GPON Commissioning

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Objectives

- Upon completion of this course, you will be able to:

  - Describe the set-up procedures and steps

  - Initial set up the system

  - Check the system status

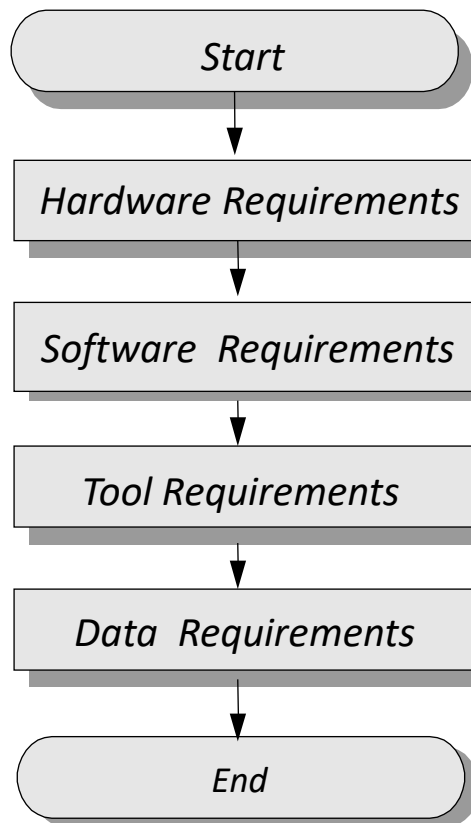 - Complete all the commissioning of OLT

Contents

1. Preparations for the Commissioning

2. Stand-alone Commissioning

3. Interconnection Commissioning with U2000/NCE-FAN

4. Management Channel Commissioning -- ONT

5. Management Channel Commissioning -- MDU

Contents

1. **Preparations for the Commissioning**

2. Stand-alone Commissioning

3. Interconnection Commissioning with U2000/NCE-FAN

4. Management Channel Commissioning -- ONT

5. Management Channel Commissioning -- MDU

Preparations for the Commissioning

```
┌─────────────────────────────┐
│            Start            │
└─────────────────────────────┘
                │
                ▼
┌─────────────────────────────┐
│    Hardware Requirements    │
└─────────────────────────────┘
                │
                ▼
┌─────────────────────────────┐
│    Software  Requirements   │
└─────────────────────────────┘
                │
                ▼
┌─────────────────────────────┐
│      Tool Requirements      │
└─────────────────────────────┘
                │
                ▼
┌─────────────────────────────┐
│      Data  Requirements     │
└─────────────────────────────┘
                │
                ▼
┌─────────────────────────────┐
│             End             │
└─────────────────────────────┘
```

Checking Hardware

Power supply and grounding	•The power cable and the ground cable are connected properly and are in good contact. •The labels of the power cable, ground cable, and power distribution switch are correct, legible and complete. •The connectors of the external ground cables and protection ground cables of the cabinet are connected properly, without any damage. •The power supply for the device is in the normal state.
Cables and connectors	•The connectors are tight and firm. •The cable jacket is intact. •Cable labels are legible. •Cables are bundled properly.
Upper-layer device	•The position of the interconnection port of the upper-layer device is correct. •The upper-layer device works in the normal state and can be used for the commissioning.
Board (daughter board)	•The board (daughter board) selected should meet the requirements for the external ports.

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Preparing Software

Software package	•Ensure that files in the software package for the commissioning are complete and the software version is correct.
Software commissioning tools	•HyperTerminal used for logging through the CLI. •TFTP, SFTP, and FTP tools: used for loading software. •Client software key generator Puttygen.exe, client software key convertor sshkey.exe and SSH client software putty.exe: used for through the SSH.

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Preparing Tools

Cables	One RS-232 serial port	Used to connect the maintenance terminal to the OLT / for maintenance through the serial port.	
	One crossover cable	Used to connect the maintenance terminal to the OLT / for maintenance through telnet.	
	Some optical fibers and patch cords with different connectors	Used for the upstream transmission and optical power test.	

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Preparing Tools

Maintenance terminal	One maintenance terminal configured with a HyperTerminal application, such as a laptop	Used to log in to the OLT / to commission the OLT /.

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Preparing Tools

Auxiliary device and meter	One optical power meter	Used to test the mean launched power and the input optical power of an optical port.
	One optical attenuator	Used to attenuate the input optical signal. It is used to protect the optical port from being damaged by intense optical signals during the device commissioning.
	One multimeter	Used to measure the vOLT age, resistance and current intensity during the power commissioning.

Preparing Tools

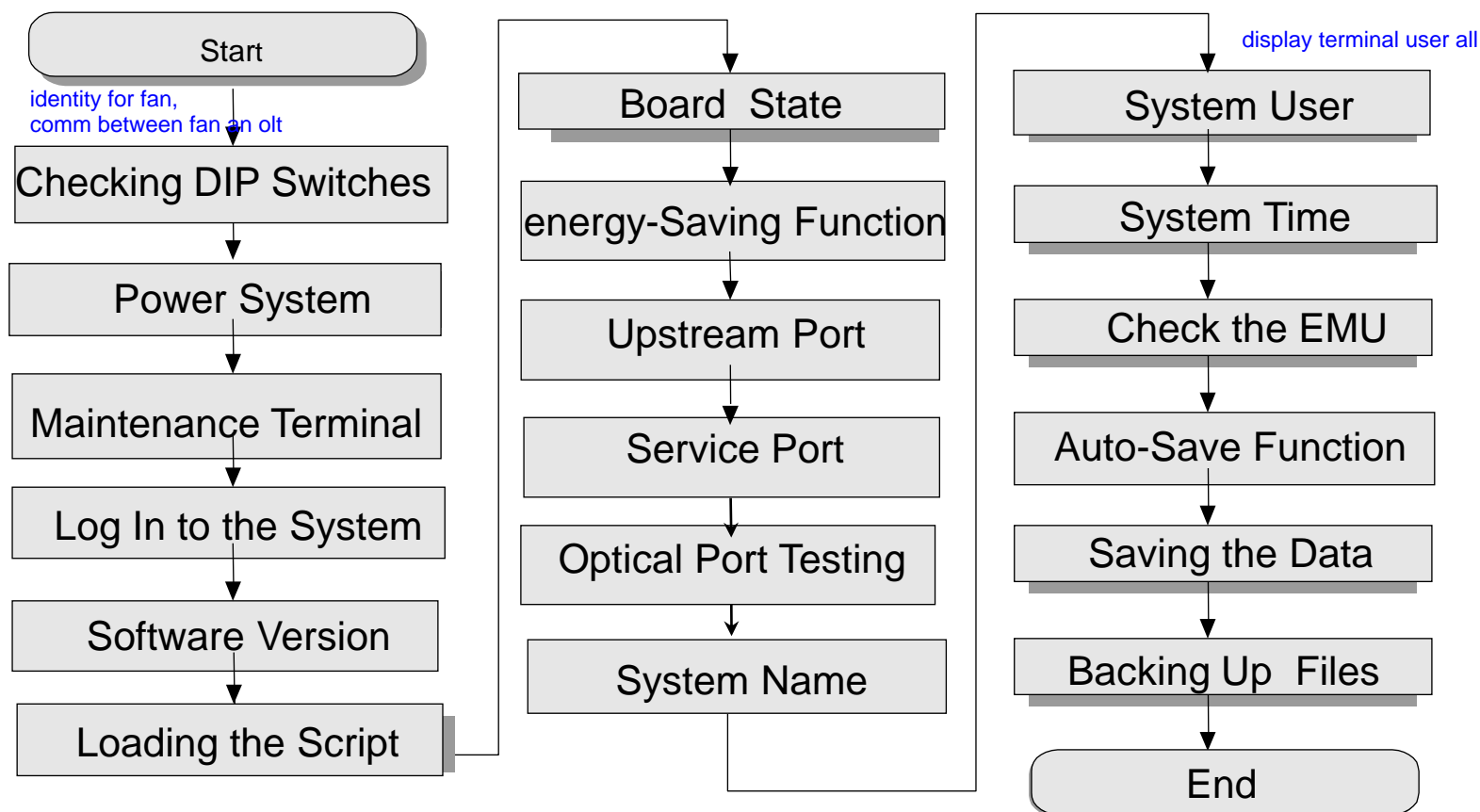|		
Auxiliary device and meter	One optical multiplexer /demultiplexer	Used to test the input optical power of a single-fiber bi-directional optical port. It is a meter with the multiplexing and demultiplexing functions.
	One data network performance analyzer	Used to test the input optical power. It is used to transmit data to simulate the networking environment.

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Planning Data

display board 0

Hardware configuration	This includes but is not limited to the following: •Types and slot distribution of the control board and service boards •Types and physical positions of the upstream ports and the service ports
Networking and data plan	This includes but is not limited to the following: •Networking mode display interface •IP address assignment •VLAN planning display vlan all display specifiek vlan

Contents

HUAWEI

Stand-alone Commissioning

Start

identity for fan,
comm between fan an olt

Checking DIP Switches

↓

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Log In to the System

↓

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↓

Loading the Script

Board State

↓

energy-Saving Function

↓

Upstream Port

↓

Service Port

↓

Optical Port Testing

↓

System Name

display terminal user all

System User

↓

System Time

↓

Check the EMU

↓

Auto-Save Function

↓

Saving the Data

↓

Backing Up Files

↓

End

Checking the DIP Setting on the ESC

H801ESCA
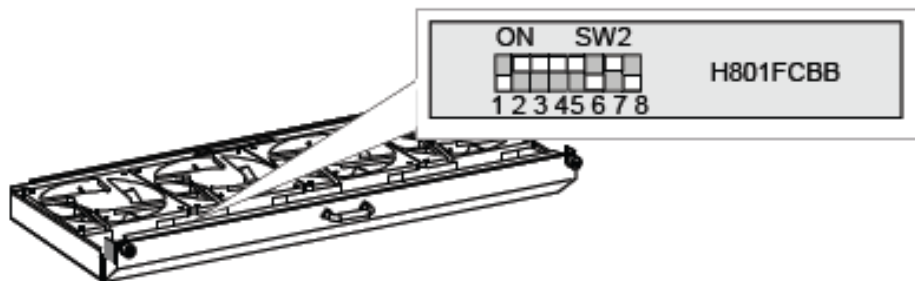
DIP		Description
S5	S5-1—S5-4	Used to set the external sensor of the JTA1-JTA4 as the voltage type or the current type. • ON indicates the external sensor is of the current type. • OFF indicates the external sensor is of the voltage type.
S6	S6-1—S6-5	Used to set the corresponding sub-node addresses of the system configuration so as to ensure that the communication is in the normal state. • ON matches 0. • OFF matches 1. The sequence is 5, 4, 3, 2 and 1. The default sub-node address is 01111 (15).
	S6-6—S6-7	Used to reserve.
	S6-8	Used to set the baud rate of the communication between the ESC and the control board. • ON indicates the baud rate is 19200 bit/s. • OFF indicates the baud rate is 9600 bit/s.

