# GPON Voice Service Provisioning and Configurations

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# Contents







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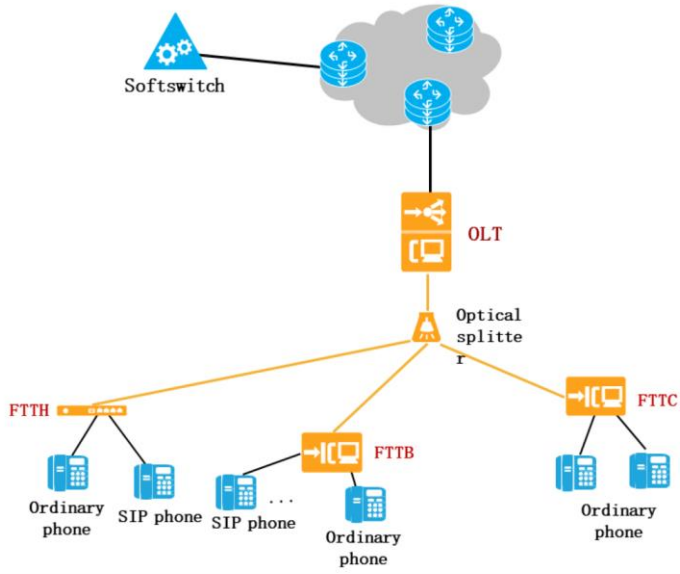
# VoIP Service Networking





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# Contents







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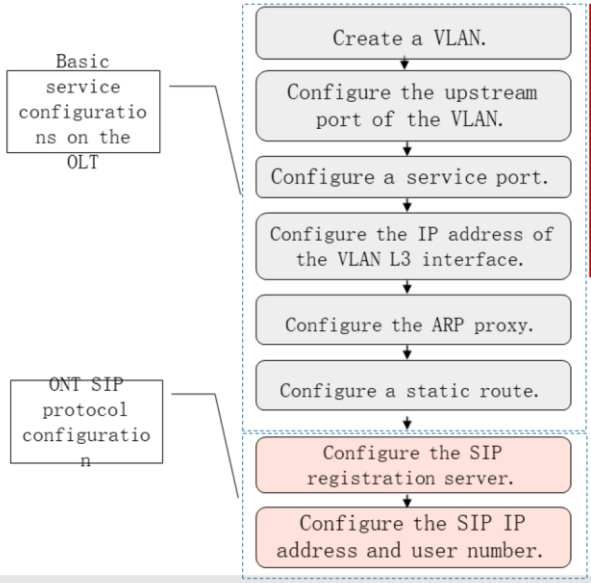
# Data Planning for the VoIP Service

| Configuration Item | Data |
| --- | --- |
| OLT service VLAN | 172, Smart |
| OLT upstream port | 0/19/0 |
| OLT downstream port | 0/3/0 |
| ONT ID, SN | 1, SN 323031312E396A41 |
| TCONT, DBA | 1, DBA profile ID 2 |
| GEM Port | 1 |
| ONT user VLAN | 172 |
| ONT telephone port | TEL 1, TEL 2 |

| SIP Service Parameter Planning | |
| --- | --- |
| SIP server | 200.200.200.200 |
| SIP server port number | 5061 |
| IP address of the SIP local terminal | 17.1.1.1/8 |
| SIP local port number | 5060 |
| Voice gateway | 17.0.0.1/8 |
| Phone number | 7727001<br>7727002 |
| User name/password | 7727001/ 7727000<br>7727002/ 7727000 |

# Process of Configuring the FTTH VoIP




Prerequisites:
An ONT is added successfully,
The GEM port used by a service and the corresponding VLAN has been configured in the ONT service profile.





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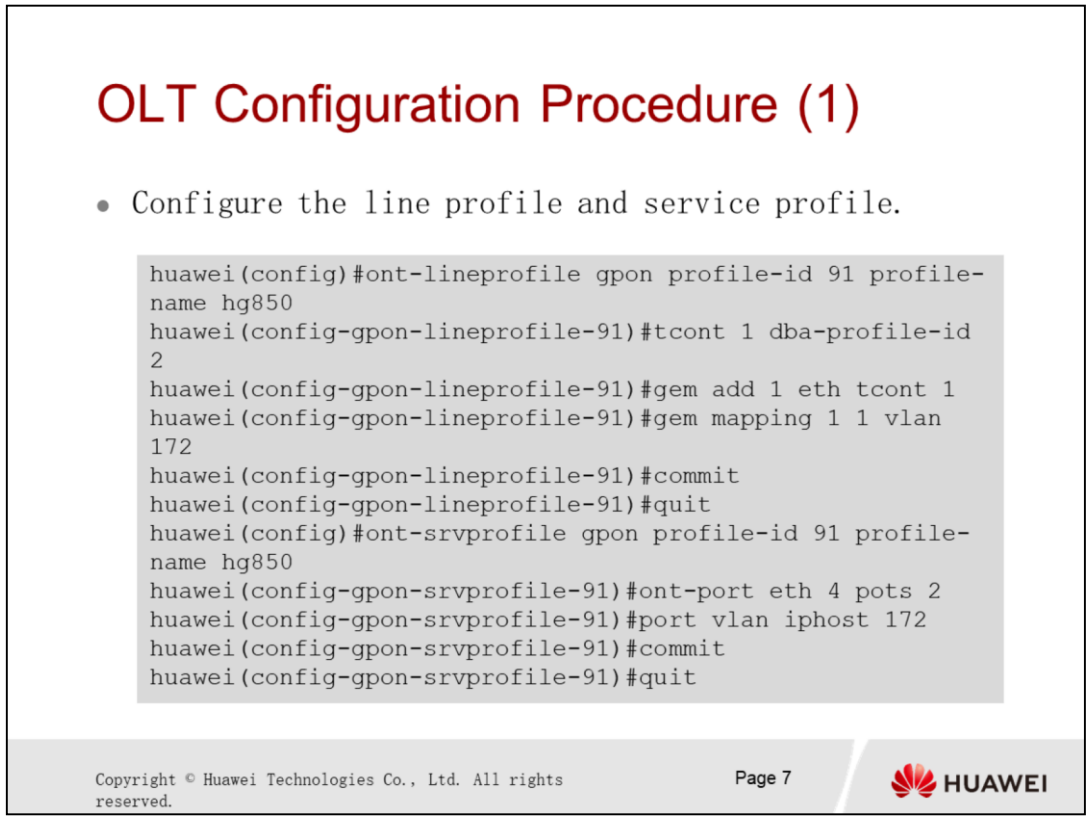
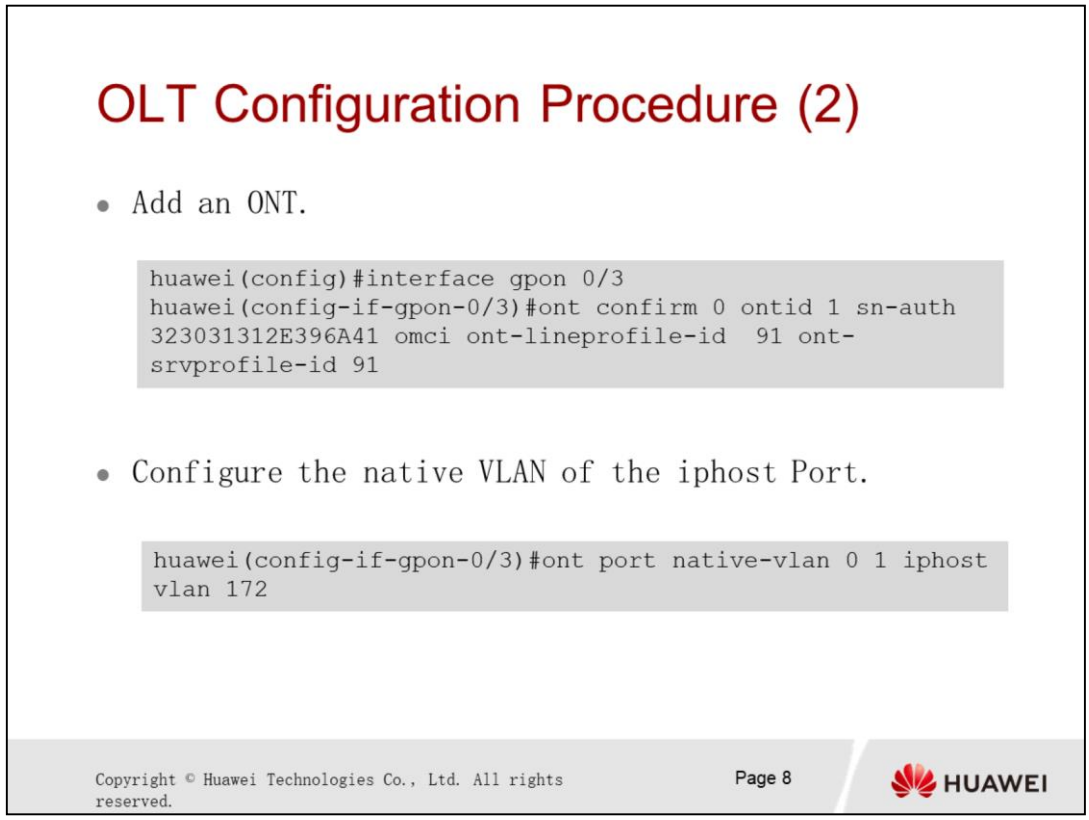
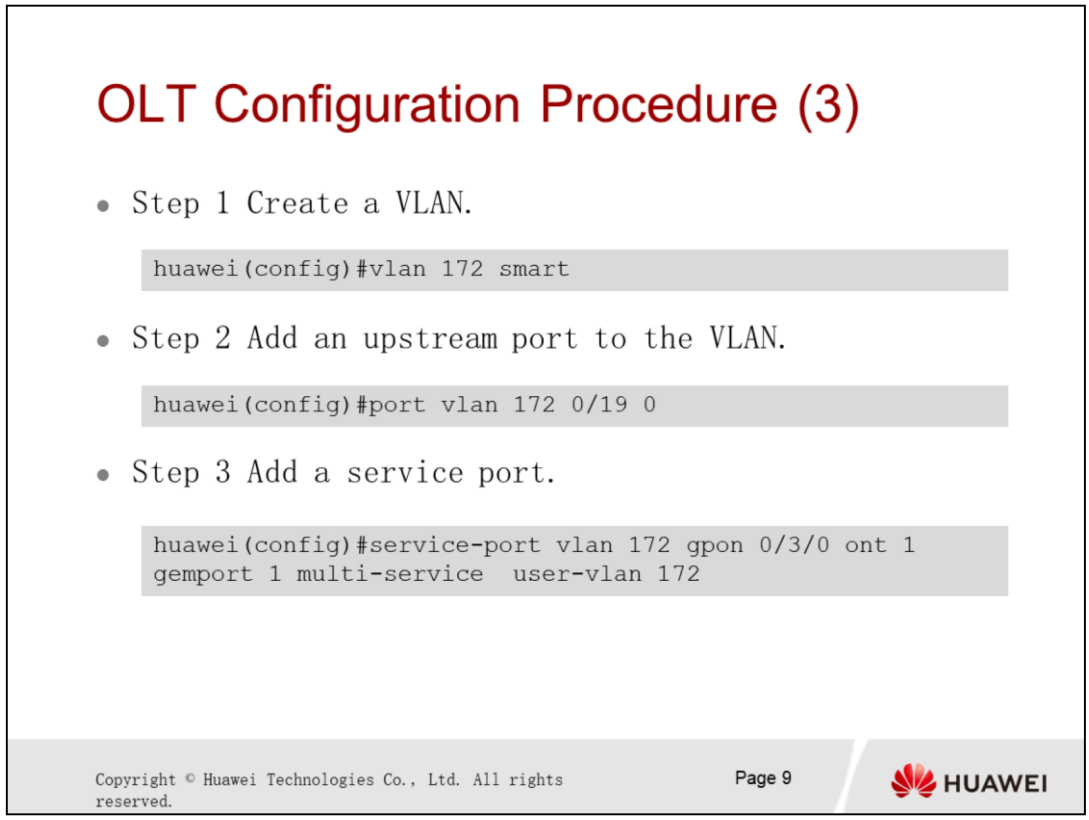


