



Installation and Commissioning Guide

NIDPlug+

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Safety Instructions and Compliance

To reduce risk of physical harm, equipment damage, and fire and to maintain proper operation, ensure that you meet all of the safety requirements stated hereunder.

At All Times

- Comply with all the warning and/or caution symbols attached to the equipment.
- Avoid manual lifting of heavy equipment that could, beyond reasonable doubt, cause bodily harm or property damage. One person should not lift heavy equipment alone. Start lifting with bent knees and a straight back to prevent injury. While carrying, keep legs and back straight. Use both hands, grasping the underside of the bottom edge only. Do not lift the device from the chassis power supply handles, interface modules, or plastic panels on the chassis.
- Do not let optical fibers come into physical contact with any bare part of the body since they are fragile, and difficult to detect and remove from the body.
- Do not bend any part of an optical fiber/cable to a diameter that is smaller than the minimum permitted according to the manufacturer's specification (usually about 65 mm or 2.5 in) (This caution has a dual purpose: 1) Prevention of escape of laser radiation that can cause harm. 2) Prevention of breakage of the communication link.
- Avoid direct exposure to laser beams. In particular, do not look into apertures, laser ports, or ends of an optical fiber since harmful laser radiation may be emanating that could cause permanent damage to the eye and even loss of sight.
- Avoid viewing lasers from a distance of less than 100 mm or directly with optical instruments such as eye loupes, magnifiers, or microscopes. These instruments amplify laser output and can therefore dramatically increase the scale of damage to the eye.
- Use of controls, adjustments, or procedures not specified by the manufacturer may result in hazardous radiation exposure.
- Do not put anything inside a slot other than a module as prescribed for the slot in the installation guide.

Before Installing

- Electrical equipment relies on building installation safety devices for protection against short-circuit, over-current, and faulty grounding (earthing). Ensure that these devices are properly rated to protect the equipment. Use a listed or certified fuse or circuit breaker on all current-carrying conductors.
- Place the equipment on a flat, stable, non-conductive, static-free surface.
- For personal and equipment protection against ESD, wear an ESD-protective wrist strap that is connected to ground. The wrist strap must have a resistance of at least one megohm in the path to ground.
- By inspection, ensure that no part of the equipment is damaged.
- Leave the protective covers (for example dust caps on optical connectors) on the equipment's components at all times until the components are about to be connected.
- For personal protection against electrostatic discharge (ESD), ensure that the equipment is electrically connected to ground at the earthing point (tang, butterfly nut, earthing screw, and so on) located on the equipment.
- Some fiber optic modules may contain Class 1M levels of invisible laser radiation. Do not view directly with optical instruments.
- *Fusion Splicing*: Ensure that the pigtail connected to the IN port of the high power optical amplifier has its other end, at the ODF, fusion spliced with the end of the long-haul cable. This caution has a dual purpose:
 - It prevents the escape of laser radiation that can cause harm.
 - It reduces power loss on the communication link.
- To prevent the risk of electric shock, connect a secondary ground to the chassis of the Host Device. Have a certified electrical technician connect a grounding cable to the grounding pin available on the chassis.

During Installation and Maintenance

- Only trained and qualified service personnel (per IEC 60950-1) should install or maintain this equipment.
- Install the equipment at a site where access is controlled. Such a site must be protected by a secure mechanism, such as a physical lock and/or an electronic lock whose keys can be obtained only from the authority responsible for the site.
- Ensure that no extraneous objects such as personal wear (clothing, jewelry, rings, and so on) come in contact with the equipment.
- Proposition 65: Some products may contain substances known to the State of California to cause cancer, birth defects, or other reproductive harm.
- Provide proper grounding to avoid ESD damage to components during service and operation. Use antistatic carriers to transport exposed electronic devices. Use protective clothing, grounding straps, antistatic furniture and surfaces, and any recommended devices.
- Use only shielded and grounded cables in order to comply with FCC rules.
- The equipment is not intended for direct copper connection to a public switched telephone network or to telecommunication network (EU) connection port.
- Install the equipment in accordance with applicable building and electrical codes such as: NFPA NEC 70, CEC, Part 1, CSA C22.1, IEC 60364, BS7671.
- For continued protection against risk of fire, replace a fuse only with another fuse of the same type and rating.
- Ensure that each optical pluggable port (SFP, SFP+ and/or QSFP) at which laser beams are (or will be) present is occupied by an optical pluggable plug locked in position.
- Ensure that the E2000/APC connector at the end of the pigtail (whose other end is fusion spliced to the long-haul cable at the ODF) is clean before connecting it to the EM1600-OAR IN port.

