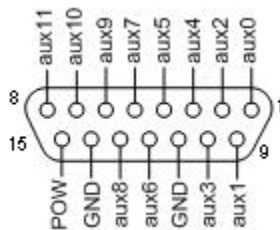
This 15 pin SUBD connector has the following signals:

Pin	Name (Basic & Advanced)	Name (Gen 4)
1	aux0	aux0
2	aux2	aux2
3	aux4	aux4 (IRIG1)
4	aux5	aux5 (IRIG2)
5	aux7	aux7 (TIM2)
6	aux9	RS232 Receive
7	aux10	aux10 (VS-Sync)
8	aux11	RS232 Transmit
9	aux1	aux1
10	aux3	aux3 (TIM1)
11	Ground	Ground
12	aux6	aux6 (IRIG3)
13	aux8	aux8 (TIM3)
14	Ground	Ground
15	Power	Power

For a description of the aux signals and the Power signal, see above.

Chapter 3. Installation

DapTechnology analyzers are not packaged with any software-installation media. This is because we would like our customers to use the very latest software available and not an old version that happened to be the latest when we packaged the product.

You will be able to download the latest software version from our website: http://www.daptechnology.com

Click on the support button at the top of the web page and after inserting the serial number of your FireSpy, which can be found at the back of the unit, you will get access to your custom download page. On this page you will find the license keys for your analyzer as well as links to the software downloads available for your analyzer. (latest recommended or latest beta version)

## 3.1. Windows

3.1.1. Installing the Software

After downloading the FireDiagnostics Suite version of your choice from DapTechnology's website, please open the compressed folder and locate the file setup.exe.
Run the setup.exe file, by one of the following ways:

- double click on the setup.exe file
- select 'Start->Run', browse to the setup.exe file and clock 'OK'
- click with the right mouse button on setup.exe and select' Open'

After starting the setup.exe program, the following window will be displayed. Note that the software version could be different if you are installing another version of the software.
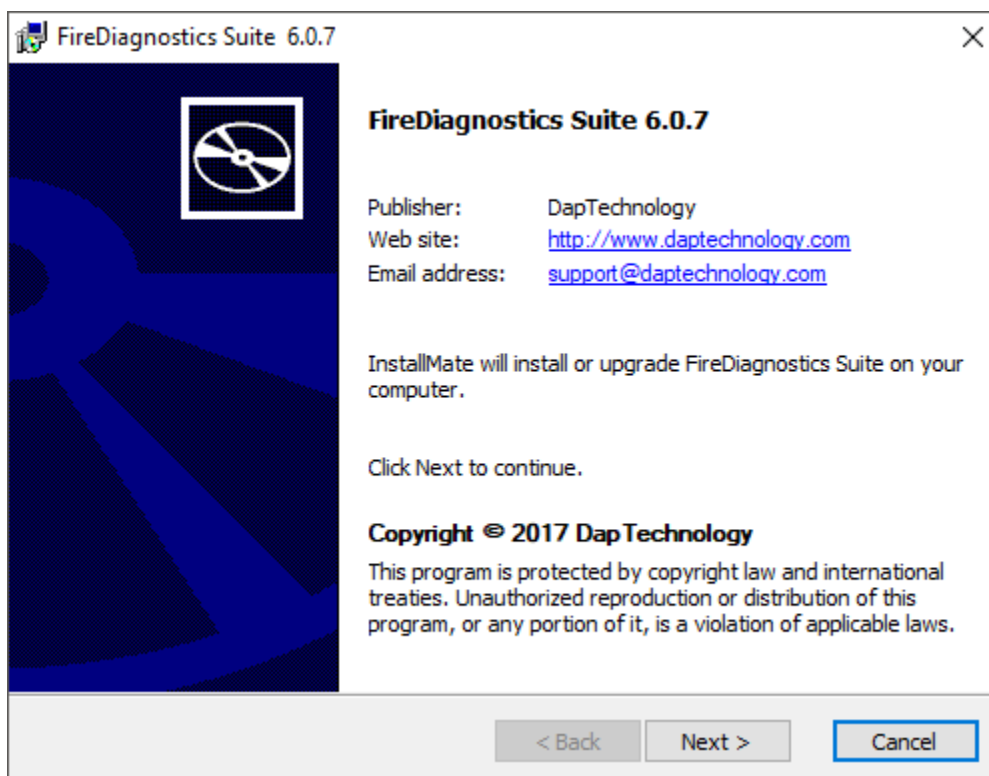

After clicking on "Next", the following window will be showed. It contains the latest information about the version of the software you are about to install. Please read it carefully before proceeding to the next step. The picture below contains just some example information.
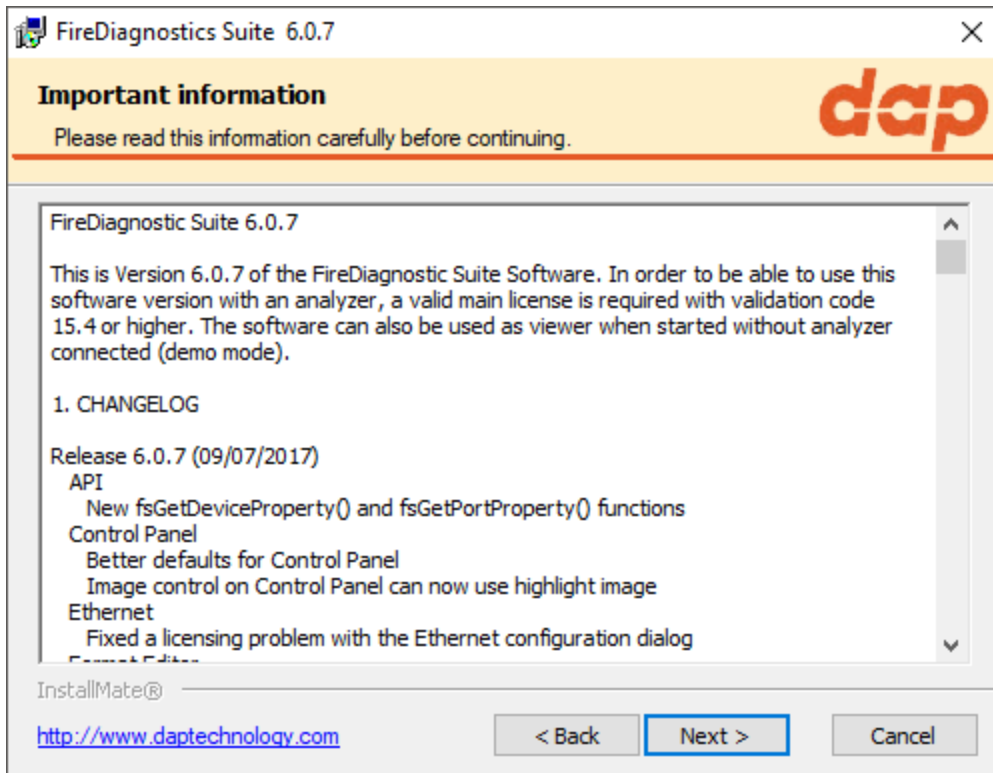
After clicking on "Next", the following window will be showed. It contains the License Information for the software you are about to install. Please read it carefully and check the checkbox to agree to the license agreement before proceeding to the next step.


If you are installing a beta software version, an additional license agreement needs to be agreed with before continueing the installation process. Please check the checkbox and click next.
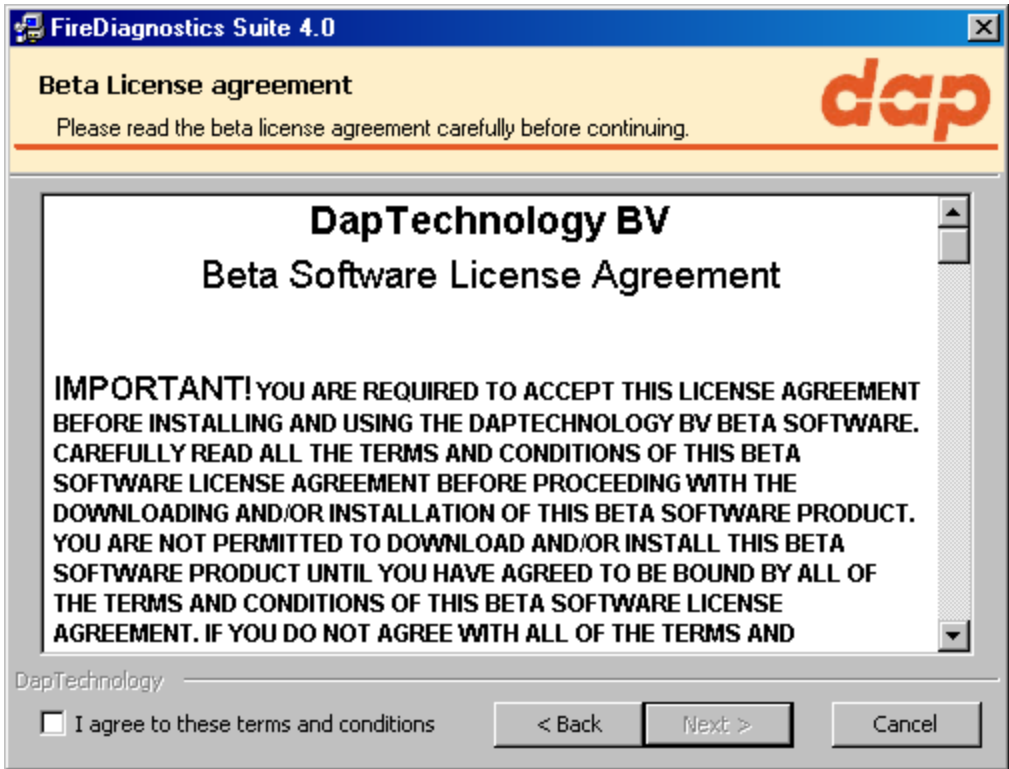
The installer options dialog as shown below allows the user to select which components to install. We recommend installing all components, however it is also possible to leave some components out.
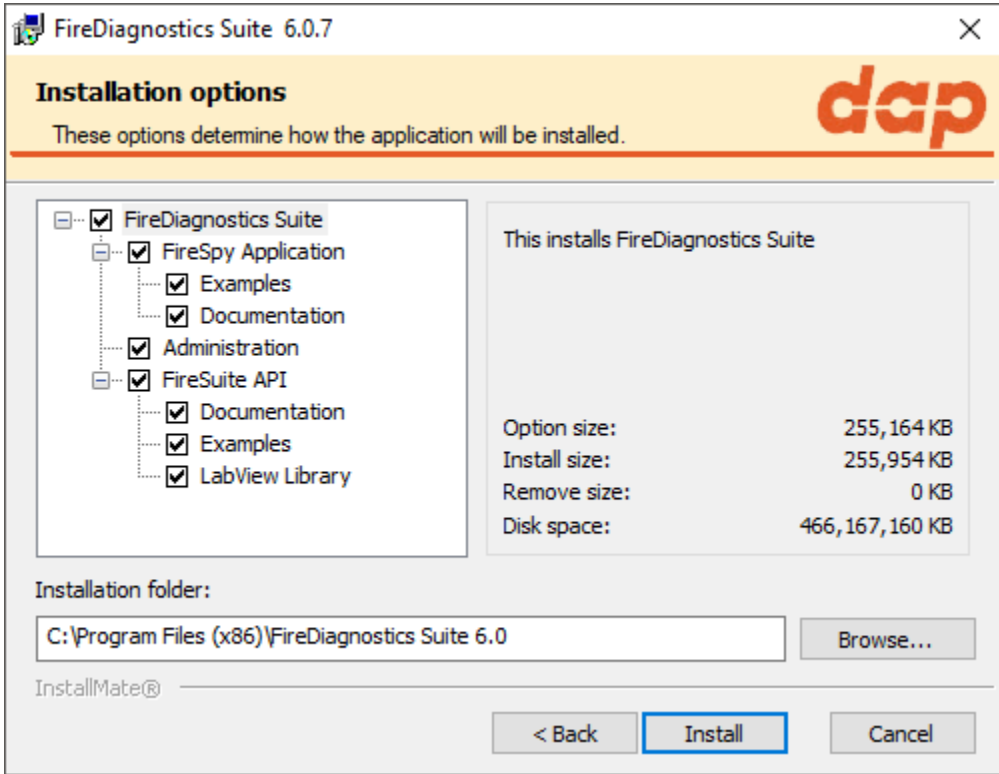