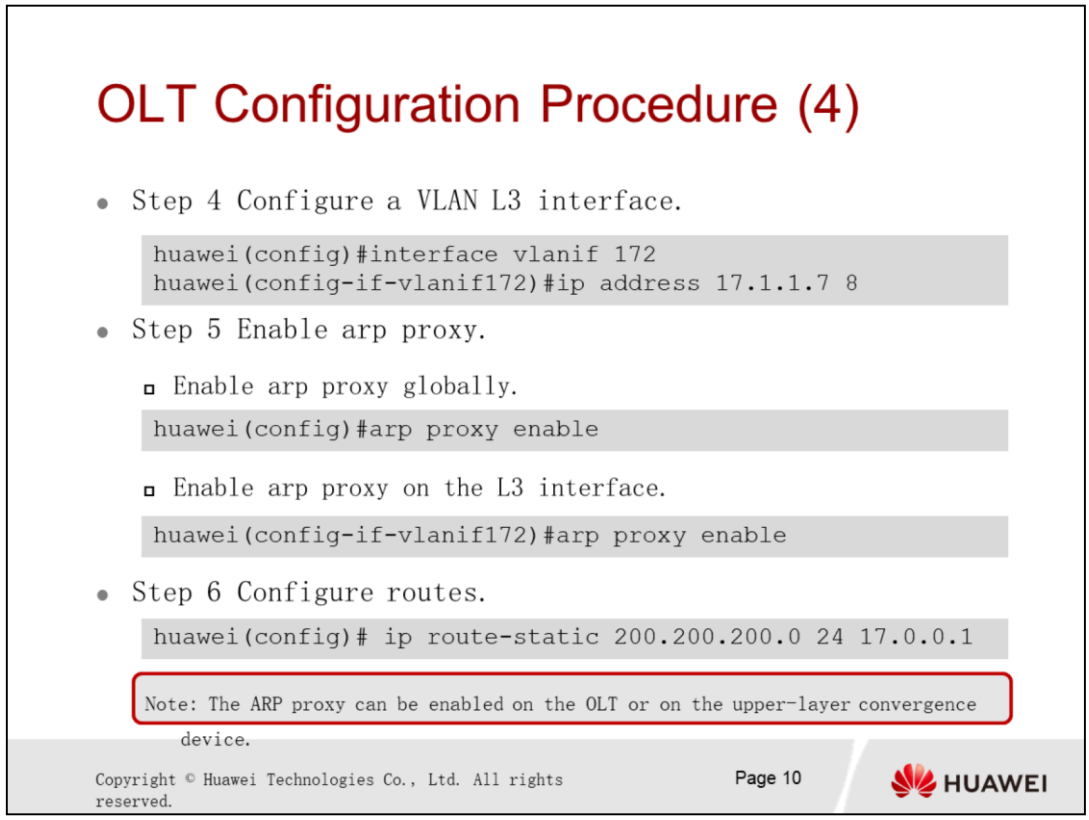

- Configuring a line profile
  - Create a GPON ONT line profile with index 91 and bind T-CONT 1 to DBA profile 2.
  - Add a GEM port with index 1 to carry Ethernet service flows, and bind GEM port 1 to T-CONT 1.
  - Map the VLAN 172 service flow on the subscriber-side to GEM port 2.
- Configuring a service profile
  - A service profile must be consistent with the actual ONT type. Here, the HG850 or HG8245 is used as an example. There are 4 ETH ports and 2 POTS ports.
  - Map the VLAN 172 service flow to iphost port which is used by the ONT to process voice services.



