

# WEB CONSOLE CONFIGURATION

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## IN THIS CHAPTER...

<i>Initial Connection</i> . . . . .	3-2
<i>Device Info Page</i> . . . . .	3-3
<i>Network Settings</i> . . . . .	3-4
<i>Operating Settings</i> . . . . .	3-5
<i>For Modbus RTU/ASCII Master to Modbus TCP Servers (Slaves)</i> . . . . .	3-5
<i>For Modbus TCP Master (Client) Device to Modbus RTU/ASCII Slave Devices</i> . . . . .	3-6
<i>Serial Settings</i> . . . . .	3-7
<i>Agent Settings</i> . . . . .	3-8
<i>Gateway Settings</i> . . . . .	3-8
<i>Message List</i> . . . . .	3-9
<i>Data in Gateway Memory</i> . . . . .	3-11
<i>Import/Export</i> . . . . .	3-12
<i>Export</i> . . . . .	3-12
<i>Import</i> . . . . .	3-12
<i>Upgrade Firmware</i> . . . . .	3-13
<i>Change Password</i> . . . . .	3-14
<i>Load Factory Default</i> . . . . .	3-15
<i>Reboot</i> . . . . .	3-16

## INITIAL CONNECTION

The gateway is configured through a web console, which is accessed using any web browser.

The default management interface access is:

- IP address: 192.168.0.249 (if connecting at port E1)  
or 192.168.1.249 (if connecting at port E2)
- Port: 80
- Username: admin
- Password: admin



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**NOTE:** *SGW-MB1511-T and SGW-MB1512-T have one Ethernet port (E1); SGW-MB1524-T has two Ethernet ports (E1 & E2).*

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For initial setup, the PC used to connect to the *STRIDE*® Modbus Gateway must have an IP address that allows it to connect to the device's default IP address. The Modbus gateway's IP address can be changed later within the web console.

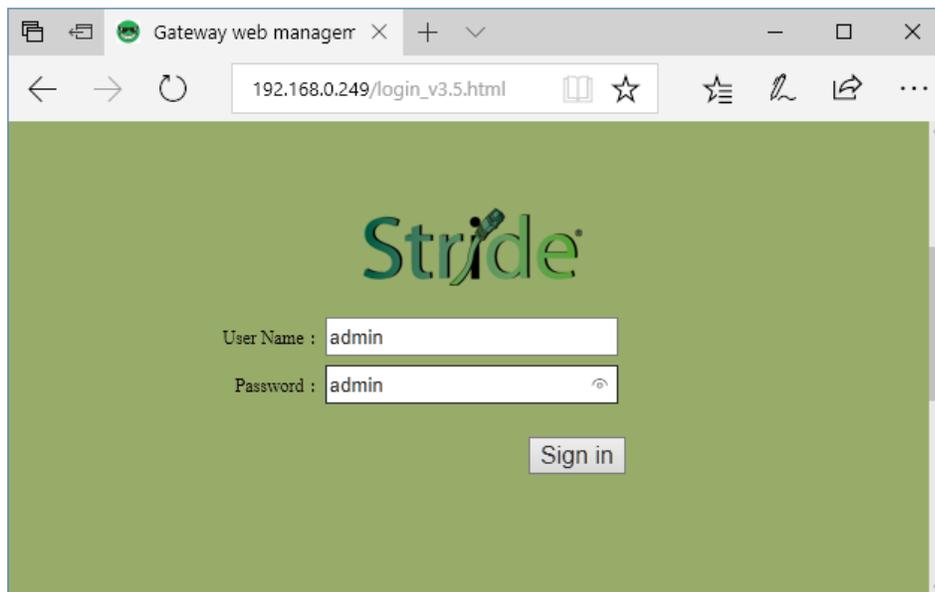


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**NOTE:** *The Modbus gateway's web console supports the latest version of all modern browsers.*

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In your browser, type the gateway's IP address (192.168.0.249 or 192.168.1.249) in the address field and press Enter. When prompted by a dialog box, enter the default Username and Password.



After logging in, you will be presented with the device's overview page.



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**SECURITY NOTE:** *We recommend that you change the login password and enable HTTPS encryption for additional security. These settings are found on the Change Password page as described later in this chapter.*

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## DEVICE INFO PAGE

The Device Information page displays a summary of information to identify the gateway.

