

# Hillstone A200 Series Hardware Reference Guide

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## About This Manual

This document is an installation guide for Hillstone devices to help you install the Hillstone device properly.

For more information, refer to the documentation site: <https://docs.hillstonenet.com.cn>

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# Preface

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## About This Manual

Thanks for choosing the network security products from Hillstone Networks.

This document is an installation manual for the Hillstone A200Series device to help you install the device properly.

This manual includes the following chapters:

- [Introduction](#)
- [Installation Preparations](#)
- [Installation](#)
- [Boot and Configuration](#)
- [Hardware Maintenance and Replacement](#)
- [Troubleshooting](#)

## Document Conventions

This manual uses the following conventions for your convenience to read and understand:

- **Warning:** Indicates improper operation that may cause serious damage to equipment or injury to operators. Thus, operators must strictly follow the operation rules.
- **Caution:** Indicates incorrect operation that may affect the normal use of the equipment. Operators should be careful.
- **Note:** Indicates information that may help readers understand the content.

# Chapter 1 Introduction

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## Overview

The A200 series equipment of Shanshi Netcom is the gateway equipment based on ARM architecture of Shanshi Netcom, which supports large capacity local storage. Currently, A200-Series product models include A200、A200G4、A200G4B、A200W、A200WG4.

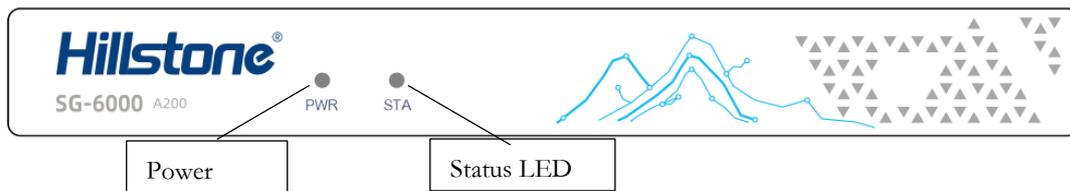
## Hardware Overview

The size of A200 series equipment of Shanshi Netcom is 180 \* 110 \* 28mm, which belongs to desktop equipment and is used on the workbench.

### Front Panel

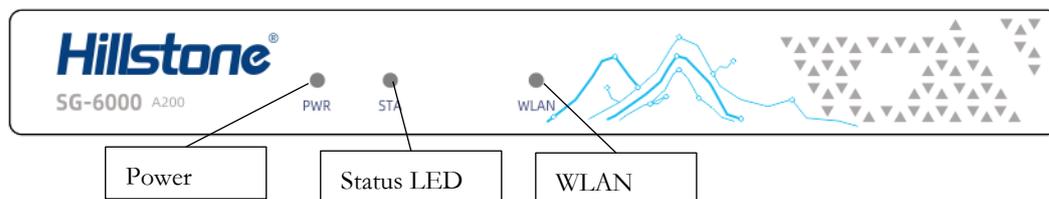
The front panel of A200 consists of several LED indicators (1 Power LED, 1 Status LED).

Figure: A200 Front Panel



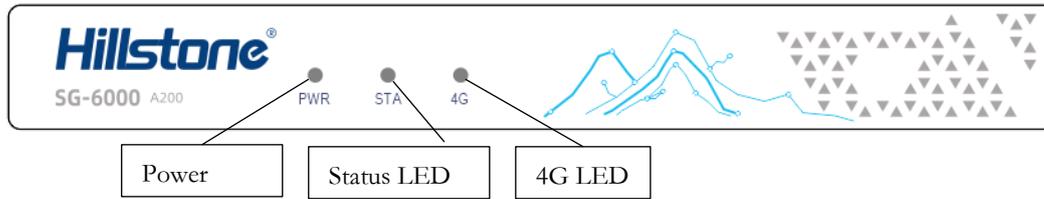
The front panel of A200W consists of several LED indicators (1 Power LED, 1 Status LED, 1 WLAN LED).

Figure: A200W Front Panel



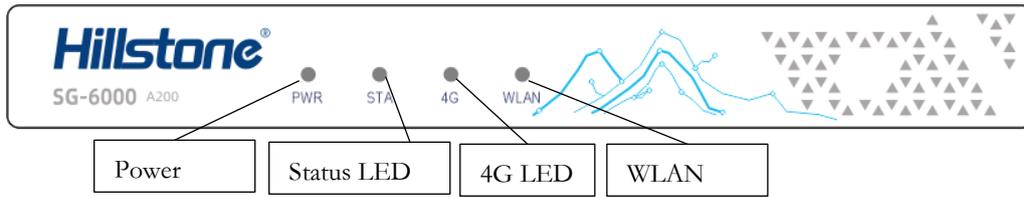
The front panel of A200G4, A200G4B consists of several LED indicators (1 Power LED, 1 Status LED, 1 4G LED).