Before Powering On


- Operate the equipment only at a location where the environmental temperature is in the range -40° to 60°C, unless otherwise specified.
- Operate the equipment only at a location where the environmental humidity is non-condensing and between 10 and 85%, unless otherwise specified.
- Ensure that the site for the equipment is dust-free. (Less than 1,000,000 particles per cubic meter or 30,000 particles per cubic foot is OK.)
- Ensure that the airflow around the equipment and through the air vents is not obstructed. In particular, ensure that there is a clearance of at least 7.6 cm (3 inch) between the air vents and nearby objects.

Before Operating

- Make sure that all modules are secured.
- Make sure that laser outputs have protective coverings (plugs, covers, and so on).
- Make sure that the equipment is properly grounded.

During Operation

- Ensure that the airflow around the equipment and through the air vents is not obstructed. In particular, ensure that there is a clearance of at least 7.6 cm (3 inch) between the air vents and nearby objects.
- Operate devices only in areas within the recommended ambient temperature range.
- Do not connect or disconnect cables and/or power cords during lightning strikes or thunderstorms.
- Do not connect or disconnect cables to/from high power optical amplifiers, for example Raman optical amplifiers.
- Ensure that each optical pluggable port at which laser beams are present is occupied by a plug locked in position.

- 

FCC Notice
This equipment complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct for the interference at the user's own expense.

- The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.
- It is suggested that the user use only shielded and grounded cables when appropriate to ensure compliance with FCC Rules.
- Receiver inputs are sensitive to power levels, particularly on small pluggable transceivers. Observe component thresholds for optimal operation, to avoid damage, and to maintain warranty support.

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The pictures or graphics shown in this document are for reference only. They are based on the latest hardware revision available at the time of publication. The equipment you received might look different than pictures or graphics shown in this document.







Document Conventions

This section lists the common typographical conventions and symbols used throughout this documentation.

Safety Symbol and Message Conventions

You will see these symbols throughout the documentation. All personnel should correctly follow and not ignore any safety instructions.

Icon	Meaning	Description
	Warning	Means danger and alerts you to a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved and be familiar with standard practices for preventing accidents.

Icon	Meaning	Description
	Electric Voltage Warning	Means danger and alerts you to risks caused by electricity that could result in death or serious injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.
	Laser Radiation Warning – Class 1M Laser	Warns you that the equipment contains Class 1M lasers, which are safe for all conditions of use except when the beam is passed through magnifying optics. It also alerts you to the risk of possible laser radiation if the system is not used as designed or altered in any way.
	Laser Radiation Warning – Hazard Level 1M	Warns you that the equipment contains Class 1M lasers, which are safe for all conditions of use except when the beam is passed through magnifying optics. It also alerts you to the risk of possible laser radiation if the system is not used as designed or altered in any way.
	Caution	Alerts you to a potentially hazardous situation or condition that may result in minor or moderate injury.
	Electrostatic Caution	Indicates the possibility of equipment damage due to electrostatic discharge (ESD). If the ESD-prevention instructions are ignored or not followed correctly, damage can occur.
	Note	Indicates supplemental information or helpful recommendations.

Obtaining Technical Assistance

Product Maintenance Agreements and other customer assistance agreements are available for ADVA products through your ADVA distribution channel. Our service options include:

- 24 x 7 telephone support
- Web-based support tools
- On-site support
- Technical training, both on-site and at ADVA facilities in Germany and the USA

- Expedited repair service
- Extended hardware warranty service

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You can use the customer portal to:

- Access company information and resources 24 x 7.
- Find information specific to your requirements, such as networking solutions, services, and programs.
- Resolve technical issues by using online support services.
- Download and test software packages.
- Order ADVA training materials.

Access	https://www.advaoptical.com/en/customer-portal
Questions	customer-portal-admin@advaoptical.com

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Technical services are available to customers who need technical assistance with an ADVA product that is under warranty or covered by a maintenance contract.

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Document Revision History



For detailed information about a specific product release, see the appropriate release notes.

