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Smart Access Gateway

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Document conventions

Style	Description	Example
 Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 Danger: Resetting will result in the loss of user configuration data.
 Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 Warning: Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: If the weight is set to 0, the server no longer receives new requests.
 Note	A note indicates supplemental instructions, best practices, tips, and other content.	 Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings > Network > Set network type .
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click OK .
Courier font	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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1.Features of Smart Access Gateway devices

Smart Access Gateway (SAG) provides two models of devices. Supported features of each model are listed in the following table. "√" and "×" represent "supported" and "not supported".

Feature	Function	Description	SAG-100WM		SAG-1000	
			Version 1.0 and later	Version 2.0 and later	Version 1.0 and later	Version 2.0 and later
Basic connectivity	Static IP addresses on ports	Configures static IP addresses on ports.	√	√	√	√
	WAN port PPPoE	Accesses the Internet through dial-up connections provided by SAG devices.	√	√	×	√
	4G support	Accesses the Internet through 4G networks.	√ Built-in Long Term Evolution (LTE)	√ Built-in LTE	√ External LTE	√ Built-in LTE Note Supported by specific devices.
	LAN ports support Dynamic Host Configuration Protocol (DHCP)	Newly established private networks automatically obtain IP addresses.	√	√	×	√
	Wi-Fi support	On-premises devices connect to Alibaba Cloud through Wi-Fi connections.	√	√	×	×

Feature	Function	Description	SAG-100WM		SAG-1000	
			Version 1.0 and later	Version 2.0 and later	Version 1.0 and later	Version 2.0 and later
	Static routes	Existing private networks connect to Alibaba Cloud through static routing.	√	√	√	√
	OSPF	Supports the Open Shortest Path First (OSPF) protocol.	×	√	√	√
	BGP	Supports the Border Gateway Protocol (BGP).	×	√	√	√
	Internet SNAT	Allows private networks to access the Internet when SAG devices are deployed in inline mode.	√	√	×	√
	Cross-region access to virtual private clouds (VPCs)	Private networks can access VPCs from different regions.	√	√	√	√
Parameter	Zero touch provisioning (ZTP)	Supports ZTP in SAG deployment.	√	√	×	√
Deployment	Inline mode	New private networks connect to Alibaba Cloud through SAG devices. All traffic is transmitted through SAG devices.	√	√	×	√

modes of SAG devices	Function	Description	SAG-100WM		SAG-1000	
			Version 1.0 and later	Version 2.0 and later	Version 1.0 and later	Version 2.0 and later
	One-arm mode	Private networks connect to Alibaba Cloud through SAG devices, without changing the existing network topology.	√	√	√	√
High availability (HA)	Standby network connections provided by SAG devices	SAG devices can provide standby network connections for existing leased lines.	√	√	√	√
	Supports active and standby networks: WAN and 4G networks	An SAG device uses broadband or 4G networks to access the Internet.	√	√	√ External LTE	√ Built-in LTE
	Active and standby devices	The active device is connected to Alibaba Cloud. When the active device is malfunctioning, the standby device takes over. This ensures the high availability of your workloads.	√	√	√	√
	VPN encryption	Supports encrypted VPN connections.	√	√	√	√

Feature	Function	Description	SAG-100WM		SAG-1000	
			Version 1.0 and later	Version 2.0 and later	Version 1.0 and later	Version 2.0 and later
Security	Access control lists (ACLs)	Allows or denies access to the Internet or private networks based on ACL rules.	√	√	×  Note Internet ACLs are not supported.	√
	Offline device locking	Locks devices that are offline for a long time to prevent theft.	√	√	√	√
Operations and maintenance	Remote restart	Restarts a device remotely in the console.	√	√	√	√
	Remote software updates	Remotely updates the software version in the console.	√	√	√	√
	Remote logons	Logs on to the web console through a secure internal connection.	√	√	√	√
	Traffic query	Queries data usage.	√	√	√	√
	Flow log	Records inbound and outbound traffic of SAG devices.	×	×	√	√

Feature	Function	Description	SAG-100WM		SAG-1000	
			Version 1.0 and later	Version 2.0 and later	Version 1.0 and later	Version 2.0 and later
	QoS policies	Distinguishes traffic of different workloads and ensures sufficient bandwidth for high-priority traffic.	√	√	√	√
Traffic monitoring	Device monitoring	Checks whether both the active and standby IPsec connections encounter an error.	√	√	√	√
	Connection monitoring	Notifications are sent when an SAG device is online.	√	√	√	√
	Health checks	Checks the connectivity of connections.	×	√	×	√

? **Note**
The health check feature is disabled by default. To enable this feature, [submit](#) a ticket.

2.Supported browsers for using the SAG web console

This topic describes the supported browsers for using the Smart Access Gateway (SAG) web console on a computer.

Background information

You can configure SAG devices in the following ways:

- Log on to the [SAG console](#) and configure SAG devices.
- Connect your computer to the SAG device and log on to the SAG web console from a browser. For more information, see [Configure SAG-100WM in the web console](#) and [Configure the SAG-1000 device in the web console](#).

If you want to configure SAG devices in the web console, make sure that the browser you use is compatible with the web console.

Supported browsers for using the SAG web console

This topic is based on the web console for V2.1.0 SAG devices and applies to the SAG-100WM and SAG-1000 models.

Browser	Compatibility
Internet Explorer	Internet Explorer 11 and later versions are supported. Compatibility view must be disabled.
Microsoft Edge	Microsoft Edge 44.18362 and later versions are supported.
Firefox	Firefox 76.0.1 and later versions are supported.
Opera	Supported.
Chrome	Supported.
Mobile browsers	Mobile browsers in desktop mode are supported.

3.SAG-100WM usage instructions

3.1. Descriptions of SAG-100WM

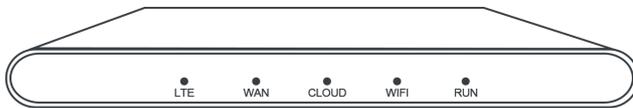
SAG-100WM devices are suitable for connecting small-scale private networks to Alibaba Cloud. This topic describes SAG-100WM devices.

Specifications

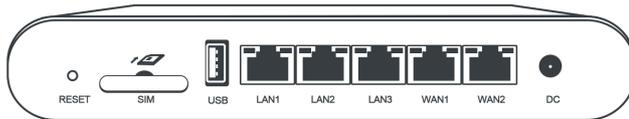
SAG-100WM provides two device types that have different specifications. The exterior and sizes of these two device types are different, but the supported features are the same. For more information, see [Features of Smart Access Gateway devices](#).

