iMaster NCE-FAN V100R021C10 Getting Started with ODN Visualizer

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Contents

Challenges for ODN Resource Management

Hard to Manage ODN Resources

There are a large number of dumb resources (resources that cannot automatically report their own information) on the ODN network, resulting in low accuracy of existing resource information, which seriously affects FTTH network construction and O&M costs.

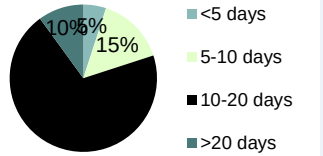
Network construction

Long time to record resources

New data (such as CAD drawings)
Manually recorded, prone to errors

Service provisioning

Low one-time service provisioning success rate



One-time service provisioning success rate of new users: **45%**
Average service provisioning time: **5 days**

Network maintenance

Inaccurate ODN resources

Paper/plastic labels **easy to loss or damage**
User unsubscription: **device removed but cable not removed**

ODN Project Acceptance Challenges

Complex and Inefficient Fiber Acceptance Process

- Traditional acceptance uses handheld OTDRs, which are large and difficult to carry, and have high requirements on personnel skills.
- Traditional optical attenuation detection requires two persons to test the optical power at both ends, which is inefficient and costs high.
- Each fiber takes 30 minutes on average for acceptance.

Difficult to Store and Reuse Engineering Data

- Traditionally, acceptance results are manually transferred in paper or exported using a handheld meter, which is inefficient and error-prone.
- After the acceptance is complete, the data cannot be used for O&M. The cost of data sorting and synchronization is high.

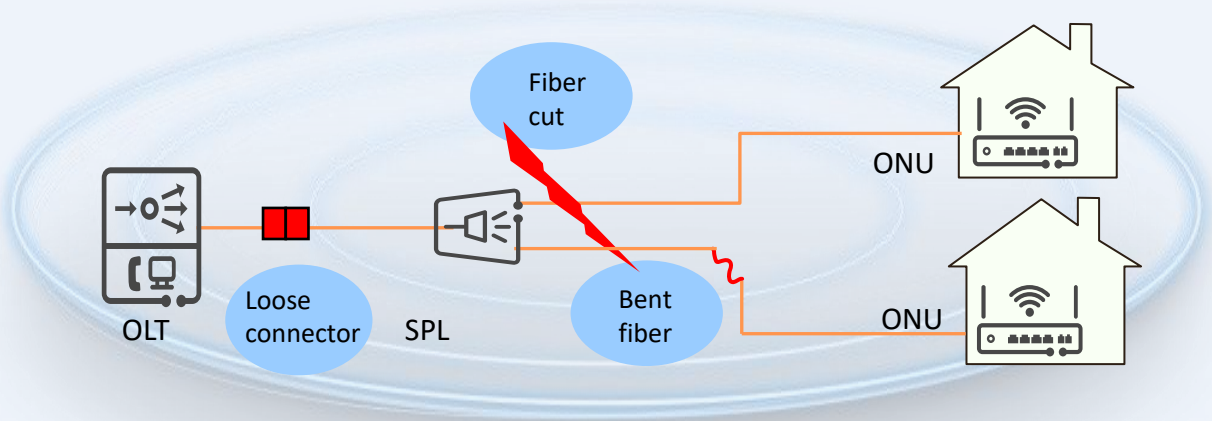
Difficult to Monitor and Control the Engineering Quality

- Lack of means to monitor the construction quality, and difficult to identify problems in time, which may incur high rework cost.
- Traditional manual acceptance cannot cover all ports, causing high service provisioning risks in the future.
- It is difficult to summarize data and distribute standards.

Lack of Fault Demarcation and Locating Methods

- In the multi-subcontractor co-construction scenario, it is difficult to determine who is responsible for faults and maintenance.
- In the O&M phase, it is difficult to determine whether a fault occurs inside or outside a home, a building, or in front of or behind an optical splitter.
- It is difficult to accurately locate and rectify faults.

Acceptance and O&M Challenges



Complex ODN network structure, many potential risks on lines, causing great impact

Difficult to determine maintenance responsibility, causing many unnecessary work orders and low efficiency

Lack of fault locating methods, long troubleshooting period, causing high cost

Network quality imperceptible, slow O&M response, causing poor user experience

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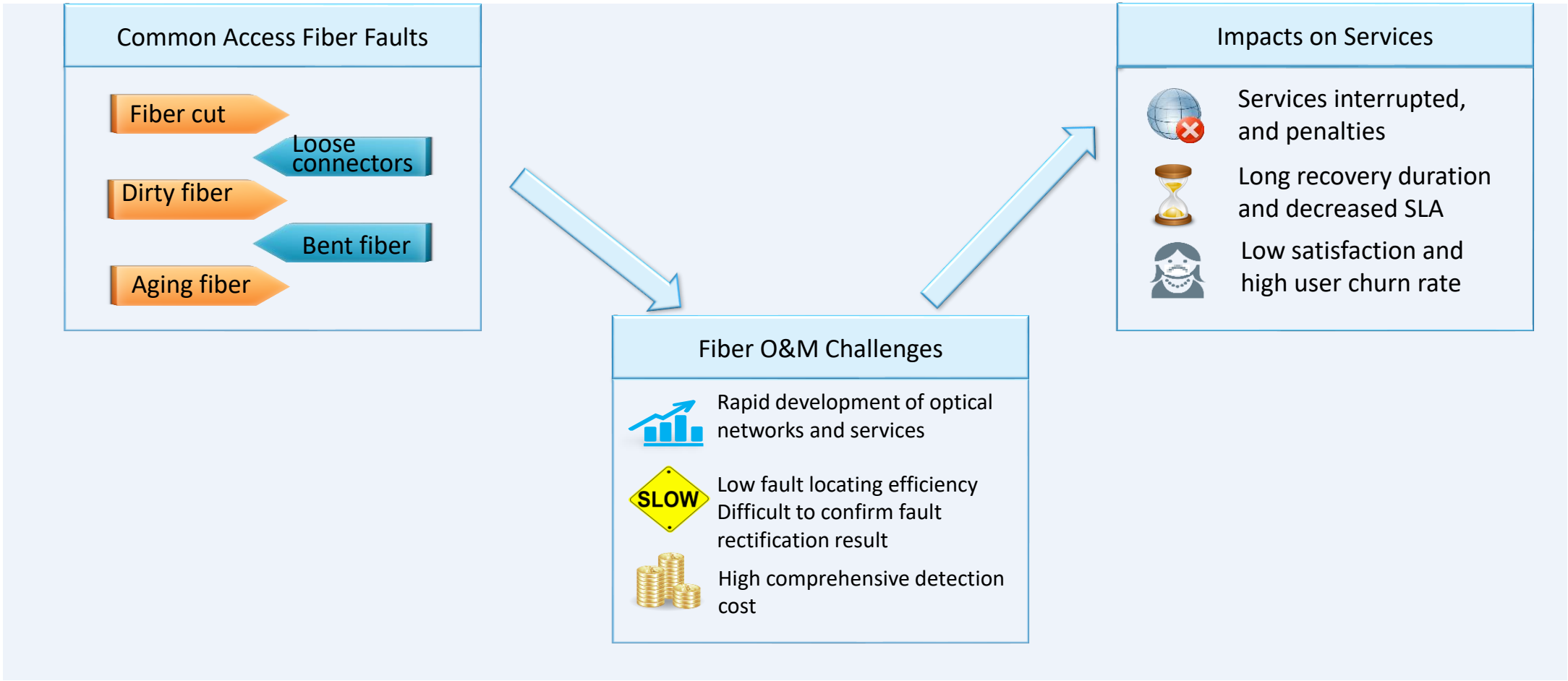
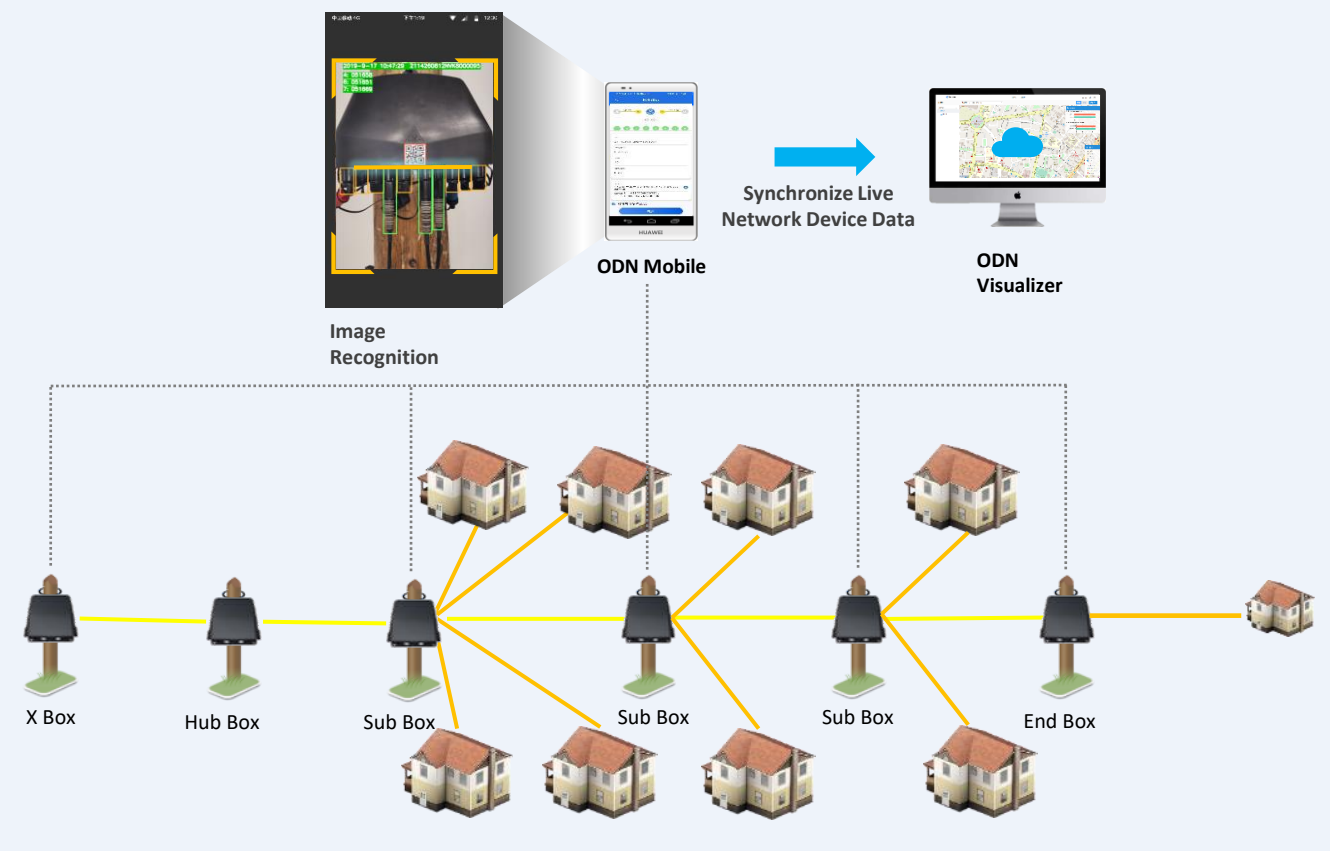
1.4 P2P Access Network O&M Challenges



ODN Resource Management Solution

Huawei Digital QuickODN solution is designed for pre-connected QuickODN products. It quickly collects ODN device information through image recognition over a mobile app, making ODN resources more visible and manageable during network construction and service provisioning, and improving the accuracy of resource data.

