SerialGate

User Guide

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Revision History

Revision Date	Document Version	Pages	Description
Apr. 13. 2009	1.0a	All	Initial release by yhlee
Aug. 03. 2009	1.0b	All	Added SerialGate-1040/80
Jul. 21. 2010	1.0c	All	Added SerialGate-1160
Oct. 05. 2010	1.0d	9	Upgrade CPU Clock (SG-1040/1080/1160)
May. 16. 2011	1.0e	All	Added SerialGate-1010/ALL
Jul. 14. 2011	1.0f	All	Added Modbus ASCII Mode
Dec. 12. 2011	1.0g	All	Added SerialGate-1020(w)/ALL Added SerialGate-1010w/ALL

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Contents

Ch. 1 Introduction

This chapter is an introduction to SystemBase device server SerialGate series.

About this document

This guide is designed for users of SerialGate, for setting SerialGate's configurations, status monitoring, firmware update, and other administration work.

Who should read this document?

This guide is designed for SerialGate users and administrators. It is strongly recommended that anyone trying to apply, use, and maintain SerialGate read this document. This guide deals with the hardware-level integration issues and software-level configuration tips. It will be a great starting point for any administrators who want to easily monitor and control SerialGate and its connected devices.

Manual Contents

Introduction (Chapter 1) is a preface with general information and introductory notices.

Getting Started (Chapter 2) gives a brief introduction of SerialGate series, including features and applications.

Hardware Descriptions (Chapter 3) explains the layout and pin specifications with block diagram and drawings.

Installation (Chapter 4) helps you to connect SerialGate to serial and network environment. It ends up with first time boot-up and status check.

Configuration via Web (Chapter 5) provides menu-by-menu guide for setting up the operation environment for SerialGate via web browser.

Configuration via Telnet (Chapter 6) provides a list of commands for setting up the operation environment for SerialGate via Telnet.

Configuration via LCD (Chapter 7) explains how to monitor status and working environment of device server.

Application (Chapter 8) provides a variety of application examples widely used in industries.

Appendix (Chapter 9) provides firmware update guides and technical specifications for detailed information.

SerialGate Documents

The following table summarizes documents included in the SerialGate document set.

Document Name	Description
User Guide	Integration, configuration, and management tasks are explained for the administrator
Portview User Manual	Guide for SystemBase device server management application Portview
COM Port Redirector User Manual	Guide for SystemBase COM Port Redirector
TestView User Manual	User Manual for testing Com port Redirector , TCP Server/Client , UDP Server/Client

If you need brief information on SerialGate or device servers in general, please visit our company website at http://www.sysbas.com/. You can view and/or download documents related to SerialGate as well as latest software and firmware updates. Available resources are as follows:

Document Name	Description
SerialGate Spec Sheet	Specifications for SerialGate products
SerialGate White Paper	An easy reading for anyone new to device server. Deals with background and technology Past, present, and future of device servers along with the overview of market environment

All documents are updated promptly, so check for the recent document update. The contents in these documents are subject to change without any notice in advance.

Technical Support

There are three ways you can get a technical support from SystemBase.

First, visit our website http://www.sysbas.com/ and go to 'Technical Support' menu. There you can read FAQ and ask your own question as well.

Second, you can e-mail our technical support team. The mail address is tech@sysbas.com. Any kind of inquiries, requests, and comments are welcome.

Lastly, you can call us at the customer center for immediate support. Our technical support team will kindly help you get over with the problem. The number to call is 82-2-855-0501 (Extension number 113). Do not forget to dial the extension number after getting a welcome message.

Ch.2 Getting Started

This chapter includes SerialGate overview, main and distinctive features, package contents for each product, and application fields.

Overview

SerialGate provides network connectivity to various serial devices (security devices, communication peripherals, modems, data printing devices, industrial metering devices, etc.). SerialGate supports RS232, RS422, and RS485 serial communication standards under various communication speed, meanwhile auto-sensing 100baseTX Fast Ethernet and 10baseT Ethernet connection.

Features

Various features of SerialGate make it a universal yet distinctive device server solution. Here we present main features of SerialGate. Others will explicitly appear throughout this guide.

- Max 921.6Kbps serial speed
- RS-232, Combo(RS-422/RS-485) or All version (RS232/422/485)
- 10/100Mbps Ethernet port
- COM Port Redirector for better adaptability
- Extensive configuration and monitoring with Portview
- Firmware update via Web and FTP
- Configuration using Web, Telnet, SNMP, and Portview
- SDK package which enables customizing program development provided

Package Component

SerialGate package is composed of the following components. Make sure every component is included in your package. All packages include a module and a CD with utilities and documents.

SerialGate device 1pc (RS232 model or Combo(RS422/ RS485) model)
Direct LAN Cable 1pc
Power adapter 1pc (for SerialGate-1010/1020/1010 ALL)
Power Cable 1pc (for SerialGate-1040/1080/1160)
CD (Manual and utilities)

A-Class Device

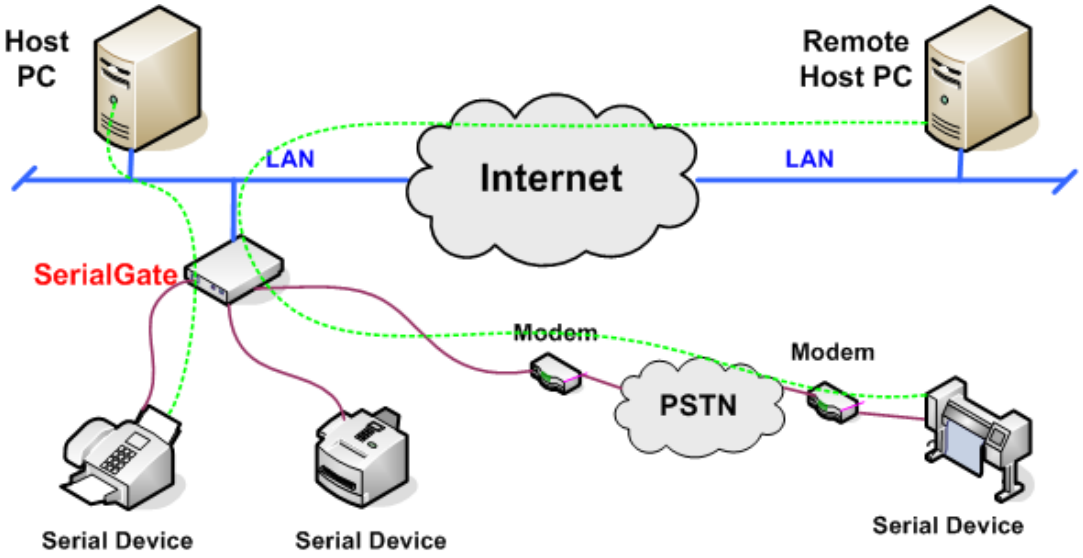
This device is registered only for office use, and both the seller and the user must be aware of this. If not correctly sold or purchased, please exchange with home use device.

Application

SerialGate can be used in many practical applications in various fields. Here we present some of them.

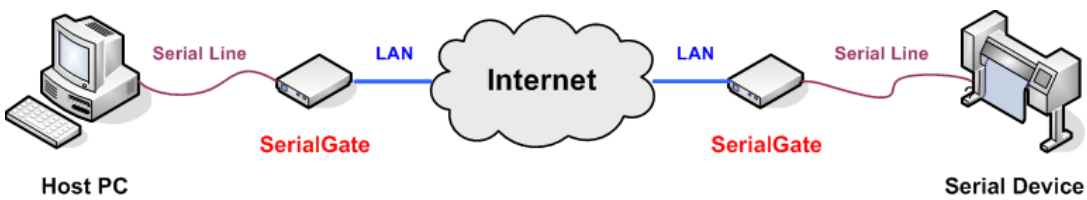
Network Serial Communication

PC and SerialGate are connected to the network, and a user gets an access to a device connected to SerialGate on PC.



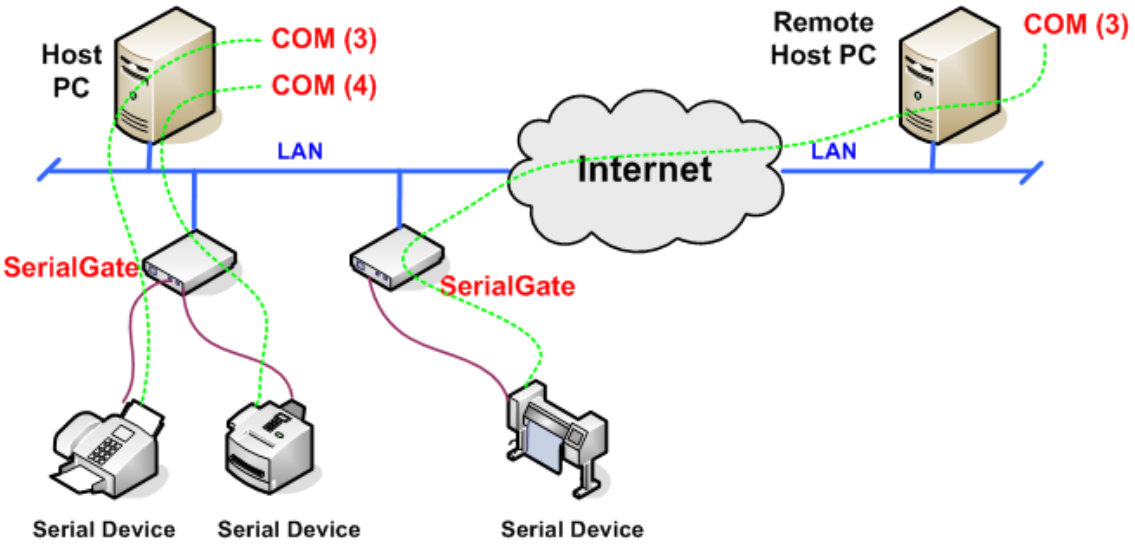
Serial Communication Tunneling

SerialGate enables a connection not restricted to distance between PC and serial device. To enable this feature, a user should change its setting to TCP Server – TCP Client mode or UDP Server – UDP Client mode referring to Chapter 5 of this manual. In this case, only data can be transmitted while both data and control signal can be transmitted in Pair_Master and Pair_Slave mode.



COM Port Redirection

With COM Port Redirection, a user can use serial port connected to SerialGate on the network as if it is a serial port on PC.



Factory / Industrial Automation

PLC, Robot arms, Human-Machine Interface, Warehouse rails

Medical instruments, Inspection equipment controllers

Alarming units

Home Appliances / Electronic Devices

Power controller, Gaming machines

Scales, Gas detection units, Water & pollution metering devices

Data collection and distribution units

Financial / Building Automation

Card readers, Barcode scanners, Kiosks, Point-Of-Sale related devices

Serial printers, Cash registers, Credit card authorization terminals

Biometric detection units, Security devices

Ch 3. Hardware Description

This chapter provides SerialGate's hardware information including block diagram, layout, pin specification, dimensions and other hardware-related issues.

SerialGate-1010/1020 Exterior

SerialGate-1010 **SerialGate-1020**

SerialGate-1010 (RS232 Version)

SerialGate-1010 (Combo Version)

SerialGate-1020 (RS232 Version)

SerialGate-1020 (Combo Version)

- **Power connector**: for connection of DC9~30V adapter cable
- **Terminal block power connector:** for connection of terminal block power cable
- **Reset button:** SerialGate reboots if this button is pressed for less than 3 seconds. If pressed for longer than 3 seconds, SerialGate will restore its factory default settings.
- **LED:** Operation status of SerialGate. Next section describes the meaning of each LED display status.
- **LAN port:** 8-pin RJ45 jack connects SerialGate to networking devices such as Ethernet card, hub, and router.
- **Serial:** RJ-45 socket for serial ports (RS-232, or Combo(RS-422/RS-485))

SerialGate-1010/1020 LED / RESET

LED	Status	Meaning
PWR (Red)	**On**	Power supplied to the device
	Off	No power supplied to the device
LAN (Green)	**Off**	No active network connection
	On	Network activated
RDY (Red)	**Blink**	Normal operation
	On	System Booting
	Off	System Error
RS422	**On**	Serial port set to RS422 mode (Combo model)
RS485	**On**	Serial port set to RS485 mode (Combo model)
Serial Tx/Rx	**Green Blink**	Serial data transmitted
	Orange Blink	Serial data received
LAN Port (Left Green)	**On**	100baseT connection detected & LAN data transferred
	Off	10baseT connection detected & LAN data transferred
LAN Port (Right Orange)	**On**	Network connected
	Off	Network disconnected
	Blink	LAN data being transmitted

< Reset button features >

Operation	Result
Pressed for less than 3 seconds	Restart SerialGate
Pressed for more than 3 seconds	Restore factory default settings of SerialGate, and the device will automatically reboot.

SerialGate-1010(w)/ALL Exterior

SerialGate-1010(w)/ALL(Top)

SerialGate-1010(w)/ALL(Bottom)

- **LED:** Operation status of SerialGate. Next section describes the meaning of each LED display status.
- **LAN port:** 8-pin RJ45 jack which is used when connecting SerialGate to networking devices such as Ethernet card, hub, and router.
- **Terminal block power connector:** for connection of terminal block power cable
- **Power connector:** for connection of DC 5~20V adapter cable
- **Serial**: DB9 for RS232 and 5P Terminal Block for RS422/RS485
- **Termination Resistor Switch:** Selection switch for termination resistor of RS422/485
- **Reset**: SerialGate reboots if this button is pressed for less than 3 seconds. If pressed for longer than 3 seconds, SerialGate will restore factory default settings.

SerialGate-1010(w)/ALL (Left Side)

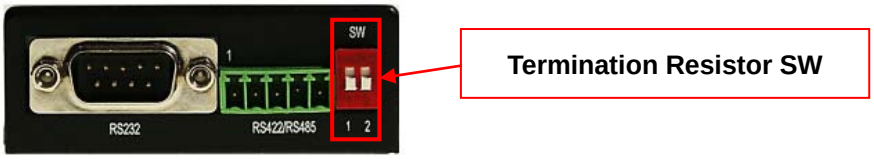
SerialGate-1010(w)/ALL LED / RESET

LED	Status	Meaning
RDY (GREEN)	Blink	Normal Operation
	On	Power supplied to the device
	Off	No power supplied to the device
SRL (Red)	Blink	Serial data being transmitted
WIFI(Green)	On	WIFI Link up
	Off	WIFI Link down
LAN (Right Orange)	On	100baseT connection detected & LAN data transferred
	Off	10baseT connection detected & LAN data transferred
LAN (Left Green)	On	Network connected
	Off	Network disconnected
	Blink	LAN data being transmitted

< Reset button features >

Operation	Result
Pressed for less than 3 seconds	Restart SerialGate
Pressed for more than 3 seconds	Restore factory default settings of SerialGate, and the device will automatically reboot.

<RS-422/RS-485 Termination Resistor Setting>



SerialGate-1010(w)/ALL(Bottom)

SW	Status	Meaning
1	**On**	Activate TX / TRXD Resistor
	Off	Deactivate TX / TRXD Resistor
2	**On**	Activate RX Resistor (RS-422 Only)
	Off	Deactivate RX Resistor (RS-422 Only)

SerialGate-1020(w)/ALL Exterior

SerialGate-1020(w)/ALL (Top)

SerialGate-1020(w)/ALL(Bottom)

- **LED:** Operation status of SerialGate. Next section describes the meaning of each LED display status.
- **LAN port:** 8-pin RJ45 jack which is used when connecting SerialGate to networking devices such as Ethernet card, hub, and router.
- **Terminal block power connector:** for connection of terminal block power cable
- **Power connector:** for connection of DC 5~20V adapter cable
- **Serial**: DB9 for RS232 and 5P Terminal Block for RS422/RS485
- **Termination Resistor Switch:** Selection switch for termination resistor of RS422/485
- **Reset**: SerialGate reboots if this button is pressed for less than 3 seconds. If pressed for longer than 3 seconds, SerialGate will restore factory default settings.