- **Type 1 Size: 180 mm × 110 mm × 30 mm**

- **Front panel**

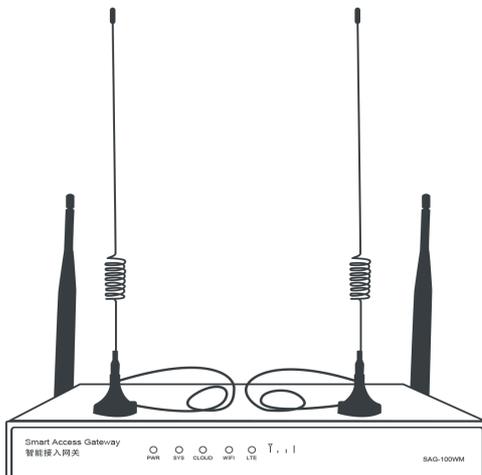


- **I/O panel**

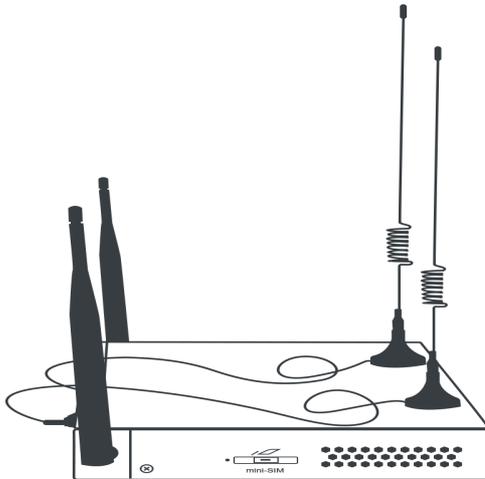


- **Type 2 Size: 240 mm × 148 mm × 28 mm**

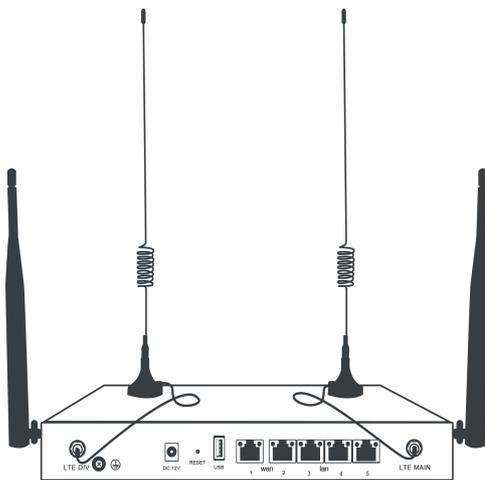
- **Front panel**



◦ Side panel



◦ I/O panel



Property	Type 1	Type 2
Performance (tested in 512 bytes)	The bandwidth for encrypted private connections can reach 50 Mbit/s	The bandwidth for encrypted private connections can reach 50 Mbit/s
Working environments	Suitable for indoor environments with no fans attached	Suitable for indoor environments with no fans attached
Size	180 mm*110 mm*30 mm	240 mm*148 mm*28 mm
Working temperature	0°C to 45°C	0°C to 45°C
Storage temperature	-40°C to 70°C	-20°C to 70°C
Power	DC 12 V	DC 12 V
Power consumption	12 W	12 W

Property	Type 1	Type 2
Network ports	Two GE/FE RJ45 WAN ports ? Note One of the WAN ports is in bridge mode. Therefore, only one WAN port is available.	One GE/FE RJ45 WAN port
	Three GE/FE RJ45 WAN ports	One WAN/LAN reusable port (port 2) Three GE/FE RJ45 WAN ports
WIFI	<ul style="list-style-type: none"> • 2.4 GHz and supports IEEE 802.11 b/g/n • Supports at most 20 terminals • Signal covers 100 square meters 	<ul style="list-style-type: none"> • 2.4 GHz and supports IEEE 802.11 b/g/n • Supports at most 20 terminals • Signal covers 100 square meters
4G LTE in mainland China	4G network provided by China Unicom, China Telecom, and China Mobile	4G network provided by China Unicom, China Telecom, and China Mobile
USB	USB 2.0	USB 2.0

Device panels

The following tables describe the device panels. "√" indicates "supported" while "x" indicates "not supported".

- **Front panel:** provides five LED indicator lights, as described in the following table.

Indicator	Status	SAG-100WM specification	
		Type 1	Type 2
LTE	Indicates the connection status of the device: <ul style="list-style-type: none"> ◦ On or off: an error occurred. ◦ Flashing: working as expected. 	√	√
WAN	Indicates the Ethernet status: <ul style="list-style-type: none"> ◦ On or off: an error occurred. ◦ Flashing: working as expected. 	√	x
WIFI	Indicates the Wi-Fi connection status: <ul style="list-style-type: none"> ◦ On or off: an error occurred. ◦ Flashing: working as expected. 	√	√

Indicator	Status	SAG-100WM specification	
		Type 1	Type 2
RUN/SYS	Indicates the power status: <ul style="list-style-type: none"> On or off: an error occurred. Flashing: working as expected. 	√	√
CLOUD	Indicates whether the device is connected to Alibaba Cloud: <ul style="list-style-type: none"> On: connected to Cloud Connect Network (CCN). Flashing: restoring the system or restoring to default settings. Off: not connected to CCN. 	√	√
PWR	Indicates whether the device is powered on: <ul style="list-style-type: none"> On: powered on. Off: not powered on. 	×	√
Descriptions of status indicator lights			
RJ45 yellow light	Indicates the working mode of the network interface controller (NIC): <ul style="list-style-type: none"> On: Ethernet port working in 1000Base-T mode. Off: Ethernet port working in 10/100Base-T mode. 	√	√
RJ45 green light	Indicates the connection status and speed of the NIC: <ul style="list-style-type: none"> On: Ethernet connected. Flashing: transferring data. Off: Ethernet not connected. 	√	√

- **I/O panel:** provides one reset button, one subscriber identity module (SIM) slot, one USB port, two WAN ports, three LAN ports, and one power inlet.

 **Note** The SIM card slot of a Type 2 device is on the side of the device.

- The reset button

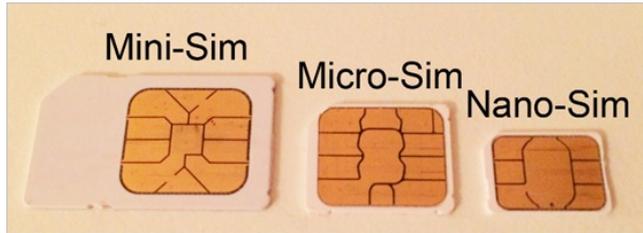
To restore the device to the default settings, keep the device powered on, and press and hold the reset button for three seconds. Then, the device is automatically restarted and restored to the default settings.

- The SIM card slot

You can directly insert only a Mini-SIM card into the slot. A Micro-SIM or Nano-SIM card cannot be directly inserted into the slot. If you need to use a Micro-SIM or Nano-SIM card, you must use a card frame adapter instead of a card sleeve adapter. The card may be stuck in the slot if you use a card sleeve adapter.

SAG-100WM devices support Mini-SIM, Micro-SIM, and Nano-SIM cards. You must use a card frame adapter if you want to use a Micro-SIM or Nano-SIM card.

Mini-SIM, Micro-SIM, and Nano-SIM cards are known as 2FF, 3FF, and 4FF cards, as shown in the following figure.



- The USB port

4G USB is not supported for access to the Internet.

- The WAN ports

The WAN ports support Internet access, Source Network Address Translation (SNAT), dynamic IP addresses, static IP addresses, and Point-to-Point Protocol over Ethernet (PPPoE).

- The LAN ports

The LAN ports can be connected to on-premises clients and allow you to configure routes and connect the device to switches.

- WAN or LAN reusable port

The WAN or LAN reusable port can be used as a WAN port or a LAN port.

Note

The default port type of the reusable port, which is determined by the version of the SAG-100WM device.

- If the version of your SAG-100WM device is 1.0.x, the WAN or LAN reusable port functions as a LAN port by default.
- If the version of your SAG-100WM device is 2.0.x, the WAN or LAN reusable port functions as a WAN port by default.

- The DC power inlet

The power inlet is on the I/O panel. The power supply must be 12V DC.

