

NetXplorer

Installation and Administration Guide



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Version History

Each document has a version and a build number. You can tell the exact version and build of this document by checking the top row of the table below.

Document updates are released in electronic form from time to time and the most up to date version of this document will always be found on Allot's online Knowledge Base.

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1 Getting Started

1.1 Overview

NetXplorer is a highly scalable Network Business Intelligence system that enables strategic decision-making based on comprehensive network application and subscriber traffic analysis.

NetXplorer configures Service Gateway devices and a central catalog, which enables global policy provisioning. Many network topologies can benefit from more than one Service Gateway. In addition, NetXplorer provides a centralized management system for all Service Gateways on the network. It provides easy access to devices and configuration parameters via the device tree.

NetXplorer enables both real time monitoring for network troubleshooting and problem analysis, as well as long term reporting for capacity planning, tracking usage and trend analysis. It allows for the proactive management of traffic and system-wide alarms and for the collection and export of auditing data for billing and quota purposes.

1.2 Terms and Concepts

This section introduces some of the basic terms and concepts used in NetXplorer.

NetXplorer

NetXplorer is a highly scalable Network Business Intelligence system that centrally manages the Service Gateway product line. It enables strategic decision-making based on comprehensive network application and subscriber traffic analysis.

The NetXplorer can be purchased from Allot as an Appliance which is comprised of the hardware and server software pre-installed.

For performance and device support information concerning Appliances supplied by Allot, see the Release Notes for your software version.

If necessary, customers can install the NetXplorer server software on any server hardware that meets Allot's minimum specifications.

NetEnforcer

The NetEnforcer was an Allot broadband optimization device which is no longer available, replaced by the Service Gateway.

Service Gateway

The Service Gateway is a platform for enhancing service optimization and service deployment. The Service Gateway provides an open, carrier-grade solution for broadband service providers to manage multiple lines and deploy value added services in one integrated platform. Application and subscriber information within the Service gateway is identified for each traffic flow and subsequently the flow is dispatched to an array of additional services and actions using a single DPI process.

Monitoring Collector

The Monitoring Collector (STC) is an Allot appliance that should be added between the NetXplorer Servers and the Service Gateways in order to support large numbers of Service Gateways or those installed in remote geographic locations. One Monitoring Collector must be deployed for each Service Gateway in the network.

QoS

QoS (Quality of Service) is the ability to define a level of performance in a data communications system. In NetXplorer, QoS is an action applied to a connection when the conditions of a filter are satisfied.

The QoS specified can include the following:

- **Prioritized Bandwidth:** Delivers levels of service based on class levels. During peak traffic periods, the NetXplorer will slow down lower priority applications, resulting in increased bandwidth delivery to higher priority applications.
- **Guaranteed Bandwidth:** Enables the assignment of fixed minimum and maximum amounts of bandwidth to specific Pipes, Virtual Channels and connections. By borrowing excess bandwidth when it is available, connections are able to burst above guaranteed minimum limits, up to the maximum guaranteed rate. Guaranteed rates also assure predictable service quality by enabling time-critical applications to receive constant levels of service during peak and non-peak traffic periods.
- **Reserved Bandwidth on Demand:** Enables the reservation of the minimum bandwidth from the first packet of a connection until the connection ends. This is useful when the bottleneck is not at the link governed by the Service Gateway. By limiting other connections (non-guaranteed), the Service Gateway reserves enough bandwidth for the required Pipe or Virtual Channel.

- **TOS Marking:** Enables the user to set the ToS bytes in the transmitted frame according to the DiffServ standard or free format.
- **Access Control:** Determines whether a connection is accepted, dropped or rejected (Supported on AC-400 and AC-800 only). For example, you can specify the following policy: accept 1000 ICMP connections to Server1 and drop the rest. A Service Gateway policy can also be to drop all P2P connections or accept new connections with a lower priority
- **Admission Control:** Determines the bandwidth granted to a flow based on your demand (for example, allocated minimum of 10kbps) and the available bandwidth on the line.

Catalog Editors

Catalog Editors enable you to define values to define your policy. The possible values for each condition of a filter and for actions are defined in the Catalog entries in the Catalog Editors. A Catalog Editor enables you to give a logical name to a comprehensive set of parameters (a Catalog entry). This logical name then becomes a possible value for a condition or action

Lines

A Line represents a physical or logical media in the system. A line provides a way of classifying traffic that enables you to divide the total bandwidth and then manage every Line as if it was an independent link. A Line consists of one or more sets of conditions and a set of actions that apply when all of the conditions are met. A line is an address-based or VLAN-based entity, and is not service-based.

A Line can aggregate several Pipes, acting like a container of Pipes from a QoS point of view. The filter of the **Fallback** Line cannot be modified or deleted. A connection coming into the Service Gateway is matched to a Line according to whether the characteristics of the connection match all of the Conditions of the Line. The connection is then further matched to the Conditions of a Pipe under the Line. The actions defined for the Line influence all the Pipes under the Line. The actions defined for a Pipe are enforced together with the actions of the Line.

Pipes

A Pipe provides a way of classifying traffic that enables you to divide the total bandwidth and then manage every Pipe as if it was an independent link. Pipes cannot stand alone and are always contained within a Line. A Pipe consists of one or more sets of conditions and a set of actions that apply when all of the conditions

are met. A Pipe can aggregate several Virtual Channels, acting like a container of Virtual Channels from a QoS point of view.

When you add a new Pipe, it always includes at least one Virtual Channel, the **Fallback** Virtual Channel. The **Fallback** Virtual Channel filter cannot be modified or deleted. A connection coming into a line is matched to a Pipe according to whether the characteristics of the connection match all of the Conditions of the Pipe. The connection is then further matched to the Conditions of a Virtual Channel under the Pipe. The actions defined for the Pipe influence all the Virtual Channels under the Pipe. The actions defined for a Virtual Channel are enforced together with the actions of the Pipe.

Virtual Channels

A Virtual Channel provides a way of classifying traffic and consists of one or more sets of Conditions and a set of actions that apply when all of the Conditions are met. A Virtual Channel is defined within a Pipe and cannot stand alone. A connection matched to a Pipe is further matched to a Virtual Channel according to whether the characteristics of the connection match all of the Conditions of the Virtual Channel.

Conditions

A Condition is defined at the Line level, Pipe level or Virtual Channel level. NetXplorer matches connections to conditions, first at the Line level then at Pipe level and then again at the Virtual Channel level within a Pipe.

Templates

Templates enable you to create a "master" Pipe or Virtual Channel that upon saving will create multiple Pipes or Virtual Channels similar to one another. Templates work with host group entries defined in the Host Catalog. For example, if a host group entry in the Host Catalog called Gold Customers consists of Company X, Company Y and Company Z, you could define a Pipe template to be expanded for Gold Customers. This would result in Pipes being created for Company X, Company Y and Company Z when the Policy Editor is saved.

A Pipe or Virtual Channel template enables the fast creation of Pipes and Virtual Channels on source/destination differentiation. This means that you do not need to define similar Pipes and Virtual Channels when the only difference between them is the IP address in the source or destination.

1.3 NetXplorer Architecture

This section introduces the NetXplorer concept and explains its components and architecture.

NetXplorer uses a highly scalable architecture that enables the monitoring of all Service Gateway devices from a single user interface. In addition, NetXplorer can utilize distributed monitoring collectors, which increase the scalability of your deployment. The collectors gather short-term network usage statistics from the Service Gateways.

NetXplorer's server-based, distributed architecture consists of four tiers: multiple Service Gateways and associated distributed collectors, a NetXplorer server and GUI clients.

NetXplorer architecture consists of four layers:

1. **Real-time Service Layer:** Service Gateways are the traffic management devices that inspect and monitor network traffic. There can be one or more Service Gateways on a network. They manage network policies and collect network usage data.
2. **Collection Layer:** Monitoring collectors increase scalability by supporting large numbers of Service Gateways or those installed in remote geographic locations. Monitoring collectors are fully managed via the NetXplorer GUI.
3. **Application Layer:** The NetXplorer server is the actual application, which includes the databases and an integrated data collector. The NetXplorer server manages and communicates with the different clients that access the system, and facilitates Service Gateway configuration, policy provisioning, alarms, monitoring and reporting. The integrated data collector included in the NetXplorer streamlines the required collection of data from the managed Service Gateway devices. The Server layer includes additional servers such as SMP Servers, NPP Servers and stand along Accounting Servers.

Note: **The NetXplorer Server should be installed behind a firewall for optimal security.**

4. **Interface Layer:** The different clients connected to the NetXplorer Server are the *NetXplorer GUI application* users. Any network computer capable of connecting to the NetXplorer server can support the GUI interface.

The system offers simple integration with external systems using a wide range of interfaces, including SNMP, CSV Files (for report data export), XML and CLI.

1.4 Administration Role

NetXplorer uses a role-based security model. The role defined for each authorized user indicates the scope of operations that can be performed by that user. The Administrator role gives Admin users complete read/write privileges in the NetXplorer application including read/write configuration privileges.

The main functions of the Administrator role include:

- User Registration
- Device and Network Management
- Monitoring Collectors Management
- Database Maintenance

This document defines the main concepts and describes the various activities related to the installation and configuration of Service Gateways and the NetXplorer, Monitoring Collectors, as well as the main tasks associated with Database Maintenance, such as backup and restore, changing location and installing the NetXplorer on a remote data base.

1.5 Managing Passwords

In order to facilitate installation and initial configuration, Allot provides default values for all required passwords.

It is **ESSENTIAL** for security that these default passwords be changed **AS SOON AS POSSIBLE**. In this section each default password is listed, along with instructions on how to change it.

1.5.1 SSH Admin Password

Allot provides end-users with SSH access to the system via a user privilege called “**admin**”.

Note: Allot **STRONGLY recommends that the default passwords are changed to ensure a minimum level of security.**

- User Name: admin
- Default Password: allot

To change the SSH Admin password:

1. Log into the system via SSH.
2. Enter **admin** for the login and the admin password and then press **<Enter>**.

3. Enter **passwd** and then press <Enter>.
4. You will be asked to enter the current password and click <Enter>
5. When prompted enter a new password and press <Enter>. The password must be between 5 and 8 characters. You can use a combination of upper and lower case letters and numbers.
6. Re-enter the new password and press <Enter>.

1.5.2 SSH Root Password

The SSH Root password is required for certain actions in the CLI and gives complete access to the system. Therefore it should only be given to trusted users.

The default values are as follows:

NOTE Customers are strongly advised to change default passwords on first login. Not doing so represents a security risk.

- User Name: root
- Default Password: bagabu

Changing the Root Password

1. Access the Server using the SSH Admin log in and password.
2. Switch to SSH Root user with the following command:
su -
3. Enter the root password, and then press <Enter>.
4. Enter **passwd** and then press <Enter>.
5. Enter a new password and press <Enter>. The password must be between 5 and 8 characters. You can use a combination of upper and lower case letters and numbers.
6. Re-enter the new password and press <Enter>.

1.5.3 BMC Password

The BMC is the Server Management Software used on Lenovo servers. It is a way to access and manage the Server remotely.

NOTE Customers are strongly advised to change default passwords on first login. Not doing so represents a security risk.

The default details of the BMC are:

- Username: USERID
- Password: Password10

- IP: 10.4.4.4
- Subnet: 255.255.0.0
- Default GW: 10.4.0.1

It is possible that in some units the previous default user name and password may be required. These were as follows:

- Previous Default IP: 192.168.70.125
- Previous Default User Name: USERID
- Previous Default Password: PASSWORD (where the “0” is not “o” but “zero”)

To change the BMC password, follow the steps below:

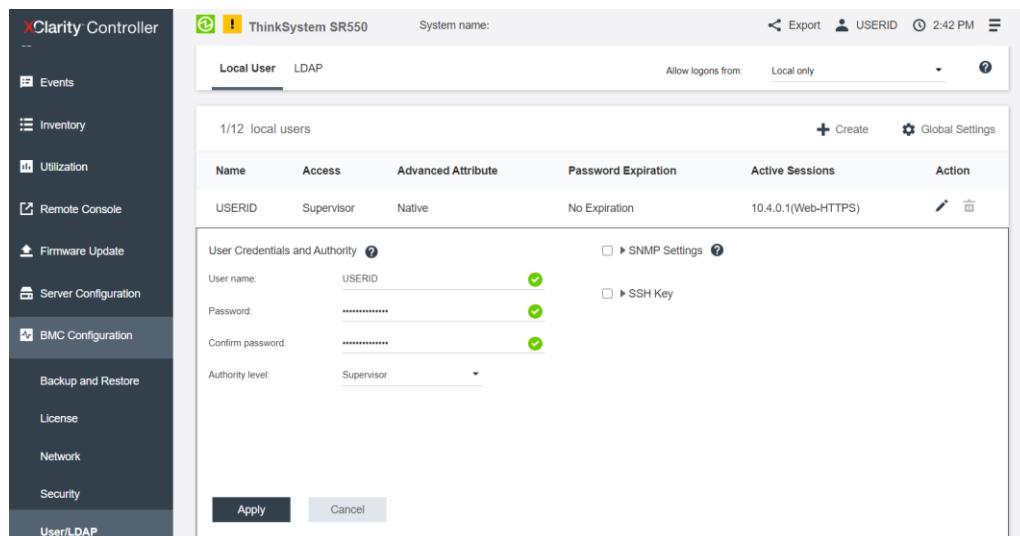


Figure 1-1: BMC Initial Screen

1. Bring up or reboot the server.
2. Log into the BMC using the default or current password.
3. From the **XClarity Administrator** side bar, select **BMC Configuration**, and then **User/LDAP**.
4. Open the Local Users tab.
5. Click the **Edit** icon next to **USERID** (or the relevant user).
6. In the **User Credentials and Authority** area, enter a new Password in the field, then enter it again in Confirm Password.
7. Click **Apply**.

1.5.4 IMM Password

Some older NetXplorer units (made by IBM) may continue to use the IMM Server management system in place of the BMC.

NOTE Customers are strongly advised to change default passwords on first login. Not doing so represents a security risk.

The default details of the IMM are:

- Default IP: 192.168.70.125
- Default User Name: USERID
- Default Password: PASSWORD (where the “0” is not “o” but “zero”)

To change the IMM password, follow the steps below:

1. Bring up or reboot the server.
2. Log into the IMM using the default or current password.
3. From the **IMM** menu bar, select **IMM Configuration**, and then **User Accounts**.
4. Open the Local Accounts tab.

User Name	Access	Password Expiration	Active Sessions
USERID	Supervisor	No Expiration	10.4.0.1 (Web-HTTPS)

Figure 1-2: IMM User Accounts

5. Click **USERID** (or the relevant user name) to open the **User Properties** screen.
6. In the **User Credentials** area, enter a new **Password** in the field, then enter it again in **Confirm Password**.

7. Click Apply.

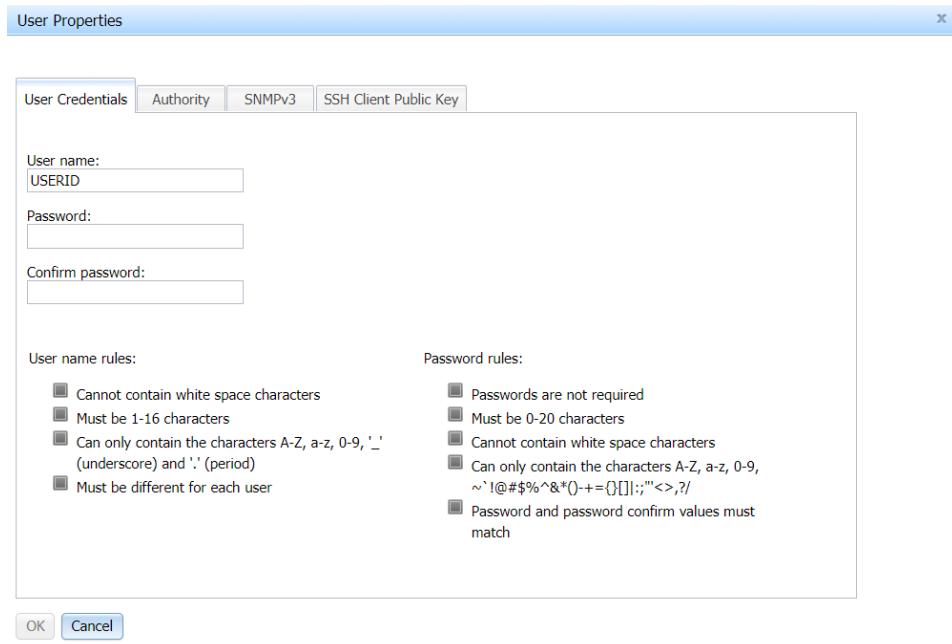


Figure 1-3: IMM User Credentials

1.5.5 Lenovo Storage Manager

If you are using the Lenovo Storage manager to work with an external storage server, the default user name and password are as follows:

User name: superuser

Password: passw0rd

These may be changed by logging in and clicking **Settings** in the Lenovo Storage Manager.

1.5.6 NX GUI Password Management

For information on how to manage NX GUI user roles and passwords, see Configuring NetXplorer Users on page 6-17.

2 Installing NetXplorer Server Software

2.1 Allot NetXplorer Appliances

Preinstalled NetXplorer Servers, P/N SNX-SRV or SNX-SRV-HAP, are shipped to the customer as appliances on COTS hardware with the Allot Common Platform (with its associated packages) and NetXplorer software pre-installed. If you have purchased one of these appliances, there is no need to install the NetXplorer software, and you may jump straight to Chapter 3.

2.2 Bare Metal Hardware Installation

If desired, it is possible to install NetXplorer Server software on hardware that is not provided by Allot, running either Linux or Windows as described below.

2.2.1 Linux Installation

Installation Prerequisites

This section describes the minimum hardware and software requirements for installing ACP and NetXplorer on a Linux Server that is not provided by Allot.

On Linux based servers it is **MANDATORY** that ACP (Allot Common Platform be installed before installing the NetXplorer software.

Server Hardware Requirements

Minimum Specifications

- Intel Xeon, 4 core, 2.0 GHz or equivalent
- 6 GB RAM DDR Dual channel
- RAID (0 or 10) Controller with 256MB Battery Backed Write Cache (BBWC)
- 600GB HDD 10k RPM or larger (capacity depends on overall storage needs)

Recommended Specifications

- Intel Xeon, 6 core, 2.0 GHz or equivalent
- 16 GB RAM DDR Dual channel
- RAID (0 or 10) Controller with 256MB Battery Backed Write Cache (BBWC)

- 600GB HDD 15k RPM or larger (capacity depends on overall storage needs)

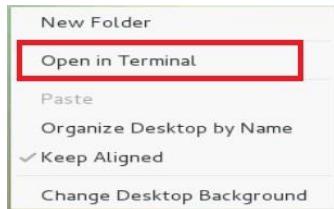
NOTE For sizing and performance information, see the relevant NMS Software Release Notes.

Software Requirements

- Any Real-Time Virus Protection programs or automatic Defragmentation/Backup software must be disabled on the NetXplorer server or the Allot folder needs to be excluded from protection/defragmentation.
- No other database applications (for example, SQL database) should be installed on the NetXplorer server machine.
- No application should be listening to port 80 at the time of the installation.
- FQDN of the server should be defined (to check run ‘hostname -f’).

Installing the ACP

1. Download the required files from Allot's BOX account at <https://allotcommunications.app.box.com/v/ACP/folder/7783759881>. The files should include:
 - ◆ ACP<VERSION>.iso. (image)
 - ◆ ACP<VERSION>.text.md5 (check sum)
2. Copy the ACP<VERSION NUMBER>.iso file to the host being used to connect to the Remote Server Management Console (iLO/IMM/BCM). Connect to the remote console (see appropriate documentation) and mount the iso (via **Virtual Drives – Image File Removable media** in iLO or **Tools -> Run Virtual Media -> Add Image** in IMM or **Media -> Mount Virtual Media -> Activate** in BCM).
3. Mount the iso file in the appropriate way for your Management Console.
4. Reboot the server using the mounted iso as the boot drive.
5. The ACP will install automatically.
6. After installation is complete Log in to CentOS.
7. Open terminal (right click on desktop and choose "open in terminal").



8. Switch to root user using the following command:
`su -`
9. When prompted, enter the root password.
10. Run the /root/netmenu.sh script for initial network configuration.

Installing NetXplorer

1. Set the Config ntp service to start when the unit is rebooted by entering the following command:
`chkconfig --levels 35 ntpd on`
2. Download **Allot_netxplorer_<version.build>.tgz** and **Allot_netxplorer.sh** from the Allot ftp site.

3. Copy **Allot_ netxplorer _<version.build>.tgz** and **Allot_ netxplorer.sh** to the local directory on the server.
4. Run the following command:
chmod +x Allot_ netxplorer.sh
5. Run the following command:
./Allot_ netxplorer.sh -i
6. Configure the rsyslog Audit Log by running the following script:
/opt/allot/bin/nx_rsyslog_cfg.sh

To enable the rsyslog Audit Log, run the following commands:

```
/opt/allot/bin/nx_auditlog.sh on
service netxplorer restart
```

To disable the rsyslog Audit Log, run the following commands:

```
/opt/allot/bin/nx_auditlog.sh off
service netxplorer restart
```

7. Configure the NTP service to start on system start by entering the following command:
chkconfig --levels 35 ntpd on
8. Manually edit the /etc/hosts files as follows:
127.0.0.1 localhost.localdomain localhost
10.50.18.1 NX1-lin.allot.local NX1-lin
9. Verify that the maximum number of files that can be open is set to 8192. This is done from the /etc/security/limits.conf file. Run **vi /etc/security/limits.conf**. The descriptor limits must be set according to following pattern:
 - ◆ soft nofile 8192
 - ◆ hard nofile 8192
10. For the changes above to take effect, the server must be rebooted. Reboot the machine. Confirm that NTP and NetXplorer services are running.
11. To start/stop/check the status of the services use commands such as:

```
service ntpd start
service netxplorer stop
service netxplorer status
```

Note: **Following installation you must make sure you have the most recent Protocol Pack installed. For information on installing Protocol Packs see the NetXplorer Operation Guide.**

Uninstalling NetXplorer

- Run the following command:
`./Allot_netxplorer.sh -r`

2.2.2 Windows Installation

Installation Prerequisites

This section describes the minimum hardware and software requirements for installing NetXplorer on a Windows Server.

