

# Using the STM32W Starter Kit with the Daintree Networks Sensor Network Analyzer

Application Note AN036

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Sensor Network Analyzer Release 3.0 (2009-10-9)

## About the Sensor Network Analyzer

The Daintree Networks Sensor Network Analyzer (SNA) combines a powerful protocol analyzer with network visualization, measurements and diagnostics for IEEE 802.15.4™ and ZigBee® applications. It provides automatic display of network formation, topology changes, and router and coordinator state changes allowing rapid detection of incorrect network behavior and identification of device or network failures.

The SNA works in conjunction with Daintree's 2400E Sensor Network Adapter to provide analysis for small and large networks. With multi-node capture, analysis of large networks across wide areas (such as multiple rooms within a facility) is possible.

The SNA software is also compatible with boards from the STM32W Starter Kit. The MB851 Analyzer board from this kit can be used as packet sniffing capture devices. No additional hardware is required.

This application note describes how to use the SNA software with MB851 Analyzer board. You can find out more about the SNA software in general, refer to the following:

- **Quick Start Guide:** Included with the SNA application. From the SNA **Help** menu, select **Quick Start Guide**, or else from the Windows **Start** menu, select **Daintree Networks > Documentation > SNA Quick Start Guide**.
- **Online Help:** Included with the SNA application. From the SNA **Help** menu, select **User Guide**, or else from the Windows **Start** menu, select **Daintree Networks > Documentation > Online Help**.
- **FAQs and other support resources:** These are available from the Daintree Networks web site at [www.daintree.net/support](http://www.daintree.net/support)

## Getting started

In summary, getting started involves the following steps, each of which is described in detail in the following sections:

1. Install the Sensor Network Analyzer software.
2. Connect the MB851 Analyzer board to your PC (and install firmware if required).
3. Start the SNA software, and then add the MB851 board as a capture device.
4. Select the MB851 board as the current capture device.

Once connected and configured, you can use the MB851 board as a packet sniffer/capture node with the Sensor Network Analyzer.

## 1. Installing the SNA software

1. Go to [www.daintree.net/register](http://www.daintree.net/register) to register your software and download the latest release.
2. Enter your email address together with the 15-digit alpha-numeric registration code from the software CD case. After you click Next, an activation code will be emailed to the address you supply.
3. Follow the link provided to download the latest release of the SNA software, plus the *Sensor Network Analyzer Quick Start Guide*. Daintree **strongly** recommends that you download the latest version of the software to ensure you have the latest functionality and fixes.
4. Follow the instructions in the *Quick Start Guide* to install and activate the software.

## 2. Attaching the MD851 Analyzer board

Before attaching the board, make sure that P3 jumper is in the 5-6 position (power from USB). Refer to the ST documentation if you require assistance with this.



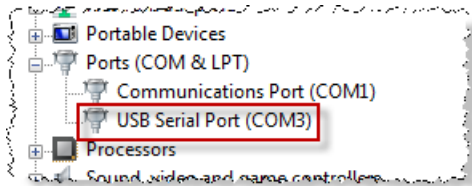
The first time you connect the Analyzer board to your computer, you may be prompted to install the required hardware driver for the device. You can either allow Windows to locate and install the default driver, or download the driver from the [www.ftdichip.com](http://www.ftdichip.com) web site.


Ensure that LED D1 is flashing before continuing. (This is an indication that the firmware is running on the board.) If the LED is not flashing, refer to the ST documentation for instructions.