Note Use the original power cord.

Device accessories

After you purchase an SAG device in the SAG console, you will receive an SAG-100WM device and the

following accessories:

- Type 1
 - A power cord
 - A network cable
- Type 2
 - A power cord
 - A network cable
 - Two LTE antennas

 **Note** Check the SAG-100WM device and its accessories. If an accessory is missing or damaged, contact Alibaba Cloud after-sales service. The SAG-100WM device is selected randomly from one of the two types.

3.2. Configure SAG-100WM in the web console

When you use a Smart Access Gateway (SAG) device to connect private networks to Alibaba Cloud, you can configure the device in the SAG console. Alternatively, you can log on to the on-premises SAG web console to configure the device. This topic describes how to configure an SAG-100WM device in the web console.

Context

- SAG-100WM devices are supported by version 1.0.x and 2.0.x. For more information about features supported by each version, see [Features of Smart Access Gateway devices](#). The following example uses version 2.0.3 to describe the web console of SAG-100WM devices.

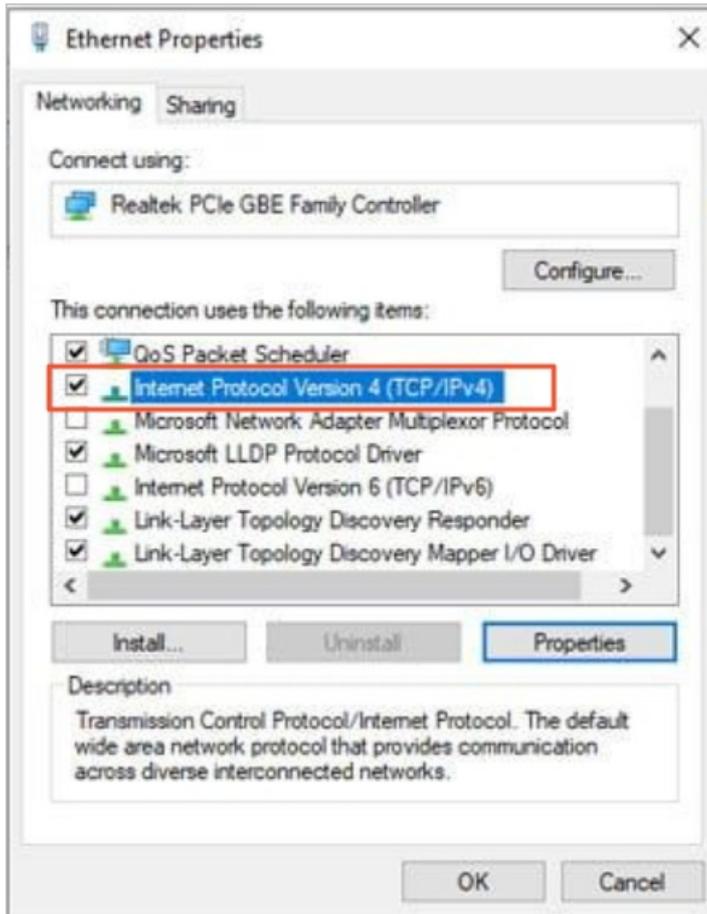
If you are using version 1.0.x, we recommend that you upgrade the system to 2.0.x. To upgrade the system, [submit a ticket](#).

- To avoid incompatibility issues, we recommend that you use the Google Chrome or Firefox browser to log on to the web console. For more information about browser compatibility, see [Supported browsers for using the SAG web console](#).

Step 1: Configure the on-premises client

Before you configure an SAG-100WM device in the on-premises web console, you must enable Dynamic Host Configuration Protocol (DHCP) for the on-premises client to access the web console.

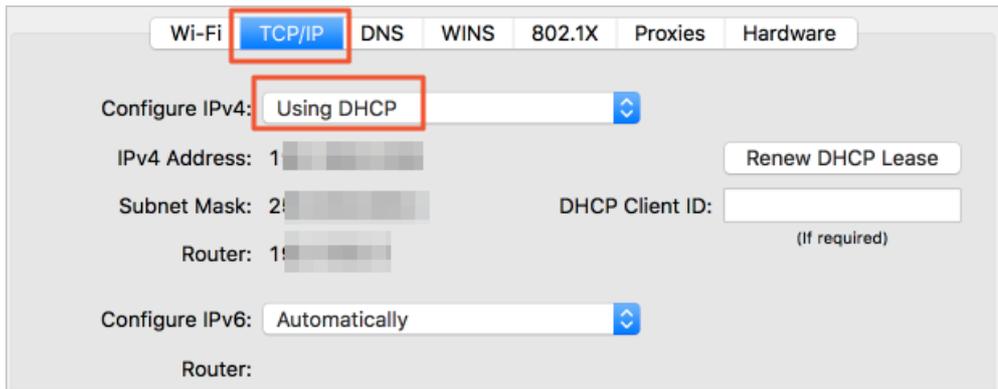
- Windows: Configure a dynamic IP address for the Windows client. Windows 10 is used in the following example.
 - i. In the lower-right corner, right-click the network connection icon, and then click **Network and Internet**.
 - ii. In the right-side panel, click **Change adapter settings**.
 - iii. Right-click the connected network, and then click **Properties**.
 - iv. Double-click **Internet Protocol Version 4 (TCP/IPv4)**.



- v. Select Obtain an IP address automatically and Obtain DNS server address automatically.



- vi. Click **OK**.
- Mac: Configure a dynamic IP address for the Mac client.
 - i. On the desktop, click **System Preferences**, and then click **Network** in the Internet & Network section.
 - ii. Click the connected network, and then click **Advanced**.
 - iii. On the **Ethernet** page, click the **TCP/IP** tab.
 - iv. From the **Configure IPv4** drop-down list, select **Using DHCP**.



Step 2: Set the password

If this is your first time logging on to the web console, you must set the logon password.

Note Before you log on to the web console, make sure that the following requirements are met:

- The SAG device is powered on.
- DHCP is enabled on the on-premises client. For more information, see [Step 1: Configure the on-premises client](#).

1. A LAN port of the SAG device is connected to the on-premises computer.
2. Open the browser on the connected on-premises computer and enter `192.168.88.1` in the address bar.

Note

- If the LAN port uses a static IP address, enter the static IP address in the address bar.
- If the LAN port uses a dynamic IP address, you have configured CIDR blocks in the SAG console, the WAN port has enabled DHCP, and the CLOUD indicator is on when the network cable is connected, enter the first IP address of the first CIDR block configured in the SAG console.

For example, if the first CIDR block you specified is 172.16.0.0/16, enter 172.16.0.1 in the address bar.

- If neither the LAN port nor the console is configured, you can enter the default address to log on to the web console.
 - If you are using version 1.0.x, enter `192.168.0.1`.
 - If you are using version 2.0.x, enter `192.168.88.1`.

3. If this is your first time logging on to the web console, you must set the logon password.
Keep your password confidential. If you forget your password, press the reset button on your device to clear the password.
4. Log on to the web console.

Step 3: Configure the SAG-1000 device

After you log on to the web console of the SAG-1000 device, you can configure the device. SAG-100WM devices provide multiple features to meet your requirements in different deployment scenarios. For more information about how to connect private networks to Alibaba Cloud through SAG-100WM devices, see [Deploy an SAG-100WM device](#).

1. Configure a WAN port.

- i. In the top navigation bar of the web console, click **Setting**.
- ii. Click **WAN** to configure a WAN port.