Server Hardware Requirements

Minimum Specifications

- Intel Xeon, 6 core, 2.0 GHz or equivalent
- 16 GB RAM DDR Dual channel
- RAID (0 or 10) Controller with 256MB Battery Backed Write Cache (BBWC)
- 600GB HDD 15k RPM or larger (capacity depends on overall storage needs)
- Windows Versions:
 - ◆ Windows Server 2016 64 bit
 - ◆ Windows Server 2012 64 bit (Recommended)
 - ◆ Windows Server 2008 R2 64 bit
 - ◆ Windows Server 2008 64 bit
 - ◆ Windows 8 64 bit Professional/ Enterprise editions

Recommended Specifications

- Intel Xeon, 6 core, 2.0 GHz or equivalent
- 16 GB RAM DDR Dual channel
- RAID (0 or 10) Controller with 256MB Battery Backed Write Cache (BBWC)
- 600GB HDD 15k RPM or larger (capacity depends on overall storage needs)
- Windows Versions:

Installing NetXplorer Server Software

- ◆ Windows Server 2012 64 bit (Recommended)
- ◆ Windows Server 2008 R2 64 bit
- ◆ Windows Server 2008 64 bit
- ◆ Windows 8 64 bit Professional/ Enterprise editions
- ◆ Windows 7 64 bit Professional/ Enterprise/ Ultimate editions

Note: **For sizing and performance information, see the relevant Software Release Notes.**

Software Requirements

- Any Real-Time Virus Protection programs or automatic Defragmentation/Backup software must be disabled on the NetXplorer server or the Allot folder needs to be excluded from protection/defragmentation.
- Java JDK should be installed on the Server machine. For details on how to install the Java JDK see [Installing Java JDK on page 2-8](#).
- No other database applications (for example, SQL database) should be installed on the NetXplorer server machine.
- No application should be listening to port 80 at the time of the installation.
- On Windows Server, IPv6 should be disabled by going to Control Panel > Network and Sharing Center > Manage Network Connections > Local Area Connection Properties. Uncheck the Internet Protocol Version 6 checkbox to disable the service.

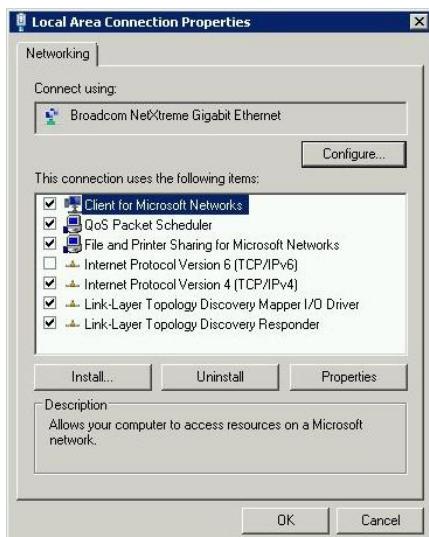


Figure 2-1: Local Area Connection Properties

Pre-Installation Checklist

Before you begin the installation process, it is important that you perform the following steps.

1. Verify that the minimum required space is available on the hard disk.
2. Verify that there is at least 4 GB of available Virtual Memory.

Note: **Set the Virtual Memory on your computer by selecting Start/Settings/Control Panel/System. Open the Advanced tab and click the Performance Settings button. Open the Advanced tab and click the Change button under Virtual Memory to select a new value.**

3. Verify that Java JDK is installed, including runtime environment. If it is not installed, install it now, as described below.

Installing Java JDK

The Java JDK, including the run time environment, must be installed before you can install NetXplorer.

To install the Java JDK:

1. Browse to <target folder> and run the **jdk.exe** file on the installation CD. The Security Warning is displayed.
2. Click **Run**. The License Agreement is displayed.
3. Read the license agreement and select **I accept the terms ...** to indicate your agreement, and then click **Next**. The Custom Setup dialog is displayed.
4. Click **Next** to accept the default installation location,
OR
Click **Change** to browse and select an alternate installation location, and then click **Next**.

Note: **The necessary program features are selected by default. You do not need to change these default settings.**

The Browser Registration dialog is displayed.

5. Verify that your Browser is selected and click **Install**. The Installing Java JDK dialog is displayed. The progress bar indicates the status of the installation process.
6. When the installation process is done, the Complete window is displayed.
7. Click **Finish**.

Installation Instructions

After you have performed the pre-installation checks and have verified that the Java JDK is installed, you are ready to install NetXplorer.

To install NetXplorer:

1. Run the **setup.exe** file on the installation CD or from a net-mounted disk.

Note: **Do not attempt to run the setup file from a net long address, such as \\file_server\.**

2. The following dialog is displayed.



Figure 2-2: Security Warning

3. Click **Run**.
 4. Click **Next** to continue.
 5. The NetXplorer License Agreement is displayed.
 6. Click Next to continue
 7. Read the license agreement and select **I accept the term ...** to indicate your agreement, and then click **Next**. The Choose Setup Type dialog is displayed.
 8. To install all program components in a single location, select **Typical** and click **Next**. Then skip ahead to step 12.
- OR
- To install each component in a different location, select **Custom** and click **Next**.
- Note: **Allot strongly recommends using the Custom installation option.**
9. If you selected **Custom** in step 5, the following dialogs are displayed.



Figure 2-3: Choose Destination Location - Custom

10. Accept the default destination locations or browse and select an alternate location for one or more of the components, and then click **Next**. The Choose NTP configuration option dialog is displayed.

Note: **If alternate locations are chosen for one or more components, they must be in a subdirectory on one of the root directories (like C:\Allot or D:\Allot) and not on the root directory itself (C:\ or D:\).**

Note: **It is recommended that the system files and the different monitoring files be installed on different physical drives in order to improve overall performance.**

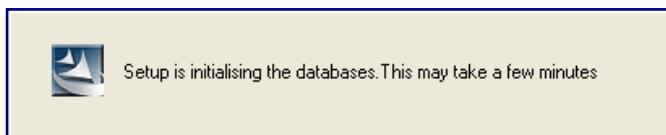
11. Select either the **Use local clock** or the **Use External NTP server** radio button. If you select an external NTP server, enter the server's IP address in the field provided. Click **Next**.

Note: **Allot strongly recommends using an external NTP server.**

12. If you selected **Typical** in step 5 accept the default destination location or browse and select an alternate location, and then click **Next**.

13. Click **Install** to begin the installation. The Setup Status dialog is displayed.

After a few moments the following popup is displayed.

**Figure 2-4: Setup Initializing**

Note: **The installation may take up to 30 minutes to complete.**

14. When the installation is complete you will be given the option to restart your PC.

Note: **Following installation you must make sure you have the most recent Protocol Pack installed. For information on installing Protocol Packs see the NetXplorer Operation Guide.**

2.3 Virtual Installation

Allot NMS components can be purchased and delivered as a virtual appliance files (templates) with the relevant products pre-installed and configured on them.

Allot Virtual NMS (vNMS) components are provided with two types of template:

- OVF template for deployment in VMWare/ESXi environment
- QCOW2 template for deployment in OpenStack/KVM environment

The template files for each product may be configured to support both larger and smaller scale environments.

2.3.1 Installing the Virtual Template

For full instructions on installing a Virtual NX on VMWare, OpenStack or KVM, see see the appropriate Virtual Environment guide, available on the Allot Knowledge Base.

3 Connecting NetXplorer Server Appliances

This chapter shows how the Allot NetXplorer appliances (standalone and High Availability) are physically connected to the management network. Essential configuration for High Availability servers is also detailed below.

If you have installed the software on your own server, then some details may differ.

3.1 Allot Stand Alone Appliance Connectivity

After unpacking the hardware, installation consists of 4 steps:

1. Connecting directly to the Server with a keyboard and monitor
2. Changing the IP address of the server
3. Changing the IP address in the NetXplorer application server
4. Configuring the IMM Settings

NOTE The Name (host name) of the NetXplorer cannot include upper case letters or underscores. An acceptable name would be nx-1, but NX_1 would not be supported and the NX would not be able to be brought up.

3.1.1 SR630 Server

Connecting to NX-SRV

Connect a keyboard, monitor and mouse to the front panel of the NX-SRV as shown below.

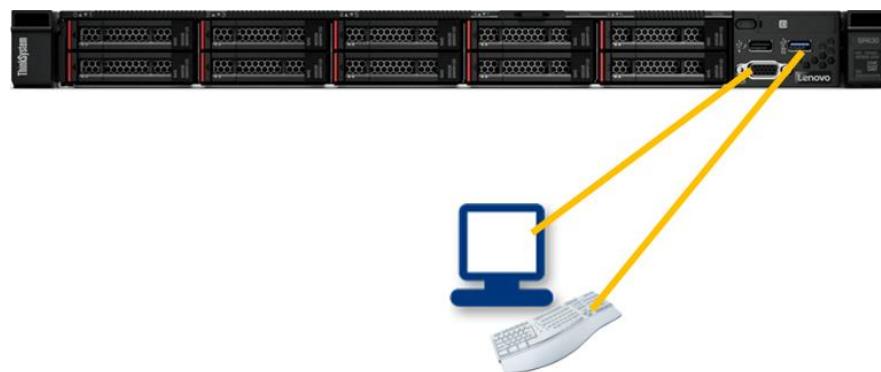


Figure 3-1: Connecting Keyboard and Screen

Connect the management and BMC links to the rear panel of the NX-SRV as follows:



Figure 3-2: Connecting Management and BMC

1. Each NX server is connected to the management network via eth1 and may be connected to an optional second management network for redundancy purposes via eth2.
2. Each NetXplorer server can be directly managed from the BMC port by connecting this port to an external switch with an additional ethernet management cable.

Note: Following installation you must make sure you have the most recent Protocol Pack installed. For information on installing Protocol Packs see the NetXplorer Operation Guide.

Changing the IP Address (ACP 17)

To change the address

1. Run netmenu.sh using the following command and enter the appropriate network information when prompted:
/root/netmenu.sh

```

Initial Network Configuration Menu

#      I/F          MAC Address           IP Address        NETMASK      UP
1) ens192 : 00:50:56:a4:d7:87          10.4.102.27    255.255.0.0  V
                                         Not-defined
2) Gateway   : 10.4.0.1
3) Hostname  : vm-102-27.allot.local
4) DNS       : 172.17.1.10
5) MNGT I/F  : ens192
6) NTP       : 0.centos.pool.ntp.org 1.centos.pool.ntp.org

7) clear All Network Configuration
8) Quit

Choose a number of an item to configure or Enter to Refresh screen : 1
Configuring Ethernet Port #1 : ens192
Choose IP format:
1) IPv4
2) IPv6
3) Dualstack
Choose IP Format : ■

```

Figure 3-3: netmenu.sh

NOTE From netmenu.sh you can choose to use IPv4, IPv6 or DualStack (both) for all connections.

2. Reboot the server.

Changing the IP Address (NetXplorer)

In order to change the IP address on the NetXplorer application server, from the default 11.11.11.1, you will need to run the **set_nx_ip4ui.sh** script.

Configuring BMC Parameters

The BMC is the Server Management Software used on Lenovo servers and is provided with all new NetXplorer Servers from Allot. It is a way to access and manage the NX Server remotely.

To configure the network settings of the BMC, follow the steps below:

1. Connect directly from a laptop to the BMC interface on the rear of the Data Mediator.

**Figure 3-4: BMC Port**

2. Open a web browser. In the address field type the IP address or host name of the BMC to which you want to connect.

Note: If you are logging in to the IMM for the first time after installation, the IMM defaults to DHCP. If a DHCP host is unavailable, it uses the default static IP address 192.168.70.125. You can obtain the DHCP-assigned IP address or the static IP address from the server BIOS or from your network administrator.

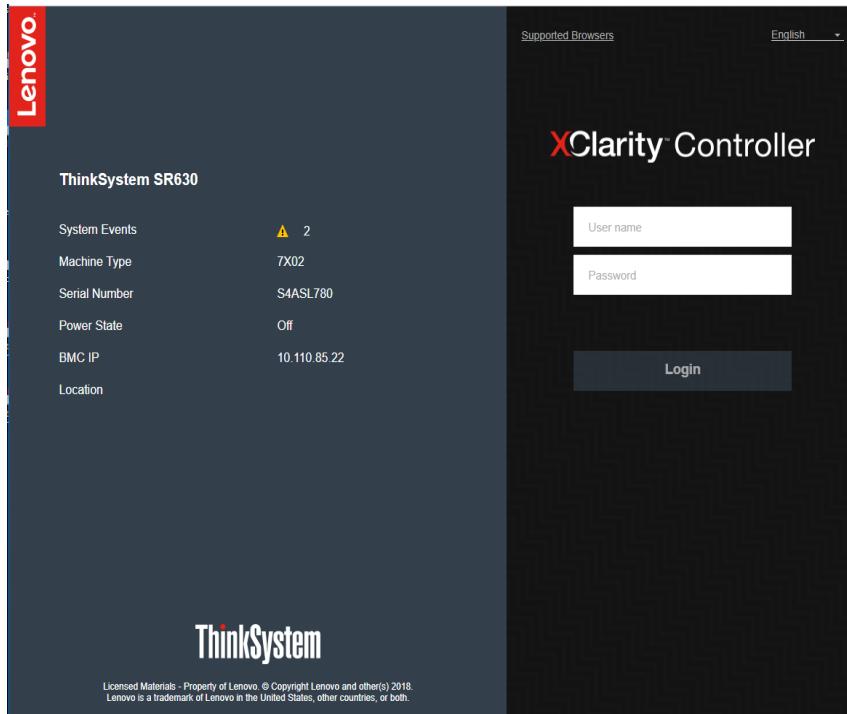


Figure 3-5: BMC Login

3. Enter User ID and Password
4. You will see the BMC User Interface, with the default “Home” in view, as seen in below:

Connecting NetXplorer Server Appliances

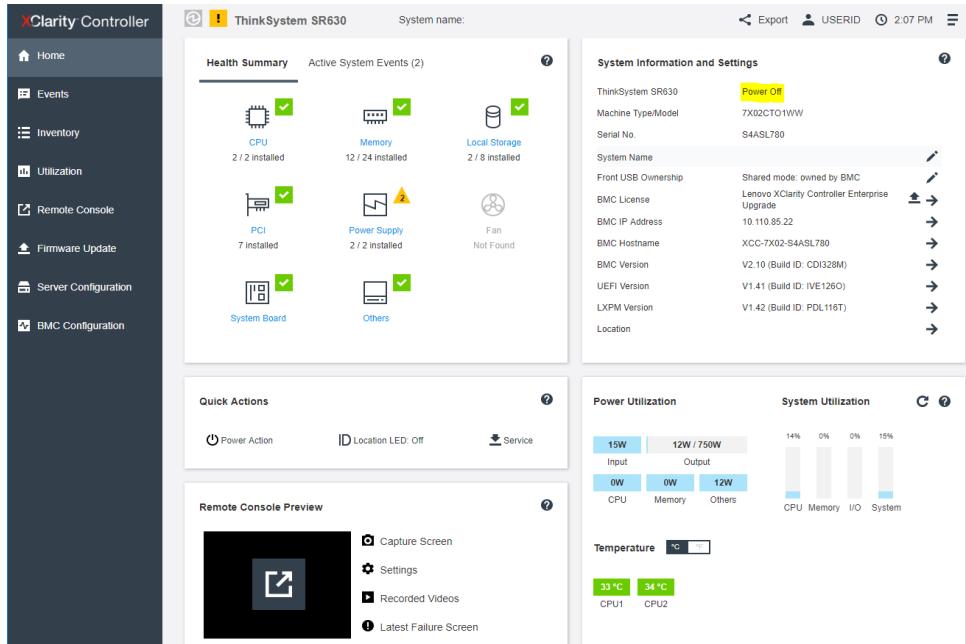


Figure 3-6: BMC Home Screen

5. Select BMC Configuration and then “Network” from the drop down list on the left side of the screen.
6. In the Ethernet section, make sure that IPv4 is enabled, and IPv6 DHCP is disabled.
7. In the IPv4 section, make sure that the Configure IP address settings field is set to: “Use Static IP Address”. Assign an IP, mask and default gateway as seen above and click **Apply**. You can now access the BMC remotely using these network settings.

Connecting NetXplorer Server Appliances

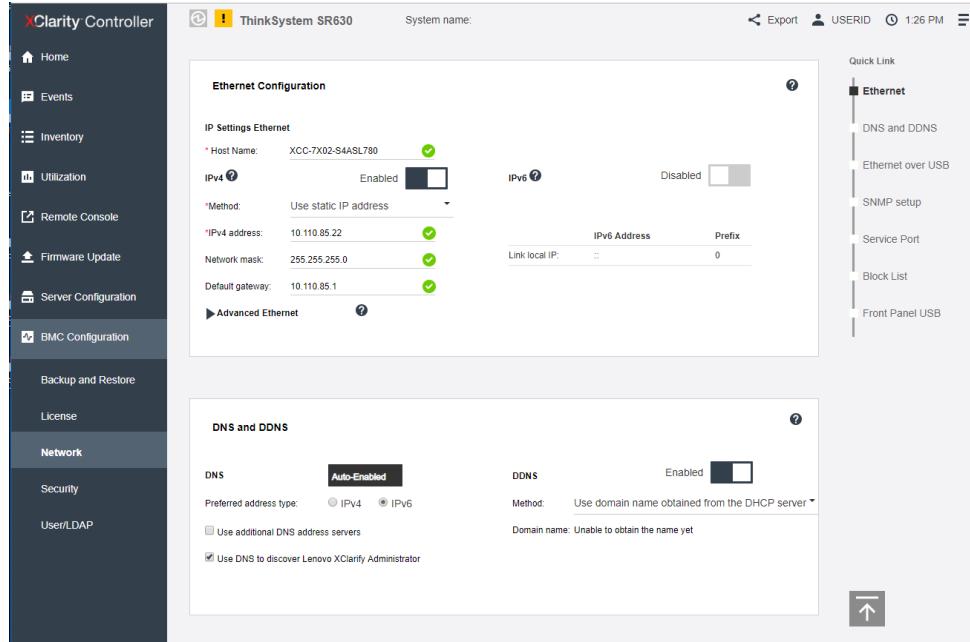


Figure 3-7: BMC Network

3.1.2 M5 Server

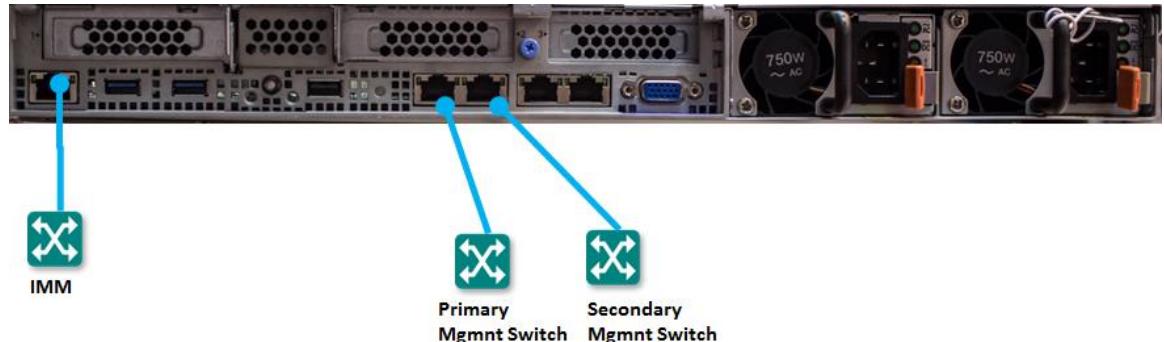
Connecting to NX-SRV

Connect a keyboard, monitor and mouse to the front panel of the NX-SRV as shown below.



Figure 3-8: Connecting Keyboard and Screen

Connect the management and IMM links to the rear panel of the NX-SRV as follows:

**Figure 3-9: Connecting Management and IMM**

8. Each NX server is connected to the management network via eth2 and may be connected to an optional second management network for redundancy purposes via eth3.
9. Each NetXplorer server can be directly managed from the IMM port by connecting this port to an external switch with an additional ethernet management cable.

Note: Following installation you must make sure you have the most recent Protocol Pack installed. For information on installing Protocol Packs see the NetXplorer Operation Guide.

Changing the IP Address (ACP 17)

To change the address

1. Run netmenu.sh using the following command and enter the appropriate network information when prompted :
/root/netmenu.sh
2. Reboot the server.

Changing the IP Address (ACP 16)

To change the address

1. Copy the netwconf.sh script to the root directory of the server, run it using the following command and enter the appropriate network information when prompted:
/root/netwconf.sh

Output Example

```
[root@localhost ~]# /root/netwconf.sh
Please type the IP ADDRESS [ 11.11.11.11 ]
10.4.3.65
Please type NETMASK [ 255.255.0.0 ]
```

```
Please type the GATEWAY [ 11.11.0.1 ]
10.4.0.1
Please type hostname [ localhost ]
Server1
Please type domain name [     ]
mydomain.com
Please type ip address of DNS [ 198.168.254.2 ]
8.8.8.8

Please check the values entered
The host: Server1 10.4.3.65
NETMASK: 255.255.0.0, DOMAIN: mydomain.com
GATEWAY: 10.4.0.1
DNS: 8.8.8.8
Continue with these values (y/n) [y]?
Y
Please type ip address of additional DNS or press Enter to
continue:
8.8.4.4
Please type ip address of additional DNS or press Enter to
continue:
194.90.1.5
Please type ip address of additional DNS or press Enter to
continue:

Restarting network service...
Done.
```

2. Reboot the server.

Changing the IP Address (NetXplorer)

In order to change the IP address on the NetXplorer application server, from the default 11.11.11.1, you will need to run the **set_nx_ip4ui.sh** script.

