

NOKIA

Broadband Playbooks

The Quick Start Guide for Rock Solid Access

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Get to Fast Faster 2025

Nokia Broadband SDAN playbook

How easy can it be?

Quick start guide for **Greenfield deployments** using Nokia's Software Defined Access Network (SDAN) Solution.

Key benefits

- Leverages best practices using Altiplano and Lightspan.
 - Centralized SW management for OLT and ONTs
 - Centralized OLT password control via OAM Connectivity Profiles
 - Single point of configuration for upstream and downstream traffic rates
- Provides importable profiles to support Nokia Validated Design of common service types.
- Provides clear, validated procedures that can be followed step by step.
- Start to Finish package: Altiplano Installation, OLT Turn-Up, Subscriber Provisioning

The SDAN quick start package

25.6 SDAN Playbook Document (HLD/LLD)

Altiplano
Automated
Installer

Automated installation of Altiplano and LDA using product Guided Install

Pre-Configured
Profiles

Pre-configured set of profiles, automatically imported, ready for immediate use service creation

Customized
Device Extensions

Simplified Device Turn-Up enabled by customizations in IHUB device extensions

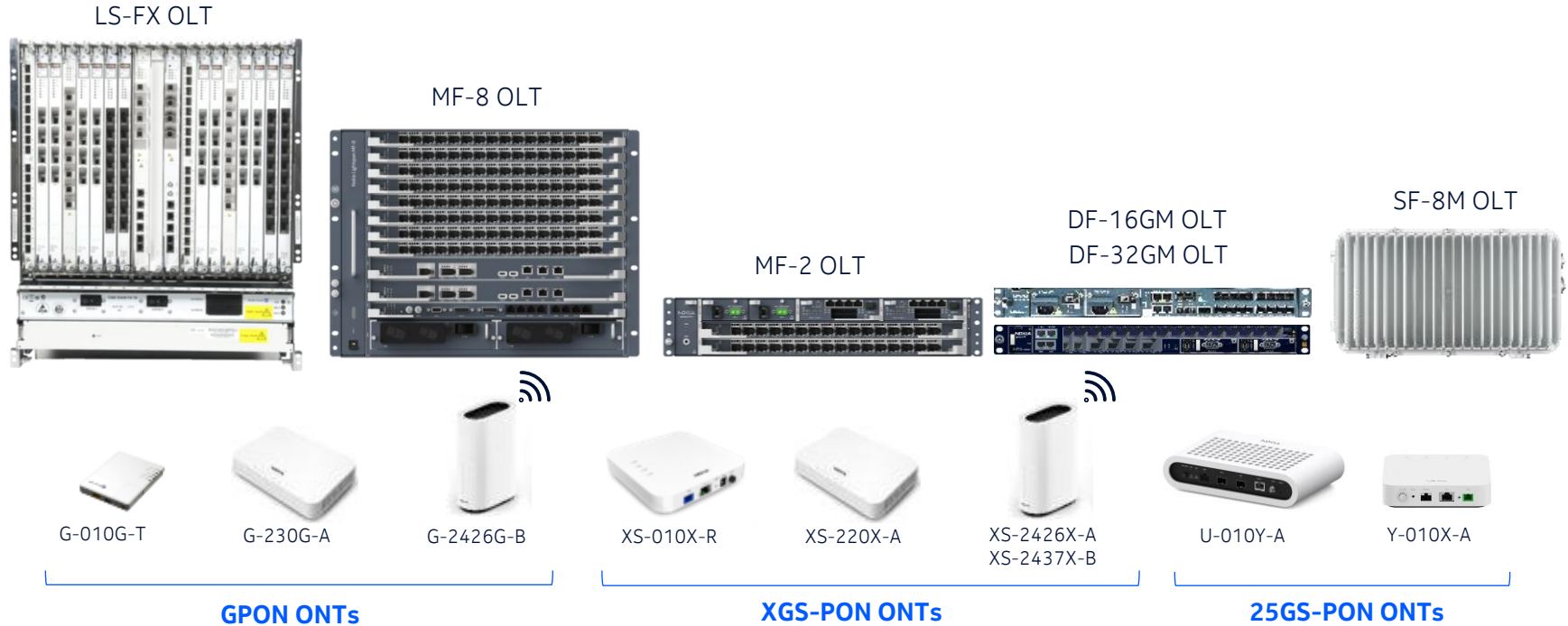
Focused
Turn-Up Guides

Streamlined MoPs providing procedure to turn-up MF2, FX, etc. equipment fresh from the factory