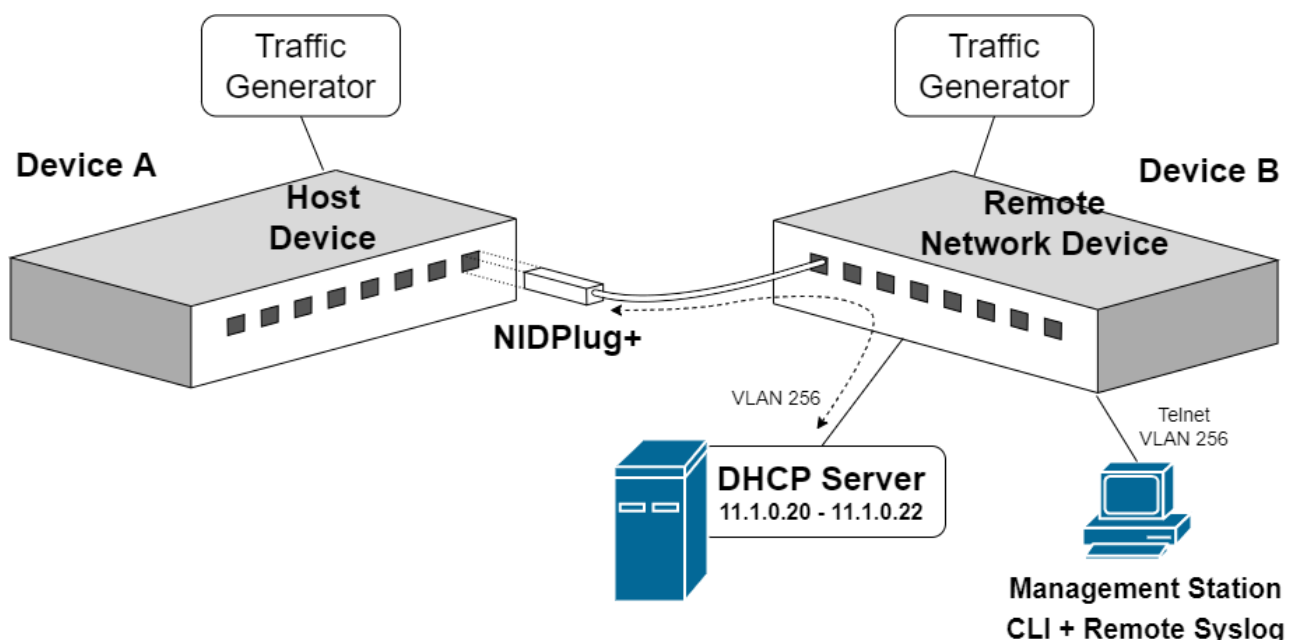
Product Release	Document Number	Document Issue	Issue Date	Description
22.1.1	80000070128	A	June 2022	<ul style="list-style-type: none">Initial release

Chapter 1

NIDPlug+ Introduction

The ADVA NIDPlug+ is a 10G Network Interface Device (NID) in the form of a Small Formfactor Plug (SFP) optical communication Input/Output (I/O) plug. This device adds advanced Layer 2 (L2) NID functionality to legacy switches that do not include or are not licensed to include advanced L2 functionality.

The NIDPlug+ is a complete single-port Metro Ethernet Forum (MEF) compatible NID, with integrated CPU and FPGA chips. It can perform all the advanced MEF functions of an L2 NID, but in the form of an SFP plug. The NIDPlug+ enables network operators to add advanced NID functionality to legacy networking infrastructure, allowing them to upgrade their network operations incrementally and delay expensive network upgrades, all while providing advanced network services.



The NIDPlug+ is installed inside the SFP+ port of a Host Device, but functions as an independent single-port L2 switch NID. It connects directly to and receives its power from

the Host Device, but it functions as a separate independent physical and logical device from the Host Device, with separate IP address and configuration.

An operator controls and configures the NIDPlug+ through its connection to the network, using DHCP .



- The NIDPlug+ is designed to communicate at 10Gbps.
- For NIDPlug+ installation instructions, see [Starting Up](#).

Chapter 2

Starting Up

The NIDPlug+ receives its power from the Host Device, and begins starting up about 90 seconds after the Host Device powers up.