By default, the connection type of the WAN port on an SAG-100WM device is **Dynamic IP**. The IP address of a WAN port is automatically obtained by the device that is connected to the WAN port.

 **Note** You can configure a WAN port as needed. For more information about the parameters of the WAN port, see [Configure a WAN port](#).

2. Configure a LAN port.

- i. In the top navigation bar of the web console, click **Setting**.
- ii. Click **LAN** to configure a LAN port.

■ **Wired network configurations.**

By default, the connection type of the LAN port on an SAG-100WM device is **Dynamic IP**. The IP address of a device connected to the LAN port is automatically obtained by DHCP. You can configure a LAN port as needed. For more information about the parameters of the LAN port, see [Configure a LAN port](#).

When you configure the LAN ports in the web console, if the connection type of the LAN port is **Dynamic IP**, the SAG device allows you to enter custom private CIDR blocks.

- **Unselected**: allows you to enter a custom IP address for the port and set a custom Dynamic Host Configuration Protocol (DHCP) address pool.
 - **Custom Segment**: allows you to enter custom CIDR blocks. The system automatically allocates an IP address and DHCP address pool for the LAN port. You can manually modify the allocated IP address.
 - If you have configured on-premises routes in the SAG console, the CIDR blocks are automatically displayed. You can allocate IP addresses as needed.
- **Wireless LAN configurations.**

By default, the wireless LAN feature is disabled. For more information about how to enable the wireless LAN feature, see [Enable wireless connections](#).

3. Configure the routes.

- i. In the top navigation bar of the web console, click **Setting**.
- ii. Click **Route** to configure the static routes.

For more information about how to configure routes, see [Add a static route](#), [Configure OSPF routing](#), and [Configure BGP routing](#).

 **Note** SAG-100WM devices of version 2.0.x allow you to configure OSPF and BGP dynamic routing only in the web console instead of the Alibaba Cloud Management console.

Optional. Step 4: High availability (HA) configurations

SAG-100WM devices support HA.

1. In the top navigation bar of the web console, click **Setting**.
2. Click **HA** to configure HA.

SAG-100WM devices support high availability to continue to provide services when the active SAG device fails to work. For more information about the parameters, see [Configure HA for SAG devices](#).

4.SAG-1000 usage instructions

4.1. Descriptions of SAG-1000

You can use SAG-1000 devices of Smart Access Gateway (SAG) to connect large-scale networks, such as networks of enterprise headquarters, to Alibaba Cloud. This topic describes SAG-1000 devices.

Specifications

Properties	Specification
Forwarding performance	The bandwidth for encrypted private connections can reach 500 Mbit/s and higher (the packet length in the performance test is 512 bytes).
Device shell	Metal or aluminum alloy, frosted black, and available to be installed on a server rack.
Size	1 Unit, halfwidth
Working environment	Indoor environment
Working temperature	0°C to 45°C
Storage temperature	-40°C to 70°C
Power	DC 12 V
Power consumption	< 60 W
Wireless communication	4G LTE (mainland China)
USB	Two USB 2.0 ports
Network ports	Two reusable ports
	Four RJ45 copper ports

Control Panel

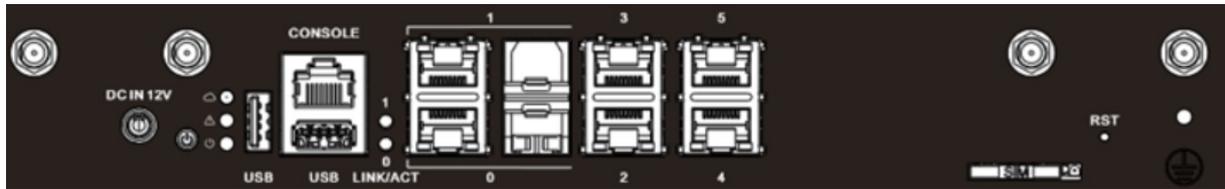
Front panel: The front panel of an SAG-1000 device consists of four LED indicators and one signal indicator as described below.



- PWR: indicates whether the device is powered on.
- SYS: indicates whether the device is running as expected.
- CLOUD: indicates whether the device is connected to Alibaba Cloud.
- LTE: indicates whether the device can communicate as expected.
- Signal indicator: indicates the LTE signal strength. Three bars indicate the strongest signal.

For more information about the indicators, see [Indicator status descriptions](#).

I/O panel: The I/O panel of an SAG-1000 device consists of one RST button, one SIM card slot, one CONSOLE port, two USB ports, two reusable ports, four RJ45 copper ports, and one power port.



- The RST button

You can use the RST button to set an SAG-1000 device to its default settings. To reset an SAG-1000 device, press and hold the reset button with a pointy object for more than 3 seconds when the device is powered on. Then, the device is automatically restarted and restored to the default settings.

Notice After you set an SAG device to the default settings, your configurations are deleted. Proceed with caution.

- The SIM card slot

You can only directly insert a Mini-SIM card into the slot. A Micro-SIM or Nano-SIM card cannot be directly inserted into the slot. If you need to use a Micro-SIM or Nano-SIM card, you must use a card frame.

Each SAG-1000 device has a built-in 4G SIM card that is used by the SAG-1000 device to receive configurations from Alibaba Cloud. The card frame of the built-in 4G SIM card supports Mini-SIM, Micro-SIM and Nano-SIM cards. If you need to replace the built-in 4G SIM card of an SAG-1000 device, you can use the card frame.

Note Do not use a card sleeve when you use a Micro-SIM or Nano-SIM card because the card may be stuck.

- The USB ports

You cannot use USB ports to connect an SAG-1000 device to the Internet.

- The CONSOLE port

You can use a network cable to connect an SAG-1000 device to an on-premises computer. Then, you can use the on-premises to log on to the web console of the SAG-1000 device.

- The network ports

Each SAG-1000 device supports the following ports:

o The reusable ports

A reusable port provides a fiber port and an RJ45 copper port. Each port supports a specific type of cable. You cannot use the RJ45 copper port and fiber port at the same time. For example, if you use the fiber port, you cannot use the RJ45 copper port. If you use the RJ45 copper port, you cannot use the fiber port.

- If both ports are connected before an SAG-1000 device is powered on for the first time, the fiber port prevails by default.
- If both ports are connected after an SAG-1000 device is powered on, the port that first takes effect remains working.

o The copper ports

SAG-1000 devices support RJ45 copper ports.

The ports of SAG-1000 devices support the following modes:

o The WAN mode

Each SAG-1000 device can connect to the Internet and Alibaba Cloud over the WAN port. The WAN port supports features such as SNAT forwarding, custom DNS servers, and port speed limiting.

o The LAN mode

Each SAG-1000 device can connect to an on-premises computer or vSwitch over the LAN port. The LAN port supports dynamic routes.

● The power inlet

The power supply for an SAG-1000 device must be 12 V direct current. The DC power inlet is on the leftmost side of the I/O panel. Make sure that you use the original power cord.

Indicator status descriptions

Indicator	Description
Front panel	
LTE	Indicates the connection status of the device: <ul style="list-style-type: none"> ● On or off: an error occurred. ● Flashing: working as expected.
Signal indicator	Indicates the LTE signal strength. Three bars indicate the strongest signal.
SYS	Indicates whether the device is running as expected: <ul style="list-style-type: none"> ● On or off: an error occurred. ● Flashing: working as expected.
CLOUD	Indicates whether the device is connected to Alibaba Cloud: <ul style="list-style-type: none"> ● On: connected to Alibaba Cloud. ● Flashing: restoring the system or restoring to default settings. ● Off: disconnected from Alibaba Cloud.