Configuring IMM Parameters

To configure the network settings of the Integrated Management Module, follow the steps below:

1. Connect directly from a laptop to the IMM interface on the rear of the Data Mediator. The interface is labeled “SYSTEM MGMT” as shown in Figure 3-10 below



Figure 3-10: IMM "System Management" Port

2. Open a web browser. In the address field type the IP address or host name of the IMM to which you want to connect.

Note: If you are logging in to the IMM for the first time after installation, the IMM defaults to DHCP. If a DHCP host is unavailable, it uses the default static IP address 192.168.70.125. You can obtain the DHCP-assigned IP address or the static IP address from the server BIOS or from your network administrator.

Figure 3-11: IMM Login

3. Enter User ID and Password
4. You will be prompted to specify an inactive session timeout value. Choose a value from the dropdown list and click on Continue.
5. You will see the IMM User Interface, with the default "System Status" in view, as seen in below:

The screenshot shows the 'System x3550 M5' page in the IMM. At the top, there are tabs for 'System Status', 'Events', 'Service and Support', 'Server Management', and 'IMM Management'. Below the tabs, the host name is listed as 'Host Name: IMM2-0894ef3a0183' with a 'Rename...' link. A note states: 'The System Status and Health page provides an at-a-glance overview of the operating status of the server in which this IMM resides. Common information and actions are co-located on this one page.' Under 'System Status', it shows 'Power: On' and 'System state: Booting OS or in undetected OS'. There are four tabs: 'System Information', 'Power Actions', 'Remote Control...', and 'Latest OS Failure Screen'. The 'System Information' tab is selected. Below it is a table titled 'Active Events' with columns for Severity (Error), Source (Power), Date (27 Apr 2017, 07:29:57.618 PM), and Message (Redundancy Lost for Power Unit has asserted). Under 'Hardware Health', there is a table showing component types and their statuses: Cooling Devices (Normal), Power Modules (Critical), Local Storage (Normal), Processors (Normal), Memory (Normal), and System (Normal).

Figure 3-12: IMM System Status Screen

6. Select “Network” from the IMM Management drop down list on the left side of the screen.
7. In the Ethernet section, make sure that IPv4 is enabled, and IPv6 DHCP is disabled. In addition, DDNS status should be set to “Disabled” and “Domain Name Used” should be set to “manual”.
8. In the IPv4 section, make sure that the Configure IP address settings field is set to: “Use Static IP configuration”. Assign an IP, mask and default gateway as seen above and click **Save**. You can now access the IMM remotely using these network settings.

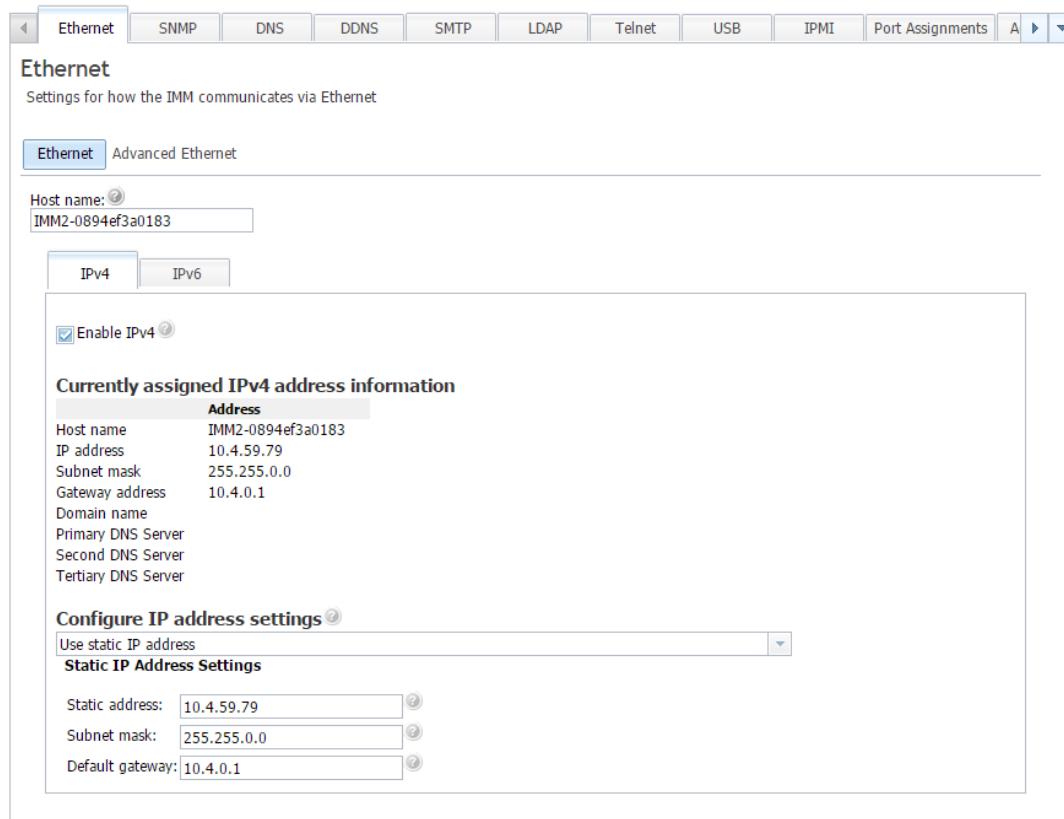


Figure 3-13: IMM Network

3.2 Allot NX-HAP Connectivity and Configuration

When a NetXplorer High Availability Platform is supplied, the customer will receive the following hardware components with the necessary software pre-installed:

- 2 x NetXplorer Servers
- 1 x NetXplorer Shared Storage Device

The administrator responsible for installation needs to connect the devices and then perform a basic network configuration as outlined below.

NOTE Each Server in a HAP configuration must have the same firmware installed, provided by the vendor. To upgrade the firmware to the latest version use the BMC/IMC.

3.2.1 Connecting NX-SRV-HAP

Lenovo SR630 Servers

In a High Availability Cluster configuration, the NX servers are connected by two physical links. In addition, each NX server is connected to each of the controllers on the RAID storage device with dedicated SAS cables.

The NX-SRV-HAP using Lenovo SR630 servers are deployed with the IBM V5010 RAID storage unit.

NX-SRV-HAP with V5010 Storage

The diagram below shows the rear-views of the V5010 RAID storage server and the 2 x NetXplorer servers that make up the NX-HAP solution. The physical connections are shown below:

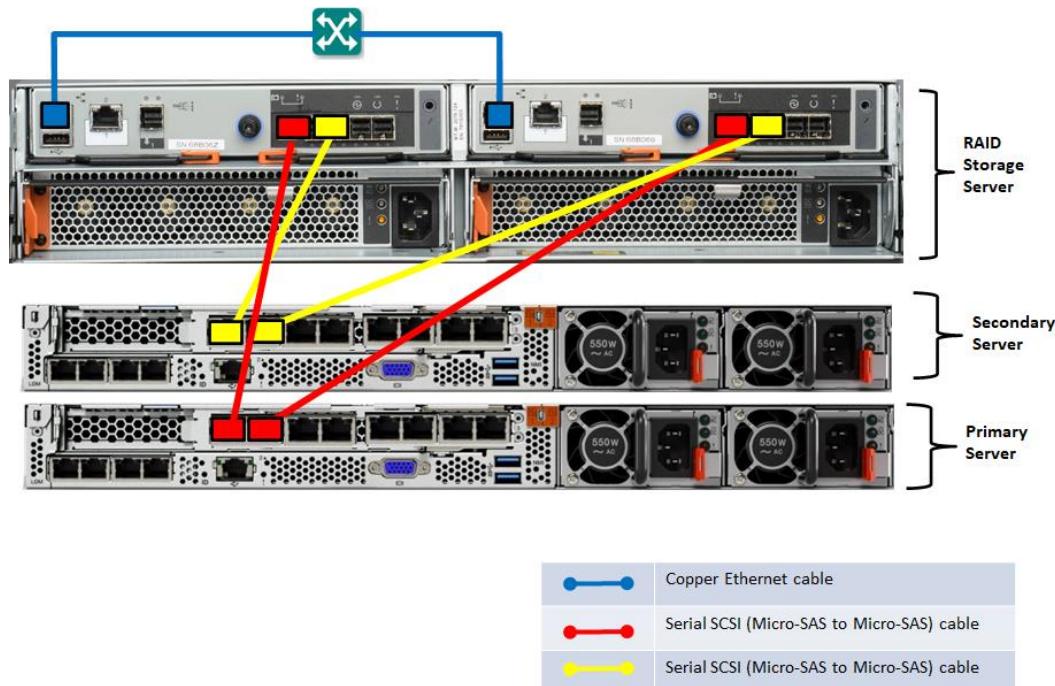


Figure 3-14: NX-SRV-HAP Cluster Storage Connections (SR630 and V5010 Hardware)

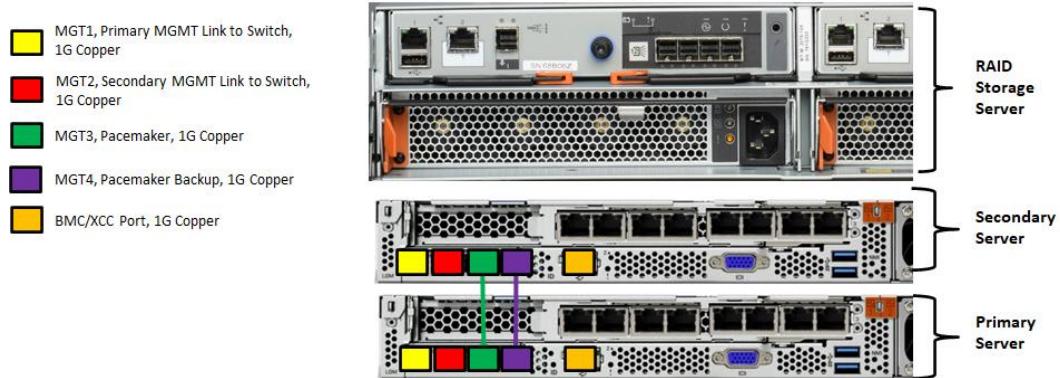


Figure 3-15: NX-SRV-HAP Cluster Network Connections (SR630 and V5010 Hardware)

1. A label is affixed to the top of the V5010 Storage Unit that indicates the serial number of the supplied DM that must be used as the Primary NX. Use this information when connecting your NX-HAP system.
2. Use two copper ethernet cable to connect between MGT3 and MGT4 on each NX to the same port on the second server (illustrated in green and purple above). This connection serves the pacemaker communication process and its redundant backup respectively.
3. Use a Serial Attached SCSI (SAS) cable to connect between each DM and the RAID storage server. These connections and the exact ports required are illustrated above. The cables connect to the NX via Micro-SAS connectors.
4. Connect each NX to the management network via MGT1 (shown in yellow) with an additional link via MGT2 (shown in red).
5. Additional management cables should be connected to the BMC/XCC module on each NX for direct connectivity and maintenance (in orange).

An additional optional management cable may be connected to the RAID storage server for storage management and storage traps (shown in blue above).

IBM M5 Servers

In a High Availability Cluster configuration, the NX servers are connected by two physical links. In addition, each NX server is connected to each of the controllers on the RAID storage device with dedicated SAS cables.

The NX-SRV-HAP using M5 servers are deployed with the IBM V5010 RAID storage unit.

NX-SRV-HAP with V5010 Storage

The diagram below shows the rear-views of the V5010 RAID storage server and the 2 x NetXplorer servers that make up the NX-HAP solution. The physical connections are shown below:

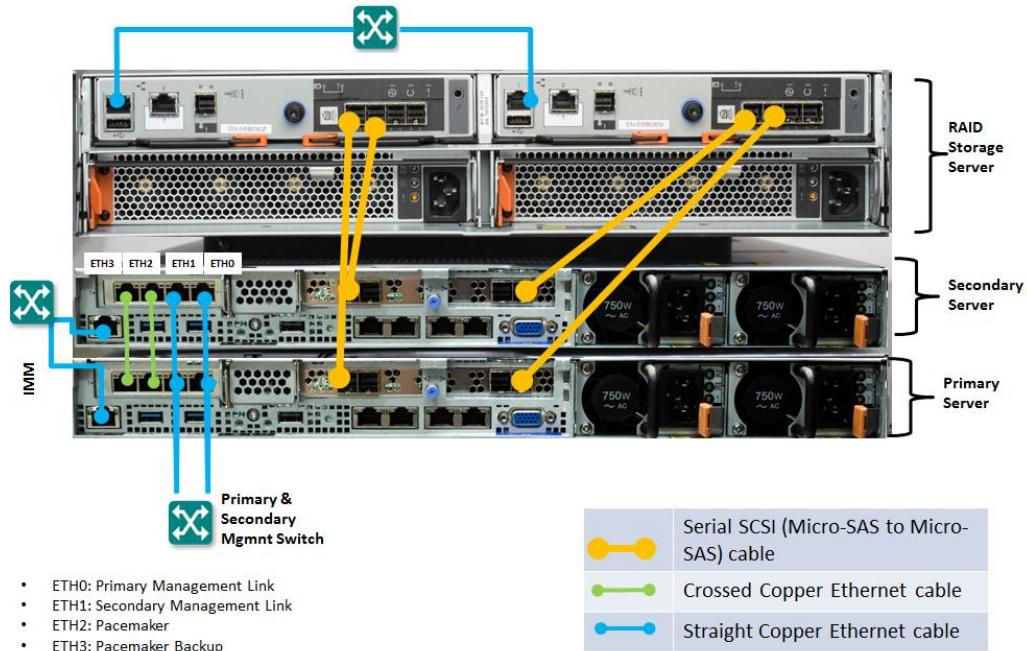


Figure 3-16: Cable Connections for NX High Availability Platform (IBM M5 and V5010 Hardware)

1. A label is affixed to the top of the Storage Unit that indicates the serial number of the supplied NX that must be used as the Primary NX. Use this information when connecting your NX-HAP system.



Figure 3-17: Label on Storage Unit

2. Two crossed copper cables in eth2 and eth3 are used to connect the two NX Servers to provide pacemaker connectivity. (illustrated in green above)

3. Two Serial SCSI (SAS) cables connect between the first controller on the RAID storage device and an SAS HBA connection on each NX server (illustrated in orange above). These cables connect to the NX Server via Micro-SAS connectors.
4. Two further Serial SCSI (SAS) cables connect between the second controller on the RAID storage device and an SAS HBA connection on each NX server (illustrated in orange above). These cables connect to the NX Server via Micro-SAS connectors.
5. Each NX server is connected to the management network by crossed cables via eth0 (illustrated in blue above) with an additional link via eth1, as required. These provide pacemaker connectivity.
6. Each controller on the storage device is connected to the management network by a copper Ethernet link (illustrated in blue above) for storage management and traps
7. Each NetXplorer server can be directly managed from the IMM port by connecting this port to an external switch with an additional ethernet management cable (illustrated in blue above). For an explanation of the IMM see below.

Warning: Once the two green Ethernet cables connected to eth2 and eth3 have been connected **DO NOT DISCONNECT BOTH OF THEM TOGETHER**. The effect of disconnecting BOTH of these pacemaker cables is that both NetXplorer servers will mount the storage and this will lead to a corruption of the NetXplorer database.

NX-SRV-HAP with V3700 Storage

The diagram below shows the rear-views of the V3700 RAID storage server and the 2 x NetXplorer servers that make up the NX-HAP solution. The physical connections are shown below:

Connecting NetXplorer Server Appliances

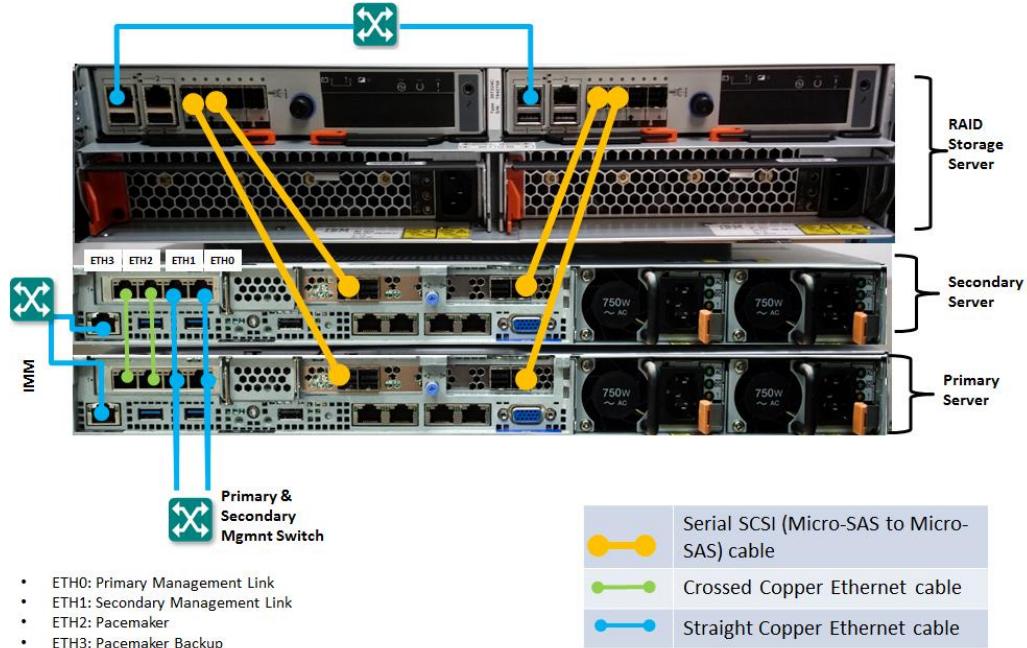


Figure 3-18: Cable Connections for NX High Availability Platform (IBM M5 and V3700 Hardware)

1. A label is affixed to the top of the V3700 Storage Unit that indicates the serial number of the supplied NX that must be used as the Primary NX. Use this information when connecting your NX-HAP system.



Figure 3-19: Label on Storage Unit

2. Two crossed copper cables in eth2 and eth3 are used to connect the two NX Servers to provide pacemaker connectivity. (illustrated in green above)
3. Two Serial SCSI (SAS) cables connect between the first controller on the RAID storage device and an SAS HBA connection on each NX server (illustrated in orange above). These cables connect to the NX Server via Micro-SAS connectors.

4. Two further Serial SCSI (SAS) cables connect between the second controller on the RAID storage device and an SAS HBA connection on each NX server (illustrated in orange above). These cables connect to the NX Server via Micro-SAS connectors.
5. Each NX server is connected to the management network by crossed cables via eth0 (illustrated in blue above) with an additional link via eth1, as required. These provide pacemaker connectivity.
6. Each controller on the storage device is connected to the management network by a copper Ethernet link (illustrated in blue above) for storage management and traps
7. Each NetXplorer server can be directly managed from the IMM port by connecting this port to an external switch with an additional ethernet management cable (illustrated in blue above). For an explanation of the IMM see below.

Warning: Once the two green Ethernet cables connected to eth2 and eth3 have been connected DO NOT DISCONNECT BOTH OF THEM TOGETHER. The effect of disconnecting BOTH of these pacemaker cables is that both NetXplorer servers will mount the storage and this will lead to a corruption of the NetXplorer database.

Verifying Connectivity

After connecting all of the cables above, check that there is communication between eth2 on each NX node. This connection is used by the pacemaker/heartbeat process to communicate between the two nodes. Verify connectivity by following the steps below:

1. Login to NX-1 as a root user
2. Enter ifconfig eth2 to verify the IP address of ETH2.
 - ◆ If the IP address is 192.168.168.1, ping 192.168.168.2
 - ◆ If the IP address is 192.168.168.2, ping 192.168.168.1
 - ◆ If there is no ping, check the physical connectivity. Enter the command: **ethtool eth2** to verify if the status of the link.
3. Repeat steps 1-2 above for NX-2

3.2.2 Configuring NX-SRV-HAP

Overview

There are three stages to the NX-HAP configuration:

- Running the appropriate HA script (Allot_HA7_Setup.sh for CentOS 7, HA6x.sh for CentOS 6.4)
- Adding the Virtual IP of the NX-HAP as a trap target for SNMP communication from devices
- Configuring NX-HAP to send Linux based SNMP traps to alert a trap receiver in the event of failover from one node to the other

For each of the different configuration steps below you will be asked to login to each of the NetXplorer nodes. Logging into each NetXplorer node is performed by using the root user.

Note: After configuring the NX-SRV-HAP, allot strongly recommends that each NX-HAP node should be synchronized with an external NTP server. The procedure for doing this is detailed on page 9-16 below.

Stage 1: Running the HA Scripts

Note: ACP and the NetXplorer Server software are pre-installed on all SG630 and M5 Servers supplied by Allot

The process of configuring NX-HAP IP Addresses in the field is automated using a script provided by Allot. For the purposes of these instructions we will assume that the two NetXplorer nodes are called Primary and Secondary. The node designated to be initially active will be Primary.

1. Copy the Allot_HA7_Setup.sh file to a local directory on each node. Make sure the copies are identical to originals.
2. Connect and switch on the storage unit.
3. Reboot when prompted.
4. On the Secondary node run the following command (the script may be found at /opt/allot/conf/ha):
Allot_HA7_Setup.sh -i
5. Answer the questions according to your configuration.