The device name is configured on the Network Settings page. The device name helps users distinguish between multiple gateways.

The serial number (“SN”), model type and MAC address(es) are not configurable. These are characteristics of the individual gateway and may help distinguish between multiple gateways. The values that display on this page may be compared to the values printed on the device label.

The IP address(es) are configured on the Network Settings page. IP addresses must be unique on the network.

You can switch the device between Agent mode and Transparent mode by clicking the “Agent Mode” (or “Transparent Mode”) button. The button toggles the gateway immediately between the two operating modes without requiring further confirmation. The menu in the left column will update to reflect options relevant to the current mode of operation.

Device Info screen with gateway in Transparent mode:

Device Information			
Device Name	SGW-MB1524-T	SN	K10A0004A180100036
Model Type	MB-Gateway	Firmware Version	V3.5.019
IP(E1)	192.168.0.249	MAC(E1)	00:1E:CD:1B:FA:15
IP(E2)	192.168.1.249	MAC(E2)	00:1E:CD:1B:FA:16

Transparent Mode  
 Agent Mode

Device Info screen with gateway in Agent mode:

Device Information			
Device Name	SGW-MB1524-T	SN	K10A0004A180100036
Model Type	MB-Gateway	Firmware Version	V3.5.019
IP(E1)	192.168.0.249	MAC(E1)	00:1E:CD:1B:FA:15
IP(E2)	192.168.1.249	MAC(E2)	00:1E:CD:1B:FA:16

Transparent Mode  
 Agent Mode

## NETWORK SETTINGS

The Network Settings page allows selection between DHCP and static network settings for the Ethernet port(s), with the following requirements:

- IP addresses must be unique on the network.
- On models with two Ethernet ports, the two ports may be configured on the same subnet or different subnets.
- A Default Gateway must be configured if any devices will be configured as Modbus TCP servers on a subnet different than that of the STRIDE gateway Ethernet port.

Click Save to save the current changes to the unit before leaving this screen.

Default Network Settings:

- IP configuration: Static
- IP address: E1 – 192.168.0.249; E2 – 192.168.1.249
- Subnet Mask: 255.255.255.0
- Default Gateway: no value



**NOTE:** SGW-MB1511-T and SGW-MB1512-T have one Ethernet port; SGW-MB1524-T has two Ethernet ports.



**NOTE:** You may lose communications with the STRIDE Gateway module if you configure an IP address and/or Subnet Mask that is not compatible with the subnet of your PC's Network Interface Card. You may be required to change the subnet settings of your PC.

Device Name:

- The default gateway name is the model number. You can set the name, limited to 16 alphanumeric characters or special characters dash ( - ) or underline ( \_ ). The gateway name is used for reference and identification when managing several different gateway modules on a network.



**NOTE:** Remember to click the SAVE button before you leave this page. Leaving the page before saving changes will cancel changes.

## OPERATING SETTINGS

The Operating Settings page is where each serial interface’s operation mode is configured.

The Serial Port Mode field describes the function of each serial port on the Gateway.

Each serial port can independently function as a master (communicating with up to 128 serial slave devices) or as a slave (communicating with a serial master device), using either RTU or ASCII protocols.

The Operating Settings page exposes different settings depending on whether each port is operating as a master (with Modbus TCP master device (client) and Modbus RTU/ASCII slave devices) or as a slave (with a Modbus RTU/ASCII master device and Modbus TCP slave devices (servers)).

### FOR MODBUS RTU/ASCII MASTER TO MODBUS TCP SERVERS (SLAVES)

To connect a Modbus RTU or ASCII master device to one or more Modbus TCP server (slave) devices, the gateway serial port will function as an ASCII or RTU slave.

Up to 16 Modbus TCP server devices can be configured. Devices can be added or removed from the list using the green + or red - buttons, respectively. The Slave ID, IP address and remote port of each Modbus TCP server device on the Ethernet ports must be configured. Additionally, the Ethernet protocol, TCP or UDP, of each Modbus TCP server device must be configured. A Default Gateway must be configured on the Network Settings page if any devices will be configured as Modbus TCP servers on a subnet different than that of the STRIDE Gateway Ethernet port.