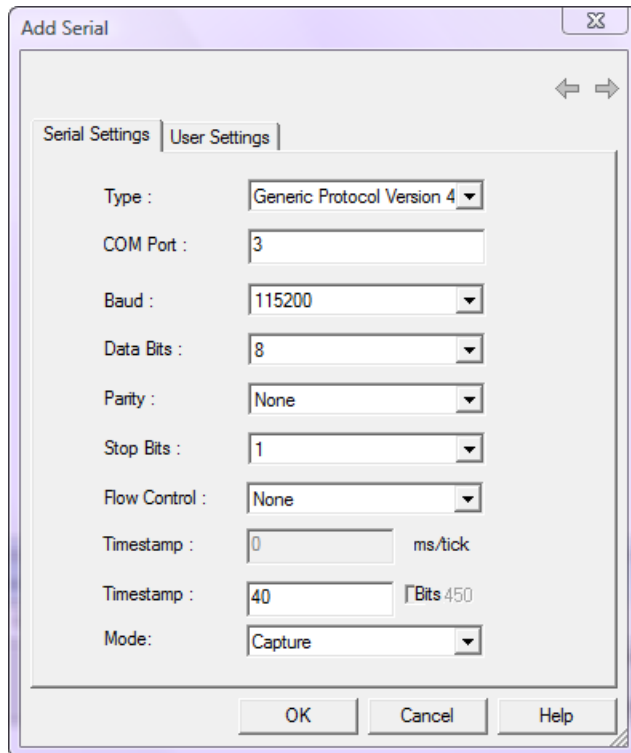
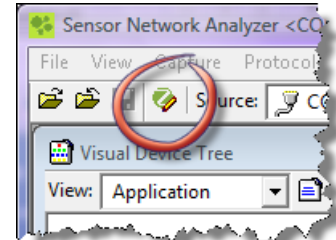
### 3. Adding the Analyzer board as an SNA capture device

Before you can add the board as a capture device, you need to find which virtual COM port your computer assigned to it.

1. Connect the board to your computer via a serial cable and power it on.
2. Open Windows **Control Panel**, and then double-click the **System** icon.
3. On the System Properties dialog box, select the **Hardware** tab, and then click the **Device Manager** button.
4. Expand **Ports (COM & LPT)** to find the COM port for to your board.



5. If you have not already done so, start the SNA software.
6. From the SNA's **Settings** menu, select **Device Manager**, or click the Device Manager icon from the main SNA toolbar.
7. On the Device Manager **Summary** tab, click  and then select **Add Serial**.

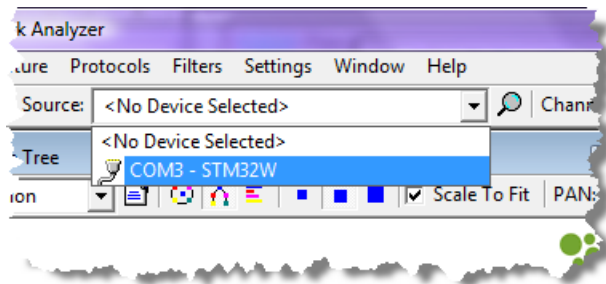



8. On the Add Serial dialog box **Serial Settings** tab, enter the following values:
  - o **Type:** Select Generic Protocol Version 4
  - o **COM Port:** Enter the virtual COM port assigned in Windows Device Manager
  - o Accept the default value for all other fields
9. Click the **User Settings** tab, and then enter the following values:
  - o **User Label:** STM32W
  - o **Image:** Add if required (this image will be used in the SNA's Visual Device windows)
10. Click **OK** to save the new definition.


When you return to the Device Manager Summary tab, you'll notice that the STM32W board has been added to your list of devices.

#### 4. Selecting the STM32W board as the current capture device

1. In the SNA main window, select the STM32W board from the **Source** list.



If the ST board is not available from the list, click  to get the SNA software to search/scan for capture devices and refresh the Source list.

2. Select the **Channel** on which you want to capture traffic.
3. Click  to start the capture.

## Known limitations

As long as the entry in the Device Manager corresponds to a valid COM port, the ST device will be shown in the list of available devices. However, this does not reflect that the device is actively communicating with the SNA application. In order for packets to be captured, the COM port parameters must be configured correctly in the Device Manager; the sniffer firmware must be correctly downloaded and the board must be plugged in and powered on. To validate the connection to the device, select the device as the active capture source from the drop down list, select a channel, and start capture.

If the ST board is in use by the SNA application, it cannot be used concurrently by any other application.

## Where to next?

We recommend that you start exploring the SNA menus to get an understanding of the full capabilities of this product.

Detailed descriptions of all options are available in the *Sensor Network Analyzer User Guide*, which you can open from the SNA **Help** menu and the Windows **Start** menu. You can also find FAQs and other supporting information on the Daintree web site at [www.daintree.net/support](http://www.daintree.net/support)

The Daintree web site includes other useful information, such as

- [www.daintree.net/solutions](http://www.daintree.net/solutions) for product information including data sheets and an animated tour
- [www.daintree.net/purchase](http://www.daintree.net/purchase) to purchase Daintree products online
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