PACKET POWER

EG4 EIP Interface

User's Manual

This document describes how to access monitoring data from the Packet Power EG4 Ethernet Gateways using the Ethernet/IP (EIP) protocol. For additional Packet Power product information please visit www.packetpower.com or contact support@packetpower.com.

⚠ NOTE: the user is assumed to be familiar with EIP terminology and operations of any particular EIP software (e.g. Rockwell Logix Designer) and hardware controller used to retrieve the data.

Data architecture

This section summarizes how data received from monitoring nodes is exposed via the EIP interface.

- The EIP interface exposes monitoring data received by the EG4 as a set of standard, read-only (input) I/O Assemblies
- Up to 10 power node and 10 environmental node assemblies are supported
- Each assembly exposes data from up to six monitoring nodes, providing data from up to a total of 120 monitoring nodes
- The nodes to be exposed via each assembly are selected through the EG4 web interface

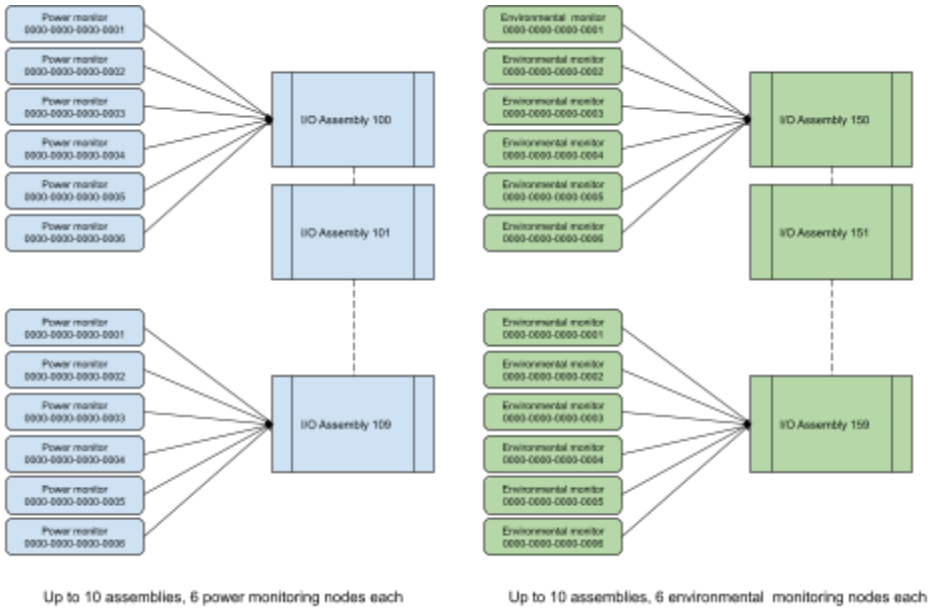


Fig. 1 The node-to-I/O Assembly data mapping

Accessing monitoring data using Logix Designer

Overview

This section provides an overview of steps required to establish data flow from the EG4 to a controller via EIP.

Components
This example uses:

- Software:
  - Logix Designer Studio 5000
  - EG4 EDS data file package (downloaded from Packet Power)
- Hardware
  - Allen-Bradley CompactLogix 5370 Controller
  - Packet Power EG4 Ethernet Gateway F/W 1.19.x

Summary

1. On your Packet Power EG4 web console:
   a. Make sure your Packet Power EG4 is receiving the desired monitoring data and supports EIP (the appropriate license has been installed)
   b. Configure the EIP interface on the Packet Power EG4
2. Within Logix Designer Studio 5000:
   a. Install the EG4 EDS file using the EDS Hardware Installation Tool.
   b. Add EG4 as an Ethernet module within Logix Designer

c. Configure the EG4 I/O assemblies to match the EG4 EIP settings you selected in step 1b above
d. Connect and verify that data is flowing
e. For more user-friendly data access, optionally install user-defined data types and ladder logic to copy data from I/O assemblies to user-defined structures

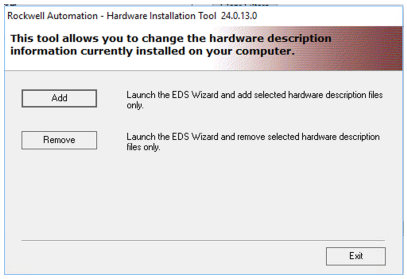
Step-by-step instructions

EG4: Choose the monitoring nodes to expose via EIP

1. Select the nodes to be exposed via each I/O Assembly slot. Up to 6 nodes can be exposed via a single I/O assembly, up to 60 Power (10 slots) and 60 Environmental (10 slots) nodes total.
2. Enable the EIP interface
3. Click **Save**

