

DCP-2 & DCP-404

Quick Start Configuration Guide



DCP-2 + DCP-404

R12.1.1 A

The specifications and information within this manual are subject to change without further notice. All statements, information and recommendations are believed to be accurate but are presented without warranty of any kind. Users must take full responsibility for their application of any products.

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1 Introduction

1.1 General

This guide covers the general Turn-up steps for the DCP-2 & DCP-404 products.

1.2 In commercial confidence

The document is provided in commercial confidence and shall be treated as such.

1.3 Document Revision History

Revision	Date	Description of changes
Initial	2023-04-10	New Template
Rev1	2023-04-27	Added NTP disable note with manual Date/Time
Rev2	2025-02-17	Added the application mode setting for modes other than 400G. Added hostname, & network management, inventory, interface, diagnostics command examples Added gridspacing command for Flexgrid applications Added note to check traffic unit SW Updated Document Reference to Services Portal

1.4 Document Reference

Reference the following documents for the installation procedures, operation specifics, and CLI command references. All documents are available from the Smartoptics Services Portal <https://services.smartoptics.com/>

1.4.1 DCP User Manual

1.4.2 DCP-404 User Manual

1.4.3 DCP CLI User Manual

2 DCP-2 Initial Configuration

2.1 Install Chassis and Connect Power

2.1.1 Install chassis and connect power per directions in the associated user manual.

2.2 Configuration via Local Console (Eth or Serial)

2.2.1 Connect via Ethernet Local Console

2.2.1.1 Configure PC with a static IP address of 192.168.0.10, 255.255.255.0

2.2.1.2 Connect ethernet cable between the PC network port and the Eth0 console port on the rear of the chassis.

2.2.1.3 Start SSH client (putty or similar) and connect to 192.168.0.1, Port 22



2.2.2 Connect via Serial Local Console

2.2.2.1 Connect PC serial port to the local Console port on the rear of the chassis.

2.2.2.2 Start and configure the terminal client (putty or similar) with the following serial parameters:

Protocol	Serial
Baud Rate	115200
Data Bits	8
Parity	None
Stop bits	1
Flow Control	None
COM Port	PC Defined

2.3 Login to the DCP-2 Chassis

Default user/password = admin/admin

2.4 Set the Basic configuration.

2.4.1 Configure Hostname

```
admin@smartoptics-dcp> config hostname <tab>
<hostname> - Hostname string. Max length 63 characters.
Valid characters are 0-9, a-z, A-Z, - and .
As long as - and . not as start/end character and digit not as start character.
Note that this is the same as the SNMP sysname.

admin@smartoptics-dcp> config hostname smartoptics-dcp
```

2.4.2 Configure Network Interface for Mgmt

```
admin@smartoptics-dcp> config network mgmt ipv4address <tab>
<IPv4 address>      - IPv4 address in dotted decimal format.
<netmask>           - IPv4 netmask in dotted decimal format.
[gateway IPv4 address] - IPv4 gateway address in dotted decimal format.

admin@smartoptics-dcp> config network mgmt ipv4address 10.10.10.2 255.255.255.0 10.10.10.1
```

2.4.3 Configure inactivity timeout (optional)

```
admin@smartoptics-dcp> config inactivitytimeout <time in minutes>

<inactivitytimeout> - Time in minutes until automatic logout occurs if there is no activity in CLI
<Time 0-300>.
```

2.4.4 Configure NTP (recommend either setting NTP or manual date/time)

Disable NTP when using manual date/time

```
admin@smartoptics-dcp> config ntp <tab>
adminStatus      - Configure NTP adminStatus : up / down
primaryServer    - Configure NTP primary server <primary NTP server IPv4 address>
secondaryServer  - Configure NTP secondary server <secondary NTP server IPv4 address>
```

2.4.5 Configure Date (recommend either setting NTP or manual date/time)

```
admin@smartoptics-dcp> config date <tab>
<date> - Date, in format YYYY-MM-DD
<time> - Time, in format HH:MM:SS
```

2.5 General Use Status Commands

2.5.1 show network interfaces

```
admin@smartoptics-dcp> show network interfaces

Mgmt:          if-1/eth1, if-1/eth2, if-1/eth3, if-1/eth4
IP Address:    10.10.72.97
Netmask:       255.255.255.0
Default gateway: 10.10.72.1
MAC address:   94:DE:0E:02:02:17

eth0 / local:
IP Address:    192.168.0.1
Netmask:       255.255.255.0
MAC address:   94:DE:0E:02:02:16

DNS primary:   10.10.72.99
DNS secondary: 10.10.72.101
```

