Serial Device Server

SD-300

User's Manual

silex technology

WA105970XA

Index

1. Introduction

Thank you for purchasing the Serial Device Server SD-300.
This manual provides information on how to configure and use SD-300.
Please read the **1-2.Safety Instructions** carefully before using SD-300.

1-1. Introduction

About the notation

* This manual uses the following symbols to indicate specific information for operating SD-300.
* Be sure to carefully review before using SD-300.

TIP : This symbol indicates important information that needs to be observed when operating SD-300. Make sure to read this information for safe and proper use.

Note : This symbol indicates information that is useful when using SD-300. If you experience difficulties operating SD-300, please refer to this information first.

Disclaimers

* The unauthorized transfer or copying of the content of this manual, in whole or in part, without prior written consent is expressly prohibited by law.
* The content of this manual is subject to change without notice.
* This manual was prepared to accurately match the content of each OS, but the actual information shown on the computer monitor may differ from the content of this manual due to future OS version upgrades, modifications, and other changes.
* Although every effort was made to prepare this manual with the utmost accuracy, Silex Technology will not be held liable for any damages as a result of errors, setting examples, or other content.

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* Other brand or product names are registered trademarks or trademarks of their respective owners.

1-2. Safety Instructions

This page provides the safety instructions for safe use of SD-300.
To ensure safe and proper use, please read the following information carefully before using SD-300. The safety instructions include important information on safe handling of SD-300 and on general safety issues.

< Indication of the warning >

	Warning	"Warning" indicates the existence of a hazard that could result in death or serious injury if the safety instruction is not observed. result in bodily injury if the safety instruction is not observed.
	Caution	"Caution" indicates the existence of a hazard that could result in serious injury or material damage if the safety instruction is not observed.

< Indication of the symbol >

	This symbol indicates the warning and notice. (Example:  "Danger of the electric shock")
	This symbol indicates the prohibited actions. (Example:  "Disassembly is prohibited")
	This symbol indicates the necessary actions. (Example:  "Remove the AC plug from an outlet")

⚠ Warning

	* In the following cases, turn off the connected devices and unplug the AC plug of this product from a power outlet. Failure to follow these instructions may cause fire or an electrical shock. - When this product emits a strange smell, smoke or sound or becomes too hot to touch. - When foreign objects (metal, liquid, etc.) gets into this product. - When this product is dropped or the case is broken or cracked.
	* Do not disassemble or modify this product. It may cause fire, electrical shock or malfunction. * Do not disassemble or modify the AC adaptor that came with this product. It may cause fire, electrical shock or malfunction.
	* Do not cover up the vents on this product. The temperature inside may rise and cause fire or malfunction. * Do not place any objects on top of this product. It may cause fire, electrical shock or malfunction. * Do not place any objects on top of this product. It may cause fire, electrical shock or malfunction. * Do not roll up or wrap the AC cord. It may cause fire or an electrical shock. * Do not plug or unplug the AC adaptor or any other cables with wet hands. It may cause an electrical shock or malfunction. * Keep the small parts out of reach of young children. If these are swallowed, consult a doctor immediately.
	* For use of the devices connected to this product, please follow all warnings, cautions and notices given by that manufacturer and carefully use them in a proper manner. * Failure to follow these instructions may cause fire, electrical shock or malfunction. * Use the correct power voltage. Improper voltage may cause fire or an electrical shock. * If a ground wire is supplied with your device to use with, connect it to the ground terminal in order to prevent an electrical shock. Do not connect the ground wire to gas pipe, water pipe, lighting rod or telephone ground wire. It may cause malfunction. * Keep the cords and cables away from children. It may cause an electrical shock or serious injury.

Caution

	* Use the AC adaptor supplied with this product. Other AC adaptors may cause malfunction. * Do not place any objects on the cable or bend, twist, or pull it excessively. * Do not use or store this product under the following conditions. * It may cause malfunction. - Locations subject to vibration or shock - Shaky, uneven or tilted surfaces - Locations exposed to direct sunlight - Humid or dusty places - Wet places (kitchen, bathroom, etc.) - Near a heater or stove - Locations subject to extreme changes in temperature - Near strong electromagnetic sources (magnet, radio, wireless device, etc.)
	* Do not pull on the cord to disconnect the plug from the power supply. The code may be broken, which could result in fire or an electrical shock. * Follow the law of each country when you discard this product. * Verify all codes or cables are plugged correctly before using this product.
	* When this product will not be used for a long time, unplug the power cables of * this product and the other devices you are using with it. * When removing this product, disconnect the AC plugs of both this product and the other devices you are using with it.

1-3. Product Information and Customer Services

Product Information

The services below are available from the Silex Technology website. For details, please visit the Silex Technology website.

* Latest firmware download
* Latest software download
* Latest manual download
* Support information (FAQ)

URL:https://www.silextechnology.com/

Customer Support Center

Customer Support is available for any problems that you may encounter.
If you cannot find the relevant problem in this manual or on our website, or if the corrective procedure does not resolve the problem, please contact Silex Technology Customer Support.

Contact Information	
USA	support@silexamerica.com

Note

* Refer to the Silex Technology website (https://www.silextechnology.com/) for the latest FAQ and product information.

2. About SD-300

2-1. Package Contents

Following items are bundled:

* SD-300
* AC adaptor
* Rubber foot (4pcs)
* Setup Guide
* Warranty Booklet
* GPL License Notice
  (Distribution of source code subject to open source software)

2-2. Features

SD-300 is a serial device server which allows you to connect to serial devices via wired LAN. SD-300 has the following features:

* **Share various serial devices**

  By using SD-300 and the serial device connection utility, "SX Virtual Link for Serial Device Server", you can share various serial devices among Windows PCs (for details on the supported OS, refer to **2-6. Software Specifications**). Serial devices can be used as if they were connected directly to your PC.

* **Support various applications**

  In addition to **SX Virtual Link for Serial Device Server**, SD-300 has 2 communication modes as follows to support a wide variety of network environments and operating systems.

  Ecable Mode

  If two SD-300's are used, you can communicate with serial devices or PCs with no network interface over the network. For details, refer to **5-2. Ecable Mode (Link to the Registered Device)**.

  Raw TCP Connection Mode

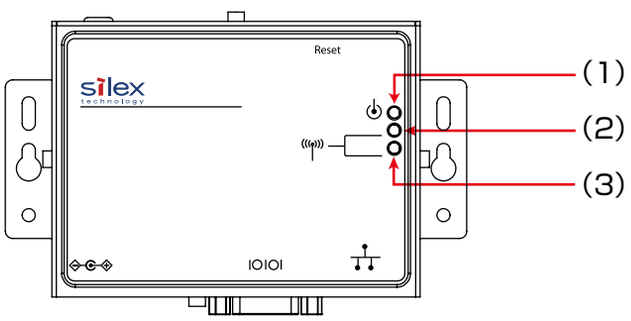
  Serial port data can be sent or received transparently over TCP/IP. You can communicate with a serial device using an application that runs on the TCP Socket API. For details, refer to **5-3. Raw TCP Connection Mode (Link to Serial Device Using TCP Raw Port)**.

2-3. Parts and Functions

Parts and Functions

The parts name and functions are as follows:

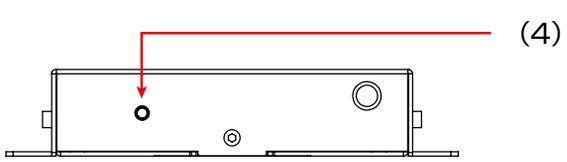
<<Front>>



SD-300

(1)	Orange LED	For details, refer to **2-4. LED Lighting Pattern**.
(2)	Yellow LED	
(3)	Green LED	

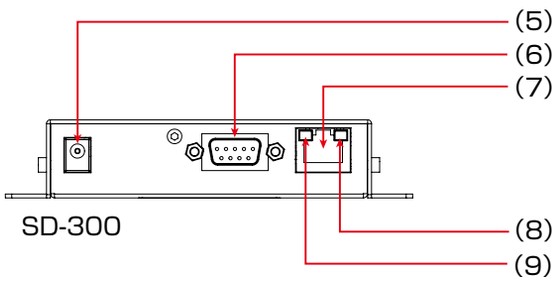
<<Top>>



SD-300

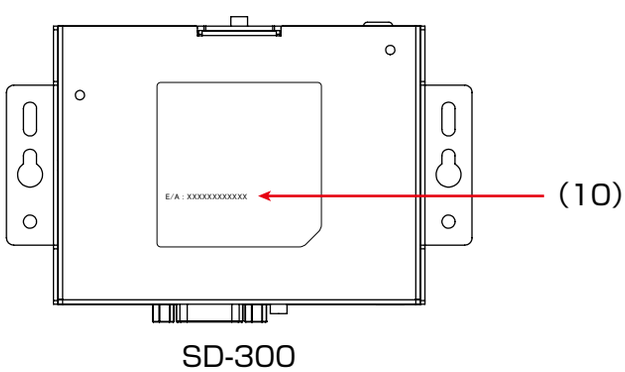
(4)	Push Switch	This push switch is used to reset to the factory defaults. For details on the factory default configuration, refer to **Reset to Factory Default**.

<<Bottom>>



(5)	AC Connector	Connect an AC adaptor.
(6)	Serial Port	Connect a serial cable.
(7)	Network Port	Connect a network cable.
(8)	Yellow LED	Indicates the network connection status. For details, refer to **2-4. LED Lighting Pattern**.
(9)	Green LED	

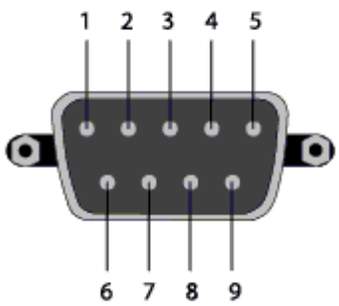
<<Back>>



(10)	Ethernet Address	Ethernet Address of SD-300

Serial Port PIN Assignment and Serial Cable

The serial port PIN assignment is as follows:



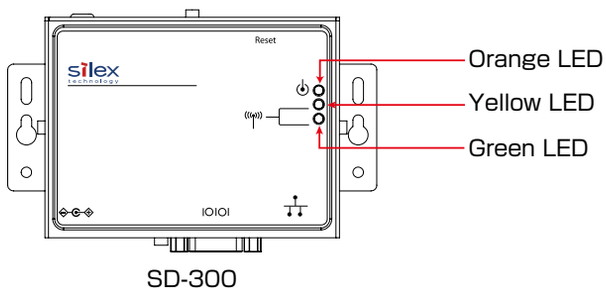
PIN No.	Details	Input / Output
1	DCD(Data Carrier Direct)	Input
2	RxD(Receive Data)	Input
3	TxD(Transmit Data)	Output
4	DTR(Data Terminal Ready)	Output
5	GND(Ground)	Input
6	DSR(Data Set Ready)	Input
7	RTS(Request To Send)	Output
8	CTS(Clear To Send)	Input
9	RI(Ring Indicate) / 5V in	Input

Use the serial cable that came with your serial device (the one you may have been using to directly connect the PC and serial device) or that is recommended in the operating manual of your serial device.

2-4. LED Lighting Pattern

SD-300 has 3 LEDs (Orange, Yellow, Green) to show the operating status.

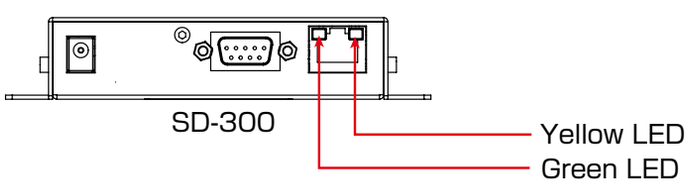
<<FRONT>>



Orange LED	Product Status
ON	SD-300 is powered on
OFF	SD-300 is not powered on
Blink	Updating the firmware

Yellow / Green LED		Product Status
Yellow LED	Green LED	
OFF	OFF	Operating in a wired LAN mode

<<BOTTOM>>



Yellow / Green LED		Product Status
Yellow LED	Green LED	
OFF	OFF	A network cable is not connected
OFF	ON	Connected in 10BASE -T network
ON	ON	Connected in 100BASE -TX network

2-5. Hardware Specifications

CPU	32bit RISC CPU	
Memory	RAM : 64MByte	
	FlashROM : 8MByte	
Wired network interface	10BASE-T / 100BASE-TX 1 port (auto-sensing)	
Serial Interface	RS-232C : 1 port	
Power supply	Operating voltage : 5V	
Push Switch	1 button	
LED	Front	3 Orange LED Yellow LED Green LED
	Wired LAN connector	2 Yellow LED Green LED
Operating environment	Temperature : 0°C to +50°C	
	Humidity : 20% to 80%RH (Non-condensing)	
Storage environment	Temperature : -20°C to +70°C	
	Humidity : 20% to 90%RH (Non-condensing)	
EMC	VCCI Class-B FCC Part 15 Subpart B Class-B ICES-003 Class-B	

Notice to US Customers

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

Notice to Canadian Customers

CAN ICES-3(B)/NMB-3(B)

2-6. Software Specifications

Software Specifications

Supported protocols		TCP/IP
		DHCP, BOOTP, TCP, UDP, ARP, ICMP, IPv4, SNMP, TELNET, HTTP, #3001, #9100, #9200, JCP(silex proprietary protocol), SXSPE(silex proprietary protocol)
Supported OS		* Windows 7 or later * Windows Server 2008R2 or later
Serial port	Baud rate	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600 (bps) * The baud rate higher than 115200bps is not guaranteed.
	Bits per character	7, 8
	Stop bit	1, 2
	Parity	NONE, ODD, EVEN
	Flow control	NONE, XON/XOFF, RTS/CTS
Others		RFC2217 support (see below for details)

TIP

- For the latest compatibility information for each operating system, visit our website (https://www.silextechnology.com/).

RFC2217 Command List

SD-300 supports RFC2217. When SD-300 is used in Serial Port Emulation Mode, you can utilize the following RFC2217 commands over the network.

Command	Details	Note
SIGNATURE	Exchanges the device information.	Not supported
SET-BAUDRATE	Changes the baud rate.	Client -> Server (one-way)
SET-DATASIZE	Change the bits per character.	Client -> Server (one-way)
SET-PARITY	Changes the parity.	Client -> Server (one-way)
SET-STOPSIZE	Changes the stop bit.	Client -> Server (one-way)
SET-CONTROL	Enables/Disables the flow control or use for PIN setting.	Client -> Server (one-way)
NOTIFY-LINESTATE	Server notifies the client of line status changes.	* Client -> Server (one-way)
NOTIFY-MODEMSTATE	Server notifies the client of modem status changes.	Client -> Server (one-way)
FLOWCONTROL-SUSPEND	The receiver of this command will be unable to send any data or commands.	Client <-> Server (bidirectional)
FLOWCONTROL-RESUME	The receiver of this command will be able to send data and commands.	Client <-> Server (bidirectional)
SET-LINESTATE-MASK	Set the information to send by NOTIFY-LINESTATE.	Client -> Server (one-way)
SET-MODEMSTATE-MASK	Set the information to send by NOTIFY-MODEMSTATE.	Client -> Server (one-way)
PURGE-DATA	Requests the server to clear the serial buffer.	Client -> Server (one-way)

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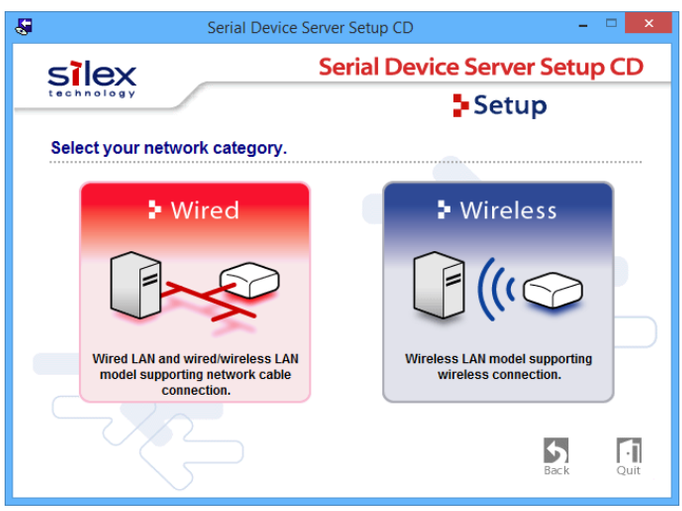
3. Software Overview

3-1. What is Serial Device Server Setup?

The Serial Device Server Setup is the configuration utility exclusively designed for serial device servers. TCP/IP settings, etc. can be configured by following the instructions on the screen after SD-300 is powered on and displayed on this utility.

Select Configuration Method



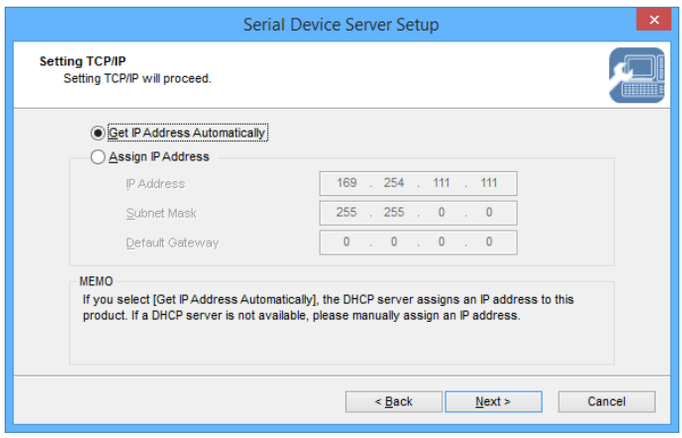
Wired	Connect a network cable to SD-300 and start the initial configuration from a PC.
Wireless	Start the initial configuration from a PC over the wireless network.

TIP

* SD-300 does not support the configuration over a wireless LAN by clicking **Wireless**.

TCP/IP Settings

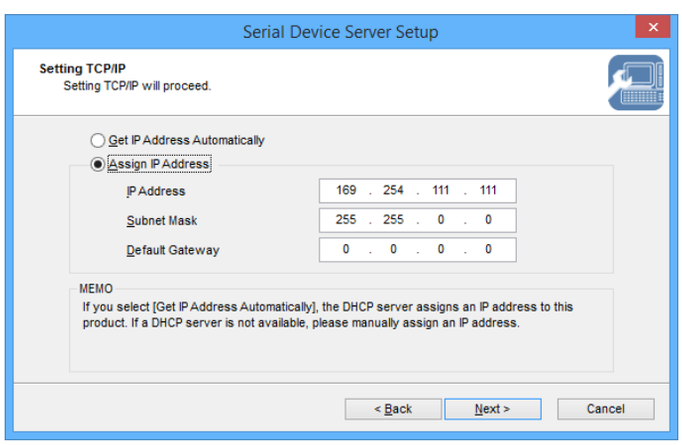
Configure the IP address appropriate for your environment.



Get IP Address Automatically	Select this to automatically assign an IP Address using the DHCP server.
Assign IP Address	Select this to manually configure IP Address, subnet mask and default gateway.

TIP

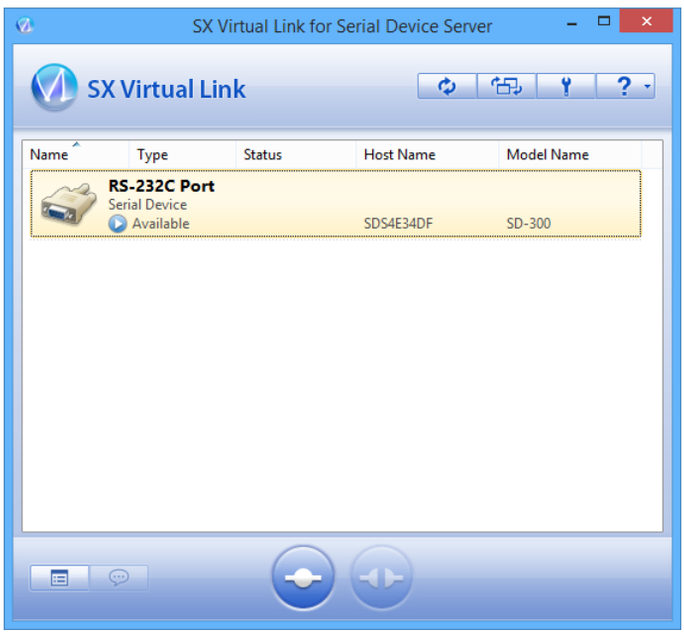
* Enter a Subnet Mask and Default Gateway if necessary.
* If there are no DHCP servers on your network and the IP address of your computer is assigned manually, a sample address created with your computer's settings will be displayed in the window below. In such a case, please enter an IP address manually. The IP address used in the screen below is a sample address. Please specify an IP address appropriate for your environment.



3-2. What is SX Virtual Link for Serial Device Server?

About SX Virtual Link for Serial Device Server

SX Virtual Link for Serial Device Server allows you to connect your computer to a serial device that is connected to a device server.
Use SX Virtual Link for Serial Device Server when you connect/disconnect to/from the serial device.



Functional Overview

* **Easy to Use**

  You only have to select the serial device in SX Virtual Link for Serial Device Server and click the **Connect** button.
  The serial device can be used from your computer as if it was directly connected to your computer. When finished using the serial device, click the **Disconnect** button in SX Virtual Link for Serial Device Server.

* **Allows Control from the Task tray**

  The minimized menu window in the task tray will allow you to connect/disconnect to/from serial devices without displaying SX Virtual Link for Serial Device Server's main window.

* **Send a Remote Message to Another User to Request for Disconnect**

  When you are sharing a serial device with several users and one of them occupies the serial device for a long time, you can request to the user to disconnect the device by sending a remote message. If the user accepts the disconnect request, the right of use is automatically passed down to you, so that you can use the serial device.

* **Operating Settings for Each serial Device**

  The operational settings such as Start designated application when connected or Automatically connect this device when it is available can be configured for each serial device.

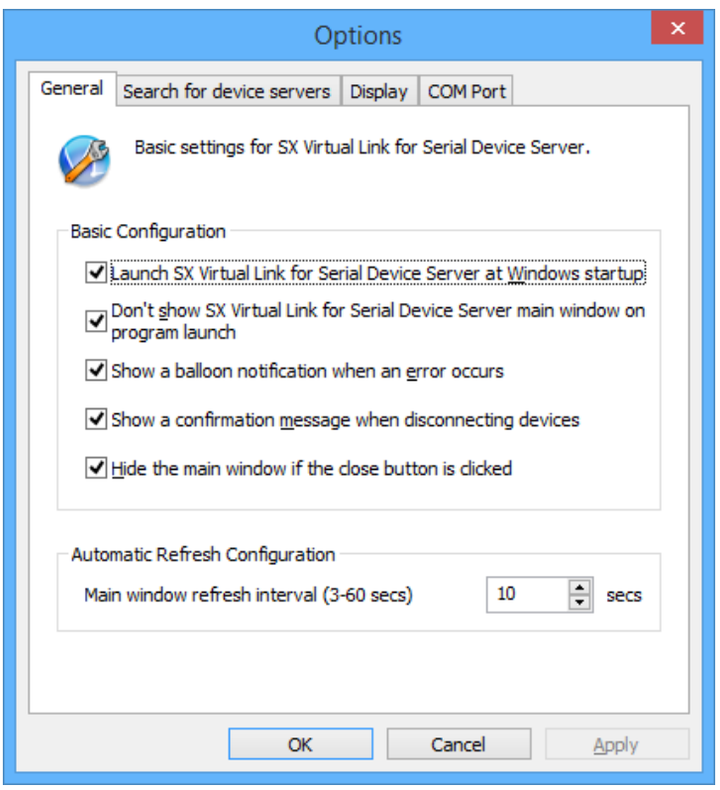
SX Virtual Link for Serial Device Server Optional Settings

This page explains the SX Virtual Link for Serial Device Server optional settings.
SX Virtual Link general settings such as startup and communication settings can be configured.

Click the Option button ( ) on SX Virtual Link for Serial Device Server's main window. The options dialog will be displayed.
The options dialog provides the following settings. Click OK when you have finished configuring the settings.

General

Basic operational settings can be configured.

