



VIM Network Gateway Quick Start Guide Ethernet/IP Scanner Driver (IOD-4102)

Configuring the VIM in the VIMNet Explorer

1. Double-click on **VIMNet Explorer.msi** to install the VIMNet Explorer on the PC that is connected the VIM.
2. Launch the **VIMNet Explorer** by going to **Start->Programs->VIMNet Explorer->VIMNet Explorer** or PPV.exe
3. The following window will be displayed. You will be prompted to **enter the IP Address** of the network communicating with the VIM. Change the default IP address to that of the NIC and click OK.

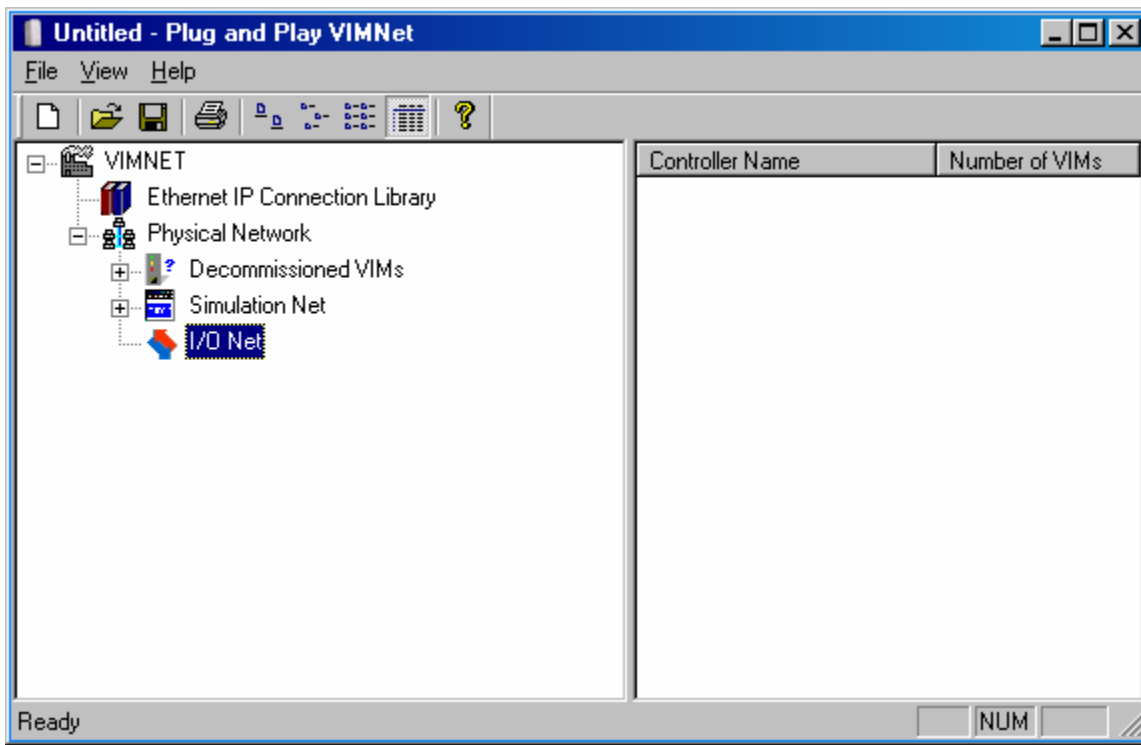


Figure 1 –VIMNet Explorer

4. Right-click on **I/O Net** and **select New Controller** menu option to add a controller object, which you can rename or leave as default, e.g. Node1.
5. Right-click on the controller to **Add Virtual I/O Module or VIM**. This will open up a new dialog box shown below:



Figure 2 –Add Ethernet IP Virtual I/O Module

7. Fill in the parameters as follows:
 - a. **Name** – Unique 32 character VIM name
 - b. **IP Address** – an IP address in your network which is not currently being used
 - c. **Subnet Mask** – can remain the default one but must match the subnet mask of NIC
 - d. **Virtual Cards** – select card group to be emulated by VIM, i.e., cards 57-60, or 61-64
 - e. **Type** – This is the VIM firmware type. **Select Ethernet/IP.**
 - f. **Redundancy** – Leave the “VIM is Redundant” checkbox unchecked if this is a simplex VIM.

