PROFINET CbA User Guide

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Network Enabling Devices

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Chapter 1. Introduction

The *PROFINET CbA User Guide* discusses the following topics:

- Chapter 2. Programming Interface on Page 11
- Chapter 3. Embedded Configuration Pages on Page 25
- Chapter 4. Embedded Diagnostic and Statistics Pages on Page 43

For information about connecting the hardware, programming the DeviceMaster UP IP address, or uploading firmware, see the *DeviceMaster UP Hardware Installation and Configuration Guide*.

See the *Quick Start* for embedded web page configuration procedures if you have *Read-only or read/write* devices, which provides procedures for your devices.

See *1.3. Locating Updated Software and Documents* on Page 6 to locate the latest firmware, documentation, and tools.

1.1. Audience

The primary audience of this document is the person responsible for installing and commissioning the DeviceMaster UP. This guide assumes you are familiar with the following topics:

- Windows operating system
- PROFINET CbA
- Siemens S7 PLC (optional)
- SIMATIC iMap configuration program

1.2. Product Overview

The DeviceMaster UP is a PROFINET CbA (Component Based Automation) device server after you upload the firmware over the default application. After uploading the firmware, the DeviceMaster UP provides an PROFINET CbA interface to serial device or devices, so you can simply add serial devices to your facilities' PLC® platform.

The DeviceMaster UP provides a PROFINET CbA interface for 1 and 4-port models, which may or may not have the PROFINET CbA firmware loaded (depending on the model you purchased).

Note: *Models that have PROFINET CbA loaded on the DeviceMaster UP are identified in PortVision Plus and the DeviceMaster UP is labeled accordingly.*

This document describes how to configure the DeviceMaster UP for the PROFINET CbA protocol after basic DeviceMaster UP installation and configuration procedures.

You can easily configure and manage devices through the SIMATIC iMap configuration program.

The DeviceMaster UP supports a Soft Real-Time (SRT) of 10 ms.

1.3. Locating Updated Software and Documents

You can access the firmware software assembly, PortVision Plus, and the *DeviceMaster UP* documentation from the CD shipped with the DeviceMaster UP or you can download the latest files using these internet links.

DeviceMaster UP	
Hardware Installation and Configuration Guide contains hardware installation, PortVision Plus installation, and if necessary, firmware updating procedures.	

PortVision Plus	
PortVision Plus is the application that you use to configure network settings and if necessary, upload the firmware.	

PROFINET CbA Firmware	
PROFINET CbA (**.msi**) contains the firmware and supporting files. The firmware provides embedded configuration web pages.	

PROFINET CbA Documentation	
PROFINET CbA Quick Start is an outline of the installation and configuration procedures with links to the appropriate documents.	
PROFINET CbA User Guide contains protocol specific information about configuring the DeviceMaster UP.	

Optionally, you can check for any updated files using this URL: http://support.comtrol.com/download.asp?product=DMUP.

1.4. PROFINET CbA Application Setup

Before you can configure PROFINET CbA protocol on the DeviceMaster UP, you must have previously performed the following steps:

- Install the hardware
- Install PortVision Plus
- If necessary, upload the PROFINET CbA firmware using PortVision Plus

  Note: *Models that have PROFINET CbA loaded on the DeviceMaster UP are identified in PortVision Plus and the DeviceMaster UP is labeled accordingly.*
- Configure the DeviceMaster UP IP address using PortVision Plus

  Note: *If necessary, refer to the DeviceMaster UP Hardware Installation and Configuration Guide for the above procedures.*

Use the following steps to complete the DeviceMaster UP configuration for PROFINET CbA.

1. Change the DeviceMaster UP serial port settings using Chapter 3. Embedded Configuration Pages on Page 25.
2. Commission the device. For more information, see the instructions in *Chapter 4. Commissioning the DeviceMaster UP* on Page 31.
3. Connect your serial device or devices and make sure all Ethernet devices are attached to the same Ethernet subnet. If necessary, refer to the *DeviceMaster UP Hardware Installation and Configuration Guide*.

Chapter 2. Programming Interface

2.1. Overview

The DeviceMaster UP provides a PROFINET CbA interface for 1 to 4 serial ports. This section is intended for the application programmer responsible for installing this product.

This section covers the following topics:

- *2.2. PROFINET CbA Communication Properties*
- *2.3. Packet Identification*
- *2.4. Setting Baud Rate and Other Serial Parameters*
- *2.5. PROFINET CbA Component*
- *2.6. How the DeviceMaster UP Transmits Data*
- *2.7. Handshaking (Optional)*

2.2. PROFINET CbA Communication Properties

When you install the PROFINET CbA firmware on the DeviceMaster UP, the DeviceMaster UP uses the PROFINET CbA properties. You can set these communication property values through SIMATIC iMap. The following subsections describe:

- *2.2.1. What is PROFINET CbA?*
- *2.2.2. Transfer Modes*
- *2.2.3. Quality of Service (QOS)*

For additional information, see *4.6. Setting a Project's Transfer Properties* on Page 37.

2.2.1. What is PROFINET CbA?

PROFINET CbA is the Ethernet-based automation standard issued by the PROFIBUS Nutzerorganisation e.V. (PNO). The PROFINET CbA standard defines a cross-vendor communication, automation and engineering model.

It has three objectives:

- Open, distributed automation
- Standardized communication through field bus and Ethernet
- Use of open IT standards.

PROFINET CbA specifies the functions for implementing an integrated automation package, from installation of the network right through to web-based diagnostics. The modular structure means you can easily upgrade PROFINET CbA with additional functions in the future.

2.2.2. Transfer Modes

DeviceMaster UP supports the following transfer modes over Industrial Ethernet:

- **Cyclical** - Use this transfer mode for time-critical data.
- **Acyclical** - Use this transfer mode for engineering data and non time-critical data.

The transfer modes are selectable properties for the DeviceMaster UP. You can change these properties through SIMATIC iMap. The following table displays the supported transfer properties for DeviceMaster UP.

Transfer Mode	Frequency	Value
Cyclical	Fast	10 ms
	Medium	50 ms
	Slow	100 ms
Acyclical	Fast	100 ms†
	Medium	500 ms
	Slow	1000 ms

† The DeviceMaster UP has a minimum value of 100 ms for acyclical transfer mode. To change this value to 100 ms, see the instructions in *4.6. Setting a Project's Transfer Properties* on Page 37

For additional information, see *2.5.6. Maximum Length for a Serial Packet* on Page 15.

2.2.3. Quality of Service (QOS)

Each transfer mode has a quality of service:

- **Transfer frequency (cyclical)** - The time after a data item is transferred again in cyclical transfer mode (for example, every 10 ms). Use this transfer mode for Soft Real-Time (SRT).
- **Scanning frequency (acyclical)** - Determines how frequently the data is polled (for example, every 100 ms) in acyclical transfer mode. The scanning frequency is the maximum time that elapses before a change in value is transferred.

You can set a transfer or scanning frequency to fast, medium, or low frequency. You can also change the transfer value within the following ranges:

- **Cyclical range** - 10 ms to 1000 ms.
- **Acyclical range** - 100 to 1000 ms

For additional information, see *2.5.6. Maximum Length for a Serial Packet* on Page 15 and *4.6. Setting a Project's Transfer Properties* on Page 37.

2.3. Packet Identification

DeviceMaster UP polls the serial ports and gathers serial data into packets. The PROFINET CbA protocol moves these serial packets to the Programmable Logic Controller (PLC). Note that this device does not act as a gateway for serial streams of data. DeviceMaster UP gathers all serial data into packets.

Serial packets are identified by STX and ETX characters or the timeout feature.

- **Start of Text (STX)** - A delimiter that marks the beginning of a packet.
- **End of Text (ETX)** - A delimiter that marks the end of a packet.
- **Timeout** - Packets are identified by an absence of characters for a specified period of time.

The following tables show the available options.

STX	ETX	Timeout	Result
No	No	No	Invalid, no packet ID method
No	No	Yes	Timeout used to detect end of packet
No	Yes	No	ETX used to detect end of packet
No	Yes	Yes	ETX or timeout used to detect end of packet
Yes	No	No	Invalid, no packet ID method
Yes	No	Yes	STX starts packet, timeout used to detect end
Yes	Yes	No	STX-ETX used to detect start and end
Yes	Yes	Yes	STX starts packet, ETX or timeout used to detect end

As seen from the table, you must configure either an ETX or Timeout (or both).

When you enable STX, the DeviceMaster UP scans for STX and behaves accordingly:

- When the first byte is STX, the DeviceMaster UP collects the data. When the DeviceMaster UP finds an ETX or Timeout, the DeviceMaster UP declares the data to be a packet and moves the packet into the **bstring** output variable.
- If the first byte is not STX, the DeviceMaster UP discards the byte. The DeviceMaster UP continues to discard bytes until it finds an STX.

When you enable ETX and/or timeout, DeviceMaster UP scans for ETX and/or waits for a Timeout and behaves accordingly:

- When you enable ETX, the DeviceMaster UP scans the serial data for the ETX. When the DeviceMaster UP finds an ETX, it stores the data as a packet.
- When you enable Timeout, and the time between characters exceeds the Timeout value, the DeviceMaster UP stores the data as a packet.

Note: *You can enable ETX and Timeout together.*

The DeviceMaster UP polls the serial port for serial data. The collection of a packet may span multiple polling periods. If a packet exceeds 128 bytes, DeviceMaster UP discards the packet.

When you enable Strip STX/ETX Characters, DeviceMaster UP strips the STX and ETX characters in packets received from the serial port.

Note: *Serial Packets sent from the PLC to the DeviceMaster UP (over Ethernet), and then sent out the serial port, are not checked for STX/ETX. No STX/ETX character stripping occurs in these serial packets, and framing/parity/overrun error checking does not apply.*

You can modify the STX, ETX, and Timeout values through the web page for the DeviceMaster UP. For more information, see the instructions in *3.1. Accessing the Server Configuration Page* on Page 21. Additional information on the web page is provided in *Chapter 3. Configuring the DeviceMaster UP* on Page 21.

2.4. Setting Baud Rate and Other Serial Parameters

You can modify the baud rate value and other serial port settings through the web page for the DeviceMaster UP. See the following topics for instructions:

- See the *DeviceMaster UP Hardware Installation Guide* for information about using PortVision Plus to configure network settings on the DeviceMaster UP
- *3.1. Accessing the Server Configuration Page* on Page 21
- *4.8. Using PortVision Plus to Change the PROFINET CbA Number* on Page 40

2.5. PROFINET CbA Component

The PROFINET CbA component is written in XML (Extended Markup Language) and is intended for use with SIMATIC iMap. There are two XML files shipped on the CD for the DeviceMaster UP in the **.MSI** file. They are also available for downloading from the Internet. These XML files are included in the **.MSI** file:

- **deviceMaster_1Port.xml** - for a DeviceMaster UP 1-port.
- **deviceMaster_4Port.xml** - for a DeviceMaster UP 4-port.