Indicator	Description
PWR	Indicates whether the device is powered on. On: powered on. Off: powered off.
Network indicators	
RJ45 yellow light	Indicates the network interface controller (NIC) rate: <ul style="list-style-type: none"> On: Ethernet port working in 1000 Base-T mode. Off: Ethernet port working in 10/100 Base-T mode.
RJ45 green light	Indicates the connection status of the NIC: <ul style="list-style-type: none"> On: Ethernet connected. Flashing: transferring data. Off: Ethernet not connected.
Some SAG devices use the following indicators:	
	If the light is on, it indicates that the device is powered on.
	Indicates whether the device is working as expected: <ul style="list-style-type: none"> Green: working as expected. Yellow: an error occurred.
	Indicates whether the device is connected to Alibaba Cloud: <ul style="list-style-type: none"> Green: connected to Alibaba Cloud. Yellow: disconnected from Alibaba Cloud.

Device accessories

After you purchase an SAG-1000 device in the SAG console, you will receive the device and the following accessories:

- A power cord
- Two LTE antennas
- Two hangers
- A pack of screws

 **Note** Check the SAG-1000 device and its accessories. If an accessory is missing or damaged, contact Alibaba Cloud after-sales service.

4.2. Optical module models

You can insert optical modules into SAG-1000 devices. Each SAG-1000 device has two reusable ports. You can insert an optical module or copper cable into a reusable port.

SAG-1000 supports the following optical module models:

Manufacturer	Model
H3C	SFP-XG-SX-mm850-E
	SFP-XG-LH40-SM1550
	SFP-XG-LX-SM1310
	SFP-XG-SX-MM850-A
	SFP-GE-LH40-SM1310
	SFP-XG-LH80-SM1550
	1250Mbps-10km-1310nm-SM-ESFP
	SFP-GE-SX-MM850-A (1000BASE-SX 850nm)
	SFP-1000BaseT (1250Mbps-100m-RJ45-xx-SFP)
ARISTA	SFP-10G-LR
	SFP-10G-SR
FORMERCAOE	TSD-S1CH1-C11 (1.25GB SR 550m 3.3V)
	TSD-S2CA1-F11 (1.25GB LX 10Km 3.3V)
Eoptolink	EOLS-8512-02-D (1000BASE-SX 850nm)
	EOLS-1312-10-D (1000BASE-LX 1310nm)
FINISAR	FTLF1318P3BTL (1000BASE-LX1310nm)
Gigalight	GSS-MDO100-007CO (10G SFP+_SFP+AOC Cable 7M)

4.3. Install the SAG-1000 device

This topic describes how to install the SAG-1000 device on an office desk or in a server rack.

Preparations

To install the SAG-1000 device in a server rack, you must prepare the following tools:

- A cross screwdriver.
- Anti-static wrist straps.
- Screws that match the SAG-1000 device and the server rack.

Install the SAG-1000 device on an office desk

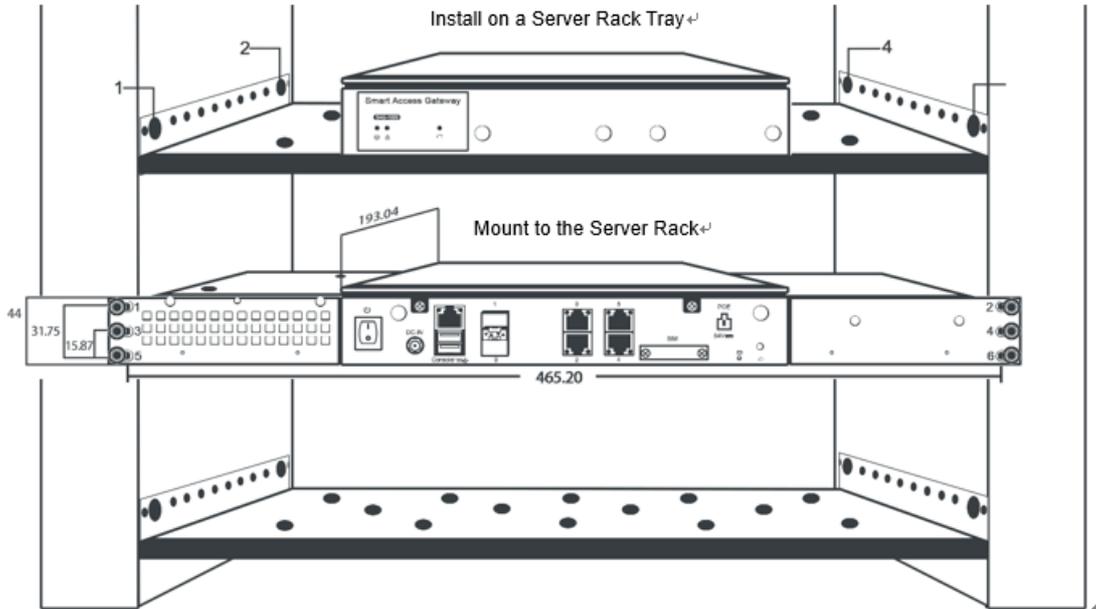
If you do not have a standard server rack, you can install the SAG-1000 device on an office desk. During the installation, pay attention to these issues:

- Make sure that the desk is stable and grounded well.

- Make sure that the SAG-1000 device has enough space to dispel heat.
- Do not place heavy objects on the SAG-1000 device.

Install the SAG-1000 device in a server rack

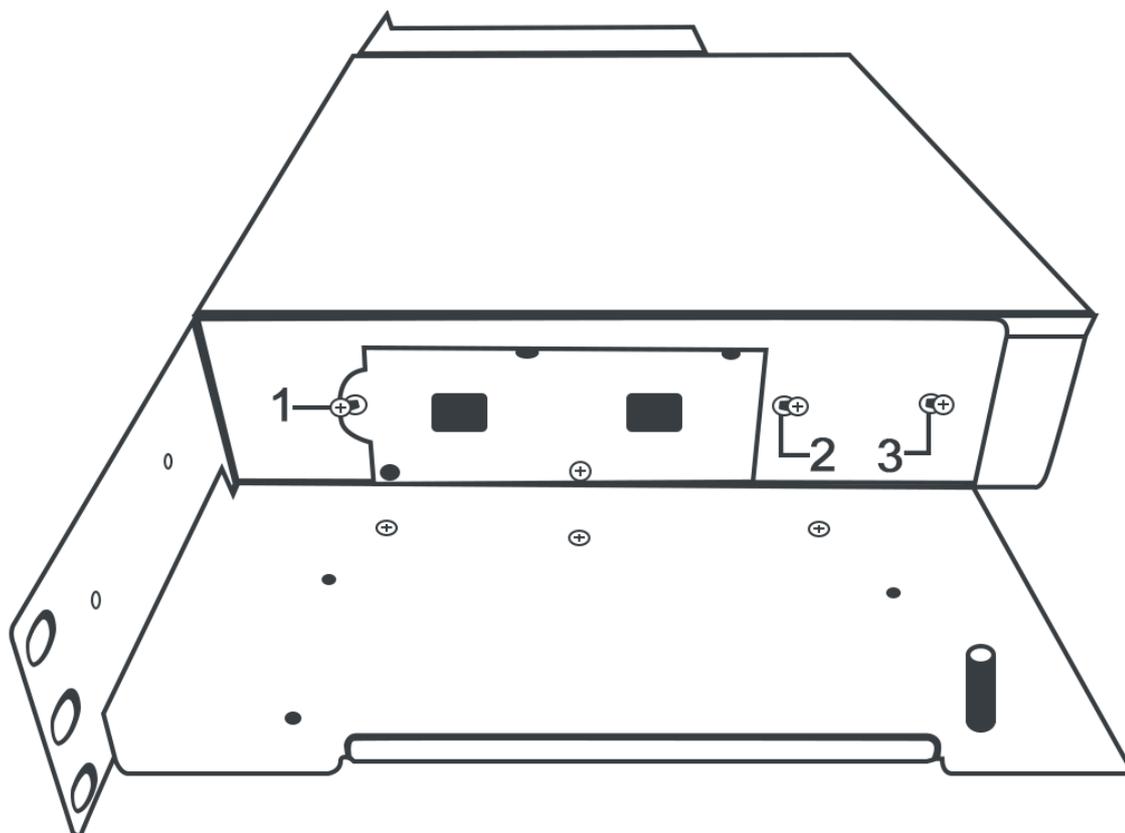
You can install the SAG-1000 device on a server rack tray in the server rack. Alternatively, you can mount it to the server rack.