After filling out the parameters, select OK.

8. The VIM placeholder has been added and it is ready to commission to one of the decommissioned VIMs. Click on the **Decommissioned VIMs** to display all of the decommissioned VIMs connected to the network.
9. Once you see the VIM with **Ethernet/IP** firmware in the **Decommission VIMs** list, you can right-click on VIM placeholder and select **commission**.

Tip: You can also drag and drop the decommissioned Ethernet/IP VIM to the placeholder on the left and that will commission the placeholder to that VIM.

Important Note: You can tell the state of your VIM as soon as it is powered up. If the VIM shows up only with the Power and Network LEDs lit, that indicates it is in decommissioned state. The VIM is commissioned if its Power and Active LEDs stay steady green and the network LED is amber flashing or steady.

10. To complete VIM configuration, Network devices must be added to the Virtual Cards. Right-click on the Serial Port and select the **Add Device** menu option.

Important Note: The Ethernet/IP VIM has the capacity to communicate with up to 16 network devices simultaneously.

Messages for each dataset are concurrently handled by the VIM, thus increasing throughput.



For each network device that you want to interface using the VIM, you must enter its IP address as shown below.

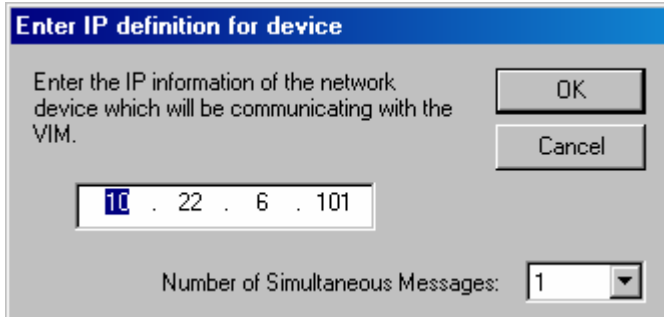


Figure 3 –Enter IP definition for device view with Simplex VIM

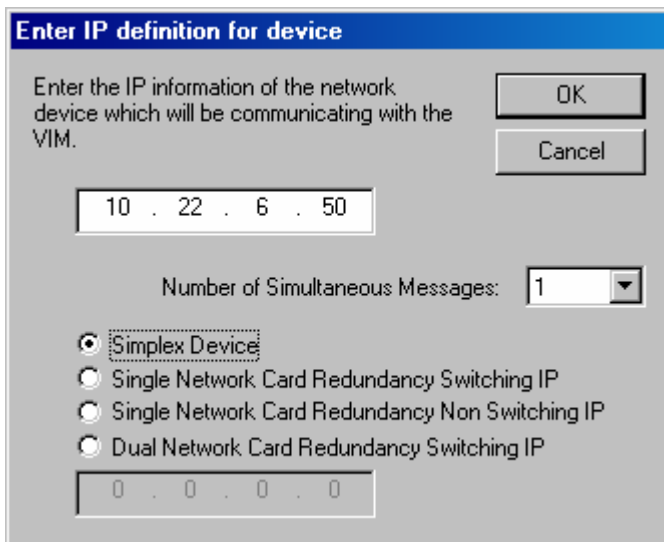


Figure 4 –Enter IP definition for device view with Redundant VIMs

Tip: You can also configure the number of simultaneous messages to enhance the communication for devices that support multiple messages. The default number of simultaneous messages is one and it is set in the VIMNet Explorer as shown above. Up to 16 simultaneous messages can be sent per device. You can use this feature to increase the data transmission and performance improvement.