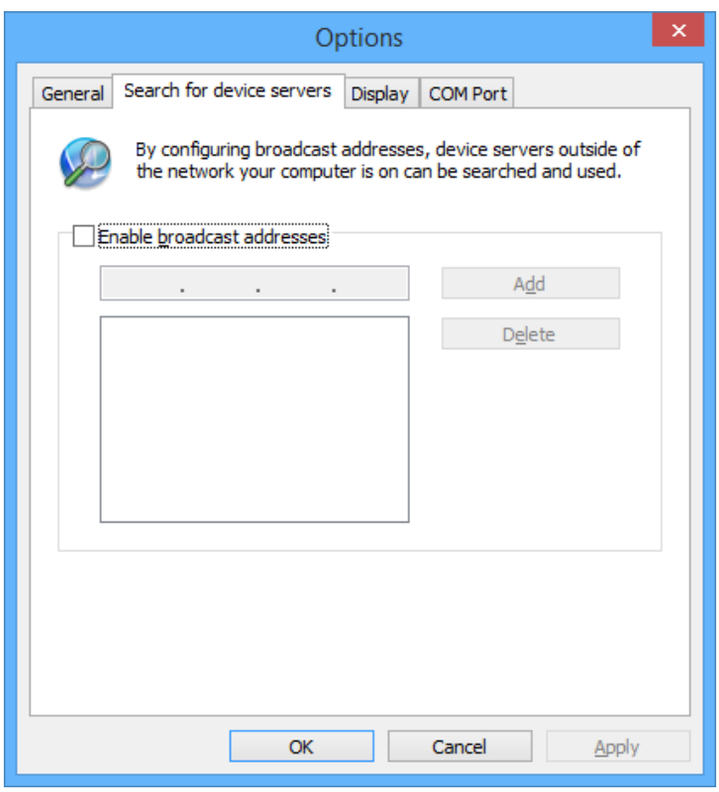


Launch SX Virtual Link for Serial Device Server at Windows startup	Adds SX Virtual Link for Serial Device Server to the Startup folder. When added to the Startup folder, SX Virtual Link for Serial Device Server will automatically start at Windows logon. (Default: On)
Don't show SX Virtual Link for Serial Device Server main window on program launch	Starts SX Virtual Link for Serial Device Server as a minimized icon. The minimized icon will be displayed in task tray. (Default: On)

Show a balloon notification when an error occurs	Notifies you of a device error by displaying a balloon message in the task tray. (Default: On)
Show a confirmation message when disconnecting devices	Displays a confirmation message before disconnecting a USB device via SX Virtual Link for Serial Device Server. (Default: On)
Hide the main window if the close button is clicked	Minimizes SX Virtual Link for Serial Device Server if the close button is clicked on the main window. (Default: Off)
Main window refresh interval	Sets the refresh interval for the connected device status. (Default: 10 seconds)

Search for device servers

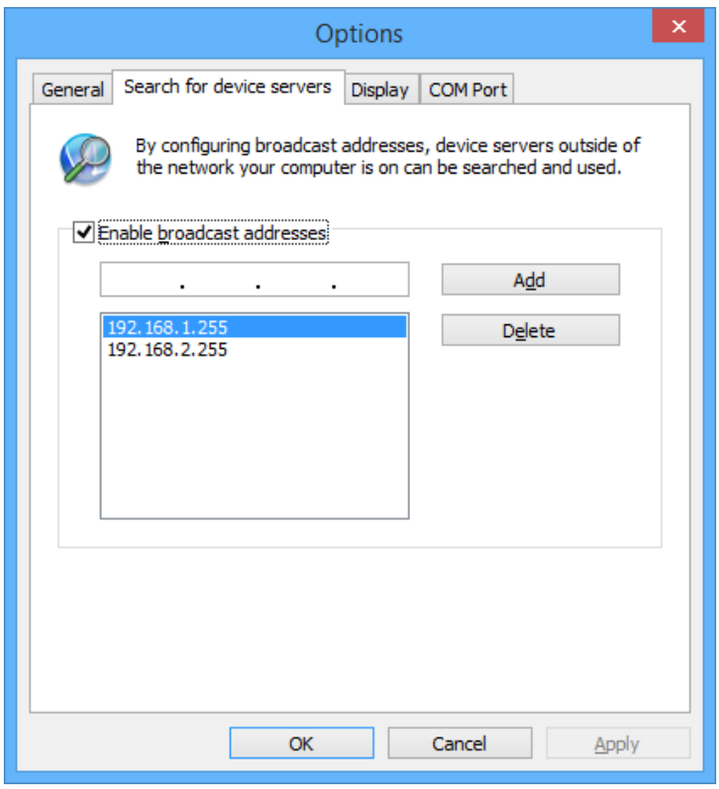
The broadcast address can be configured.



Enable broadcast addresses	Registers the broadcast addresses used to search for device servers over the network router. If no broadcast addresses are specified, only device servers in your local segment will be searched. To register a broadcast address, check Enable broadcast addresses, enter the broadcast address into the address field and click the Add button. (Up to 16 addresses can be registered.) To remove an address from the list, select it and click the Delete button.

Note

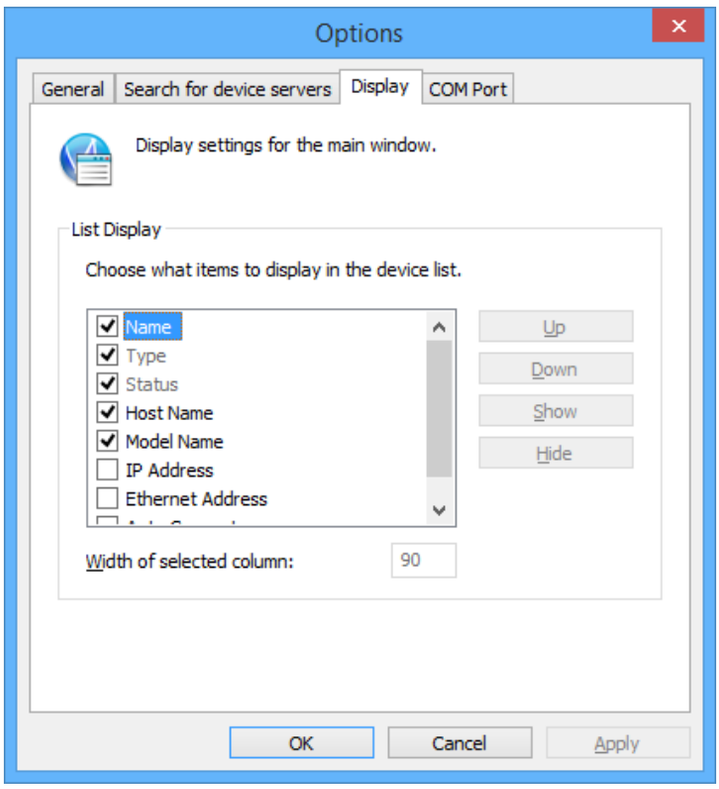
* For example, to register "192.168.1.xxx" (Subnet Mask:255.255.255.0), enter "192.168.1.255" into the address field. In the sample screen below, "192.168.1.255" and "192.168.2.255" are registered to include "192.168.1.xxx" and "192.168.2.xxx" (Subnet Mask:255.255.255.0) addresses for the device server search.



For which broadcast addresses to use for the device server search, please ask your network administrator.

Display

The SX Virtual Link display settings can be configured.



Name	Displays the name of USB devices connected to the device server. The USB device name can be changed. For details, refer to USB Device Operational Settings. (Default: On) * This check box cannot be cleared.
Type	Displays the type of USB devices connected to the device server. (Default: On) * This check box cannot be cleared.
Status	Displays the status of USB devices connected to the device server. (Default: On) * This check box cannot be cleared.
Host Name	Display the host name of the device server. The host name can be changed from the device server settings. For details, refer to the users manual. (Default: On)
Model Name	Displays the model name of the device server. (Default: On)
IP Address	Displays the IP Address of the device server. (Default: Off)

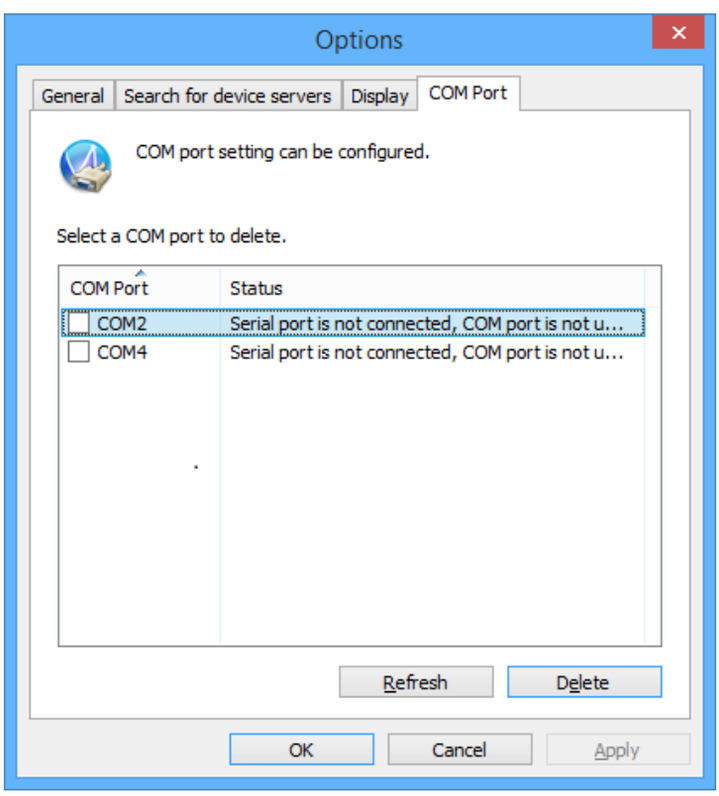
Ethernet Address	Displays the Ethernet Address of the device server. The Ethernet Address is the 12-digit number found on the side or backside of the device server. (Default: Off)
Auto Connect	Displays the current status of the USB device's auto-connect settings. Either "Enabled" or "Disabled" is displayed. (Default: Off)
Width of selected column	Changes the width of each column heading at the top of the USB device list. * The widths of the Name and Type columns cannot be changed.

TIP

* It is impossible to hide or change the display order of Name, Type and Status.

COM Port

The COM port can be refreshed or deleted after it is added to SX Virtual Link for Serial Device Server.



Refresh button	Refreshes the COM port status.
Delete button	Deletes the COM ports whose check boxes are checked.

3-3. Download the Utilities

The utilities to configure and use SD-300 can be downloaded from our website.

1. Access the URL below on the PC to use to configure SD-300.

URL: https://www.silextechnology.com/

2. Go to the **Support** page and select the product model.

Product Model	SD-300

3. Download the utilities below and extract them on the PC.

Utilities	Serial Device Server Setup
	SX Virtual Link for Serial Device Server

Note

* In order to upgrade the firmware version, the firmware file needs to be downloaded.

The download is completed.

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4. How to Configure

4-1. Necessary items for Setup

The following items are required in order to connect SD-300 to a network.

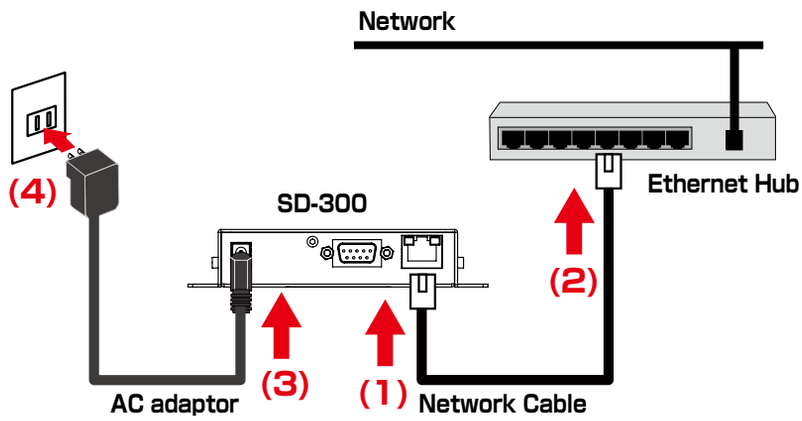
Ethernet Hub 	Use to connect SD-300 and other network devices such as a PC. When there are available LAN ports on the network in which SD-300 is to be installed, you do not have to purchase a new Ethernet Hub or broadband router as SD-300 can be connected to the available LAN port.
Network Cable 	Use to connect SD-300 and network devices such as an Ethernet Hub, broadband router and PC.
Serial Cable 	Use to connect SD-300 and serial devices. For details on the supported serial cable, refer to **2-3. Parts and Functions** - **Serial Port PIN Assignment and Serial Cable**.

TIP

* When you connect SD-300 to 100BASE-TX network, please use the Ethernet Hub and network cable which support 100BASE-TX (category 5 or above).

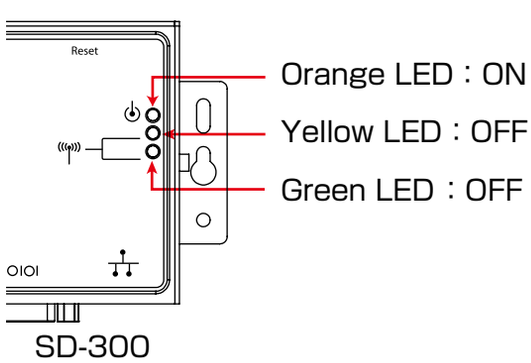
4-2. Power on

1. Connect a network cable to SD-300 and the other end to an Ethernet Hub (or broadband router, Access Point, PC).
Then, connect the AC adaptor to SD-300 and the plug to the outlet.



2. Check that the LEDs on SD-300 light as follows.

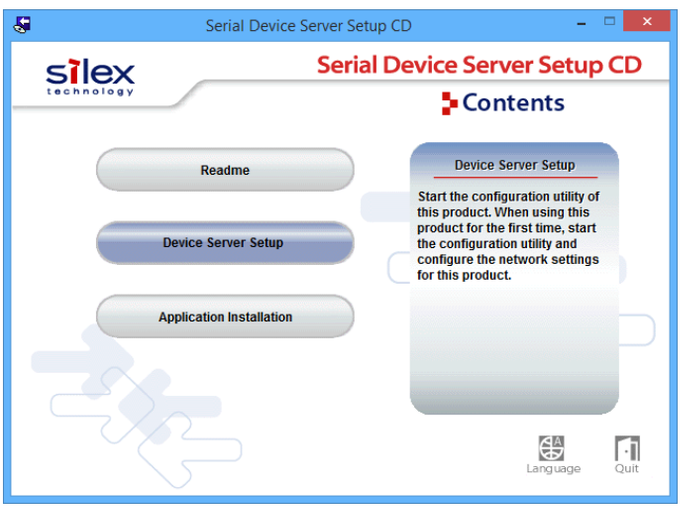
LED	Status
Orange LED	ON
Green/Yellow LEDs	OFF



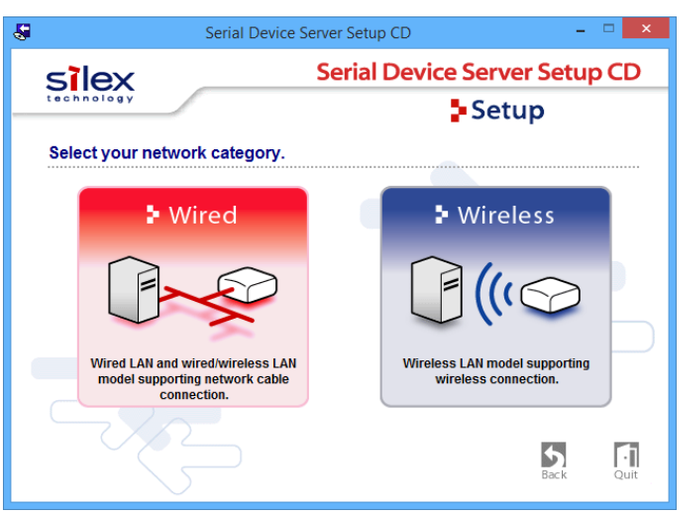
4-3. Configure Network Settings

1. Extract the compressed file of **Serial Device Server Setup** that you have downloaded. Double-click **Sdsetup.exe** in the extracted folder to start the Serial Device Server Setup utility.

2. The startup menu is displayed. Click **Device Server Setup**.

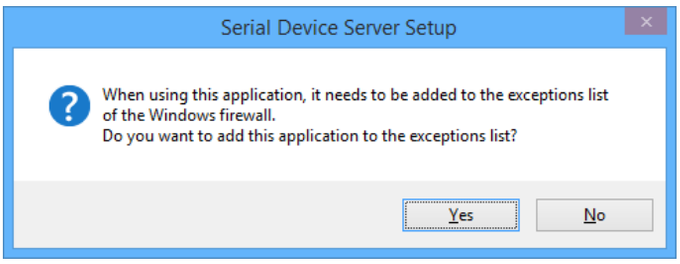


3. Click **Wired**.



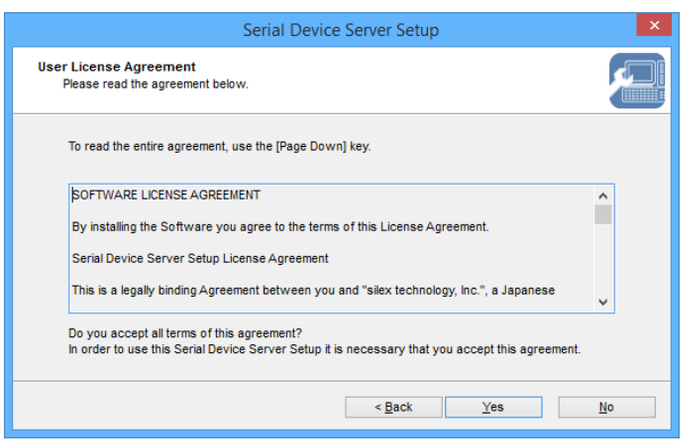
TIP

* If the User Account Control screen is displayed, click **Continue** or **Yes**.
* If the message below is displayed, click **Yes**.

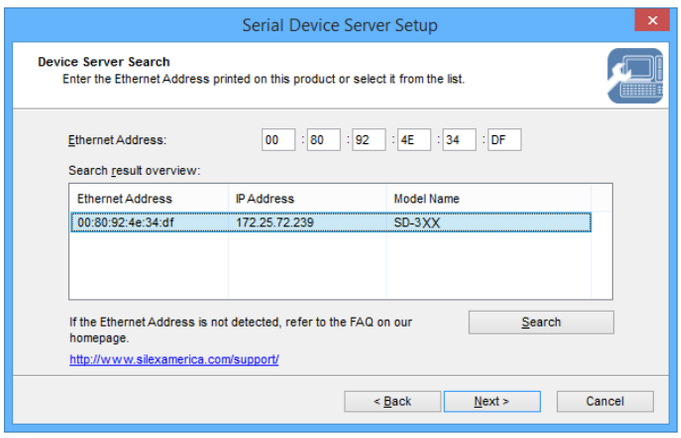


4. The Serial Device Server Setup screen is displayed. Click **Next**.

5. Read the **SOFTWARE LICENSE AGREEMENT** and click **Yes**.



6. Select SD-300 and click **Next**.



TIP

* If SD-300 is using the factory default settings and an IP address other than 0.0.0.0 is displayed in the list, it means the IP address was obtained from a DHCP server.
* If SD-300 is not displayed on the list, click Search. If this does not help, refer to **SD-300 is not displayed in the search result of Serial Device Server Setup.** in **7-1. Problems During the Setup**.

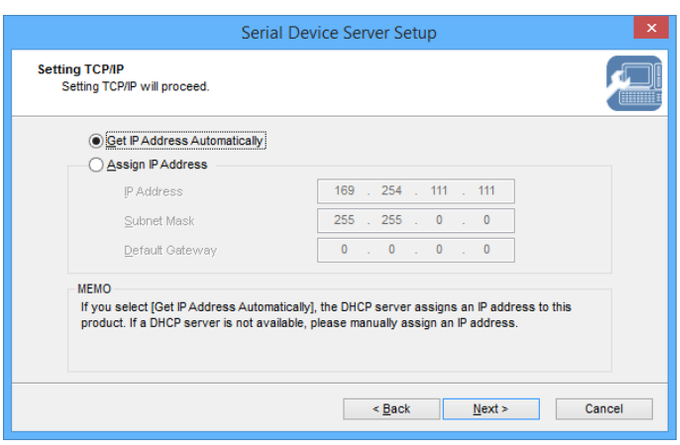
7. Configure the TCP/IP settings appropriate for your environment.

Note

* If you are not sure how to determine the IP address to set, refer to **How should I determine the way to assign an IP address to SD-300?** in **7-1. Problems During the Setup**.

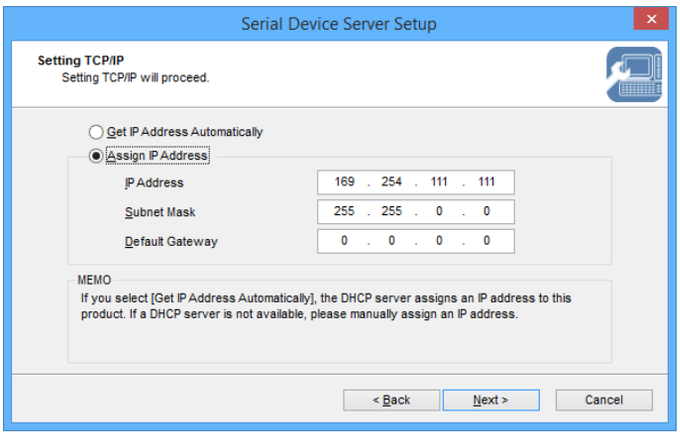
<< Obtain an IP address automatically from a DHCP server >>

Select **Get IP Address Automatically** and click **Next**.



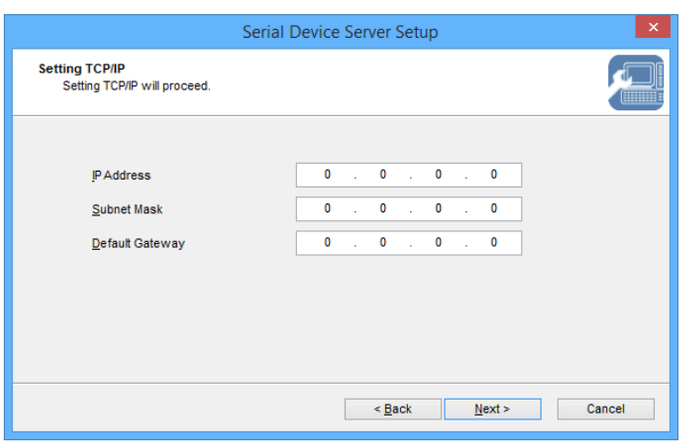
<< Assign an IP address manually >>

Select **Assign IP Address** and enter an IP address. Click **Next**.

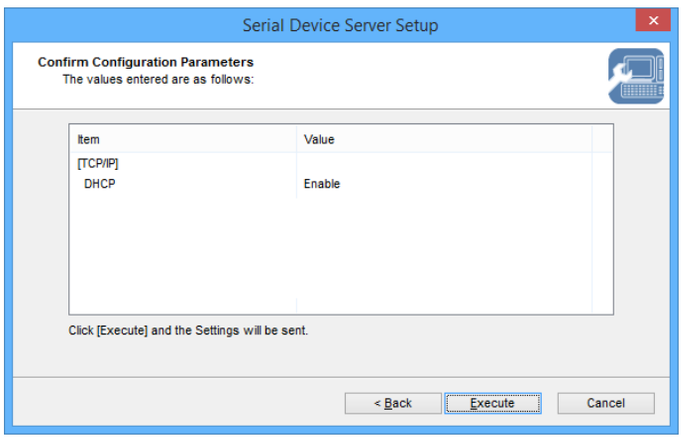


TIP

* The IP address used in the screen above is a sample address. Please enter an IP address appropriate for your environment.
* Enter a **Subnet Mask** and **Default Gateway** if necessary.
* If there are no DHCP servers on your network and the IP address of your PC is assigned manually, the screen below will be displayed. Please configure an IP address appropriate for your environment.



8. Check the settings and click **Execute**.



TIP

* The information displayed in this screen will vary depending on the items you have configured.

Note

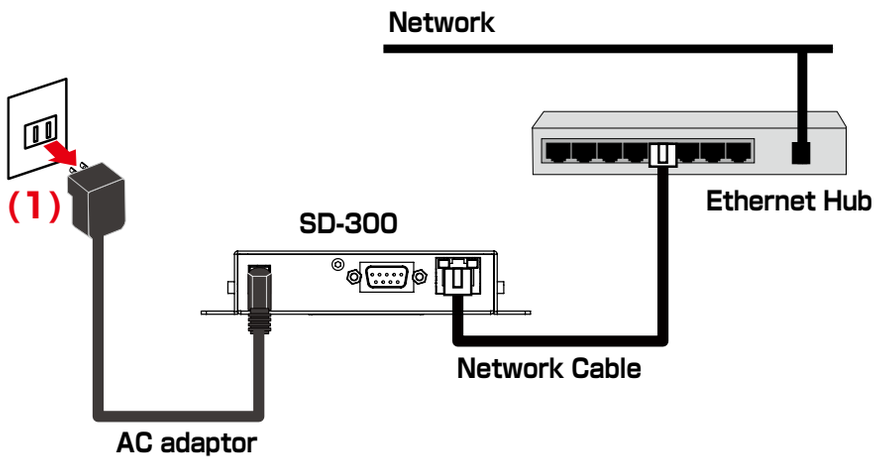
* If an error occurs after clicking Execute, please refer to **Communication error occurs when configuring with Serial Device Server Setup.** in **7-1. Problems During the Setup**.

9. Select **Yes** and click **Finish**.
Continue to install the SX Virtual Link for Serial Device Server. For details on the installation, refer to **Install Application**.
After the installation is finished, go on to **10**.

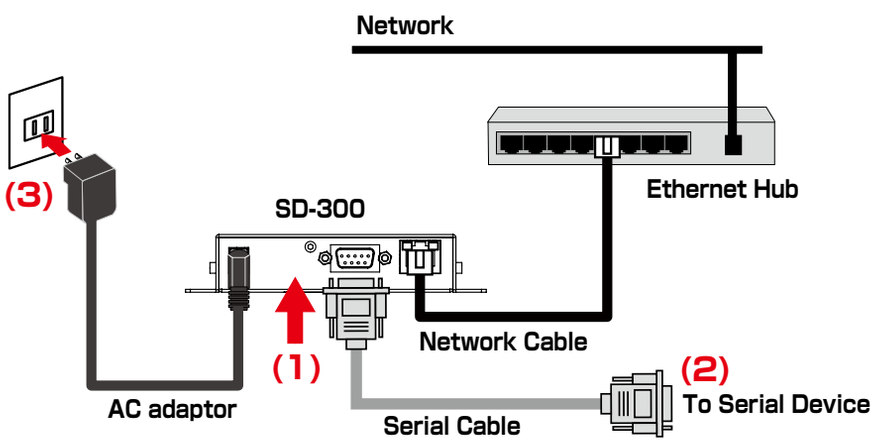
Note

* When **No** is selected, go on to **10**.

10. Remove the power plug from the outlet.



11. Connect the serial device that you wish to share over the network to SD-300 using a serial cable and insert the power plug of SD-300 into the outlet.



Network configuration is complete.

Blank page

5. How to Use

5-1. Link to Serial Device Using the Serial Device Connection Utility

(Serial Port Emulation Mode)

What is Serial Port Emulation Mode?

Serial Port Emulation Mode is a function to communicate with a serial device on the standard Windows COM port using SX Virtual Link for Serial Device Server. Once this feature is used, users can communicate with the serial device over a network using a serial port communication utility such as a terminal software program.

Note

* If you are using the USB device management utility, "SX Virtual Link", please uninstall it and use "**SX Virtual Link for Serial Device Server**". It can discover, link to and unlink from both USB devices and serial devices. For details on how to install it, see **Install Application**.

Install Application

This page explains how to install the serial device connection utility, "SX Virtual Link for Serial Device Server".