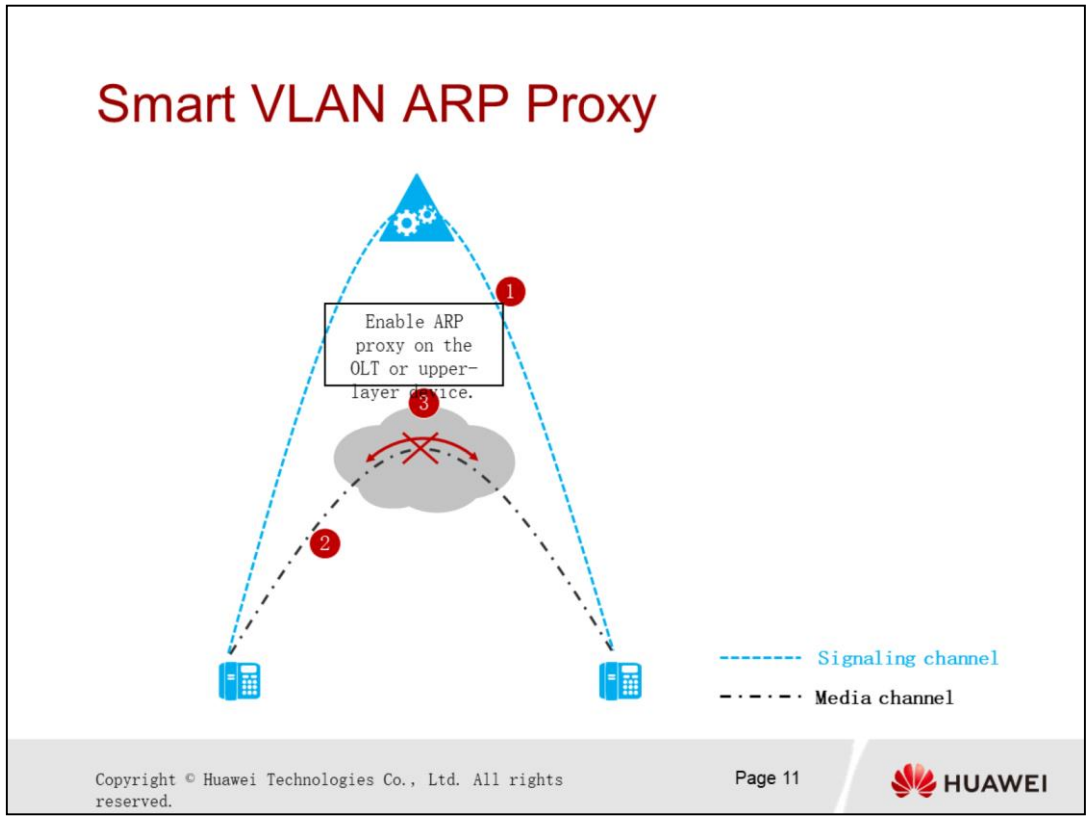

- Adding an ONT
  - Connect the ONT whose ID is 1 and serial number is 323031312E396A41 to GPON port 0/3/0. Set the management mode to OMCI. Bind the ONT to the line and service profiles whose IDs are both 91.
- Configuring a Native VLAN
  - Set the native VLAN ID of the iphost port on the ONT to 172. After receiving the packet, the iphost port removes the 172 tag and forwards the packet to a subscriber.




- Creating a service VLAN and configuring the upstream port
  - Set the VLAN ID to 172 and VLAN type to Smart. Add upstream port 0/19/0 to VLAN 172.
- Creating a service flow
  - Set the service VLAN ID to 172, GEM Port ID to 1, and subscriber-side VLAN ID to 172.

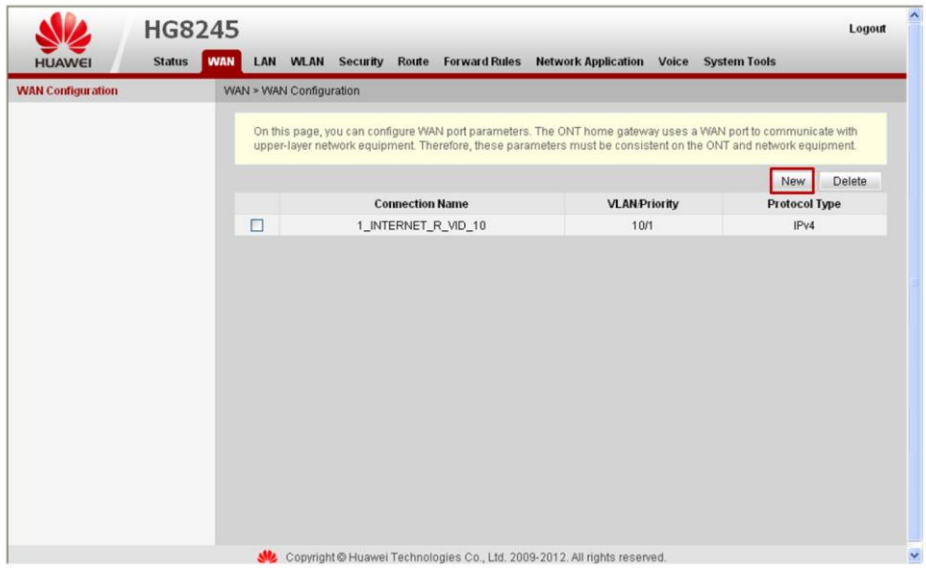


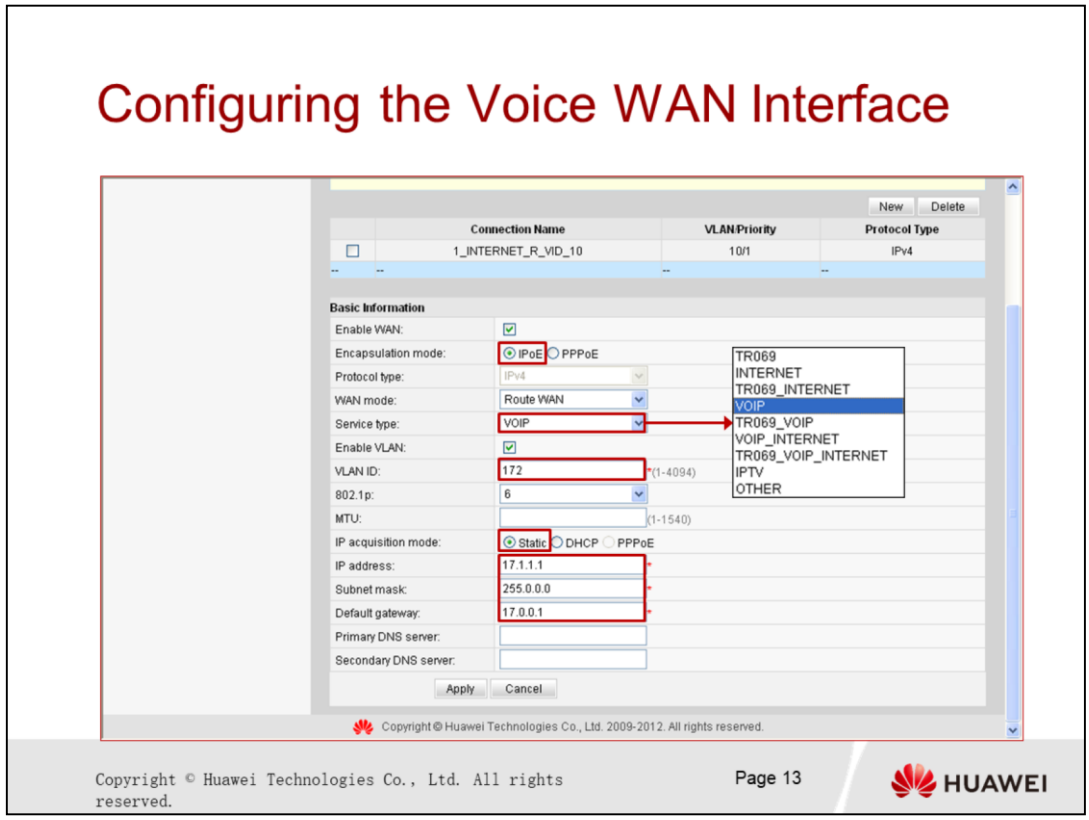

- Enable the ARP proxy function.
  - For different subscribers in the same service VLAN, the service ports in the smart VLAN are isolated from each other. As a result, voice media streams cannot be exchanged normally, and the ARP proxy function of the OLT must be enabled.
  - ARP proxy must be enabled globally and in interface mode.




- In an NGN network, control and bearing are separated. The signaling is communicated with the softswitch through a route. The signaling is reachable. The subscriber can obtain the dial tone and ring.
- The voice is transmitted through the bearer network. Because the smart VLAN is isolated at L2, different ports in the same VLAN cannot learn the MAC address of each other. As a result, the voice between subscribers cannot be transmitted directly, and the subscriber who picks up the phone after hearing ringing cannot hear the voice of the other party.
- Enable the ARP proxy so that subscribers in the same VLAN can learn the MAC address of each other and the voice can be transmitted.

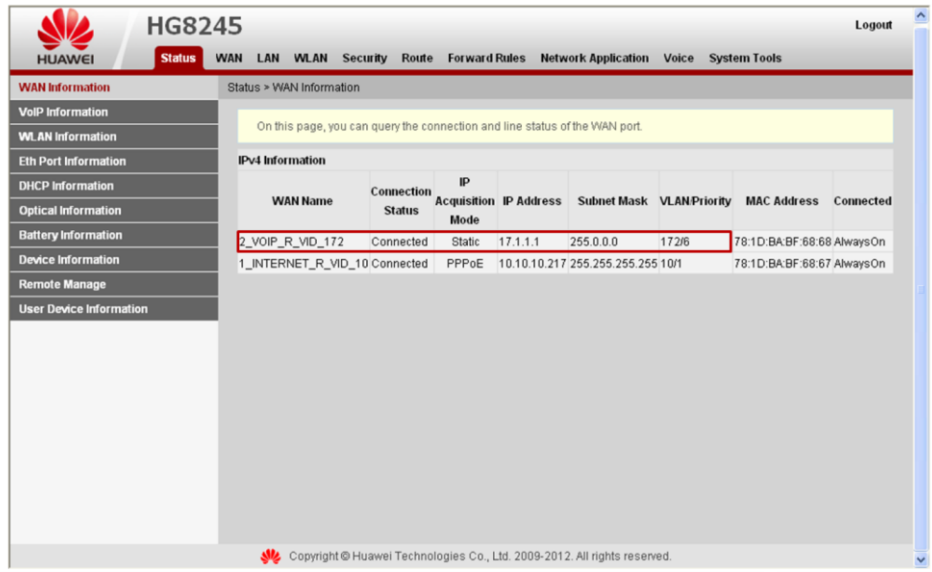
# Creating a Voice WAN Interface






- In the dialog box that is displayed, configure the parameters of the WAN interface as follows:
  - Select **Enable WAN** to enable the WAN connection that is newly set up.
  - Set **Service Type** to **VOIP**.
  - Set **WAN Mode** to **Route WAN**.
  - Set **VLAN ID** to **172**.
  - Set **IP Acquisition Mode** to **Static**, and input the IP address, subnet mask and default gateway.
- Click **Apply**.