For example:

```
~~~~~  
Allot High availability for ACP 17.x Setup menu  
~~~~~
```

This is NX device, Please answer the following questions

Is this a Primary Machine (y/n) [y]? n

(next screen)

```

+-----+
| Secondary                                |
| HOST Name = smpha2-101-231.allot.com      |
| GATEWAY = 10.150.0.1                      |
| VIP =                                         |
|                                              eno1-+ |BOND0-Management
|                                              |-->|10.150.101.231
| Node2 = 10.150.101.231                   eno33559296-+ |255.255.0.0
| DNS = 172.18.1.10                         |
|                                              |                               |
|                                              eno50338560-+ |BOND1-Cluster
|                                              |-->|192.168.168.2
|                                              eno67109888-+ |255.255.255.0
|
+-----+
#      I/F          MAC Address     IP Address      NETMASK      Link
~~~ ~~~~~~ : ~~~~~~ ~~~~~~ ~~~~~~ ~~~~~~ ~~~~~~ ~~~~~
#) eno1      : 00:0c:29:60:82:6b           bond0       255.255.0.0 yes
#) eno33559296 : 00:0c:29:60:82:75       bond0       255.255.0.0 no
#) eno50338560 : 00:0c:29:60:82:7f       bond1       255.255.255.0 yes
#) eno67109888 : 00:0c:29:60:82:89       bond1       255.255.255.0 no
~~~~~ ~~~~~~ ~~~~~~ ~~~~~~ ~~~~~~ ~~~~~~ ~~~~~~ ~~~~~

HA Configuration :
~~~~~ ~~~~~
1) Bonding
  BOND0/MGT   : MGT1=eno1      MGT2=eno33559296
  BOND1/Cluster: CLT1=eno50338560 CLT2=eno67109888
  BOND2/Data  : DAT1=          DAT2=
~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~
2) Continue HA Setup
3) Disable HA and restore SA
4) Quit
~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~ ~~~~~

```

6. Select menu option 1) Bonding. Answer the questions (type values or item number and press Enter).
7. Select the appropriate Interfaces for Bond0 and define the node IP & Mask.
8. Select the appropriate Interfaces for Bond1.
9. When done continue with option 2) Continue HA Setup and switch to the Primary Node
10. On primary node run the following command:

Allot_HA7_Setup.sh -i

Note: **Ignore any warnings at this stage of the configuration.**

11. Answer the questions according to your configuration. Define the Management VIP of the NX-HAP installation.

For example.

Allot High availability for ACP 17.x Setup menu
~~~~~

This is NX device, Please answer the following questions

Is this a Primary Machine (y/n) [y]?

Please type the IP address of the VIP [] : 10.150.101.232

Please type the Management IP address of the Secondary host [] : 10.150.101.231

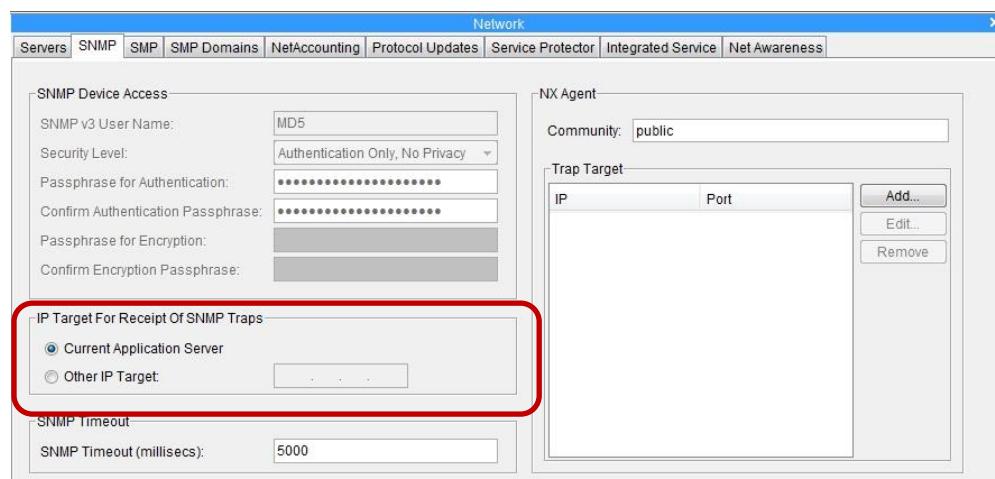
12. Continue with menu option 1 (Bonding) (see Secondary node configuration above), followed by option #2 (Continue HA Setup). When asked, provide the root password.

## Stage 2: Add NX-HAP VIP as Target for Internal SNMP Traps

This stage is mandatory to ensure that SNMP communication is always possible between devices such as the NE, SG or SMP and the virtual IP of the NX-HAP. This ensures that such communication will continue in the event of a failover between the active and passive NetXplorer nodes.

To add the NX-HAP virtual IP as the SNMP trap target, follow the steps below:

1. Open the NetXplorer GUI.
2. From **Network** in the Network Pane, right click and choose **Configuration**
3. Select the SNMP Tab
4. In the “IP Target For Receipt Of SNMP Traps” section, choose “Other IP Target” and enter the Virtual IP address of the NX-HAP cluster to ensure that traps are sent here.



**Figure 3-20: Specifying NX-HAP IP for Receipt of SNMP Traps****Stage 3: Configuring the NX-HAP to Send SNMP Traps**

Follow the step-by-step instructions below to enable Linux based high availability traps to be sent from the NX-HAP cluster. The traps are based on the **LINUX-HA-MIB** mib file. When a passive NX node becomes active it will send a trap to the trap receiver which you define below.

1. Open an SSH session to NX-1 or Primary Node
2. Edit the **/etc/snmp/snmpd.conf** file with VI. Add the IP address of the trap receiver to the trap2sink field as shown in the example below:

```
3. /etc/snmp/snmpd.conf
trap2sink 192.168.1.229
[root@nx1 ~]#
```

4. Restart the snmpd process by entering the command: **service snmpd restart**
5. Check snmpd service is running by entering the command: **service snmpd status**
6. Repeat steps 1-4 above for NX-2 or Secondary Node.

**High Availability Failover Traps**

Once the NetXplorer nodes have been configured to send traps to an external server, traps will begin to be sent. The traps are part of the **LINUX-HA-MIB.mib** and 6 traps are available.

| Name                    | Description                                                                       | OID                     |
|-------------------------|-----------------------------------------------------------------------------------|-------------------------|
| LHANodeStatusUpdate     | A node status change event just happened                                          | 1.3.6.1.4.1.4682.900.1  |
| LHAIFStatusUpdate       | A link status just changed                                                        | 1.3.6.1.4.1.4682.900.3  |
| LHAMembershipChange     | A node just changed its membership                                                | 1.3.6.1.4.1.4682.900.5  |
| LHAHBAgentOnline        | The heartbeat/pacemaker agent for this node is online and ready to accept queries | 1.3.6.1.4.1.4682.900.7  |
| LHAHBAgentOffline       | The heartbeat/pacemaker agent for this node is offline                            | 1.3.6.1.4.1.4682.900.9  |
| LHAResourceStatusUpdate | A resource status change event just happened                                      | 1.3.6.1.4.1.4682.900.11 |

## 4 NetXplorer Client Installation

### 4.1 Java and the NetXplorer Client

#### 4.1.1 Hardware Requirements

It is recommended that the NetXplorer Client be installed on a machine with the following minimum specifications:

- 1GB RAM
- Windows 7 or later
- The Allot NetXplorer GUI is designed to be used with a browser that supports WebKit, such as Chrome.

Note: **History logs will be kept on the client and can consume up to 150M**

#### 4.1.2 Software Requirements

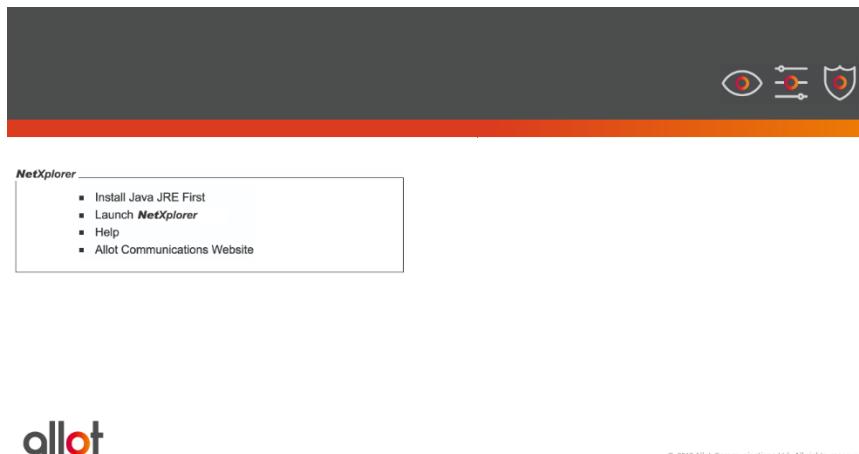
- NetXplorer Client software should be installed on a machine running Windows 7 (or later).
- Any Real-Time Virus Protection programs or automatic Defragmentation/Backup software must be disabled on the NetXplorer client or the Allot folder needs to be excluded from protection/defragmentation.
- Java should be installed on the client machine.
- No application should be listening to port 80 at the time of the installation.

#### 4.1.3 Installing Java

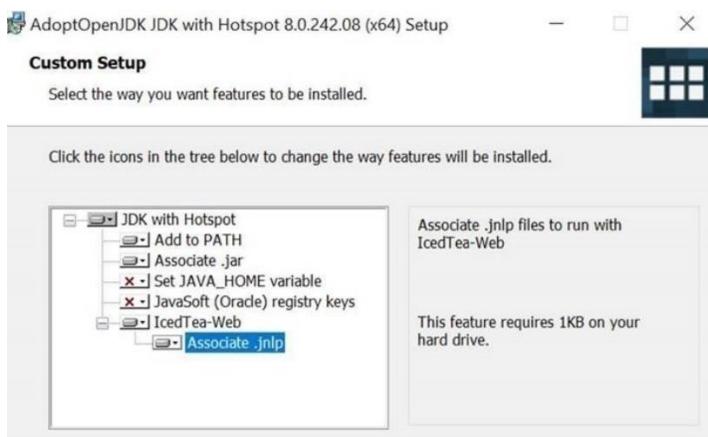
Java must be installed on your computer as a prerequisite to working with the NetXplorer User Interface.

##### To install Java:

1. Open your Internet browser, and access <http://<<NX-addr>>> The following window is displayed.

**Figure 4-1: NetXplorer Java Installation Screen**

2. Select if you are installing the NetXplorer client onto a Windows or Linux machine, select the appropriate choice. If you are installing on a Windows machine, the download and installation of OpenJDK will begin. If on a Linux machine, you will be sent to the Oracle site for Java Installation.
3. If installing on a Windows machine, follow the installation wizard. When prompted select a **Custom** install.
4. You **MUST** select the **IcedTea-Web** and **Associate .jnpl** features to be installed, otherwise you will not be able to open the NetXplorer Client.

**Figure 4-2 : OpenJDK Custom Setup**

#### 4.1.4 Working Behind NAT

In certain deployments, the Network Address Translation (NAT) is in operation between the NetXplorer Client and the NetXplorer Server. In order to enable GUI

access in such a case, the NetXplorer administrator must edit the **swKeeper.ini** file on the NetXplorer server, replacing the server hostname with the fqdn hostname.

The swKeeper.ini file can be found in /opt/allot/conf/swKeeper.ini

Under **tasks/java**, look for the **args** option, and set it as shown below, inserting the fqdn hostname in the relevant place.

**-Djava .rmi.server.hostname=<fqdn hostname>**  
**-Dremoting.bind\_by\_host=true**

If the NetXplorer Server is running on a Linux machine then you must also change the hostname to **netxplorer** instead of the fqnd (netxplorer.example.com) in the following file on the server:

**/etc/sysconfig/network**

The file should appear as follows:

```
cat /etc/sysconfig/network  
NETWORKING=yes  
NETWORKING_IPV6=yes  
HOSTNAME=netxplorer
```

Once the file has been changed, restart the Network service and the NetXplorer server service.

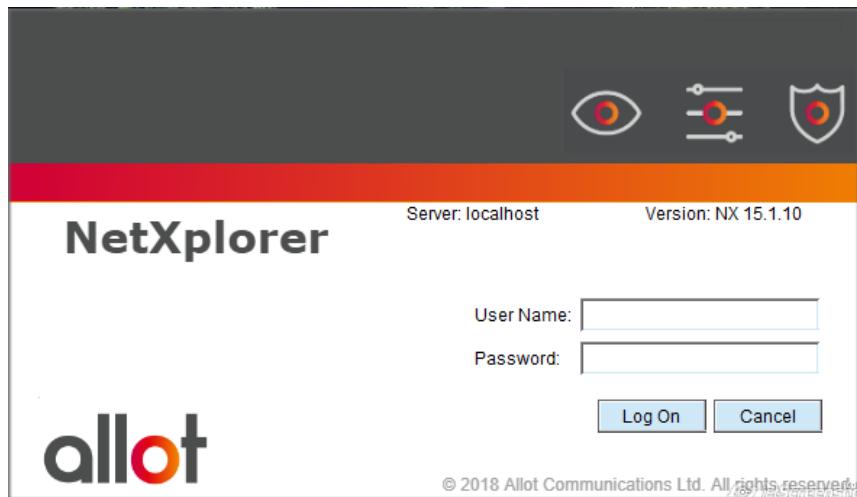
## 4.2 Accessing NetXplorer

Once you have completed the initial setup, as described above, you can access the NetXplorer via your Web browser or via a direct link. The first time that you connect to NetXplorer, you may be prompted to install Java plug-in (see above).

1. In your web browser, browse to **http://<<NX IP>>** and select **Launch NetXplorer** in the NetXplorer Control Panel.

OR

Double click the shortcut icon on the desktop or in the system's *Start* menu.
5. The Java Application Starting window is displayed.
6. The NetXplorer Log On dialog is displayed.



**Figure 4-3 : NetXplorer Log On Dialog Box**

7. Enter the User Name and Password. These may be the default user name and password or they may be different if you have changed them.

**NOTE** *Customers are strongly advised to change default passwords on first login. Not doing so represents a security risk.*

**NOTE** *Each NX user may be required to change their password at the first login. This requirement can be enabled/disabled by users with Administrator role.*

8. Click **Log On**. The NetXplorer GUI is displayed.

**Note:** *It may take a few moments to display the NetXplorer GUI.*

**For additional security it is possible to require authentication on all transactions between the NetXplorer Client and Server. For more information, contact Allot Customer Support.**

**If a user tries to login to a particular account using the wrong password within a configurable time period (the default is 1 hour), then he can be "locked out" after a configurable number of failed attempts (the default is 3 attempts). The user will be locked out for a configurable length of time (the default is 1 hour). This feature is disabled by default. Contact Allot Customer Support to enable the feature and/or change any of the default values.**

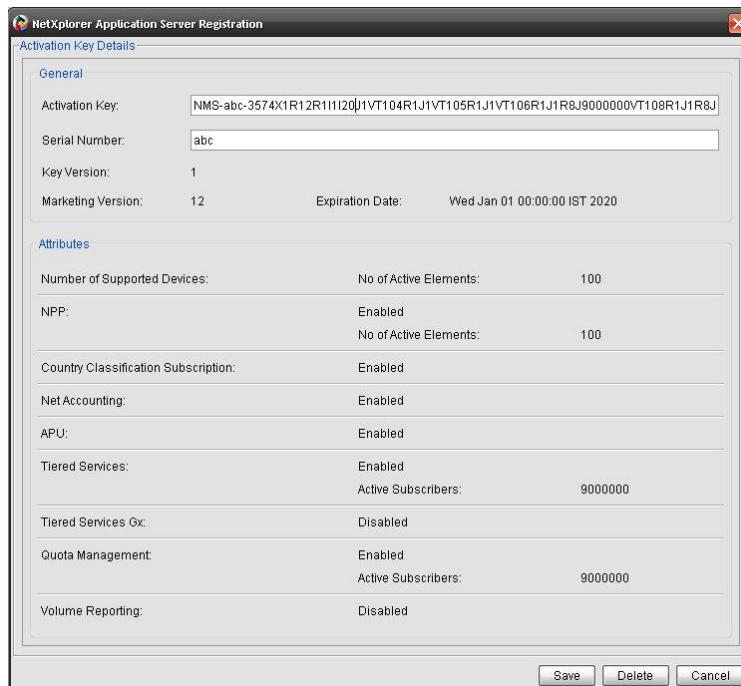
## 4.3 Enabling NetXplorer Servers

In order to manage more than one Service Gateway as well as certain features using NetXplorer, NetXplorer Server must be enabled by entering the appropriate key. This key may be entered at installation or at any time following. For more information concerning the NetXplorer Server contact Allot Customer Support at [support@allot.com](mailto:support@allot.com).

### To enable NetXplorer Server:

1. Select Tools > NetXplorer Application Server Registration from the NetXplorer Menu bar.

The NetXplorer Application Server Registration dialog box appears.



**Figure 4-4: NetXplorer Application Server Registration Dialog**

2. Enter the Activation Key and Serial Number provided by Allot to enable the NetXplorer Server functionality.

Note: **The serial number is the ‘box number’ of the product you used to generate the key.**

**For managing a single unit, it will be the box number of the NE/SG.**

**For managing multiple units, it will be the box number of the SNX (starts with 44X)**

3. A Key Version, Marketing Version and Expiration Date will be generated automatically after clicking **Save**.
4. The number of devices supported by the key is indicated.
5. If Policy Provisioning is enabled by the key that has been entered, it will be indicated (along with the maximum number of accounts) after **NPP**. For more information, see the NPP User Guide.
6. If Classification of Hosts by Country is enabled by the key that has been entered, it will be indicated after **Country Classification Subscription**.

7. If Accounting information is enabled by the key that has been entered, it will be indicated after **Net Accounting**.
8. If Service Catalog updates via the web are enabled by the key that has been entered, it will be indicated after **APU**.
9. If Subscriber Management is enabled by the key that has been entered, it will be indicated by at least one of the following attributes being enabled:  
**Tiered Services, Tiered Services Gx, Quota Management or Volume Reporting.** In addition, the number of supported subscribers will be indicated if relevant. For more information, see the SMP User Guide.
10. Click **Save** to enter the key and close the dialog box.

## 5 Related Software Installation

Two additional software elements that may be used alongside NetXplorer are the NetPolicy Provisioner (NPP) and the Accounting Manager (AM).

NPP enables ISPs to quickly and easily define accounts that enable their customers (the end-users) to monitor and provision their traffic and their network's current behavior.

AM is an optional element of the NetXplorer solution which collates raw data from the STC and creates a single time defined file for accounting purposes.

### 5.1 NPP Installation

By default, the NetPolicy Provisioner is installed on the same machine as NetXplorer Server during the standard NetXplorer installation. NPP functionality is then enabled by entering the appropriate License Key.

For details regarding NPP configuration and operation, see the NPP User Guide.

#### 5.1.1 Alternate Linux Server

The following procedure is for installing NPP on another Linux Server, without NetXplorer.

##### Software Requirements

- Any Real-Time Virus Protection programs or automatic Defragmentation/Backup software must be disabled on the NetXplorer server or the Allot folder needs to be excluded from protection/defragmentation.
- No other database applications (for example, SQL database) should be installed on the NetXplorer server machine.
- No application should be listening to port 80 at the time of the installation.
- FQDN of the server should be defined (to check run ‘hostname -f’).
- Check that NTP service is installed. The Config ntp service should be configured to start when the unit is rebooted by entering the following command:  
**chkconfig --levels 35 ntpd on**

- NTP service should be configured to update the time from an external NTP server and deliver the time service to Allot devices.

## Installation Instructions

1. Download the following files from the NPP folder in the relevant NetXplorer section on Allot's BOX account:
  - ◆ Allot\_netpolicy-provisioner.sh
  - ◆ Allot\_netpolicy-provisioner\_<VERSION NUMBER>.tgz
2. Create a new directory using the following command and place the two files there:  
**mkdir /opt/allot/npp**
3. Run the **Allot\_netpolicy-provisioner.sh** script as root user using the following commands:  
**cd /opt/allot/npp**  
**chmod 764 ./Allot\_netpolicy-provisioner.sh**  
**./Allot\_netpolicy-provisioner.sh -i**

```
[root@ACP-VRA00865 npp]# ll
total 426948
-rw-r--r-- 1 admin admin 437178670 Apr 29 02:48 Allot_netpolicy-provisioner_16.5.10-36.tgz
-rwxrwxr-- 1 admin admin 10786 Apr 29 02:49 Allot_netpolicy-provisioner.sh
[root@ACP-VRA00865 npp]# ./Allot_netpolicy-provisioner.sh -i
Wed May 27 17:00:28 IDT 2020
Install...
You are going to install netpolicy-provisioner 16.5.10-36
Continue (y/n) [y]?
y
```

Figure 5-1: NPP Install Commands

4. Enter y when prompted to run the installation.

```
Preparing... #################################
==== Pre-install =====
Wed May 27 17:01:47 IDT 2020
Updating / installing...
netpolicy-provisioner-16.5.10-36      #####
not running
Setting all connection on ACCEPT filter..success
Created symlink from /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service to /usr/lib/systemd/system/firewalld.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/firewalld.service to /usr/lib/systemd/system/firewalld.service.
running
Setting forward rule, external ipv4 packets of tcp protocol from port 80 to port 8080..success
Setting forward rule, local(127.0.0.1) ipv4 packets of tcp protocol from port 80 to port 8080..success
Setting forward rule, external ipv6 packets of tcp protocol from port 80 to port 8080..success
Setting forward rule, local(::1) ipv6 packets of tcp protocol from port 80 to port 8080..success
Reloading firewall..success
running
Setting forward rule, external ipv4 packets of tcp protocol from port 443 to port 8443..success
Setting forward rule, local(127.0.0.1) ipv4 packets of tcp protocol from port 443 to port 8443..success
Setting forward rule, external ipv6 packets of tcp protocol from port 443 to port 8443..success
Setting forward rule, local(::1) ipv6 packets of tcp protocol from port 443 to port 8443..success
Reloading firewall..success
Installation finished.
NetXplorer IP Address may be set by running /opt/allot/npp/bin/set_npp_nx_ip.sh.
Then, please restart the service.
Allot_netpolicy-provisioner.sh was copied to /root.
Restarting service...
Done.
Wed May 27 17:03:05 IDT 2020
[root@ACP-VRA00865 npp]#
```

**Figure 5-2: NPP Installation Output**

5. To set the NetXplorer IP address, run the following:

**/opt/allot/npp/bin/set\_npp\_nx\_ip.sh**

6. Reboot the machine.

7. Check that NTP and NetXplorer services are running.

8. To start/stop/check the status of the services use commands such as:

**service nxnpp start**

**service nxnpp stop**

**service nxnpp status**

9. NPP functionality must be enabled by entering the appropriate key in the NetXplorer GUI. This key may be entered at installation or at any time following. For information, see the NPP User Guide.

## 5.1.2 Alternate Windows Server

The following procedure is for installing NPP on another Windows Server, without NetXplorer.