For SGW-MB1524-T, which has two Ethernet ports, when the gateway’s serial port is operating as an RTU or ASCII slave the Ethernet port through which each TCP server can be reached must be selected in the Ethernet Port Bind field.

The screenshot shows the 'Operating Settings' page for a STRIDE gateway. The 'Serial Port Mode' is set to 'RTU Slave'. Below this is a table for configuring Modbus TCP servers. The table has columns for Slave ID, Remote IP, Remote Port, Protocol, Local Port, and Ethernet Port Bind. There are also green plus and red minus buttons for adding and removing servers. A 'Save' button is at the bottom of the table.

Slave ID	Remote IP	Remote Port	Protocol	Local Port	Ethernet Port Bind	
148	192.168.0.226	502	TCP	NA	E1	+ -
149	192.168.0.226	502	TCP	NA	E1	+ -
150	192.168.0.226	502	TCP	NA	E1	+ -
151	192.168.0.226	502	TCP	NA	E1	+ -

### Gateway Operating Settings:

- *Serial Port Mode: RTU Slave or ASCII Slave*
- *Slave ID: set the ID to match each Modbus TCP server (slave)*
- *Remote IP: enter the IP address of each Modbus TCP server (slave). A Default Gateway must be configured on the Network Settings page if any devices will be configured as Modbus TCP servers on a subnet different than that of the STRIDE gateway Ethernet port.*
- *Remote Port: enter the port number for each Modbus TCP server (slave). Each server must have a unique port number. This is a TCP or UDP port that will identify the server in the Modbus TCP packet.*
- *Protocol: select TCP or UDP*
- *Local Port: For UDP, this is the source port that will identify communication traffic for each slave ID. For TCP traffic the source port is automatically determined.*

- Ethernet Port Bind: select Ethernet port E1 or E2 (model SGW-MB1524-T only). The Ethernet Port Bind is used by the Gateway when the Modbus TCP device IP address is not on the same subnet as the Gateway IP address.



**NOTE:** Remember to click the SAVE button before you leave this page or switch to another serial port tab. Leaving the page or selecting another serial port before saving changes will cancel changes.

**FOR MODBUS TCP MASTER (CLIENT) DEVICE TO MODBUS RTU/ASCII SLAVE DEVICES**

To connect a Modbus TCP client (master) device to one or more Modbus RTU or ASCII slave devices, the gateway serial port will function as an ASCII or RTU master.

In that case, the Ethernet Protocol (TCP or UDP) and Gateway Modbus TCP Port to associate with the serial port must be configured. When multiple serial ports are set as RTU Masters, a unique Gateway Modbus TCP port must be assigned to each serial port in order to differentiate the serial networks. For SGW-MB1524-T, a Modbus TCP client attached to either Ethernet port can communicate to RTU/ASCII slaves on the serial port using the configured Modbus TCP Port.

The Filter option will eliminate Slave ID numbers from the processed traffic when enabled. To enable the filter feature, check the Filter Enable box and enter the starting number and ending number of the nodes that should never appear in messages that will be processed.

The screenshot shows the 'Operating Settings' page for the Stride gateway. It features a table with columns for serial ports S1, S2, S3, and S4. Below the table, there are configuration fields for each port. For S1, the 'Gateway Modbus TCP Port' is set to 502. For S2, it is set to 7002. A callout box with an arrow points to the S2 port's 'Gateway Modbus TCP Port' field, containing the text: 'Each serial port's TCP port must be unique.'

**Gateway Operating Settings:**

- Serial Port Mode: RTU Master or ASCII Master
- Filter Enable: eliminate a range of Slave IDs from communication
- Filter ID Start: set lowest Modbus Slave ID to ignore (0-247, must be ≤ Filter ID End)
- Filter ID End: set highest Modbus Slave ID to ignore (0-247, must be ≥ Filter ID Start)
- Protocol: select TCP or UDP (When the Modbus Gateway is in Agent Mode, the protocol is set on the Gateway Settings page.)
- Gateway Modbus TCP Port: set the TCP port number to communicate with RTU/ASCII slaves on this serial port. (When the Modbus Gateway is in Agent Mode, the Gateway Modbus TCP Port is set on the Gateway Settings page.)