SerialGate-1020(w)/ALL(Left Side)

SerialGate-1020(w)/ALL LED / RESET

LED	Status	Meaning
RDY (GREEN)	**Blink**	Normal Operation
	On	Power supplied to the device
	Off	No power supplied to the device
SRL1 (Red)	**Blink**	Serial #1 data being transmitted
SRL2 (Red)	**Blink**	Serial #2 data being transmitted
WIFI(Green)	**On**	WIFI Link up
	Off	WIFI Link down
LAN (Right Orange)	**On**	100baseT connection detected & LAN data transferred
	Off	10baseT connection detected & LAN data transferred
LAN (Left Green)	**On**	Network connected
	Off	Network disconnected
	Blink	LAN data being transmitted

< Reset button features >

Operation	Result
Pressed for less than 3 seconds	Restart SerialGate
Pressed for more than 3 seconds	Restore factory default settings of SerialGate, and the device will automatically reboot.

<RS-422/RS-485 Termination Resistor Setting>

SerialGate-1020(w)/ALL(Bottom)

SW	Meaning
SW1	Resistor for Serial Port #1
SW2	Resistor for Serial Port #2

SW	Status	Meaning
1	**On**	Activate TX / TRXD Resistor
	Off	Deactivate TX / TRXD Resistor
2	**On**	Activate RX Resistor (RS-422 Only)
	Off	Deactivate RX Resistor (RS-422 Only)

SerialGate-1040/1080 Exterior

SerialGate-1040/1080 (Front)

SerialGate-1040 (RS232/Combo Version)

SerialGate-1080 (RS232/Combo Version)

- **Serial:** RJ-45 socket for serial ports (RS-232, or Combo(RS-422/RS-485))
- **Power connector:** for connection of AC110~220V cable
- **Reset**: SerialGate reboots if this button is pressed for less than 3 seconds. If pressed for longer than 3 seconds, SerialGate will restore factory default settings.
- **LED:** Operation status of SerialGate. Next section describes the meaning of each LED display status.
- **WAN**: Main network port used when connecting SerialGate to networking devices such as Ethernet card, hub, and router.
- **LAN**: Sub-network port used as DHCP Server. Assigns IP address to a device connected to sub-network.
- **SD / MMC**: SD memory card works for system log. Available up to 32 Gbytes. (SD memory not included in the package)

SerialGate-1040/1080 LED / RESET

<LED Feature>

LED	Status	Meaning
PWR (RED)	**On**	Power supplied to the device
	Off	No power supplied to the device
RDY (Green)	**Blink**	Normal operation
	On	System Booting
	Off	System Error
WAN (Green)	**Off**	Deactivate main network
	On	Activate main network
LAN (Green)	**Off**	Deactivate sub network
	On	Activate sub network
Serial Tx/Rx (Green/Orange)	**Blink**	Serial data transmitted
	Blink	Serial data received
WAN/LAN (Left Green)	**On**	100baseT connection detected & LAN data transferred
	Off	10baseT connection detected & LAN data transferred
WAN/LAN (Right Orange)	**On**	Connected to network
	Off	Disconnected to network
	Blink	LAN data being transmitted

< Reset button features >

Operation	Result
Pressed for less than 3 seconds	Restart SerialGate
Pressed for more than 3 seconds	Restore factory default settings of SerialGate, and the device will automatically reboot.

SerialGate-1160 Exterior

- **Serial:** RJ-45 socket for serial ports (RS232, 422,485). A user can select protocol in web browser.
- **Power connector:** for connection of 90 ~ 240 VAC cable
- **Reset**: SerialGate reboots if this button is pressed for less than 3 seconds. If pressed for longer than 3 seconds, SerialGate will restore factory default settings.
- **LED:** Operation status of SerialGate. Next section describes the meaning of each LED display status.
- **WAN**: Main network port used when connecting SerialGate to networking devices such as Ethernet card, hub, and router.
- **LAN**: Sub-network port used as DHCP Server. Assigns IP address to a device connected to sub-network.

- **SD / MMC**: SD memory card works for system log. Available up to 32 Gbytes. (SD memory not included in the package)
- **LCD**: CLCD (16 * 2 line). Configuration and monitoring SerialGate via LCD.
- **LCD Button**: Composed of 4 keys to control LCD. (Esc, Enter, Left, Right)

SerialGate-1160 LED / RESET

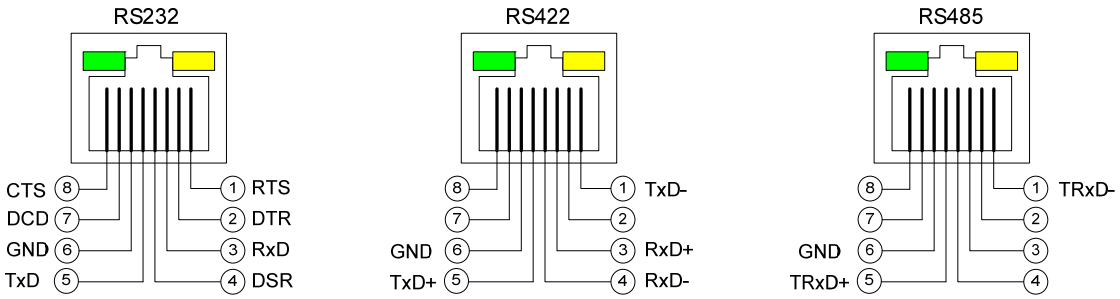
<LED feature>

LED	Status	Meaning
PWR (WHITE)	**On**	Power supplied to the device
	Off	No power supplied to the device
WAN/LAN (Green)	**On**	Connected to network
	Off	Disconnected to network
	Blink	LAN data being transmitted
WAN/LAN (Orange)	**On**	100baseT connection detected & LAN data transferred
	Off	10baseT connection detected & LAN data transferred
Serial Tx (Green)	**Blink**	Serial data transmitted
Serial Rx (Orange)	**Blink**	Serial data received

< Reset button features >

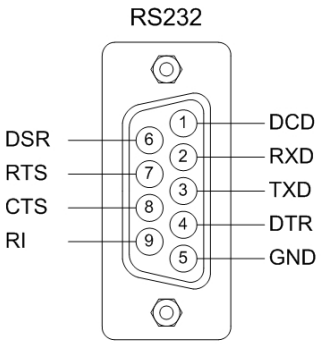
Operation	Result
Pressed for less than 3 seconds	Restart SerialGate
Pressed for more than 3 seconds	Restore factory default settings of SerialGate, and the device will automatically reboot.

Pin Specification (SerialGate-1010/1020/1040/1080)



	RS-232	RS-422	RS-485
1	RTS	TxD -	TRxD -
2	DTR	-	-
3	RxD	RxD +	-
4	DSR	RxD -	-
5	TxD	TxD +	TRxD +
6	GND	GND	GND
7	DCD	-	-
8	CTS	-	-

Pin Specification (SerialGate-1010(w)/ALL, SerialGate-1020(w)/ALL)



RS232

	Signal	Description
1	DCD	Data Carrier Detection (Input)
2	RXD	Receive Data (Input)
3	TXD	Transmit Data (Output)
4	DTR	Data Terminal Ready (Output)
5	GND	Ground
6	DSR	Data Set Ready (input)
7	RTS	Request to Send (Output)
8	CTS	Clear to Send (Input)
9	RI	Ring Indicator (Input)

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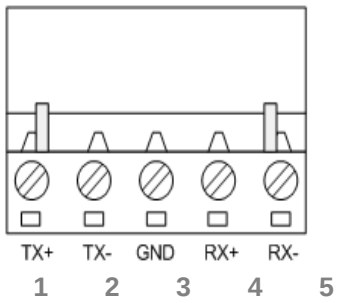


RS422 Full Duplex

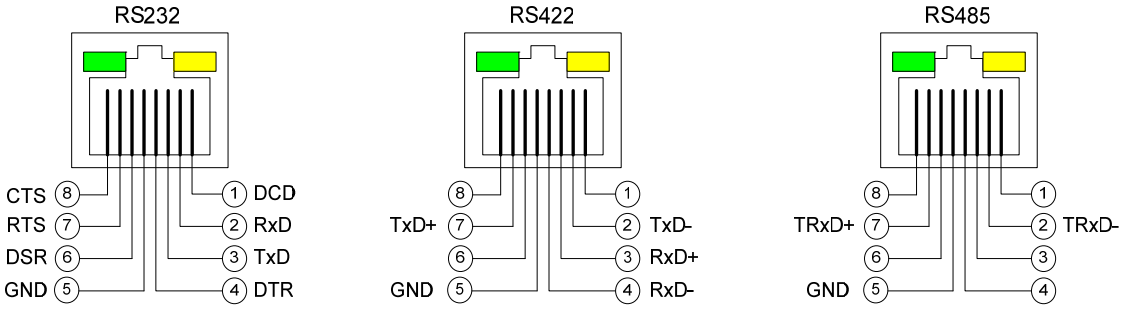
	Signal	Description
1	TXD+	Transmit differential data positive (Output)
2	TXD-	Transmit differential data negative (Output)
3	GND	Ground
4	RXD+	Receive differential data positive (Input)
5	RXD-	Receive differential data negative (input)

R

S485 Half Duplex

	Signal	Description
1	TRXD+	Transmit/Receive differential data positive
2	TRXD-	Transmit/Receive differential data negative
3	GND	Ground

Pin Specification (SerialGate-1160)



	RS-232	RS-422	RS-485
1	DCD	-	-
2	RxD	TxD -	TRxD -
3	TxD	RxD +	-
4	DTR	RxD -	-
5	GND	GND	GND
6	DSR	-	-
7	RTS	TxD +	TRxD +
8	CTS	-	-

Ch. 4 Installation

This chapter explains how to install SerialGate. It deals with LAN and serial connection guides for SerialGate to operate together with the target serial device.

Connection Guide

In order to connect SerialGate to network, you need to use RJ45 Ethernet port. It supports both 10Mbps and 100Mbps Ethernet connection (auto-sensing). Since SerialGate's WAN/LAN port supports MDIX, it automatically detects any kind of cable. (Cross or direct LAN cable) Plug one end of a LAN cable to SerialGate and the other end to a hub, switch, or any other network device.

First-Time Bootup

First of all, please make sure that the power input you supply to the module is corresponding with the SerialGate model that you have. If an appropriate power input has been successfully supplied, SerialGate will power on and start booting.
Although there is no power LED to check the status, you can check by LEDs on the RJ45 Ethernet port. LED status operation is described in Chapter 3. Hardware Description.

An IP address is required to access SerialGate's web interface or telnet command-line configuration tool. By factory default, a static IP address is assigned to SerialGate. After the initial connection, you can either manually assign a different IP address or set SerialGate to automatically get an IP address from a DHCP server. While this depends on your network environment and policy, it is strongly recommended that a user assigns SerialGate with a unique static IP.

Connecting to SerialGate

In order to view current SerialGate's settings or modify them, you need to make a Web or Telnet connection to SerialGate. IP address is required information to make a connection.
There are two ways you can know the current IP address of Eddy.

If SerialGate's WAN port uses assigned IP address from DHCP server or is set to a fixed IP address, SerialGate supports the following options in case that a user does not know IP address.

For SerialGate-1010/1020, SerialGate-1010(w)/ALL, SerialGate-1020(w)/All

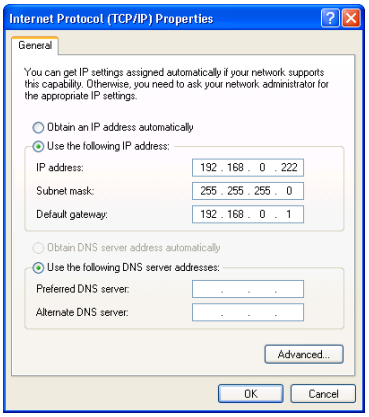
1. A user can connect to SerialGate LAN port's virtual IP address; "10.10.1.1"
2. A user can search IP address pre-set to SerialGate using "Detector" application enclosed in Utility & Documents CD and connect to SerialGate.

For SerialGate-1040/1080/1160

1. A user can connect to SerialGate LAN port's default IP address; "10.10.1.1".
2. Connecting a serial console port to a PC's serial port, a user can set 115,200bps and connect to a SerialGate.
3. A user can search IP address pre-set to SerialGate using "Detector" application enclosed in Utility & Documents CD and connect to SerialGate.

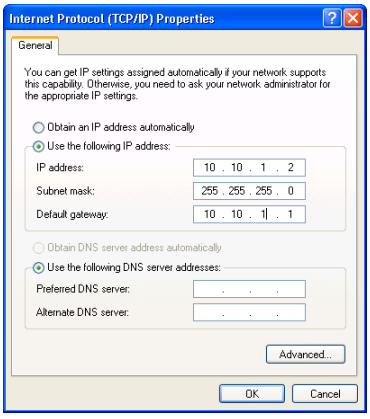
WAN Default IP address: 192.168.0.223

SerialGate's default IP address is set to 192.168.0.223. In order to connect with this address, you need to change network configurations so that your PC can connect to the IP 192.168.0.223. Please refer to an example below, and note that values don't necessarily have to be identical to the example below.



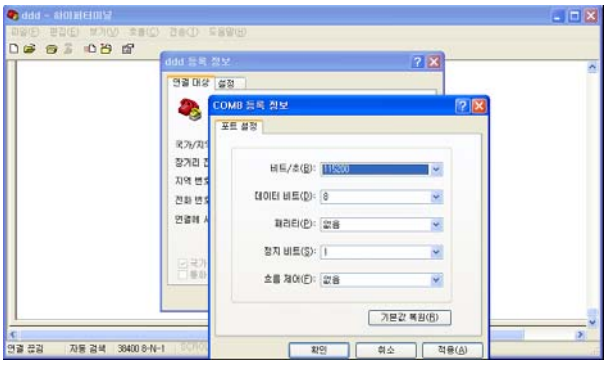
LAN Sub IP address: 10.10.1.1

For SerialGate-1010/1020, LAN port's virtual IP address is 10.10.1.1 while LAN port's default IP address for SeroalGate-1040/1080/1160 is 10.10.1.1. In order to connect with this address, you need to change network configurations so that your PC can connect to the IP 10.10.1.1. Please refer to an example below, and note that values don't necessarily have to be identical to the example below.



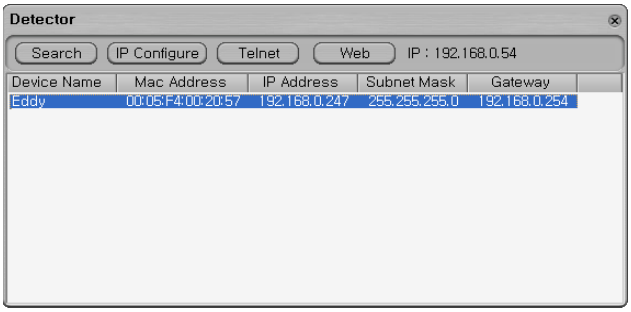
Serial Console Port

SerialGate-1040/1080/1160 supports console port. If a user connects console port and a PC's serial port with a serial cable, and run communication program such as hyperterminal, a user can make a configuration as 115200 bps, None Parity, 8 Data bits, 1 Stop Bit and connect to a device.



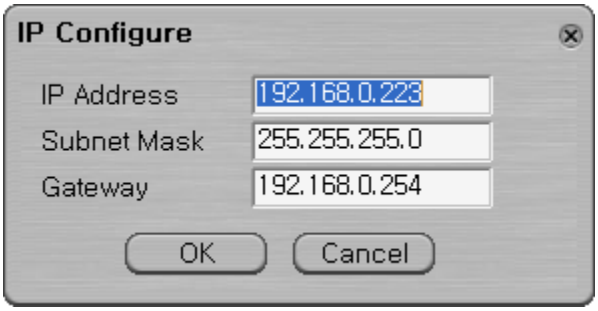
Connection via Detector

By running the Detector program in the Utility & Documents CD included in the SerialGate package, you can dynamically search all SerialGates on the network and connect to any of them. (For more information on Detector, please refer to the Portview manual in the Utility & Documents CD included in the Eddy package)



After running Detector, click Search button on the top-left to display all SerialGates on the network. Select the module that you would make a connection to, and click Telnet or Web to connect to the device via Telnet or Web, respectively.