# Checking the Connection Status





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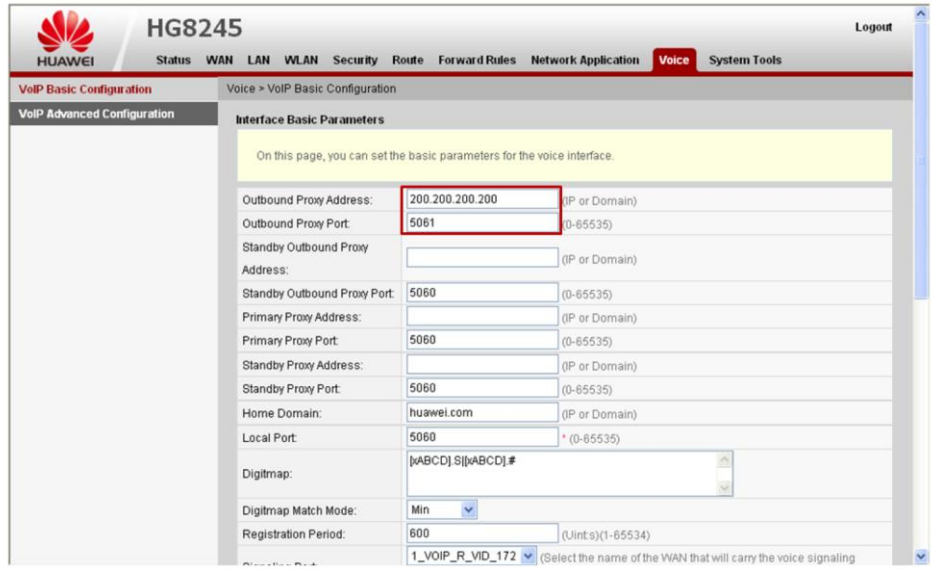
# Configuring the SIP Interface (1)



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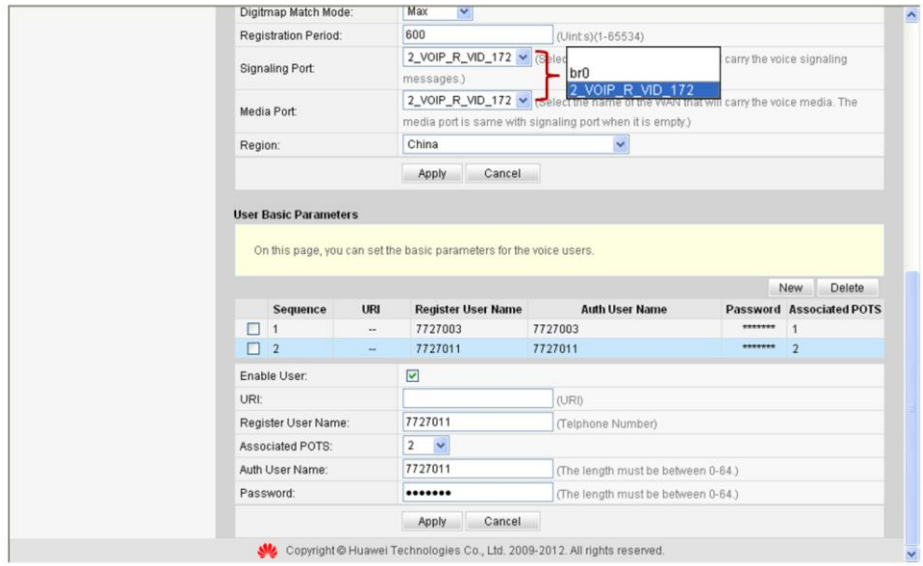
- Create a new WAN interface for voice service.
- Click the **Voice** tab and then choose the **VoIP Basic Configuration** from the navigation tree.
- In the pane on the right, configure the parameters of the SIP-based voice interface as follows:
  - Set **Proxy Server Address** below **Primary Server** to **200.200.200.200**.
  - The default value of the **Server Port** is **5061**.

# Configuring the SIP Interface (2)



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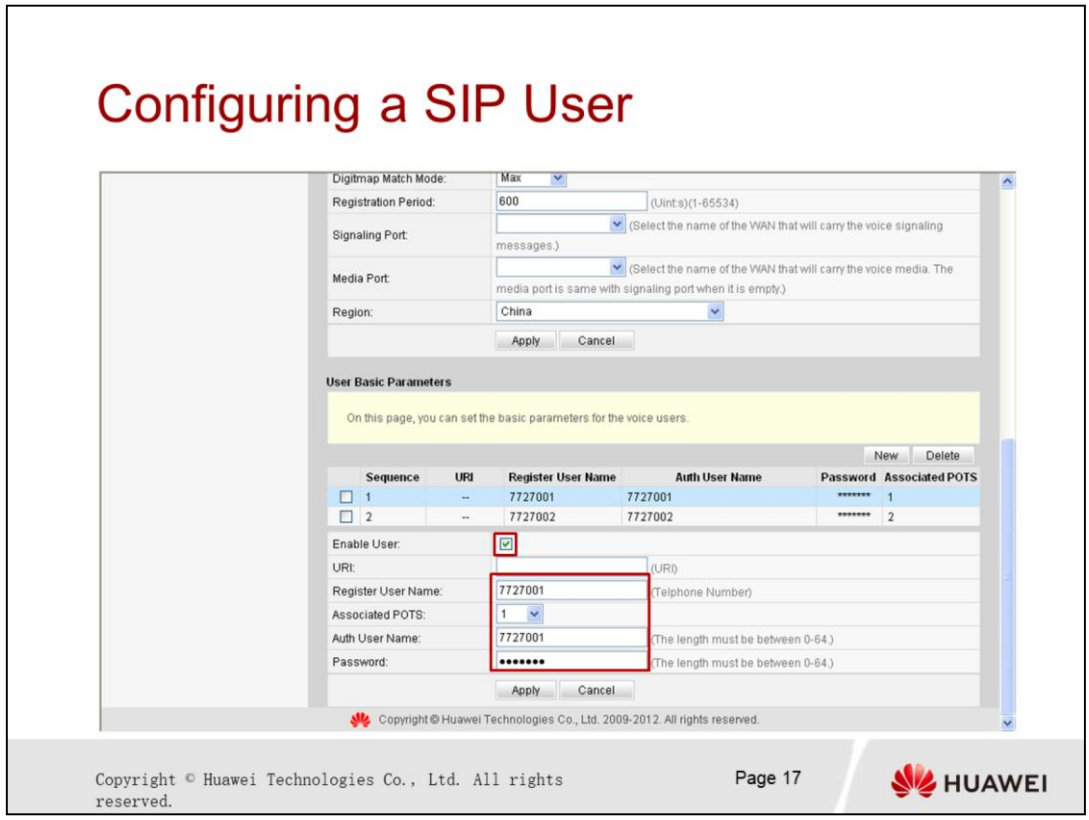
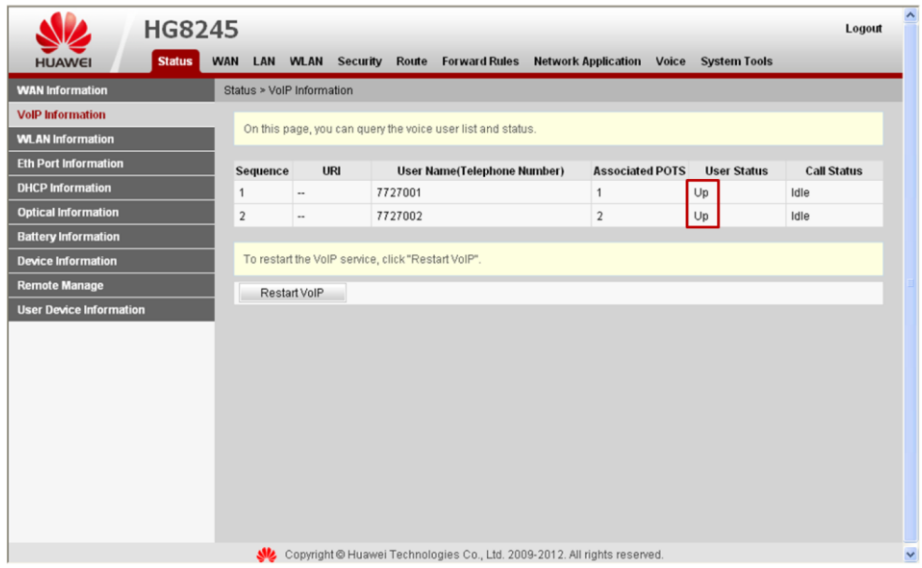
- Set **Region** to **China**.
- Set **Signaling Port** and **Media Port** to **2_VOIP_R_VID_172**.