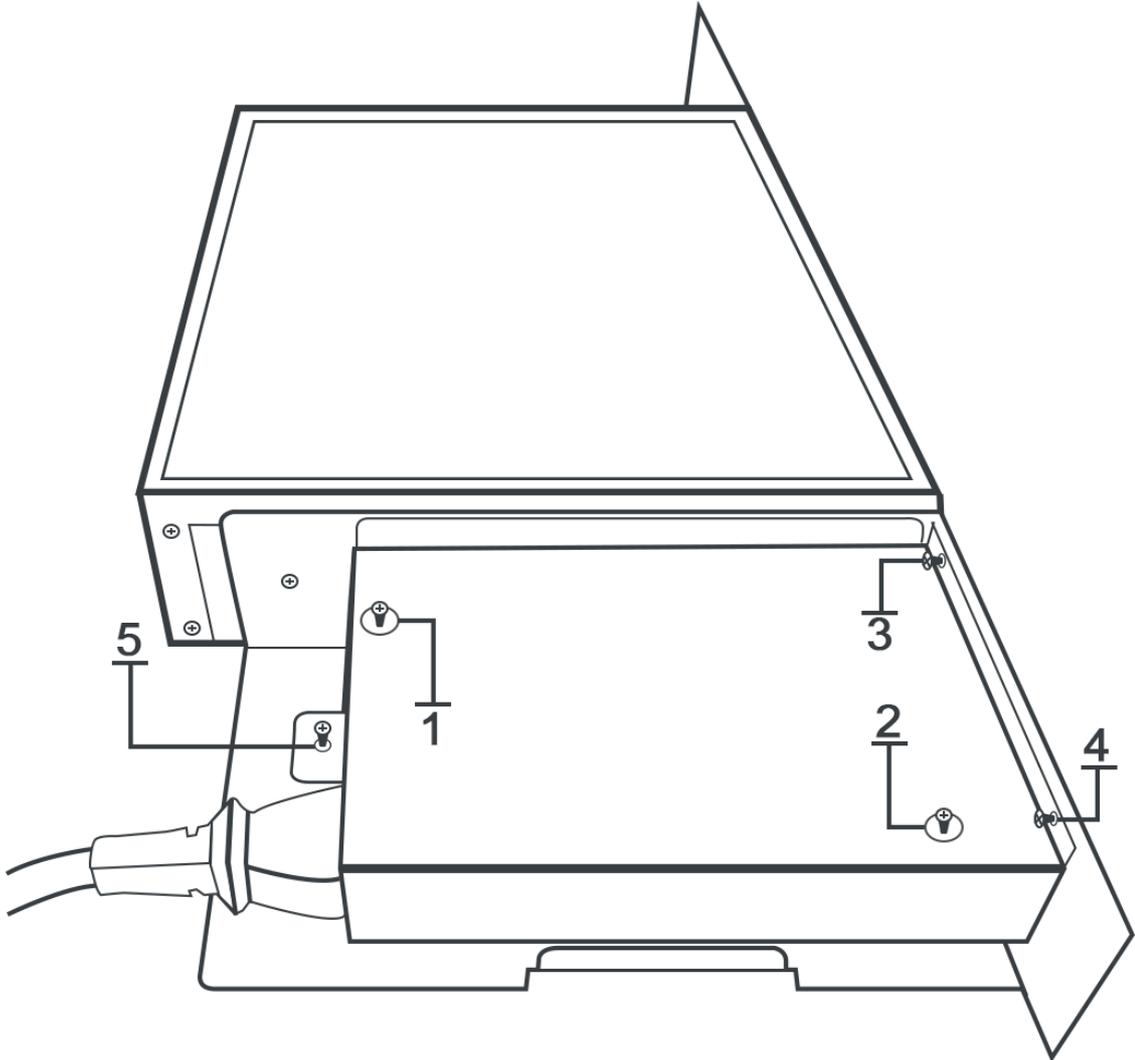
- Install the SAG-1000 device on a server rack tray
 - i. Screw the server rack tray to the server rack.
 - ii. Place the SAG-1000 device on the server rack tray.
- Mount the SAG-1000 device to the server rack

Note Before installation, you must purchase an adapter and cover from specified manufacturers.

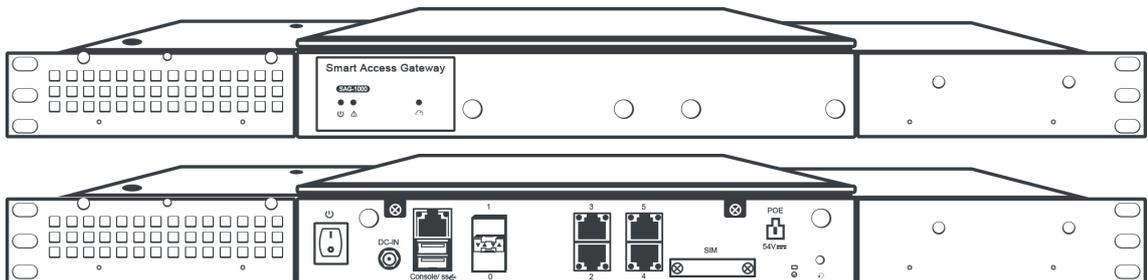
- i. Screw one side of the adapter to the SAG-1000 device, as shown in the following figure:



ii. Screw the cover to the adapter, as shown in the following figure:



- iii. Screw the other side of the adapter to the SAG-1000 device. The SAG-1000 device has the front panel and I/O panel. Each panel is shown in the following figure after you complete the installation.



- iv. Screw the SAG-1000 device to the server rack through the mounting bracket to make sure that the SAG-1000 device is horizontal and firmly installed.

4.4. Configure the SAG-1000 device in the web console

When you use a Smart Access Gateway (SAG) device to connect private networks to Alibaba Cloud, you can configure the device in the SAG console. Alternatively, you can log on to the local SAG web console to configure the device. SAG version 2.0.3 is used in this example.