**NOTE:** Remember to click the SAVE button before you leave this page or switch to another serial port tab. Leaving the page or selecting another serial port before saving changes will cancel changes.

## SERIAL SETTINGS

The Serial Setting page is where each serial port's communication parameters are configured.

Serial Settings	
	S1
Alias	UART_1
Baudrate	115200
Databits	8
Stopbits	1
Parity	None
RTS Control	Assert during transmit
RTS On Delay(ms)	0
RTS Off Delay(ms)	0
Hardware Interface	RS-232
Protocol(selected on Operating Settings page)	Disabled

Serial Parameters:

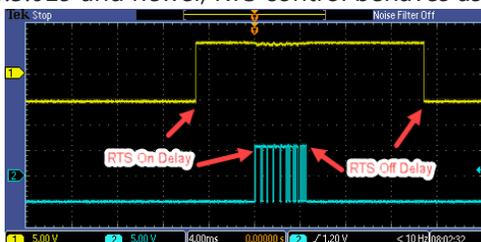
- *Alias: serial port alias name. This is a convenience for your reference.*

The following settings must match the settings in all connected devices:

- *Baudrate: 300–460800bps, the default value is 115200bps*
- *Databits: 7 or 8 bits. The value is locked to 8 bits for RTU or 7 bits for ASCII serial modes.*
- *Stopbits: 1 or 2, the default value is 1*
- *Parity: Odd, Even or None, the default value is None*
- *RTS Control: On, Assert during Transmit, or Off; the default value is On.*

*In version 3.5.019 and newer, RTS control behaves as follows:*

- *RTS Off (default) - After the Gateway is powered up, the RTS signal goes false and stays false.*
- *RTS On - After the Gateway is powered up, the RTS signal goes true and stays true all the time.*
- *Assert during transmit - Although flow control is rarely required by Modbus RTU or Modbus ASCII networks, RTS control is occasionally needed for devices such as media converters and radio modems. In version 3.5.019 and newer, RTS control behaves as follows:*



*In this mode, the RTS signal goes to false when the Gateway is powered up. When the Gateway is ready to transmit, the RTS signal will go true. The Gateway will then wait the specified amount of time from the "RTS On Delay(ms)" field before transmitting. After transmitting all the data in that packet, the Gateway will wait the specified amount of time from the "RTS Off Delay(ms)" field before setting the RTS signal to false. This cycle is repeated every time the Gateway transmits: no matter whether the Gateway is transmitting a request (in RTU/ASCII Master mode) or transmitting a response (in RTU/ASCII Slave mode).*

- *Hardware Interface: RS-232, RS-485 or RS-422; the default value is RS-232*
- *Protocol (selected on Operating Settings Page): RTU Slave, ASCII Slave, RTU Master, ASCII Master*



**NOTE:** *In some situations, such as a high amount of electrical noise, poor cabling, etc., it may be necessary to reduce the baud rate on the gateway module AND serial devices on the network.*



**NOTE:** *Remember to click the SAVE button before you leave this page. Leaving the page before saving changes will cancel changes.*

## AGENT SETTINGS

The pages grouped in the navigation tree under Agent Settings configure the gateway to work in Agent mode, and are visible only when that mode is selected.

### GATEWAY SETTINGS

Configure the gateway Modbus ID, timeout, and inter-packet transmit delay.

Gateway Settings	
Gateway Modbus ID	1
Protocol	TCP
Gateway Modbus Port	502
Default Timeout(ms)	1000
Inter-packet TX Delay(ms)	100

#### Gateway Settings:

- *Gateway Modbus ID:* Unique Modbus ID assigned to the gateway to allow clients to request data from the gateway's local cache, 1–247.
- *Protocol:* TCP or UDP.
- *Gateway Modbus Port:* set the TCP port number to communicate with RTU/ASCII slaves on this serial port.
- *Default timeout (ms):* default timeout before retrying a data request; default is 1000ms.
- *Interpacket TX delay (ms):* Poll Time setting for the delay between requests polling slave devices to populate local cache; default is 100ms.



**NOTE:** Remember to click the SAVE button before you leave this page. Leaving the page before saving changes will cancel changes.

