SoftCo VoIP Integrated Exchange
V100R002C04SPC600

Routine Maintenance

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Contents

1 Maintenance Item List

Routine maintenance is classified into weekly, monthly, and yearly maintenance. The following maintenance item list is provided for your reference during SoftCo maintenance.

Table 1-1 Maintenance Item List

Period	Item	Maintenance Method	Reference Standard	Troubleshooting
Weekly	Using the iCheck to check the SoftCo	iCheck tool	The result has no fault. **NOTE** The iCheck tool installation package is obtained from http://support.huawei.com. For details on how to use the iCheck, see the *iCheckSoftCo Operation Guide*.	According to the criteria, result, and suggestions for rectifying errors to troubleshoot the fault.
	Checking the Humidity in the Equipment Room	Hygrometer	The relative humidity in the equipment room is 5%-95%, without condensation.	• If the relative humidity in the equipment room is too high, install a dehumidifier in the equipment room. • If the relative humidity in the equipment room is too low, install a humidifier in the equipment room.
	Checking the Electromagnetic Interference in the Equipment Room	Manual	• There is no electromagnetic interference resulting from external electronic equipment such as the switches, fans,	Take protective measures like shielding in the equipment room to minimize the interference to the equipment room from external

Peri od	Item	Mainte nance Method	Reference Standard	Troubleshooting
			air conditioners, and radio frequency devices in the transmission equipment room. • There is no electromagnetic interference resulting from the power supply of equipment such as surge voltage and industrial frequency interference. • There is no electromagnetic interference resulting from lightning and high-voltage transmission lines. **NOTE** The electromagnetic criteria is: • Electric field intensity $\leq$ 130 dB (μV/m) • Magnetic field intensity $\leq$ 800 A/m	electromagnetic environments and the interference between the equipment in the equipment room, such as closing the cabinet, installing the filler panel on the empty slot and grounded the device.
	Checking SoftCo9500 Equipment Alarms (Indicator)	Manual	• The ALARM indicator light on the shelf is off. • The ALM indicator light on the SC1-MCU, SC1-SMCU does not flash, and the alarm buzzer does not ring. • The RUN indicator light on the SC1-MRU-128, SC1-MRS, SC1-DTU-4, SC1-DTU-8, SC1-ATU-8 and SC1-EXU-4 is not always on or off. • The ALM indicator	• For the faults of the shelf or SC1-MCU, SC1-SMCU, see section Handling Host Device Breakdown. • For the faults of the boards other than the SC1-MCU, SC1-SMCU, see section Handling Board Breakdown.

Peri od	Item	Mainte nance Method	Reference Standard	Troubleshooting
			light on the front panel of the POTS-32 is not always on.	
	Checking SoftCo5816 Equipment Alarms (Indicator)	Manual	• The ALM indicator light on the shelf does not flash. • The RUN indicator light on the SC0-DTU-4 and SC0-ATU-8 is not always on or off. • The ALM indicator light on the front panel of the POTS-32 is not always on.	• For the faults of the shelf or the Main Processing Unit (MPU), see section Handling Host Device Breakdown. • For the faults of the boards other than the MPU, see section Handling Board Breakdown.
	Checking Equipment Alarms	OMU(O peration and Maintena nce Unit)	• There is no critical alarm in the system. • There is no alarm about power supply and fan box. • There is no serious alarm about gateway registration, links, and trunk circuits in the system.	• For the faults of power supply, replace the power module. • For the faults of fans, replace the fan box. The system can run securely for 60 minutes when the fan box is faulty. Replace the fan box as soon as possible. • For the faults of boards, see sections Handling Host Device Breakdown and Handling Board Breakdown. • For the faults of the SIP terminal, check the network connection.
	Checking the Network Statuses of Main Nodes	Using the **ping x.x.x.x** comman d (The x.x.x.x indicate the IP	The Nodes can be pinged each other.	If the network is fault, please heck the network connection. For example, check the settings of the subnet mask and the gateway address.

Period	Item	Maintenance Method	Reference Standard	Troubleshooting
		address of each network element)		
Monthly	Checking Equipment Grounding	Manual	• All contacting points are in good condition without loose connection, corrosion. • Grounding resistance is less than or equal to 5 ohm.	• If the connection line is in poor contact, correct the connection. • If the connection line is corroded, replace it. • If the grounding resistance fails to meet requirements, reconstruct the grounding environment.
	Backing Up Configuration Data	Using the **config upload file data** command	-	If the data is not backed up, see section Backing Up Data.
	Checking the Storage Environment of Spares	Thermometer and Hygrometer	• The temperature in the warehouse is 0 ℃-45 ℃. • The relative humidity in the warehouse is 5%-95%, without condensation.	• Regulate the temperature in the room through the air conditioner. If the air conditioner is faulty, repair or replace it in time. • Install the dehumidifier or humidifier to control the humidity in the warehouse.
	Checking the Number of Spares	Manual	• Fan box or each type of board has at least one spare board based on the requirements for hardware configuration. • All spares are kept in good condition without being broken, cracked, or	If there are no spare parts, purchase them from the manufacturer.

