CMS Scenario Configuration Guide V1.2

目录

1. CMS Introduction

CMS (Cloud Managed System) is a full-life cloud management platform launched by Sidit from planning, deployment, operation and maintenance to optimization. It provides an integrated and integrated O&M management solution for small and medium-sized operators, including centralized management, visual monitoring and intelligent operation and maintenance of network equipment such as ONU, OLT, switches and routers. In order to improve the efficiency ofnetwork management and reduce service costs.

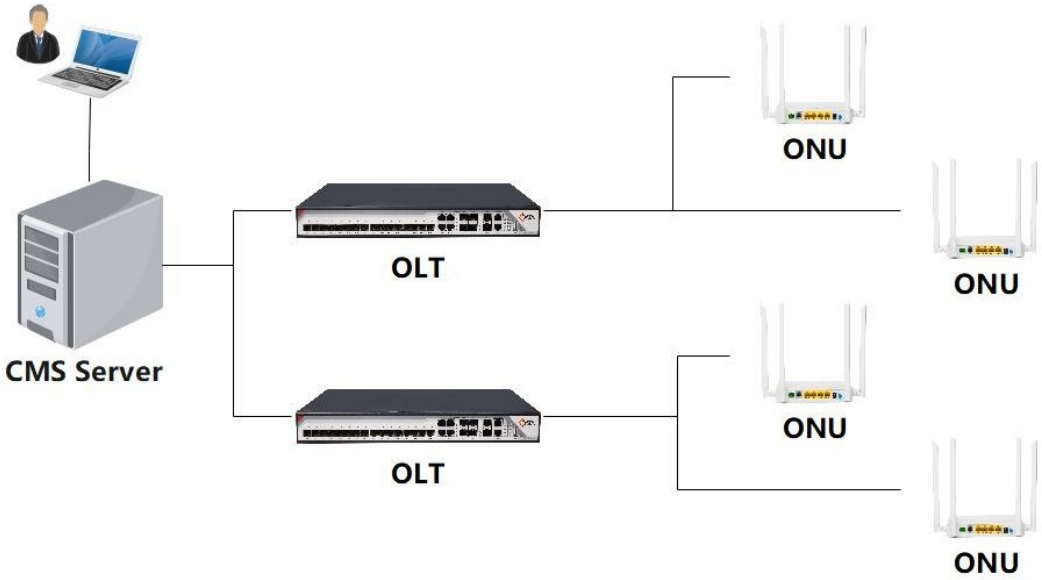
1.1 Core Features

Centralized management	Intelligent operation and maintenance	Graphical interaction
• Support TR-069 direct management of ONUs, compatible with third-party ONUs • Support MQTT management of OLTs andmanages ONUs	• Device and alarm data statistics, added trend analysis • Graphical monitoring of core indicators • User fault automatic diagnosis analysis	• One-click installation deployment • Upgrade/monitoring/diagnosis process guidance • Device/configuration visualization • Support for CMS App

indirectly through OMCI • ONU/OLT batch configuration operation	• North interface	

2. Installation and deployment

The CMS supports private deployment and can be installed on either a physical machine or a cloud host.



2.1 Step1-Prepare the environment

Before installing the CMS service, match the CMS configuration and operating system (OS) based on the scale of managed devices. Supports horizontal expansion and unlimited device access.

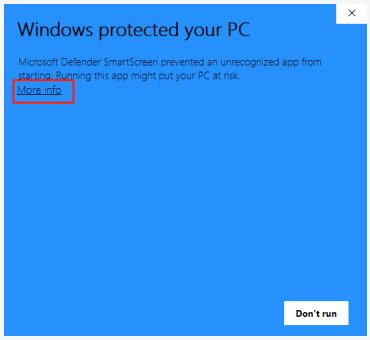
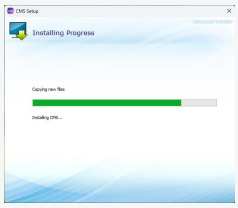
Minimum configuration requirements: CPU: 2 cores, memory: 4G, free hard disk space: 64 GB.

Device Size	CPU	Memory	Hard Disk Space
500k	Main frequency 2.65GHz 32 core	64G	4TB of free space, PCI-E 3.0 x 4 spec SSD drive
300k	Main frequency 2.65GHz 24 core	64G	2TB of free space, PCI-E 3.0 x 4 spec SSD drive

200k	Main frequency 2.65GHz 16 core	32G	2TB of free space, PCI-E 3.0 x 4 spec SSD drive
100k	Main frequency 2.65GHz 12 core	32G	1TB of free space, PCI-E 3.0 x 2 spec SSD drive
50k	Main frequency 2.65GHz 8 core	16G	512GB of free space, SATA spec SSD drive
30k	Main frequency 3.0GHz 4 core	16G	512GB of free space, SATA spec SSD drive

2.2 Step2-Install Wizard

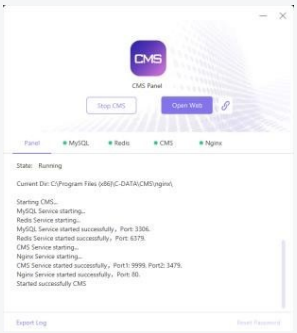
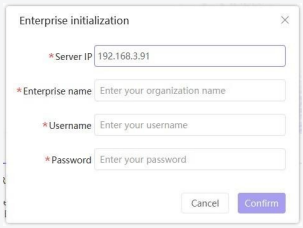
Open the CMS installer provided by the C-DATA sales and follow the wizard to complete the installation.

1.Double-click the installation package to open the installation program 	2.After clicking "More info", select still want to run 	3.Follow the Installing process to install 	4.After the installation is complete,generate the CMS Panel icon on the desktop 

2.3 Step3-Start service

Open the desktop CMS Panel to start the service.

1. Click "Start" to start the CMS service	2. After the startup is completed, click "Open Web" to	3. Fill in the enterprise initialization information and click	4. Enter the IP address of the CMS server in your

	open the enterprise initialization box 	"Confirm" to open the Web login interface 	browser to log in to theCMS management platform 

3.Single Device Bind

Once the CMS installation is completed, you can bind a single ONU or OLT to the CMS to make it easy to quickly see the display.

3.1 ONU Binding

The CMS manages the ONU through TR-069, which is compatible with third-party devices. The binding procedure consists of the following four steps.

Prerequisites: The ONU has been registered to OLT, and the OLT has been configured to ensure that the ONU can communicate with CMS.

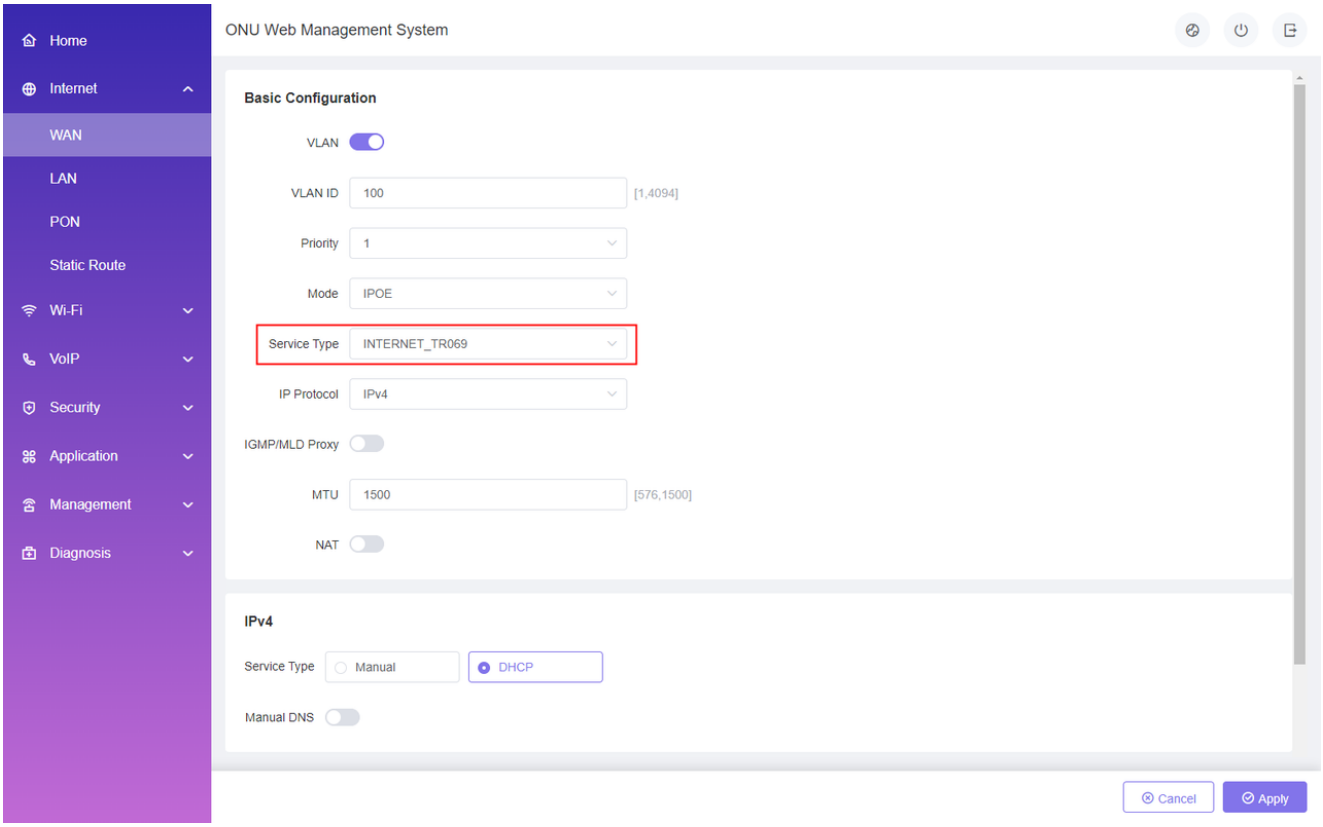
Upgraded ONU	TR-069 WAN Configuration	TR-069 Server Parameter Configuration

3.1.1 ONU device upgrade

Log on to the ONU Web interface and upgrade the 07C model to version 3.1.0 or later. (Ignore this step if you are a third party ONU)

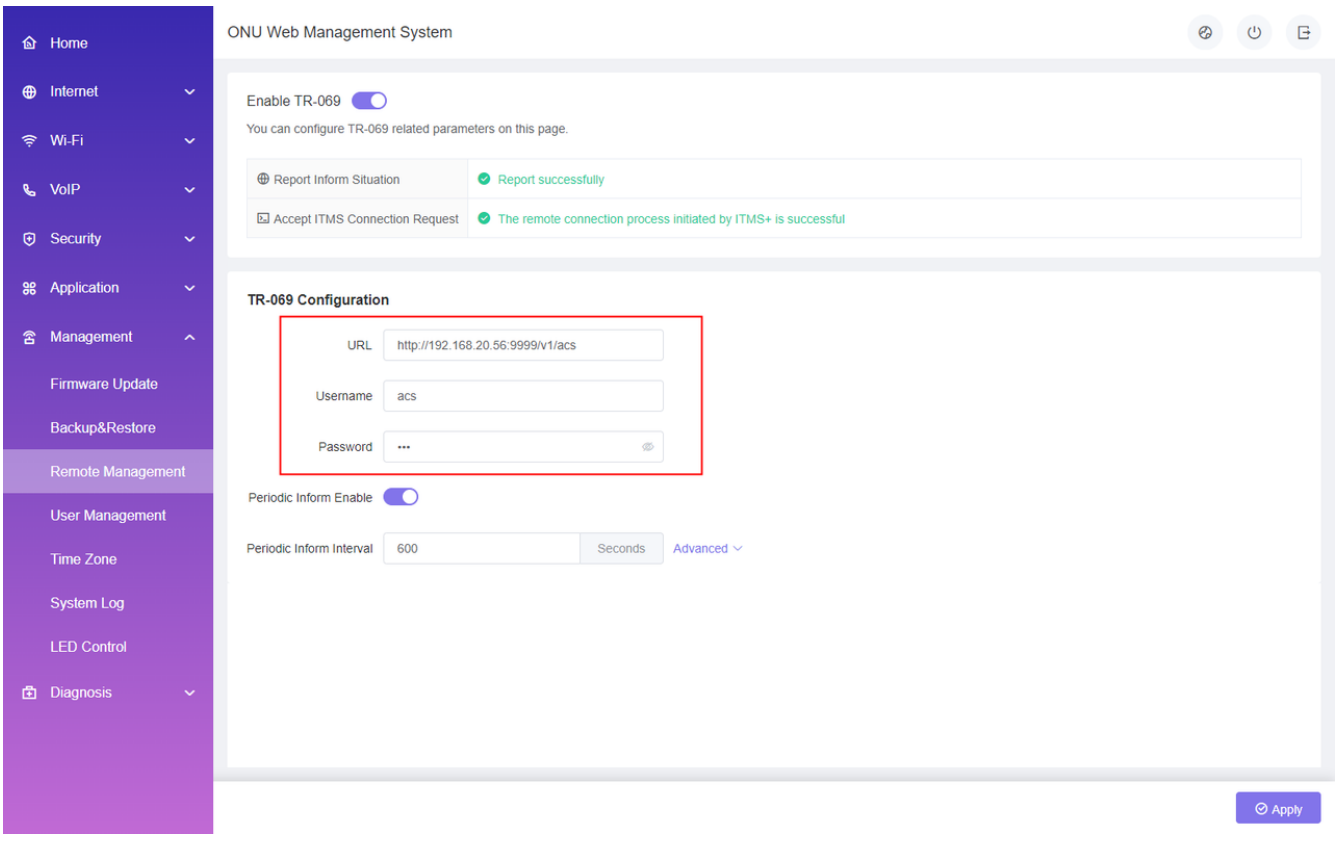
3.1.2 TR-069 WAN Configuration

Log in to the ONU Web interface, open the [Internet-WAN] interface, click "Add", select the *TR-069* related type for Service Type, and create a TR-069 WAN.

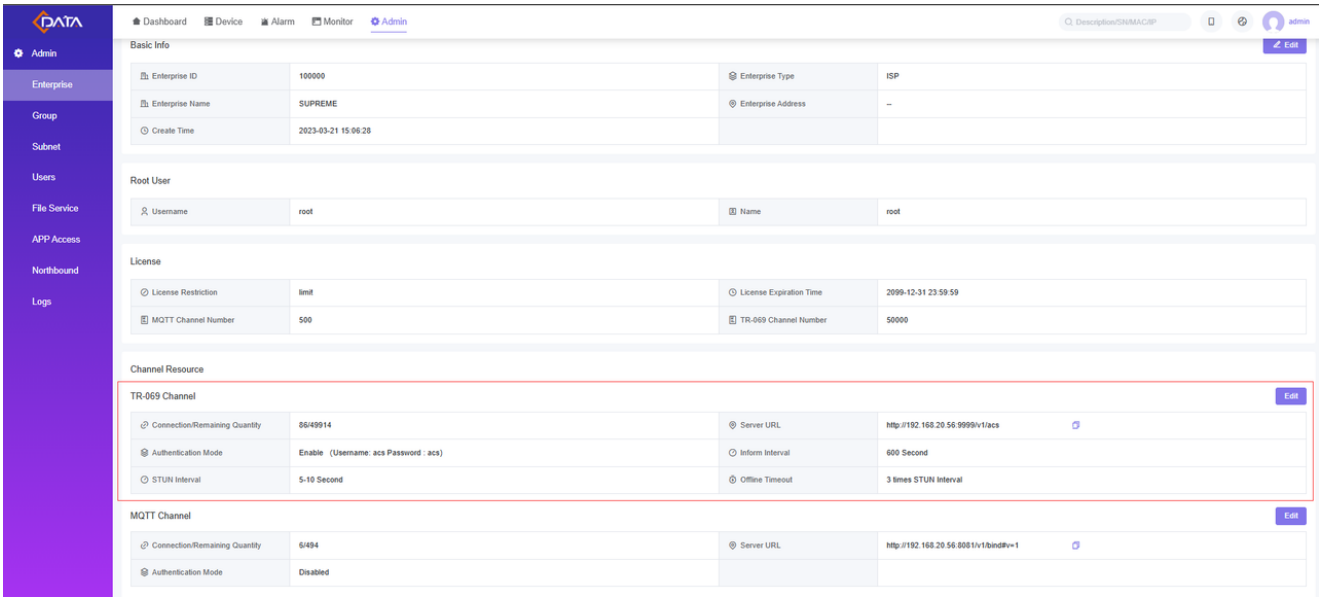


3.1.3 TR-069 server parameter configuration

Log in to the ONU Web page, open the [Management-Remote Management] page, and set the TR-069 parameters, including the server address, Username, and Password.

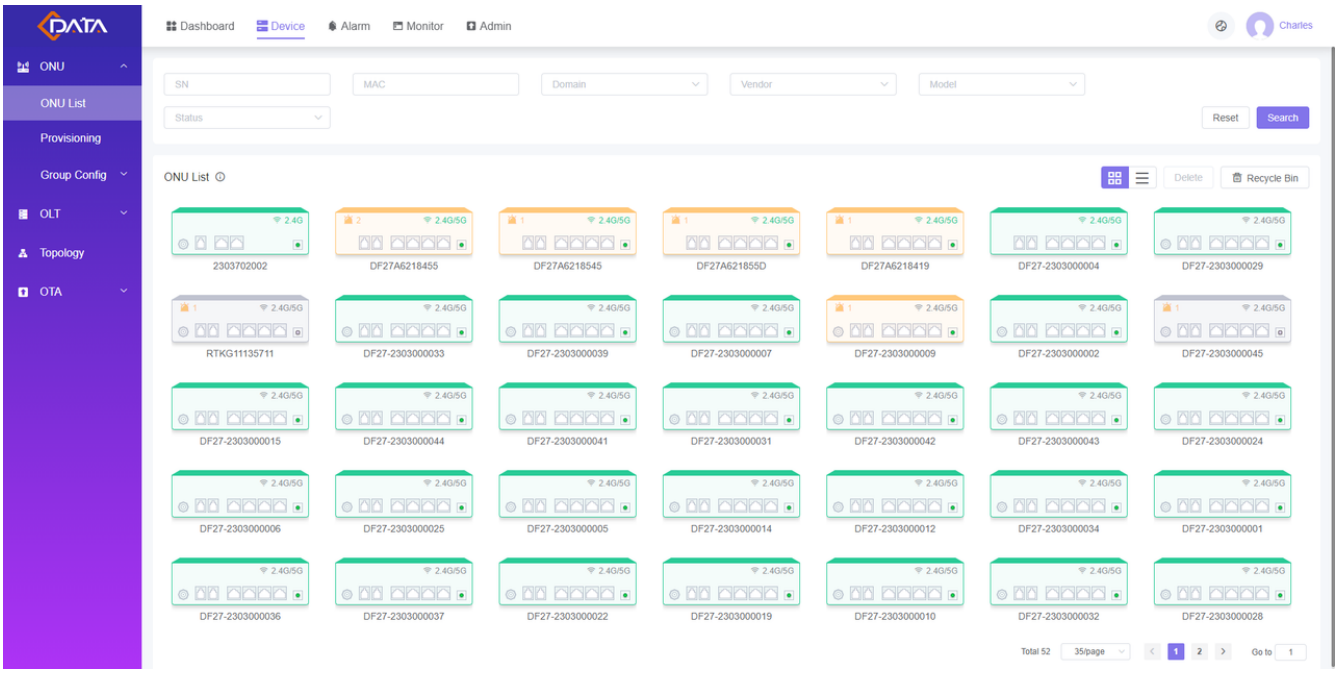


You can view the TR-069 parameters on the CMS [Admin-Enterprise] page.



3.1.4 Viewing the Binding result

Log in to the CMS management platform and open the 【Device-ONU-ONU List】 interface. You can view the bound ONUs in the list.



3.2 OLT Binding

CMS manages OLTs via MQTT and currently only supports C-DATA OLT bindings, with third-party OLT bindings supported in later versions.

> Prerequisites: The OLT is routable to the CMS.

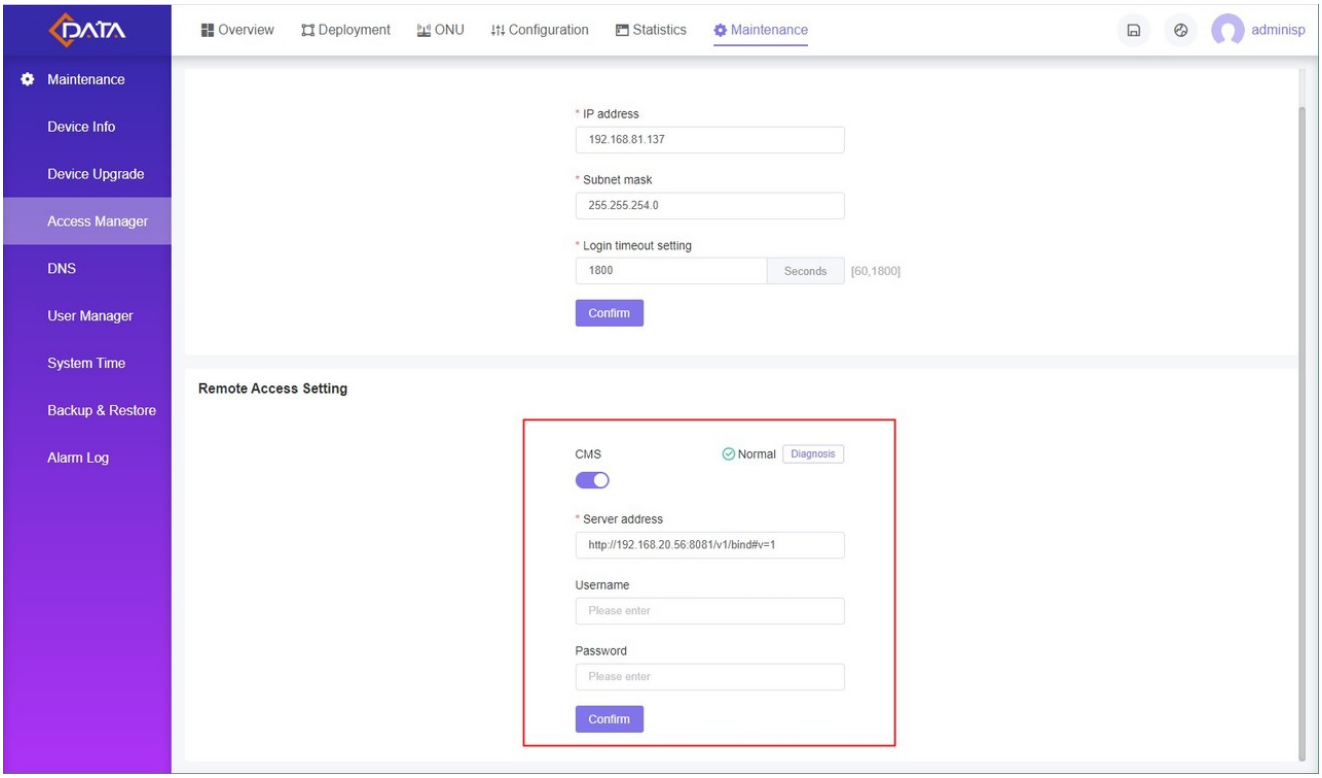
Upgrade OLT device	Enable the CMS remote access

3.2.1 OLT device upgrade

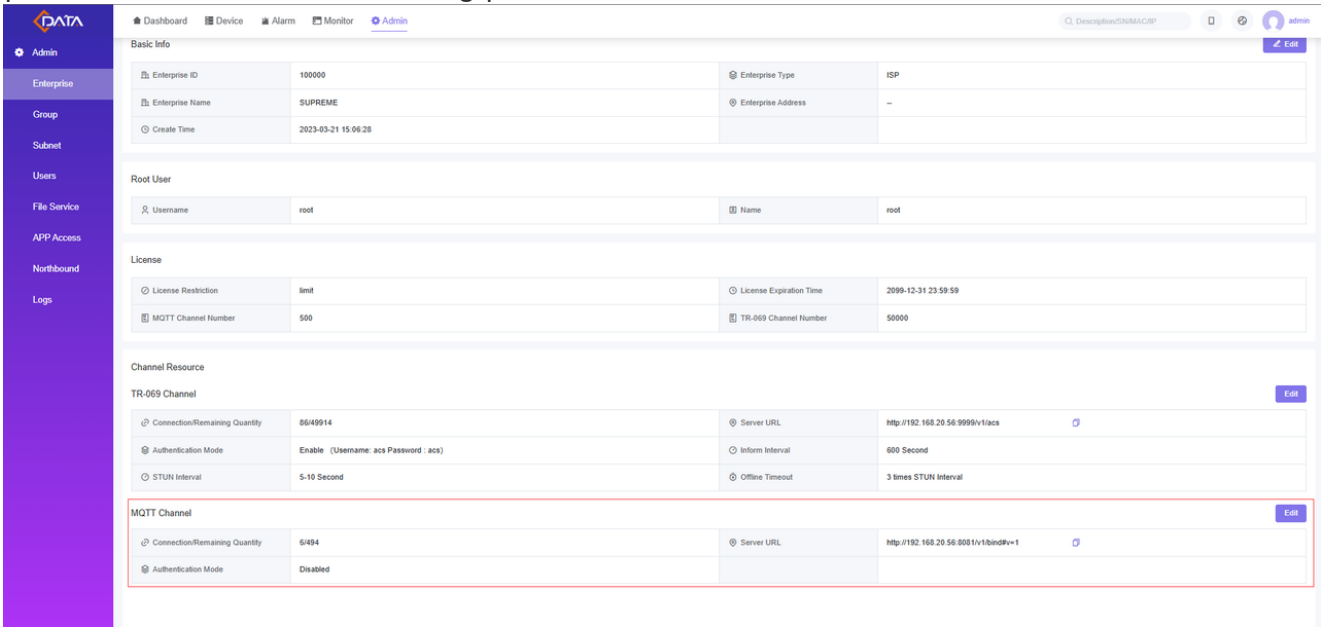
Log on to the ONU Web interface to upgrade your GPON 16 series model to version 3.2 and above.

3.2.2 Enable CMS remote access

Log in to the OLT Web Management platform, open the [Maintenance-Access Manager] interface, start the CMS switch, and fill in the CMS Server URL, as shown in the following picture.

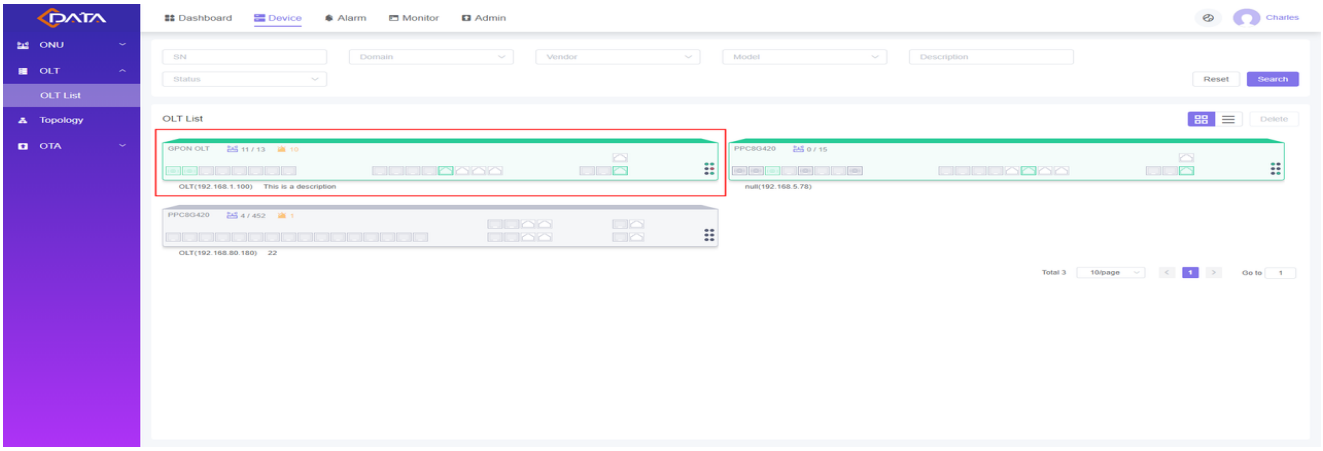


The CMS Server can be viewed in the［Admin-Enterprise］ interface of CMS management platform, as shown in the following picture.



3.2.3 View the binding result

After the CMS is bound to the OLT successfully, log in to the CMS management platform and view the OLT information on the [Device-OLT-OLT List] interface, as shown in the following figure.



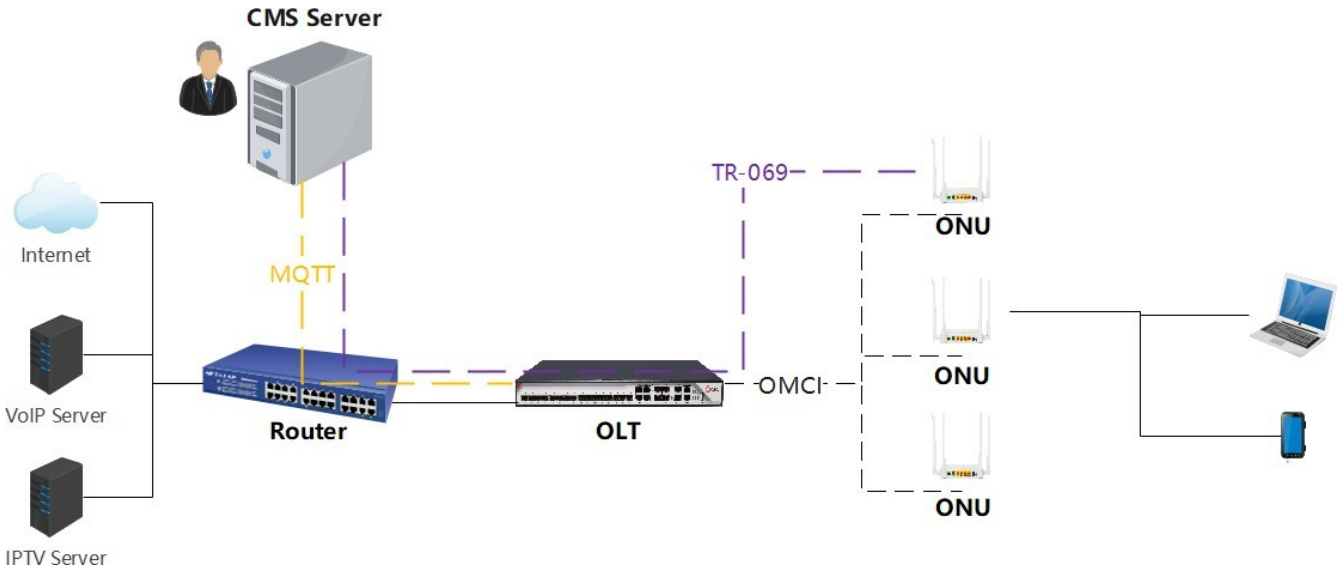
4.Network Management Scenario

After a single ONU/OLT binding is completed, the optimal solution is provided in the following three scenarios based on whether the OLT and ONU are managed by CMS and how they are managed.

1. CMS manages OLT and HGU at the same time. OLT is managed through MQTT and HGU is managed through TR-069.
2. CMS manages only OLT and OLT manages SFU through OMCI;
3. CMS does not manage OLTs, but directly manages HGU through TR-069, including third-party HGU.

4.1 Scenario 1: CMS manages OLTs via MQTT and HGU via TR-069

The network architecture as follows:



The recommended configuration procedure as follows:

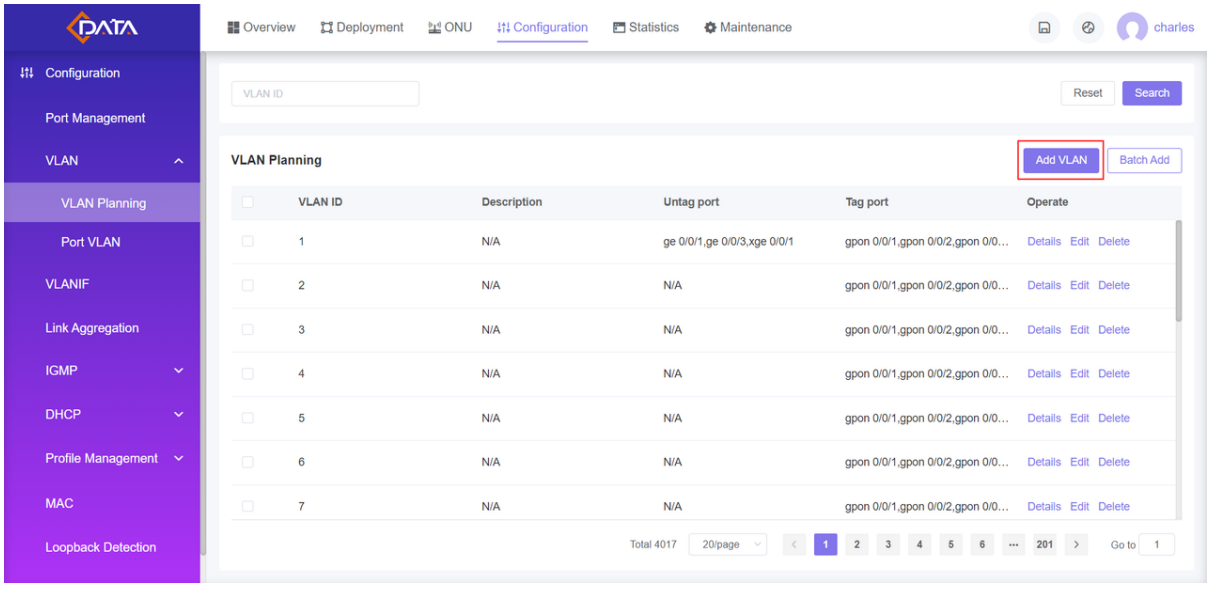
The OLT is routable to the CMS	The OLT is bound to the CMS	OLT easy deployment	ONU bindir

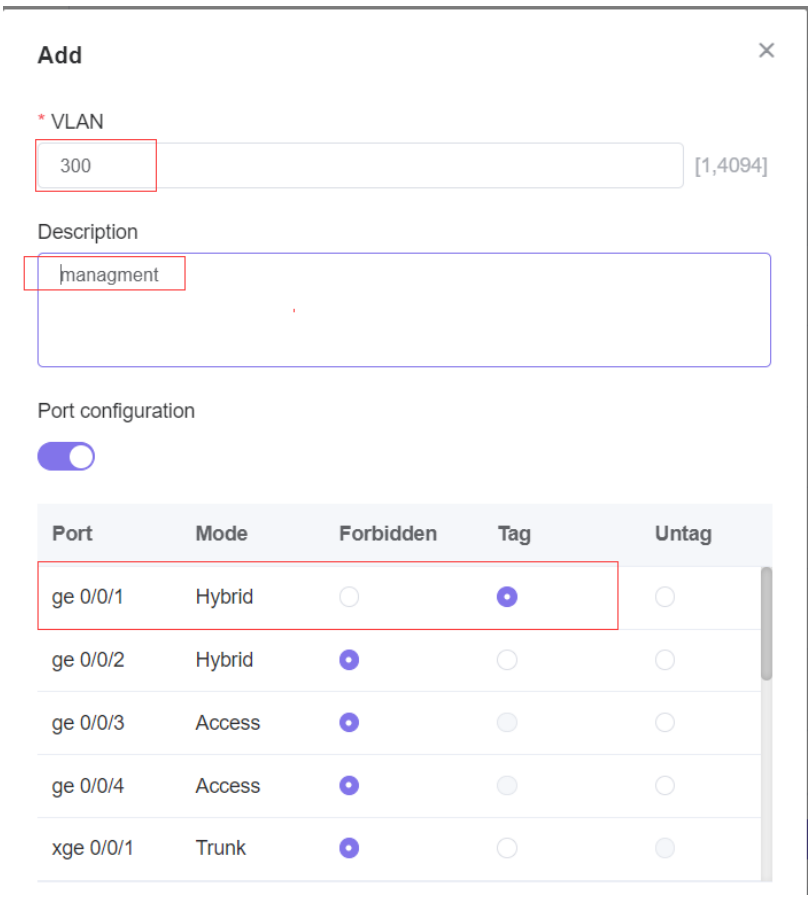
4.1.1 Step1 The OLT is routable to the CMS

To connect the OLT to the upstream route, you need to configure VLANIF interfaces and route.

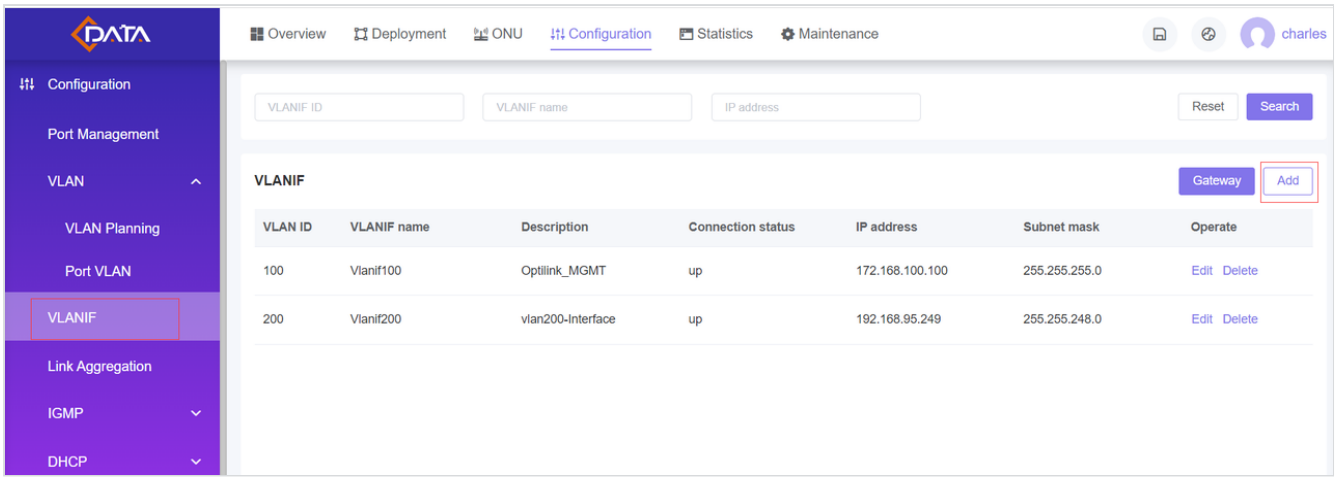
4.1.1.1 Configure VLANIF Interfaces

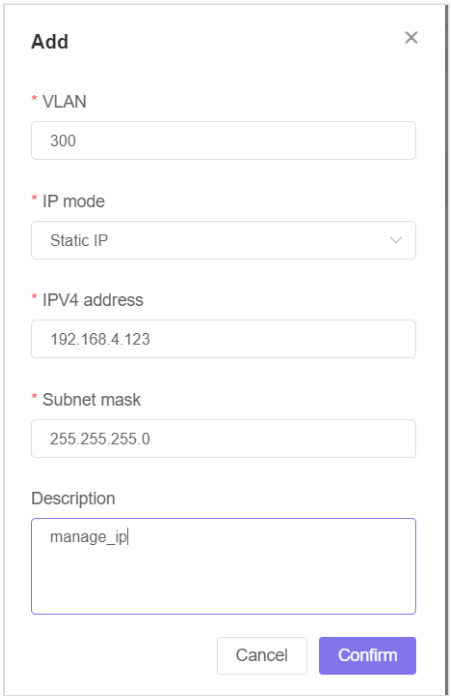
- Log in to the OLT Web management platform, open the VLAN Planing page, add VLAN 300, and bind VLAN 300 to the GE1 port for management.

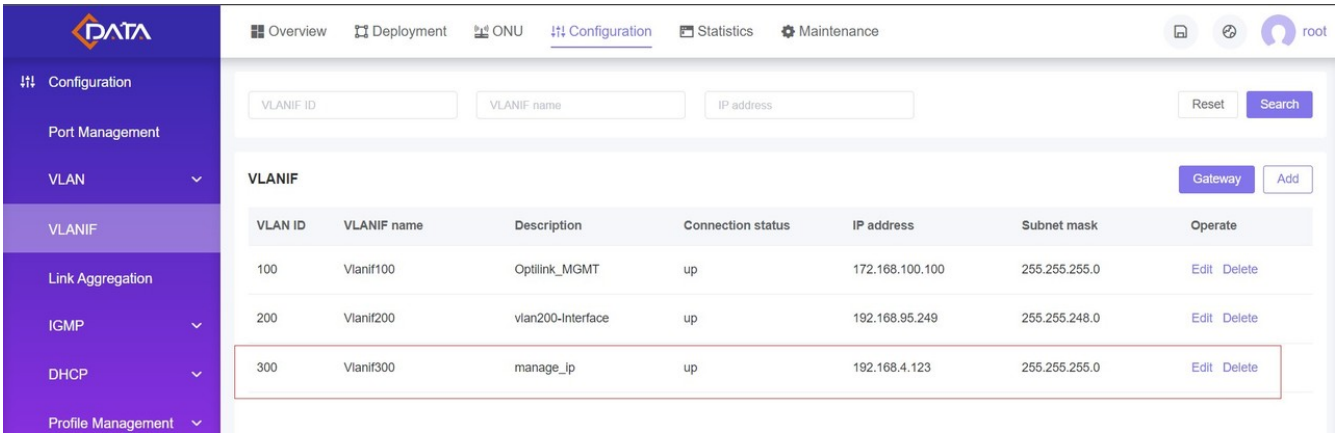




- Configure the management IP address 192.168.4.123 for VLAN 300.

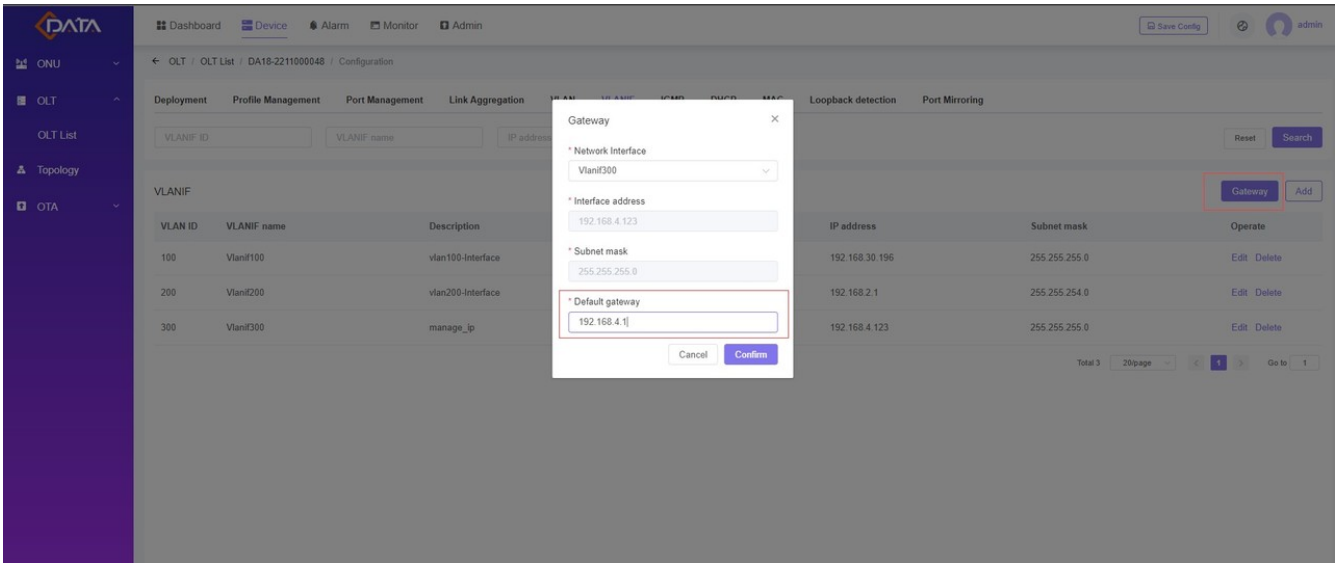






4.1.1.2 Configure Route

Configure the default route 192.168.4.1 for vlanif 300



4.1.2 Step2 Bind the OLT to the CMS

CMS manages OLTs through MQTT, currently only C-DATA OLT binding is supported, and later versions of third-party OLTs are supported.

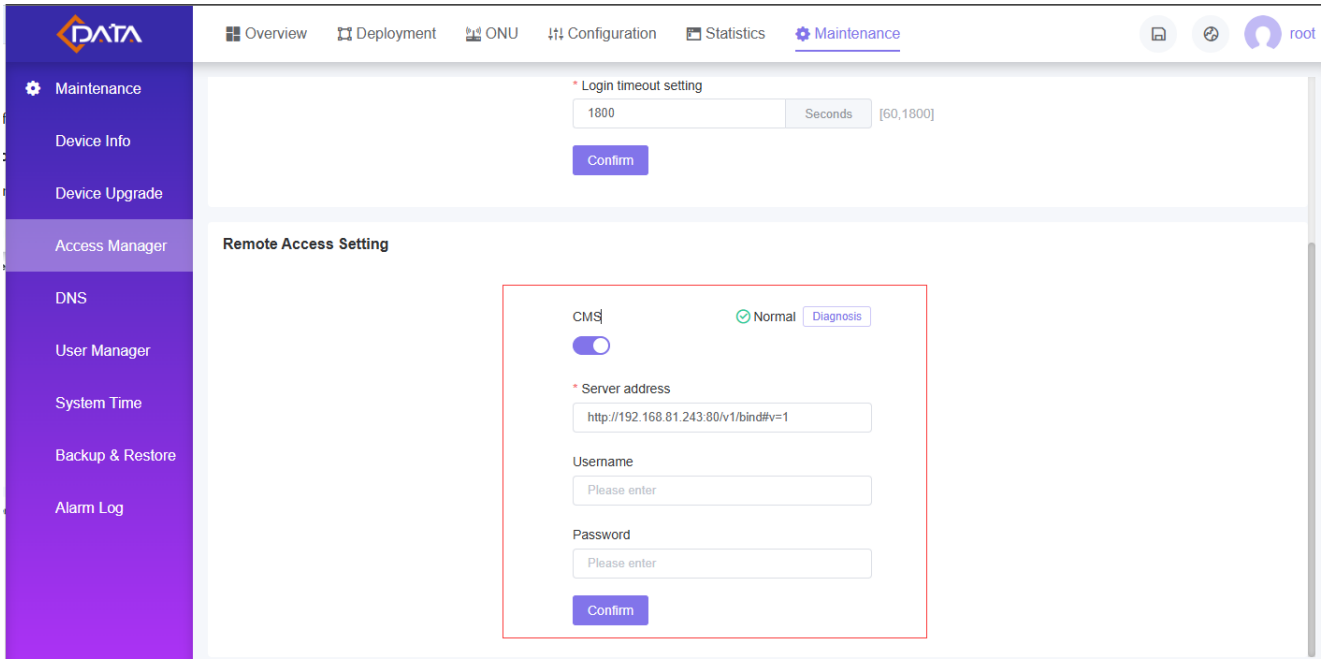
OLT upgrade	Enable the CMS remote access function	

4.1.2.1 OLT upgrade

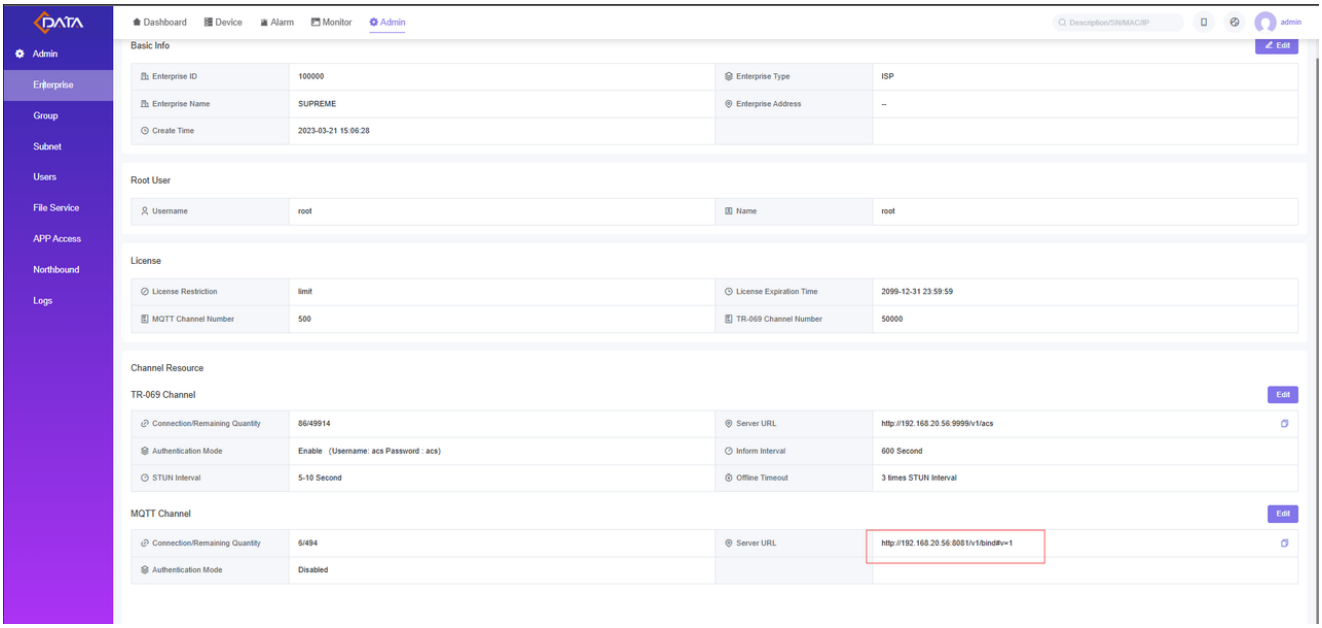
Log on to the OLT Web interface to upgrade your GPON 16 series OLT to version 3.2 or newer.

