OSDx Command Line Interface (CLI)

Teldat-Dm 929-I

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Chapter 1 CLI Access

1.1 Introduction

Some OSDx products have a command line user interface. Whilst this interface is common to all products, the specific commands available in each one may differ as a result of different feature sets.

1.2 CLI access interfaces

OSDx CLI can be accessed through different interfaces. Some commands are available regardless of the interface used.

Local access via physical interfaces, if present:

• keyboard and monitor

• serial port

Remote access via IP connectivity:

• telnet

• ssh

Basic IP connectivity must be in place to remotely connect through telnet or ssh. For this option to work, the product must have default IP configuration as a factory setting or a local CLI access.

1.3 Login and default user

After connecting to the CLI through an interface, the first step is to login with a user and password.

If a product does not have a specific factory default user and password, the default user and password to be used in OSDx are "admin".

After a successful login, a welcome banner appears and the operational menu prompt is shown ("<user>@<hostname>$"). The operating menu has commands that perform operational tasks and show the system's status.

Example:

```
login as: admin
admin@192.168.212.177's password:

Welcome to Teldat OSDx.

This system includes free software.
Contact Teldat for licenses information and source code.

Last login: Tue Jun 19 15:11:42 2018 from 192.168.212.176
admin@osdx$
```

1.4 Completion and online help

The TAB key can be used for completion purposes and to show online help regarding the available options where completion is no longer possible. Command abbreviations are allowed as long as the command is not ambiguous.

1.5 Operational and configuration menus

The **configure** command is used to access the configuration menu. Here, the device's configuration can be modified. The prompt changes to bold letters and ends with #. The **exit** command can be used to exit the configuration menu.

Example:

```
admin@osdx$ configure
admin@osdx# exit
admin@osdx$
```

```
admin@osdx$ configure
admin@osdx# exit
```

Chapter 2 Basic operational commands

2.1 show version

Shows summarized information relative to the device: OS, hardware and system status.

Example:

```
OS vendor:              Teldat
OS name:                OSDx
OS version:             v1.13
OS built by:            jenkins@daphne
OS build date:          Fri Jun 22 14:36:12 UTC 2018
OS installation:        physical
OS mode:                dvlp


Hardware vendor:        Dell Inc.
Hardware model:         SDE
Hardware OEM model:     PowerEdge R640
Hardware S/N:           FNZZMN2
Hardware UUID:          37b06664-33aa-5e9a-8ee6-699e1cdbbe47
Hardware architecture:  amd64
Hardware fwid:          iso
Hardware base MAC:      24:6e:96:a1:31:e0
Hardware cpu:           1 x Intel(R) Xeon(R) Gold 6126 CPU @ 2.60GHz (24 cores)


Date:                   Mon Jun 25 09:15:27 UTC 2018
Uptime (s):             238921
CPU load (1m, 5m, 15m): 0.04 0.04 0.00
Storage usage (kB):     1663920/14747568
Memory usage (kB):      277520/1942368
Users logged in:        2


Hostname:               osdx
```

2.2 show license

Displays every open-source license linked to the OSDx project.

2.3 show interfaces

Shows basic interface status information.

Example:

```
Idx Name IP Address              Admin Oper Vrf Description
1   lo   127.0.0.1/8             up    up
         ::1/128
2   eth0 192.168.212.177/22      up    up
         fe80::208:a2ff:fe0b:c588/64
3   eth1                         down  down
4   eth2                         down  down
5   eth3                         down  down
```

2.4 show running

Shows the configuration that is currently active in a tree structure with brackets.

Example:

```
admin@osdx$ show running
interfaces {
    ethernet eth0 {
        address 192.168.212.177/22
    }
}
protocols {
    static {
        route 0.0.0.0/0 {
            next-hop 192.168.212.2 {
            }
        }
    }
}
service {
    ssh {
    }
}
system {
    login {
        user admin {
            authentication {
                encrypted-password $6$GSjsCj8gHLv$/
                VcqU6FLi6CT2Oxn0MJQ2C2tqnRDrYKNF8HIYWJp68nvXvPdFccDsT04.WtigUONbKYrgKg8d6rEs8PjljMkH0
            }
            level admin
        }
    }
    name-server 192.168.212.3
}
```

Additionally, a **path** can be specified so that only a particular region of the configuration template is shown.

Example:

```
admin@osdx$ show running system
login {
    user admin {
        authentication {
            encrypted-password $6$GSjsCj8gHLv$/
            VcqU6FLi6CT2Oxn0MJQ2C2tqnRDrYKNF8HIYWJp68nvXvPdFccDsT04.WtigUONbKYrgKg8d6rEs8PjljMkH0
        }
        level admin
    }
}
name-server 192.168.212.3
```

2.5 show running commands

Shows the configuration commands that can be applied to the OSDx CLI configuration menu to set the same configuration as the one that is currently running.

