



Ethernet Global Data Notes

Current versions of KEPServerEX (tested on v4.180.338)

11/22/2006

Document v1.01

Introduction

This document covers the setup and configuration of a project using the GE-Fanuc 90-30 PLC, KEPServerEX, VersaPro, and the GE Ethernet Global Data drivers, as well as basic information concerning Ethernet Global Data.

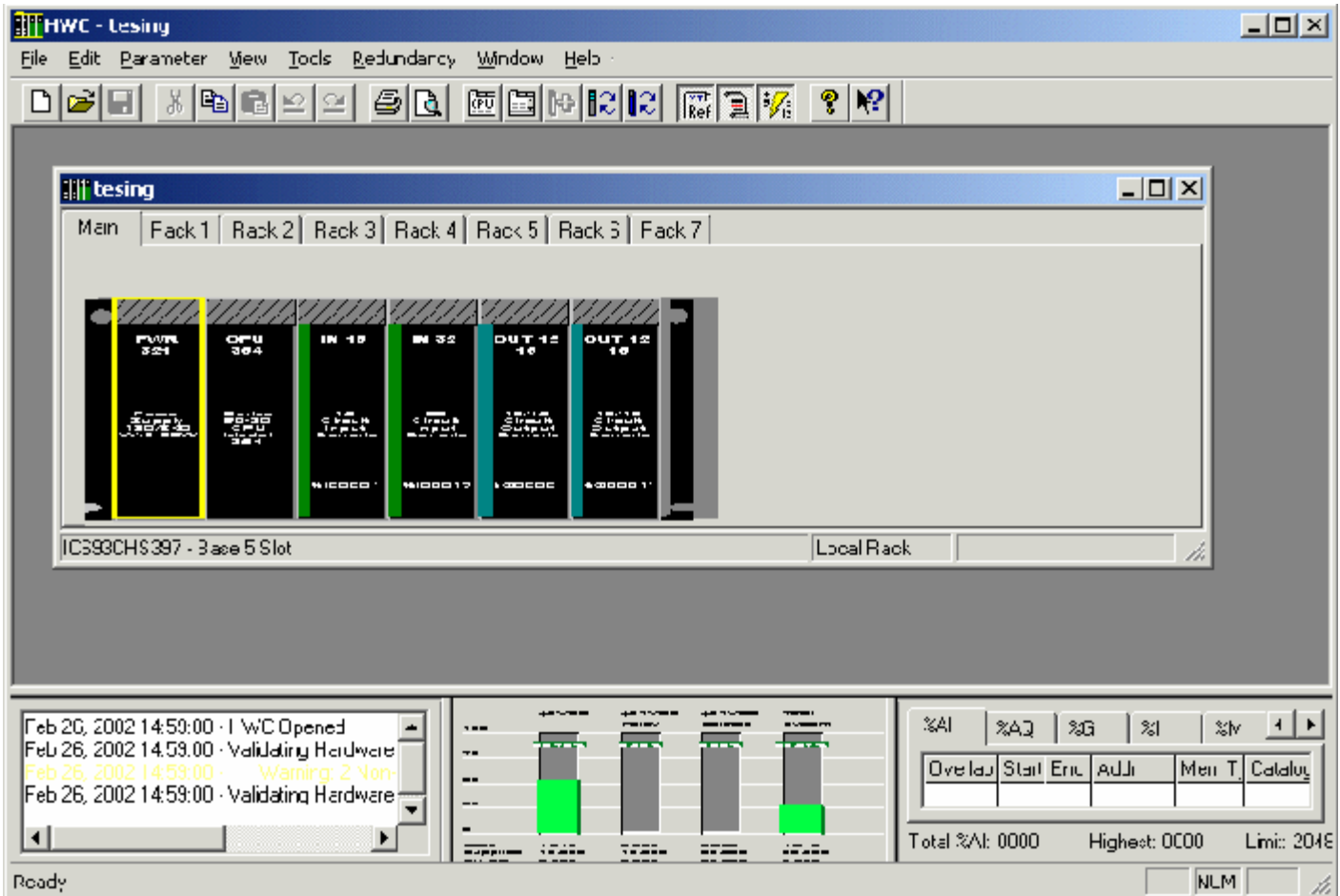
Ethernet Global Data

Ethernet Global Data (EGD) is a communications protocol developed by GE in 1998. Ethernet Global Data (EGD) allows a device (the Producer) to transfer data to other devices (the Consumers) on the network. Applications requiring high-speed networking and coordination from PLC to PLC, or PLC to GE Variable Frequency Drives, can take advantage of EGD. Ethernet Global Data is up to 10 times more efficient on bandwidth utilization than the normal polling system.