If another FireDiagnostics Suite installed version with the same main version number is found it needs to be reinstalled before the installer is able to continue. Software versions with a different major version number can be used alongside eachother. Please click ok to proceed with the uninstallation process.
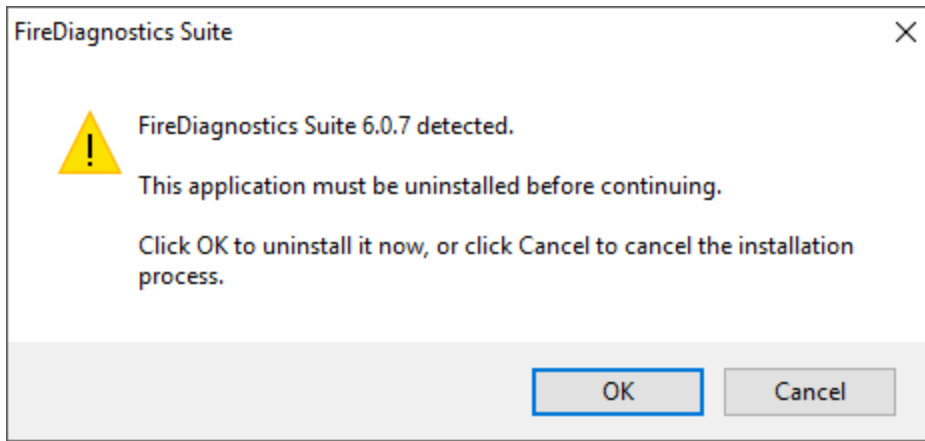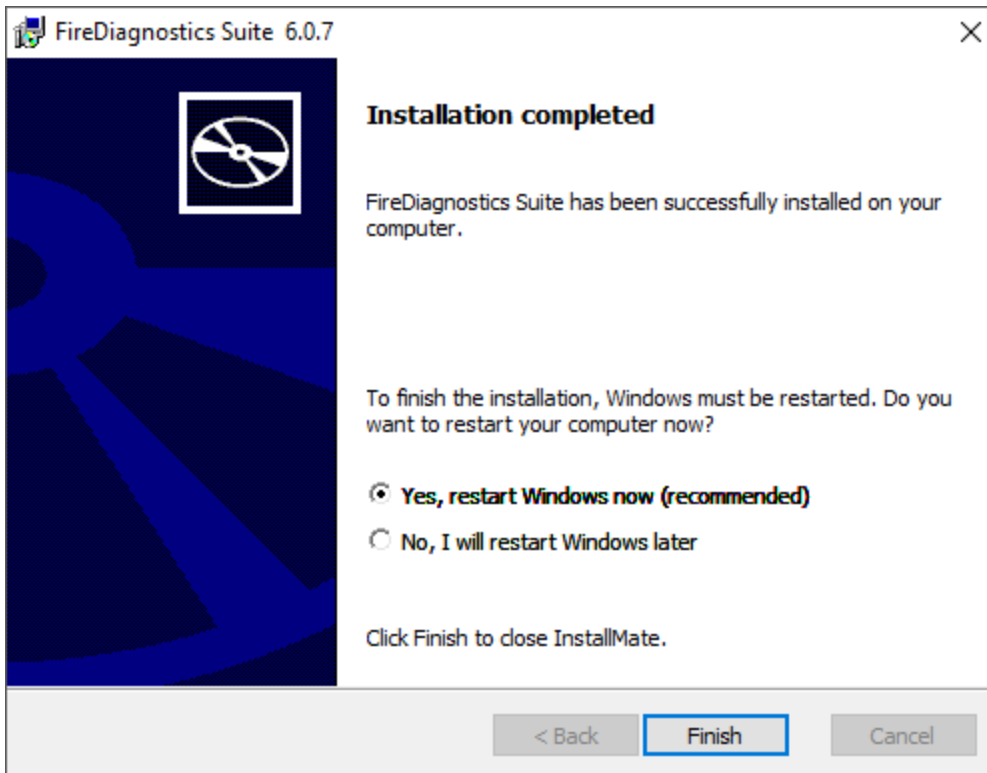
The following dialog will show uninstallation progress. Please wait until it finishes.
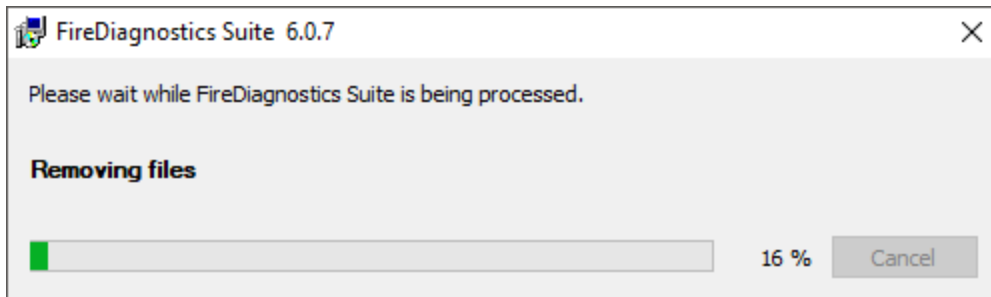
The following dialog will show installation progress. Please wait until it finishes.
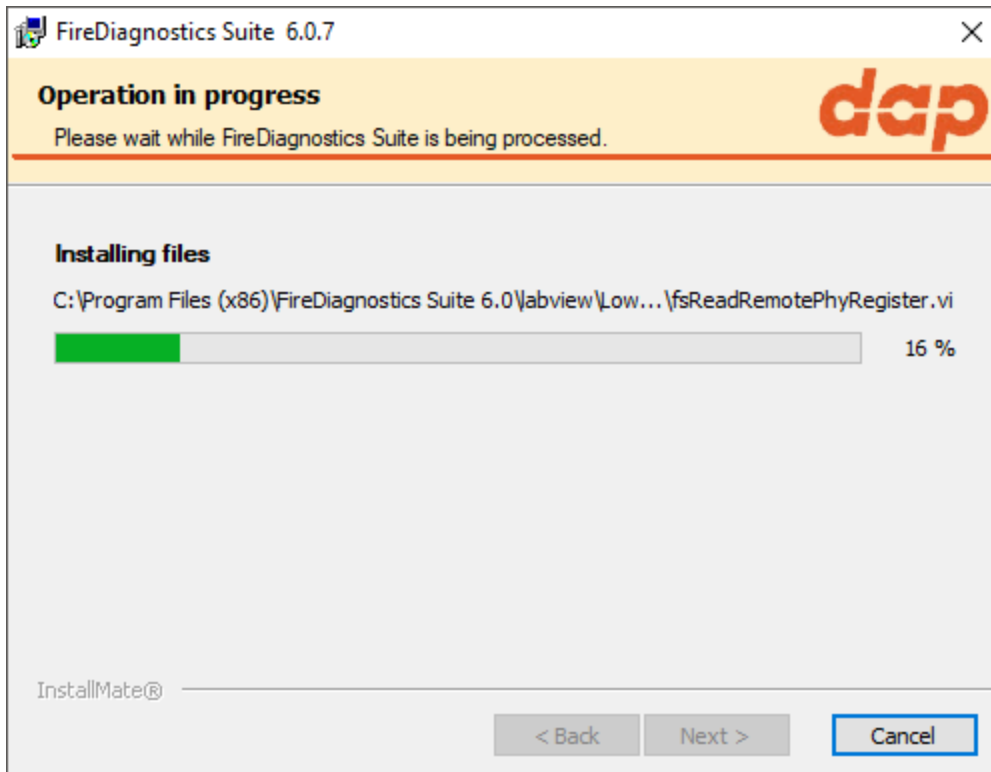
After the installation is complete, the following dialog will appear. We recommend to always restart your computer after installing the FireDiagnostics software.

3.1.2. Installing the Driver

The driver installation will automatically start following the FireDiagnostics Suite installation, after the machine is rebooted. This installer will install the drivers for Windows 7 and Windows 10. Older Windows versions still work with the supplied drivers, but some additional steps may be required during installation. These steps are described in chapter Older Windows versions.