Context

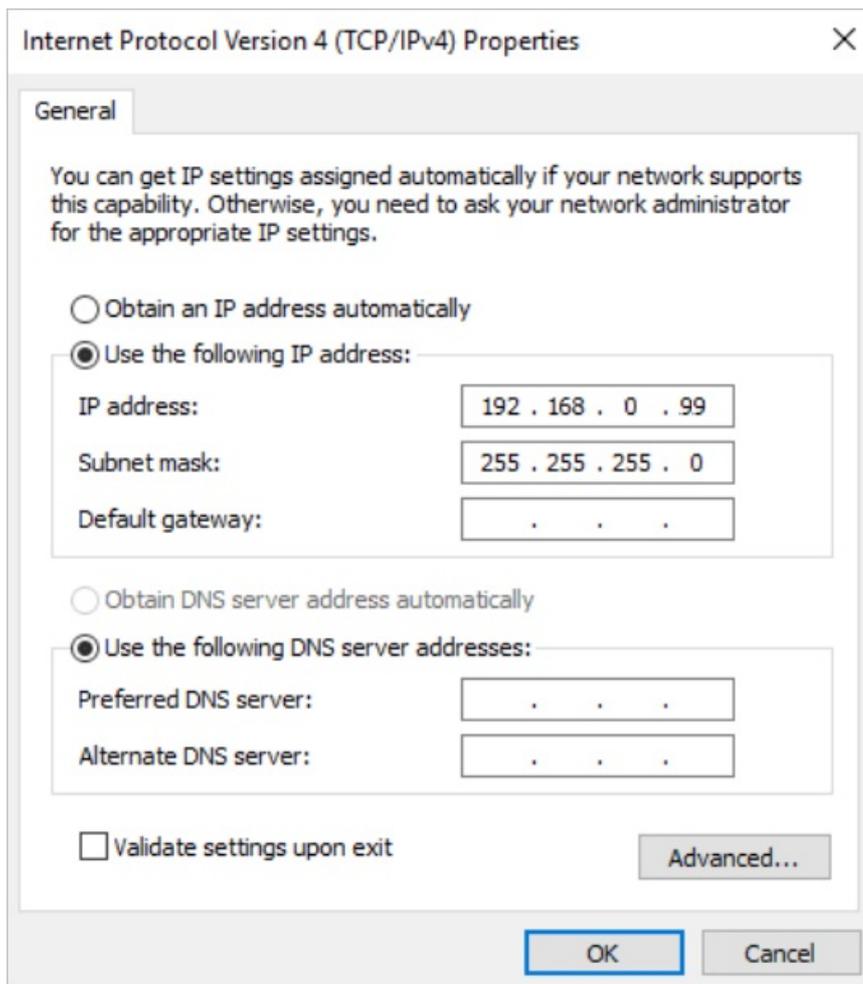
We recommend that you use the Chrome or Firefox browser due to browser incompatibility issues.

Step 1: Configure the local client

Before you can configure the SAG-1000 device in the local web console, you must configure a static IP address for the local client.

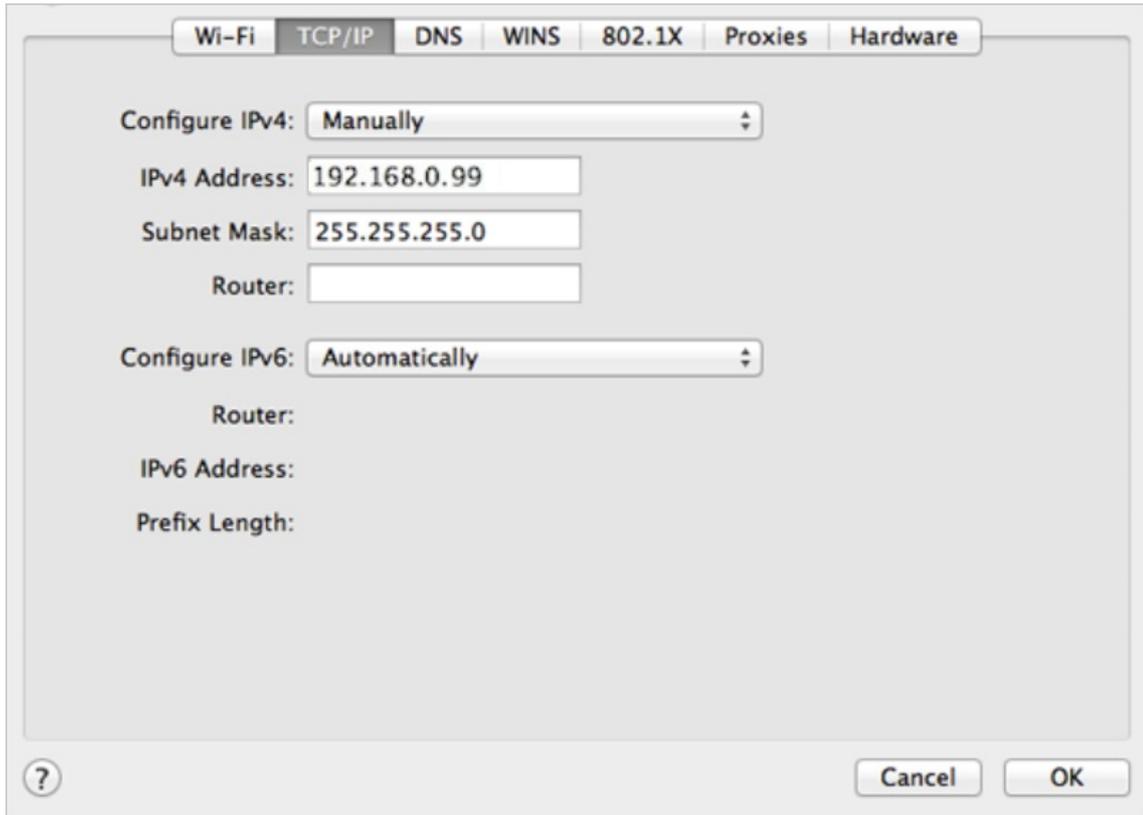
- Windows clients: Configure a static IP address for a Windows client. Windows 10 is used in the following example.
 - i. In the lower-right corner, right-click the network connection icon, and then click **Network and Internet**.
 - ii. In the right-side panel, click **Change adapter settings**.
 - iii. Right-click the connected network, and then click **Properties**.
 - iv. Double-click **Internet Protocol Version 4 (TCP/IPv4)**.
 - v. Select **Use the following IP address**, and then enter the static IP address and subnet mask.

 **Notice** Make sure that the IP address you enter is falls into the management CIDR block of the SAG-1000 device (the default CIDR block is 192.168.0.0/24) and does not overlap with other IP addresses, such as 192.168.0.99. You do not need to configure the gateway or DNS settings.



- vi. Click **OK**.
- Mac clients: Configure a static IP address for a Mac client.
 - i. On the desktop, click the **System Preferences** icon, and then click **Network** in the **Internet & Network** section.
 - ii. Click the connected network, and then click **Advanced**.
 - iii. On the **Et hernet** page, click the **T CP/IP** tab.
 - iv. In the **Configure IPv4** drop-down list, select **Manually** and enter the static IP address and subnet mask.

 **Notice** Make sure that the IP address you enter falls into the management CIDR block of the SAG-1000 device (the default CIDR block is 192.168.0.0/24) and does not overlap with other IP addresses, such as 192.168.0.99. You do not need to configure the router or DNS settings.



Step 2: Set the password

If this is your first time logging on to the web console, you must set the logon password.