- Click **Apply**.




- In the **User Basic Parameters** area, configure the parameters of voice user 1 as follows:
  - Set **Public User Name** to **7727001**.
  - Select **Enable User** to enable the voice user configuration.
  - Set the **Register User Name** and the **Password**.
  - Set **Associated POTS** to **1**.
- Click **Apply**.
- Then configure the parameters of voice user 2 as follows:
  - Set **Public User Name** to **7727002**.
  - Select **Enable User** to enable the voice user configuration.
  - Set the **Register User Name** and the **Password**.
  - Set **Associated POTS** to **2**.
- Click **Apply**.

# Checking the Registration Status



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- Click the **Status** tab and then choose the **Information** from the navigation tree.
  - In the right pane, click **Restart VoIP**.
  - Wait a moment. Then the **User Status** becomes **Up**.

# Contents







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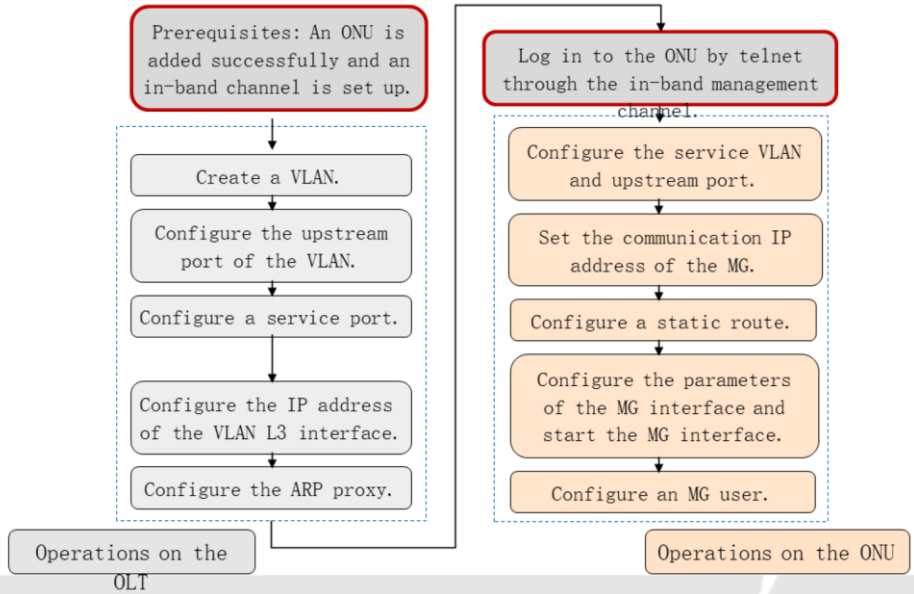
# VoIP Configuration Process on Class B ONU





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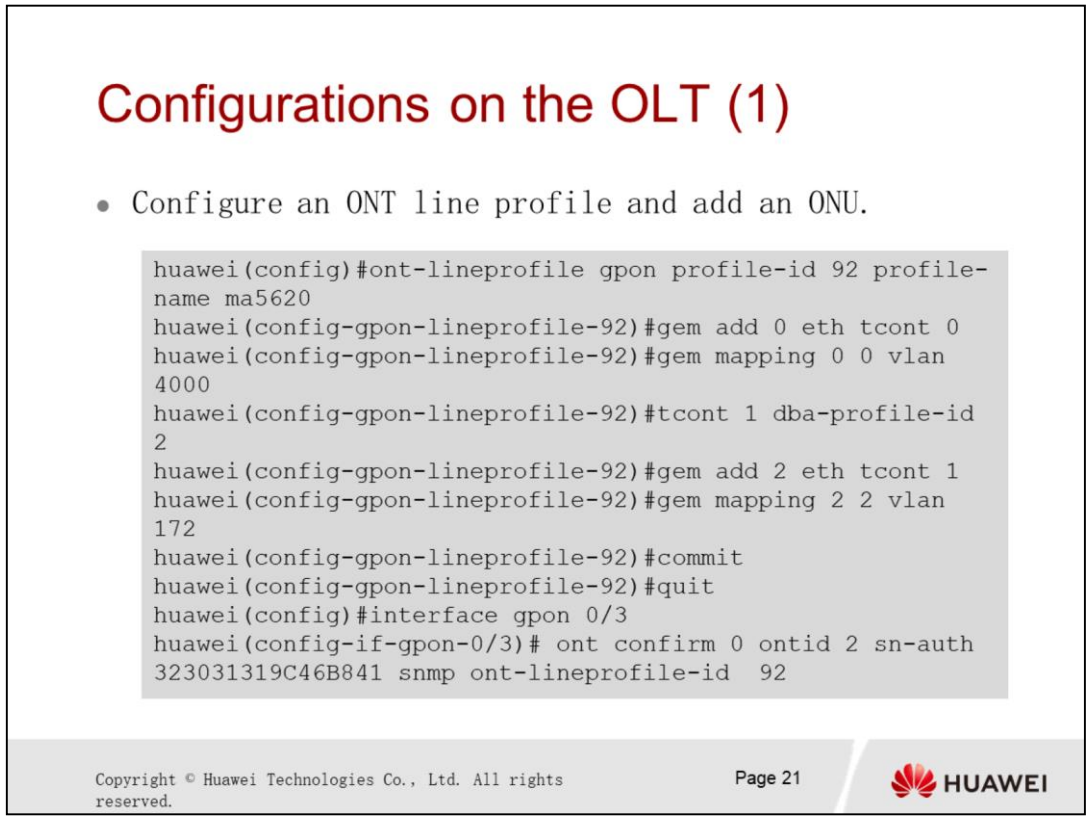
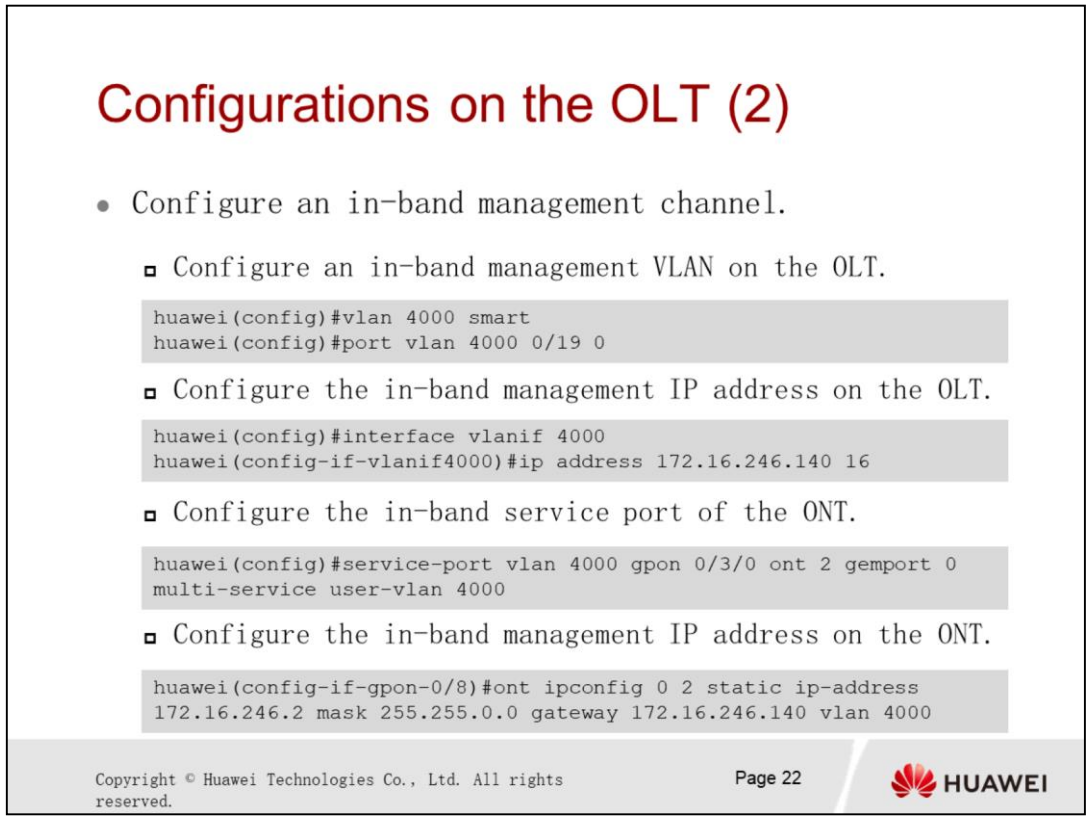
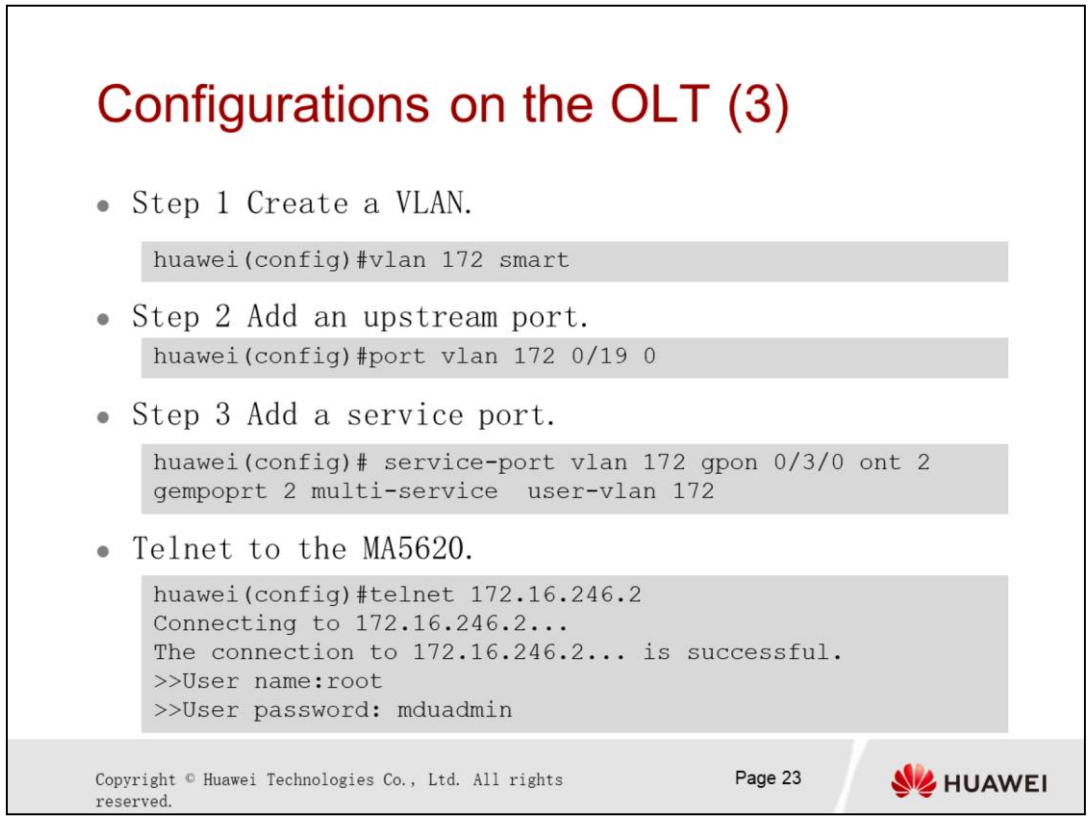