11. Once you have added all of the network devices, you need to right-click on VIM and select **Upload the Configuration to the VIM**. The VIMNet configuration creates a **mapping between PLC device addresses and IP addresses**. This mapping must be uploaded into the VIM for proper communications.

Tip: A configuration that has not been uploaded to the VIM is indicated with a blue triangle ▲ next to the VIM icon. To be able to upload a configuration, the VIM must first be commissioned.



Warning:

Uploading a new configuration into the VIM will cause all field communications to terminate. After upload completion, the VIM will automatically reboot. VIM upload must be done with the process in safe mode.

12. Click on **File->Save** as to save the VIMNet Configuration in a file with **.VIO** extension.

Warning:

It is recommended that you make **BACKUPS** of the VIO file, because once it is deleted from the PC's drive, it cannot be retrieved back out of the VIM, and you will lose time configuring it again. If the original configuration file is not available, the VIM will be in error and need to be reset. Performing a Reset will decommission the VIM; therefore, it will terminate all field communications.

To Reset a VIM, right click on the VIM in the Decommissioned list to get the context menu. Then, select **Reset**. The VIMNet Explorer will send a Decommission command over the network and clear the VIM from its list. The VIM will then appear as an unconfigured, decommissioned VIM in the VIMNet Explorer list, and you can commission it to new placeholder again.

Tip: Once you have configured the VIM card in the VIMNet Explorer and the configuration has been uploaded to the VIM, you can right-click on the I/O under new controller in the DeltaV Explorer and auto-sense the VIM cards.

13. You can either **auto-sense** the VIM cards by right-clicking on I/O under controller and selecting **Auto-sense I/O cards** or you can manually add 4 cards for each VIM by selecting the appropriate card class and card type as shown below:



Object type: Card

Modified: --

Modified by: --

Description:

I/O Card

Card class :
Serial Cards

Card type :
2 Ports, Programmable, RS232|RS485

Card series :
Series 2

Features
Basic Functionality
+ Redundancy

I/O Redundancy
 Card is redundant

Slot position:
57

Figure 5 – Add a card view

Important Note: Each PSIC has 2 ports configured under it. You must **Enable the Port** by clicking on the Enabled box. All 4 cards must be added even if they will not be used. Unused ports can be disabled.

There are 16 datasets under each port. Consequently, the VIM has the capacity of **128 datasets**. One dataset is equivalent to 100 16-bit registers, or 50 floating point (32-bit) registers. These 128 datasets are user mapped to PLC devices as required for the application.



DeltaV Configuration

Once you upload the configuration to the VIM, go to the DeltaV side and configure the ports, add the devices and the datasets. For most applications, configure the port as follows:

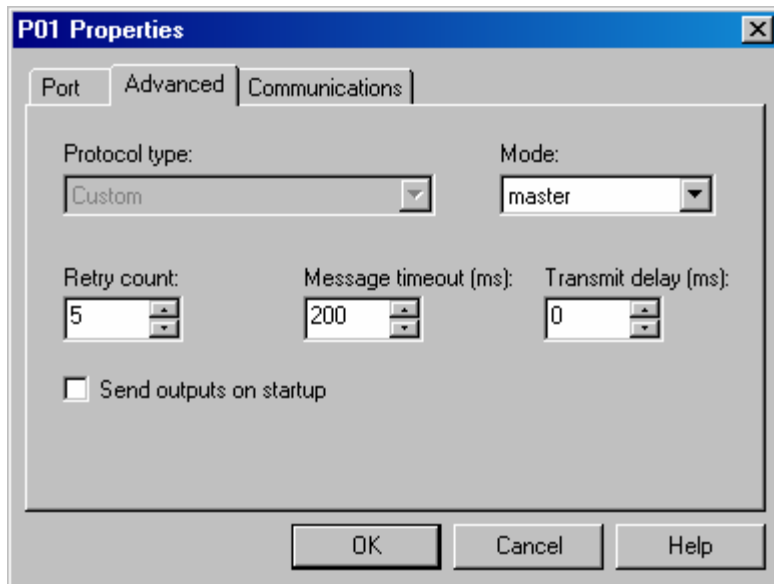


Figure 6 – Port Properties Advanced Tab View

The parameters that appear on the Communications tab are not used. Simply select the defaults and click OK.