ODN Resource Visualization and Management Solution

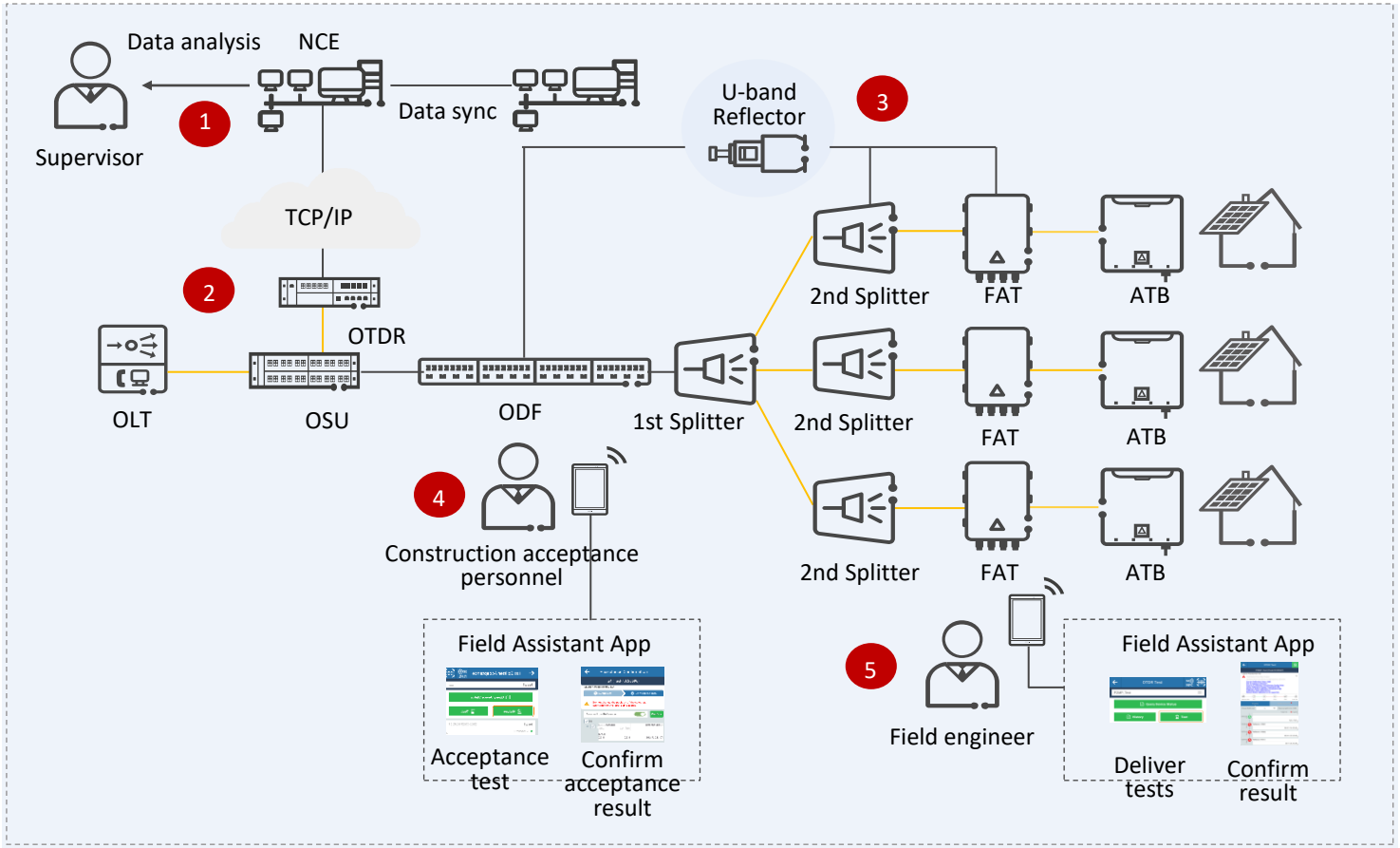


- Code scanning using mobile app + image recognition, achieving 100% accurate resource recording
- Real-time visualization of the ODN topology, achieving visualization and management of resources
- Fast and accurate service provisioning in collaboration with the OSS

ODN Project Acceptance Solution

The ODN Visualizer app acceptance solution provides one-click quick project acceptance based on the field assistant. The solution features high precision and reliability, and can be directly reused in the data O&M phase. This solution changes the traditional project acceptance mode that features complex operations, low efficiency, easy data loss, and difficult data reuse. This solution also greatly shortens the ODN construction acceptance period, reduces service provisioning risks, and ensures link SLA.

ODN Acceptance Solution



1. Keep the engineering quality progress under control.
2. The OTDR is fixed at a position, and the acceptance data is automatically uploaded.
3. Test loss using a reflector and the E2E loss deviation is less than 0.7 dB, avoiding using the optical power meter for two-person acceptance.
4. Single-fiber acceptance by a single person takes only 5 minutes, improving efficiency by 3 times.
5. Perform acceptance tests onsite and confirm the acceptance results before ticket closure, avoiding rework.

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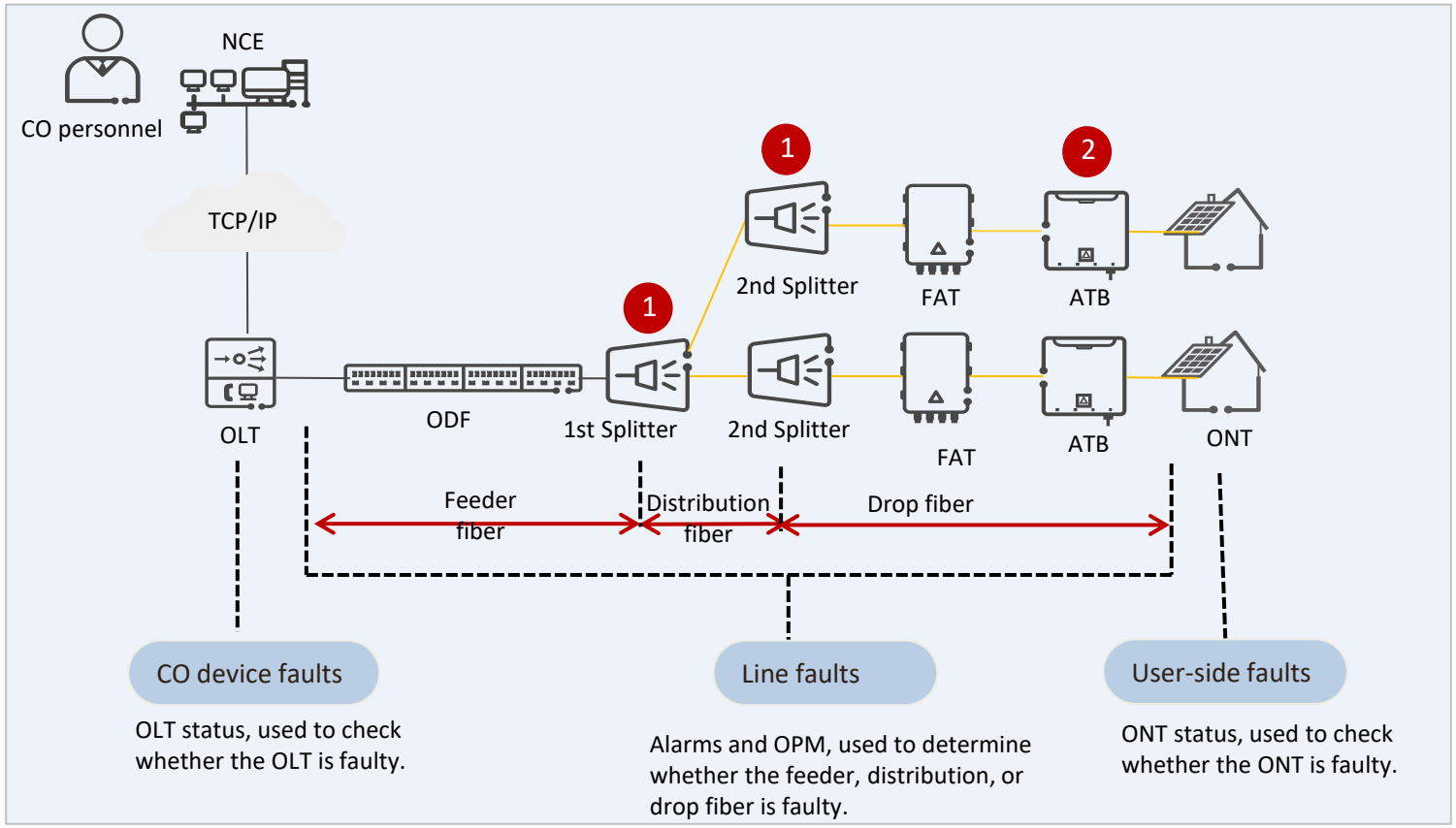
ODN Network O&M Solution (1)

After a subscriber reports a fault, it is difficult to determine the responsible party of the fault. As a result, the work order cannot be dispatched accurately. By collecting and analyzing access device KPI data using the ODN Visualizer app, the O&M personnel can quickly locate the region where a fault occurs (on the user side, ONU side, OLT side, or the feeder, distribution, or drop fiber segment of the ODN). Based on the test results, the O&M personnel can dispatch work orders to different maintenance departments for line maintenance. This greatly improves the O&M efficiency, reduces unnecessary work orders, and lowers the maintenance cost.