Figure: A200G4Front Panel



The front panel of A200WG4 consists of several LED indicators (1 Power LED, 1 Status LED, 1 4G LED, 1 WLAN LED).

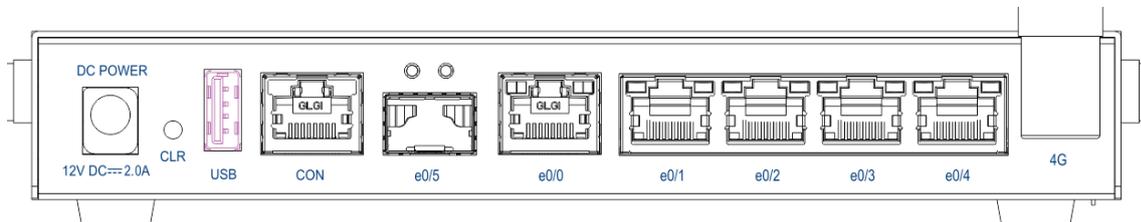
Figure: A200WG4Front Panel



## Back Panel

The A200 is powered by a power adapter, and the rear panel has a DC power interface, a CLR key, a USB interface, a con port, an SFP optical port, five Gigabit electrical ports, and a 4G antenna interface.

Figure: A200 Back Panel



## LED Indicators

The following table describes the meanings of LED indicators on the front panels of A200-Series devices.

Table: Front Panel LED Descriptions

LED	Color/Status	Description
PWR	Green/Always on	The device power is running normally.
	Off	The device is powered off.

LED	Color/Status	Description
STA	Green/Blinking	The system is running normally.
	Off	The system has not been booted/is booting/has failed to boot.
WLAN	Green/Always on	The device has detected a built-in WLAN module present.
	Green/Blinking	WLAN is in data receiving and sending state
4G	Green/Always on	The device has detected a built-in 4G module
	Green/Blinking	4G module is in data receiving and sending state.
LNK	Green/Always on	The link between this port and its peer device is in normal status.
	Off	The link between this port and its peer device has failed or there is no connection.
ACT	Yellow/Always on	The link between this port and its peer device is in normal status.
	Yellow/Blinking	The port is sending or receiving data.
	Off	No data is transmitted on this port.

Notes:

- The STA LED will remain OFF when there is a boot failure caused by OS software damage. Contact your sales representative if this occurs.
- As the number and type of LED indicators may vary from different product models, please refer to the actual product.

## System Parameters

The following table lists the system parameters of A200-Series devices.

Table: System Parameters

Item		Description
Fixed Ports	A200 Series	5 Gigabit port
		1 USB 3.0 ports
		1 CON port
		1 SFP Smooth Mouth
CPU		88f3720 Binuclear
DDR4 SDRAM		2GB
Flash Memory		4GB
Dimensions (W×D×H)		W180.0mm * D110.0mm *H28.0mm
Weight		Net weight: 0.64kg Gross weight:1.276 kg (accessories and packages included)
Power Rating		14W
Input Voltage	AC	100-240V AC, 50/60Hz
Ambient Temperature		0°C -45°C
Relative Humidity		5%-90% (non-condensing)

## Ports

This section introduces attributes of ports on the A200-Series device, including the CON port, USB ports, gigabit Ethernet ports, SFP ports.

### CON port

*The A200 series equipment of Shanshi Netcom provides a configuration port (con port) that conforms to RS-232C asynchronous serial specification. Through this configuration port, the user can configure the device by himself. The properties and description of the configuration port are shown in the following table. Table: Console Port Attributes*

Attribute	Description
Connector	RJ-45
Port Standard	RS-232C
Baud Rate	115200 bit/s
Services	Connect the CON port to the serial port of a PC and run a terminal emulation program on the PC to configure the device
Transmission Medium	Console cable

## USB Port

The A200-Series device provides up to 1 USB 2.0 host ports. Attributes for the USB host ports are shown in the table below:

*Table: USB 2.0 Host Port Attributes*

Attribute	Description
Connector	USB Type-A interface
Port Standard	USB 2.0 host interface
Negotiation Mode	1.1/2.0 autosensing

