

# **Alibaba Cloud Smart Access Gateway**

## **SAG-1000 Configuration Guide**

Issue: 20190510

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## Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
<b>Bold</b>	It is used for buttons, menus, page names, and other UI elements.	Click OK.
<code>Courier font</code>	It is used for commands.	Run the <code>cd / d C :/ windows</code> command to enter the Windows system folder.
<i>Italics</i>	It is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	It indicates that it is an optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
<b><code>{}</code> or <code>{a b}</code></b>	It indicates that it is a required value, and only one item can be selected.	<code>swich {stand   slave}</code>



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# 1 SAG-1000 overview

The SAG-1000 Smart Access Gateway is a device used to connect headquarters and large branches to Alibaba Cloud through one-arm mode.

## Specifications

Property	SAG-1000
Casing	Metal, matte black, mountable
Size	1 U, halfwidth
Operating environment	Indoors
Operating temperature	0°C–45°C
Storage temperature	-40°C–70°C
Power supply	12 V DC (Power adapter and power cable included)
Power consumption	<60 W
Interface	Two SFP optical ports
	The number of electric ports varies by manufacturer. Generally, four or six GE/FE RJ45 electric ports are provided.

## Accessories

After receiving the Smart Access Gateway device, check that the following items are provided:

- A Smart Access Gateway device
- A power cable

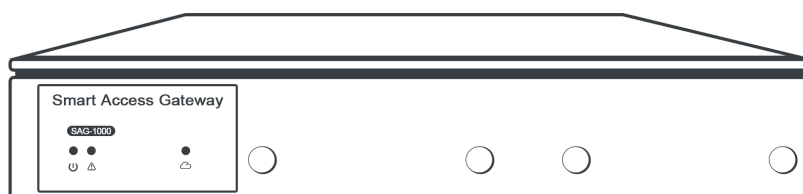


### Note:

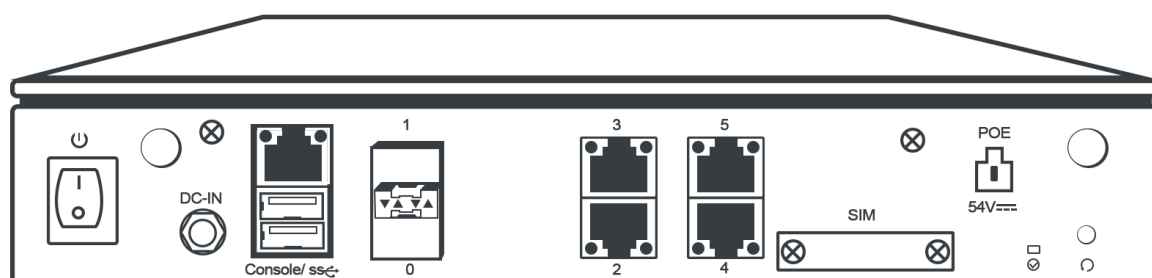
If any item is missing or damaged, contact Alibaba Cloud after-sales personnel.