See *1.3. Locating Updated Software and Documents* on Page 6 for information on locating these files.

2.5.1. What is SIMATIC iMap?

SIMATIC iMap is a device-independent engineering tool designed by Siemens for Component based Automation (CBA). Use it to configure, commission and monitor modular, distributed automation systems based on the PROFINET CbA standard. For more information, see *Chapter 4. Commissioning the DeviceMaster UP* on Page 31.

2.5.2. Component Interface

The component interface defines the connectors (that is, the inputs and outputs) of the PROFINET CbA component. The connectors represent the external communication interface that is accessed through Ethernet and is visibly represented through SIMATIC iMap. Each connector has a direction (either input or output). You can interconnect inputs and outputs that are visibly represented through SIMATIC iMap. For more information on input and output variables, see *2.5.4. SIMATIC iMap Variables* on Page 13.

2.5.3. Interconnections

In SIMATIC iMap. the interconnection is the connection between an output and an input. You can connect an output to one or more inputs. When you download the interconnections to the device, the corresponding communication links are automatically established between senders and receivers. For more information, see *4.5. Interconnecting Technological Functions* on Page 35.

2.5.4. SIMATIC iMap Variables

The SIMATIC iMap variables for the DeviceMaster UP are contained in a PROFINET CbA component. When you insert the PROFINET CbA component into a project (see *4.3. Inserting the PROFINET CbA Component into a SIMATIC iMap Project* on Page 33), you can view the SIMATIC iMap variables associated with the device through the **Plant** view in SIMATIC iMap. The DeviceMaster UP presents the SIMATIC iMap variables provided in the following SIMATIC iMap variable tables. These variables use the following semantics:

- **SEND** – refers to sending serial data
- **RECV** – refers to receiving serial data

For more information on SIMATIC iMap, see the on-line help in SIMATIC iMap.

2.5.4.1. SIMATIC iMap Variables for the 1-Port

The following table displays SIMATIC iMap variables for a DeviceMaster UP 1-port. The input and output variables in this table are described in *2.5.4.3. Input Variables* on Page 14 and *2.5.4.4. Output Variables* on Page 14.

Input	Data Type	Output	Data Type
P1_SEND_DATA	BSTR[128]	P1_RECV_DATA	BSTR[128]
P1_SEND_HSK_ID	unsigned short	P1_RECV_HSK_ID	unsigned short
P1_RECV_HSK_ACK	unsigned short	P1_SEND_HSK_ACK	unsigned short
P1_ENABLE	bool	P1_ENABLED	bool
P1_RESET	bool	P1_STATUS	unsigned long

2.5.4.2. SIMATIC iMap Variables for the 4-Port

The following table displays SIMATIC iMap variables for a DeviceMaster UP 4-port. The input and output variables in this table are described in *2.5.4.3. Input Variables* on Page 14 and *2.5.4.4. Output Variables* on Page 14.

Input	Data Type	Output	Data Type
P1_SEND_DATA	BSTR[128]	P1_RECV_DATA	BSTR[128]
P1_SEND_HSK_ID	unsigned short	P1_RECV_HSK_ID	unsigned short
P1_RECV_HSK_ACK	unsigned short	P1_SEND_HSK_ACK	unsigned short
P1_ENABLE	bool	P1_ENABLED	bool
P1_RESET	bool	P1_STATUS	unsigned long

P2_SEND_DATA	BSTR[64]	P2_RECV_DATA	BSTR[64]
P2_SEND_HSK_ID	unsigned short	P2_RECV_HSK_ID	unsigned short
P2_RECV_HSK_ACK	unsigned short	P2_SEND_HSK_ACK	unsigned short
P2_ENABLE	bool	P2_ENABLED	bool
P2_RESET	bool	P2_STATUS	unsigned long

P3_SEND_DATA	BSTR[128]	P3_RECV_DATA	BSTR[128]
P3_SEND_HSK_ID	unsigned short	P3_RECV_HSK_ID	unsigned short
P3_RECV_HSK_ACK	unsigned short	P3_SEND_HSK_ACK	unsigned short
P3_ENABLE	bool	P3_ENABLED	bool
P3_RESET	bool	P3_STATUS	unsigned long

P4_SEND_DATA	BSTR[64]	P4_RECV_DATA	BSTR[64]
P4_SEND_HSK_ID	unsigned short	P4_RECV_HSK_ID	unsigned short
P4_RECV_HSK_ACK	unsigned short	P4_SEND_HSK_ACK	unsigned short
P4_ENABLE	bool	P4_ENABLED	bool
P4_RESET	bool	P4_STATUS	unsigned long

2.5.4.3. Input Variables

The following table describes the input variables.

Name	Usage
Px_SEND_DATA	This variable contains serial data that is sent out the serial port. The PLC writes this variable.
Px_SEND_HSK_ID	This variable sends the handshake ID. The handshake ID acts as a sequence number. When incremented, it indicates to the DeviceMaster UP that the **Px_SEND_DATA** contains a new packet of serial data.
Px_RECV_HSK_ACK	This variable sends the receive handshake acknowledgement. When you enable handshaking, DeviceMaster UP acknowledges that the packet in **Px_RECV_DATA** has been consumed. When you disable handshaking, this value is zero.
Px_ENABLE	This variable opens the serial port and allows serial data to flow. When you enable the port, it also performs a port reset (flushes FIFOs, clears counters, etc.).
Px_RESET	This variable initializes the serial port, flushes FIFOs, clears counters, and resets handshaking variables.

2.5.4.4. Output Variables

The following table describes output variables.

Name	Usage
Px_RECV_DATA	This variable contains a packet of serial data that was received by the DeviceMaster UP.
Px_RECV_HSK_ID	This variable receives the handshake ID. The handshake ID acts as a sequence number. When incremented, it indicates to the DeviceMaster UP that the **Px_RECV_DATA** contains a new packet of serial data.
Px_SEND_HSK_ACK	This variable sends the handshake acknowledgement. When you enable handshaking, DeviceMaster UP acknowledges that the packet in **Px_SEND_DATA** has been consumed. When you disable handshaking, this value is zero.
Px_ENABLE	This variable indicates that the serial port is enabled (opened).
Px_STATUS	This variable indicates device status and includes the results of the last send and receive operations.

2.5.5. Programming Suggestions

When you configure the PLC program, consider the following:

- You must enable the serial port (**Px_ENABLE**) in the PLC program before data can flow. Alternately, you can tie this pin to True in SIMATIC iMap. See *4.4. Enabling the Serial Port in SIMATIC iMap* on Page 35 for instructions.
- You must initialize the DeviceMaster UP inputs for the handshake variables to zero.
- You can use reset (**Px_RESET**) in the PLC program to break out of hang or error conditions. Toggling the enable False-True will have the same effect.

2.5.6. Maximum Length for a Serial Packet

When you make SIMATIC iMap connections, you need to consider maximum length and QOS for serial packets. For more information on creating connections, see *4.6. Setting a Project's Transfer Properties* on Page 37.

2.5.6.1. DeviceMaster UP (1-Port)

If you have a DeviceMaster UP 1-port, you can configure the connections to a port for one of the following QOS options:

- Cyclical
  - Fast
  - Medium
  - Slow
- Acyclical
  - Fast
  - Medium
  - Slow

The port allows a serial packet length of 128 bytes.

The following example shows the serial packet length and optimal QOS setting for a DeviceMaster UP 1-port. Due to PROFINET CbA restrictions, the packet lengths are fixed as shown in the following table.

Port Number	Serial Packet Length	Recommended QOS
0	128	Cyclical Fast

2.5.6.2. DeviceMaster UP (4-Port)

If you have a DeviceMaster UP 4-port, you can configure the connections for two ports to use one QOS setting (for example, cyclical fast). The connections to the other two ports must be configured to another QOS setting (for example, cyclical medium).

Note: *You cannot configure the connections to all ports to the same QOS setting.*

The following example shows the serial packet length and optimal QOS setting for each port on a DeviceMaster UP 4-port. Due to PROFINET CbA restrictions, the serial packet lengths are fixed as shown in the following table.

Port Number	Serial Packet Length	Recommended QOS
0	128	Cyclical Fast
1	64	Cyclical Fast
2	128	Cyclical Medium
3	64	Cyclical Medium

For more information, see *2.2. PROFINET CbA Communication Properties* on Page 9.

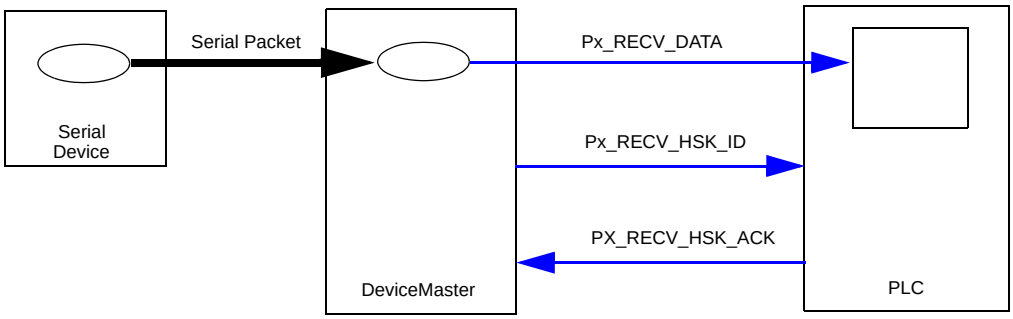
2.6. How the DeviceMaster UP Transmits Data

The following information describes how the DeviceMaster UP sends and receives data.

2.6.1. Receive Serial Packet Example

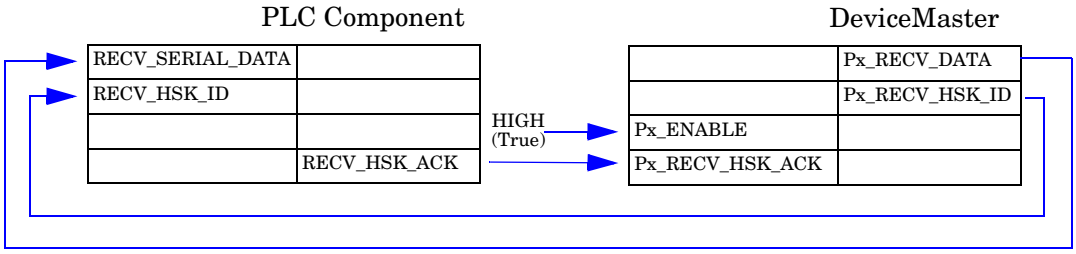
The following diagram shows how data flows when using DeviceMaster UP to receive serial data.

Receive Serial Packet



The following example shows a SIMATIC iMap connection.