If SerialGate is not on the same network as the PC you are working on, use "IP Configure" button to temporarily assign an IP address that you would like to make a Web or Telnet connection to. If you assign a temporary IP address to SerialGate, you need to change the IP address and restart in Web or Telnet.



Now, you are ready to connect to SerialGate! There are three options to configure SerialGate.

1) Configuration via Web

A user can easily configure SerialGate with web interface, accessible from any web browser. For more information, please refer to Chapter 5. Configuration via Web.

2) Configuration via Telnet

A user can configure SerialGate with commands after accessing SerialGate through Telnet. For more information, please refer to Chapter 6. Configuration via Telnet.

3) Configuration via Portview

A user can use a Windows-based utility Portview from SystemBase to monitor SerialGate. For more information on using the utility for your administration purpose, please refer to Portview User Guide.

Ch. 5 Configuration via Web

Connection

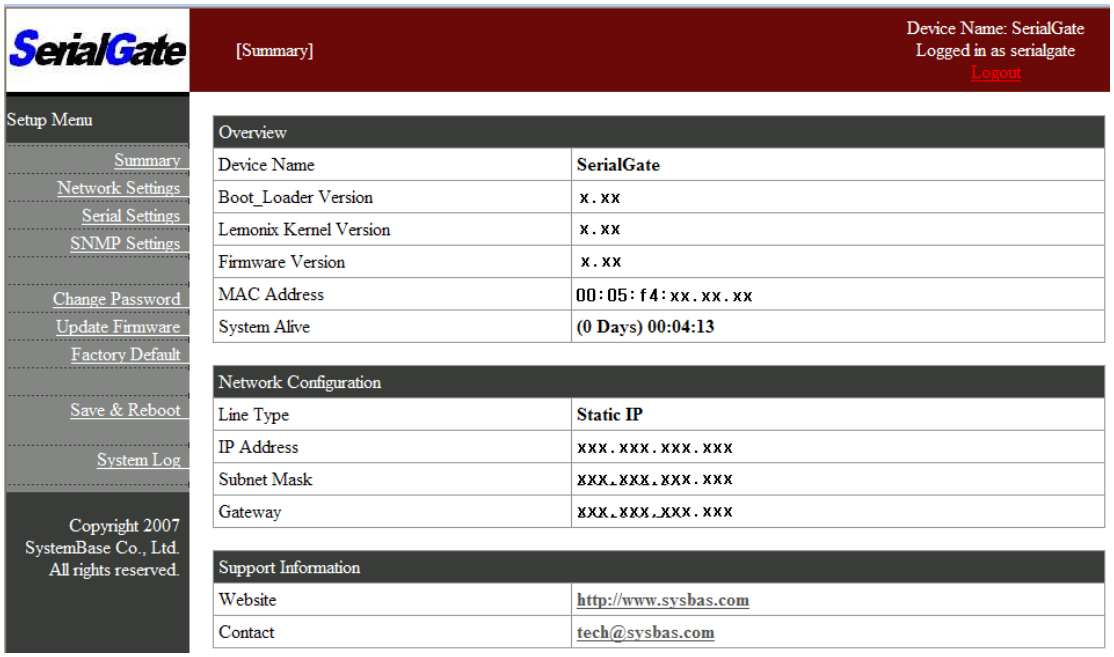
Open web browser and enter the IP address of SerialGate to access SerialGate's web manager. Once you are successfully connected, the following page will show up. You need to enter appropriate username and password to login. Please note that this username and password are used as authentication method for Telnet as well. This means if username or/and password has been modified from the web interface, modified values have to be entered to connect to Telnet, and vice versa.

Factory default username: **serialgate**

Factory default password: **99999999**

Setup Menu

If login process is successful, you will see a web manager's main page, showing summary of your device. On the left, you will see a setup menu, and you can navigate through these options.



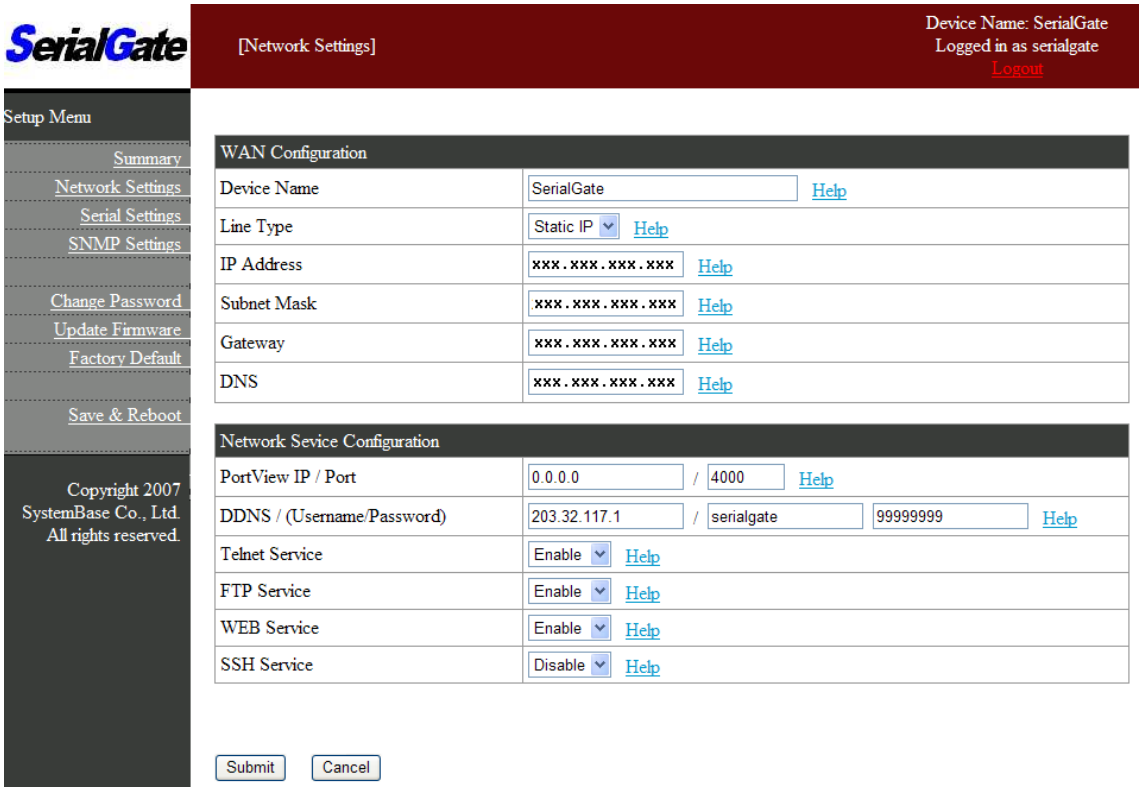
The followings are main features of Setup Menu.

Menu	Description
Summary	Confirm basic information about SerialGate
Network Settings	Configure network connection settings.
Serial Settings	Configure detailed operation environment for serial communication
SNMP Settings	Configure detailed operation environment for SNMP
Change Password	Change ID and password for both Web and Telnet interface
Update Firmware	Update SerialGate's firmware
Factory Default	Restore all the factory default settings.
Save & Reboot	Save the configurations and reboot SerialGate
System Log	View system log of SerialGate (SerialGate-1040/1080/1160)

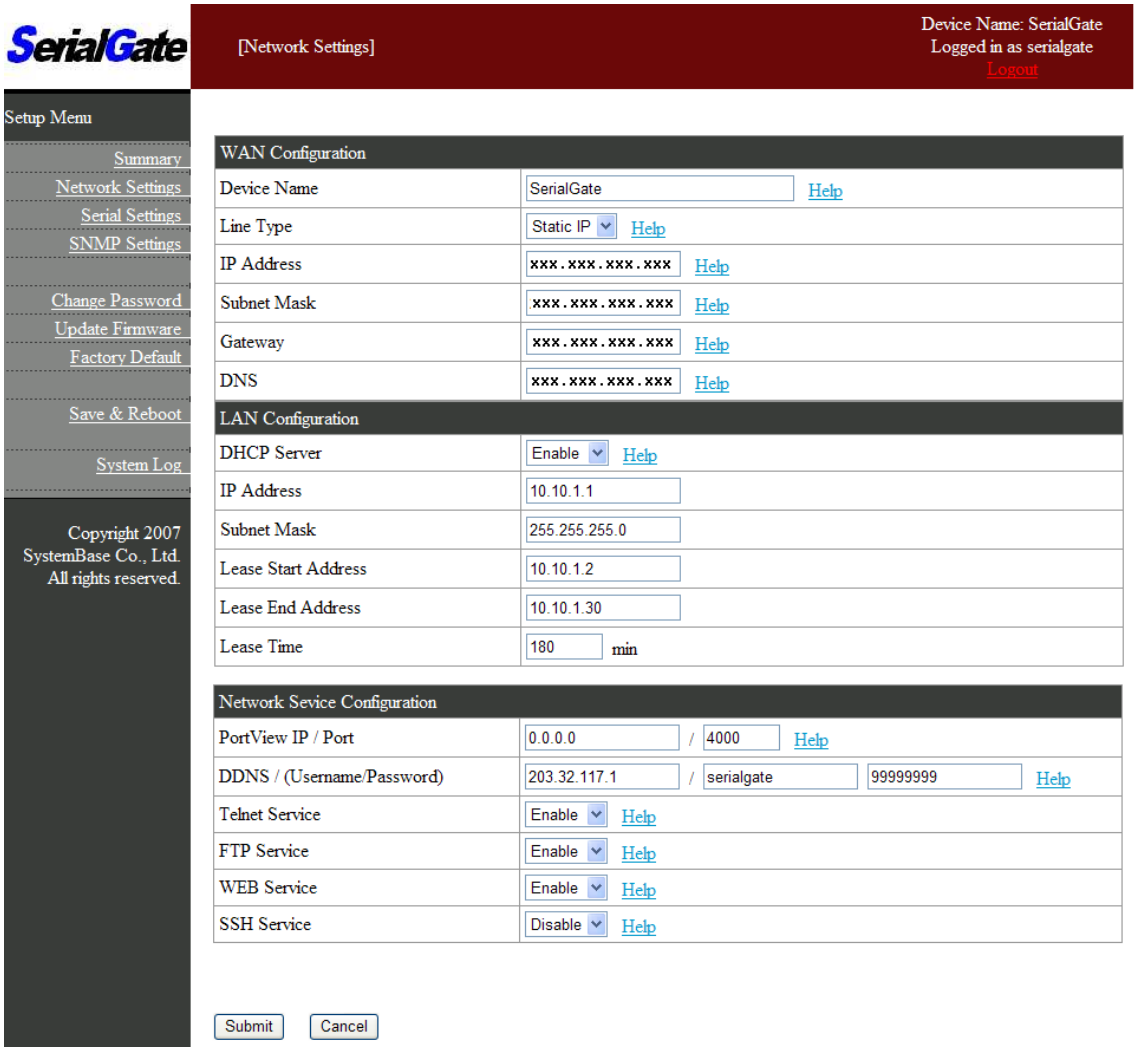
Network Settings

In Network Settings, a user can configure general network environment and network management. After changing values, you need to click 'Submit' button. Then you will see the same page with modified values. Please note that you have to '**Save & Reboot**' in order to see these changes in effect. Changes will be discarded if you do not save current settings.

SerialGate-1010/1020/1010 ALL/1020 ALL



SerialGate-1040/1080/1160



The followings are main features of WAN Configuration.

Menu	Default	Description
Device Name	SerialGate	Name of the current device
Line Type	Static IP	IP obtaining method for SerialGate's network connection.
IP Address	192.168.0.223	Current IP address SerialGate is assigned to. (When line type is Static IP, manually enter an appropriate IP address. When line type is DHCP, current IP is displayed, but it is not editable.)
Subnet Mask	255.255.255.0	Current subnet mask SerialGate is assigned to. (When line type is Static IP, manually enter an appropriate subnet mask. When line type is DHCP, current subnet mask is displayed, but it is not editable.)
Gateway	192.168.0.254	Current default gateway SerialGate is assigned to (When line type is Static IP, manually enter an appropriate default gateway. When line type is DHCP, current default gateway is displayed, but it is not editable.)..
DNS	168.126.63.1	Domain Name Service IP address

For SerialGate-1040/1080/1160, the main features of LAN Configuration are as follows.

Menu	Default	Description
DHCP Server	Enable	Enable or disable DHCP server.
IP Address	10.10.1.1	Set the current IP address
Subnet Mask	255.255.255.0	Set Subnet Mask address
Lease Start Address	10.10.1.2	If DHCP server is enabled, start address of the DHCP scope for leasing.
Lease End Address	10.10.1.30	If DHCP server is enabled, end address of the DHCP scope for leasing.
Lease Time	180	IP address lease time

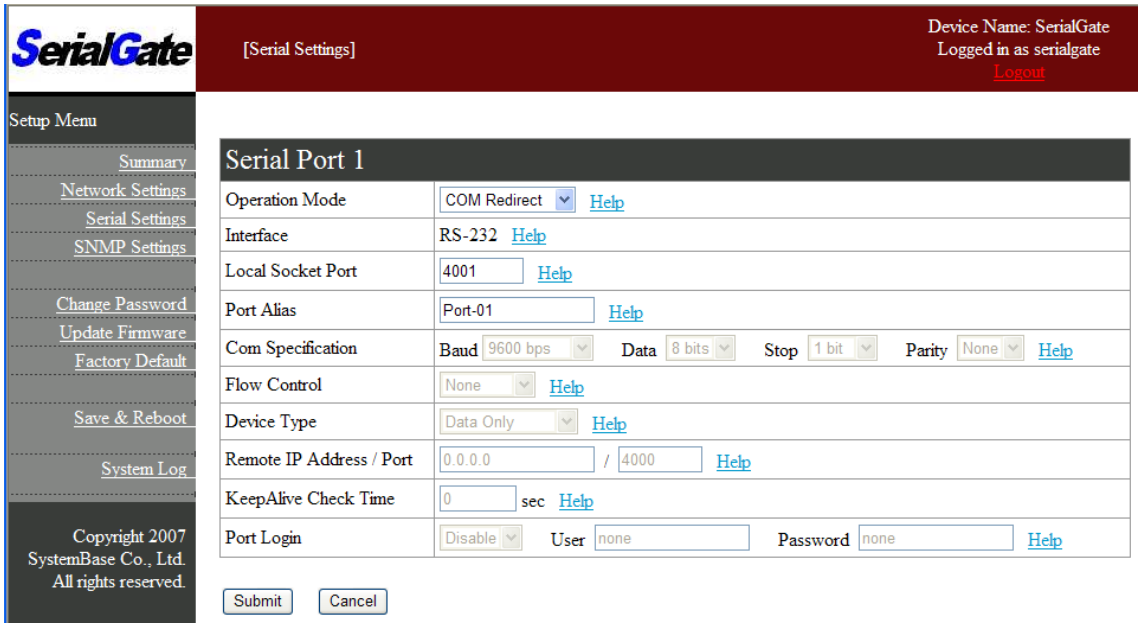
Main features for Network Service Configuration are as follows.

Menu	Default	Descriptions
PortView IP / Port	0.0.0.0 / 4000	Set the IP address and the socket number of the PC where Portview is installed. For more information about Portview, please refer to the Portview User Manual. If IP is set to 0.0.0.0, this feature is disabled
DDNS (Username/ Password)	203.32.117.1	Register DDNS server's IP address for DDNS service. DDNS service used in SerialGate is supported by http://ddns.nu (default ID: Serialgate, default password: 99999999) A user can make his own account and register a number of SerialGate. Please refer to more details in the website mentioned above.
Telnet Service	Enable	Enable or disable Telnet service. If disabled, you cannot connect to SerialGate via Telnet.
FTP Service	Enable	Enable or disable FTP service. If disabled, you cannot connect to SerialGate via FTP.
WEB Service	Enable	Enable or disable Web service. If disabled, you cannot connect to SerialGate via Web.
SSH Service	Disable	Enable or disable Secure Shell service.