Configuring EGD in VersaPro

(tested using VersaPro v2.01)

1. Launch VersaPro. Click File | New Folder. Name your project, and then click Finish. If you have an existing project, click File | Open Folder.
2. The hardware modules on the 90-30 PLC must be configured correctly first. This is done in the Hardware Configuration Utility included with VersaPro. Double-click on Hardware Configuration in the Folder Browser. You should see a window that resembles this.

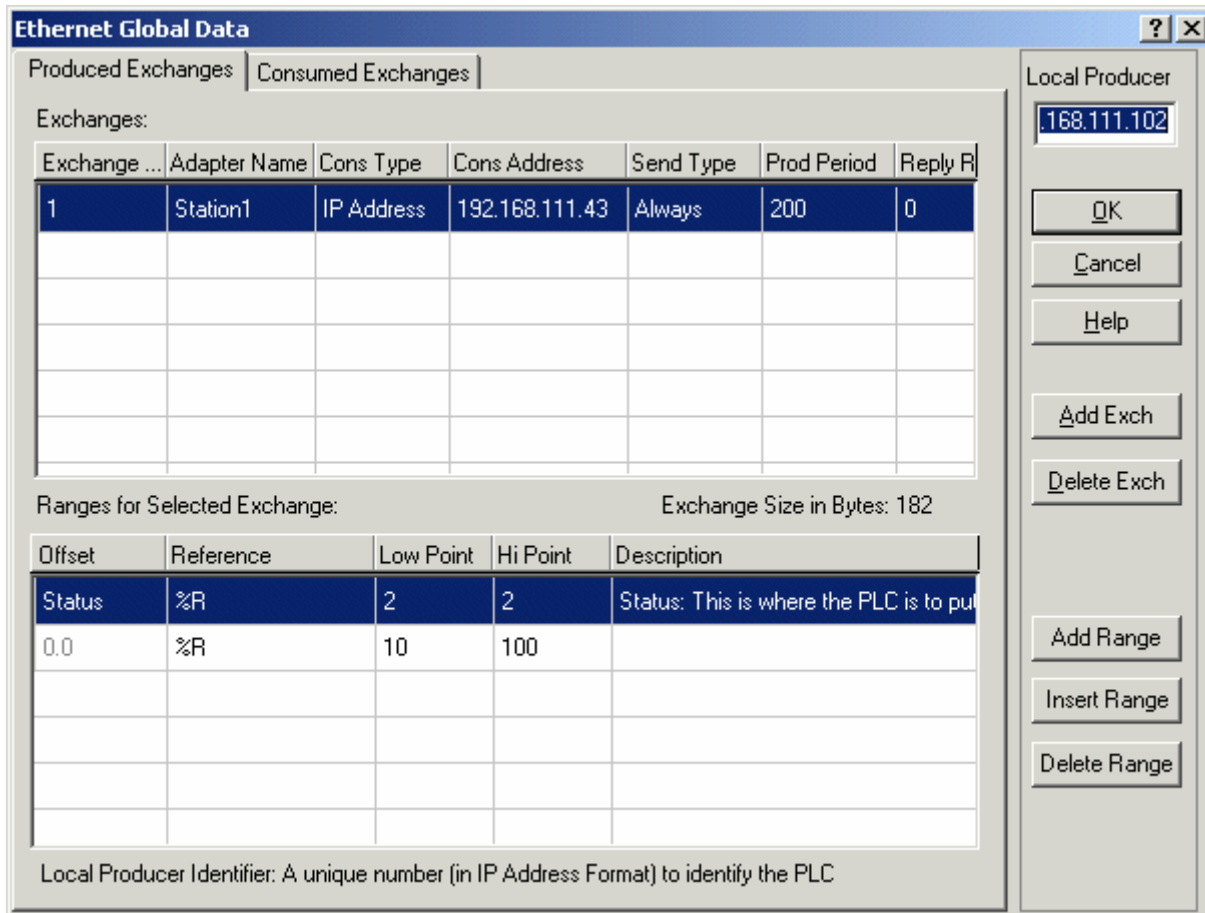


Double-click each module to configure. The most important configuration is the CPU. In the Ethernet tab of the CPU configuration window, the following parameters need to be configured:

- adapter name,
- IP address,
- subnet mask,
- gateway IP address, and
- status address.