After the device driver is installed the device ready to be used. Please continue reading at the "Getting Started" section.

3.1.2.1. Windows Driver installer

At this point it is required to reboot the machine in order to install the device drivers. The device drivers will pre-allocate some memory that can be used for performing DMA operations and this needs to be done as early as possible after system startup. If done at a later point during system run it can take a very long time to load the driver.

After rebooting the machine, the following window will be displayed. Note that the software version could be different if you are installing another version of the software.
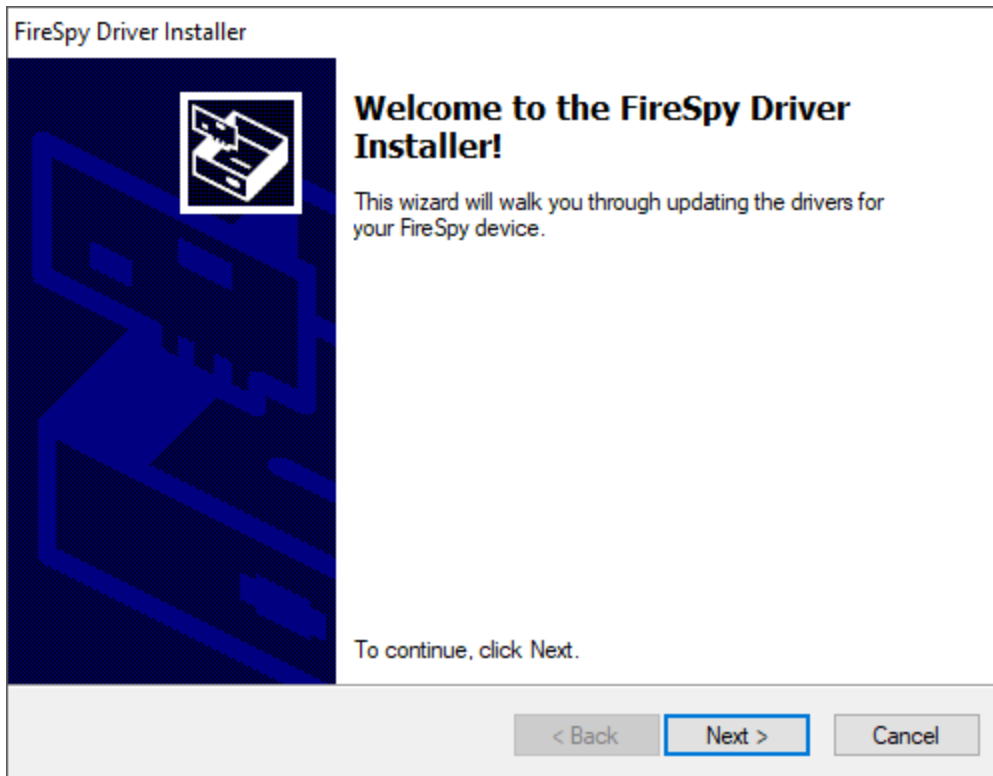
After clicking "Next", the drivers will be installed. Please wait until it finishes.
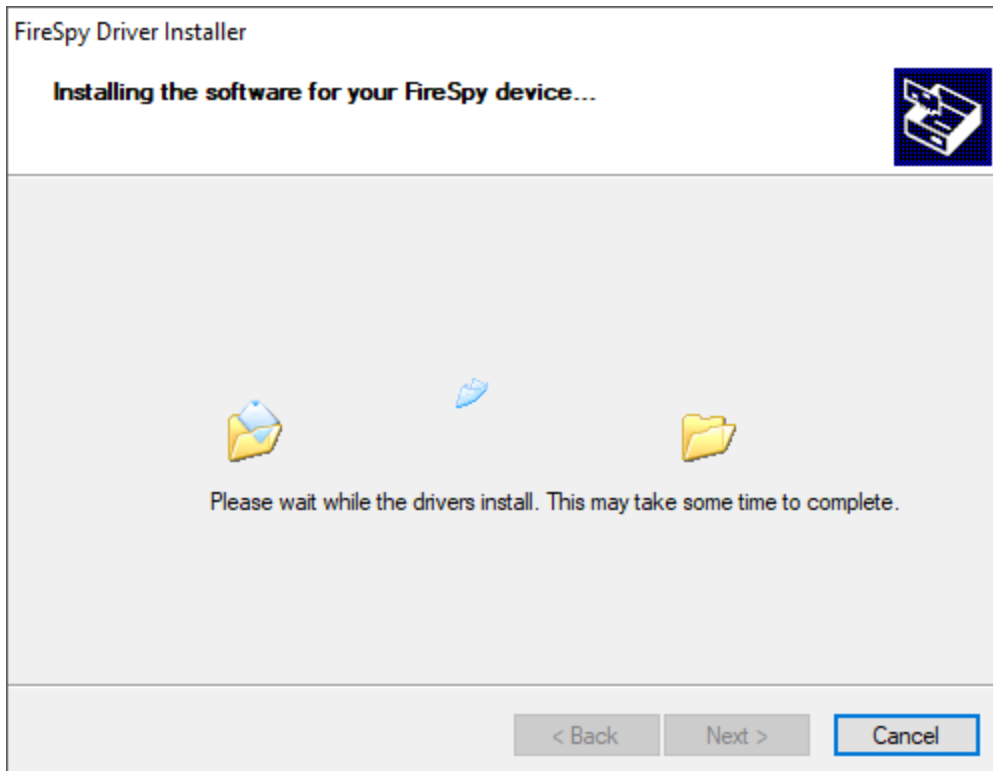
After the drivers are installed the following window will be showed. Click "Finish" to close the installation.
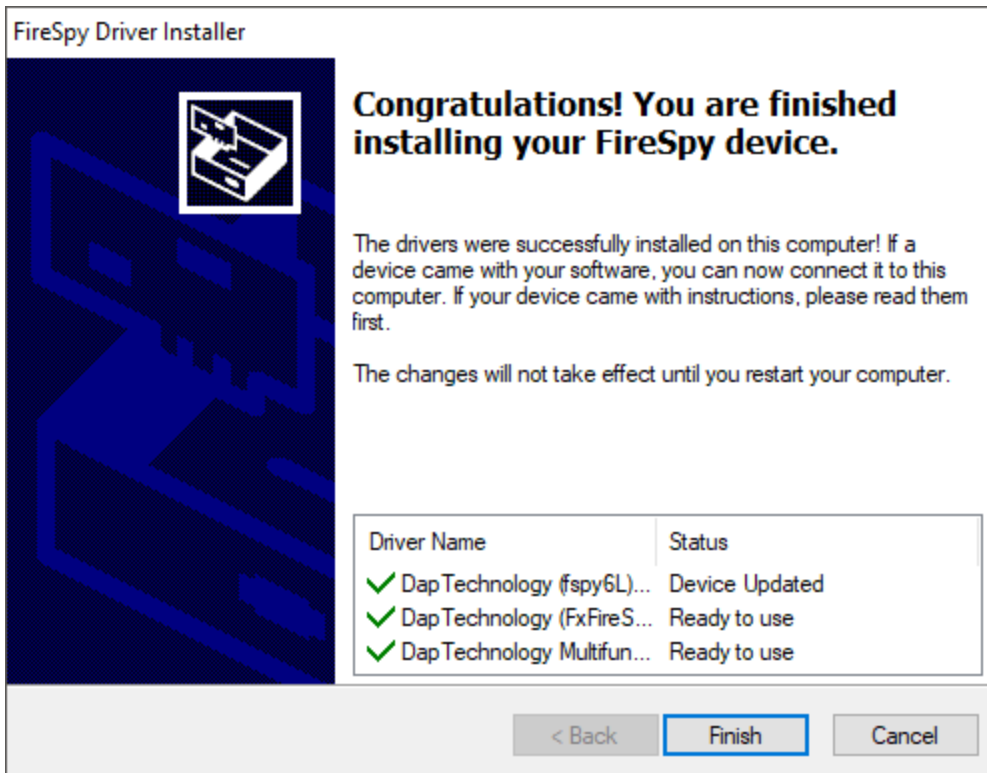
After your are booted to the desktop, you may check the device manager if the install has succeeded. The device manager will show a FireSpy under "Multifunction adapters". Here you find a several functions the device has.
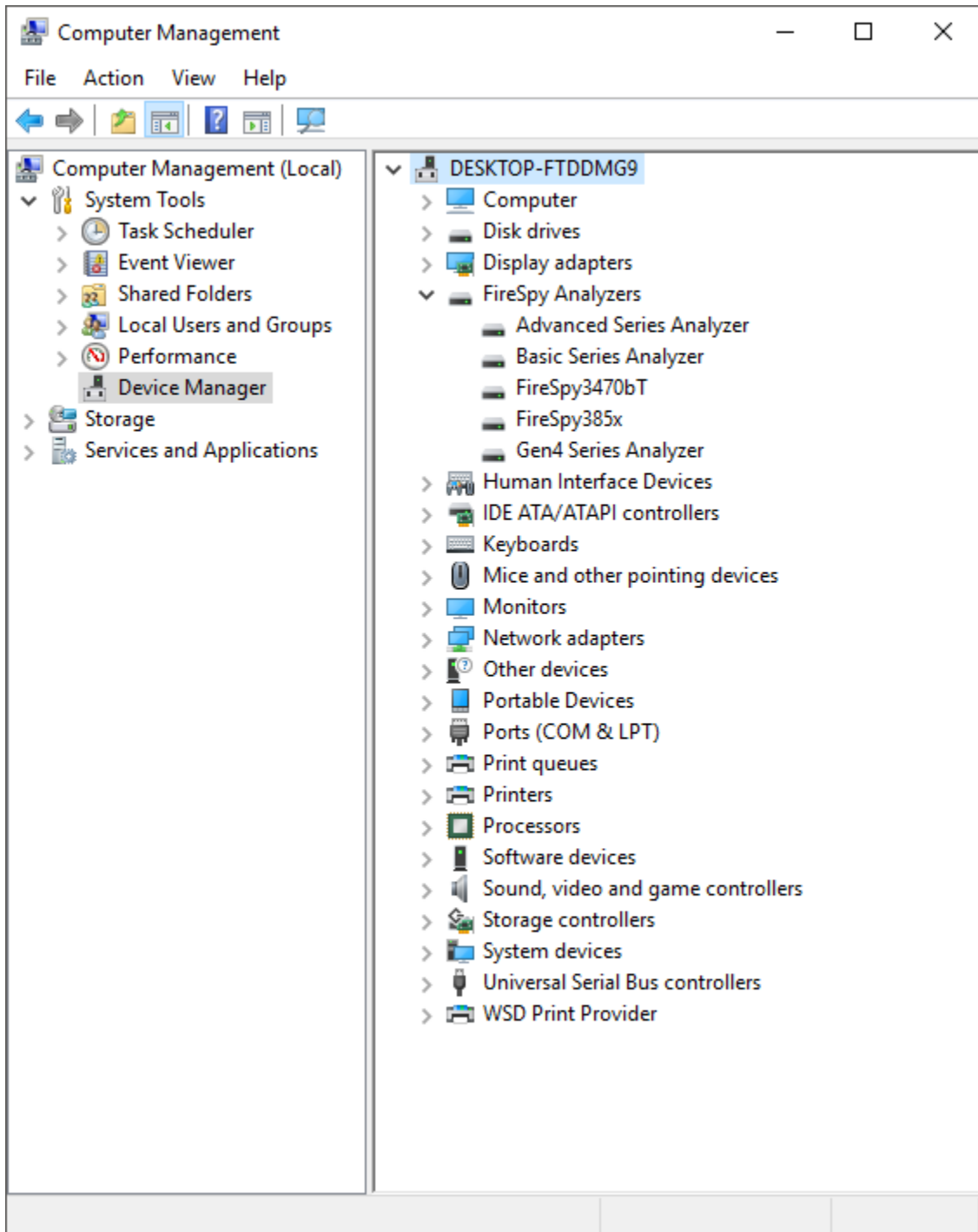
3.1.2.1.1 Older Windows versions

