Atlas

User Manual

NET2EDGE

Contents

Cautions and Warnings

Definitions

Cautions indicate that there is the possibility of poor equipment performance or potential damage to the equipment.

Warnings indicate that there is the possibility of injury to a person.

Cautions and Warnings appear here and may appear throughout this manual where appropriate.

Failure to read and understand the information identified by these symbols could result in poor equipment performance, damage to the equipment, or injury to persons. See the related Install Guide manual for specific

Cautions and Warnings

Introduction

The purpose of this manual is to provide information on the configuration, monitoring, diagnostics, and maintenance of the Atlas interface.

The document is split in to two sections:

- Service and Management
- System Features

Product Features

- The Net2Edge Atlas CPE is a fully cased, mains powered, standalone CPE device, offering LTE failover and backup.
- The Atlas CPE operates at full bandwidth (1 Gbps bidirectional) on a single fibre link, supporting up to four 10/100/1000 Base-T RJ-45 ports, and one 100/1000Mbps fiber SFP support.
- Atlas's 10/100/1000Base-T ports support the standard features of auto-negotiation, advertisement capabilities, forced speed/duplex modes.
- Supports a minimum of 4K VLANS
- All ports are complaint with the IEEE 802.3 Ethernet PHY standard
- The integrated LTE modem supports a single SIM card and can be used for optional data failover. Other use cases are rapid deployment ahead of fibre roll out.
- Support for energy efficient ethernet 803.3az

Service & Management

Front Panel LEDs

Power status LED:

State	Colour	Condition
on	green	AC power supplied
off	-	No power

System condition LED:

State	Colour	Condition
on	yellow	Device is booting
on	green	Device has booted successfully
flashing	yellow	Fatal condition has been logged
flashing	green	Firmware update is in progress
off	-	-

LTE status LED:

State	Colour	Condition
off	-	Backup not required
on	green	Backup connected
flashing	green	Backup activity

Alarm LED:

State	Colour	Condition
off	-	No alarm
on	green	Info alarm
on	yellow	Warning alarm
flashing	yellow	Error alarm

RJ45 LEDs:

State	Colour	Condition
off	-	Backup not required
on	green	Backup connected
flashing	green	Backup activity

SFP port LED:

State	Colour	Condition
on	green	Link
flashing	green	Activity
off	-	No link

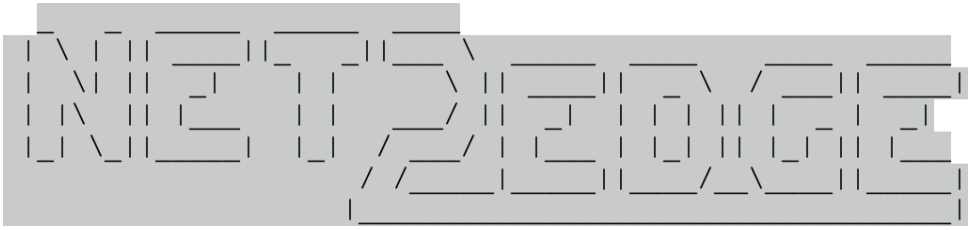
Console Connection

Console port, RJ45:

Baud Rate	115200
Data Bits	8
Parity	None
Stop Bitsv	1
Flow control	None

Access CLI

Connect serial cable to RJ45 console port using above settings.



```
==========================================================
Net2Edge Atlas LTE
CME_Atlas-lte_V1.0.xx.x
==========================================================
(root@atlas-lte)

Username: root
Password: <blank/default>
```

Built-in Commands

Configure	Set system configuration.
Exit	Exits this application.
Help	List available commands with “help” or detailed help with “help cmd”.
History	View, run, edit, and save previously entered commands
Quit	Exits this application.
Run	Execute a device function
Show	Display system status and configuration

Keyboard Shortcuts

TAB	Autocomplete word
TAB-TAB	List options
CTRL + R	Command history search
CTRL + C	Cancel / clear currently typed command
CTRL + D	Exit the application

Key for Parameter Types

<alarm-name>	Text string identifying an alarm condition.
<bool>	Truth value of true or false.
<ip-address>	An IPV4 address in dotted notation. TBD check which commands allow IPV4, IPV6 or DNS hostname.
<port-name>	Name of a physical Ethernet port. These match the labels on the front panel. Some commands also allow the port to be referred to by a user configured port name.
<rule-index>	Index number that identifies an access-management rule.
<vlan-id>	VLAN ID in the range 1 - 4095.
<interface-name>	Name of a logical network interface. Logical interfaces are handled by software.
<ifname>	Name of a physical level network interface that a logical network interface can be assigned to. eth0 is the physical interface from the Ethernet switch to the CPU. eth0.2 is the physical interface for VLAN ID 2, etc.
<mac-address>	An Ethernet MAC address specified as 6 bytes in hex with colons between each octet.
<subnet-mask>	An IPV4 subnet mask in dotted notation.
<oid>	An SNMP OID as a sequence of period separated numbers, or a textual eqivalent. Atlas recognises OID names from standard SNMP MIBs.
<url>	URL for a file on a remote server. The supported protocol types depend on the context.
<model-	Name of a YANG model.

Local Users

configure user <user-name> add group <group-name>	Add a local user.
configure user <user-name> change-group <group-name>	Set group for local user.
configure user <user-name> delete	Delete a local user.
configure user <user-name> disable	Disable a local user account (prevents login).
configure user <user-name> enable	Enable a local user account.
configure user <user-name> password	Set password for a local user (prompts for input).