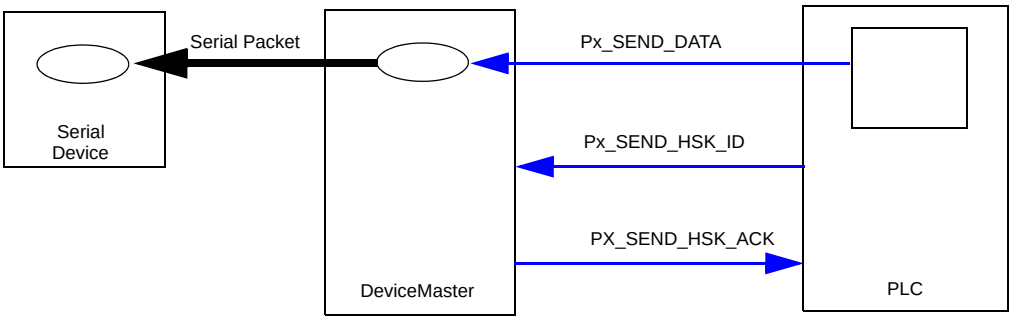
Receive Serial Packet - iMap Connections



2.6.2. Send Serial Packet Example

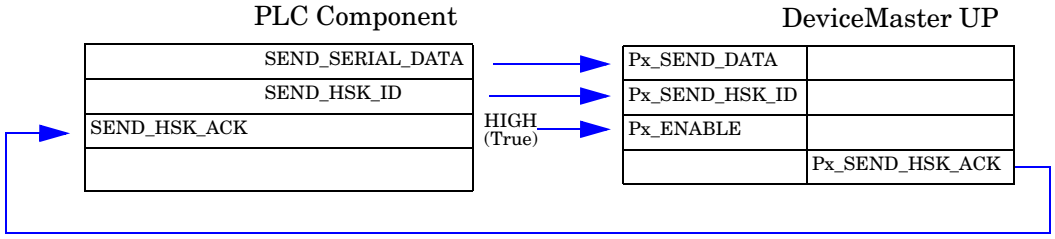
The following diagram shows how data flows when using DeviceMaster UP to send serial data.

Send Serial Packet



The following example shows a SIMATIC iMap connection.

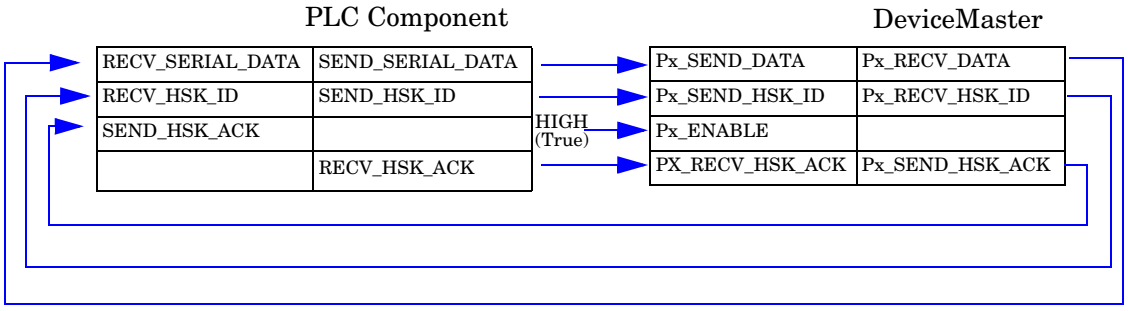
Send Serial Packet - SIMATIC iMap Connections



2.6.3. Send/Receive Serial Packet Example

You can configure full-duplex serial traffic by using both the Send and Receive connections.
The following example shows a SIMATIC iMap connection.

Send/Receive Serial Packet - SIMATIC iMap Connections



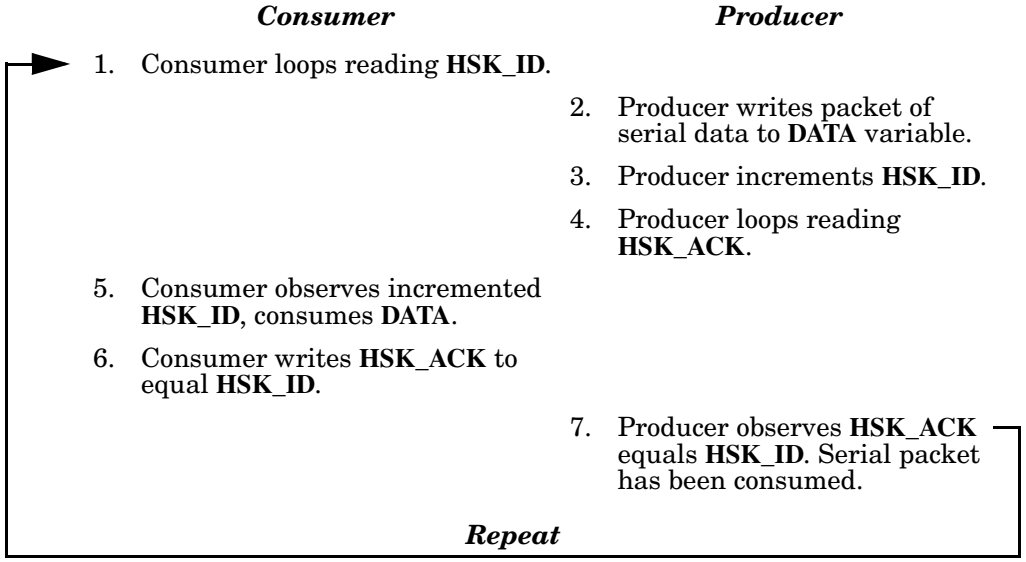
2.7. Handshaking (Optional)

Handshaking between the DeviceMaster UP and the PLC assures the producer (for example, the PLC component) that the consumer (for example, DeviceMaster UP) received the serial packet. The producer must know this before it sends another packet. This avoids possible data loss that might occur due to dissimilar polling periods or system busy conditions.

Handshaking is optional. When you disable handshaking, serial data transfer is simplified. You must ensure that the duty cycle of the serial packets is low enough to prevent data loss.

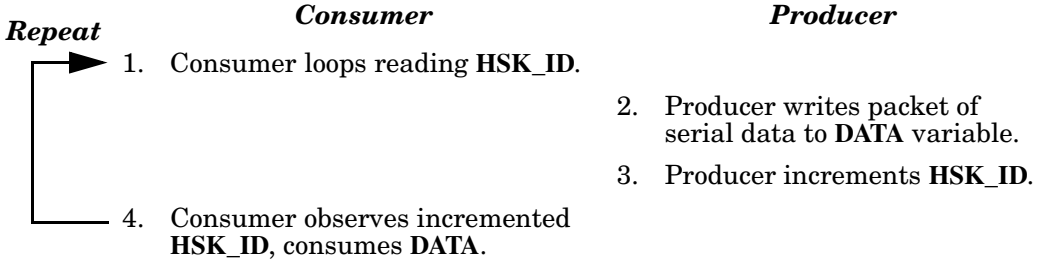
2.7.1. General Serial Transfer Procedure: Handshaking Enabled

When you enable handshaking, the handshake variables **HSK_ID** and **HSK_ACK** act as flags to the serial data producer and consumer. In the initial state, producer and consumer set the handshake variables **HSK_ID** and **HSK_ACK** to zero and behave according to the following state machine:



2.7.2. General Serial Transfer Procedure: Handshaking Disabled

When you disable handshaking, only **HSK_ID** is used as a transfer flag between producer and consumer, and producer and consumer behave according to the following state machine:



Chapter 3. Configuring the DeviceMaster UP

This section covers the following topics:

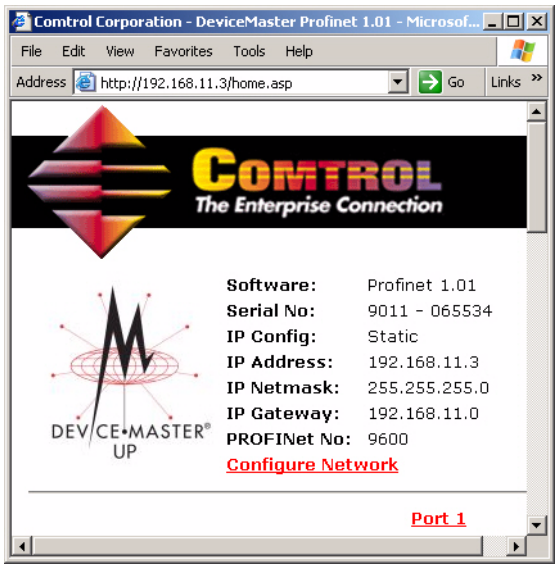
- *3.1. Accessing the Server Configuration Page*
- *3.2. Server Configuration Page* on Page 22
- *3.3. Edit Network Configuration Page* on Page 26
- *3.4. Edit Port Configuration* on Page 27

The latest PROFINET CbA firmware must be installed before you can configure network or serial port characteristics. For installation and setup information, see the *DeviceMaster UP Hardware Installation and Configuration Guide*.

3.1. Accessing the Server Configuration Page

The following is an overview of how to use PortVision Plus to access the DeviceMaster UP *Server Configuration* page and configure the serial port characteristics.

Note: *Optionally, enter the IP address of the device in the* ***Address*** *box of your web browser, and press* ***Enter*** *to access the* ***Server Configuration*** *page.*



1. From PortVision Plus, select the DeviceMaster UP that you want to configure and select **Web Manager** in the **Device** menu. The DeviceMaster UP *Server Configuration* page appears.
2. Select a port (for example, **Port 1**) to access the *Edit Port Configuration* page.
3. Change the port configuration properties as required for your site.

   Information on packet identification properties are provided in *2.3. Packet Identification* on Page 11. The port configuration properties are described in *3.4. Edit Port Configuration* on Page 27.
4. Set **DTR** to **WhenEnabled**.

   The serial port is enabled through iMap. See *4.4. Enabling the Serial Port in SIMATIC iMap* on Page 35 for additional information.
5. Click **Save** to commit your changes.
6. Repeat Steps 2 through 5 for each additional port.
7. Read *Chapter 2. Programming Interface* on Page 9 and go to *Chapter 4. Commissioning the DeviceMaster UP* on Page 31 for instructions on how to commission the DeviceMaster UP.