SDAN Playbook services are **validated** with each release via BATS Automated Test Suite

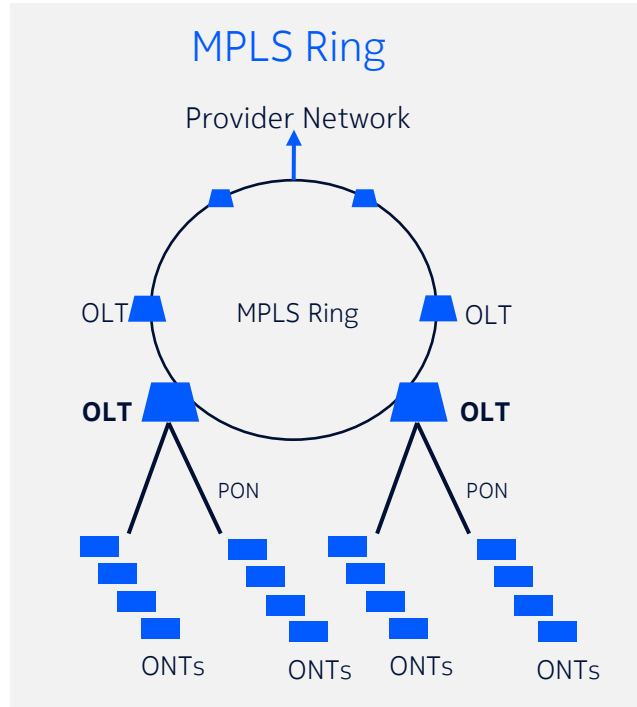
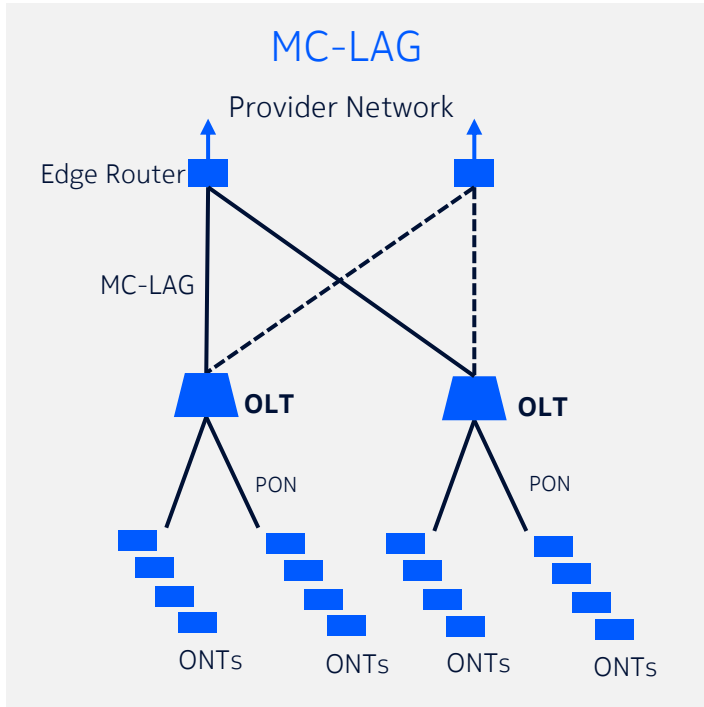
SDAN Playbook Solution overview