Studio 5000: Install the EG4 EDS file

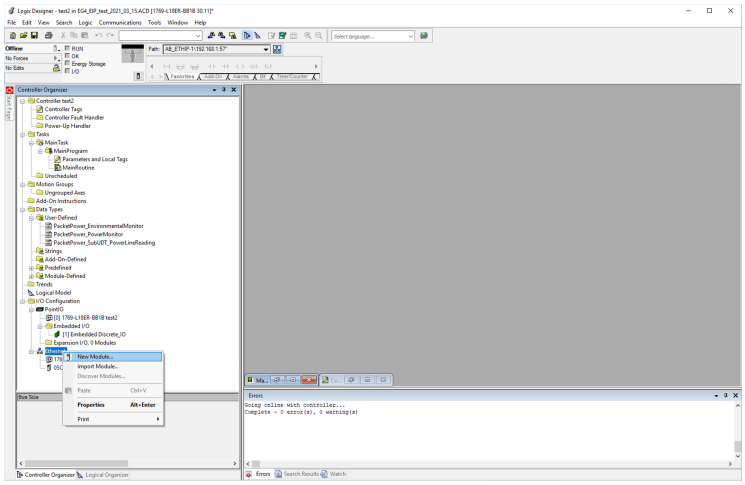
1. Launch the "**EDS Hardware Installation Tool**" (hint: click the "Windows" key and type "EDS" - you should see the "EDS Hardware Installation Tool")



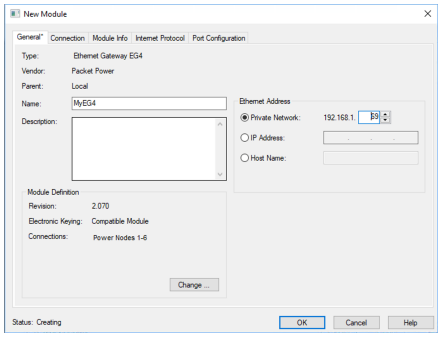
2. Click **Add**, select the "**Register a single file**" and find the EG4.EDS you downloaded
3. Click **Next** as needed to complete the installation and exit

Studio 5000: Connect the EG4 module

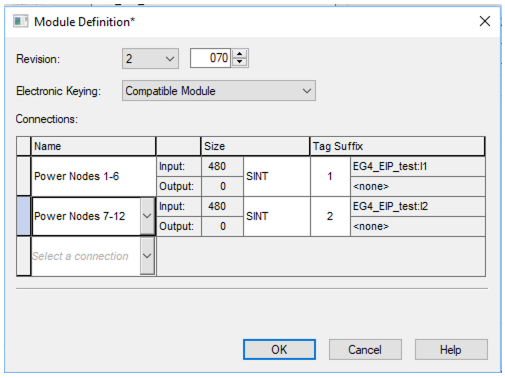
1. Right-click on I/O Configuration/Ethernet, select New Module...



2. In the pop-up catalog type Packet Power - select Ethernet Gateway EG4, click **Create**
3. Choose a name for the EG4 module and enter the EG4's IP address

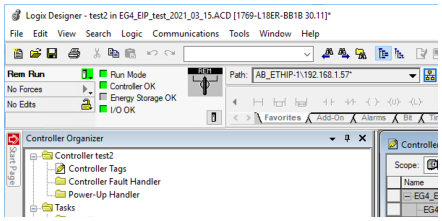


4. Click **Change...** to edit the module definition to match the I/O assemblies you have mapped within the EG4 web console. By default, there will only be one assembly ("Power nodes 1-6"). Add/delete assemblies as needed. Note that Studio 5000 will assign tag names to assemblies based on the module name you assigned before.