## Gigabit Ethernet Port

The A200-Series device provides several fixed gigabit Ethernet ports. Attributes for the gigabit Ethernet ports are shown in the table below:

*Table: Gigabit Ethernet Port Attributes*

Attribute	Description
Connector	RJ-45
Port Standard	Auto-MDI/MDIX (crossover cable and straight-through cable autosensing)
Frame Format	Ethernet_II Ethernet_SNAP
Negotiation Mode	10/100/1000Mbps autosensing Full/half-duplex

## SFP Port

The A200-Series device provides several SFP ports. Attributes for the SFP ports are shown in the table below:

Table: SFP Port Attributes

Attribute	Description	
Connector	SFP	
Frame Format	Ethernet_II Ethernet_SNAP	
Negotiation Mode	SFP optical module	1000Mbps
	SFP copper module	10/100/1000Mbps autosensing (some only supports 1000Mbps)  Full/half-duplex

The SFP port supports the following two types of modules:

- SFP optical module
- SFP copper module

If an SFP optical module is applied to an SFP port, you should use a cable with a LC-type optical connector. The A200-Series device supports five types of 1000Base-FX SFP optical modules. All optical modules are hot-swappable.

Table: SFP Optical Module Attributes

Attribute	Description							
	Short-haul Multimode Optical Module (850nm)	Medium-haul Single-mode Optical Module (1310nm)	Long-haul single-mode optical module (1310nm)		Medium-haul Single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1550nm)	Ultra-long-haul Single-mode Optical Module (1550nm)
Connector	LC							
Fiber Type	62.5/m multi-mode fiber	9/m single-mode fiber	9/m single-mode fiber	9/m single-mode fiber	9/125mm single-mode fiber	9/m single-mode fiber	9/m single-mode fiber	9/125mm single-mode fiber

Attribute	Description							
	Short-haul Multimode Optical Module (850nm)	Medium-haul Single-mode Optical Module (1310nm)	Long-haul single-mode optical module (1310nm)		Medium-haul Single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1550nm)	Ultra-long-haul Single-mode Optical Module (1550nm)
Maximum Transmission Distance	0.3km							80km
Central Wavelength	850nm	1310nm	1310nm	1550nm	1550nm	1310nm	1550nm	1550nm
Optional Original Hillstone Optical Module	TRAN-SX	TRAN-LX10	TRAN-LX40		TRAN-LX80	TRAN-LX40		TRAN-LX80

Notes: The original Hillstone optical module should not be used together with optical modules from other manufacturers, otherwise some errors may occur.

If an SFP copper module is applied to an SFP port, you should use a crossover or straight-through cable (i.e. standard Ethernet cable). Attributes for the SFP copper module are shown in the table below:

*Table: SFP Copper Module Attributes*

Attribute	Description
Connector	RJ-45
Port Standard	Auto-MDI/MDIX (crossover cable and straight-through cable autosensing)

Attribute	Description
Maximum Transmission Distance	100m
Negotiation Mode	10/100/1000Mbps autosensing (some only supports 1000Mbps) Full/half-duplex

## CLR Button

The CLR button is the pinhole of the front panel and is used to reset the device back to the factory default settings. You can restore access to the device with this button if the login password is lost.

Notes: Use this button with caution. Resetting the device will clear all existing configurations.

To restore the factory default settings, take the following steps:

1. When the device is working, use a pin to press the CLR button in the pinhole and the device will restart.
2. After the device restarts, the CON port outputs the information of CLR button pressed and the STA and ALM LEDs turn solid red. After the LEDs turn off, the device will restart again.

## Power Supply

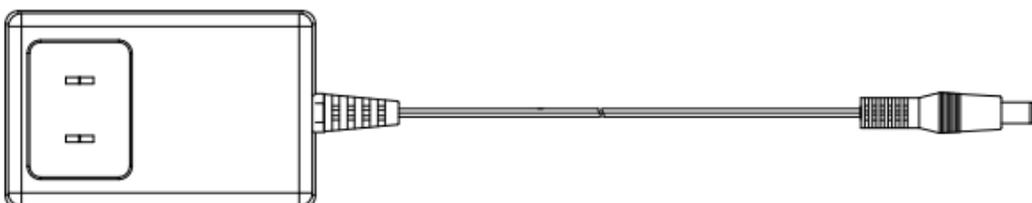
Table: Power Supplies of All Product Models

Model	Single/Dual	AC/DC	Power Supply Type
A200 series	Single	DC	External power adapter

### Power Supply Modules

A200 uses a pluggable AC power adapter.