**Type 1 (size: 250×193×44mm)**

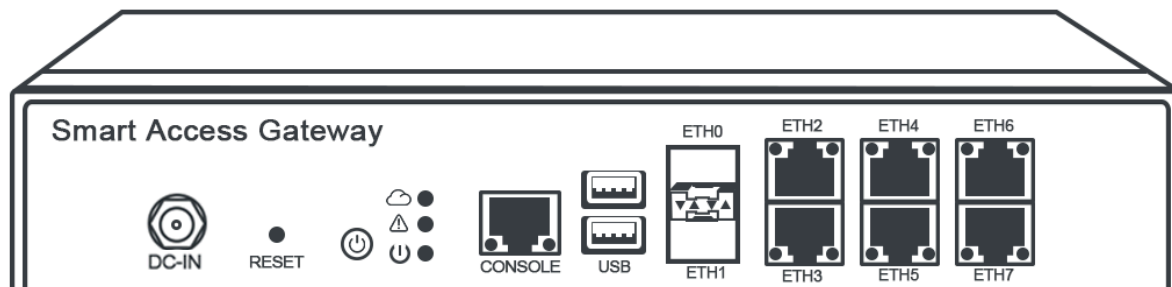
- Front panel



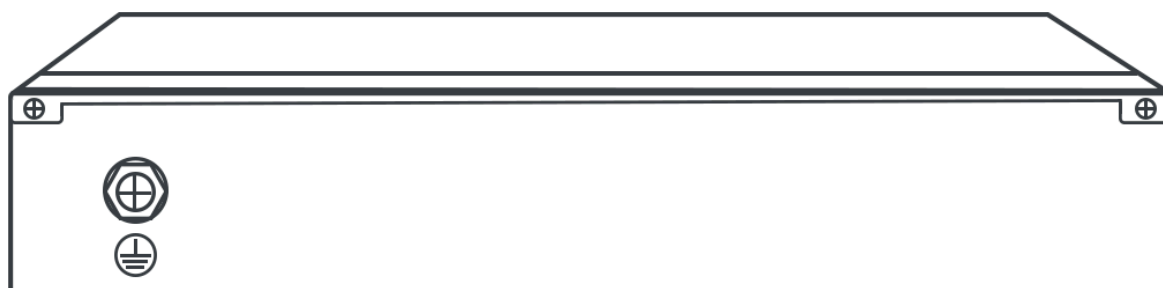
- Rear panel

**Type 2 (size: 241×220×44mm)**

- Front panel



- Rear panel



The following is an overview about the components of a Smart Access Gateway device of the Type 1 category. Types 2 device, although different in appearance, have the same functions as Type 1 devices.

- **Front panel**

There is a power LED indicator, an alarm LED indicator, and a cloud connection status LED indicator on the front panel of the Smart Access Gateway device:

LED indicator	Description
Power	On: The device is running normally.
Alarm	The status of the alarm LED indicator includes the following: <ul style="list-style-type: none"><li>- Green: The device is normal.</li><li>- Yellow: The device is faulty.</li></ul>
Cloud connection status	The status of the alarm LED indicator includes the following: <ul style="list-style-type: none"><li>- Green: The connection to the cloud is normal.</li><li>- Yellow: The connection to the cloud is faulty.</li></ul>

- **Rear panel**

There is one RESET button, two USB interfaces, six ports, one power socket, and one switch on the rear panel of the Smart Access Gateway device.

- **Ports**

Two SFP optical ports and four electric ports. Port 2 is the default administration port.



**Note:**

The default administration IP address of the Smart Access Gateway device is 192.168.0.1.

- **Reset button**

You can reset the Smart Access Gateway to its default configurations by pressing the reset button three times within 10 seconds while the device is powered on.

- **USB interface**

You can use a 4G USB drive to access the Internet.

- **Power socket**

Located on the left-hand side of the front panel. The power supply must be 12 V DC.

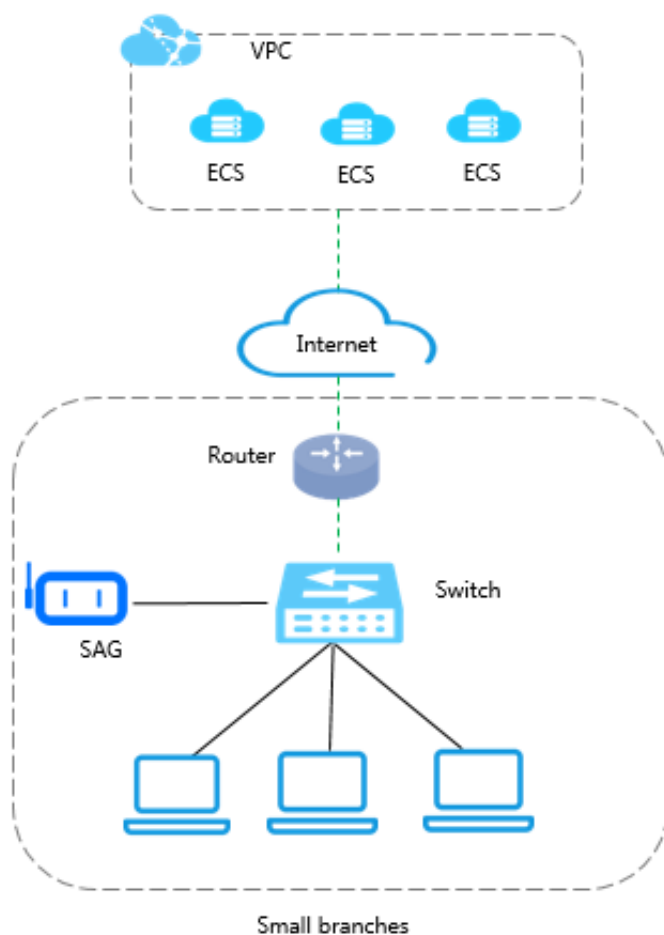


**Note:**

We recommend that you use the original power cable.

## Networking mode

The SAG-1000 Smart Access Gateway device is connected to the switch through one-arm mode. This means it can connect local clients to Alibaba Cloud without changing the current network topology.

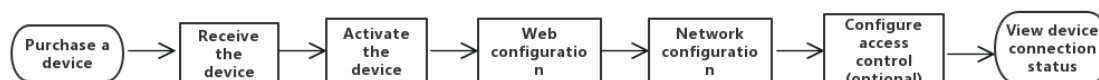


## 2 Configuration guide

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After you receive your new gateway device, power it on to complete the web configurations before you can use it.