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Checking the DIP Setting on the ESC


```
┌─────────────┐
│    Start    │
└──────┬──────┘
       ▼
┌─────────────────────┐
│ Unplug the EMU cables│
└──────┬──────────────┘
       ▼
┌─────────────────────┐
│  Unfasten the screw  │
│   on the ESC panel   │
└──────┬──────────────┘
       ▼
┌─────────────────────┐
│ Unplug the EMU board │
└──────┬──────────────┘
       ▼
┌─────────────────────┐
│  Check the DIP setting│
└──────┬──────────────┘
       ▼
┌─────────────────────┐
│  Plug the ESC panel  │
└──────┬──────────────┘
       ▼
┌─────────────────────┐
│  Fasten the screw on │
│    the ESC panel     │
└──────┬──────────────┘
       ▼
┌─────────────────────┐
│   Restore the EMU    │
│  cable connection    │
└──────┬──────────────┘
       ▼
┌─────────────┐
│     End     │
└─────────────┘
```
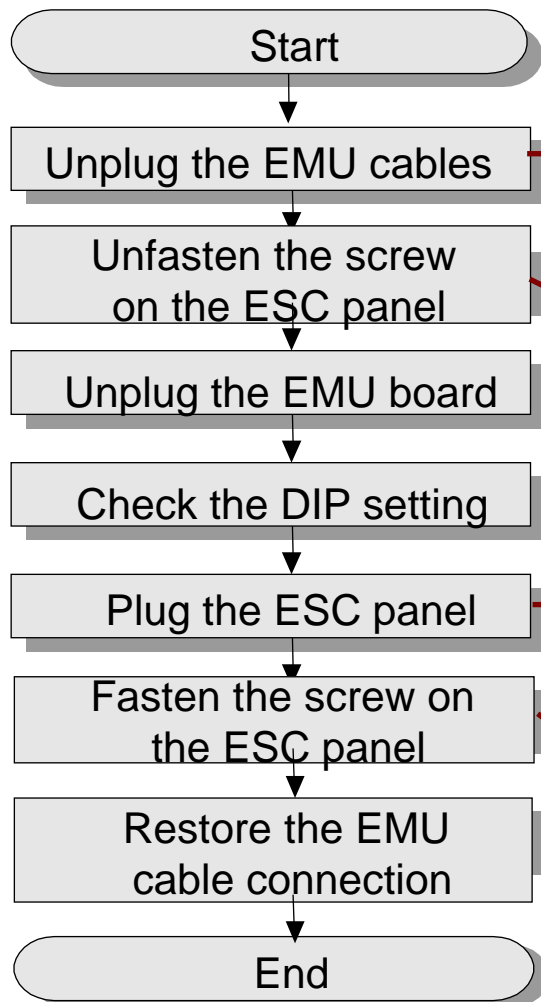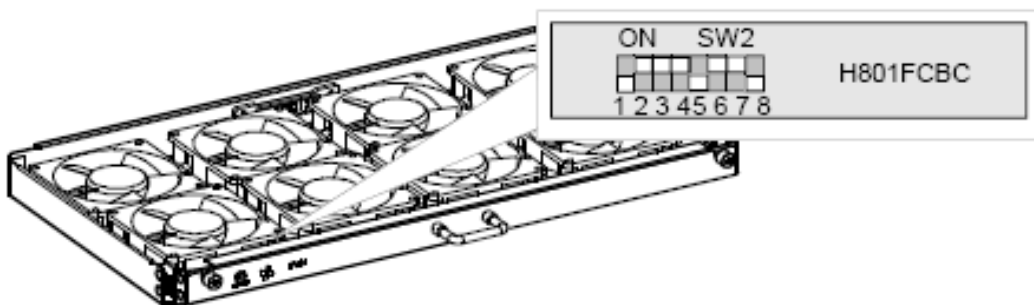
Checking the DIP Setting on the Fan

- The fan monitors include:FCBB, FCBC and FCBD

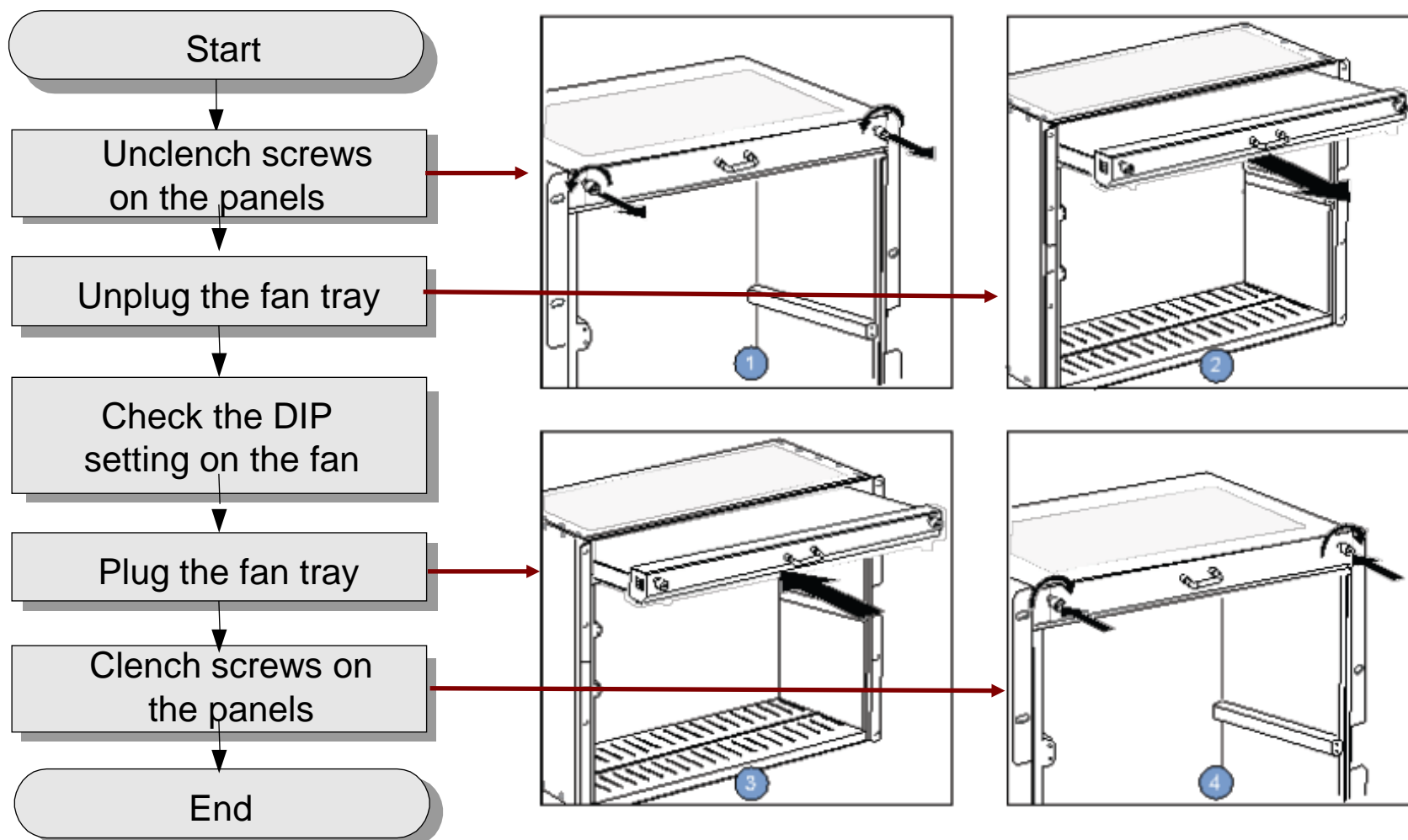 - FCBB and FCBD for the ETSI device

  - FCBC for the 19-inch service device
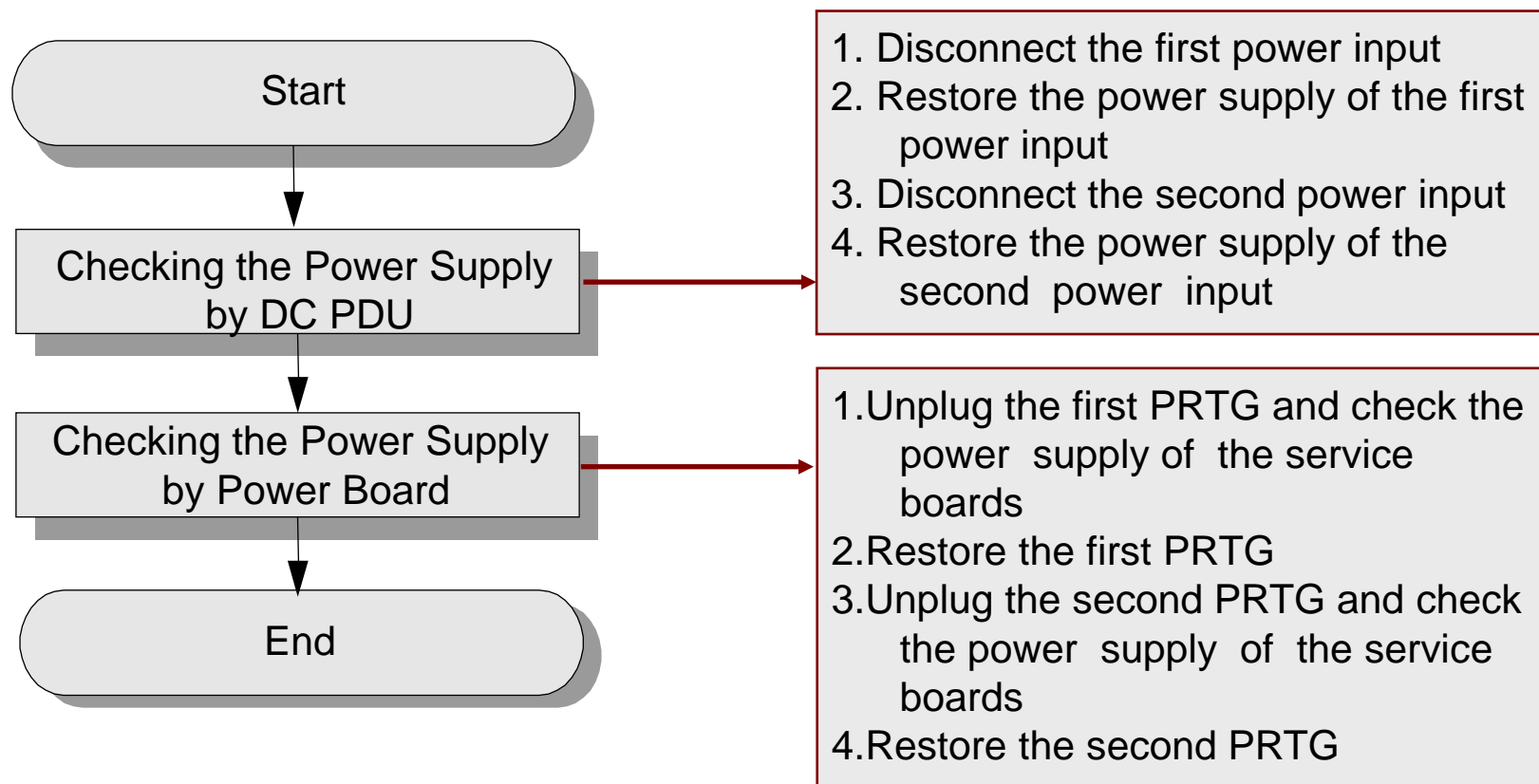
Checking the Settings of DIP Switches