**MESSAGE LIST**

The Message List page displays a table that summarizes the data stored locally in the gateway’s memory. Modbus client devices may request this data from the gateway’s local cache.



**NOTE:** When the gateway is in Agent mode, addresses that devices will use to WRITE data into must be configured in the Message List even though conceptually this is a list of data that is READ from connected devices.

Configure and manage the message request list. A summary of configured messages is displayed, which can be filtered to display a subset of the list using the “Search” field.

From this page, messages can be added, deleted or modified.

The screenshot shows the Stride web interface for the Message List. On the left is a navigation menu with items like Device Information, Network Settings, Operating Settings, Serial Settings, Agent Settings, Gateway Settings, Message List, Data in Gateway Memory, Import/Export, Upgrade Firmware, Change Password, Load Factory Default, System Reboot, and Data Diagnostics. The main content area has a 'Help' button, 'Add Message', 'Delete Message', and 'Modify Message' buttons, a 'Display 50 per page' dropdown, and a search field. Below is a table with the following data:

Item	Serial Port	Slave ID	Alias	Function	Data Address	Data Length	Mapping Address Head	Status
1	1	1	Device_Alias	3	0	4	0	● (Green)
2	2	1	Device_Alias	3	4	4	4	● (Red)

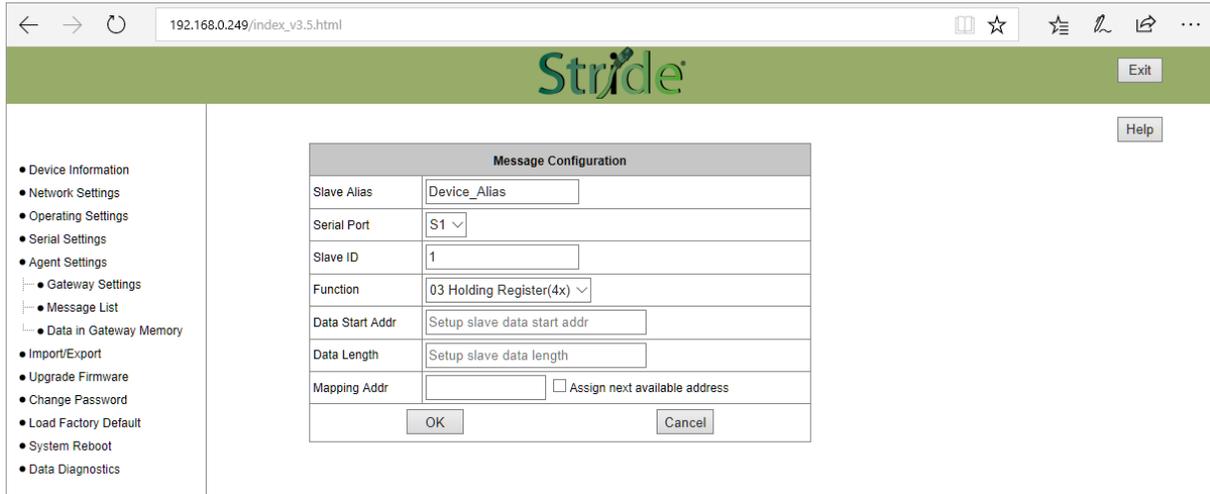
At the bottom of the table area, there are pagination controls: firstpage, prev, 1, next, lastpage, and a 'Refresh to get latest status.' link.

Each parameter of the Message List is explained in the Add Message section to follow.

A green dot in the Status column indicates that the message is successfully connected to its target device. A red dot indicates that it is not successfully connected. The web page must be manually refreshed to update the status indicator.

**ADD MESSAGE**

Clicking the “Add Message” button brings up a Message Configuration dialog box to configure a new message.