- The NIDPlug+ cannot receive an IP address from the Host Device.
- It receives its IP address from a DHCP Server that is connected from the network side of the device, via a connected fiber optic cable. Verify the device is connected to a fiber optic cable that leads to a another Layer 2 switch and DHCP server.

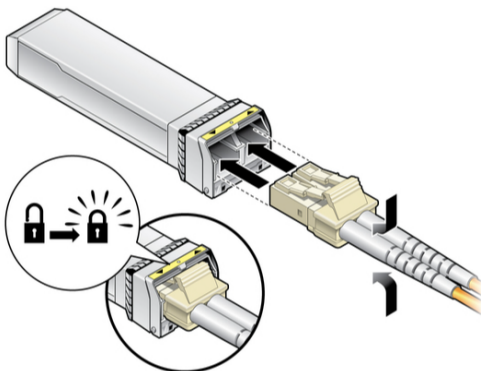
To start the NIDPlug+:

1. Install the NIDPlug+ into an activated SFP+ port in the Host Device (Device A).



The Host Device can be off or powered up when installing the NIDPlug+.

2. Connect a fiber optic cable to the NIDPlug+ device.



3. Connect the other end of the optic fiber cable to a network switch.

IMPORTANT!



- The connected network switch must be configured in the same sub-net as the NIDPlug+ as its Host Device.
- Ensure the NIDPlug+ is connected to a DHCP Server that is running on the network switch that is connected to the NIDPlug+, or some other device in the same sub-net.

4. Set up the network switch to which the NIDPlug+ is connected (Device B):

- Configure the network side of the NIDPlug+.

```
! Interfaces configuration
!
interface vlan vif256
description management
tag 256
ports 7
ip 11.1.0.1/24
management ssh 0.0.0.0/0
management telnet 0.0.0.0/0
management snmp 0.0.0.0/0
!
dhcp
entry 11.0.0.0/8
range 11.1.0.20 11.1.0.22
subnet-mask 255.255.255.0
router 11.1.0.1
!
enable
!
OS-V8#
```



- VLAN 256 is required for management.
- The above DHCP settings are an example, only for reference.

5. Verify that each NIDPlug+ device receives an IP address from the DHCP Server.
Using a terminal emulation program, log on to the device using an IP address within the range defined on the DHCP server.

```
ping 11.1.0.20
```

6. From the management station, open a connection session (Telnet) to the NIDPlug+, by entering its IP address as configured on the DHCP server.

```
login: admin
```

```
Password: 12345t
```

```
Last login: Mon Feb 11 19:56:33 GMT 2019 from local on ttyS0
```

```

Please wait for about ten seconds.
The system is ready
ADVA FSP-150 NIDPlug+ version 22.1.1.509
NIDPlug+ login: admin
Password: 12345t
Last login: Sat Jan  1 22:41:14 UTC 2000 on pts/0
Last login: Sat Jan  8 00:18:44 on pts/0
The system is ready
NIDPlug+>

```



- When connecting to the NIDPlug+ device for the first time, the operator is prompted to enter a password. Enter a new password according to the installation site's security policy.
- The above default password is "12345t". The password does not appear on the screen when entered.
- To change the set password, see steps 11 and 12 below.

7. Enter **Enable** mode.

```
enable
```

8. Enter **Configuration** mode.

```
config
```

9. Change the password.

```
password
```

10. At the prompts, enter the current (default) password, new password, and then retype the new password.

```

Changing password for admin.
Current password:
New password:
Retype new password:
Password changed

```

11. Show software version:

To see the FPGA and software version installed on the NIDPlug+ device, run the shows version command.

```
NIDPlug+# show version
```

Expected output:

```

ADVA FSP-150 NIDPlug+
=====
SNMP Object ID: 1.3.6.1.4.1.629.22.1000.1
Hardware
-----
FPGA version:          01.329
Build time:            26/05 10:33
Software
-----
Application version: 22.1.1.509

```

```
Build time:           May 19 2022 10:26:44
Based on:             Linux NIDPlug+ 5.4.56 #1 SMP PREEMPT Thu May 19 10:23:09 IDT
2022 armv7l
Base MAC address:     44:33:22:be:93:1b
Uptime:               0:19
Number of opened CLI sessions: 1
Last boot cause: CLI command 2000/01/13 17:27:13 upgrade ftp 10.35.110.10 . 509.ver
admin xxxxxx
NIDPlug+#
```

12. Continue to configuring other settings on the NIDPlug+.
 - a. Loopback
 - b. L2CP Protocols
 - c. PCP Marking

Chapter 3

Test Execution

This test sends management traffic between Device A and Device B, as prepared in the above sections.