### Software Requirements

- Windows Versions:
  - ◆ Windows Server 2016 64 bit
  - ◆ Windows Server 2012 64 bit (Recommended)
  - ◆ Windows Server 2008 R2 64 bit
  - ◆ Windows Server 2008 64 bit
  - ◆ Windows 8 64 bit Professional/ Enterprise editions
- Any Real-Time Virus Protection programs or automatic Defragmentation/Backup software must be disabled on the NetXplorer server or the Allot folder needs to be excluded from protection/defragmentation.
- Java JDK should be installed on the NPP Server. For details on how to install the Java JDK see [Installing Java JDK on page 2-8](#).
- No other database applications (for example, SQL database) should be installed on the NPP machine.
- No application should be listening to port 80 at the time of the installation.

### Pre-Installation Checklist

Before you begin the installation process, it is important that you perform the following steps.

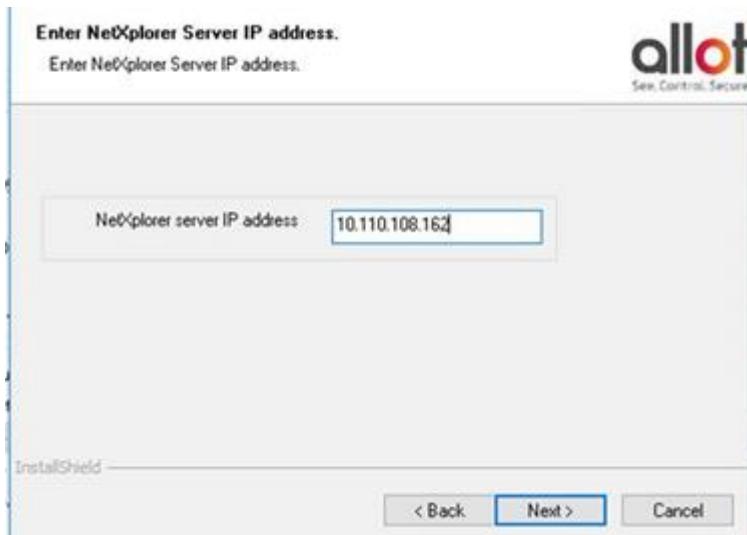
1. Verify that a minimum of 20 GB is available on the disk.
2. Verify that there is at least 4 GB of available Virtual Memory.

Note: **Set the Virtual Memory on your computer by selecting Start/Settings/Control Panel/System. Open the Advanced tab and click the Performance Settings button. Open the Advanced tab and click the Change button under Virtual Memory to select a new value.**

3. Verify that Java JDK is installed, including runtime environment. If it is not installed, install it now, as described in [Installing Java JDK on page 2-8](#).

## Installation Instructions

1. Copy the NPP directory from your NX installation and transfer it to the desired Windows server or download the relevant software from Allot's BOX account.
2. Run the **setup.exe** file in the NPP folder.



3. When prompted type in the IP address of the NetXplorer Server, and click **Next**.
4. Click **Install** to begin the installation. The Setup Status window is displayed.
5. When the installation is complete you will be given the option to restart your PC.
6. Select **Yes, I want to restart my computer now** and click **Finish**. The installation process is complete.
7. NPP functionality must be enabled by entering the appropriate key in the NetXplorer GUI. This key may be entered at installation or at any time following. For information, see the NPP User Guide.

## 5.2 Accounting Manager Installation

By default, the Accounting Manager is not installed and must be manually installed on the same server as NetXplorer or on a different server.

For details regarding Accounting configuration and operation, see Section 3.5 below.

## 5.2.1 Linux Server

The following procedure is for installing AM on a Linux Server.

### Software Requirements

- Any Real-Time Virus Protection programs or automatic Defragmentation/Backup software must be disabled on the NetXplorer server or the Allot folder needs to be excluded from protection/defragmentation.
- No other database applications (for example, SQL database) should be installed on the NetXplorer server machine.
- No application should be listening to port 80 at the time of the installation.
- FQDN of the server should be defined (to check run ‘hostname -f’).
- Check that NTP service is installed. The Config ntp service should be configured to start when the unit is rebooted by entering the following command:  
**chkconfig --levels 35 ntpd on**
- NTP service should be configured to update the time from an external NTP server and deliver the time service to Allot devices.

### Installation Instructions

1. If installing on a different server, download the following files from the NPP folder in the relevant NetXplorer section on Allot’s BOX account:
  - ◆ Allot\_accounting-manager.sh
  - ◆ Allot\_accounting-manager\_<VERSION NUMBER>.tgz
2. If installing on a different server create a new directory using the following command and place the two files there:  
**mkdir /opt/allot/AM**
3. Run the **Allot\_netpolicy-provisioner.sh** script as root user using the following commands:  

```
cd /opt/allot/AM
chmod 764 ./Allot_accounting-manager.sh
./Allot_accounting-manager.sh -i
```
4. Enter y when prompted to run the installation.

```
[root@ACP-VRA00865 AM]# ./Allot_accounting-manager.sh -i
Wed Jun  3 10:10:38 IDT 2020
Install...
You are going to install accounting-manager 16.5.10-36
Continue (y/n) [y]?
y
Preparing...                                #####
Updating / installing...                    #####
accounting-manager-16.5.10-36             #####
Installation finished.
NetXplorer IP Address may be set by running /opt/allot/accounting/bin/set_acct_nx_ip.sh.
Then, please restart the service.
Allot_accounting-manager.sh was copied to /root.
Restarting service...
Done.
Wed Jun  3 10:11:12 IDT 2020
[root@ACP-VRA00865 AM]#
```

**Figure 5-3: NPP Installation Output**

5. To set the NetXplorer IP address, run the following:  
**/opt/allot/npp/bin/set\_acct\_nx\_ip.sh**
6. Reboot the machine if it does not reboot automatically.
7. Check that NTP and NetXplorer services are running.
8. To start/stop/check the status of the services use commands such as:  
**service nxacct start**  
**service nxacct stop**  
**service nxacct status**
9. Accounting functionality must be enabled by entering the appropriate key in the NetXplorer GUI. This key may be entered at installation or at any time following. For information, see Section 3.5 below.

## 5.2.2 Windows Server

The following procedure is for installing AM on a Windows Server, with or without NetXplorer.

### Software Requirements

- Windows Versions:
  - ◆ Windows Server 2016 64 bit
  - ◆ Windows Server 2012 64 bit (Recommended)
  - ◆ Windows Server 2008 R2 64 bit
  - ◆ Windows Server 2008 64 bit
  - ◆ Windows 8 64 bit Professional/ Enterprise editions
- Any Real-Time Virus Protection programs or automatic Defragmentation/Backup software must be disabled on the NetXplorer server or the Allot folder needs to be excluded from protection/defragmentation.
- Java JDK should be installed on the NPP Server. For details on how to install the Java JDK see [Installing Java JDK on page 2-8](#).
- No other database applications (for example, SQL database) should be installed on the NPP machine.
- No application should be listening to port 80 at the time of the installation.

### Pre-Installation Checklist

Before you begin the installation process, it is important that you perform the following steps.

10. Verify that a minimum of 20 GB is available on the disk.
11. Verify that there is at least 4 GB of available Virtual Memory.

Note: **Set the Virtual Memory on your computer by selecting Start/Settings/Control Panel/System. Open the Advanced tab and click the Performance Settings button. Open the Advanced tab and click the Change button under Virtual Memory to select a new value.**

12. Verify that Java JDK is installed, including runtime environment. If it is not installed, install it now, as described in [Installing Java JDK on page 2-8](#).

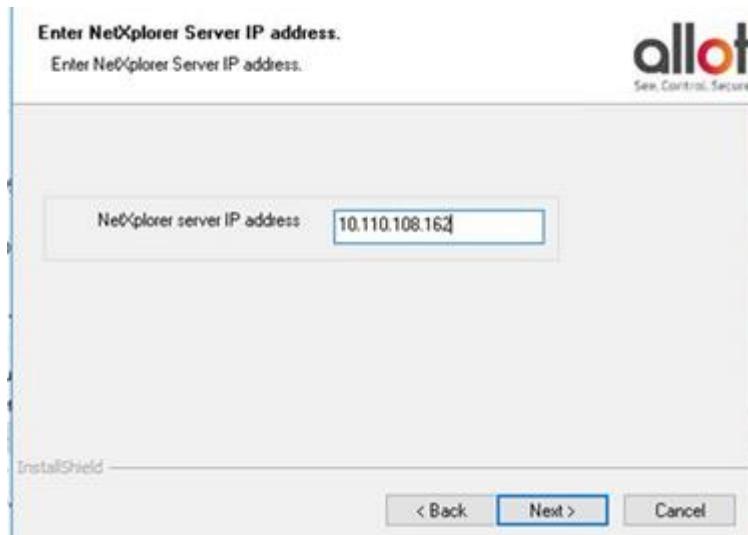
### Installation Instructions

13. Open the ACCT directory if installing AM on the same server as NetXplorer

OR

Copy the ACCT directory from your NX installation and transfer it to the different Windows server or download the relevant software from Allot's BOX account.

14. Run the **setup.exe** file in the ACCT folder.



15. When prompted type in the IP address of the NetXplorer Server, and click **Next**.
16. Click **Install** to begin the installation. The Setup Status window is displayed.
17. When the installation is complete you will be given the option to restart your PC.
18. Select **Yes, I want to restart my computer now** and click **Finish**. The installation process is complete.
19. Accounting functionality must be enabled by entering the appropriate key in the NetXplorer GUI. This key may be entered at installation or at any time following.

# 6 Deploying and Configuring NetXplorer

## 6.1 Overview

This chapter describes the processes used to configure, add and change Service Gateways and other devices as well as how to register and maintain users.

The NetXplorer, once installed on the network, enables the central configuration of managed Service Gateways and Monitoring Collectors. It has an easy GUI interface that provides access to all the devices via a device tree. All available configuration parameters can be accessed via the GUI.

Monitoring Collectors may be added between the NetXplorer Servers and the Service Gateways, in order to support sparse and remote geographic regions.

In order to manage more than one Service Gateway device using NetXplorer, the NetXplorer Server must be enabled by entering the appropriate key. This key may be entered at installation or at any time following.

## 6.2 Working with Service Gateways

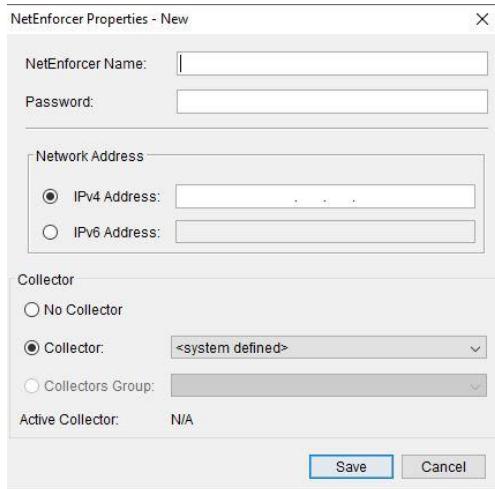
In order for NetXplorer to manage a Service Gateway it must be added to the NetXplorer's network and properly configured. The IP address of the Service Gateway is required for this procedure.

**NOTE** Initial configuration of the Service Gateway should be performed on the Service Gateway (via the CLI interface) before it is added to the NetXplorer configuration. Refer to the hardware manual for the specific Service Gateway model for details.

**NOTE** In the NetXplorer GUI Service gateways are referred to as NetEnforcers.

### To add a Service Gateway:

1. In the Navigation pane, right-click Network in the Network of the Navigation tree and select **New NetEnforcer** from the popup menu.  
OR  
Select Network in the Network pane of the Navigation tree and then select **New NetEnforcer** from the Actions menu.
2. The NetEnforcer Properties - New dialog is displayed.



**Figure 6-1: NetEnforcer Properties – New Dialog**

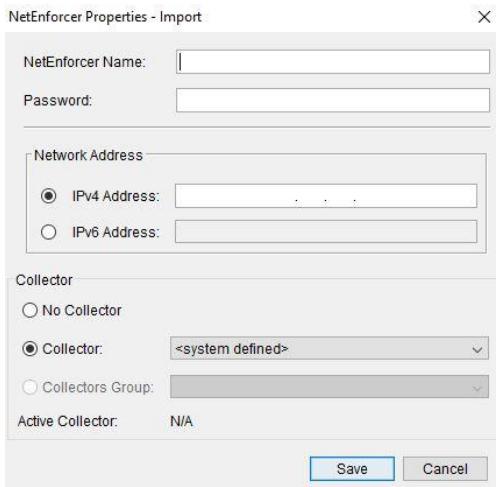
3. Enter the Name and Admin Password of the Service Gateway in the designated fields.
4. Enter the Network Address of the Service Gateway in the designated field. This may be an IPv4 address or an IPv6 address.
5. Choose a Monitoring Collector or Collector Group for the Service Gateway from the drop down menus. The new Service Gateway will transmit its monitoring data to that Collector or Group only. The default option is **<system defined>** which means that the Service Gateway will transmit its monitoring data to the internal Short Term Collector which is built into the NetXplorer server . If you do not have any Monitoring Collectors on the Network and you do not want to use the NetXplorer's internal monitoring collector, select **No Collector**.
6. Click **OK**. The Service Gateway is added to the Navigation tree. The Add NetEnforcer operation can take up to a couple of minutes to complete.

#### To Import a Service Gateway:

A Service Gateway can be imported into NetXplorer if it already exists on the network but has not previously been part of this NetXplorer network or had NetXplorer enabled. When a Service Gateway is imported, its policy tables and catalogs remain intact and are imported into the NetXplorer database.

1. Select **Import NetEnforcer** from the Tools menu.

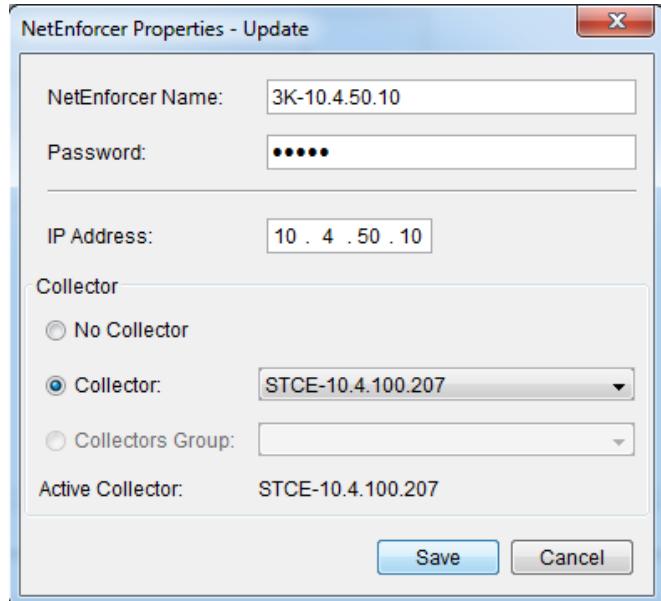
The NetEnforcer Properties - Import dialog is displayed.

**Figure 6-2: NetEnforcer Properties – Import Dialog**

2. Enter the Name and Admin Password of the Service Gateway in the designated fields.
3. Enter the Network Address of the Service Gateway in the designated field. This may be an IPv4 address or an IPv6 address.
4. Enter the IP address of the Service Gateway.
5. Assign a Monitoring Collector or Collector Group to the Service Gateway from the drop down menus. This means that the new Service Gateway will transmit its monitoring data to that Collector or Group only. If it does not matter which Collector is used, select **<system defined>**. If you do not have any Monitoring Collectors on the Network, select **No Collector**.
6. Click **OK**. The Service Gateway is added to the Navigation tree. The Import NetEnforcer operation can take up to a couple of minutes to complete.

**To change the IP of a Service Gateway:**

1. Select the Service Gateway device in the Navigation tree and then select Properties from the Actions menu.
2. The Device Properties-Update dialog is displayed.

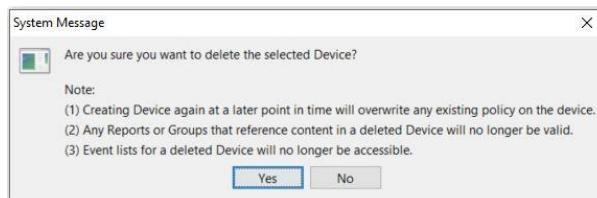


**Figure 6-3: Device Properties Update dialog**

3. In the Password field, enter the admin password of the Service Gateway
4. Enter the new IP address of the Service Gateway in the designated field. Note that the Service Gateway's IP address can only be changed to the same type (either IPv4 or IPv6) it was originally added with. To change the IP type, remove the SG and re-add it with the new IP.
5. Click **Save**

#### To Remove a Service Gateway from the network:

1. Right-click Network and select a Service Gateway and select Delete.
2. The following Delete message is displayed.



**Figure 6-4: System Message**

3. Click Yes to delete the Service Gateway.

#### To Configure a Service Gateway via the NetXplorer:

1. In the Navigation pane, select and right-click the Service Gateway in the Navigation tree and select **Configuration** from the popup menu.

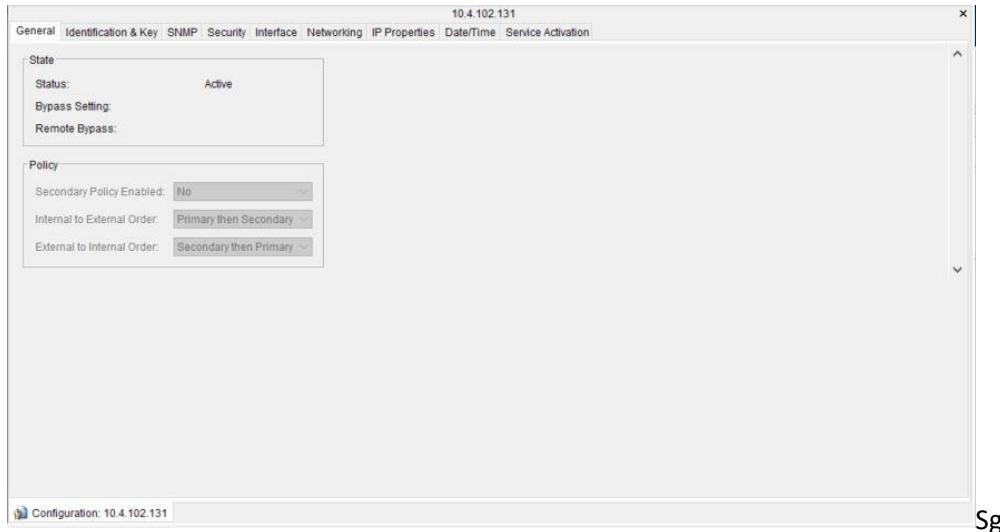
OR

Select the Service Gateway in the Navigation tree and then select **Configuration** from the View menu.

OR

Select the Service Gateway in the Navigation tree and then click the **Configuration** icon  on the toolbar.

2. The Configuration window for the selected Service Gateway is displayed.



**Figure 6-5: Service Gateway Configuration**

3. Configure the Service Gateway parameters, as required.
4. Click  or select **Save** from the File menu to save the changes to the Service Gateway configuration.

The Configuration parameters available in the Service Gateway Configuration window are grouped on the following tabs:

- **General** – indicates the Service Gateway's bypass status.
- **Identification and Keys** – includes parameters that provide system information and activation keys
- **SNMP** – enter the contact person, location, system name and description for SNMP purposes
- **Security** – includes security and authorization parameters
- **Interface** – includes parameters to configure the system interfaces to either automatically sense the direction and speed of traffic or use default parameters as well as parameters to define ports

- **Networking** – includes parameters that enable you to configure network topology
- **IP Properties** – enables you to modify the IP and host name configuration of your network interfaces as well as the DNS and connection control parameters
- **Date/Time** – includes the date, time and NTP server settings for the Service Gateway
- **Service Activation** - includes IP and Port Redirection Parameters
- **Slots and Boards** - includes device layout to provide schematic device components layout (when applicable) and status information. This tab does not appear when not relevant to the Service Gateway.

After modifying configuration parameters you must select **Save** in order for the changes to take effect. The save process prompts a rebooting of the Service Gateway. Rebooting is required to ensure that some saved parameter values are committed and activated on the Service Gateway.

For more information on Service Gateway configuration see the Netxplorer Operation Guide.

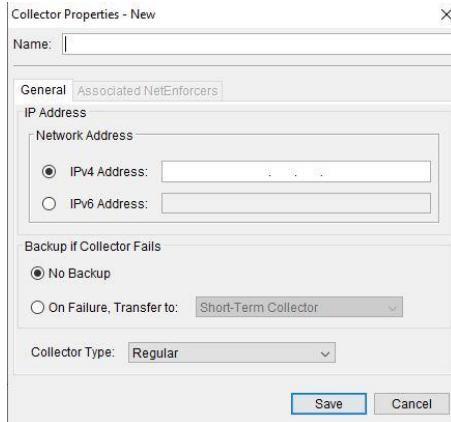
## 6.3 Adding Devices

In order for NetXplorer to manage a Device (Data Mediator, SMP, etc), it must be added to the NetXplorer's network and properly configured. The IP address of the Device is required for this procedure.

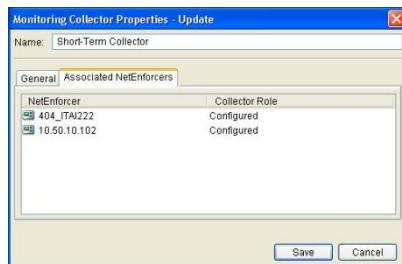
### 6.3.1 STCs (Monitoring Collector)

#### To add an STC (Monitoring Collector)

1. In the Navigation pane, right-click **Servers** in the Network pane of the Navigation tree and select **New Collector** from the popup menu.  
OR  
Select Servers in the Network pane of the Navigation tree and then select **New Collector** from the Actions menu.
2. The Monitoring Collector Properties - New dialog is displayed.

**Figure 6-6: Collector Properties – New Dialog**

3. On the General tab, enter the Name and IP address (!IPv4 or IPv6) of the Monitoring Collector.
4. In the Backup if Monitoring Collector Fails area, select one of the two radio buttons, **No Backup** or **On Failure, Transfer To...**. If **On Failure, Transfer To...** is selected, select the backup Monitoring Collector from the drop down menu.
5. Select the Collector Type from the drop down menu. **Regular** and **Extended** are available and Regular is selected by default.