A200 AC Power Supply Module:



# Chapter 2 Installation Preparations

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## Introduction

This chapter introduces the preparations before installing the Hillstone A200-Series device, including the installation site environment requirements. This chapter includes the following sections:

## Installation Site Environment Requirements

The A200-Series device is designed for indoor use. To ensure the normal operation and to prolong the service lifetime, the installation site must meet the requirements below.

### Temperature/Humidity Requirements

The ambient temperature and relative humidity in the installation site should be maintained at acceptable levels. The requirements are shown as below:

Item	Requirements
Ambient Temperature	When the device is working, the requirement is between 0°C and 45°C ; When the device is being stored, the requirement is between -10°C and 50°C .
Relative Humidity	5%-90%, non-condensing

### Clearness Requirements

It is required that there are no explosive, conductive, magnetic, and corrosive dusts in the installation site. The dust concentration requirement in the equipment room is shown as below:

Mechanically Active Substance	Unit	Concentration
Dust Particle	Particles/m <sup>3</sup>	$\leq 3 \times 10^4$ (No visible dust on tables within 3 days)
<b>Note:</b> Diameter of dust particle $\geq 5\mu\text{m}$		

### ESD Prevention

To prevent electrostatic discharge (ESD) damage, ensure that:

- Take dustproof measures for the equipment room.
- Maintain proper humidity and temperature levels.
- Do not disassemble the device without permission from the vendor, or you may cause danger and void your warranty.

## EMI Prevention

All possible Electromagnetic Interference (EMI) sources, external or internal, affect the device in the way of capacitance coupling, inductance coupling, electromagnetic radiation, and common impedance (including the grounding system) coupling. To prevent or reduce EMI:

- Take measures to protect the power system from the interference of the power grid.
- Separate the protection ground of the device from the grounding device or lighting protection grounding device of the power supply equipment as far as possible.
- Keep the device away from radio stations, radar, and other high-frequency and high-current devices.
- Use electromagnetic shielding when necessary.

## Other Safety Recommendations

The directions below are also recommended for you to follow:

- Keep the device far away from moist areas and heat sources.
- Wear an ESD wrist strap correctly when handling the device.
- Be careful with laser emission. Do not directly stare into apertures of fiberoptic connectors that emit laser radiation.
- Use uninterrupted power supply (UPS).

## Verifying the Parts Received

When you receive the product, a packing list is included inside the accessory box. Verify the parts and items you received against the packing list. If any part is missing, contact a customer service representative.

Hillstone provides different expansion modules and power supply modules in separate individual packages according to your order.

## Installation Devices/Tools/Cables

The SG-6000A-Series device is shipped with a power cable and a console cable, and you should have the following items before the installation:

- Terminal: Configuration terminal (e.g. an ordinary PC).
- Tools: Cross screwdriver and ESD wrist strap/antistatic gloves.
- Cables: Power cable, console cable and Ethernet cable.

# Chapter 3 Installation

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A yellow seal with dark ink characters is stuck on a mounting screw of the chassis. Keep the seal intact. The sales representative will check this seal before maintenance operation. Please get the permission of your sales representative before opening the chassis yourself. Warranty will be void if you disassemble the chassis without authorization.

Before installation, make sure that:

- The requirements in [Chapter 2 Installation Preparations](#) are satisfied.

The A200-Series device can be installed:

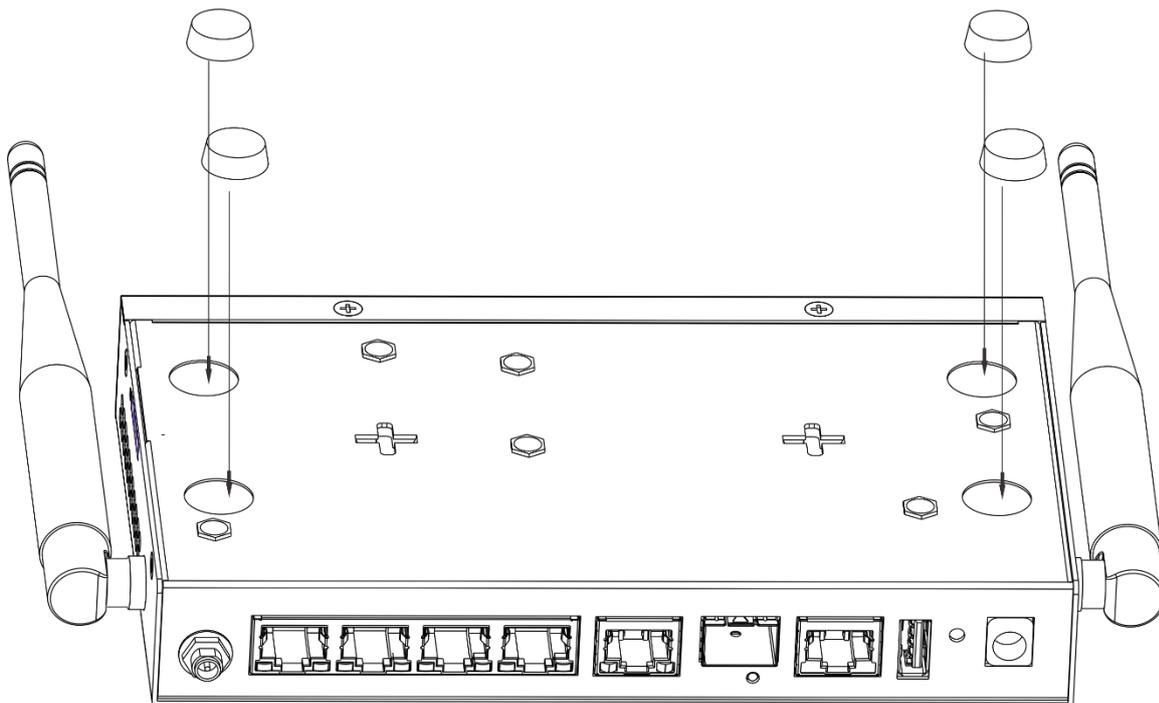
- On a workbench

## Installing the Device on a Workbench

The A200-Series device can be placed on a stable and clean workbench. For skid prevention, take the following steps to fit anti-skid pads on your device before installing:

- Step 1: Tear off the sticker from the rubber pad.
- Step 2: Press the sticky side of the pad to the right-angle die-pressed mark on the bottom panel of the chassis.

*Figure: Installing the Rubber Pads*



Check the following specifications when installing the device on a workbench:

- Make sure the workbench is stable and well grounded.
- Make sure the intake and the exhaust vents are unblocked, and keep the device well ventilated.
- Do not place any heavy object on the top of the chassis.

## Connecting Cables

The cable connection of A200 series equipment includes configuration cable connection, Ethernet cable connection and power cable connection..

### Connecting the Console Cable

The A200-Series device provides an RS-232C asynchronous serial console (CON) port, through which you can configure the device. The console cable is an 8-core shielded cable, which has an RJ-45 connector that can be connected to the Console port of the device and a DB-9 (female) connector that can be connected to the serial port of a console terminal.

To connect the device and the console terminal, take the following steps:

1. Select a console terminal. You may choose an ordinary PC or a standard ASCII terminal with an RS-232C serial port.
2. Connect the console cable. Connect the RJ-45 end of the console cable to the device's Console port (labeled CON), and then connect the DB-9 end to the console terminal.

### Connecting the Ethernet Cable

The A200-Series device provides gigabit Ethernet ports, SFP ports. The gigabit Ethernet port can be connected by a straight-through cable (also called standard cable) or crossover cable. The SFP port supports both an SFP optical module connected by a single-mode or multi-mode optical fiber, and an SFP copper module connected by a crossover cable or straight-through cable.

All SFP Port and SFP+ Port optical modules use LC-type optical connectors; therefore, you should connect the optical modules using optical fibers with LC-type connectors. All optical modules are hot-swappable.

#### *Connecting the Ethernet Copper Cable*

Follow the guidelines below when connecting cables to the ports:

- Be careful not to connect the Ethernet port to the wrong ports. Read the label above the port carefully.
- For electrical Ethernet connection, use a crossover cable or straight-through cable.

### *Connecting the Ethernet Fiber Cable*

Follow the guidelines below when connecting cables to the ports:

- Be careful not to connect the Ethernet port to the wrong ports. Read the label above the port carefully.
- For SFP port connection, insert the SFP optical module into the SFP port before connecting the LC-type connector to the optical module.
- Keep the followings in mind when connecting fiber cables:
- The curvature radius should be greater than 10cm. Avoid excessive bending of the cable.
- Ensure the Tx and Rx ends are connected correctly.
- Keep the connector of the optical cable clean.