Serial Settings

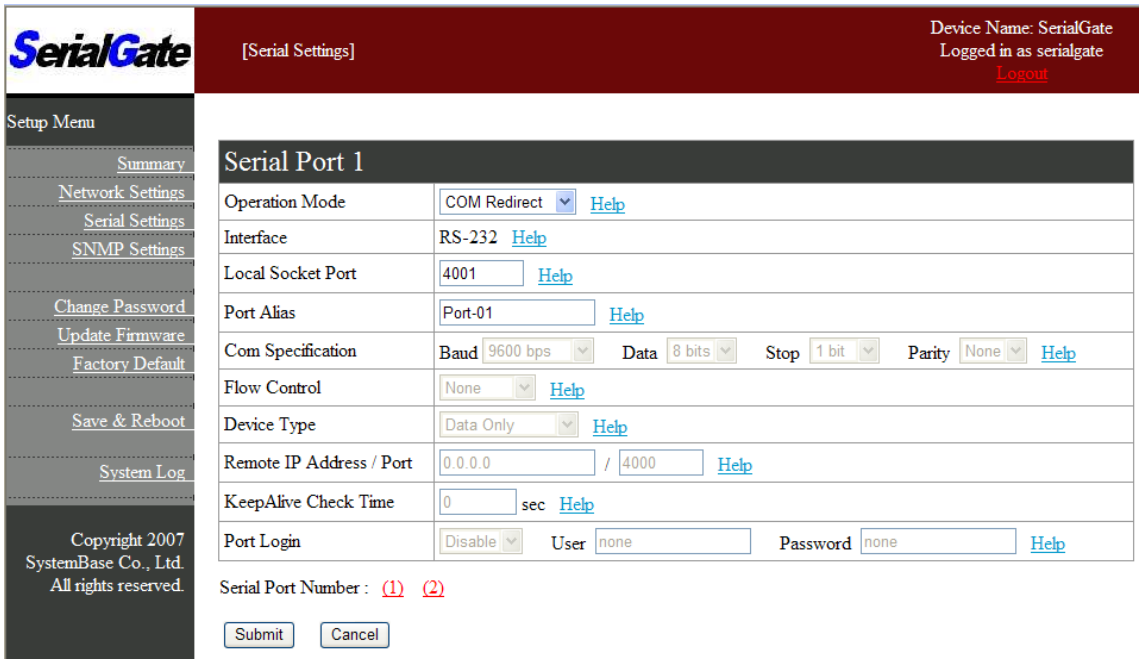
A user can set the communication and operation environment for the serial port. After changing values, a user needs to click 'Submit' button. Then a user will see the modified values. Please note that you have to 'Save & Reboot' in order to see these changes in effect. Changes will be discarded if you do not save current settings.

Settings for SerialGate-1010/1010 ALL



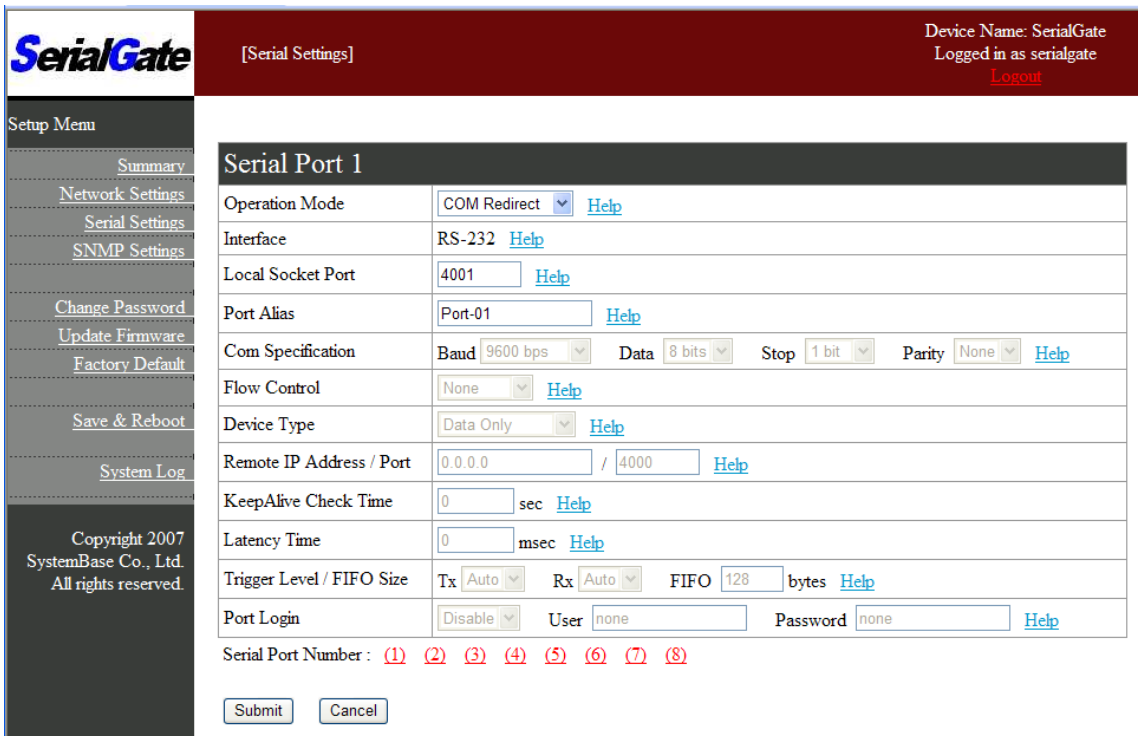
Settings for SerialGate-1020/1020 ALL

For SerialGate-1020, two serial ports are separately selectable at the bottom of the page.



Settings for SerialGate-1040/1080/1160

For SerialGate-1040/1080/1160, (1) ~ (16) serial ports are separately selectable at the bottom of the page and trigger level setting option is added.



Serial settings for SerialGate are as follows.

Menu	Default	Descriptions
Operation Mode	COM	Select the operation protocol that will be applied in the serial port. **Disable** Disable the serial port. **COM Redirector** Use the serial port of SerialGate as a virtual COM port in Windows 2000/XP/2003/Vista. **TCP Server** SerialGate works as a socket server, waiting for the client connection on the network. Socket number for awaiting connections can be set in 'Local socket port' field. After socket connection, data between socket and serial port will be transmitted. **TCP Client** SerialGate acts as a socket client in this mode. It tries to connect to the server IP address and the socket number assigned when a certain server waits for connection on the network. All data between the socket and the serial port is transferred untouched after the socket connection is established. **TCP Broadcast** SerialGate works as a server, accepting up to 5 simultaneous connections from socket clients. Data transmitted from SerialGate is broadcast to each socket client. **TCP Multiplex** SerialGate works as a server, accepting up to 5 simultaneous connections from socket clients. The difference between TCP Broadcast and TCP Multiplex is that Multiplex allows each socket to communicate exclusively. That is, serial data in response are only transferred to the sender socket. **UDP Server** SerialGate works as a UDP server, waiting for UDP connection from the client on the network. Socket number for awaiting connections can be set in 'Local socket

Menu	Default	Descriptions
		port' field. Once a UDP packet is received to the socket that waits for the connection, the data is transmitted to the serial port. The data input from the serial port is put into UDP packets, which eventually are sent to the client. **UDP Client** When the data is input to the serial port, UDP packets are sent using the preset IP address and the socket number of the server. **Pair_Master/ Pair_Slave** It extends a serial cable between DTE and DCE to network, and enables communication not limited to distance. Two devices are required for this feature and set one to Pair_master and another to Pair_Slave. It can be used for serial communication tunneling. **MODBUS ASCII** Connect MODBUS/ASCII SLAVE using serial port and make user of MODBUS/TCP MASTER feature using LAN port in PC. This feature enables MODBUS media converter function. (Available for SerialGate-1010/ALL). **User Application** A user can run own customized program. In order to run it, a user needs to ask for application development environment to SystemBase.
Interface	RS232, RS422 RS485	For RS232 model, interface is set to RS232 while Combo model's interface is selectable between RS422, RS485(No-Echo) and RS485(Echo). For SerialGate-1160, RS232/RS422/RS485 is available, and termination can be configured.
Local Socket Port	4001	Set the socket number for the port. TCP server and UDP server operation mode makes use of this port for awaiting network socket connections.
Port Alias	Port1	Name each port for convenience. 16 Characters at maximum.
Baud Rate	9600 bps	Set communication speed. (Options: 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600 bps)

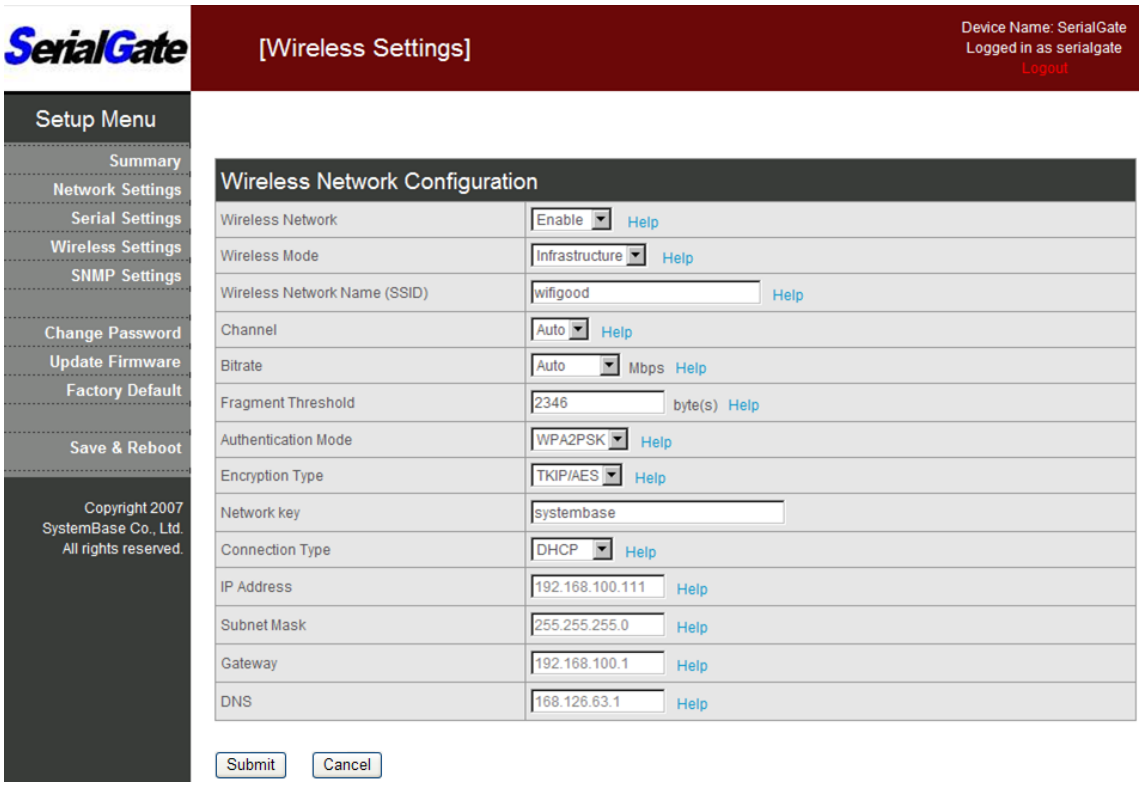
Menu	Default	Descriptions
Data Bits	8	Set the number of bits in each character size. (Options: 5, 6, 7, 8)
Stop Bits	1	Set the number of stop bits.. (Options: 1, 2)
Parity	None	Set parity bit check scheme.. (Options: None, Odd, Even)
Flow Control	None	Set the flow control scheme. (Options: None, Xon/Xoff, RTS/CTS)
Device Type	DataOnly	Set the signal line checking method for the device to be connected to the given serial port. If the mode is set to Data Only, only TxD, RxD, and GND signal lines are used in inter-device communication. If the mode is set to Modem Signals, all modem signals except RI(Ring Indicator) are asserted, tested, and used in communication. (Options: Data Only, Modem Signals)
Remote IP Address / Port	0.0.0.0 / 4000	If the Operation Mode is in TCP Client or UDP Client or Pair_Master mode, set the IP address and the socket number to connect to.
Keepalive Check Time	0	After a certain amount of time passes without any communication after the socket connection between the given serial port and the server is established, automatically disconnect the socket connection. Valid from 0 to 32767 sec. For example, if the operation mode is set to TCP Server and Alive Check Time is configured to 10, TCP Server will listen for the client's connection and eventually establish a connection. Since the check time is 10 seconds, the server will wait for 10 seconds until the client connected to it sends any packet. If there is no data for 10 seconds, server will quit the connection and return to the listening state. This option is helpful in preventing communication obstacles that occur when either SerialGate or the client quits unexpectedly (i.e. Sudden black out, reboot, LAN cable cut, etc.). In these cases, the other part of communication might not recognize the failure of its partner. Such

Menu	Default	Descriptions
		misunderstanding can cause communication errors. If the value is set to 0, this function is disabled. Once connected socket will be retained until explicitly disconnected. (Only applies to TCP Client, TCP Server, TCP Broadcast, and TCP Multiplex operation modes.)
Latency Time	0	This needs to be set when consecutive data from the given serial port needs to be transmitted to socket at once. For example, if 100 bytes of character string are to be transmitted from the serial device to a server through SerialGate, bypass is set to 0 for the latency time. Although it provides immediate sending through SerialGate, the server could be received a lot parts of divided packets. If the latency time is not 0, SerialGate will wait for the time and check new data. If there is new data, SerialGate repeatedly wait for the time. Otherwise, SerialGate will transfer the buffered data, but it could not run in real time.
Trigger Level TX	Auto	If data is empty below the setting value in serial port's output buffer, it sends data to output buffer. (Option: Auto, 1,2,4,8,16,32,64,96,128) In Auto setting, it controls depending on the set communication speed.
Trigger Level Rx	Auto	If there is more data over the setting value in serial port's input buffer, it reads data from input buffer. (Option: Auto, 1,2,4,8,16,32,64,96,128) In Auto setting, it controls depending on the set communication

Menu	Default	Descriptions
FIFO Size	128	Linked to Trigger Level Tx, it sets the FIFO size that outputs data (Option: 1 ~ 128)
Port Login	Disable	When the Operation Mode is set to TCP Server, ask for the username and password when the client tries to connect (Options: Enable, Disable)
Passive Username	serialgate	When the Operation Mode is set to TCP Server, set the username to ask for. 16 Characters at maximum.
Passive Password	99999999	When the Operation Mode is set as TCP Server, set the password to ask for. 16 Characters at maximum.

Wireless Settings

A user can set the wireless network parameters. (Only for SerialGate-1010w/ALL & SerialGate-1020w/ALL) After changing values, you need to click **[Submit]** button. Then you will see the same page with modified values. Please note that you have to **[Save & Reboot]** in order to see these changes in effect. Changes will be discarded if you do not save current settings.



In order to use WiFi, enable Wireless Network and press Submit button.

