

Using the Integration Associates USB Dongle with the Daintree Networks Sensor Network Analyzer

Application Note AN007



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Sensor Network Analyzer Release 2.3 (2008-07-31)

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.

This software is compatible with the Integration Associates Inc. (IAI) USB Dongle. This dongle is included as part of both the **IAI 802.15.4/ZigBee Software Development Kit**, the **OKI ZigBee Development Kit**, and the **Reenas RZB-CC16C-ZDK ZigBee Demo Kit**. No additional hardware is required.



This application note describes how to use the SNA software with the Integration Associates USB Dongle. 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**.
- **User Guide:** Included with the SNA application. From the SNA **Help** menu, select **User Guide**, or else from the Windows **Start** menu, select **Daintree Networks > Documentation > SNA User Guide**.
- **FAQs and other support resources:** These are available from the Daintree Networks web site at 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 USB Dongle to your PC via USB, and Install USB Drivers.
3. Start the SNA software, and then select the USB Dongle as a capture device.

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

1. Installing the SNA software

This software contains the USB drivers you need for the USB Dongle, so you need to install it before connecting the board to your PC.

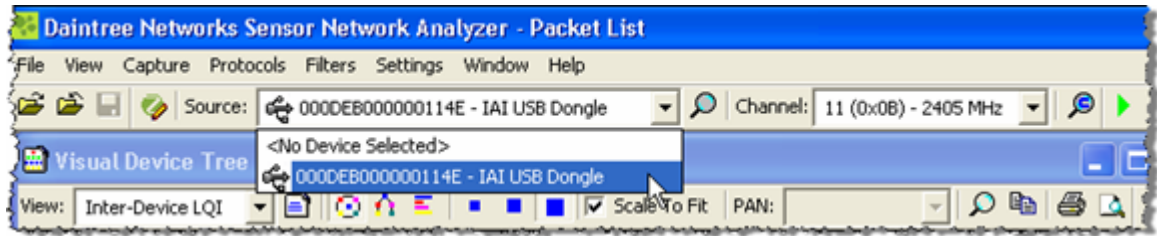
1. Go to www.daintree.net/register to register your software and download the latest release.
2. Enter your email address together with the 15-digit alpha-numeric registration code from the software CD case. After you click Next, an activation code will be emailed to the address you supply.
3. Follow 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. Connecting the USB Dongle

1. Connect the USB Dongle to a spare USB port of your PC.
The first time you connect this board to your PC, a Found New Hardware wizard will open (USB Device, IAI-DAUB1-2400).
2. If asked **Can Windows connect to Windows Update to search for software?** select **No, not this time** and then click **Next**.
3. Select to **Install from a list or specific location**, and then click **Next**.
4. Select to **Search for the best driver in these locations**.
5. Select to **Include this location in the search** and then click **Browse** and select the **Daintree Networks\Drivers\Integration Associates\Steeple3** directory.
6. Click **Next**. The wizard will locate and start installing the required driver.
7. When a message warns that the software has not passed Windows Logo testing, click **Continue Anyway**.
8. Repeat steps 2–7 above when requested to complete the driver installation.
9. A message will be displayed when the New Hardware is ready for use.


3. Selecting the IAI USB Dongle as the current capture device

1. In the SNA main window, select the IAI USB Dongle from the **Source** list.



If the IAI USB Dongle 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.

Click  to start the capture.

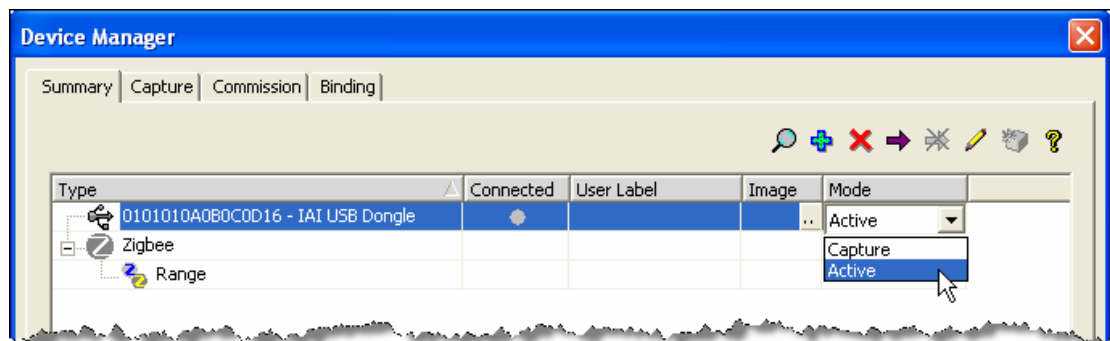
Active analysis


Active analysis refers to a set of features available when using Daintree's SNA Professional edition software with an active-enabled hardware device, such as the IAI USB Dongle.


Active devices are able to join an 802.15.4 or ZigBee network, interact with other devices on it, actively poll devices to gain information not available through passive "sniffing" alone, and send and receive ZigBee standard and proprietary messages.

To use the IAI USB Dongle in "active" mode, do the following:

1. In the main SNA window, make sure that <No Device Selected> is shown from the **Source** list; then from the **Settings** menu, select **Device Manager**.
2. Select the IAI Dongle on the Device Manager **Summary** tab, and then change the **Mode** to **Active**.



Note that you may need to click  to disconnect the IAI Dongle before you are able to access the **Mode** list.

3. Click  to connect the the dongle in active mode.
4. Refer to the Daintree Networks application note "Active analysis and configuration using the SNA" for details about the active analysis tasks you can perform.

Known limitations

If the Integration Associates USB Dongle 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

The Daintree web site includes other useful information, such as

- www.daintree.net/solutions for product information including data sheets and an animated tour
- www.daintree.net/purchase to purchase Daintree products online
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