* If SX Virtual Link for Serial Device Server is not installed yet, install it according to the instructions below.
* If you have completed the configuration and continue to install the application, start from 3 in this section.

TIP

* Administrator privilege is required for installation.

Note

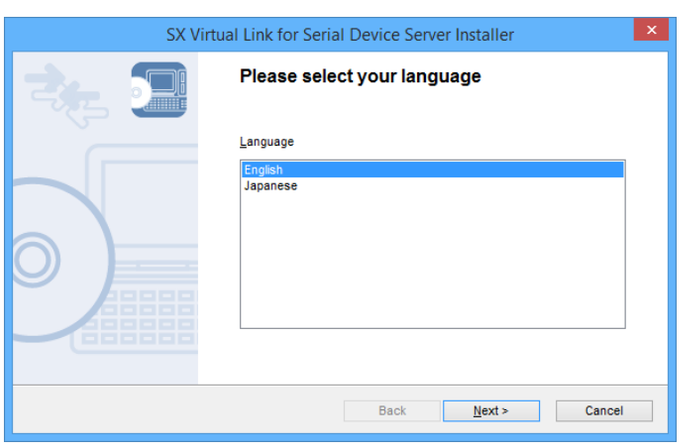
* If you are using the USB device management utility, "SX Virtual Link", you can use "SX Virtual Link for Serial Device Server" instead of "SX Virtual Link" to discover, link to and unlink from both USB devices and serial devices.

1. Extract the compressed file of **SX Virtual Link for Serial Device Server** that you have downloaded.
Double-click **Cosetup.exe** in the extracted folder to start the S**X Virtual Link for Serial Device Server** installer.

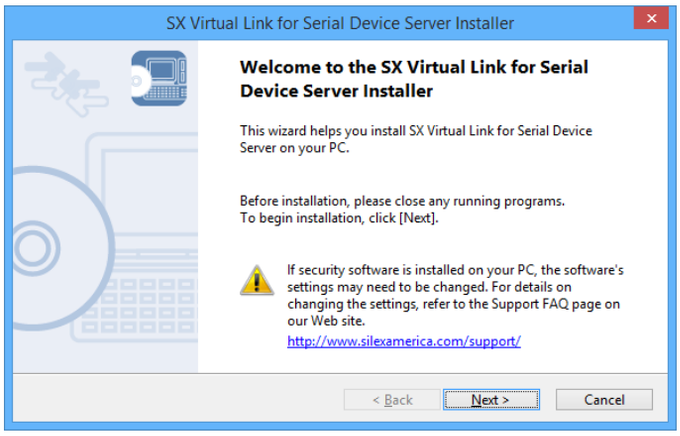
TIP

* If the User Account Control screen is displayed, click **Yes** or **Continue**.

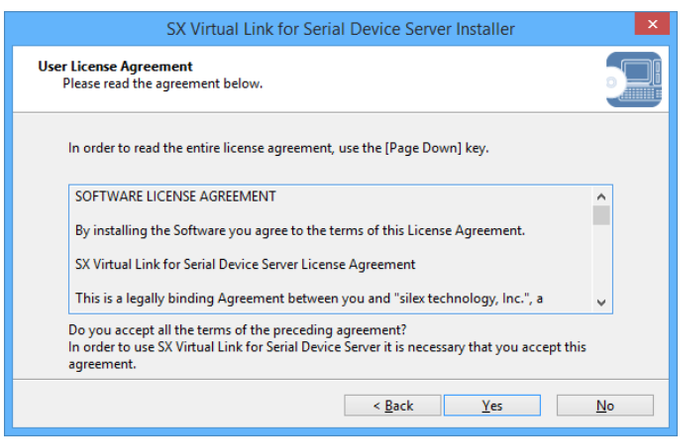
2. Select **English** and click **Next**.



3. SX Virtual Link for Serial Device Server Install wizard is displayed. Click **Next**.

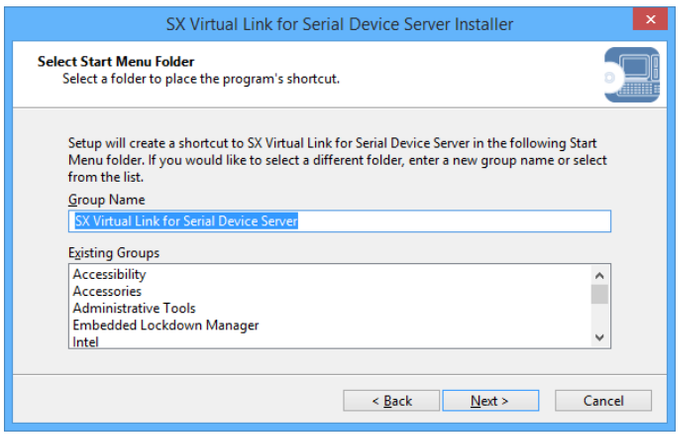


4. Read the **SOFTWARE LICENSE AGREEMENT** and click **Yes**.

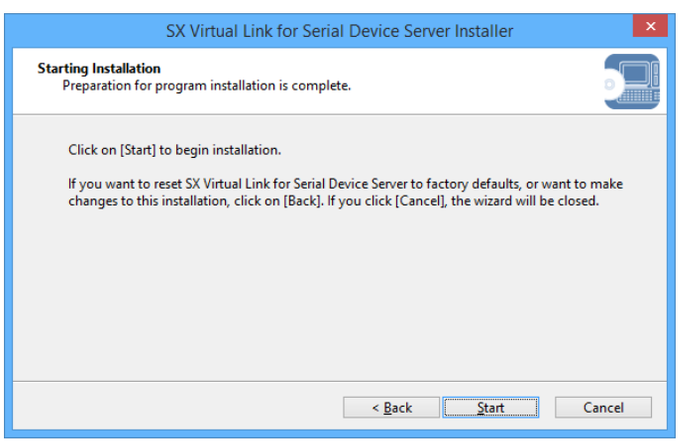


5. Select a folder to install SX Virtual Link for Serial Device Server into and click **Next**.

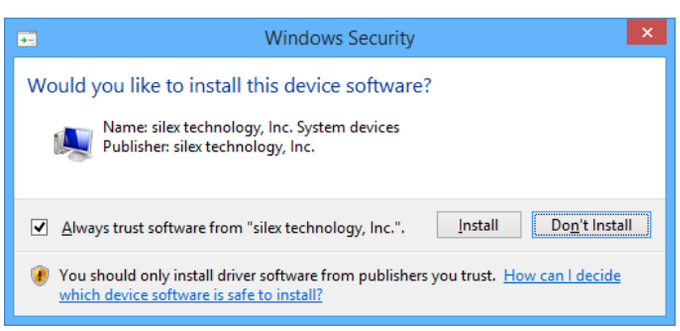
6. Enter a Group Name to be displayed in the Start Menu. Click **Next**.



7. Click **Start** to begin the installation.



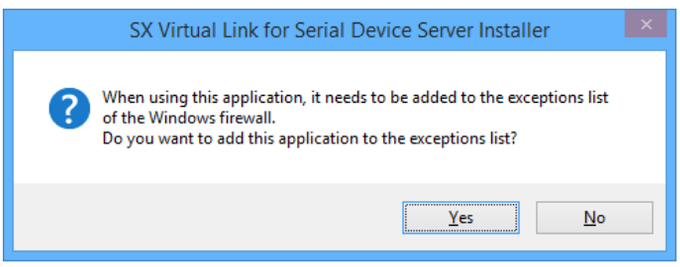
8. A confirmation message for software installation is displayed.
Click **Install**.



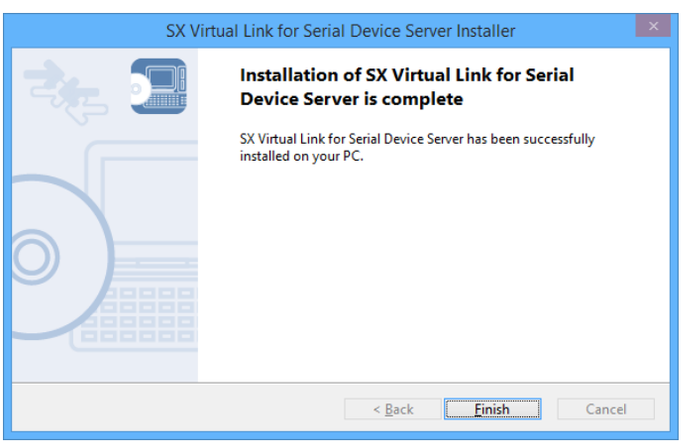
Again, click **Install**.

TIP

* If the message below is displayed, click **Yes**.



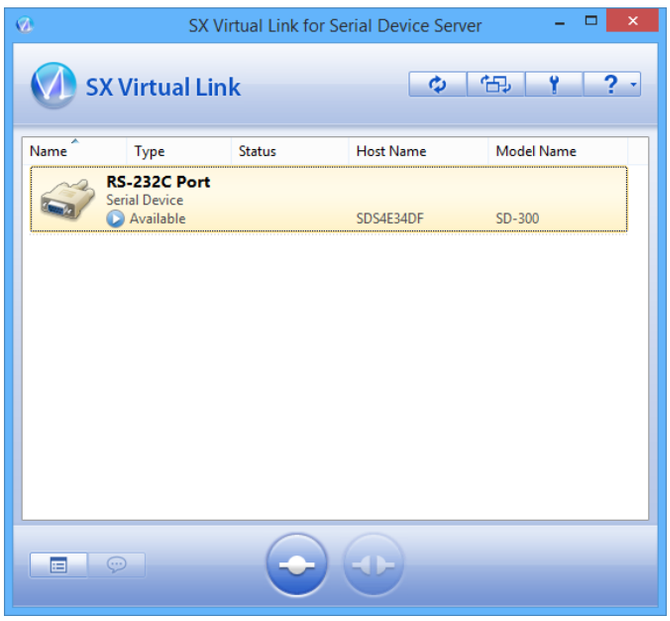
9. SX Virtual Link for Serial Device Server has been installed. Click **Finish**.



TIP

* If using a firewall function of commercial security software, please add SX Virtual Link for Serial Device Server to the exception list in your security software. Refer to the FAQ on our website (https://www.silextechnology.com/) for details on adding an application to the exception list.

Application installation is complete. SX Virtual Link for Serial Device Server will run.



Start SX Virtual Link for Serial Device Server

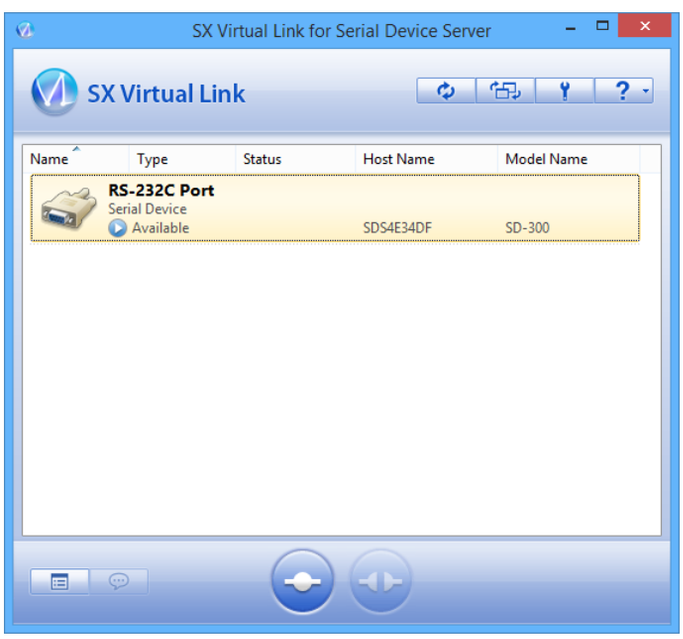
How to start SX Virtual Link for Serial Device Server is as follows:

1. Click the icon in the task tray.

Note

* If SX Virtual Link for Serial Device Server is not running, click **Start** - **All Programs** - **SX Virtual Link for Serial Device Server** - **SX Virtual Link for Serial Device Server**.

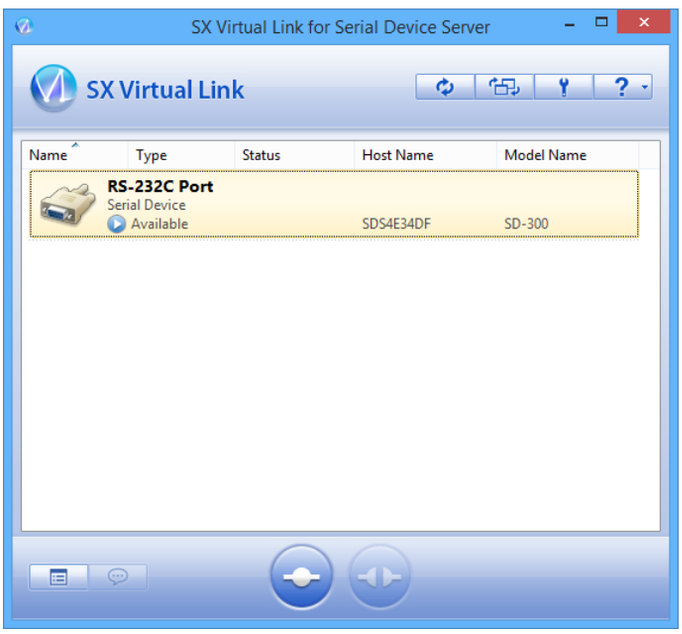
2. The SX Virtual Link for Serial Device Server's main window appears and the serial devices running on the network are displayed in the device list.



Link to a serial device

How to link to serial device is as follows:

1. Select the serial device in SX Virtual Link for Serial Device Server's main window and connect to it.



How to Link:

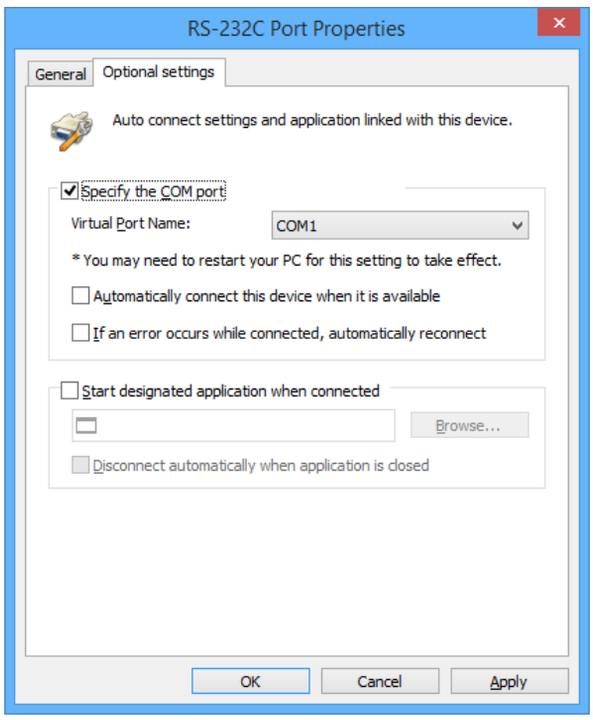
Double-click	Double-click the serial device in SX Virtual Link for Serial Device Server's main window.
Use a button	Select the serial device and click the Connect button in SX Virtual Link for Serial Device Server's main window.
Right-click	Right-click on the serial device in SX Virtual Link for Serial Device Server's main window and click **Connect** in the menu displayed.
Use a keyboard	Select the serial device using the up/down arrow keys and press **Alt** + **C** on your keyboard.

Note

* To specify the COM port manually, please complete the following steps before you link to the serial device.

1. Select the serial device that you wish to link and click the Properties button .
2. In the **Optional settings** tab, check **Specify the COM port** check box and select the COM port that you wish to use from **Virtual Port Name**.

   Do not select one that is already used on your system.

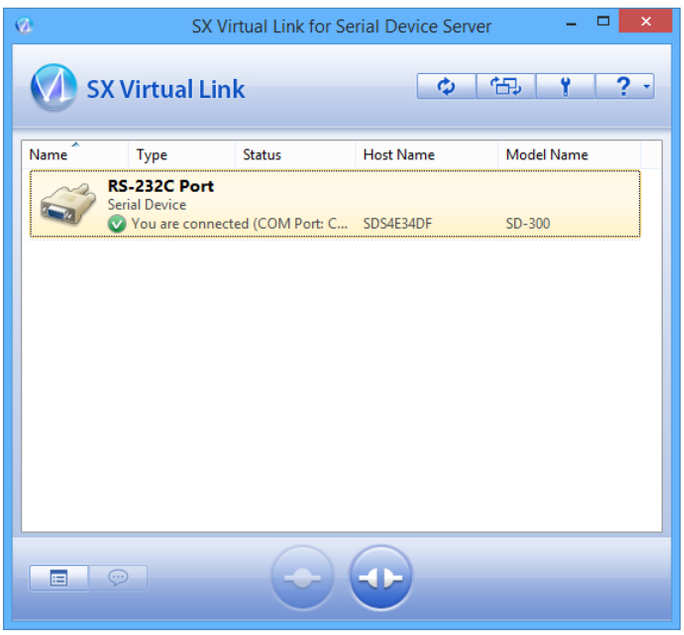


3. Click **OK**.

The COM port has been specified.

* When the Connect button is clicked, the message below may be displayed.
Check the message and click **OK**. Finish the COM port currently used in your system and click the Connect button again.

2. Once you successfully link to the serial device, the status icon is changed in SX Virtual Link for Serial Device Server's main window.
The COM port that you have selected is displayed in the status column.



Start a serial communication software

Start a serial communication software such as a terminal software program.

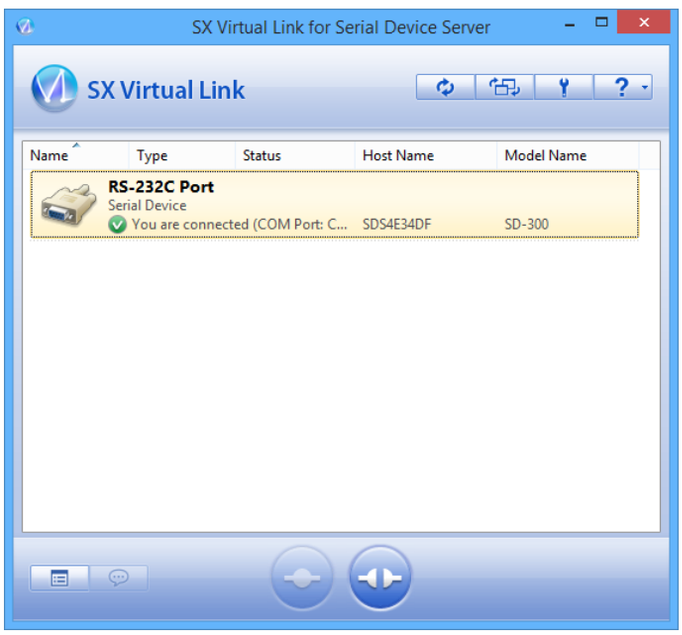
On the serial communication software, select the COM port that is displayed in the status column of SX Virtual Link for Serial Device Server's main window. Also, configure the serial port settings such as baud rate, stop bit, etc.

Once the communication settings are complete, you can communicate with the serial device connected to SD-300.

Unlink from a serial device

How to unlink from serial device is as follows:

Select the serial device in SX Virtual Link for Serial Device Server's main window and disconnect from it.



How to Unlink:

Double-click	Double-click the serial device in SX Virtual Link for Serial Device Server's main window.
Use a button	Select the serial device and click the Disconnect button in SX Virtual Link for Serial Device Server's main window.
Right-click	Right-click on the serial device in SX Virtual Link for Serial Device Server's main window and click **Disconnec**t in the menu displayed.
Use a keyboard	Select the serial device using the up/down arrow keys and press **Alt** + **D** on your keyboard.

5-2. Ecable Mode

(Link to the Registered Device)

What is Ecable Mode?

Ecable Mode is a feature that allows serial devices with no network interface to communicate with each other using two SD-300's.

Connect one SD-300 to the transmitter end and one to the receiver end, and register the IP address of the receiver end as a destination address of the transmitter end. When they are powered on, both SD-300's will start communicating with each other, establishing bidirectional communication between the serial devices.

Before You Begin

Change the settings to use SD-300 in Ecable Mode.

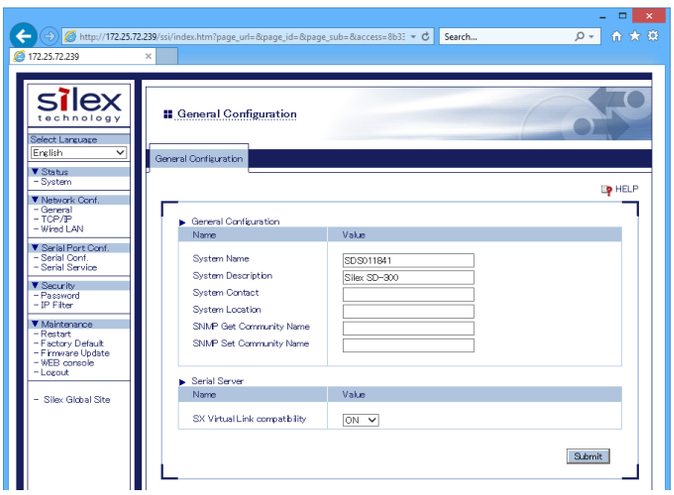
1. Access the Web page of the SD-300 that you wish to use as the transmitter end.

Note

* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

2. In the left pane of the Web page, click **General**.

3. Select **OFF** for **SX Virtual Link compatibility**.



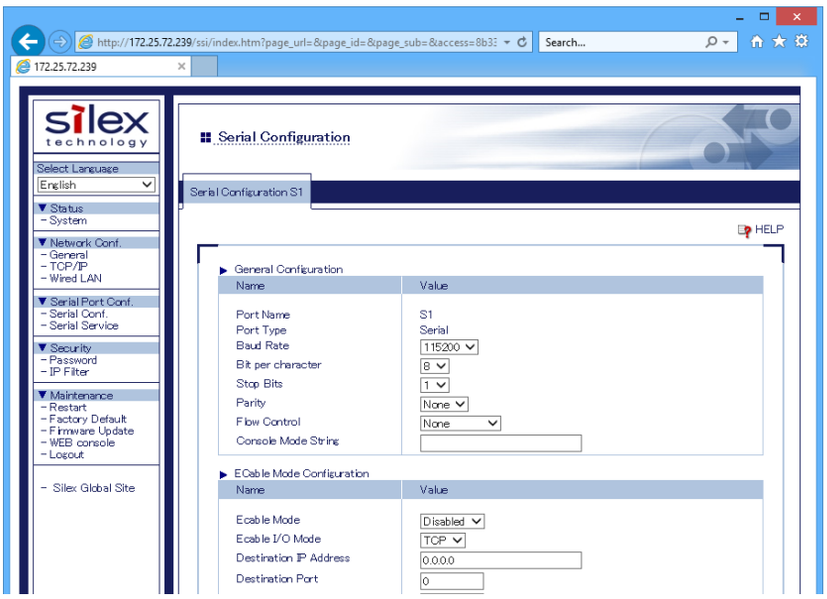
When completed, click the **Submit** button.

4. In the left pane of the Web page, click **Serial Conf**.

5. In the page displayed, configure the following settings at **General Configuration** as appropriate for your serial device.

* Baud Rate
* Bits per character
* Stop Bits
* Parity
* Flow Control

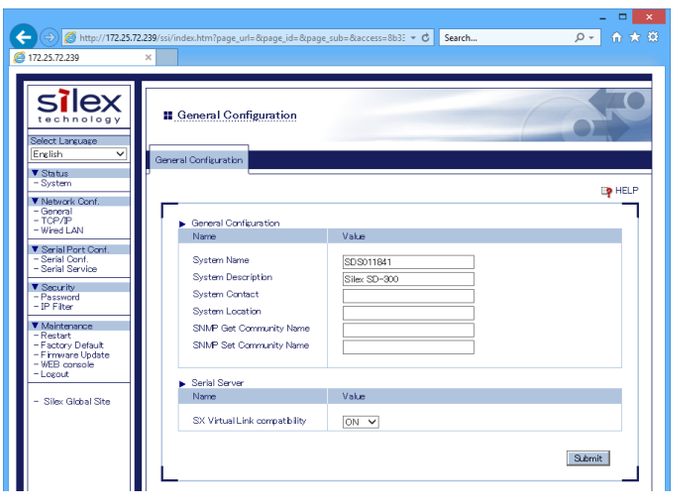
Select Enabled for **Ecable Mode**.
For **Destination IP Address**, enter the IP address of the receiver end (another SD-300).
And for **Destination Port**, enter the port number that you wish to use.



When completed, click the **Submit** button.

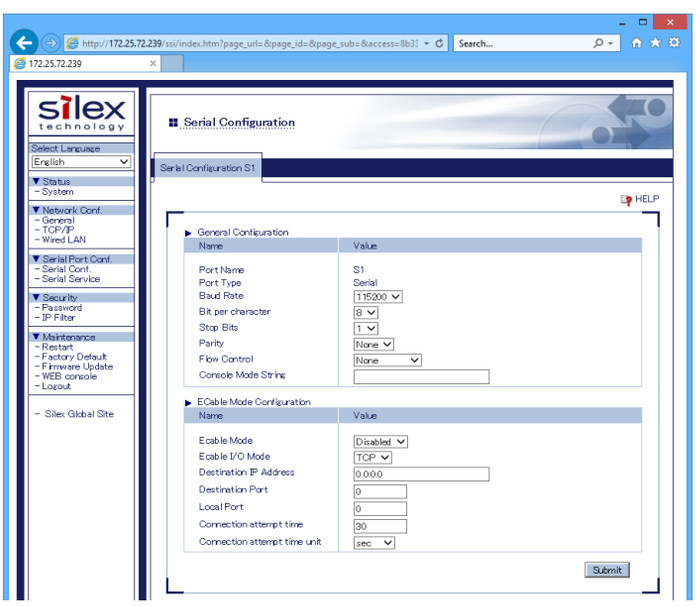
6. Also, access the Web page of the receiver end and click **General**.