Menu	Default	Description
Wireless Network	Disable	When enabled, WiFi is available. •**Disable**: WiFi is not available. •**Enable**: WiFi is available.
Wireless Mode	Infrastructure	Set the wireless LAN mode. (Option: Infrastructure, Ad-Hoc) •**Infrastructure :** Use WiFi under the Infrastructure mode. This mode is used for connecting to the wireless AP (Access Point) as a client to connect to other

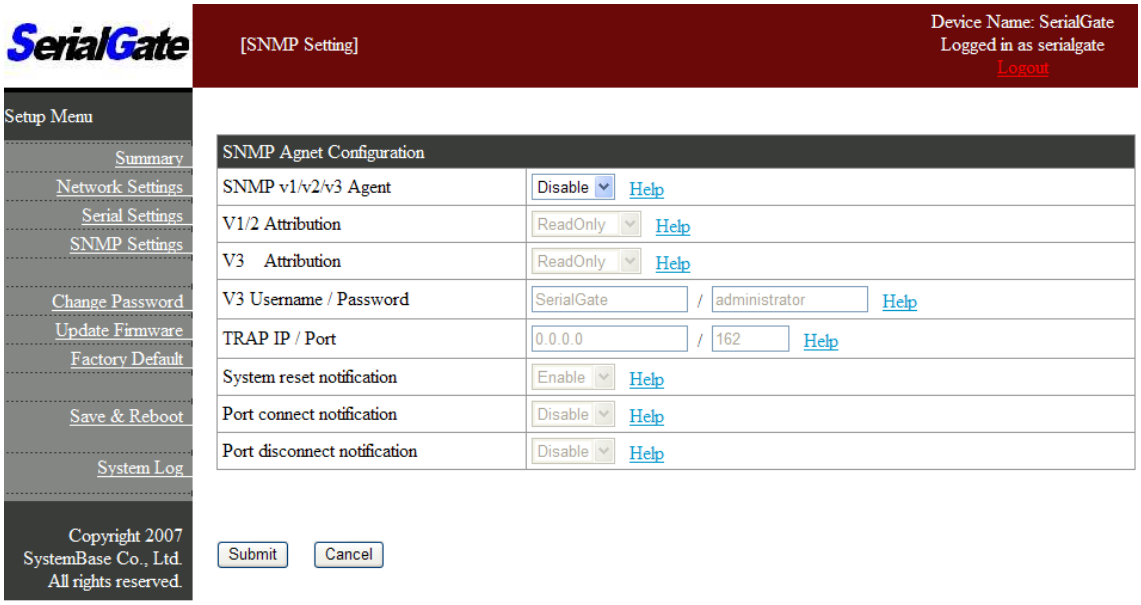
		network. •**Ad-Hoc :** Use WiFi under the Ad-hoc mode. This mode is used for 1:1 communication with another Ad-hoc client.
Wireless Network Name (SSID)	none	Sets the identification (SSID) of a wireless network to be connected. (Case sensitive & Up to 32 bytes using alphabets and numbers) SSID should be same for all devices on the same wireless network.
Channel	Auto	Selects a frequency channel for wireless connection. (Option: Auto, 1 ~ 13) •**Auto**: Connect a channel specified in AP automatically. In most cases, this setting is used. •**Value Specification**: Specify a channel to be connected manually.
Bitrate	Auto	Sets the speed for wireless connection. (Option: Auto, 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54Mbps) Auto setting adjusts the speed depending on signal sensitivity and noise. In most cases, this setting is used. If Wireless Network mode is set to 802.11b/g Mixed, all options can be selected. 802.11b only allows setting as 1, 2, 5.5 and 11Mbps. 802.11g only allows setting as 6, 9, 12, 18, 24, 36, 48 and 54Mbps. If the setting is in low communication speed, it provides more stable communication in an environment with a lot of noise. Contrary to this, high communication speed setting has higher risk of data loss in an environment with a lot of noise.
Fragment Threshold	2346	Sets the maximum packet size to send a packet after dividing into small pieces. (Range: 256 ~ 2346 bytes) Communication overhead is increased but communication error can be reduced in serious interference or noise environment.

		In most cases, this setting is not used. This feature will be disabled if 2346 is configured.
Authentication Mode	AUTO	(Option: AUTO, OPEN, SHARED, WPAPSK, WPA2PSK) An authentication mode defines the procedure that the 802.11 device uses when it associates with an access point. •**AUTO :** Specifies IEEE 802.11 Auto System authentication. •**OPEN** : Specifies IEEE 802.11 Open System authentication. •**SHARED** : Specifies IEEE 802.11 Shared Key authentication that uses a preshared WEP key. •**WPA-PSK** : Specifies WPA security. Authentication is performed between the supplicant and authenticator over IEEE 802.1X. Encryption keys are dynamic and are derived through the preshared key used by the supplicant and authenticator. •**WPA2-PSK** : Specifies WPA2 security. Authentication is performed between the supplicant and authenticator over IEEE 802 1X. Encryption keys are dynamic and are derived through the preshared key used by the supplicant and authenticator.
Encryption Type	NONE	(Option: NONE, WEP, TKIP, AES) Encryption modes define the set of cipher suites that can be enabled on the 802.11 device. •**NONE** : Encryption not used. •**WEP** : Wired Equivalent Privacy (WEP) is the RC4-based algorithm specified in the IEEE 802.11 specification. •**TKIP** : Temporal Key Integrity Protocol (TKIP) is the RC4-based cipher suite based on the algorithms defined in the WPA and IEEE 802.11i specifications. •**AES** : The Advanced Encryption Standard (AES) defines an encryption algorithm in FIPS PUB 197.

Network Key	none	Type in Key value by Encryption Type.
Connection Type	DHCP	Sets an IP address type in a wireless network. (Option: DHCP, Static IP) •**DHCP** : Assign a dynamic IP address through a DHCP server. •**Static IP** : Specify an IP address manually.
IP Address	192.168.1.72	Sets an IP address of a wireless network. If the line Type is Static IP, a user can enter an IP address directly. If line type is DHCP, the current IP address is displayed. In DHCP type, the address cannot be changed.
Subnet Mask	255.255.255.0	Sets Subnet Mask of a wireless network. If the line Type is Static IP, a user can enter a subnet mask address directly. If line type is DHCP, the current subnet mask address is displayed. In DHCP type, the address cannot be changed.
Gateway	192.168.1.1	Sets a gateway address of a wireless network. If the line Type is Static IP, a user can enter a gateway address directly. If line type is DHCP, the current gateway address is displayed. In DHCP type, the address cannot be changed.
DNS	168.126.63.1	Sets a DNS server address of a wireless network. If the line Type is Static IP, a user can enter a DNS server address directly. If line type is DHCP, the current DNS server address is displayed. In DHCP type, the address cannot be changed.

SNMP Settings

A user can set the communication and operation environment for the SNMP Agent. After changing values, you need to click 'Submit' button. Then you will see the same page with modified values. Please note that you have to 'Save & Reboot' in order to see these changes in effect. Changes will be discarded if you do not save current settings.



In order to use the SNMP Agent, enable SNMP v1/v2/v3 and click the [Submit] button.

Menu	Default	Descriptions
SNMP v1/v2/v3 Agent	Disable	Enable or disable Simple Network Management Protocol (SNMP) support. (Options : Disable/Enable)
V1/2 Attribution	ReadOnly	SNMP V1/2 Attributes can read and write by SNMP Agent. In order to read attributes only, change the feature to "ReadOnly". In order to read and write attributes, change the feature to "ReadWrite". (Options : ReadOnly/ ReadWrite)
V3 Attribution	ReadOnly	SNMP V3 Attributes can read and write by SNMP Agent. In order to read attributes only, change the feature to "ReadOnly". In order to read and write attributes, change the feature to "ReadWrite". (Options : ReadOnly/ ReadWrite)

V3 Username/ Password	serialgate /administr ator	Configure the Username and the password when use SNMP V3. The Password is at least 8 character string
TRAP IP/ Port	0.0.0.0/16 2	Configure the server IP address and Port which receive the TRAP information.
System reset notification	Enable	If Enable is selected, notify the “System reset info.” (Option : Enable, Disable)
Port connect notification	Disable	If Enable is selected, notify the “Serial Port opened info.” (Option : Enable, Disable)
Port disconnect notification	Disable	If Enable is selected, notify the “Serial Port Closed info.” (Option : Enable, Disable)

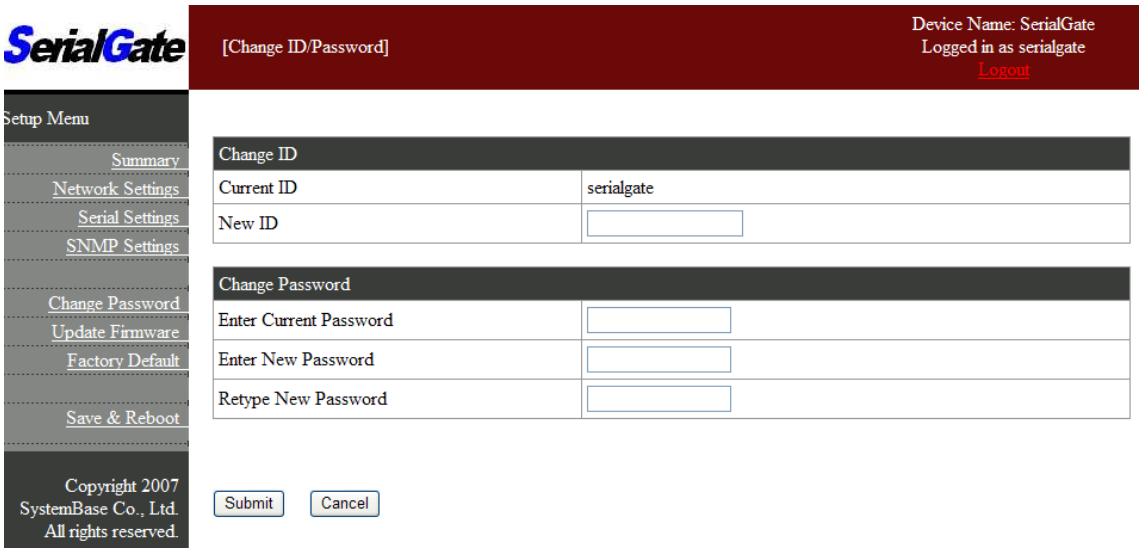
Change Password

Change username and password for an access to Web and Telnet. After changing values, you need to click 'Submit' button. Then you will see the same page with modified values. Please note that you have to 'Save & Reboot' in order to see these changes in effect. Changes will be discarded if you do not save current settings.

In case that a user forgot password, press Reset button for less than 3 seconds to restore the settings back to factory default. However, please be aware that all other settings will be initialized and back to factory default.

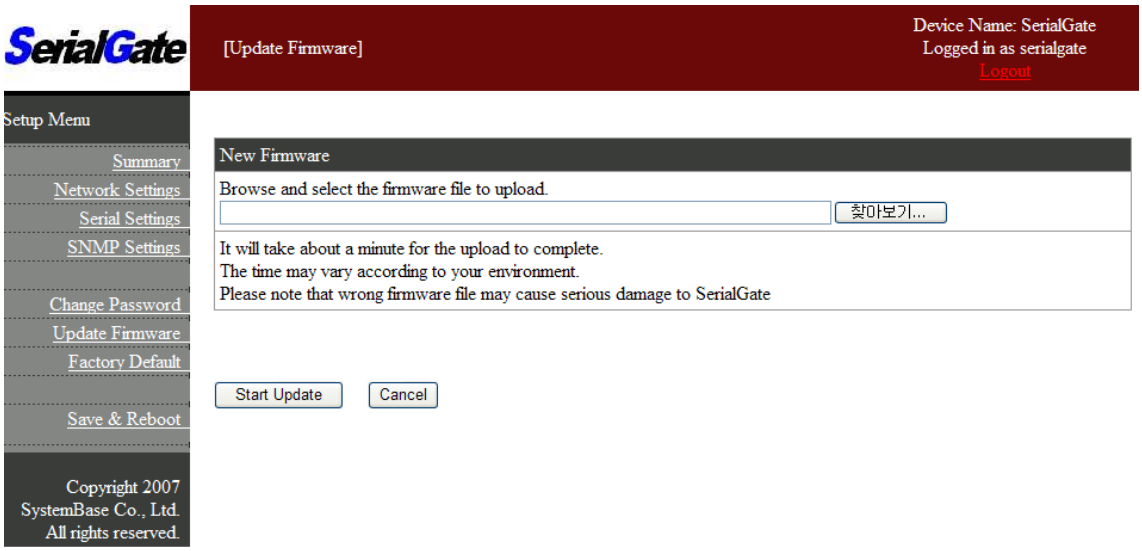
◆ **Default user id : serialgate**

◆ **Default password : 99999999**

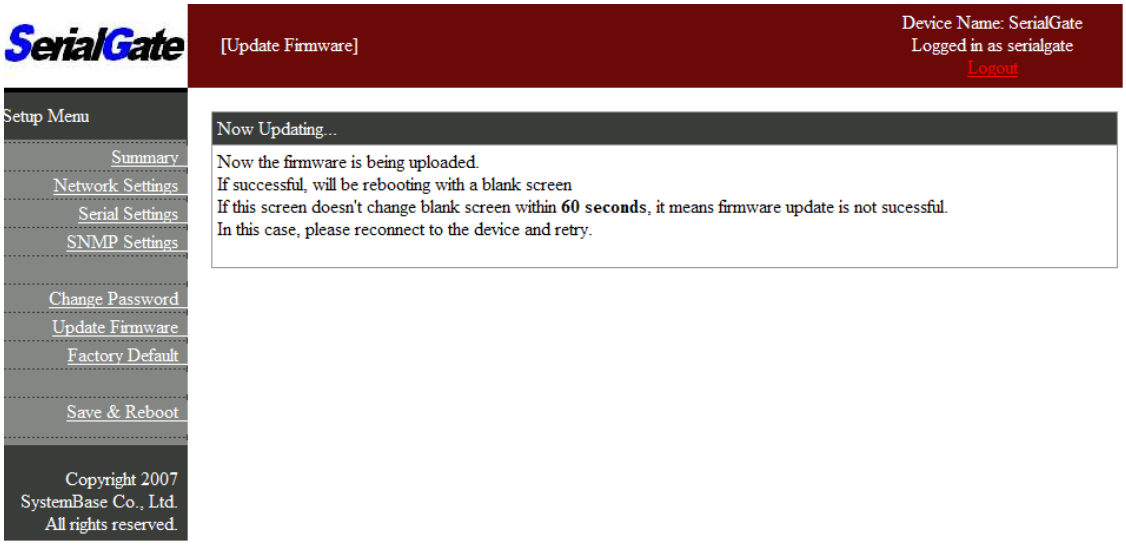


Update Firmware

Firmware is an application embedded in Flash memory of SerialGate. Set the location of the firmware file to update, using the 'Browse…' button. The selected firmware will be transferred to SerialGate when you click 'Start Update'.



After the transmission is complete, SerialGate will be automatically restarted to operate with the new firmware.

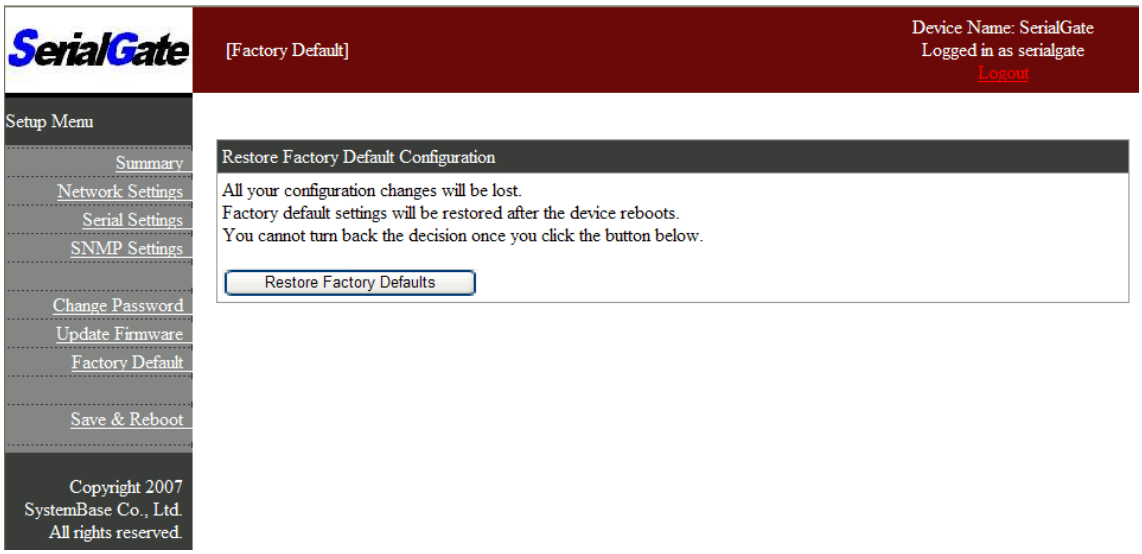


Factory Default

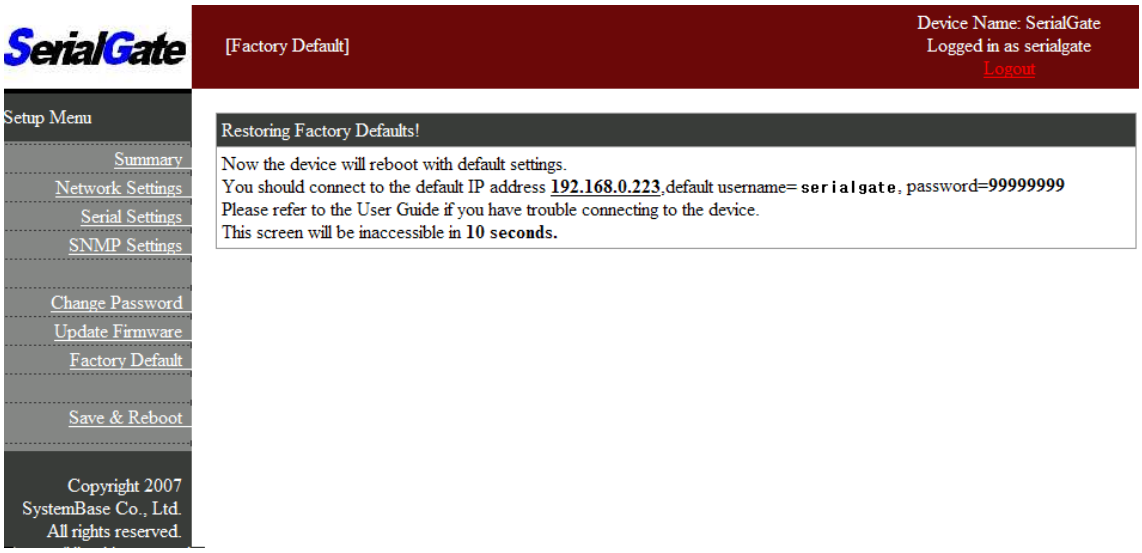
Restore all the configuration parameters to the factory default values. Clicking on 'Restore Factory Defaults' button will delete all current settings and restore settings to the initial status, and SerialGate will automatically reboot.