4.1.2.2 Enable CMS remote access

Log in to the OLT Web Management platform, open the [Maintenance-Access Manager] interface, start the CMS switch, and fill in the CMS Server and Port, as shown in the following figure.

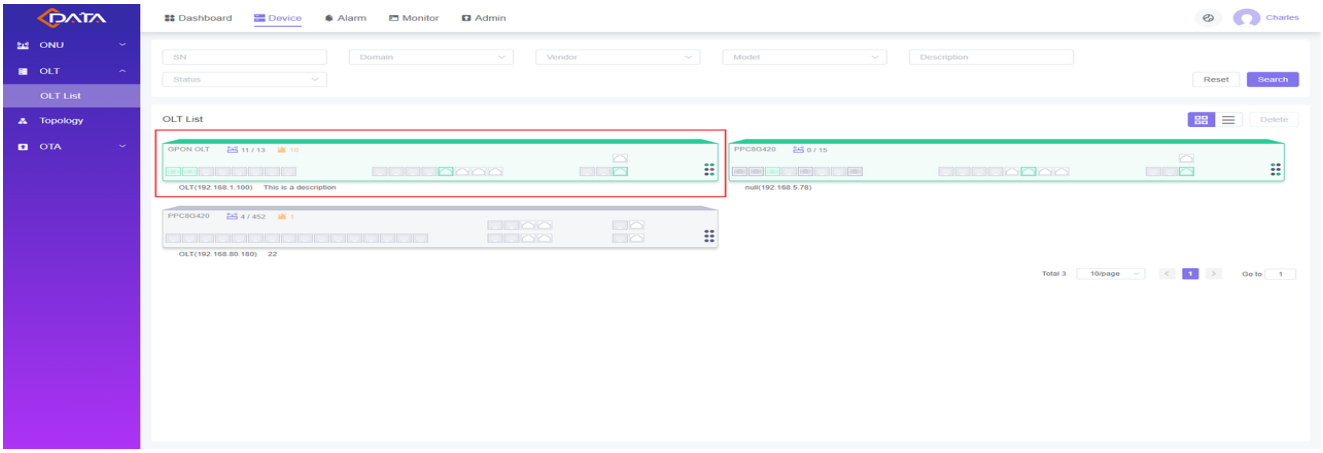


CMS Server and Port can be viewed on the 【Admin-Enterprise】 interface of CMS management platform, as shown in the following picture.



4.1.2.3 View the binding result

After the CMS is bound to the OLT successfully, log in to the CMS management platform and view the OLT information on the [Device-OLT-OLT List] interface, as shown in the following figure.



4.1.3 Step3 deployment of OLT

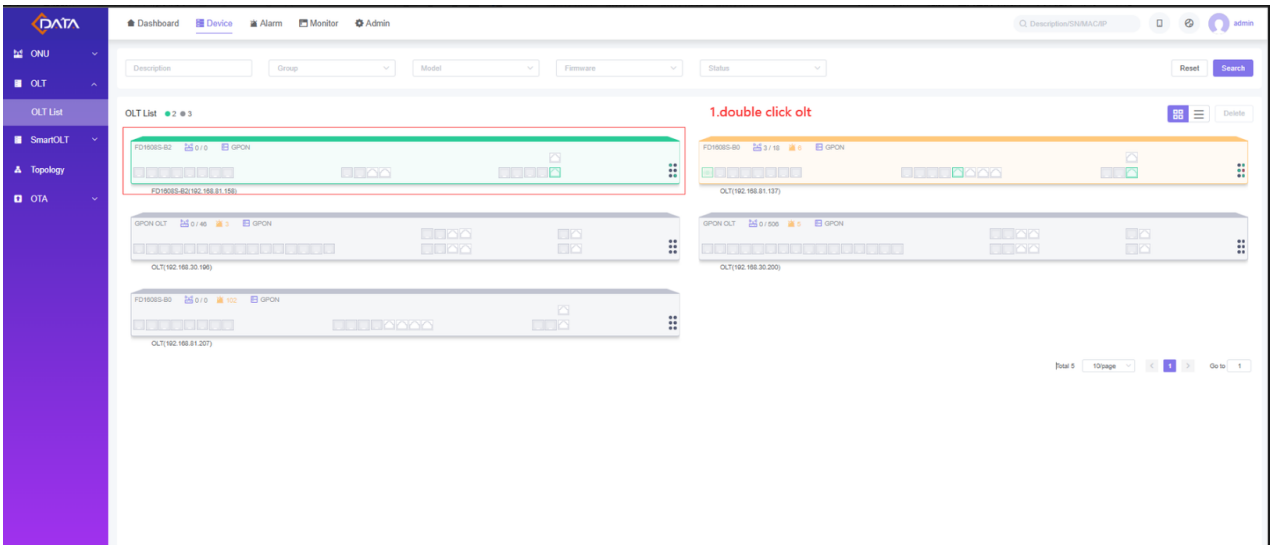
After the OLT is powered on, the simple deployment allows you to quickly configure the OLT globally and create deployment policies. After the ONU is power on, the policies are automatically delivered to the ONU connected the OLT.

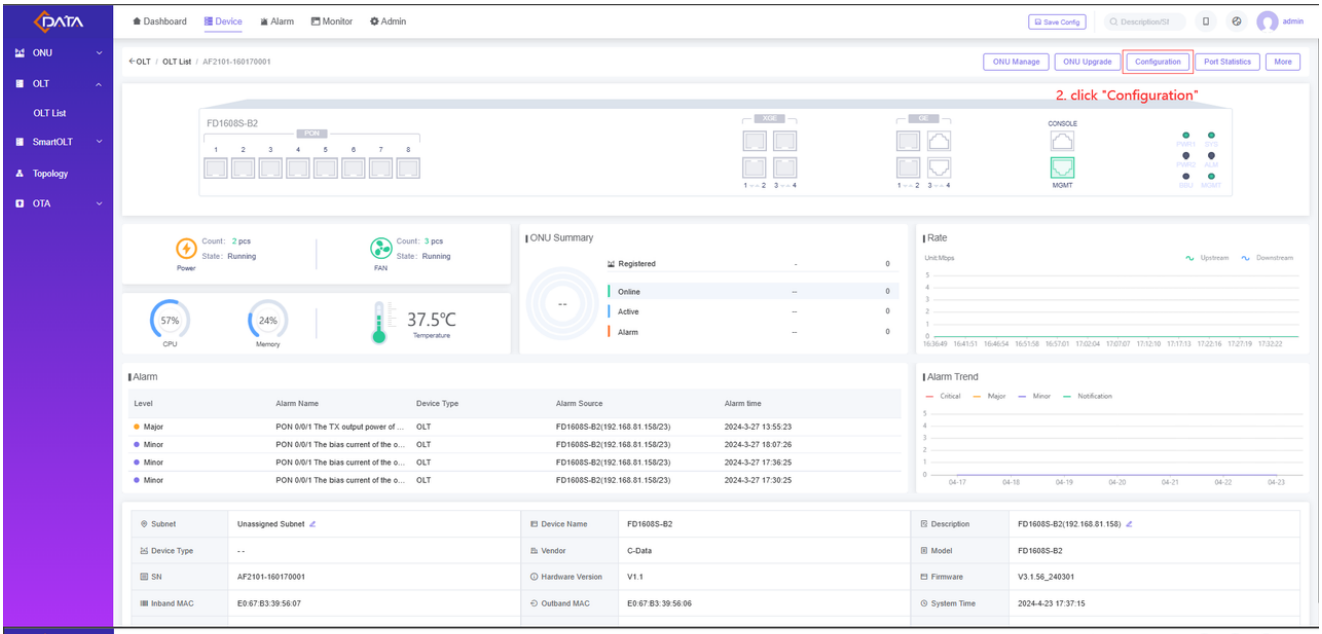
Take the HGU as an example to implement Internet access services through simple deployment. The steps are as follows:

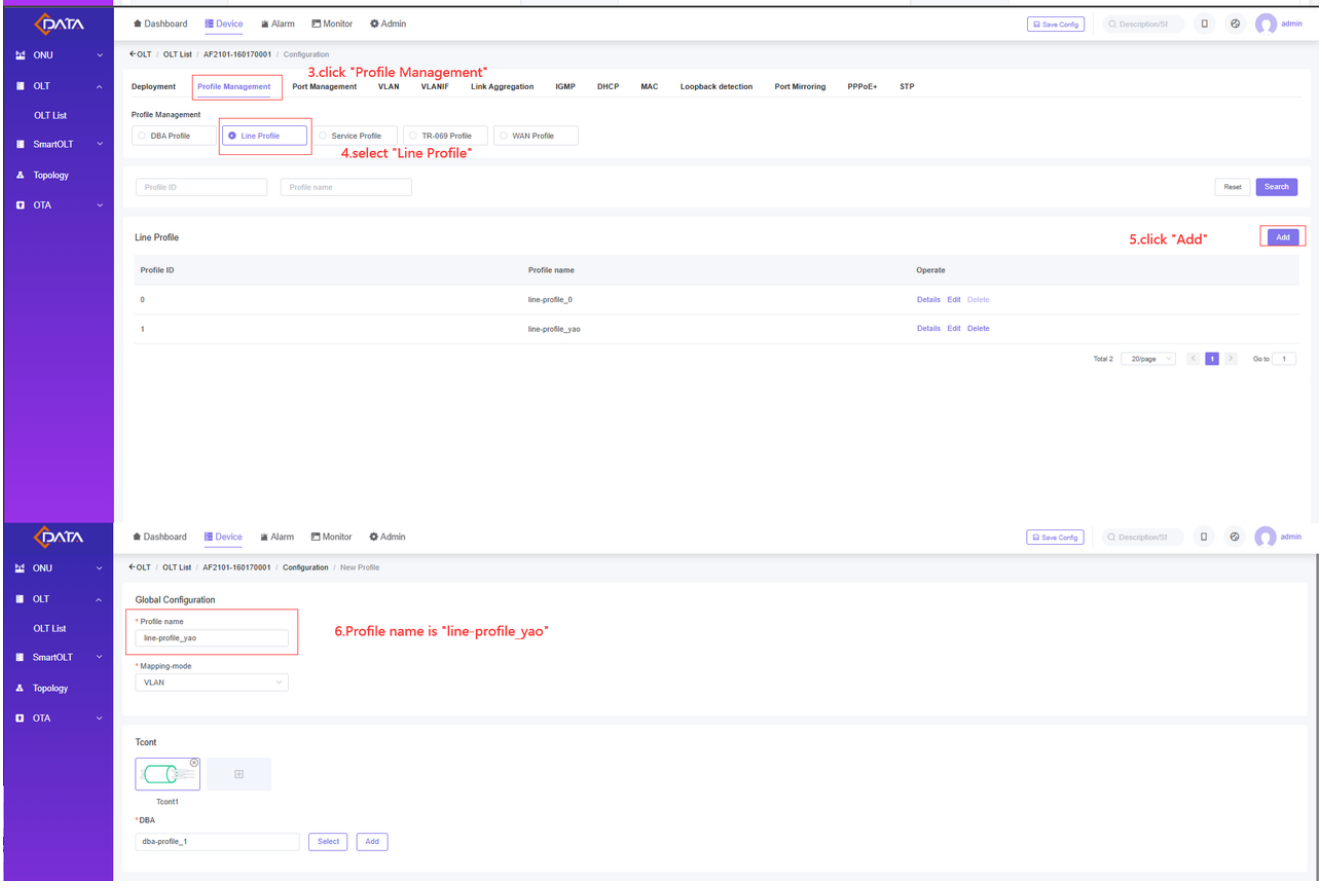
4.1.3.1 Prerequisites

Complete the configuration of the line profile, service profile,tr069 profile, Wan profile

- Create the line profile




Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
ONU Manage
ONU Upgrade
Configuration
Port Statistics
More
2. click "Configuration"
FD1608S-B2
ONU Summary
Registered
Online
Active
Alarm
Rate
Alarm
Alarm Trend
Subnet
Unassigned Subnet
Device Name
FD1608S-B2
Description
Device Type
Vendor
C-Data
Model
SN
AF2101-160170001
Hardware Version
V1.1
Firmware
V3.1.56_240301
Inband MAC
E0:67:B3:39:56:07
Outband MAC
E0:67:B3:39:56:06
System Time


Dashboard
Device
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OLT List
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OTA
3.click "Profile Management"
Deployment
Profile Management
Port Management
VLAN
VLANIF
Link Aggregation
IGMP
DHCP
MAC
Loopback detection
Port Mirroring
PPPoE+
STP
Profile Management
DBA Profile
Line Profile
Service Profile
TR-069 Profile
WAN Profile
4.select "Line Profile"
Reset
Search
Line Profile
5.click "Add"
Add
Profile ID
Profile name
Operate
0
line-profile_0
Details
Edit
Delete
1
line-profile_yao

Dashboard
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ONU
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Topology
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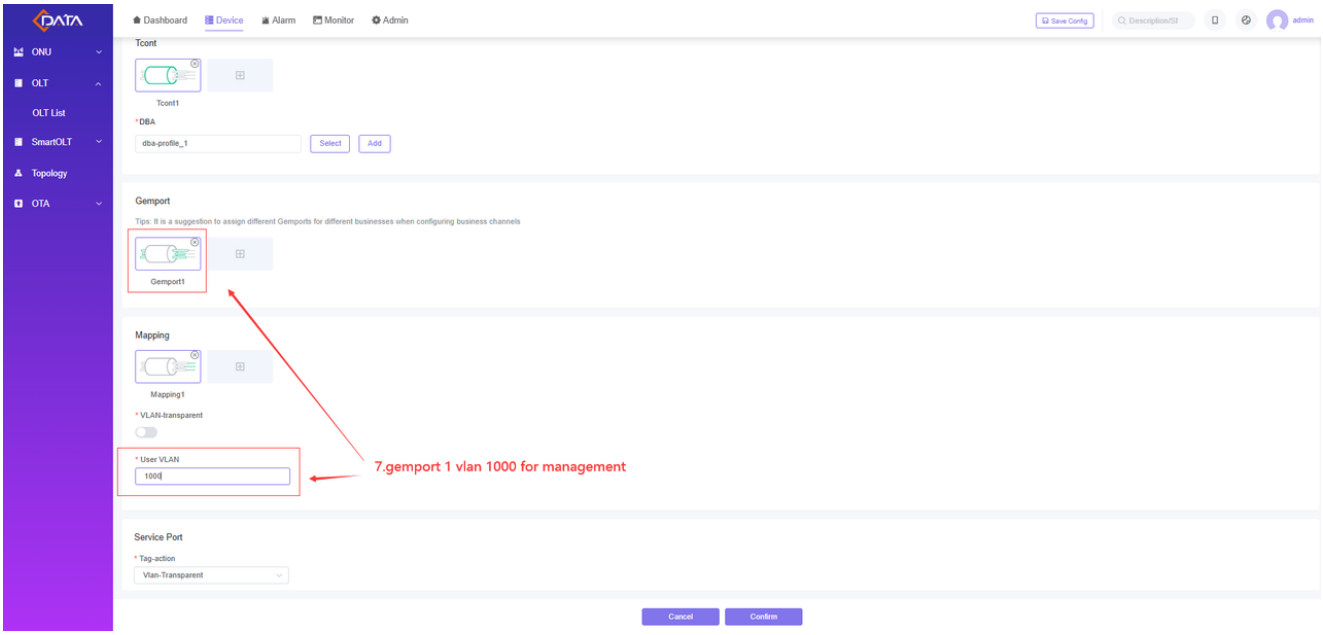
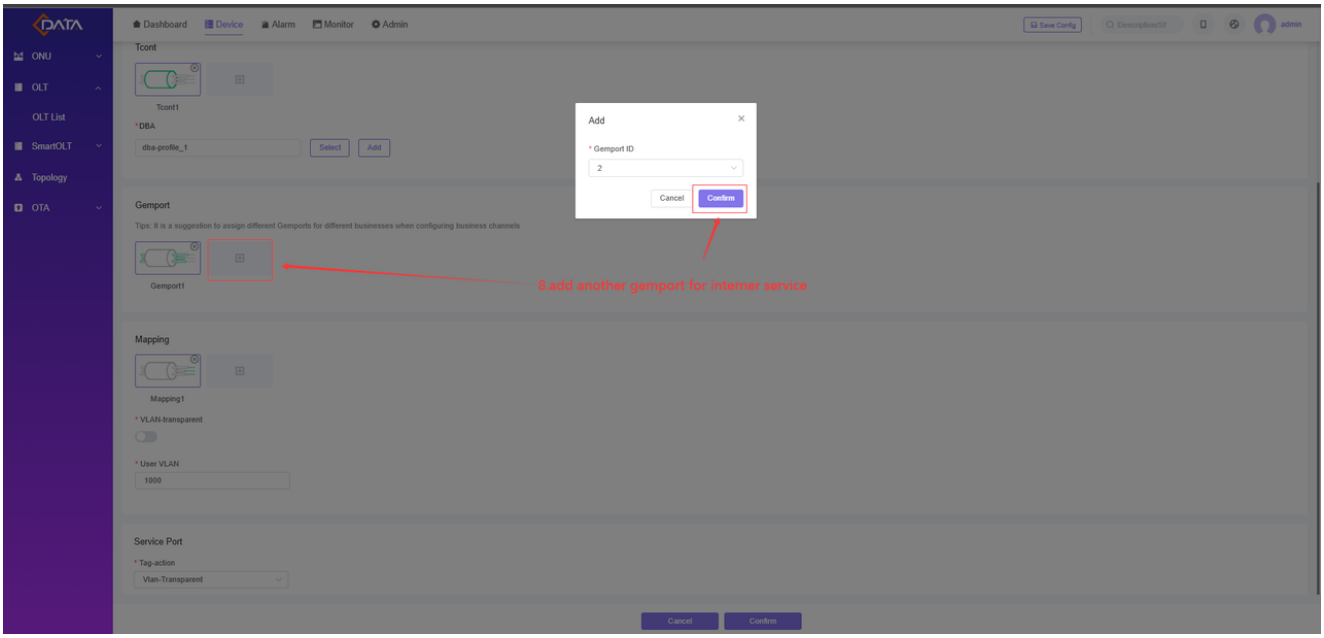
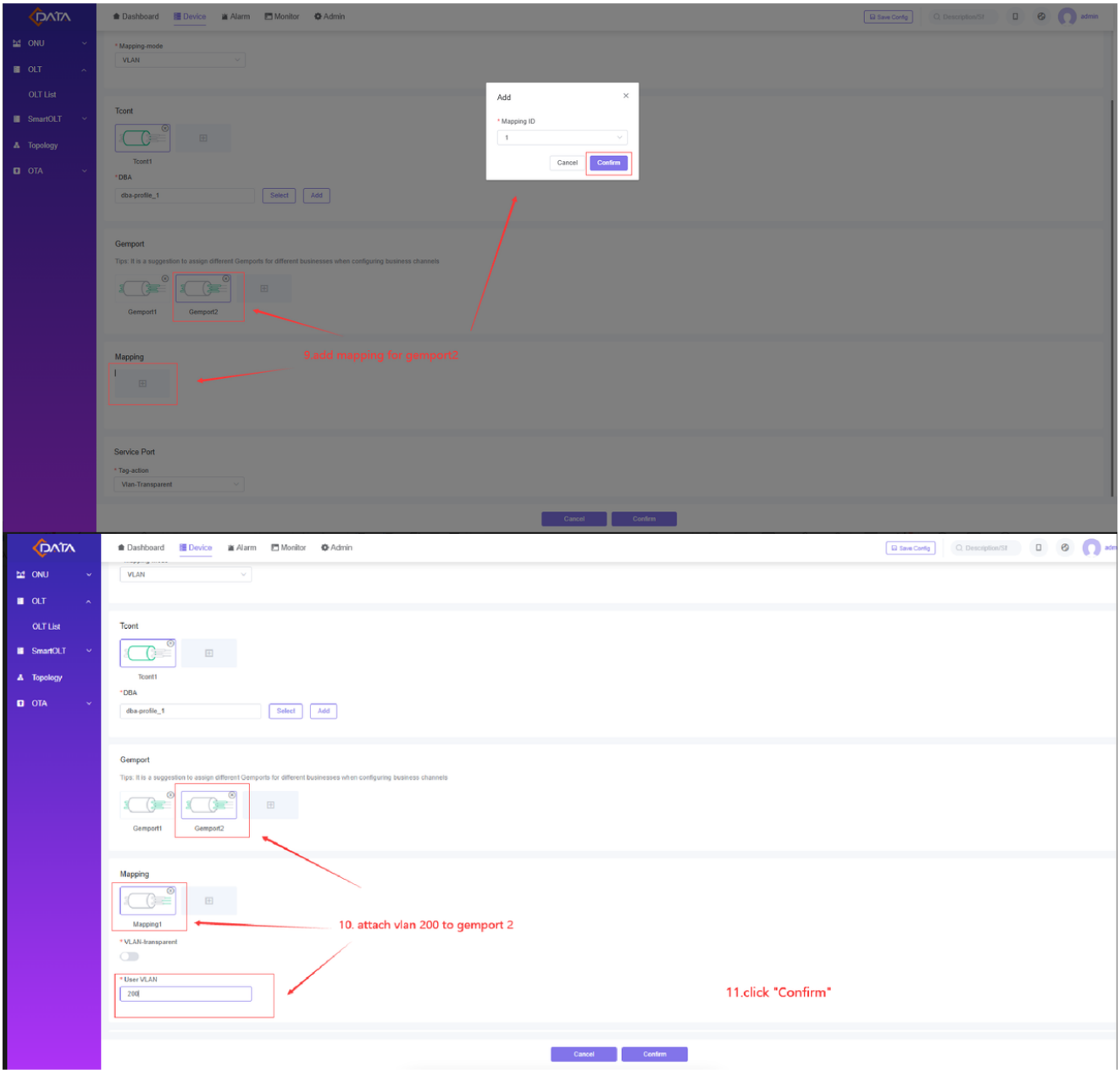
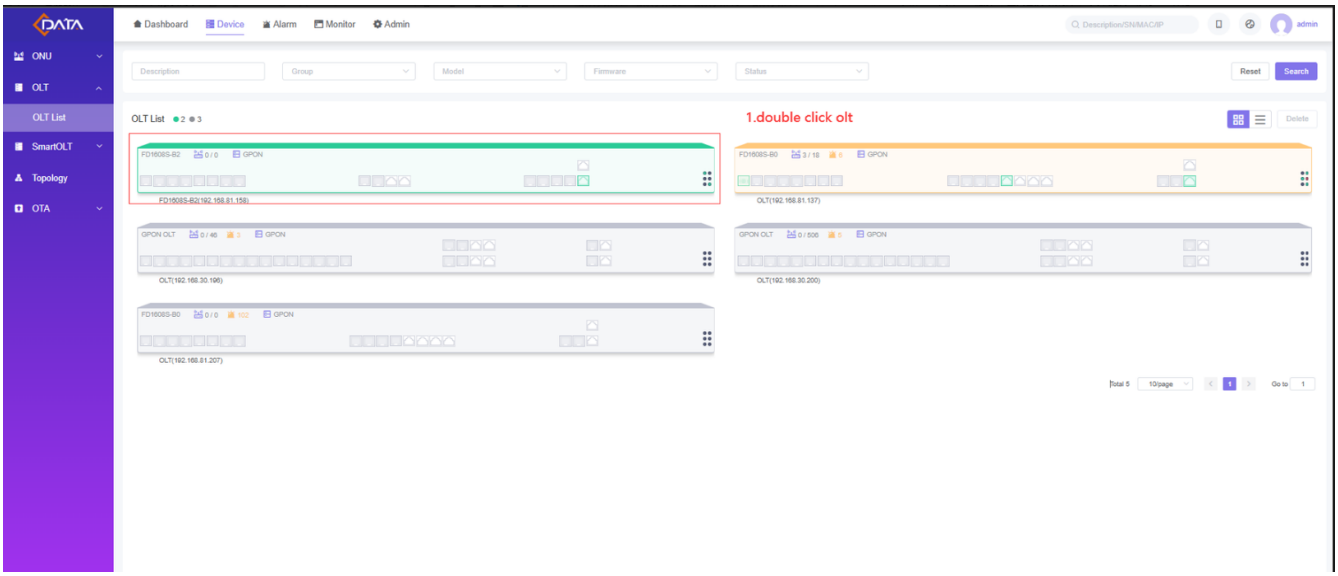
Global Configuration
Profile name
line-profile_yao
6.Profile name is "line-profile_yao"
Mapping-mode
VLAN
Tcont
Tcont1
DBA
dba-profile_1
Select
Add

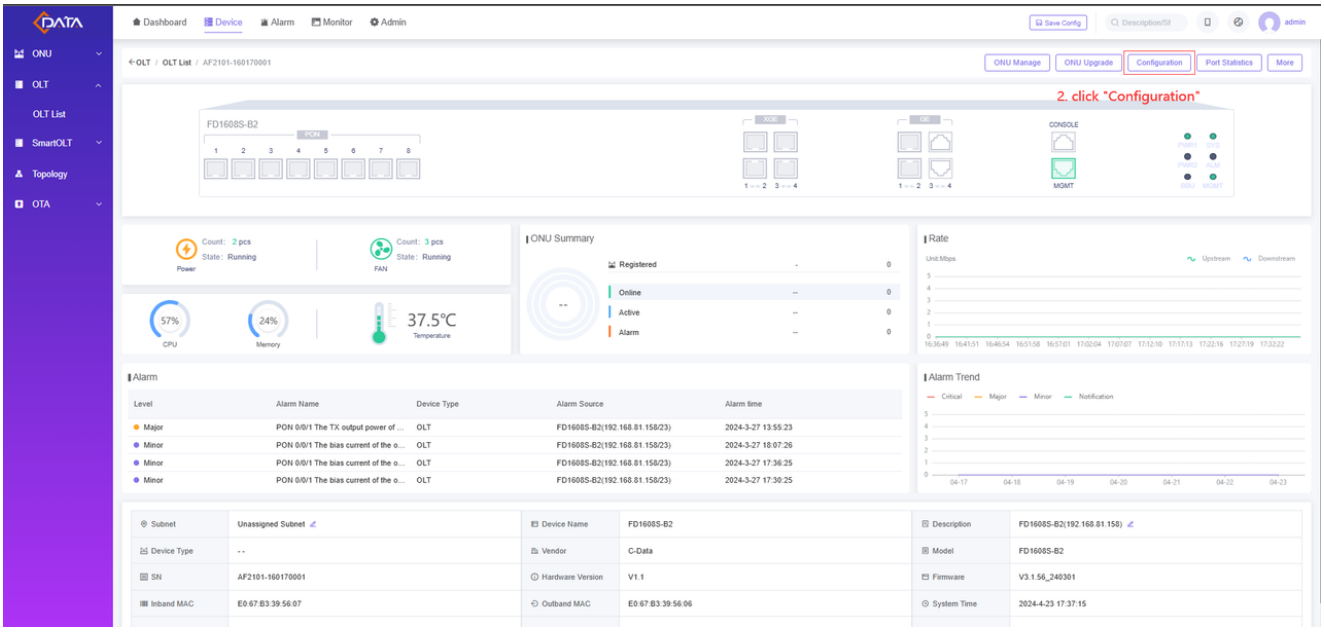

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Tcont
Tcont1
*DBA
dba-profile_1
Select
Add
Gemport
Tips: It is a suggestion to assign different Gemports for different businesses when configuring business channels
Gemport1
Mapping
Mapping1
* VLAN-transparent
* User VLAN
1000
7.gemport 1 vlan 1000 for management
Service Port
* Tag-action
Vlan-Transparent
Cancel
Confirm

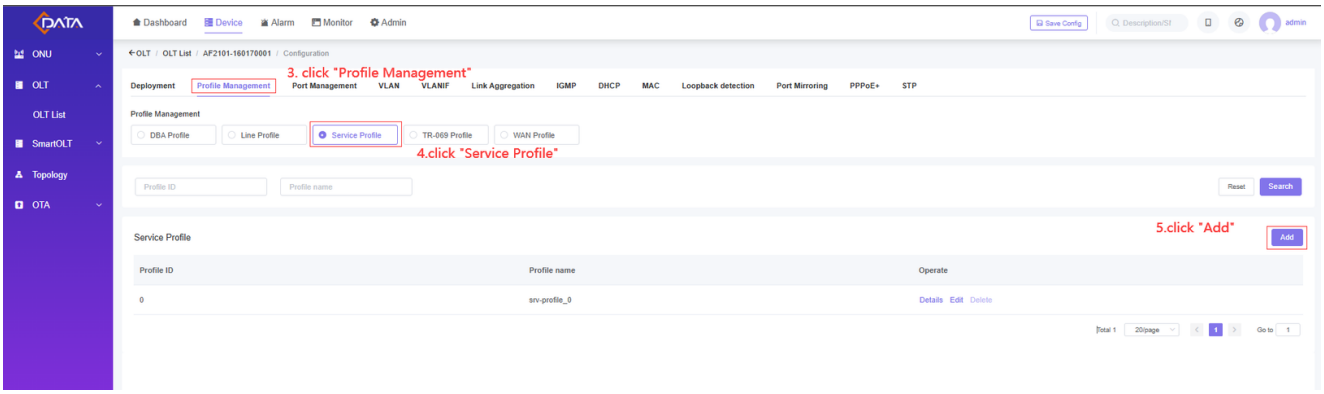

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Tcont
Tcont1
*DBA
dba-profile_1
Select
Add
Add
* Gemport ID
2
Cancel
Confirm
Gemport
Tips: It is a suggestion to assign different Gemports for different businesses when configuring business channels
Gemport1
8.add another gemport for internet service
Mapping
Mapping1
* VLAN-transparent
* User VLAN
1000
Service Port
* Tag-action
Vlan-Transparent
Cancel
Confirm

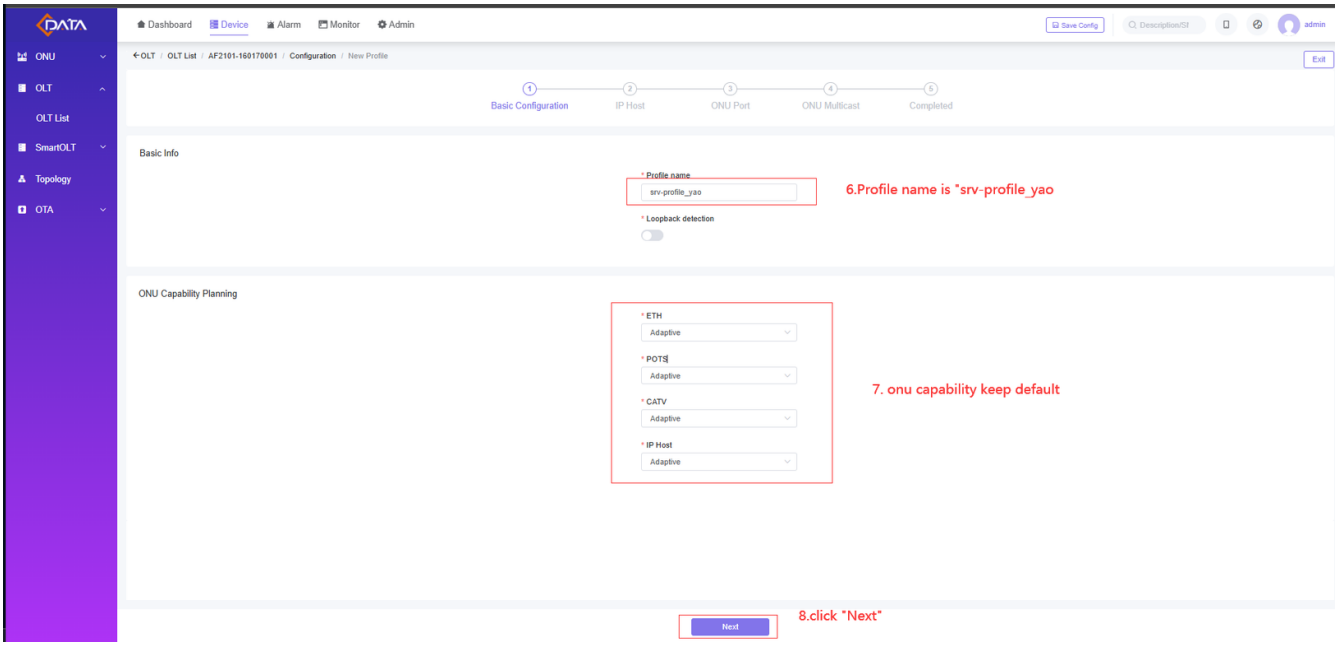


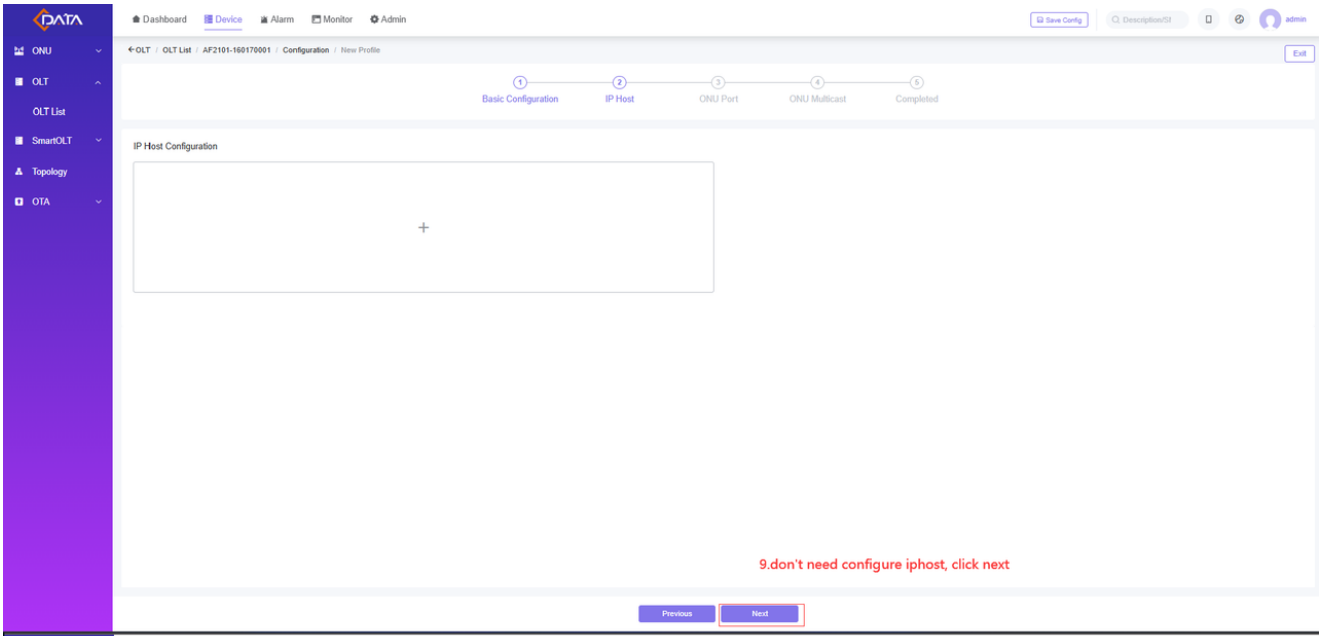
- Create a service profile

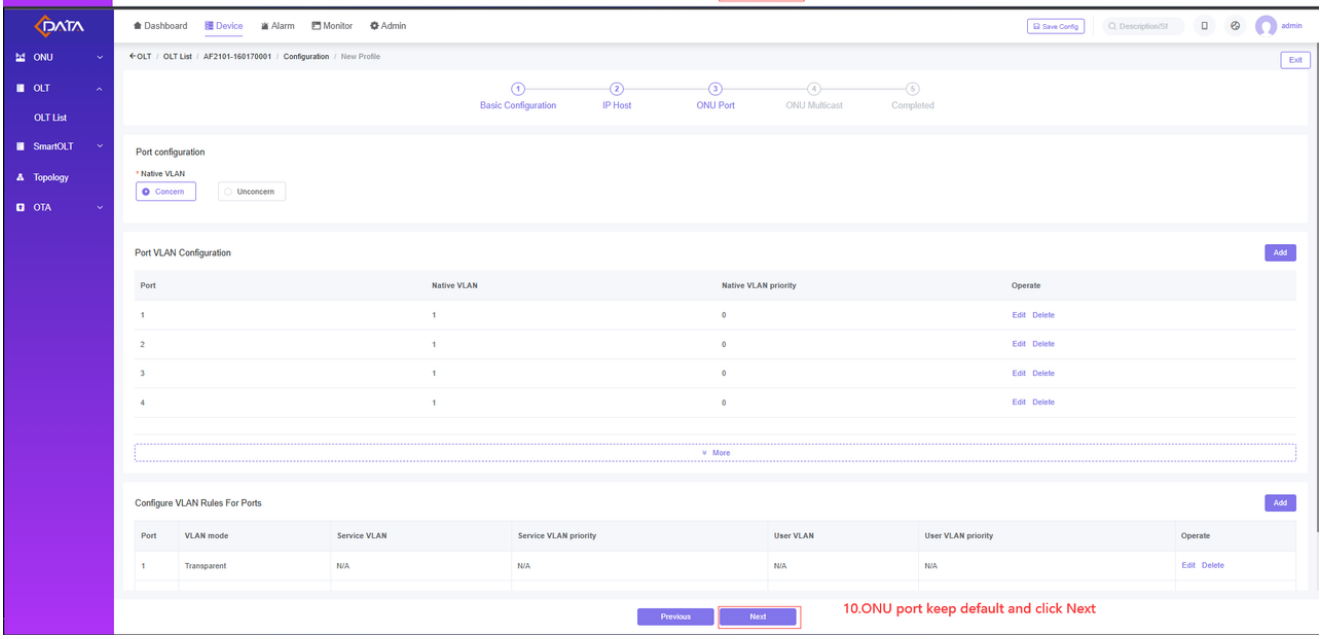


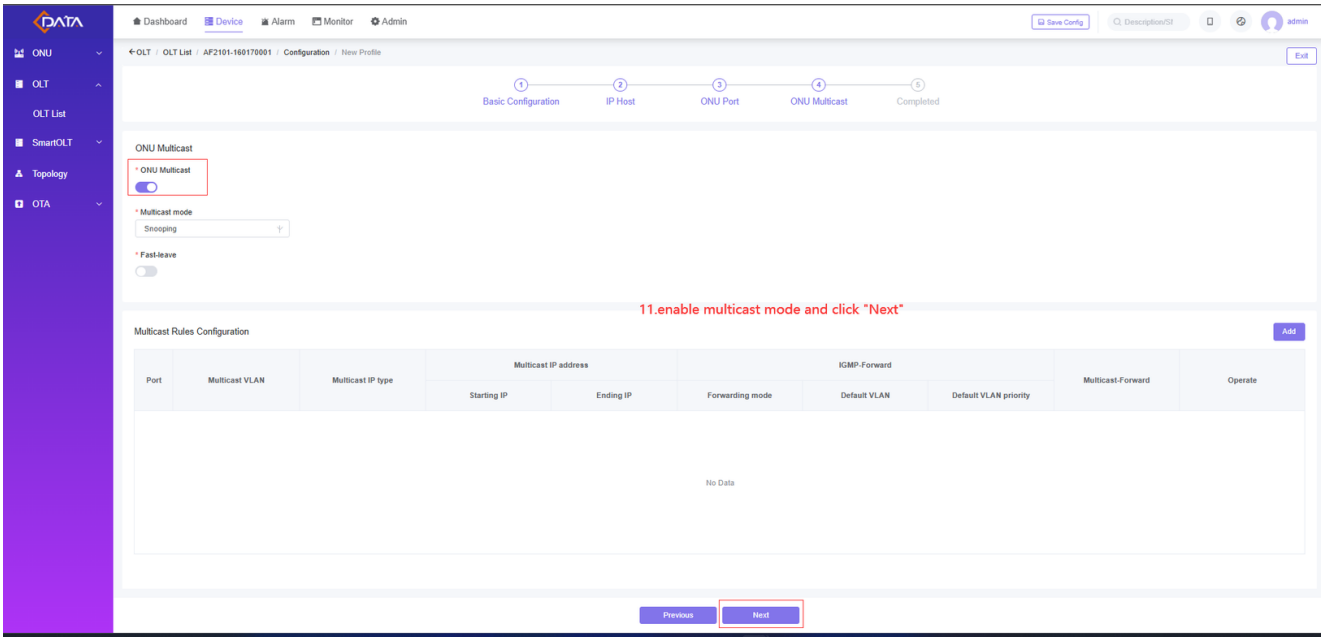

2. click "Configuration"


3. click "Profile Management"
4.click "Service Profile"
5.click "Add"

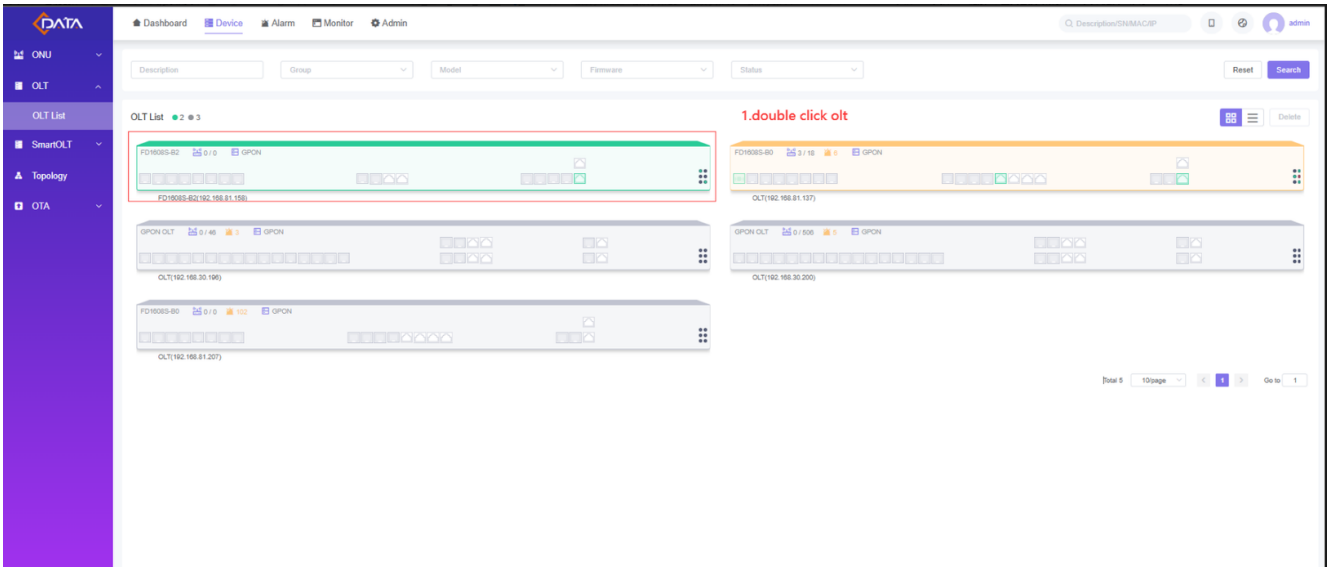

6.Profile name is "srv-profile_yao
7. onu capability keep default
8.click "Next"

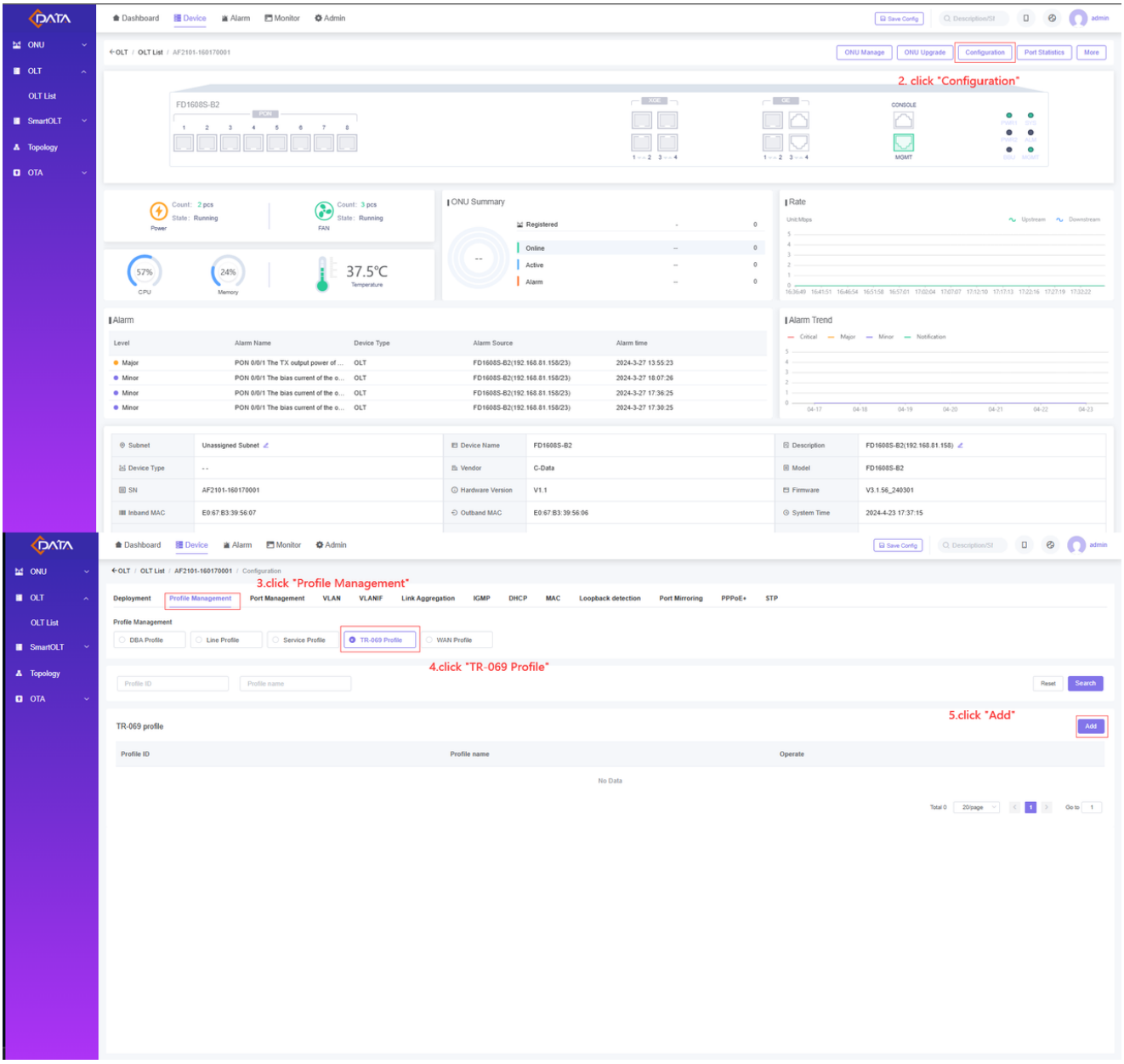

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Basic Configuration
IP Host
ONU Port
ONU Multicast
Completed
IP Host Configuration
9.don't need configure iphost, click next
Previous
Next