Notes: Laser danger! To protect your eyes from radiation harm, do not stare into a cable connector connected to a laser generator.

### **Connecting a Power Adapter**

For some models, you need to connect the device to the external AC power supply by using the power adapter to power the device:

To connect a power adapter, take the following steps:

1. Insert the DC output plug of the power adapter into the DC power interface on the back panel of the device.
2. Connect the power adapter to the external AC power supply.

### **Installing an Antenna**

To use the WLAN function or the 4G function of the device, you must install the WLAN antenna or the 4G antenna. You can adjust the angle of the WLAN antenna by rotating it. The angle of the 4G antenna is fixed. The antennas are shown as below:

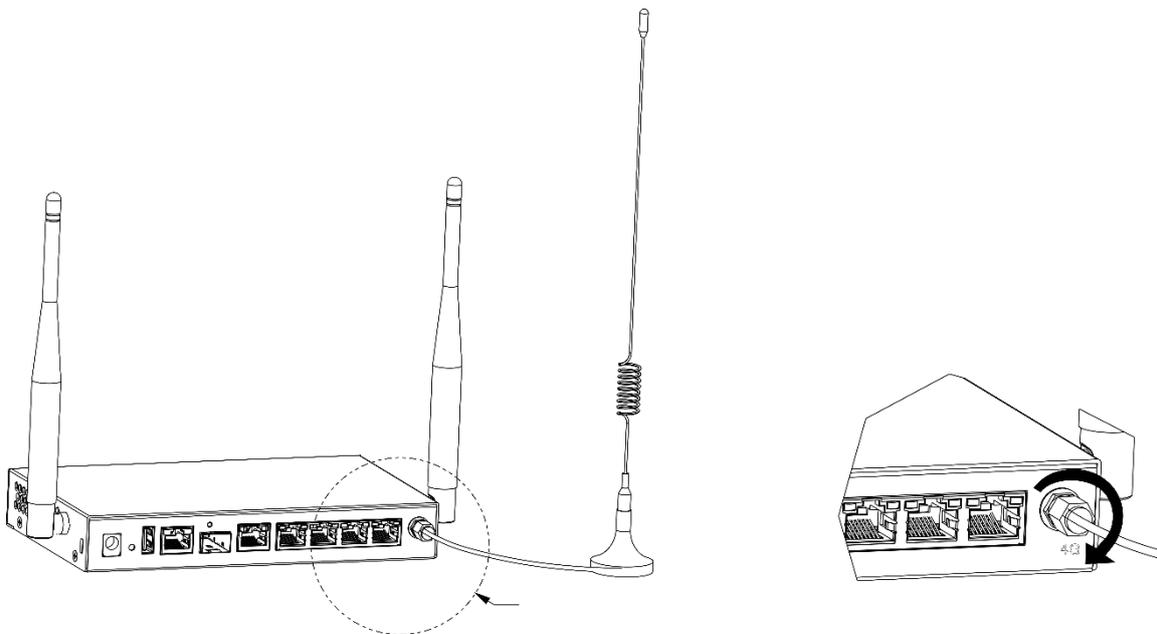
**Figure: 4G Antenna**



take the following steps:

1. According to the function you use, select the corresponding antenna.
2. Install the antenna to the 4G SMA connector at the back panel of the device by rotating the antenna clockwise.

**Figure : Antenna Installation Illustration**



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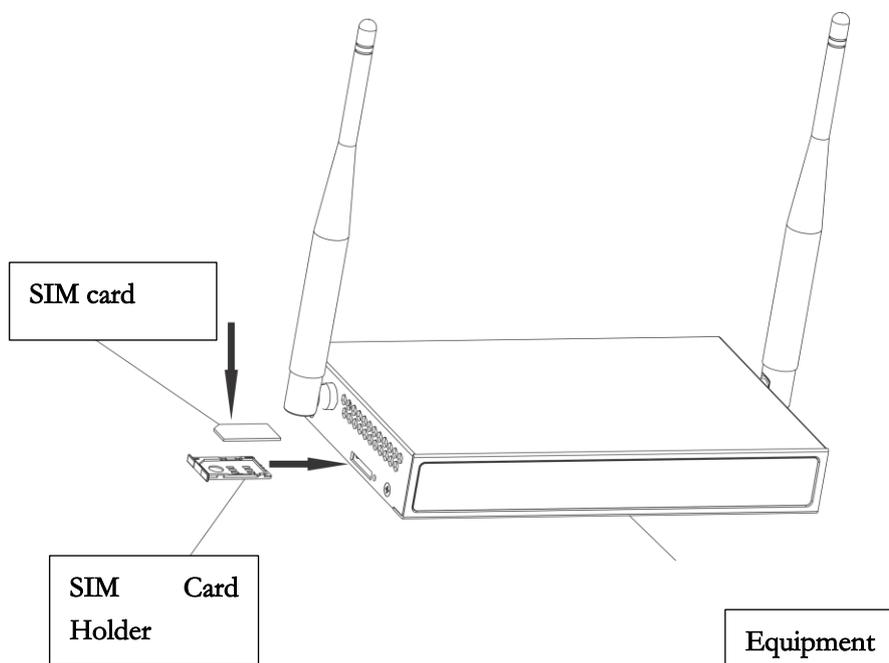
**Note:** Each type of antenna must be installed into the corresponding SMA connector. The 4G antenna must be installed into the connector of 4GDIV and 4GMAIN. The WLAN antenna must be installed into the connector of (1)0 and (1)1.