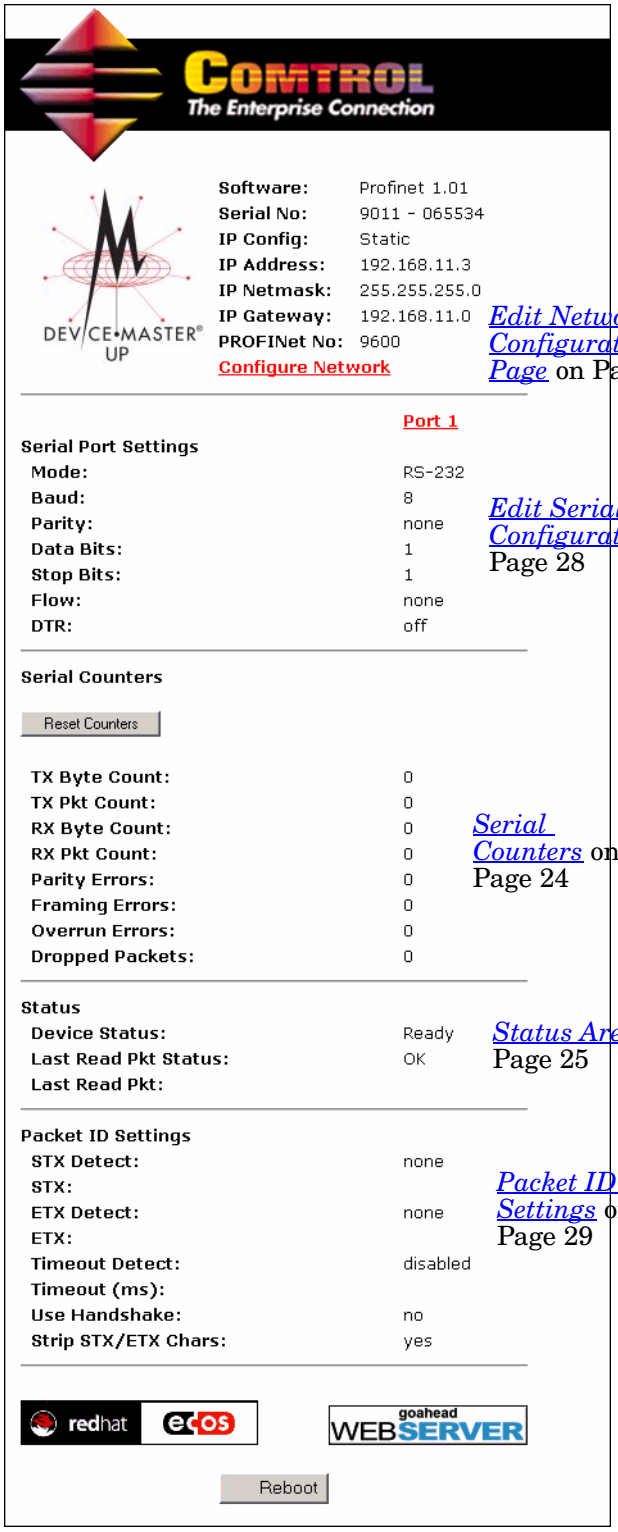
3.2. Server Configuration Page

The DeviceMaster UP *Server Configuration* page displays the current network and serial port or ports configuration for the DeviceMaster UP. In addition, it provides access to **Configure Network** and **Edit Port Configuration** pages.

If you have not configured the network information into the DeviceMaster UP during initial setup, you must use PortVision Plus to initially configure the network information into the DeviceMaster UP before configuring serial port characteristics.

Note: *See the instructions in the DeviceMaster UP Hardware Installation Guide or the PortVision Plus on-line help system if you need help configuring the network settings.*

Port configuration settings must be configured through the web page, see *3.4. Edit Port Configuration* on Page 27 and *4.8. Using PortVision Plus to Change the PROFINET CbA Number* on Page 40.



Edit Network Configuration Page on Page 26

Edit Serial Configuration on Page 28

Serial Counters on Page 24

Status Area on Page 25

Packet ID Settings on Page 29

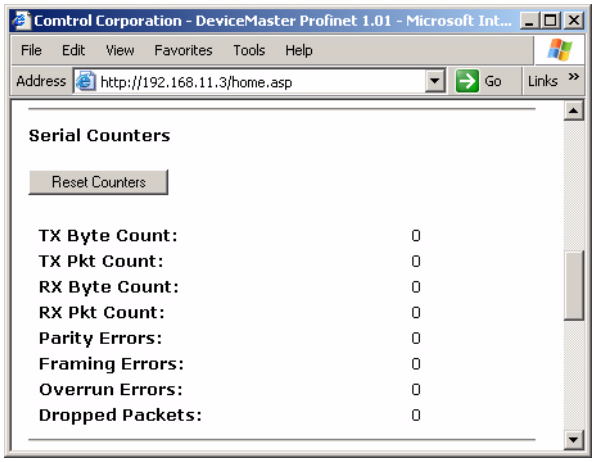
3.2.1. Main Page Fields and Areas

The *Server Configuration* area displays the following information and provides links to the **Configure Network** and **Edit Port Configuration** pages.

Server Configuration	Description of Fields and Areas
Software	Displays the PROFINET CbA version currently running on the DeviceMaster UP.
Serial No	Displays the DeviceMaster UP serial number.
IP Config	Displays the type of IP configuration currently in use (static or DHCP).
IP Address	Displays the IP address configured in the DeviceMaster UP.
IP Netmask	Displays the IP netmask configured in the DeviceMaster UP.
IP Gateway	Displays the IP gateway configured in the DeviceMaster UP.
PROFINet No	Displays the PROFINET CbA number configured in the DeviceMaster UP.
Configure Network	Opens the **Configure Network** page that you can use to change the network information after initial installation. See *3.3. Edit Network Configuration Page* on Page 26 for information about using this page.
Port #	Select the appropriate port to access the **Edit Port Configuration** page for that port. See *3.4. Edit Port Configuration* on Page 27 for information.
Serial Port Settings area	You can change the serial port settings if you select the link to the appropriate port. See *3.4.1. Edit Serial Configuration* on Page 28 for information about serial port settings.
Serial Counters area	See *3.2.2. Serial Counters* on Page 24 for information.
Status	See *3.2.3. Status Area* on Page 25 for information.
Packet ID Settings area	• **STX** displays the STX character, configurable as 0 or 1-byte. • **ETX** displays the ETX character, configurable as 0 or 1-byte or CR-LF. • **Timeout (ms)** displays the timeout value in microseconds (ms) for Packet Timeout Detect. See *3.4.2. Packet ID Settings* on Page 29 for a description of the remaining fields.
Reboot	Selecting the **Reboot** button opens a *Reboot DeviceMaster* page. Select **Yes - Reboot** to reboot the DeviceMaster UP. You may need to refresh the view within the browser. **Reset port(s) to factory settings (network setting left unchanged)**. - When selected, changes all factory settings except network settings to original default values. **Erase persistent connections**. - When selected, removes the PROFINET CbA connections on the DeviceMaster UP.

3.2.2. Serial Counters

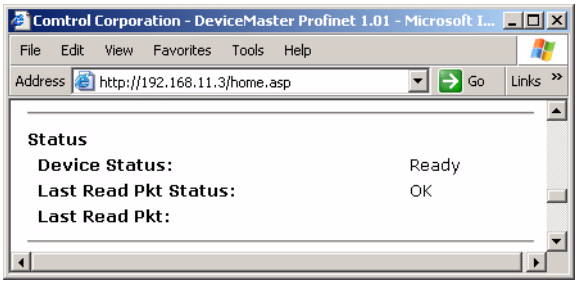
The following counters are located on the *Server Configuration* page. You can reset the serial statistics counters by setting the **Reset iMap** flag or by selecting **Reset Counters**.



Serial Counters	Field Description
Reset Counters	Clears the serial port counters, which sets the value to 0 for all ports.
TX Byte Count	Displays the number of bytes sent out of the serial port.
TX Pkt Count	Displays the number of serial packets sent out of the serial port.
RX Byte Count	Displays the number of bytes received over the serial port.
RX Pkt Count	Displays the number of packets received over the serial port.
Parity Errors	Displays the number of received serial packets dropped due to parity errors.
Framing Errors	Displays the number of received serial packets dropped due to framing errors.
Overrun Errors	Displays the number of received serial packets dropped due to overrun error incidents.
Dropped Packets	Displays the number of received serial packets dropped due to: • No STX byte(s) found • No ETX byte(s) found • UART errors • Handshaking errors

3.2.3. Status Area

The *Status* area displays the current device and serial read information.



Field	Description
Device Status	Displays the state of the unit. • **OK** - Device is ready. • **Initializing** - Device is not ready. This appears during initial power-up or reboot.
Last Read Pkt Status	Displays the status of the last packet read. • **OK** - Indicates no error. • **Framing error** - The UART detected a framing error and the packet was dropped. Check the serial word length (7-bit, 8-bit, etc.). • **Parity error** - The UART detected a parity error and the packet was dropped. Check the UART parity setting. • **Overrun error** - The UART detected an overrun condition and data was lost. Use flow control, if necessary. • **No STX** - STX was enabled in the Packet ID configuration, but serial bytes were received that did not match that character and those bytes were dropped. • **Too long** - The serial packet length exceeded the maximum length and the packet was dropped. • **Queue full** - The serial packet queue is full and the packet was dropped.
Last Read Pkt	Displays the last read packet corresponding to the **Last Read Pkt Status**.

3.3. Edit Network Configuration Page

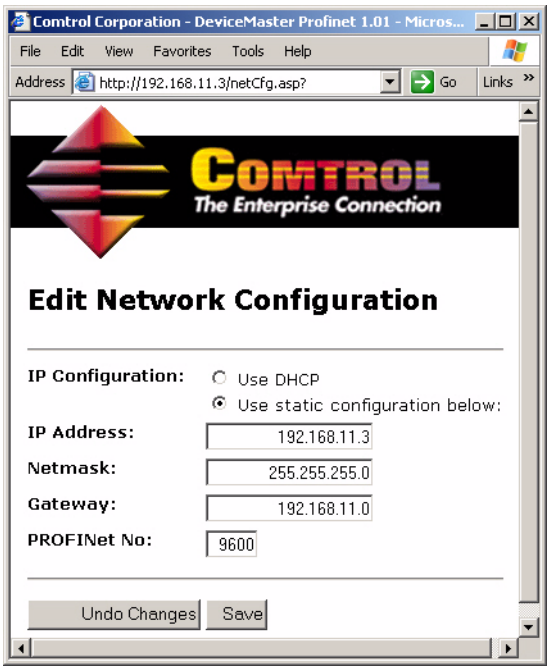
You can use the *Edit Network Configuration* page to change the DeviceMaster UP network configuration after using PortVision Plus for initial network configuration.

Use the following procedure to change the network configuration.

1. Select the IP configuration type (**DHCP** or **Static**).
2. If you select **Static**, enter a valid IP address, subnet mask, and IP gateway for your network. The network information is programmed into the DeviceMaster after applying the changes and rebooting the device. If necessary, see your network administrator for a valid IP address.