7. Select **OFF** for **SX Virtual Link compatibility**.



When completed, click the **Submit** button.

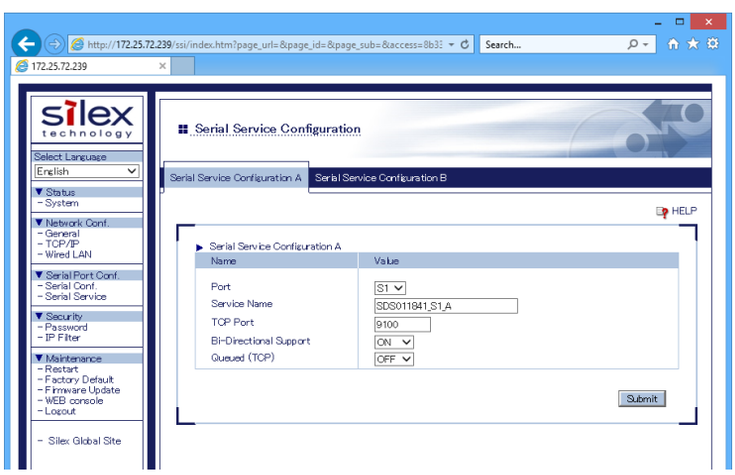
8. In the left pane of the Web page, click **Serial Conf**. and configure the settings at **General Configuration**.



When completed, click the **Submit** button.

9. In the left pane of the Web page, click **Serial Service**.

10. For TCP Port, enter the same value for both receiver end and transmitter end.



When completed, click the **Submit** button.

The configuration has been completed.

Link to Serial Device

Power on both serial devices and then both SD-300's.
After they are powered on, bidirectional communication will be active between the serial devices.

5-3. Raw TCP Connection Mode

(Link to Serial Device Using TCP Raw Port)

What is Raw TCP Connection Mode?

Raw TCP Connection Mode is a feature used to send or receive serial port data transparently over TCP/IP.
Using this feature, you can directly communicate with a serial device using an application program that runs on the TCP Socket API.

Before You Begin

Change the settings to use SD-300 in Raw TCP Connection Mode.

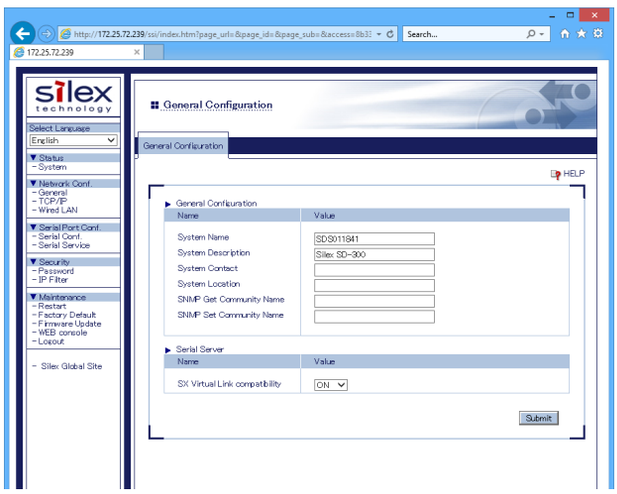
1. Access the Web page of SD-300.

Note

* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

2. In the left pane of the Web page, click **General**.

3. Select **OFF** for SX Virtual Link compatibility.

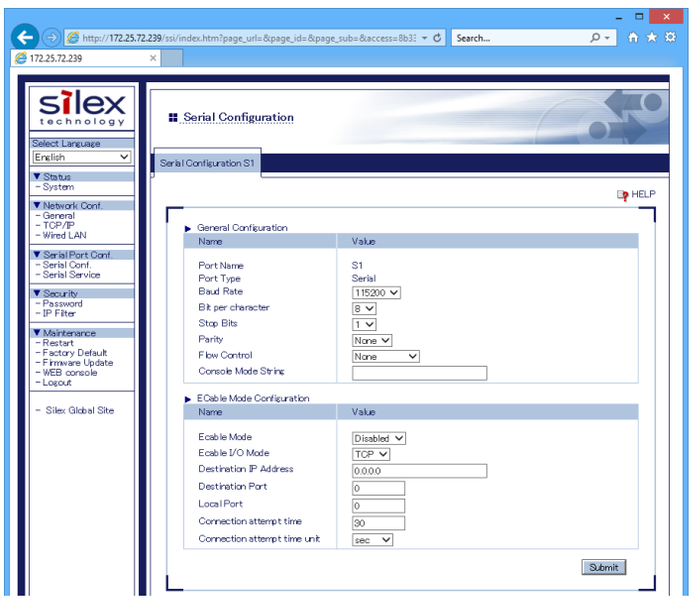


When completed, click the **Submit** button.

4. In the left pane of the Web page, click **Serial Conf**.

5. In the page displayed, configure the following settings at **General Configuration** as appropriate for your serial device.

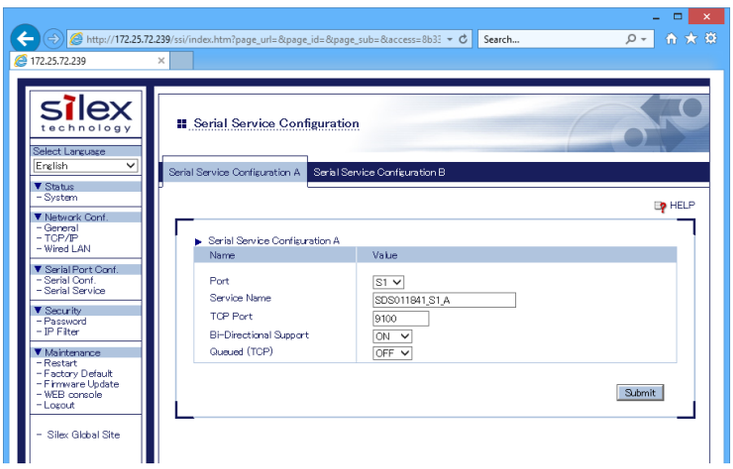
* Baud Rate
* Bits per character
* Stop Bits
* Parity
* Flow Control



When completed, click the **Submit** button.

6. In the left pane of the Web page, click **Serial Service**.

7. For **TCP Port**, enter the TCP port number that you wish to use for your application.



When completed, click the **Submit** button.

The configuration has been completed.

Link to Serial Device

Power on the serial devices and then SD-300.
Start an application that runs on the TCP Socket API from your PC and bidirectional communication with the serial device will be active when a link is established.

Blank page

6. Other Functions

6-1. Configure Using the SD-300 Web Page

Since SD-300 has the HTTP protocol, advanced settings can be configured or changed via a Web browser. Useful functions such as a remote restart or factory default configuration for SD-300 are available.

TIP

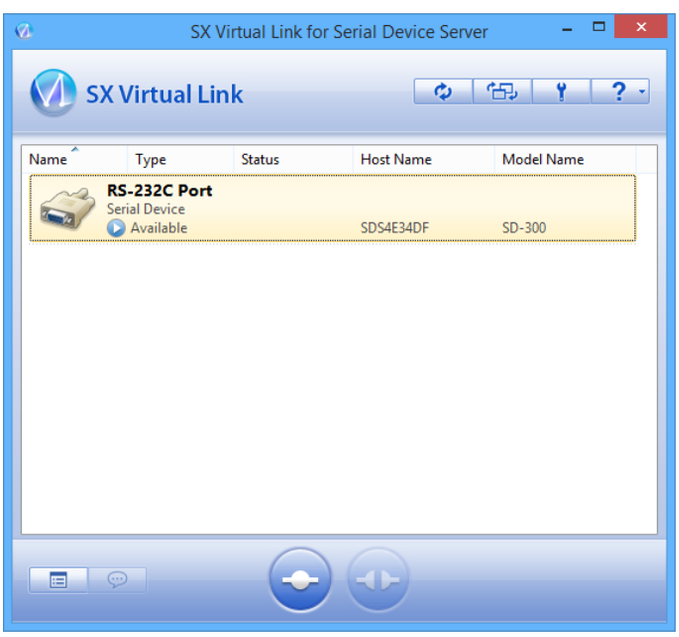
* To use a Web browser, the TCP/IP settings need to be enabled, and an IP address needs to be configured.
* We recommend the following Web browsers:

Microsoft Internet Explorer 9 or higher
Microsoft Edge 20 or higher
Mozilla Firefox 3.0.0 or higher
Google Chrome Version 51 or higher

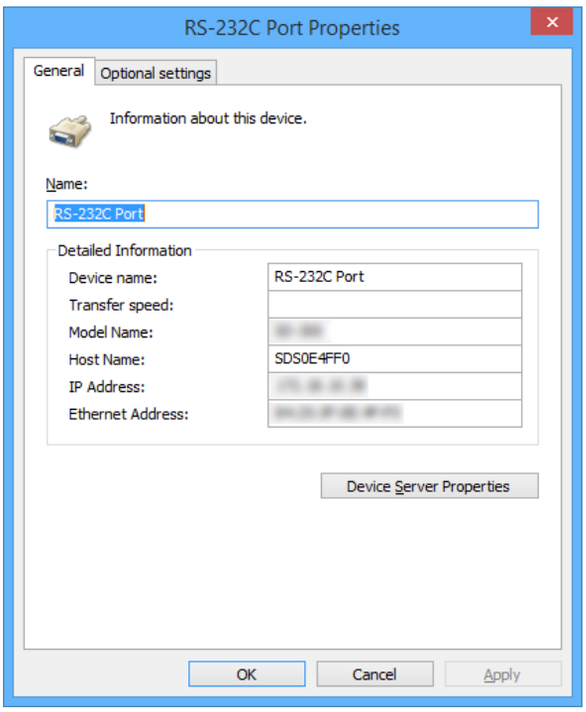
Access the SD-300 Web Page

<<Use SX Virtual Link for Serial Device Server to display the Web page>>

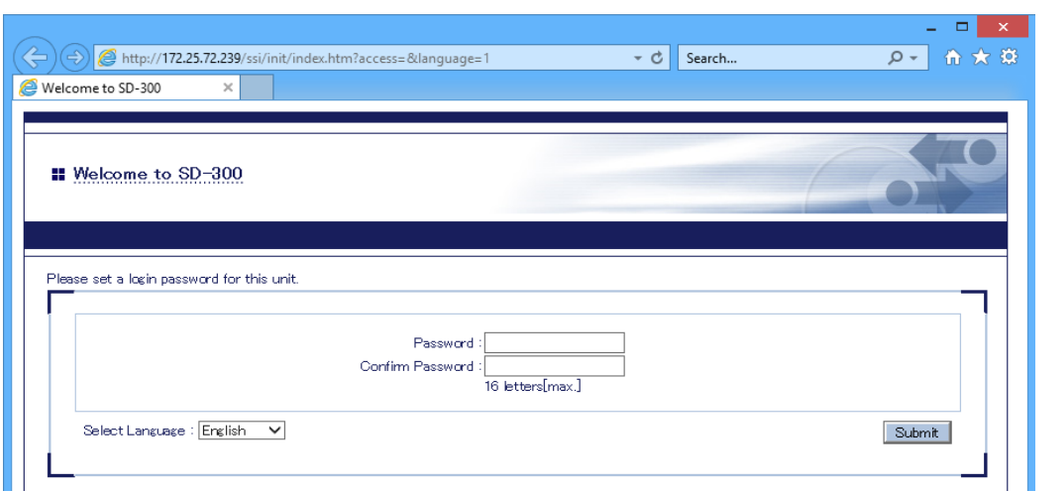
1. In the SX Virtual Link for Serial Device Server's main window, select the serial device connected to SD-300 and then click **Properties** button .



2. Properties dialog is displayed. In the **General** tab, click **Device Server Properties**.



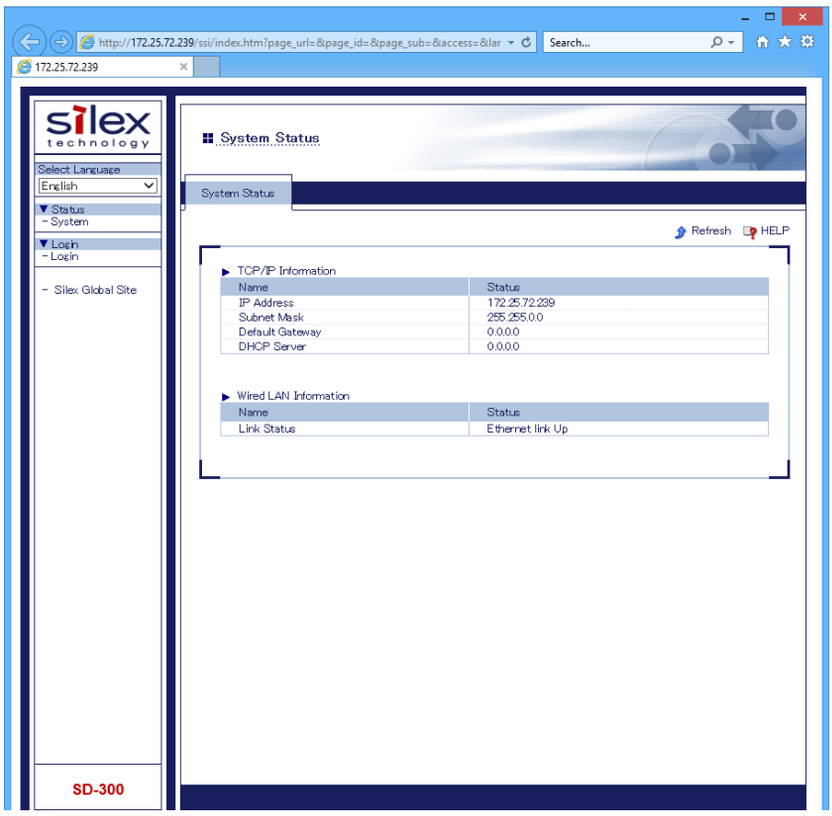
3. The Web browser will run and the login password configuration page will be displayed. Enter the password to configure for SD-300 and click **Submit**.



TIP

* The login password configuration page is displayed only when SD-300 is configured for the first time.

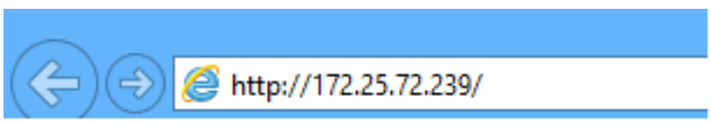
4. The System Status page will be displayed.



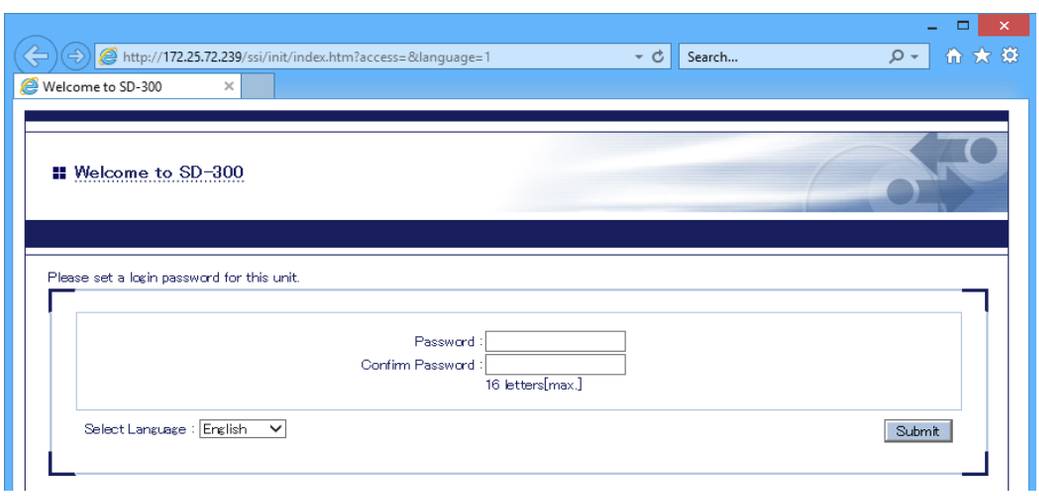
<<Use a Web browser to display the Web page>>

1. Enter the IP address that is configured on SD-300 in the address bar of the Web browser. Press the ENTER key.

Example) Enter 172.25.72.239 and press the ENTER key.



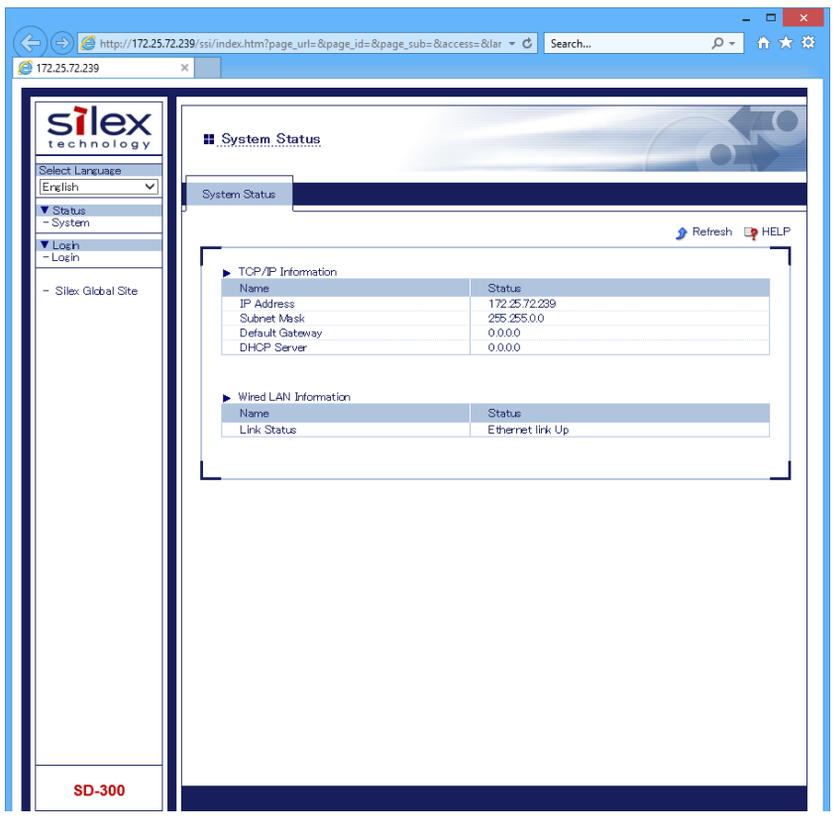
2. The login password configuration page will be displayed.
Enter the password to configure for SD-300 and click **Submit**.



TIP

* The login password configuration page is displayed only when SD-300 is configured for the first time.

3. The System Status page will be displayed.

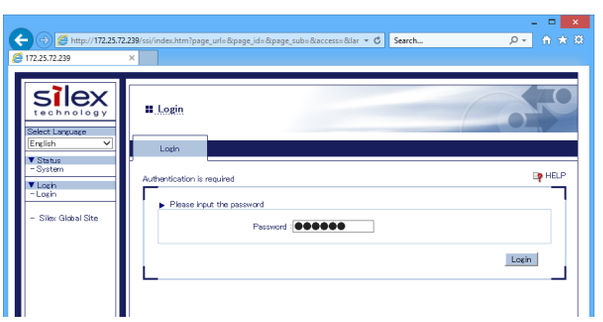


Log in to the SD-300 Web Page

Follow the instructions below to log in to the Web page.

1. In the left pane of the Web page, click **Login**.

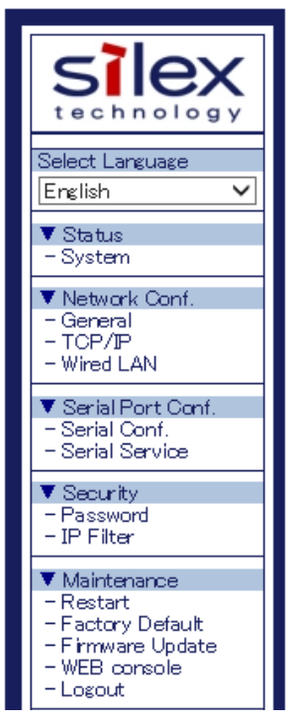
2. In the login page, enter the password and click **Login**.



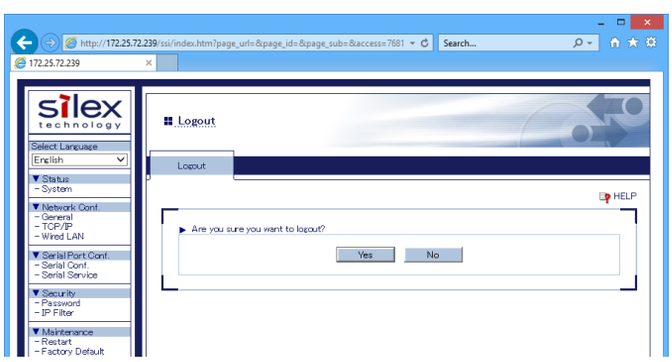
Log out the SD-300 Web Page

Follow the instructions below to log out the Web page.

1. In the left pane of the Web page, click **Logout**.



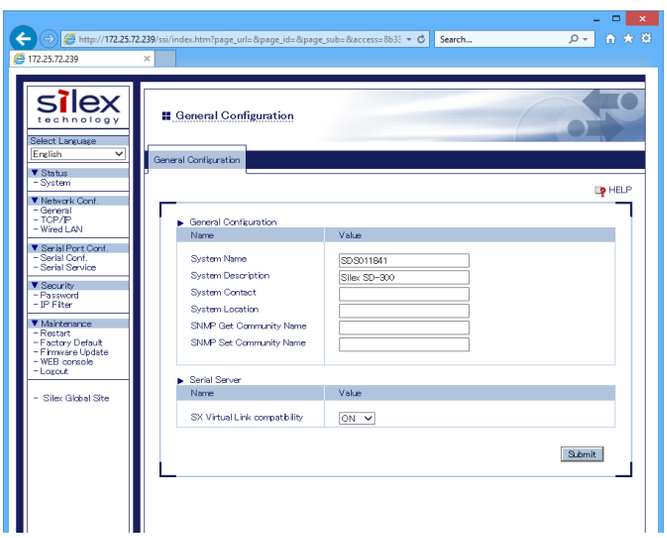
2. Click **Yes** to the confirmation message.



Configure Advanced Network Settings

<<General Configuration>>

In the left pane of the Web page, click **General**.
Enter or select the setting and click **Submit**.



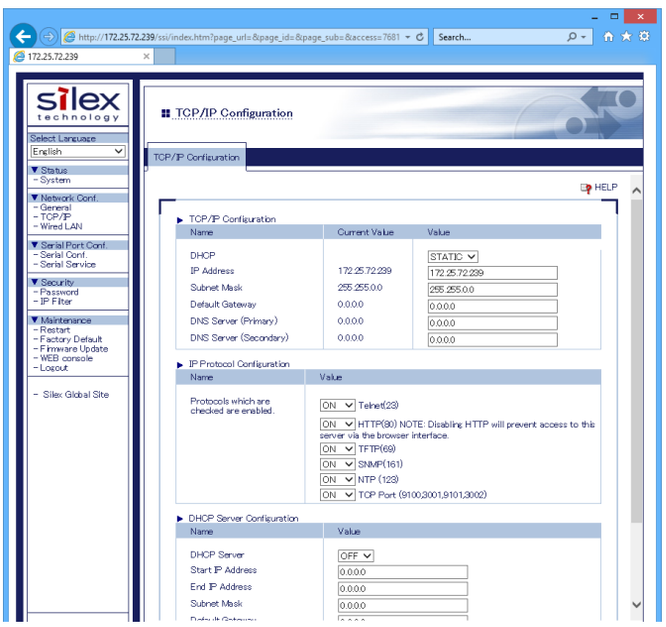
To take effect of the changes, restart SD-300 by clicking **Restart** from the left pane of the Web page.

Note

* If you are to continue configuration on other pages, you do not have to restart SD-300. Restart it when all configuration is done.

<<TCP/IP Configuration>>

In the left pane of the Web page, click **TCP/IP**.
Enter or select the setting and click **Submit**.



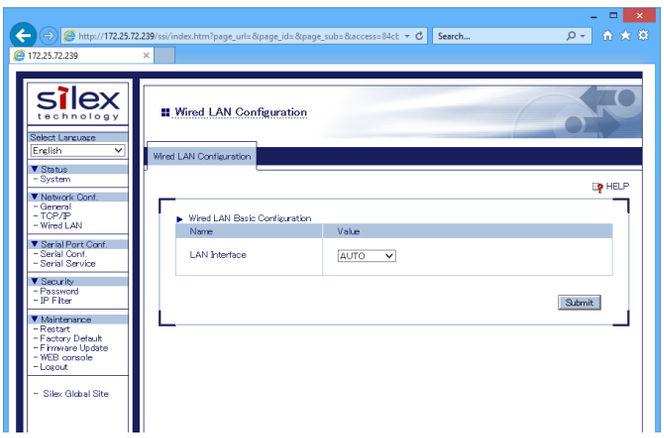
To take effect of the changes, restart SD-300 by clicking **Restart** from the left pane of the Web page.

Note

* If you are to continue configuration on other pages, you do not have to restart SD-300. Restart it when all configuration is done.

<<Wired LAN Configuration>>

In the left pane of the Web page, click **Wired LAN**.
Enter or select the setting and click **Submit**.



To take effect of the changes, restart SD-300 by clicking **Restart** from the left pane of the Web page.

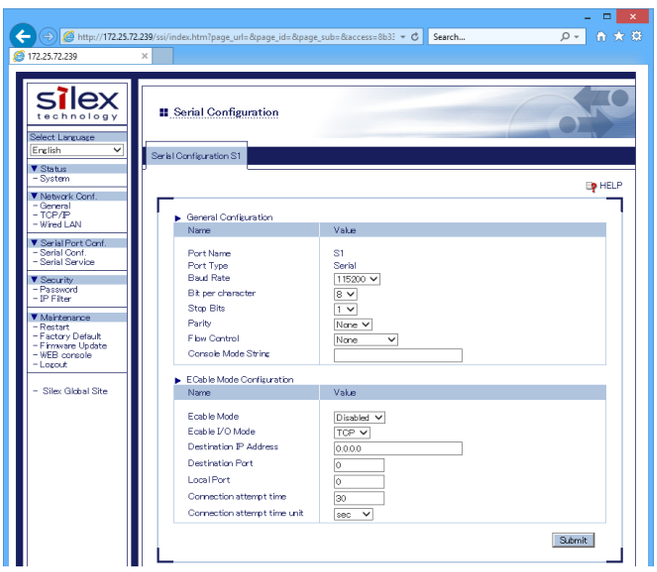
Note

* If you are to continue configuration on other pages, you do not have to restart SD-300. Restart it when all configuration is done.