DIP Switch	Default Setting in the ESTI Fan Tray	Default Setting in the 19-Inch Fan Tray	Description
SW2-1	OFF	OFF	Used to set the sub-node address corresponding to the system configuration to ensure that the communication is in the normal state. •ON: The mapping address bit is 0. •OFF: The mapping address bit is 1. By default, the address value is 1.
SW2-2	ON	ON	
SW2-3	ON	ON	
SW2-4	ON	ON	•Used to set the baud rate of the communication between the fan tray and the control board.ON:The baud rate is 19200bit/s. •OFF: The baud rate is 9600 bit/s.
SW2-5	ON	OFF	Used to set the quantity of the fans.
SW2-6	OFF	ON	
SW2-7	ON	ON	Used to set the fan speed adjustment mode.
SW2-8	OFF	OFF	

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Checking the DIP Setting on the Fan

Commissioning the Power System

```
┌─────────────────┐
│      Start       │
└─────────────────┘
         │
         ▼
┌─────────────────┐        ┌──────────────────────────────────────┐
│ Checking the     │───────▶│ 1. Disconnect the first power input   │
│ Power Supply     │        │ 2. Restore the power supply of the first│
│ by DC PDU        │        │     power input                        │
└─────────────────┘        │ 3. Disconnect the second power input   │
         │                  │ 4. Restore the power supply of the     │
         ▼                  │     second  power  input               │
┌─────────────────┐        └──────────────────────────────────────┘
│ Checking the     │
│ Power Supply     │───────▶┌──────────────────────────────────────┐
│ by Power Board   │        │ 1.Unplug the first PRTG and check the │
└─────────────────┘        │     power  supply of  the service      │
         │                  │     boards                             │
         ▼                  │ 2.Restore the first PRTG               │
┌─────────────────┐        │ 3.Unplug the second PRTG and check     │
│      End         │        │     the power  supply  of  the service │
└─────────────────┘        │     boards                             │
                            │ 4.Restore the second PRTG              │
                            └──────────────────────────────────────┘
```
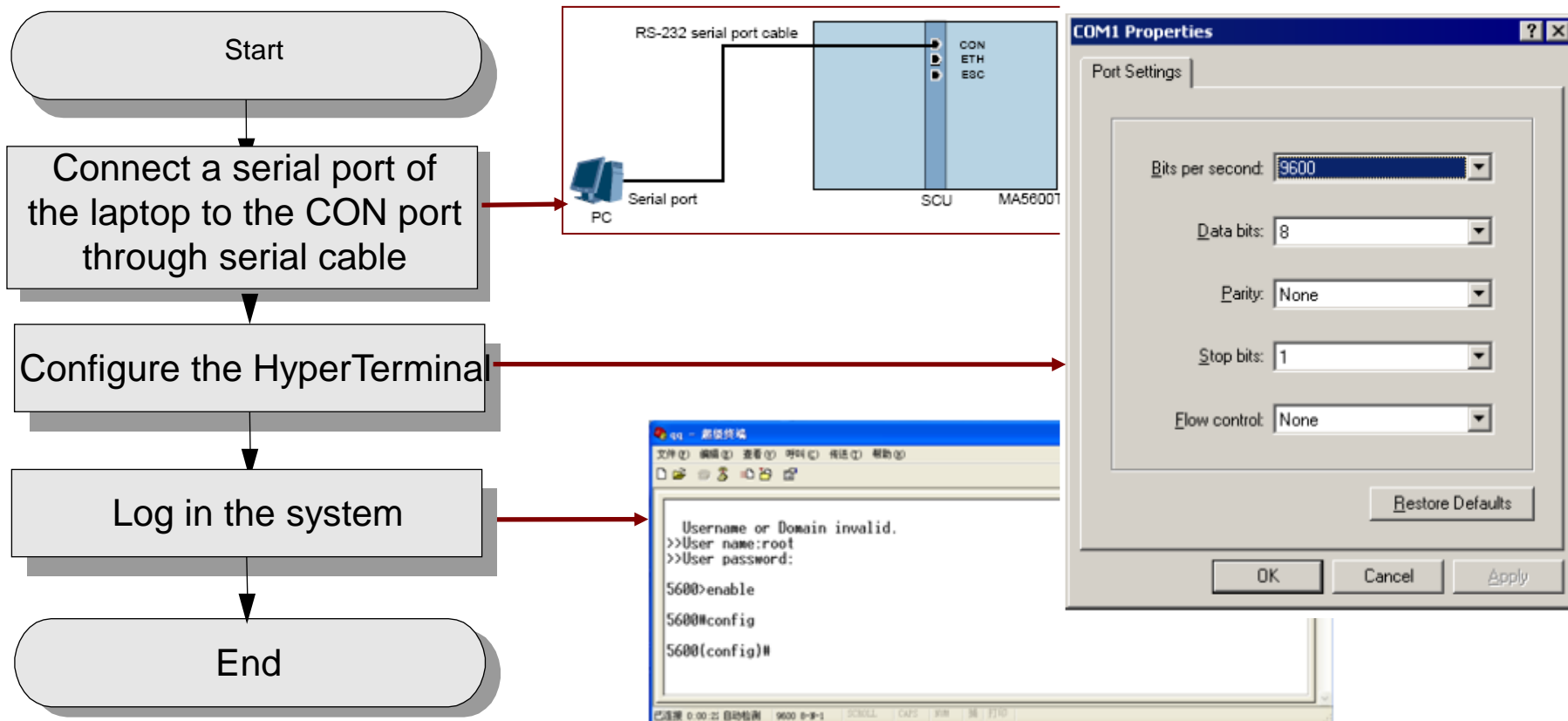
HUAWEI