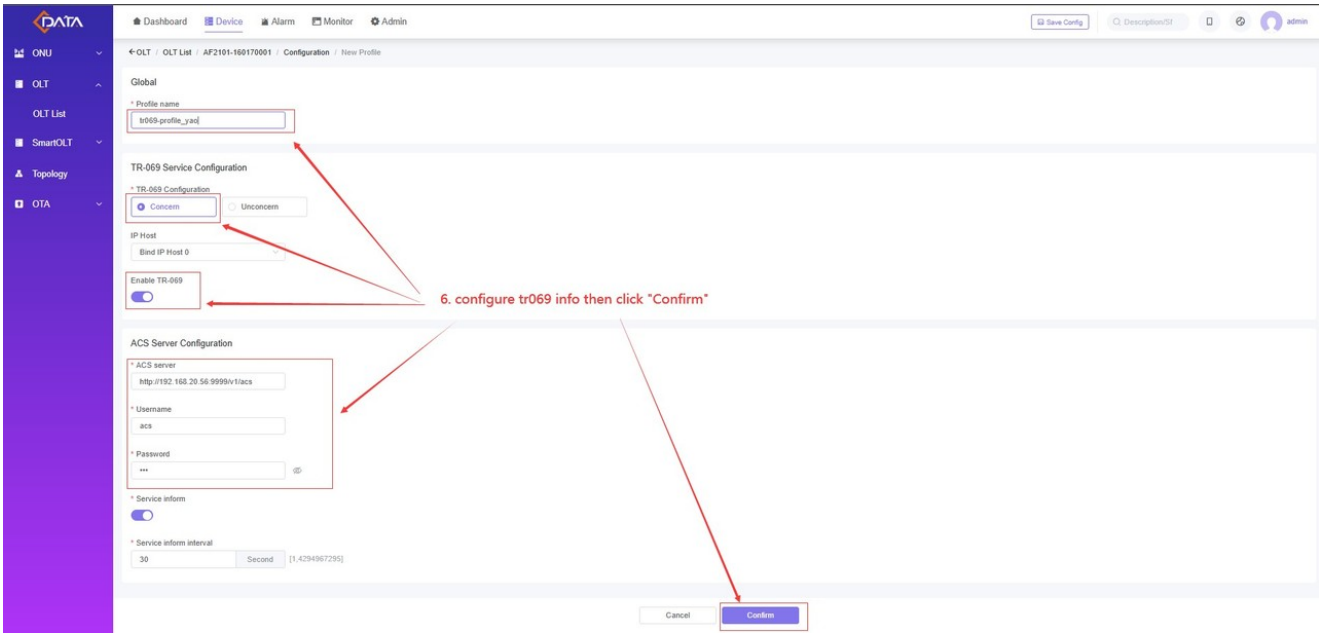

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Basic Configuration
IP Host
ONU Port
ONU Multicast
Completed
Port configuration
Native VLAN
Concern
Unconcern
Port VLAN Configuration
Add
Port
Native VLAN
Native VLAN priority
Operate
Edit
Delete
More
Configure VLAN Rules For Ports
VLAN mode
Service VLAN
Service VLAN priority
User VLAN
User VLAN priority
Transparent
N/A
Previous
Next
10.ONU port keep default and click Next


Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Basic Configuration
IP Host
ONU Port
ONU Multicast
Completed
ONU Multicast
ONU Multicast
Multicast mode
Snooping
Fast-leave
11.enable multicast mode and click "Next"
Multicast Rules Configuration
Add
Port
Multicast VLAN
Multicast IP type
Multicast IP address
Starting IP
Ending IP
IGMP Forward
Forwarding mode
Default VLAN
Default VLAN priority
Multicast-Forward
Operate
No Data
Previous
Next

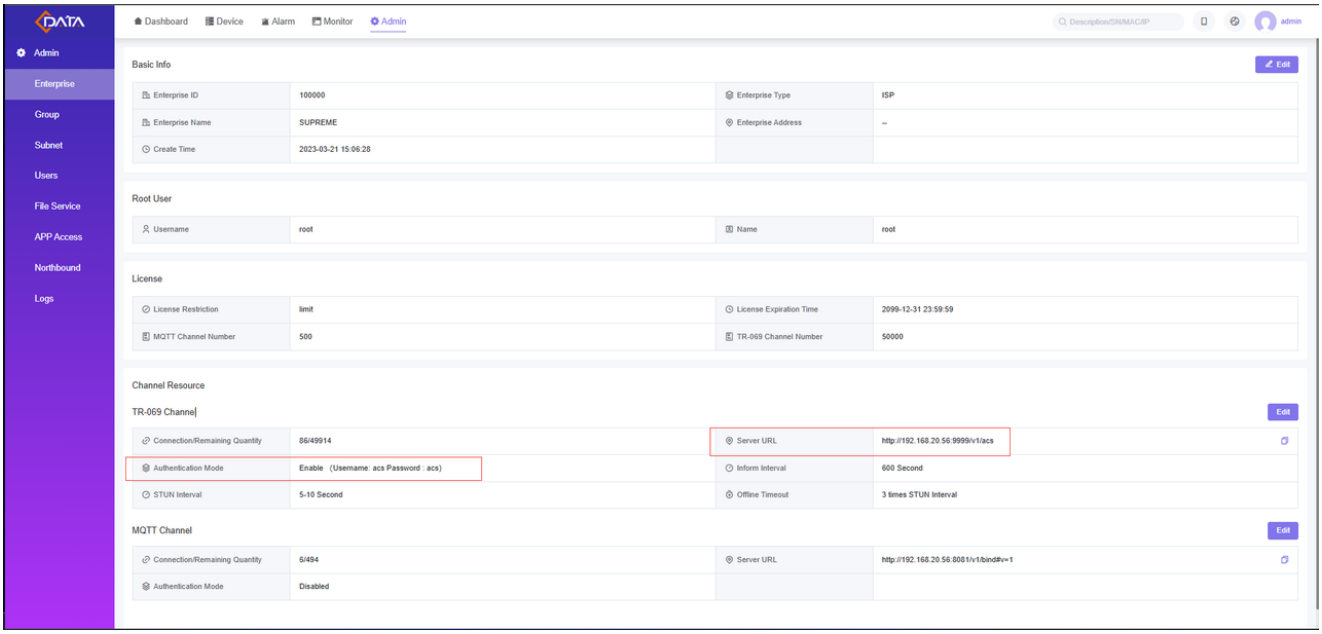
- Create a tr069 profile



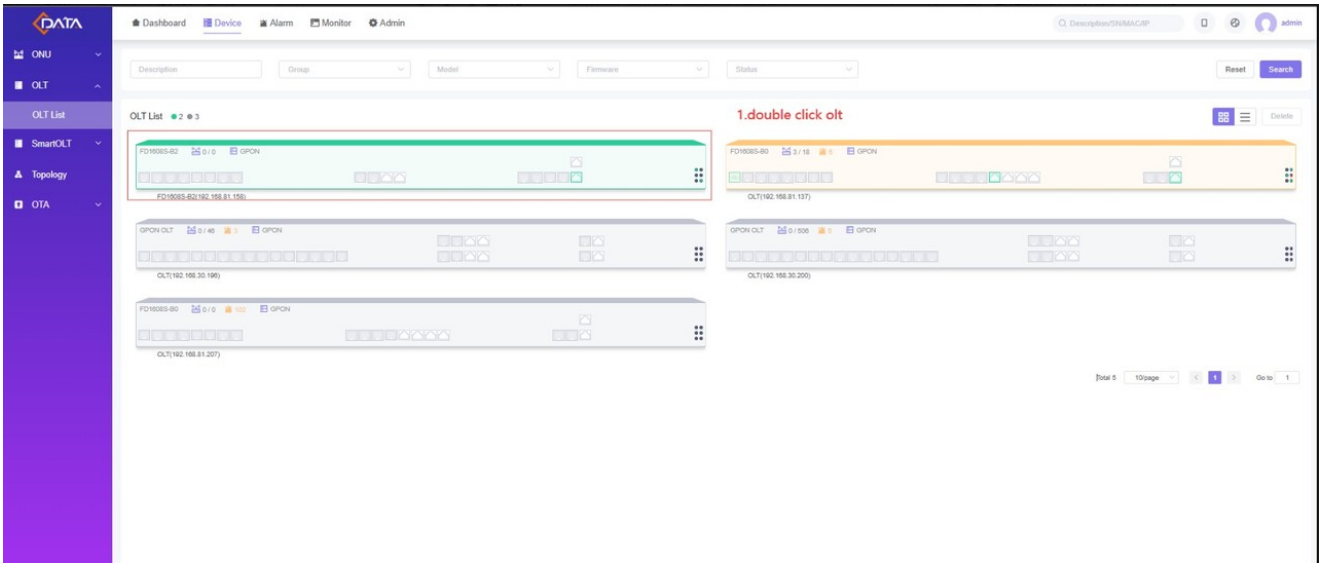


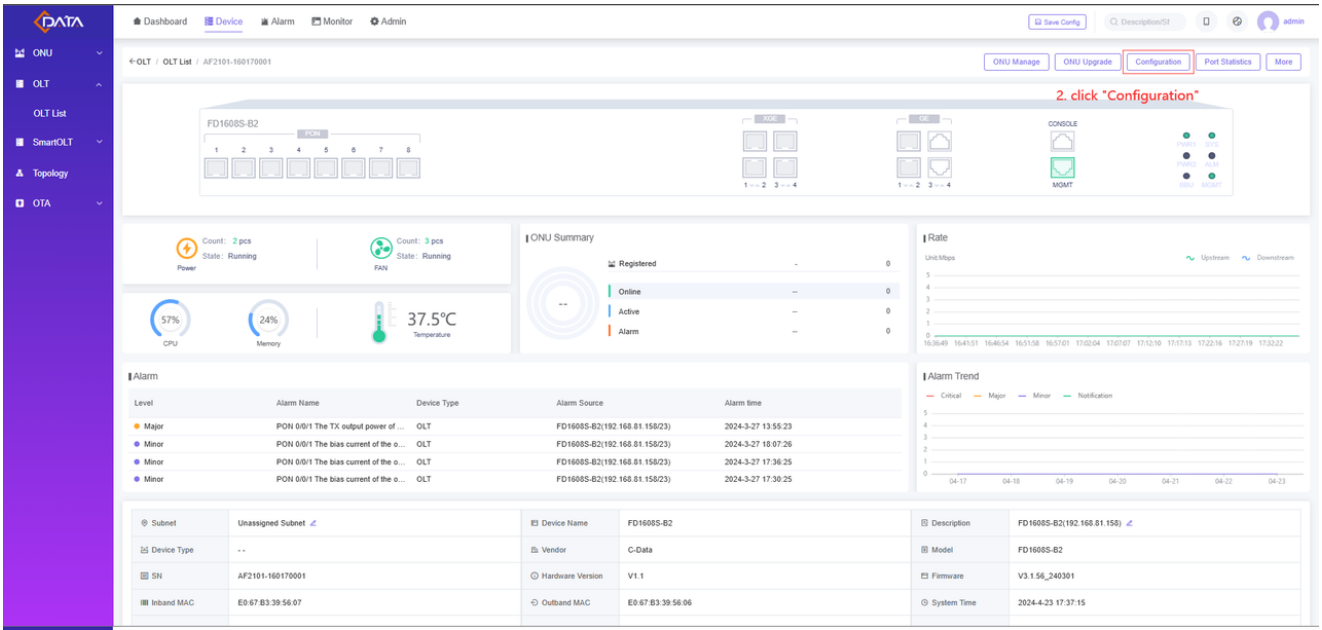


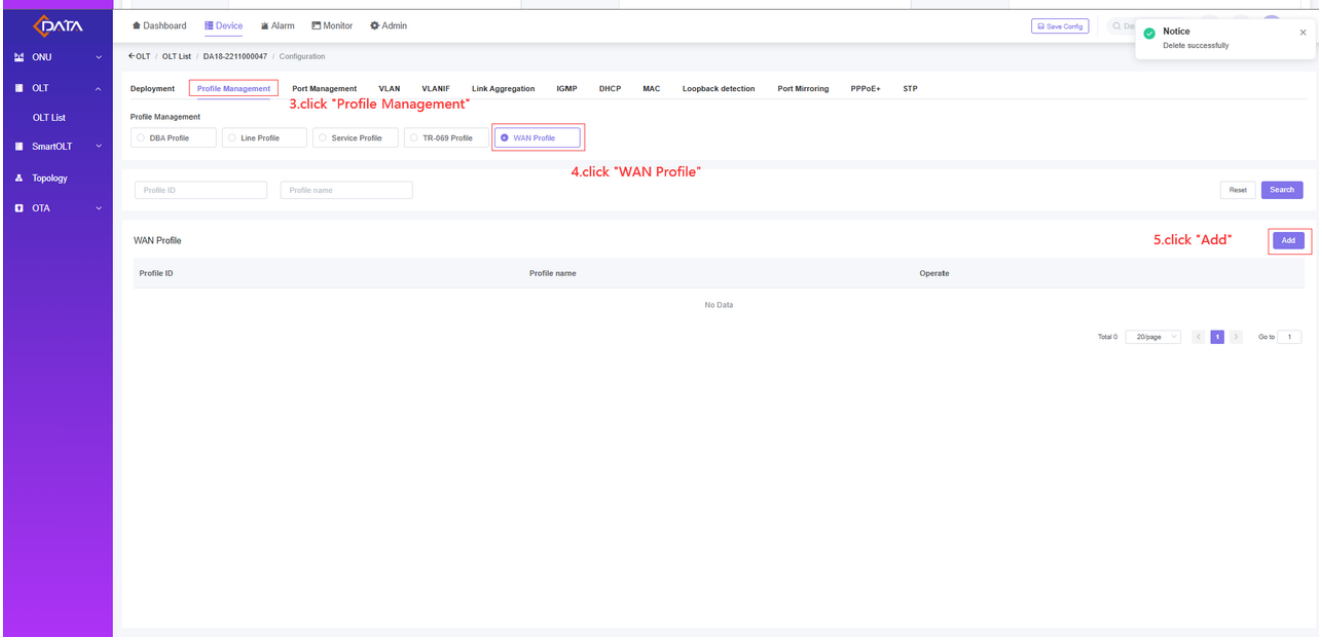
Note: ACS server Configuration requires and [Admin-Enterprise], as shown in the image below:

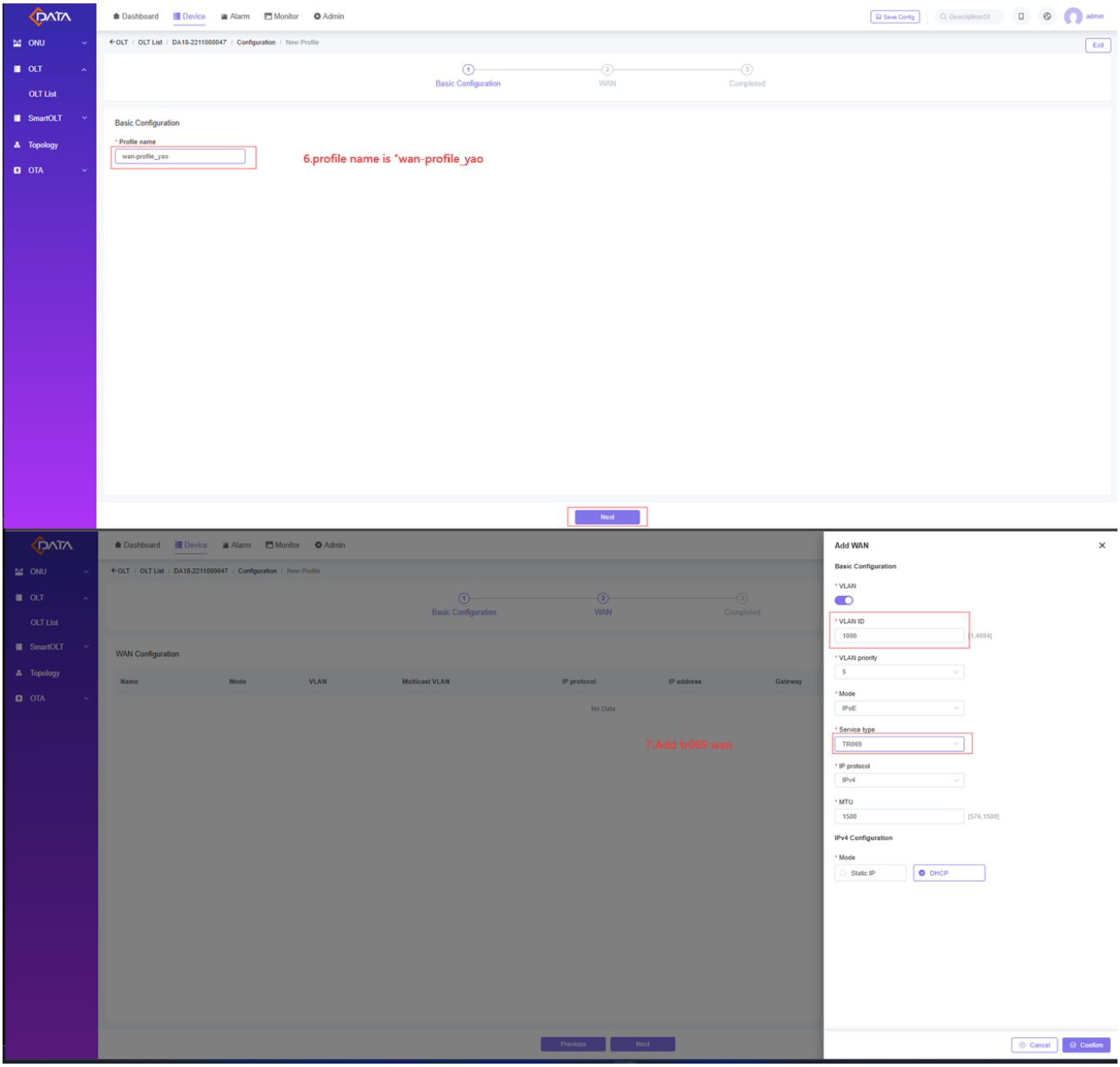


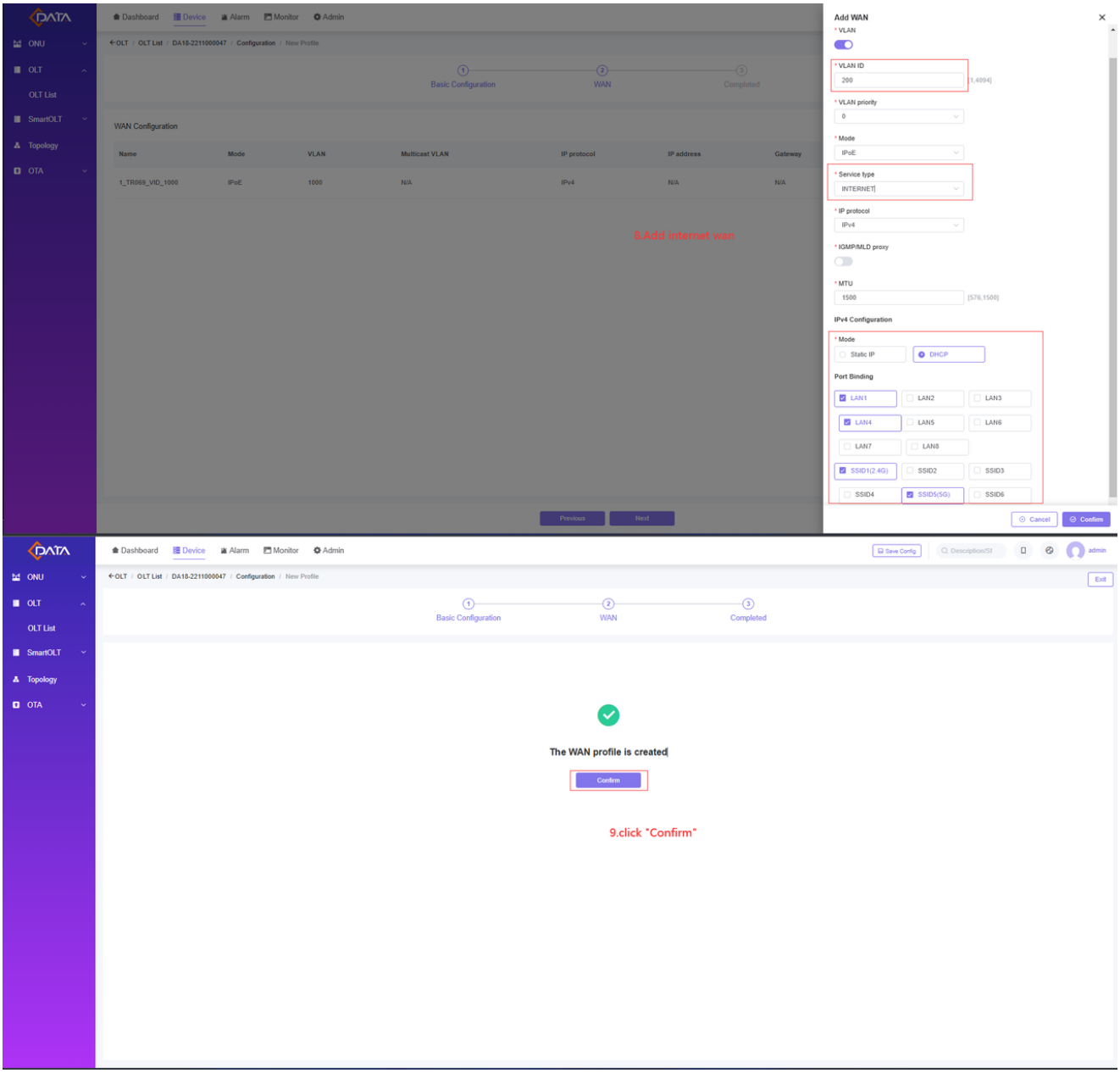
- Create wan profile


Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
OLT List
1.double click olt

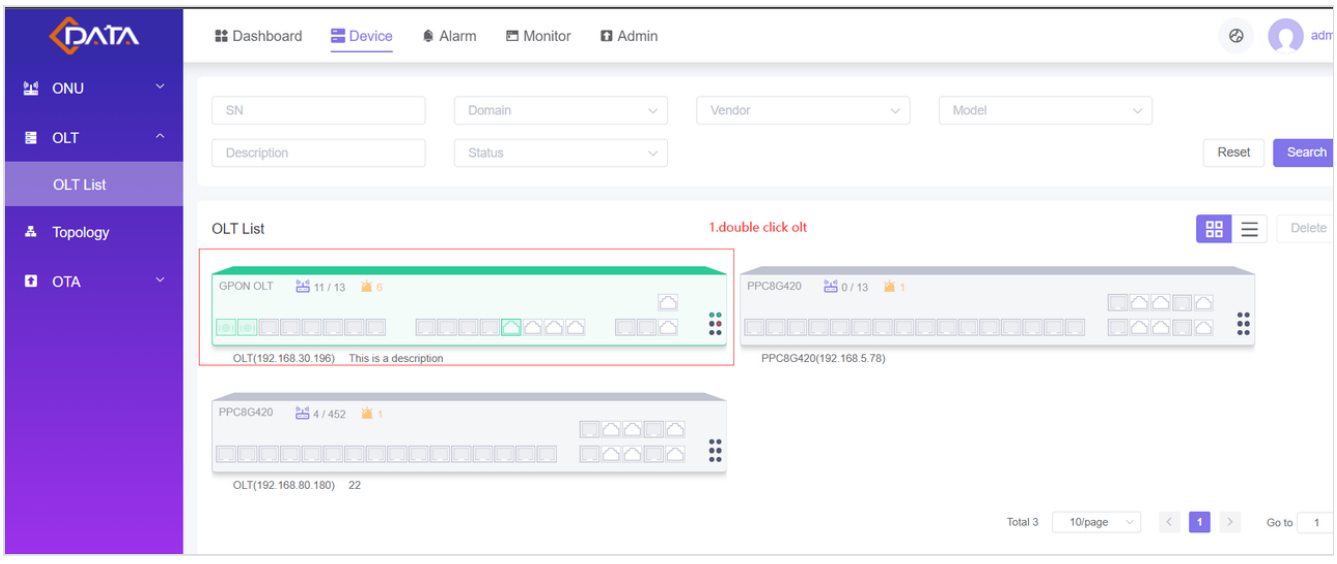

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
ONU Manage
ONU Upgrade
Configuration
Port Statistics
More
2. click "Configuration"
FD1608S-B2
ONU Summary
Rate
Alarm
Alarm Trend

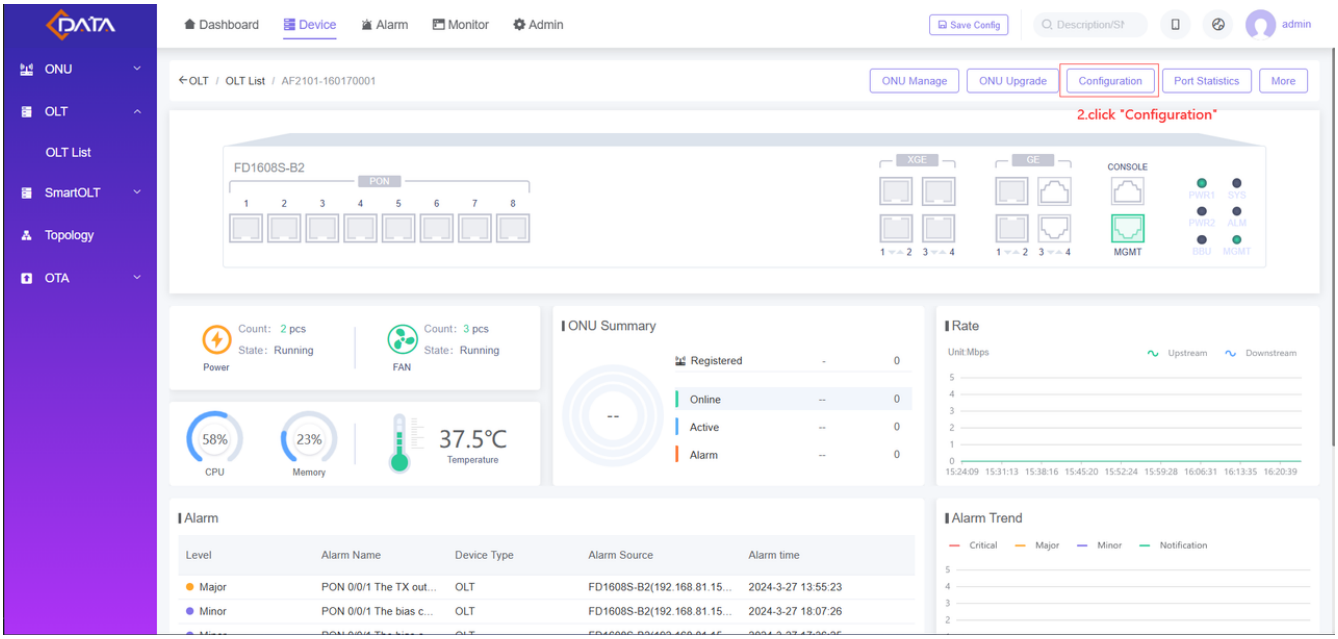

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Notice
Delete successfully
Deployment
Profile Management
Port Management
VLAN
VLANIF
Link Aggregation
IGMP
DHCP
MAC
Loopback detection
Port Mirroring
PPPoE+
STP
3.click "Profile Management"
Profile Management
DBA Profile
Line Profile
Service Profile
TR-069 Profile
WAN Profile
4.click "WAN Profile"
Reset
Search
WAN Profile
5.click "Add"
Add
Profile ID
Profile name
Operate
No Data

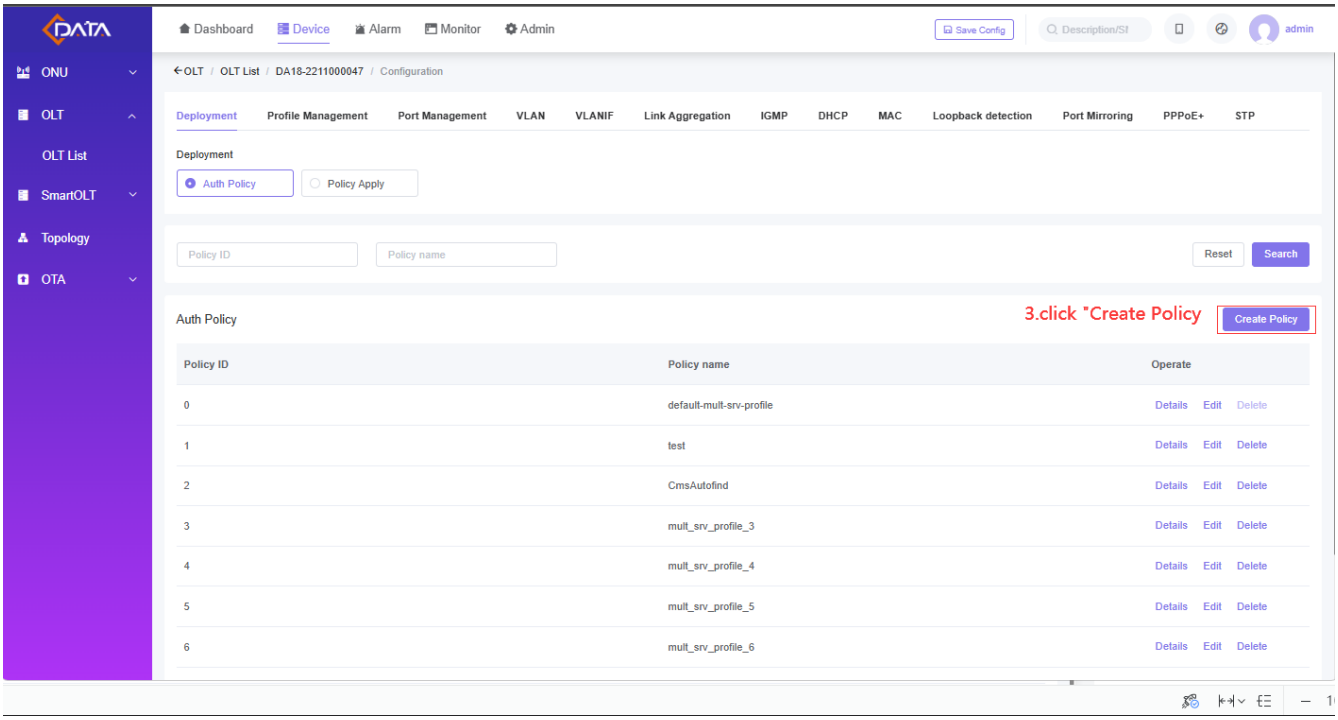

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Basic Configuration
WAN
Completed
Profile name
wan-profile_yao
6.profile name is "wan-profile_yao
Next
WAN Configuration
Name
Mode
VLAN
Multicast VLAN
IP protocol
IP address
Gateway
No Data
7.Add tr069 wan
Add WAN
VLAN
VLAN ID
1000
VLAN priority
Mode
IPoE
Service type
TR069
IP protocol
IPv4
MTU
1500
IPv4 Configuration
Static IP
DHCP
Previous
Cancel
Confirm

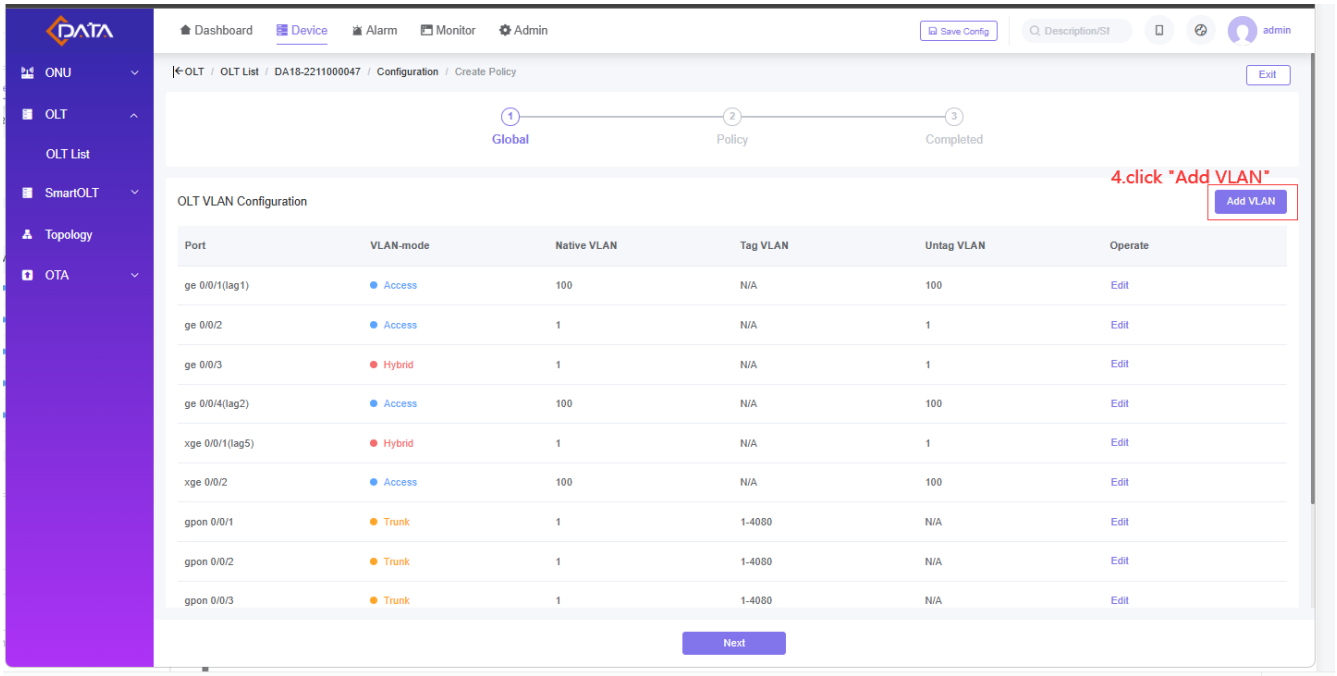


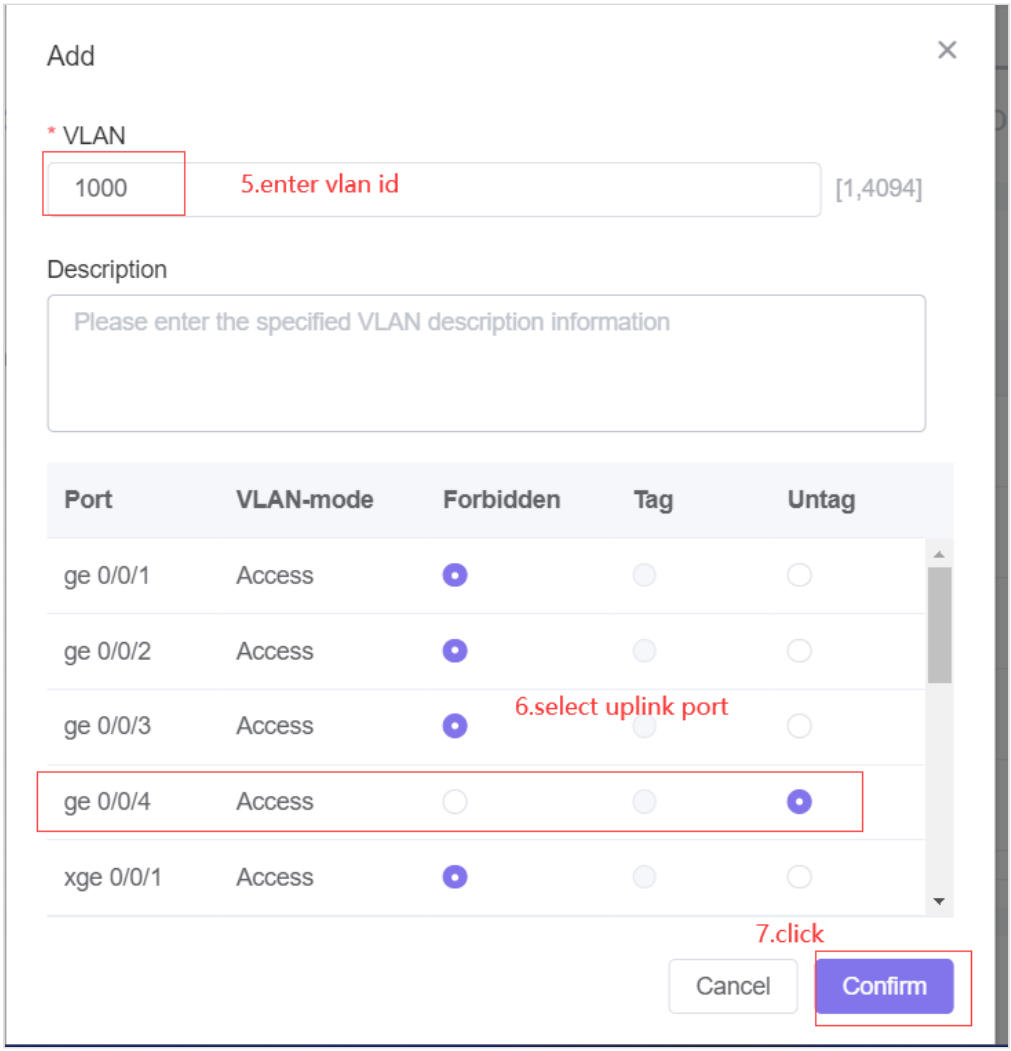
4.1.3.2 Deployment

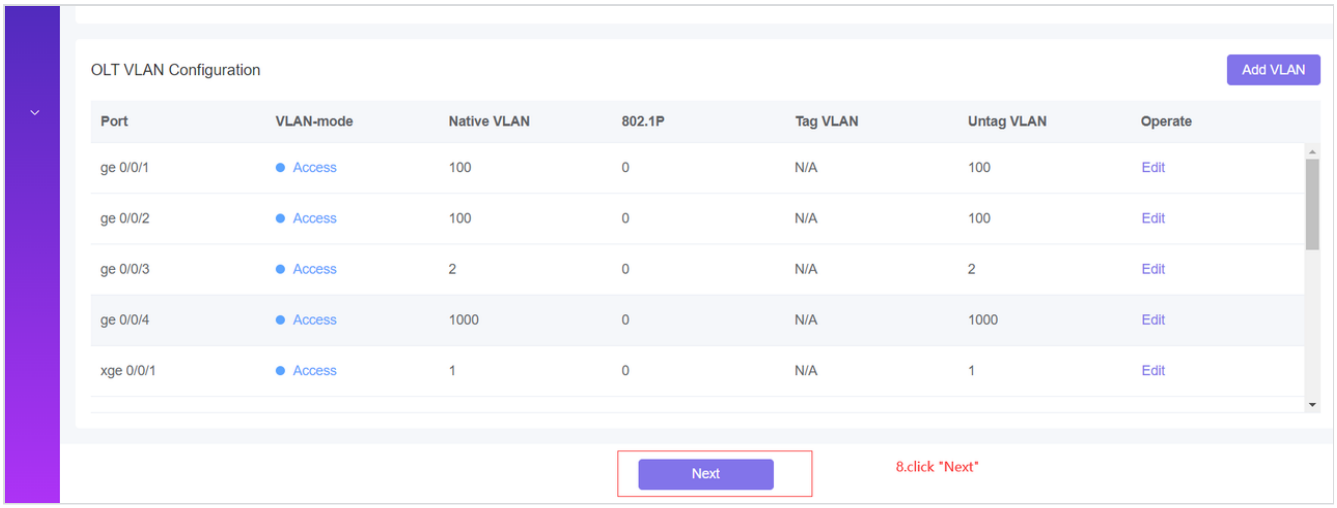


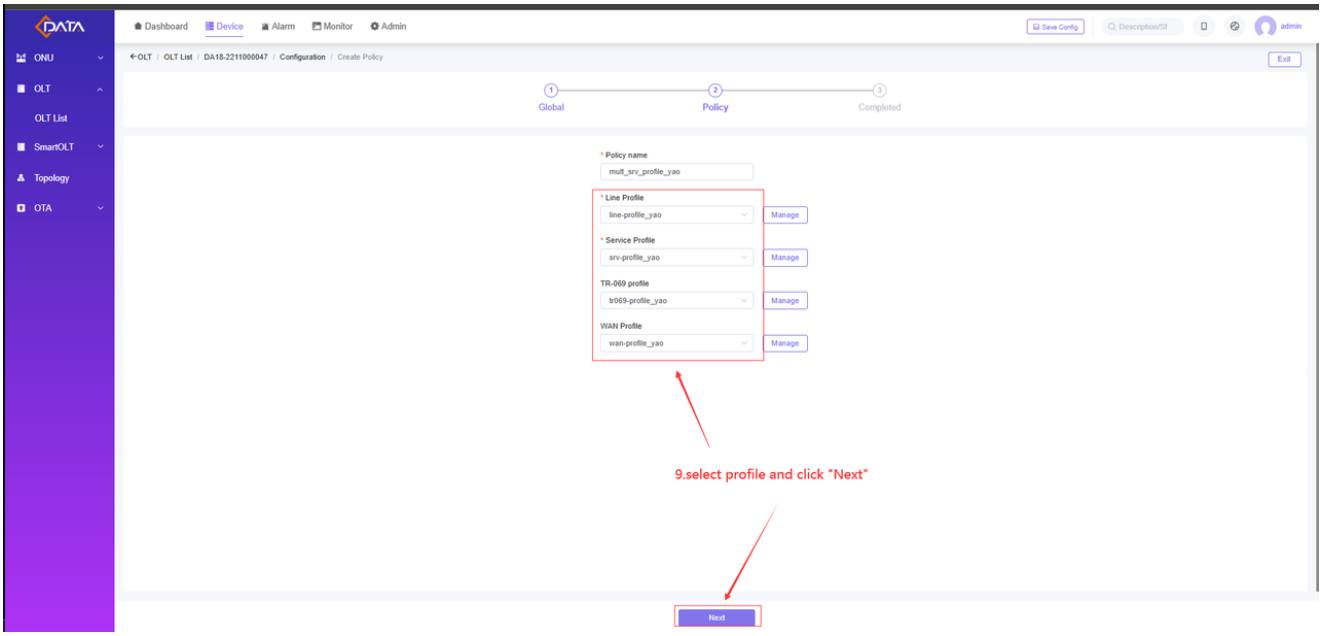

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
←OLT / OLT List / AF2101-160170001
ONU Manage
ONU Upgrade
Configuration
Port Statistics
More
2.click "Configuration"
FD1608S-B2
PON
XGE
GE
CONSOLE
MGMT
Count: 2 pcs
State: Running
Power
Count: 3 pcs
State: Running
FAN
ONU Summary
Registered
Online
Active
Alarm
Rate
Unit:Mbps
Upstream
Downstream
58%
CPU
23%
Memory
37.5℃
Temperature
Alarm
Level
Alarm Name
Device Type
Alarm Source
Alarm time
Major
PON 0/0/1 The TX out...
OLT
FD1608S-B2(192.168.81.15...
2024-3-27 13:55:23
Minor
PON 0/0/1 The bias c...
OLT
FD1608S-B2(192.168.81.15...
2024-3-27 18:07:26
Alarm Trend
Critical
Major
Minor
Notification

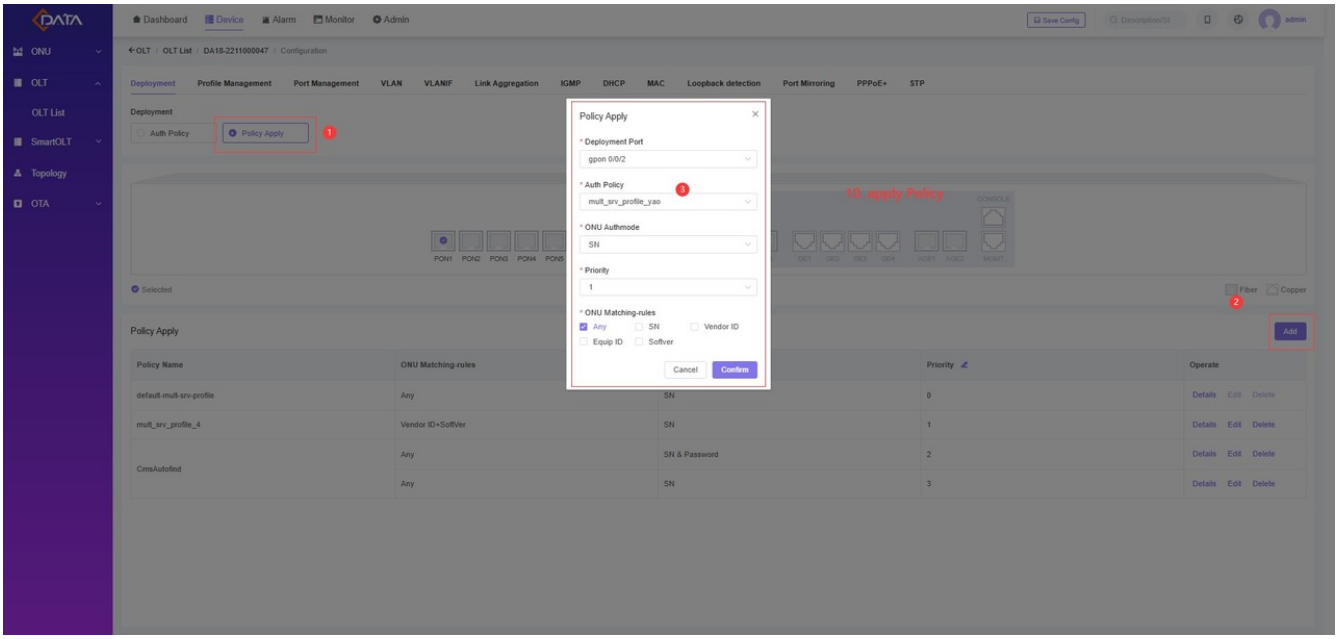

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
←OLT / OLT List / DA18-2211000047 / Configuration
Deployment
Profile Management
Port Management
VLAN
VLANIF
Link Aggregation
IGMP
DHCP
MAC
Loopback detection
Port Mirroring
PPPoE+
STP
Deployment
Auth Policy
Policy Apply
Policy ID
Policy name
Reset
Search
Auth Policy
3.click "Create Policy
Create Policy
Policy ID
Policy name
Operate
0
default-mult-srv-profile
Details Edit Delete
1
test
Details Edit Delete
2
CmsAutofind
Details Edit Delete
3
mult_srv_profile_3
Details Edit Delete
4
mult_srv_profile_4
Details Edit Delete
5
mult_srv_profile_5
Details Edit Delete
6
mult_srv_profile_6
Details Edit Delete


Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
OLT / OLT List / DA18-2211000047 / Configuration / Create Policy
Exit
1 Global
2 Policy
3 Completed
4.click "Add VLAN"
OLT VLAN Configuration
Add VLAN
Port
VLAN-mode
Native VLAN
Tag VLAN
Untag VLAN
Operate
ge 0/0/1(lag1) Access 100 N/A 100 Edit
ge 0/0/2 Access 1 N/A 1 Edit
ge 0/0/3 Hybrid 1 N/A 1 Edit
ge 0/0/4(lag2) Access 100 N/A 100 Edit
xge 0/0/1(lag5) Hybrid 1 N/A 1 Edit
xge 0/0/2 Access 100 N/A 100 Edit
gpon 0/0/1 Trunk 1 1-4080 N/A Edit
gpon 0/0/2 Trunk 1 1-4080 N/A Edit
gpon 0/0/3 Trunk 1 1-4080 N/A Edit
Next


Add
* VLAN
1000
5.enter vlan id
[1,4094]
Description
Please enter the specified VLAN description information
Port
VLAN-mode
Forbidden
Tag
Untag
ge 0/0/1 Access
ge 0/0/2 Access
ge 0/0/3 Access
6.select uplink port
ge 0/0/4 Access
xge 0/0/1 Access
7.click
Cancel
Confirm


OLT VLAN Configuration
Add VLAN
Port
VLAN-mode
Native VLAN
802.1P
Tag VLAN
Untag VLAN
Operate
ge 0/0/1 Access 100 0 N/A 100 Edit
ge 0/0/2 Access 100 0 N/A 100 Edit
ge 0/0/3 Access 2 0 N/A 2 Edit
ge 0/0/4 Access 1000 0 N/A 1000 Edit
xge 0/0/1 Access 1 0 N/A 1 Edit
Next
8.click "Next"

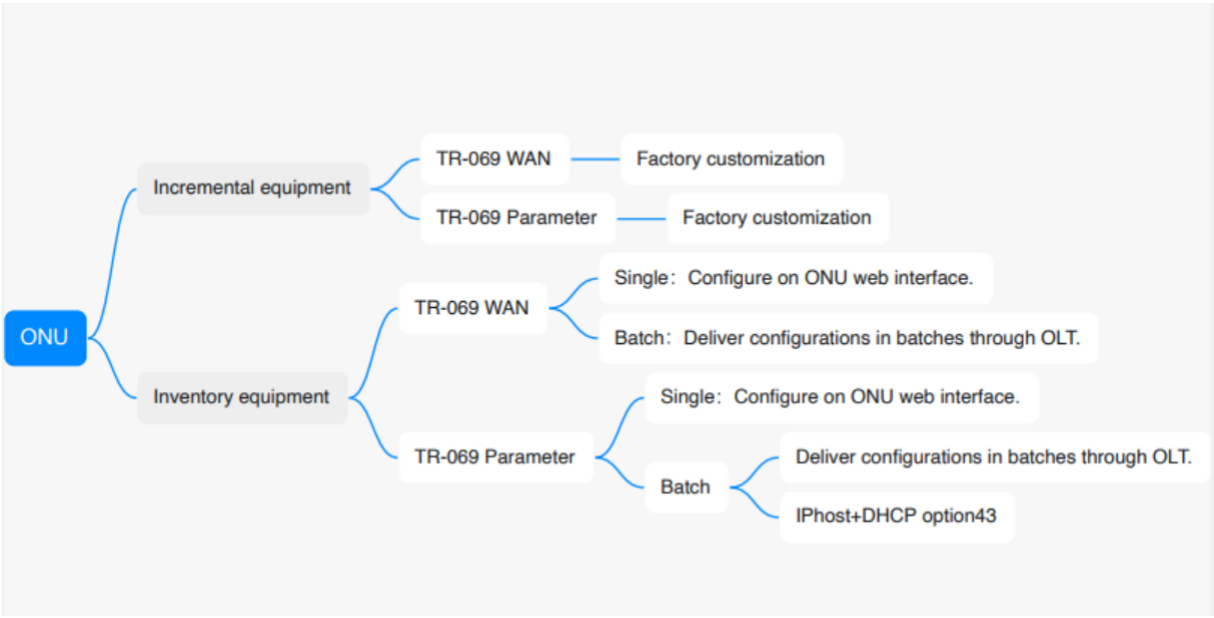

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Global
Policy
Completed
Policy name
Line Profile
Service Profile
TR-069 profile
WAN Profile
Manage
9.select profile and click "Next"
Next



4.1.4 Step4 Bind the ONU to the CMS

ONU configuration TR-069 WAN connection and TR-069 server parameter method,

- Incremental device: recommended unified factory customization;
- Stock device: for a single device can be directly configured on the ONU Web interface, for multiple devices can be delivered in batches through OLT.