Altiplano Access Controller



Playbook variants: LAG and MPLS ring

Deployment topology options

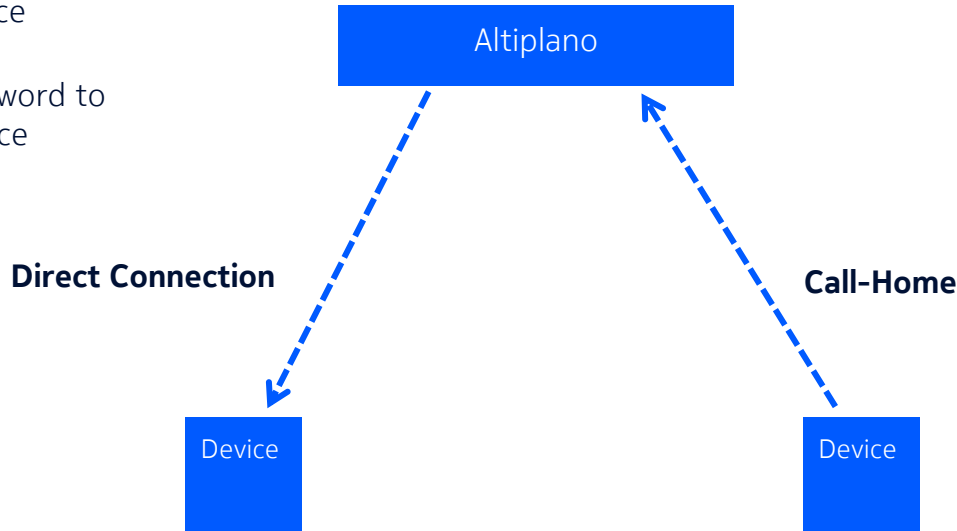


Playbook turn-up guide variants

Direct Connection and Call-Home

Direct Connection:

- Altiplano initiates connection
- Altiplano knows fixed IP address of device
- Altiplano uses username/password to connect to device



Call-Home:

- Device initiates connection
- Device learns Altiplano (PMA) address via DHCP typically
- Mutual certificate validation for authentication
- Devices loaded with required certificates via Configure To Order (factory) process

Subscriber service types

Importable profiles to deploy key service types

Residential HSI

- Best Effort
- Shared Residential Bridge VLAN, Pbit 0, Traffic Class 0

IPTV video

- IGMP/Multicast Video
- Cross-VLAN Multicast, Pbit 4, Traffic Class 4

Multiservice MSO

- DSCP delineated data, video, voice within one service

Business internet

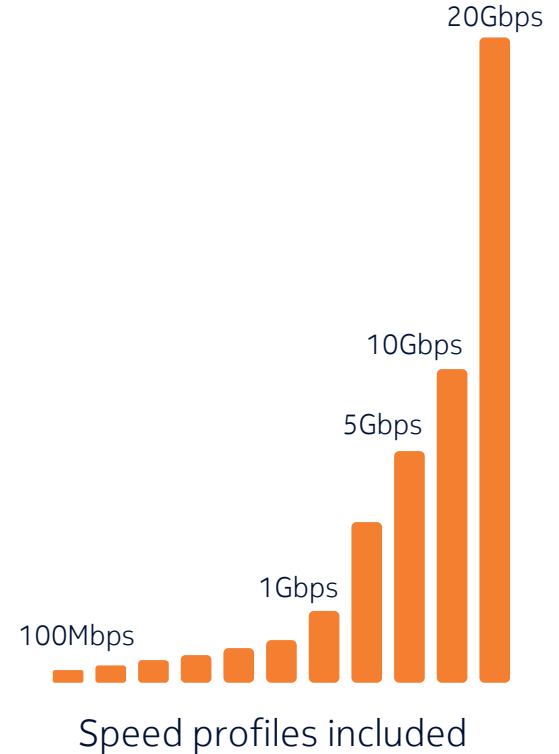
- Shared Residential Bridge VLAN, Pbit 2, Traffic Class 2

Transparent LAN Service

- E-LINE/E-LAN service with User-to-User and L2CP Transparency

Voice

- ONT based voice service
- Shared Residential Bridge VLAN, Pbit 6, Traffic Class 6



Altiplano installation

Installation process

Following the Automated Installer MOP:

- Obtain a license for Altiplano
- **Transfer** installer package file to target machine
- **Transfer** playbook extension files to target machine
- Install prerequisite linux packages (ansible, etc.)
- Obtain SWDP authentication token
- Run configuration script and **answer prompts**
- **Run installer**

Altiplano 25.6.1 and LDA 25.6.0 Installation MoP 25.6.1-REL_300 v1.1

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**Method of Procedure
Altiplano 25.6.1 Installation
for Lightspan Management
using Guided Install Automated Installer**