2.5.2 show alarm active

Displays all currently active alarms

```
admin@smartoptics-dcp> show alarm active
Location Alarm name          Severity Start time
-----
psu-1/1   Power supply missing        critical 2018-05-30 07:05:16
if-1/2/2  Loss of optical input power critical 2018-0-19 04:59:52
```

2.5.3 show alarm log

Displays the log of alarms.

```
admin@smartoptics-dcp> show alarm log
```

Location	Alarm name	Severity	Start time	End time
psu-1/1	Power supply missing	critical	2018-05-30 07:05:16	-
if-1/2/3	Loss of optical input power	critical	2018-06-06 08:24:50	2018-06-06 09:28:55
if-1/2/1	Loss of optical input power	critical	2018-06-06 08:24:52	2018-06-06 09:28:55

2.5.4 show inventory

Displays the inventory details of the system.

```
admin@smartoptics-dcp> show inventory
```

Location	Part number	Description	HW rev	FW rev	Serial number
chassis	DCP-2	1U 2 slot chassis	R2A	n/a	F1845DCP20240
psu-1/1	DCP-2-PSU-AC-FB	AC power supply, front-to-back airflow	CK	n/a	L832130060CKZ
psu-1/2	DCP-2-PSU-AC-FB	AC power supply, front-to-back airflow	01F	n/a	DZRD1641088363
fan-1/1	DCP-2-FAN-FB	Fan, front-to-back airflow	R1B	n/a	n/a
slot-1/1	DCP-1203	3 x 100/400G Transponder	R1A	n/a	S230412030025
if-1/1/1	TQD013-TUNC-SO	QSFP-DD OpenZR+ High Tx Power Coh Tunable Flexgrid CMIS5.0 LC	A	70.130	231152357
if-1/1/2	TQD013-TUNC-SO	QSFP-DD OpenZR+ High Tx Power Coh Tunable Flexgrid CMIS5.0 LC	A	70.120	231051447
slot-1/2	DCP-404	4 x QSFP28 to 400G QSFPDD Muxponder	R1A	n/a	K2347D4040730
if-1/2/1	SO-QSFP28LR410L	QSFP28, 100GBase, 1310nm, SM, DDM, 10km, LC, DML Type	A1	n/a	VE2239002336
if-1/2/2	SO-QSFP28LR410L	QSFP28, 100GBase, 1310nm, SM, DDM, 10km, LC, DML Type	A1	n/a	VE204700627
if-1/2/3	SO-QSFP28LR410L	QSFP28, 100GBase, 1310nm, SM, DDM, 10km, LC, DML Type	A1	n/a	VA2333000812
if-1/2/4	SO-QSFP28LR410L	QSFP28, 100GBase, 1310nm, SM, DDM, 10km, LC, DML Type	A1	n/a	VA2333000810
if-1/2/5	TQD013-TUNC-SO	QSFP-DD OpenZR+ High Tx Power Coh Tunable Flexgrid CMIS5.0 LC	A	70.120	232650698

2.5.5 show version

Displays the SW release running on the system.

```
admin@smartoptics-dcp> show version
```

Location	SW version	Bootloader version	FW version	API version
chassis	dcp-release-10.0.2	2016.09.01-DCP-R2.1	n/a	n/a
slot 1	dcp-release-10.0.2	2019.07-DCP-R7.0	n/a	n/a
slot 2	dcp-release-10.0.2	2016.09.01-DCP-R2.1	0x8a000111	n/a

3 DCP-404 Initial Configuration

3.1 Install DCP-404 in DCP-2 Chassis

DCP-404 can be installed in slot 1 or slot 2 in a DCP-2 chassis. It is mandatory to have another card or a blind plate in the other slot of the DCP-2. This is to ensure correct air flow for cooling.



Before proceeding with the configuration, verify that the newly installed DCP-1203 module is running the same software release as the DCP-2 chassis. If there is a SW mismatch, upgrade the new module following the instructions in the Smartoptics Software Upgrade Guide.