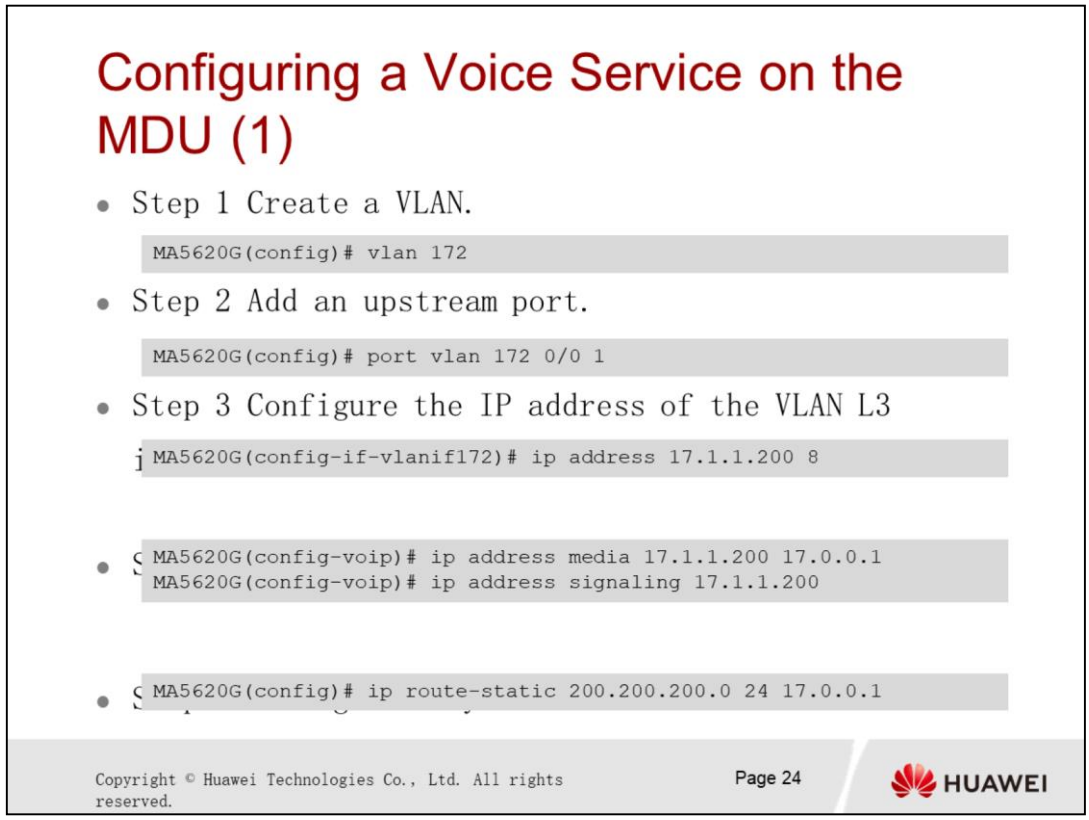

- Command description
  - Add GEM port 0 to carry management traffic flows and GEM port 2 to carry voice service flows.
  - Map the management service flows (subscriber-side VLAN 4000) to GEM port 0, and map the voice service flows (subscriber-side VLAN 172) to GEM port 2.



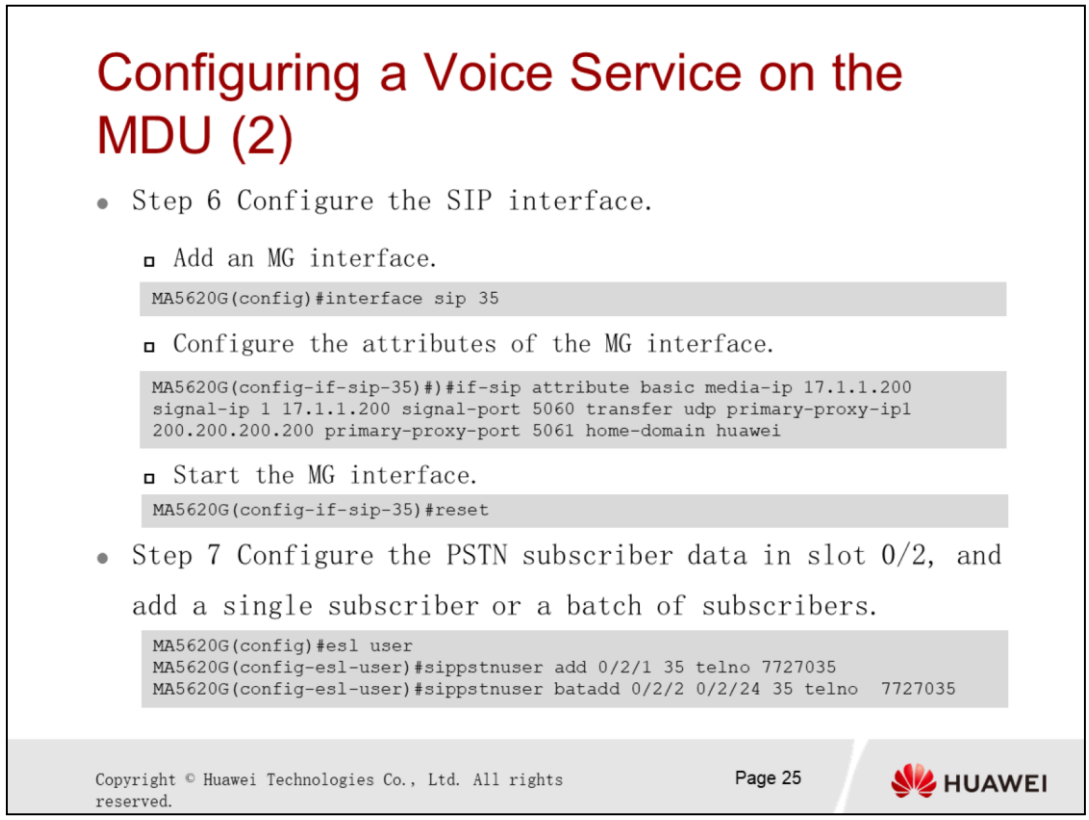

- Command description
  - Set the management VLAN to 4000, add an upstream port to VLAN 4000, and set the in-band management IP address to 172.16.246.140/16.
  - Create an in-band service channel, set the management VLAN to 4000, set the GEM Port ID to 0, and set the subscriber-side VLAN to 4000.
  - Set the static management IP address of ONU 2 to 172.16.240.2/16, set the gateway to 172.16.246.140, and set the management VLAN to 4000.