Show currently configured users

```
show user status
```

Management VLAN

Configures VLAN 55 as the management VLAN with IP address 192.168.55.1/24 (interface MAN). To be accessed via LAN1:

```
configure vlan add 55
configure vlan port 55 CPU tagged
configure vlan port 1 LAN1 off
configure vlan port 55 LAN1 untagged
configure interface MAN add
configure interface MAN ifname add eth0.55
configure interface MAN protocol static
configure interface MAN ipaddr 192.168.55.1
configure interface MAN netmask 255.255.255.0
```

Authentication Method by Console, SSH, HTTP

Configures access by VLAN ID and IP address range for SSH, WEB and SNMP:

```
configure access-management add <entry ID> <vlan ID> <lower IP address> [to <upper ip address>] <all | ssh | web | snmp>
configure access-management delete <entry ID>
```

Show currently configured Access Management:

```
show access-management config
```

Alarms

Set true to disable an alarm. Set false to activate an alarm.

```
configure alarm disabled <alarm-name> <bool>
```

HW System Reset / Factory Defaults

- Reset system via RESET button (Short Press)
- Press and hold "RESET" button (less than 20s) and release it. The device shall reboot when the button is released.
- Reset and factory default system via RESET button (Long Press)
- Press and hold "RESET" button (more than 20s). On pressing the RESET button the SYSTEM LED turns off.
- Once 20 seconds has expired and the RESET button is still held the SYSTEM LED flashes GREEN. The SYSTEM LED continues to flash GREEN until the RESET button is released. It then shows solid ORANGE to show the system is rebooting.
- Once the system is fully booted it shows solid GREEN.

NOTE: When RESET button is pressed the SYSTEM LED turns off and once RESET button is released it shows solid ORANGE until ATLAS has fully booted and shows solid GREEN.

CLI System Reset

To reset system using the CLI:

```
run system reset
```

OR

```
run system reset <YYYY:MM:DD:HH:MM:SS>      Reboot the box at the specified date and time.
```

CLI Factory defaults

To restore system defaults using the CLI:

```
copy  default-config running-config
```

Save changes (to persist beyond reboot):

```
copy running-config startup-config
```

System Information

To configure system contact:

```
configure system contact <string>
```

To configure system hostname:

```
configure system hostname <string>
```

(NOTE: New host name will show on next login)

To configure system location:

```
configure system location <string>
```

To configure system time zone:

```
configure system time zone Europe/London
```

To show System Information:

```
show system config
System Config
================================
Contact:        Mr Smith
Hostname:       atlas-lte
Location:       Kulite House
                Basingstoke
Time zone:      Europe/London
```

System Status

Show system status information:

```
show system status
```

```
System Status
================================
CPU Usage:
        5 minutes:      25.9%
        15 minutes:     25.38%
Local Time:             2019-10-25 14:20:42
Up Time:                0:46:10
Model:                  Net2Edge Atlas LTE
Firmware Version:       CME_Atlas-lte_V1.0.xx.x
Distribution:           CME
```

Log in Banner

To configure the login banner:

```
configure banner
```

Design banner and press CTRL-D to save

Show banner configuration:

```
show banner config
```

Export Configuration

Print running configuration to the screen:

```
export  running-config
```

Print startup configuration to the screen:

```
export running-config
```

(NOTE: Configuration is displayed in XML format.)

Export to a URL

export <running-config / startup-config> <url> Export the specified configuration to a remote server in XML format.

Import Configuration

To import a configuration:

```
Import running-config
Input configuration then type CTRL-D to finish, CTRL-C to cancel
Paste in the desired configuration and type 'CTRL-D'
```

Import to a URL

import <running-config / startup-config> <url> Load XML format configuration file from a remote server and use it to replace the specified configuration.

Save Configuration

Save changes (to persist beyond reboot):

```
copy running-config startup-config
```

System Log

configure syslog buffer-size <int>	Sets the size of the system log buffer in KiB.
configure syslog cron-level <debug / normal / warning>	Sets the cron log level filter.
configure syslog output-level <alert / critical / debug / emergency / error / info / notice / warning>	Sets the syslog log level filter.

Then to show the log…

show system log	Show the system log.
show system log paged	Show the system log in pages.

To Configure and output the Syslog……..

configure syslog server-address <ip address>	Sets the syslog server address to send log messages to.
configure syslog server-port <int>	Sets the syslog server port to send log messages to.
configure syslog server-protocol <tcp / udp>	Sets the protocol to use for sending syslog messages.
configure syslog enable <true/false> <ip-address>	Enable or disable the syslog, If the option is true, server ip-address is required
show syslog config [<item>]	Show all syslog configuration or for the specified item.

Network diagnostic commands

Ping:

```
run ping <host> <interface>
```

Trace route:

```
run traceroute <host> <interface>
```

NS Lookup:

```
run nslookup <host>
```

CPU Load

Show CPU load information:

```
show system status "cpu usage"
```

```
System Status
================================
CPU Usage:
        5 minutes:   25.95%
        15 minutes: 25.35%
```

VLANs

configure vlan add <vlan-id>	Add a new VLAN entry. All ports will be set to 'off' by default.
configure vlan delete <vlan-id>	Delete a VLAN entry.
configure vlan enable <bool>	Enable or disable VLAN functionality.
configure vlan name <vlan-id> <string>	Add a textual description to a VLAN.
configure vlan port <vlan-id> <port-name> <off / tagged / untagged>	Set the port of a VLAN to handle tagged/untagged traffic.

To Show VLAN Config

show vlan config	Display a table of VLAN-IDs and the corresponding port configuration.

Multiple interfaces (VLANS + IP Address)

Configure multiple interfaces with differing IP addresses.