Peri od	Item	Mainte nance Method	Reference Standard	Troubleshooting
			corroded. Broken spares or replaced parts are sent back for repair in time.	
	Cleaning the Air Filter of SoftCo	Manual	-	If the air filter of SoftCo has too much dust, please clean the air filter at the left side of the front panel of the shelf every three months. For details, see section 3.1 Cleaning Air Filter.
Yearl y	Cleaning the Fan Box of SoftCo	Manual	-	If the fan box of SoftCo has too much dust, please clean the fan box at the left side of the back panel of the shelf. For details, see section 3.2 Removing Dust from Fan Box.
	Cleaning the Boards	Manual	-	If the board has too much dust, please clean the boards every two years. For details, see section 3.3 Cleaning Boards.

2 Maintaining the Grounding System

About This Chapter

Maintain the grounding system includes checking the grounding system and measuring the grounding resistance.

You need to check and maintain the grounding system of the SoftCo device regularly (for example, once a month).

The procedure for measuring the grounding resistance.

2.1 Checking the Grounding System

You need to check and maintain the grounding system of the SoftCo device regularly (for example, once a month).

Good grounding is one of the key measures to ensure stable running of the SoftCo device. It serves protecting you against electric shock and protecting the equipment against ESD, EMI, and lightning strike.

The grounding system of the SoftCo device refers to the yellow and green ground cables from the grounding terminal of the shelf to the grounding system in the equipment room. To check and maintain the grounding system, you need do as follows:

- Check whether the ground cables in the shelf are damaged, aged, eroded, or burnt by electrical arc.
- Check whether the connecting terminals and captive screws of all ground cables in the shelf are connected firmly and are not eroded.
- Use a multimeter to test if all parts in the shelf are well grounded. Adjust the multimeter to the ohm range. Connect one probe to a fixed grounding point in the equipment room (lengthen the probe cable when necessary). Use another probe to measure the grounding points in the shelf one after the other. To ensure accuracy, the resistance measured at each grounding point should be about five ohms. If the resistance measured at a grounding point is more than five ohms, check the ground cable, grounding terminal, and captive screw of this grounding point at once, and accordingly take proper measures.

- Use an earth resistance tester to measure the grounding resistance of the grounding network in the equipment room. The grounding resistance should not be more than five ohms. See section 2.2 Measuring the Grounding Resistance for details.

2.2 Measuring the Grounding Resistance

The procedure for measuring the grounding resistance.

Measurement Method

Use the earth resistance tester to measure the grounding resistance of the grounding network in the equipment room. During measurement, place the voltage pole and the current pole of the earth resistance tester as shown in Figure 2-1.

Figure 2-1 Layout of poles of the earth resistance tester
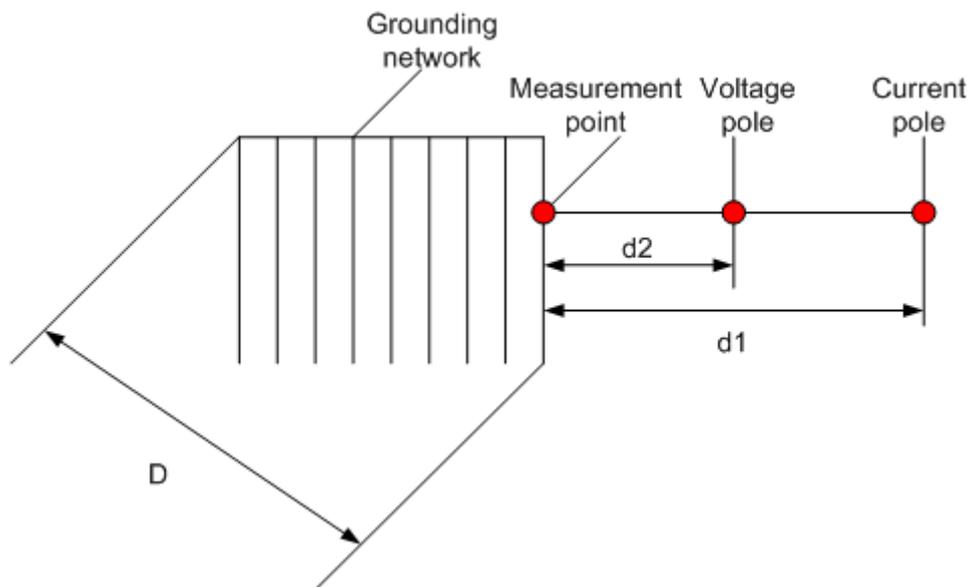
- The distance from the current pole to the edge of the grounding network is d1. The value d1 is four to five times of the maximum diagonal length (D) of the grounding network.
- The distance from the voltage pole to the edge of the grounding network is d2. The value d2 is 50% to 60% of the value d1.
- When measuring the resistance, move the voltage pole three times along the line between the current pole and the grounding network. The distance moved each time is 5% of d1. If the resistance values measured for three times are almost equal, take the average value of these three values as the grounding resistance of the grounding network.
- If d1 cannot be four to five times of D, set d1 to two times of D and d2 to D in the areas with relatively even earth resistance rate. Set d1 to three times of D and d2 to 1.7 times of D in the areas with uneven earth resistance rate.