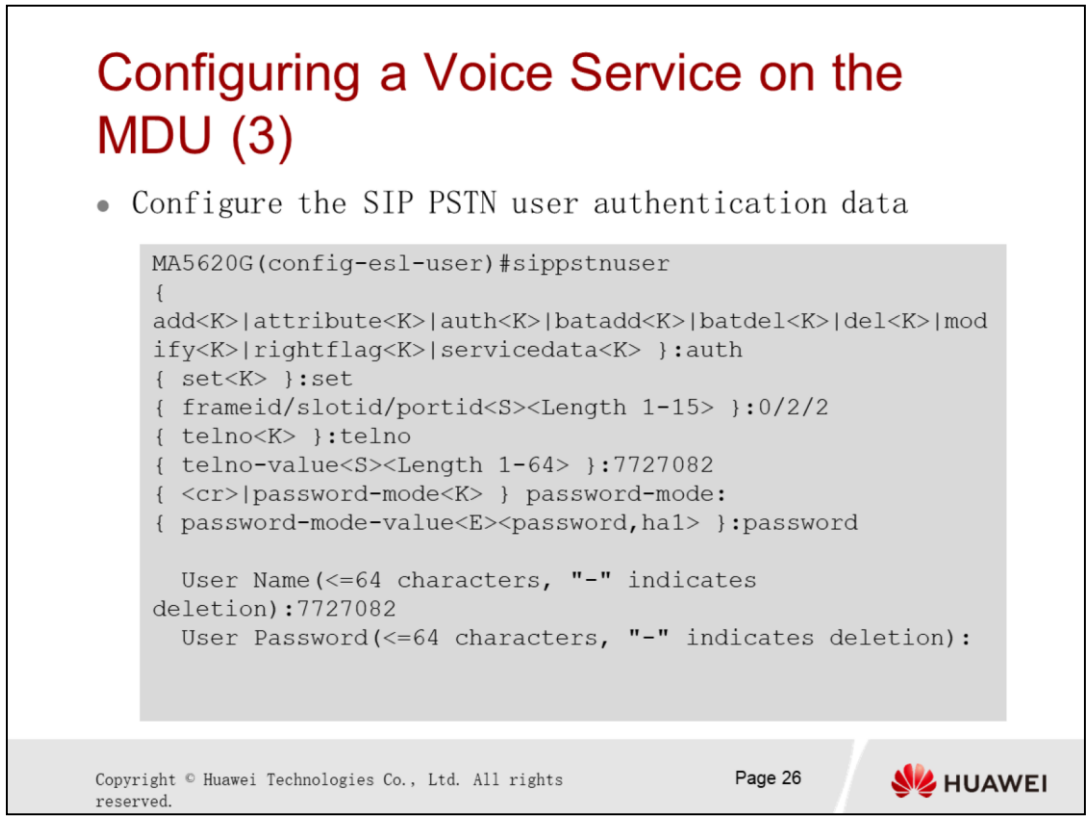

- Command description
  - Create a service VLAN and configure its upstream port. Set the service VLAN ID to 172, VLAN type to smart, and add the upstream port 0/19/0 to VLAN 172.
  - Create a service flow. Set the service VLAN ID to 172, GEM Port ID to 2, and subscriber-side VLAN to 172.
  - The subscriber-side VLAN (172) of the OLT must be the same as the upstream service VLAN of the ONU.




- The upstream service VLAN (172) of the ONU must be the same as the downstream subscriber-side VLAN of the OLT.
- Note:
  - You can configure attributes of an MG interface only when the media/signaling IP addresses of the MG interface already exist in the corresponding address pool.
  - The media and signaling IP addresses can be set to different IP addresses according to the actual networking planning.
  - After configuring the IP address and static route of the VLAN interface, you can run the ping command to check the connectivity between the VLAN interface and the MGC. Normally, you can receive the ICMP response messages from the MGC and no packet is lost during a long-period ping operation. If the ping operation fails, check the link between the MA5620 and the gateway and between the gateway and the MGC.




- For example, when the SIP protocol is used, the IP address of the SIP terminal is 17.1.1.200/8, the gateway is address 17.0.0.1, the subscriber number and subscriber name are 7727082.
- Note:
  - A SIP interface can be registered by IP address (default) or domain name (same as that on the softswitch).
  - You can run the **protocol support** command to implement protocol conversion.
  - #sippstnuser add: The mgid of a subscriber must be unique on the same SIP interface.




- This command is used to configure the authentication data of a single account of a SIP PSTN user. To configure the authentication data of a single account of a PSTN user, run this command. After this command is executed successfully, the authentication data of the PSTN user is modified to the specified data.

# Contents







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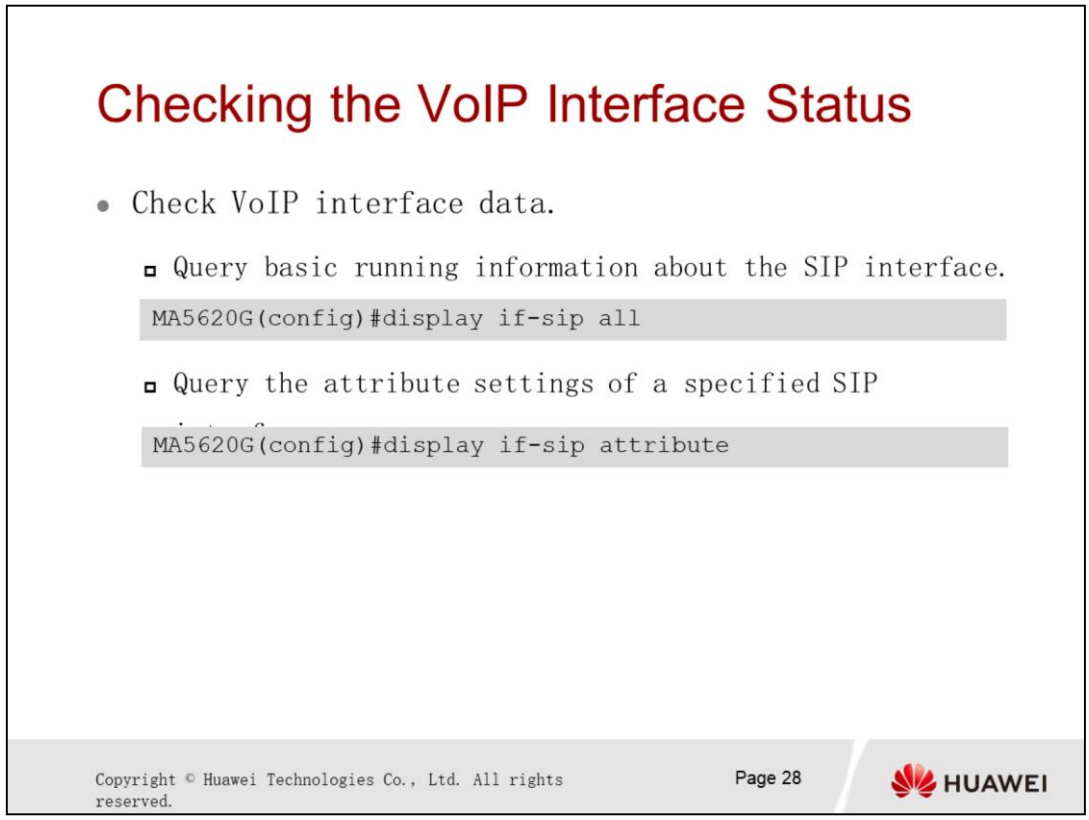


- display if-sip all
  - When you run this command, the system displays the brief information about all the interfaces that support the SIP protocol in ascending order by SIP interface ID.
  - Interface attributes not configured are displayed as "-".
  - If no SIP interface is configured in the system, no information is displayed.
  - You can view information such as state, signaling IP/port, and proxy IP/port/domain name.
- display if-sip attribute
  - This command is used to query the attributes of a specified SIP interface, including mandatory and optional attributes. When you need to query the attributes of a SIP interface, run this command.