**Add New Message Settings:**

- *Slave alias: name for each device to help users recognize it more easily*
- *Serial port: the gateway serial port number to which the device is attached*
- *Slave ID: the device’s Modbus node ID on the communication network*
- *Function: the Modbus protocol function code. Function codes are listed in the table below.*
- *Data Start Address: the address in the target device from which the gateway will read the data*
- *Data Length: the data block size the gateway will read*
- *Mapping Address: the location in the gateway’s shared memory (cached data) from which the data will be retrieved when a Modbus TCP query is received. Ensure that this memory block does not overwrite a block configured for another message.*
- *Assign next available address: conveniently assigns the next available address to this request, to ensure data blocks do not overlap (overwrite).*

Modbus Functions				
Modbus Function Code	Type	Address Range	Equivalent Modicon Style Addressing	Number of Elements
1	Read Coil	0-65535	0001-065536	1-2000
2	Read Discrete Input	0-65535	100001-165536	1-2000
3	Read Holding Registers	0-65535	400001-465536	1-125
4	Read Input Registers	0-65535	300001-365536	1-125

There are several different ways of addressing when communicating to Modbus devices. **The STRIDE® gateways use the method of specifying a Function Code and start address as addresses.** Another way that is very common and is seen often in AutomationDirect products is the use of the Modicon style addressing. This method employs a PLC style address that contains a Modbus memory type in the highest digit of the address followed by the offset from 1. The table above shows comparable addresses for both of these addressing styles.

**DELETE MESSAGE**

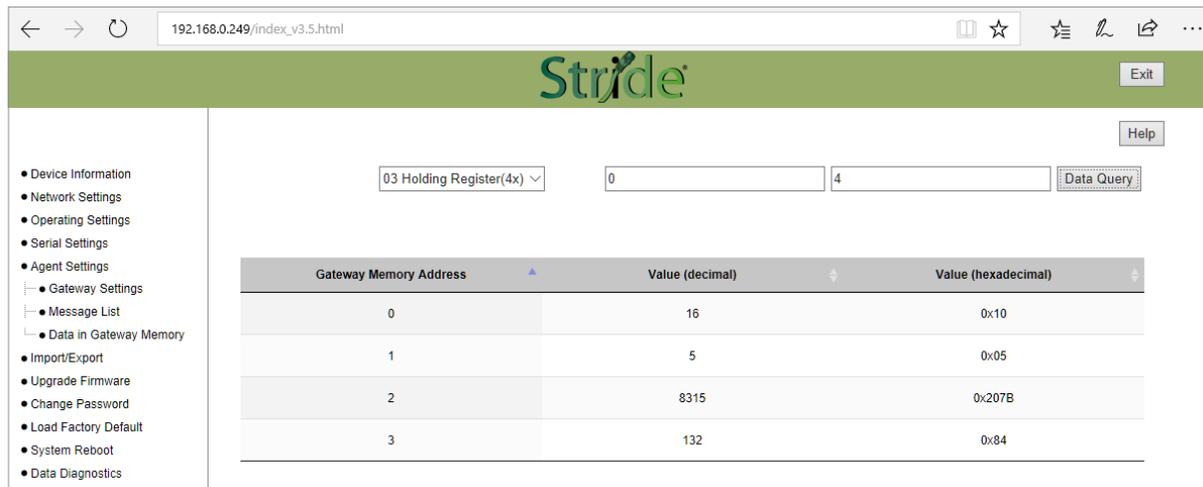
To delete a message from the list, click anywhere within the row of the message in the list, then click the “Delete Message” button. The message will be deleted immediately.

**MODIFY MESSAGE**

To modify an existing message from the list, click anywhere within the row of the message in the list, then click the “Modify Message” button. The Message Configuration dialog box will open, with the same options as presented when adding a new message.

**DATA IN GATEWAY MEMORY**

The Data in Gateway Memory page is available under Agent Settings when the gateway is in Agent mode. On the Data in Gateway Memory page, you may query the real-time data stored in the gateway’s local cache as configured on the Message List page.



To query the Modbus data stored in gateway memory:

- 1) Enter the Modbus function code (shown in the previous table).
- 2) Enter the starting address to query within the selected region. The Starting Address refers to the gateway internal address (0–65535) as shown in the previous table.
- 3) Enter the number of records to retrieve (data block size). Ensure that all addresses in that block are configured in the table on the Message List page. Querying data outside of those ranges will result in invalid values displaying on this page.
- 4) Click the “Data Query” button.

The results of the data query are displayed on the Data in Gateway Memory page, and are automatically updated in realtime. This page may be useful for troubleshooting the communications network.

## IMPORT/EXPORT

The gateway configuration settings may all be stored to or loaded from a text file as a convenience when replacing the gateway or configuring multiple gateways with identical or similar settings.