The adapter name is used to identify the PLC during EGD configuration in VersaPro, and may be any name you wish. The status address is the start of an 80-bit global status area (80 consecutive single-bit locations or 5 consecutive 16-bit registers). You can leave the status address at the default. Be aware of this status area so that you don't later try to allocate something else in the same register space.

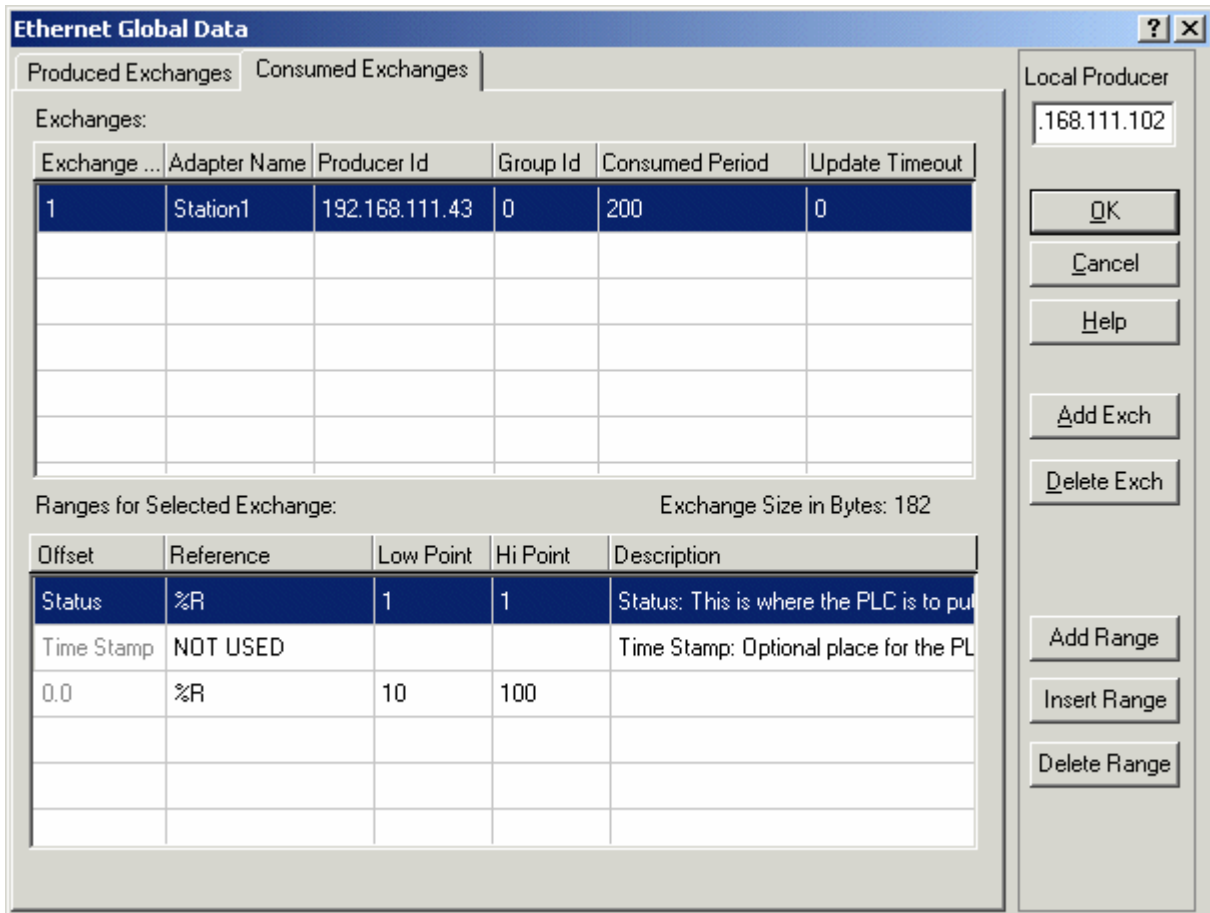
3. Once the hardware configuration is complete, save it to disk.
4. Go back to VersaPro and choose Tools | Communications Setup... The Communication Configuration Utility window will appear.
5. Make sure that your PLC is listed in this utility with the correct IP address. If not, add your PLC, using port ENET. Click on OK to save your changes and exit the communication configuration utility.
6. In VersaPro, click PLC | Connect to test connectivity with the PLC.
7. Once connectivity is established, in the Hardware Configuration Utility click Edit | Rack Operations | Ethernet Global Data. This will bring up the following window.



This is the Produced Exchanges screen.