The test performs the following stages:

- [Loopback](#)
- [L2CP Protocols](#)
- [PCP Marking](#)

Loopback

Loopback functionality is implemented to give the option for returning traffic back to sender and Returning traffic unchanged as it came after MAC DA and MAC SA swap.

Configure Loopback on the SFP NID device:

Enter Configuration mode, and then enter the following commands.

```
NIDPlug+> enable
NIDPlug+# com
NIDPlug+# configure terminal
NIDPlug+(config)# plain-service 1
NIDPlug+(evs:1)# tag 7
NIDPlug+(evs:1)# enable
```

```
Show configuration of SFPNID:
plain-service 1
tags 7
loopback downstream
enable
!
```



default-service-policy sets the forwarding behavior of unclassified traffic - traffic that does not match any defined service.

Configure VLANs on the network side (Device B) and host side (Device A):

create service on both machines.

```
vlan 7
```

EXAMPLE:

From the Traffic Generator, send traffic with TAG 7 from the network side to the host.

Frame	
EthernetII	
Destination MAC	00:00:00:22:22:22
Source MAC	00:00:00:11:11:11
Vlans	
Vlan	
Type (hex)	8100
Priority (bits)	000
CFI (bit)	0
ID (int)	7
EtherType (hex)	<auto> 88B5

The expected result is that the traffic will reach the SFP NID, perform a loopback, and be counted by the Traffic Generator.

2-2:Results 1			
Port Traffic and Counters > Basic Traffic Results Change R			
Basic Counters Errors Triggers Protocols Undersize/Overs			
Port Name	Total Tx Rate (bps)	Total Rx Rate (bps)	
Port //2/1	7,650,000,360	7,650,000,512	
Port //2/2	0	0	
Port //2/3	0	0	
Port //2/4	0	0	

Disable Loopback:

```
NIDPlug+(evs:1)# no enable
NIDPlug+(evs:1)# no loopback downstream
NIDPlug+(evs:1)# enable
Show configuration of SFPNID:
plain-service 1
tags 7
```

```
enable
```

```
!
```

Expected results:

Port Traffic and Counters > Basic Traffic Results Change		
Basic Counters	Errors	Triggers
Port Name	Total Tx Rate (bps)	Total Rx Rate (bps)
Port //2/1	7,650,000,296	0
Port //2/2	0	7,650,000,448

L2CP Protocols

Layer 2 Control Protocols (L2CP) include various Ethernet control protocols:

- Spanning Tree BPDUs
- LACP
- PAUSE Frames

L2CP Frames have specific MAC DAs belonging to reserved multicast MAC address ranges.

Some of the L2CPs have their own MAC DA assigned to them.

For example the MAC DA 01-80-C2-00-00-07 is reserved for E-LMI.

Other protocols share a MAC DA. For example, the address 01-80-C2-00-00-02 is allocated for all "slow protocols" like LACP.

To configure L2CP:

Configure the SFP NID side.

```
!
```

```
l2cp-scheme
```

```
l2cp-profile 1
```

```
mac-drop 01-80-C2-00-00-01 ! means IEEE MAC Specific Control Protocols
```

```
mac-drop 01-80-C2-00-00-02 ! means IEEE 802 Slow Protocols
```

```
mac-drop 01-80-C2-00-00-03 ! means Nearest non-TPMR Bridge
```

```
mac-drop 01-80-C2-00-00-04 ! means IEEE MAC Specific Control Protocols
```

```
mac-drop 01-80-C2-00-00-05 ! means Reserved for Future Standardization
```

```
mac-drop 01-80-C2-00-00-06 ! means Reserved for Future Standardization
```

```
mac-drop 01-80-C2-00-00-07 ! means Metro Ethernet Forum ELMI
```

```
!
```

```
! Services
```

```
!
```

```
q-in-q-service 2
```

```
tags 7
q-in-q-tag 20
enable
```



- Different profiles can be applied to downstream and upstream traffic.
- Up to 3 profiles can be defined.

Configure the host side (Device A):

```
interface vlan vif7
tag 7
ports 7-8
```

Configure the network side (Device B):

```
interface vlan vif7
tag 7
ports 7-8
!
interface vlan vif20
tag 20
ports 7-8
```

EXAMPLE - Sending traffic downstream:

This example is **without** an L2CP profile.