### Import/Export Screen



### EXPORT

Export the configuration file to a connected PC for backup or for configuring additional gateways. The exported file can be edited by any text editor, such as Notepad++.

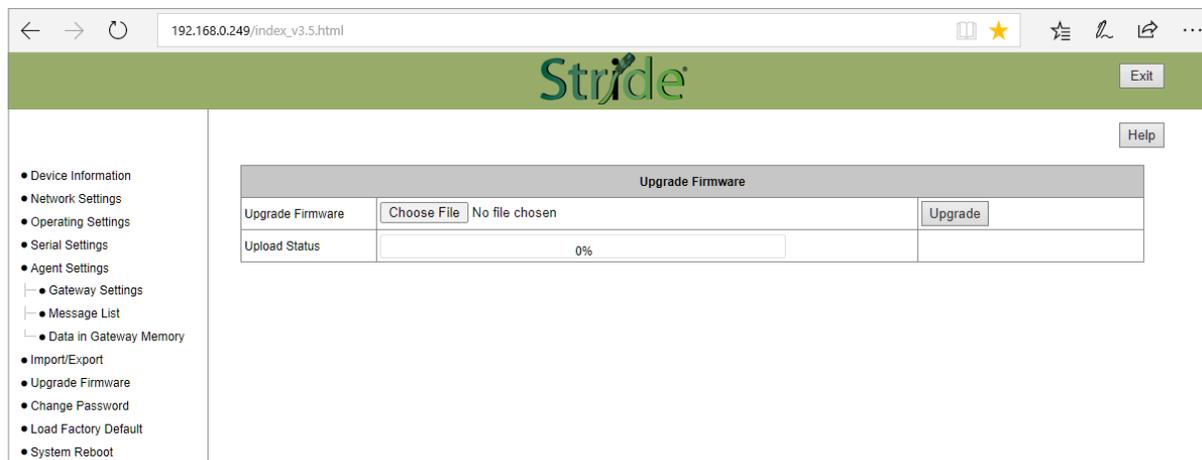
### IMPORT

An exported configuration file can be used to format a replacement gateway, to format additional gateways, or the exported file can be modified and re-imported to the same gateway to revise device settings. The filename must be [the part number].txt which is the same as an exported configuration filename: SGW-MB1511-T.txt or SGW-MB1512-T.txt or SGW-MB1524-T.txt

## UPGRADE FIRMWARE

Occasionally firmware revisions are released to make new features available or to fix bugs.

### Upgrade Firmware Screen



To update the firmware, click Browse to locate and select the new firmware file on your PC, then click Upgrade.

**The gateway must be rebooted after firmware is upgraded in order for the new firmware to take effect.**

## CHANGE PASSWORD

The *STRIDE*® gateways allow browser management access for the username “admin”. The default password is admin. To provide an additional level of security, the password may be changed.

The screenshot shows a web browser window displaying the Stride gateway's configuration page. The browser's address bar shows the URL 192.168.0.249/index\_v3.5.html. The page has a green header with the 'Stride' logo and an 'Exit' button. A left-hand navigation menu lists various settings categories, with 'Change Password' selected. The main content area is titled 'Change Password' and contains a form with the following fields:

Change Password	
User Name	admin
Old Password	Old Password
New Password	New Password
Retype Password	Retype Password
Management Security	<input type="checkbox"/> HTTPS

Below the form is a 'Save' button. A 'Help' button is also visible in the top right corner of the page content area.



**SECURITY NOTE:** HTTPS may be selected to encrypt the traffic between the browser and the gateway. When HTTPS is selected, the IP address in the browser address bar must be preceded by “https://”.

For example, “https://192.168.0.249”.

When a new password is entered here or HTTPS is selected, the browser will log you out of the current session and return you to the login page to login using the new password.