SG-1010, 1020, 1010(w)/ALL, 1020(w)/ALL : LAN Default IP Address 192.168.0.223, 10.10.1.1

SG-1040, 1080, 1160 : WAN Default IP Address 192.168.0.223, LAN Default IP Address 10.10.1.1

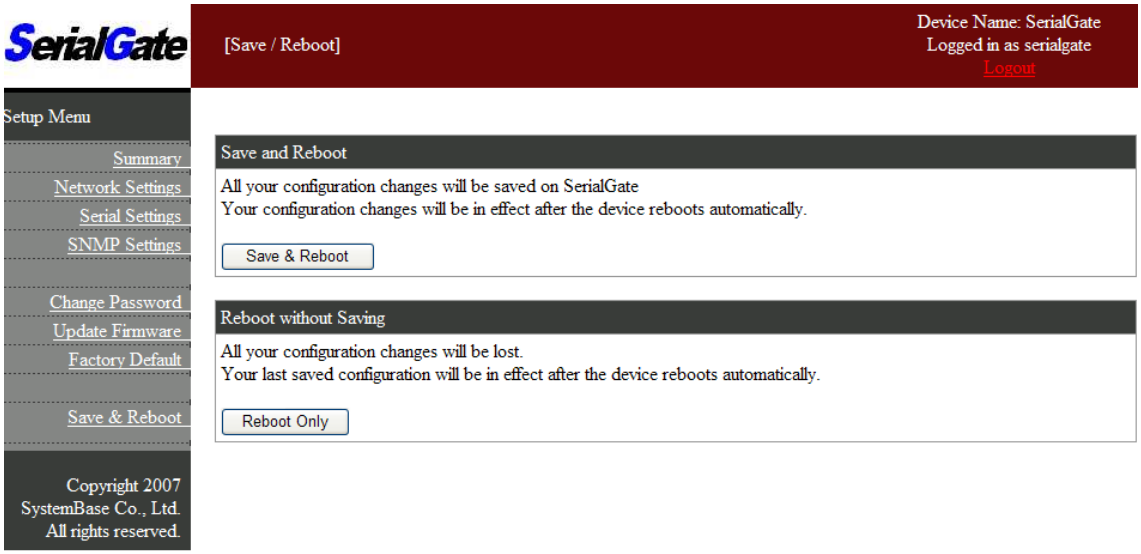


If Factory Default is complete, it shows the initialized IP address, username and password as below, and restarts the device.



Save & Reboot

This option saves changes to the Flash memory and restarts the system to let the changes to take place in the operation.



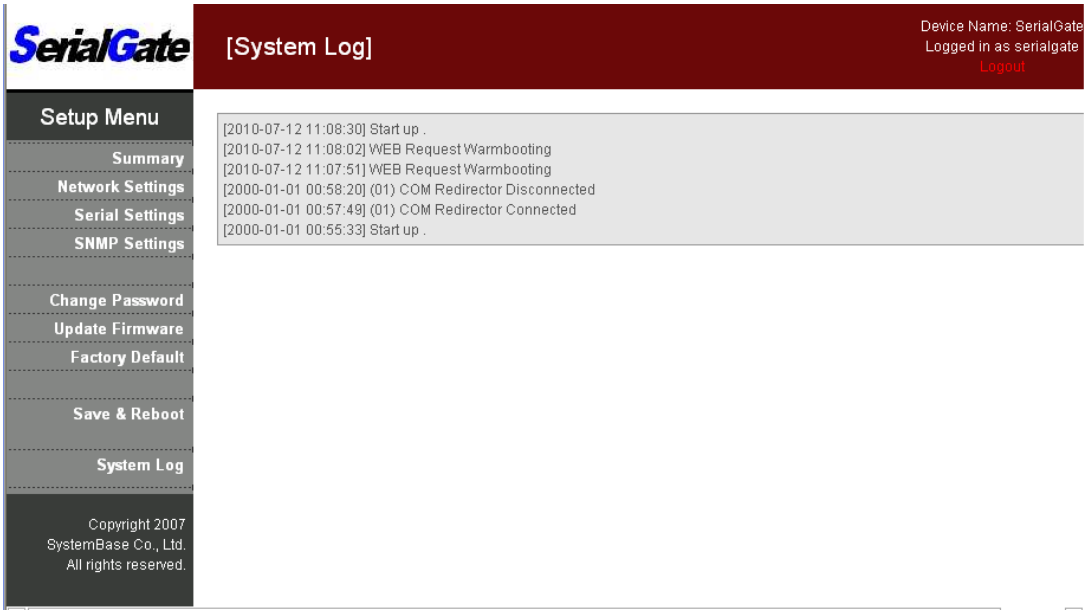
Main features for Save & Reboot are as follows

Menu	Descriptions
Save and Reboot	Reboots SerialGate after saving changes to Flash memory.
Reboot Only	Reboots SerialGate without saving changes. This option can be used to rollback the changes you have mistakenly made.

System Log

This feature confirms SerialGate's system log information. (Only available for SerialGate-1040/1080/1160) It records system startup and shutdown time, ending time of each port connection, configuration and so on.

```
C:\>telnet 192.168.0.223
SerialGate Login : serialgate
Password :99999999
#test_rtc –-s   2010   7   8   15   00   00        ← Set Current time (Year, Month, Date,
                                                      Hour, minute, second)
#test_rtc –-g                                     ← setting time
Get ioctl RTC Time = 2010-7-8, 15:00:05           ← Shows time elapsed
#reboot
```



Ch. 6 Configuration via Telnet

Connection

Open your telnet client program and enter SerialGate's IP address to connect. You need to enter appropriate username and password to login. Please note that this username and password is used as authentication method for Web as well. This means if username or/and password has been modified from the telnet interface, modified values have to be entered to connect to web, and vice versa.

- **Factory default username** : serialgate
- **Factory default password** : 99999999

[def] commands - you can configure SerialGate's settings.
[def help] commands - you can view current SerialGate's settings.

After changing values, you can see modified values with 'set view' commands. But, be careful because these values are not in effect unless you issue a '**def save**' command. Changes will be discarded if you do not save current settings.

View Commands

Commands related to View are as follows.

Command	Description
def view	Show all information about SerialGate
def view wan	Show WAN network settings
def view management	Show managing items settings
def view serial	Show serial port settings
def help	Show command list and help

Network Commands

Commands related to configuration of general network environment and network management are as follows.

Command	Default	Description
def mac <Mac Address>	00:05:f4:00:20:57	Register SerialGate's MAC address
def line [ip/dhcp]	Static IP	IP obtaining method for SerialGate's network connection
def ip <IP Address>	192.168.0.223	Display the current IP address If line type is Static IP, manually enter an appropriate IP address. If line type is DHCP, it is not editable. Instead, current IP address is shown.
def mask <Subnet mask>	255.255.255.0	Display the current subnet mask address If line type is Static IP, manually enter an appropriate subnet mask address. If line type is DHCP, it is not editable. Instead, current subnet mask address is shown
def gateway <Gateway address>	192.168.0.1	Display the current Gateway address If line type is Static IP, manually enter an appropriate Gateway address.

		If line type is DHCP, it is not editable. Instead, current Gateway address is shown
def dns <IP Address>	168.126.63.1	Set IP address of Domain Name Service
def portviewip <IP address>	0.0.0.0	Configures IP of PC which Portview is installed If IP is set to 0.0.0.0, Portview feature is disabled. (Please refer to Portview User Manual in SerialGate Utility & Documents CD for detailed information.)
def portviewport <Port number>	4000	Set the socket number of a PC which Portview is installed.
def ftp [enable/ disable]	Enable	Enable or disable FTP service. If disabled, you cannot connect to SerialGate via FTP.
def telnet [enable/ disable]	Enable	Enable or disable Telnet service. If disabled, you cannot connect to SerialGate via Telnet.
def web [enable/ disable]	Enable	Enable or disable Web service. If disabled, you cannot connect to SerialGate via Web.
def ssh [enable/ disable]	Disable	Enable or disable SSH service. If enabled, you can connect to SerialGate via SSH.
def ddns [IP Address]	203.32.117.1	If you set DDNS server IP, DDNS service will be enable. But if you set “0.0.0.0”, this service will be disabled.
def ddnsuser [username]	serialgate	Set username to access DDNS server.
def ddnspass [password]	99999999	Set password to access DDNS server.
def name [SerialGate name]	Product Name	Set the name of SerialGate. (Max 32 bytes)
def snmp [enable/ disable]	Disable	Enable or disable SNMP(Simple Network Management Protocol) - MIB-II(RFC 1213): System, Interface, IP, ICMP, TCP, UDP - MIB-I (RFC 1317): Serial Interface
def v1readwrite [enable, disable]	Disable	SNMP V1/2 Attributes can read and write by SNMP Agent. In order to read attributes only, change the feature to "ReadOnly.”

		In order to read and write attributes change the feature to "ReadWrite." (Options : ReadOnly/ ReadWrite)
def v3readwrite [enable, disable]	Disable	SNMP V3 Attributes can read and write by SNMP Agent. In order to read attributes only change the feature to "ReadOnly." In order to read and write attributes change the feature to "ReadWrite." (Options : ReadOnly/ ReadWrite)
def v3username [string]	serialgate	Configure the Username to use SNMP V3.
def v3password [string]	none	Configure the password to use SNMP V3.
def trapip [address]	0.0.0.0	Configure the server IP address which transmits the TRAP information.
def trapoprt [Socket No.]	162	Configure the server Port which transmits the TRAP information.
def trap_reset [enable, disable]	Enable	If Enable is selected, inform the "System reset info".
def trap_connect [enable, disable]	Disable	If Enable is selected, inform the "Serial Port opened info".
def trap_disconnect [enable, disable]	Disable	If Enable is selected, inform the "Serial Port Closed info".

Serial Commands

You can set the communication and operation environment for serial port. Please refer to Chapter 5 for details of each option.

Commands	Default	Description
def port x protocol [disable, com_redirect, tcp_server, Tcp_client,	com	Select the operation protocol to be used in serial port.

Commands	Default	Description
tcp_broadcast, Tcp_multiplex, udp_server, udp_client, pair_master, pair_slave, modbus, user]		
def port x interface [rs422, ts485ne, rs485e]	RS232, RS422	Configure interface of serial port. It is not available for RS232 model. Combo model can choose from RS422, RS485-No-Echo and RS485-Echo. SerialGate-1160 can choose from RS232, RS422 and RS485.
def port x socket <port number>	4001	Set the socket number for the port. Com_redirect, TCP Server, TCP Multiplex, TCP Broadcast, UDP Server, Pair_Slave modes make use of this port for awaiting network socket connections.
def port x name <name>	Port 1	Name each port for convenience. 16 Characters at maximum
def port x speed [150/300/600/1200/2400/4800/9600/19200/38400/57600/115200/230400/460800/921600]	9600bps	Set communication speed.
def port x data [5 / 6 / 7 / 8]	8	Set the number of bits in each character size.
def port x stop [1 / 2]	1	Set the number of stop bits.
def port x parity [none/odd/even]	none	Set parity bit check scheme.
def port x flow [none/xon/rts]	none	Set the flow control scheme.

Commands	Default	Description
def port x signal [data/modem]	data	Set the signal line checking method for the device to be connected to the given serial port.
def port x remote <IP address>	0.0.0.0	Set IP address of the server to be connected in TCP Client, UDP Client, Pair_Master mode.
def port 1 remoteport <socket number>	4000	Set the socket number to connect to when the Operation Mode is set to TCP Client or UDP Client or Pair_Master mode.
def port x keepalive <0 ~ 65535>	0	After a certain amount of time passes without any communication after the socket connection between the given serial port and the server is established, automatically disconnect the socket connection.
def port x latency <msec>	0	This needs to be set when consecutive data from the given serial port needs to be transmitted to socket at once.
def port x txtrigger [auto, 1, 2, 4, 8, 16, 32, 64, 96, 128]		Set txtrigger of each port.
def port x rxtrigger [auto, 1, 2, 4, 8, 16, 32, 64, 96, 128]		Set rxtrigger of each port.
def port x fifosize <1 ~ 128>		Set fifosize of each port.
def port x login <Enable/Disable>	Disable	When the Operation Mode is set to TCP Server, ask for the username and password when the client tries to connect.
def port x loginname <username>	None	When the Operation Mode is set to TCP Server, set the username to ask for(Max 8 bytes)
def port x loginpass <password>	None	When the Operation Mode is set as TCP Server, set the password to ask for(Max 8 bytes)
def port x termination <Enable/Disable>	Disable	Set termination for each port.

Username/Password Commands

Configure username and password for Web/Telnet/FTP.

Commands	Default	Descriptions
def username <username>	serialgate	Set username to use in Web, Telnet, or FTP. 16 Characters at maximum.
def password <password>	99999999	Set password to use in Web, Telnet, or FTP. 16 Characters at maximum.

System Commands

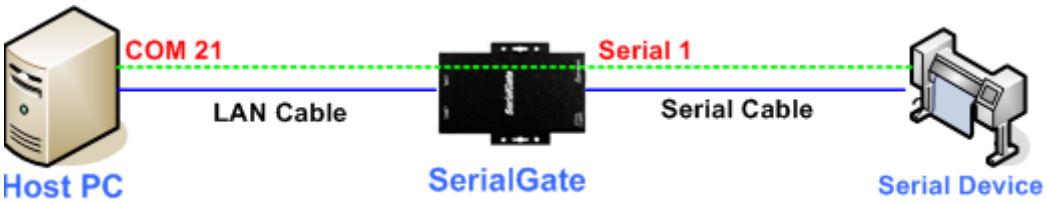
Commands	Descriptions
def default	Restore all settings to factory default. Requires reboot for changes to take effect.
def save	Save current configuration settings. Requires reboot for changes to take effect.
Reboot	Reboot Serialgate.

Ch. 7 Application

SerialGate can be used in many practical applications in various fields. Here we present some of them.