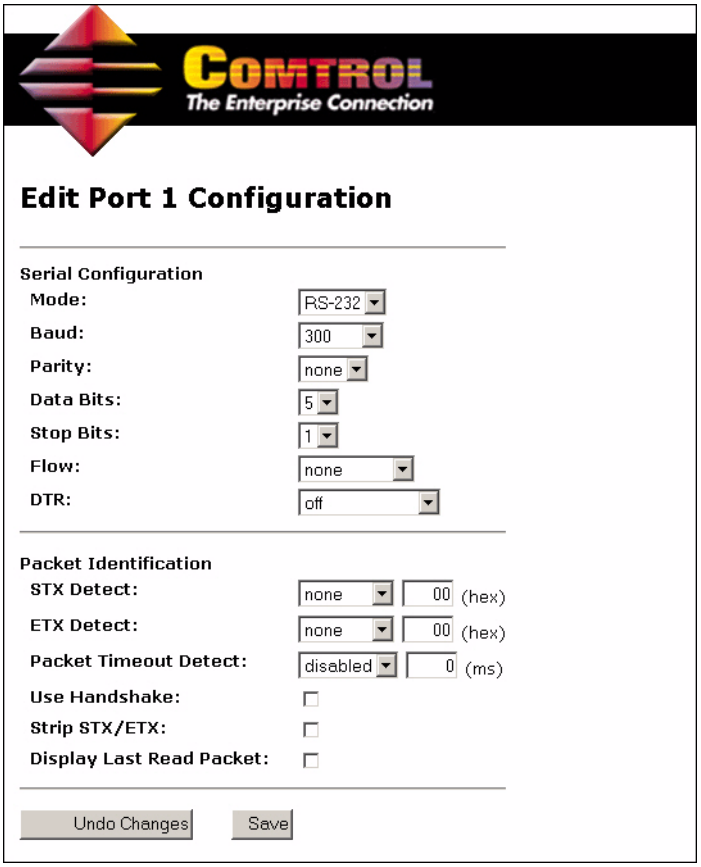
   Note: *The DeviceMaster family default IP address is 192.168.250.250, default subnet mask is 255.255.0.0, and the default IP gateway is 192.168.250.1.*
3. Enter the PROFINET CbA number for the device in the provided box. For more information, see *4.3.2. What is a PROFINET CbA Number?* on Page 33.
4. Select **Save** or **Undo Changes** to close the page.
5. If you selected **Save**, select **Reboot** to program the network information into the DeviceMaster UP or **Continue** if you want to reboot later.

Note: *Changed network settings will not take affect until the DeviceMaster UP is rebooted.*



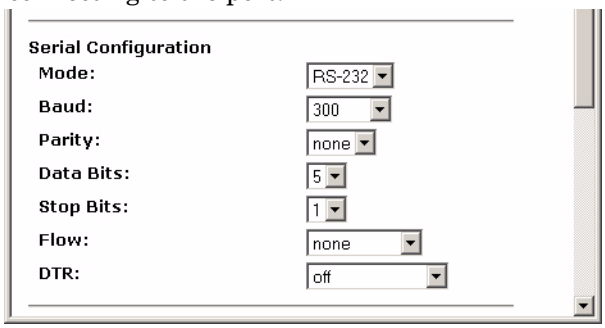
3.4. Edit Port Configuration

Use the *Edit Port Configuration* page to change a serial port parameters (for example, baud, parity, etc.) and serial port protocol settings. See the following subsections for screen details.



3.4.1. Edit Serial Configuration

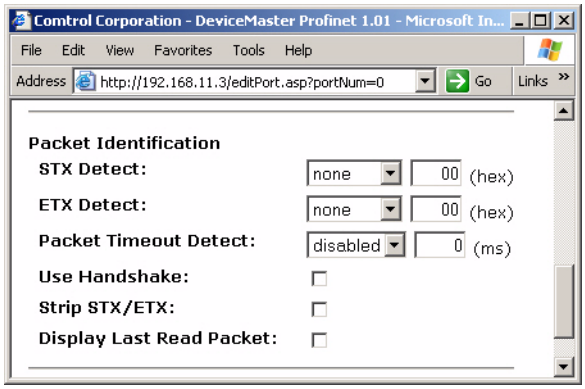
Use the *Serial Configuration* area of the *Edit Port Configuration* page to configure serial port characteristics for the device that you plan on connecting to the port.



Serial Configuration	Field Descriptions
Mode	Select the communications mode for the serial device that you are connecting to the port. The available modes are RS-232, RS-422, and RS-485.
Baud	Select a baud rate from the list. The baud rate that you select determines how fast information is transferred through a port.
Parity	Select a method for error checking. • **None** - When the parity is set to none, there is no parity bit, and DeviceMaster UP does not perform parity checking. • **Odd** - Indicates that the sum of all the 1-bits in the byte plus the parity bit must be odd. When the total is odd, the parity bit is set to zero, when it is even, the parity bit is set to one. • **Even** - When the sum of all the 1-bits is even, the parity bit must be set to zero; when it is odd, the parity bit must be set to one.
Data Bits	Select the number of bits that make up the data. Choose from 5, 6, 7 or 8-bits.
Stop Bits	Select the number of bits to mark the end of data transmission.
Flow	Specifies the ability to start and stop the flow of data without the loss of bytes. Select a method for controlling the flow of data from the following list: • **None** - Indicates flow control is not in affect. • **RTS/CTS** - Request To Send (RTS) tells the receiving device that the sending device has data that is ready to send and Clear To Send (CTS) indicates the device is ready to accept data. • **XON/XOFF** - When selected, applies the standard method of controlling data flow between two modems. • **Half Duplex** - Transmits data in half-duplex mode.
DTR	Select the state of Data Terminal Ready (DTR). • **on** - Enables DTR. • **off** - Disables DTR. • **WhenEnabled** - Select this option when enabling the serial port through.

3.4.2. Packet ID Settings

Use the *Packet ID Settings* area of the *Edit Serial Configuration* page to configure the serial packet identification (ID) settings for a serial port.



Packet Identification Settings	Field Descriptions
STX Detect	When enabled, the DeviceMaster UP looks for the STX character, which is configurable as byte 0 or 1. The default is 1 byte (0x02 hex). • **enabled** - When enabled, the DeviceMaster UP scans serial data for STX in the first byte. If STX is found, the data is collected. When ETX or Timeout is found in the first byte, the data is declared to be a packet and moved into the **bstring** output variable. If the first byte is not STX, the byte is discarded and bytes continue to be discarded until an STX is found. • **none** - When disabled, the DeviceMaster UP does not scan the data for STX.
ETX Detect	When enabled, the DeviceMaster UP looks for the ETX character, which is configurable as byte 0 or 1, or CR-LF. The default is CR-LF. • **enabled** - When enabled, the DeviceMaster UP scans the serial data for ETX. If ETX is found, the data is stored as a packet. • **none** - When disabled, the serial data is not scanned for ETX. • **CR-LF** - When CR-LF (Control line feed) is enabled, the DeviceMaster UP scans for CR-LF.
Packet Timeout Detect	When enabled it specifies the interpacket timeout in microseconds (ms). The default is disabled. • **enabled** - When enabled and the time between characters exceeds the Timeout (ms) value, that data is stored as a packet. • **disabled** - When disable, the data is not scanned for Timeout.
Use Handshake	When checked, it enables handshaking. The default is enabled.
Strip STX/ETX	This check box is clear by default. When you select this check box, the DeviceMaster UP strips STX/ETX characters from received serial packets. Clear the check box when you do not want the DeviceMaster UP to strip STX/ETX characters from received serial packets. ***Note:*** *Serial Packets sent from the PLC to the DeviceMaster UP (over Ethernet®), and then sent out the serial port, are not checked for STX/ETX. No STX/ETX character stripping occurs in these serial packets, and framing/parity/overrun error checking does not apply.*
Display Last Read Packet	When checked this enables the **Display Last Read Packet**. The default is disabled.

3.4.3. Saving Port Options

After configuring the serial and protocol characteristics for this port, scroll to the bottom of the *Edit Port Configuration* page to save the configuration.

Option	Description
Undo Changes	Restores modified port settings to current values.
Save	Saves changes to port settings.

3.5. Configuration Updated

This page appears when there are changes to the IP address or PROFINET CbA and indicates a reboot is required for changes to take affect.

- **Continue** - Returns to the *Server Configuration* page without rebooting the DeviceMaster UP.
- **Reboot** - Restarts the DeviceMaster UP with the latest changes.

Chapter 4. Commissioning the DeviceMaster UP

4.1. Overview

This section describes how to commission a DeviceMaster UP and covers the following topics:

- *4.2. Importing the PROFINET CbA Component into a SIMATIC iMap Library* on Page 32
- *4.3. Inserting the PROFINET CbA Component into a SIMATIC iMap Project* on Page 33
- *4.4. Enabling the Serial Port in SIMATIC iMap* on Page 35
- *4.5. Interconnecting Technological Functions* on Page 35
- *4.6. Setting a Project's Transfer Properties* on Page 37
- *4.7. Assigning Addresses* on Page 39
- *4.8. Using PortVision Plus to Change the PROFINET CbA Number* on Page 40
- *4.9. Downloading Interconnections from SIMATIC iMap* on Page 41
- *4.10. Documenting and Printing a Project* on Page 41
- *4.11. Changing the IP Address* on Page 42

You may want to read Chapter 2. Programming Interface on Page 11 before performing any of the procedures in this section.

You must meet the following requirements:

- SIMATIC iMap must be installed on your computer.

  Note: *If your computer is running Windows 2000 Professional or Windows XP Professional, go to the Siemens web site and review the notes on the operation of SIMATIC iMap under Windows 2000 and Windows XP. If you have Microsoft Security Update 828741 installed on Windows 2000 Professional or Service Pack 2 installed on Windows XP Professional, you will need to make additional changes to your operating system to download the PROFINET CbA component on the DeviceMaster UP through SIMATIC iMap.*

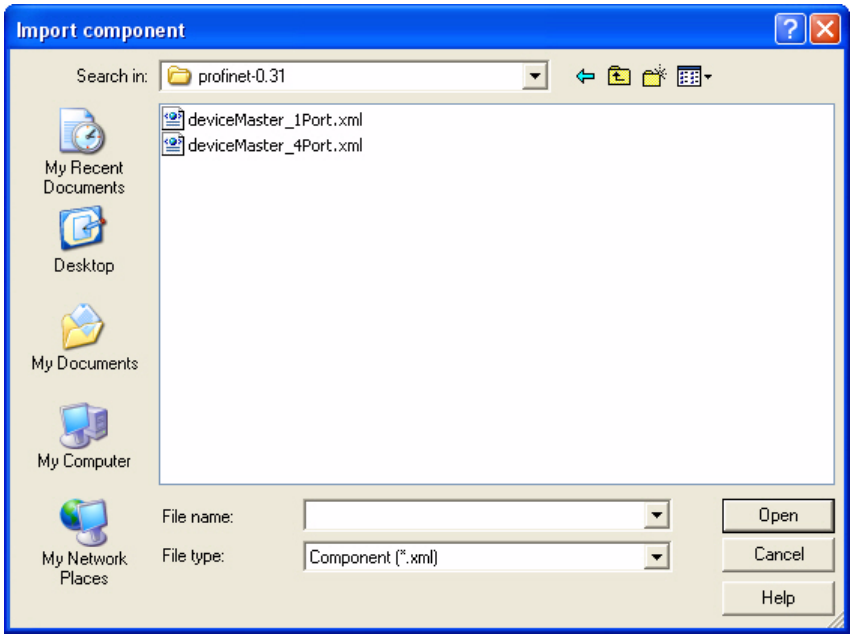
- The DeviceMaster UP must be connected to the same network segment as the PLC.
- A PROFINET CbA component (**.xml**) file and the icon (**.ico**) file provided in the self-installing (**.MSI**) file. These files are copied to the **Comtrol/PROFINET_CbA** folder on your computer when you open the **.MSI** file and follow the prompts.