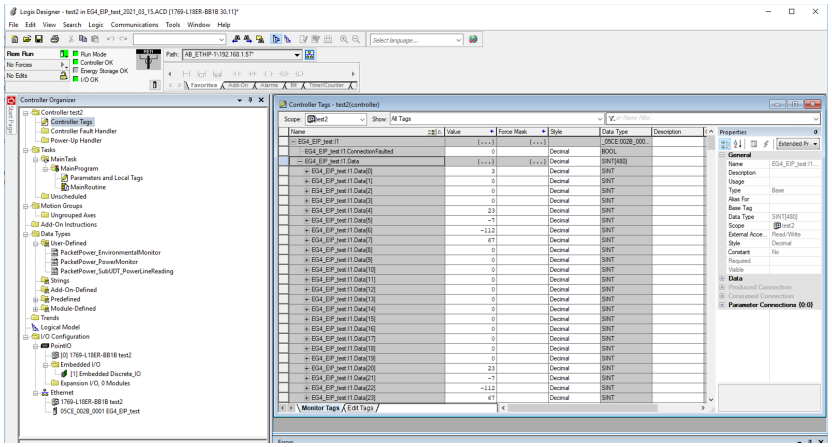


Studio 5000: Connect and verify that I/O assembly data is flowing

1. Switch your controller to **Run** mode - the Run mode indicator and I/O OK indicators near the top-right corner should turn green



2. Select the **Controller Tags** section in the navigation tree and open one of the I/O assemblies you created above - you should see raw reading data within the I/O assembly.



Studio 5000: Install user-defined data types for EG4

In order to display data in more friendly format, including descriptive names and physical units, the EG4 EDS package includes a set of predefined data types in Studio 5000-compatible format (in .L5X files).

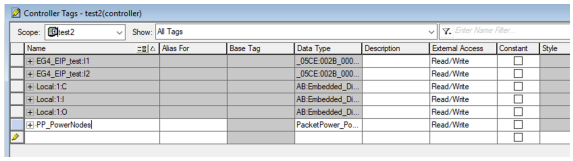
1. Put your controller in **Offline** mode (top-left)
2. Right-click **Data Types/User-Defined** within the Studio 5000 tree control and select **Import Data Type...**.
3. In the Import Data Type dialog box navigate to the Packet Power EDS files folder and choose the **PacketPower_EnvironmentalMonitor_DataType.L5X** file and choose **Open...**
4. Repeat the same process to import **PacketPower_PowerMonitor_DataType.L5X.**

Studio 5000: Define tags for monitoring node readings

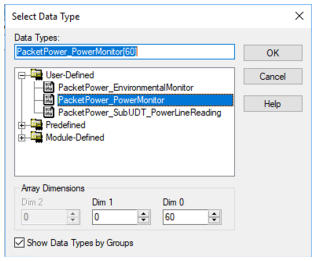
In this step you will create two controller tags: one for readings from all power monitoring nodes and one for all environmental monitoring nodes.

1. Make sure your controller is in **Offline** mode
2. Double-click on **Controller Tags** in the navigation tree

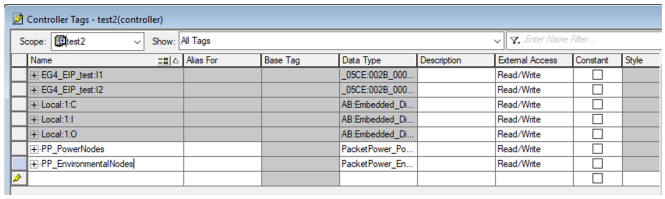
3. Enter a name for your Power Monitoring nodes tag (e.g. PP_PowerNodes)



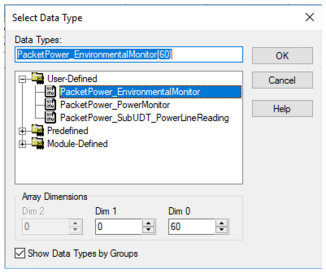
4. Select **Data Type** to be **User-Defined/PacketPower_PowerMonitor**
5. Set **Array Dimensions** - **Dim 0** to 60 (to support up to 60 nodes) and click **OK**



6. Enter a name for your Environmental Monitoring nodes tag (e.g. PP_EnvironmentalNodes



7. Set **Array Dimensions - Dim 0** to 60 (to support up to 60 nodes) and click **OK**



Studio 5000: Add ladder logic to copy data from I/O assemblies

Add instructions to copy data from the I/O assemblies to the controller tags you defined in the previous step. For each assembly, you need to specify:

- **Source**: the assembly to copy data from
- **Dest**: the Controller tag table and first table element you want data to be copied to - either the Power of Environmental tag, depending on the node types, the position will depend on the number of nodes
- **Length**: the number of elements (node table entries) you want copied - most likely 6, since each assembly contains data for 6 nodes

The following example illustrates the following:

- copying 6 nodes' readings from I/O assembly 1 to array entries 0--5 in the **PP_PowerNodes** tag
- copying 6 nodes' readings from I/O assembly 2 to array entries 6--11 in the **PP_PowerNodes** tag