4.1.4.1 TR-069 WAN batch configuration

Batch WAN profile via OLT (some vendor OLTs, or older versions of ONUs do not support private protocol), using cdata gpon OLT as an example:

See [4.1.3 Step3 deployment of OLT - Prerequisites - Creating a wan profile]

4.1.4.2 TR-069 Batch Configuration of Server parameters (OLT batch delivery)

Batch delivery of TR069 parameter profile through OLT (some manufacturers OLT, or older versions of ONUs do not support private protocol), using cdata gpon OLT as an example:
See [4.1.3 Step3 deployment of OLT - Prerequisites - Creating a tr069 profile]

4.1.4.3 TR-069 Batch configuration of server parameters (IPhost+DHCP option43)

IPhost is the GPON standard protocol, which is generally supported by ONU. TR069 channel can be established through IPhost. TR069 server parameters can be delivered through DHCP option 43 field, including the ACS server address, ACS server user name and password.
Using a Huawei DHCP Server as an example, you can run the following command to configure ACS parameters: option 43 hex 01length URL username password, where the URL, username, and password must be in ASCII hexadecimal format.

Parameters	Instructions	Example Parameter Values	Hexadecimal valu
length	The total length of the argument following the keyword option 43 hex 01	40 characters	28
URL	ACS's address	http://192.168.20.56:9999/v1/acs	687474703A2F2F3 1637320
username	ACS user name	acs	61637320
password	Password for ACS	acs	616373

The configuration commands are as follows:

```
<Sysname> system-view
[Sysname] dhcp server ip-pool 0
[Sysname-dhcp-pool-0] option 43 hex
0128687474703A2F2F3139322E3136382E32302E35363A393939392F76312F6163732061
637320616373
```

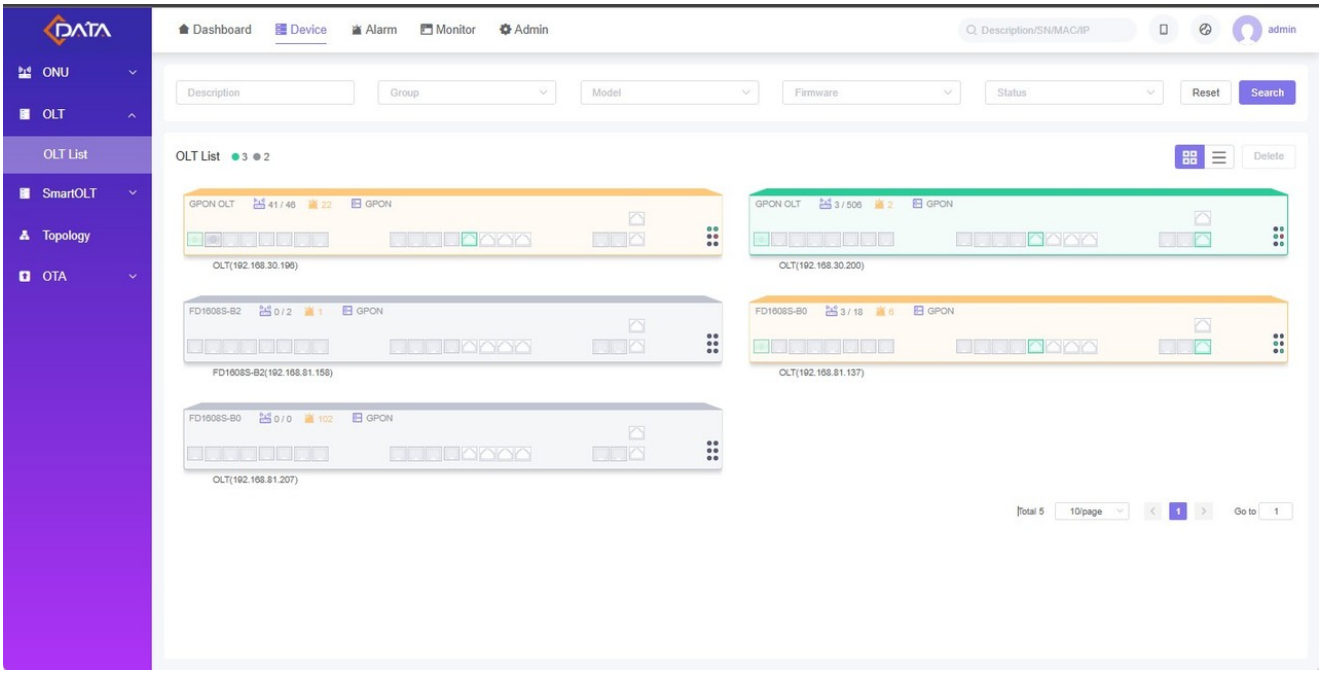
4.1.5 Step5 Routine maintenance

4.1.5.1 OLT routine maintenance

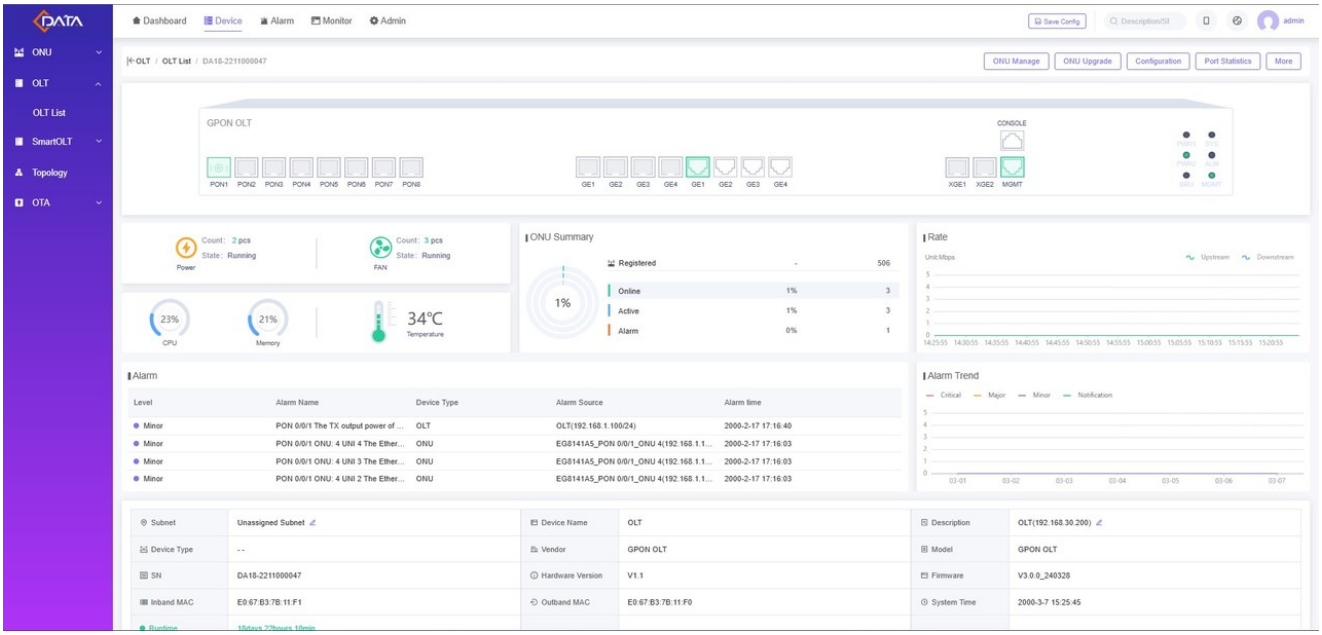
OLT routine maintenance includes viewing lists and details, single configuration, device upgrade, restart, factory restoration, etc.

4.1.5.1.1 OLT list and details view

Select [Device-OLT-OLT List] to display the OLT List interface as follows, you can view all bound OLT devices.

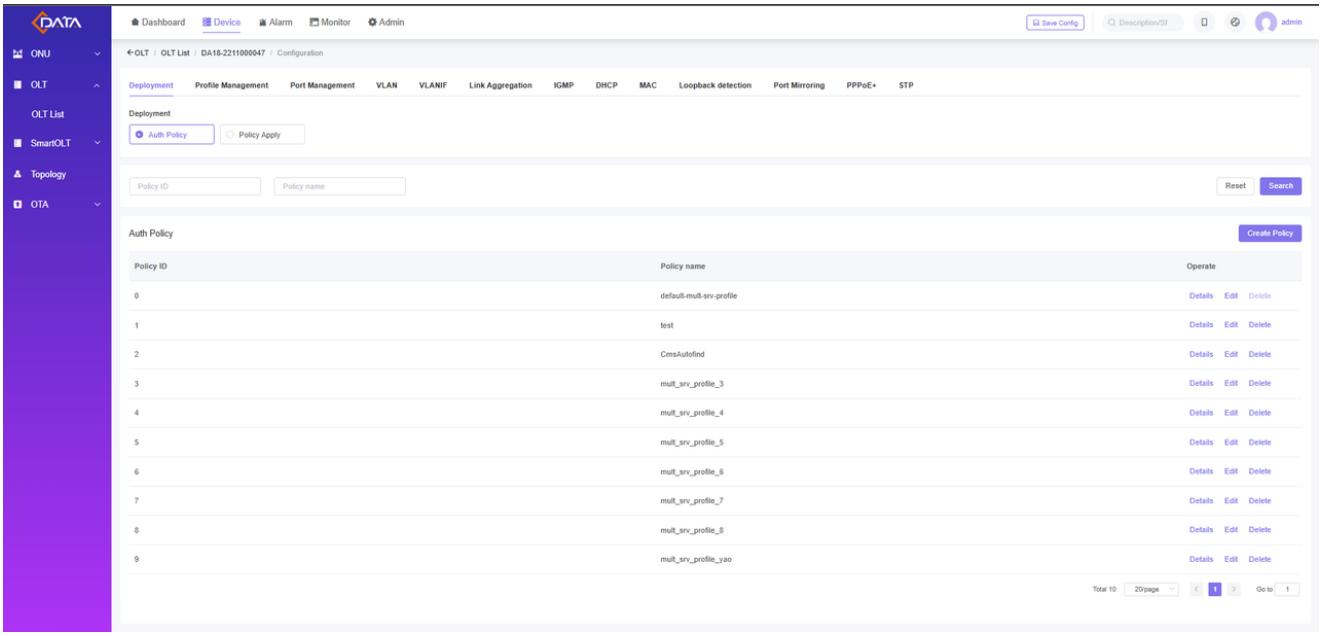


Double-click the card to enter the OLT details displayed as follows, you can view the OLT port status, running status, alarm and other information.



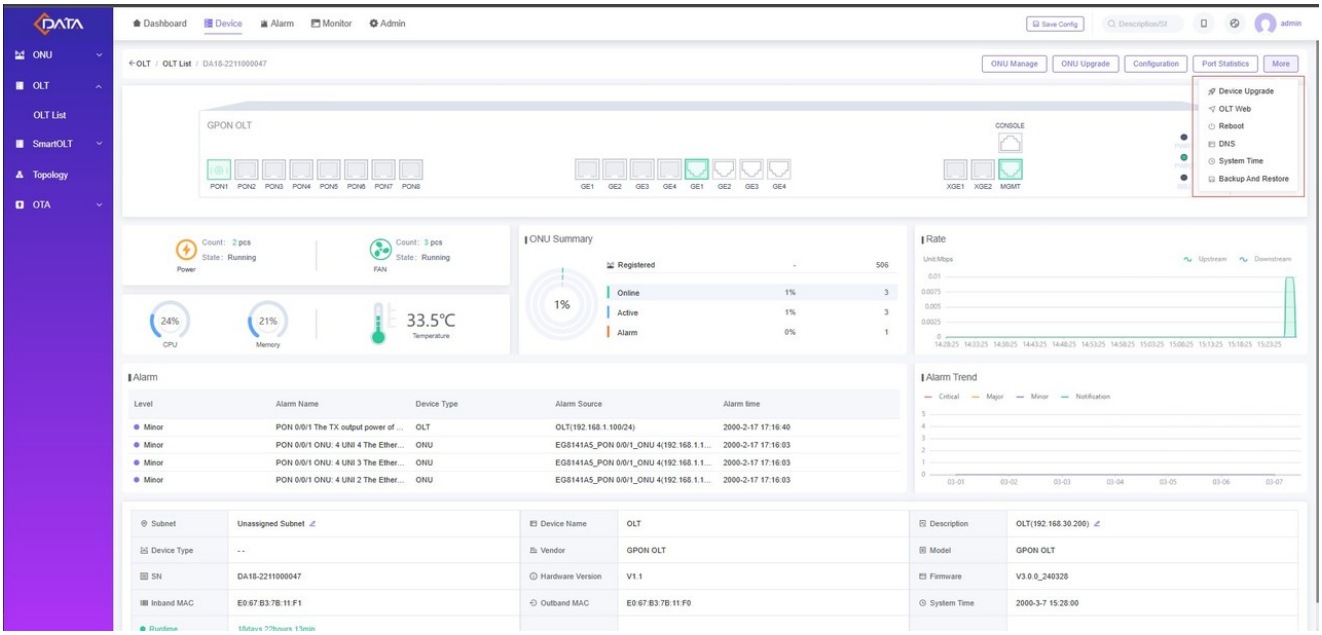
4.1.5.1.2 Single OLT configuration

On the OLT details screen, click ‘Configuration’ to enter the OLT configuration screen. You can create and apply deployment policies and configure port vlans, link aggregation, vlans, and VLANIF configurations.



4.1.5.1.3 OLT More operations

on the OLT details screen, click "More" to upgrade the device, open the OLT Web, and restart and restore the factory.



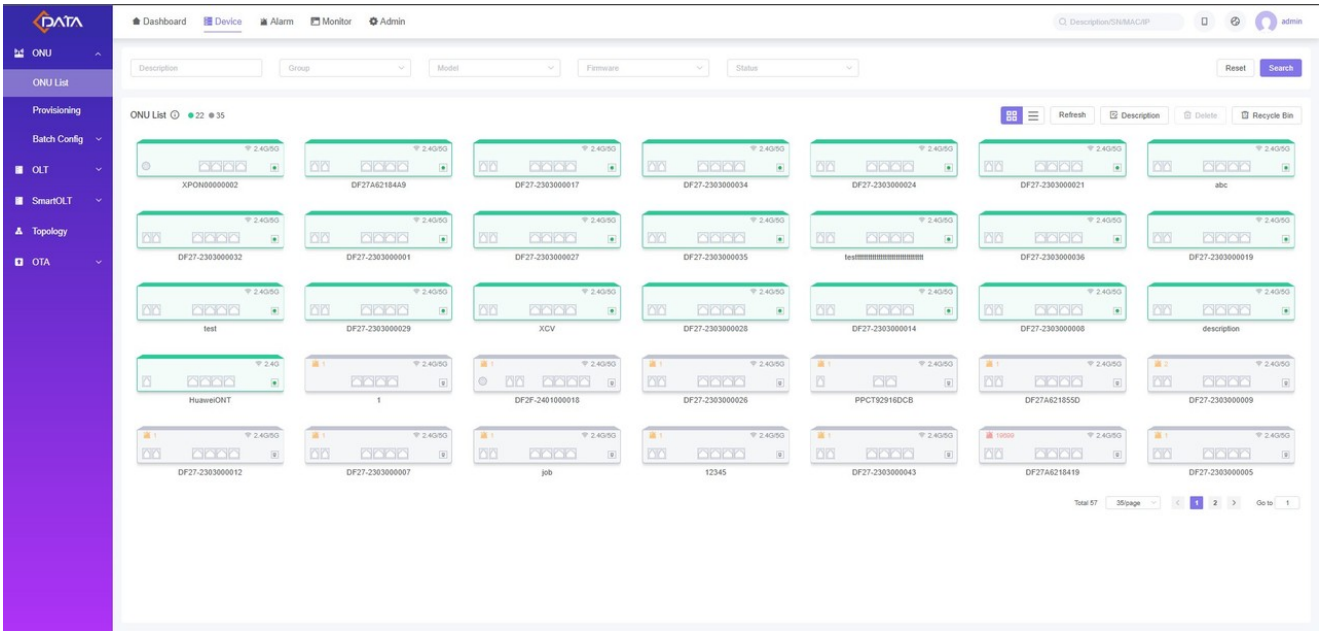
O

4.1.5.2 Routine maintenance of ONU

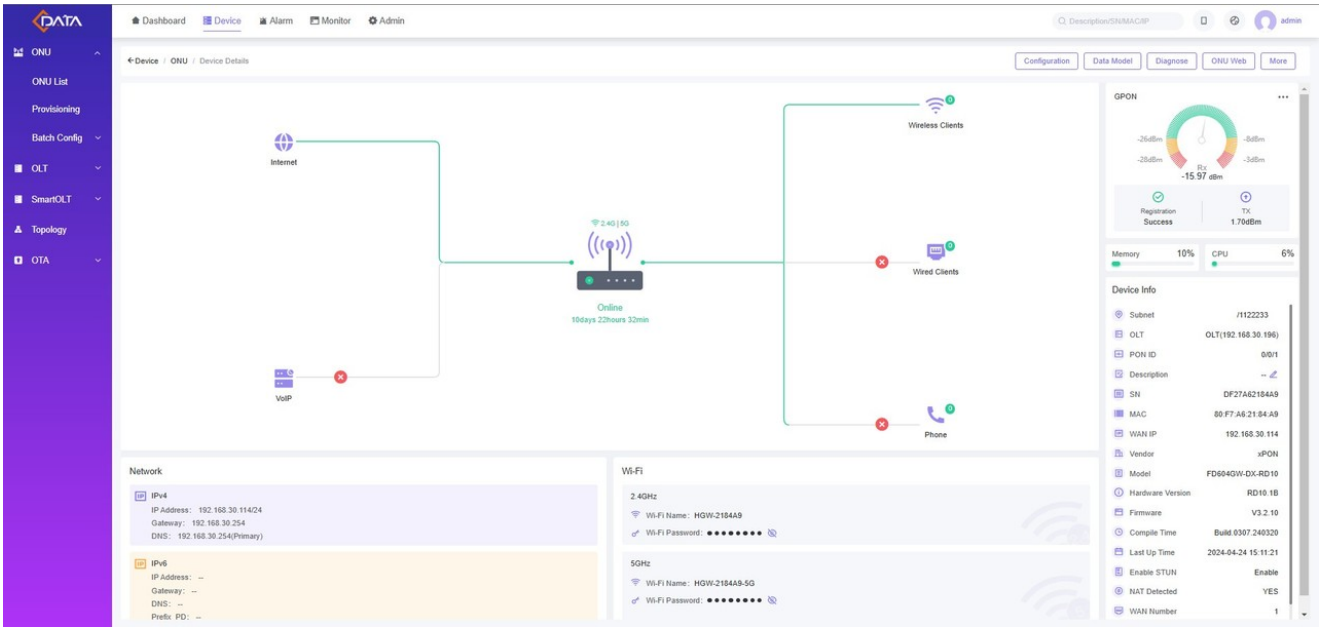
ONU routine maintenance includes list and details view, single configuration, batch configuration, OTA upgrade, etc.

4.1.5.2.1 ONU list and details view

Select [Device-ONU-ONU List] to display the ONU list interface as follows, you can view all the ONU devices bound by TR-069.



Double-click the card to enter the ONU details screen displayed as follows, you can view ONU capability and connection status, PON optical power, network and Wi-Fi information.



4.1.5.2.2 Create an ONU preconfiguration

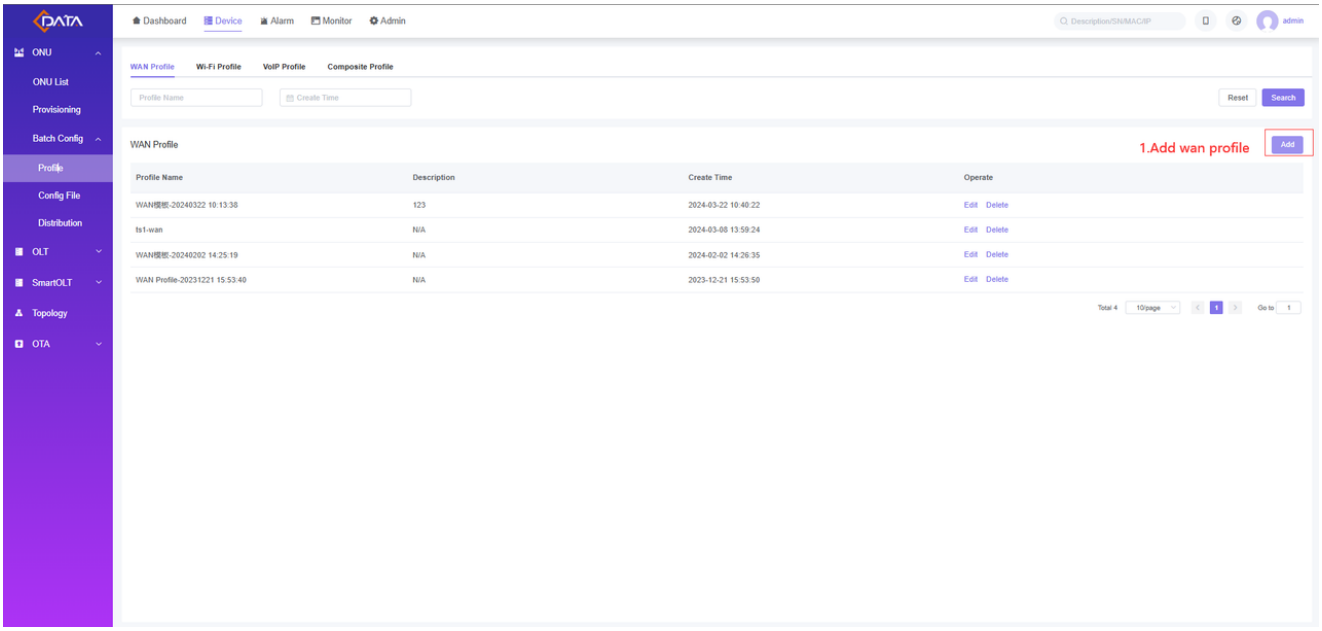
After the ONU is connected to the OLT, the CMS can directly deliver service configurations based on the TR-069 protocol to realize zero-configuration commissioning. Preconfiguration of the ONU consists of the following three steps.

Creating a Configuration profile	Create a preconfiguration task	View the prec

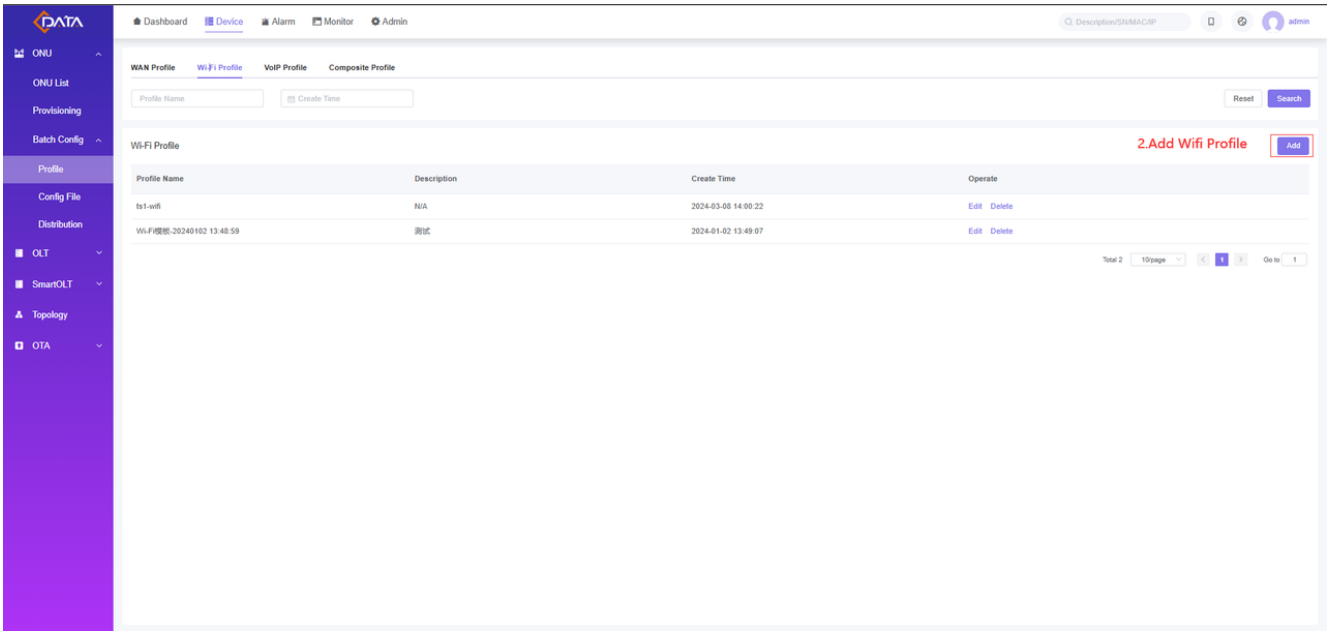
1. Create a configuration profile

Open the [Device-Batch Config-Profile] screen and create a profile that includes WAN, Wi-Fi, and VoIP services.

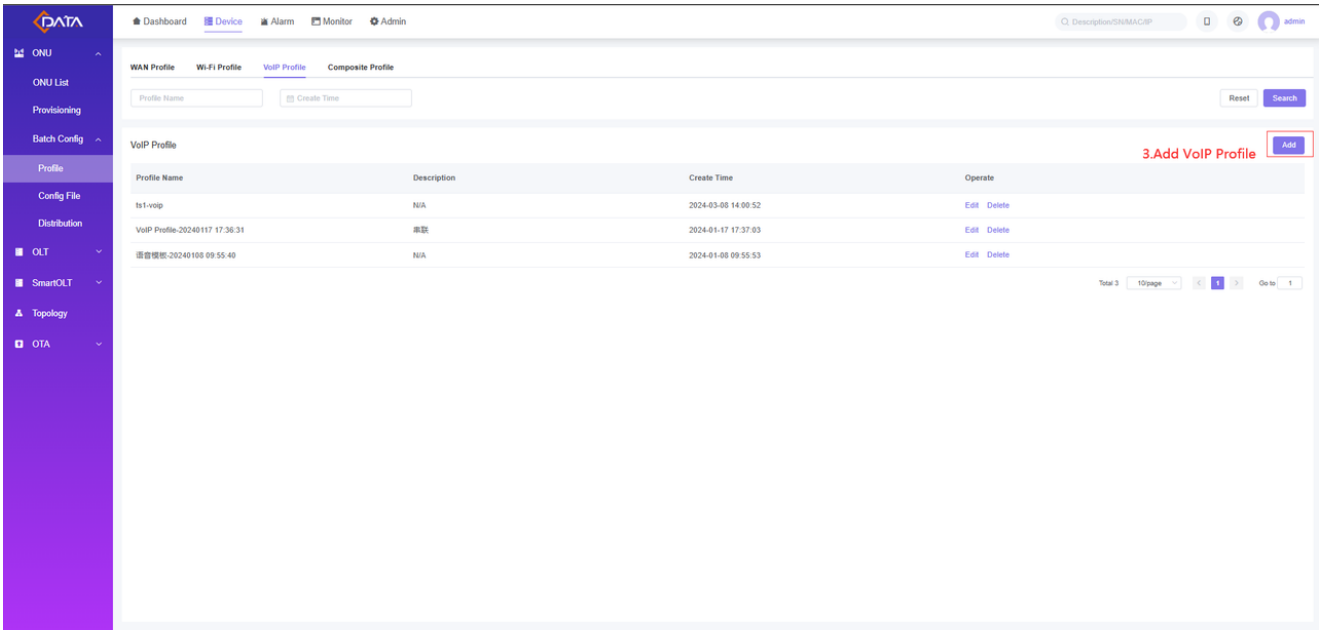
- Create a WAN profile



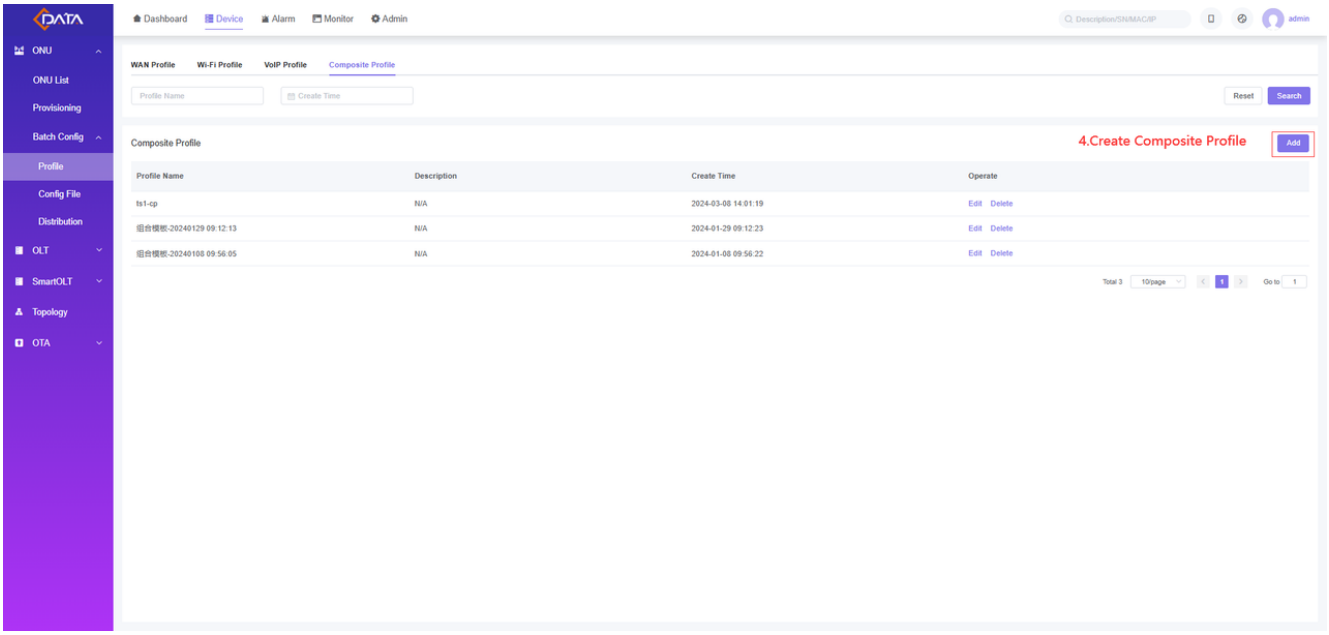
- Create a Wi-Fi profile



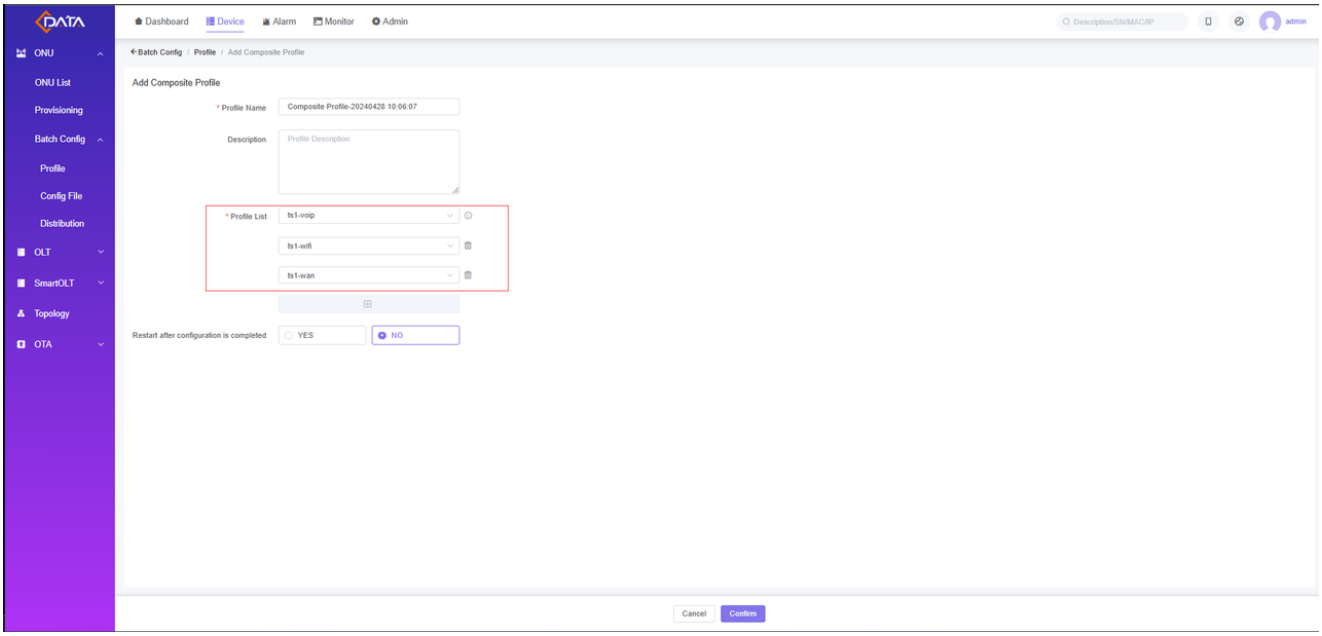
- Create a VoIP profile



- Create a composite profile

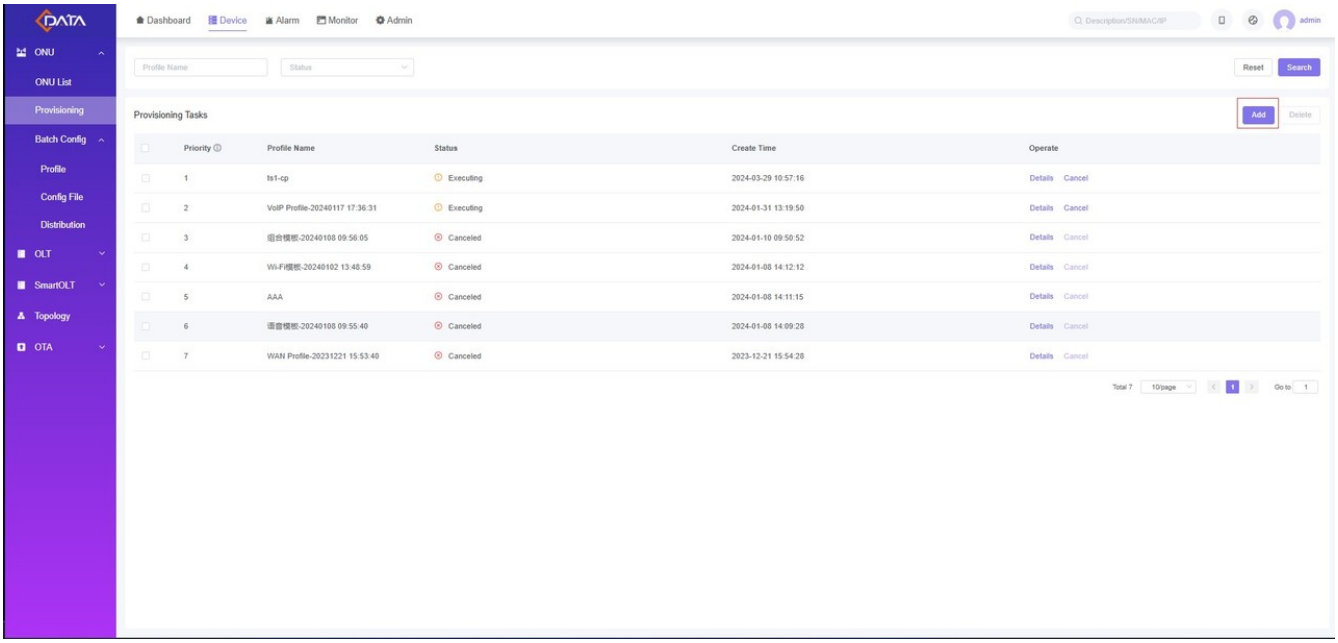


Select the WAN, Wi-Fi, and VoIP templates created earlier and click "Confirm".

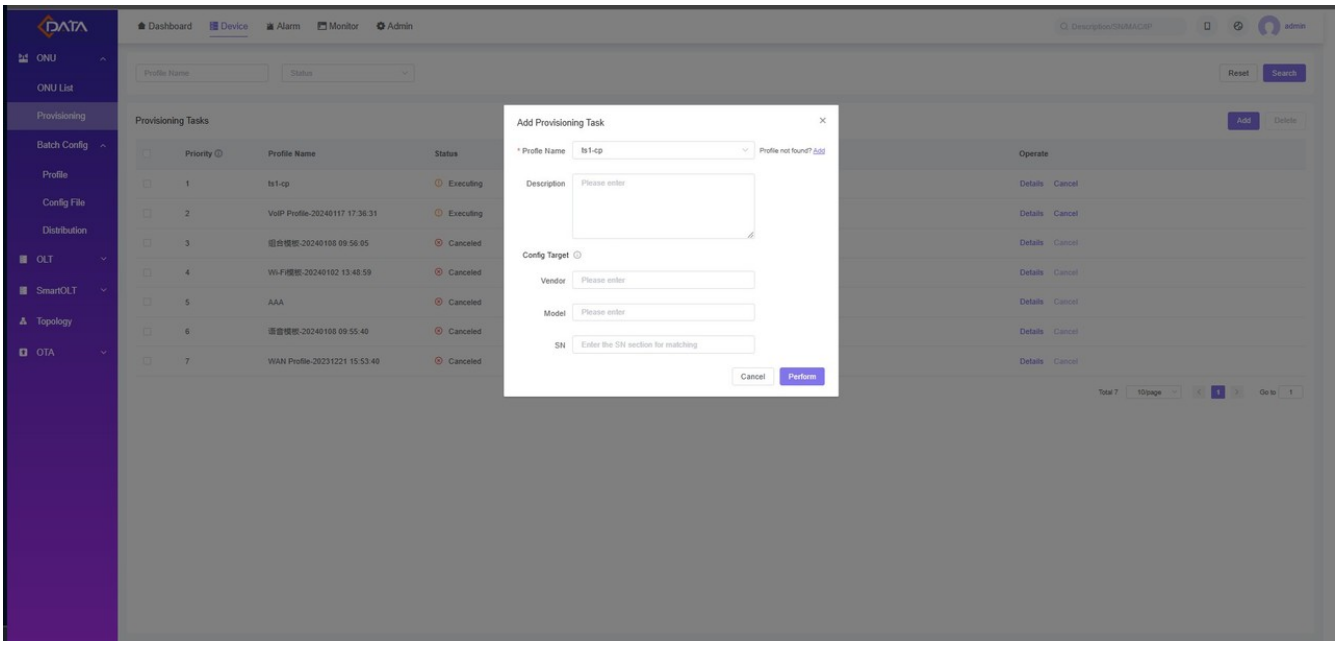


2. Create a Provisioning task

Open the [Device-Provisioning] interface and click "Add" to add a preconfigured task.

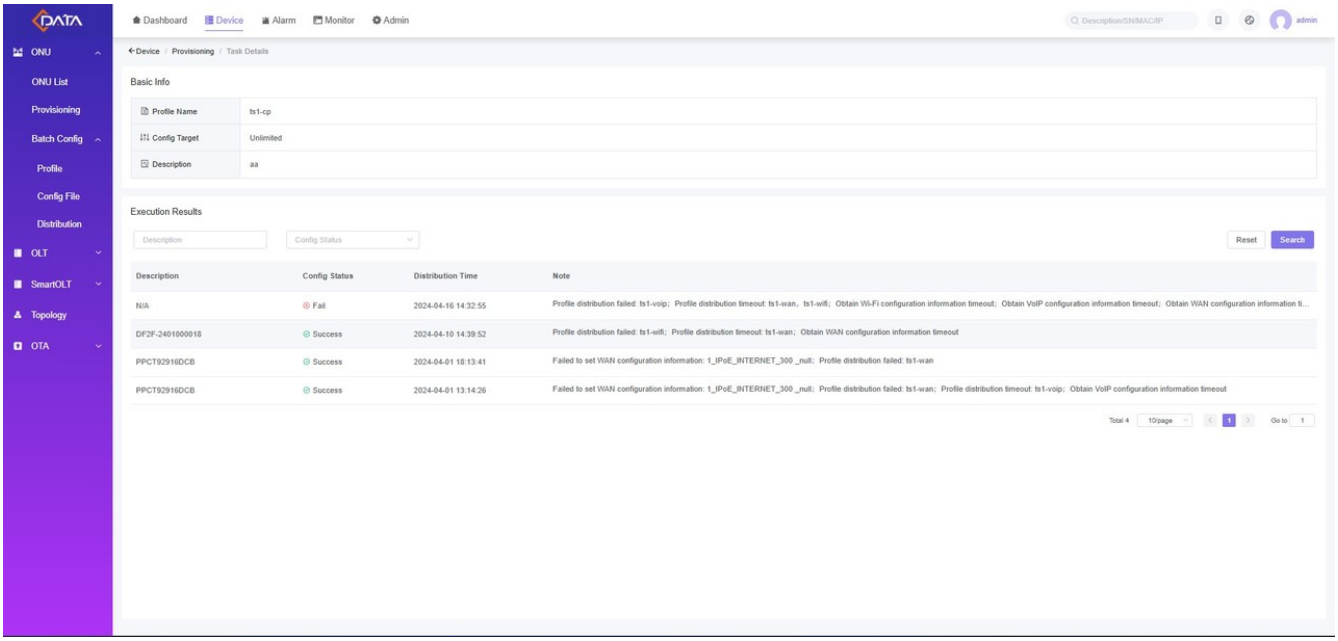


Select the profile name and config target. The config target can be matched with the device based on the vendor, model, or SN. If you enter multiple values, the intersection is selected. If neither of these parameters is specified, there is no limit. The profile will be automatically delivered to any device reported for the first time.



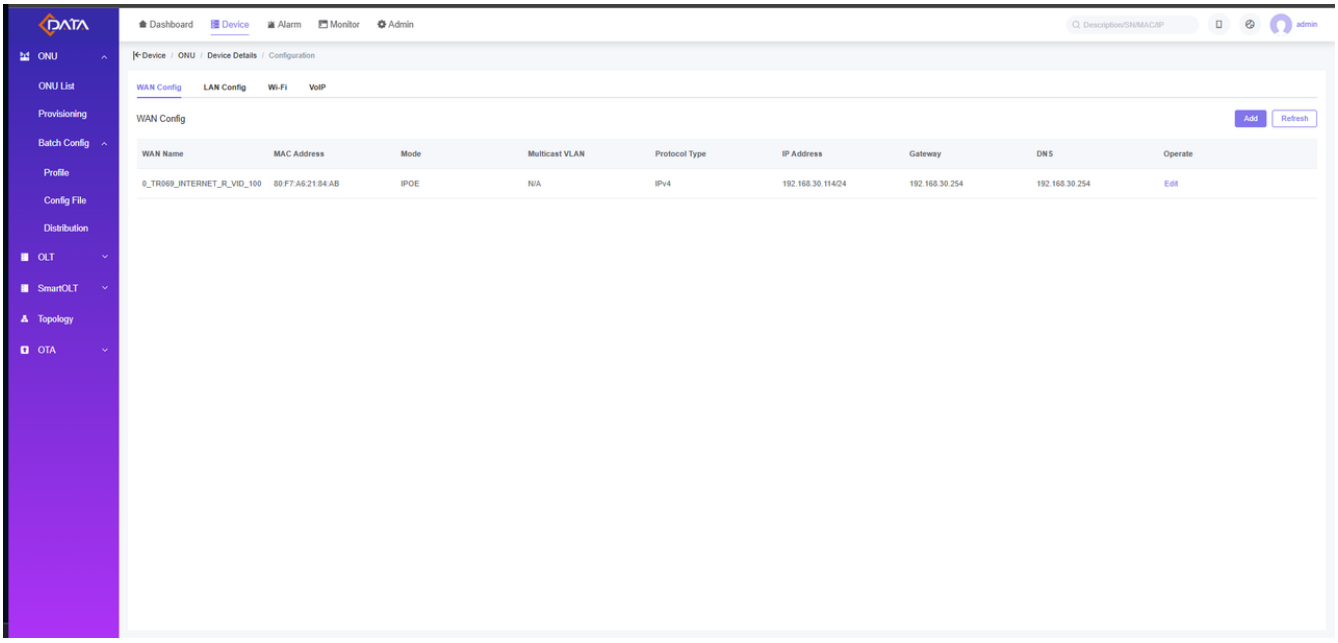
3.View the preconfiguration result

After the ONU is bound to the CMS using TR-069, the CMS automatically delivers the pre-configuration task. On the Procisioning page, click Details to view the execution of the matched ONU pre-configuration task.