# Query the Subscriber Status

- Query the status of a PSTN subscriber.

```
MA5620G#display pstn state 0/2
------------------------------------------------------------------------
F  /S /P  PTPSrvState PTPAdmState    CTPSrvState CTPAdmState LineState
------------------------------------------------------------------------
0  /2 /0  Normal       NoLoop,NoTest     -           -          Normal
0  /2 /1  Normal      NoLoop,NoTest      -           -          Normal
0  /2 /2  Normal       NoLoop,NoTest    Idle      StartSvc      Normal
0  /2 /3  Normal      NoLoop,NoTest      -           -          Normal
0  /2 /4  Normal      NoLoop,NoTest      -           -          Normal
0  /2 /5  Normal      NoLoop,NoTest      -           -          Normal
0  /2 /6  Normal      NoLoop,NoTest      -           -          Normal
```





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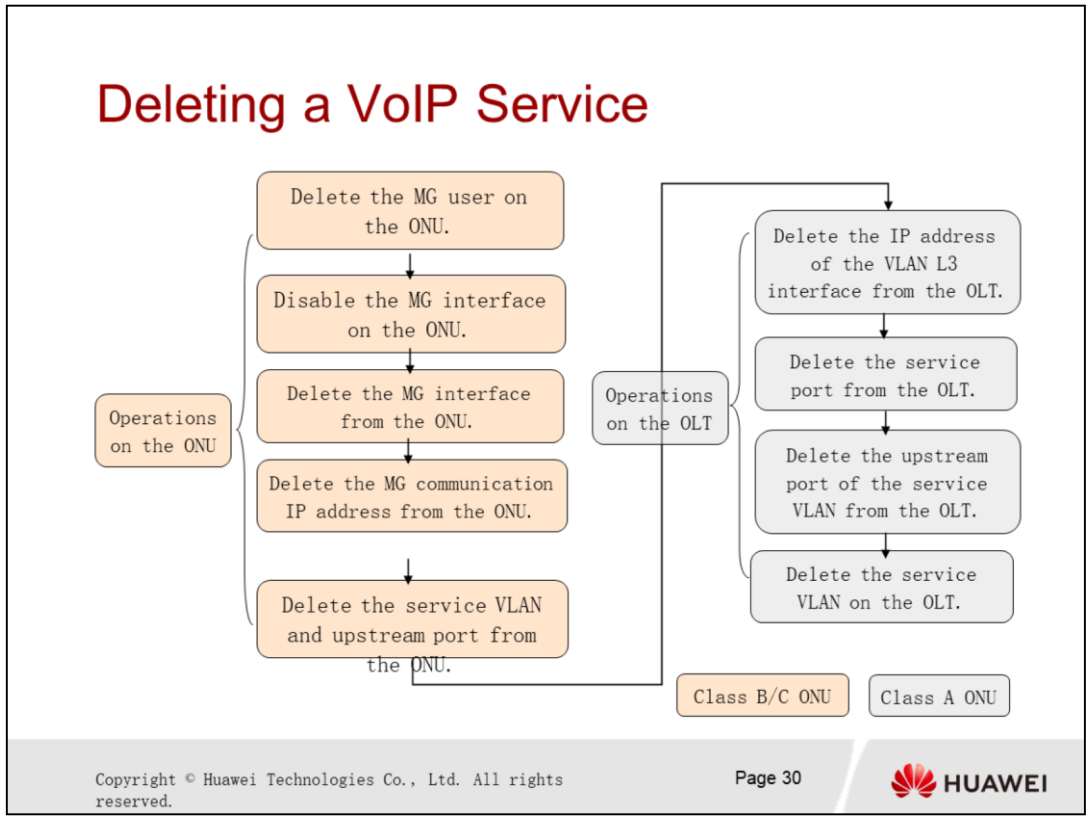
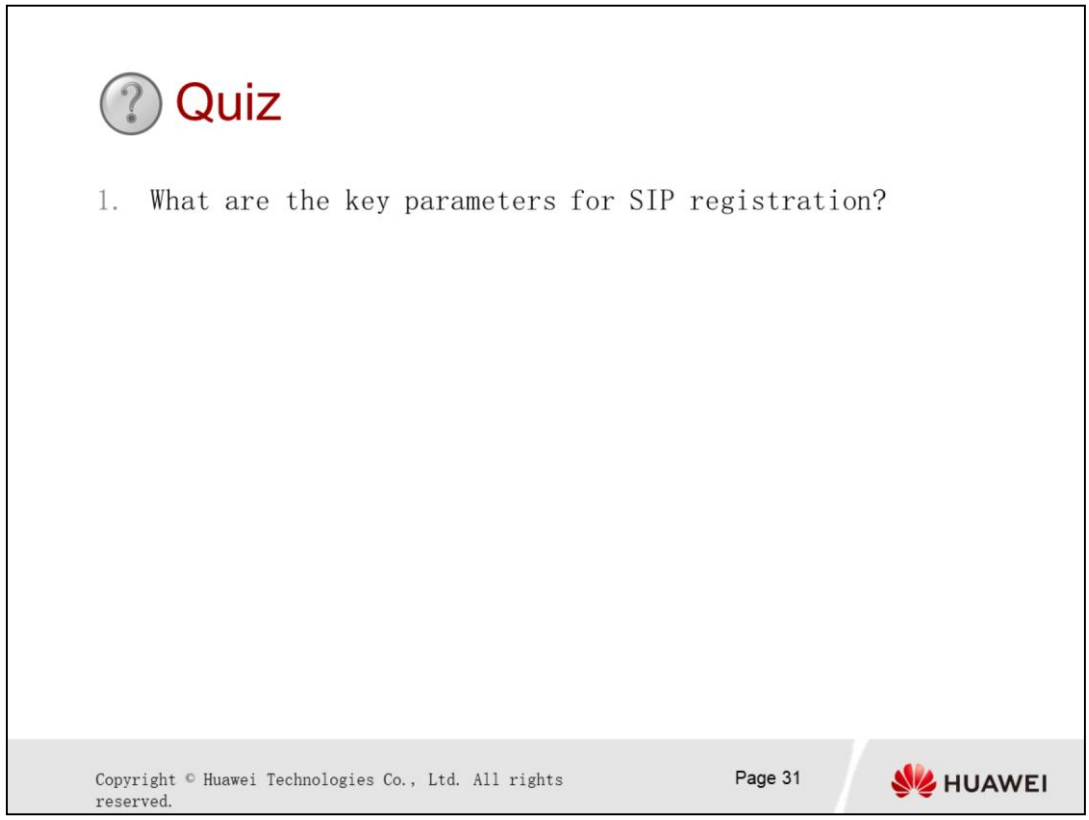
- F/S/P: Indicates the subrack ID, slot ID, and port ID of a port.
- PTPSrvState: Indicates the running status of the physical layer of a port. The possible query results are as follows: (1) Normal: normal; (2) PowerDeny: low power; and (3) Fault: A fault occurs.
- PTPAdmState: Indicates the physical layer management status of a port. The possible query results are as follows: (1) NoLoop, NoTest: No loopback, not tested; (2) Noloop, Test: No loopback, test in progress; (3) LLoop, NoTest: Local loopback, not tested; (4) LLoop, Test: Local loopback, test in progress; (5) RLoop, NoTest: remote loopback, not tested; and (6) RLoop, Test: remote loopback, test in progress.
- CTPSrvState: Indicates the service running status of a port. The possible query results are as follows: (1) Idle, (2) Offhook; (3) Locked; (4) Ringing; (5) Fault; and (6) - (indicating that no subscriber is configured).
- CTPAdmState: Indicates the service management status of a port. The possible query results are as follows: (1) LBlock: local blocking; (2) RBlock: remote blocking; (3) StartSvc: starting Services; and (4) -: no subscriber is configured.
- LineState: Indicates the subscriber line status.




- Commands on the ONU Side
  - mgpstnuser del
  - Shutdown
  - undo interface h248
  - undo ip address {media | signaling}
  - undo port vlan
  - undo vlan
- Commands on the OLT side
  - undo ip address
  - undo interface vlanif
  - undo service-port
  - undo port vlan
  - undo vlan




- Reference answer:
  - SIP: port number, IP address of the registration server, subscriber name and password, and phone number.

# Summary

- Introduction to the SIP protocol
- Voice service configuration
- Voice service maintenance

# Thank You

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