When adding the device, you must make sure to configure the same device address as you have in the VIMNet Explorer.

Configuring the Datasets

When configuring the **datasets** in DeltaV Explorer, make sure to review the examples provided in the VIM manual. Remember that each Serial Device can have 16 datasets under it, or you can have 16 devices with 1 dataset each. A dataset can be input or output. The output datasets can have two modes block and single.

Important Note: Output mode of 0 indicates **Block outputs**, i.e., the entire dataset is written out to the PLC if any dataset register changes. An Output mode of 1 indicates **Single value output**, i.e., only the value that has changed will be written out.



The **device data type** on the PLC tab defines what type of transaction will be performed for the Dataset between the PSIC and the Allen-Bradley devices.

Tip: For the PLC3, 4 and 5, you can use the **device data type** 4 or 8. For the SLC PLCs, you should configure this parameter to 11, and for the Logix PLCs, you can configure it as 11 (DF1 connection) or 15. (ENBT connection).

On the **Special Data tab**, you must specify the file type as the Special data 1 parameter, and file number as the Special data 2 parameter. In the example below, the data will be written to N7 or an integer file.

Tip: The Special data 4 parameter is used to specify the CPU slot number in the Logix chassis.

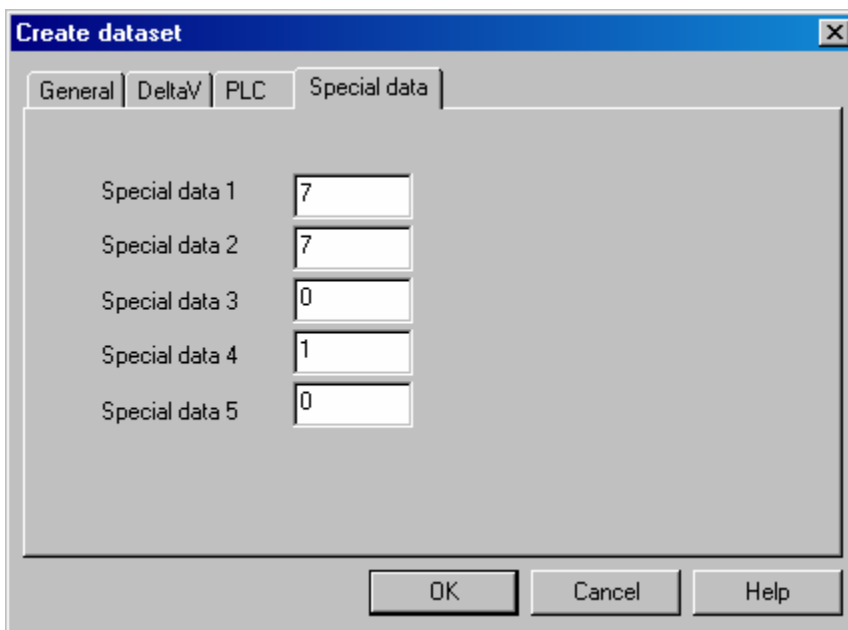


Figure 7 – Device Properties View

The slot number is zero based. For example, if the CPU is in the first slot (slot 0), configure a 1 for this parameter. If the CPU is in second slot, configure a 257 for this parameter. The parameter is calculated as $(256 \times \text{slot}) + 1$.

If you are configuring the datasets to interface the SLC 505 and PLC5/XXe, set this parameter to 0.

Important Note: The ENBT connection is available *in simplex VIM architecture only*. This is because when using the generic 1756-ENBT communication mechanism, the VIM dataset behaves as a slave to the ControlLogix PLC.



M Y N A H

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