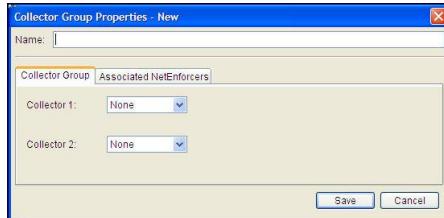
**Figure 6-7: Monitoring Collector Properties – New Dialog**

6. In the Associated NetEnforcers tab, a list of all Service Gateways transmitting monitoring information to this Collector appears. They are assigned by right clicking on a Service Gateway in the Network pane and selecting **Properties**.
7. Click **Save**. The Monitoring Collector is added to the Navigation tree. The Add Monitoring Collector operation can take up to a couple of minutes to complete.

### To add a Collector Group

Collector Groups are made up of two Collectors, providing 1+1 redundancy.

1. In the Navigation pane, right-click Servers in the Network pane of the Navigation tree and select **New Collector Group** from the popup menu.
2. The Collector Group Properties - New dialog is displayed.



**Figure 6-8: Collector Group Properties – New Dialog**

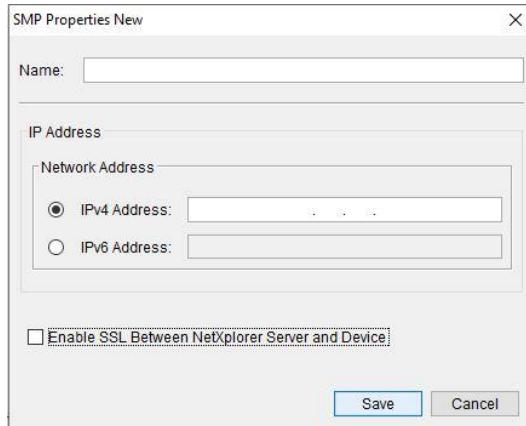
3. In the Collector Group tab Select the two Collectors (already part of the network) to be included in the group. Collector 2 will act as the backup for Collector 1.
4. Those Service Gateways associated to the added Collectors will be listed in the Associated NetEnforcers tab.
5. Click **Save**. The Collector Group is added to the Navigation tree. The Add Collector Group operation can take up to a couple of minutes to complete.

### 6.3.2 SMPs

#### To add an SMP

**Note:** This feature is only available with the appropriate license key, enabling Subscriber Management. Contact Allot Customer Support at [support@allot.com](mailto:support@allot.com) for more information concerning your license.

1. In the Navigation pane, right-click Servers in the Network pane of the Navigation tree and select **New SMP** from the popup menu.  
OR  
Select Servers in the Network pane of the Navigation tree and then select **New SMP** from the Actions menu.
2. The SMP Properties - New dialog is displayed.



**Figure 6-9: SMP Properties – New Dialog**

3. Enter the Name of the SMP.
4. Enter the Network Address of the SMP in the designated field. This may be an IPv4 address or an IPv6 Address.
5. Select the **Enable SSL Between NetXplorer Server and Device** checkbox if you wish the connection between NetXplorer and the SMP to be more secure.
6. Click **Save**. The SMP is added to the Navigation tree. The Add SMP operation can take up to a couple of minutes to complete.

**Note:** For more information concerning SMPs, see the Allot SMP Installation and Administration Guide.

### 6.3.3 ClearSee

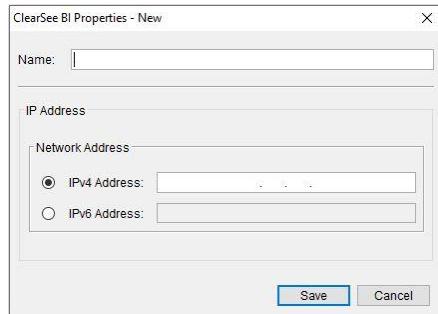
This section describes how to add previously deployed ClearSee components to the system via the NX GUI.

**Note:** For more information concerning creating ClearSee instances and installing ClearSee, see the Allot ClearSee Installation and Administration Guide.

#### To add a BI Instance

1. In the NetXplorer **Navigation** pane, in the **Network** tree, right-click the **Servers** node , and then select **New ClearSee BI**.

The **ClearSee BI Properties – New** dialog box appears.



**Figure 6-10: ClearSee BI Properties – New Dialog Box**

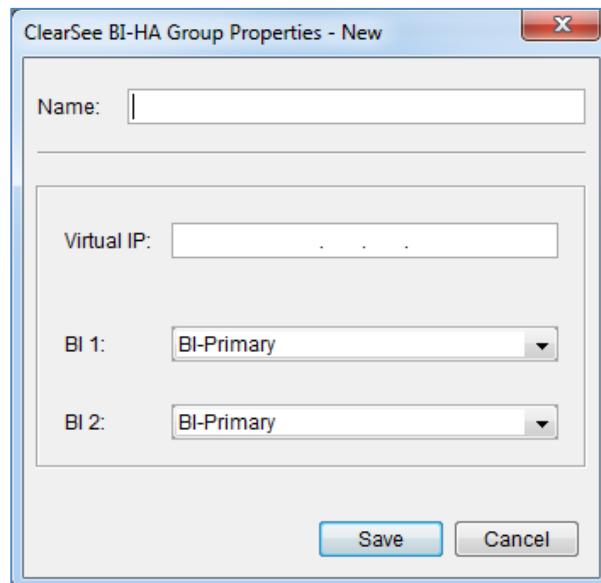
2. In the **Name** field, name the BI instance as you want it to appear in the **Navigation** pane.
3. In the **IP Address** field, enter the IP address (IPv4 or IPv6) of the BI instance.
4. Click **Save**.

The BI instance appears in the **Navigation** pane, under **Servers**.

#### Add a BI-HA Group

5. Add two BI instances, as described above.
6. In the NetXplorer **Navigation** pane, with **Network** selected, right-click the **Servers** node  , and then select **New ClearSee BI-HA Group**.

The **ClearSee BI-HA Properties – New** dialog box appears.



**Figure 6-11: ClearSee BI-HA Group Properties - New**

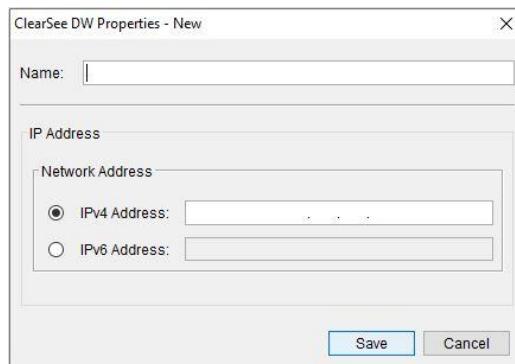
7. In the **Name** field, name the BI-HA group as you want it to appear in the **Navigation** pane.
8. In the **Virtual IP** field, enter the IP address of the virtual IP.
9. In the **BI 1** field, select the BI instance that you want to serve as the primary BI instance.
10. In the **BI 2** field, select the BI instance that you want to serve as the secondary BI instance.
11. Click **Save**.

The BI-HA group appears in the **Navigation** pane, under **Servers**.

### Add a DW Instance

12. In the NetXplorer **Navigation** pane, with **Network** selected, right-click the **Servers** node  , and then select **New ClearSee DW**.

The **ClearSee DW Properties – New** dialog box appears.

**Figure 6-12: ClearSee DW Properties – New Dialog Box**

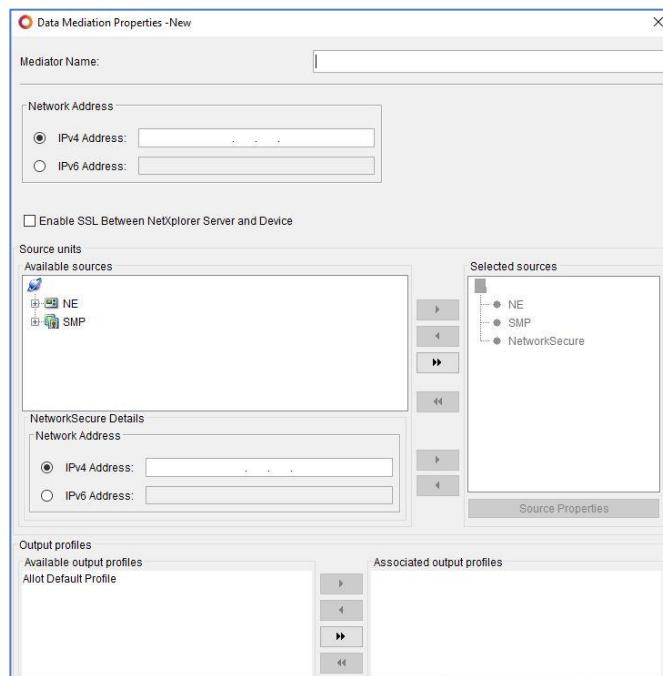
13. Do the following:
14. In the **Name** field, name the DW instance as you want it to appear in the **Navigation** pane.
15. In the **IP Address** field, enter the IP address (IPv4 or IPv6) of the DW instance.
16. Click **Save**.

The DW instance appears in the **Navigation** pane, under **Servers**.

## 6.3.4 Data Mediators

### To Add a Data Mediator

1. Open NetXplorer.
2. In the Navigation pane, right-click Servers in the Network pane in the Navigation tree and select **New Data Mediation...** from the popup menu.
3. The Data Mediation Properties - New dialog is displayed.



**Figure 6-13: Data Mediation Properties**

4. Enter the name of the Data Mediator.
5. Enter the Network Address of the Data Mediator in the designated field. This may be an IPv4 address or an IPv6 Address.
6. Select the **Enable SSL Between NetXplorer Server and Device** checkbox if you wish the connection between NetXplorer and the DM to be more secure.
7. In the Source Units area, use the arrow keys to move Service Gateways and SMPs from the Available to the Selected lists. Those selected will provide data to the Data Mediator.
8. To collect WSP Buckets, enter the IP address (IPv4 or IPv6) of your NetworkSecure in the NetworkSecure Details field and click the Right Button to add it to the Selected sources.

Note: **SDR, CMDR, CMCS and CMBM collection is only possible if you have included an SMP in the Selected Sources.**

**CMDR, CMCS and CMBM collection requires an SMP in SMF Mode. For more information, see the SMP Installation and Administration Guide.**

**WSP Bucket collection is only possible if you have added the NetworkSecure IP to the Selected Sources.**

9. Select a Profile to be associated with this Data Mediator.

10. Click Save to add the Data Mediator to the network.

**NOTE For more information concerning DMs, see the Allot Data Mediator Operation Guide.**

### 6.3.5 Rule Engines

#### To add a Rule Engine

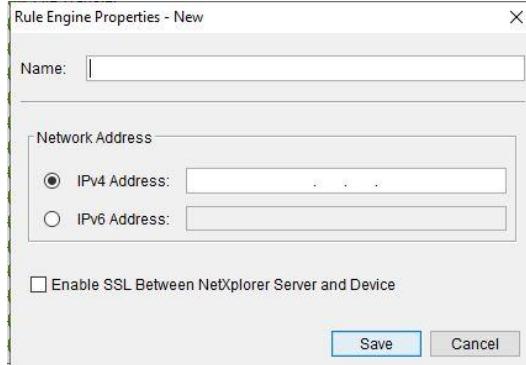
**NOTE This feature must be enabled via CLI. For more information contact Allot GSS.**

1. In the Navigation pane, right-click Servers in the Network pane of the Navigation tree and select **New Rule Engine** from the popup menu.

OR

Select Servers in the Network pane of the Navigation tree and then select **New Rule Engine** from the Actions menu.

2. The Rule Engine Properties - New dialog is displayed.



**Figure 6-14: Rule Engine Properties – New Dialog**

3. Enter the Name of the RE.
4. Enter the Network Address of the RE in the designated field. This may be an IPv4 address or an IPv6 Address.

5. Select the **Enable SSL Between NetXplorer Server and Device** checkbox if you wish the connection between NetXplorer and the RE to be more secure.
6. Click **Save**. The RE is added to the Navigation tree.

### 6.3.6 DDoS Secure Controller

**NOTE** This feature must be enabled via CLI. For more information contact Allot GSS.

A DDoS Secure Controller unit may be defined for the Network. Enter the IP and Name of the desired DSC.

Once a valid Controller has been added, it may send alarms via the NetXplorer but it is not managed via the Netxplorer GUI.

#### To add a DDS Controller

1. In the Navigation pane, right-click Servers in the Network pane of the Navigation tree and select **New DDoS Secure** from the popup menu.  
OR  
Select Servers in the Network pane of the Navigation tree and then select **New DDoS Secure** from the Actions menu.
2. The Rule Engine Properties - New dialog is displayed.

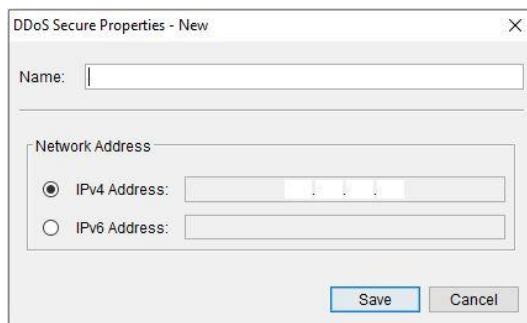


Figure 6-15: DDoS Secure Properties – New Dialog

3. Enter the Name of the DDoS Secure Controller.
4. Enter the Network Address of the DSC in the designated field. This may be an IPv4 address or an IPv6 Address.
5. Click **Save**.

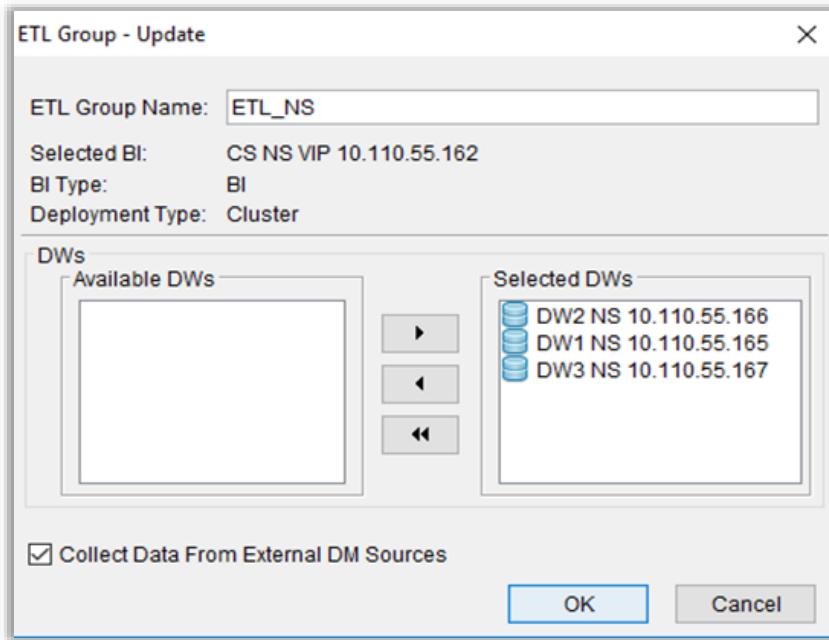
### 6.3.7 Global NX

In some configurations it is required to have multiple NetXplorers and Data Mediators distributed to different sites while the ClearSee installation is located at the Network Operation Center (NOC).

As ClearSee has to be managed by an NX server, an additional NX is required on the NOC, that from now on will be referred as the GLOBAL NX. Similarly, the NX servers within sites will be referred to as LOCAL NXs.

This feature is configured as follows:

1. Log into NetXplorer via SSH.
2. Run the following command:  
`ConfigurationCLI.sh -setParam -paramName FEATURE_TOGGLE -  
paramSubName centralNX -setIntegerParam 1`
3. Restart the NX service by running the following command:  
`service netxplorer restart`
4. Define an ETL group as follows (for further information see the ClearSee Installation and Administration Guide):
  - ◆ Go to Network Configuration
  - ◆ Open the ClearSee tab
  - ◆ Select the CS Cluster.
  - ◆ Click Edit
  - ◆ Open the General tab
  - ◆ Select the ETL Group
  - ◆ Click Edit
  - ◆ Assign the appropriate DWHs
  - ◆ Select the **Collect Data From External DM Sources** checkbox. This option only appears after running the CLI command in Step 2.



**Figure 6-16: ETL Groups Dialog Box**

- ◆ Click OK to close the Edit dialog and OK to save the changes to the CS Cluster.
  - ◆ Assign the CS Profile from the ClearSee tab.
5. Create a csv file called **external\_dms.csv**, located in the following directory:  

```
cd /opt/allot/netxplorer/wildfly-11.0.0.Final/server/allot/nms-
tmp/external_dms/
```
  6. Edit the external\_dms.csv file by running the following command:  

```
vi external_dms.csv
```
  7. Edit the list to include the DMs that will be used for statistics collection in the following format:  

```
<DM_NAME>,<IP>
```

**NOTE The list supports both IPv4 and IPv6**

Example:

```
DM1,10.110.110.58
DM2,10.132.110.59
```

By editing the file in the above format and saving it, the changes will be propagated to the ClearSee systems which were enabled for external DMs data collection above.

8. Open the NX GUI at each site.
9. Add the DMs as normal.

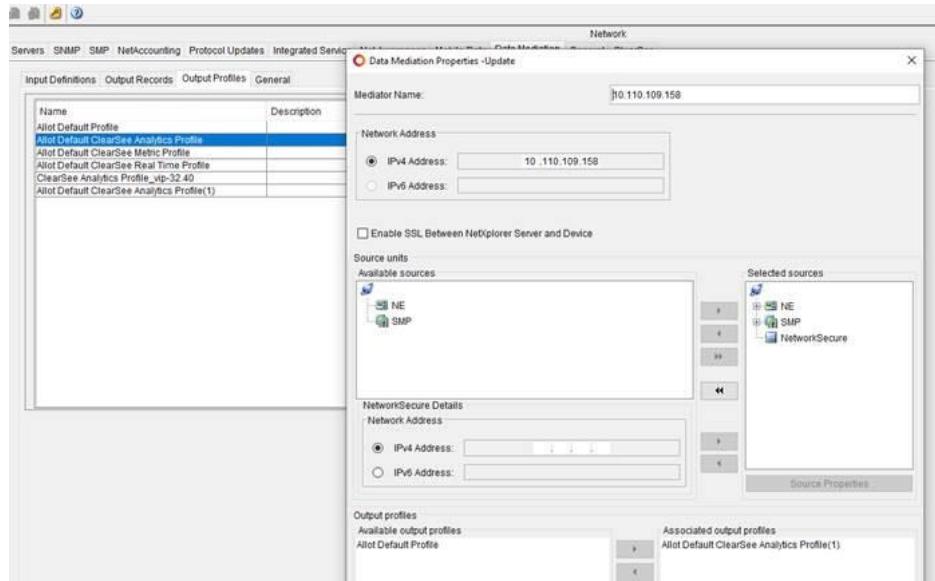


Figure 6-17: Data Mediator Properties Dialog Box

## 6.4 Configuring NetXplorer Users

NetXplorer implements a role-based security model. The role defined for each authorized user indicates the scope of operations that can be performed by the user.

There are four types of NetXplorer roles, as follows:

- **Regular:** Read/write privileges in the NetXplorer application not including User Configuration and System Report definitions.
- **Monitor:** Read-only access (unavailable menu items will appear in grey).
- **Administrator:** Read/write privileges in the NetXplorer application, which includes read/write privileges to define User Configurations and System Reports.
- **Data Protection Officer (DPO):** Required for GDPR implementation. The DPO role is **only** used for GDPR and cannot be used to login to the NetXplorer GUI or CLI.

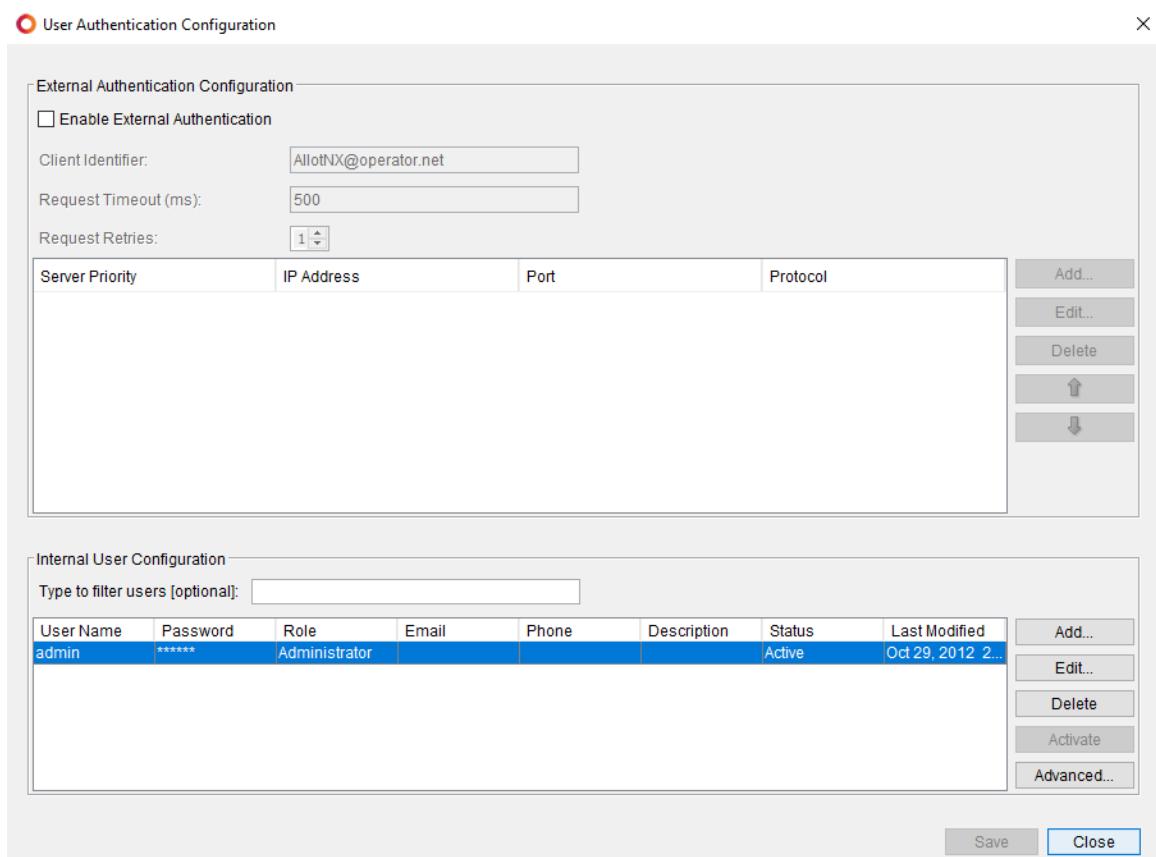
User accounts may be configured to be authenticated either by the internal NetXplorer user database or by an external RADIUS AAA system.