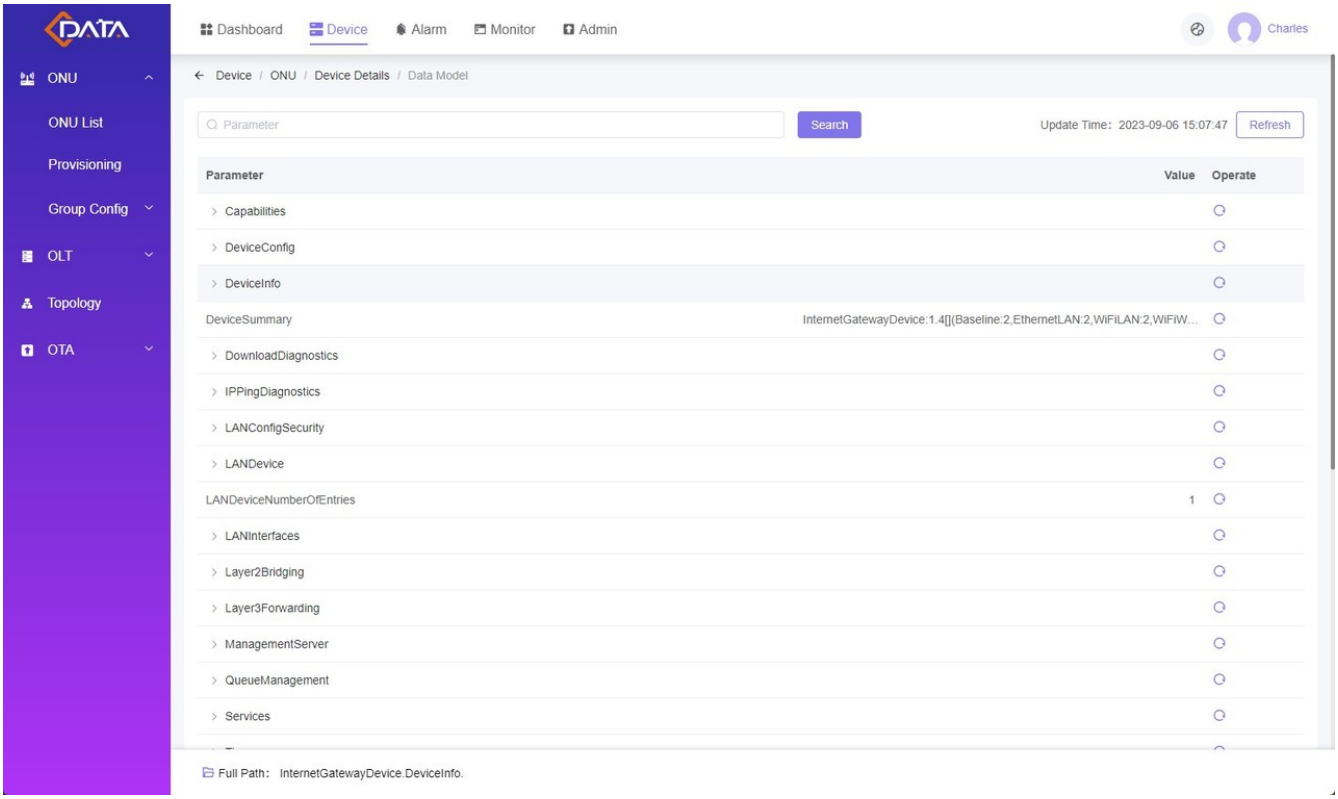


4.1.5.2.3 Configure a single ONU

On the ONU Details page, click "Configuration" to open the configuration screen shown as follows, which supports common service configurations such as WAN, LAN, Wi-Fi, VoIP, and CATV.



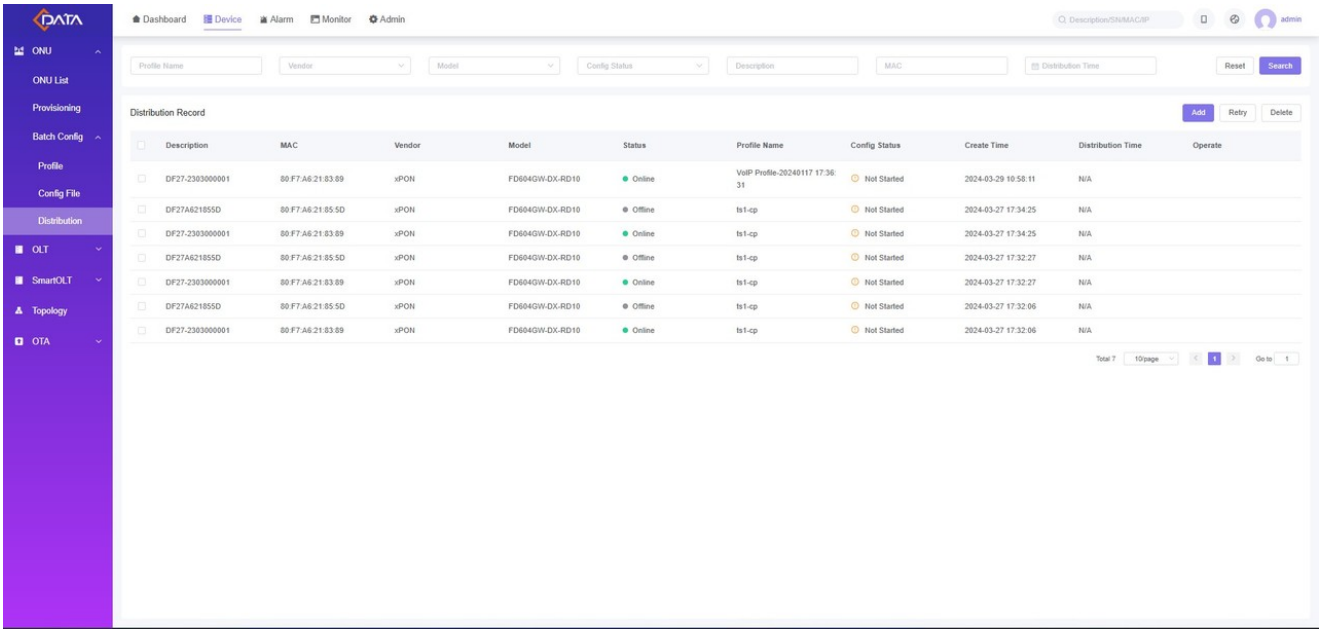
On the ONU details page, click "Data Model" to open the data model interface displayed as follows, which supports viewing and editing of all node information.



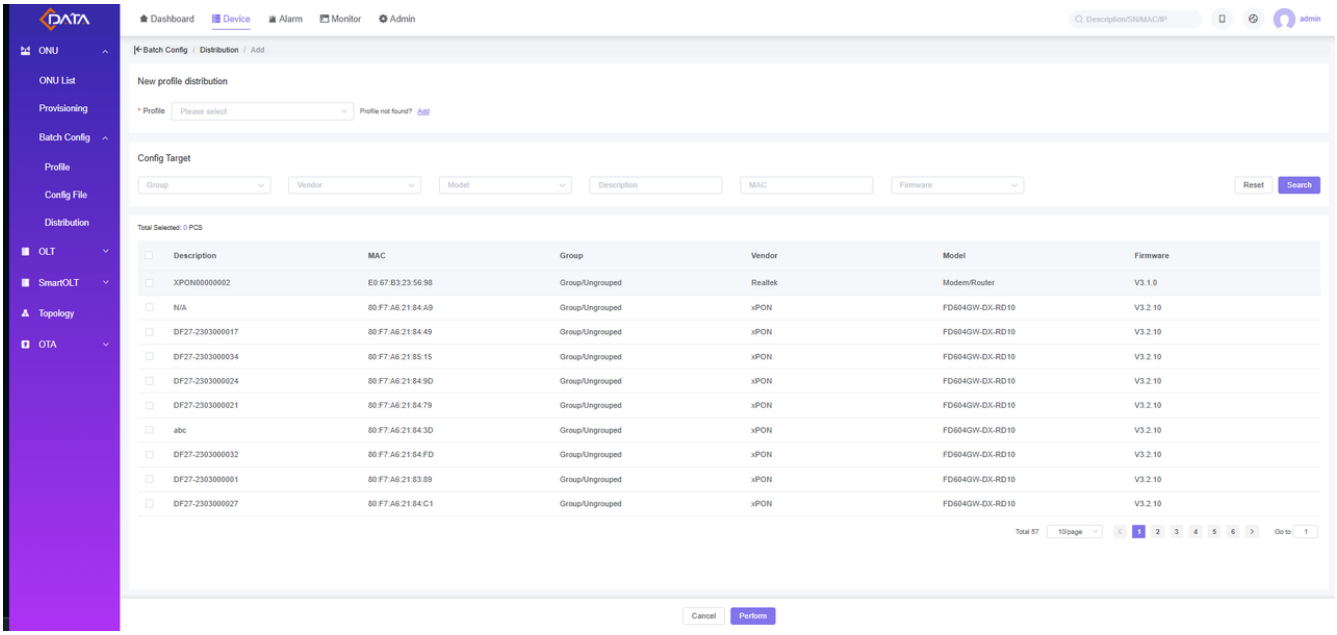
4.1.5.2.4 Batch configuration of ONU

ONU configurations can be changed in batches for ONU devices bound to CMS. Similar to pre-configuration, a configuration profile must be created in advance for batch configuration.

Select [Device-ONU-Batch Config-Distribution]. The following ONU batch configuration page is displayed. You can view the execution of all configurations delivered in batches in history.



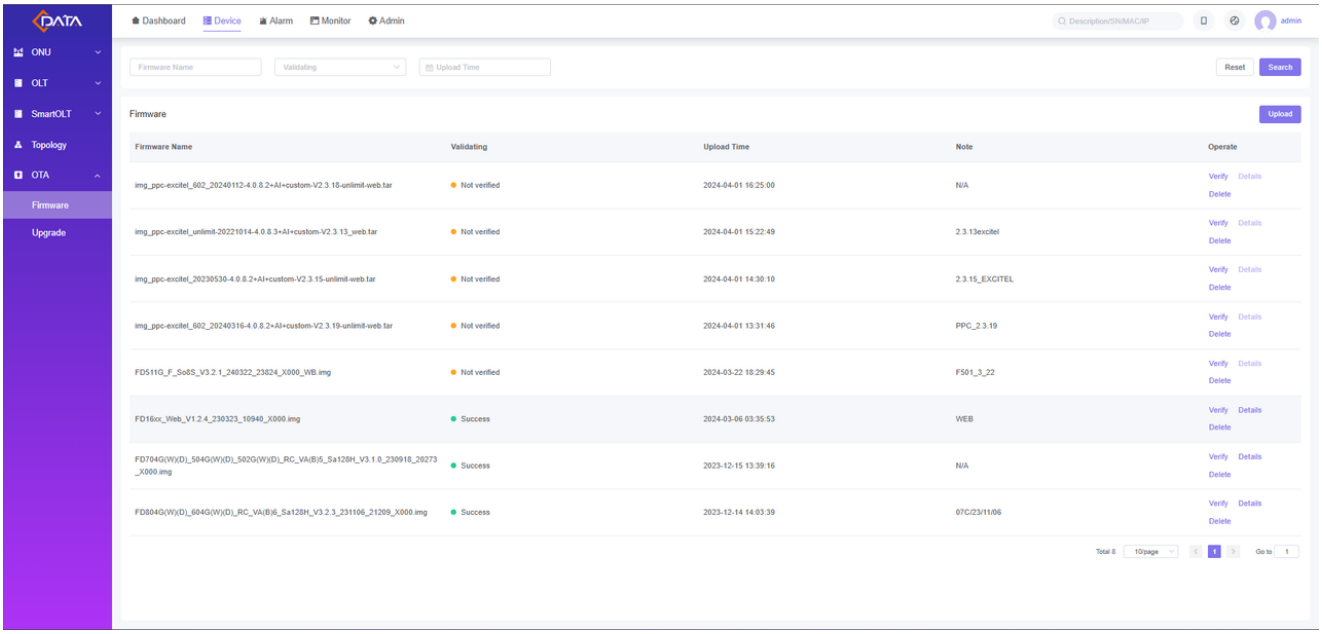
Click Add to create a batch configuration task, select the configuration profile and object, and deliver the task directly.



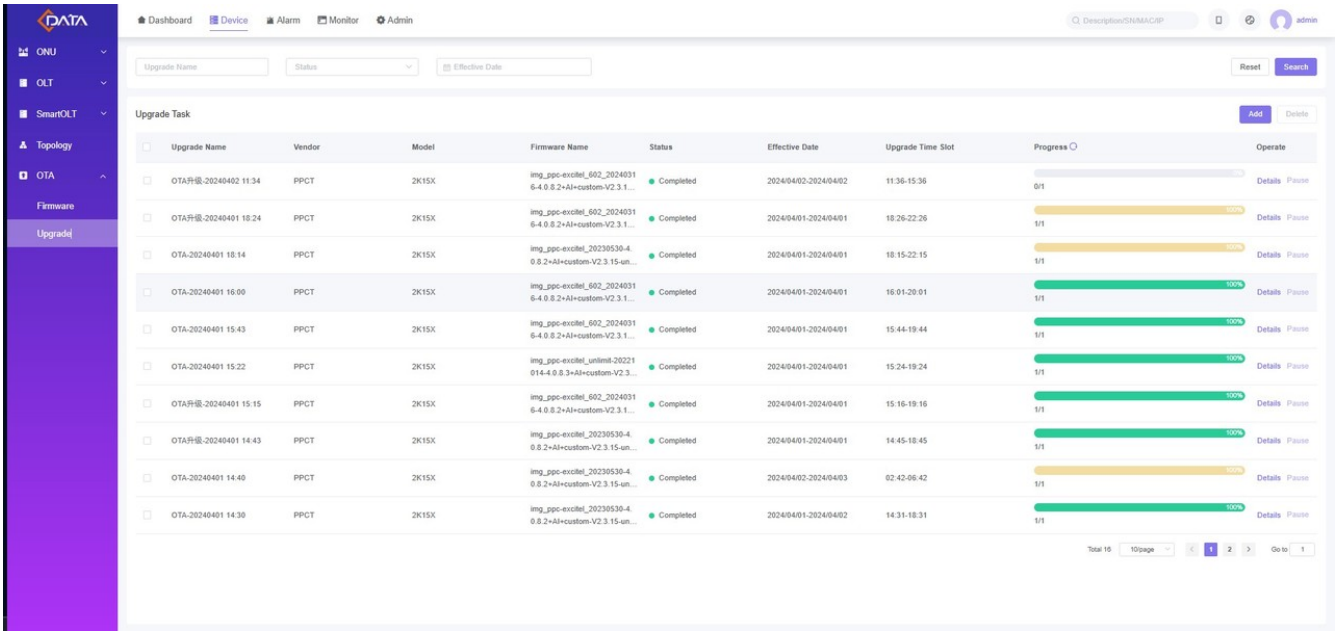
4.1.5.2.5 OTA Upgrade

Step1: Upload and verify the firmware	Step2: Create an upgrade task	S

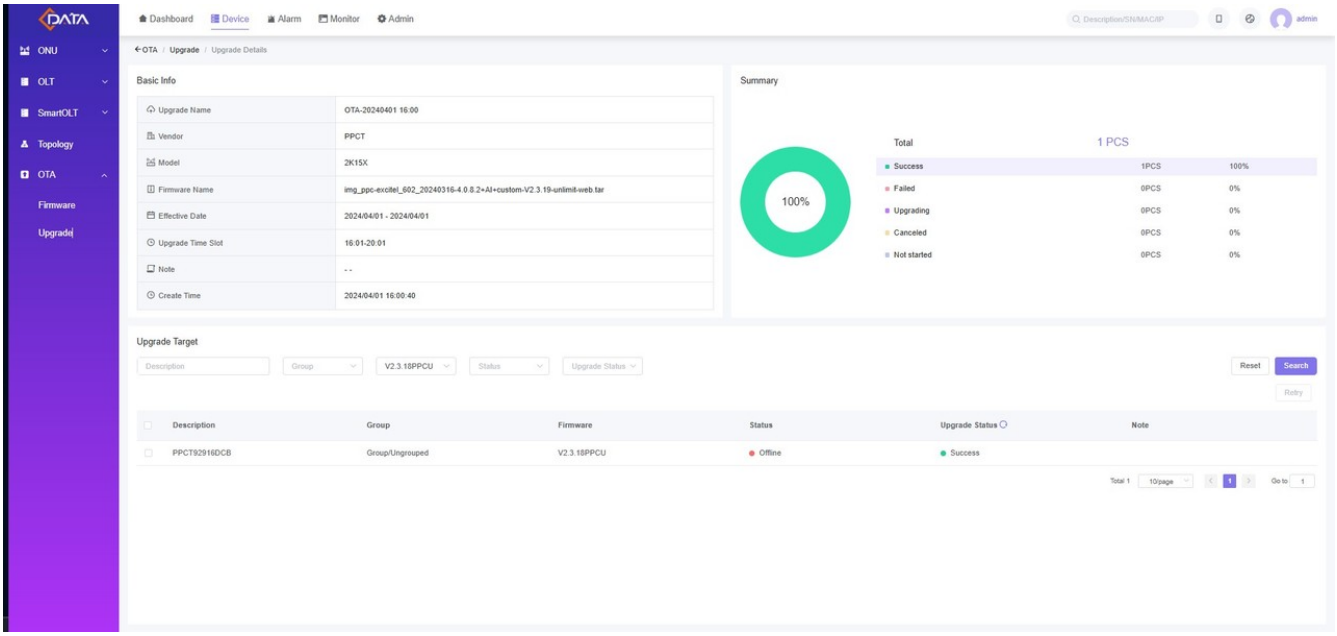
1) Select [Device-OTA-Firmware] to display the firmware management interface as follows, you can upload the firmware and verify it;



2) Select [Device-OTA-Upgrade] to display the following upgrade management interface, which allows you to create upgrade tasks and view the upgrade status.

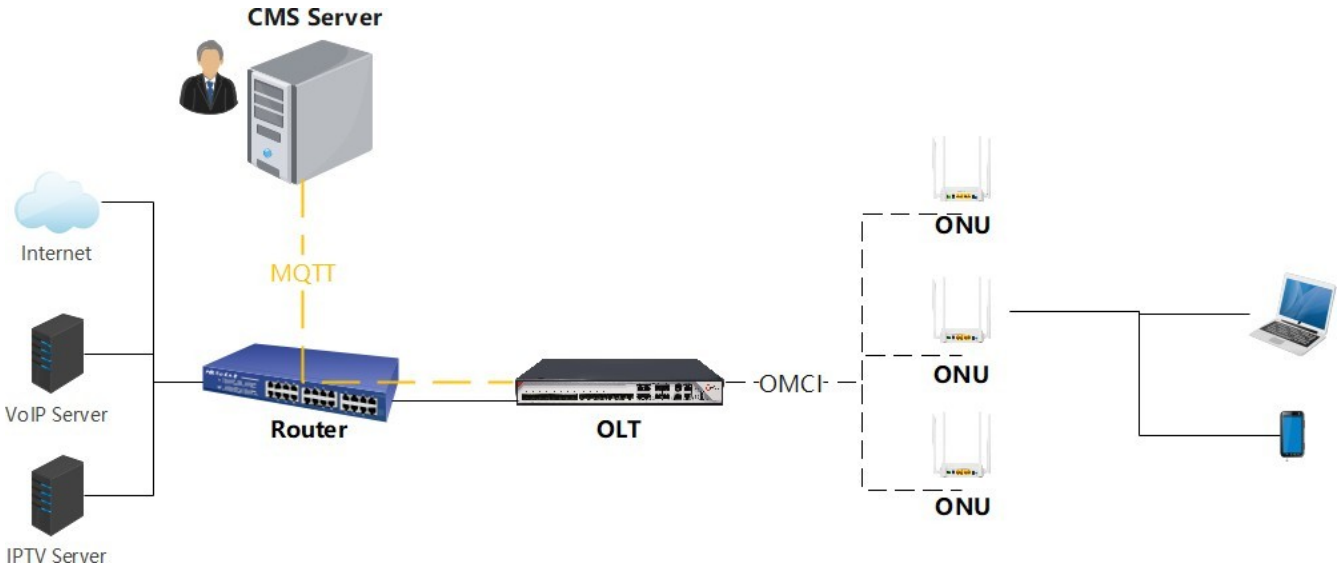


3) In the upgrade management interface, click "Details" to view the upgrade status of each device.



4.2 Scenario 2: CMS manages OLT via MQTT, OLT manages SFU via OMCI

CMS manages OLT via MQTT, OLT manages ONU via OMCI, and the network architecture is as follows:



The recommended configuration steps are as follows:

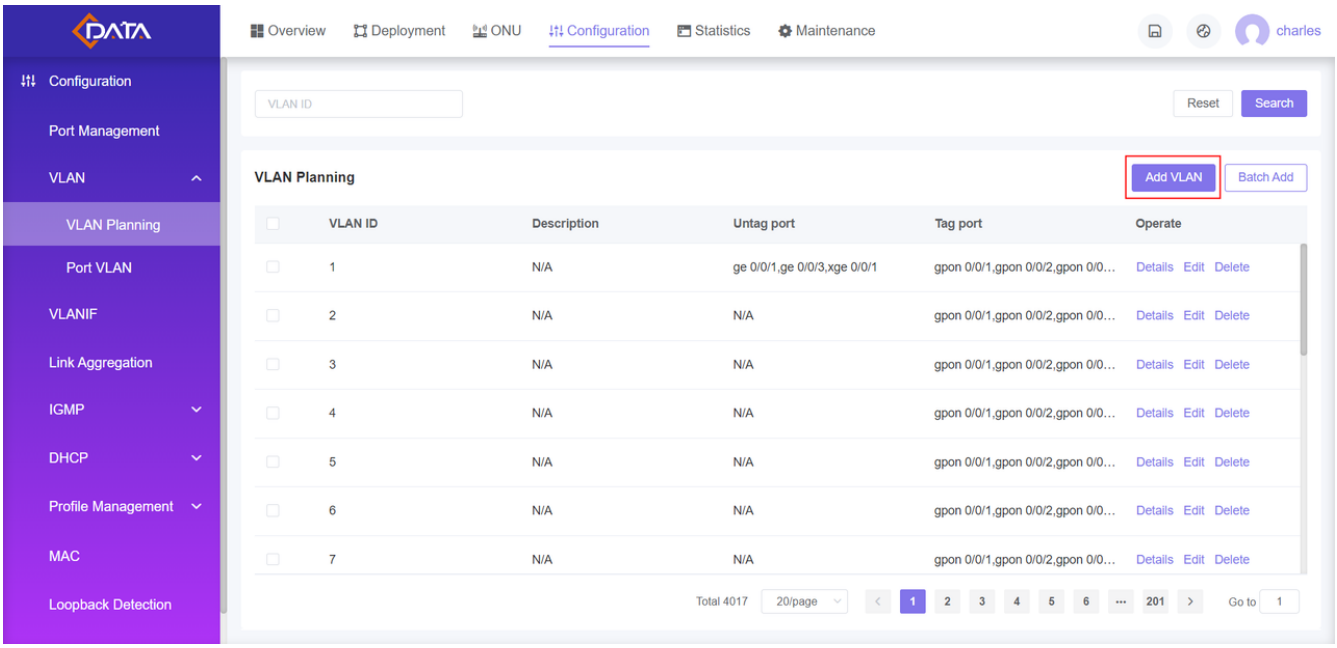
Step P1: The OLT is routable to the CMS	Step2: Bind the OLT to the CMS	Step3: OLT simple deployr

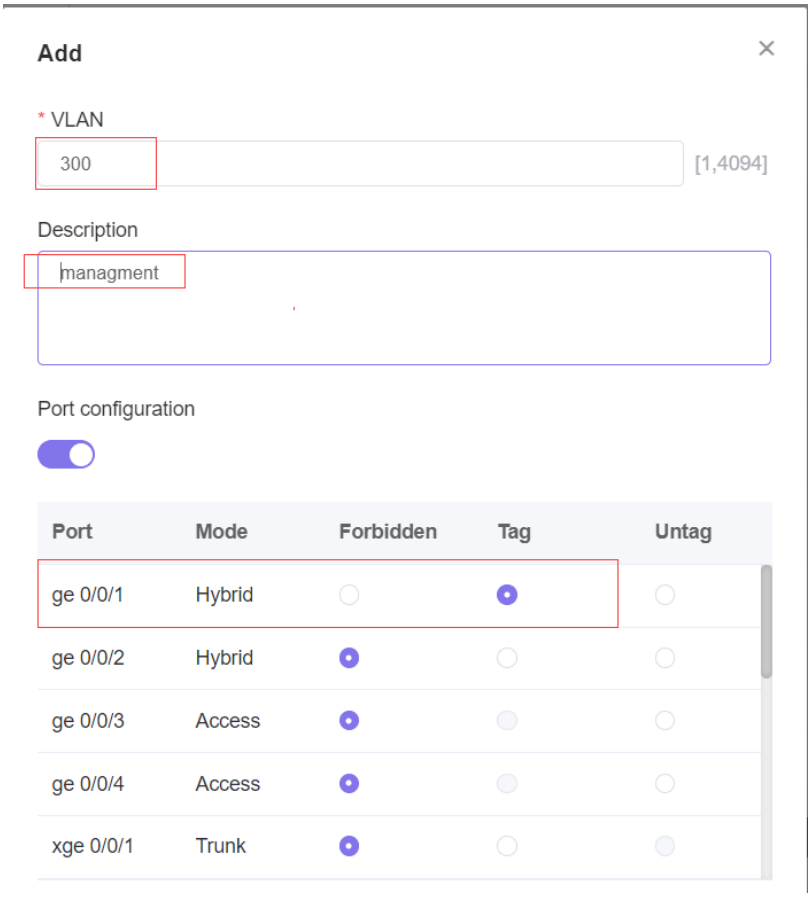
4.2.1 Step1 The OLT is routable to the CMS

To connect the OLT to the upstream router, you need to configure VLANIF interfaces and routes.

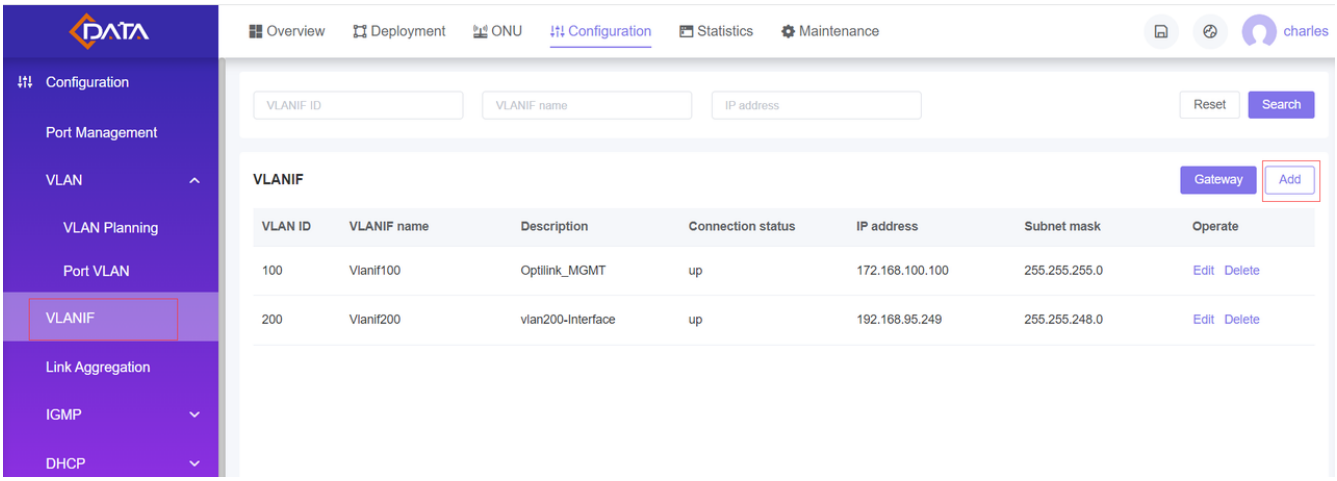
4.2.1.1 Configuring VLANIF Interfaces

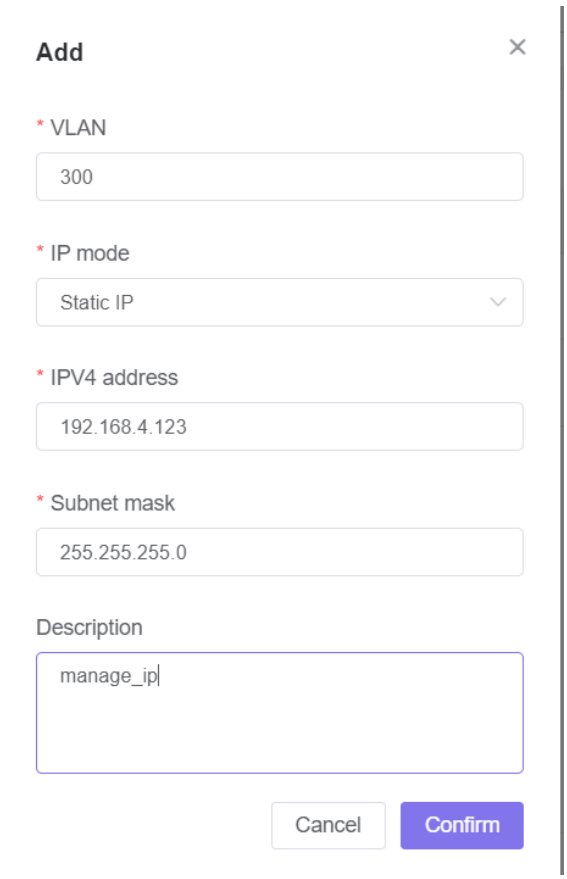
- Log in to the OLT Web management platform, open the VLAN Planing page, add VLAN 300, and bind VLAN 300 to the GE1 port for management.

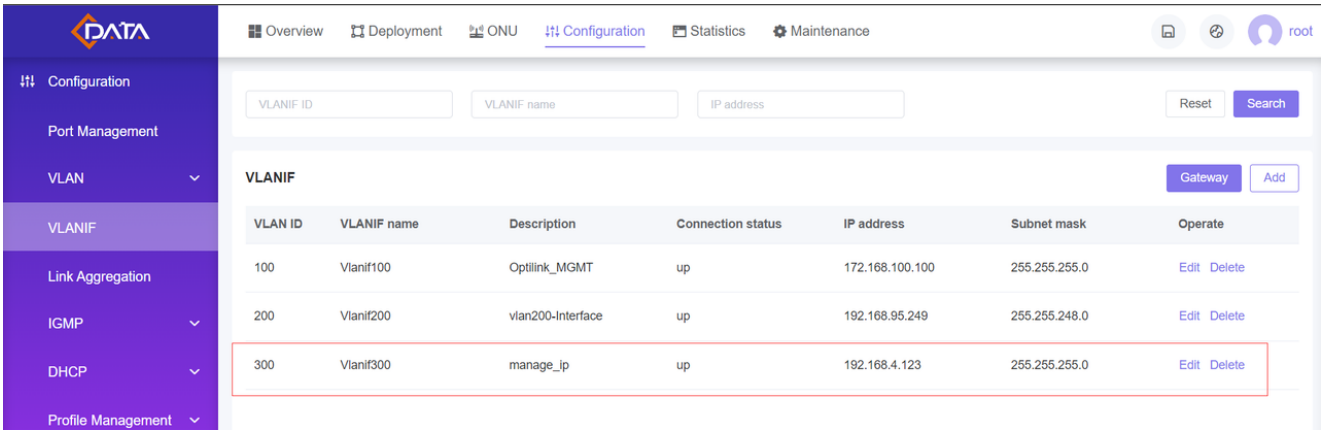




- Configure the management IP address 192.168.4.123 for VLAN 300.

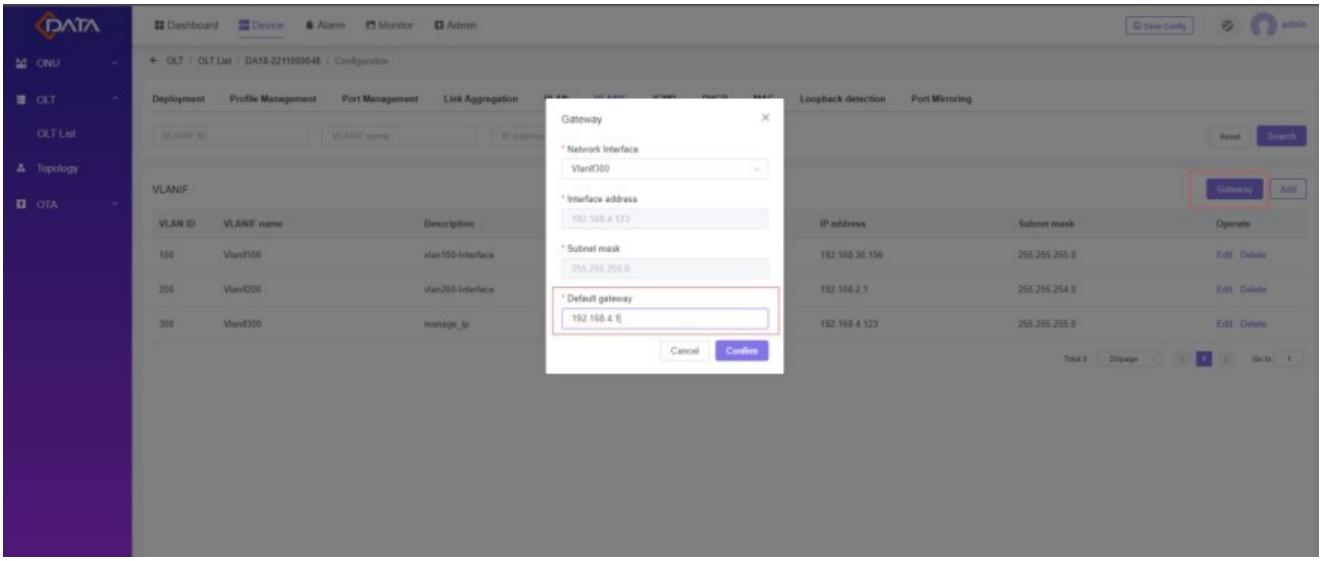






4.2.1.2 Configure Route

Configure the default route 192.168.4.1 for vlanif 300



4.2.2 Step2 Bind the OLT to the CMS

CMS manages OLTs via MQTT and currently only supports C-DATA OLT bindings, with support for later versions of third-party OLTs.

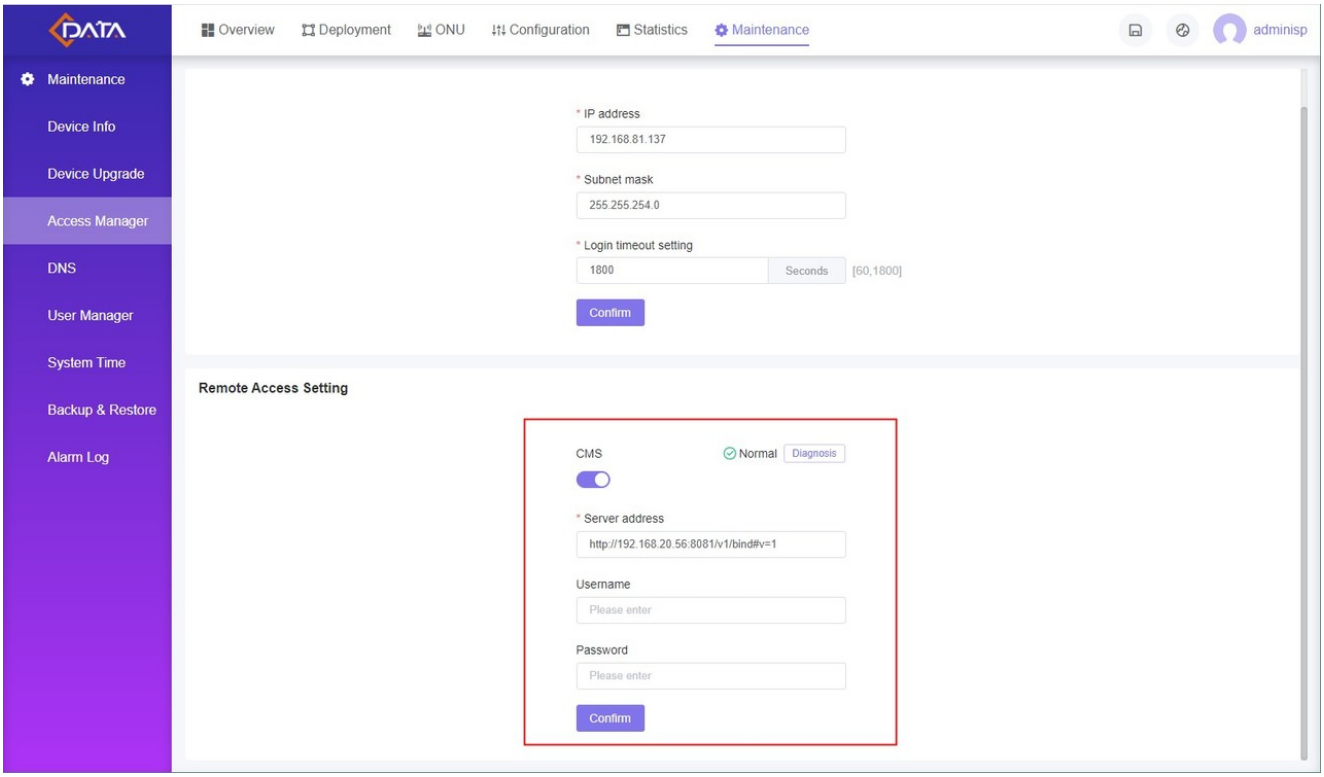
OLT device upgrades	Enable CMS remote access	

4.2.2.1 OLT device upgrade

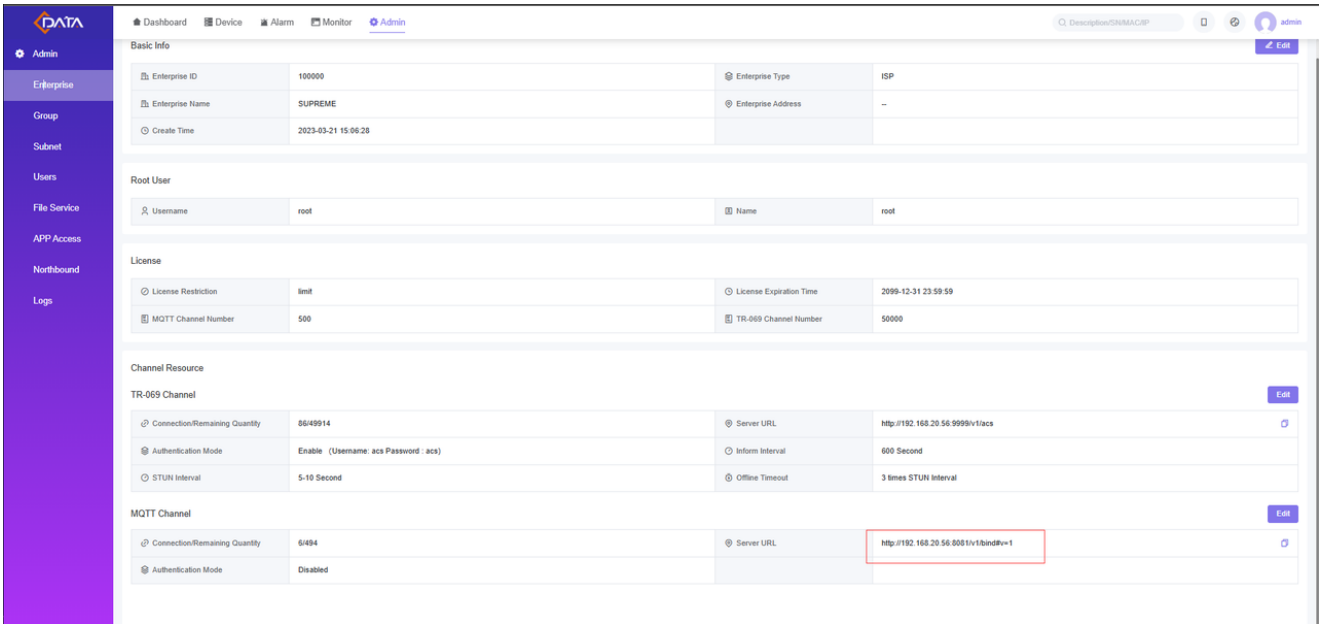
Log on to the ONU Web interface to upgrade your GPON 16 series model to version 3.2 and above.

4.2.2.2 Enable CMS remote access

Log in to the OLT Web Management platform, open the [Maintenance-Access Manager] interface, start the CMS switch, and fill in the CMS Server and Port, as shown in the following figure.

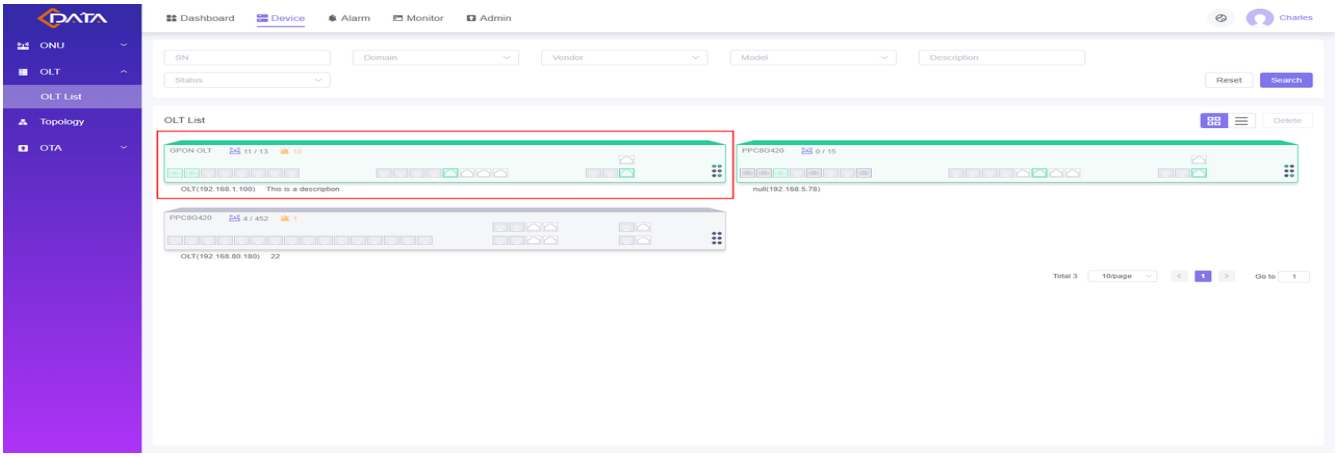


CMS Server and Port can be viewed on the 【Admin-Enterprise】 interface of CMS management platform, as shown in the following picture.



4.2.2.3 View the binding result

After the CMS is bound to the OLT successfully, log in to the CMS management platform and view the OLT information on the [Device-OLT-OLT List] interface, as shown in the following figure.



4.2.3 Step3 Simple deployment of OLT

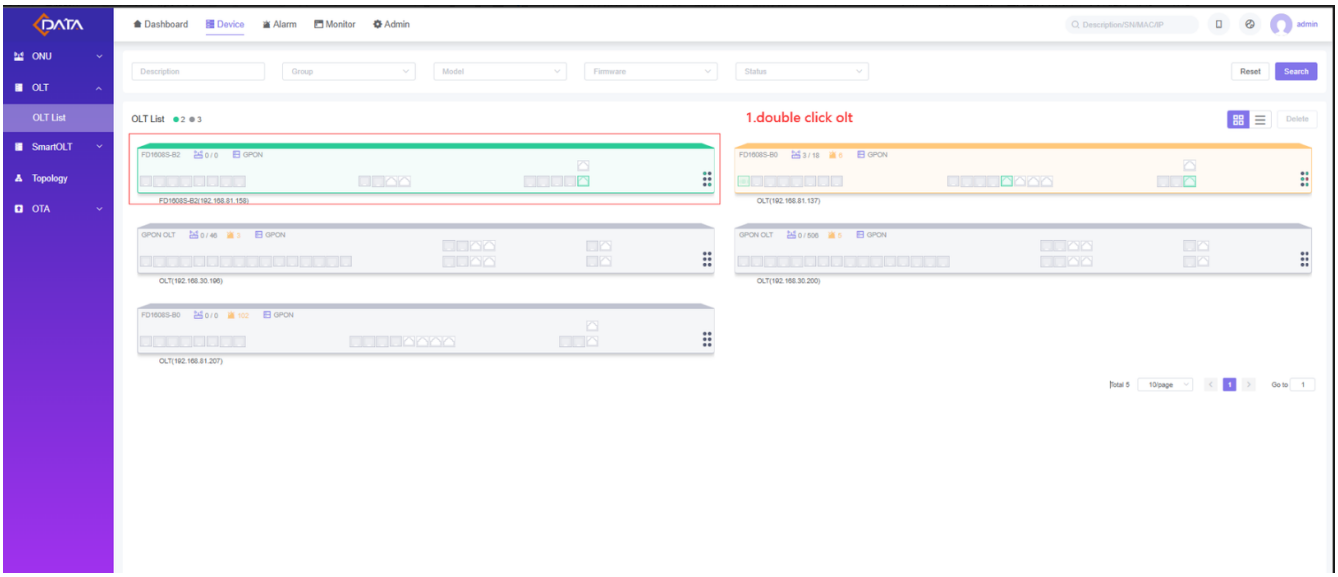
After the OLT is powered on, the simple deployment allows you to quickly configure the OLT globally and create deployment policies. After the ONU is poweredon, the policies are automatically delivered to connect the ONU to the OLT.