Configure default VLANs to be 'off' on all ports before configuring new ones:

```
configure vlan port 1 LAN1 off
configure vlan port 1 LAN2 off
configure vlan port 1 LAN3 off
configure vlan port 1 LAN4 off
configure vlan port 1 WAN off
configure vlan port 1 CPU tagged
configure vlan port 2 WAN off
```

Add new VLAN 55 and configure associated ports

```
configure vlan add 55
configure vlan port 55 LAN1 untagged
configure vlan port 55 LAN2 off
configure vlan port 55 LAN3 off
configure vlan port 55 LAN4 off
configure vlan port 55 CPU tagged
configure vlan port 55 WAN off
```

Show current VLAN configuration

```
show vlan config
```

```
VLAN Configuration
==================
VLAN Enable : true
VLAN Name
```

VLAN ID	WAN	LAN1	LAN2	LAN3	LAN4	CPU
1	off	off	off	off	off	tagged
2	off	off	off	off	off	tagged
55	off	untagged	off	off	off	tagged

Configuring Network Interfaces

configure interface <interface-name> add	Add a logical network interface.
configure interface <interface-name> auto <enable / disable>	Specifies whether to bring up interface on boot.
configure interface <interface-name> bridge enabled <bool>	Specifies whether to bridge interfaces or not.
configure interface <interface-name> bridge igmp-snooping <disable / enable>	Only valid for type 'bridge', enable or disable the multicast_snooping kernel setting for a bridge.
configure interface <interface-name> bridge stp <disable / enable>	Only valid for type 'bridge', enable or disable the Spanning Tree Protocol.
configure interface <interface-name> delete	Delete a logical network interface.
configure interface <interface-name> delete ip6assign	Delete the IPV6 address configured on the interface.
configure interface <interface-name> delete ipaddr	Delete the IPV4 address configured on the interface.
configure interface <interface-name> delete macaddr	Delete the mac-address.
configure interface <interface-name> delete mtu	Delete MTU.
configure interface <interface-name> delete netmask	Delete the netmask for the interface.
configure interface <interface-name> delete protocol	Delete the interface protocol.
configure interface <interface-name> dns add <ip-address>	Configure DNS resolver for the interface.
configure interface <interface-name> dns delete <ip-address>	Delete DNS resolver for the interface.
configure interface <interface-name> enable <bool>	Enable or disable the interface.
configure interface <interface-name> ifname add <ifname>	Add a physical interface associated to the logical interface.
configure interface <interface-name> ifname delete <ifname>	Delete the physical interface associated to the logical interface.
configure interface <interface-name> ip6assign <int>	Configure IPV6 prefix length.
configure interface <interface-name> ipaddr <ip-address> <netmask>	Set an IPV4 address and netmask for the interface.
configure interface <interface-name> ipv6 <enable / disable>	Enable or disable IPV6.
configure interface <interface-name> macaddr <mac-address>	Override MAC address of the interface.
configure interface <interface-name> mtu <int>	Override the default MTU on the interface.
configure interface <interface-name> netmask <subnet-mask>	Set netmask for the interface.
configure interface <interface-name> protocol <dhcp / dhcpv6 / none / static>	Configure Interface protocol.

Show current interface configuration:

```
show interface config
```

Interface Configuration

Interface	Enable	Ifname	Bridge	Protocol	IPv4
lan	False	eth0.1	Enabled	static	192.168.1.1
loopback	False	lo	Disabled	static	127.0.0.1
wan	False	eth0.2	Disabled	dhcp	
wan6	False	eth0.2	Disabled	dhcpv6	

Configure new interface associated with VLAN 55

```
configure interface vlan55_ip1 add
configure interface vlan55_ip1 protocol static
configure interface vlan55_ip1 ipaddr 192.168.55.1
configure interface vlan55_ip1 netmask 255.255.255.0
configure interface vlan55_ip1 ifname add eth0.55
```

Show current interface configuration

```
show interface config
```

Interface Configuration

Interface	Enable	Ifname	Bridge	Protocol	IPv4
lan	False	eth0.1	Enabled	static	192.168.1.1
loopback	False	lo	Disabled	static	127.0.0.1
vlan55_ip1	False	eth0.55	Disabled	static	192.168.55.1
wan	False	eth0.2	Disabled	dhcp	
wan6	False	eth0.2	Disabled	dhcpv6	

Add new VLAN 10 and configure associated ports

```
configure vlan add 10
configure vlan port 10 LAN1 off
configure vlan port 10 LAN2 untagged
configure vlan port 10 LAN3 off
configure vlan port 10 LAN4 off
configure vlan port 10 CPU tagged
configure vlan port 10 WAN off
```

Show current VLAN configuration

```
show vlanconfig
```

VLAN Configuration

==========

VLAN Enable : true

VLAN Name

VLAN ID	WAN	LAN1	LAN2	LAN3	LAN4	CPU
1	off	off	off	off	off	tagged
2	off	off	off	off	off	tagged
10	off	off	untagged	off	off	tagged
55	off	untagged	off	off	off	tagged

Configure new interface associated with VLAN 10

```
configure interface vlan10_ip1 add
configure interface vlan10_ip1 protocol static
configure interface vlan10_ip1 ipaddr 192.168.10.1
configure interface vlan10_ip1 netmask 255.255.255.0
configure interface vlan10_ip1 ifname add eth0.10
```

Show current interface configuration (New interfaces and IP addresses can be seen).

```
show interface config
```

Interface Configuration

Interface	Enable	Ifname	Bridge	Protocol	IPv4
lan	False	eth0.1	Enabled	static	192.168.1.1
loopback	False	lo	Disabled	static	127.0.0.1
vlan10_ip1	False	eth0.10	Disabled	static	192.168.10.1
vlan55_ip1	False	eth0.55	Disabled	static	192.168.55.1
wan	False	eth0.2	Disabled	dhcpv6	
wan6	False	eth0.2	Disabled	dhcpv6	

Multiple IP addresses per VLAN

Configure single VLAN with two different IP addresses.