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Auto installer user input

Configuration script with playbook presets

Configuration script (**config.sh**) provides menu system to allow user to enter values with validation

```
nokia-installer@ap113:/data/delivery$
nokia-installer@ap113:/data/delivery$ ./config.sh
```

```
(Top)
Nokia/Altiplano 25.6 Configuration
Deployment level (Production) --->
Expert level (Recommended) --->
[*] Customize Altiplano usernames
[*] Proxy --->
Repository --->
Operating system --->
Kubernetes --->
Storage --->
Redundancy --->
Infrastructure --->
Altiplano --->
Security --->
Applications --->
```

```
[Space/Enter] Toggle/enter  [ESC] Leave menu      [S] Save
[?] Symbol info             [/] Jump to symbol    [V] Validate configuration
[F] Toggle show-help mode   [C] Toggle show-name mode [A] Toggle show-all mode
[X] Toggle show-secret mode [Q] Quit (prompts for save)
```

Auto installer execution

install.sh

- Installation script (install.sh) executes the Ansible playbook to perform installation
- Typical installation time (Kubernetes, Altiplano and Debug Client together) is around 1h 15min
- Installation requires network access to Nokia public Artifactory or SWDP server to allow download of helm charts, packages and container images

```
nokia-installer@ap113:/data/delivery/24.6.2$ ./install.sh
```

Batteries included installer

Guided install

Immediately after the Automated Installer completes:

- Altiplano License is applied
- Debug Client and License Server (LDA) is installed
- Certificates Auto-configured
 - License Server certificates are configured to match CSWL
 - Altiplano certificates are configured to enable Lightspan software download
- Blueprints and Device Software Auto-Import (optional)
 - Playbook Extensions and Blueprints are loaded
 - OLT and ONT Software is imported

OLT Turn-Up

SDAN Playbook Simplified OLT Turn-Up

Benefits achieved in SDAN Playbook OLT Turnup process:

Simplicity

- Remove dependency on initial device active software version
- No need to load extra extensions in Altiplano for factory/initial software version

Flexibility

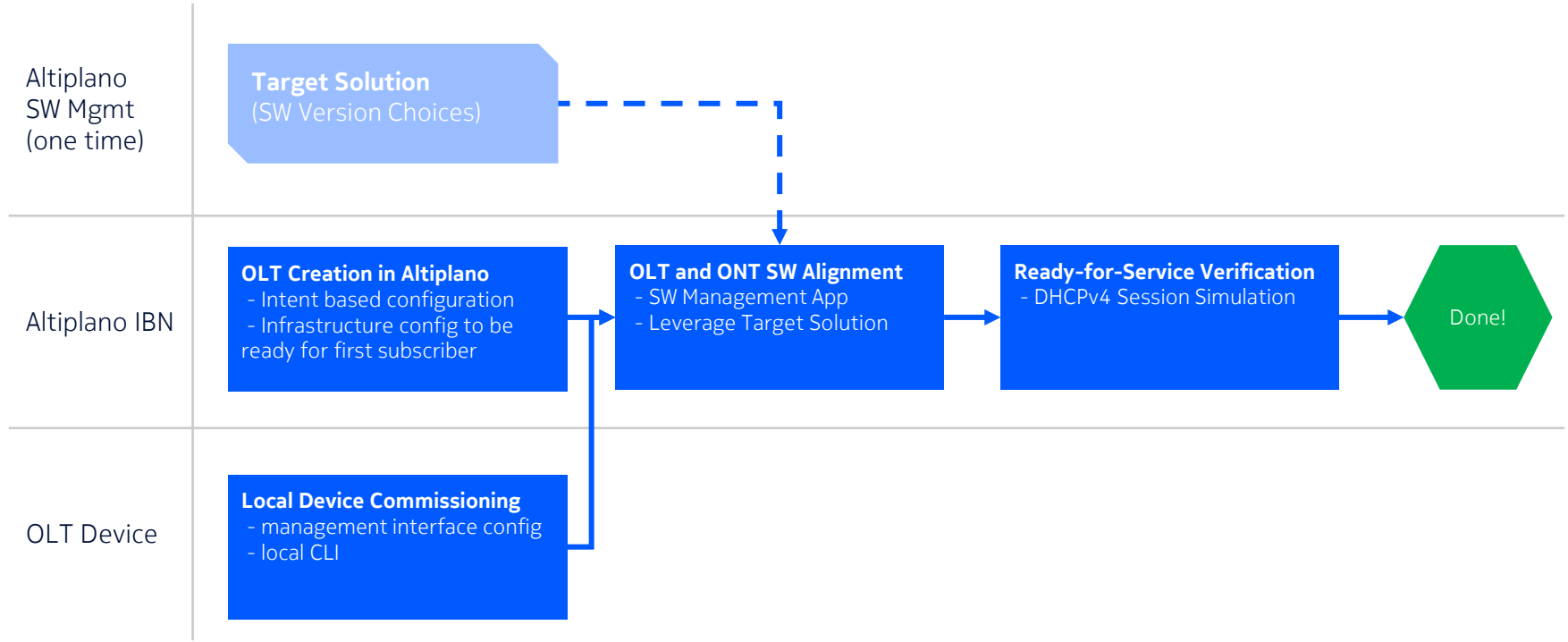
- Use any management VLAN, LAG configuration, and port configuration without having to create custom device configuration templates (direct connection)