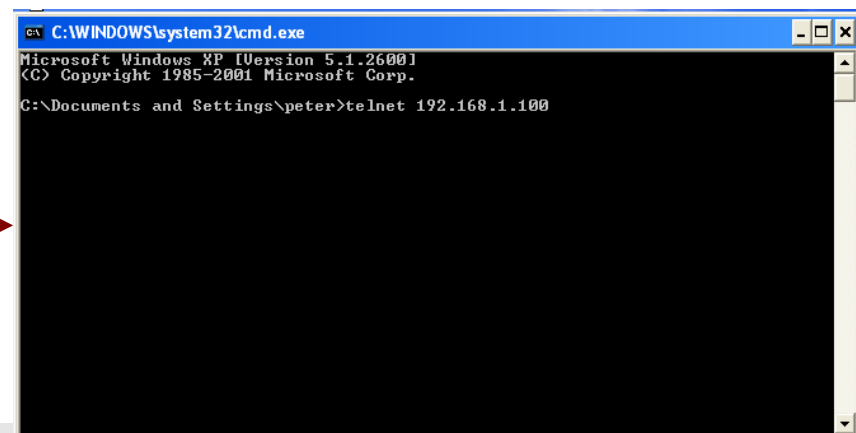# Configuring the Maintenance Terminal
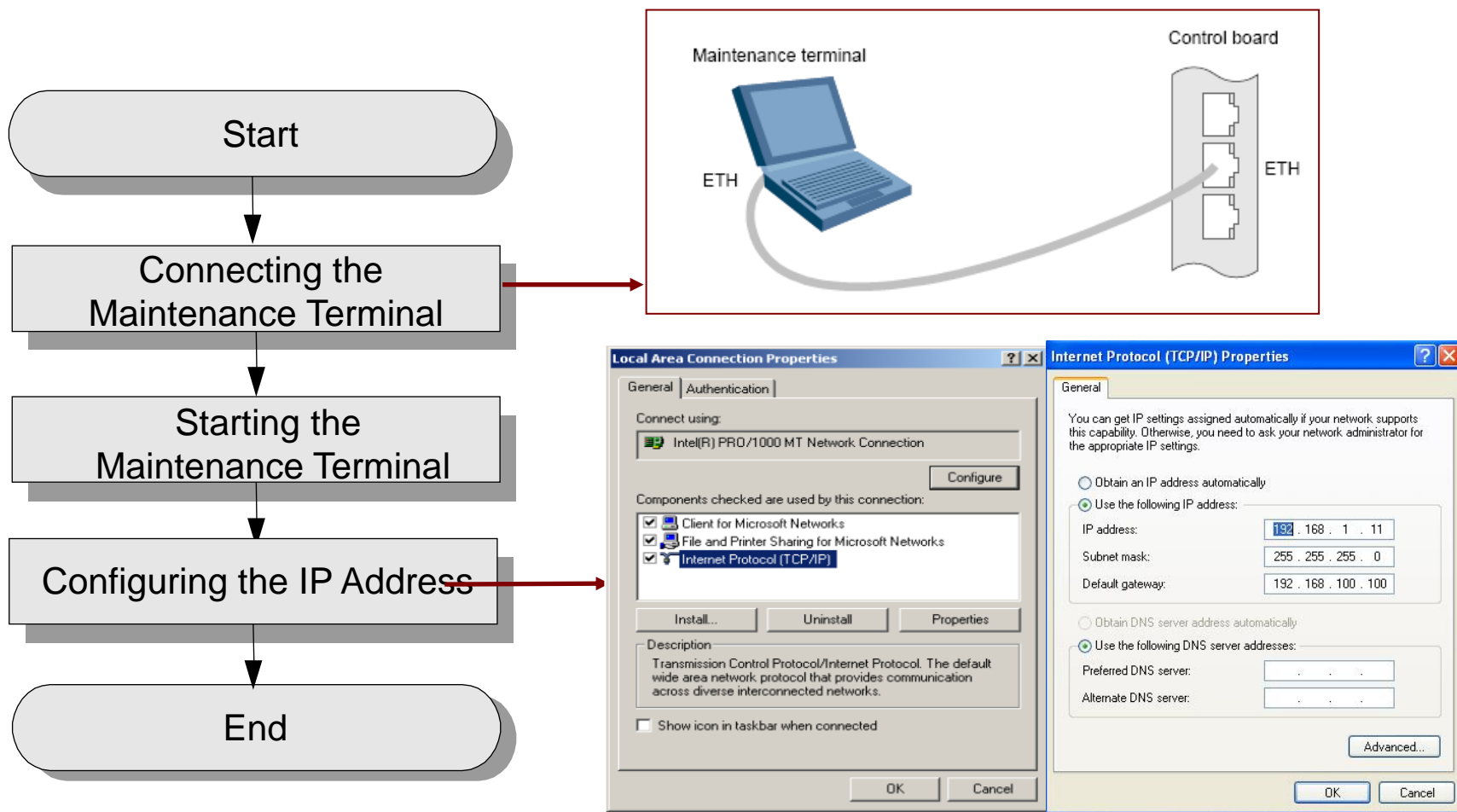
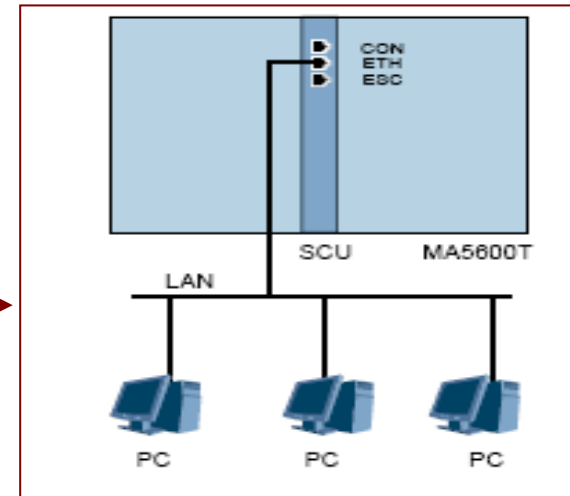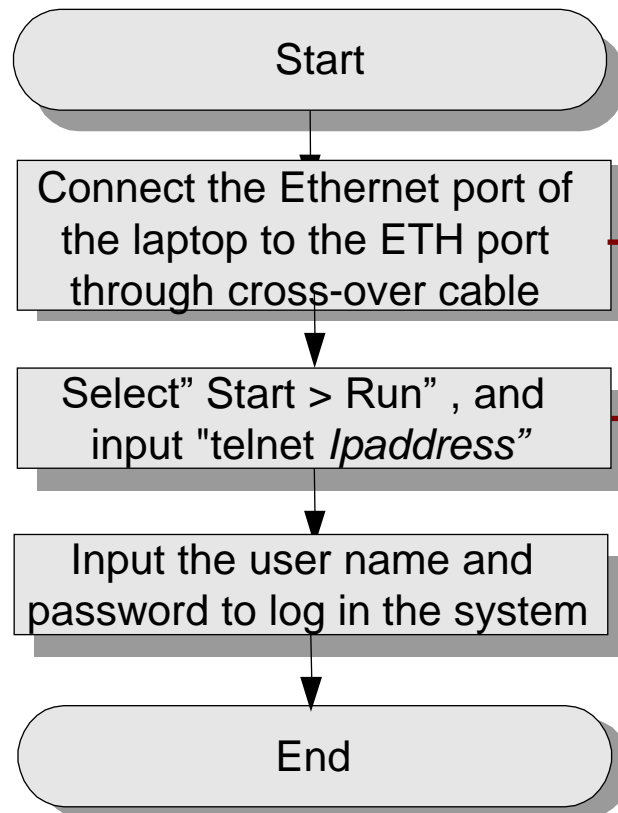# Logging in to the System
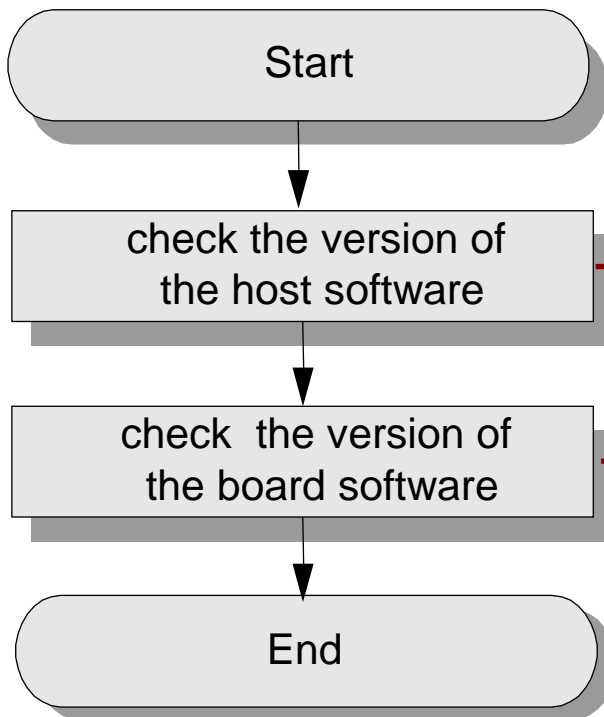
- **Logging in through the Serial Port**

Logging in to the System

- **Logging in through the Network Port**


```
Start
  ↓
Connect the Ethernet port of
the laptop to the ETH port
through cross-over cable
  ↓
Select" Start > Run" , and
input "telnet Ipaddress"
  ↓
Input the user name and
password to log in the system
  ↓
End
```


CON
ETH
ESC

SCU   MA5600T

LAN

PC   PC   PC

```
C:\WINDOWS\system32\cmd.exe

Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\peter>telnet 192.168.1.100
```

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Checking the Software Version

```
Start
  │
  ▼
check the version of
the host software
  │
  ▼
check the version of
the board software
  │
  ▼
End
```

```
huawei>display language
  Local:
      Description: CHINESE SIMPLIFIED (DEFAULT LANGUAGE)
      Version:       XXX
      Encoding:      GBK

  General:
      Description: ENGLISH (DEFAULT LANGUAGE)
      Version:       XXX
      Encoding:      ANSI
```

```
huawei>display version 0/3

  Command:
          display version 0/3
  Main Board: H801GPBC
  ----------------------------------------
  Pcb    Version: H801GPBC VER B
  Mab    Version: 0000
  Logic Version: (U22)000(U23)115(U24)115(U5)013

  Main CPU :
  CPU    Version: (U35)MPC8349
  APP    Version: 888(2011-5-17)
  BIOS   Version: (U20)303
```

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Loading the Script

- **Prerequisites**

  - The hardware must be installed and checked.

  - The script file must be ready.

  - The operator must be in the privilege mode.

- **Procedure**

  - Open the script file and copy all the commands to the CLI.

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Configuring a Board

- Adding a Board Offline

  ▫ huawei(config)#**board add 0/2 H901GPSF**

  0 frame 2 slot board added successfully

- Confirming a Board

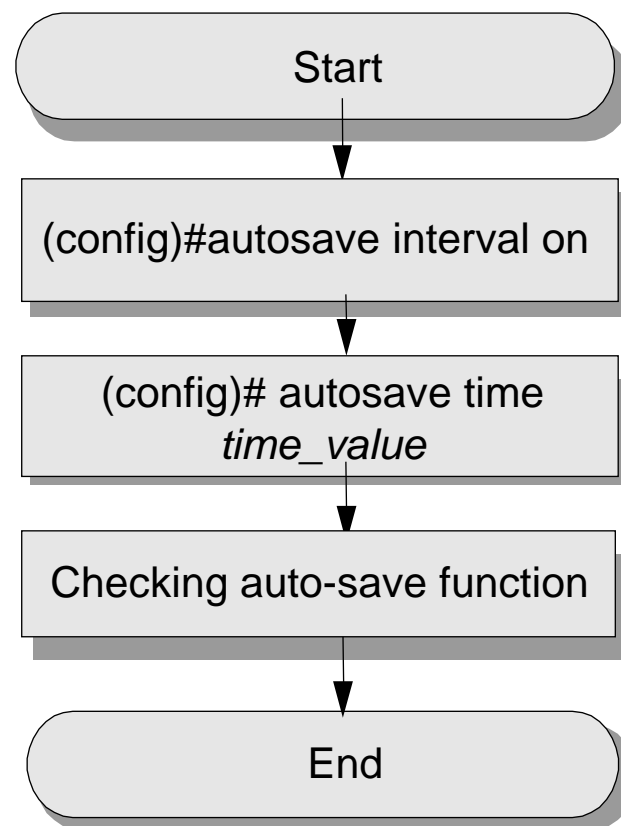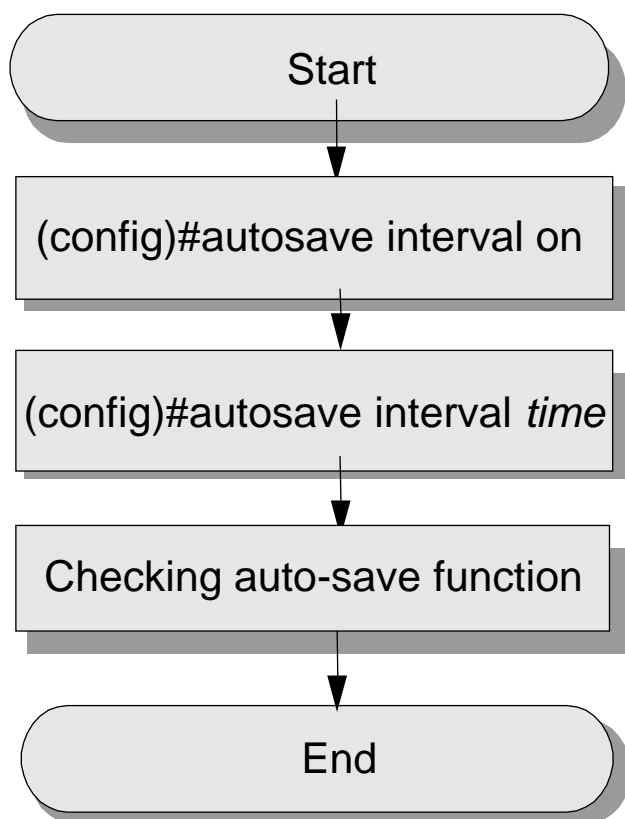 ▫ huawei(config)#**board confirm 0/2**

- Checking the Board Status

  ▫ huawei(config)#**display board 0**

  check whether the board works in the normal state.