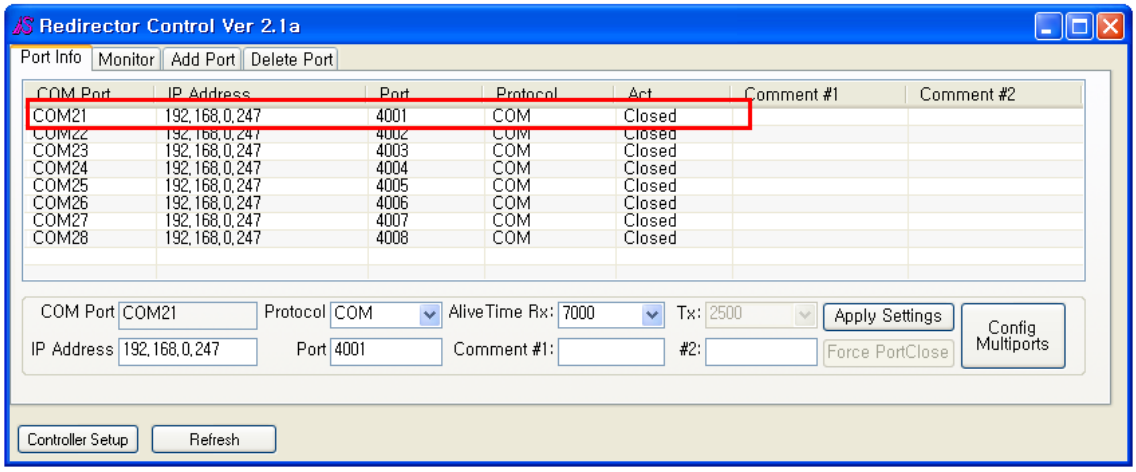
Com Port Redirector

With COM Port Redirection, a user can use serial port connected to SerialGate on the network as if it is a serial port on PC.

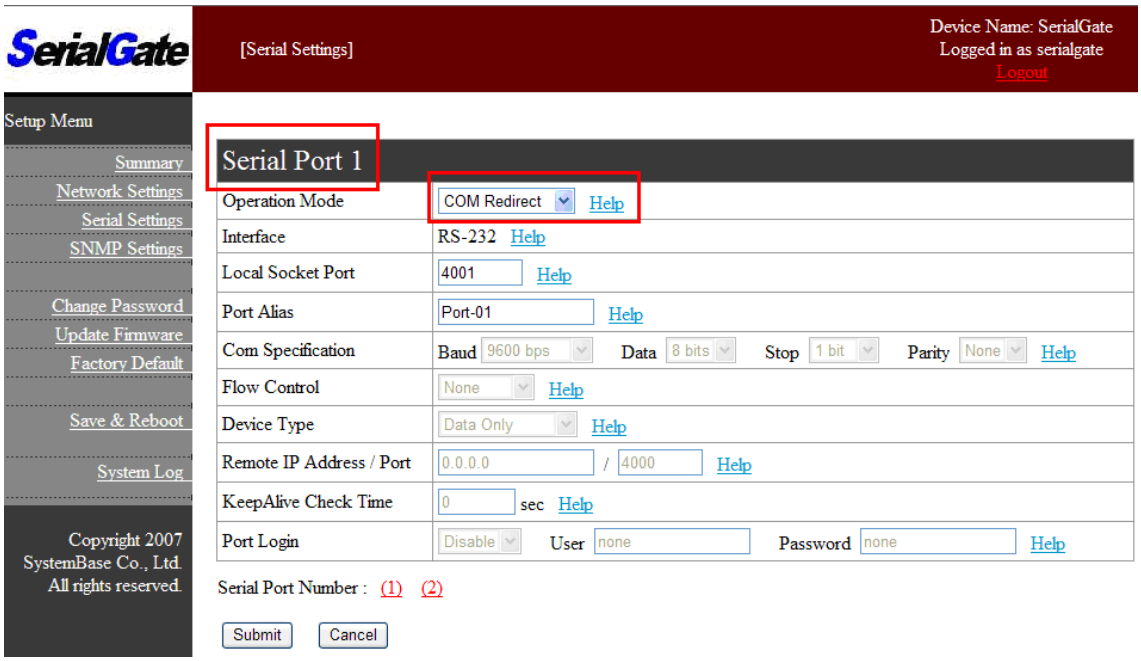


Install Com Port Redirector and set the following steps. (For installation, please refer to Com Port Redirector manual enclosed in CD.

In the picture below, IP address of SerialGate is 192.168.0.247, and the first serial port is being used. A user can open Com 21 and use serial device connected to SerialGate.

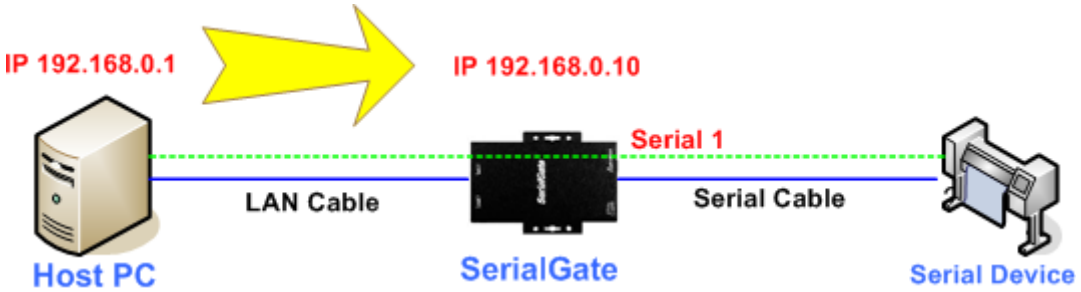


In order to correspond to the Redirector setting of PC, change the setting in the first serial port of SerialGate as follows.



TCP_Server (TCP/IP connection from PC to SerialGate)

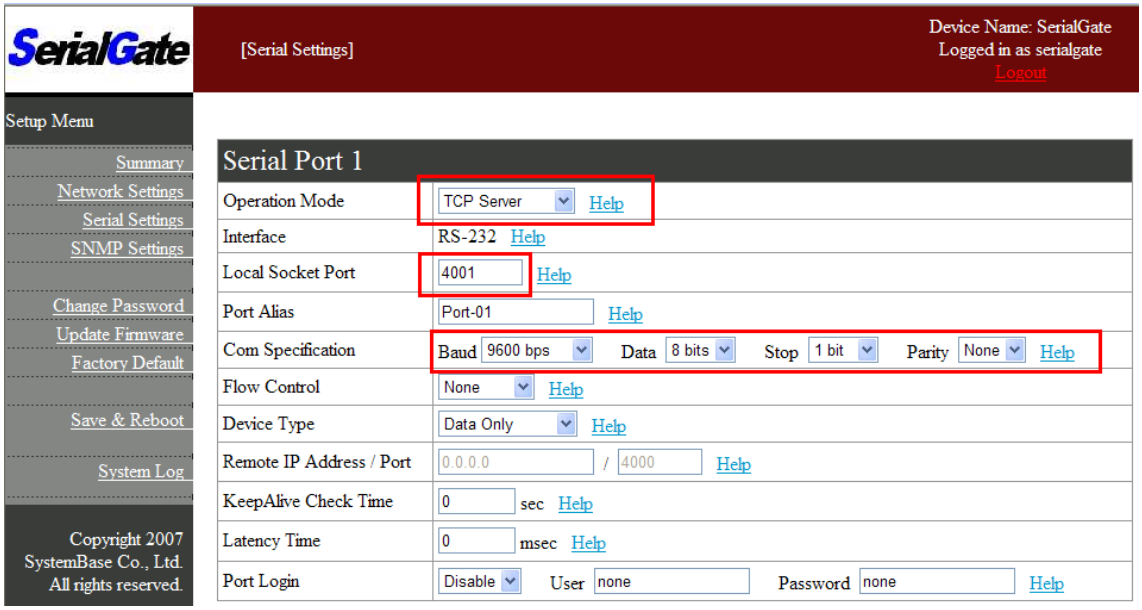
In PC's socket program, connect the first serial port of SerialGate.



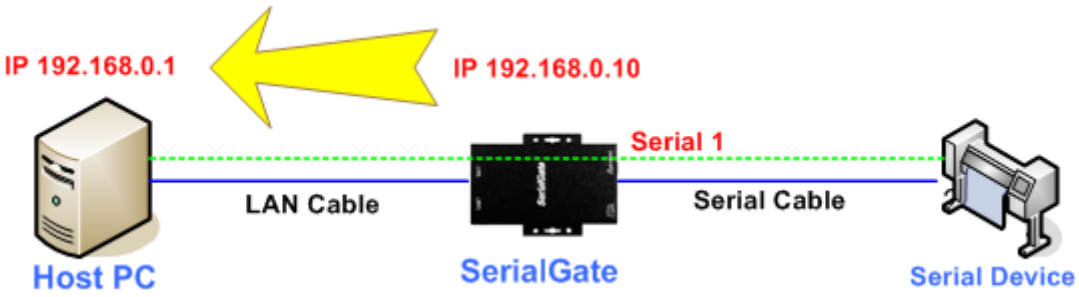
Since socket number for the first port of SerialGate is default 4001, try to connect to SerialGate's IP address and socket number 4001 when connecting from a PC to SerialGate.

As shown below, change the Operation Mode to TCP_Server and confirm the socket number waiting for connection. .

Check the communication speed of a serial device to be connected to serial port, and set it to Com Specification.

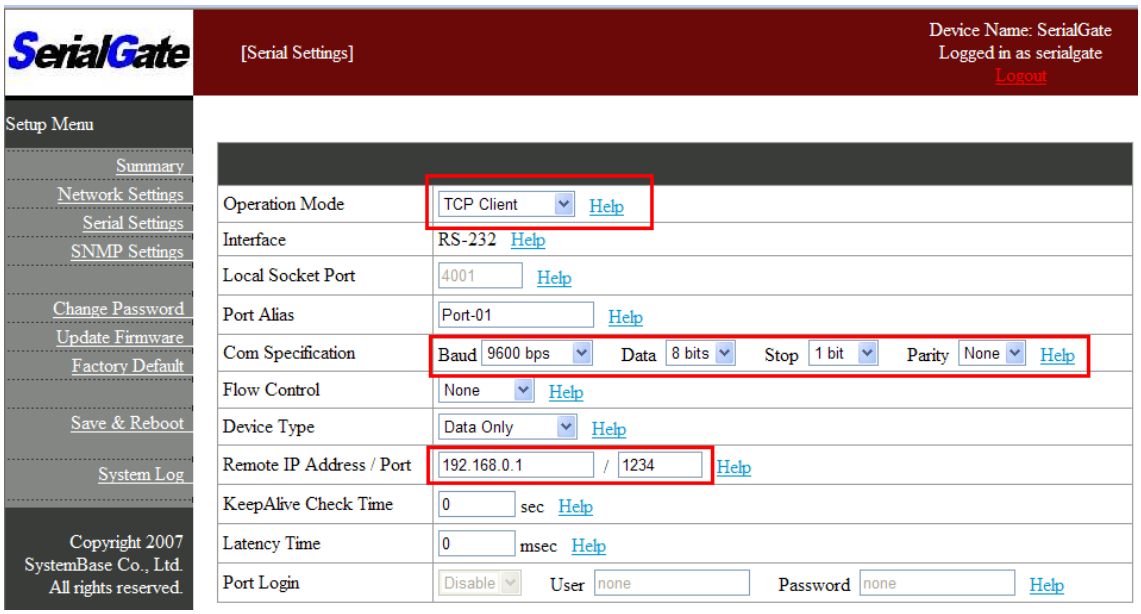


TCP_Client (TCP/IP Connection: SerialGate → PC)



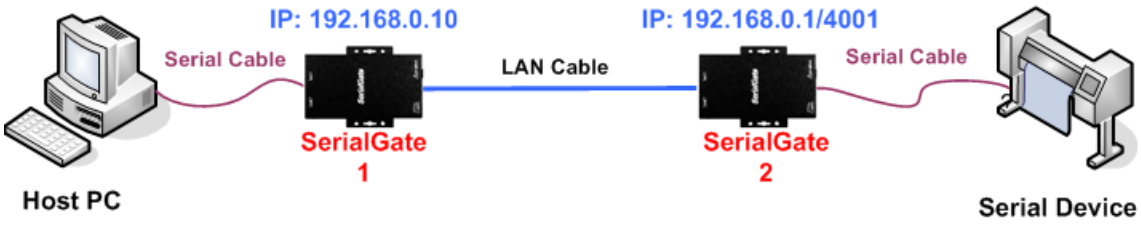
Since it is a connection from SerialGate to a PC, change the Operation Mode to TCP_Client and register PC's IP address and socket number to be connected.

Check the communication speed of a serial device to be connected to serial port, and set it to Com Specification.



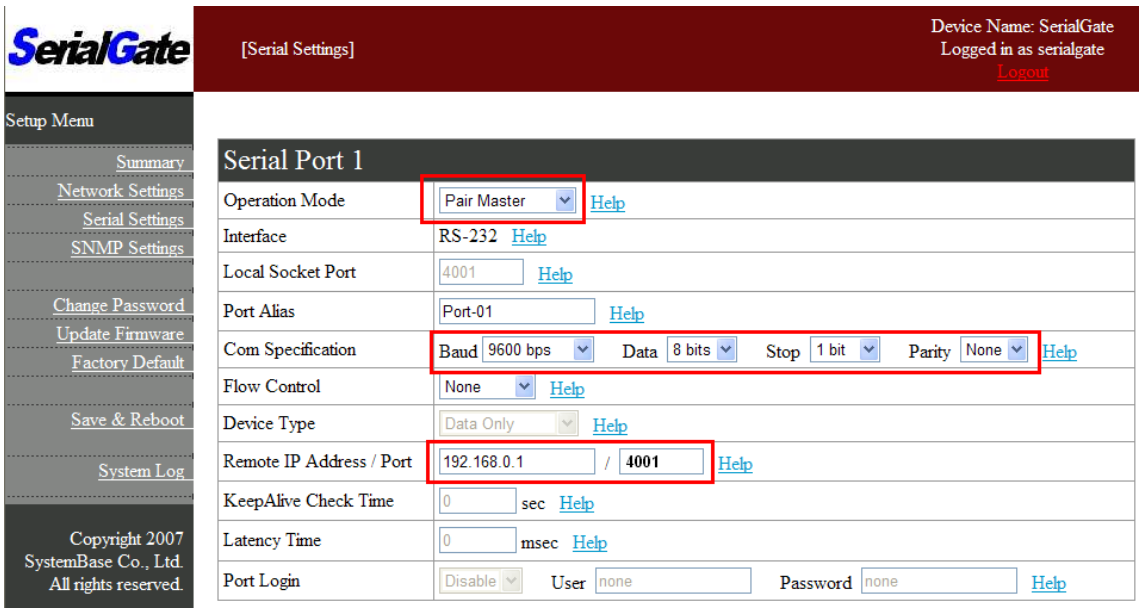
Pair (Serial Line To Serial Line)

This structure is mainly used when the cable length between PC and serial device is short so a user needs to extend the communication distance. This approach consists of two SerialGates connected in Pair.



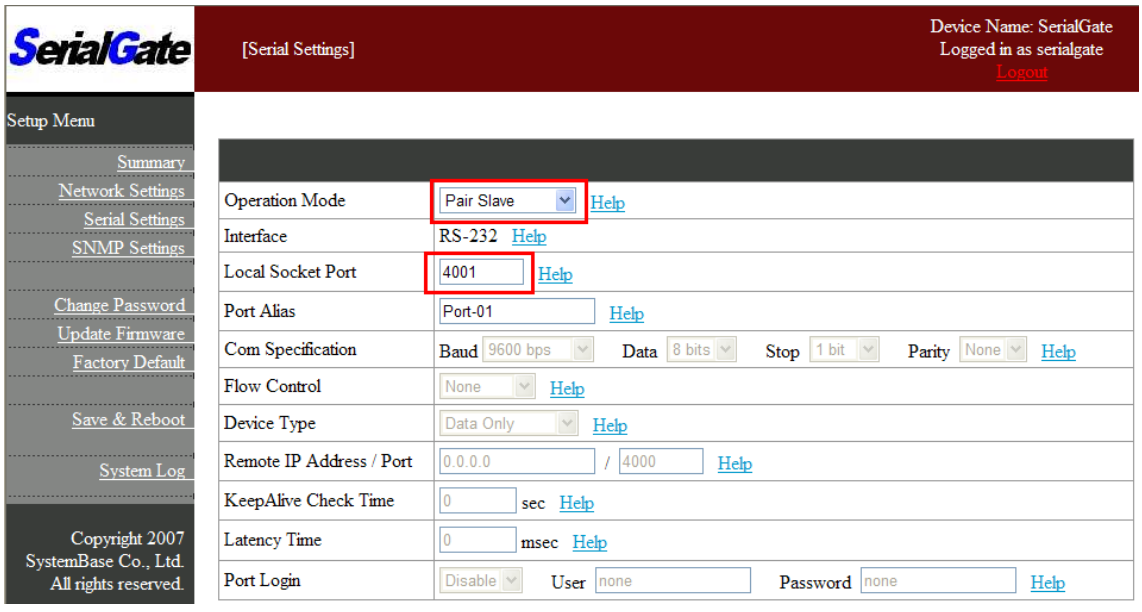
Setting for SerialGate 1

In order to perform Master features, change Operation Mode to Pari_Master. Check the communication speed of a PC and set it in Com Specification, and also register Slave SerialGate's IP address and port number in Remort IP/Port.