1. Send traffic with destination uni-cast.
2. Verify no drop.

Name	Value
Frame	
EthernetII	
Destination MAC	00:00:00:22:22:22
Source MAC	00:00:00:11:11:11
Vlans	
Vlan	
Type (hex)	8100
Priority (bits)	000
CFI (bit)	0
ID (int)	20
Vlan	
Type (hex)	8100
Priority (bits)	000
CFI (bit)	0
ID (int)	7
EtherType (hex)	<auto> 88B5

3. Verify counters.

Total Tx Rate (bps)	Total Rx Rate (bps)
7,650,000,328	0
0	7,200,000,352
0	0

4. Verify the Sniffer.

```

e 1: 64 bytes on wire (512 bits), 60 bytes captured (480 bits) on interface 0
L (00:00:00:11:11:11), Dst: Spanning-tree-(for-bridges)_01 (01:80:c2:00:00:01
802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 7
(Data (42 bytes

```

5. Send multi-cast traffic from network side (Device B) to host side (Device A).

Name	Value
Frame	
EthernetII	
Destination MAC	01:80:C2:00:00:01
Source MAC	00:00:00:11:11:11
Vlans	
Vlan	
Type (hex)	8100
Priority (bits)	000
CFI (bit)	0
ID (int)	20
Vlan	
Type (hex)	8100
Priority (bits)	000
CFI (bit)	0
ID (int)	7
EtherType (hex)	<auto> 88B5

This example is **with** an L2CP profile.

1. Configure on NIDPlug+ 'downstream-l2cp-profile 1' (unchanged).

```

NIDPlug+(evs:2)# q-in-q-service 2
NIDPlug+(evs:2)# no enable
NIDPlug+(evs:2)# downstream-l2cp-profile 1
NIDPlug+(evs:2)# enable

```

2. Counter on host side (Device A).

Total Tx Rate (bps)	Total Rx Rate (bps)
7,650,000,224	0
0	0
0	0
0	0

EXAMPLE - Sending traffic upstream:

This uses the same configuration as example above.

This example is **without** an L2CP profile.

1. Send traffic from host device to network side (Device A to Device B).

Name	Value
Frame	
EthernetII	
Destination MAC	01:80:C2:00:00:01
Source MAC	00:00:00:22:22:22
Vlans	
Vlan	
Type (hex)	8100
Priority (bits)	000
CFI (bit)	0
ID (int)	7
EtherType (hex)	<auto> 88B5

2. Counters on network side (Device B).

Total Tx Rate (bps)	Total Rx Rate (bps)
0	8,472,973,896
8,216,216,896	0
0	0
0	0

This example is **with** an L2CP profile.

1. Configure on NIDPlug+ 'up stream-l2cp-profile 1'.

```
NIDPlug+(evs:2)# q-in-q-service 2
NIDPlug+(evs:2)# no enable
NIDPlug+(evs:2)# upstream-l2cp-profile 1
NIDPlug+(evs:2)# enable
```

2. Counters on network side (Device B) - L2CP deny.

Total Tx Rate (bps)	Total Rx Rate (bps)
0	0
8,216,216,720	0
0	0
0	0

PCP Marking

PCP marking is comprised of 2 operations:

- a. Map to Service Level (Policer Level) and DEI
- b. Remark command - enforce mapping on the packets leaving the device

```
pcp-map <index (1-3)>
    pcp <packet-pcp-value | sl (output-pcp) | dei (optional) >
```

Where pcp <packet-pcp-value> is the PCP recipe. Up to 8 PCP recipes can be defined.

Values that do not appear under PCP map are unchanged.