Repeatability

- Leverage predefined “Target Solution” in Software Management Application to align OLT and ONT Software versions

OLT Turn-Up process

Overview

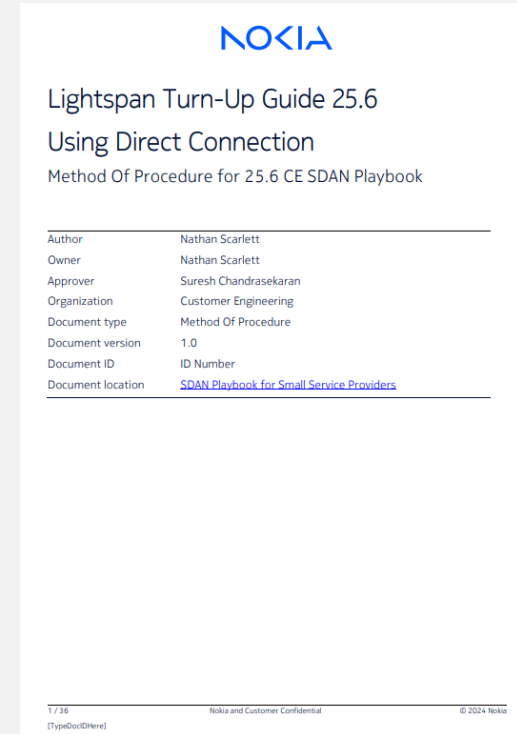


OLT Local CLI Commissioning

For Non Call-Home deployments

Configuration Required via **CLI for initial management connection:**

- **Port** Configuration
- **LAG** Configuration
- **Management VLAN** (VPLS) Configuration
- **IP Interface** (IES Service) Configuration
- Default Route
- NTP Time Server Configuration