For Windows versions older than Windows 7 some additional steps during the Driver installation may be required.

After the FireDiagnostics Suite installation, and after rebooting the machine, the Driver installer will start. During the installation the Windows Driver Wizard may appear, as shown in the following image. Please click "Cancel" to close the wizard for now, we need to install the drivers first before Windows can search for them.

At the start of the installation the following message may be displayed, saying the software has not passed Windows Logo testing. The FireSpy Logo testing is not supported for Windows versions older than Windows 7, but function on these Windows version regardless. Click "Continue Anyway" to continue with the installation.

During the installation of the Drivers, the following message may be displayed, saying the driver certificate has expired. As with the Windows Logo testing, the FireSpy driver signing is not supported for older Windows versions. Click "Yes" to continue installing the driver. This message may appear once or more during installation, depending on the number of FireSpy devices connected to the machine.
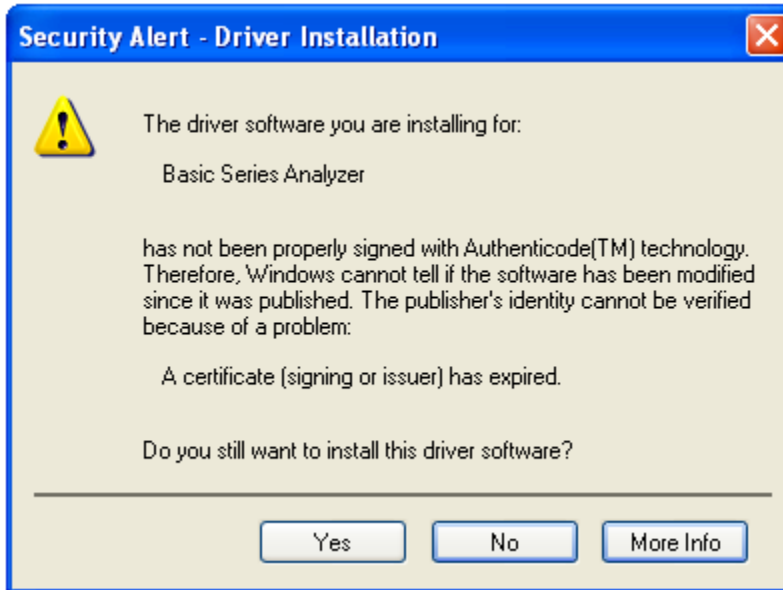
After the drivers are installed the following window will appear. Click "Finish" to continue starting Windows.

Any devices that were connected to the machine during the installation should work now. If there were any unplugged devices, please connect them to the machine now. The Windows Driver Wizard mentioned earlier should appear now. If it doesn't please reboot the machine. In the Driver Wizard, select the bottom option "No, not this time" to search for the already installed drivers, and click "Next" to continue.

Select the top option "Install the software automatically" from the following dialog, to let Windows search for the installed FireSpy drivers.
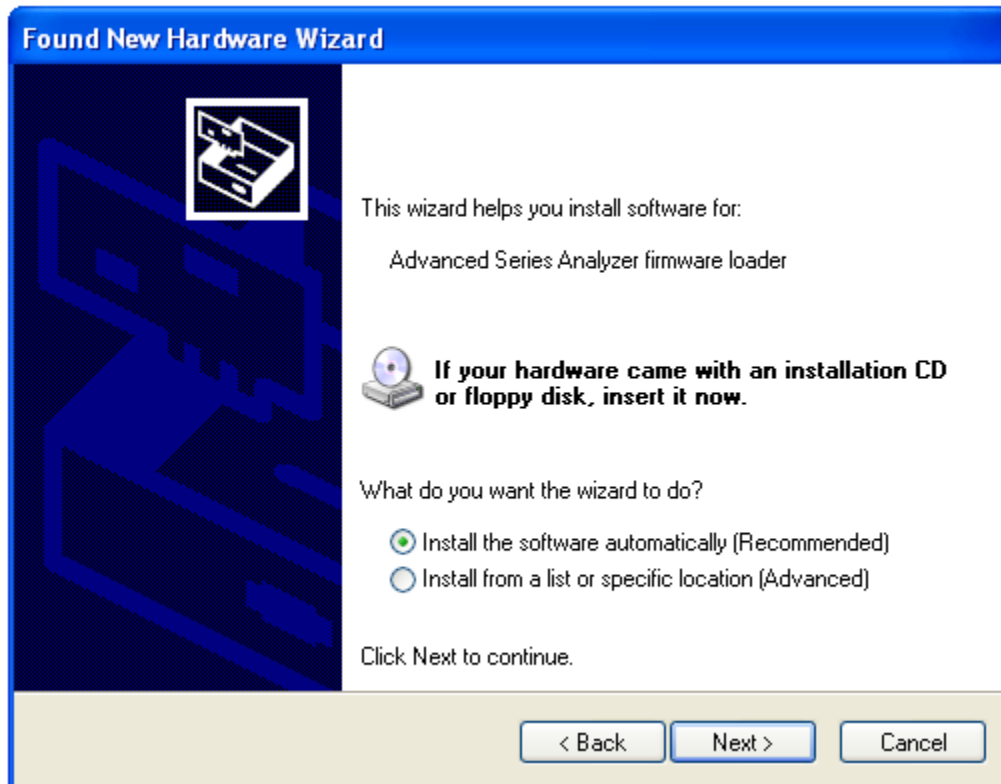
After clicking "Next" the Wizard will install the driver for the FireSpy device. Repeat this process for any additional FireSpy device that was not yet correctly installed during the installation.
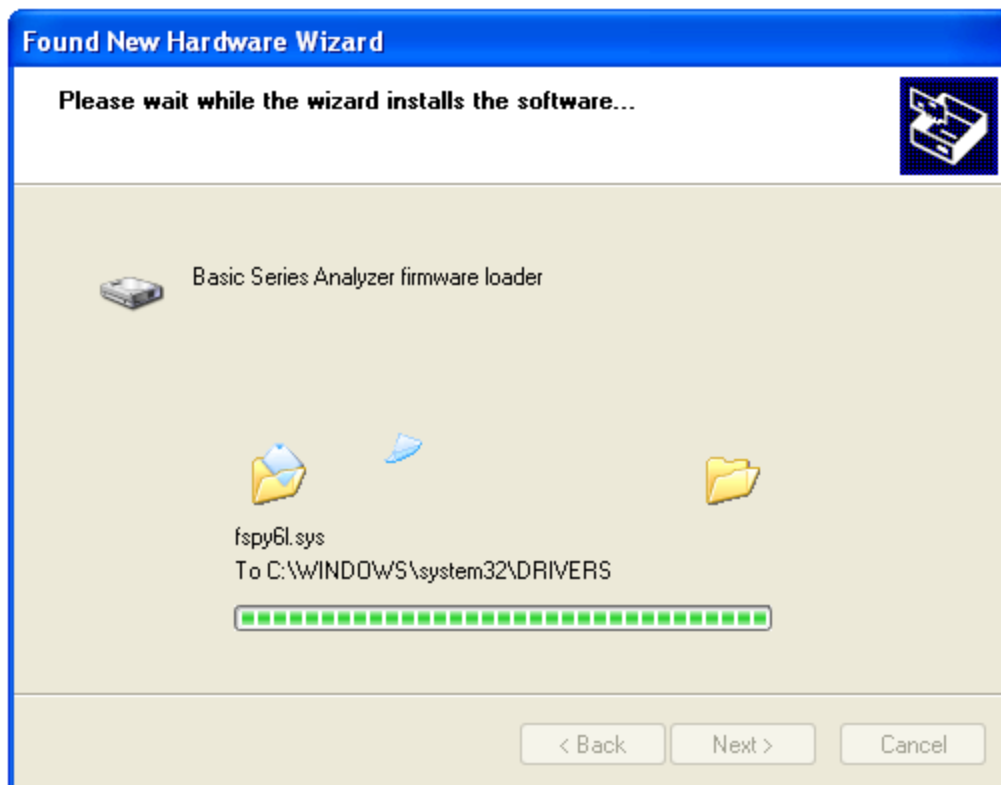
3.1.2.2. Manual driver (un)installation

Drivers will be uninstalled when uninstalling the FireDiagnostics Suite. The uninstaller can be found in the Windows Start menu, under FireDiagnostics Suite x.x -> Uninstall FireDiagnostics Suite (for Windows 10), or FireDiagnostics Suite x.x -> Administration -> Uninstall FireDiagnostics Suite (for older Windows versions).