Example:

```
admin@osdx$ show running commands
set interfaces ethernet eth0 address '192.168.212.177/22'
set protocols static route 0.0.0.0/0 next-hop '192.168.212.2'
set service 'ssh'
set system login user admin authentication encrypted-password '$6$GSjsCj8gHLv$/
VcqU6FLi6CT2Oxn0MJQ2C2tqnRDrYKNF8HIYWJp68nvXvPdFccDsT04.WtigUONbKYrgKg8d6rEs8PjljMkH0'
set system login user admin level 'admin'
set system name-server '192.168.212.3'
```

The path can also be specified, showing the commands required to set a particular configuration subtree.

Example:

```
admin@osdx$ show running commands interfaces
set interfaces ethernet eth0 address '192.168.212.177/22'
```

2.6 show interfaces ethernet <ethN> identify

Helps identify the interface with a physical ethernet port by flashing the port's LEDs.

Example:

```
admin@osdx$ show interfaces ethernet eth0 identify
Interface eth0 should be blinking now.
Press Enter to stop...
```

2.7 set date

Manually sets the date.

Example:

```
admin@osdx$ set date 2018-06-29 12:23:00
admin@osdx$ set date ntp pool.ntp.org
```

2.8 poweroff now

Powers off the device.

2.9 reboot now

Reboots the device.

2.10 factory-reset

Resets the device to its factory configuration.

Example:

```
admin@osdx$ factory-reset
This will destroy all data in the current image and restore factory defaults.
Continue? (Yes/No) [No]: y
Removing current data
Rebooting...
```

Chapter 3 Configuration menu

The configuration menu is accessed via the **configure** command.

3.1 set

Sets one configuration path or value in the device configuration. Use TAB for completion and to obtain online help on the available options. Configuration changes do not take effect until **commit** is run.

Example:

```
admin@osdx# set interfaces ethernet eth0 address '192.168.212.177/22'
```

3.2 delete

Deletes the configuration subtree that belongs to the path selected. Configuration changes do not take effect until **commit** is run.

Example:

```
admin@osdx# delete interfaces ethernet eth0
```

3.3 show

The configuration menu displays information relative to the OSDx configuration. A path can be added to show only part of the configuration. Several options are available:

3.3.1 configuration

Shows the changes made to the running configuration, with + and - prefixes highlighting additions and deletions. A path can be added to show only that part of the configuration.

Example:

```
admin@osdx# set interfaces ethernet eth1 address 2.2.2.2/24
admin@osdx# show configuration
  interfaces {
      ethernet eth0 {
          address 192.168.212.177/22
      }
+     ethernet eth1 {
+         address 2.2.2.2/24
+     }
  }
  protocols {
      static {
          route 0.0.0.0/0 {
              next-hop 192.168.212.2 {
              }
          }
      }
  }
  service {
      ssh {
      }
  }
  system {
      login {
          user admin {
              authentication {
                  encrypted-password $6$GSjsCj8gHLv$/
```

```
                         VcqU6FLi6CT2Oxn0MJQ2C2tqnRDrYKNF8HIYWJp68nvXvPdFccDsT04.WtigUONbKYrgKg8d6rEs8PjljMkH0
                }
                level admin
            }
        }
        name-server 192.168.212.3
    }
```

If the **commands** option is used, only CLI operations that modify the current configuration will be displayed.

Example:

```
admin@osdx# set interfaces ethernet eth1 address 2.2.2.2/24
admin@osdx# show configuration commands
    set interfaces ethernet eth1 address 2.2.2.2/24
```

3.3.2 running

Displays the active configuration without any uncommitted changes. The output of this command is the same as the one displayed in operational mode.