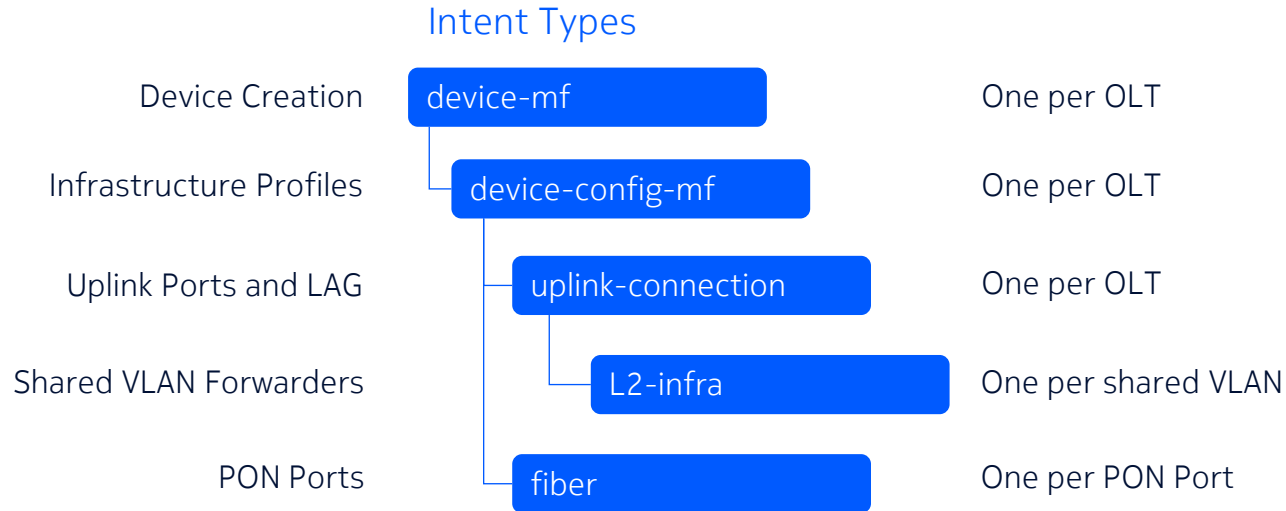


Procedure and CLI script templates are provided

OLT Creation in Altiplano

Get ready for the first subscriber

Simple, Repeatable Intent Provisioning configures everything needed for the first subscriber, from device creation to the PON ports.



OLT and ONT software version alignment

Leveraging software management app

Altiplano Software Management App simplifies OLT Turn-Up

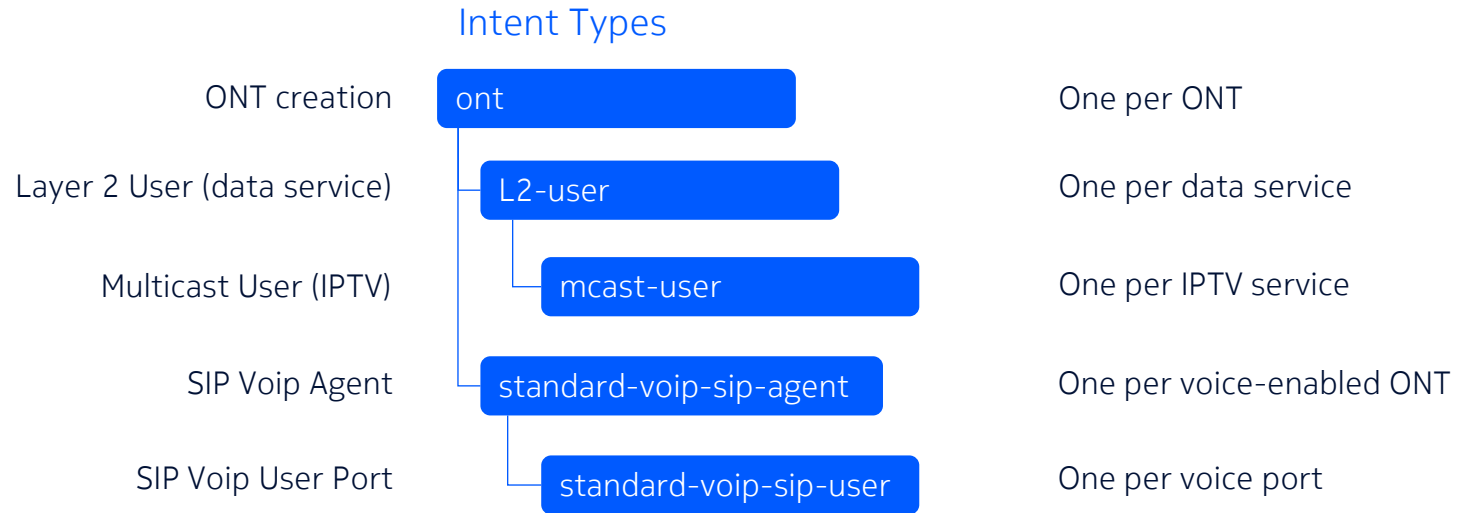
- Pre-defined Target Solution
 - Central definition of target software versions for OLTs and ONTs
 - Includes mapping of ONT hardware models to desired main software and config files
- Software activation is as simple as choosing OLT name and Target Solution name, click Start
- Ensures OLT target software is downloaded and activated
- Ensures ONT target software and config files are downloaded (staged) and mapping table is programmed
 - Existing ONTs will be upgraded
 - Future ONTs will be automatically upgraded upon installation

The screenshot displays the Nokia Software Management interface. At the top, it shows the 'Software Management' header with navigation tabs for Campaigns, Upgrades, Software Cleanup, and Logs. The current view is for a campaign named 'act1' with a success status of 100% and 1/1 completed devices. A progress bar shows 100% completion. Below this, there are sections for 'Details' (Operation: Upgrade, Device Must Be Reachable: Yes, Device Type: LS-MF-LBNT-A-MF8-LMFS-F) and 'Schedule' (Scheduled At: -, Start No Later Than: -). A 'Top Failure Reasons' section is also present. At the bottom, a table titled 'Details and Devices' provides a detailed view of the upgrade process for three devices, all of which were successful.