PON Diagnosis Solution

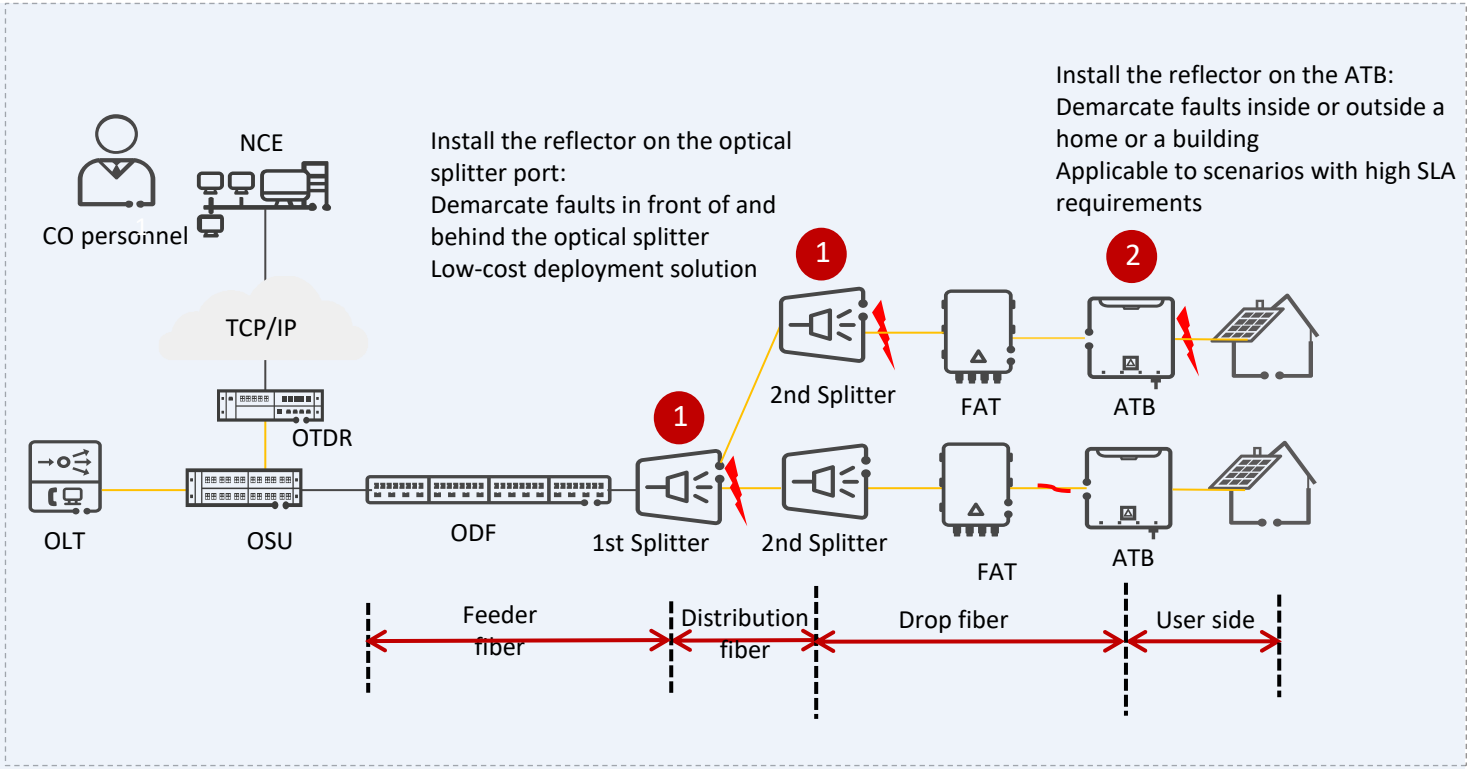


- Accurately demarcate faults on the feeder fiber, distribution fiber, or drop fiber.
- Accurately identify faults such as excessively large insertion loss.
- Greatly improve the troubleshooting efficiency.

1.7 ODN Network O&M Solution (2)

The ODN Visualizer app uses the OTDR+reflector technology to proactively or passively detect the optical fiber status, identify faults such as fiber cut, bending, and deterioration, and find the fault positions. Based on the test results, the O&M personnel can accurately dispatch work orders for maintenance, reducing unnecessary work orders and the O&M cost.

OTDR Test Solution



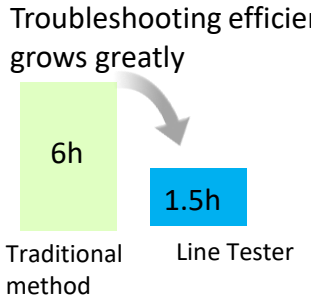
- The central office (CO) test helps accurately locate fiber faults behind the level-2 optical splitter.
- Accurately identify and locate faults such as fiber cuts and large insertion loss.
- Greatly improve the troubleshooting efficiency.

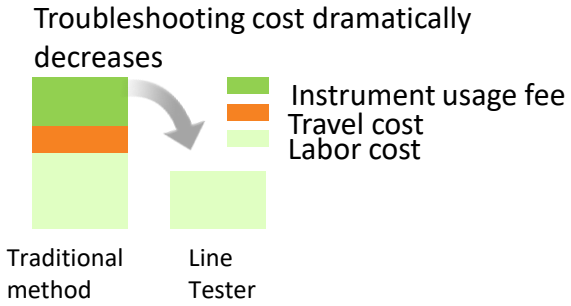
1.8 P2P Access Network O&M Solution

The ODN Visualizer app provides the test function for the point-to-point (P2P) optical network to monitor the quality of the optical line in real time, including the quality of splicing and connection. In the case of long-distance transmission, fiber faults can be precisely located, which greatly shortens the time for locating and rectifying optical fiber faults, reduces penalties caused by service interruption, reduces optical fiber O&M costs, and improves end users' satisfaction.

Fault Locating

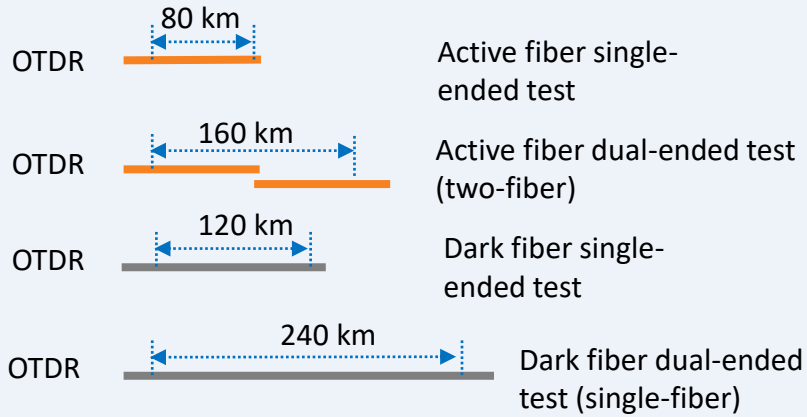
Engineers do not need to carry instruments to the site. The fault distance is accurately displayed on NCE.





Test Scenarios - All

Multiple test solutions are provided for different scenarios.



Attenuation coefficient: 0.3 dB/km

★ The active fiber test solution does not affect WDM services.

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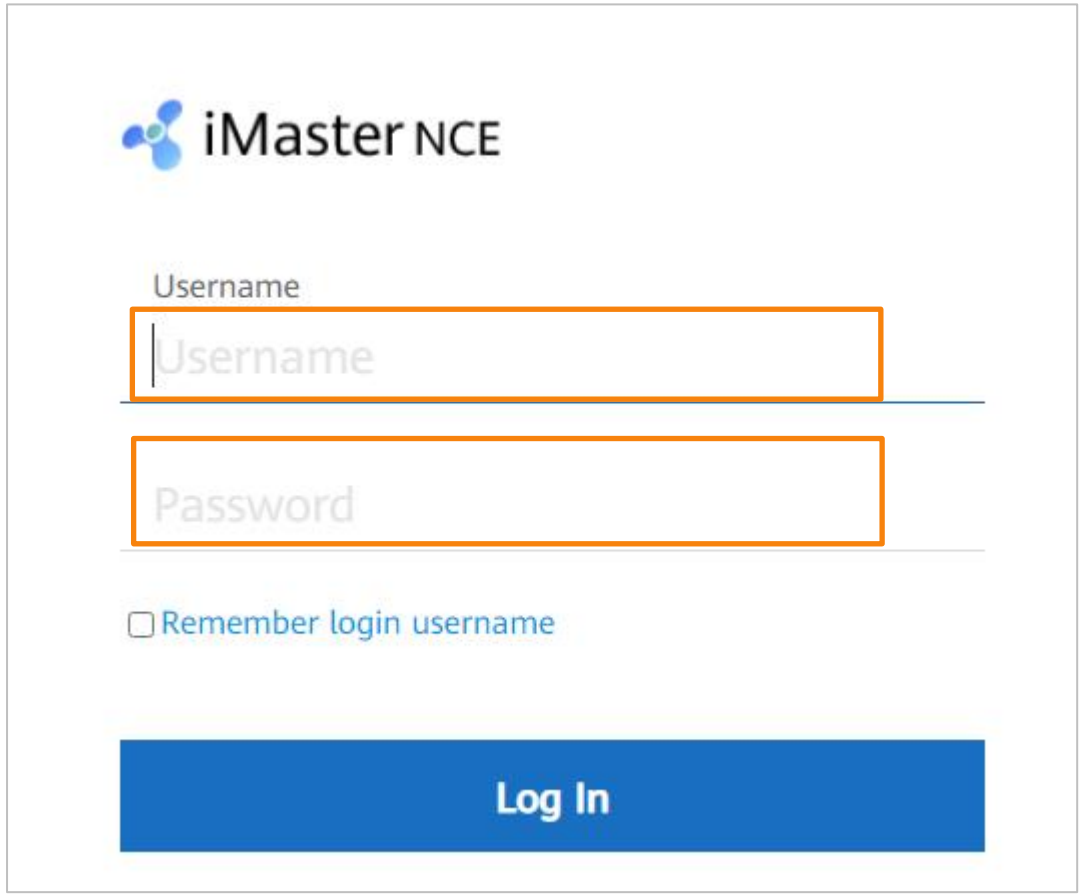
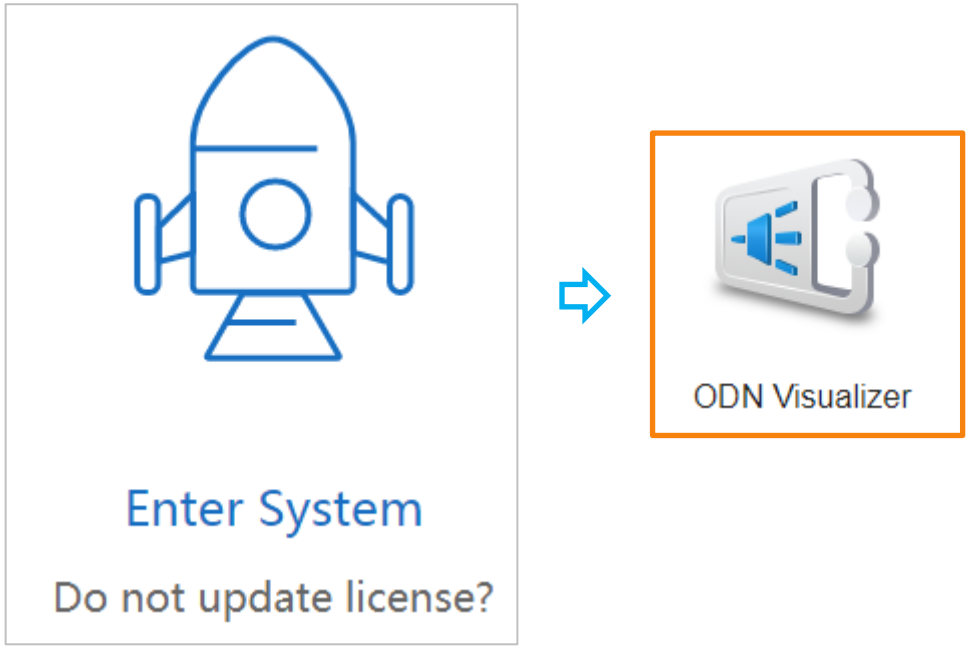
Contents