Configure default VLANs to be 'off' on all ports before configuring new ones:

```
configure vlan port 1 LAN1 off
configure vlan port 1 LAN2 off
configure vlan port 1 LAN3 off
configure vlan port 1 LAN4 off
configure vlan port 1 WAN off
configure vlan port 1 CPU tagged
configure vlan port 2 WAN off
```

Add new VLAN 55 and configure associated ports:

```
configure vlan add 55
configure vlan port 55 LAN1 untagged
configure vlan port 55 LAN2 untagged
configure vlan port 55 LAN3 untagged
configure vlan port 55 LAN4 untagged
configure vlan port 55 CPU tagged
configure vlan port 55 WAN off
```

Show current VLAN configuration

```
show vlanconfig
```

```
VLAN Configuration
==================
VLAN Enable : true
VLAN Name
```

VLAN ID	LAN1	LAN2	LAN3	LAN4	WAN	CPU
1	off	off	off	off	off	tagged
2	off	off	off	off	off	tagged
55	untagged	untagged	untagged	untagged	off	tagged

Show current interface configuration

```
show interface config
```

```
Interface Configuration
```

Interface	Enable	Ifname	Bridge	Protocol	IPv4
lan	False	eth0.1	Enabled	static	192.168.1.1
loopback	False	lo	Disabled	static	127.0.0.1
wan	False	eth0.2	Disabled	dhcp	
wan6	False	eth0.2	Disabled	dhcpv6	

Configure two different IP addresses using different interface names that are associated with the same underlying VLAN interface (eth0.55)

```
configure interface vlan55_ip1 add
configure interface vlan55_ip1 protocol static
configure interface vlan55_ip1 ipaddr 192.168.0.1
configure interface vlan55_ip1 netmask 255.255.255.0
configure interface vlan55_ip1 ifname add eth0.55
configure interface vlan55_ip2 add
configure interface vlan55_ip2 protocol static
configure interface vlan55_ip2 ipaddr 192.168.4.1
configure interface vlan55_ip2 netmask 255.255.255.0
configure interface vlan55_ip2 ifname add eth0.55
```

Show current interface configuration (New interfaces and IP addresses can be seen)

```
show interface config
```

Interface Configuration

Interface	Enable	Ifname	Bridge	Protocol	IPv4
lan	False	eth0.1	Enabled	static	192.168.1.1
loopback	False	lo	Disabled	static	127.0.0.1
vlan55_ip1	False	eth0.55	Disabled	static	192.168.0.1
vlan55_ip2	False	eth0.55	Disabled	dhcpv6	192.168.0.1
wan	False	eth0.2	Disabled	dhcp	
wan6	False	eth0.2	Disabled	dhcpv6	

Syslog

Configure syslog settings for delivery to external server:

```
configure syslog "buffer size" 64
configure syslog "server address" <ip address>
configure syslog "server port" 514
configure syslog "server protocol" <udp | tcp>
configure syslog "output level" info
configure syslog "cron level" Normal
```

Show current syslog settings

```
show syslog config
```

```
Syslog Config
================================
Buffer size:      64 KiB
Cron Level:       normal
Output Level:     info
Address:          192.168.1.100
Port:             514
Protocol:         udp
```

Firmware Upgrade/Downgrade

Upgrade system firmware via TFTP (IP address and FW version are an example only):

```
run system upgrade tftp://192.168.1.50/CME_atlas-lte_v1.0.21.1_upgrade.bin
```

Upgrade system firmware via HTTP (IP address and FW version are an example only):

```
run system upgrade http://192.168.1.50/CME_atlas-lte_v1.0.21.1_upgrade.bin
```

System Features

LTE/L2TPv3 Configuration and Status

Use the following CLI commands to configure LTE/L2TPv3:

configure backup active <on / off / auto>	Set the LTE backup mode - always on, always off or automatically switch on when there is a network failure.
configure backup autorevert <bool>	Set whether to automatically revert to wired network operation on recovery of a fault condition.
configure backup failover timeout <[min:]secs>	Set how long a network failure must persist before switching to LTE backup.
configure backup l2tp dual server <bool>	Set whether a secondary server is defined.
configure backup l2tp primary destination-port <int>	Set the L2TP destination port (UDP mode only) of the primary server.
configure backup l2tp primary encapsulation <ip / udp>	Set the L2TP encapsulation mode of the primary server.
configure backup l2tp primary l2spec <none / udp>	Set the L2TP specific header type of the primary server.
configure backup l2tp primary ping-timeout <int>	Set the timeout in seconds of the ping response from the primary server before fail-over to the secondary server.
configure backup l2tp primary server address <ip>	Set the L2TP endpoint server address of the primary server.
configure backup l2tp primary source-port <int>	Set the L2TP source port (UDP mode only) of the primary server.
configure backup l2tp secondary destination-port <int>	Set the L2TP destination port (UDP mode only) of the secondary server.
configure backup l2tp secondary encapsulation <ip / udp>	Set the L2TP encapsulation mode of the secondary server.
configure backup l2tp secondary l2spec <none / udp>	Set the L2TP specific header type of the secondary server.
configure backup l2tp secondary ping-timeout <int>	Set the timeout in seconds of the ping response from the secondary server before fail-over to the primary server.

configure backup l2tp secondary server address <ip>	Set the L2TP endpoint server address of the secondary server.
configure backup l2tp secondary source-port <int>	Set the L2TP source port (UDP mode only) of the secondary server.
configure backup l2tp session add <int> <int> <ifname> [untagged / <vlan-id>]	Define an L2TP session to backup an interface. The interface can be one of: VLAN (eth0.n); a VLAN bridge interface with an ip address (br-xxx); an entire trunk (eth0). With a non-trunk session, the outer tag gets removed but optionally another tag can be added. For example, to switch vlan id from 60 to 760 in the session, backup interface eth0.60 and specify <vlan-id> of 760. Multiple sessions can be defined.
configure backup l2tp session delete <int>	Delete an L2TP session definition.
configure backup l2tp session modify <int> <int> <ifname> [untagged / <vlan-id>]	Modify an L2TP session definition.
configure backup lte access-mode <LTE / auto>	Configure the wireless scan mode to automatic or LTE only.
configure backup lte access-point name <string>	Set the LTE access point name (value may be empty string, by entering "")
configure backup lte datacall <auto / off / on>	Manual enable or disable the datacall, or set the modem to auto-dial as required.
configure backup lte password <string>	Set the LTE password (value may be empty string, by entering "").
configure backup lte username <string>	Set the LTE username (value may be empty string, by entering "").
configure backup port name <port-name>	Select the port to monitor for automatic backup.
configure backup revert timeout <mins:secs>	Set how long a network recovery must persist before switching from LTE backup.

