FT 6050 EVK Quick Start

Welcome!

The FT 6050 EVK is a complete hardware and software development platform for creating LON®, LON/IP, and BACnet/IP devices based on Adesto FT 6050 Smart Transceivers and Neuron 6050 Processors. You can also create LON devices based on Series 5000 and 3100 Smart Transceivers and Neuron Chips. You can use the FT 6050 EVK to create devices such as VAV controllers, thermostats, card-access readers, lighting controls, and many other devices for the Industrial Internet of Things (IIoT). You can use these devices in a variety of systems including building and lighting controls, factory automation, energy management, transportation, and other IIoT applications. You can use the FT 6050 EVK for the following:

- View and create profiles and datapoint types.
- Automatically generate Neuron C code that implements your device's network interface and provides the framework for your device application.
- Edit your Neuron C code to implement your device's functionality.
- Compile, build, and download your application to one of the included Evaluation Boards (EVBs) or to your own custom devices.
- Test with prototype I/O hardware with the included EVBs or use your own custom device to build and test your own I/O hardware.
- Install your device into a LON or LON/IP network and test how your device interoperates with other like devices.

This document describes how to install the hardware and software included with the FT 6050 EVK.

Step 1: Install the Software

To install the IzoT FT 6050 EVK software, follow these steps:

1. Insert the IzoT CT DVD in your DVD drive and install the IzoT CT software. When you are prompted for a key, enter the IzoT CT activation key from the back of your IzoT CT DVD. If you do not have a DVD drive, send your IzoT CT activation key to Adesto support as described in Step 5 and request a downloadable version of the IzoT CT software.
2. Download the **IzoT NodeBuilder Software** from docs.adestotech.com and install the NodeBuilder software. When you are prompted for a serial number, enter the following serial number:

   0750B72-70020

3. See the *IzoT Commissioning Tool User's Guide* and the *IzoT NodeBuilder User's Guide* for details on using the IzoT Commissioning Tool, and the IzoT NodeBuilder software, respectively. These manuals are installed on your computer when you install the IzoT CT and NodeBuilder software. You can find the documents online on the following pages:

- https://www.adestotech.com/embedded-product/izot-ft-6000-evk/
- https://www.adestotech.com/embedded-product/izot-commissioning-tool-ct-4-1/

Step 2: Connect the FT 6050 EVB Evaluation Boards

You can use the FT 6050 EVBs to test example LON applications and to start development of your custom LON applications. Use these steps to connect your FT 6050 EVB boards.

1. Connect one of the orange network connectors on each FT 6000 EVB to the included network cable. You can use either connector, they are wired in parallel.
2. Connect the barrel connectors of the included power supplies into the barrel jacks on the FT 6050 EVB Evaluation Boards. Connect the power supplies to the included power cords that are appropriate to your region, and plug the power cords into a power outlet.

Step 3: Connect the U10 USB Network Interface

The U10 USB Network Interface connects your development computer to an FT channel. To connect your U10, follow these steps:

1. Connect the unused network connector on the network cable to the FT connector, labeled TP/FT-10,

on the U10.

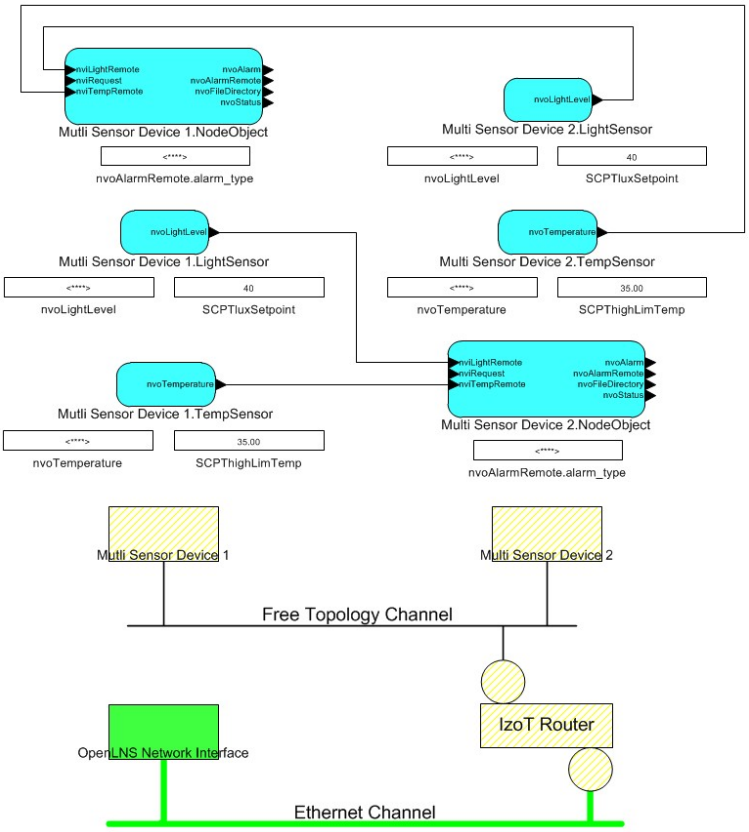
2. Connect the USB socket end of the white USB extension cable to the USB plug on the U10.
3. Plug the USB plug on the white USB extension cable into an available USB socket on your computer or on a USB hub connected to your computer.