Checking the Auto-Save Function

- The OLT supports two auto-save modes.
  - Auto saving at certain intervals
  - Auto saving based on a fixed time

Start	Start
(config)#autosave interval on	(config)#autosave interval on
(config)#autosave interval *time*	(config)# autosave time *time_value*
Checking auto-save function	Checking auto-save function
End	End

Checking the Upstream Port Status

- Control board is adopted for upstream transmission

  - huawei(config)#**interface mpu** *0/9*

  - huawei(config-if-scu-0/9)# **display port state all**

- Upstream board is adopted for upstream transmission

  - huawei(config)#**interface eth** *0/19*

  - huawei(config-if-eth-0/19)# **display port state all**
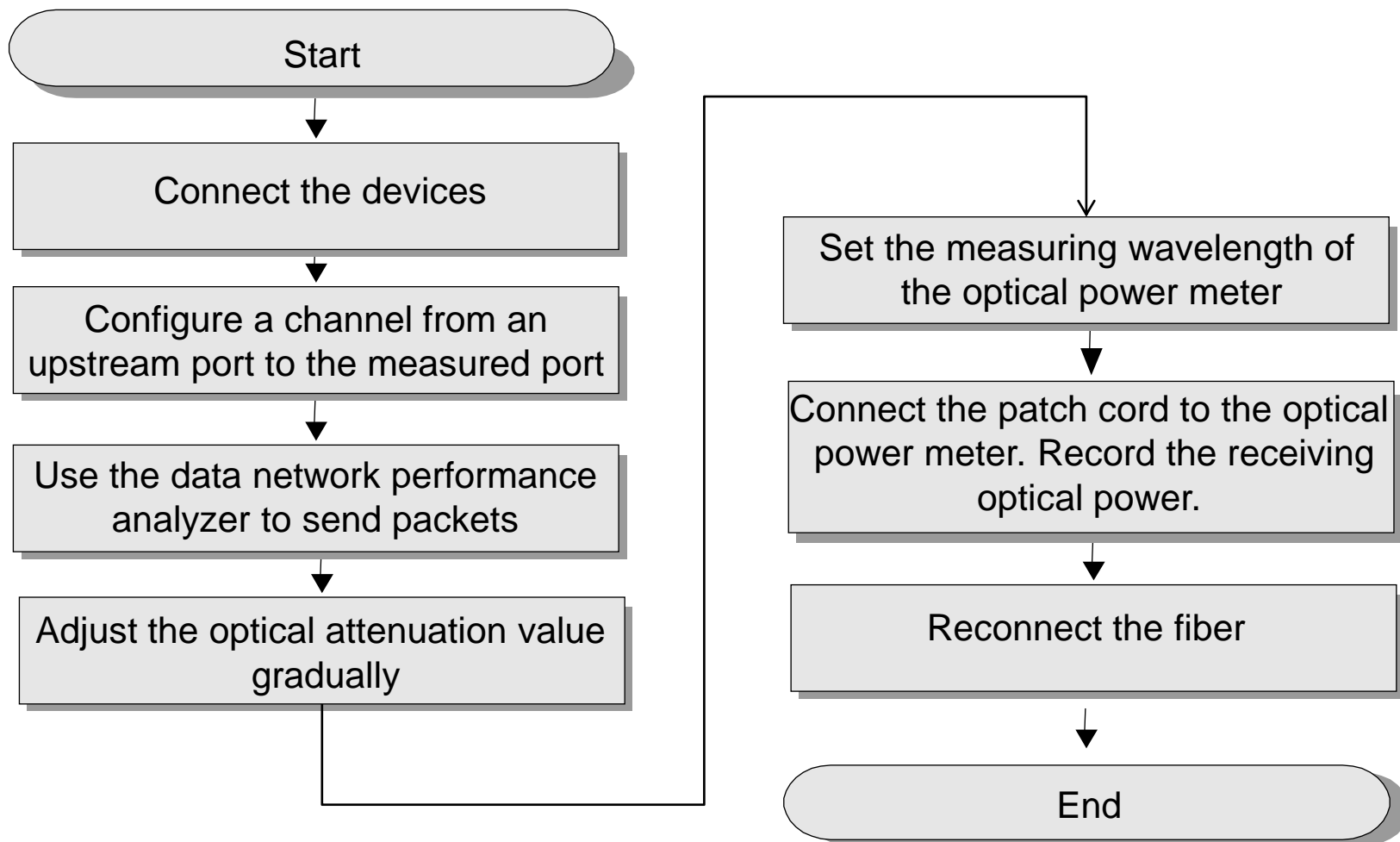
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Checking the Service Port Status

- MA5680T(config-if-gpon-0/15)#**display port state all**
  - --
  - F/S/P   0/15/0
  - Port state   **On**
  - Laser state   **Normal**
  - Available bandwidth(Kbps) 1240576
  - Temperature(C)   70
  - TX Bias current(mA)   16
  - Supply VOLT age(V)   3.24
  - TX power(dBm)   3.14
  - RX power   Not support
  - Illegal rogue ONT   Inexistent
  - Max Distance(Km)   20
  - Wave Length(nm)   1490
  - Fiber type   Single Mode
  - Length(9um)(km)   20.0
  - --
  - F/S/P   0/15/1
  - Port state   **On**
  - Laser state   **Normal**
  - …

Checking the Receiving Optical Power
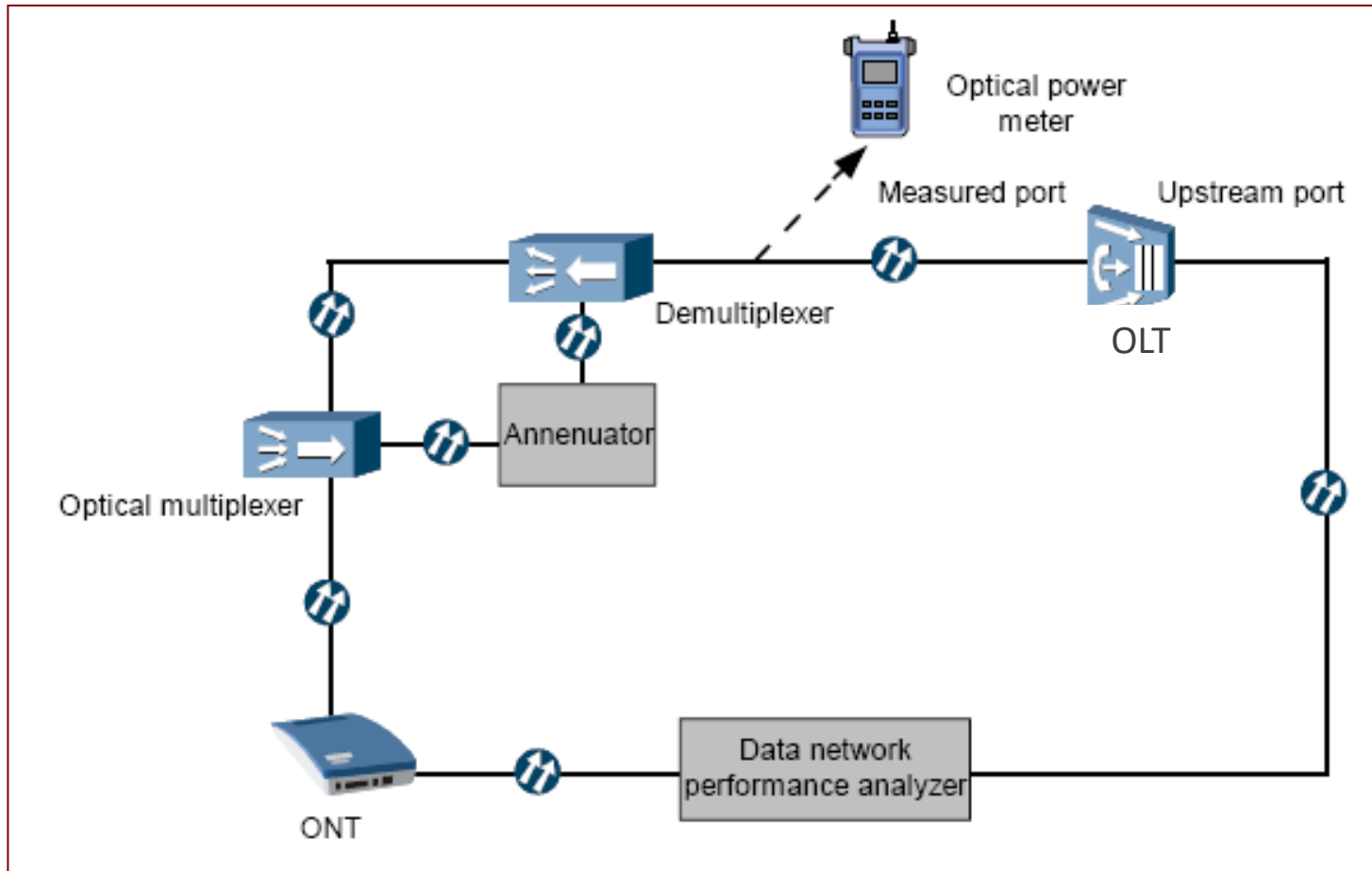
Checking the Receiving Optical Power

Changing the System Name

- Command

OLT (config)#**sysname prompt**

- Example

To change the system name to HUAWEI, do as following

OLT (config)#**sysname HUAWEI**

HUAWEI(config)#

Configuring a System User

- Adding a System User

huawei(config)#**terminal user name**

User Name(length<6,15>):**huawei**

User Password(length<6,15>):**test01**//The password is not displayed on the console.

Confirm Password(length<6,15>):**test01**//The password is not displayed on the console.