Use the following CLI command to show current LTE/L2TPv3 configuration.....

```
show backup config
```

Use the following CLI command to show current LTE/L2TPv3 status (the below example output shows a working LTE connection) .....

```
Show backup status
```

Reboot LTE module

Use the following CLI command to power cycle the LTE module:

```
run lte reset
```

Quality of Service

Use the following commands to configure Qos

configure qos interface <interface-name> add	Add interface qos section.
configure qos interface <interface-name> delete	Delete interface qos section.
configure qos interface <interface-name> egress-limit <int>	Set the egress-limit of this interface in kB/s.
configure qos interface <interface-name> enabled <bool>	Enable QoS to run qos-scripts on this interface.
configure qos interface <interface-name> ingress-limit <int>	Set the ingress-limit of this interface in kB/s.
configure qos interface <interface-name> overhead <bool>	Enable overhead to prevent link saturation.
configure qos port <port-name> egress-limit <int / off>	Set an egress limit on a network port or turn off egress rate limiting.
configure qos port <port-name> ingress-limit <int / off>	Set an ingress limit on a network port or turn off ingress rate limiting.
configure qos port <port-name> queue-sched <RR / SP / WRR>	Set the scheduling mode for processing the egress queues of a network port.
configure qos port <port-name> queue-weights <0-7> <1-16>	Set the weightings that apply to queues in the weighted round robin mode.
configure qos rule <rule-name> add <Bulk / Express / Normal / Priority>	Add a QoS Classify Rule and associate with class.
configure qos rule <rule-name> delete	Delete the rule.
configure qos rule <rule-name> dsthost <ip-address>	Configure destination host.
configure qos rule <rule-name> ports <int>	Configure ports.
configure qos rule <rule-name> proto <all / egp / ggp / icmp / igmp / ip / ipv6 / tcp / udp>	Configure protocol.
configure qos rule <rule-name> srchost <ip-address>	Configure source host.

QoS Priority Queuing / Ingress and Egress Rate-Limit

Use the below CLI commands to configure QoS priority queuing:

configure qos rule <rule-name> add <class-name>	Add a QoS Classify Rule and associate with class(Priority/ Express/Normal/Bulk)
configure qos rule <rule-name> ports <value>	Configure ports
configure qos rule <rule-name> srchost <value>	Configure source host
configure qos rule <rule-name> dsthost <value>	Configure destination host
configure qos rule <rule-name> proto <value>	Configure protocol
configure qos rule <rule-name> delete	Delete the rule

Use the below CLI command to show current QoS priority queuing configuration:

```
show qos rule config
```

```
QoS Rule Configuration
==========================
| Rule    | Class        | Protocol
==========================
| rule1   | Normal       | tcp
```

Use the below CLI commands to configure QoS priority queuing:

configure qos interface <interface-name> add	Add interface qos section
configure qos interface <interface-name> delete	Delete interface qos section
configure qos interface <interface-name> enable <True/ False>	Enable QoS to run qos-scripts on this interface
configure qos interface <interface-name> overhead <True/ False>	Enable overhead to prevent link saturation
configure qos interface <interface-name> ingress-limit <value>	Set the ingress-limit of this interface in kB/s
configure qos interface <interface-name> egress-limit <value>	Set the egress-limit of this interface in kB/s

Use the below CLI command to show current QoS Ingress and Egress Rate-Limit configuration:

```
show qos interface config
```

```
QoS Rule Configuration
=========================
| Rule    | Class        | Protocol
=========================
| rule1   | Normal       | tcp
```

LTE Ingress/Egress Rate-Limit

To apply Ingress/Egress Rate-Limit to the LTE Backup. Specify the desired interface in the backup configuration:

```
configure backup "l2tp interface" LTE
```

Apply the Ingress/Egress Rate-Limit to it as described in the section above.

Interface Static IP or DHCP client

Use the following CLI command to set an interface to use a static IP address or a DHCP server provided IP address:

```
configure interface <interface name> protocol <static | dhcp>
```

```
show interface config
```

```
Interface Configuration
```

Interface	Enable	Ifname	Bridge	Protocol	IPv4
lan	False	eth0.1	Enabled	dhcp	192.168.1.1
loopback	False	lo	Disabled	static	127.0.0.1
wan	False	eth0.2	Disabled	dhcp	
wan6	False	eth0.2	Disabled	dhcpv6	

Port Description

Use the following CLI command to configure the port description:

```
configure port <LAN1 | LAN2 | LAN3 | LAN4 | WAN> name <port-name>
```

Use the following CLI command to show the port description:

```
show port config
Port Configuration
```

Port	Enable	Speed(Mbps	Duplex	Auto-negotiate	Name
WAN	N/A	N/A	N/A	Enabled	Name 1
LAN4	N/A	N/A	N/A	Enabled	Name 2
LAN3	N/A	N/A	N/A	Enabled	Name 3
LAN2	N/A	N/A	N/A	Enabled	Name 4
LAN1	N/A	N/A	N/A	Enabled	Name 5

Shutdown port

Use the following CLI command to shutdown port:

```
configure port <LAN1 | LAN2 | LAN3 | LAN4 | WAN> enabled false
```

Configuring Network Ports

configure port <port-name> auto-negotiate <disable / enable>	Enable or disable auto-negotation of a network port
configure port <port-name> duplex <full / half>	Force half or full duplex on a network port.
configure port <port-name> enabled <bool>	Enable or disable a network port.
configure port <port-name> flow-control <None / Rx / Tx/ RxTx>	Set MAC layer flow control on network port.
configure port <port-name> name <string>	Set a name for a network port.
configure port <port-name> speed <10 / 100 / 1000>	Force port speed (Mbps) on a network port.