Basic Operations for ODN Resource Management

Logging In to the ODN Visualizer App





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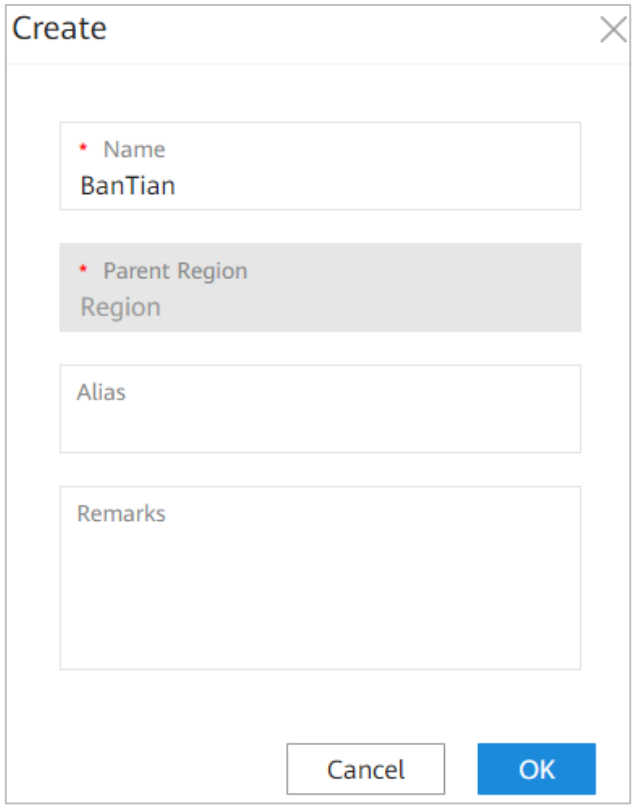
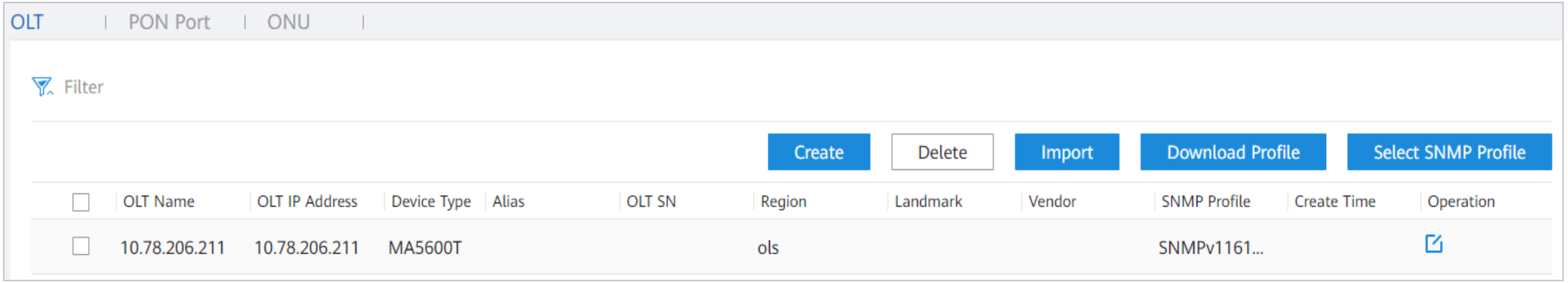
Region Management

- Create a region.



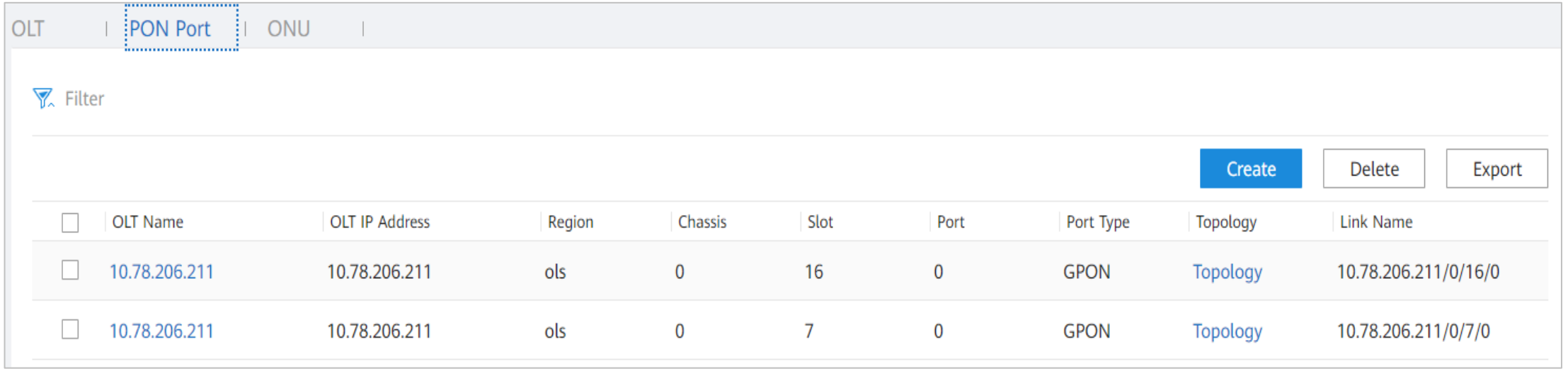
Access Device Management (1)

- Manage OLTs.



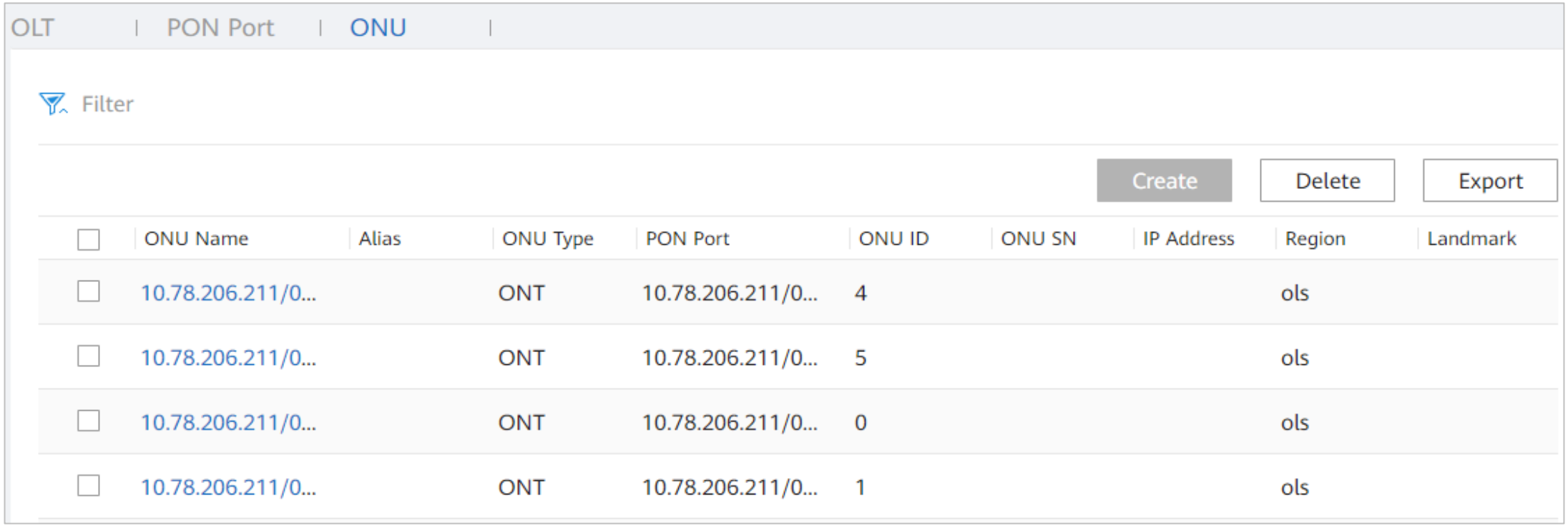
Access Device Management (2)

- Manage PON ports.