4.2. Importing the PROFINET CbA Component into a SIMATIC iMap Library

This procedure describes how to import a PROFINET CbA component (**.xml** file) for the DeviceMaster UP into the SIMATIC iMap library. See the on-line help system in the SIMATIC iMap for additional information.

1. Start SIMATIC iMap. Select **Start > Programs > Component based Automation > SIMATIC iMap** or double-click the **iMap** icon on the desktop.
2. Select the appropriate step:
   - If necessary, select **Project > New** to create a new project. The new project opens when you create a new project.
   - If a project already exists, select **Project > Open** and click the library in which you want to import the PROFINET CbA component. The filename must have a **.cpb** extension. When the library name appears in the **File name** box click **Open**.

   Note: *The file name drop-down list contains the most recently opened SIMATIC iMap projects.*
3. Select the **Project Library** window and select **Library > Import components** from the menu and browse to location of your **.xml** files. For information on locating the **.xml** files for the DeviceMaster UP, see *4.1. Overview* on Page 31.
4. Under **Search in**, select the path to the PROFINET CbA components.
5. Select the appropriate XML file (**deviceMaster_1Port.xml** or **deviceMaster_4Port.xml**) and click **Open** to import the selected PROFINET CbA component. The following example shows a **deviceMaster_1Port.xml** file.



When finished, the selected PROFINET CbA component appears in the **Project Library** window as an icon and can now be used in the project.

4.3. Inserting the PROFINET CbA Component into a SIMATIC iMap Project

This procedure describes how to insert a PROFINET CbA component into a project. SIMATIC iMap may provide alternate ways to perform the task described here, see the on-line help system in the SIMATIC iMap for additional information.

The PROFINET CbA components that you want to insert into your project must be contained in a library in SIMATIC iMap. See *4.2. Importing the PROFINET CbA Component into a SIMATIC iMap Library*, earlier in this chapter, for complete instructions.

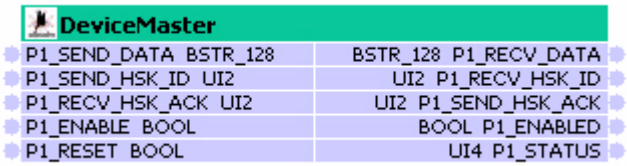
The following subsections provide this information:

- *4.3.1. What is a Technological Function?*
- *4.3.2. What is a PROFINET CbA Number?* on Page 33
- *4.3.3. Procedure* on Page 34

4.3.1. What is a Technological Function?

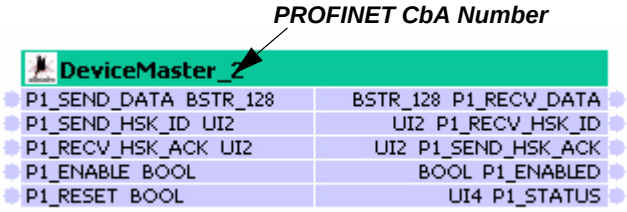
In Component based Automation, the technological function of a PROFINET CbA component comprises the application-specific functionality of a programmable controller or field device and the component interface for communication with other PROFINET CbA components.

SIMATIC iMap displays the technological function as a block with inputs and outputs in the SIMATIC iMap plant view. The following example shows the technological function for a DeviceMaster UP 1-port.



4.3.2. What is a PROFINET CbA Number?

SIMATIC iMap assigns a PROFINET CbA number (**PROFINET No**) technological function when you insert a PROFINET CbA component into a project. The technological function in the example above has a **PROFINET No** of 0 because it was the first PROFINET CbA component for a DeviceMaster UP inserted into the project. When you insert additional instances of a PROFINET CbA component for DeviceMaster UP into a project, the name of the technological function is increment by one. (For example, SIMATIC iMap assigns the DeviceMaster to PROFINET CbA number 0, DeviceMaster_1 to PROFINET CbA number 1, etc.) The DeviceMaster in the following example is assigned to PROFINET CbA number 2.



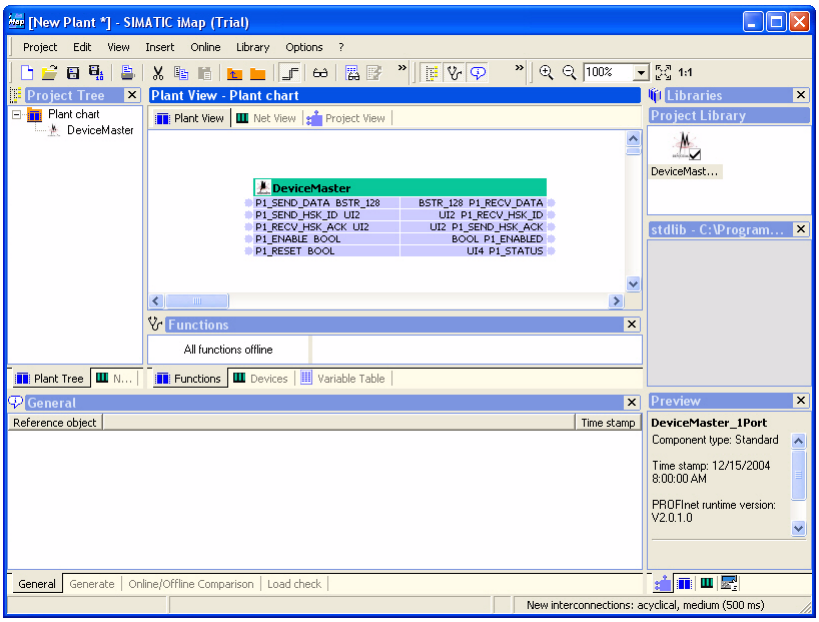
Record the PROFINET CbA number, its associated IP address and subnet mask for each PROFINET CbA component you insert into a project. You will need the PROFINET CbA number when you change the network settings through the web page for each DeviceMaster UP. For more information, see *4.8. Using PortVision Plus to Change the PROFINET CbA Number* on Page 40.

4.3.3. Procedure

1. In the library window, select the PROFINET CbA component and use drag-and-drop to move it to the project net view.

   Note: *You can insert multiple copies of a PROFINET CbA component into a project. Each time you drag-and-drop the PROFINET CbA component into a project SIMATIC iMap creates an instance of the PROFINET CbA component in the project. iMAP assigns additional properties to each instance (for example, a name and address).*

   The association between all the instances and the original PROFINET CbA component is indicated by their identical identification (ID) and version number.



2. Record the PROFINET CbA number for each PROFINET CbA component that you insert into a project. (See *4.3.2. What is a PROFINET CbA Number?* on Page 33, for a description of the PROFINET CbA number.)

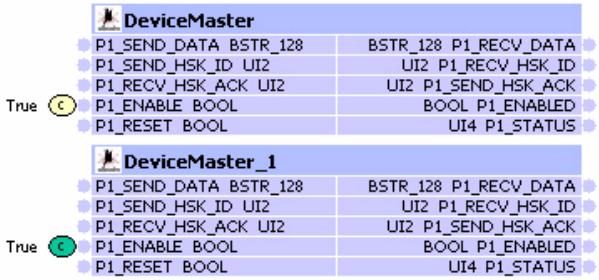
4.4. Enabling the Serial Port in SIMATIC iMap

The PLC program must enable the serial port (**Px_ENABLE**) before data will flow. To enable the serial port the pin must be tied to **True**. You can enable the serial port in SIMATIC iMap.

Note: *You must set the DTR (Data Terminal Ready) option in the web page for the DeviceMaster UP to* ***WhenEnabled****.*

1. Select **Px_ENABLE** so that the mouse pointer with the interconnection icon appears.
2. Right-click and select **Interconnect Constants** from the context menu.
3. Select **True** from the **Constant value** drop down box.
4. Click **OK** or **Apply** to save your changes. The input is identified by a constant icon, and the value of the constant is displayed at the input.

In this procedure, **True** appears by an enabled serial port.



4.5. Interconnecting Technological Functions

The following subsections describe:

- *4.5.1. What are Interconnections?*
- *4.5.2. Rules for Interconnection* on Page 36
- *4.5.3. Requirements* on Page 36
- *4.5.4. Procedure* on Page 36

Make sure that you have read *2.6. How the DeviceMaster UP Transmits Data* on Page 16 before reading the following subsections.

4.5.1. What are Interconnections?

An *interconnection* is represented by a line that connects the input of a technological function to the output of a second technological function.

When you delete a technological function, all the associated interconnections are deleted.

When you move a technological function, the course of the associated interconnections is also changed.

If the course of a line cannot be calculated due to lack of space, then only the two ends of the interconnection are displayed. These are known as *continuation connectors*.

The color of the line changes when you select an interconnection. You can delete a selected interconnection or view and modify its properties.

4.5.2. Rules for Interconnection

The following provides the rules for interconnection:

- An interconnection can only be set up between an output and an input. You can interconnect an output with several inputs, but you can only interconnect an input with one output.
- The two connectors of an interconnection must be of the same data type (for example, both of type **UI2** or type **BOOL**)
- Connectors with composite data types must be of the same type (that is, arrays and structures must have the same structure).

4.5.3. Requirements

The PROFINET CbA components containing the technological functions must already be inserted into the project. For more information, see *4.3. Inserting the PROFINET CbA Component into a SIMATIC iMap Project* on Page 33.

4.5.4. Procedure

If you change the settings of objects (for example, interconnections) in SIMATIC iMap, they do not take immediate effect on the plant. These changes will not become active until you download the interconnections to the DeviceMaster UP. For more information, see *4.9. Downloading Interconnections from SIMATIC iMap* on Page 41.

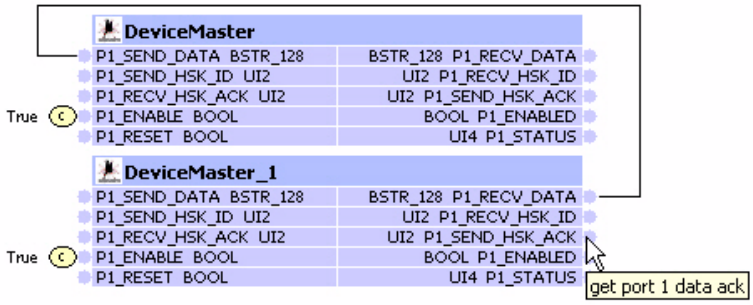
The following task describes how to create an interconnections between technological functions.

1. Open the **Plant View**.
2. If desired, select **View > Plant view > Display Interconnection Lines** to show or hide the interconnection lines.
3. Click a connector. The connector changes color, and the shape of the cursor also changes.