Cautions

- Place the current pole and the voltage pole vertical to the line or the underground metal pipe.

- Do not measure the grounding resistance immediately after raining.

3 Removing Dust from Equipment

About This Chapter

Maintain the dust from equipment includes cleaning air filter and removing dust from fan box and cleaning boards.

To ensure long-term stability of the equipment, you need to clean the air filter regularly (once every three months).

To ensure long-term stability of the equipment, you need to clean the fan box regularly (once a year).

To ensure long-term stability of the equipment, you need to clean all the boards in the shelf regularly (once every two years).

3.1 Cleaning Air Filter

To ensure long-term stability of the equipment, you need to clean the air filter regularly (once every three months).

Procedure

Step 1 Remove the air filter out of the shelf.

1.   Remove the front panel.Loosen the two screws fixing the air filter with a Phillips screwdriver.
2.   Pull the air filter slowly out of the shelf.

⚠ CAUTION

Do not insert a wet air filter into the shelf. Otherwise, the equipment may be damaged due to short circuit that occurs when water is absorbed into the shelf.

Step 2 Clean the air filter.

Wash the air filter with water, wipe it with a clean cloth, and then dry it in a ventilating place.

Step 3 Install the air filter back into the shelf.

1. Push the cleaned air filter horizontally along the guide rails into the shelf. Do not push it forcedly.
2. After positioning the air filter, use a Phillips screwdriver to fasten the two screws used to fix the air filter into the side posts of the shelf.

----End

3.2 Removing Dust from Fan Box

To ensure long-term stability of the equipment, you need to clean the fan box regularly (once a year).

Context

⚠ CAUTION

- You need to replace a fan box within 60 minutes. Otherwise, the stability and security of the devices in the shelf will be greatly affected.
- If a standby fan box is available, clean the standby fan box, remove the fan box that needs to be cleaned, and then install the standby fan box.

Procedure

Step 1 Remove the fan box.

1. Use a Phillips screwdriver to loosen the captive screws fixing the fan box.
2. Pull the fan box out of the shelf slowly.

Step 2 Clean the fan box.

Wipe the dust off the fan blades in the replaced fan box with clean cotton yarn cloth, ESD soft brush, or vacuum cleaner. After being cleaned, the fan box is not covered with dust.

Step 3 Install the fan box.

Push the cleaned fan box into the shelf quickly, and then use a Phillips screwdriver to tighten the captive screws fixing the fan box.

----End

3.3 Cleaning Boards

To ensure long-term stability of the equipment, you need to clean all the boards in the shelf regularly (once every two years).

Procedure

Step 1 Provide backup boards.

Before cleaning all the boards in the shelf, you need to provide a backup board for each type of board in the frame.

Step 2 Replace the board to be cleaned.

To avoid faults during maintenance, replace the board to be cleaned with a backup board, strictly following the board replacement flow. Clean the replaced board only after the backup board runs normally. For the board replacement flow, see chapter Replacing Parts.

> ⚠ **CAUTION**
>
> ● You need to take ESD measures strictly during the operation. For example, you need to wear ESD clothes and wrist strap when you operate on the ESD workstation.
> ● Choose the cleaning agent according to the related national standards strictly. Otherwise, the boards may be damaged.

Step 3 Remove dust from boards.

The boards can be cleaned in many ways. The key principle is to prevent the physical and electrical characteristics of the boards from being damaged. The two most common methods are:

● Using a vacuum cleaner

Use a clean and dry ESD soft brush to slightly wipe the dust off the board surface. At the same time, point the suction nozzle of a vacuum cleaner at the brush to suck the dust.

A vacuum cleaner is simple in operation and cheap in cost, but it fails to remove the harmful gas absorbed on the board surface.

● Using a cleaning agent

Use a dedicated anhydrous, nonerosive, nonconductive, and high-volatility cleaning agent to clean the boards, for example, isopropanol (IPA).

A cleaning agent removes not only the dust from the boards entirely, but also most of the harmful gases absorbed on the surface of the boards. This method is complicated in operation and high in cost.

Step 4 Clean boards in turn.

Due to the large number of spare parts, it is impossible to replace all the boards to be cleaned at the same time. In this case, replace a board to be cleaned with the already cleaned board of the same type.

----End