User profile name(<=15 chars)[root]:

User's Level: 1. Common User 2. Operator:1 Permitted Reenter Number(0--4):3

User's Appended Info(<=30 chars):

user Adding user succeeds

Repeat this operation? (y/n)[n]:**n**

Configuring the System Time

OLT (config)#**display time**

Command:

display time

2009-05-02 02:26:39+08:00

OLT (config)#**time**

{ date<D><yyyy-mm-dd>|dst<K>|time<T><hh:mm:ss>|time-stamp<K> }:**11:15:59**

{ <cr>|date<D><yyyy-mm-dd> }:**2012-06-11**

Command: time 11:15:59 2006-09-11

Check the EMU State

emu o is de fan unit

- Command

OLT (config)#**display EMU**

- Example

```
Command:
        display emu
EMU parameter
-----------------------------------------------------------------------------------
  ID  Type                    State    |  ID  Type                    State
-----------------------------------------------------------------------------------
  O   FAN                     normal   |  1   H9O1VESC                fault
  2   -                       -        |  3   -                       -
  4   -                       -        |  5   -                       -
  6   -                       -        |  7   -                       -
  8   -                       -        |  9   -                       -
  10  -                       -        |  11  -                       -
  12  -                       -        |  13  -                       -
  14  -                       -        |  15  -                       -
  16  -                       -        |  17  -                       -
  18  -                       -        |  19  -                       -
  20  -                       -        |  21  -                       -
  22  -                       -        |  23  -                       -
  24  -                       -        |  25  -                       -
  26  -                       -        |  27  -                       -
  28  -                       -        |  29  -                       -
  30  -                       -        |  31  -                       -
  32  -                       -        |  33  -                       -
  34  -                       -        |  35  -                       -
  36  -                       -        |  37  -                       -
  38  -                       -        |  39  -                       -
  40  -                       -        |  41  -                       -
  42  -                       -        |  43  -                       -
  44  -                       -        |  45  -                       -
  46  -                       -        |  47  -                       -
  48  -                       -        |  49  -                       -
  50  -                       -        |  51  -                       -
  52  -                       -        |  53  -                       -
  54  -                       -        |  55  -                       -
  56  -                       -        |  57  -                       -
  58  -                       -        |  59  -                       -
  60  -                       -        |  61  -                       -
  62  -                       -        |  63  -                       -
-----------------------------------------------------------------------------------
```

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Checking the Auto-Save Function

- To enable the function of   auto-save

huawei#**autosave interval on**

System autosave interval switch: on Autosave interval: 1440 minutes

Autosave type: data

System autosave modified configuration switch: on

Autosave interval: 30 minutes Autosave type: data

- To set the interval to 1600 minutes

huawei#**autosave interval**

{configuration<K>|time<U><10,10080>|value<E><on,off> }:**1600**

Command: autosave interval 1600

System autosave interval switch: on

Autosave interval: 1600 minutes

Autosave type: data

Saving Data

huawei#**save**

{ <cr>|configuration<K>|data<K> }:

   Command: save

It will take several minutes to save configuration file, please wait...

Configuration file had been saved successfully

Note: The configuration file will take effect after being activated

The data is being saved, please wait a moment...

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Backup the Data

- Backing Up System Files

  The application program that is used for backing up the system file is installed

  on the maintenance terminal, such as the TFTP, SFTP, or FTP program.

- To back up the database file to the TFTP server (IP address: 10.10.1.2) through

  TFTP, and name the file 2021060101.txt

  huawei#**backup data tftp 10.10.1.2 2021060101.txt**

- To back up the configuration file to the TFTP server (IP address: 10.10.1.2)

  through TFTP, and name the file 2021060102.txt

  huawei#**backup configuration tftp 10.10.1.2 2021060102.txt**

Questions

- Q:How to check the software version ?

  display ver

- .

- Q:How to backup the data?

  backup data

Contents

HUAWEI

Commissioning Outband Management

BMS U2000/NCE-FAN
10.10.1.10/24

10.50.1.1/24 Router

VLAN 1000
10.50.1.10/24

MPU OLT
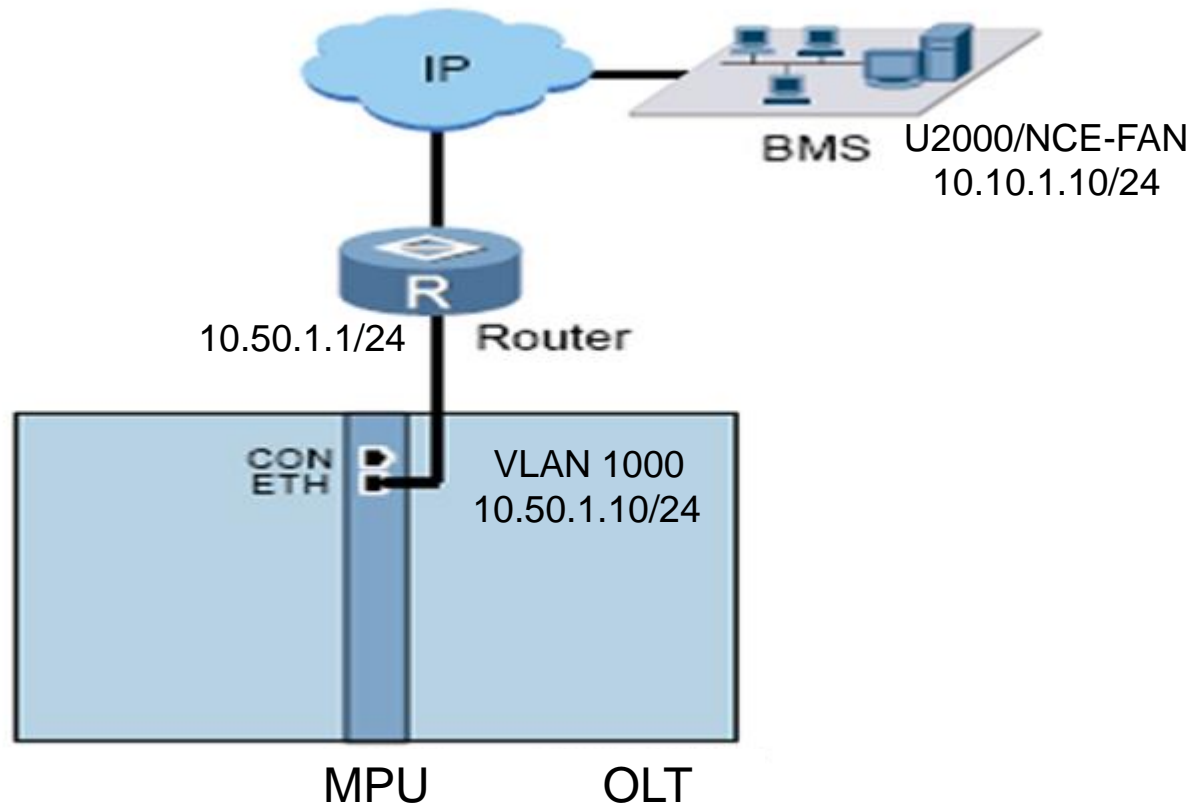
Commissioning Outband Management

1. Configure the IP address of the maintenance Ethernet port.

huawei(config)#**interface meth 0**

huawei(config-if-meth0)#**ip address 10.50.1.10 255.255.255.0**

huawei(config-if-meth0)#**quit**

2. Add a route for the outband network management

huawei(config)#**ip route-static 10.10.1.0 24 10.50.1.1**

Commissioning Outband Management

3. Set the SNMP parameters.

huawei(config)#**snmp-agent community read public**

huawei(config)#**snmp-agent community write private**

huawei(config)#**snmp-agent sys-info version v2c**

Optional

huawei(config)#**snmp-agent sys-info contact HW-075528780808**

huawei(config)#**snmp-agent sys-info location Shenzhen_China**

Commissioning Outband Management

4. Enable the function of sending traps

huawei(config)#**snmp-agent trap enable standard**

5. Configure the IP address of the destination host for the traps.

huawei(config)#**snmp-agent target-host trap-hostname huawei address 10.10.1.10 trap-paramsname ABC**

huawei(config)#**snmp-agent target-host trap-paramsname ABC v2c securityname private**

HUAWEI

Commissioning Outband Management

6. Set the IP address of the maintenance Ethernet port as the source IP address for sending traps.

huawei(config)#**snmp-agent trap source meth 0**

7. Save the data

huawei(config)#**save**

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Commissioning Inband Management
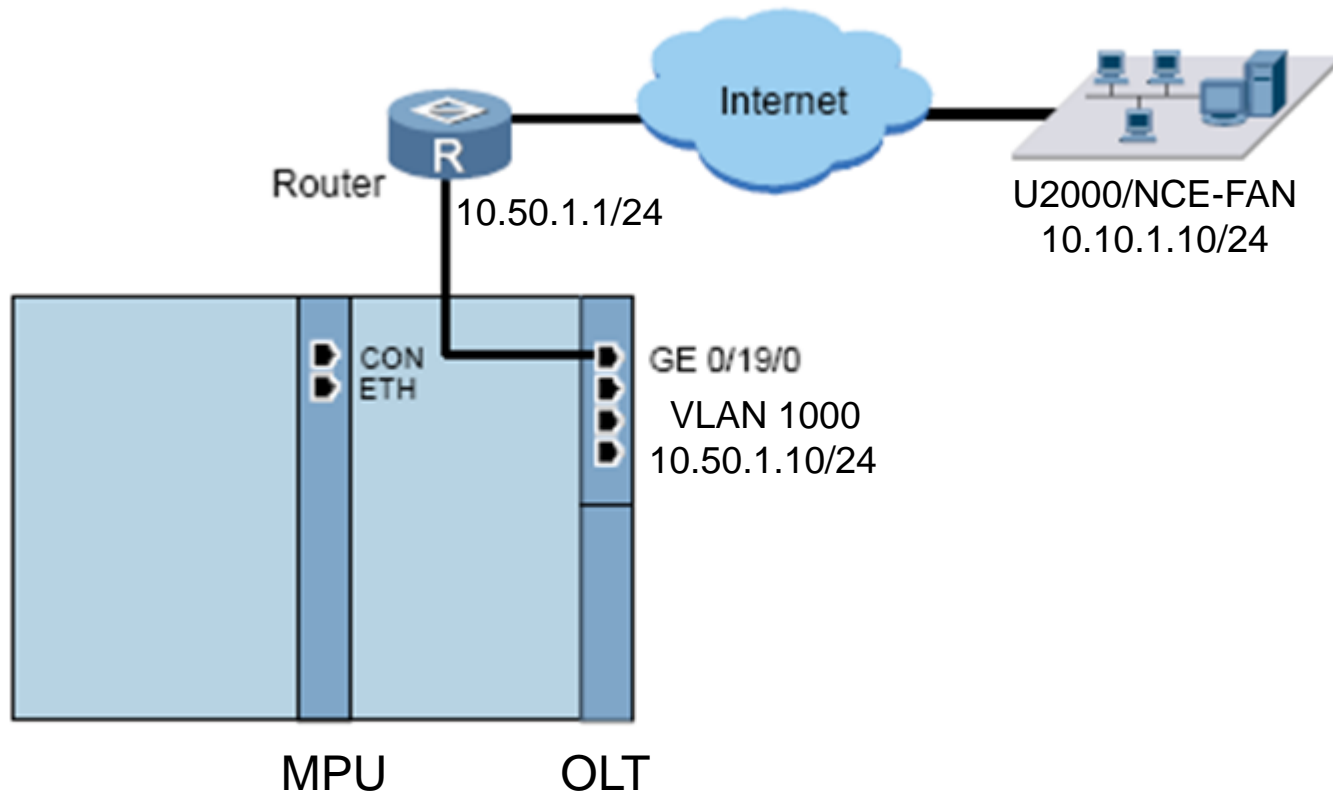
Commissioning Inband Management

1. Configure the IP address of the inband network management port. The upstream port is 0/19/0

    huawei(config)#**vlan 1000 smart**

    huawei(config)#**port vlan 1000 0/19 0**

    huawei(config)#**interface vlanif 1000**

    huawei(config-if-vlanif1000)#**ip address 10.50.1.10 255.255.255.0**

    huawei(config-if-vlanif1000)#**quit**

Commissioning Inband Management

- Step 2, 3, 4 and 5 are the same as outband management.