Port Security

configure port-sec <port-name> enable <bool>	Enable or disable source mac address security on a port.
configure port-sec <port-name> limit <bool>	Limit or not the number of learned source mac addresses on a port.
configure port-sec <port-name> maximum <int>	Maximum number of source mac addresses allowed on a port when limiting.
configure port-sec <port-name> violation <protect / shutdown>	Action to take on a port if security enabled and limit on source mac addresses exceeded: "protect" - does not allow more than the port limit of source mac addresses; "shutdown" - applies security lock on the port.
configure port-sec aging enabled <bool>	Enable or disable learnt source mac address aging.
configure port-sec aging time <int>	Set the time period for expiring a learnt source mac address.

DDMI status

Use the following CLI commands to show DDMI status:

```
show ddmi status WAN basic
```

```
DDMI Status
Part Number: AF6-155G1-LU-NE
Serial Number: 180404102
Vendor Name: N2E
Date Code:  2018/04/04
Revision:  A125
```

```
show ddmi status WAN extended
```

```
DDMI Status
Bias:
        Alarm status: Normal
        Current Value: 0
        High Alarm:  87.8906
        Low Alarm:  4.8828
        High Warning: 78.125
        Low Warning: 14.6484
TxPower:
        Alarm status: Normal
        Current Value: 0
        High Alarm:  2
        Low Alarm:  0.5
        High Warning: 1.7
        Low Warning: 0.6
Voltage:
        Alarm status: Low Alarm
        Current Value: 0.2897
        High Alarm:  3.63
        Low Alarm:  2.97
        High Warning: 3.498
        Low Warning: 3.102
Temperature:
        Alarm status: Normal
        Current Value: 24.8086
        High Alarm:  75.5
        Low Alarm:  -20.5
        High Warning: 70
        Low Warning: -18
RxPower:
        Alarm status: Low Alarm
        Current Value: 0.0001
        High Alarm:  2
        Low Alarm:  0.0031
        High Warning: 1.5
        Low Warning: 0.0158
```

ODTR

Use the following CLI commands to operate OTDR:

```
show otdr status port WAN

OTDR capable ports
==================
WAN: Yes

run otdr-test WAN

OTDR found 1 reflection

run otdr-report

OTDR Test Results
```

Port	Test	Time of test	SFP serial	Reflection distances
WAN	1	2019-09-27T10:59:38Z	180222130	2017

```
OTDR Birth Certificates
```

Port	Test	Time of test	SFP serial	Reflection distances

```
run otdr-spoof WAN

Generated 10 reflections

run otdr-report

OTDR Test Results
```

Port	Test	Time of test	SFP serial	Reflection distances
WAN	1	2019-09-27T11:22:12Z	44999786	466 1152 2332 3149 4366 5058 8167 8519 8707 9483
WAN	2	2019-09-27T11:22:35Z	180222130	2017

```
OTDR Birth Certificates
```

Port	Test	Time of test	SFP serial	Reflection distances

```
show otdr status test WAN
```

```
OTDR test results
==================
Port                    : WAN
Test 1 timestamp        : 2019-09-27T11:22:12Z
SFP vendor              : N2E
SFP part no.            : A06-155G1-SU-NE
SFP serial no.          : 44999786
SFP revision            : C123
SFP date                : 2018-01-11
Reflections             : 466 1152 2332 3149 4366 5058 8167 8519 8707 9483 metres

Port                    : WAN
Test 2 timestamp        : 2019-09-27T11:22:35Z
SFP vendor              : N2E_____________
SFP part no.            : AF6-155G1-LU-NE
SFP serial no.          : 180222130
SFP revision            : A130
SFP date                : 2018/02/26
Reflections             : 2017 metres

show otdr status birth WAN

OTDR birth certificates
==================
No birth certificates

run otdr-save-birth WAN 2

OK

show otdr status birth WAN

OTDR birth certificates
==================
Port                    : WAN
Timestamp               : 2019-09-27T11:22:35Z
SFP vendor              : N2E_____________
SFP part no.            : AF6-155G1-LU-NE
SFP serial no.          : 180222130
SFP revision            : A130
SFP date                : 2018/02/26
Reflections             : 2017 metres

run otdr-report
```

OTDR Test Results

Port	Test	Time of test	SFP serial	Reflection distances
WAN	1	2019-09-27T11:22:12Z	44999786	466 1152 2332 3149 4366 5058 8167 8519 8707 9483
WAN	2	WAN	2019-09-27T11:22:35Z	2017

OTDR Birth Certificates

Port	Test	Time of test	SFP serial	Reflection distances
WAN	2	2019-09-27T11:22:35Z	180222130	2017

```
run otdr-delete-test WAN 1
run otdr-delete-birth WAN
```

```
OK
OK
```

```
run otdr-report
```

OTDR Test Results

Port	Test	Time of test	SFP serial	Reflection distances
WAN	2	2019-09-27T11:22:35Z	180222130	2017

OTDR Birth Certificates

Port	Test	Time of test	SFP serial	Reflection distances

```
run otdr-export tftp://192.168.1.100/otdr-plain.txt plain
```

```
run  otdr-export tftp://192.168.1.100/otdr.txt
```

```
run otdr-export tftp://192.168.1.100/otdr-html.html html
```

VLAN name

Use the following CLI command to configure VLAN name:

```
configure vlan name <VLAN ID> <name>
```

Port VLAN

The following CLI commands are an example of how to configure a port VLAN:

```
configure vlan add 55
configure vlan port 55 CPU tagged
configure vlan port 1 LAN1 off
configure vlan port 55 LAN1 untagged
```

Loop Protection

configure loop-protection enable <bool>	Enable or disable loop protection.
configure loop-protection shutdown-time <int>	Duration in seconds to disable a port when a loop is detected. Zero means indefinitely.