Example:

```
admin@osdx# set interfaces ethernet eth1 address 2.2.2.2/24
admin@osdx# show running
    interfaces {
        ethernet eth0 {
            address 192.168.212.177/22
        }
    }
    protocols {
        static {
            route 0.0.0.0/0 {
                next-hop 192.168.212.2 {
                }
            }
        }
    }
    service {
        ssh {
        }
    }
    system {
        login {
            user admin {
                authentication {
                    encrypted-password $6$GSjsCj8gHLv$/
                        VcqU6FLi6CT2Oxn0MJQ2C2tqnRDrYKNF8HIYWJp68nvXvPdFccDsT04.WtigUONbKYrgKg8d6rEs8PjljMkH0
                }
                level admin
            }
        }
        name-server 192.168.212.3
    }
admin@osdx# show running commands
set interfaces ethernet eth0 address '192.168.212.177/22'
set protocols static route 0.0.0.0/0 next-hop '192.168.212.2'
set service 'ssh'
set system login user admin authentication encrypted-password '$6$GSjsCj8gHLv$/
VcqU6FLi6CT2Oxn0MJQ2C2tqnRDrYKNF8HIYWJp68nvXvPdFccDsT04.WtigUONbKYrgKg8d6rEs8PjljMkH0'
set system login user admin level 'admin'
set system name-server '192.168.212.3'
```

3.3.3 working

Offers a preview of how the resulting configuration looks after applying uncommitted changes.

Example:

```
admin@osdx# set interfaces ethernet eth1 address 2.2.2.2/24
admin@osdx# show working
   interfaces {
       ethernet eth0 {
           address 192.168.212.177/22
       }
       ethernet eth1 {
           address 2.2.2.2/24
       }
   }
   protocols {
       static {
           route 0.0.0.0/0 {
               next-hop 192.168.212.2 {
               }
           }
       }
   }
   service {
       ssh {
       }
   }
   system {
       login {
           user admin {
               authentication {
                   encrypted-password $6$GSjsCj8gHLv$/
                   VcqU6FLi6CT2Oxn0MJQ2C2tqnRDrYKNF8HIYWJp68nvXvPdFccDsT04.WtigUONbKYrgKg8d6rEs8PjljMkH0
               }
               level admin
           }
       }
       name-server 192.168.212.3
   }

admin@osdx# show working commands interfaces
set interfaces ethernet eth0 address '192.168.212.177/22'
set interfaces ethernet eth1 address '2.2.2.2/24'
```

3.4 run

Allows any command from the operational menu to be entered whilst in the configuration menu.

Example:

```
admin@osdx# run show version
```

3.5 commit

Dynamically applies current configuration changes to the device (through the **set** and **delete** commands).

3.6 save

Saves the configuration that is currently active to the disk startup configuration (*config.boot* file). Optionally, *save file <filename>* saves the active configuration to a custom-named file.

3.7 load

Loads a configuration to the working configuration session. Several options are available:

- *load boot-config:* Uses the disk startup configuration file that was last saved.

- *load factory-config:* Automatically loads the factory configuration settings onto the working configuration tree.

- *load file <filename>:* Loads a specific file containing a saved configuration (e.g. some file saved using the *save file <filename>* option).

3.8 discard

Discards changes made in the current configuration (**set** or **delete**) that have not been committed yet.

Chapter 4 Basic Configuration commands

4.1 set interfaces ethernet <ethX> address

Sets a fixed IP address or dhcp client on an ethernet interface.

Example:

```
admin@osdx# set interfaces ethernet eth0 address 192.168.212.171/22
admin@osdx# set interfaces ethernet eth0 address dhcp
```

4.2 set interfaces ethernet <ethX> vif <vlan-id> address

Sets a fixed IP address or dhcp client on an ethernet VLAN interface.

Example:

```
admin@osdx# set interfaces ethernet eth0 vif 10 address 192.168.212.171/22
admin@osdx# set interfaces ethernet eth0 vif 10 address dhcp
```

4.3 set protocols static route

Configures a static route.

Example:

```
admin@osdx# set protocols static route 0.0.0.0/0 next-hop 192.168.212.2
```

4.4 set system name-server

Configures DNS servers.

Example:

```
admin@osdx# set system name-server 192.168.212.3
```

4.5 set system ntp server address

Configures NTP servers.

Example:

```
admin@osdx# set system ntp server address pool.ntp.org
```

4.6 set system time-zone

Sets a fixed IP address or DHCP client on an ethernet interface.

Example:

```
admin@osdx# set system time-zone Europe/Madrid
```

4.7 set service ssh

Enables the SSH server.

Example:

```
admin@osdx# set service ssh
```

4.8 set service cnm

Configures the CNM management platform.

Example:

```
admin@osdx# set service cnm role router
admin@osdx# set service cnm url cnm3.networkcloudmanager.com
```

4.9 set system console keymap

Configures keymap for local keyboard access.

Example:

```
admin@osdx# set system console keymap es
```

4.10 set system syslog global

Configures the syslog level.

Example:

```
admin@osdx# set system syslog global facility all level debug
```

Chapter 5 Firmware upgrade

5.1 image add

Installs a new image.