For example, when switching between versions of the FireDiagnostics Suite it may be needed to install a specific version of the FireSpy drivers manually without installing/uninstalling the complete FireDiagnosticsSuite software packaged, you can use the Driver Installer. This can be found in the Windows Start menu, under FireDiagnostics Suite x.x -> Install Drivers (for Windows 10) or FireDiagnostics Suite x.x -> Drivers -> Install Drivers (for older Windows versions). A dialog will popup and it will install the drivers.

3.1.3. Ethernet Configuration

This chapter describes the configuration steps to be taken to enable Ethernet communication with a FireSpy x810. To communicate with a FireSpy x810 it should be connected to the company LAN (Local Area Network). Until now only the speed 10Mbit/s full is supported. In the future auto-negotiation and speed 100Mbit/s will also be supported.

The EthernetConfig tool programs the flash memory inside the FireSpy with the same firmware as during the startup phase of the device. Some companies have a policy that all programmable memory must be erased before it can be shipped elsewhere. To do this the Ethernet Configuration Tool has been given an option to erase this flash memory. It can be found under: Extra -> Erase Complete Flash.

3.1.3.1. Configuration steps FireSpy x810

To configure a FireSpy x810 correctly a prerequisite is that you have the following TCP/IP info:

- A free IP-address,
- the subnet mask
- and the IP-address of the default gateway.

Please, contact your system administration if you don't have this information.

Follow the steps below to configure a FireSpy x810.

Step 1
Connect the FireSpy x810 to a PC via USB on which the FireDiagnostics Suite software is installed. Switch on the power of the FireSpy x810.

Step 2
Start the application 'FireSpy Configuration Tool' which is part of the FireDiagnostics Suite Software. You can find this application via the Start menu button under menu FireDiagnostics Suite x.x.

Step 3
Fill in the following TCP/IP info:
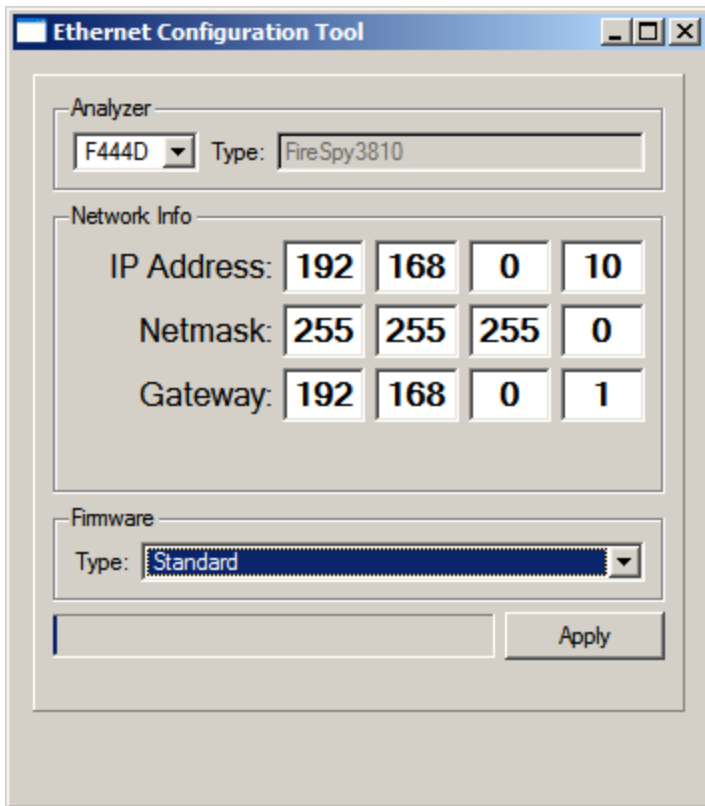- the FireSpy x810 IP-address in field 'IP-address',
- the subnet mask in field 'subnet mask'
- and the IP-address of the default gateway in field 'Gateway'.

Step 4
Press button 'Apply'. The filled in TCP/IP info and the firmware will be written respectively to eeprom and flash of the FireSpy x810. The progress of writing firmware is shown by the progress bar, see figure below.

Step 5
Wait until the firmware is written. Switch off the power and disconnect USB.
Switch on the power and verify that led 'init' is on and turns off in about 8 seconds. If so the FireSpy x810 is configured successfully. Otherwise please repeat the above steps.

The FireSpy x810 is now able to start-up autonomously from flash. The written firmware to flash enables communication with the FireSpy x810 via Ethernet.
Please, note that a FireSpy x810 will not start-up from flash when it's connected via USB.

To communicate with the configured FireSpy x810 you should connect it to the company LAN and configure the FireSpy application to search for the configured FireSpy x810. To configure the FireSpy application, see the following chapter.

3.1.3.2. Configuration steps FireSpy application

In order to communicate with a FireSpy x810 connected to the company LAN the FireSpy application must know its IP-address.

To set-up the FireSpy x810 IP-address please follow the steps below.

Step 1
Start the FireSpy Application. You can find this application via the Start menu button under menu FireDiagnostics Suite x.x. It will either issue a warning or show the FireSpy chooser dialog. This is not important at this time, just continue until the main screen shows up as in the picture below: (the green LED will be red in your case, indicating that no analyzer is connected)
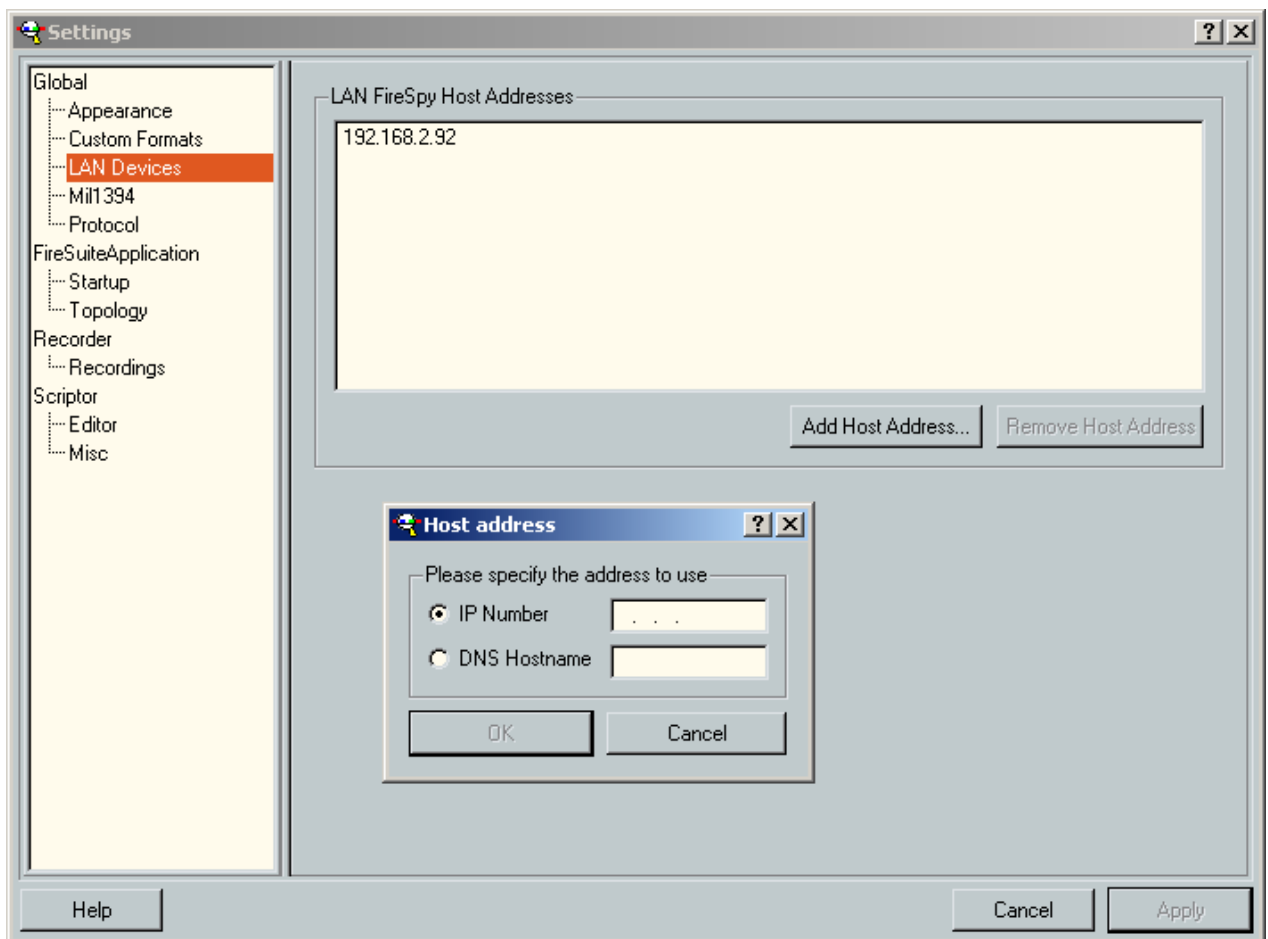
Step 2
From the "Tools" menu open 'Settings' and click on item 'LAN Devices.

Step 3
See figure below. Click 'Add Host address...' and fill in either the IP number or the DNS host address that is routed to the FireSpy. Make sure the address is valid and click 'Ok' when finished.

Step 4
Now press the apply button and close the dialog.

Step 5
Please proceed with the Getting Started section to open the newly configured device.

Chapter 4. Getting Started

This section of the manual provides a quick-start guide for your analyzer and software. If you need help installing the application, please take a look at the <u>Installation</u>.