Step 4: Create a Simple Network

The FT 6050 EVK includes an example IzoT CT drawing and three Neuron C example applications that you can use to and to create and manage an example LON/IP network with the FT 6050 EVBs. The FT 6050 EVB comes with the NcMultiSensorExample application loaded. This application uses the pushbuttons, LEDs, temperature sensor, light sensor, LCD, and joystick on the FT 6050 EVB. You can load a different example in the FT 6050 EVB, and you can also load your own custom applications in the FT 6050 EVB.

You can create a network with the FT 6050 EVBs in two ways—you can either use Interoperable Self-Installation (ISI) to enable the EVBs to be connected to each other by pressing Connect buttons on each, or you can use the IzoT Commissioning Tool to specify the devices to be installed in a network and to create connections. To create a network using ISI, see the *FT 6000 EVB Examples Guide* for details. To create a network using the IzoT Commissioning Tool and your FT 6050 EVBs with the NcMultiSensorExample application, follow these steps:

1. Start the IzoT Commissioning Tool.
2. Restore the FT 6050 EVK network. The file for this is stored in the *LonWorks* **NeuronC\Examples\FT6000EVB\NcMultiSensorExample** folder on your computer (the *LonWorks* folder is **C:\Program File (x86)\LonWorks** by default if you are using 64-bit Windows), and is named **NcMultiSensor.zip**. After restoring the IzoT NcMultiSensor example network, to open the NcMultiSensor project in the NodeBuilder software, select **Open an Existing Project** when prompted whether to create a new or open an existing project, and browse to the **NcExamples.NbPrj** project located in your local **C:\Users\Public\Documents\LonWorks\OpenLnsCt\Source\FT 6000 EVB** folder.
3. Open the FT 6050 EVK network you restored with the IzoT Commissioning Tool. The network in the following figure is displayed. The network drawing includes an OpenLNS Network Interface device shape, an uncommissioned SmartServer IoT router, labelled IzoT Router, two uncommissioned device shapes representing the NcMultiSensorExample applications pre-loaded on your FT 6050 EVBs, functional block and network variable shapes for the functional blocks and the network variables defined in the NcMultiSensor device interface, and connections to enable communication between the two MultiSensor devices.



4. The FT 6050 EVK does not include a SmartServer router. Right-click the IzoT Router shape and then click **Delete** on the shortcut menu to delete it.

5. To move the OpenLNS Network Interface from the LON/IP Ethernet channel to the LON/IP Free Topology (FT) channel, right-click the OpenLNS Network Interface shape, point to **Move Device**, and then click **Change Channel** on the shortcut menu, and then select the following options on the Channel Select dialog:

    - Destination Channel: **Specify** option, **FT Channel**
    - Destination Subnet: **Auto-select**
    - State of Devices and Routers After Move: **Online**

6. To commission MultiSensor Device 1 and MultiSensor Device 2, Ctrl-click the two device shapes, right-click one of the selected shapes, point to **Commissioning**, and then click **Commission** on the shortcut menu. In the Application Image window, clear the **Load Application Image** and **Update Firmware** options if they are selected, and then click **Next**. In the Application State window, select the **Online** state and then click **Next**. In the New Device Wizard, select **Service Pin** and then click **Finish**. When the Device Installation window is displayed, press the **Service** button on each of your EVBs. The **Service** button is located at the top right corner of the EVB, and is next to the LED labelled **Service**. The Neuron ID for each of your EVBs will appear in the Neuron ID column. Press **Continue** to commission the two EVBs.

7. To verify that your EVBs are communicating, toggle the joystick down twice to display the **Remote Info Mode** panel. The joystick is located at the bottom center of the EVB and is labeled **SW3**.

Repeat this on the second EVB. Then cover the light-level sensor on one EVB with your finger and verify that the **Light** value changes on the second EVB. The light-level sensor is located at the bottom right of the EVB and is labeled **LIGHT**. This update is enabled by the network variable output on each EVB that publishes the light level as a lux value, a network variable input on each EVB that receives light-level updates from other devices, and connections between these network variables that are created by the IzoT Commissioning Tool.

Step 5: Get More Information

Documentation for the FT 6050 EVK is installed in a **Documentation** folder contained in the **Echelon NodeBuilder** program folder in your Windows Start menu. See the *IzoT NodeBuilder User's Guide* to get started.

Find all the latest documentation at the Adesto website at the following locations:

- www.adestotech.com/embedded-product/izot-ft-6000-evk/
- www.adestotech.com/embedded-product/izot-commissioning-tool-ct-4-1/

Download updates for your software at docs.adestotech.com.

For any technical questions or support, contact Adesto support at one of the following:

- E-mail: lonsupport@adestotech.com
- Online: click **IzoT Development Kits** and then click **Submit a Request** at www.adestotech.com/tech-support/

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