This section describes the processes used to register and maintain users. It includes how to add a new user, change a user's information, how to delete a user, how to configure RADIUS authentication and how to manage passwords.

### 6.4.1 Internal User Configuration

#### To add a new user:

1. Select **Users Configuration** from the Tools menu.
2. The User Authentication Configuration dialog is displayed, listing all currently defined NetXplorer users in the Internal User Configuration area.



**Figure 6-18: User Authentication Configuration screen**

3. Click **Add** in the Internal User Configuration area.
4. The User Editor dialog is displayed.

**Figure 6-19: User Editor**

5. Enter the name of the user in the **User Name** field.
  6. Enter a password for the user in the **Password** field and then again in the **Confirm PW** field.
  7. Set the permissions level of the user by selecting the radio button for the required role (Administrator, Regular, Monitor or Data Protection Officer).
- NOTE** **DPO is required for enabling the GDPR requirement of Individual Rights. To enable it run the procedure below.**
8. Enter the user's contact information in the Email and phone fields. You can also enter a brief description in the designated field.
  9. Click **OK**.
  10. The new user has been added to the list of users in the Users Configuration Editor dialog.

### Enabling Data Protection Officer

1. Login to the NetXplorer via SSH
2. Enter the following command to located the GDPR Configuration file:  
locate GdprCLI.sh
3. Enter the following command to edit the file:  
vi <FILE LOCATION>/GdprCLI.sh
4. Edit the USERNAME and PASSWORD fields to match the DPO user you created in the NX GUI above.
5. Replace “java” with the full path to Java in the NX CLI (see below).

```

#!/bin/sh
JAVA_HOME="/opt/allot/nms/webservices/cli/gdpr/GdprCLI"
export JAVA_HOME
export PATH=$JAVA_HOME/bin:$PATH

MAIN_CLASS=com.allot.nms.webservices.cli.gdpr.GdprCLI
USERNAME=Diana
PASSWORD=Diana123
SERVER=127.0.0.1
CONNECTION_TIMEOUT=300000
RECEIVE_TIMEOUT=180000

$JAVA_HOME/bin/java -Dserver=$SERVER -Djava.naming.provider.url=http://$SERVER:80 -Duser=$USERNAME -Dpassword=$PASSWORD -Dtransport.securityLayer.enable=false -Dauth=true -Dconnection.timeout=$CONNECTION_TIMEOUT -Dreceive.timeout=$RECEIVE_TIMEOUT -cp ":" $MAIN_CLASS "$@"

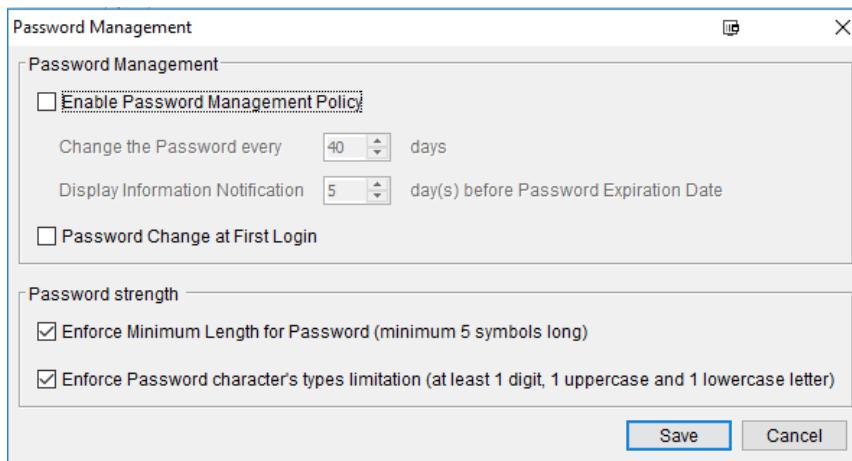
```

**Figure 6-20: GdprCLI.sh**

6. Make the script executable by entering the following command:  
chmod 777 GdprCLI.sh

**To edit Password Management:**

1. Click the Advanced button in the Internal User Configuration area.  
The Password Management dialog box appears.

**Figure 6-21: Password Management dialog box**

2. In the Password Management area there are two options.
  - ◆ Select the **Enable Password Management Policy** button to set the policy for when the user password must be changed. You may set how many days can pass before a password has to be changed, and how many days before the password expires the user will be notified.
  - ◆ Select the **Password Change at First Login** button to require the user to change the default password when they log in for the first time.
3. In the Password Strength area there are two options.
  - ◆ Select the **Enforce Minimum Length for Password** button to requires user passwords to be at least 5 characters long.

- ◆ Select the **Enforce Password character types limitation** button to require all passwords to have 1 uppercase letter, 1 lowercase letter and a number.
4. Click Save to save your settings.

#### To edit user information:

1. In the Users Configuration Editor dialog (Figure 3-18), select the user whose information you want to edit. You may search for a specific user or sort existing users by entering a value in the **Type to Filter Users** field.
2. Click **Edit**.
3. The User Editor dialog is displayed.
4. Edit the user parameters, as required
5. Click **OK**.

#### To delete a user:

1. In the Users Configuration Editor dialog, select the user(s) to be deleted
2. Click Delete.
3. A confirmation message is displayed.
4. Click Yes to confirm the deletion. The user is no longer able to access the NetXplorer.

**Warning:** There must be at least one Administrator user in the system.

### 6.4.2 External Authentication Configuration

External Authentication enables authentication of all users logging into NetXplorer by integration with an external RADIUS AAA, TACAS+ or LDAP Server.

Authentication verifies the existence of a user and validates their request.

An external Server being used for authentication must be configured to enable the NetXplorer to forward authentication requests to it, and should contain all required users in its database, along with their passwords and roles.

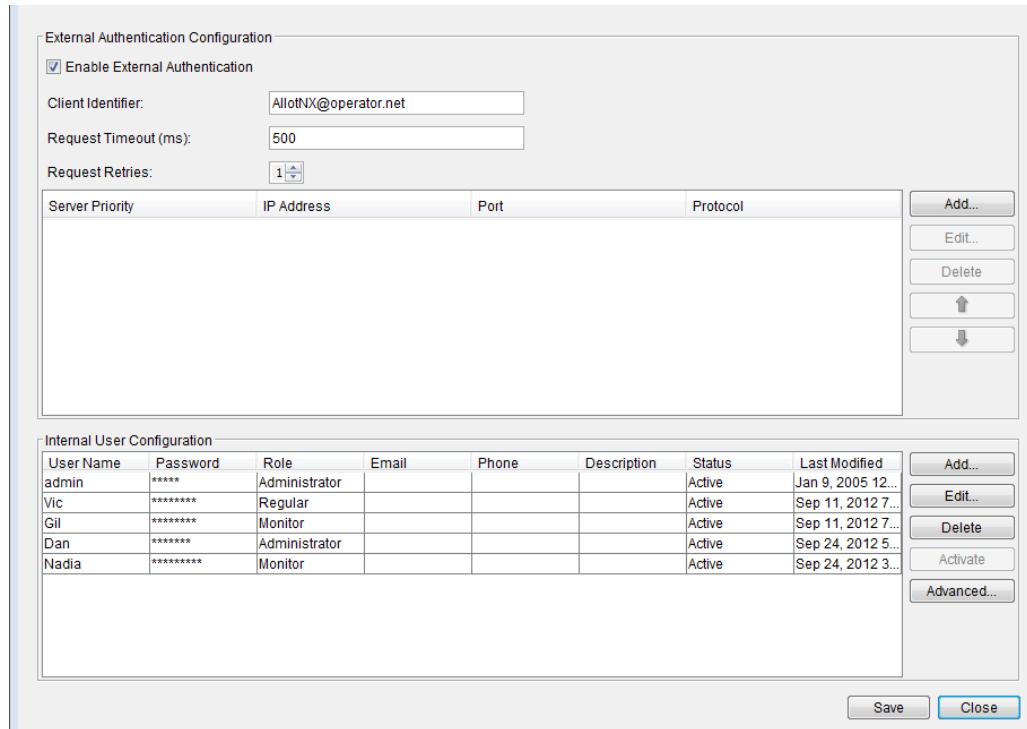
In case the external Server rejects an authentication request for any reason, the user will be authenticated using the NetXplorer Server Internal database.

All authentication attempts are written to the **ExtAuth.log** on the NetXplorer server.

#### To configure External Authentication:

1. Select **Users Configuration** from the Tools menu.

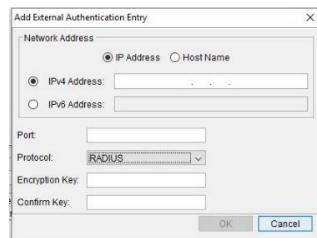
2. The User Authentication Configuration dialog is displayed.



**Figure 6-22: User Authentication Configuration screen**

3. In the External Authentication area, select the Enable External Authentication checkbox.
4. Enter the Client Identifier information as well as the Request Timeout (how long before an unanswered request will time out) and The Request Retries (how many times a request will be attempted).
5. Click Add to add RADIUS, TACACS+ or LDAP servers to the authentication lists.

The Add External Authentication Entry dialog appears.



**Figure 6-23: Add External Authentication Entry dialog**

6. Enter the details for the Server you wish to configure and click Save.

- ◆ For RADIUS, enter the IP address (IPv4 or IPv6) or Host Name, port, Encryption key and Confirm key.
- ◆ For TACACs+ see below.
- ◆ For LDAP, enter the IP address (IPv4 or IPv6) or Host Name and port and see below.

The server now appears in the External Authentication Configuration list.

7. Use the **UP** and **DOWN** arrow buttons to change the order of the RADIUS servers. The servers will be contacted in order from first to last, as needed.
8. Click **SAVE** to save any changes made or **CLOSE** to exit the User Configuration screen without saving changes.

### Enabling TACACS+ Support

To enable/disable the TACACS+ client, run the **tacacs.py** script on each Allot product that you wish to use TACAS+ authentication with. This script installs/uninstalls the TACACS client. Before installation the script tries to stop LDAP authentication if running.

Log file will be saved at: /var/log/acp\_tacacs.log

TACACS+ may be enabled on each system component as follows:

**NOTE** Files are located under `/root/.allot/TACACS` directory.

1. Log in as root user.
2. Enter the following command:  
**`./tacacs.py start tacacs.ini`**

**NOTE** `tacacs.ini` is an optional command to run an ini file.

3. If used, the `tacacs.ini` file must contain the following entries:

```
server1=xx.xx.xx.xx
secret1=???????
server2=yy.yy.yy.yy
secret2=???????
timeout=2
debug=1
service=pam
protocol=ssh
```

4. The script creates a new file called **/etc/tacplus.conf** and modifies the following files:  
`/etc/nsswitch.conf`  
`/etc/pam.d/sshd`  
`/etc/pam.d/tacacs`
5. To disable TACACS+ support, enter the following command:  
**`./tacacs.py stop`**

To use TACACS+ authentication you must add a TACACS+ Server to NX via Users Configuration as follows:

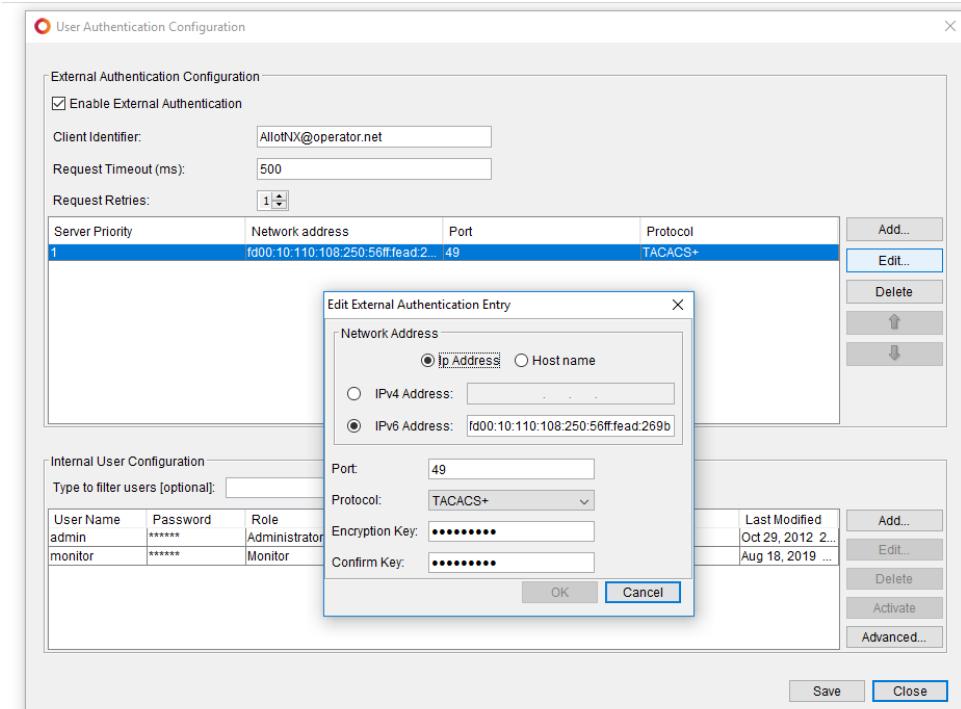
1. SSH to the TACACS+ Server and enter the following command to confirm that the server is up:

```
# ps -aux | grep "tac_"
```

Expected Output:

```
root 19575 0.0 0.0 114772 992 pts/1 S+ 10:27 0:00 grep --color=auto tac_
root 26526 0.0 0.0 19648 732 ? S Aug20 0:01 ./tac_plus -C
/etc/tac_plus.conf
```

2. Open the NetXplorer GUI and from the Tools menu select Users Configuration.
3. In the External Authentication Configuration area, select the Enable External Authentication checkbox.
4. Click Add to add the TACACS+ Server.

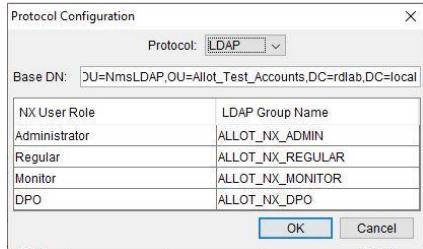


**Figure 6-24: Add External Authentication Entry dialog – TACACS+**

5. In the Add External Authentication Entry dialog box, select IP Address or Host Name and enter the correct Network Identifier for the server.
6. Enter **49** in the Port field.
7. Select **TACACS+** in the Protocol field.
8. To get the Encryption key for the Server, SSH to the Server again and enter the following command:  
**# vi /etc/tac\_plus.conf**  
The value listed under key in that file is the Encryption Key required.
9. Click OK to save the Server
10. Click Save to enter the configuration change.

### Enabling LDAP Support

1. At the Users Configuration window Select the **Protocol Configuration** Button
2. Select LDAP Protocol in the Protocol field from the Drop down menu.

**Figure 6-25: LDAP Protocol Configuration**

3. Enter the **Base DN** (the path for the organizational unit accounts at the DSA) in the relevant field.
4. Configure **LDAP Group Names** according to the NX User Roles described above.
5. Click **OK** and **Save**

## 6.5 NetXplorer Accounting

### 6.5.1 Overview

The NetXplorer has a centralized accounting management system, which enables the ongoing collection and consolidation of data from multiple Service Gateway devices that enable users to produce consolidated reports. The key to a centralized system is the ability to consolidate information from all the managed groups that are being monitored.

NetXplorer offers customers the use of either:

- NetXplorer Accounting mode (requires installation of the Accounting manager, see section 2.4.2 above)
- Legacy Accounting mode

**Note:** **NX Accounting and Legacy Accounting are mutually exclusive, and only one or the other may exist in the system. The NX Accounting mode is the default. The decision as to which mode to use, will be enabled system wide.**

Accounting records contain the following information for both IPv4 and IPv6 entries:

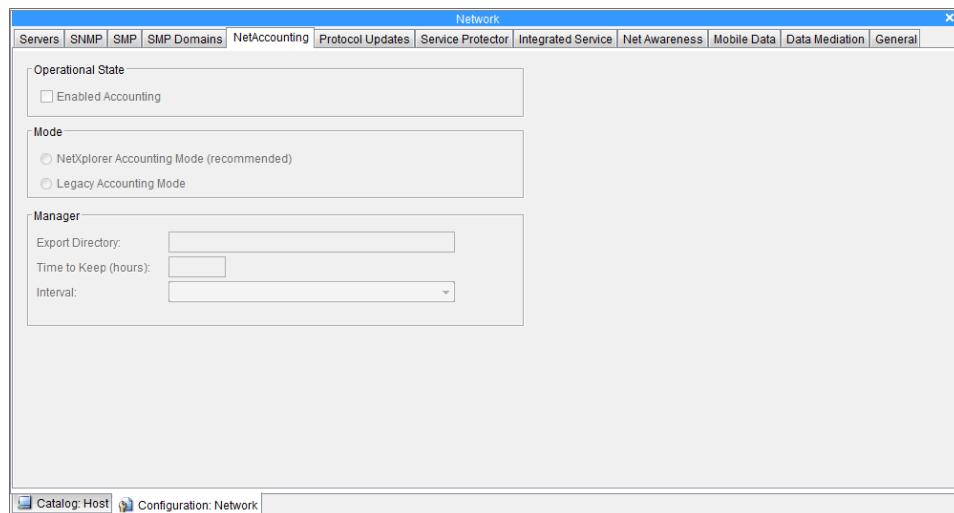
- Subscriber ID
- Service (i.e. HTTP, P2P, etc.)
- Bytes In
- Bytes Out

Note: **NetXplorer Accounting uses only exact data (Virtual Channel) whereas Legacy Accounting only uses non-exact (Conversation) data.**

NetXplorer accounting records are produced in standard TRN format.

## 6.5.2 Configuring NetXplorer Accounting

You enable accounting from the Network window's NetAccounting tab's Operation area:



**Figure 6-26: Network Configuration - NetAccounting**

### To enable accounting and choose the accounting mode:

1. In the Navigation pane, right-click the Network option in the Navigation tree and select **Configuration** from the popup menu. The Network window is displayed.
2. Choose the NetAccounting tab and select the **Enabled Accounting** option in the Operational area. The appropriate Manager and Mode area options are activated.
3. Select either NetXplorer Accounting Mode or Legacy Accounting Mode. NetXplorer Accounting Mode option is selected by default.

Note: **Legacy Accounting only uses non-exact (Conversation) data, whereas NetXplorer Accounting uses only exact data (Virtual Channel).**

4. Enter the location of the **Export Directory** of the processed files that contains the collected information.
5. Enter the time period that the Account Manager should hold the processed information (24 hour default) in the **Time to Keep** field.

6. Select the time interval that the STC/Media Device should accumulate the raw data before transferring it to the Accounting Manager for processing, from the **Interval** list (Every 5 minutes is the default).
7. To save your accounting parameters, click **Save**.

## 7 Database Management

The NetXplorer is a centralized management system, which enables the ongoing collection and consolidation of data from multiple Service Gateway devices that enable users to produce consolidated reports. The key to a centralized system is the ability to consolidate information from all the managed groups that are being monitored. Because NetXplorer allows for the ongoing collection and consolidation of data from multiple Service Gateway devices, users are able to produce consolidated reports based the information collected.

In order to manage the collected data, there are three databases:

- **CFG Tables** - Configuration parameters
- **STC Database** – Short term database
- **LTC Tables** – Long term database

### 7.1.1 Backup Terms

- **Cold backup** – A backup process performed with the NetXplorer server offline.
- **Hot backup** – A backup process performed without interrupting NetXplorer operation
- **Full Backup** – A backup process that copies all of the data to a location from which we can create an entire database.
- **Incremental Backup** – A process that preserves only the changes made since the latest backup, either full or incremental, the latest of them.
- **Database Restore** – A process to create a database using the backup copy. Typically, the restore process consists of copying the latest full backup to the restore directory, and then “applying” the incremental backups that were performed after that last full backup.
- **Backup generation** – Backups are kept cyclically as generations. Each generation is a full set of backup files capable of restoring the database to the point in time in which its last iteration was created. Each generation typically consists of one full backup and several incremental backups.
- **Incremental Backup serial number** – Within a certain generation, incremental backups are performed one after another, each one being part of a certain serial number.

## Hot Backup Options Per Database Type

- **Configuration Tables (CFG)** –Full backup and periodical incremental backups, manually or scheduled. Full backup is performed once a day while the incremental backup is performed every hour. All values are configurable by the user and can be changed according to requirements.
- **Short Term Collector Database (STC)** –Full backups only, manually or scheduled. STC full backup only backs up a set of files that hold the values kept in key tables (such as param) but the actual **traffic data is NOT saved**. The restore process, therefore, recreates a new database from scratch, performs a delete and then loads the key tables mentioned.
- **Long Term Collector table (LTC)** – Full backups only. **This is a manual process only**. This is due to the database's potential size.

### 7.1.2 Using Backups to Achieve NX Redundancy

The following scenario is one suggestion for using backups to achieve NetXplorer redundancy:

1. Install two NetXplorer servers, one used exclusively as backup.
2. Schedule regular backups for the CFG and STC databases.
3. Perform a manual backup of the LTC database once per day/week/months (depending on the requirements)
4. In the event that the main NetXplorer server fails, assign the same IP to the backup NetXplorer server.
5. Restore the CFG, STC, and LTC database backups to the new NetXplorer.