- Step 6: Configure the IP address of the VLAN interface as the source address for sending traps.

  huawei(config)#**snmp-agent trap source vlanif 1000**

- Step 7: Save the data

  huawei(config)#**save**

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Questions

- Q:How to commission the outband management ?
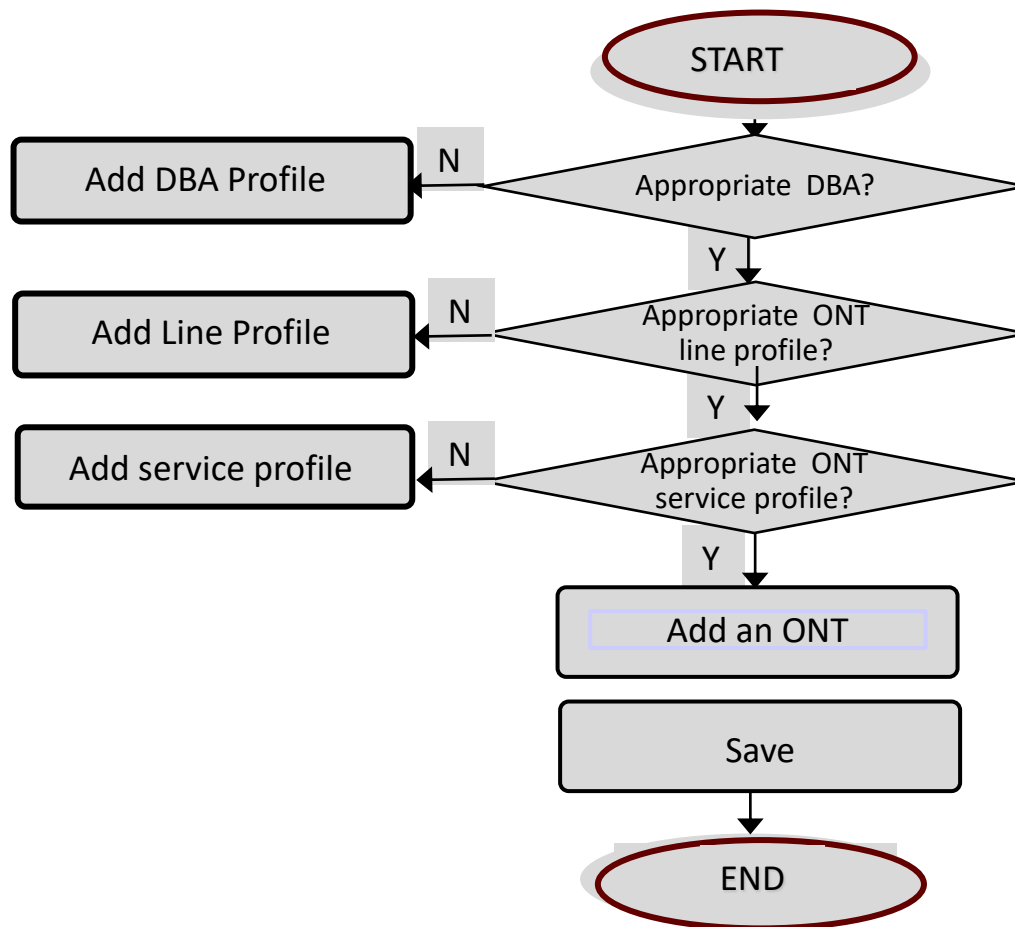
    ip for meth 0 port
    route netw en gatway

Contents

Commissioning the Management Channel Between OLT and ONT
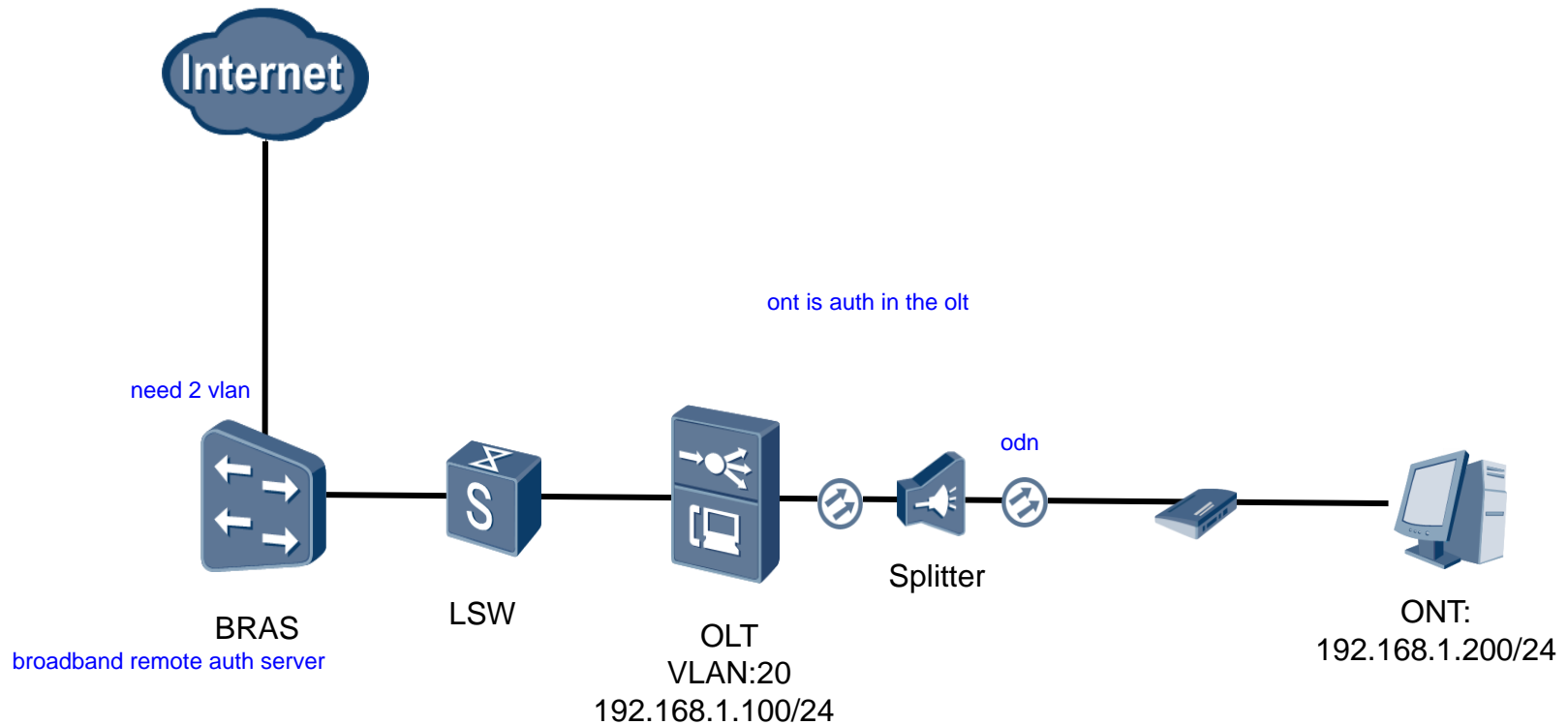
Commissioning the Management Channel Between OLT and ONT