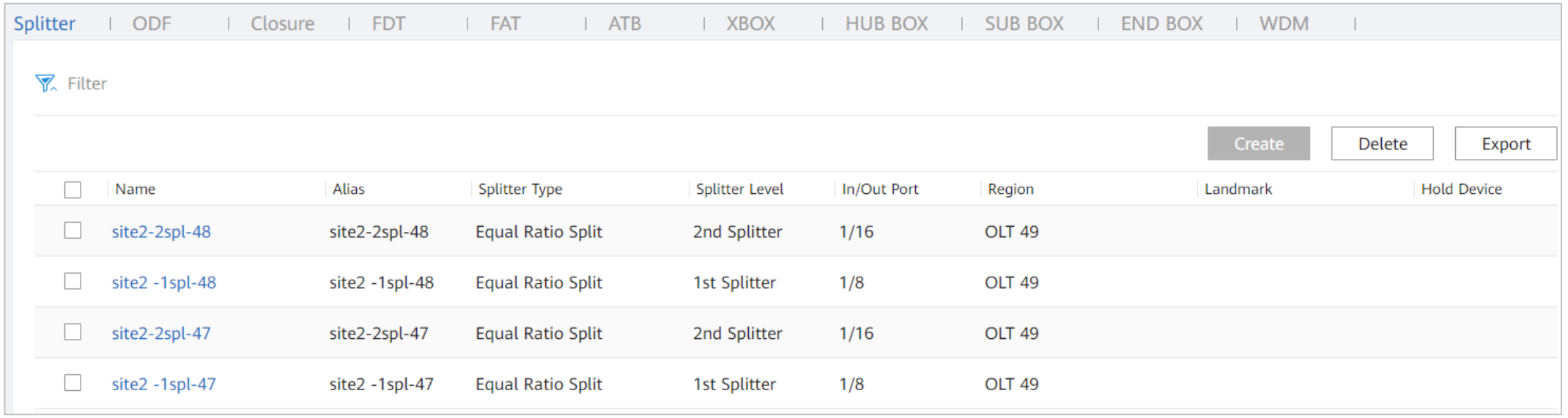
Access Device Management (3)

- Manage ONUs.



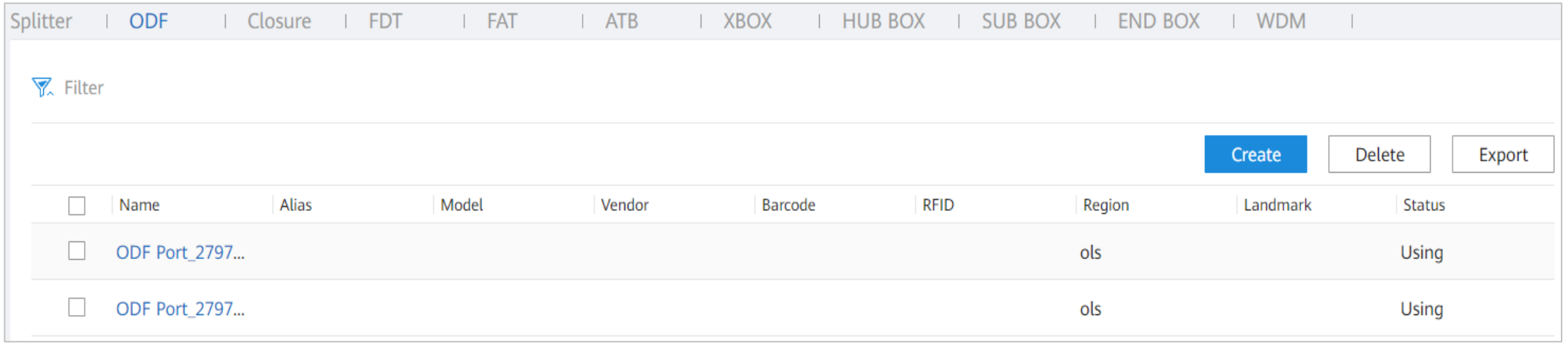
Passive Device Management (1)

- Manage optical splitters.



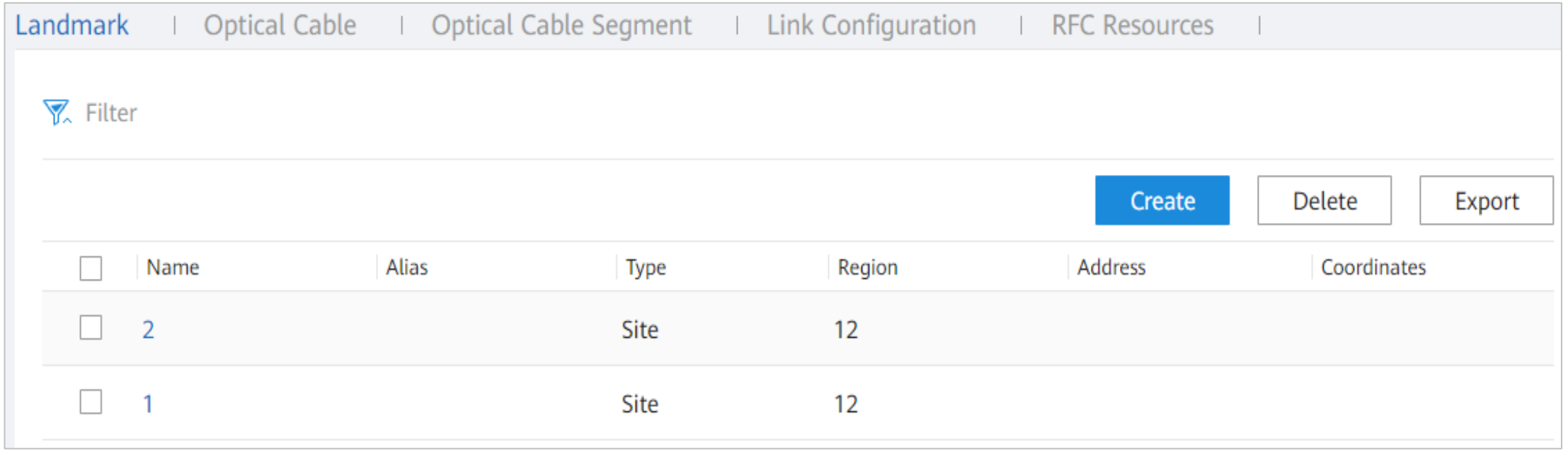
Passive Device Management (2)

- Manage the ODF, FDT, FAT, ATB, X Box, Hub Box, Sub Box, End Box, Closure, and WDM.



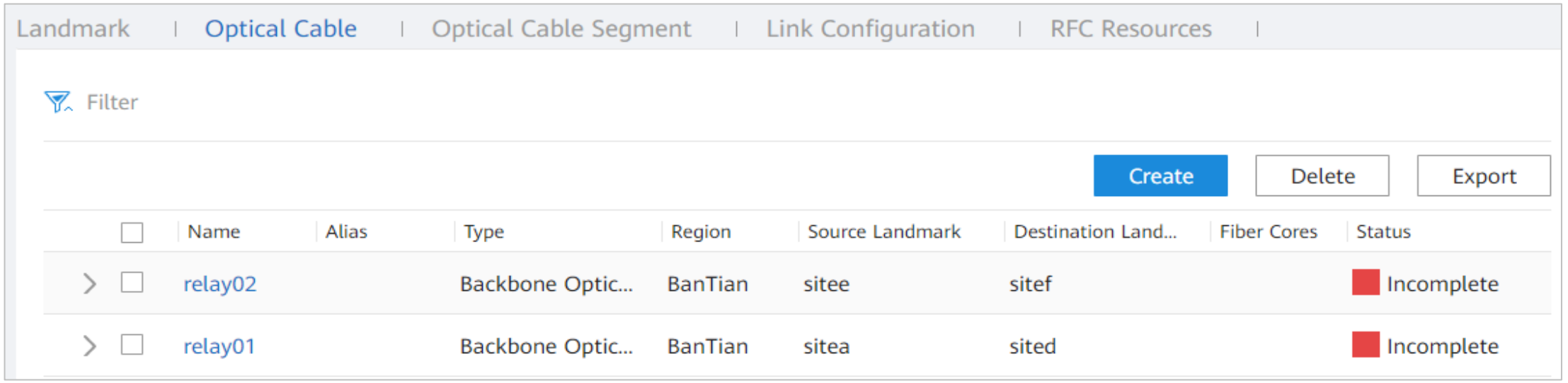
Fiber Resource Management (1)

- Manage landmarks.



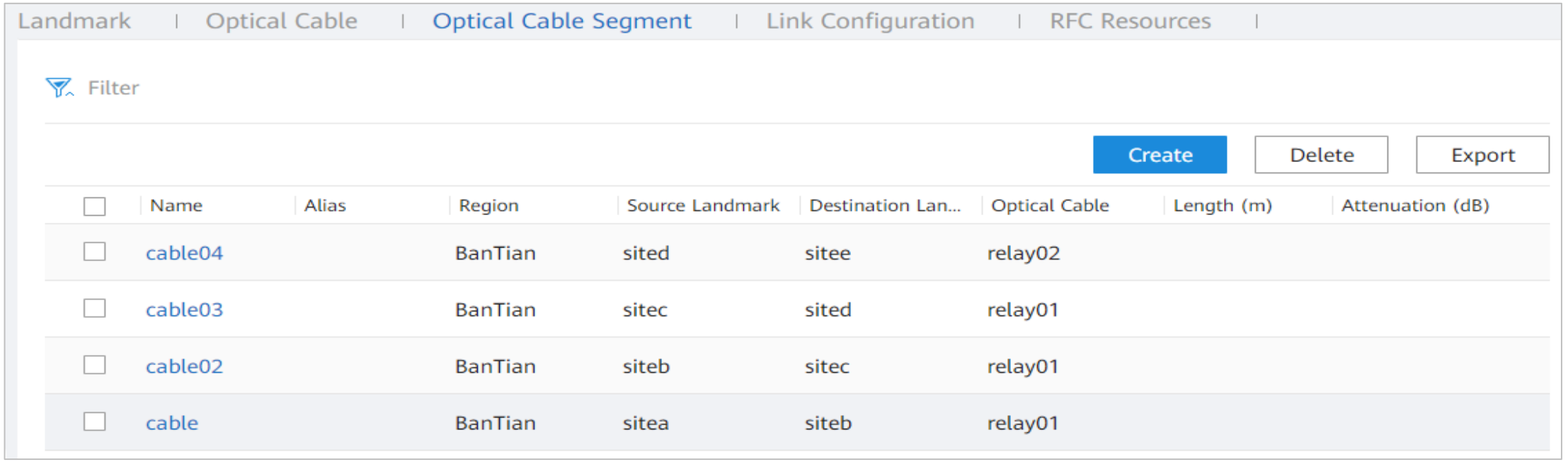
Fiber Resource Management (2)

- Manage optical cables.