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## Installing the SIM Card

To install the SIM card for A200 (4G\WLAN+4G version), take the following steps:

1. Purchase the SIM card from the ISP and activate the data connection service.
2. Insert the SIM card into the SIM card slot at the back panel of the device.



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**Note:** 4G data card and SIM card must match the network type.

---

## Verifying Installation

After you complete the installation with all the above steps, you still need to verify the following items.

- ◆ All the cables are properly connected.
- ◆ The air vents on both side panel of the device are unblocked, and there is enough space around for heat dissipation.
- ◆ The power source meets the requirements of the device.
- ◆ If the device is rack-mounted, make sure the rack is stable enough. If the device is placed on a workbench, make sure the workbench is stable and clean.

# Chapter 4 Boot and Configuration

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## Introduction

This chapter describes how to perform initial system boot and basic configuration of the Hillstone A200-Series device, using a PC as the console terminal.

## Establishing a Configuration Environment

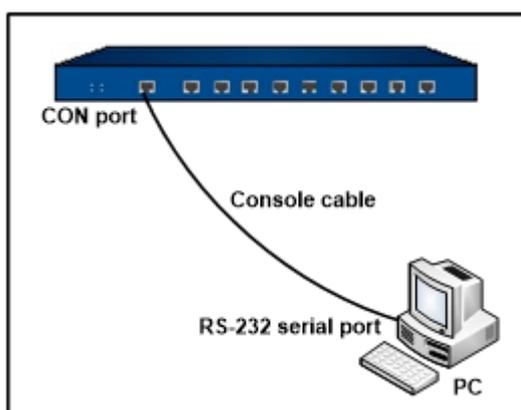
The A200-Series device supports both local and remote configuration. Administrators can use the following configuration methods.

- Console (CON) connection
- WebUI
- Telnet or SSH

### Console (CON) Connection

For initial system configuration, you have to establish a Console connection environment (connect the device to a configuration terminal through its Console port). To connect the PC to the CON port of the device, take following steps:

1. Set up a local configuration environment. Connect the Console port to the serial port of a PC through a console cable, as shown in the figure below:



2. Run the terminal emulation program on the PC (e.g. hyper terminal of Windows XP/Windows 2000) to set up a connection. Set the parameters of the terminal session to 115200bps, 8 data bits, 1 stop bit, none parity, and none flow control, as shown in the figure below:



3. Switch on the power supply, and the device performs self-test and initializes the configuration automatically. If the booting succeeds, the system will display the command line prompt "login". Enter the default administrator name and password "hillstone" at the "login" and "password" prompts, press Enter. And now you are successfully logged in and accessing the CLI. After login, please change the default password of the device in time.
4. Enter commands to configure or view running status. Enter a question mark "?" to get help on commands whenever you want.

## WebUI

The MGT port has a default IP address of 192.168.1.1/24, and all the management functions of this port are enabled by default. Administrators can access the WebUI through the MGT port.

To log in the device's WebUI, take the following steps:

1. Set up the IP address of the management PC on the same subnet as **192.168.1.1/24**. Connect the management PC to the MGT interface through an Ethernet cable.
  - If the device has a MGT0 interface, connect the cable to this interface.
  - If the device does not have a MGT0 interface, connect the cable to the e0/0 interface.
2. Launch a Web browser of the management PC, enter the URL **https://192.168.1.1** in the address bar, and then press Enter.
3. Type the default administrator name (hillstone) and password (hillstone) into the text boxes respectively.