If you use the SAG-100 device to access Alibaba Cloud, the process is as follows:



When you receive the device after you [Buy a Smart Access Gateway Hardware](#), follow these steps to access Alibaba Cloud through the SAG-100.

- [Step 1: Configure the local client](#)
- [Step 2: Set the password when you log on for the first time](#)
- [Step 3: Configure the service IP address and the administration IP address](#)
- [Step 4: Configure the ports and routes](#)

## 3 Web configuration

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### 3.1 Step 1: Configure the local client

Before performing web configurations on the SAG-100, you must configure the static IP address of the local client to access the web configurations.

#### Windows client configuration

To configure a static IP for a Windows client, follow these steps:

1. Right-click the network connection icon in the lower right corner, then click **Open the Network and Sharing Center**.
2. In the left-side panel, click **Change Adapter Configurations**.
3. Right-click the connected network and then click **Properties**.
4. Double-click the **Internet Protocol Version 4 (TCP/IPv4)** option.
5. Select the **Use the following IP addresses** option and enter the static IP address and subnet mask to use.



**Notice:**

Ensure that the IP address is in the administration CIDR block of the gateway device (the default administration CIDR block is 192.168.0.0/24) and does not conflict with other IP addresses. For example, 192.168.0.99. You do not need to configure the gateway and DNS.

6. Click **OK**.

#### Mac client configuration

To configure a static IP for a Mac client, follow these steps:

1. On the desktop, click the **System Preferences** icon, and then click **Network** in the **Internet and Wi-Fi** option. Open **Network and Sharing Center**.
2. Click the connected network and then click **Advanced**.
3. On the **Ethernet configuration** page, click the **TCP/IP** tab page.
4. In the **Configure IPv4** option, select **Manual**, and enter the static IP and subnet mask to use.



**Notice:**

Ensure that the IP address is in the administrator CIDR block of the gateway device (the default administrator CIDR block is 192.168.0.0/24) and does not conflict with other IP addresses. For example, 192.168.0.99. You do not need to configure the router and DNS.

## 3.2 Step 2: Set the password when you log on for the first time

When you log on to the Web console for the first time after powering on the Smart Access Gateway, you must set the logon password of the Web console.

### Prerequisites

Before logging on to the Web configuration page, make sure that:

- The Smart Access Gateway is started.
- The local client is already configured with a static IP. For more information, see [Step 1: Configure the local client](#).
- The local PC is connected to Port 2 of the Smart Access Gateway through a network cable.

### Procedure

1. Enter `192 . 168 . 0 . 1` in your browser.

`192 . 168 . 0 . 1` is the default Web configuration address of the gateway device.

2. Enter a logon password.

We recommend that you securely store your logon password and keep it strictly confidential. If the password is lost or forgotten, press the reset button to clear the password. Then, log on to the Web console to set a new password.



#### Note:

If you press the reset button at least three times within 10 seconds, all configurations will be cleared.

3. Log on to the Web configuration page.


### 3.3 Step 3: Configure the service IP address and the administration IP address

After you configure the user name and password and log on to the web configuration page, you can configure the service IP address and administration IP address of the SAG device. By default, port 2 is the administration port.

#### Procedure

1. On the web configuration page, click Service IP Configuration.
2. Configure the service IP address and administration IP address, and then click OK.

Descriptions about the configuration items are provided in the following table.

Configuration	Description
Service IP address	<p>The service IP address is used to establish the VPN tunnel.</p> <div> <b>Notice:</b> Make sure that the specified service IP can access the Internet.</div>
Administration port	The administration port is used for local clients to access the Web console. By default, port 2 is the administration port.
Administration IP	The administration IP is used for web access of the local client.
Whether to isolate	<p>Select whether to isolate the service port from the administration port:</p> <ul style="list-style-type: none"><li>· Yes: This port can only be used as a local web administration port and cannot be used as a service port.</li></ul> <p>In the isolation mode, the service traffic and the administration traffic do not have impact on each other, so higher security is achieved.</p> <ul style="list-style-type: none"><li>· No: This port is used as both the local web administration port and the service port.</li></ul>
Next hop	If you choose to isolate the service port from the administration port, specify the next hop of the administration port.




### 3.4 Step 4: Configure the ports and routes

There are six ports on the SAG-1000 device. Port 0 and Port 1 are SFP optical ports, and Ports 2-5 are RJ45 electrical ports. You can configure a static route or OSPF routes for port connection.

#### Procedure

1. Log on to the Web console of the SAG device, click the Configuration tab page, and then click Port Management.
2. Configure the ports of the SAG device and then click OK. Descriptions about the configuration items are provided in the following table.