ID	Scope	Operation	Devices/Cards/ONTs	Progress	Status	Start Time	End Time
3	All ONTs in LT 'RAL-MF8-01.LT1'	Upgrade	12	100%	Success	Sep 26, 2025 4:50:24 PM	Sep 26, 2025 4:52:15 PM
2	All LTs in device 'RAL-MF8-01'	Upgrade	1	100%	Success	Sep 26, 2025 4:38:01 PM	Sep 26, 2025 4:50:25 PM
1	All selected devices	Upgrade	1	100%	Success	Sep 26, 2025 4:06:14 PM	Sep 26, 2025 4:38:02 PM

Subscriber provisioning

Simple, Repeatable Intent Provisioning used for subscriber activation, configuring ONTs and services.



ont Intent Creation

Create one per ONT

Create Intent

Type * Version * On Success Synchronize Required Network State *

ONT Name *

ONT

Fiber Name <input type="text" value="RAL-LSMF-01.S01.P16"/>	PON Type <input type="text" value="xgs"/>	ONT Type * <input type="text" value="XS-010X"/>	Expected Serial Number <input type="text" value="ALCL00001234"/>
Expected Registration ID <input type="text" value="Type in text to filter..."/>	Expected LOID <input type="text" value="Type in text to filter..."/>	<input type="text"/>	Description <input type="text"/>

Service Configuration

ONT Service Profile Speed Profile

UNI Service Configuration

UNI	ONT UNI Service Profile	Speed Profile	Description
10GE	default-ONT-LAN-AUTO	<input type="text"/>	<input type="text"/>

MoCA UNI Service Configuration

MoCA UNI	MoCA UNI Service Profile	Far End	Speed Profile
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Create another

SDAN Playbook Choices

Data Service Creation

One per Data Service

Create the I2-user intent for each subscriber data service

- SDAN Playbook document provides advice for each field.
- SDAN Playbook blueprints provide ready-to-deploy profiles.

Create Intent

Type * I2-user Version * 15 On Success Synchronize Required Network State * Active

Service Name * HSI Customer Name * customer012345

User Device Name MF-0102-Y010XA2 UNI 10GE L2 Infrastructure Name DATA

C-VLAN ID Type in text to filter... User Traffic Type * Untagged User Service Profile * HSI-secure-fwd-TC0

Service Description Speed Profile SPEED-1G

IPv4 Anti-Spoofing Address

IPv6 Anti-Spoofing Address

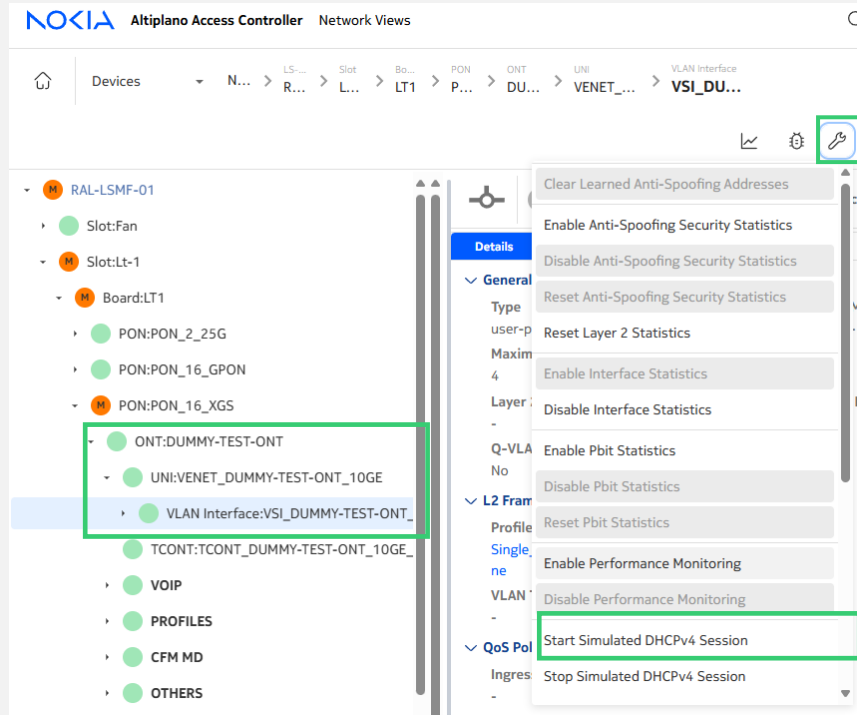
Profiles provided by SDAN Playbook Blueprints