4.1. Starting the Application

If you haven't already done so, install the software as described in <u>Installation</u>. Make sure the devices are properly installed in or connected to the computer, have a matching power source and are turned on (where applicable). Run the FireSpy application from the Windows Start menu -> Programs -> FireDiagnostics Suite.
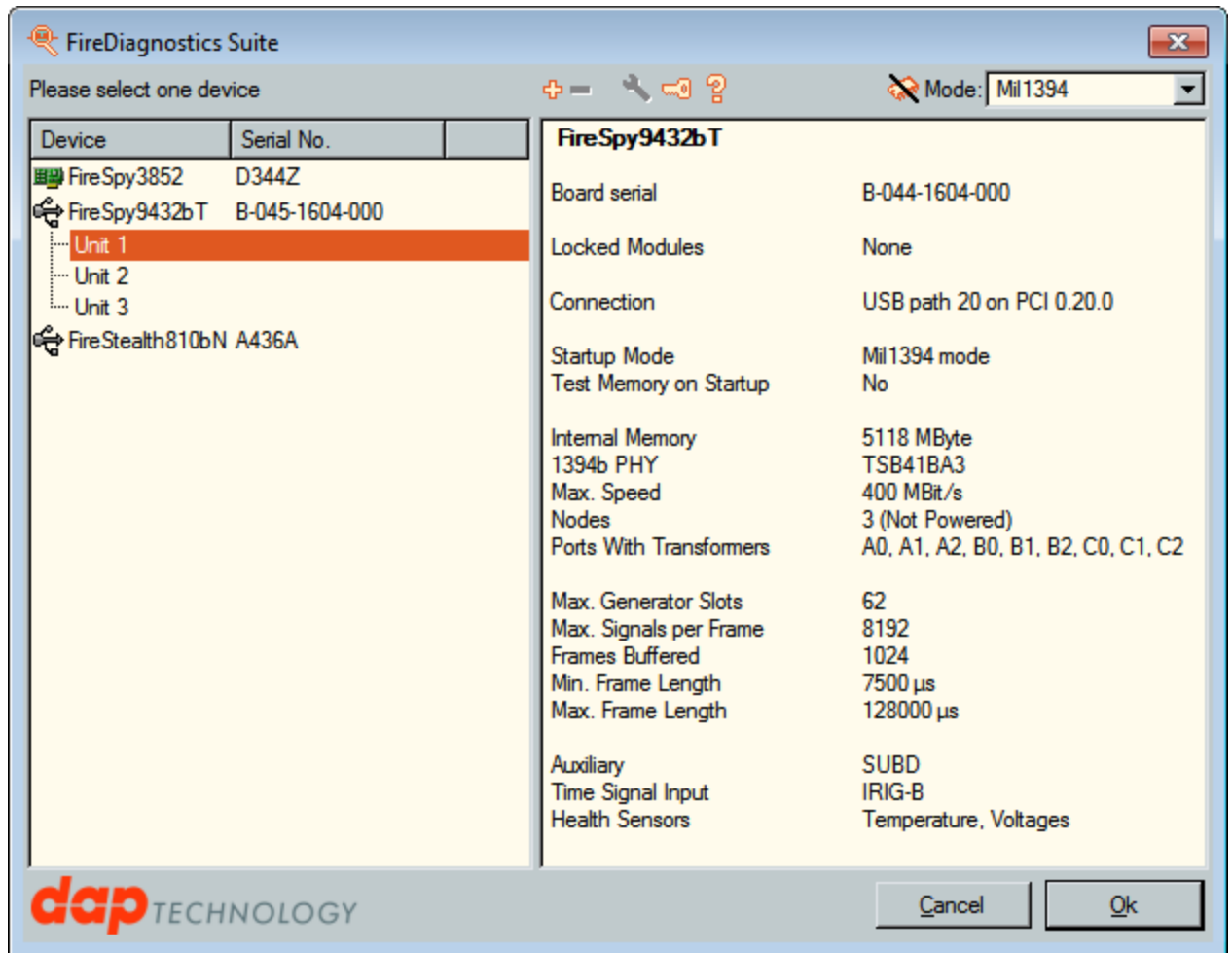
Device Selection
The device selection dialog will pop up, as shown in the picture below. The list on the left side shows the serial numbers of the currently connected devices, as well as their IP addresses or DNS hostnames in case they are connected by ethernet. All registered ethernet addresses are shown, including those of disconnected devices.

Plug and play devices, such as USB and ethernet devices, can be connected or disconnected without restarting the application or resetting the device. They will be automatically added or removed from the list within a few seconds. Ethernet devices first have to be configured, as explained in the next section, and their host address has to be manually added to the list.

The toolbar on the upper right side of the dialog can be used to modify the startup settings of the device. Ethernet addresses can be added or removed using the + and - buttons on the left of the toolbar. Mil1394, Normal or Symbol Recorder mode (when licensed) can be selected by expanding the Mode combo box on the right. Left of the Mode combo box, a tool button exists for enabling or disabling the memory test that is performed after the firmware is uploaded. This tool button is marked by a chip icon, and can be found next to the Mil1394 tool button.

The right side of the device selection dialog has three possible configuration modes, which are explained in further detail below. Apart from the default device information mode, the tool button with the wrench icon can be clicked to enter the ethernet configuration mode and the tool button with the key icon enters or exits the license configuration mode. Finally, the tool button with the question mark can be clicked to open the manual relevant to the current mode. In the default (device information) mode, the device manual of the selected device is opened. In the other two modes, either the ethernet configuration manual or the license configuration manual will be opened.

In some cases, for instance when starting the Monitor application directly, multiple analyzers can be selected at once. Sometimes it is also possible to start the application without selecting any devices (note that clicking on a selected item de-selects it). In that case, you can still select Mil1394 mode, for instance when you wish to use Mil1394 functionality in the Scriptor while no analyzer is available.

No Devices Shown - IMPORTANT NOTICE
In case you are sure a FireSpy is properly connected but it is not shown in the Device Selection dialog, it may be needed to manually install the drivers. This could also be needed when multiple versions of the FireDiagnostics Suite are installed and you want to switch between them. Please refer to the section about Manual Driver Instalation.

Ethernet Configuration
Devices equipped with an ethernet connection can be configured by clicking the tool button with the wrench icon. This enters the ethernet configuration mode, as shown below. When the IP data are loaded, you can change it and press the Apply button to store the new configuration. The tool button with the aircraft icon can be used to configure the ethernet interface in Mil1394 mode or not. The Flash memory can be erased (for secure transport) by clicking the Erase button. The operation can be safely canceled by pressing the 'Cancel' button. However, the ethernet interface will not be operational until it has been fully configured.

Extra options will be shown when a standalone analyzer can enable or disable the power on specific buses on startup.

Note that a device's ethernet interface cannot be opened when it has been loaded by another version of the application. More information about the ethernet configuration can be found in the Ethernet Configuration Manual.
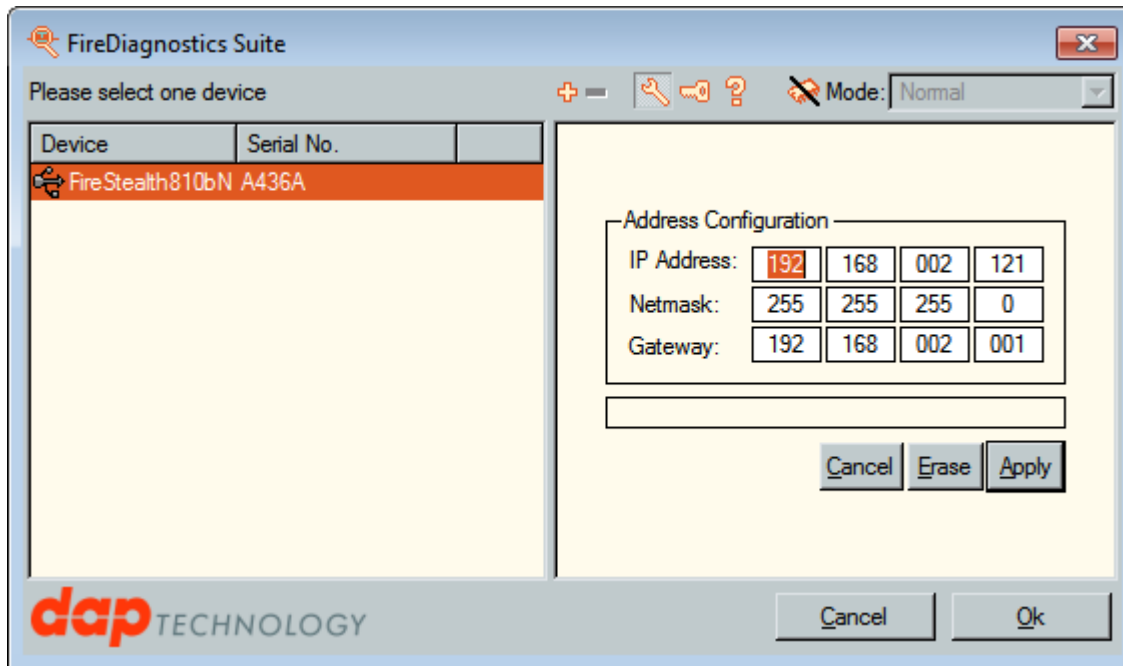
License Management
You can enter the license configuration mode by clicking the toolbutton with the key icon, and go back to the device information mode by clicking it once again (or by clicking the 'Done' button). The license configuration mode shows the main license validation number and the licensed modules and their respective keys. In case of a temporary license, the number of days that the license will still be valid is also shown.

To add a new key, press the 'Add key...' button. This will pop up a dialog asking for a device serial number (which is already filled in when one device is selected) and a license key. To remove a key, expand the corresponding module in the tree view on the right, select the license key and press the 'Remove Selected Key' button.

It is possible to add or remove a license for a device that is not currently connected. In the license configuration mode, the left pane lists the licenses that have been registered by their serial number and a key icon. Disconnected ethernet devices are not shown. A serial can be added by clicking the 'Add key...' button and changing the serial number.