To Show Config and Status

show loop-protection config	Show loop protection configuration.
show loop-protection status	Show loop protection status for ports.

Spanning Tree Protocol

Use the following CLI command to enable STP on the desired interface:

```
configure interface <interface name> bridge stp enable
```

Use the following CLI commands to manually configure STP:

configure stp <bridge-name> priority <priority-value>	Set the bridge priority value
configure stp <bridge-name> forward-delay <time>	Set the bridge forward-delay time
configure stp <bridge-name> hello-time <time>	Set the bridge hello time
configure stp <bridge-name> maxage <time>	Set the bridge maximum message age
configure stp <bridge-name> port <port> pathcost <cost>	Set the port pathcost
configure stp <bridge-name> port <port> priority <priority-value>	Set the port priority
show stp status <bridge-name>	Shows STP status information for a bridge
show stp config	Shows STP configuration information for all bridges
show stp config <bridge-name>	Shows STP configuration information for a bridge

Configurable DNS client

configure interface <interface-name> dns add <ip-address>	Configure DNS resolver for the interface.
configure interface <interface-name> dns delete <ip-address>	Delete DNS resolver for the interface.

TACACS+

configure tacacs+ enable command-accounting <bool>	Enable or disable using TACACS+ for command accounting.
configure tacacs+ enable command-authorisation <bool>	Enable or disable using TACACS+ for command authorisation.
configure tacacs+ enable login-authentication <bool>	Enable or disable using TACACS+ for login authentication.
configure tacacs+ server <ip-address> add <key>	Add a TACACS+ server.
configure tacacs+ server <ip-address> delete	Delete a TACACS+ server.
configure tacacs+ server <ip-address> timeout <int>	Set the timeout for response from TACACS+ servers.

To Show Config

show tacacs+ config	Show TACACS+ configuration.

Loopback IP

Use the following CLI commands to configure the loopback IP addressing:

```
configure interface loopback ipaddr <IP address>
```

```
configure interface loopback netmask <netmask>
```

```
show interface config
```

Interface Configuration

Interface	Enable	Ifname	Bridge	Protocol	IPv4
lan	False	eth0.1	Enabled	dhcp	192.168.1.1
loopback	False	lo	Disabled	static	192.168.99.1
wan	False	eth0.2	Disabled	dhcp	
wan6	False	eth0.2	Disabled	dhcpv6	

LLDP per port

Use the following CLI commands to operate LLDP:

```
configure lldp enable both
```

configure lldp interface add <interface-name>	Add an network interface to handle LLDP.
configure lldp interface del <interface-name>	Delete a network interface to handle LLDP.
configure lldp txhold <int>	Set the LLDP tx hold time.
configure lldp txinterval <int>	Set the LLDP tx interval.

```
show lldp config
LLDP configuration
==================
Rx                    : Yes
Tx                    : Yes
Tx interval           30
Tx hold multiplier:   4
```

```
show lldp status neighbours
```

(Displays LLDP information from a neighbouring device.)

NTP Client configuration

Use the following CLI commands to operate NTP:

configure ntp add <server address>	Add an NTP server to the list.
configure ntp delete <server address>	Remove an NTP server from the list
configure ntp enabled <true/false>	Enable or Disable the NTP client mode.
configure ntp server <old server address> <server address>	Modify an NTP server in the list.
show ntp config	Show all NTP configuration.
show ntp config enabled	Show NTP enabled configuration.
show ntp config server	Show a list of NTP servers.

Configuring Simple Network Management Protocol

configure snmp enable <bool>	Enable or disable the SNMP protocol.
configure snmp v2c community <name>	Create new community string.
configure snmp v2c community <name> delete	Delete a community string.
configure snmp v2c community <name> host <host / subnet>	Set host/network access for the community string.
configure snmp v2c community <name> restrict <oid>	Restrict community to the specified OID.
configure snmp v3 user <user>	Create new user.
configure snmp v3 user <user> delete	Delete existing user.
configure snmp v3 user <user> securityLevel <priv> authProtocol <MD5 / SHA> authKey <pass-phrase> [privProtocol <AES / DES> privKey <pass-phrase>]	Configure user security. noAuthNoPriv indicates no protection needed.
configure snmp v3 view <name>	Create new view.
configure snmp v3 view <name> delete	Delete existing view.
configure snmp v3 view <name> type excluded oid <oid-name>	Exclude OID range that SNMPv3 users can access.
configure snmp v3 view <name> type included oid <oid-name>	Include OID range that SNMPv3 users can access.

Static Routing

Use the following CLI commands to setup static routing:

configure route <route-name> add <interface-name> <target-ip>	Add a IPV4 static route.
configure route <route-name> netmask <netmask>	Sets the destination netmask.
configure route <route-name> gateway <gateway>	Sets the gateway.
configure route <route-name> metric <metric_value>	Sets the preference value of the route.
configure route <route-name> mtu <mtu-value>	Sets the MTU.
configure route <route-name> type <route-type>	Sets the type of routing.
configure route <route-name> delete	Delete the route.
show route config	Show all route configurations.
show route config <route-name>	Show configurations specific to a route.