Commissioning the Management Channel Between OLT and ONT

display dba-profile all

default 0-9 =10

1. Add a DBA profile

huawei(config)#**dba-profile add profile-id 12 type1 fix 10240**

2. Add an ONT line profile

huawei(config)#**ont-lineprofile gpon profile-id 5**

huawei(config-gpon-lineprofile-5)#**tcont 1 dba-profile-id 12**

huawei(config-gpon-lineprofile-5)#**gem add 0 eth tcont 1**

huawei(config-gpon-lineprofile-5)#**gem mapping 0 0 vlan 20**

huawei(config-gpon-lineprofile-5)#**commit**

huawei(config-gpon-lineprofile-5)#**quit**

Commissioning the Management Channel Between OLT and ONT

3. Add an ONT service profile.

huawei(config)#**ont-srvprofile gpon profile-id 10**

huawei(config-gpon-srvprofile-10)#**ont-port eth 4 pots 2**

huawei(config-gpon-srvprofile-10)#**port vlan eth 1-4 20**

huawei(config-gpon-srvprofile-10)#**commit**

huawei(config-gpon-srvprofile-10)#**quit**

Commissioning the Management Channel Between OLT and ONT

4. Add an ONT.

huawei(config)#**interface gpon 0/2**

pon port
onu id   ont serial numr

huawei(config-if-gpon-0/2)#**ont add 0 0 sn-auth 323031314D4B2041**

in the work order

omci ont-lineprofile-id 5 ont-srvprofile-id 10

manage protocol for de ont
snmp for de mdu

huawei(config-if-gpon-0/2)#**quit**

After the commissioning is complete, you can maintain and manage the ONT on the OLT /
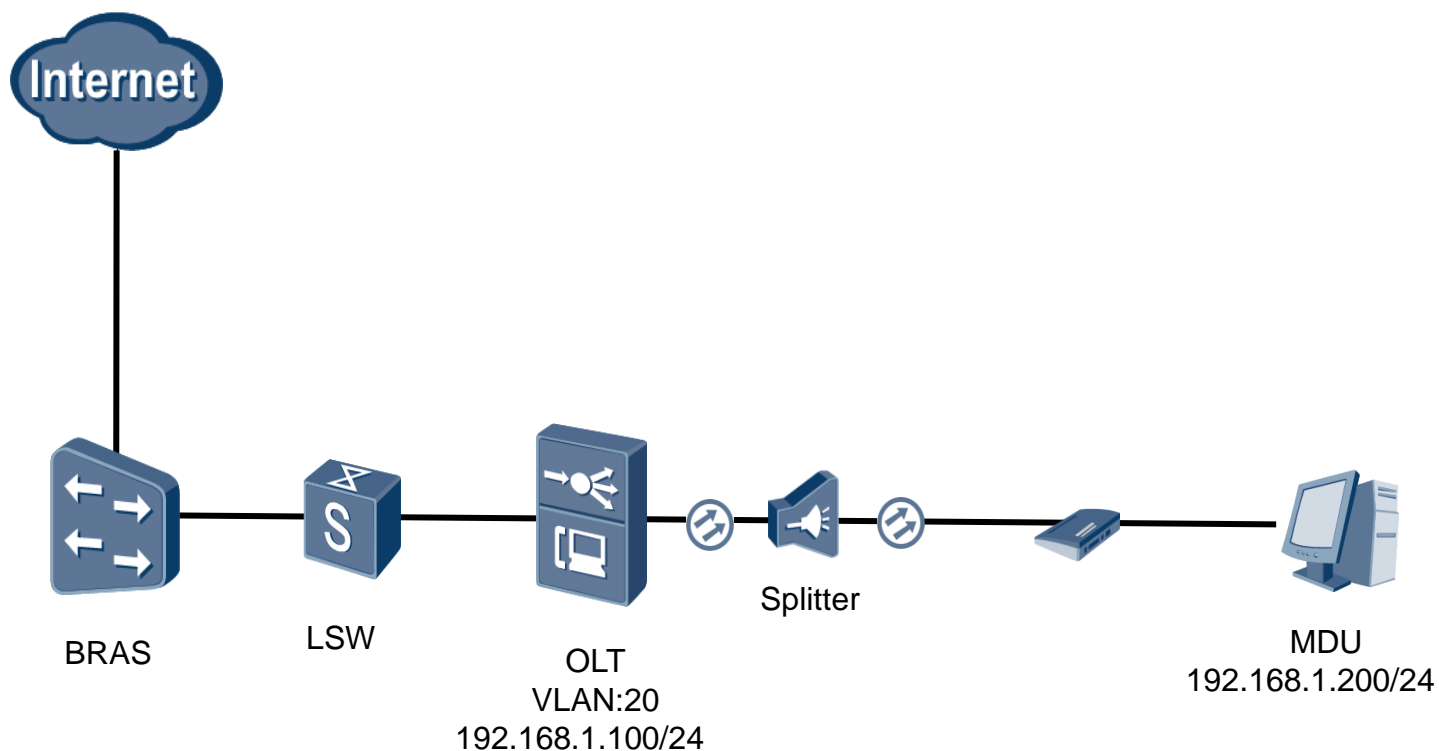
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Questions

- Q: How to config the management channel between OLT and
  ONT?   line, dba, service profile
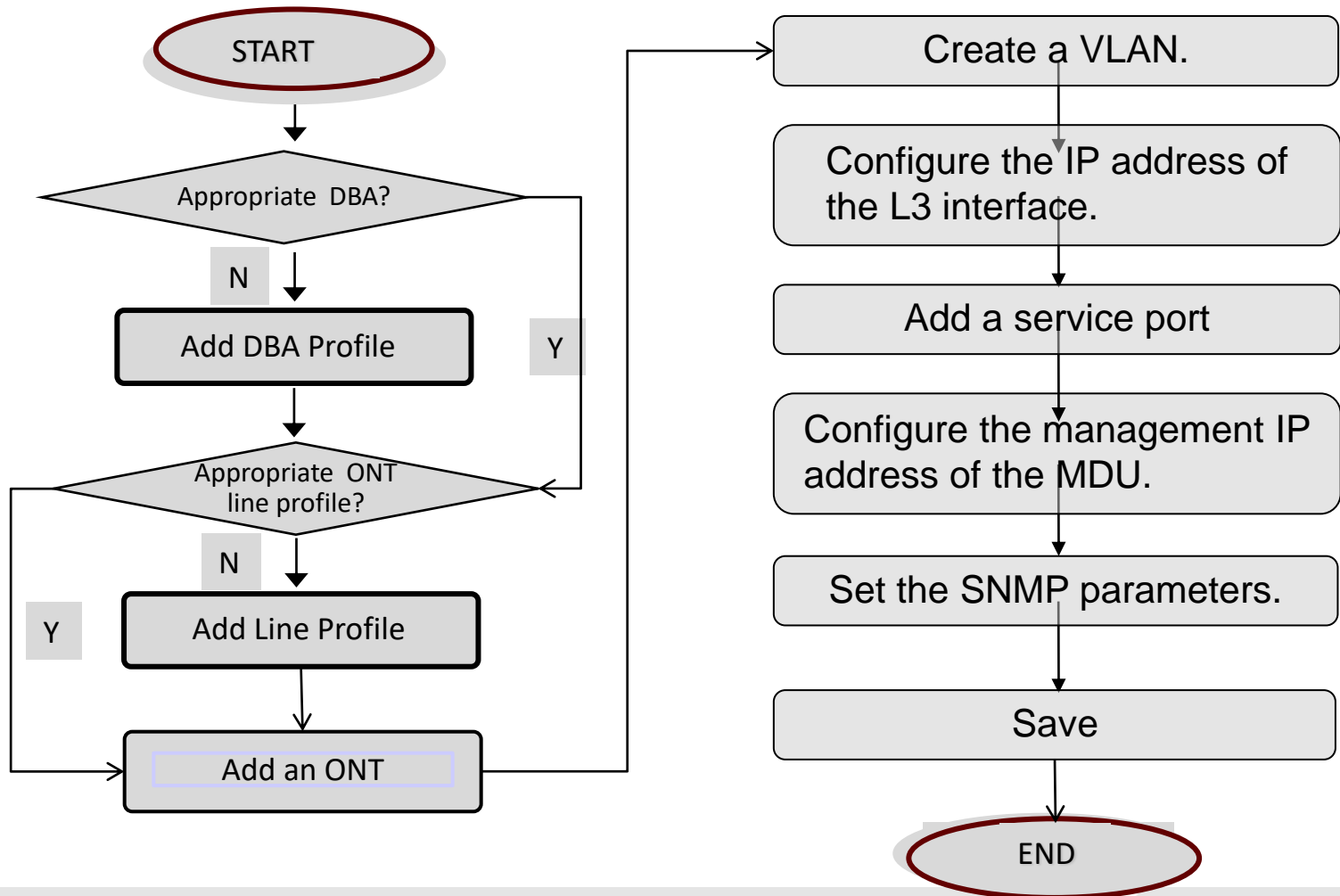
                         protocol omci or snmp
- .

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Commissioning the Management Channel Between OLT and MDU

START

Appropriate DBA? — N → Add DBA Profile

Y

Appropriate ONT line profile? — N → Add Line Profile

Y

Add an ONT

Create a VLAN.

Configure the IP address of the L3 interface.

Add a service port

Configure the management IP address of the MDU.

Set the SNMP parameters.

Save

END

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Commissioning Management Channel Between OLT and MDU

1、 Add a DBA profile.

> huawei(config)#**dba-profile add profile-id 12 type1 fix 10240**

2、 Configure an MDU line profile

display ont-lineprof....

> huawei(config)#**ont-lineprofile gpon profile-id 5**
>
> huawei(config-gpon-lineprofile-5)#**tcont 1 dba-profile-id 12**
>
> huawei(config-gpon-lineprofile-5)#**gem add 0 eth tcont 1**
>
> port   gem id
>
> huawei(config-gpon-lineprofile-5)#**gem mapping 0 0 vlan 20**
>
> gem mp conf
>
> huawei(config-gpon-lineprofile-5)#**commit**
>
> huawei(config-gpon-lineprofile-5)#**quit**

Commissioning Management Channel Between OLT and MDU

3、Add an MDU.

huawei(config)#**interface gpon 0/2**

huawei(config-if-gpon-0/2)#**ont add 0 0 sn-auth 32303131B39FD641**

snmp ont-lineprofile-id 5   no service profile , because is not and end device

Confirm an MDU

huawei(config)#**interface gpon 0/2**

huawei(config-if-gpon-0/2)#**ont Confirm 0 0 sn-auth**

32303131B39FD641 snmp ont-lineprofile-id 5

Commissioning Management Channel Between OLT and MDU

4、Create a VLAN. Add an upstream port to the .

> huawei(config)#**vlan 20 smart**
>
> huawei(config)#**port vlan 20 0/19 0**

5、Configure the IP address of the L3 interface.The L3 IP address is 192.168.1.100/24.

> huawei(config)#**interface vlanif 20**
>
> huawei(config-if-vlanif20)#**ip address 192.168.1.100 255.255.255.0**
>
> huawei(config-if-vlanif20)#**quit**

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Commissioning Management Channel Between OLT and MDU

6、 Add a service port to the VLAN.

physical

logical

huawei(config)#**service-port vlan 20 gpon 0/2/0 ont 0 gemport 0 multi-service user-vlan 20**

7、 Configure the management IP address of the MDU.

huawei(config-if-gpon-0/2)#**ont ipconfig 0 0 static ip-address 192.168.1.200 mask 255.255.255.0 vlan 20**

huawei(config-if-gpon-0/2)#**quit**

Commissioning Management Channel Between OLT and MDU

8、Set the SNMP parameters.

huawei(config)#**snmp-profile add profile-id 10 v2c public private**

10.10.1.10 162 private

huawei(config)#**interface gpon 0/2**

huawei(config-if-gpon-0/2)#**ont snmp-profile 0 0 profile-id 10**

huawei(config-if-gpon-0/2)#**ont snmp-route 0 0 ip-address 10.10.1.10**

mask 255.255.255.0 next-hop 192.168.1.101

huawei(config-if-gpon-0/2)#**quit**

9、Save the data.

huawei(config)#**save**

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Summary

- This document describes the commissioning of the basic functions provided by the device in terms of hardware, software, interconnection, and maintenance and management to ensure that the device runs in a stable and reliable state.

- This document describes the configuration procedures of various services。

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Thank you

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