Example:

```
admin@osdx$ image add http://someurl.com/os_iso_v1.13.iso
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  202M  100  202M    0      0  86.9M      0  0:00:02  0:00:02 --:--:-- 86.9M

Welcome to Teldat OSDx upgrade to v1.13

Copying files
Copying current configuration...
Setting up bootloader
Cleaning up

OSDx upgrade finished successfully
Run "reboot now" to boot from new version
admin@osdx$
```

5.2 image show

Shows installed images.

Example:

```
admin@osdx$ image show
Teldat OSDx Installed images:

    v1.13 (boot)
    v1.12 (running)
    v1.11
```

5.3 image boot

Selects an image to use in the next boot.

Example:

```
admin@osdx$ image boot v1.11
Teldat OSDx Boot image set to v1.11
admin@osdx$ image show
Teldat OSDx Installed images:

    v1.13
    v1.12 (running)
    v1.11 (boot)
```

5.4 image delete all

Deletes all images (except the one running and the one configured for the next boot).

Example:

```
admin@osdx$ image delete all
This will destroy Teldat OSDx old images.
Continue? (Yes/No) [No]: y
```

```
Teldat OSDx image v1.13 deleted
admin@osdx$
```

Chapter 6 Additional operational commands commands

6.1 show log

Shows system log messages. If messages do not fit due to the size of the screen, the linux-based **less** viewer is used. This makes scrolling through messages using the arrow keys, searching with '/', etc. possible.

To exit the **less** view mode, press '**q**'.

6.2 monitor log

Accesses a real-time system log viewer that prints new messages as they occur.

To exit the monitor mode, press **Ctrl+C**.

6.3 show interfaces counters

Prints interface counters.

Example:

```
admin@osdx$ show interfaces counters
Idx Name Oper Rx Packets Rx Bytes Rx Errors Tx Packets Tx Bytes Tx Errors
  1   lo   up          16     1472         0         16     1472         0
  2 eth0   up       13346  2583556         0       4748  1030710         0
  3 eth1 down           0        0         0          0        0         0
```

6.4 clear interfaces counters

Resets interface counters to 0.

6.5 ping

Sends a ping to a host. To abort ping sending, press **Ctrl+C**

Example:

```
admin@osdx$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=57 time=3.55 ms
^C
--- 8.8.8.8 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 3.550/3.550/3.550/0.000 ms
```

6.6 nslookup

Tests the DNS domain lookup.

Example:

```
admin@osdx$ nslookup www.teldat.com
Server:         192.168.212.3
Address:        192.168.212.3#53

Non-authoritative answer:
Name:   www.teldat.com
Address: 85.223.148.162
```

6.7 traceroute

Analyzes packet hops.

Example:

```
admin@osdx$ traceroute 172.24.0.98
traceroute to 172.24.0.98 (172.24.0.98), 30 hops max, 60 byte packets
 1  192.168.212.2 (192.168.212.2)  0.728 ms  0.654 ms  0.643 ms
 2  172.24.0.98 (172.24.0.98)  0.349 ms  0.311 ms  0.276 ms
```

6.8 monitor interfaces

Analyze traffic running through the interfaces.

6.8.1 monitor interfaces

Accesses a real-time global network monitoring tool (bmon).

To exit, press **Ctrl+C** or **'q'.**

6.8.2 monitor interfaces ethernet <ethX> flow

Accesses a real-time interface network monitoring tool (bmon).

To exit, press **Ctrl+C** or **'q'.**

6.8.3 monitor interfaces ethernet <ethX> traffic

Prints traffic belonging to the tcpdump interface.

6.8.4 monitor interfaces ethernet <ethX> traffic save capture.pcap

Saves a capture of packets (in tcpdump format) carried out in a router interface to a file.

When ready, press **Ctrl+C**.

Example:

```
admin@osdx$ monitor interfaces ethernet eth0 traffic save capture.pcap
Saving capture in /user-data/capture.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), capture size 262144 bytes
^C32 packets captured
38 packets received by filter
0 packets dropped by kernel
```

6.9 file

File operations. The following root paths are available:

- **running://** running image storage folder.
- **<version>://** if supported, different image storage folder installed.
- **usb://** plugged in usb drives. There is a folder for each plugged drive.
- **<url>:** remote url with multiple protocol support (curl).

6.9.1 file copy

Copies files. The source or destination may be a remote URL.

Example:

```
admin@osdx$ file copy running://config.boot usb://USB/
admin@osdx$
```

6.9.2 file delete

Deletes a local file.

Example:

```
admin@osdx$ file delete running://user-data/capture.pcap
Do you want to delete the file? (y/n): y
admin@osdx$
```

6.9.3 file show

Shows the contents of a local file or folder.