How to Use the ADI RapidNet IP ESL Demonstration Kit

DEMONSTRATION KIT CONTENTS
ESL sensor node, 6LN:
- MCU-Cog (EV-COG-AD3029LZ)
- RF-Cog (EV-COG-ADF7023-9Z)
- EPD-Gear (EV-GEAR-EINK1Z)
- CR2450 batteries to be inserted in the sensor node
ESL dongle, 6LBR (EV-DNG-RFMOD-9001Z USB dongle)

DOCUMENTS NEEDED
ADI RapidNet IP web page

SOFTWARE NEEDED
ADI RapidNet IP protocol software
ADI RapidNet IP API guide

GENERAL DESCRIPTION
Analog Devices, Inc., provides hardware, software, and associated documents as part of the electronic shelf label (ESL) demonstration kit.

The demonstration kit can be ordered from https://www.analog.com/RapidNet-IP.

The ESL demonstration kit contains two main parts:
- The ESL sensor node, 6LN, which contains four different parts connected together, as follows:
  - MCU-Cog: EV-COG-AD3029LZ evaluation board.
  - EPD-Gear: EV-GEAR-EINK1Z evaluation board.
  - CR2532 batteries to be inserted into sensor node.
- ESL dongle, 6LBR (EV-DNG-RFMOD-9001Z USB dongle).

The ADI RapidNet IP protocol software (binary version) can be downloaded and installed using the following link: www.analog.com/RapidNet-IP.

The ADI RapidNet IP application programming interface (API) guide, which is part of the software package, describes the usage of the software from point of view of the developer.

EPD-Gear is not seen in the kit image because it is connected to the secondary side of MCU-Cog.

All the parts of the sensor nodes are attached in the ESL demonstration kit. The user only needs to insert the batteries.

EVALUATION KIT DIAGRAM

Figure 1.
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# REVISION HISTORY

1/2019—Revision 0: Initial Version
DEMONSTRATION SETUP

PREREQUISITES

Prerequisites for using the ADI RapidNet IP network protocol are as follows:

- **EV-RAPID-ESL-900Z/EV-RAPID-ESL-900JZ.** The ESL demonstration kit includes preflashed binaries and configurations.
- Windows® 10 PC with at least 4 GB of RAM and 2 GB of free disk space.
- ADI RapidNet IP binary installer. Download and install this software package on the Windows machine.

PC SETUP—ENABLING QUEUE SERVICES

To run the ADI RapidNet IP demonstration application, the windows queue services must be enabled using the following steps (see Figure 2):

1. Open the Control Panel.
2. Click Programs and Features and then click Turn Windows features on or off.
3. Expand the Microsoft message queue (MSMQ) server and Microsoft message queue (MSMQ) server core.
4. Select the check boxes for the following queuing features to install:
   - MSMQ active directory domain services integration
   - MSMQ HTTP support
   - MSMQ triggers
   - Multicasting support
   - MSMQ DCOM proxy
5. Click OK.
6. If you are prompted to restart the computer, click OK to complete the installation.
7. Go to C:\Windows\System32 and check if mqrt.dll file exists. Then, check if the queue service is installed successfully to use the ADI RapidNet IP demonstration application.

![Figure 2. Enabling Queue Services](image-url)
RUNNING THE ESL DEMONSTRATION
6LBR DONGLE—NETWORK SETUP

To set up and use the 6LBR dongle, use the following procedure:

1. Connect the dongle to a USB port on the PC. A green LED blinks.
2. Open the RapidNet-IP-Demo_App application, which is located at `<installation directory>\Analog Devices\RapidNet-IP-Binary-Rel1.1.0\Tools\RapidNet-IP-Demo_App`.
3. Click Refresh Ports button to view the connected devices. `EV-DNG-RFMOD-9001Z` appears under Pick device section of the demonstration application (see Figure 3).
4. Do not change any configuration. Note that the Border Router radio button is selected automatically.
5. Click the Start Network button on the demonstration application.

6LN NODE—JOINING THE NETWORK

Ensure that the 6LBR dongle is set up and running successfully before using the following procedure to set up the 6LN node:

1. Insert the two batteries in the node as shown in Figure 4.
2. Toggle the power selection switch towards RF-Cog as shown in Figure 5. The active LED (yellow) on the cog turns on until the node joins the network. The LED is turned off as soon as the node joins the network.
3. Open the demonstration application running on the PC (on which the dongle is connected) and go to Monitor and Control. The connected node is visible as shown in Figure 6.

**ADI RAPIDNET IP—EPD IMAGE UPDATE**

Complete the procedure described in the 6LN Node—Joining the Network section before using the following procedure to update the EPD image:

1. Go to the Monitor and Control > Devices in Network tab and click the Upload button next to the desired node (see Figure 6). Choose the image from one of the sample images present in <installation directory>\Analog Devices\RapidNet-IP-Demo_App\Sample Images.

2. Select 2.9” Display when prompted to select the display resolution and click OK.

3. The image on the node updates within the next 15 sec to 20 sec.

**Figure 6. Monitor and Control**

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