3.2 Set the Basic configuration.

3.2.1 config slot <1/2> muxponder trafficMode <traffic configuration>

```
admin@smartoptics-dcp> config slot 1 muxponder trafficMode <tab>

mux:4x100G-400G  mux:3x100G-300G  mux:2x100G-200G  mux:2x100G-200G16QAM  mux:1x100G-100G
mux:1x100G-100GscFEC

admin@smartoptics-dcp> config slot 1 muxponder trafficMode mux:4x100G-400G

This command can be service interrupting.
Are you sure you want to continue? (Yes/NO): yes
Muxponder traffic configuration set to 'mux:4x100G-400G'.
```

3.2.2 config slot <1/2> interface 5 transceiver app <app mode>

If using a media format different than 400ZR-OFEC-16QAM (e.g. 300G, 200G, 100G) the application mode will also need to be configured.

```
admin@smartoptics-dcp> config slot 1 interface 5 transceiver app <tab>
```

App	Payload Rate	Host Format	Media Format	FEC	Modulation	Media Code	Host Code
-----	-----	-----	-----	----	-----	-----	-----
auto*							
7	300G	100GAUI-2 C2M (Annex 135G)	300ZR-OFEC-8QAM	oFEC	DP-8QAM	C1	D
10*	300G	100GAUI-2 C2M (Annex 135G)	300ZR-OFEC-8QAM-E	oFEC	DP-8QAM	CF	D

* = Currently active application code.

```
admin@smartoptics-dcp> config slot 1 interface 5 transceiver app 7
```

App	Payload Rate	Host Format	Media Format	FEC	Modulation	Media Code	Host Code
-----	-----	-----	-----	----	-----	-----	-----
auto*							
7	300G	100GAUI-2 C2M (Annex 135G)	300ZR-OFEC-8QAM	oFEC	DP-8QAM	C1	D
10*	300G	100GAUI-2 C2M (Annex 135G)	300ZR-OFEC-8QAM-E	oFEC	DP-8QAM	CF	D

* = Currently active application code.

This command can be service interrupting.

Are you sure you want to continue? (Yes/NO): yes

App '7' is selected

3.2.3 config slot <1/2> interface <1-6> transceiver gridspacing <50Ghz or 6.25Ghz>

For Flexgrid applications finer frequency resolution will be required with Flexgrid supported transceivers. The gridspacing parameter will need to be adjusted prior to setting the desired frequency in the next step. Step 3.2.3 is not necessary for 100Ghz or 50Ghz channel spaced configurations.

```
admin@smartoptics-dcp> config slot 1 interface 5 transceiver gridSpacing <tab>
```

```
50      6.25
```

```
admin@DCP-2>config slot 1 interface 5 transceiver gridSpacing 6.25
```

This command can be service interrupting.

Are you sure you want to continue? (Yes/NO): yes

Grid spacing set to 6.25GHz.

3.2.4 config slot <1/2> interface <1-5> transceiver frequency <frequency>

This command is used to configure the frequency for ports with tunable transceivers. Frequency setting is available on tunable coherent DWDM transceivers. Use ? or Tab to get info on available options in CLI.

```
admin@smartrptics-dcp> config slot 2 interface 5 transceiver frequency <tab>
```

191.30000 191.35000 191.40000 191.45000 191.50000 191.55000 191.60000 191.65000 191.70000 191.75000
 191.80000 191.85000 191.90000 191.95000 192.00000 192.05000 192.10000 192.15000 192.20000 192.25000
 192.30000 192.35000 192.40000 192.45000 192.50000 192.55000 192.60000 192.65000 192.70000 192.75000
 192.80000 192.85000 192.90000 192.95000 193.00000 193.05000 193.10000 193.15000 193.20000 193.25000
 193.30000 193.35000 193.40000 193.45000 193.50000 193.55000 193.60000 193.65000 193.70000 193.75000
 193.80000 193.85000 193.90000 193.95000 194.00000 194.05000 194.10000 194.15000 194.20000 194.25000
 194.30000 194.35000 194.40000 194.45000 194.50000 194.55000 194.60000 194.65000 194.70000 194.75000
 194.80000 194.85000 194.90000 194.95000 195.00000 195.05000 195.10000 195.15000 195.20000 195.25000
 195.30000 195.35000 195.40000 195.45000 195.50000 195.55000 195.60000 195.65000 195.70000 195.75000
 195.80000 195.85000 195.90000 195.95000 196.00000 196.05000 196.10000

```
admin@DCP-2>config slot 2 interface 5 transceiver frequency 192.30000
```

This command can be service interrupting.
 Are you sure you want to continue? (Yes/NO): yes

Frequency set to '192.30000' THz.