Configure Serial Port Settings

<<Serial Configuration>>

In the left pane of the Web page, click **Serial Conf**.
Enter or select the setting and click **Submit**.



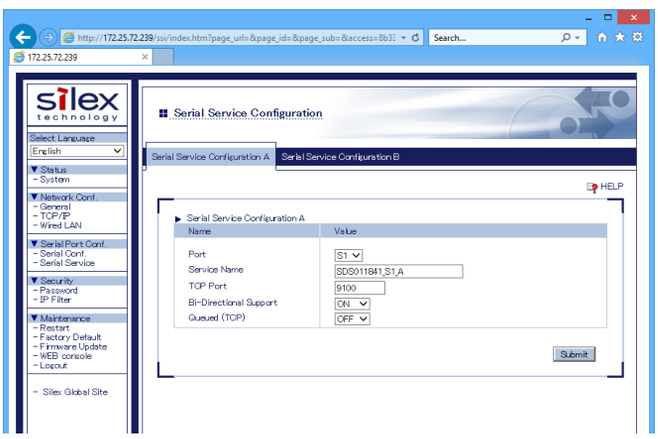
To take effect of the changes, restart SD-300 by clicking **Restart** from the left pane of the Web page.

Note

* If you are to continue configuration on other pages, you do not have to restart SD-300. Restart it when all configuration is done.

<<Serial Service Configuration>>

In the left pane of the Web page, click **Serial Service**.
Enter or select the setting and click **Submit**.



To take effect of the changes, restart SD-300 by clicking **Restart** from the left pane of the Web page.

Note

* If you are to continue configuration on other pages, you do not have to restart SD-300. Restart it when all configuration is done.

Configuration Item List

The SD-300 has the following configuration items:

<<Network Configuration (General)>>

General Configuration	
Name	System Name
Details	Enter a unique name for the server. This name can be up to 32 ASCII printable characters.
Default	SDSxxxxxx (xxxxxx is a last 6 digits of Ethernet Address)
Name	System Description
Details	Enter a description for the server that may provide helpful information about the server. This description can be up to 64 ASCII printable characters.
Default	Silex xxxxxxxx (xxxxxx is product name)
Name	System Contact
Details	Enter the name of the person to contact for information about the server. This name can be up to 63 ASCII printable characters.
Default	NONE
Name	System Location
Details	Enter the location of the server. This location can be up to 63 ASCII printable characters.
Default	NONE
Name	SNMP Get Community Name
Details	Enter the name of the community to be used for fetching SNMP information from the server.
Default	public
Name	SNMP Set Community Name
Details	Enter the name of the community to be used for setting SNMP items in the server.
Default	public

TIP

* Notes on SNMP Get Community Name and SNMP Set Community Name
- When these items are displayed in the Web page, the current values will not be displayed in the entry fields.
- When the configuration is updated without entering any settings, the configuration will not change.

Serial Server	
Name	SX Virtual Link compatibility
Details	Enable or disable the SX Virtual Link compatibility.
Default	ON

<<Network Configuration (TCP/IP)>>

TCP/IP Configuration	
Name	DHCP
Details	Set IP address configuration method by selecting from AUTO, DHCP and STATIC. **AUTO** : Tries to acquire IP address from DHCP server. A static IP address is used when it fails. **DHCP** : Tries to acquire IP address from DHCP server. Unlike AUTO mode, DHCP request is continuously sent until it is replied. **STATIC** : Uses a static IP address.
Default	AUTO
Name	IP Address
Details	Set the IP address. The value must be 4 numbers separated by dots and expressed in the format [xxx.xxx.xxx.xxx].
Default	169.254.111.111
Name	Subnet Mask
Details	Set the subnet mask. The value must be 4 numbers separated by dots and expressed in the format [xxx.xxx.xxx.xxx]. When set to "0.0.0.0", a subnet mask appropriate for the IP address is automatically used.
Default	255.255.0.0
Name	Default Gateway
Details	Set the gateway address. The value must be 4 numbers separated by dots and expressed in the format [xxx.xxx.xxx.xxx]. Also, the gateway needs to be running in the same subnetwork as SD-300. If "0.0.0.0" is set, this setting is disabled.
Default	0.0.0.0
Name	DNS Server (Primary)
Details	Set a primary DNS server address. When DHCP is enabled, the DNS address obtained from these servers will be given higher priority.
Default	0.0.0.0
Name	DNS Server (Secondary)
Details	Set a secondary DNS server address. When DHCP is enabled, the DNS address obtained from these servers will be given higher priority.
Default	0.0.0.0

IP Protocol Configuration	
Name	
Details	Each selection controls a TCP/IP based protocol. Set "ON" for a protocol to allow a remote host to access the server using that protocol. Set "OFF" to disallow use of the protocol.
Default	All protocols ON

DHCP Server Configuration	
Name	DHCP Server
Details	Enables/Disables the DHCP Server function (ON/OFF).
Default	OFF
Name	Start IP Address
Details	Set the start IP Address for lease.
Default	0.0.0.0
Name	End IP Address
Details	Set the end IP Address for lease.
Default	0.0.0.0
Name	Subnet Mask
Details	Set the subnet mask for IP address range. If 0.0.0.0 (default value) is set, the subnet mask appropriate for the Start IP Address will automatically be used.
Default	0.0.0.0
Name	Default Gateway
Details	Set the gateway address. This is disabled if 0.0.0.0 (default value) is set.
Default	0.0.0.0
Name	Lease Time
Details	Set the lease time (Days/Hours/Minutes). When the setting is "0Days 0Hours 0Minutes", assigned lease time is 10days.
Default	10Days 0Hours 0Minutes

<<Network Configuration (Wired LAN)>>

Wired LAN Basic Configuration	
Name	LAN Interface
Details	Select the physical network type. In most cases, AUTO is used. If the LINK lamp on your HUB does not light up when SD-300 is turned on, configure this setting to match that of the HUB.
Default	AUTO

<<Serial Port Configuration (Serial Configuration)>>

I/O Port Configuration	
Name	Port Name
Details	Port Name
Default	S1
Name	Port Type
Details	Port Type
Default	Serial
Name	Baud Rate
Details	Select the speed at which the port should send and receive data. (300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600)
Default	115200
Name	Bit per character
Details	Select the number of bits per character. (7, 8)
Default	8
Name	Stop bits
Details	Select the number of stop bits after each character. (1, 2)
Default	1
Name	Parity
Details	Select the parity scheme for each character. (NONE, ODD, EVEN)
Default	NONE

Name	Flow control
Details	Select the flow control method. (NONE, XON/XOFF, RTS/CTS)
Default	NONE
Name	Console Mode String
Details	If this string is defined, input from serial port will be scanned. When a string is received that matches this string, the serial port will switch to console mode. To specify non-printable string, specify the hexadecimal value starting from '\x'.
Default	NONE

Ecable Mode Configuration	
Name	Ecable Mode
Details	When Ecable mode is enabled, SD-300 will try to make a network connection to the remote device defined by following parameters. When the connection is established, data received on serial port will be sent to the remote device and data received on the remote device will be sent to serial port.
Default	Disabled
Name	Ecable I/O Mode
Details	Select a network protocol for remote host I/O to use when Ecable mode is enabled.
Default	TCP
Name	Destination IP Address
Details	Enter the IP address of the device to make a connection with when Ecable mode is enabled. It is possible to specify this using a host name when TCP mode is on.
Default	0.0.0.0
Name	Destination Port
Details	Enter the TCP port number of the device to make a connection with when Ecable mode is enabled.
Default	0
Name	Local Port
Details	Enter the port of local server that a remote client sends data to when UDP mode is on and Ecable mode is enabled.
Default	0

Name	Connection attempt time
Details	Specify the Ecable connection attempt interval.
Default	30
Name	Connection attempt time unit
Details	Specify the unit of Ecable connection attempt interval.
Default	sec

<<Serial Port Configuration (Serial Service)>>

Port Service Configuration	
Name	Port
Details	Specifies the physical port associated with the service.
Default	S1
Name	Service Name
Details	Specify the service name. Usually, this field does not need to be changed.
Default	SDSxxxxxx_S1_A for port service setting A SDSxxxxxx_S1_B for port service setting B (xxxxxx is a last 6 digits of Ethernet Address)
Name	TCP Port
Details	Specify the TCP port to use when this service is connected.
Default	9100 for port service setting A 3001 for port service setting B
Name	Bi-Directional Support
Details	When ON is selected, the service sends data back from the connected device to network. Usually, this setting does not need to be changed.
Default	ON
Name	Queued (TCP)
Details	When ON is selected and raw TCP port is specified, SD-300 adds the job to queue after it is sent to that port. When OFF is selected, the received job is discarded when SD-300 is handling other jobs.
Default	OFF

<<Security (Password)>>

Name	New Password
Details	Set an administrative password as an ASCII string (up to 16 characters). This password is used as authentication for changing the settings from the Web page.
Default	None

<<Security (IP Filter)>>

Add New Range.	
Name	Starting Address Ending Address Add
Details	To add the IP address range for a remote host, enter the start address (lower address) and end address (higher address) and click the **Add** button. All hosts are allowed to access SD-300 as long as they have the IP address within the registered range.
Default	0.0.0.0

Manage Configured Ranges.	
Name	Remove
Details	To remove the IP address range from the list, select the address range from the list and click the **Remove** button. When a PC is currently accessing SD-300 and the IP address of such PC is removed, access to SD-300 will become unavailable on that PC. Removing all address ranges means allowing access from all hosts.
Default	NONE

6-2. Security Settings

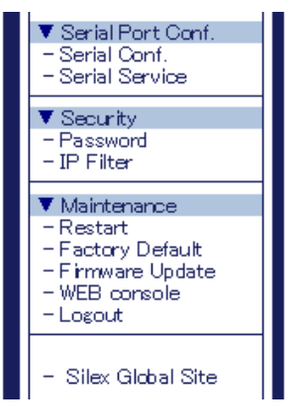
Change the Password

1. Access the Web page of SD-300.

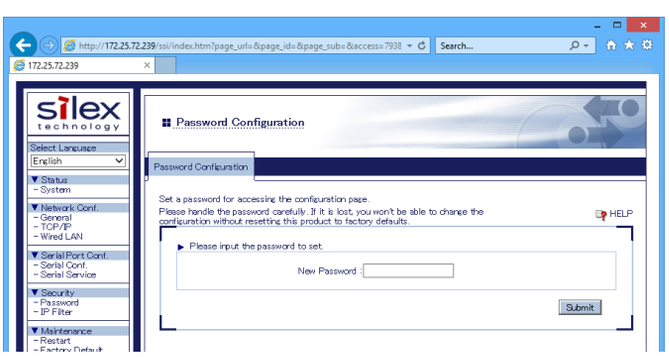
Note

* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

2. In the left pane of the Web page, click **Password**.



3. The Password Configuration page is displayed.
Enter the password to **New Password** and click **Submit**.



TIP

* Please handle the password carefully. If the password is lost, you will not be able to change the settings again unless SD-300 is reset to the factory default setting.

4. To take effect of the changes, restart SD-300 by clicking **Restart** from the left pane of the Web page.

Note

* If you are to continue configuration on other pages, you do not have to restart SD-300. Restart it when all configuration is done.

Allow Communication Only from a Particular PC

<<About IP Filter Feature>>

If this feature is used, SD-300 allows access only from the registered IP address ranges.
Up to 4 IP address ranges can be specified.

<<IP Filter Settings>>

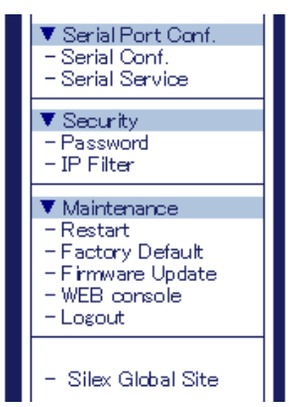
IP filter settings can be configured from the Web page.
The example below shows how to allow communications only from the IP address range "172.25.72.10" - "172.25.72.20":

1. Access the Web page of SD-300.

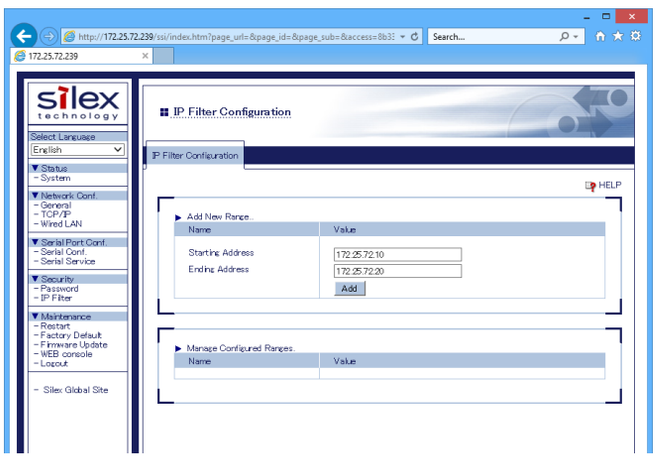
Note

* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

2. In the left pane of the Web page, click **IP Filter**.



3. Enter the **Starting Address** and **Ending Address** and click Add (up to 4 address ranges can be registered).
In this example, 172.25.72.10 is entered as the start address and 172.25.72.20 is entered as the end address to allow communication from that range.



TIP

* If the address range is deleted which includes the IP address of the computer which is currently accessing SD-300, the communication for that computer will be lost. It will not recover until the IP filer feature is disabled.

Note

* By deleting all the registered address ranges from **Manage Configured Ranges**, you can disable the IP filter feature as well as allow accesses from all IP addresses.

4. To take effect of the changes, restart SD-300 by clicking **Restart** from the left pane of the Web page.

Note

* If you are to continue configuration on other pages, you do not have to restart SD-300. Restart it when all configuration is done.

6-3. Maintenance

Reboot SD-300

TIP

* Before you start, please make sure that no PCs are currently linked.

<<Manual reboot at the unit side>>

1. Unplug the AC plug of SD-300 from the power outlet.
2. Insert the AC plug back into the power outlet again.
3. The reboot will be complete in 30 seconds.

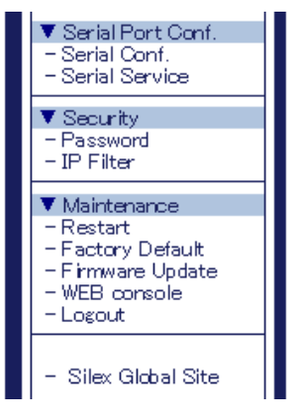
<<Remote reboot from the Web page>>

1. Access the Web page of SD-300.

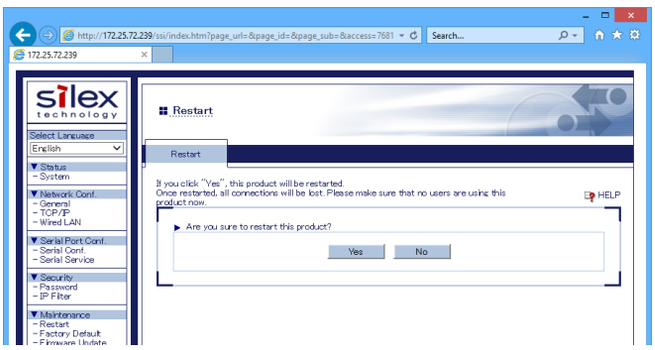
Note

* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

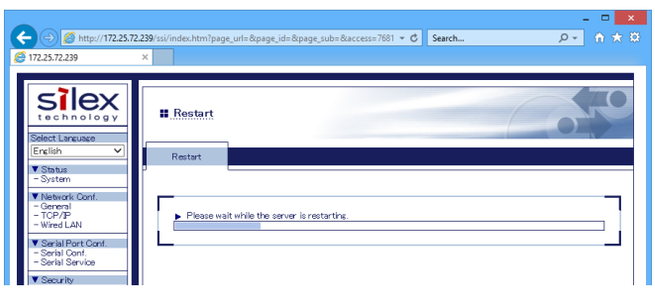
2. In the left pane of the Web page, click **Restart**.



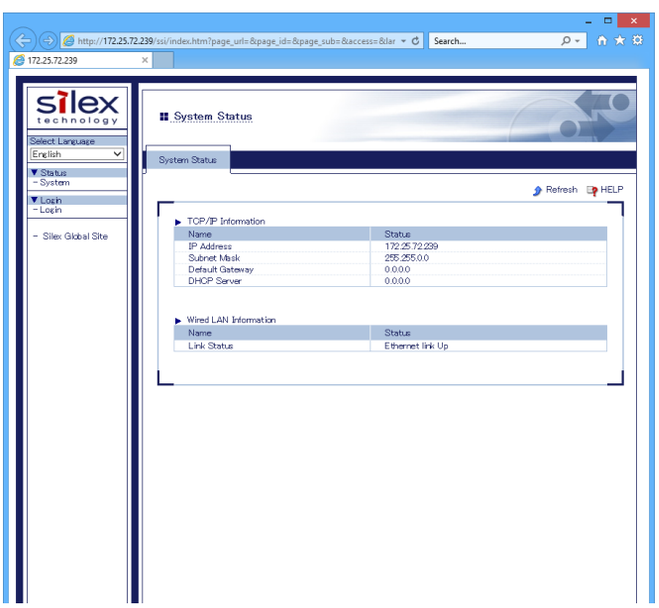
3. The Restart page is displayed.
Click **Yes**.



4. The reboot will begin.



5. When the system status page is displayed, the reboot is completed.
Finish the Web browser.



Reset to Factory Default

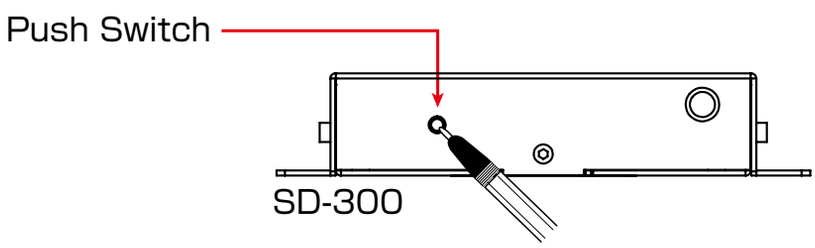
If SD-300 has been used in a particular network and you wish to change the settings to use it for another network, please initialize SD-300 first according to the instructions below:

<<Reset using the RESET switch on SD-300>>

TIP

* It is recommended to take notes of the current settings. You cannot restore it once the factory default configuration is complete.
* Before you start, please make sure that no PCs are currently linked.
* Do not turn off SD-300 while resetting to factory default.
* Do not press the push switch on the top when turning on SD-300 again after it was reset to the factory default settings.
* The following settings will remain even after finishing the factory default configuration.
    * Network Conf. - General - System Description
    * Network Conf. - Wired LAN - LAN Interface

1. Press and hold the push switch with a fine tipped object such as a pen or pencil when the SD-300 is powered on. Keep pressing it for 5 or more seconds.



2. The factory default configuration will begin when the push switch is released.

3. When the factory default configuration has completed, the SD-300 will automatically be restarted **after the orange LED turns off**.

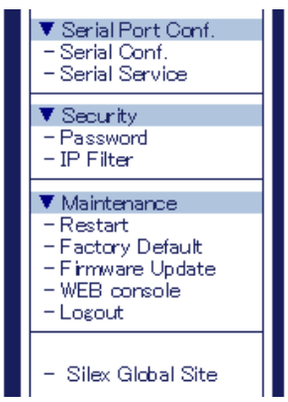
<<Reset from the Web page>>

1. Access the Web page of SD-300.

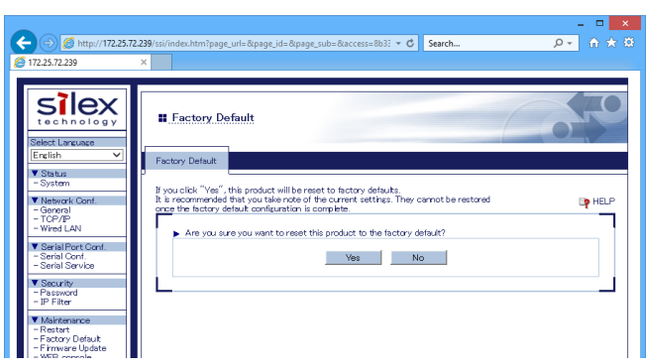
Note

* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

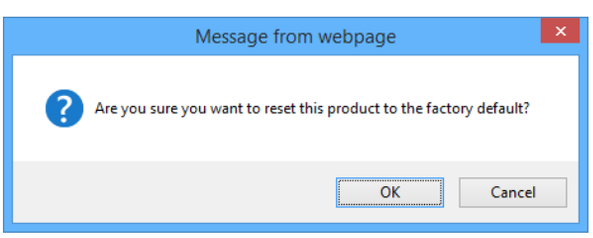
2. In the left pane of the Web page, click **Factory Default**.



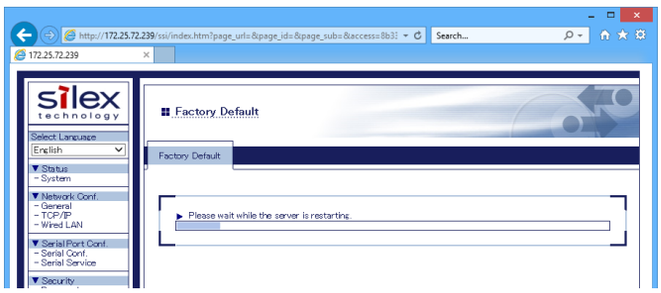
3. The factory default configuration page is displayed.
Click **Yes**.



4. A confirmation message is displayed. Click **OK** to start the factory default configuration.



5. The reboot will begin.
When the progress bar reaches the right end of the screen, the reboot is completed.
Finish the Web browser then.



Update Firmware

<<Download the latest firmware file>>

Please download the latest firmware file from our website.
For how to download the firmware file, refer to Download the Utilities.

<<Update the firmware>>

TIP

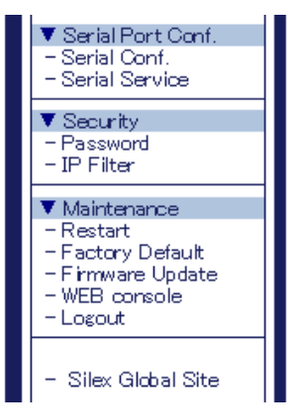
* Before you start, please make sure that no PCs are currently linked.
* Do not turn off SD-300 while the firmware update is in process.
* It is recommended to take notes of the current settings. You cannot restore it once the firmware update is complete.

1. Access the Web page of SD-300.

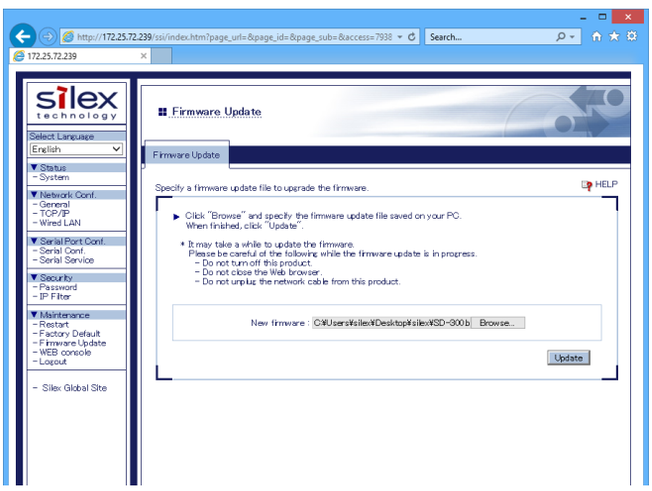
Note

* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

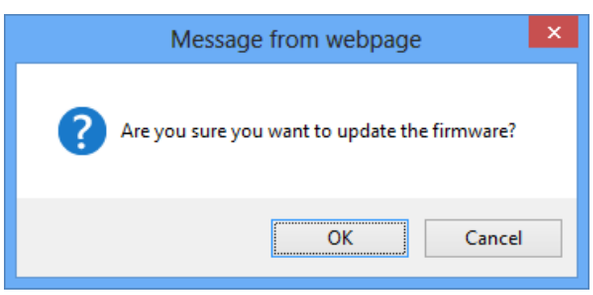
2. In the left pane of the Web page, click **Firmware Update**.



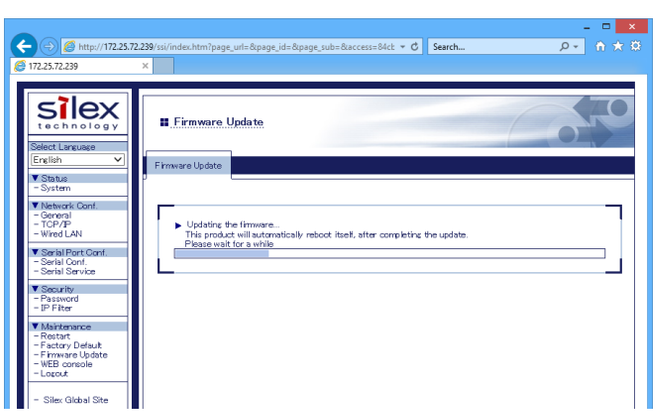
3. The Firmware Update page is displayed.
Click **Browse** to select the firmware file to be loaded to SD-300.
Check that the file name is displayed in the **New firmware** field and click **Update**.