   Note: *If you want to connect several inputs to one output, hold down the **CTRL** key and select the required inputs.*
4. Select one of the following options:
   - Hold down the left mouse button and drag to the second connector.
   - Click the second connector of the interconnection.

     If you selected several inputs using the **CTRL** key, release the **CTRL** key and select the required output.

In this procedure, compatible connectors are always highlighted in color.



4.6. Setting a Project's Transfer Properties

The following subsections describe how to set a project's transfer properties. For more information, see *2.2. PROFINET CbA Communication Properties* on Page 9.

4.6.1. Defining Transfer Properties for the Interconnections of an Entire Project

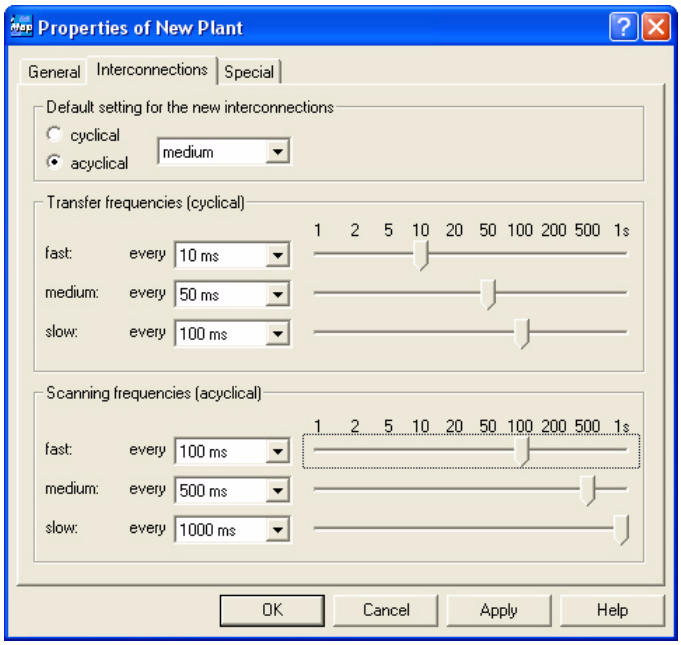
This procedure defines the default settings that will be applied to all new interconnections.

1. Select **Project > Properties**.
2. Click the **Interconnections** tab.
3. Select the appropriate settings in the **Default setting for the new interconnections** box.
   Note: *These settings will apply to all subsequently created interconnections.*
4. Select the appropriate settings in the **Transfer frequencies (cyclical)** box.
5. Select the appropriate settings in the **Scanning frequencies (acyclical)** box.
   Note: *You must set the fast value for Scanning frequencies (acyclical) to 100 ms.*
6. Click **OK** or **Accept** to confirm and save your changes.

The settings in Steps 4 through 5 apply to all the interconnections in the project with the corresponding transfer mode and frequency level. These values are retained in SIMATIC iMap until they are changed again.

You can change the transfer properties of individual interconnections through the interconnection properties.

Note: *The transfer properties of a highlighted interconnection are also displayed as a tooltip.*

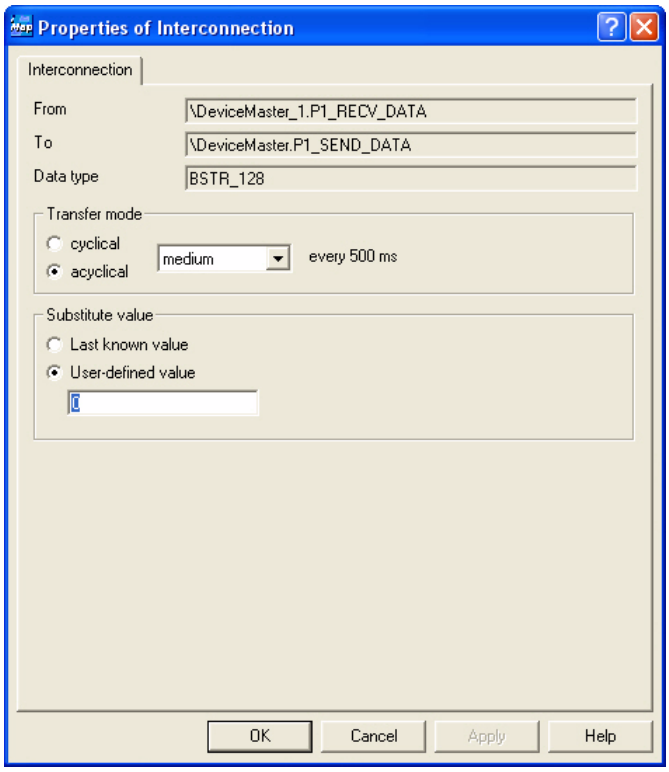


4.6.2. Changing the Transfer Properties of an Interconnection

This procedure defines the transfer properties for an individual interconnection.

You may want to review *2.5.6. Maximum Length for a Serial Packet* on Page 15 before selecting the transfer mode (QOS) for an interconnection.

1. Select the interconnection in the **Plant View** and select **Edit > Properties**.
2. In the **Properties of Interconnection** dialog box select the appropriate values for **Transfer mode**.
3. Repeat Steps 1 through 2 for each additional interconnection that you want to change.
4. Click **OK** or **Accept** to confirm and save your changes.



4.7. Assigning Addresses

The following procedure describes how to assign the IP address to the device.

These are the requirements for assigning addresses:

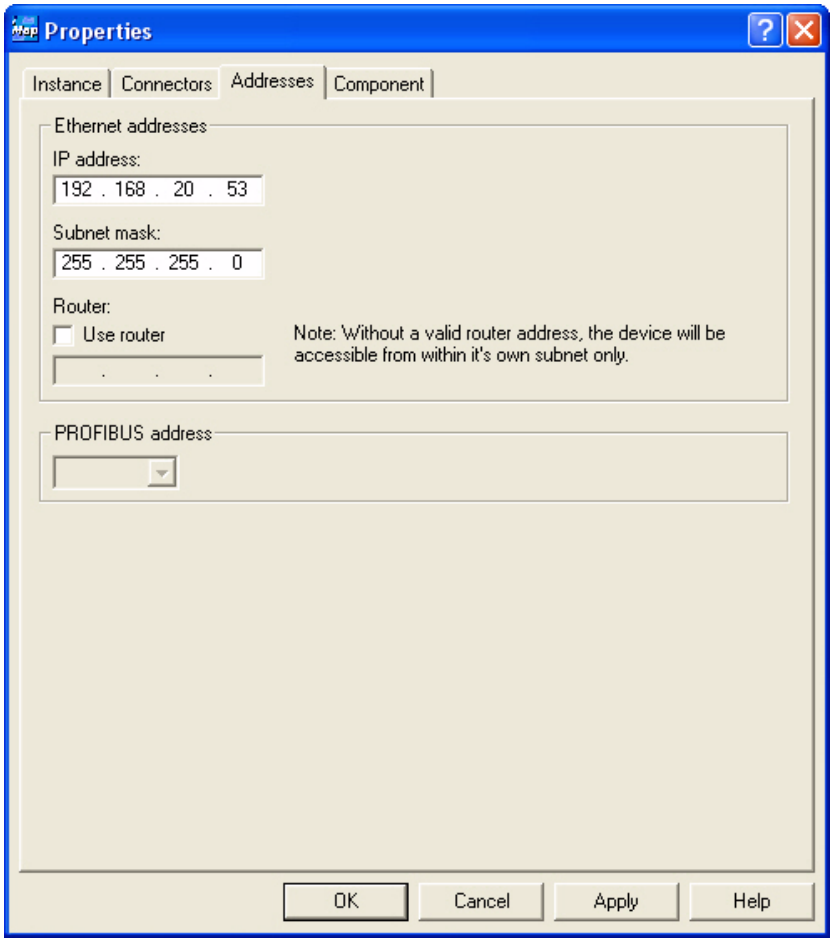
- The PROFINET CbA components have been inserted into the project. See *4.3. Inserting the PROFINET CbA Component into a SIMATIC iMap Project*.
- The IP address and subnet mask for the devices are known and assigned. See the *DeviceMaster UP Hardware Installation Guide* for procedures.

4.7.1. Procedure

1. If necessary, select the device in the *Net View* screen.
2. Select **Edit > Properties....**
3. Click the **Addresses** tab and enter the IP address and subnet mask for the device.

   Note: *This IP address must match the IP address and subnet mask for the target device. For more information on assigning the IP address to a device, see the DeviceMaster UP Hardware Installation Guide.*

4. Click **OK** to save your changes.



4.8. Using PortVision Plus to Change the PROFINET CbA Number

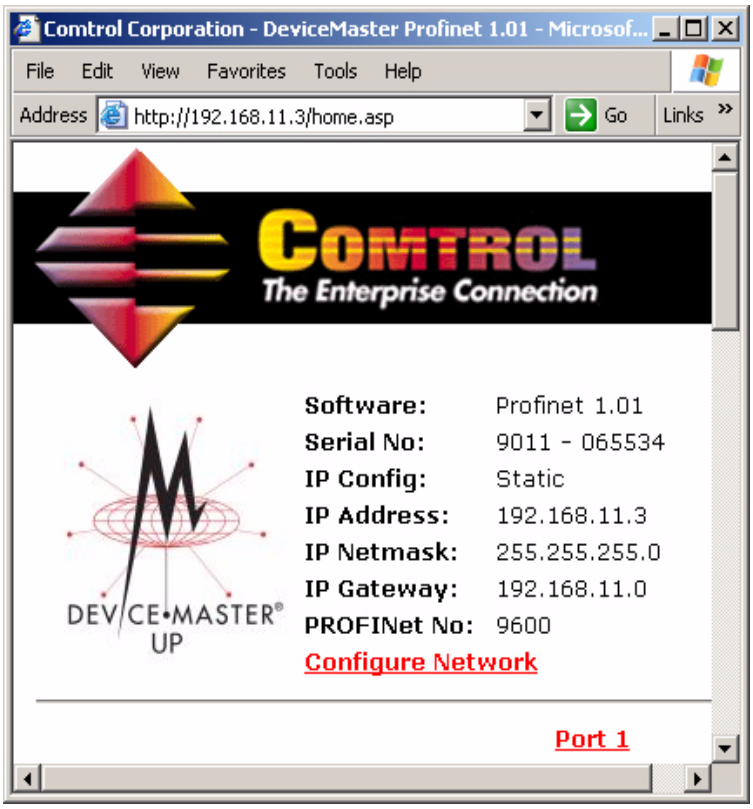
The following procedure requires the PROFINET CbA number. For more information, see *4.3.2. What is a PROFINET CbA Number?* on Page 33.

4.8.1. Procedure

Use the following procedure to change the PROFINET CbA number assigned to the DeviceMaster UP on the web page.

1. Double-click the PortVision Plus icon or select **Start > Programs > Comtrol > PortVision Plus** to start PortVision Plus.
2. Select the DeviceMaster UP for which you want to program network information and click **Web Manager**. The *Server Configuration* page for the selected device appears.