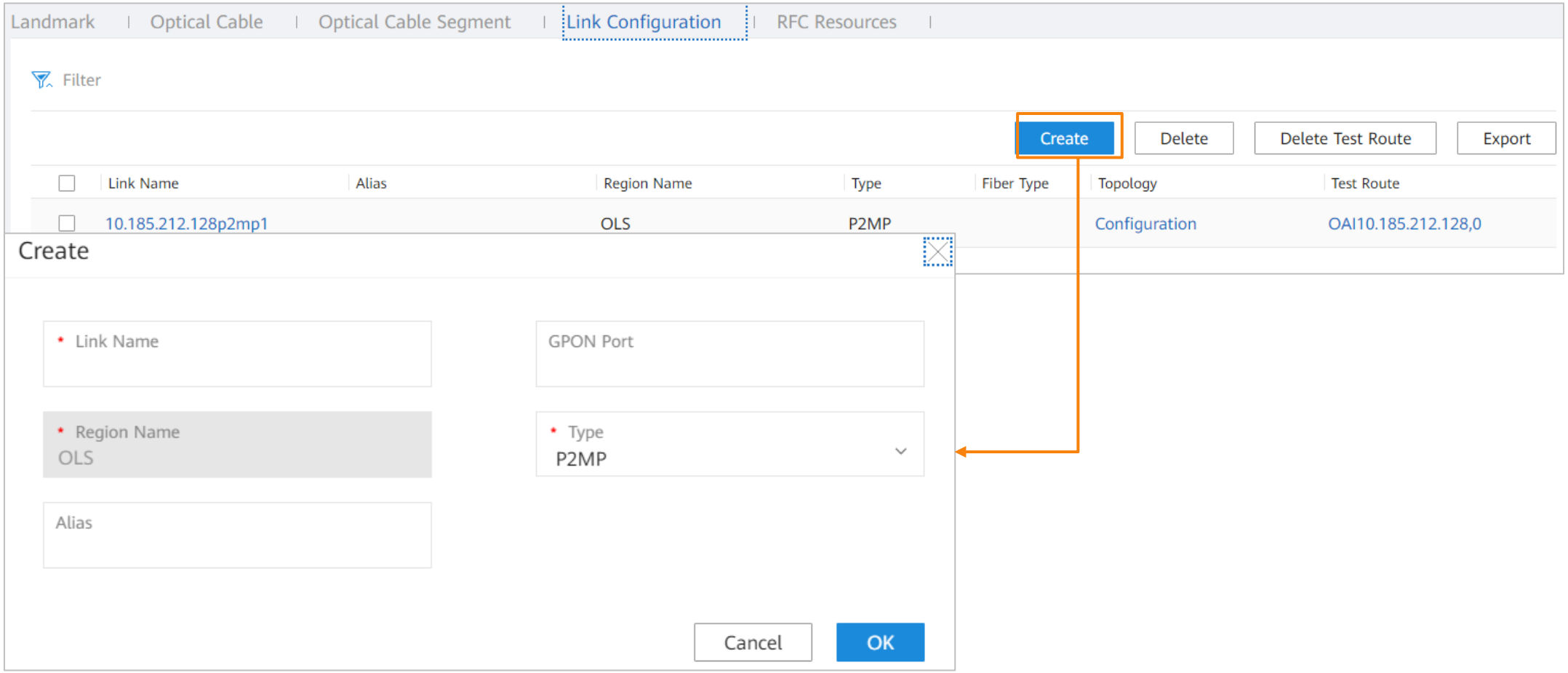
Fiber Resource Management (3)

- Manage optical cable segments.



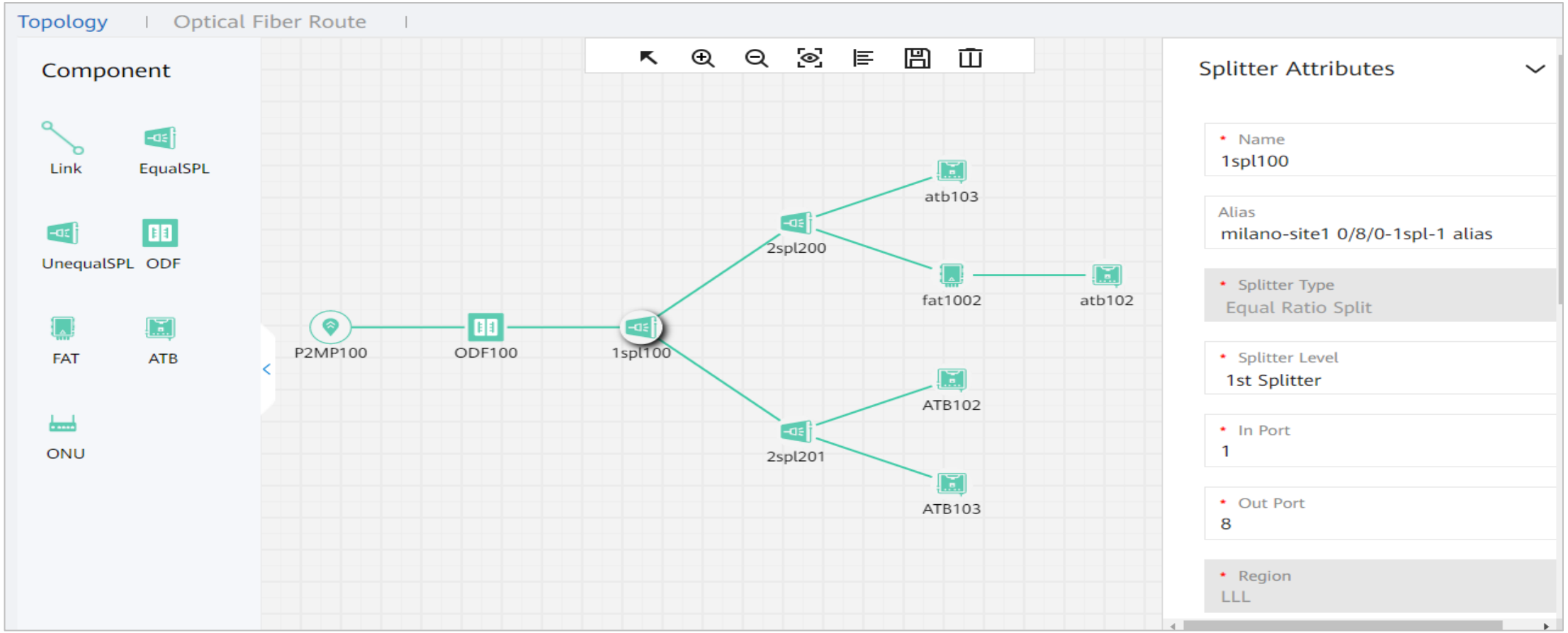
Fiber Resource Management (4)

- Link configuration management: Create a link.



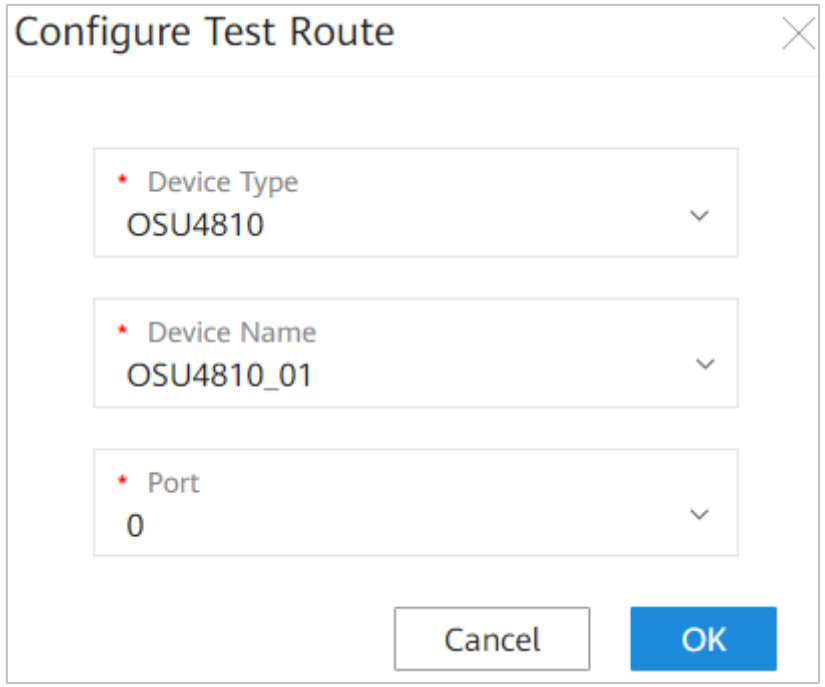
Fiber Resource Management (5)

- Link configuration management: View and edit the link topology.



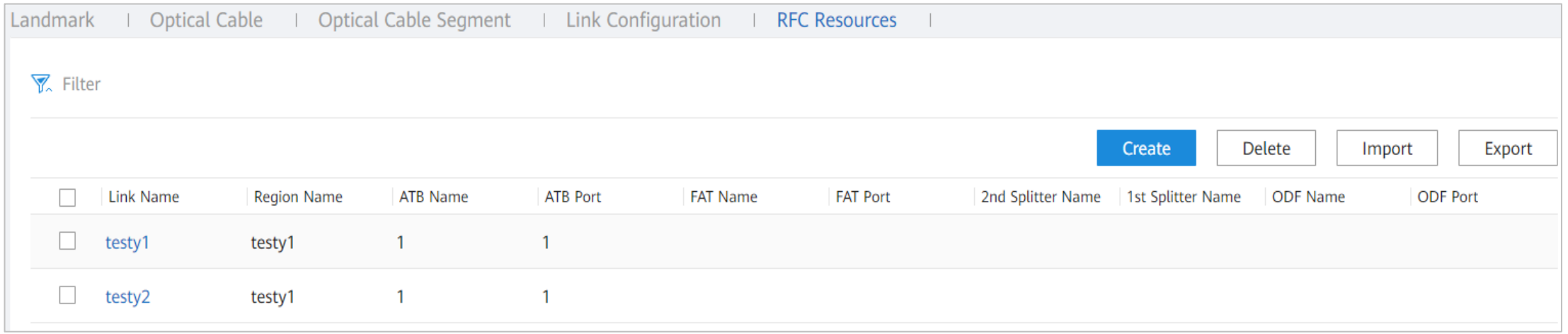
Fiber Resource Management (6)

- Link configuration management: Configure a link test route.