BFD

Use the following CLI commands to setup BFD:

configure bfd route <route-name> bfd-live <enable/disable>	Enable bfd on ipv4 route
configure bfd <interface-name> enable <true/false>	Enable BFD protocol on the interface
configure bfd <interface-name> "interval" <interval_value>	Shorthand to set both TX and RX interval
configure bfd <interface-name> "minimum transmit interval" <min_rx_value>	Minimum transmit interval
configure bfd <interface-name> "minimum receive interval" <min_tx_value>	Minimum receive interval
configure bfd <interface-name> "multiplier" <multiplier_value>	Multiplier value to compute hold down.
show bfd config	Display all bfd config
show bfd config <interface-name>	Display bfd configuration for the interface
show bfd status	Display all bfd session statistics

Run Command List

run clear-port-shutdown <port-name>	Clear port shutdown resulting from loop detection.
run lte reset	Reset the LTE interface hardware.
run mute-alarm <alarm-name>	Mute an alarm which is active. The mute will end if the alarm is cleared.
run no-shutdown <port-name>	Clear any port security lock on the port.
run nslookup <hostname>	Do a DNS lookup.
run otdr-delete-birth <port-name>	Delete the OTDR birth certificate for a port.
run otdr-delete-test <port-name> <int>	Delete an OTDR test result.
run otdr-export <url>	Export OTDR test reports.
run otdr-report	Show OTDR report.
run otdr-save-birth <port-name> <int>	Save an OTDR test result as the birth certificate.
run otdr-spoof <port-name>	Generate random OTDR test result for test purposes.
run otdr-test <port-name>	Run an OTDR test. The port must have an OTDR capable SFP module.
run ping <hostname> [<interface-name>]	Run a network ping.
run system reset	Reboot the box.
run system upgrade <url>	Upgrade system firware. The box will reboot when the upgrade has been applied.
run traceroute <hostname> [<interface-name>]	Run a network traceroute.
run system reset <YYYY:MM:DD:HH:MM:SS>	Reboot the box at the specified date and time.

Show Command List……

show access-management config	Show the access management configuration.
show acknowledgements	Show copyrights and license terms for open source software.
show alarm config	Show the current alarm configuration.
show alarm status	Show the current alarm status, with alarm details if any are active.
show backup config [<item>]	Show all backup configuration or the specified item.
show backup status [l2tp / module / network / port / radio / sim / state]	Show all backup status information or for the specified item.
show banner config	Show the login banner.
show bfd config [<interface-name>]	Display all BFD configuration or for the specified interface
show bfd status [<interface-name>]	Display all BFD session statistics or for the specified interface
show ddmi status <port-name> [<basic / extended>]	Show SFP diagnostics information.
show interface config [<interface-name>]	Show all interface configurations or for the specified interface.
show interface status <interface-name>	Show interface status and statistics.
show lldp config	Show LLDP configuration.
show lldp status [<neighbours / statistics>]	Show LLDP neighbours or statistics.
show loop-protection config	Show loop protection configuration.
show loop-protection status	Show loop protection status for ports.
show ntp config [<item>]	Show all NTP configuration or for the specified item.
show otdr status birth [<port-name>]	Show OTDR birth certificate for port.
show otdr status port [<port-name>]	Show whether port has an OTDR capable SFP.
show otdr status test [<port-name>]	Show OTDR tests run on a port.
show port config [<port-name>]	Show network port configuration for all ports or for the specified port.
show port status [<port-name>]	Show network port status for all ports or for the specified port.
show port-sec config [<port-name>]	Show network port security configuration for all ports or for the specified port.
show port-sec status [<port-name>]	Show network port security status for all ports or for the specified port.
show qos interface config [<interface-name>]	Show QOS configuration for all network interfaces or for the specified interface.

show qos port config [<port-name>]	Show QOS configuration for all network ports or for the specified port.
show qos rule [<rule-name>]	Show QOS rule list or the specified rule.
show route config [<route-name>]	Show all route configurations or the for the specified route.
show route status	Show the routes in routing table.
show snmp config [<v2c / v3>]	Show the SNMP configuration for v2c or v3.
show stp config [<bridge-name>]	Shows STP configuration information for all bridges or for the specified bridge.
show stp status <bridge-name>	Shows STP status information for a bridge.
show syslog config [<item>]	Show all syslog configuration or for the specified item.
show system config [<item>]	Show all system configuration or for the specified item.
show system log	Show the system log.
show system log paged	Show the system log in pages.
show system status [<cpu / local time / uptime / version>]	Show all system status or for the specified item.
show tacacs+ config	Show TACACS+ configuration.
show user config	Show local user configuration.
show user status	Show local user status (users known to the underlying operating system).
show version	Show hardware and software version and identification.
show vlan config	Display a table of VLAN-IDs and the corresponding port configuration.
show yang [<model-name>]	Show a list of YANG modules supported by the system for NETCONF, or display a specified YANG module.

Debug Commands

debug configure-board <product> <major number> <minor number>	Configure board identification, e.g. debug configure-board Atlas-LTE 1 0
debug configure-mac <MAC Address>	Configure board base MAC address, e.g. debug configure-mac 00:0d:2c:12:f5:84
debug configure-serial <Serial Number>	Configure board serial number, e.g. debug configure-serial 89000039
debug lte inject <queuename> <command>	Inject AT command to the modem at queue e.g. debug lte inject at_cmd_queue ATI
debug lte trace start	Start taking a modem debug trace (note exiting CLI will orphan the trace session without stopping)
debug lte trace stop	Stop taking a modem debug trace
debug show-board	Show the board ID.
debug show-mac	Show base MAC address.
debug show-serial	Show serial number.
debug system memory	Show flash and RAM free and used memory sizes.
debug system shell	Drop into a Linux (busybox) shell. Exit the shell with CTRL-D to return to the CLI.

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