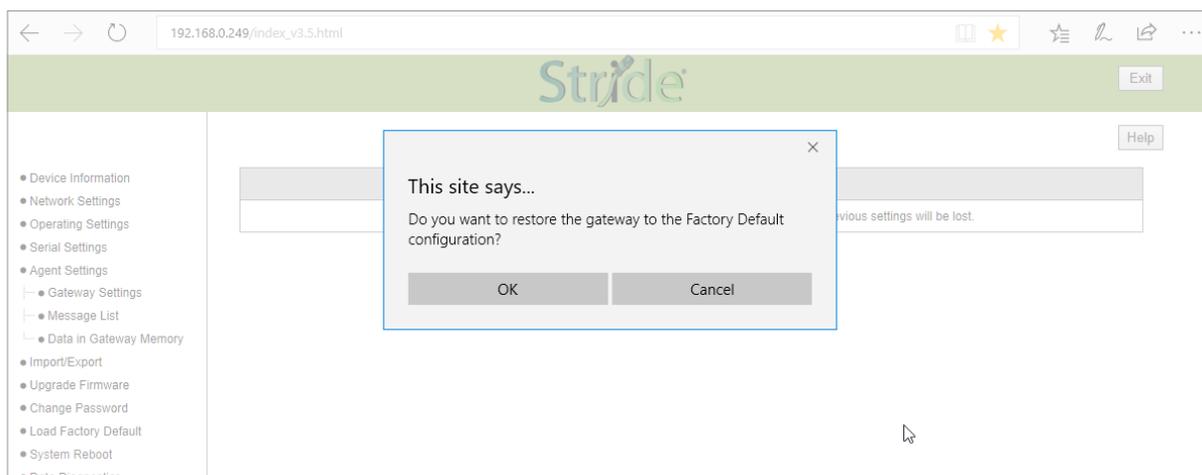
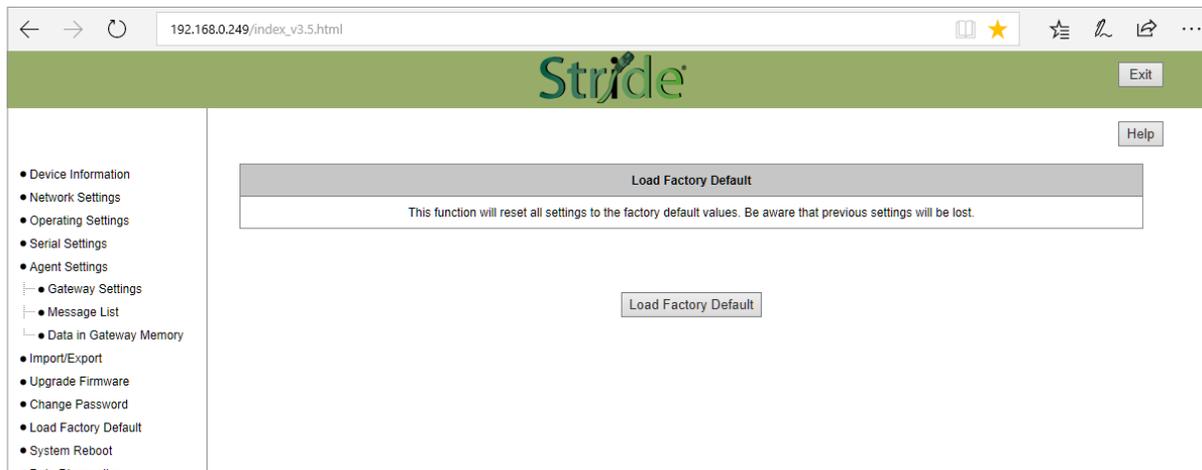
**NOTE:** Make sure to record the new password. If the password is lost, the gateway must be reset to factory defaults using the hardware reset button.



**NOTE:** Remember to click the SAVE button before you leave this page. Leaving the page before saving changes will cancel changes.

## LOAD FACTORY DEFAULT

In addition to the hardware Reset Defaults button on the top of the gateway, default settings may be loaded from the browser interface. Upon clicking the “Load Factory Default” button, the gateway will ask for confirmation of the changes then reboot in order for the change to defaults to take effect.



**NOTE:** This will reset the IP address(es), the password and the HTTPS access. If the device IP address had been previously changed, its default IP address after loading factory defaults may not be accessible by your current PC settings.

## REBOOT

The Reboot option will reboot the gateway. Rebooting here, or cycling power at the gateway itself, is required after a firmware upgrade to make the new firmware take effect. All other configuration changes are implemented without requiring a reboot.