Configuration	Description
Connection method	Choose to access the switch using static or dynamic routing.  Notice: When dual-device one-arm mode is used, only dynamic routing is supported.
Port	Click the Edit option in the Configuration Information area, enter the IP of the port used for communication and select whether to enable OSPF. Port 2 is the default administrator port.
OSPF routing configuration	
Area ID	The ID of the area. Make sure that area IDs of Smart Access Gateway 1 and Smart Access Gateway 2 are different and the area ID of each SAG device is the same as that of the corresponding peer switch.
Hello_time	The interval at which hello packets are sent, in seconds. Default value: 3 seconds.
Dead_time	The dead interval of OSPF neighbor, in seconds. The neighbor relation stops if no hello packet is received during the dead time. Default value: 10 seconds.

Configuration	Description
Authentication method	Select an authentication method. <ul style="list-style-type: none"><li>· Do not authenticate: Do not perform authentication.</li><li>· Clear Text Authentication: Enter a clear text password.</li><li>· MD5 Authentication: Use the MD5 method to perform authentication. Enter the MD5 key ID and the MD5 key.</li></ul>
Routerid	The ID of the OSPF router. We recommend that you directly use the service IP.
Area Type	The area type is nssa by default.

## 4 Activate the device

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After receiving the gateway device, you must activate it.

### Procedure


1. Log on to the [Smart Access Gateway console](#).
2. On the SAG page, find the target gateway instance.
3. Click Activate in the Actions column.


## 5 Configure the network connection

After activating the Smart Access Gateway device, you must attach it to a CCN instance and then attach the CCN instance to a CEN instance, so that local branches can be connected to Alibaba Cloud.

### Procedure

1. Log on to the [Smart Access Gateway console](#).
2. On the SAG page, find the target gateway instance.
3. Click Configure Network in the Actions column.
4. Complete network configurations according to the following information.

Configuration	Description
Name/ID	Displays the name and ID of the Smart Access Gateway instance.
CCN Instance ID/Name	<p>Select the CCN instance to attach. You can use the default CCN instance or a created CCN instance.</p> <p>CCN is a device access matrix composed of Alibaba Cloud distributed access gateways. After a Smart Access Gateway device is attached to a CCN instance, the gateway device can communicate with other gateway devices attached to the CCN instance.</p> <div> <b>Note:</b> Make sure that the CCN instance and the Smart Access Gateway instance are in the same area.</div>

Configuration	Description
Private CIDR Block	<p>Configure the CIDR blocks used by the local gateway device to access Alibaba Cloud. Make sure all CIDR blocks do not conflict with one another. Click Add Private CIDR Block to add more CIDR blocks. You can add up to five CIDR blocks. The LAN port configuration of the local gateway device determines which private IP address is used:</p> <ul style="list-style-type: none"> <li>· If the LAN port of the Smart Access Gateway device uses a dynamic IP and DHCP is enabled on the client, the IP address used by the local client is allocated from the first CIDR block specified by you.</li> <li>· If the LAN port of the Smart Access Gateway device uses a static IP, the static IP must be in the specified CIDR block.</li> </ul> <div style="background-color: #f0f0f0; padding: 10px; margin-top: 10px;">  <b>Note:</b> <ul style="list-style-type: none"> <li>· The private CIDR block of the Smart Access Gateway instance must belong to the CIDR block of the connected CCN instance.</li> <li>· Configuring a CIDR block with a 32-bit mask is not supported.</li> </ul> </div>
Enable SNAT	<ul style="list-style-type: none"> <li>· Disable SNAT: Networks attached to the CCN instance can directly communicate with each other. Make sure that the CIDR blocks of the networks do not conflict with one another.</li> <li>· Enable SNAT: The SNAT function is enabled to hide internal addresses and resolve private address conflict. Local sites can only initiate access and cannot be accessed. <ul style="list-style-type: none"> <li>- Public IP Address: An IP address in the SNAT CIDR block of the CCN instance. If you leave this option blank, the system automatically allocates an available IP address from the SNAT CIDR block of the CCN instance.</li> <li>- Internal CIDR Block: The private CIDR blocks used by local terminals to access Alibaba Cloud. Make sure that the private CIDR blocks do not conflict with one another.</li> </ul> </li> </ul>

When you no longer need the Smart Access Gateway instance to be attached to a CCN instance, you can detach it from the CCN instance. On the SAG page, click **Unbind** in the actions column of the target gateway instance. After the gateway

**instance is detached from the CCN instance, local branches connected to the gateway instance cannot access Alibaba Cloud.**

## 6 Configure an ACL rule (optional)

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You can add an access control list (ACL) rule to allow or deny specific IP addresses the permission to access the Internet or intranet.

## 7 View routes

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After you complete the web configurations and network configurations, you can click back to the homepage to view routes.

### Procedure

1. Log on to the web configuration page of the Smart Access Gateway device.
2. After you complete the web configurations, the connection status of the device is directly displayed after you log on. You can also click Homepage to view the device status.