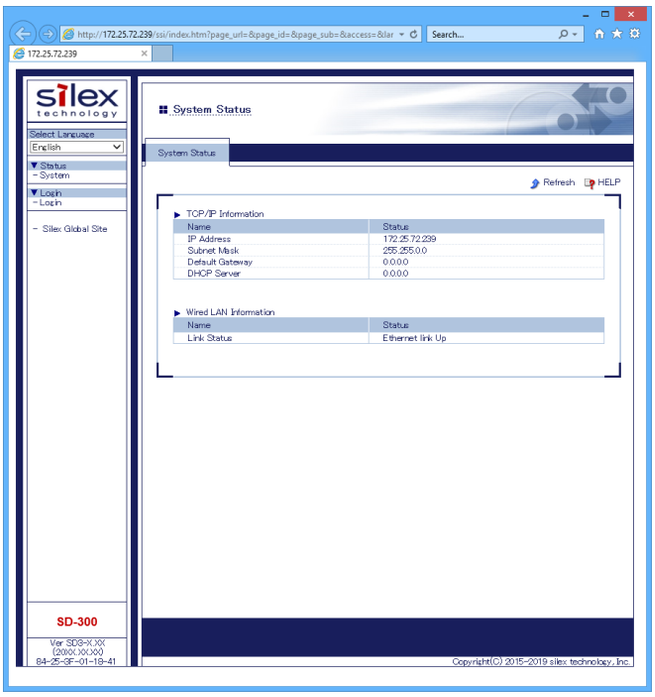
4. A confirmation message is displayed. Click **OK**.



5. The firmware update will begin.



6. When the system status page is displayed, the firmware update is completed.
See the bottom left of the page and check that the version information is changed.



7. Finish the Web browser.

6-4. Uninstall Application

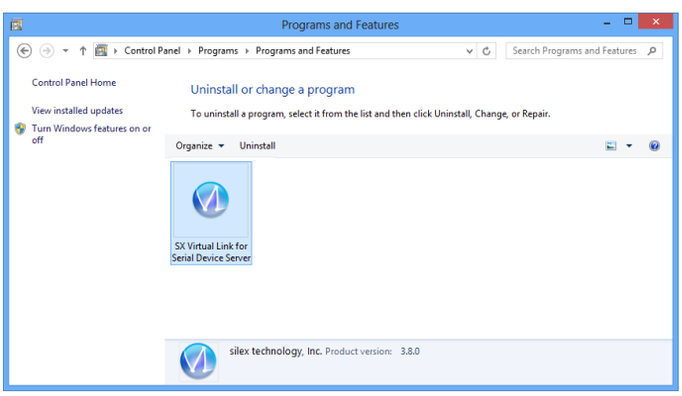
The SX Virtual Link for Serial Device Server can be deleted from Uninstall a program in the Control Panel.

TIP

* To uninstall SX Virtual Link for Serial Device Server, administrator privilege is required.

1. Click **Control Panel** - **Uninstall a program**.

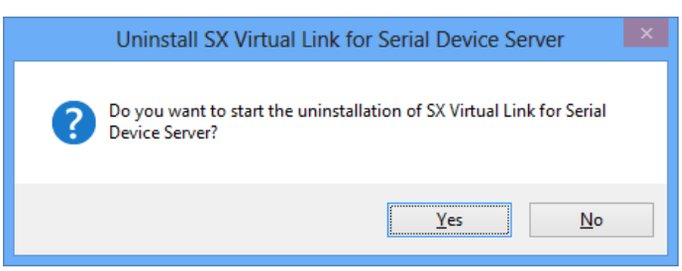
2. Select **SX Virtual Link for Serial Device Server** from the list and click **Uninstall**.



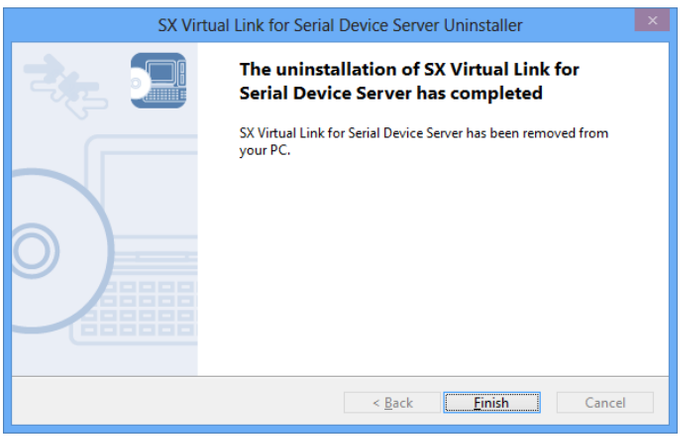
TIP

* If the User Account Control message is displayed, click **Continue**.

3. A confirmation message is displayed. Click **Yes** to start the uninstallation.



4. When a screen below is displayed, click **Finish**.



SX Virtual Link for Serial Device Server has been uninstalled.

6-5. About the Print Server Feature

About the Print Server Feature

The print server feature uses network printing protocols to allow you to print over the network.

SD-300 supports the common network printing protocols, "Raw" and "LPR".
When a printer is connected to SD-300, standard Windows printing can be used.

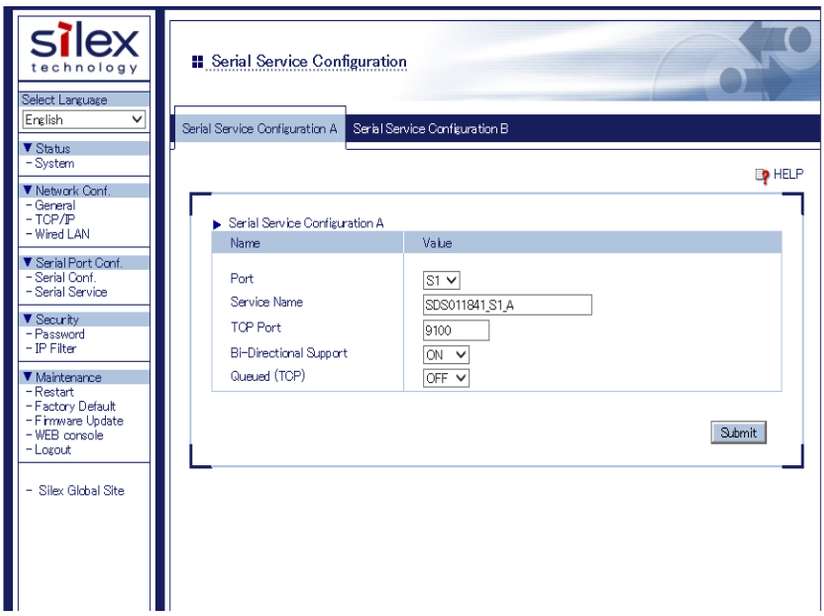
Please note that you do not have to use SX Virtual Link for Serial Device Server for printing via the print server feature.

TIP

* When using standard Windows printing, up to 1 printer can be used at a time. To connect 2 or more printers, SX Virtual Link for Serial Device Server must be used.
* It is impossible to print to printers connected to other computers via SX Virtual Link for Serial Device Server. Also, when printers are busy with standard Windows printing, they cannot be connected via SX Virtual Link for Serial Device Server.
* To use the print server feature, the SX Virtual Link compatibility needs to be set to **OFF**.

Before Using Standard Windows Printing

Before adding a printer port, access the Web page of SD-300 and check the destination printer port assigned to the printer connected to SD-300.



*** To use the Raw mode printing**

Take a note of the TCP port number assigned to the printer and go on to the following sections for detailed configuration.

- *** Printing Using the Standard TCP/IP Port on Windows 7 / Server 2008R2**
- *** Printing Using the Standard TCP/IP Port on Windows 8.1 / 10 / Server 2012 / Server 2012R2 / Server 2016**

*** To use the LPR mode printing**

Take a note of the service name assigned to the printer and go on to the following sections for detailed configuration.

- *** Printing Using the LPR Port on Windows 7 / Server 2008R2**
- *** Printing Using the LPR Port on Windows 8.1 / 10 / Server 2012 / Server 2012R2 / Server 2016**

Note

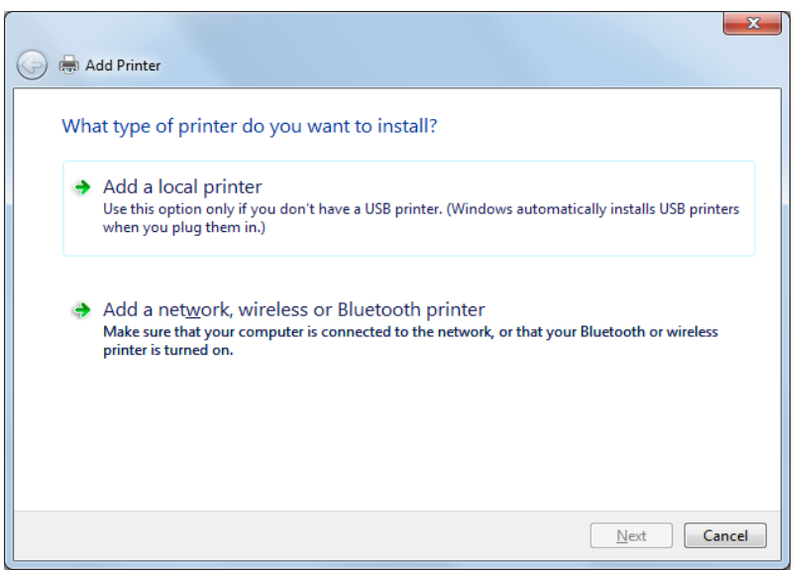
* For details on how to access the Web page, refer to **Access the SD-300 Web Page**.

Printing Using the Standard TCP/IP Port on Windows 7 / Server 2008R2

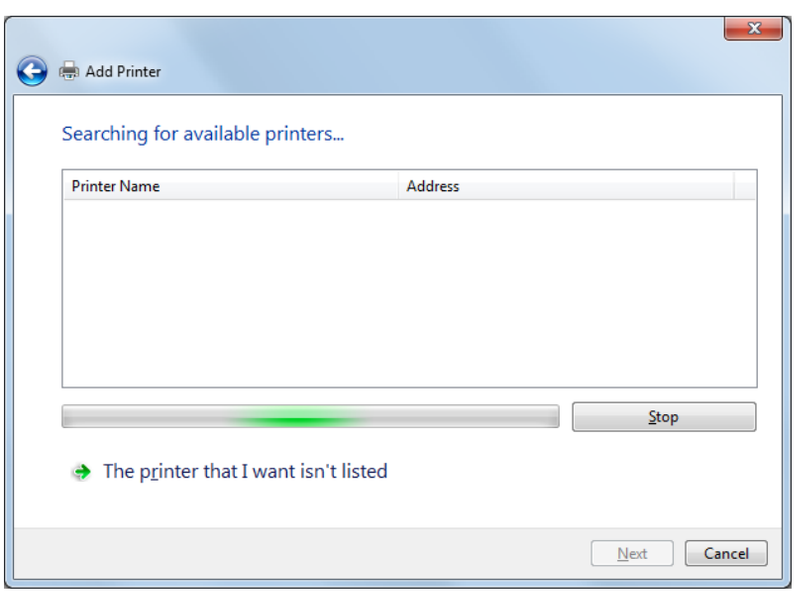
This page explains how to configure the settings to print on Windows 7 / Server 2008R2 using the standard TCP/IP port.

1. Click **Start** - **Control Panel** - **View devices and printers** - **Add a printer**.

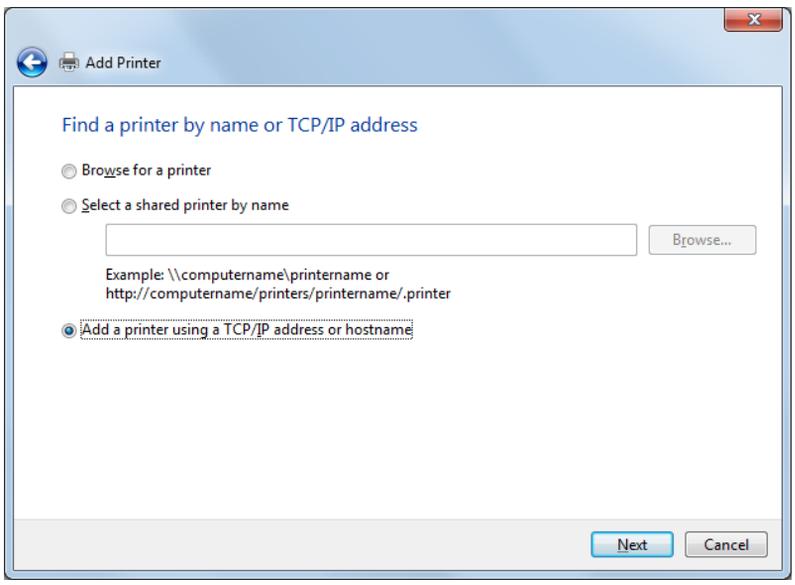
2. The wizard for adding a printer appears. **Click Add a network, wireless or Bluetooth printer**.



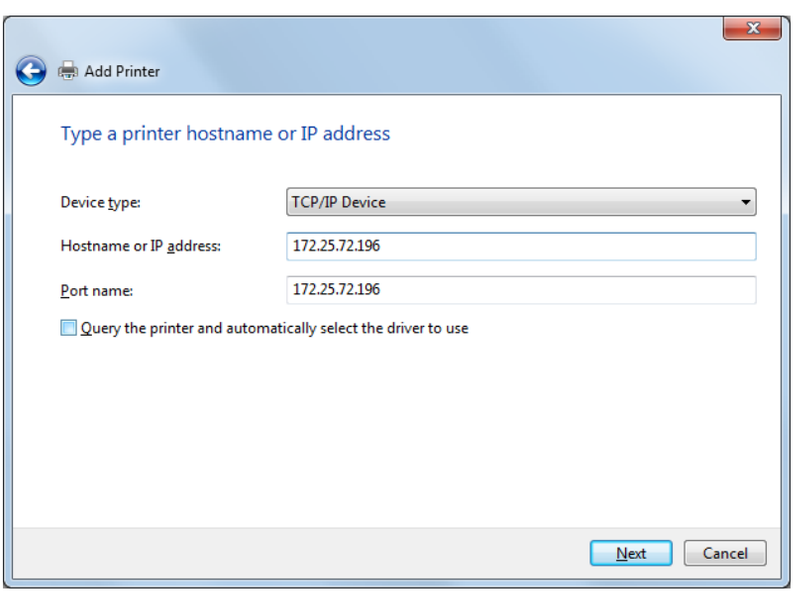
3. Click **The printer that I want isn't listed.**



4. Select the method to add a printer.
Select **Add a printer using a TCP/IP address or hostname** and click **Next**.



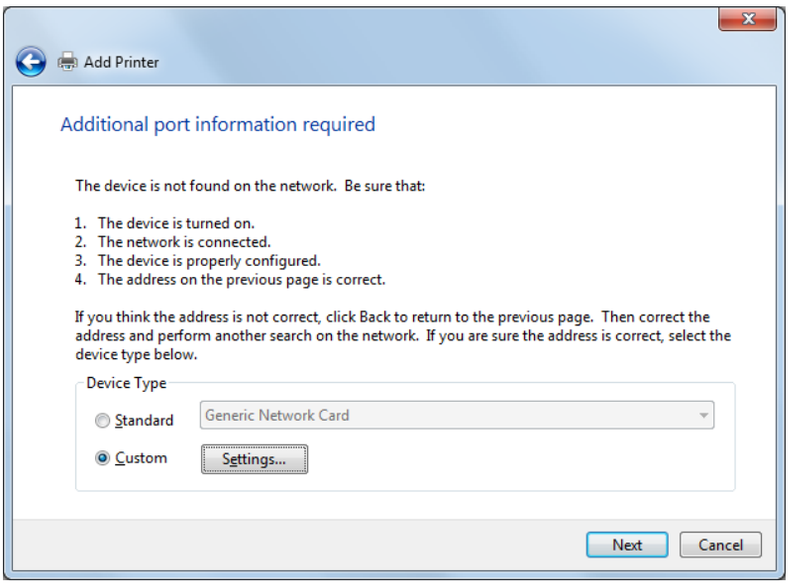
5. Select **TCP/IP Device** for Device type and enter the IP address assigned to SD-300 for **Hostname or IP address**.
Clear **Query the printer and automatically select the driver to use** check box and click **Next**.



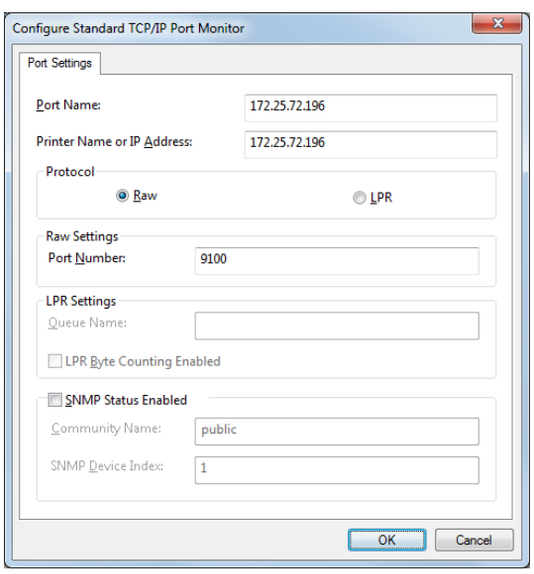
Note

* In most cases, the default port name is used. If you wish to change the port name, enter a unique name that is not used for other ports.

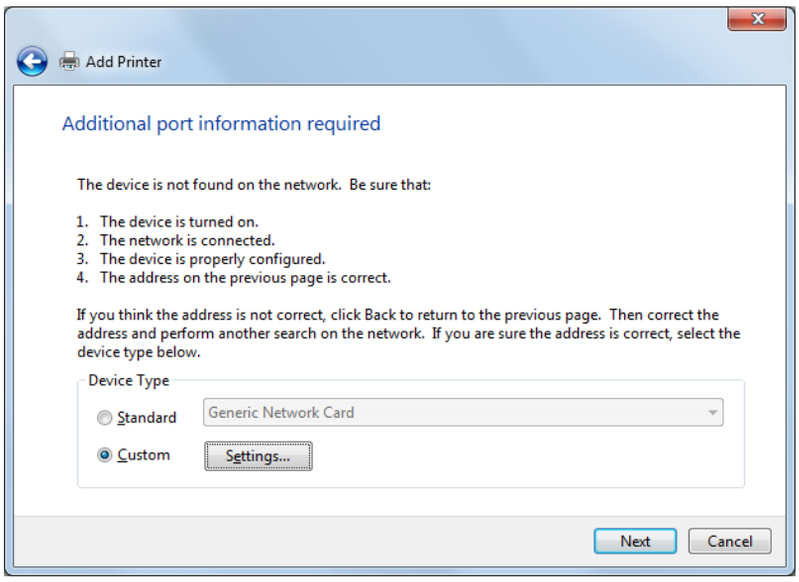
6. Select **Custom** and click **Settings**.



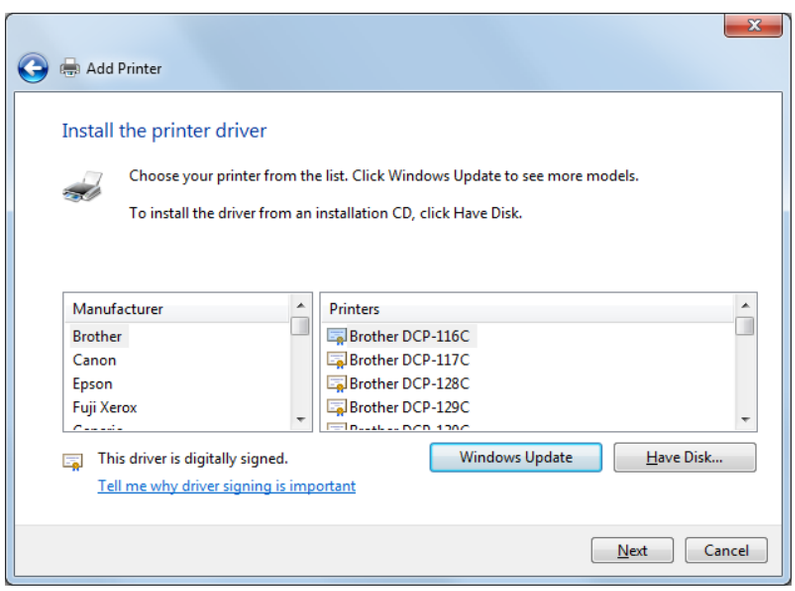
7. Configure the port settings. Select **Raw**.
Enter the RAW port number displayed on the Web page for **TCP Port Number.**
Click **OK**.



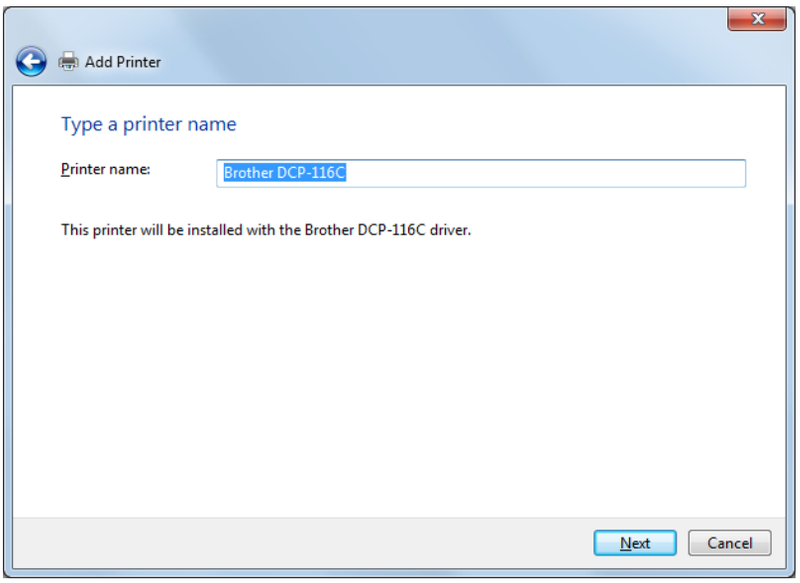
8. Click **Next**.



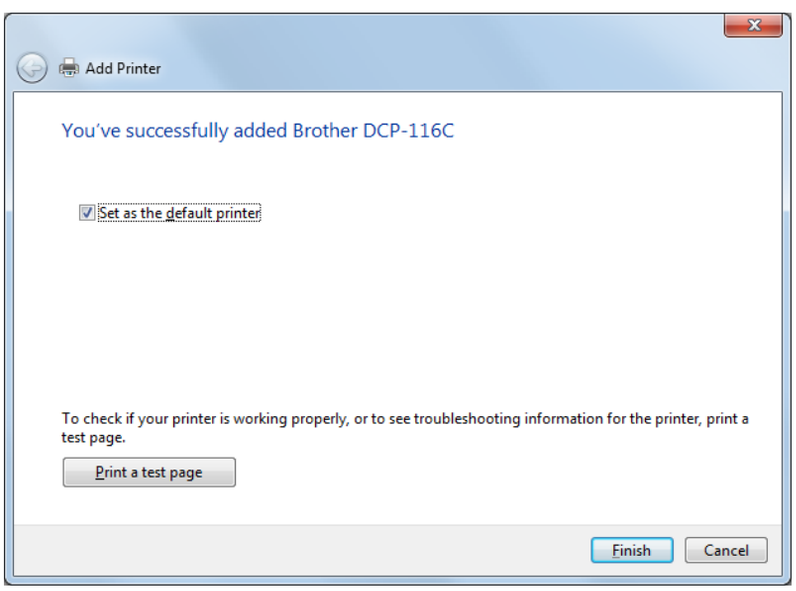
9. Select a printer driver.
Select the printer driver you want to use and click **Next**.



10. Enter a printer name and click **Next**.



11. Click **Print a test page** and see the result of printing. If the print result is OK, click **Finish**. The print setting has been completed.

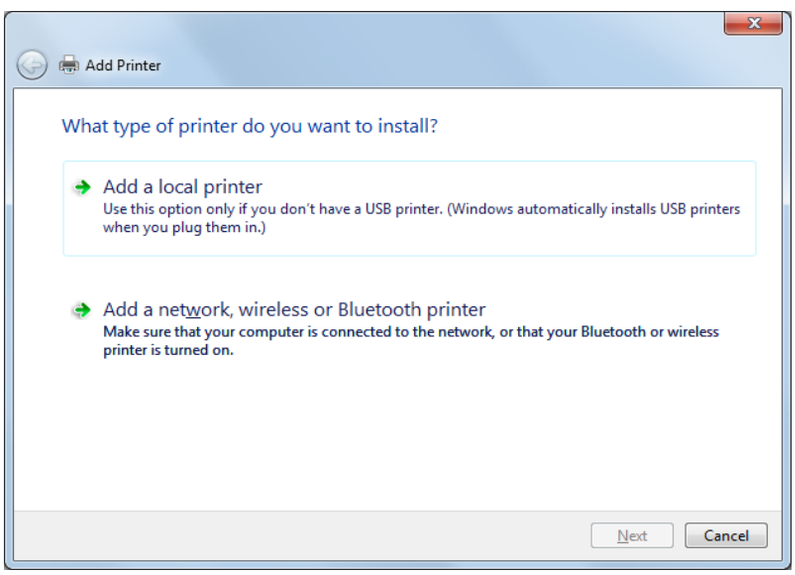


Printing Using the LPR Port on Windows 7 / Server 2008R2

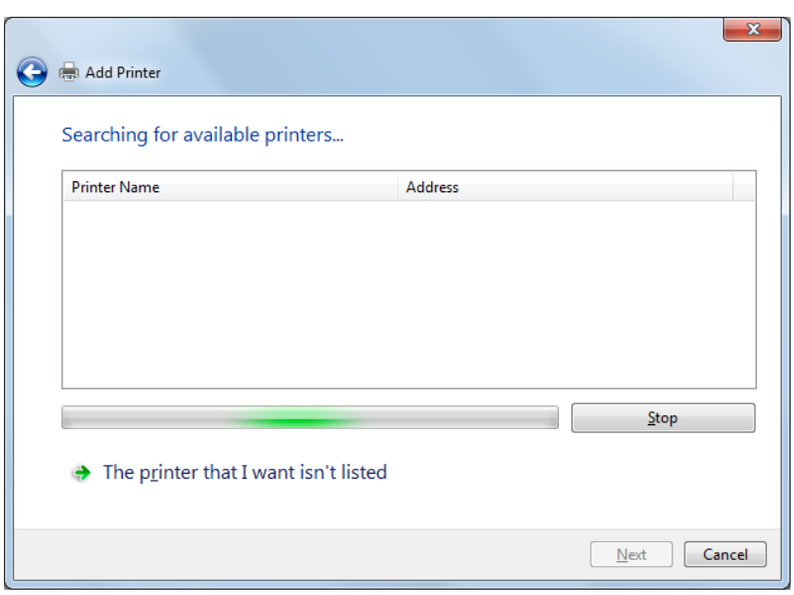
This page explains how to configure the settings to print on Windows 7 / Server 2008R2 using the standard LPR port.