- a. For Local Producer, enter the IP address of the PLC.
- b. Then click on Add Exch to make a new exchange.
- c. Enter an Exchange ID of 1.
- d. For Cons Address, enter the IP address of the PC running KEPServerEX.
- e. The Prod Period, in milliseconds, specifies how often the PLC will send the data to the consumer(s). **The consumer(s) (KEPServerEX) must be set to receive data at this same period.** Configuration of the server will be covered later.
- f. For the ranges, you must first define a 16-bit exchange status area. For our example, we have chosen %R2. Make sure that this status area does not overlap the global status area defined in step 2. After the exchange status area is defined, add the ranges of data you wish the PLC to produce.

When you are finished, click the Consumed Exchanges tab.



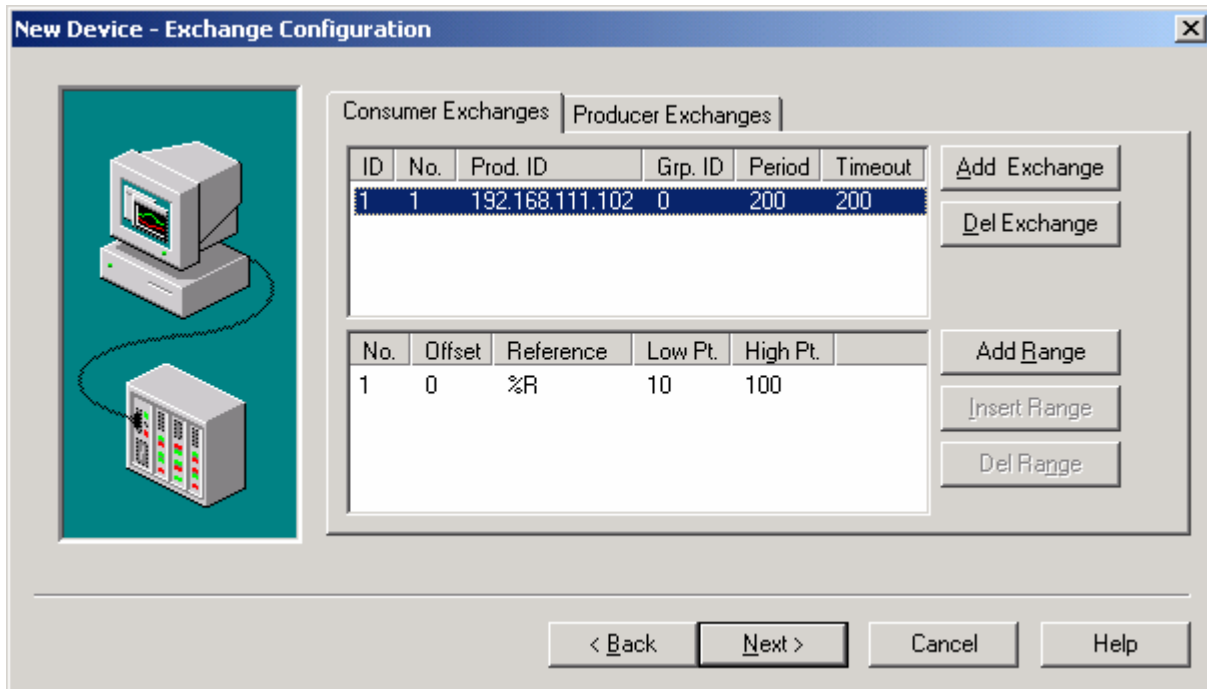
This is the Consumed Exchanges screen.

- a. Producer ID should match the IP address of the PC running KEPServerEX.
- b. The Consumed Period, in milliseconds, specifies how often the PLC will expect the data from the producer. **The producer (KEPServerEX) must be set to send data at this same period.**
- c. Define a 16-bit status area. For our example, we have chosen %R1.
- d. In our example, we will set the ranges of data to match those in the Produced Exchanges screen. That is, we will set up bi-directional transfer of this register range over EGD. This will cause the Hardware Configuration Utility to display non-fatal warnings that the ranges in the producer and consumer exchanges are overlapping. These warnings may be ignored. The warnings would not appear if we set this register range to be only produced, or only consumed.