For further information about license configuration, see the License Manager manual.
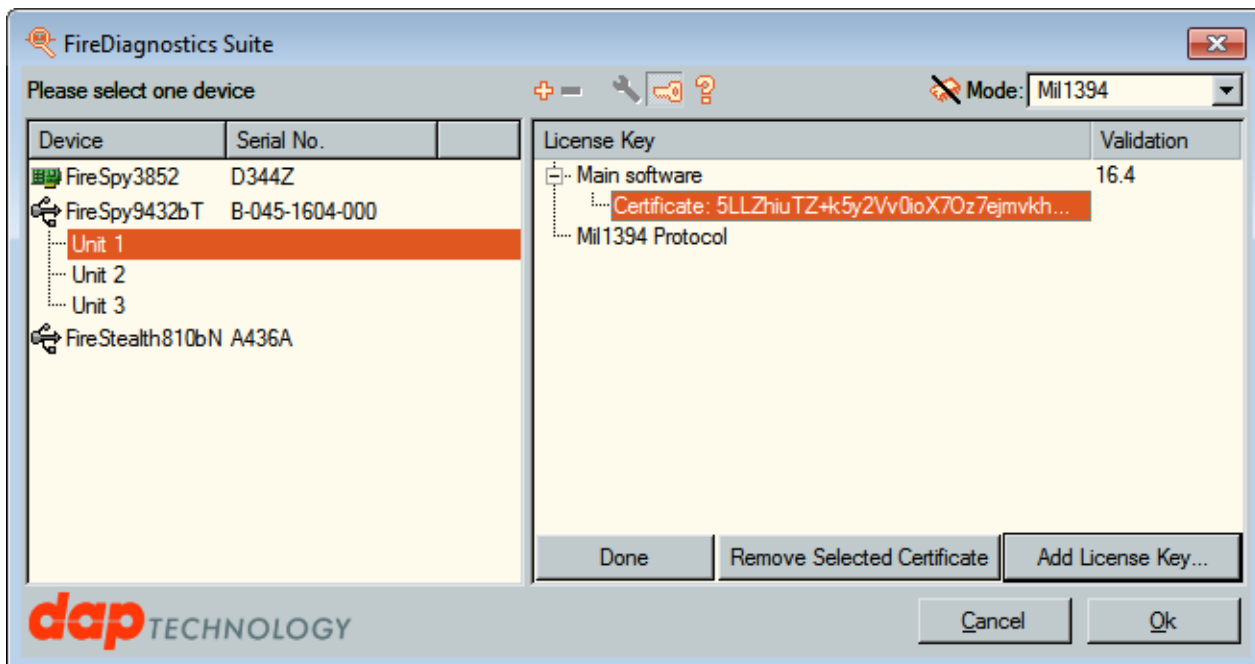
After Device Selection

If you installed the drivers correctly, the application will recognize the connected analyzer and start configuring it. After configuration, the analyzer is ready for use, the Main Window will be displayed.

Multiple Applications Using the Same Analyzer

It is possible to open the same analyzer from within different applications, however, all main functions like the monitor, recorder, e.o. can only be opened once per analyzer. To prevent main functions from being opened by multiple applications, they are locked as soon as you start the corresponding window.

For example, it is possible to open two instances of the application, which both use the same analyzer. One instance could use the monitor and the other instance could use the recorder. Of course it would be easier to just start one instance of the analyzer application and just open the monitor and the recorder, but other applications using the FireDiagnostics Suite API may access the device as well.

No License

If you connected an analyzer correctly, but you have no license key installed with a validation number high enough to unlock this software version, the following message will be displayed: (validation number depends on software version)

Please click on the OK button. The application will continue without using an analyzer or return to the device selection dialog. You will need a license key for version 1 or higher to be able to work with a connected device. If you want protocol support, you will need a license key for version 2 or higher and a license key for each protocol you want to have supported. See the license management explanation above on how to install a license.

Analyzer Turned Off

If you connected a analyzer, but it is not connected to the power supply or the power is switched off, the following message will be displayed:
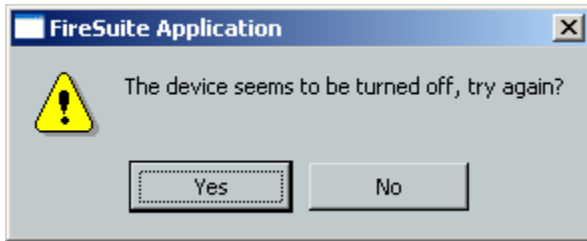
You may now connect the power supply and/or switch the power on, and try again. Or you may choose to run the application without an analyzer.

4.2. Main Window

The main window consists of the menus and the control area. Below is a screenshot of the main window without a FireSpy connected. This shows all module buttons available. Please note that when used with a specific analyzer model some module may not be available.

Menus

Quit
Exit the application by closing the main window or selecting 'quit' from the menu at the top of the main window. All windows from the same application instance will be closed.

Tools
From here you can open the Settings Dialog and the Filter/Trigger Settings.

The License Manager is used to manage the possible licenses for the FireDiagnostics Suite. License keys can be added to unlock new features and protocol analyses.
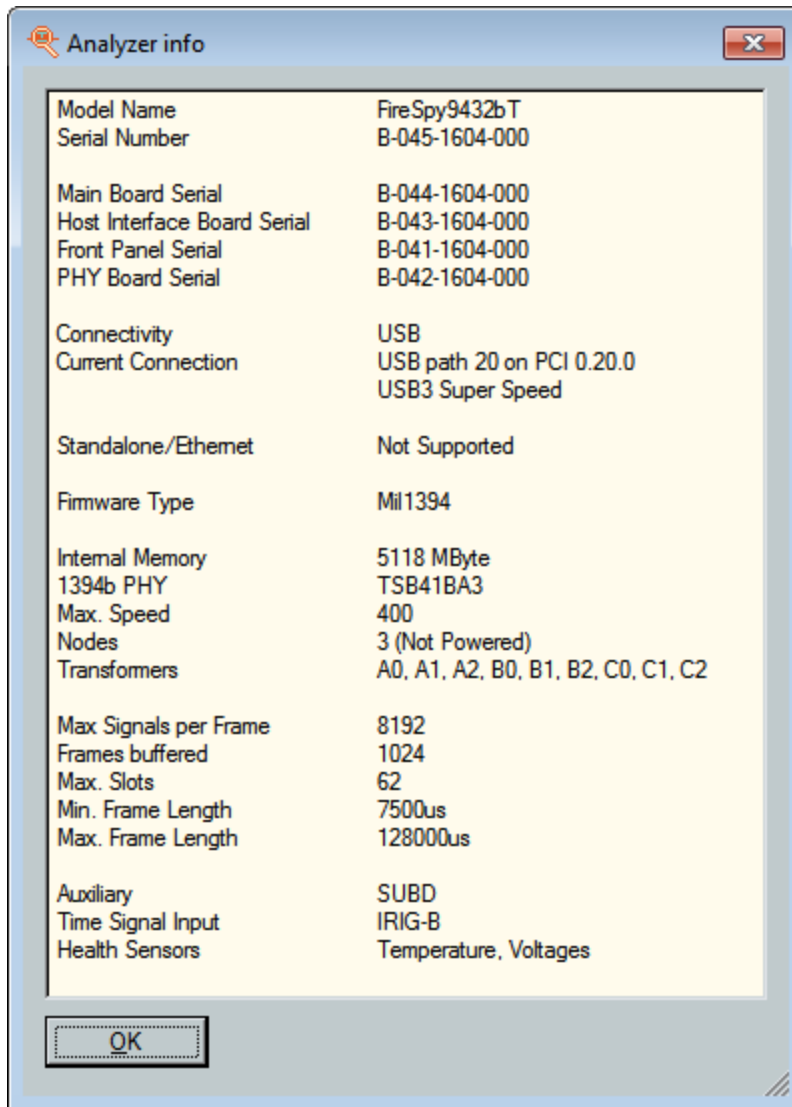
Windows
From the 'Windows' menu or the buttons in the main window area you can open the Monitor, Recorder, Generator, Commander and Scriptor, respectively.

Help
Using the 'About' command in the 'Help' menu you can get information about the hardware status and the current software version. It also displays the web site where to get additional information or to download new software versions and where to get support. To display the results of the Power-On Self Test and the current hardware status, select 'Self test Information' from the menu. The following dialog will be displayed:
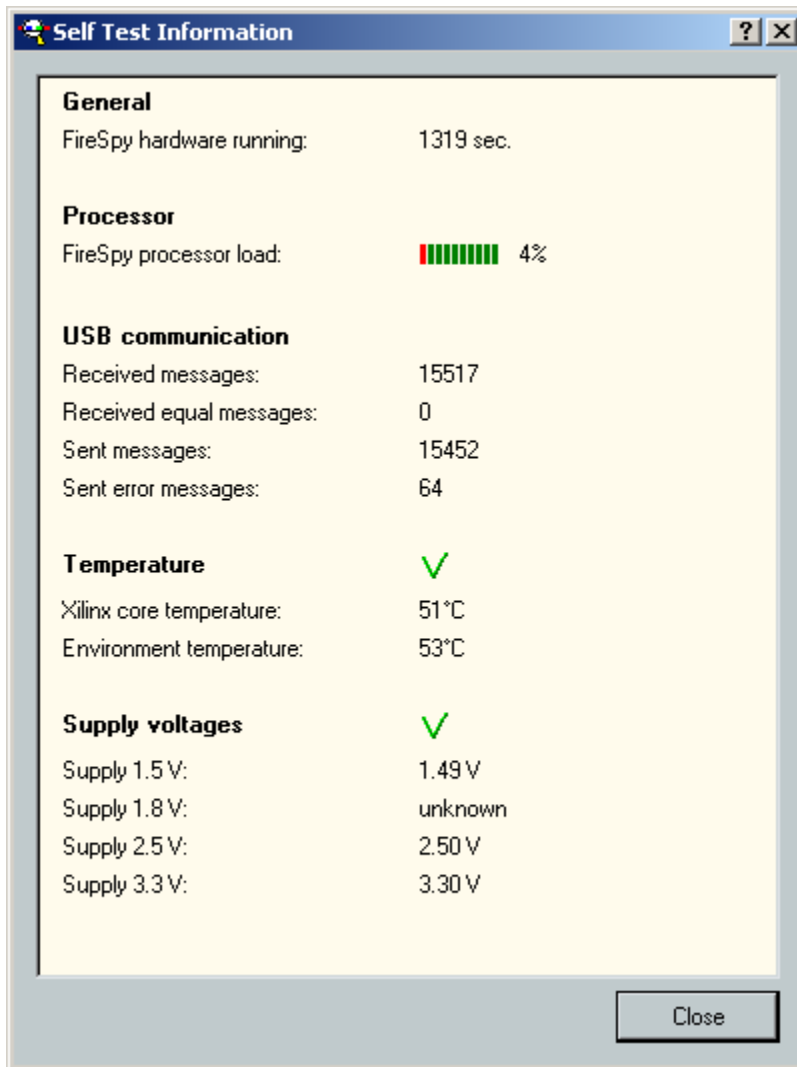
Selecting 'Analyzer Info' from the Help menu opens a window with information about the analyzer(s) currently in use:

Controls

The windows for the main functions (Monitor, Recorder, Generator, Commander and Scriptor) can also be opened by clicking on the corresponding button. The button will be highlighted when the mouse is positioned above it.