Create another

OLT Turn-Up Validation DHCPv4 Client Simulation

DHCPv4 Client Session Simulation

Verify Network Connectivity even before first ONT is installed



DHCP Client simulated in OLT LT board, to **verify ability to obtain DHCP lease through the OLT and network.**

Supported on MF2, MF8, DF-16

The dialog box titled 'Start Simulated DHCPv4 Session' contains the following fields:

Client MAC Address *	Inner VLAN P-Bit Value	Outer VLAN P-Bit Value
<input type="text" value="00:00:00:12:12:12"/>	<input type="text" value="7"/>	<input type="text" value="7"/>
Option 60 Value	Timeout (s)	Client Identifier
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>

Buttons: Cancel, OK

DHCPv4 Client Session Simulation

Verify Network Connectivity even before first ONT is installed

The screenshot displays the Nokia Altiplano Access Controller Network Views interface. A modal window titled "Action Results (Show Simulated DHCPv4 Session)" is open, showing the results of a simulated DHCPv4 session for the device RAL-LSMF-01.LT1 on the VLAN Interface VSI_DUMMY-TEST-ONT_10GE_HSI. The action was completed successfully at 1:50:10 PM on Oct 28, 2025. The session details are as follows:

Session Status	Simulation Start Time	Simulation Duration
success	Oct 28, 2025 1:49:28 PM	42s
Client MAC Address	Server MAC Address	Client IP Address
00:00:00:12:12:12	00:00:01:00:00:01	192.85.1.11
Server IP Address	Gateway IP Address	Lease Time
192.85.1.3	0.0.0.0	3600 s
Session Start Time	Oct 28, 2025 1:49:29 PM	

At the bottom of the modal, there are "Retry" and "Close" buttons. Below the modal, a context menu is visible with the option "Show Simulated DHCPv4 Session" highlighted in green.

OSS Integration Support

OSS Integration Support

REST API Sample Requests – Postman Collection Files

- The SDAN Playbook includes custom Postman collection files containing sample requests specific to the SDAN Playbook
- Helpful input to OSS or Tools teams to jumpstart integration

REST API Samples

- Concrete examples following Playbook Configuration
- Covers all intent types
- Operations
 - Creation
 - Synchronization
 - Get
 - Delete

REST API Samples for all Playbook Intents

Create, Delete, Get, Synchronize

The screenshot displays a REST client interface with a sidebar on the left and a main configuration area on the right. The sidebar shows a tree view of playbooks, with 'Subscriber Provisioning' expanded to show a list of intents. The main area is configured for a POST request to the endpoint `https://{{server}}/{{base-url}}/rest/restconf/data/ibn:ibn?altiplano-triggerSyncUponSuccess=true`. The request body is a JSON object representing an intent configuration.

```
1  {}
2  "ibn:intent": {
3    "target": "FX-0116-G010GT-1",
4    "intent-type": "ont",
5    "intent-type-version": 9,
6    "required-network-state": "active",
7    "intent-specific-data": {
8      "ont:ont": {
9        "ont-type": "G-010G",
10       "auto": [
11         null
12       ],
13       "from-device-mapping": [
14         null
15       ],
16       "onu-service-profile": "ont_default",
17       "pon-type": "gpon",
18       "expected-serial-number": "ALCLF0209C40",
19       "fiber-name": "RAL-LSFX-01.S01.P16",
20       "uni-service-configuration": [
21         {
22           "uni-id": "LAN1",
23           "service-profile": "default-ONT-LAN-AUTO"
```

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