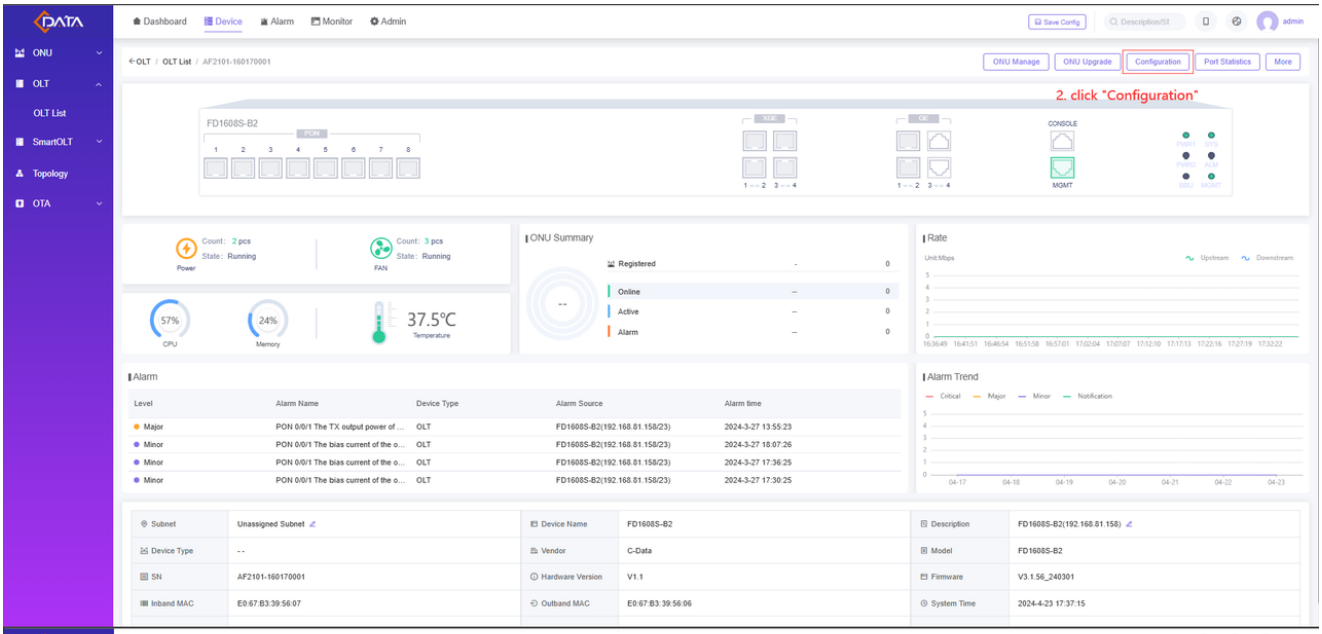
Take the SFU as an example to implement Internet access services through simple deployment. The steps are as follows:

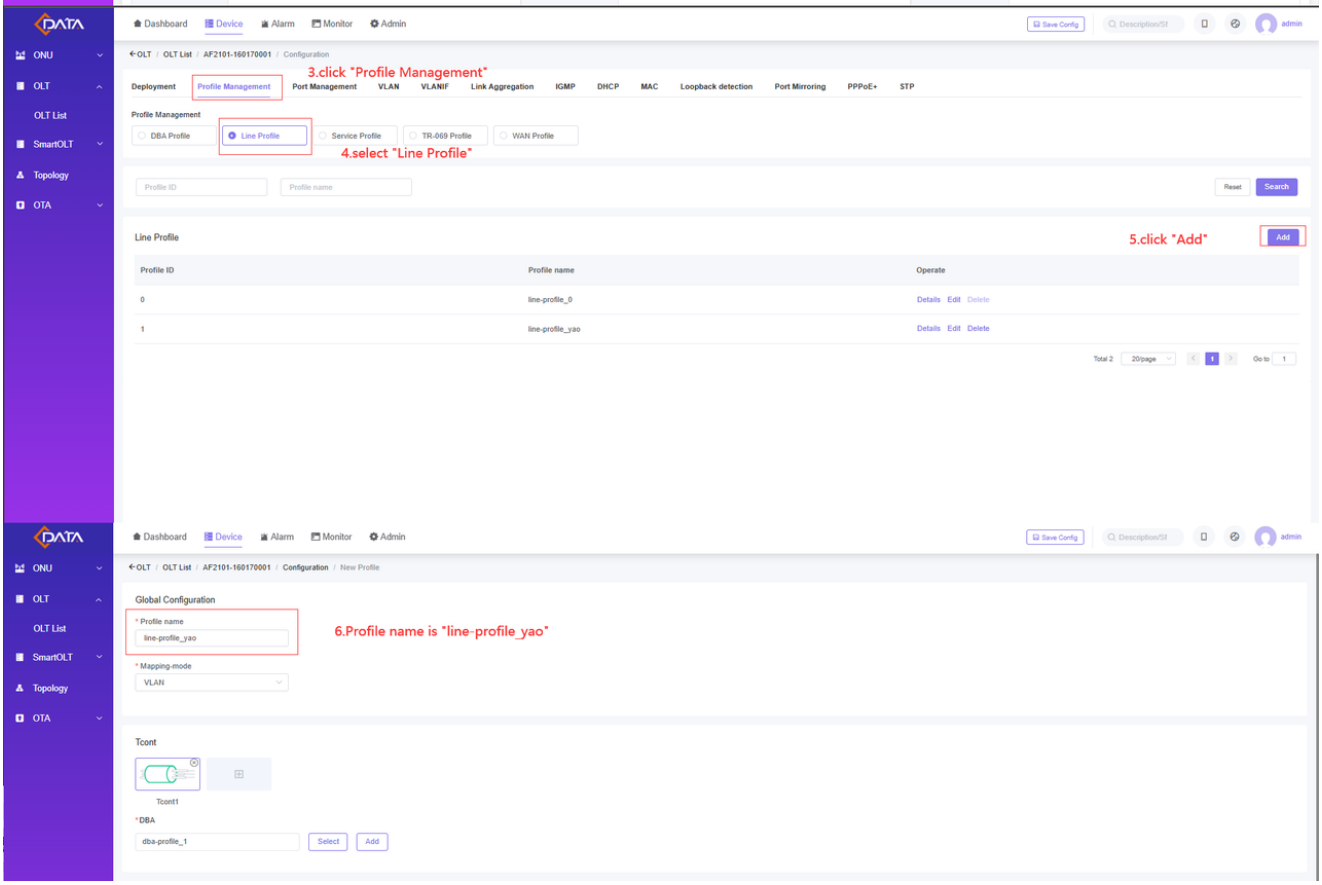
4.2.3.1 Prerequisites

The line template and service template are configured

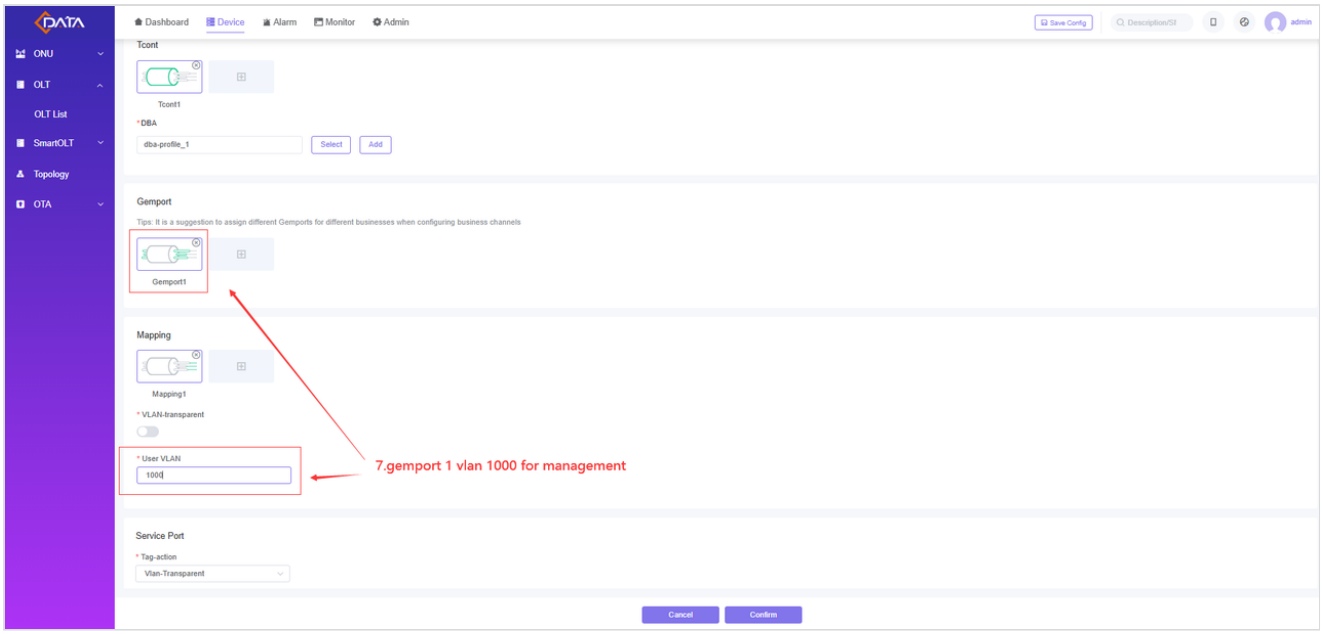
- Create a line Profile

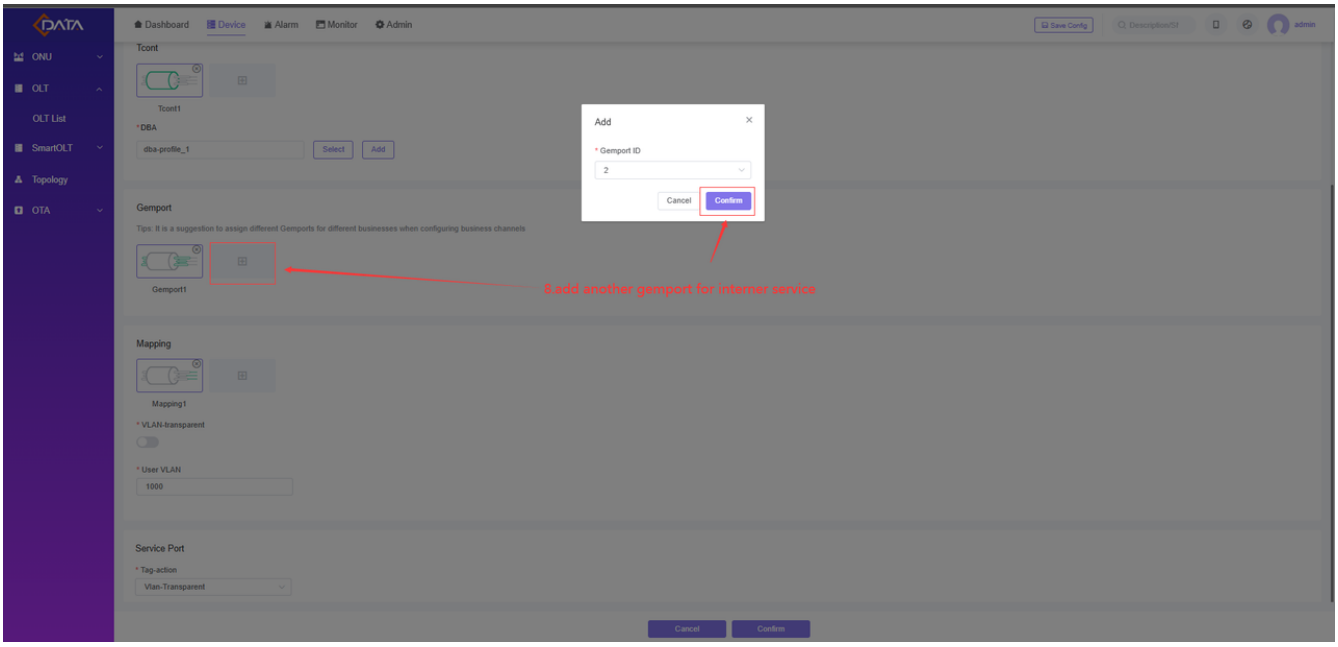


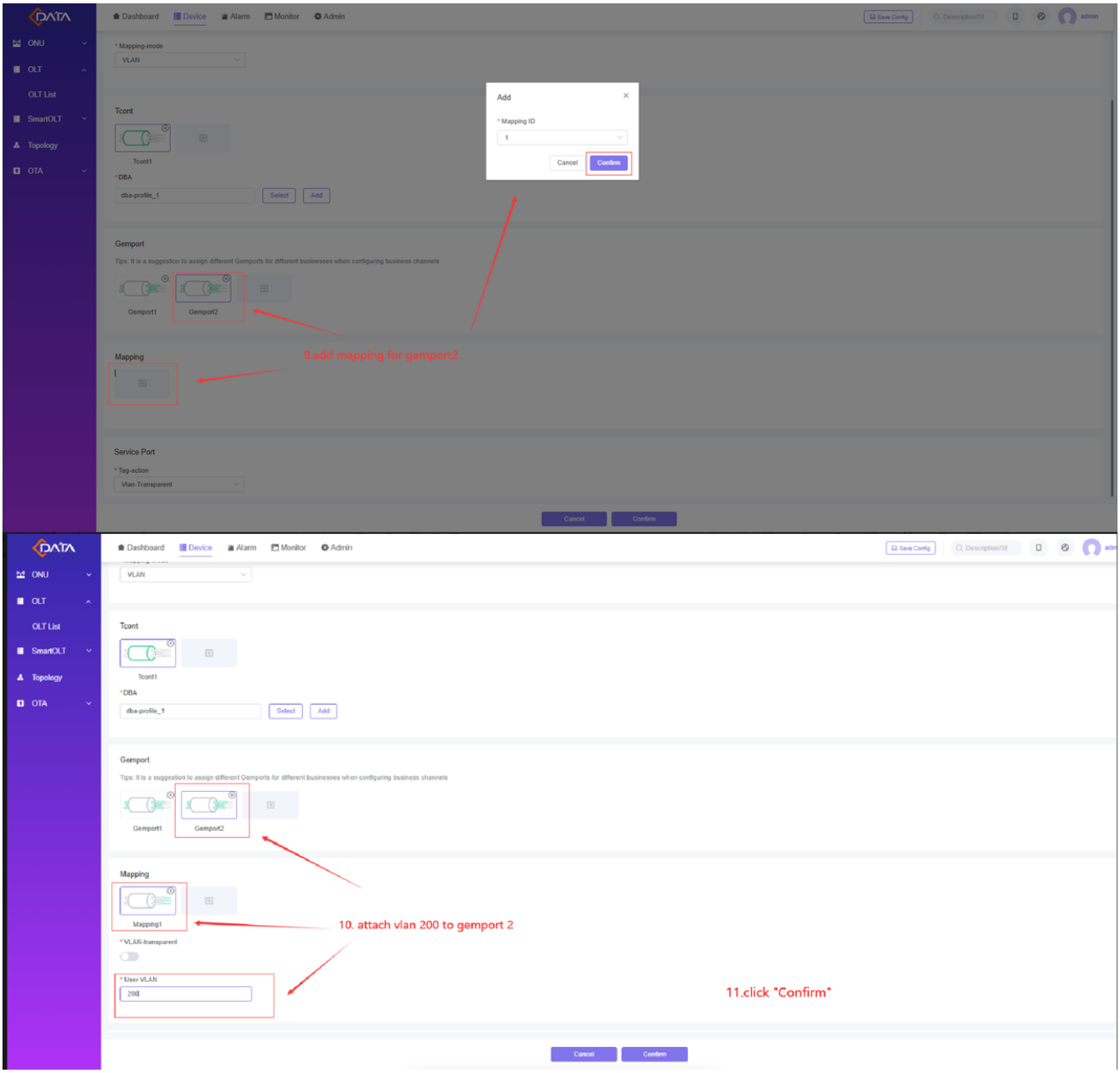

2. click "Configuration"


3.click "Profile Management"
4.select "Line Profile"
5.click "Add"

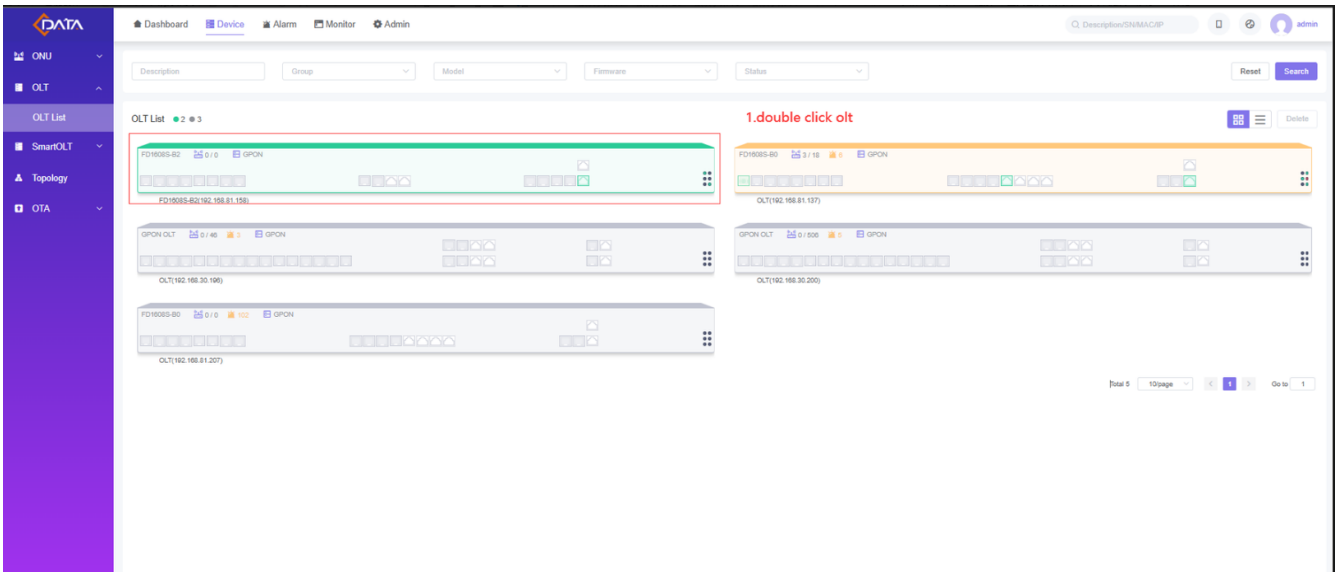
6.Profile name is "line-profile_yao"

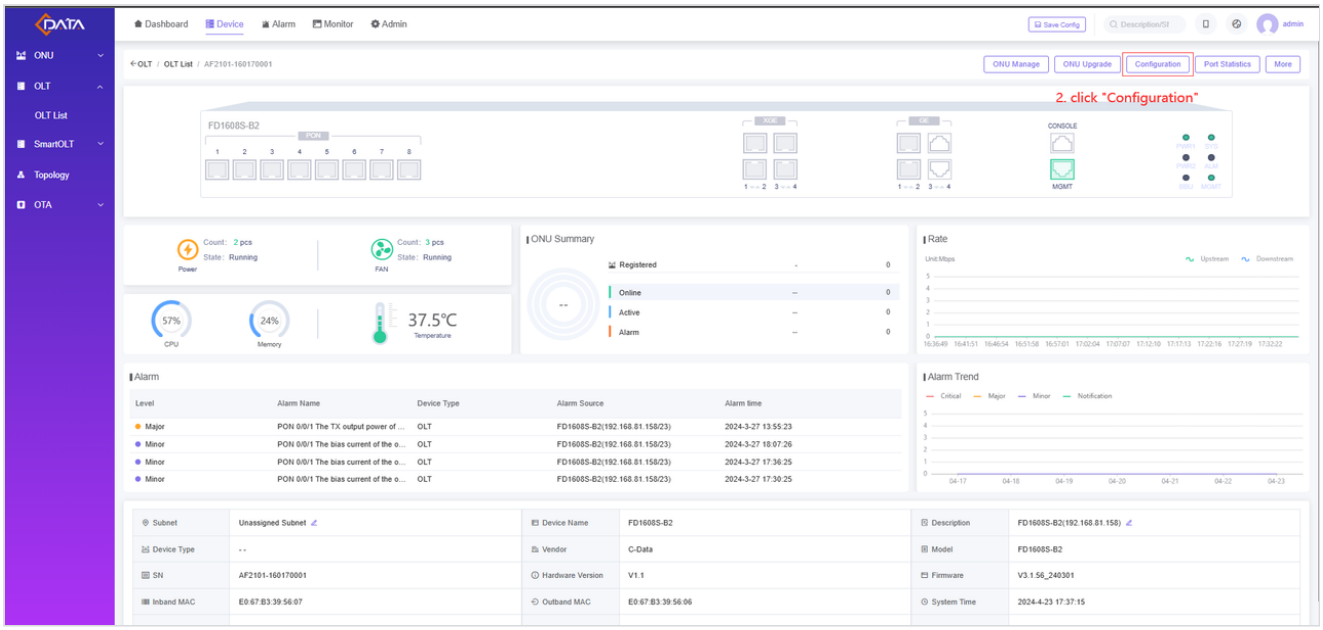

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Tcont
Tcont1
*DBA
dba-profile_1
Select
Add
Gemport
Tips: It is a suggestion to assign different Gemports for different businesses when configuring business channels
Gemport1
Mapping
Mapping1
* VLAN-transparent
* User VLAN
1000
7.gemport 1 vlan 1000 for management
Service Port
* Tag-action
Vlan-Transparent
Cancel
Confirm

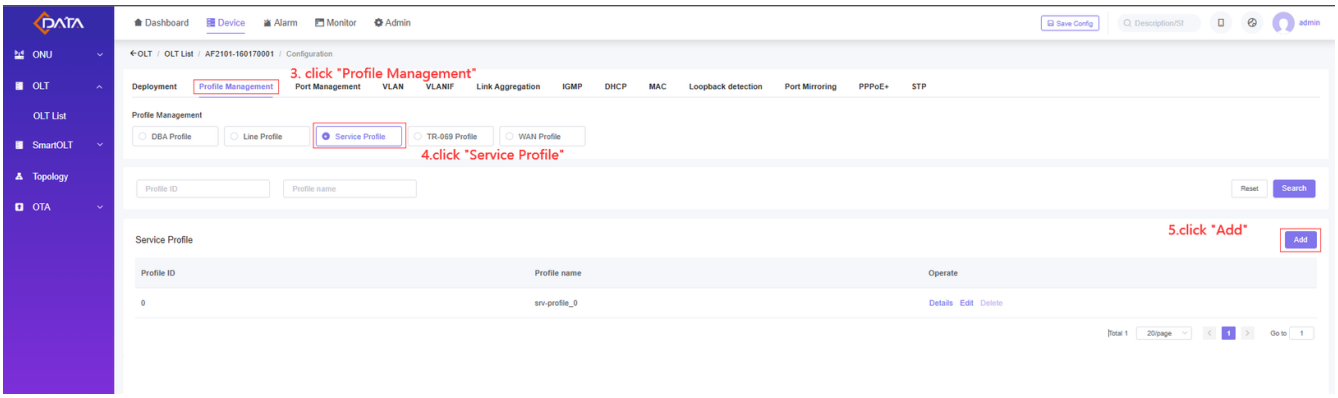

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Tcont
Tcont1
*DBA
dba-profile_1
Select
Add
Add
* Gemport ID
2
Cancel
Confirm
Gemport
Tips: It is a suggestion to assign different Gemports for different businesses when configuring business channels
Gemport1
8.add another gemport for internet service
Mapping
Mapping1
* VLAN-transparent
* User VLAN
1000
Service Port
* Tag-action
Vlan-Transparent
Cancel
Confirm

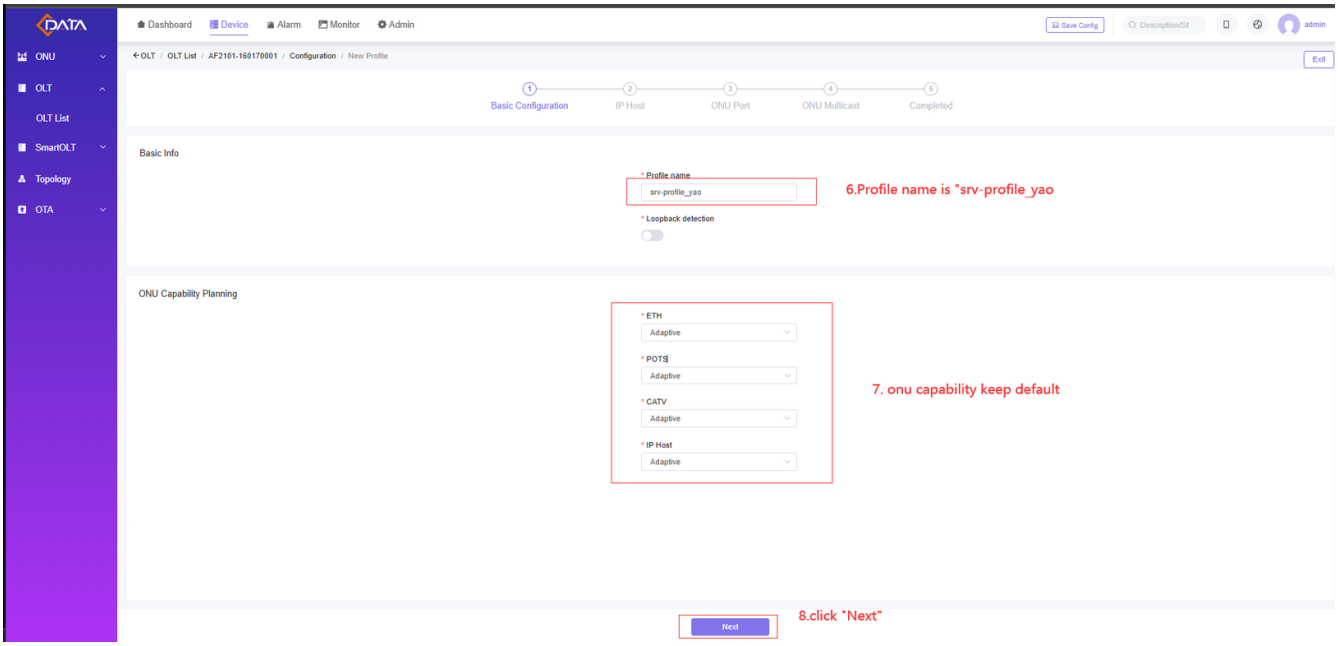


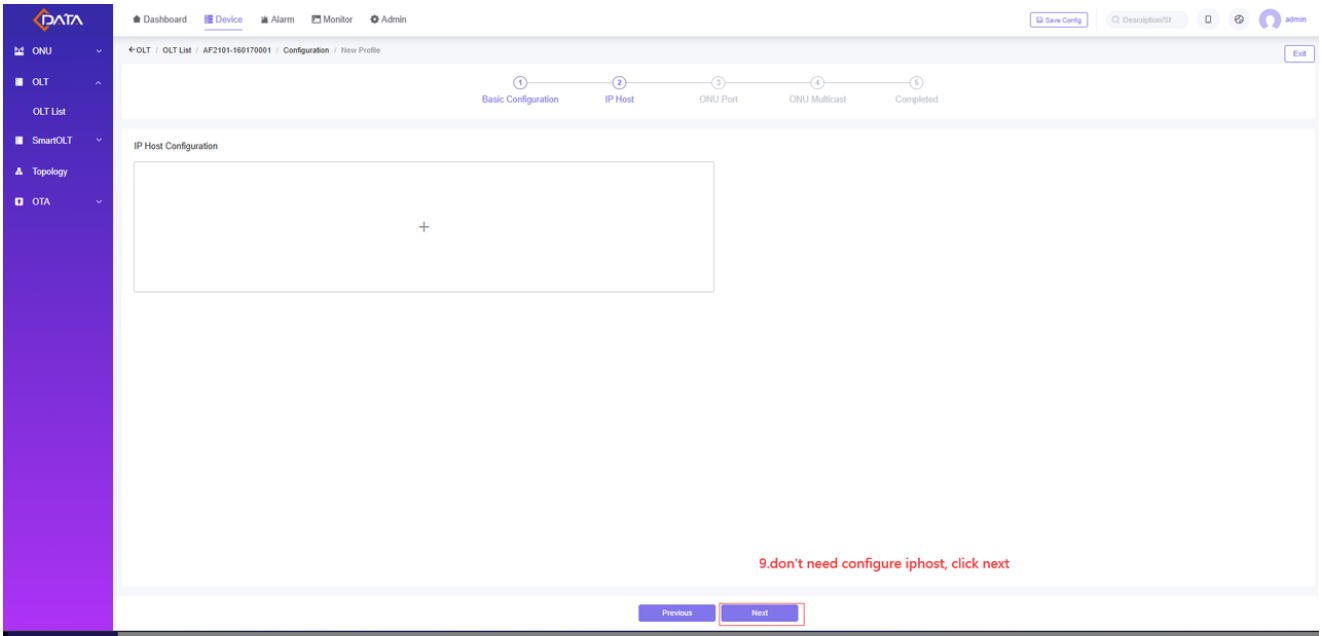
- Create a service profile

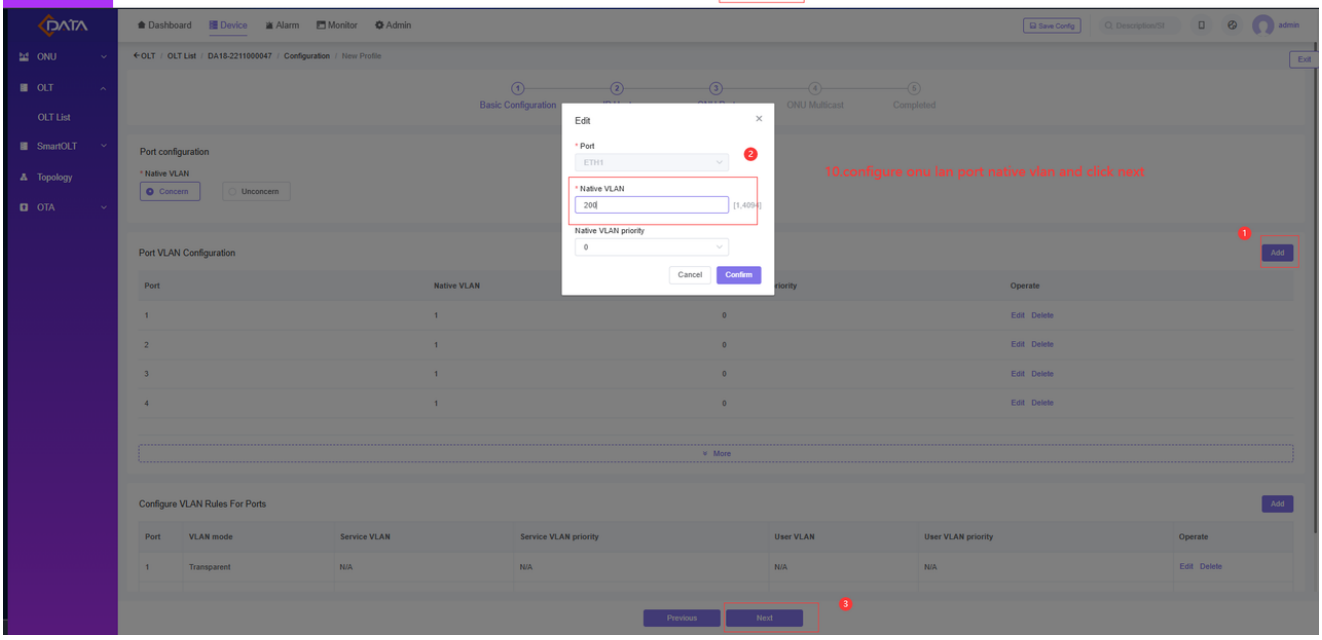


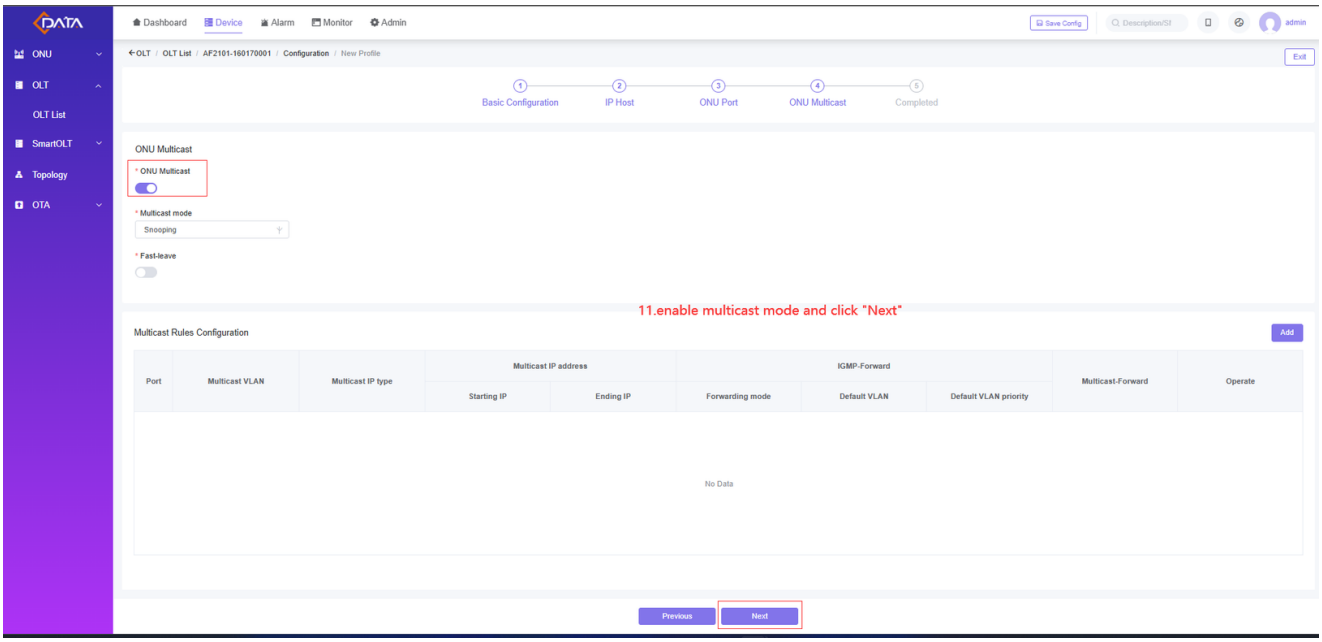

2. click "Configuration"

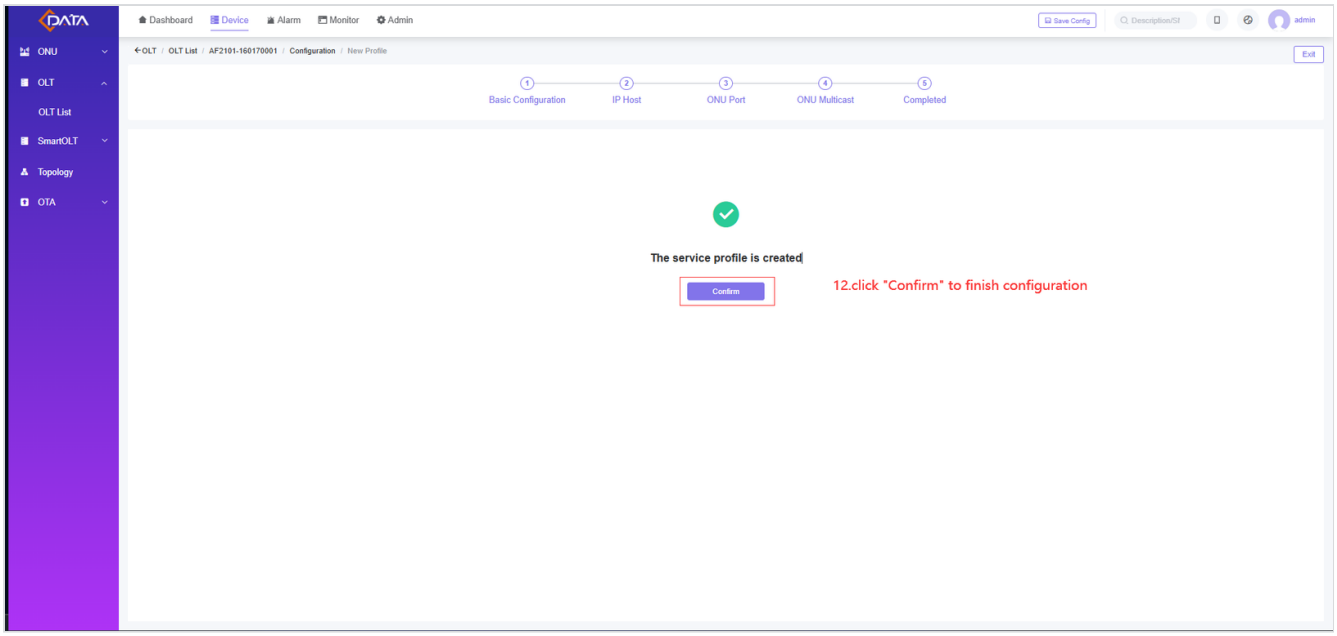

3. click "Profile Management"
4.click "Service Profile"
5.click "Add"


6.Profile name is "srv-profile_yao
7. onu capability keep default
8.click "Next"

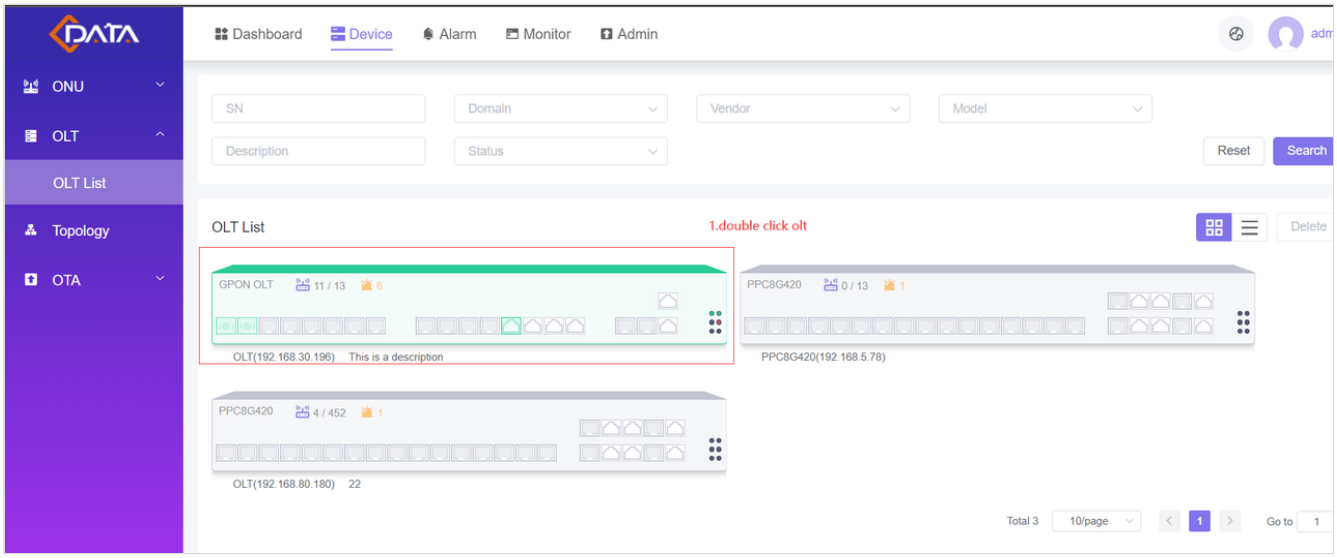

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Basic Configuration
IP Host
ONU Port
ONU Multicast
Completed
IP Host Configuration
9.don't need configure iphost, click next
Previous
Next

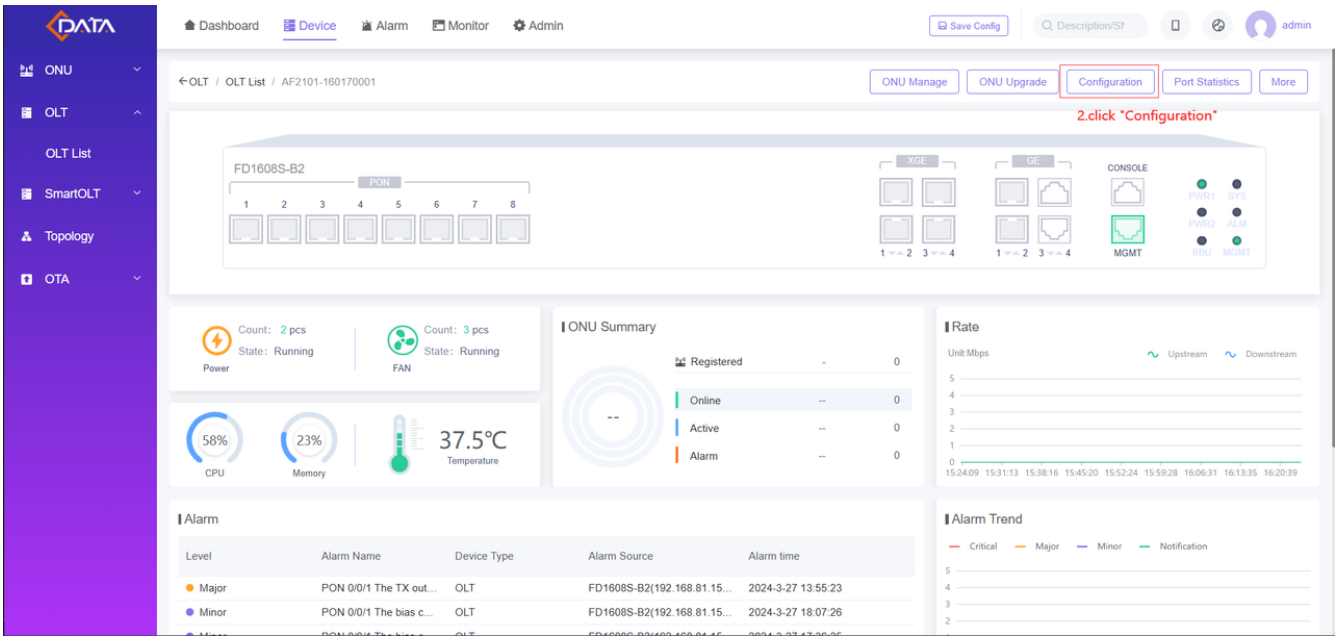

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Basic Configuration
ONU Multicast
Completed
Edit
Port
Native VLAN
Native VLAN priority
Cancel
Confirm
Port configuration
Native VLAN
Concern
Unconcern
10.configure onu lan port native vlan and click next
Port VLAN Configuration
Add
Port
Native VLAN
Operate
Edit
Delete
More
Configure VLAN Rules For Ports
VLAN mode
Service VLAN
Service VLAN priority
User VLAN
User VLAN priority
Transparent
N/A
Previous
Next

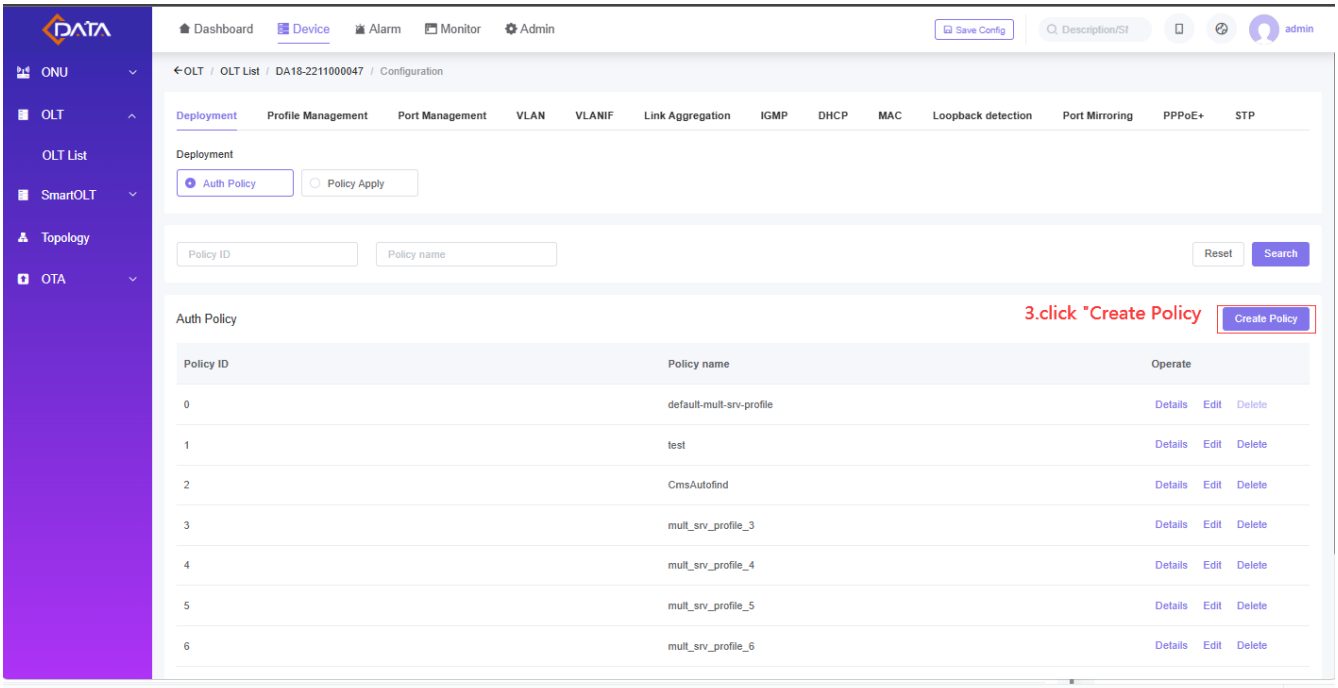

Dashboard
Device
Alarm
Monitor
Admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
Basic Configuration
IP Host
ONU Port
ONU Multicast
Completed
ONU Multicast
ONU Multicast
Multicast mode
Snooping
Fast-leave
11.enable multicast mode and click "Next"
Multicast Rules Configuration
Add
Port
Multicast VLAN
Multicast IP type
Multicast IP address
Starting IP
Ending IP
IGMP-Forward
Forwarding mode
Default VLAN
Default VLAN priority
Multicast-Forward
Operate
No Data
Previous
Next