1. Click **Start** - **Control Panel** - **View devices and printers** - **Add a printer**.

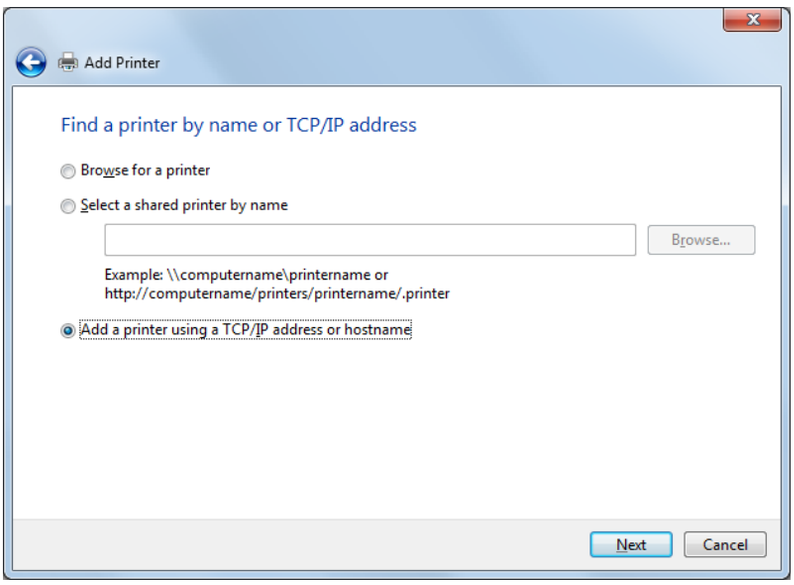
2. The wizard for adding a printer appears. **Click Add a network, wireless or Bluetooth printer**.



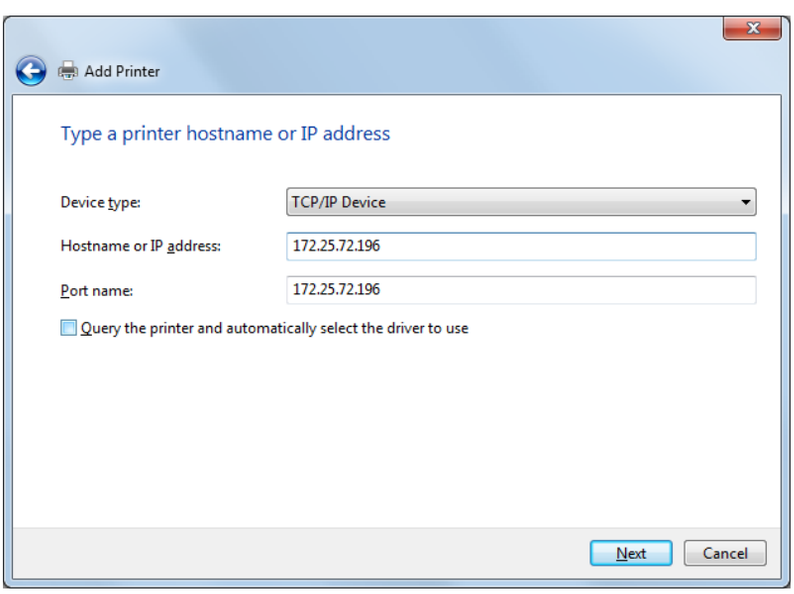
3. Click **The printer that I want isn't listed.**



4. Select the method to add a printer.
Select **Add a printer using a TCP/IP address or hostname** and click **Next**.



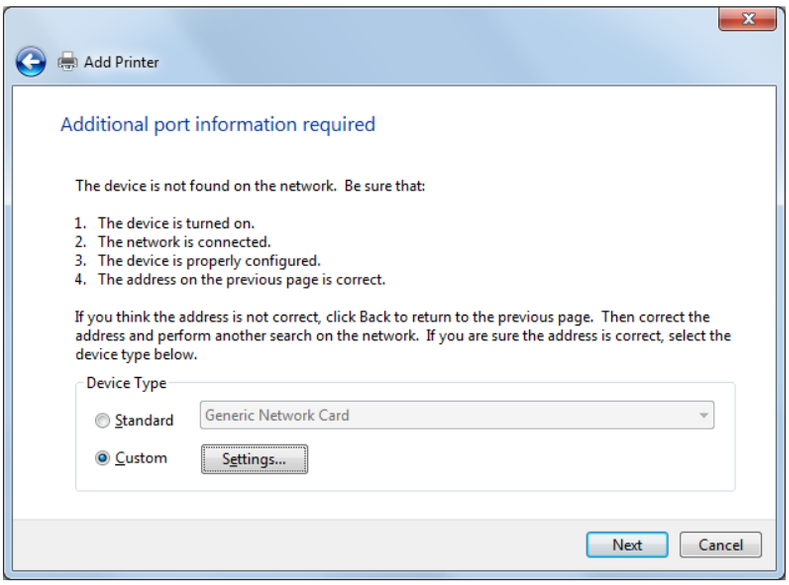
5. Select **TCP/IP Device** for Device type and enter the IP address assigned to SD-300 for **Hostname or IP address**.
Clear **Query the printer and automatically select the driver to use** check box and click **Next**.



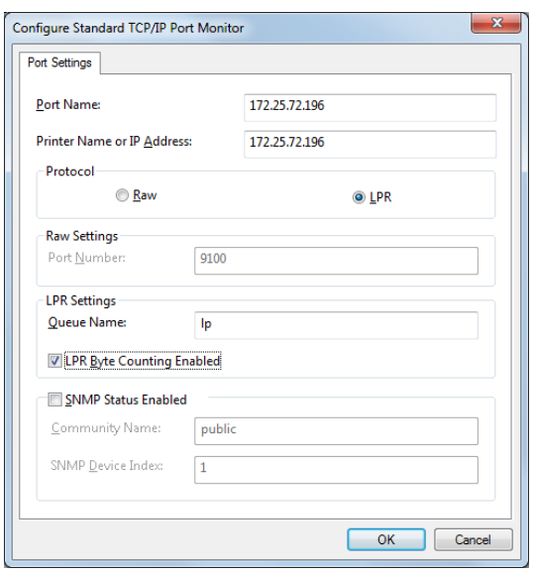
Note

* In most cases, the default port name is used. If you wish to change the port name, enter a unique name that is not used for other ports.

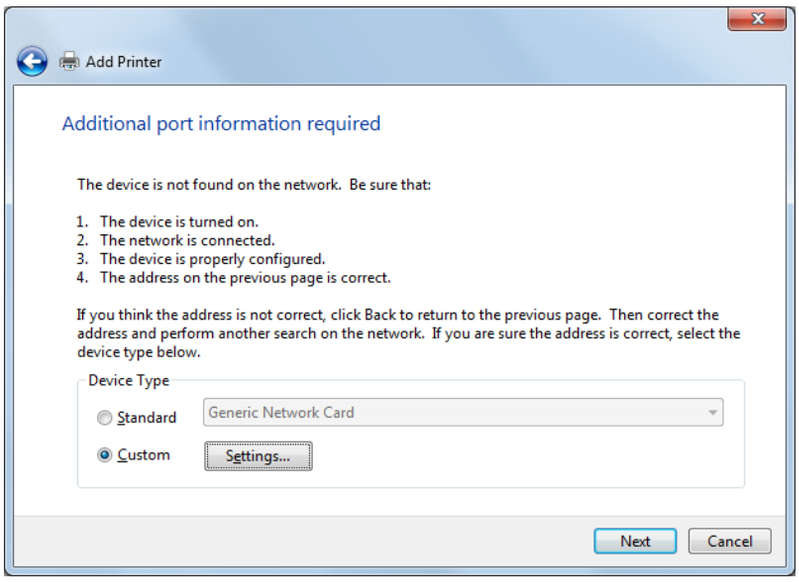
6. Select **Custom** and click **Settings**.



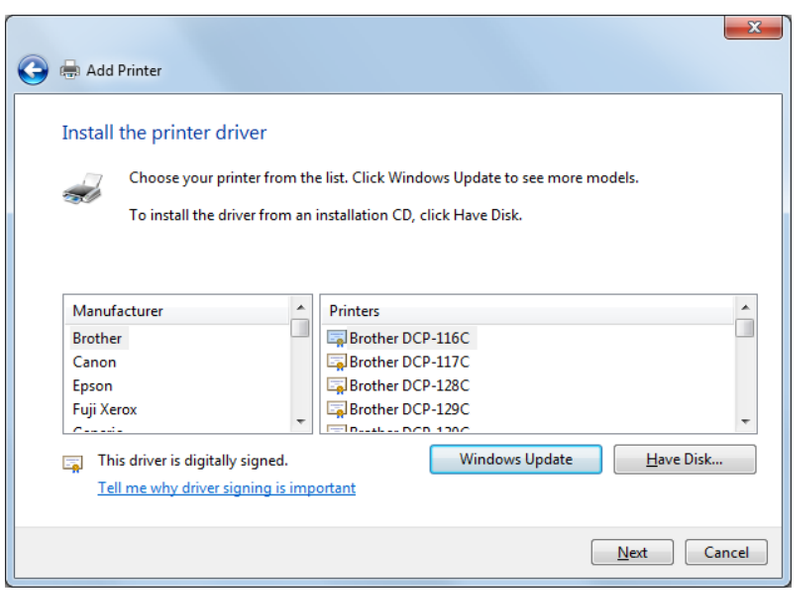
7. Configure the port settings. Select **LPR**.
Type the queue name displayed on the Web page for **Service name** and select the **LPR Byte Counting Enabled** check box.
Click **OK**.



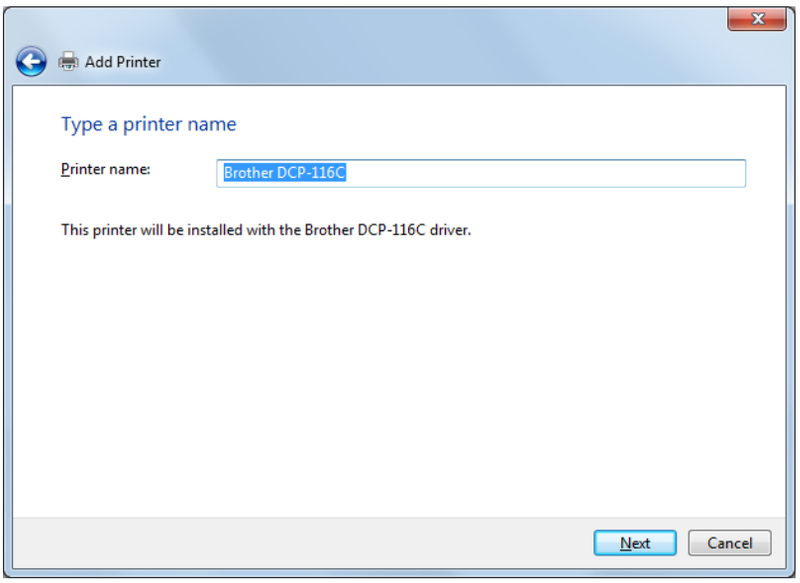
8. Click **Next**.



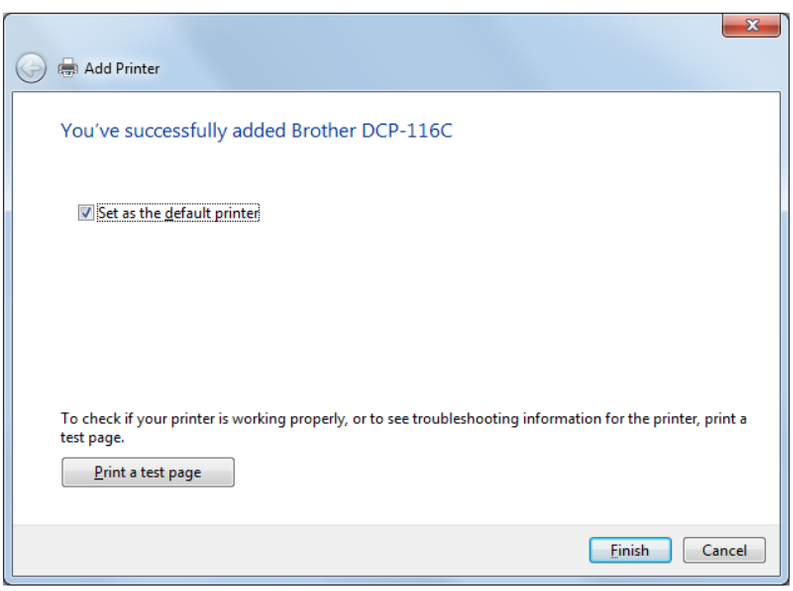
9. Select a printer driver.
Select the printer driver you want to use and click **Next**.



10. Enter a printer name and click **Next**.



11. Click **Print a test page** and see the result of printing. If the print result is OK, click **Finish**. The print setting has been completed.



Printing Using the Standard TCP/IP Port on Windows 8.1 / 10 / Server 2012 / Server 2012R2 / Server 2016

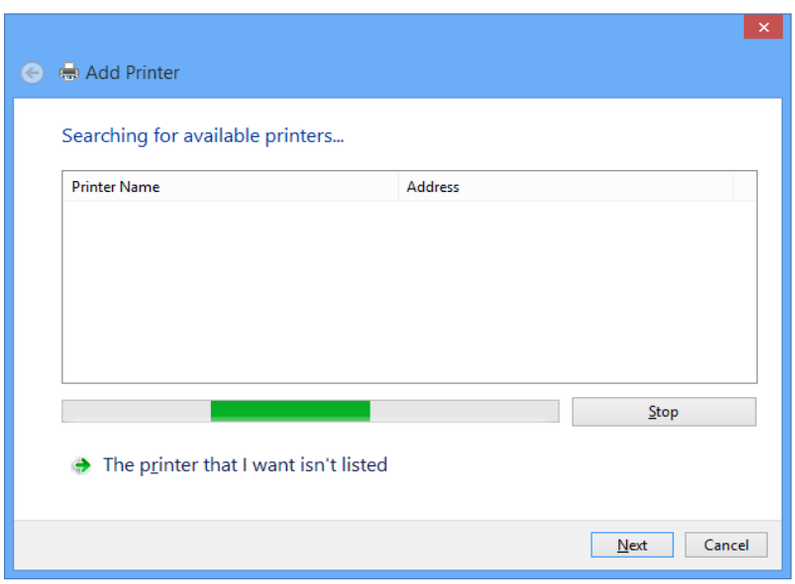
This page explains how to configure the settings to print on Windows 8.1 / 10 / Server 2012 / Server 2012R2 / Server 2016 using the standard TCP/IP port.

TIP

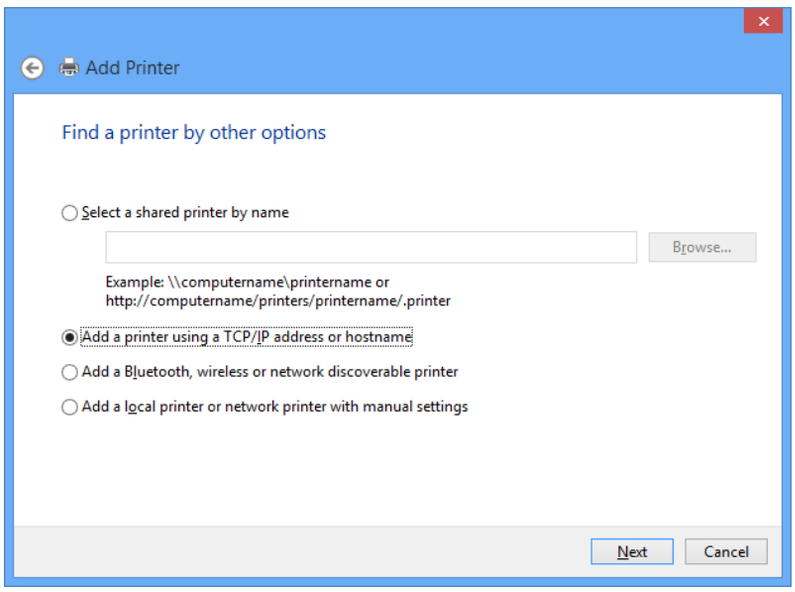
* In this page, sample screens captured from Windows 8.1 are used.

1. Click **Start** - **Control Panel** - **View devices and printers** - **Add a printer**.

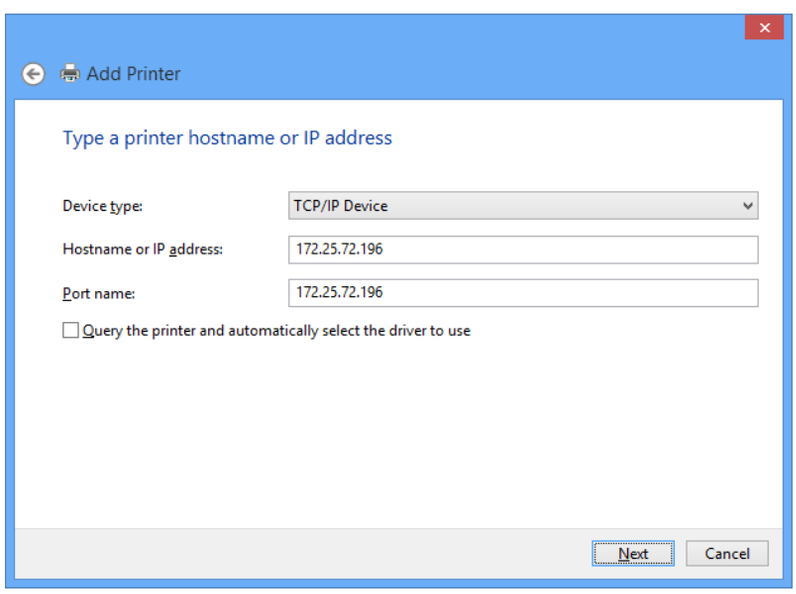
2. Click **The printer that I want isn't listed**.



3. Select the method to add a printer.
Select **Add a printer using a TCP/IP address or hostname** and click **Next**.



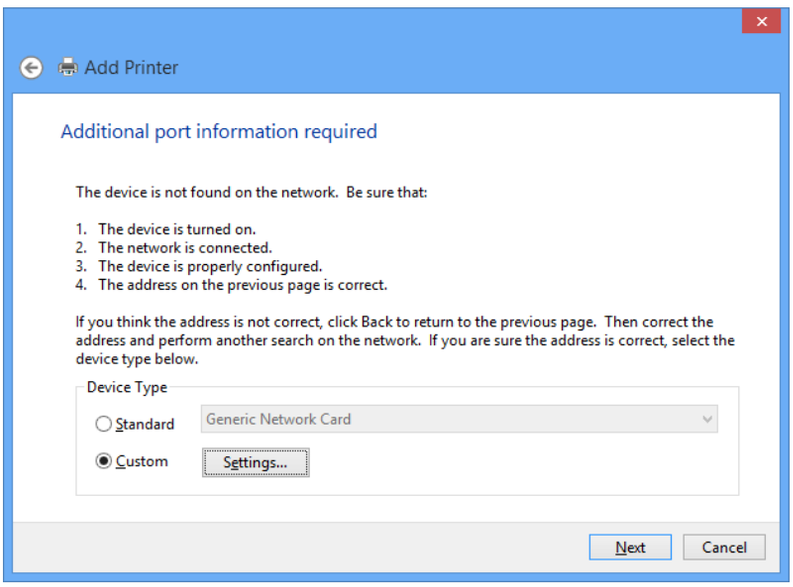
4. Select **TCP/IP Device** for Device type and enter the IP address assigned to SD-300 for **Hostname or IP address**.
Clear **Query the printer and automatically select the driver to use** check box and click **Next**.



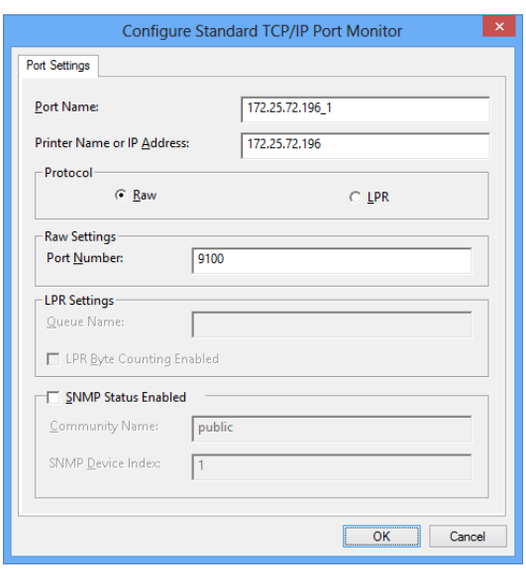
Note

* In most cases, the default port name is used. If you wish to change the port name, enter a unique name that is not used for other ports.

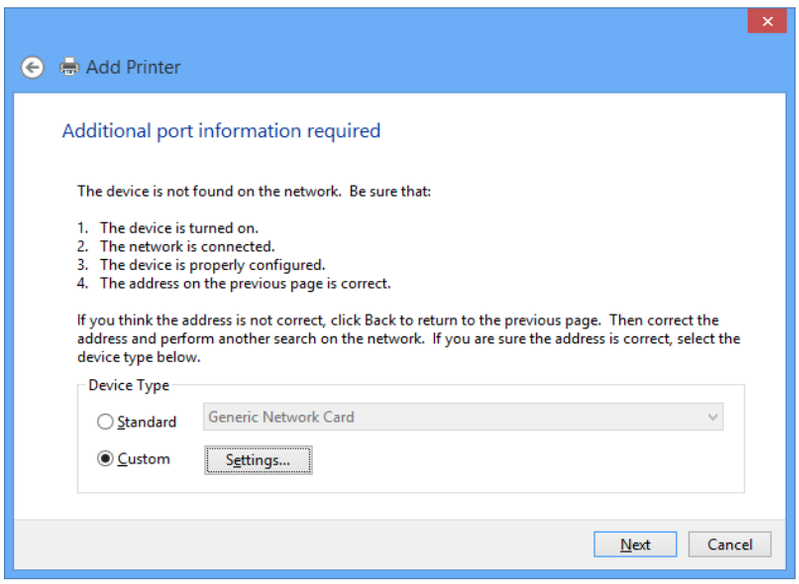
5. Select **Custom** and click **Settings**.



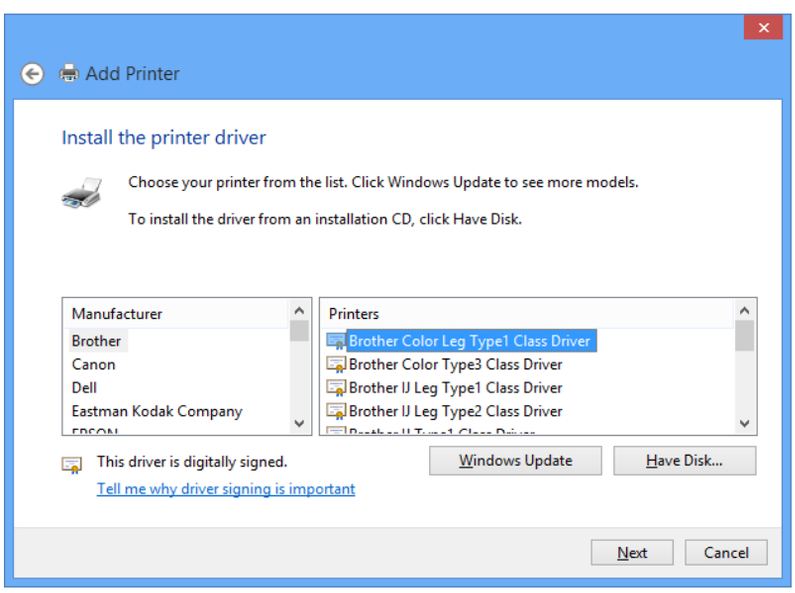
6. Configure the port settings. Select **Raw**.
Enter the RAW port number displayed on the Web page for **TCP Port Number.**
Click **OK**.



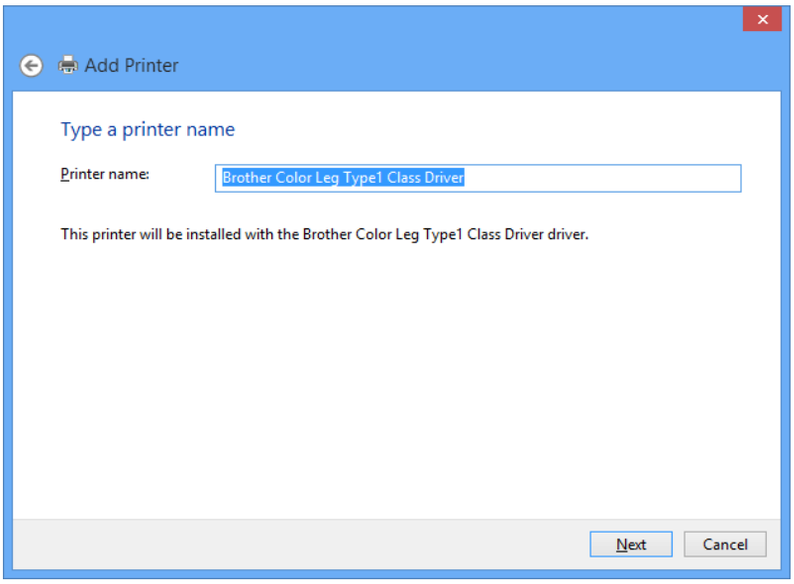
7. Click **Next**.