The led in the left-bottom corner will display the current configuration status. It can be:

- Gray, indicating that the analyzer is not yet completely configured.
- Green, indicating that the analyzer is configured successfully and ready for operation.
- Yellow, indicating a FireStealth analyzer that lost sync.
- Red, indicating that no analyzer was selected or configured successfully. In this mode, you still can open, save and analyze files.

4.3. Connecting to an IEEE1394 Bus

To analyze an IEEE1394 bus, you can connect one of the analyzer's IEEE1394 ports to any free port of an existing bus, or you may disconnect an existing IEEE1394 cable between two ports, and insert the analyzer in-between the two disconnected ports by using another cable.

In both cases you should connect the analyzer to the existing bus such that it can 'see' all nodes at their full speed. If you connect the analyzer in such a way that some node has one or more connections between itself and the analyzer that has a speed lower than the maximum speed this node can handle, then some packet may not be picked up by the analyzer. The analyzer will detect a 'hidden' (or prefix only) packet instead, which are counted by the Monitor. The Recorder will know the duration of the hidden

packets, but it does not know at which speed the packet has been sent or how many bytes it consists of.

If you see the Monitor or Recorder detecting these packets, you can take a look at the topology view in the Commander to find the problem.

4.4. FireSpy Standalone Tools

In addition to the main FireSpy application with all main FireSpy modules embedded there is also a way to start each module as a standalone application. These standalone versions can be started through the Windows start menu and then navigating to "All Programs", "FireDiagnostics Suite X.X" and then "FireSpy Standalone Tools". The picture below shows where to find the standalone versions.
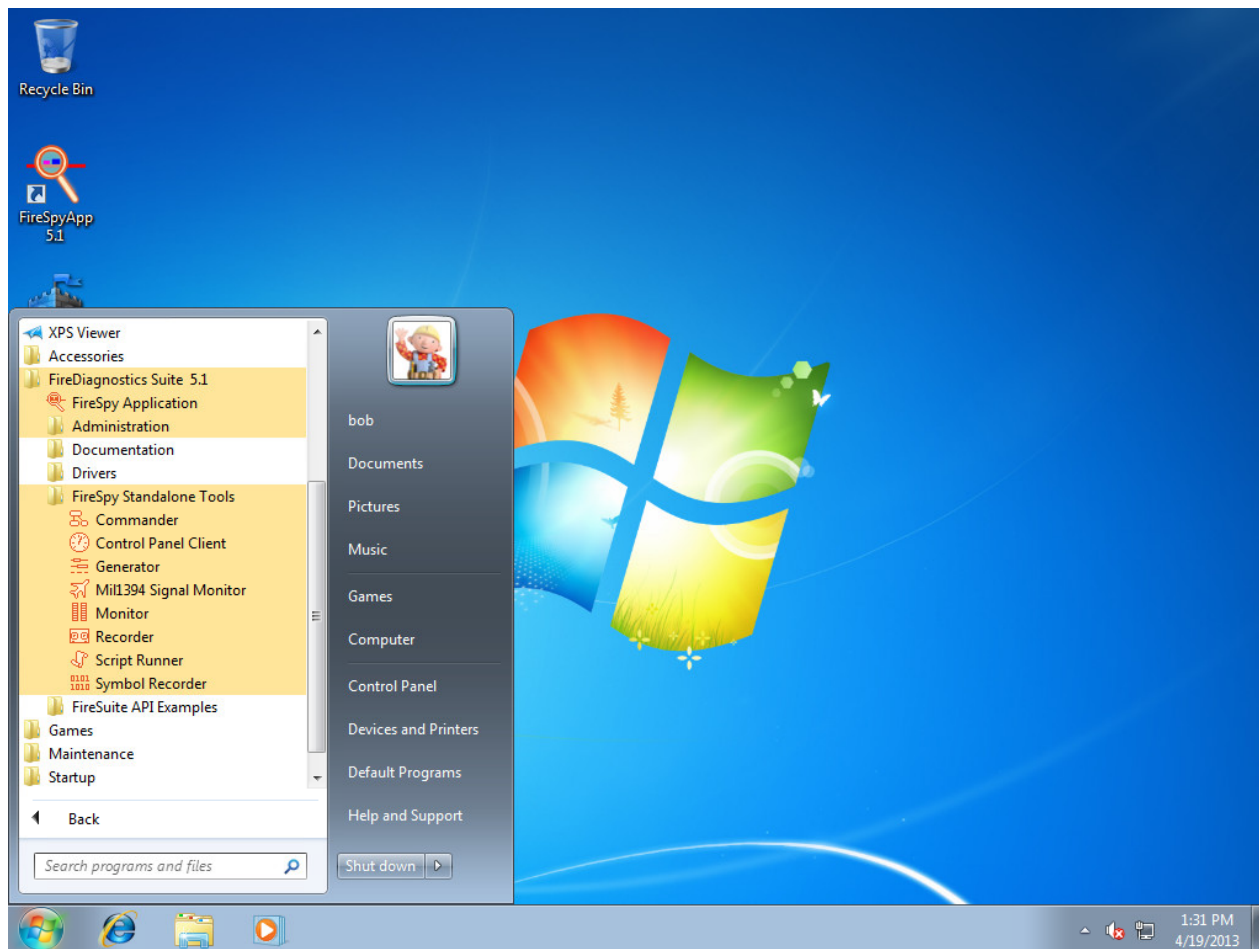
Multiple standalone FireSpy tools can be started at the same time, but each module can only be started once per FireSpy. The following standalone FireSpy tools allow controlling multiple FireSpy devices from within a single application:

- Recorder
- Monitor
- Symbol Recorder

All other modules only allow controlling one FireSpy device from a single application.

Chapter 5. License Manager

To be able to use the software with a connected analyzer, you will need one or more license keys, at least for the 'Main Software', with the minimal version needed for the application. If the application is started with an analyzer selected, but without the appropriate license key, an error message will be shown and the application will continue without live analyzer support.

An additional license key is required for each higher-level protocol you want to use. The License Manager is used to install and remove such license keys. You can see which keys are installed and, if applicable, how many days it will remain valid.

License keys are linked to the serial number of the connected analyzer, so if the device is not connected, all license keys will be inactive and the related features will be disabled. However, when you open a recorder file in the Recorder that has been created using an analyzer with some installed license keys, all these license keys become active as long as you have loaded this file. Thus you will be able, for instance, to use the SBP protocol analyzer to analyze a recorder file made by somebody who used an analyzer with SBP license key, without having any license keys yourself.

5.1. How to use it

You can open the License manager dialog by selecting the 'License Manager' function in the 'Tools' menu of the Main Window. Or from the Windows Start menu at FireDiagnostics Suite -> Administration. Licenses can also be configured in the Startup Dialog.

An example of the License Manager dialog window is shown below. In this example the serial number of one of the connected analyzer is B-045-1604-000. A license certificate is installed for this device which contains a 'Main Software (version 16.4)' license and a license for the Mil1394 protocol. The License certificate is only valid for another 60 days. The icons next to the serial numbers indicate the connection type (if connected) or whether it is a license for a device that is currently offline (key icon).
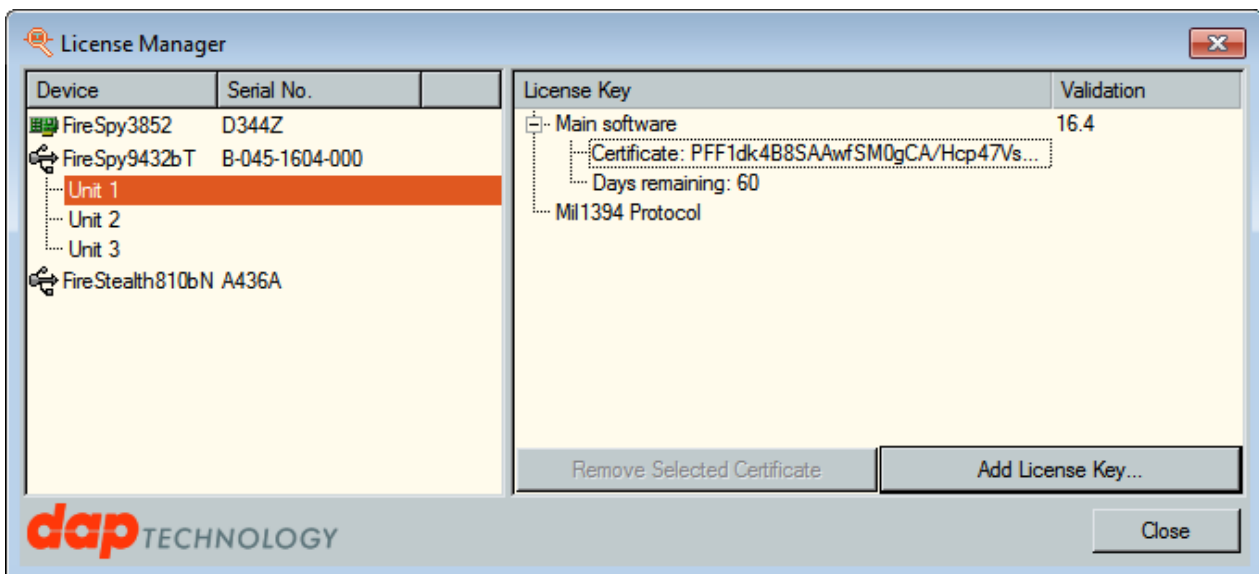
You can add keys with the 'Add License Key...' button or remove them by selecting a key and clicking the ' Remove Selected Key' button. You will need to restart the application to activate the new keys, except in the startup dialog; licenses added there can be immediately used.

Any existing keys for the same serial number and module will be permanently overwritten.

Please contact DAP Technology to obtain additional license keys.