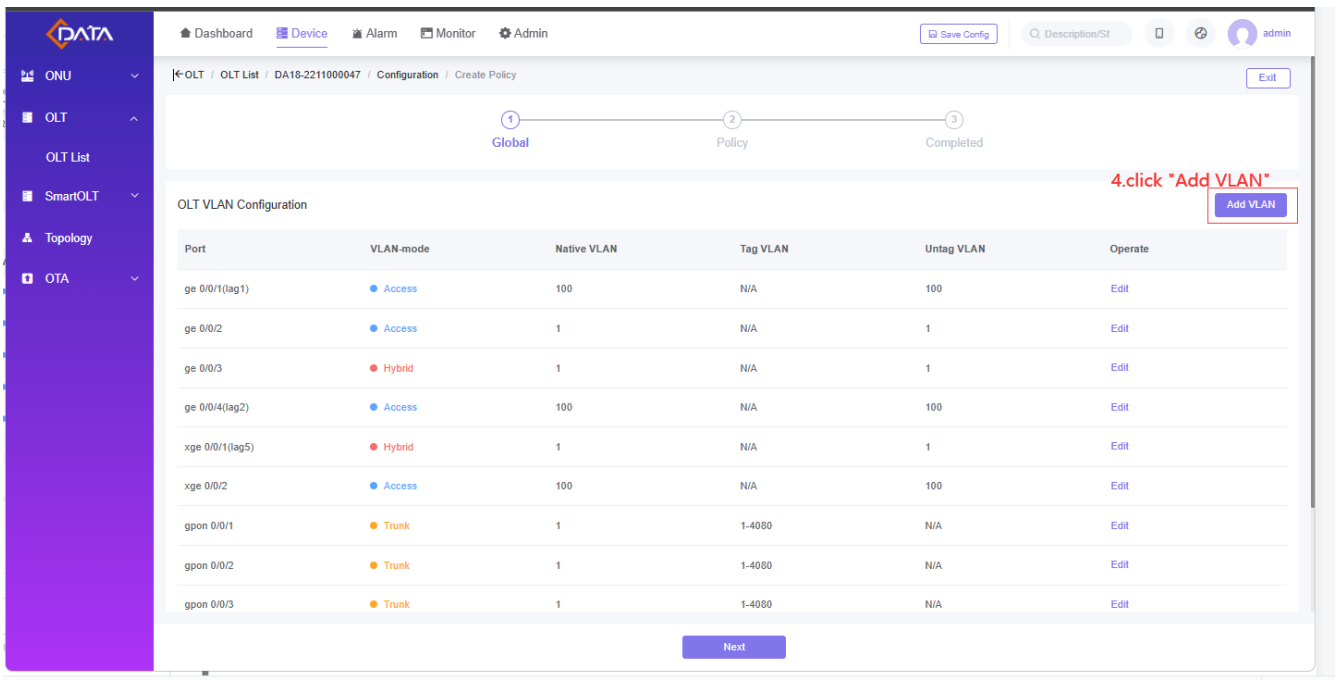


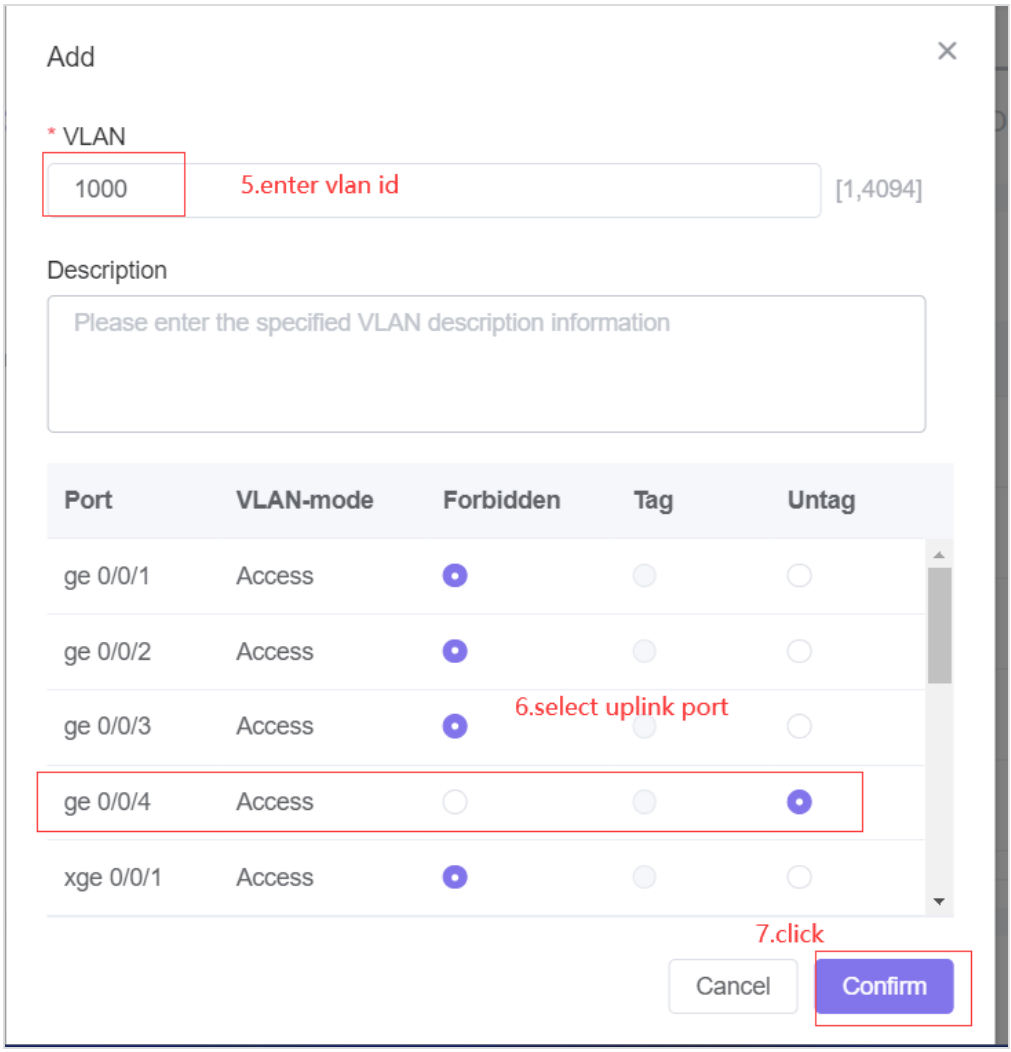
4.2.3.2 Deployment

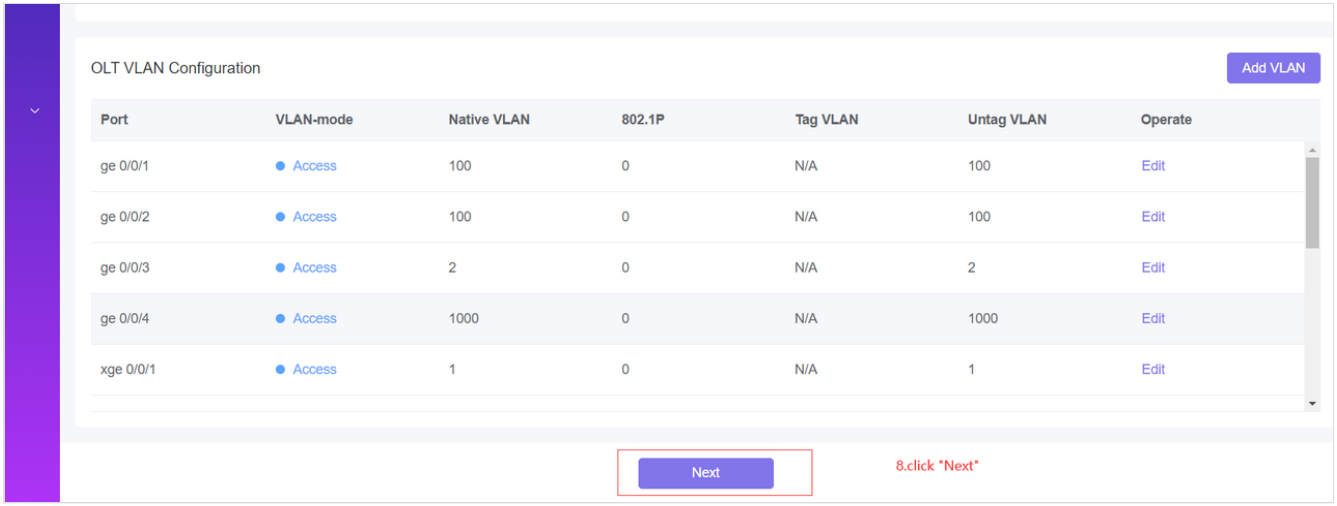


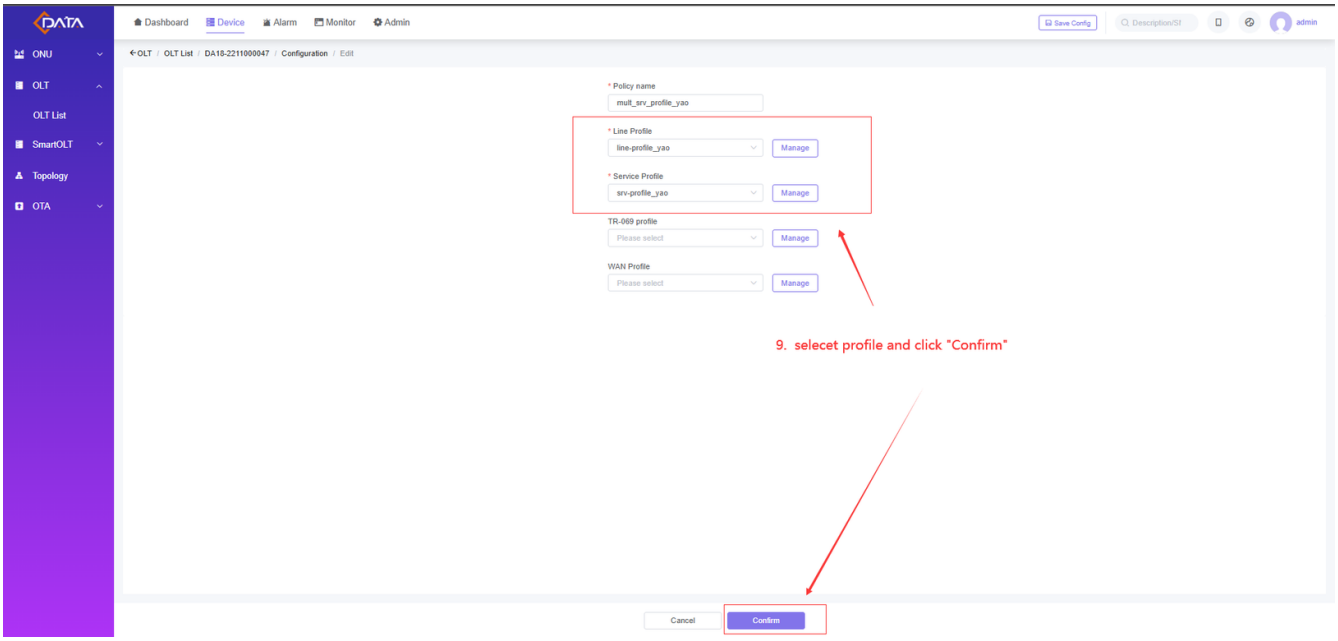


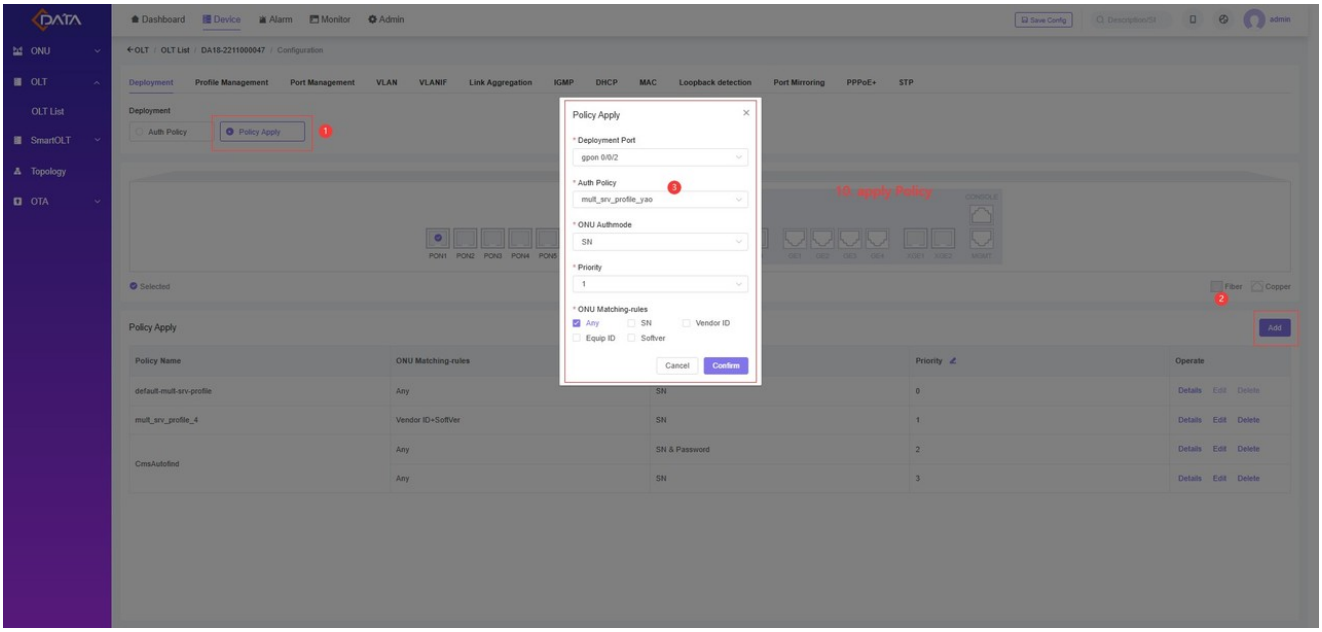

Dashboard
Device
Alarm
Monitor
Admin
Save Config
admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
OLT / OLT List / DA18-2211000047 / Configuration
Deployment
Profile Management
Port Management
VLAN
VLANIF
Link Aggregation
IGMP
DHCP
MAC
Loopback detection
Port Mirroring
PPPoE+
STP
Deployment
Auth Policy
Policy Apply
Policy ID
Policy name
Reset
Search
Auth Policy
3.click "Create Policy
Create Policy
Policy ID
Policy name
Operate
0
default-mult-srv-profile
Details Edit Delete
1
test
Details Edit Delete
2
CmsAutofind
Details Edit Delete
3
mult_srv_profile_3
Details Edit Delete
4
mult_srv_profile_4
Details Edit Delete
5
mult_srv_profile_5
Details Edit Delete
6
mult_srv_profile_6
Details Edit Delete


Dashboard
Device
Alarm
Monitor
Admin
Save Config
admin
ONU
OLT
OLT List
SmartOLT
Topology
OTA
OLT / OLT List / DA18-2211000047 / Configuration / Create Policy
Exit
1
Global
2
Policy
3
Completed
4.click "Add VLAN"
OLT VLAN Configuration
Add VLAN
Port
VLAN-mode
Native VLAN
Tag VLAN
Untag VLAN
Operate
ge 0/0/1(lag1)
Access
100
N/A
100
Edit
ge 0/0/2
Access
1
N/A
1
Edit
ge 0/0/3
Hybrid
1
N/A
1
Edit
ge 0/0/4(lag2)
Access
100
N/A
100
Edit
xge 0/0/1(lag5)
Hybrid
1
N/A
1
Edit
xge 0/0/2
Access
100
N/A
100
Edit
gpon 0/0/1
Trunk
1
1-4080
N/A
Edit
gpon 0/0/2
Trunk
1
1-4080
N/A
Edit
gpon 0/0/3
Trunk
1
1-4080
N/A
Edit
Next


Add
* VLAN
1000
5.enter vlan id
[1,4094]
Description
Please enter the specified VLAN description information
Port
VLAN-mode
Forbidden
Tag
Untag
ge 0/0/1
Access
ge 0/0/2
Access
ge 0/0/3
Access
6.select uplink port
ge 0/0/4
Access
xge 0/0/1
Access
7.click
Cancel
Confirm


OLT VLAN Configuration
Add VLAN
Port
VLAN-mode
Native VLAN
802.1P
Tag VLAN
Untag VLAN
Operate
ge 0/0/1
Access
100
0
N/A
100
Edit
ge 0/0/2
Access
100
0
N/A
100
Edit
ge 0/0/3
Access
2
0
N/A
2
Edit
ge 0/0/4
Access
1000
0
N/A
1000
Edit
xge 0/0/1
Access
1
0
N/A
1
Edit
Next
8.click "Next"





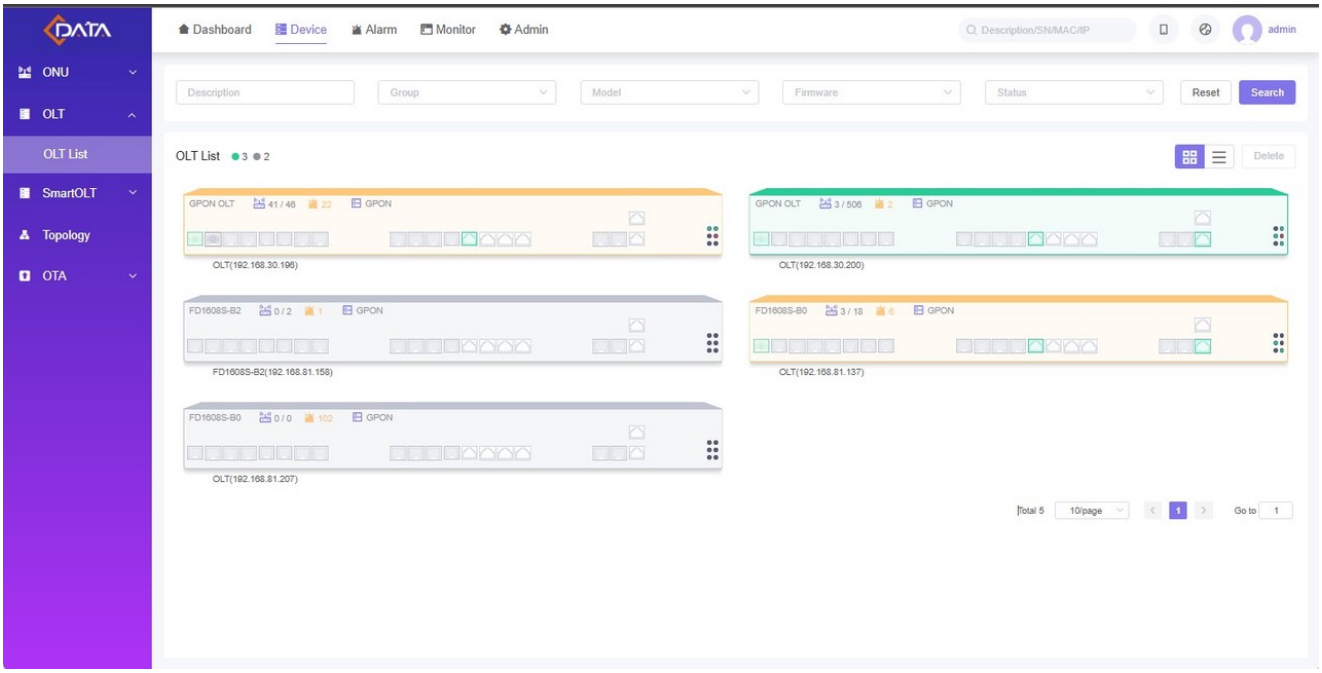
4.2.4 Step4 Routine maintenance of OLT/SFU

4.2.4.1 OLT routine maintenance

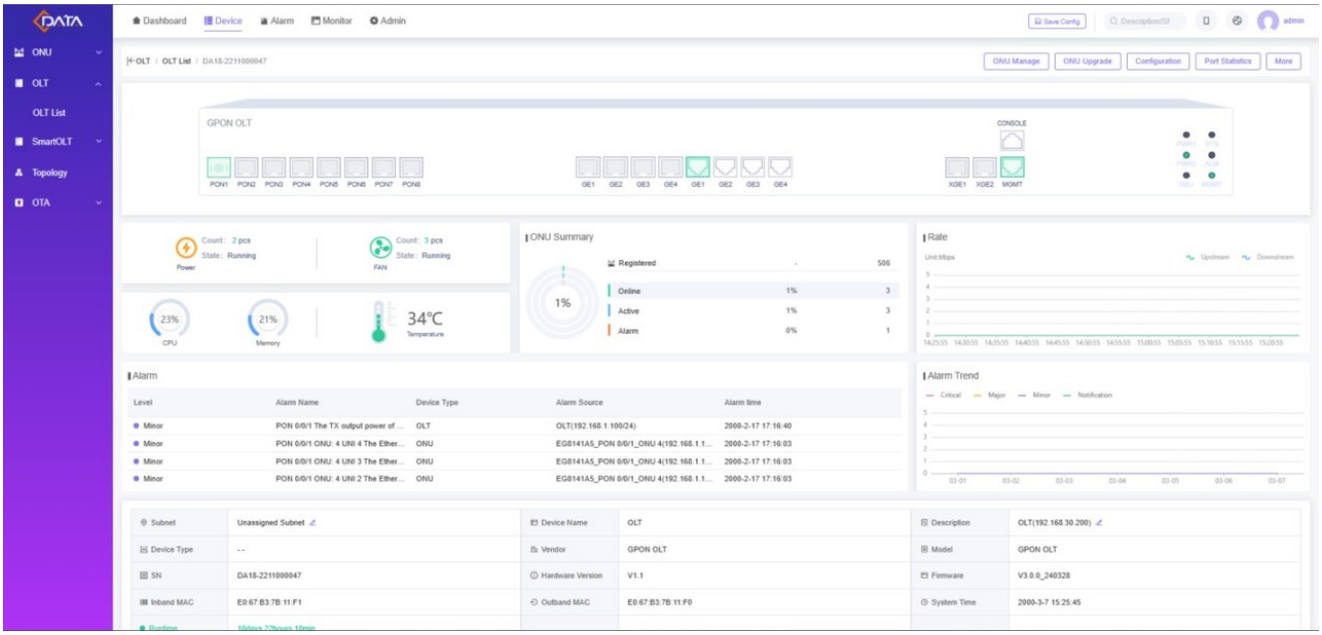
OLT routine maintenance includes viewing lists and details, single configuration, device upgrade, restart, factory restoration, etc.

4.2.4.1.1 OLT list and details view

Select [Device-OLT-OLT List] to display the OLT List interface as follows, you can view all bound OLT devices.

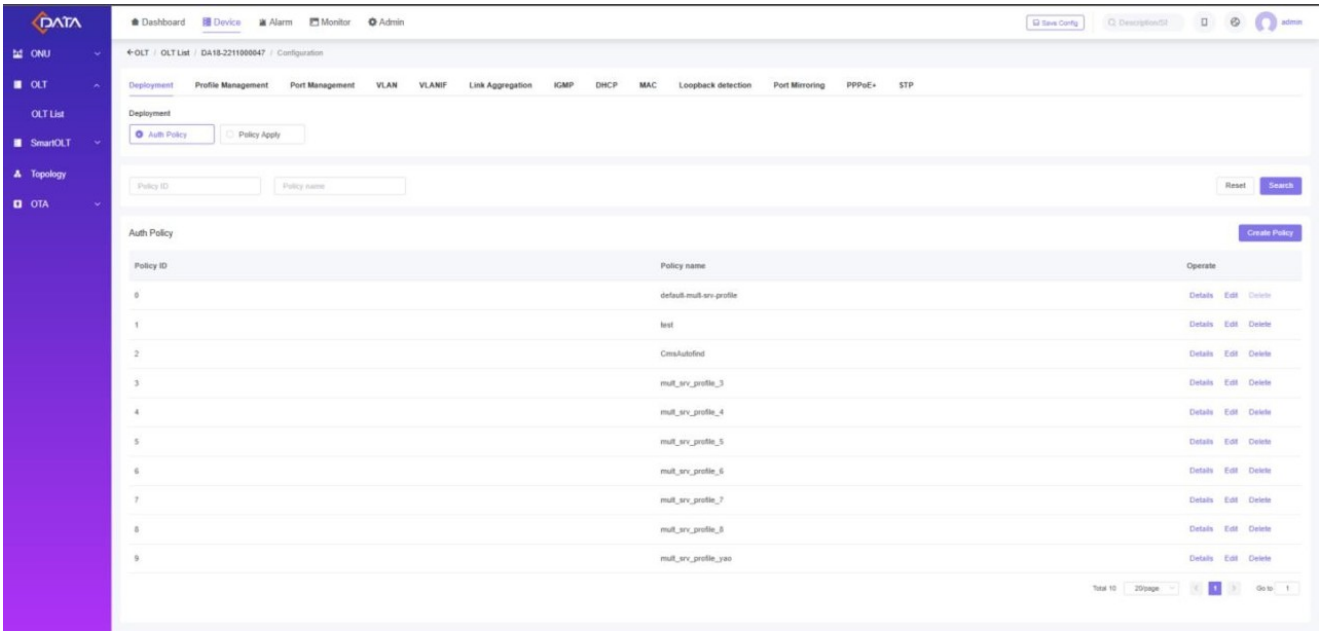


Double-click the card to enter the OLT details displayed as follows, you can view the OLT port status, running status, alarm and other information.



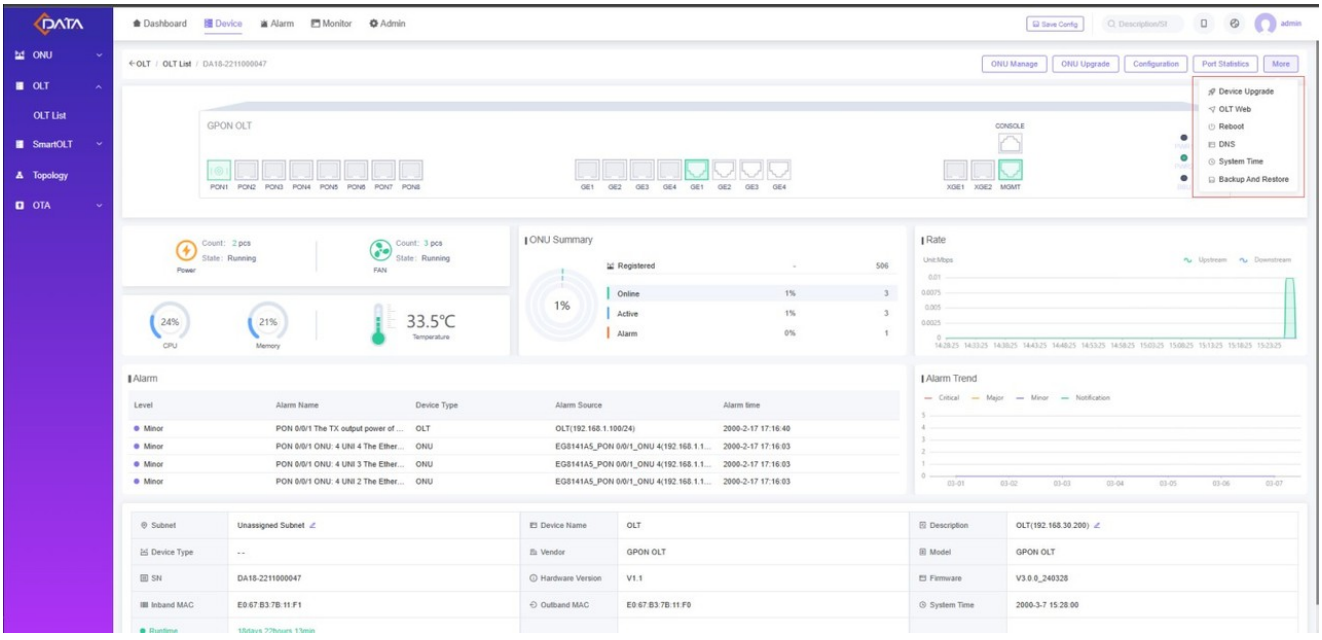
4.2.4.1.2 Single OLT configuration

On the OLT details screen, click "Configuration" to enter the OLT configuration screen. You can create a deployment policy and apply it, and configure port VLAN, link aggregation, VLAN, VLANIF, etc.



4.2.4.1.3 OLT More operations

On the OLT details screen, click "More" to upgrade the device, open the OLT Web, and restart and restore the factory.

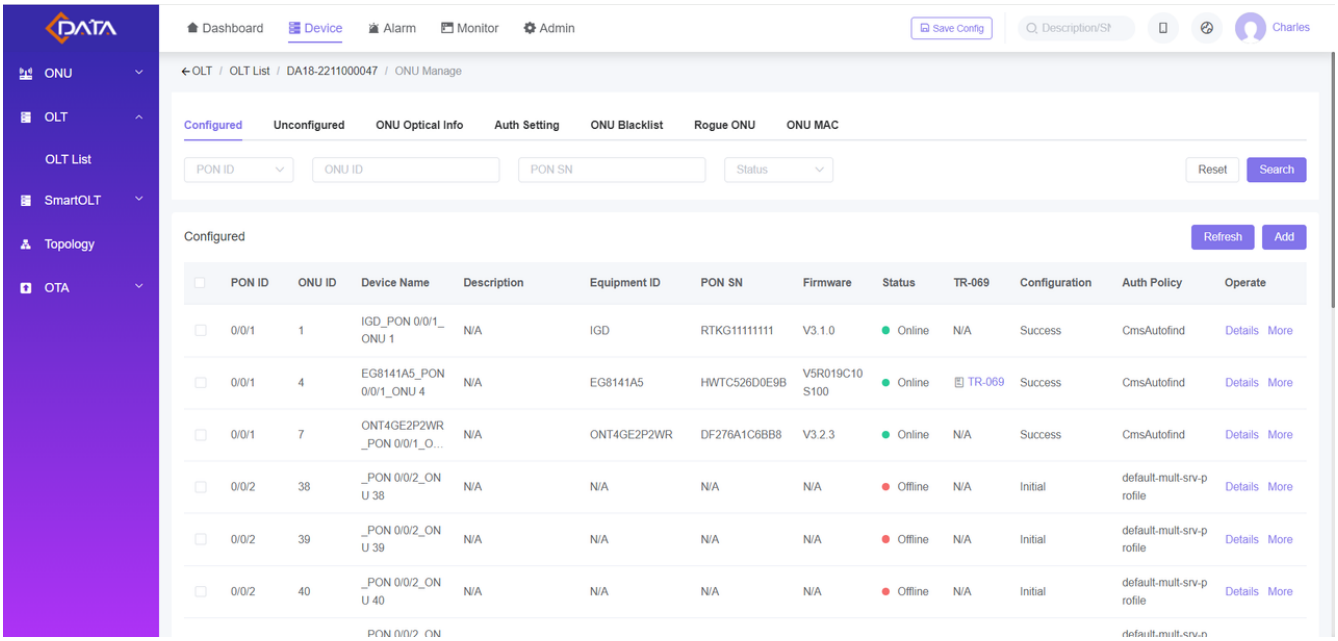


4.2.4.2 Routine maintenance of ONU

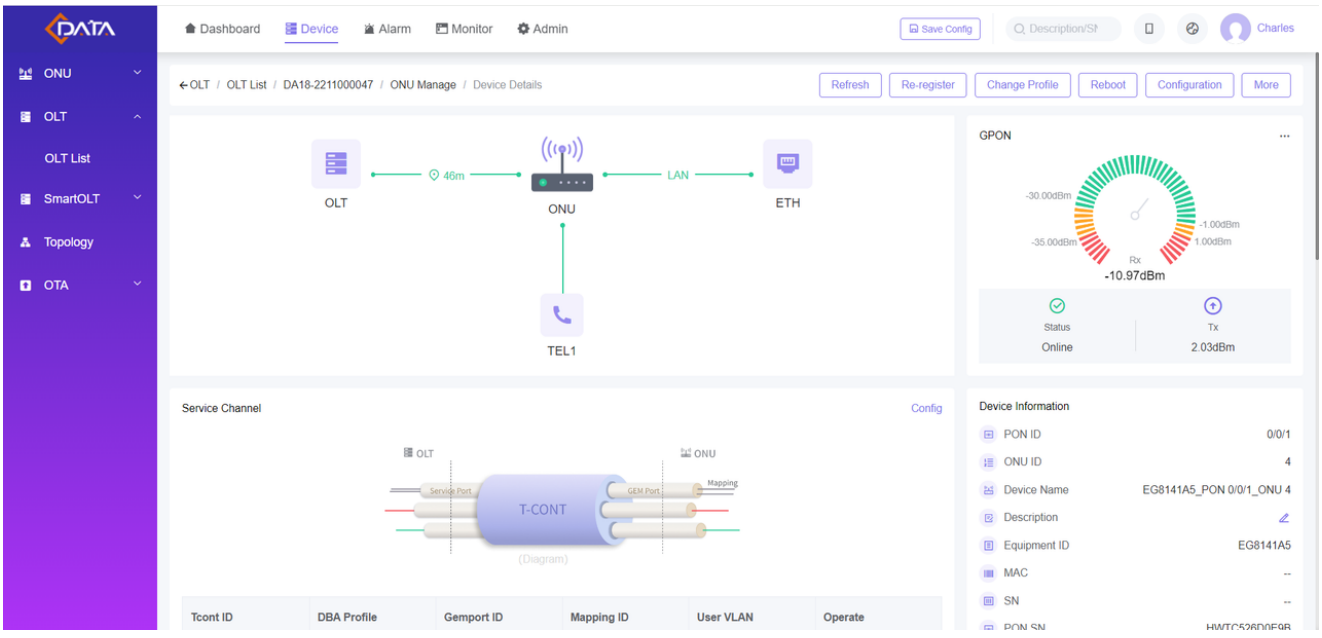
CMS manages the ONU indirectly through OLT, based on the OMCI protocol.

4.2.4.2.1 See the list of ONUs and details

On the ONU upper-layer OLT device details page, click ONU Manager to enter the ONU list screen.

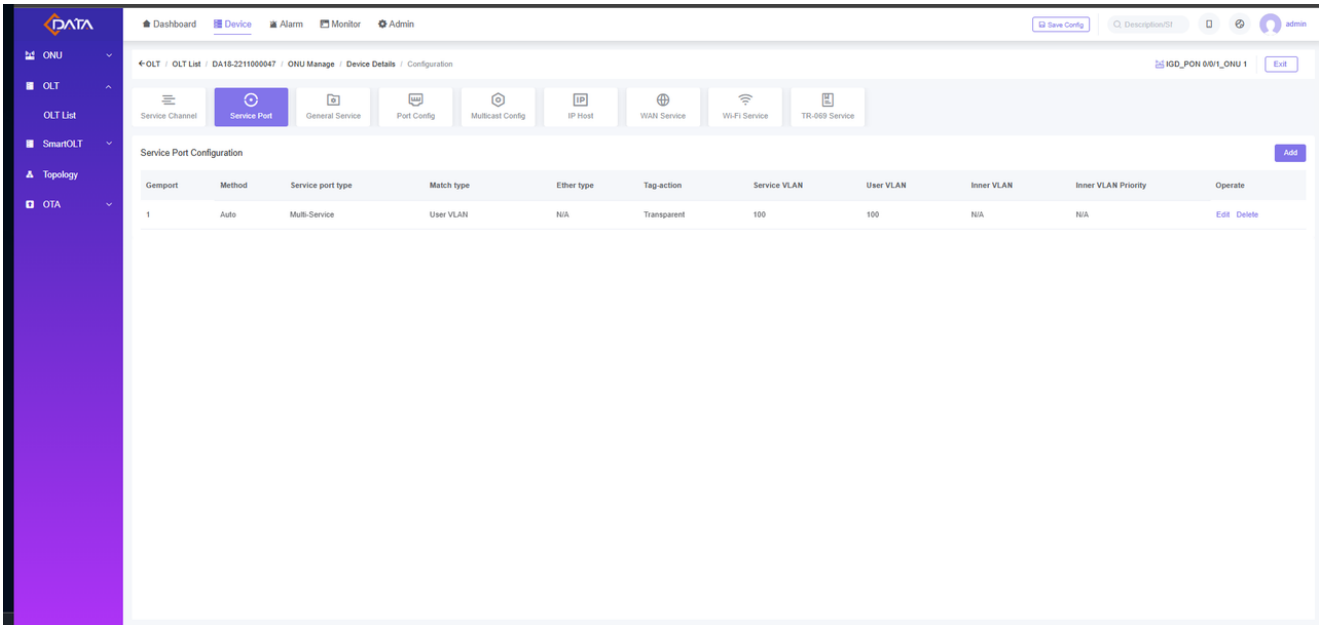


In the authenticated ONU list interface, double-click a row of an ONU to enter the details page displayed as follows, you can view ONU capability status, PON optical power, service channel, WAN, VoIP and other information.



4.2.4.2.2 Configure a single ONU

In the ONU details screen, click "Configuration" to enter the ONU configuration screen displayed as follows, you can modify the Service Channel, Service Port, General Service, etc.

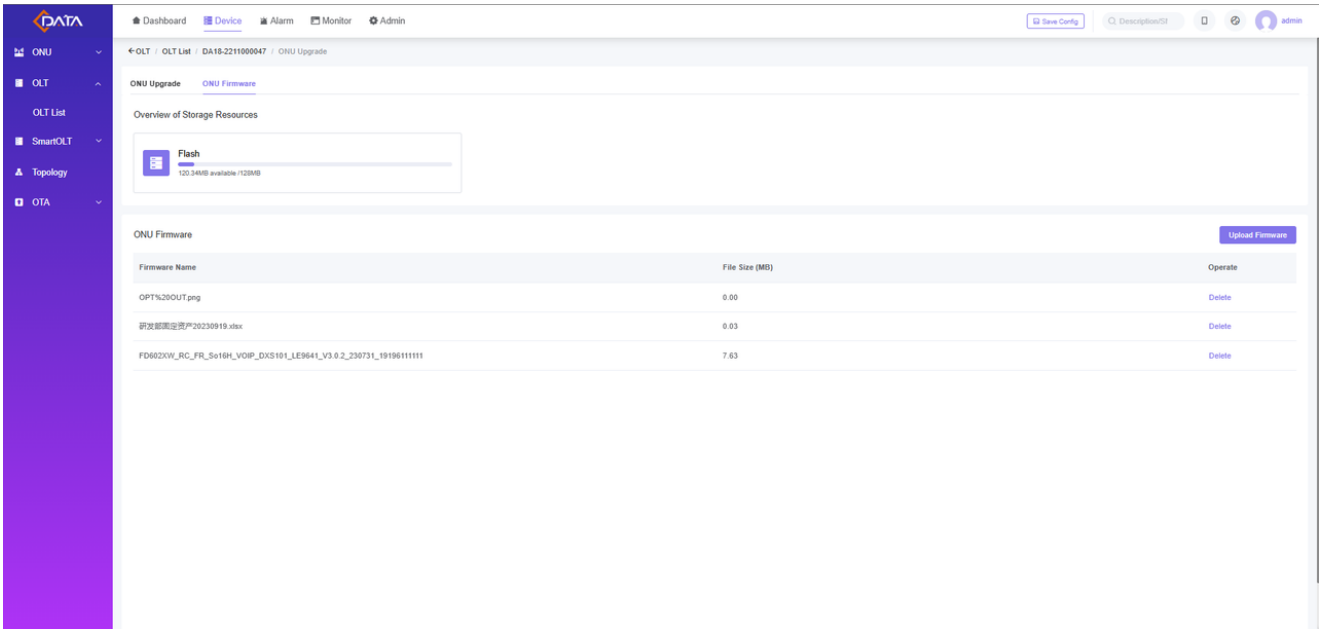


4.2.4.2.3 Batch upgrade ONU

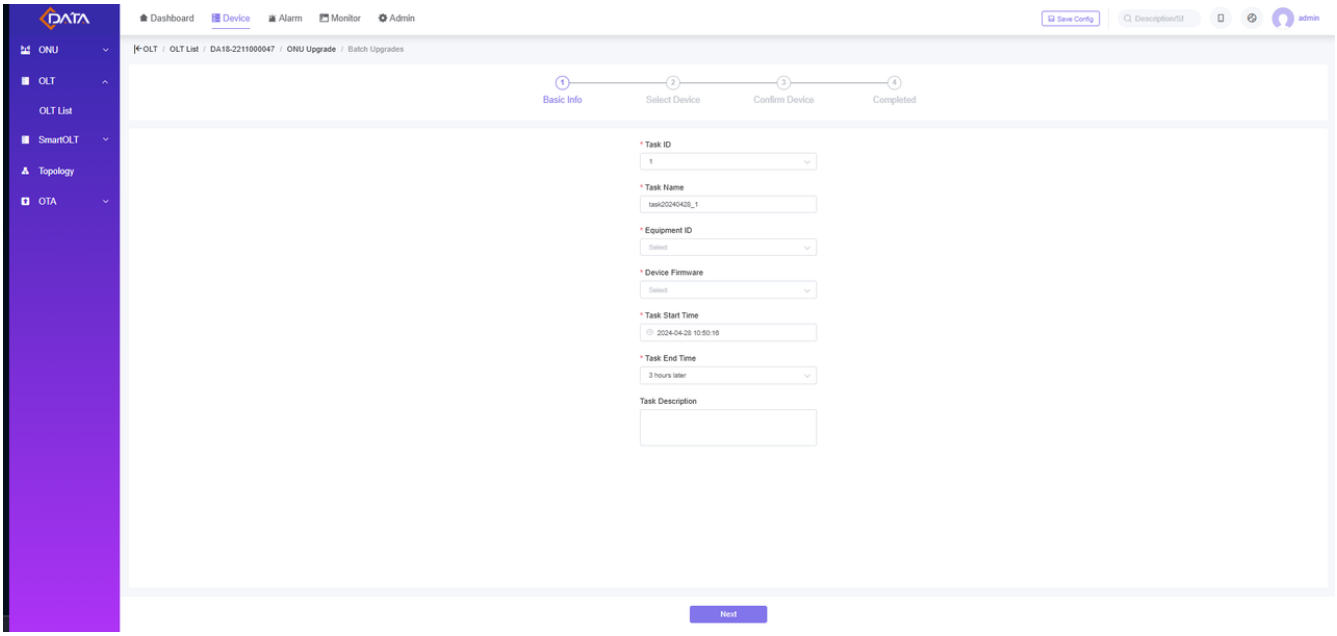
On the OLT Details screen, click "ONU Upgrade" to access the ONU Batch upgrade screen.

Upload Firmware	Create an upgrade task

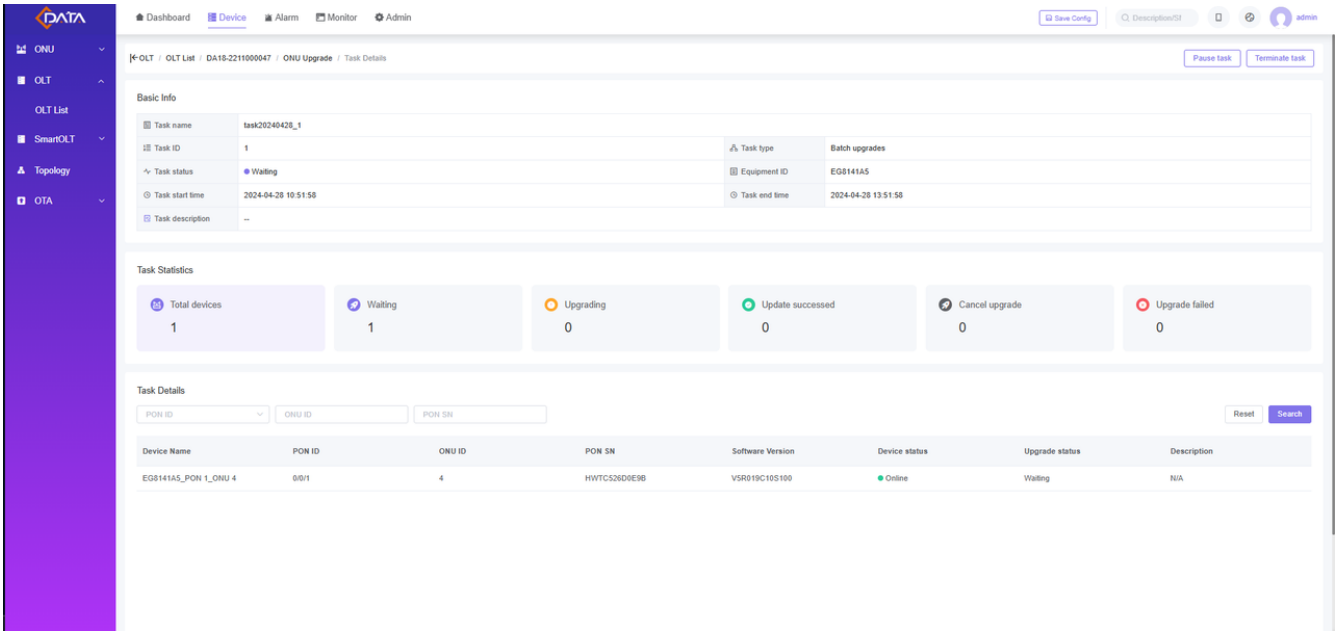
1) On the ONU Firmware Managerment screen, you can upload firmware.



2) On the ONU Firmware Upgrade interface, click "Add Task" to create an upgrade task.

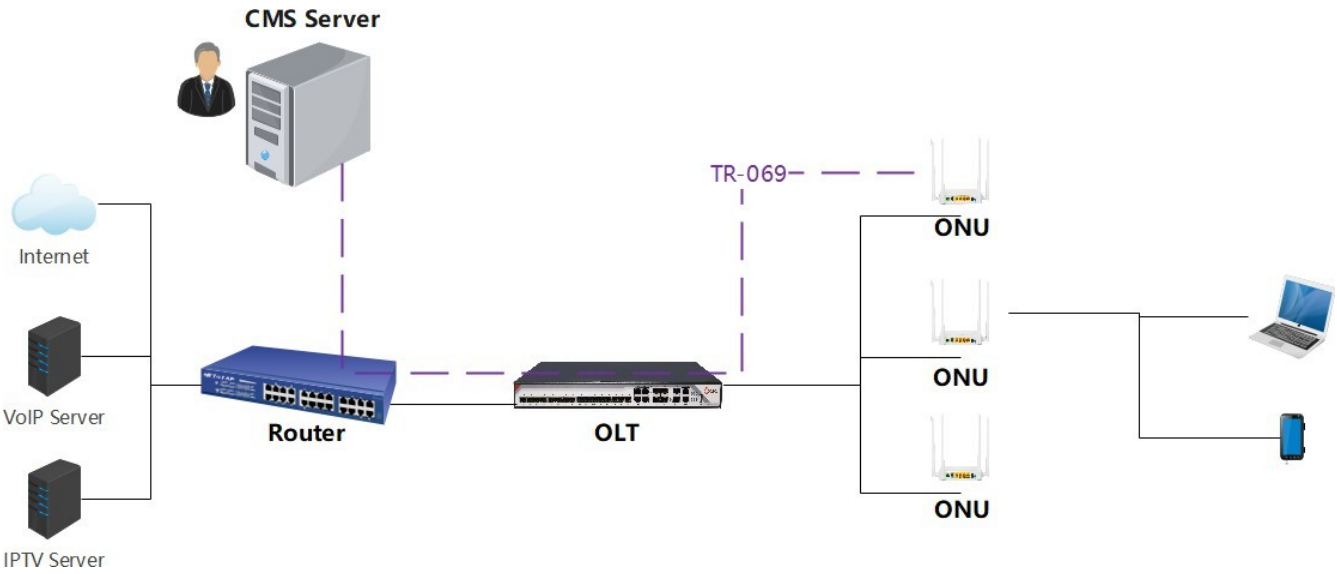


3) On the ONU Firmware Upgrade screen, click "Details" to view the device upgrade status.



4.3 Scenario 3: The CMS does not manage the OLT, but manages the ONU via TR-069

The CMS manages the ONU directly through the TR-069, including third-party devices. The network architecture is as follows:



The recommended configuration steps are as follows:

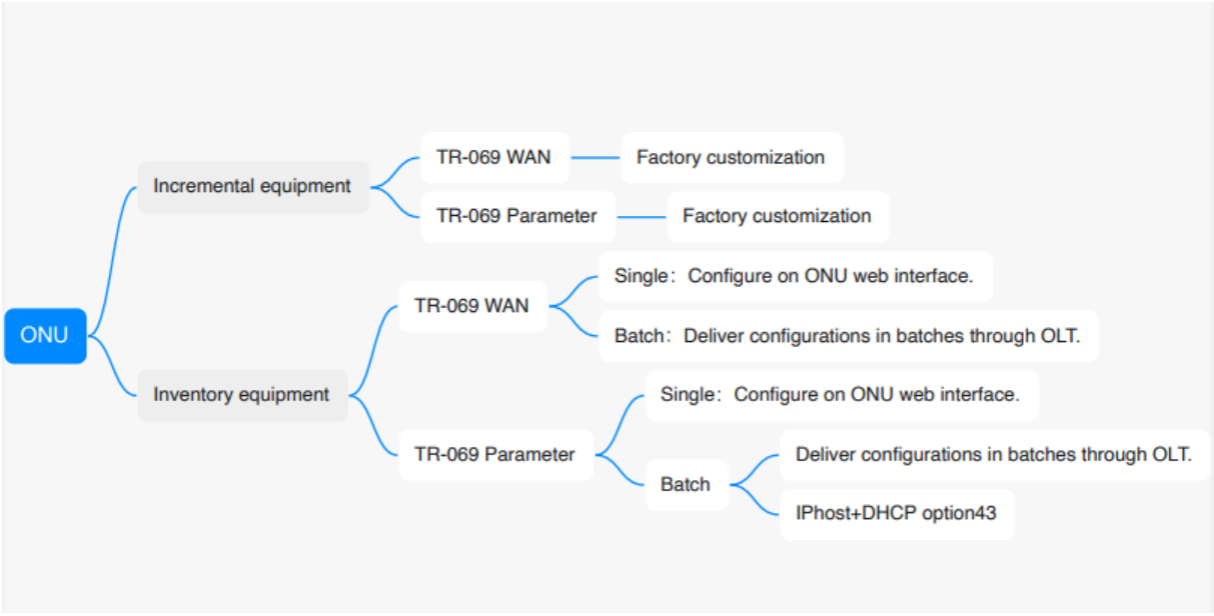
Prerequisites: The ONU has been registered with the OLT and the OLT has been configured to ensure that the ONU is connected to theCMS.

Step P1: Bind the ONU to the CMS	Step2: ONU routine maint

4.3.1 Step 1 Bind the ONU to the CMS

ONU Configuration TR-069 WAN Connection and TR-069 Server Parameter method,

- Incremental device: recommended unified factory customization;
- Stock device: for a single device can be directly configured on the ONU Web interface, for multiple devices can be delivered in batches through OLT.



TR-069 WAN batch configuration

Batch WAN templates via OLT (some vendor OLTs, or older versions of ONUs do not support proprietary protocols), using cdata gpon OLT as an example:

See[Scenario 1 - Step3 Simple deployment of OLT - Prerequisites - Creating a wan Profile]

TR-069 Batch Configuration of Server parameters (OLT batch delivery)

See [Scenario 1 - Step3 Simple deployment of OLT - Prerequisites - Creating a tr069 Profile]

Batch configuration of TR-069 Server parameters (IPhost+DHCP option43)

IPhost is the GPON standard protocol, which is generally supported by OLT. TR069 channel can be established through IPhost. TR069 server parameters can be delivered through DHCP option 43 field, including the ACS server address, ACS server user name and password.

Take Huawei DHCP Server as an example, you can use the command line to configure the ACS parameters. The command format is as follows: option 43 hex 01length URL username password, where the URL, username, and password must be in ASCII hexadecimal format.