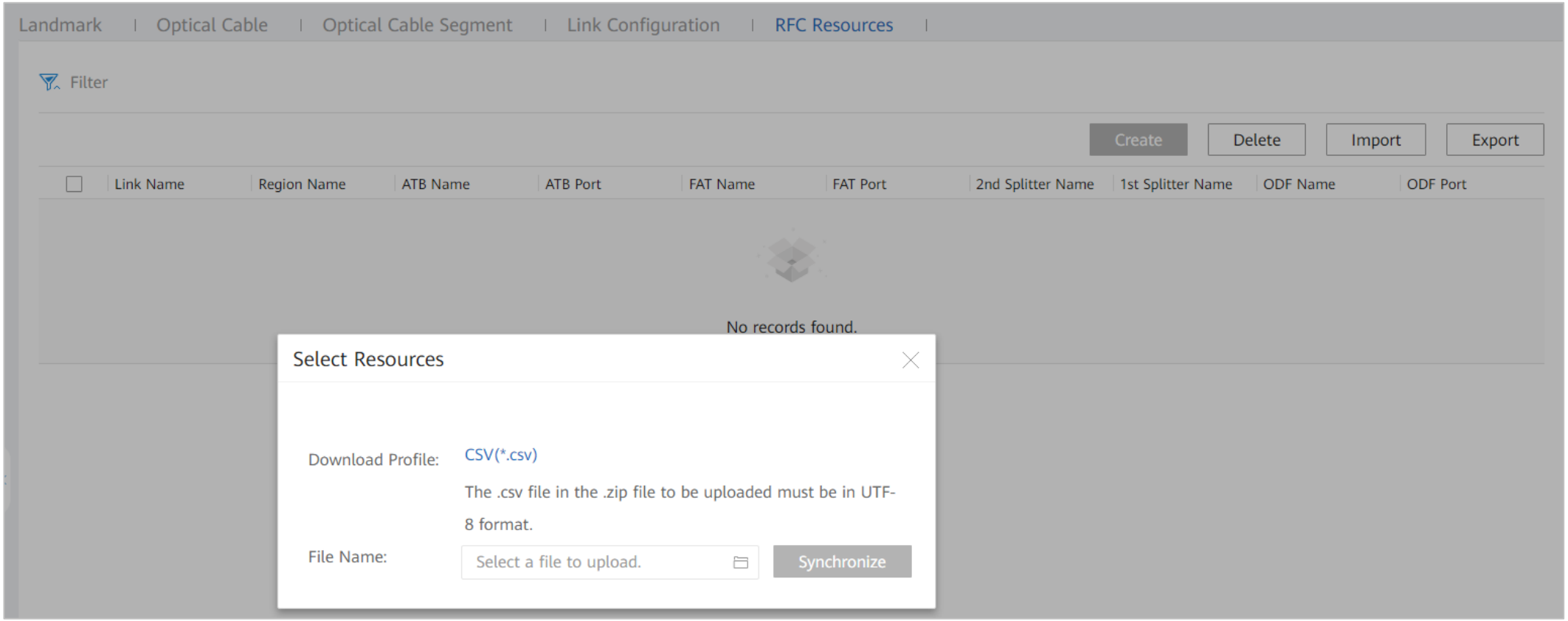
Fiber Resource Management (7)

- RFC resource management: Create an RFC resource.



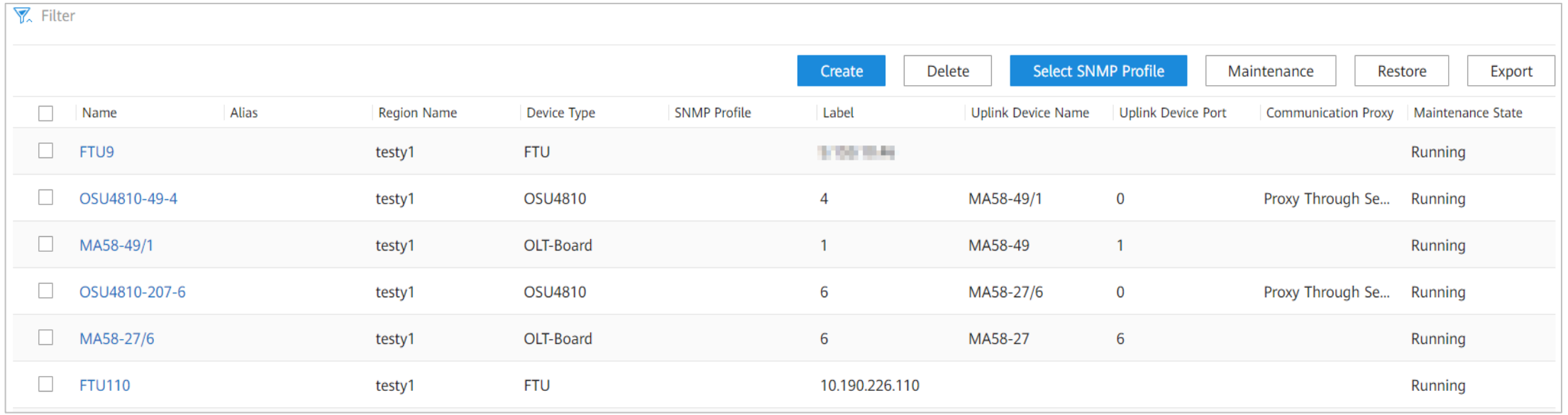
Fiber Resource Management (8)

- RFC resource management: Manually import RFC resources in batches.



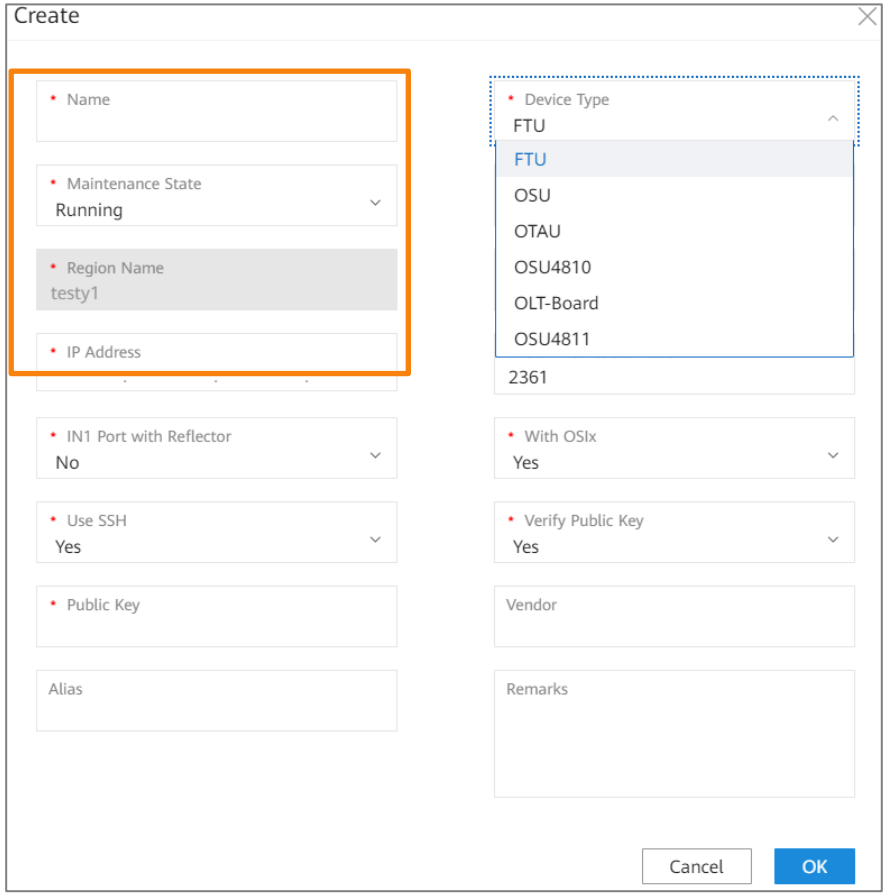
Test Device Management (1)

- Manage test devices.



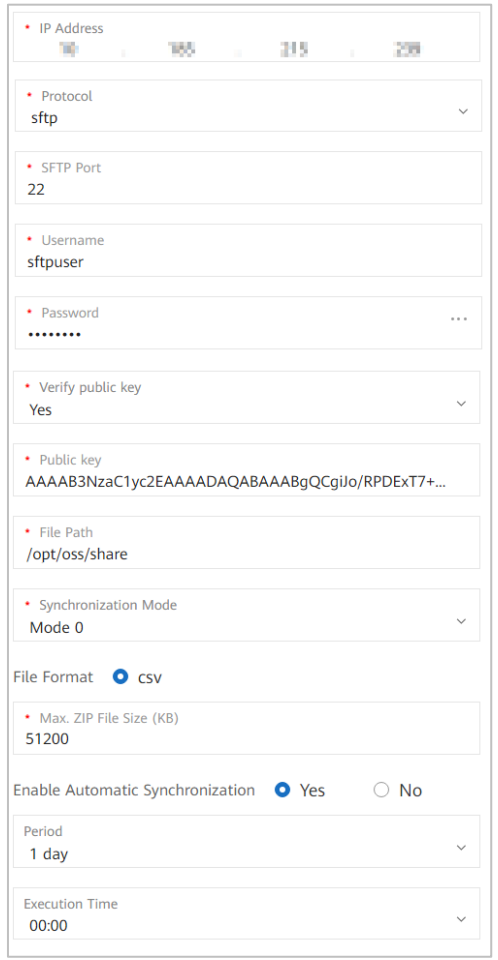
Test Device Management (2)

- Test device management: Create a test device.

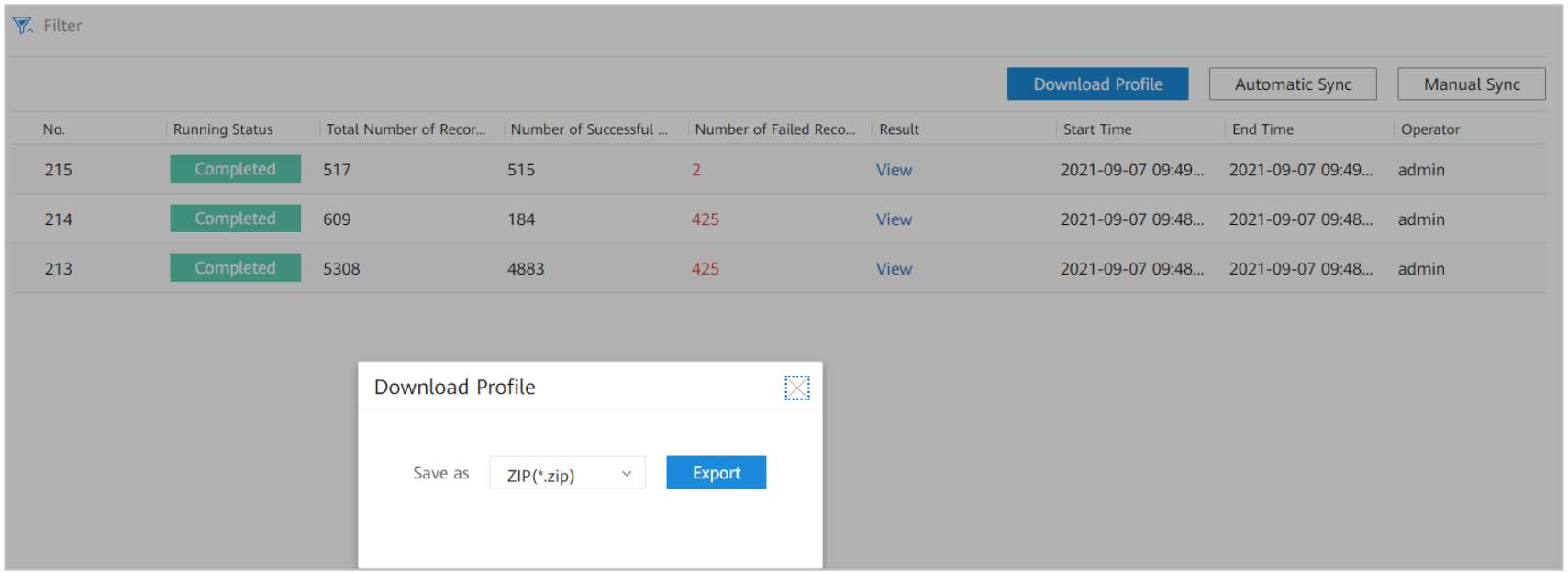


Resource Synchronization (1)

- Automatically synchronize resources.