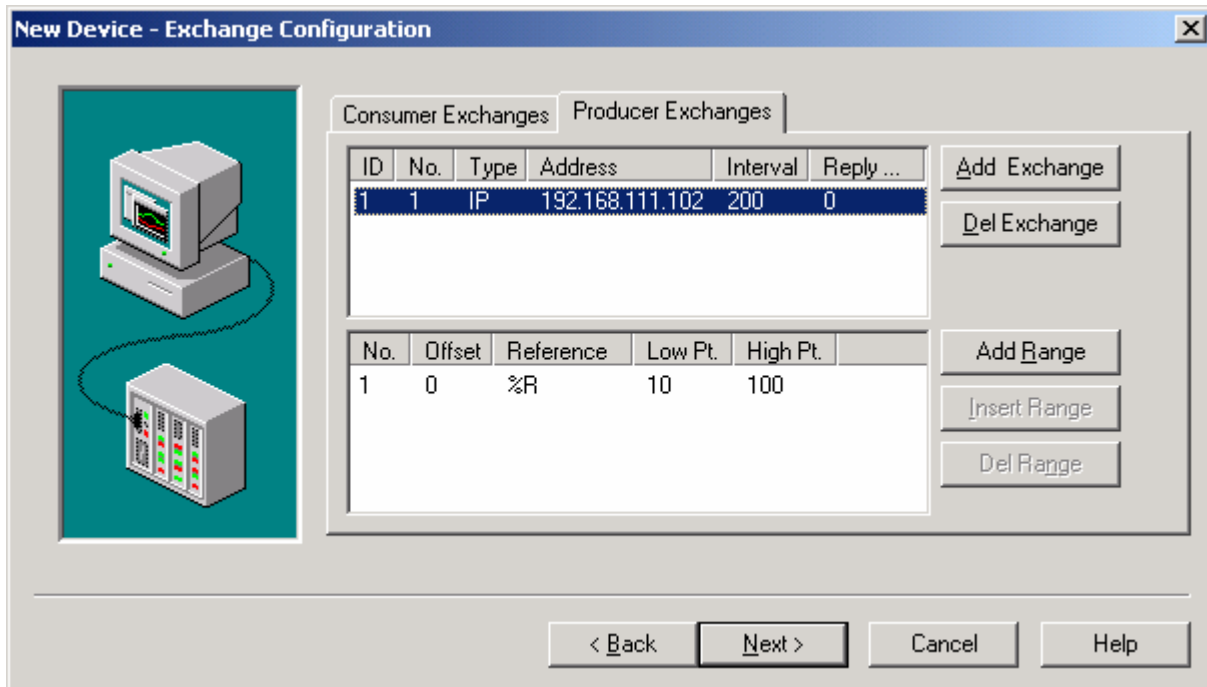
Once these parameters are set, click OK to accept them. In VersaPro, click PLC | Store to download the configuration to the PLC. At the next screen, turn on “Store Hardware Configuration and Motion to the PLC”. Click OK. Then click PLC | Run, or hit F5, to start the program running in the PLC. The PLC must be in “Enabled” mode (outputs enabled) in order to communicate using EGD.

Configuring EGD in KEPServerEX

1. Start a new KEPServerEX project. Add a new channel, choosing the GE Ethernet Global Data driver.
2. Add a new device, accepting the defaults until you reach the Producer and Consumer Exchange tabs.



3. In the Consumer Exchanges tab, click "Add Exchange". Give it an ID of 1, an Exchange number of 1, and for Producer ID enter the IP address of the PLC. **The value entered here for Consumed Period must match the value entered in VersaPro for "Prod. Period."** A minimum update timeout of 100 ms is suggested. In our example we will use an update timeout of 200 ms. Next, click on the newly added exchange row in the upper half of the Consumer Exchanges tab, and click "Add Range". Add the address range you specified in VersaPro. The status area does not have to be defined. The finished Consumer Exchange should resemble the picture above.



4. Next, click on the Producer Exchanges tab and add an exchange. Set the ID number to 1, the No. to 1, the Type to IP, and the address to the IP address of the PLC. **The value entered here for Producer Interval must match the value entered in VersaPro for Consumed Period.** Next, click "Add

Range”. Add the address range you specified in VersaPro. The status area does not have to be defined. The finished Producer Exchange should resemble the picture above.

5. Click Next, then Finish, and save your project.
6. In KEPServerEX, you should now see Channel1 and Device1. Double-click Device1 to bring up the Device Properties box. Go to the Database Creation tab and click Auto Create. Then OK the Device Properties box.
7. There will now be a + sign to the left of Device1. Click this + sign to show the newly added tag groups for the consumer and producer exchanges.
8. The tag groups will contain tags corresponding to the ranges you set in VersaPro. Launch the OPC Quick Client, and you should see good values in both tag groups.