3.3 General Use Status Commands

3.3.1 show slot <1/2> muxponder

This command will show the details about a specific muxponder card.

```
admin@smartrptics-dcp> show slot 2 muxponder
```

Muxponder traffic configuration: mux:4x100G-400G

3.3.2 show interface active

Displays summary table for all active interfaces.

```
admin@smartrptics-dcp> show interface active
```

Interface	Port Type	Status [Rx/Tx]	Alarm	Rx power [dBm]	Tx power [dBm]	Format	FEC	Channel Id	Admin status	Description
slot-1/1: DCP-404										
if-1/1/1	client	up/up	ok	6.7	7.6	100G	enabled	n/a	up	
if-1/1/2	client	up/up	ok	6.2	7.2	100G	enabled	n/a	up	
if-1/1/3	client	up/up	ok	6.0	7.0	100G	disabled	n/a	up	
if-1/1/4	client	up/up	ok	7.0	7.8	100G	enabled	n/a	up	
if-1/1/5	line	up/up	ok	-9.2	-11.4	4x100GbE	enabled	D9210	up	

3.3.3 show interface if-1/<slot 1/2>/<interface 1-5>

Displays detailed info about a specific interface.

```
admin@smartoptics-dcp> show interface if-1/1/5

Interface      : 5
Muxponder     : mux-1/1/1
Description    :

Status:

Admin status   : up
Oper status    : up
Status [Rx/Tx] : up/up
Module state   : Ready

Temperature                : 57.0 [C]
Temperature high warning threshold : 75.0 [C]
Temperature high alarm threshold  : 80.0 [C]
Wavelength                : 1558.98 [nm]
Channel Id                 : D9230
Actual Frequency           : 192.30000 [Thz]
Wanted Frequency           : 192.30000 [Thz]
Grid spacing               : 50 [Ghz]

Optical total Rx power     : -13.3 [dBm]
Optical signal Rx power    : -13.1 [dBm]
Optical Tx power           : -8.6 [dBm]
Tx bias current            : 64.0 [mA]
Rx sensitivity              : -21.0 [dBm]

Use LOS override           : disabled
TRX Rx LOS threshold       : -28.2 [dBm]
Rx configured LOS threshold : -40.0 [dBm]

Modulation Type            : 16QAM
Bandwidth                  : 400 [Gb/s]
FEC                         : oFEC
Pulse shaping               : disabled

Certified                   : yes

OSNR                        : 26.2 [dB]
Chromatic Dispersion        : -1 [ps/nm]
Diff Group Delay            : 2 [ps]
Polarization Dependent Loss : 1.2 [dB]
Pre-FEC BER                 : 7.04e-03
Pre-FEC BER avg             : 5.00e-03
Uncorrected BER             : 0.00e+00
Uncorrected BER avg         : 0.00e+00
Q-Value                     : 7.8 [dBQ]
Q-Margin                    : 0 [dBQ]

Alarms:

Loss of lock                : ok
Loss of signal              : ok
Transceiver missing         : ok
High temperature warning    : ok
High temperature alarm      : ok
High temperature shutdown   : ok

Transceiver:

Type       : Optical
Part Number : SO-TQSFPPDD4CCZRP
Serial Number : 123456789
FW revision : 61.20.13
HW revision : A
Vendor      : SmartOptics
Description : QSFP-DD, OIF400ZR/OpenZR+, Coh-T, SM, DDM, LC
```

3.3.4 show interface diagnostics

Displays summary table of diagnostics for all active interfaces with FEC in use.

```
admin@smartoptics-dcp> show interface diagnostics
```

Interface	Per second FEC counters				Accumulated FEC counters			
	Uncorrected errors	Corrected errors	Corrected 0->1	Corrected 1->0	Uncorrected errors	Corrected errors	Corrected 0->1	Corrected 1->0
DCP-404								
if-1/1/1	0	0	n/a	n/a	0	0	n/a	n/a
if-1/1/2	0	0	n/a	n/a	0	0	n/a	n/a
if-1/1/4	0	0	n/a	n/a	0	0	n/a	n/a
if-1/1/5	0	100527418	n/a	n/a	0	33497397957244	n/a	n/a