If any of the mapping recipes involves DEI settings, then the arriving packet's original DEI is ignored.
(Only the PCP-map decides on the DEI value.)

scheme by default

PCP Marking Upstream:

1. Configure NIDPlug+.

```
pcp-map-scheme
pcp-map 2
pcp 0 sl 2 dei
pcp 1 sl 3
pcp 2 sl 4 dei
pcp 3 sl 5
pcp 4 sl 6 dei
pcp 5 sl 7
pcp 6 sl 0 dei
pcp 7 sl 1
!
! Services
!
q-in-q-service 2
tags 7
q-in-q-tag 20
upstream-pcp-map 2
upstream-pcp-remark
enable
```

2. Configuration both sides A & B (network and host).

```
VLAN 7,20
```

3. Send traffic from A to B (host to network): VLAN 7 PCP 4.

Name	Value
Frame	
EthernetII	
Destination MAC	00:00:00:11:11:11
Source MAC	00:00:00:22:22:22
Vlans	
Vlan	
Type (hex)	8100
Priority (bits)	100
CFI (bit)	0
ID (int)	7
EtherType (hex)	<auto> 88B5

4. Counters on B (Network side).

Total Tx Rate (bps)	Total Rx Rate (bps)
0	8,472,973,520
8,216,216,864	0
0	0

5. Sniffer on B.

```
wire (1056 bits), 128 bytes captured (1024 bits) on interface 0 <
(00:00:00:22:22:22), Dst: 00:00:00_11:11:11 (00:00:00:11:11:11 <
      802.1Q Virtual LAN, PRI: 6, DEI: 1, ID: 20 <
      802.1Q Virtual LAN, PRI: 6, DEI: 1, ID: 7 <
      (Data (106 bytes <
```

PCP Marking Downstream:

1. Configure NIDPlug+.

```
pcp-map-scheme
pcp-map 2
pcp 0 sl 2 dei
pcp 1 sl 3
pcp 2 sl 4
pcp 3 sl 5
pcp 4 sl 6
pcp 5 sl 7
pcp 6 sl 0 dei
pcp 7 sl 1
!
! Services
!
plain-service 2
tags 7
downstream-pcp-map 2
```

```

downstream-pcp-remark
enable
!

```

2. Configuration both sides A & B (network and host).

```
VLAN 7
```

3. Send traffic from B to A (network to host): VLAN 7 PCP 4.

Name	Value
Frame	
EthernetII	
Destination MAC	00:00:00:22:22:22
Source MAC	00:00:00:11:11:11
Vlans	
Vlan	
Type (hex)	8100
Priority (bits)	100
CFI (bit)	0
ID (int)	7
EtherType (hex)	<auto> 88B5

4. Counters on A (host side).

Total Tx Rate (bps)	Total Rx Rate (bps)
7,650,000,328	0
0	7,200,000,352
0	0

5. Sniffer on A.

```
VLAN 7 PCP=6 DEI=0
```

Chapter 4

Device Maintenance

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Software Upgrade

The following procedures instruct how to upgrade the software on the NIDPlug+.

Upgrading Management Software

To upgrade the management software on the NIDPlug+:

1. Connect to the device from a PC with a terminal emulation program.
2. Enter **enable** mode.
`enable`
3. Enter the following command
`NIDPlug+# upgrade ftp 10.35.110.10 . <filename.ver> <user> <password>`

Where:

<filename.ver> is the management software file and selected version

<user> is the registered Adva licensed user

<password> is the registered user's password



Software upgrade may take several minutes (up to 2 minutes). Verify the Host Device is powered up and operating until the upgrade process completes..

Upgrading FPGA Firmware

To upgrade the firmware of the FPGA chip in the NIDPlug+:

1. Connect to the device from a PC with a terminal emulation program.
2. Enter **enable** mode.
3. Enter the following command

```
NIDPlug+# upgrade ftp fpga 10.35.110.10 . <filename.dat> <user> <password>
```

Where:

<filename.dat> is the FPGA firmware file

<user> is the registered Adva licensed user

<password> is the registered user's password



FPGA firmware upgrade may take several minutes (up to 2 minutes). Verify the Host Device is powered up and operating until the upgrade process completes..

Debug Utilities

Configuring Remote SYSLOG for Debug

Enter Enable mode, then Configuration mode, and then the following command.

```
NIDPlug+(config)# rsyslog <xx.xx.xx.xx>
```

Where xx.xx.xx.xx is the remote SYSLOG server.

Showing Local SYSLOG for Debug

Enter Enable mode, then Configuration mode, and then the following command.

```
NIDPlug+# show syslog <all | debug | error | fatal | info | warning>
```

Parameter	Description
all	Show all messages

Parameter	Description
debug	Show messages with level from debug to fatal
error	Show messages with level error and fatal
fatal	Show only messages with level fatal
info	Show messages with level from info to fatal
warning	Show messages with level warning, error and fatal