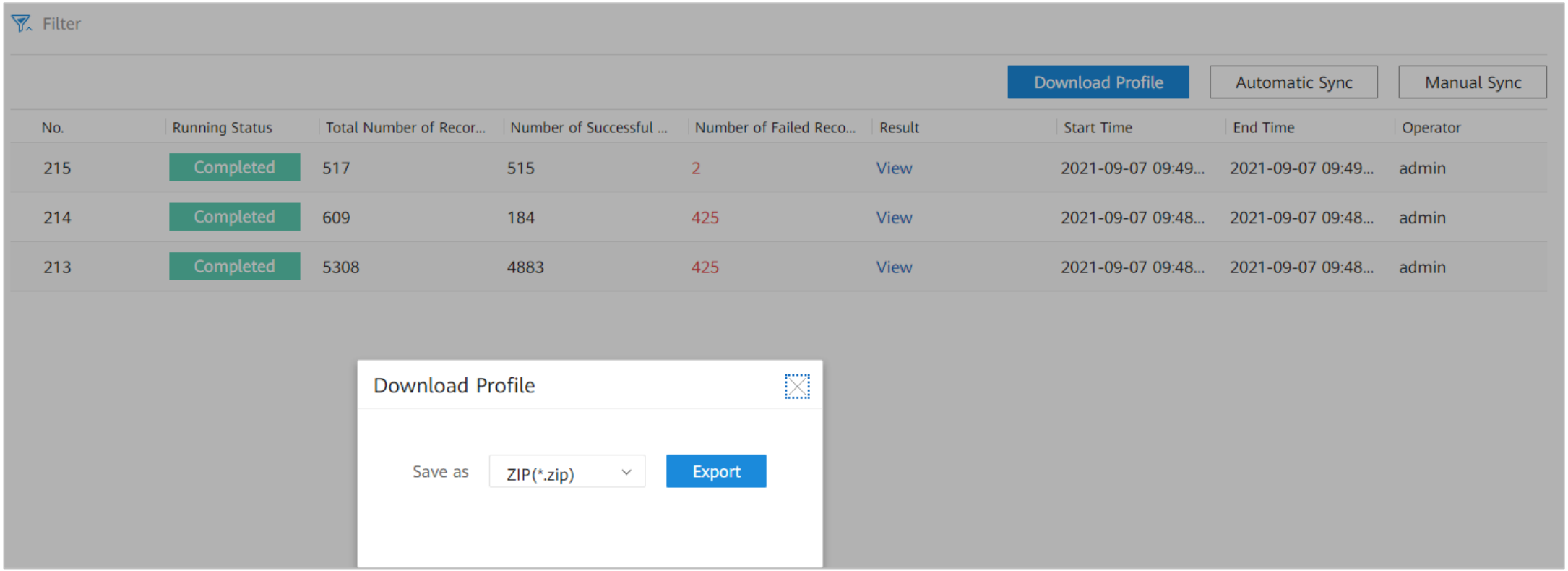
Configure the resource synchronization service.



Download the resource synchronization file profile.

Resource Synchronization (2)

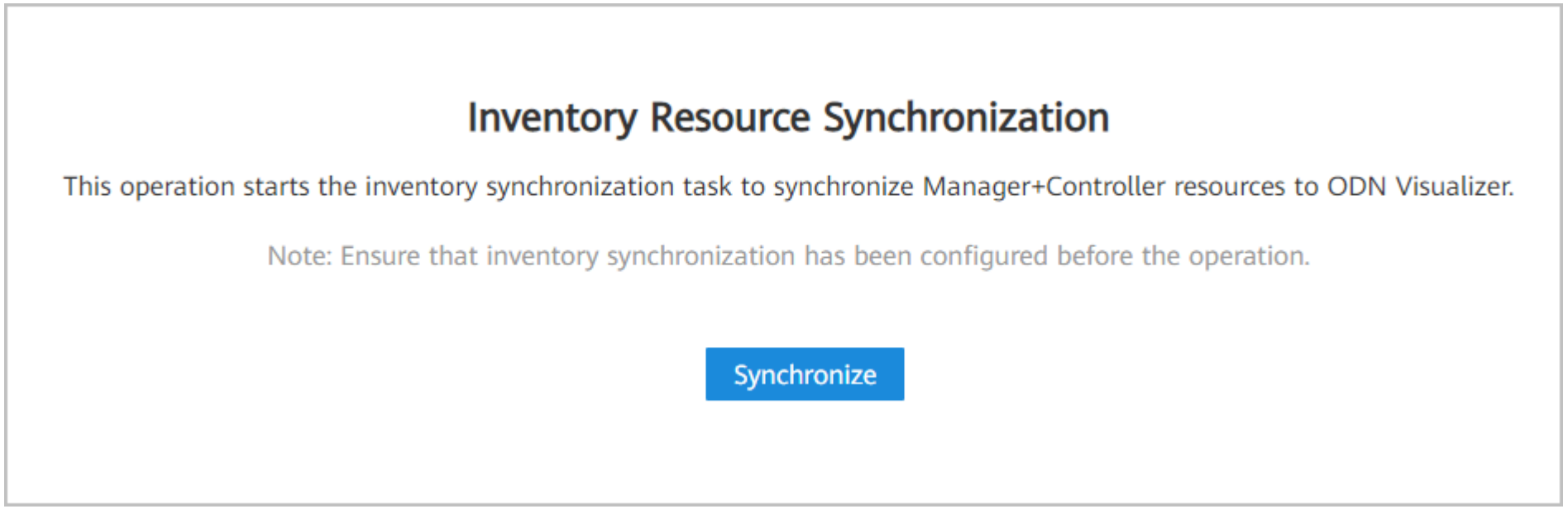
- Manually synchronize resources.



Download the resource synchronization file profile.

Resource Synchronization (3)

Synchronizing Inventory Resources



Resource Synchronization (4)

- View the synchronization result of resources synchronized in file mode.

Filter

Download Profile | Automatic Sync | Manual Sync

No.	Running Status	Total Number of Recor...	Number of Successful ...	Number of Failed Reco...	Result	Start Time	End Time	Operator
215	Completed	517	515	2	View	2021-09-07 09:49...	2021-09-07 09:49...	admin
214	Completed	609	184	425	View	2021-09-07 09:48...	2021-09-07 09:48...	admin
213	Completed	5308	4883	425	View	2021-09-07 09:48...	2021-09-07 09:48...	admin

Filter

Export

No.	Change Type	Object Name	Object Type	Result	Occur Time	Line No.	File Name
10219	Add	[redacted]	OLT	Success.	2021-09-07 09:49:20	3	FTTx_ODN_FULL_template_mo...
10220	Add	[redacted]/0/4/0	ODN Link	Success.	2021-09-07 09:49:20	6	FTTx_ODN_FULL_template_mo...
10342	Add	[redacted]/0/4/0	PON Port	Success.	2021-09-07 09:49:20	6	FTTx_ODN_FULL_template_mo...
10221	Add	[redacted]/0/4/1	ODN Link	Success.	2021-09-07 09:49:20	7	FTTx_ODN_FULL_template_mo...
10343	Add	[redacted]/0/4/1	PON Port	Success.	2021-09-07 09:49:20	7	FTTx_ODN_FULL_template_mo...
10222	Add	[redacted]/0/4/2	ODN Link	Success.	2021-09-07 09:49:20	8	FTTx_ODN_FULL_template_mo...
10344	Add	[redacted]/0/4/2	PON Port	Success.	2021-09-07 09:49:20	8	FTTx_ODN_FULL_template_mo...

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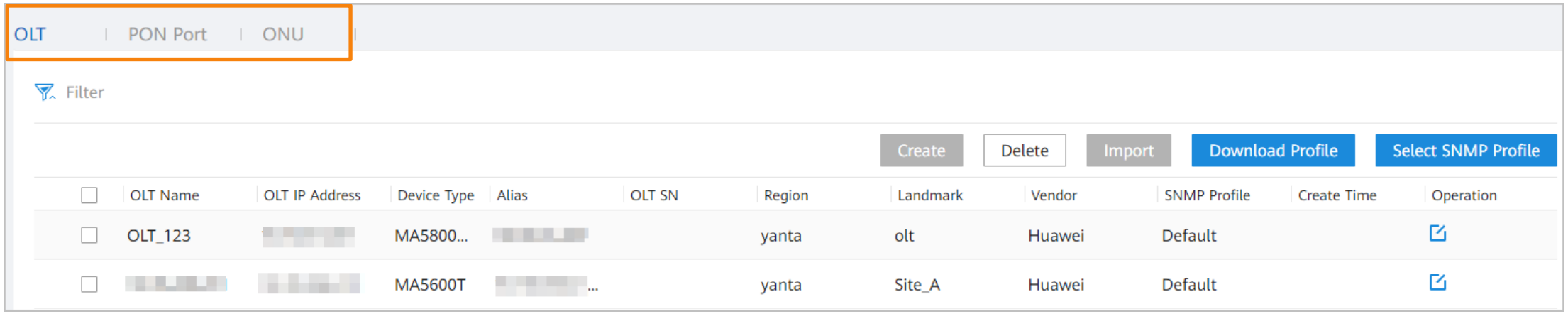
Resource Synchronization (5)

View the synchronization result of Manager+Controller inventory resources.



Summary

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

- Values for the ODN Visualizer solution
- Basic operations for the ODN Visualizer solution
- Application scenarios for the ODN Visualizer solution

Thank You

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