Parameters	Instructions	Parameter value example	Hexadecimal value
length	The total length of the argument following the keyword option 43 hex 01	40 characters	28
URL	ACS's address	http://192.168.20.56:9999/v1/acs	687474703A2F2F3139322 1637320
username	ACS user name	acs	61637320
password	Password for ACS	acs	616373

The configuration commands are as follows:

复制代码

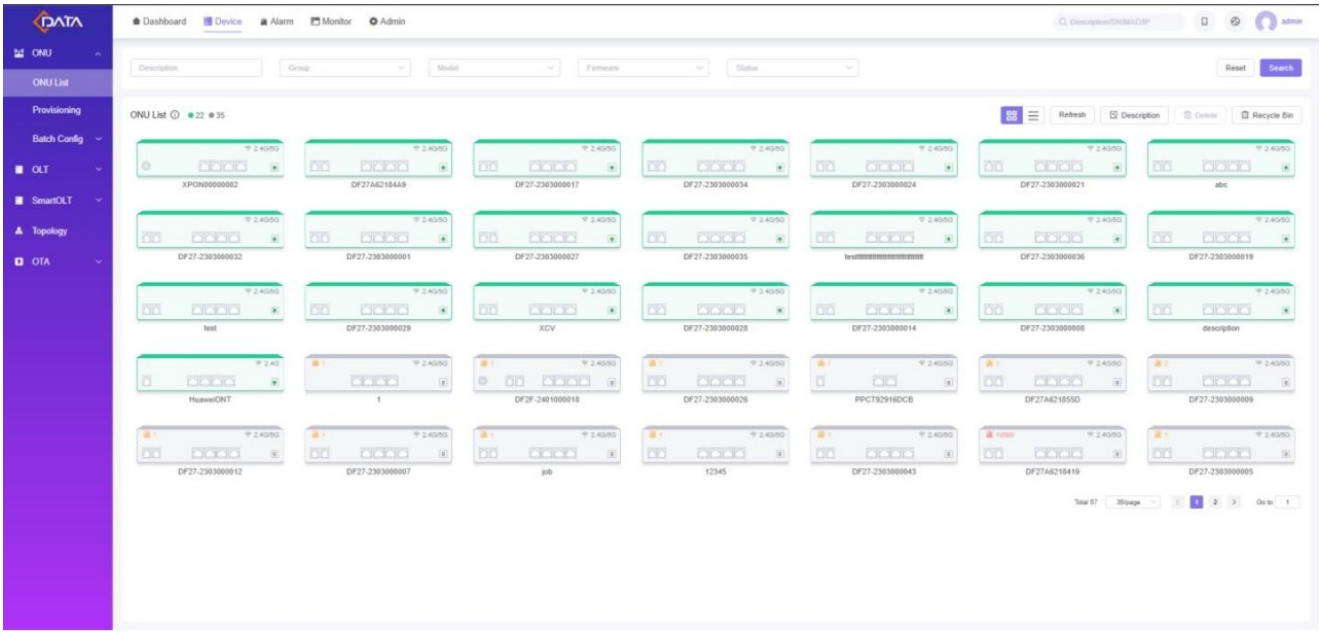
```
<Sysname> system-view
[Sysname] dhcp server ip-pool 0
[Sysname-dhcp-pool-0] option 43 hex
0128687474703A2F2F3139322E3136382E32302E35363A393939392F76312F6163732061
637320616373
```

4.3.2 Step2 Perform routine maintenance on the ONU

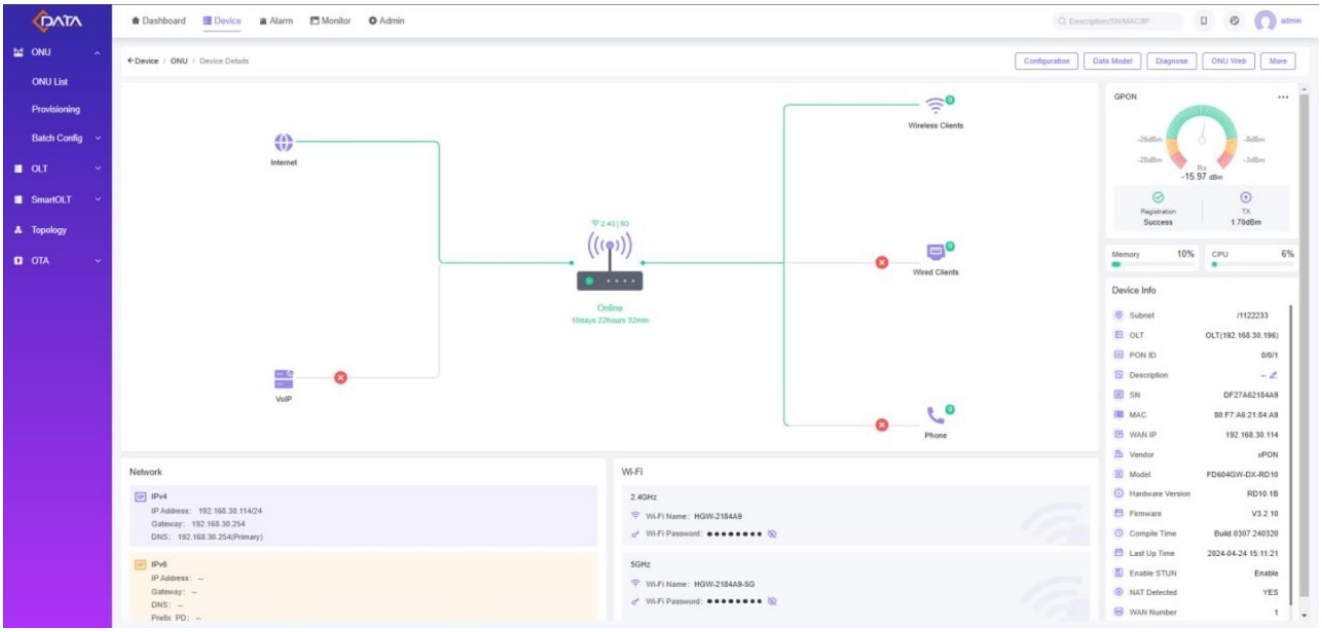
ONU routine maintenance includes list and details view, single configuration, batch configuration, OTA upgrade, etc.

4.3.2.1 ONU list and details view

Select [Device-ONU-ONU List] to display the ONU list interface as follows, you can view all the ONU devices bound by TR-069.



Double-click the card to enter the ONU details screen displayed as follows, you can view ONU capability set and connection status, PON optical power, network and Wi-Fi information.



4.3.2.2 Create an ONU preconfiguration

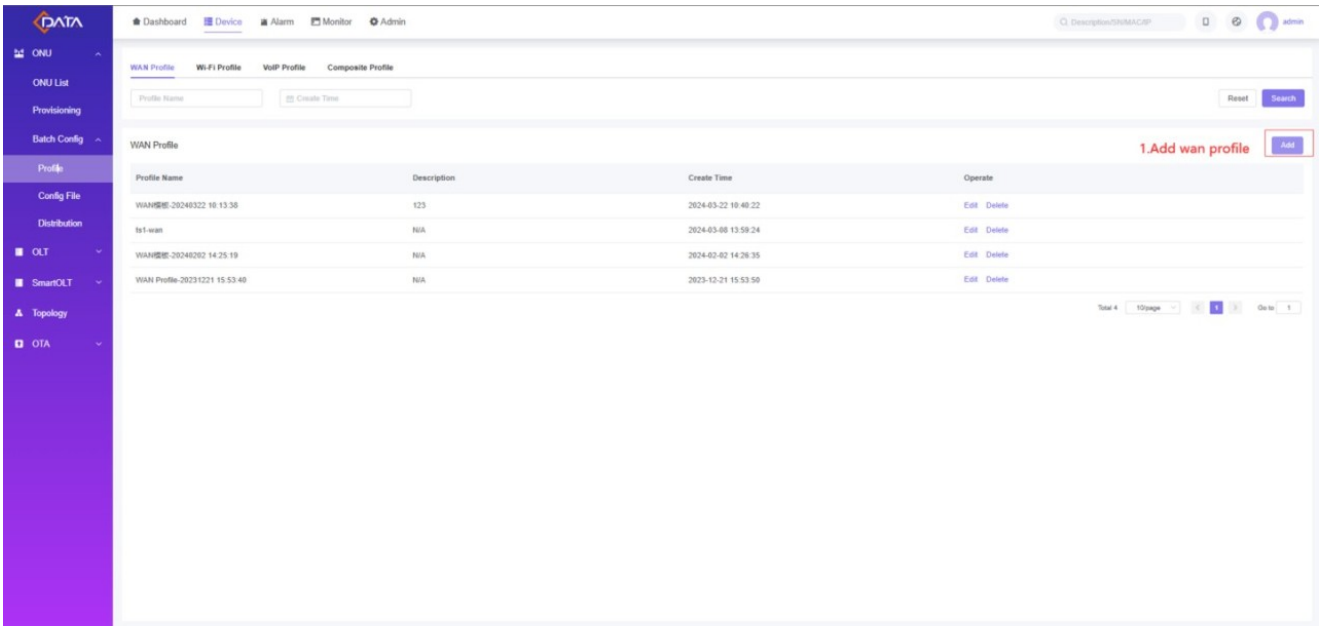
After the ONU is connected to the OLT, the CMS can directly deliver service configurations based on the TR-069 protocol to realize zero-configurationcommissioning. Pre-configuration of the ONU consists of the following three steps.

Creating a Configuration Template	Create a pre-configuration task	View the pre-c

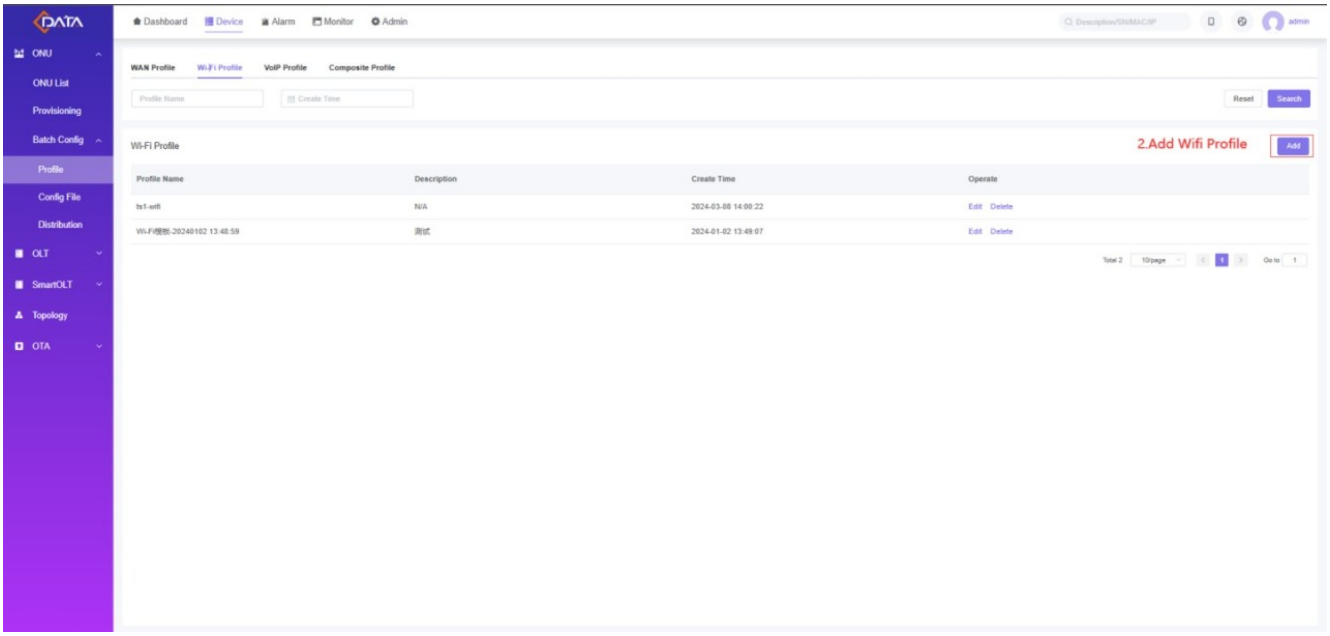
1)Create a configuration profile

Open the [Device-Batch Config-profile] screen and create a profile that includes WAN, Wi-Fi, and VoIP services.

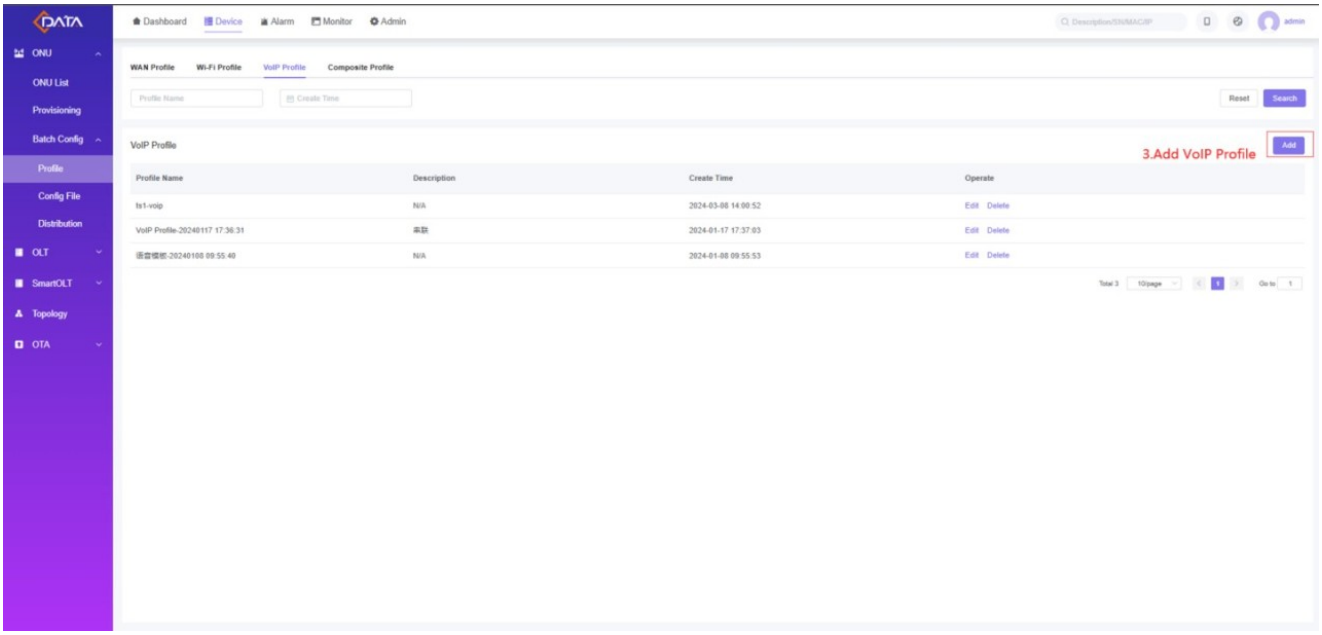
- Create a WAN Profile



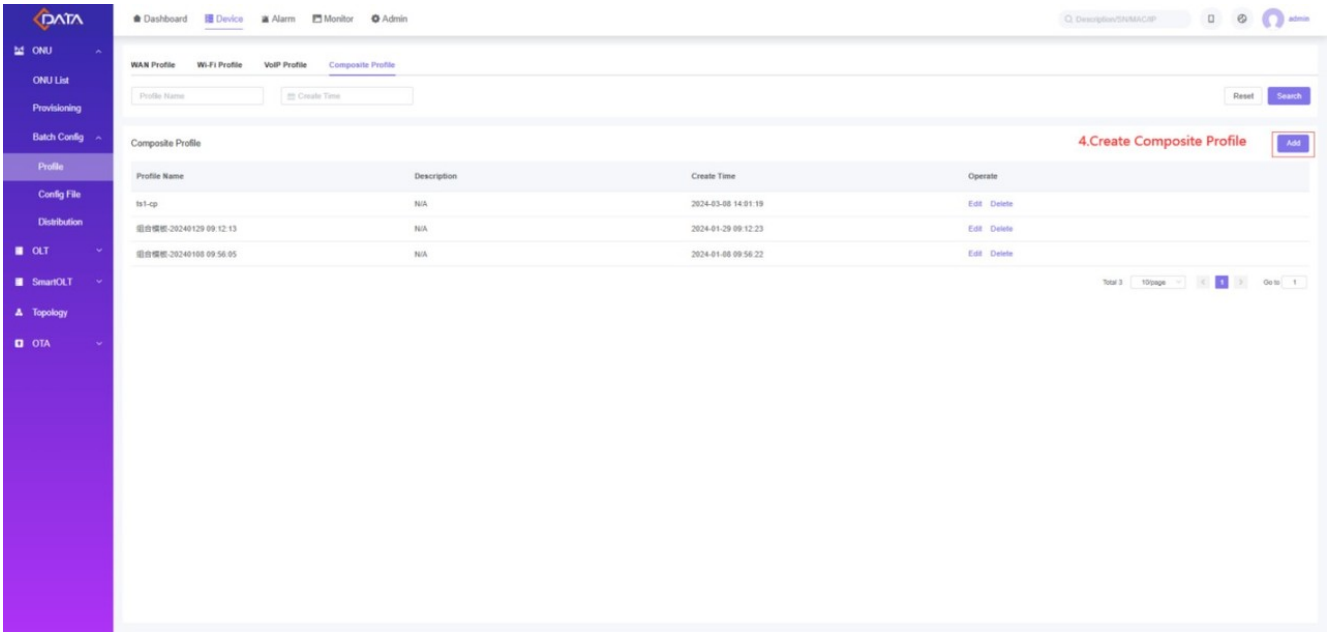
- Create a Wi-Fi profile



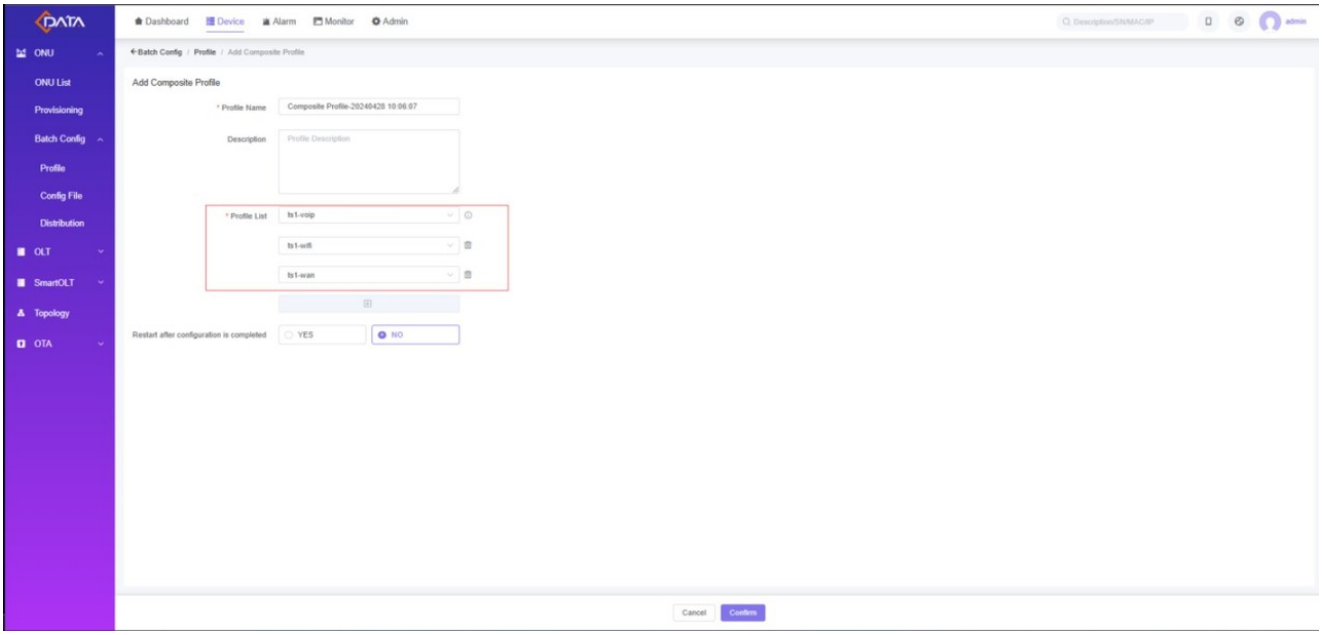
- Create a VoIP Profile



- Create a composite Profile

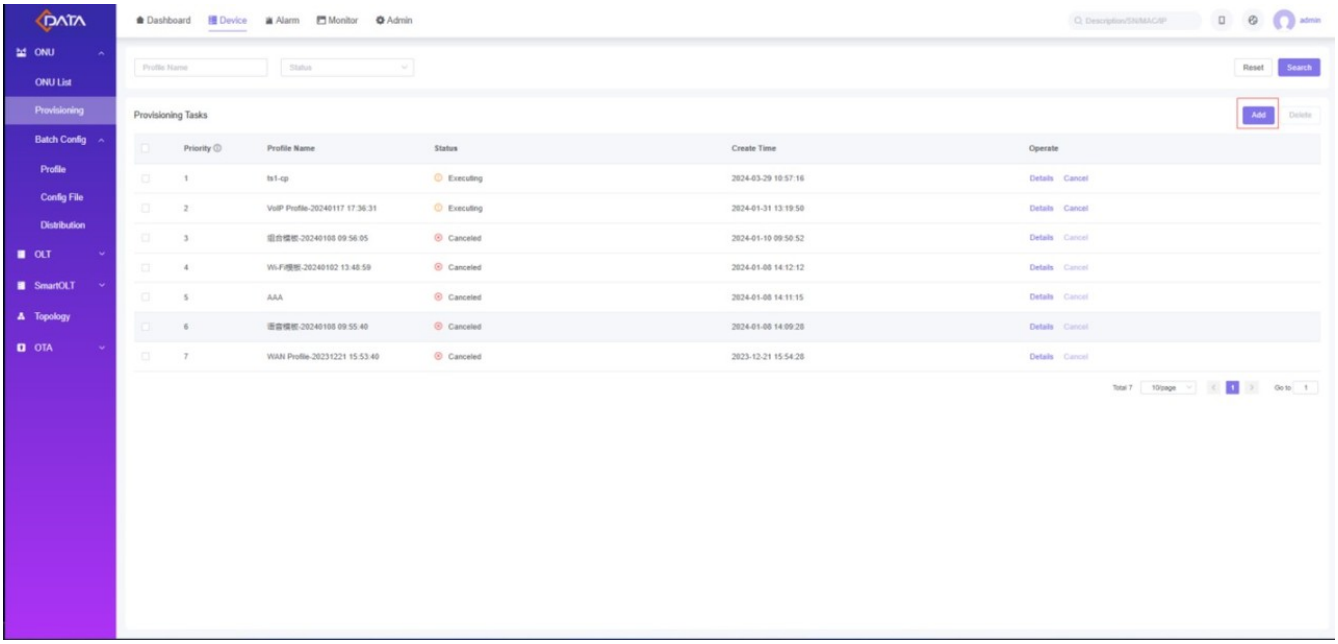


Select the WAN, Wi-Fi, and VoIP templates created earlier and click "Confirm".

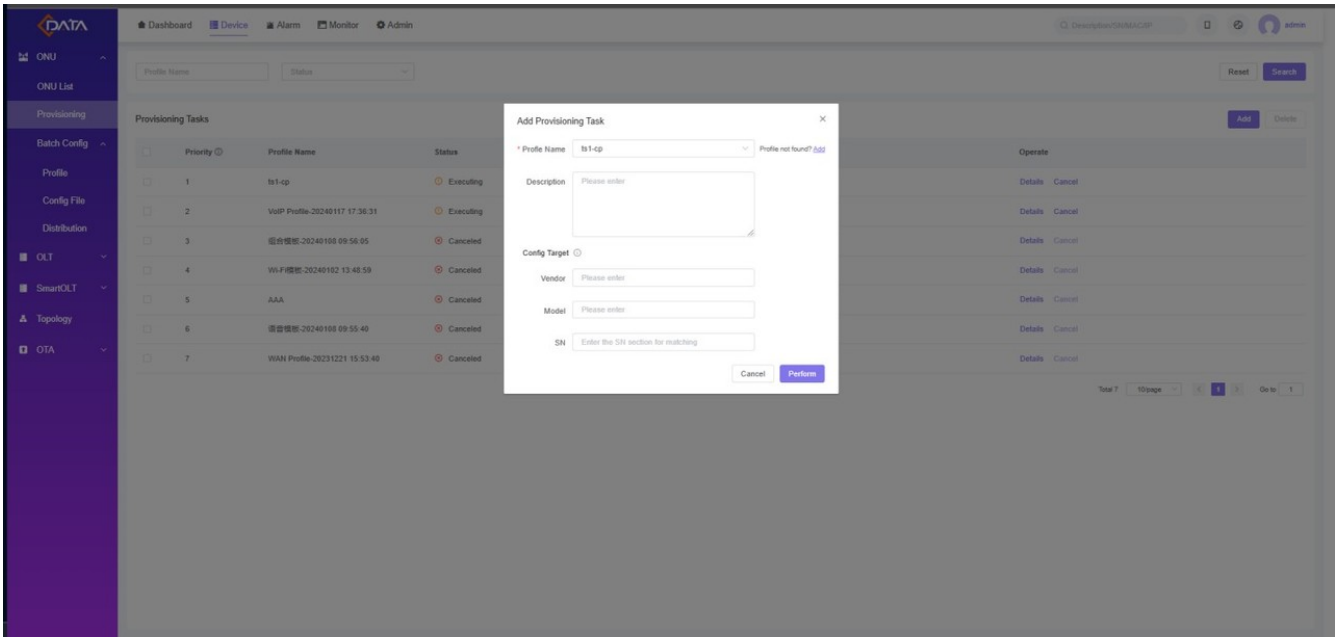


2)Create a Provisioning task

Open the [Device-Provisioning] interface and click "Add" to add a preconfigured task.

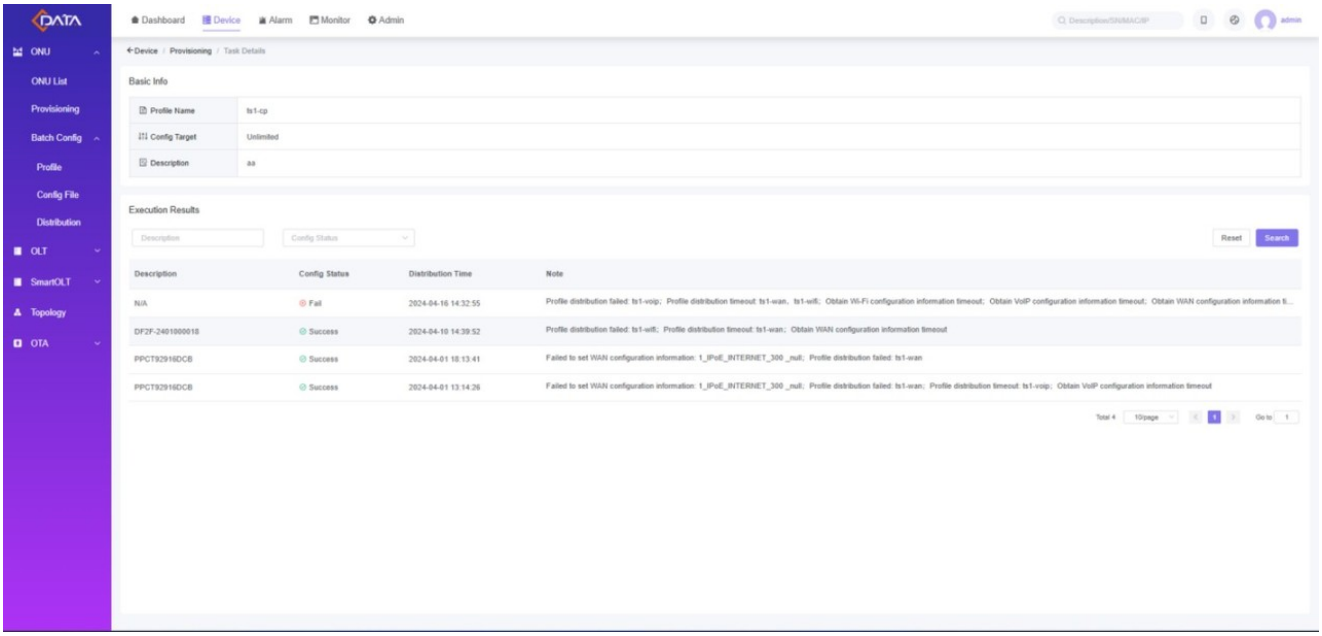


Select the configuration profile and the configuration object. The configuration object can match the device according to the vendor, model or SN. If multiple items are entered, the intersection match will be taken. If neither of these parameters is specified, there is no limit. The profile will be automatically delivered to any device reported for the first time.



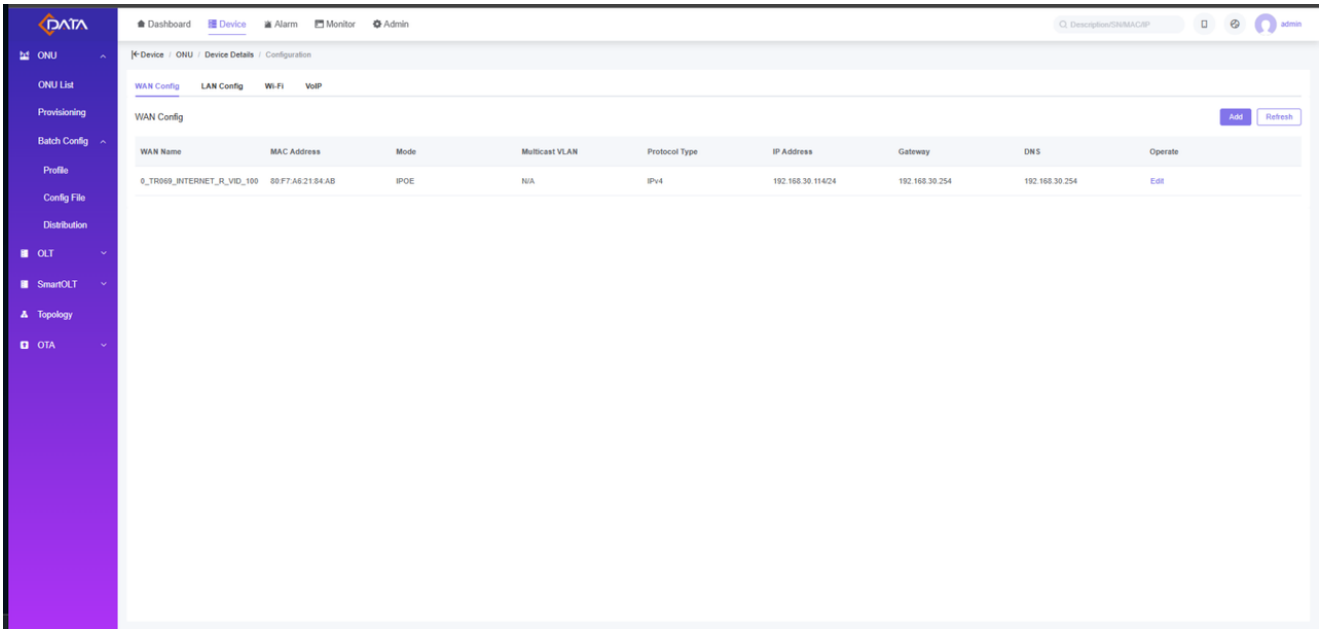
3)View the preconfiguration result

After the ONU is bound to the CMS through TR-069, the CMS automatically delivers the pre-configuration task. On the Provisioning page, click Details to enter the task details. You can view the execution of the matched ONU pre-configuration task.

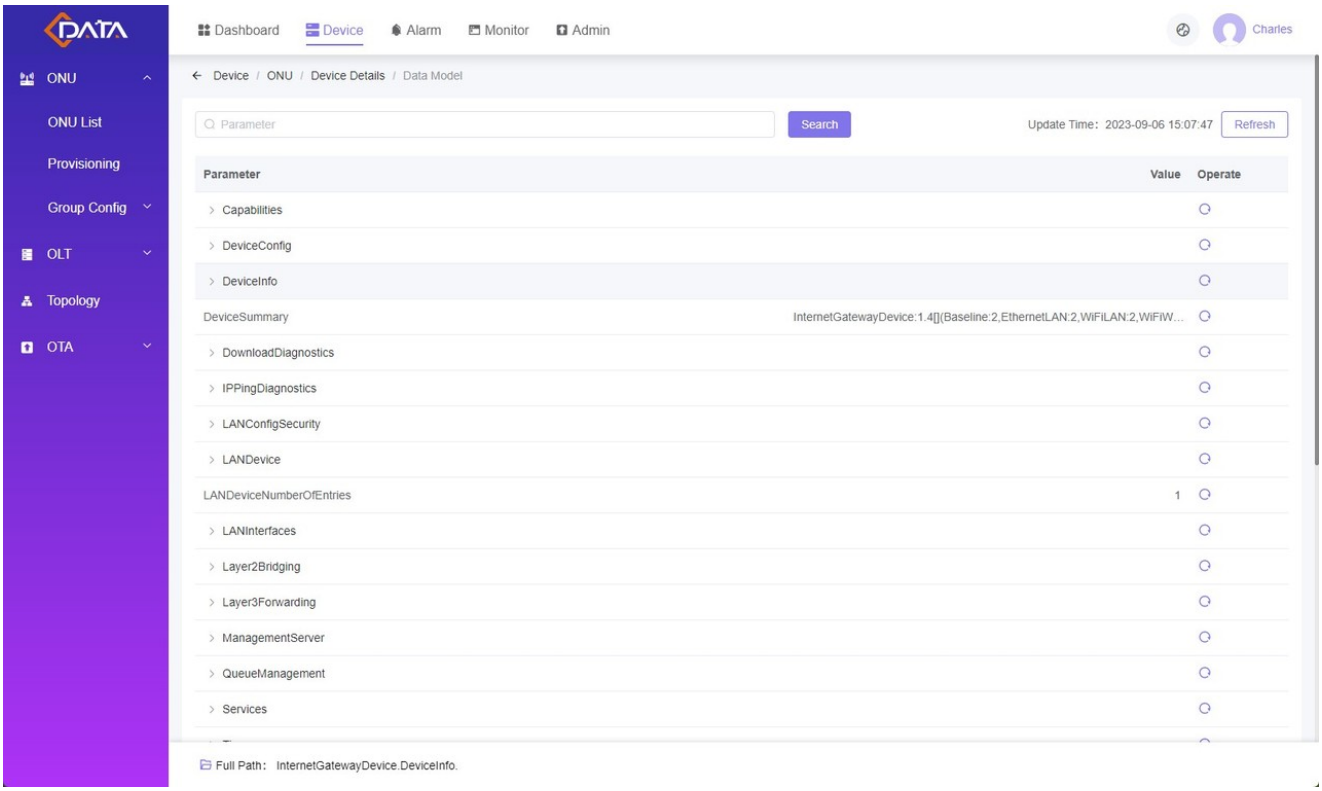


4.3.2.3 Configure a single ONU

On the ONU Details page, click "Configuration" to open the configuration screen shown as follows, which supports common service configurations such as WAN, LAN, Wi-Fi, VoIP, and CATV.

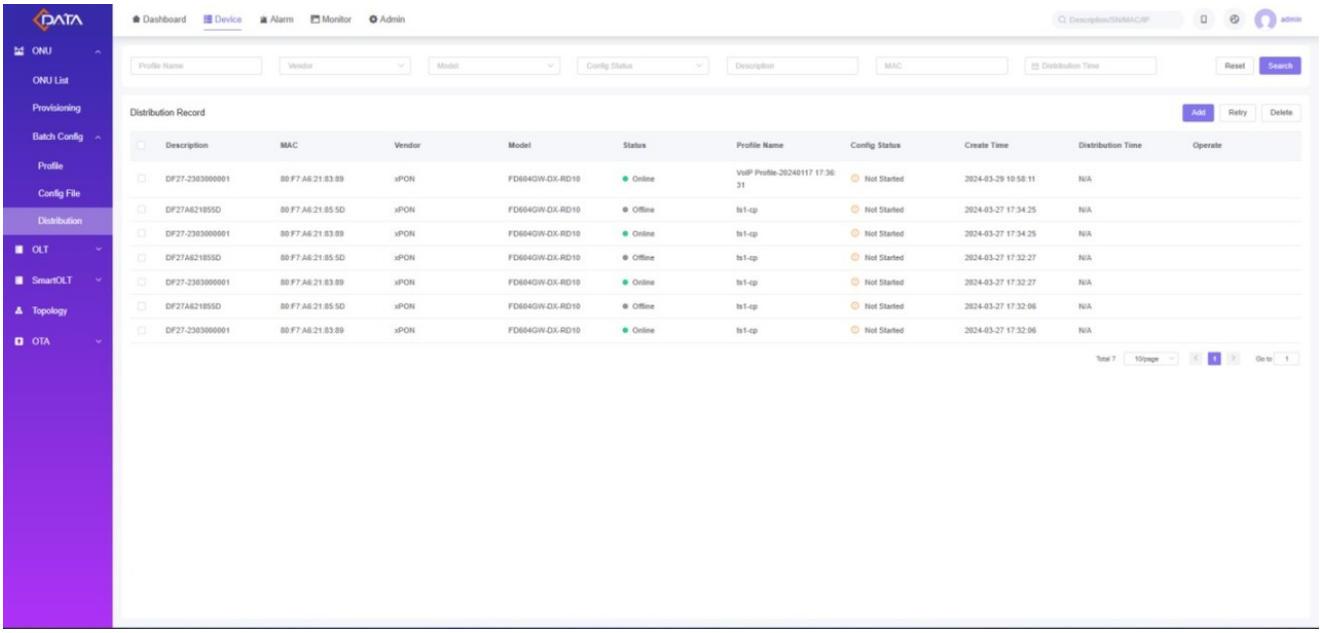


On the ONU details page, click "Data Model" to open the data model interface displayed as follows, which supports viewing and editing of all node information.

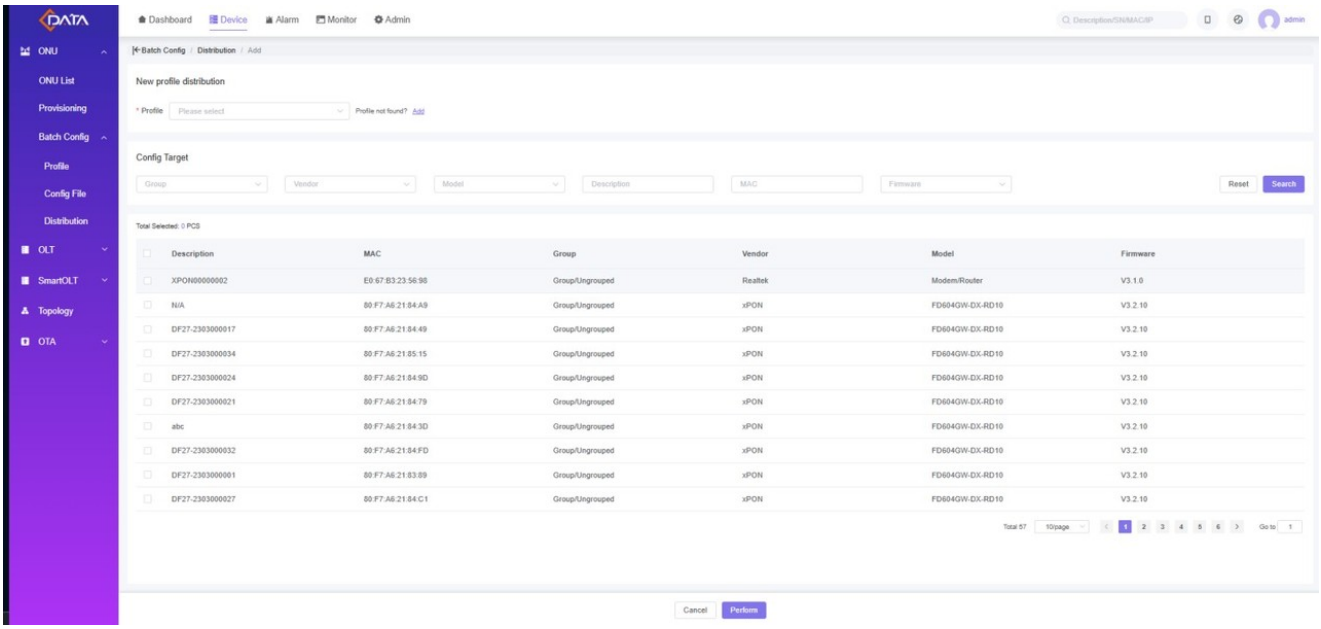


4.3.2.4 Batch configuration of ONU

Batch configuration ONU configurations can be changed in batches for ONU devices bound to CMS. Similar to pre-configuration, a configuration profile must be created in advance for batch configuration. Select [Device-ONU-Batch Config-Distribution]. The following ONU batch configuration page is displayed. You can view the execution of all configurations delivered in batches in history.



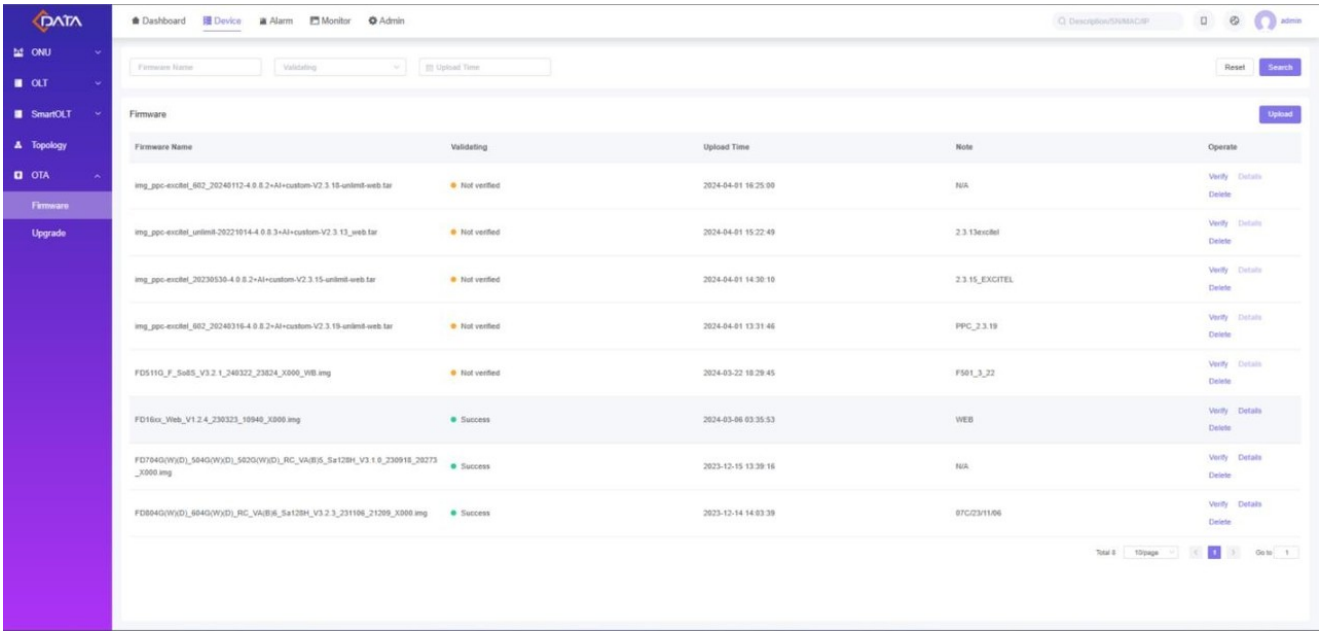
Click Add to create a batch configuration task, select the configuration profile and object, and deliver the task directly.



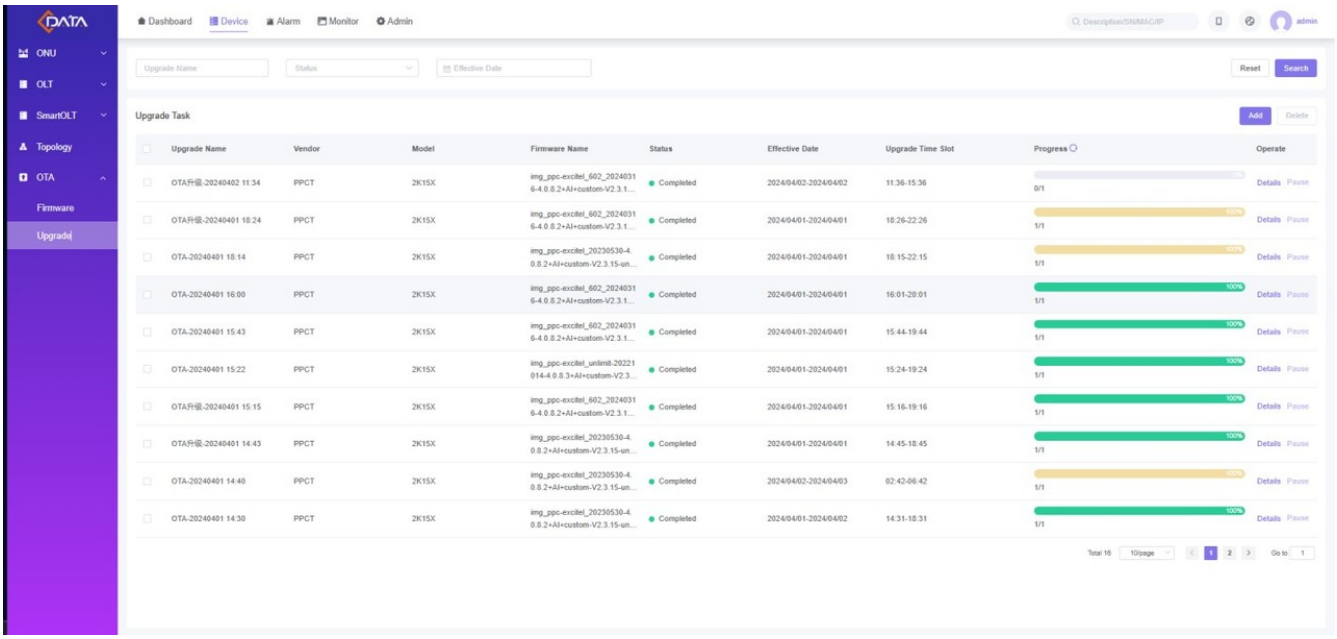
4.3.2.5 OTA Upgrade

1) Upload and verify the firmware	2) Create an upgrade task	3

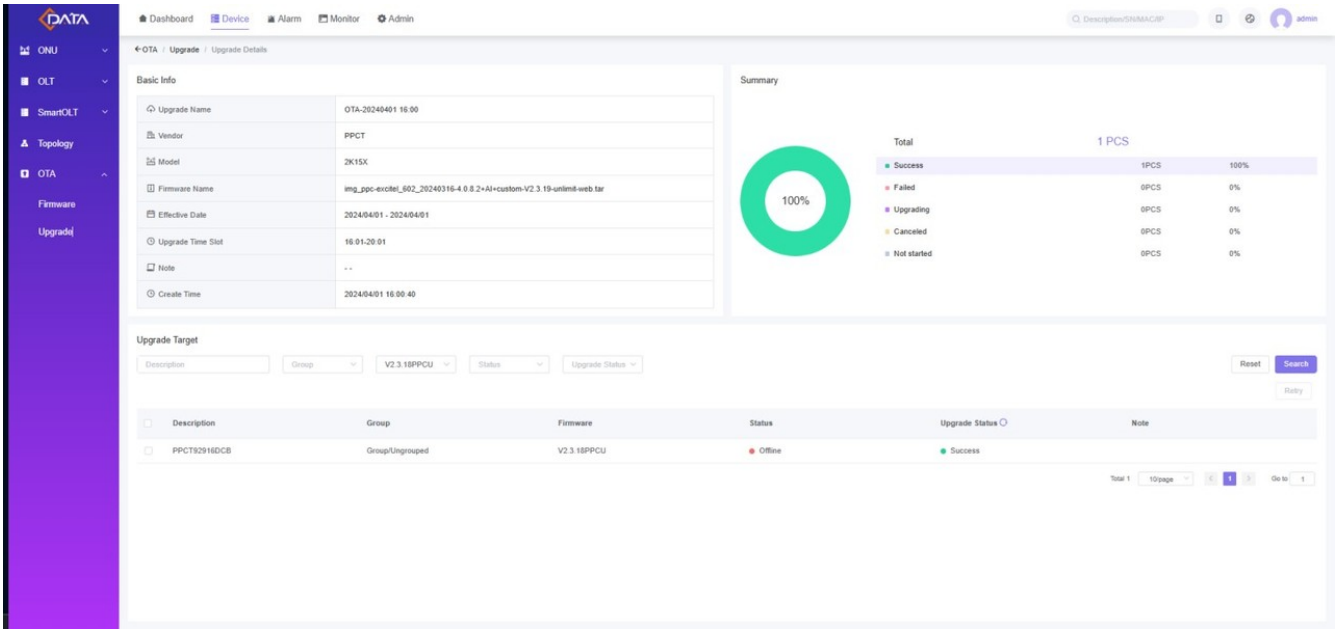
1) Select [Device-OTA-Firmware] to display the following firmware management interface, you can upload the firmware and verify it.



Select [Device-OTA-Upgrade] to display the upgrade management interface as follows, where you can create upgrade tasks and view the upgrade status.



2) In the upgrade management interface, click "Details" to view the upgrade status of each device.


Dashboard
Device
Alarm
Monitor
Admin
admin
ONU
OLT
SmartOLT
Topology
OTA
Firmware
Upgrade
OTA / Upgrade / Upgrade Details
Basic Info
Upgrade Name
OTA-20240401 16:00
Vendor
PPCT
Model
2K15X
Firmware Name
img_ppc-excitel_602_20240316-4.0.8.2+AI+custom-V2.3.19-unlim6-web.tar
Effective Date
2024/04/01 - 2024/04/01
Upgrade Time Slot
16:01-20:01
Note
- -
Create Time
2024/04/01 16:00:40
Summary
100%
Total
1 PCS
Success
1PCS
100%
Failed
0PCS
0%
Upgrading
0PCS
0%
Canceled
0PCS
0%
Not started
0PCS
0%
Upgrade Target
Description
Group
V2.3.18PPCU
Status
Upgrade Status
Reset
Search
Retry
Description
Group
Firmware
Status
Upgrade Status
Note
PPCT92916DCB
Group/Ungrouped
V2.3.18PPCU
Offline
Success
Total 1
10/page
Go to