Note Before you log on to the web console, make sure that you have met the following requirements:

- The SAG-1000 device is powered on.
- A static IP address is configured for the local client. For more information, see [Step 1: Configure the local client](#).

1. Port 2 of the SAG-1000 device has been connected to the local client.
2. Open the browser on the connected local client and enter `192.168.0.1` in the address bar.
`192.168.0.1` is the default web console address of the SAG-1000 device.
3. If this is your first time logging on to the web console, you must set the logon password.
Keep your password confidential. If you forget your password, press the reset button on your device to clear the password.
4. Log on to the web console.

Step 3: Configure the SAG-1000 device

After you log on to the web console of the SAG-1000 device, you can configure the device. SAG-1000 provides multiple features to meet your requirements in different deployment scenarios. For more information about how to connect private networks to Alibaba Cloud through SAG-1000, see [Deploy an SAG-1000 device](#).

1. Assign port roles.

- i. In the top navigation bar of the web console, click **Setting**.
- ii. To view port roles, click **Port Alloc** in the left-side navigation pane.
Ports of SAG-1000 devices are assigned default roles. You can modify the port roles as needed. For more information about port roles, see [Assign a role to a port](#).
- iii. Click  next to the target port, select the target port role, and then click **OK** to modify the port role.

 **Notice** When you modify a port role in the web console, the port settings of both the active and standby SAG devices are modified. After you modify the port role, restart both devices.

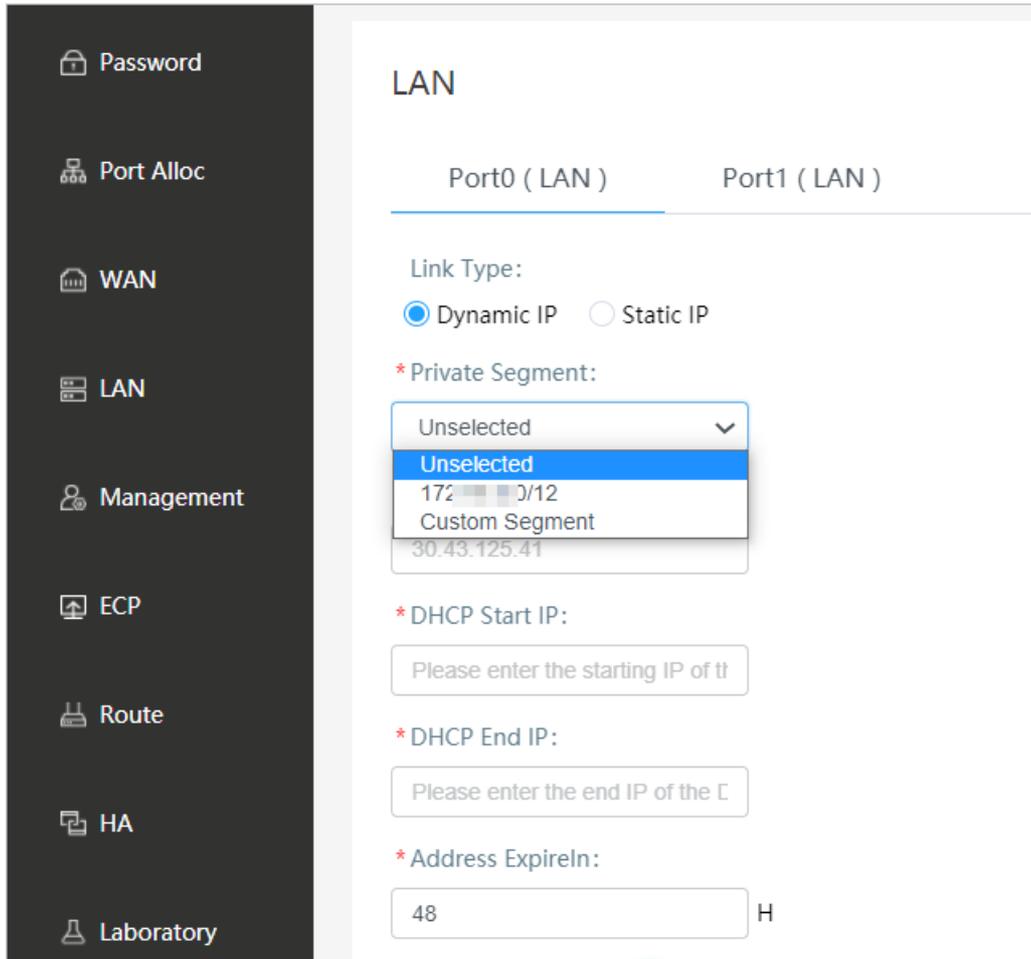
2. Configure a WAN port.

- i. In the top navigation bar of the web console, click **Setting**.
- ii. Click **WAN** to configure a WAN port.
By default, the connection type of the WAN port on the SAG-1000 device is **Dynamic IP**. The IP address of a WAN port is automatically obtained by the device that is connected to the WAN port.

 **Note** You can configure a WAN port as needed. For more information about the parameters of the WAN port, see [Configure a WAN port](#).

3. Configure a LAN port.

- i. In the top navigation bar of the web console, click **Setting**.
- ii. Click **LAN** to configure a LAN port. You can configure a LAN port as needed. For more information about the parameters of the LAN port, see [Configure a LAN port](#).
When you configure a LAN port in the web console, if the connection type of the LAN port is **Dynamic IP**, the SAG device allows you to enter custom CIDR blocks.



- **Unselected**: allows you to enter a custom IP address for the port and set a custom Dynamic Host Configuration Protocol (DHCP) address pool.
- **Custom Segment**: allows you to enter custom CIDR blocks. The system automatically allocates an IP address and DHCP address pool for the LAN port. You can manually modify the allocated IP address.
- **Available CIDR block**: If you have configured local routes in the SAG console, the CIDR blocks are automatically displayed. You can allocate IP addresses as needed. For example, 192.XX.XX.XX in the preceding figure.

4. Configure the management port.

- In the top navigation bar of the web console, click **Setting**.
- Click **Management** to configure the management port.

By default, the management CIDR block of the SAG-1000 device is 192.168.0.0/24 and the IP address of the management port is 192.168.0.1. You can configure the management port as needed. For more information about the parameters, see [Configure the management port](#).

5. Configure the routes.

- In the top navigation bar of the web console, click **Setting**.
- Click **Route** to configure static routes, Border Gateway Protocol (BGP) dynamic routes, or Open Shortest Path First (OSPF) dynamic routes.

For more information about how to configure the routes, see [Add a static route](#), [Configure OSPF routing](#), and [Configure BGP routing](#).

Optional. Step 4: Advanced configurations

The SAG-1000 device supports advanced configurations such as leased line ports and high availability (HA).

1. Configure leased lines.
 - i. In the top navigation bar of the web console, click **Setting**.
 - ii. Click **ECC** to configure leased line ports.

The SAG-1000 device supports leased lines. Leased lines and SAG devices provide standby network connections for each other. For more information about how to configure leased lines, see [Configure a leased line port](#).

 **Note** If you need leased line ports, make sure that you have assigned a role to the leased line port. For more information, see [Assign a role to a port](#).

2. Configure HA.
 - i. In the top navigation bar of the web console, click **Setting**.
 - ii. Click **HA** to configure HA.

The SAG-1000 device supports HA configurations to continue to provide services when one SAG device fails to work. For more information about the parameters, see [Configure HA for SAG devices](#).