Setting for SerialGate 2

In order to wait for Master connection, set Operation Mode to Pari_Slave and register the socket number to be connected in Local Socket Port.



Ch. 8 Appendix

Troubleshooting

This section describes procedures for troubleshooting problems you may encounter with SerialGate.

Troubleshooting Installation Problems

If you cannot access the connected serial device via SerialGate, first check the network connection and cabling.

- Check the physical cabling to ensure all cables are plugged in (Ethernet and DB-9 serial cable)
- If the appropriate LEDs are not illuminated, then there is probably a bad 10baseT or 100baseTX cable, or the hub port is bad. If possible, try a different cable and hub port, or try connecting a different device to the cable.
- Verify that you are using the correct values for both IP Address and Port Number.
- If you are using a hub, verify that the hub port is operating correctly by trying SerialGate on a different port.

Troubleshooting Network Configuration Problems

- If you are using TCP/IP, make sure that your computer and SerialGate are on the same IP segment or can reach each other with a PING command from the host. The IP address you assign to SerialGate must be on the same logical network as your host computers (e.g., if your computer has an IP address of 192.189.207.3 and the subnet mask of 255.255.255.0, SerialGate should have an IP address of 192.189.207.x, where x is an integer between 1 and 254), or you must properly configure your router address to work with SerialGate.
- If your Device Server is set to Auto or DHCP for obtaining an IP Address, it is possible that SerialGate's IP address can change. Either configure your DHCP server to give SerialGate a permanent lease, or configure SerialGate to be on a STATIC IP address outside the scope of the DHCP addresses.

- The problem may be the result of mismatched or duplicate IP addresses. Verify that the IP address is correctly loaded into SerialGate (via the displayed or printed configu ration information or through the remote console), and make sure that no other nodes on the network have this address (duplicate addresses are the biggest cause of TCP/ IP connectivity problems). If the IP address is not correct, then check whether the lo ading procedure was properly executed.
- Also verify that the host computer and SerialGate are using the same subnet masks(f or example, if SerialGate has a subnet mask of 255.255.255.0, the host must have th e same subnet mask) or that the router is properly configured to pass data between the two devices.
- If the wrong IP address is loaded, check your network for DHCP server, and make s ure that the server is not set up to load wrong IP addresses into SerialGate.

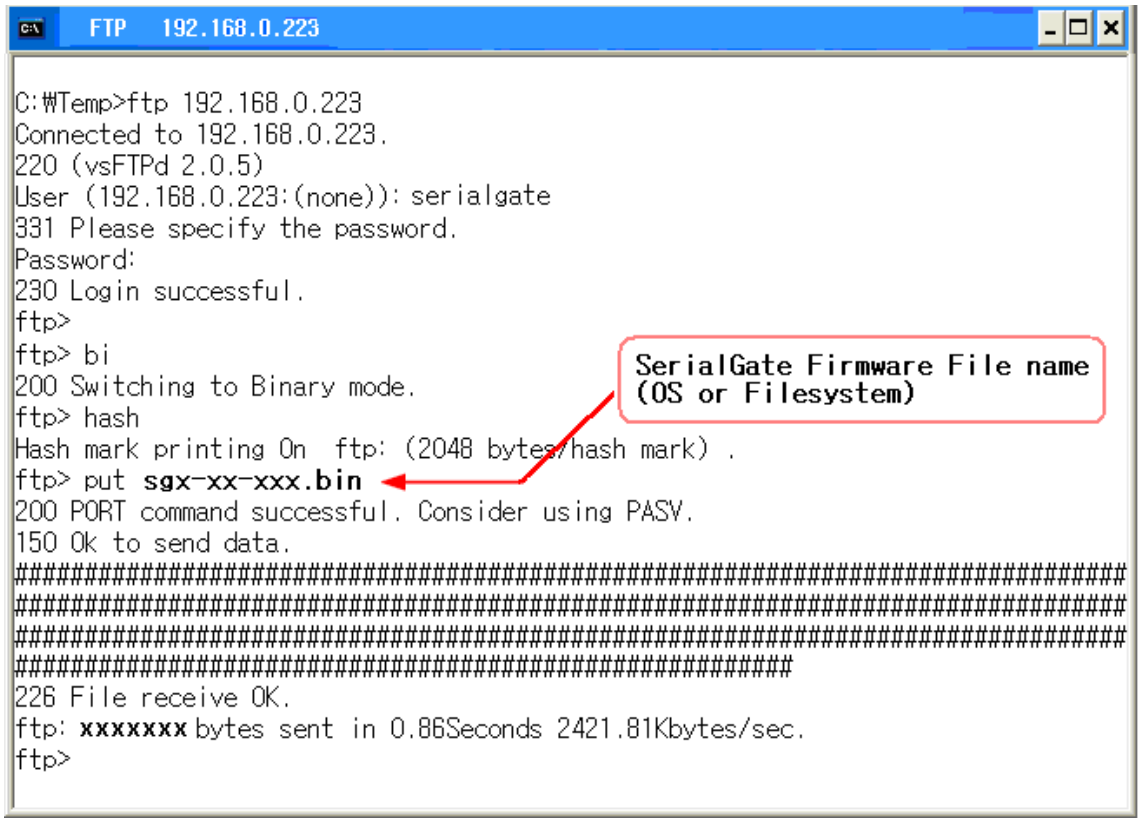
Troubleshooting Windows Problems

- If you are having trouble accessing the connected serial device through Windows, ens ure you can ping SerialGate using the command PING x.x.x.x, where x.x.x.x is the IP address of SerialGate. If you cannot ping SerialGate, you will not be able to access the serial device.
- If you are running COM port redirector and the software reports an error, verify that t he correct virtual COM port is being used when the application runs. Verify that your application's COM port settings have been changed to use the virtual COM ports.

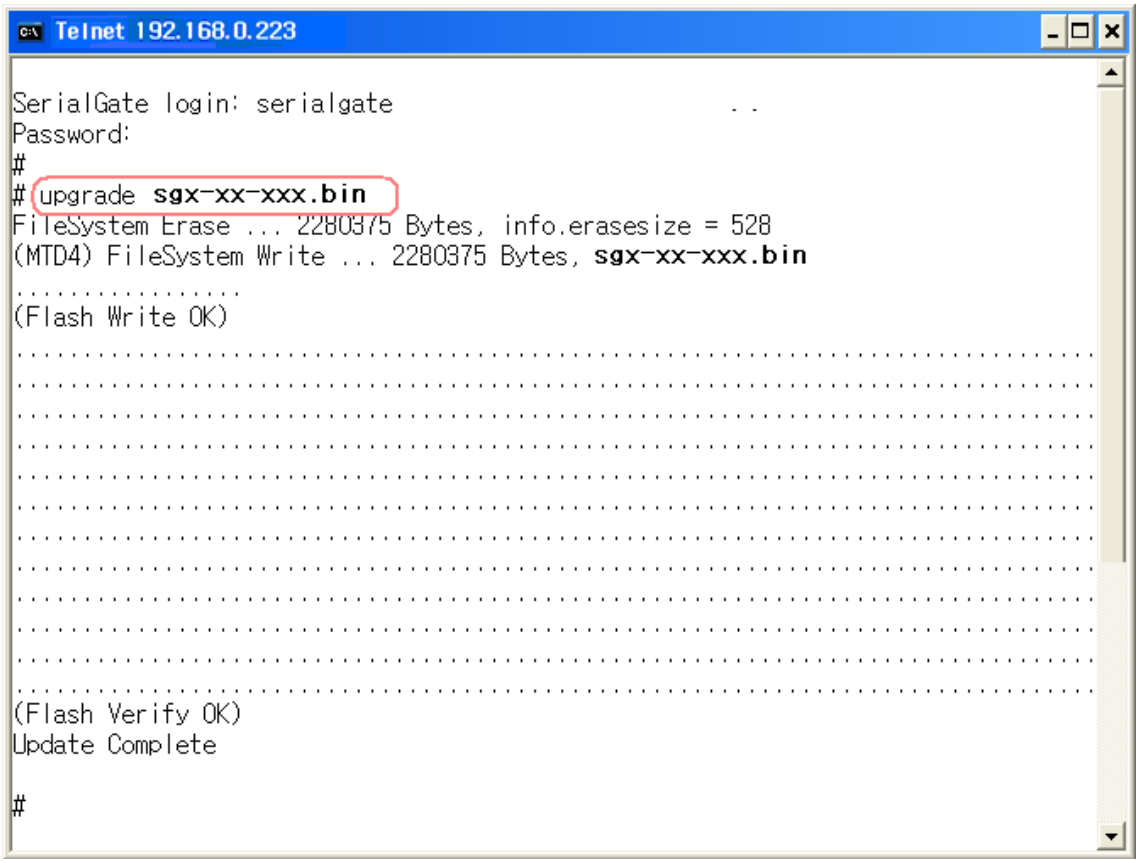
Firmware Update using FTP

A user can upload firmware using web browser, FTP, and etc.

1) Connect to SerialGate with FTP, using correct username and password. (Default: serialgate, 99999999)
2) Issue a command 'bi' for binary file transfer mode. Optionally use 'hash' to see the data transfer mark.
3) Issue 'put' command to upload the firmware file.
4) After getting a 'Transfer complete' message, issue a command 'bye' to disconnect. Now we are ready to update the firmware.



5) Connect to SerialGate via Telnet, using correct username and password. (Default: eddy, 99999999)
6) After the login, you are already at the default directory where the firmware resides. Update can start right away.
7) Issue a command 'ls' to make sure firmware files are both successfully uploaded.
8) Use 'upgrade' command to write this file into SerialGate's Flash memory. Upgrade application automatically detects whether the given firmware is kernel or file system.
9) Usage: Upgrade <firmware name> (Filename is case-sensitive.)
10) Make sure 'Flash Write OK' and 'Flash Verify OK' messages are displayed.
11) Enter 'reboot' to restart SerialGate. Now SerialGate will run with the new firmware.


Telnet 192.168.0.223
SerialGate login: serialgate
Password:
#
upgrade sgx-xx-xxx.bin
FileSystem Erase ... 2280375 Bytes, info.erasesize = 528
(MTD4) FileSystem Write ... 2280375 Bytes, sgx-xx-xxx.bin
(Flash Write OK)
(Flash Verify OK)
Update Complete
#

Product Specification

Communication

LAN Port	SerialGate-1010 SerialGate-1010/ALL SerialGate-1010w/ALL SerialGate-1020 SerialGate-1020/ALL SerialGate-1020w/ALL	10/100Mbps RJ-45 Port * 1EA
	SerialGate-1040 SerialGate-1080 SerialGate-1160	10/100Mbps RJ-45 Port * 2EA
Network	Static IP, DHCP IP	
Number of Serial Ports	SerialGate-1010	1 Port (RS232 or COMBO(RS422/RS485))
	SerialGate-1010/ALL	1 Port (RS232/RS422/RS485)
	SerialGate-1010w/ALL	1 Port (RS232/RS422/RS485)
	SerialGate-1020	2 Ports (RS232 or COMBO(RS422/RS485))
	SerialGate-1020/ALL	2 Ports (RS232/RS422/RS485)
	SerialGate-1020w/ALL	2 Ports(RS232/RS422/RS485)
	SerialGate-1040	4 Ports (RS232 or COMBO(RS422/RS485))
	SerialGate-1080	8 Ports (RS232 or COMBO(RS422/RS485))
	SerialGate-1160	16 Ports (RS232/RS422/RS485)
Serial Max Speed	Max 921.6kbps	

Hardware

Process	SerialGate-Series	400Mhz
	SerialGate-1010, SerialGate-1020 only	210Mhz
Flash Memory	8MByte (SerialGate-1010: 4MByte)	
SDRAM	32MByte	
Power	SerialGate-1010 SerialGate-1020	DC 9 ~ 30V Adapter(Terminal Block) Power Consumption: 2W
	SerialGate-1010(w)/ALL SerialGate-1020(w)/ALL	DC 9 ~ 30V Adapter(Terminal Block) Power Consumption: 2.8W
	SerialGate-1040 SerialGate-1080 SerialGate-1160	100 ~ 220 VAC(Free Volt) Power Consumption: 2.5W
Size	SerialGate-1010 SerialGate-1020	71.9(W)*107.5(L)*25.2(H)mm
	SerialGate-1010(w)/ALL	65(W)*79.5(L)*24.3(H)mm
	SerialGate-1020(w)/ALL	80.9(W)*110.5(L)*24.3(H)mm
	SerialGate-1040 SerialGate-1080	240(W) * 150(L)* 50(H)mm
	SerialGate-1160	430(W) * 193(L)* 45(H)mm
Weight	SerialGate-1010	125 g
	SerialGate-1020	130 g
	SerialGate-1010(w)/ALL	150 g (Antenna included, Antenna: 20g)
	SerialGate-1020(w)/ALL	220 g (Antenna included, Antenna: 20g)
	SerialGate-1040	1,175 g
	SerialGate-1080	1,215 g
	SerialGate-1160	2,470 g
Operation Temperature	SerialGate-1010 SerialGate-1020 SerialGate-1010(w)/ALL SerialGate-1020(w)/ALL	-40℃ ~ 85℃
	SerialGate-1040 SerialGate-1080 SerialGate-1160	0℃ ~ 50℃
Humidity	Max 95% R.H	

LED	Power ,Serial ,Ready, Link	
Serial Port Protection	± 15kV ESD Protection	
SD/MMC CARD	SerialGate-1040 SerialGate-1080 SerialGate-1160	SD Support(Max 32GB)

Reset Button

Feature	Action	Result
Warm Booting	Press for less than 3 sec.	SerialGate reboots
Factory Default	Press for more than 3 sec.	Restores the default setting

Software

Protocol	TCP, UDP, Telnet, ICMP, DHCP, TFTP, HTTP, SNMP 1/2/3, SSH, SSL
Management Tool	Portview
Configuration	Telnet, Web

Ordering Information

SerialGate-1010 (RS232)	1 x Serial Port (RS232 only)
SerialGate-1010 (Combo)	1 x Serial Port (RS422/RS485 selectable)
SerialGate-1010/ALL	1 x Serial Port (RS232/RS422/RS485 selectable)
SerialGate-1010w/ALL	1 x Serial Port (RS232/RS422/RS485 selectable)
SerialGate-1020 (RS232)	2 x Serial Port (RS232 only)
SerialGate-1020 (Combo)	2 x Serial Port (RS422/RS485 selectable)
SerialGate-1020/ALL	2 x Serial Port (RS232/RS422/RS485 selectable)
SerialGate-1020w/ALL	2 x Serial Port (RS232/RS422/RS485 selectable)
SerialGate-1040 (RS232)	4 x Serial Port (RS232 only)
SerialGate-1040 (Combo)	4 x Serial Port (RS422/RS485 selectable)
SerialGate-1080 (RS232)	8 x Serial Port (RS232 only)
SerialGate-1080 (Combo)	8 x Serial Port (RS422/RS485 selectable)
SerialGate-1160 (All)	16 x Serial Port (RS232/RS422/RS485 selectable)