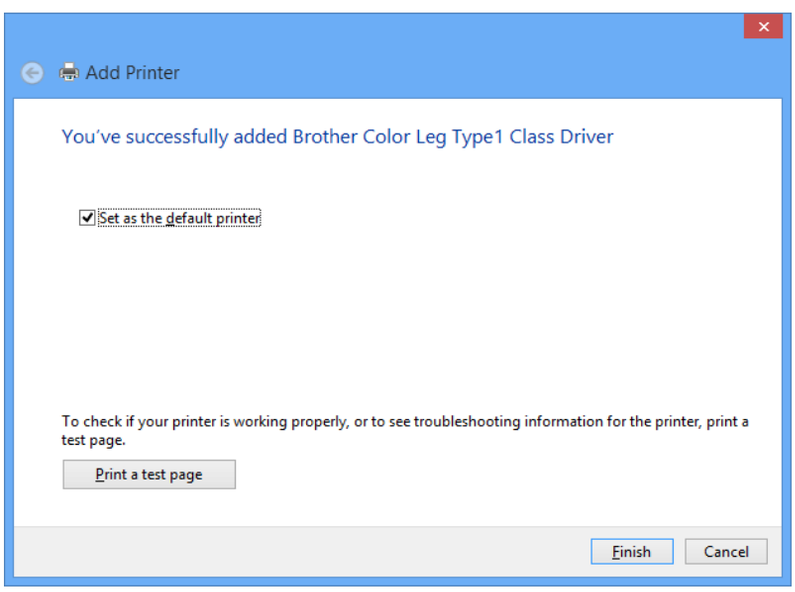
8. Select a printer driver.
Select the printer driver you want to use and click **Next**.



9. Enter a printer name and click **Next**.



10. Click **Print a test page** and see the result of printing. If the print result is OK, click **Finish**. The print setting has been completed.



Printing Using the LPR Port on Windows 8.1 / 10 / Server 2012 / Server 2012R2 / Server 2016

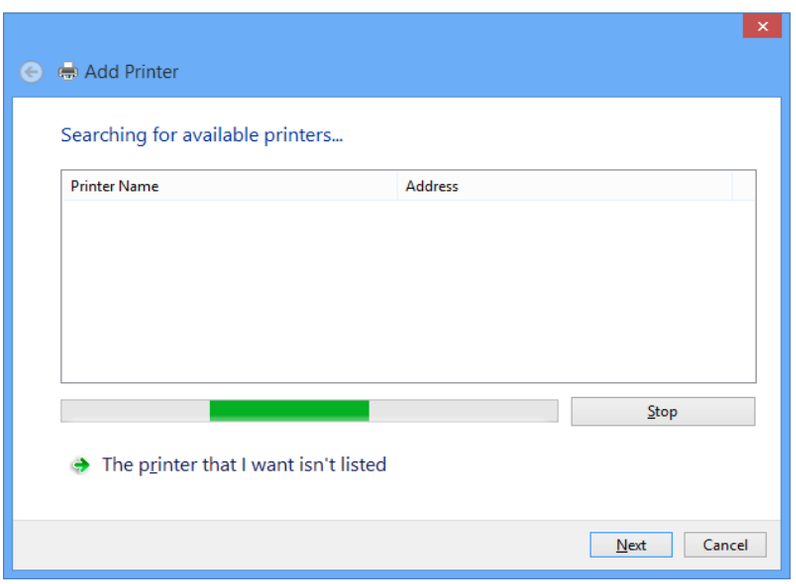
This page explains how to configure the settings to print on Windows 8.1 / 10 / Server 2012 / Server 2012R2 / Server 2016 using the standard LPR port.

TIP

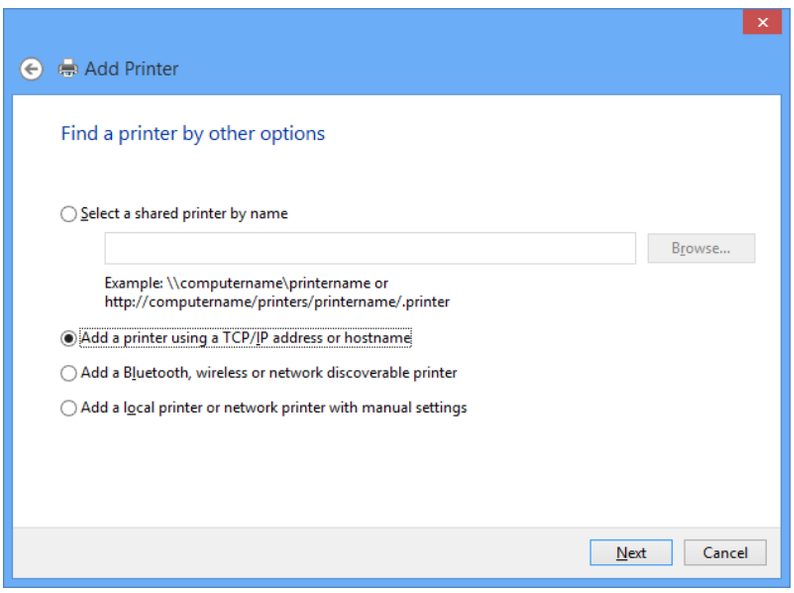
* In this page, sample screens captured from Windows 8.1 are used.

1. Click **Start** - **Control Panel** - **View devices and printers** - **Add a printer**.

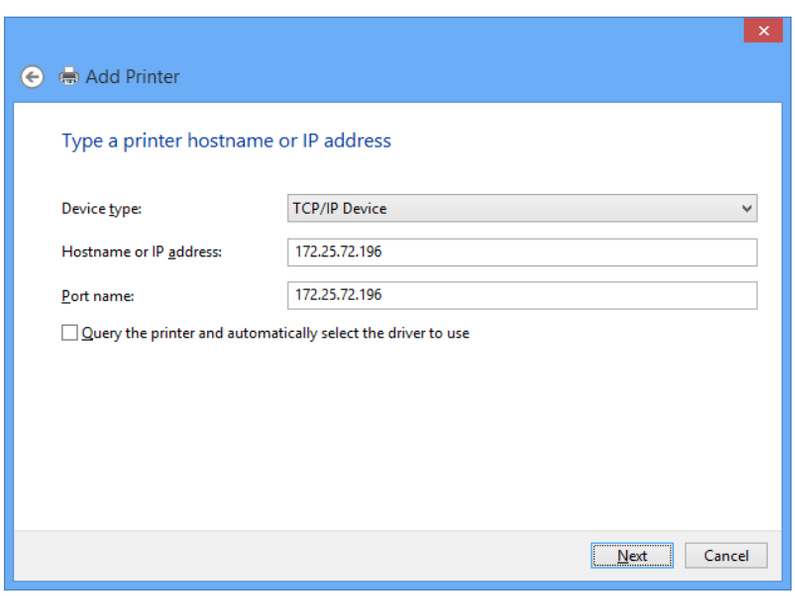
2. Click **The printer that I want isn't listed**.



3. Select the method to add a printer.
Select **Add a printer using a TCP/IP address or hostname** and click **Next**.



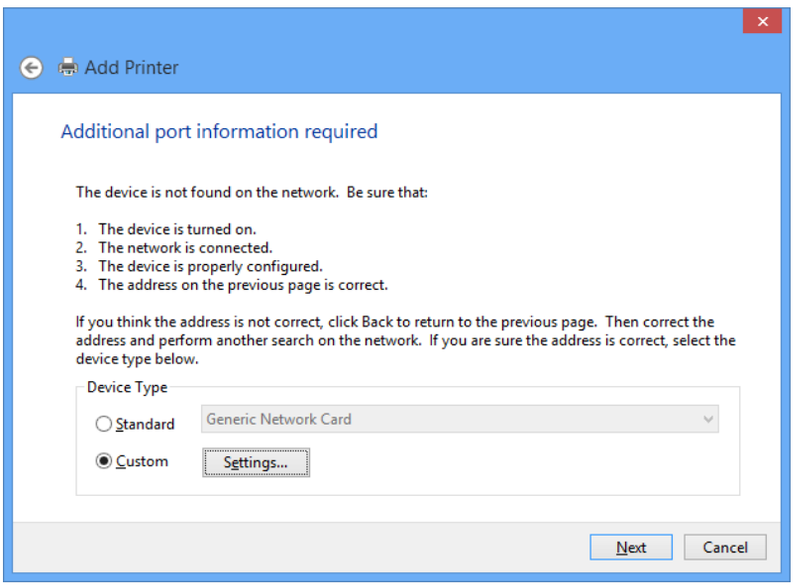
4. Select **TCP/IP Device** for Device type and enter the IP address assigned to SD-300 for **Hostname or IP address**.
Clear **Query the printer and automatically select the driver to use** check box and click **Next**.



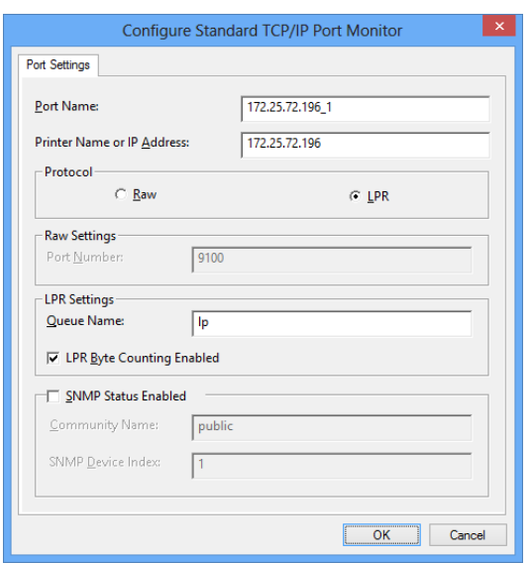
Note

* In most cases, the default port name is used. If you wish to change the port name, enter a unique name that is not used for other ports.

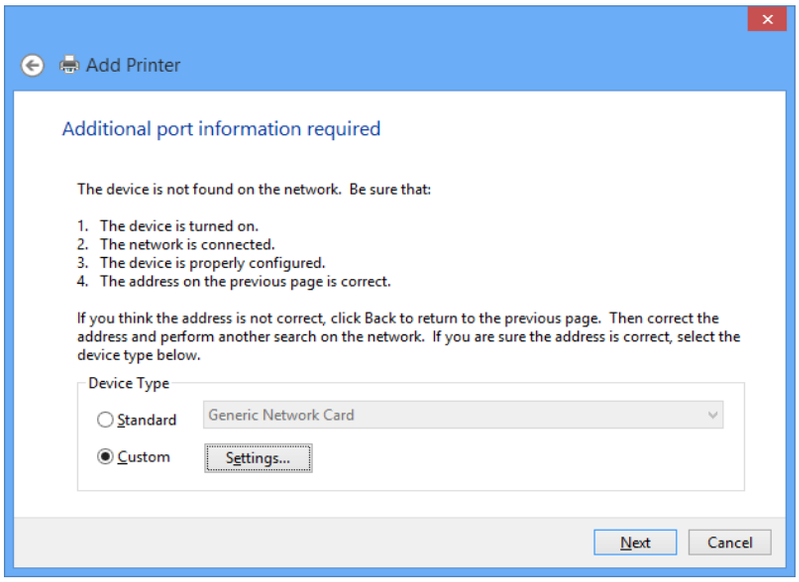
5. Select **Custom** and click **Settings**.



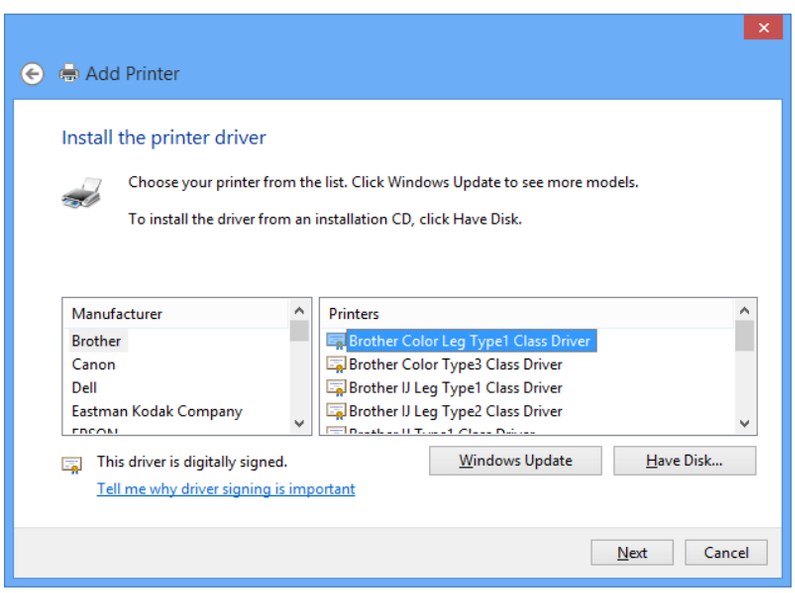
6. Configure the port settings. Select **LPR**.
Type the queue name displayed on the Web page for **Service name** and select the **LPR Byte Counting Enabled** check box.
Click **OK**.



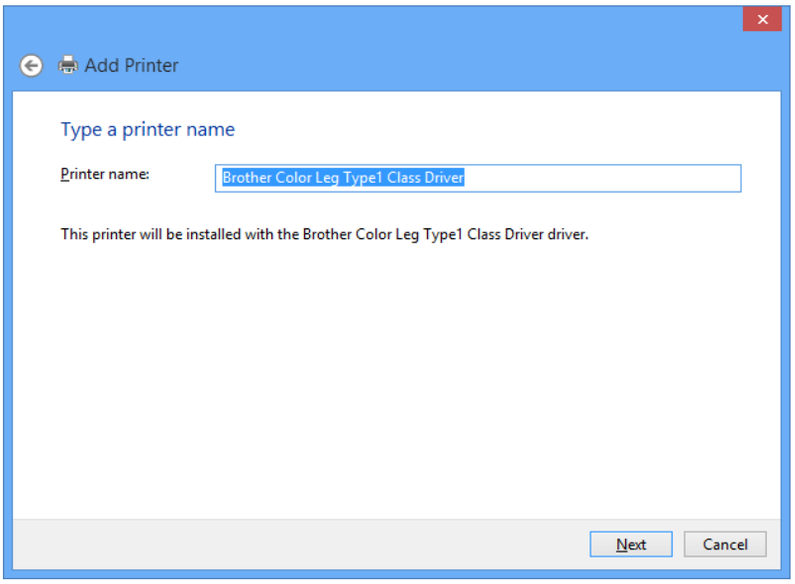
7. Click **Next**.



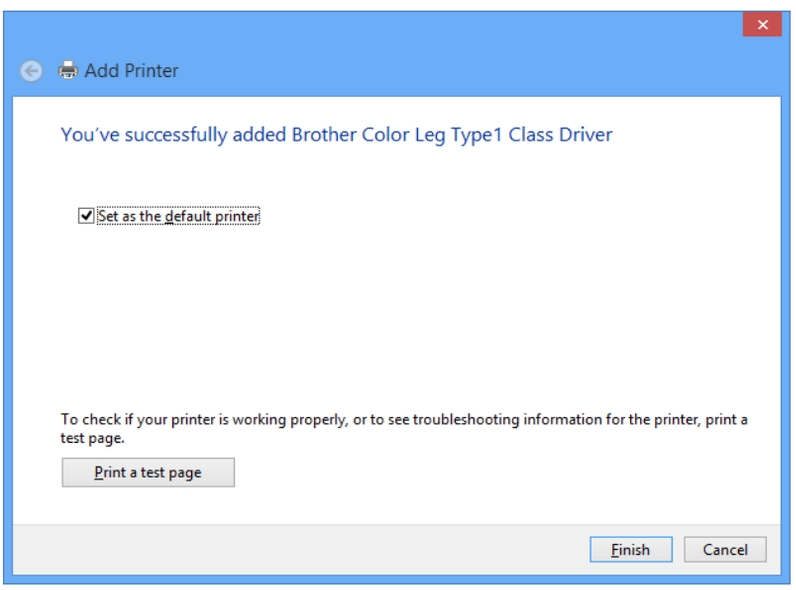
8. Select a printer driver.
Select the printer driver you want to use and click **Next**.



9. Enter a printer name and click **Next**.



10. Click **Print a test page** and see the result of printing. If the print result is OK, click **Finish**. The print setting has been completed.



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7. Troubleshooting

7-1. Problems During the Setup

SD-300 is not displayed in the search result of Serial Device Server Setup.

When SD-300 is not displayed in the search result of Serial Device Server Setup, the cause need to be determined from the installation status, network environment, and status of PC used for the configuration of SD-300.

SD-300 or the Ethernet Hub SD-300 is connected to may have a problem regarding connection, power transmission, or operation.	
Solution	Please check the LED status of SD-300 and the Ethernet Hub SD-300 is connected to. If the LED indicates improper status, replace the AC plug and other cables, and reboot the connected devices.

The startup of SD-300 may not have been completed.	
Solution	It takes up to 30sec for SD-300 to get ready after it is powered on. Please wait until SD-300 becomes ready and then click the Search in the Serial Device Server Setup.

SD-300 may not be in the same network segment (environment without a router) as your PC.	
Solution	During the initial configuration, place SD-300 and PC in the same network segment.

If SD-300 has been used in another network, it may have the settings not allowing the communication with your PC.	
Solution	Please reset SD-300 to the factory default setting. Refer to **Reset to Factory Default** for details.

Security software such as firewall may be interrupting the communication with SD-300.	
Solution	Please abort your security software. Refer to FAQ in our website (https://www.silextechnology.com/) for details on how to abort security software.

Communication error occurs when configuring with Serial Device Server Setup.

When a communication error occurs during Serial Device Server Setup, the cause needs to be determined from the settings of the PC used for the configuration.

SD-300 may not be in the same network segment (environment without a router) as your PC.	
Solution	During the initial configuration, place SD-300 and PC in the same network segment.

In the environment where there is DHCP server, the DHCP server may have configured the IP address of the different segment to a PC.	
Solution	Please select Obtain an IP address automatically at Internet Protocol (TCP/IP) Properties of the PC. Otherwise connect the PC and SD-300 to the standalone Ethernet Hub and see how it works.

If SD-300 has been used in another network, it may have the settings not allowing the communication with your PC.	
Solution	Please reset SD-300 to the factory default setting. Refer to **Reset to Factory Default** for details.

How should I determine the way to assign an IP address to SD-300?

There are two ways to assign an IP address to SD-300; one is to Get IP address automatically from DHCP server and the other is to Assign IP address manually. Choose the way to assign an IP address according to your environment.

When there is a DHCP server in the network environment:	
Solution	You can use Get IP address automatically from DHCP server. As SD-300 is set by default to Get IP address automatically, SD-300 will obtain an IP address appropriate to your network environment from the DHCP server just by powering up SD-300. Refer to **Reset to Factory Default** for details on how to reset SD-300 to the factory default settings.

When there is no DHCP server in the network environment, or when you do not prefer getting an IP address from DHCP server:	
Solution	Please use Assign IP address manually. Keep in mind of the following points regarding the IP address to assign to SD-300. * Assign an IP address unique in the network. * Assign an IP address that has the same address class as the PC that will use SD-300. e.g. When an IP address of the PC is "192.168.0.xx", assign an address such as "192.168.0.100" that is not used by other network devices. (Tips about the IP address) * An IP address is a unique number for identifying network devices. An IP address is indicated with four numbers divided by a period (.), for example "192.168.0.1". The integer from 0-255 is used for each number. * An IP address is, depending on the number assigned, categorized to 3 classes below. * Numbers making up the IP address are either network numbers indicating network, or host numbers indicating each network device; each number indicates the different meaning based on the IP address class. Each class is categorized as the following diagram which is indicating a network number as n, and a host number as u. An IP address with the same network number must be assigned to the network devices in the same network segment. * There is an address range in the IP address called the private address that could be used freely. In the LAN environment not directly connected to the internet, an IP address is assigned within the range of the private address.

First 1 digits in IP address	Class	Definition of IP address n: network number u: host number	Size of the network to be used	Private address
0 - 127	A	n.u.u.u	Large network	10.0.0.0 - 10.255.255.255
128 - 191	B	n.n.u.u	Mid-size network	172.16.0.0 - 172.31.255.255
192 - 223	C	n.n.n.u	Small network	192.168.0.0 - 192.168.255.255

An error message is displayed when installing SX Virtual Link for Serial Device Server.

An older version of SX Virtual Link for Serial Device Server may already be installed on the PC.	
Solution	If SX Virtual Link for Serial Device Server Ver.3.3.0 is installed on your PC, you cannot install the newer version of SX Virtual Link for Serial Device Server. Remove the older version first and try installing the newer version again.

Is it possible to install "SX Virtual Link" (USB device management utility) and "SX Virtual Link for Serial Device Server" (serial device management utility) on the same PC?

It is possible to install "SX Virtual Link" and "SX Virtual Link for Serial Device Server" on the same PC. However, please note that "SX Virtual Link for Serial Device Server" can replace "SX Virtual Link". You can manage both USB devices and serial devices, including discovering, linking to and unlinking from them using "SX Virtual Link for Serial Device Server".	
Solution	You can install "SX Virtual Link for Serial Device Server" on a PC which has "SX Virtual Link" already installed. However, if "SX Virtual Link" is installed on a PC which has "SX Virtual Link for Serial Device Server" already installed, you will not be able to link to serial devices. Remember that "SX Virtual Link for Serial Device Server" can be used to discover, link to and unlink from both USB devices and serial devices. If "SX Virtual Link for Serial Device Server" is installed on your PC, do not install "SX Virtual Link".

7-2. Problems While Using SD-300

Serial devices are not displayed or temporarily displayed in SX Virtual Link for Serial Device Server.

If serial devices are not displayed in SX Virtual Link for Serial Device Server, you need to check the cable connection as well as the network settings between SD-300 and your PC.

SD-300 or the Ethernet Hub SD-300 is connected to may have a problem regarding connection, power transmission or operation.	
Solution	Please check the LED status of SD-300 and the Ethernet Hub SD-300 is connected to. If the LED indicates improper status, replace the AC plug and other cables, and reboot the connected devices.

The startup of SD-300 may not have been completed.	
Solution	It takes up to 30sec for SD-300 to get ready after it is powered on. Please wait until SD-300 becomes ready, and then click the Refresh button  in SX Virtual Link for Serial Device Server again.

Security software such as firewall may be interrupting the communication with SD-300.	
Solution	Please add SX Virtual Link for Serial Device Server to the exception list in your security software. Please refer to the FAQ on our website (https://www.silextechnology.com/) for details on adding an application to the exception list.

An IP address unable to communicate with your PC may be assigned to SD-300.	
Solution	First, check the IP Address of your PC. To check the IP Address, use the Windows Command Prompt. 1. Select **Start** - **All Programs** - **Accessories** - **Command Prompt**. 2. When the Command Prompt is started, execute the ipconfig command. Example of executing the **ipconfig** command  Check that the IP Address of the PC is a proper address for communicating with the IP Address of SD-300. If the PC and SD-300 are in the same network segment but use a different network number in their addresses, you need to change either the address of the PC or SD-300. Also, if there is a router between the PC and SD-300, check that the default gateway address is properly configured.

The IP address assigned to SD-300 may be in use by another network device.	
Solution	First, turn off SD-300 and open the Windows Command Prompt. Ping the IP address of SD-300. 1. Select **Start** - **All Programs** - **Accessories** - **Command Prompt**. 2. When the Command Prompt appears, execute the **ping** command. Example of executing the ping command when the IP address of SD-300 is 192.168.20.20  If there is a reply while SD-300 is turned off, it means there is another network device using the same IP address as SD-300. In such a case, change the IP address of either SD-300 or the other network device.

A serial cable used to connect SD-300 and a serial device may not be plugged in correctly.	
Solution	Please check that the serial cable is properly plugged into SD-300 and the serial device. If you have a spare serial cable, replace the cable.

I cannot communicate with a serial device.

If you cannot communicate with the serial device connected to SD-300, you need to check the communication settings on SD-300 and the serial communication software.

A serial cable used to connect SD-300 and a serial device may not be plugged in correctly.	
Solution	Please check that the serial cable is properly plugged into SD-300 and the serial device. If you have a spare serial cable, replace the cable.

Serial communication settings may differ between the serial device and serial communication software.	
Solution	When you are using SX Virtual Link for Serial Device Server to communicate with a serial device, the serial communication settings may differ between the serial device and serial communication software. If the serial communication settings are different between them, you may not be able to communicate with the serial device. Also, output serial data may not be transferred correctly. Check the settings on the serial communication software and match it with those used in the serial device. For details on how to change the settings on your serial communication software, refer to the operation manual that came with it.

Serial communication settings may differ between SD-300 and the serial device.	
Solution	If you are using Ecable Mode or Raw TCP Connection Mode to communicate with a serial device, the serial communication settings may differ between SD-300 and the serial device. If the serial communication settings are different between them, you may not be able to communicate with the serial device. Also, output serial data may not be transferred correctly. You can change the serial communication settings of SD-300 from the Web page. For details on how to change the settings on the Web page, refer to **Configure Serial Port Settings** or **Configuration Item List** - **Serial Port Configuration**.

When using SD-300 in Ecable Mode, the destination IP address or TCP port number settings may be incorrect.	
Solution	In Ecable Mode, two SD-300's must be configured with the proper IP addresses to communicate with each other, and the same TCP port number should be used for both. If these settings are different between them, serial communication may fail due to a network connection not being established. For detailed settings to use SD-300 in **Ecable Mode, refer to Ecable Mode (Link to the Registered Device)** - **Before You Begin**.

When using SD-300 in Raw TCP Connection Mode, the TCP port number may be different between SD-300 and the application program.	
Solution	In Raw TCP Connection Mode, SD-300 and the application program should be configured with the same TCP port number. If this setting is different between them, serial communication may fail due to a network connection not being established. For detailed settings to use SD-300 in **Raw TCP Connection Mode, refer to Raw TCP Connection Mode (Link to Serial Device Using TCP Raw Port)** - **Before You Begin**.