   Alternatively, you can enter the IP address for the device in the **Address** box of your web browser and press **ENTER** to access the web page for the device.
3. Click **Configure Network**. The *Edit Network Configuration* page appears.
4. Enter the PROFINET CbA number assigned to the device in SIMATIC iMap in the **PROFINET No** box. (For more information, see *4.3.2. What is a PROFINET CbA Number?* on Page 33.)
5. Click **Save**. The **Configuration Updated** message appears.
6. Click **Reboot**. When the reboot completes, the *Server Configuration* page appears.
7. Repeat Steps 2 through 6 for each device on which you want to change the PROFINET CbA number.



4.9. Downloading Interconnections from SIMATIC iMap

This procedure describes how to download interconnections to DeviceMaster UP units in your project.

Note: *If you created an interconnection to a device that represents a PLC program, you may need to generate the PLC component and that requires Step 7 installed on your computer. See the SIMATIC iMap documentation for additional information before you download the interconnections.*

1. From SIMATIC iMap, select **Online** > **Download all instances** > **Interconnections only**. A caution dialog box appears.
2. Click **Yes** to continue.

4.10. Documenting and Printing a Project

Comtrol recommends keeping a written record of your project for future reference to record project changes. The following subsections describe what you can include in the project documentation and how to create the project documentation.

4.10.1. Contents of Project Documentation

You can create documentation containing the following information for a SIMATIC iMap project:

- General project data such as name, path and creation date
- All the technological functions and subordinate charts of the plant chart and their interconnections
- All the PROFINET CbA devices of the network chart
- The PROFINET CbA components used as library elements and their instances (devices and functions) in the project
- Optional - descriptions of the interconnectable and non-interconnectable connectors of the component interfaces
- Optional - graphical representations of all charts (Network chart, plant chart and optional subordinate charts)

4.10.2. Procedure

Use this procedure to document and print a project.

1. Select **Project > Documentation**.
2. In the **Create project documentation** dialog box, select the information options for the information that you want to transfer to the documentation.
3. If necessary, click **Modify** and change the path under which the project documentation is stored.
4. Click **OK** to save your changes and create the project documentation. For more options on setting up and viewing the documentation, see the on-line help system in SIMATIC iMap.

4.11. Changing the IP Address

If you have one installed DeviceMaster UP, with no connections to other devices, you can change the IP address at any time. If you have a DeviceMaster UP installed with bi-directional connections to another device and you want to change the IP address for one of these devices, you have to delete persistence connections stored in the DeviceMaster UP.

The following subsections walk you through all the steps for changing an IP address on one or more DeviceMaster UP units.

- *4.11.1. Erasing Persistent Connections*
- *4.11.2. Changing the IP Address*
- *4.11.3. Changing the IP Address in SIMATIC iMap*
- *4.11.4. Downloading Interconnections*

4.11.1. Erasing Persistent Connections

This procedure describes how to erase the persistent PROFINET CbA connections.

1. From PortVision Plus, select the DeviceMaster UP for which you want to reset the ports and click **Web Manager**. The *Server Configuration* page for the selected device appears.

   Alternatively, you can enter the IP address for the device in the **Address** box of your web browser and press **ENTER** to access the web page for the device.

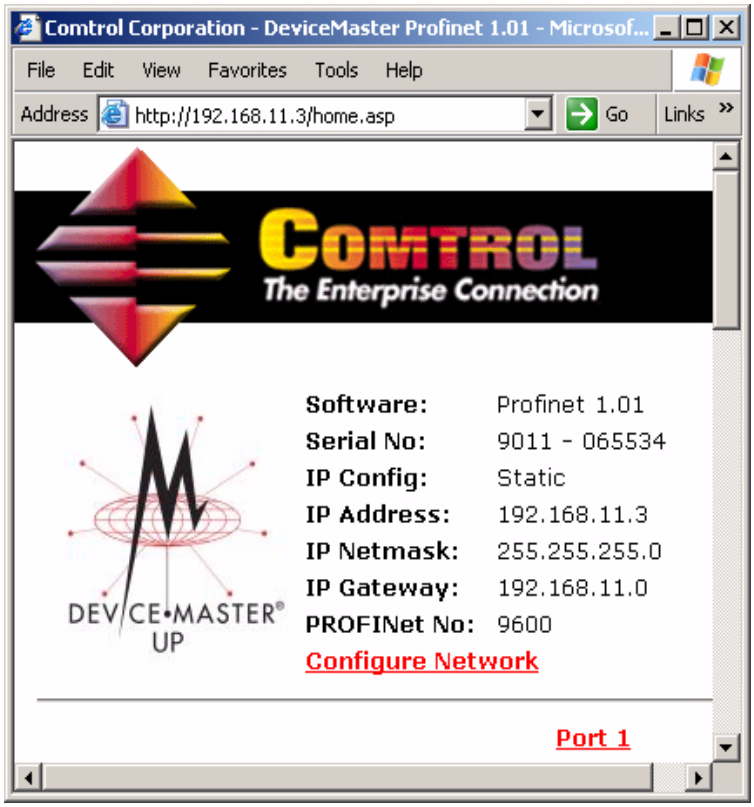
2. Scroll down to the bottom of the page and click **Reboot**. The *Reboot DeviceMaster* page appears.

3. Select **Erase persistent connections**.

   Note: *Only select **Reset port(s) to factory settings** if you also intend to restore the original factory settings for the ports. If you select this option, you also need to note the PROFINET CbA number for this device. You will need it in* *4.11.2. Changing the IP Address on Page 43.*

4. Click **Yes: Reboot**. When the reboot completes, the *Server Configuration* page appears.

5. Verify that the network connection for the DeviceMaster UP is functioning properly.



   - When lit, the amber **Status** LED on the device indicates the device is fully powered and has completed the boot cycle.

     Note: *The **Status** LED flashes for approximately 15 seconds while booting. When the bootloader completes the cycle, the LED has a solid, steady light.*

   - When lit, the red **Link/Act** LED indicates a working Ethernet connection.
   - When lit, the red **Duplex** LED indicates full-duplex activity.
   - When lit, the red **100** LED indicates a working 100 MB Ethernet connection (100 MB network, only).

- The **Status** column in PortVision Plus displays **ON-LINE**.

6. Repeat Steps 1 through 4 for each device that you intend to change the IP address for and all devices that are interconnected the changed devices.

4.11.2. Changing the IP Address

This procedure describes how to change or initially configure the IP address for a DeviceMaster UP.

1. From the *Server Configuration* page, click **Configure Network**. The *Edit Network Configuration* page appears.
2. Change the IP address information as required for your site.

   Note: *You also have to restore the original PROFINET CbA number in the **PROFInet No** box if you selected **Reset port(s) to factory setting** in the previous procedure.*
3. Click **Save**. The *Configuration Updated* message appears.
4. Click **Reboot**.
5. Verify that the network connection for the DeviceMaster UP is functioning properly.
   - When lit, the amber **Status** LED on the device indicates the device is fully powered and has completed the boot cycle.

     Note: *The **Status** LED flashes for approximately 15 seconds while booting. When the bootloader completes the cycle, the LED has a solid, steady light.*
   - When lit, the red **Link/Act** LED indicates a working Ethernet connection.
   - When lit, the red **Duplex** LED indicates full-duplex activity.
   - When lit, the red **100** LED indicates a working 100 MB Ethernet connection (100 MB network, only).
6. Verify that the change is successful by one of the following methods:
   - Type the new IP address for the device in your browser's **Address** box.
   - Open PortVision Plus and click **Scan Network**. Verify that the new IP address for the device appears in the list.
7. Repeat Steps 1 through 6 for each device for which you want to change the IP address and/or PROFINET CbA number.

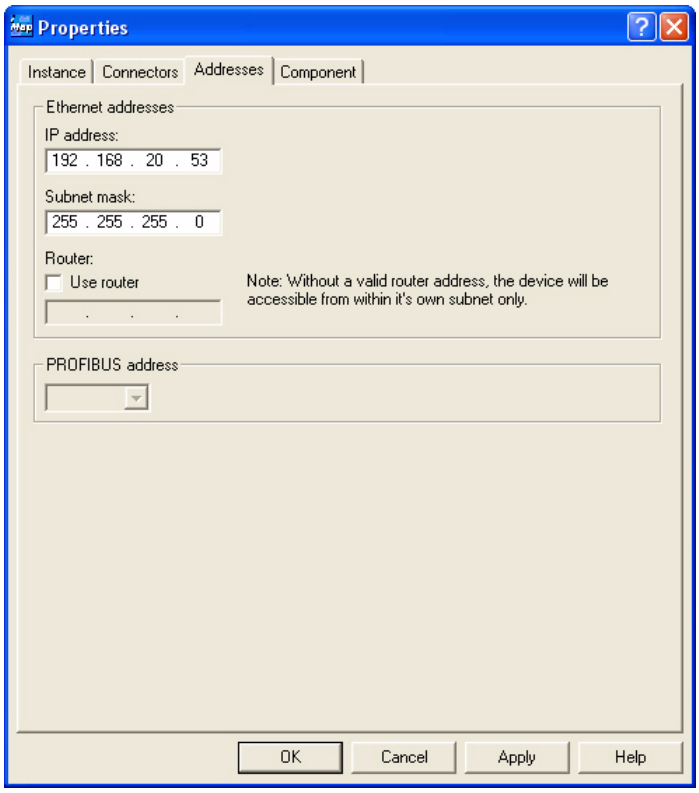
4.11.3. Changing the IP Address in SIMATIC iMap

You can change the IP address for a DeviceMaster UP in SIMATIC iMap after initial configuration. Use PortVision Plus to initially configure the IP address (above).

1. Start SIMATIC iMap. Select **Start > Programs > Component based Automation > SIMATIC iMap** or double-click the **iMap** icon on the desktop.
2. Select **Project > Open** and click the library in which you want to import the PROFINET CbA component. The filename must have a **.cpb** extension. When the library name appears in the **File** name box click **Open**.

   Note: *The file name drop-down list contains the most recently opened SIMATIC iMap projects.*
3. If necessary, select the device in the *Net View* screen.
4. Select **Edit > Properties...**.

5. Click the **Addresses** tab and enter the IP address and subnet mask for the device.



Note: *This IP address must match the IP address and subnet mask for the target device. For more information on changing the IP address for a device, see* *4.11.2. Changing the IP Address on Page 43.*

6. Click **OK** to save your changes.

4.11.4. Downloading Interconnections

This procedure describes how do download interconnections to DeviceMaster UP devices in your project.

Note: *If you created an interconnection to a device that represents a PLC program, you may need to generate the PLC component and that requires Step 7 installed on your computer. See the SIMATIC iMap documentation for additional information before you download the interconnections.*

1. Select **Online > Download all instances > Interconnections only**. A caution dialog box appears.
2. Click **Yes** to continue.

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