4. Select the language you want to use.
5. Click **Login** to enter the home page. After login, please change the default password of the device in time. Then you can set other configurations to the device.

## Telnet or SSH

You can also establish Telnet and SSH configuration environments. For more information, see *StoneOS CLI User Guide*.

## Basic Configuration

Before beginning to use the device, you should be familiar with its features and your network deployment. Different device positions in the network, network management demands and network security designs require different topology designs, working modes, security zones, and policy configurations. The basic configurations may include:

- Create security zones, including the link layer (L2) and network layer (L3). Bind different interfaces to correct security zones respectively.
- Assign IP addresses to interfaces.
- Configure the management functions of the interfaces and create the security policy rules.
- Assign proper network addresses and configure the NAT rules as needed.
- Configure routing of the system to ensure the network connectivity.
- Configure security policy rules between security zones.
- Configure network parameters, such as DHCP and DNS agent, etc.

Notes: For more information on protocols and configurations, see *StoneOS CLI User Guide* and *StoneOS WebUI User Guide*.

# Chapter 5 Hardware Maintenance and Replacement

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## Introduction

This chapter explains startup and shutdown methods of the Hillstone A200-Series device.

## Startup

After being connected to the power supply by the power cord for the first time, the device will automatically start up. If the device is shut down by pressing the power button or using the shutdown command, and the power cord has not been disconnected after shutdown, you can press the power button to power on the device. After that, check if the PWR LED on the front panel is on. A solid green LED indicates correct connection.

## Shutdown

If you stop using the equipment, you can do it by the following methods:

The device has no shutdown button, and can directly disconnect AC220V or DC12V for power down.

# Chapter 6 Troubleshooting

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## Introduction

This chapter provides solutions to some common problems of the Hillstone A200-Series device.

## Losing the Administrator Password

If you lose the administrator password, please contact your local sales representative or you can reset.

Warning: when the system is reset, all device information will be restored to the factory settings, and the configuration file will be deleted. Please use it carefully.

## Troubleshooting of power supply system

According to the status of the power indicator, the user can judge whether the power system of the product fails. For the status and meaning of the power indicator, please refer to the meaning of the indicator. When the power supply system works normally, the power indicator should keep green and always on; when the power indicator is not on, please check the equipment as follows:

- Whether the power line of the equipment is connected correctly.

- Whether the power supply of the equipment is consistent with the required power supply.

## Configuration system troubleshooting

After the device is powered on, if the configuration system is normal, the startup information will be displayed on the configuration terminal; if the configuration system fails, the configuration terminal may not display or display error information.

If the configuration terminal has no display information, please check as follows:

- Whether the power supply is normal.

- Whether the configuration cable connection is correct.

- Whether the terminal configuration is correct.

If no problem is found in the above inspection, it may be the configuration cable fault, please check.

# Chapter 7 Addendum Statement

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**Warning:** This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## FCC Statement

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.

**Caution:** Please take attention that changes or modification 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 A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

RF Exposure: A distance of 20 cm shall be maintained between the antenna and users, and the transmitter may not be co-located with any other transmitter or antenna.

## Industry Canada Statement

This device complies with RSS-247 of the Industry Canada Rules. Operation is subject to the following two conditions: 1) this device may not cause interference and 2) this device must accept any interference, including interference that may cause undesired operation of the device.

This class B digital apparatus complies with Canadian ICES-003

IC Radiation Exposure Statement: This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment.

## Avis d'Industrie Canada

Cet appareil est conforme à la norme CNR-210 des règlements d' Industrie Canada. Son fonctionnement est sujet aux deux conditions suivantes: 1) Cet appareil ne doit pas provoquer d' interférences et 2) Cet appareil doit accepter toutes les interférences, y compris celles pouvant entraîner son dysfonctionnement. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada Avis d' Industrie Canada sur l' exposition aux Rayonnements: Cet appareil

est conforme aux limites d' exposition aux rayonnements d' Industrie Canada pour un environnement non contrôlé.

## EU Conformity Statement



This product is marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Radio Equipment Directive 2014/53/EU.

This device has been tested and meets applicable limits for Radio Frequency (RF) exposure.

The equipment named above is confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC) and Low-voltage Directive (2014/35/EU).

The equipment passed the test which was performed according to the following European standards:

- EN55032:2015
- EN55035:2017
- EN 61000-3-2:2014
- EN 61000-3-3:2013+A1:2019
- EN 62368-1:2014