## 7.2 Database Management on Windows

### 7.2.1 Cold Backup

#### To perform a Cold backup:

1. Stop the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Stop** from the drop-down menu.

- ◆ Check the ***allot\_ltc.txt*, *allot\_stc.txt*** log files located under Allot Home Directory\Logs in order to verify that NetXplorer services are not running:

The following lines should appear in both ***allot\_ltc.txt*, *allot\_stc.txt*** log files:

***"Disable all events"***

***"End of current events"***

2. Copy Allot Home Directory\data\db folder to a backup directory
3. Restart the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Start** from the drop-down menu.

Note: If a customer is upgrading from a previous NetXplorer version the backup directory will be located at *Allot Home Directory\data\db*.

### To restore the Cold backup:

Note: If you need to restore a Cold backup that includes a CFG database that is running an earlier Protocol Pack than the Service Gateways on the network, follow the procedure in section 6.2.3.

1. Stop the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Stop** from the drop-down menu.
  - ◆ Check the ***allot\_ltc.txt*, *allot\_stc.txt*** log files located under Allot Home Directory\Logs in order to verify that NetXplorer services are not running:

The following lines should appear in both ***allot\_ltc.txt*, *allot\_stc.txt*** log files:

***"Disable all events"***

***"End of current events"***

2. Restore the database by copying the backup to the following folder:  
**/opt/sybase/data/db OR d:\allot home directory\data\db.**

If you get a "Confirm Folder Replace" pop-up window, then press "Yes to All".

3. Restart the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Start** from the drop-down menu.

## 7.2.2 Hot Backup

### Backing up CFG Tables

Note: The following commands should not be cut and pasted into the DOS window, but typed in. They may not function properly unless entered manually.

#### To perform an incremental hot backup manually:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

**db\_maint -a backup -n cfg -t incremental**

#### To perform a full hot backup manually:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

**db\_maint -a backup -n cfg -t full**

#### To check the hot backup parameters:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

**db\_maint -a backup\_status -n cfg -sa list**

The backup parameters will indicate what scheduled backups are enabled, when they are scheduled, and how many generations will be backed up.

#### To enable incremental scheduled hot backups:

Note: Incremental scheduled hot backup is enabled by default.

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n cfg -t incremental -sa enable
```

#### To schedule an incremental hot backup for a specific time:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n cfg -t incremental -sa  
change_sched -ns <TIME>
```

**To set the amount of time between scheduled incremental hot backups:**

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. Enter the following command:

```
db_maint -a backup_status -n cfg -t incremental -sa  
change_sched -ni <VALUE> -nt <UNIT OF TIME>
```

For example, to set a period of 2 hours between incremental backups, enter the following command

```
db_maint -a backup_status -n cfg -t incremental -sa  
change_sched -ni 2 -nt hours
```

**To schedule a full hot backup for a specific time:**

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n cfg -t full -sa change_sched  
-ns <TIME>
```

**To set the amount of time between scheduled full hot backups:**

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n cfg -t full -sa change_sched  
-ni <VALUE> -nt <UNIT OF TIME>
```

For example, to set a period of 20 hours between full backups, enter the following command

```
db_maint -a backup_status -n cfg -t full -sa  
change_sched -ni 20 -nt hours
```

**To change the backup directory:**

4. Open a Microsoft DOS window on the NetXplorer Server.
5. Open the Allot\Bin directory (by default D:\Allot\bin).
6. At the prompt enter the following command:

```
db_maint -a backup_status -n cfg -sa change_dir -nd  
<NEW LOCATION PATH>
```

For example, to change the database directory to cfg1, enter the following command

```
db_maint -a backup_status -n cfg -sa change_dir -nd  
D:\backup\cfg1
```

### To change the number of generations:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n cfg -sa change_gen -ng  
<VALUE>
```

### Restoring CFG Tables

Note: If you need to restore a CFG database that is running an earlier Protocol Pack than the Service Gateways on the network, follow the procedure on page 7-16.

### To check the hot backup parameters:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n cfg -sa list
```

The backup parameters will indicate the generation numbers of the backups.

The increment number must be found in the correct folder under the backup folder (for example: D:\Allot\backup\cfg\5\incremental).

### To restore the database:

1. Stop the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Stop** from the drop-down menu.
  - ◆ Check the **allot\_ltc.txt**, **allot\_stc.txt** log files located under Allot Home Directory\Logs in order to verify that NetXplorer services are not running:

The following lines should appear in both **allot\_ltc.txt**, **allot\_stc.txt** log files:

**"Disable all events"**

**"End of current events"**

2. Open a Microsoft DOS window on the NetXplorer Server.
3. Open the Allot\Bin directory (by default D:\Allot\bin).
4. At the prompt enter the following command:

```
db_maint -a restore -n cfg -s <D:\Allot\backup\cfg or  
LOCATION PATH> -g <GENERATION NUMBER> -i  
<INCREMENT NUMBER> -d <D:\Allot\data\db\cfg or  
LOCATION PATH> -b <TEMP LOCATION TO KEEP  
CURRENT CONFIGURATION>
```

5. Restart the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Start** from the drop-down menu.

## Backing up STC Databases

### To perform a full hot backup manually:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup -n stc -t full
```

### To check the hot backup parameters:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n stc -sa list
```

The backup parameters will indicate what scheduled backups are enabled, when they are scheduled, and how many generations will be backed up.

### To schedule a full hot backup for a specific time:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n stc -t full -sa change_sched  
-ns <TIME>
```

**To set the amount of time between scheduled full hot backups:**

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n stc -t full -sa change_sched  
-ni <VALUE> -nt <UNIT OF TIME>
```

For example, to set a period of 20 hours between full backups, enter the following command

```
db_maint -a backup_status -n stc -t full -sa  
change_sched -ni 20 -nt hours
```

**To change the hot backup directory:**

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n stc -sa change_dir -nd <NEW  
LOCATION PATH>
```

For example, to change the database directory to cfg1, enter the following command

```
db_maint -a backup_status -n cfg -sa change_dir -nd  
D:\backup\cfg1
```

**To change the number of generations:**

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n stc -sa change_gen -ng
<VALUE>
```

**Restoring STC Databases****To check the hot backup parameters:**

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n stc -sa list
```

The backup parameters will indicate the generation numbers of the backups

**To restore the database:**

1. Stop the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Stop** from the drop-down menu.
  - ◆ Check the **allot\_ltc.txt**, **allot\_stc.txt** log files located under Allot Home Directory\Logs in order to verify that NetXplorer services are not running:

The following lines should appear in both **allot\_ltc.txt**, **allot\_stc.txt** log files:

**"Disable all events"**

**"End of current events"**

2. Open a Microsoft DOS window on the NetXplorer Server.
3. Open the Allot\Bin directory (by default D:\Allot\bin).
4. At the prompt enter the following command:

```
db_maint -a restore -n stc -s <D:\Allot\backup\stc or  
LOCATION PATH> -g <GENERATION NUMBER> -i 0 -d  
<D:\Allot\data\db\stc or LOCATION PATH>
```

5. Restart the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Start** from the drop-down menu.

## Backing up LTC Tables

### To perform a full hot backup manually:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup -n ltc -t full
```

### To check the hot backup parameters:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n ltc -sa list
```

### To change the hot backup directory:

1. Open a Microsoft DOS window on the NetXplorer Server.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n ltc -sa change_dir -nd <NEW  
LOCATION PATH>
```

For example, to change the database directory to cfg1, enter the following command

```
db_maint -a backup_status -n ltc -sa change_dir -nd  
D:\backup\cfg1
```

### To change the number of generations:

1. Access the NetXplorer via SSH.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n ltc -sa change_gen -ng
<VALUE>
```

### Restoring LTC Tables

### To check the hot backup parameters:

1. Access the NetXplorer via SSH.
2. Open the Allot\Bin directory (by default D:\Allot\bin).
3. At the prompt enter the following command:

```
db_maint -a backup_status -n ltc -sa list
```

The backup parameters will indicate the generation numbers of the backups

### To restore the database:

1. Stop the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Stop** from the drop-down menu.
  - ◆ Check the **allot\_ltc.txt**, **allot\_stc.txt** log files located under Allot Home Directory\Logs in order to verify that NetXplorer services are not running:

The following lines should appear in both **allot\_ltc.txt**, **allot\_stc.txt** log files:

**"Disable all events"**

**"End of current events"**

2. Open a Microsoft DOS window on the NetXplorer Server.
3. Open the Allot\Bin directory (by default D:\Allot\bin).
4. At the prompt enter the following command:

```
db_maint -a restore -n ltc -s <D:\Allot\backup\ltc or LOCATION  
PATH> -g <GENERATION NUMBER> -d <D:\Allot\data\db\ltc or  
LOCATION PATH>
```

5. Restart the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Start** from the drop-down menu.

### 7.2.3 Aligning Protocol Pack Versions

If you do not create regular database backups, it is possible that you may need to restore a CFG database that is running an earlier Protocol Pack than the Service Gateways on the network. In this situation, use the following procedure:

1. Downgrade the protocol packs on the devices attached to the server. This is done via the **Tools** menu in the NetXplorer GUI by selecting **Protocol Updates > Rollback Devices to Previous Version**. Make sure that you downgrade to the version that was being used when the CFG backup was taken.
2. Stop the NetXplorer Service.
  - ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Stop** from the drop-down menu.
  - ◆ Check the **allot\_ltc.txt**, **allot\_stc.txt** log files located under Allot Home Directory\Logs in order to verify that NetXplorer services are not running:

The following lines should appear in both **allot\_ltc.txt**, **allot\_stc.txt** log files:

**"Disable all events"**

**"End of current events"**

3. Replace the CFG database and the transaction log file. For details see page 7-8.
4. Restart the NetXplorer Service.

- ◆ Click **Start** on the Windows Task Bar and select **Settings > Control Panel**.
  - ◆ Double-click **Administrative Tools** and open **Services**.
  - ◆ Right-click **NetXplorer Server** in the list of Services and select **Start** from the drop-down menu.
  - ◆ Wait at least 60 seconds for all processes to start before logging in.
5. Once logged into the NetXplorer Server, push the policy from the restored CFG database out to the devices using **Tools > Restore Policy and Catalogs** from the NetXplorer GUI.
  6. Update the Protocol Pack on the NetXplorer Server as normal, and then push the new Protocol Pack to the devices. For more information, see the relevant Protocol Pack Release Notes.

## 7.3 Database Management on Linux

### 7.3.1 Cold Backup

**To perform a Cold backup:**

1. SSH to the NetXplorer Server
2. Stop the NetXplorer Service.
  - ◆ As root user run the following command:  
**service netxplorer stop**
  - ◆ Wait for the following message -  
**Stopping NetXplorer Server (this may take a few minutes) [OK]**
3. Copy the **/opt/sybase/data/db** directory to a backup directory
4. Restart the NetXplorer Service
  - ◆ As root user run the following command:  
**service netxplorer start**

**To restore the Cold backup:**

Note: If you need to restore a Cold backup that includes a CFG database that is running an earlier Protocol Pack than the Service Gateways on the network, follow the procedure in section 6.3.3.

1. SSH to the NetXplorer Server
2. Stop the NetXplorer Service.

- ◆ As root user run the following command:  
**service netxplorer stop**
- ◆ Wait for the following message -  
**Stopping NetXplorer Server (this may take a few minutes) [OK]**
- 3. Copy the backup directory to **/opt/sybase/data/db**
- 4. Restart the NetXplorer Service
  - ◆ As root user run the following command:  
**service netxplorer start**

### 7.3.2 Hot Backup

#### Backing up CFG Tables

Note: The following commands should not cut and pasted into the SSH session, but typed in. They may not function properly unless entered manually.

##### To perform an incremental hot backup manually:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:  
**./db\_maint\_sudo.sh -a backup -n cfg -t incremental**

##### To perform a full hot backup manually:

1. SSH to the NetXplorer Server as root user
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:  
**./db\_maint\_sudo.sh -a backup -n cfg -t full**

##### To check the hot backup parameters:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

**./db\_maint\_sudo.sh -a backup\_status -n cfg -sa list**

The backup parameters will indicate what scheduled backups are enabled, when they are scheduled, and how many generations will be backed up.

##### To enable incremental scheduled hot backups:

1. SSH to the NetXplorer Server.
2. Open the `/opt/allot/bin/` directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -t
incremental -sa enable
```

**To schedule an incremental hot backup for a specific time:**

1. SSH to the NetXplorer Server.
2. Open the `/opt/allot/bin/` directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -t
incremental -sa change_sched -ns <TIME>
```

**To set the amount of time between scheduled incremental hot backups:**

1. SSH to the NetXplorer Server.
2. Open the `/opt/allot/bin/` directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -t
incremental -sa change_sched -ni <VALUE> -nt <UNIT
OF TIME>
```

For example, to set a period of 2 hours between incremental backups, enter the following command

```
/db_maint_sudo.sh -a backup_status -n cfg -t
incremental -sa change_sched -ni 2 -nt hours
```

**To schedule a full hot backup for a specific time:**

1. SSH to the NetXplorer Server.
2. Open the `/opt/allot/bin/` directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -t full -sa
change_sched -ns <TIME>
```

**To set the amount of time between scheduled full hot backups:**

1. SSH to the NetXplorer Server.
2. Open the `/opt/allot/bin/` directory.

3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -t full -sa
change_sched -ni <VALUE> -nt <UNIT OF TIME>
```

For example, to set a period of 20 hours between full backups, enter the following command

```
/db_maint_sudo.sh -a backup_status -n cfg -t full -sa
change_sched -ni 20 -nt hours
```

#### To change the backup directory:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -sa
change_dir -nd <NEW LOCATION PATH>
```

#### To change the number of generations:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -sa
change_gen -ng <VALUE>
```

## Restoring CFG Tables

Note: If you need to restore a CFG database that is running an earlier Protocol Pack than the Service Gateways on the network, follow the procedure in section 6.3.3.

#### To check the hot backup parameters:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n cfg -sa list
```

The backup parameters will indicate the generation numbers of the backups.

The increment number must be found in the correct folder under the backup folder (for example: **/opt/sybase/data/db/cfg/5/incremental**).

**To restore the database:**

1. SSH to the NetXplorer Server
2. Open the **/opt/allot/bin/** directory.
3. Stop the NetXplorer Service.
  - ◆ As root user run the following command:  
**service netxplorer stop**
  - ◆ Wait for the following message -  
**Stopping NetXplorer Server (this may take a few minutes) [OK]**
4. Enter the following command as the root user:  

```
/db_maint_sudo.sh -a restore -n cfg -s <LOCATION PATH> -g <GENERATION NUMBER> -i <INCREMENT NUMBER> -d <LOCATION PATH> -b <TEMP LOCATION TO KEEP CURRENT CONFIGURATION>
```
5. Restart the NetXplorer Service
  - ◆ As root user run the following command:  
**service netxplorer start**

**Backing up STC Databases****To perform a full hot backup manually:**

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:  

```
/db_maint_sudo.sh -a backup -n stc -t full
```

**To check the hot backup parameters:**

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n stc -sa list
```

The backup parameters will indicate what scheduled backups are enabled, when they are scheduled, and how many generations will be backed up.

**To schedule a full hot backup for a specific time:**

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.

3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n stc -t full -sa
change_sched -ns <TIME>
```

**To set the amount of time between scheduled full hot backups:**

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n stc -t full -sa
change_sched -ni <VALUE> -nt <UNIT OF TIME>
```

For example, to set a period of 20 hours between full backups, enter the following command

```
/db_maint_sudo.sh -a backup_status -n stc -t full -sa
change_sched -ni 20 -nt hours
```

**To change the hot backup directory:**

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n stc -sa
change_dir -nd <NEW LOCATION PATH>
```

**To change the number of generations:**

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n stc -sa
change_gen -ng <VALUE>
```

## Restoring STC Databases

**To check the hot backup parameters:**

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

**`./db_maint_sudo.sh -a backup_status -n stc -sa list`**

The backup parameters will indicate the generation numbers of the backups

#### To restore the database:

1. SSH to the NetXplorer Server
2. Stop the NetXplorer Service.
  - ◆ As root user run the following command:  
**service netxplorer stop**
  - ◆ Wait for the following message -  
**Stopping NetXplorer Server (this may take a few minutes) [OK]**
3. Enter the following command as the root user:

**`./db_maint_sudo.sh -a restore -n stc -s <LOCATION PATH> -g <GENERATION NUMBER> -i 0 -d <LOCATION PATH>`**

4. Restart the NetXplorer Service
  - ◆ As root user run the following command:  
**service netxplorer start**

### Backing up LTC Tables

#### To perform a full hot backup manually:

Note: Before creating a full backup, verify that you have enough space on the NetXplorer server for the backup files. In a case of memory overflow, the NetXplorer server will not start. The size of the backup is indicated at: `cd /opt/sybase/data/db/ltc/`

1. SSH to the NetXplorer Server.
2. Open the `/opt/allot/bin/` directory.
3. Enter the following command as the root user in order to create the backup root directory (after confirming that there is a folder called `/tmp/backup/ltc`):

**`./db_maint_sudo.sh -a backup_status -n ltc -sa change_dir -nd /tmp/backup/ltc`**

4. Enter the following command as the root user:  
**`./db_maint_sudo.sh -a backup -n ltc -t full`**

#### To check the hot backup parameters:

1. SSH to the NetXplorer Server.

2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n ltc -sa list
```

#### To change the hot backup directory:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n ltc -sa  
change_dir -nd <NEW LOCATION PATH>
```

#### To change the number of generations:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n ltc -sa  
change_gen -ng <VALUE>
```

## Restoring LTC Tables

#### To check the hot backup parameters:

1. SSH to the NetXplorer Server.
2. Open the **/opt/allot/bin/** directory.
3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a backup_status -n ltc -sa list
```

The backup parameters will indicate the generation numbers of the backups

#### To restore the database:

1. SSH to the NetXplorer Server
2. Stop the NetXplorer Service.
  - ◆ As root user run the following command:  
**service netxplorer stop**
  - ◆ Wait for the following message -  
**Stopping NetXplorer Server (this may take a few minutes)**  
**[OK]**

3. Enter the following command as the root user:

```
/db_maint_sudo.sh -a restore -n ltc -s <LOCATION  
PATH> -g <GENERATION NUMBER> -d <LOCATION  
PATH>
```

4. Restart the NetXplorer Service
  - ◆ As root user run the following command:  
**service netxplorer start**

### 7.3.3 Aligning Protocol Pack Versions

If you do not create regular database backups, it is possible that you may need to restore a CFG database that is running an earlier Protocol Pack than the Service Gateways on the network. In this situation, use the following procedures:

1. Downgrade the protocol packs on the devices attached to the server. This is done via the **Tools** menu in the NetXplorer GUI by selecting **Protocol Updates > Rollback Devices to Previous Version**. Make sure that you downgrade to the version that was being used when the CFG backup was taken.
2. Stop the NetXplorer Service.
  - ◆ SSH to the NetXplorer Server
  - ◆ As root user run the following command:  
**service netxplorer stop**
  - ◆ Wait for the following message -  
**Stopping NetXplorer Server (this may take a few minutes) [OK]**
3. Replace the CFG database and the transaction log file. For details see page 7-20.
4. Restart the NetXplorer Service
  - ◆ As root user run the following command:  
**service netxplorer start**
  - ◆ Wait at least 60 seconds for all processes to start before logging in.
5. Once logged into the NetXplorer Server, push the policy from the restored CFG database out to the devices using **Tools > Restore Policy and Catalogs** from the NetXplorer GUI.
6. Update the Protocol Pack on the NetXplorer Server as normal, and then push the new Protocol Pack to the devices. For more information, see the relevant Protocol Pack Release Notes.



## 7.4 Data Collection and Profiles

The Allot Service Gateway collects data and stores it in short term and long term databases for later retrieval by the NetXplorer monitoring and reporting functionality. This section describes the data collection and a series of profiles which can be configured to fine-tune the process and maximize system resources.

### 7.4.1 Data Collection - Overview

As part of the operation of the Allot system, the Service Gateway aggregates data into buckets every 30 seconds and 300 seconds. These two processes occur in parallel.

The Service Gateway generates up to five types of buckets, with 30 second and 300 second versions of each bucket created. The different types of bucket are listed below:

- **VC buckets** (sometimes referred to as Rule buckets) include data that can be used for Statistics, Utilization, Line, Pipe and VC reports. They can also be used for the Pipe and VC popularity reports too. As the amount of data in these buckets is limited by policy definitions, their size is manageable and reduction is not required. With no reduction performed on the buckets, the user will always obtain exact information from the graphs which are opened based on VC buckets.
- **Conversation buckets** include data that can be used for Protocols, Hosts and Conversation reports. The amount of data in these buckets is not limited by policy definitions. The data here concerns activity on the network, as opposed to classified traffic. These buckets collect data regarding each individual connection on the network. The amount of data here is virtually unlimited and can exceed millions of conversations. For this reason, reduction is performed on this data.

Note: **By default, data for external hosts within conversation buckets is not collected. Consequently, “external hosts” and “conversations” reports are not available by default. Including these records in the conversation buckets uses up statistic collection resources which may impact data collection performance!**

- **Service buckets** are used for the average protocol popularity graphs. They measure the average number of IPs (or subscribers) generating each type of protocol. As only a single record is produced per protocol, no reduction is required.

Note: **Service Buckets are disabled by default. When enabled, they use up the statistic collection resources which may impact data collection performance!**

- **Generic buckets** include data that can be used for Integrated Service reports (redirected traffic), Websafe reports (inspected and illegal sites) and asymmetric reports (control traffic running between NEs or SGs which are set up in an asymmetric configuration).
- **HTTP buckets** include data that can be used for the Most Active Domains report which is disabled by default (these buckets can be activated by enabling the HTTP monitoring feature from the Integrated Service Tab as described in the NetXplorer Operation Guide Ch3).

## 7.4.2 Profiles - Overview

Profiles can be defined both on the Service Gateway and on the long term and short term collectors of the NetXplorer Server. Different types of profiles exist to control different sets of parameters, as shown in the table below:

| Profile            | Can be Defined On |    |     |     | Determines                                                                                                                                                                                                                                                                                                             |
|--------------------|-------------------|----|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | SG                | NE | STC | LTC |                                                                                                                                                                                                                                                                                                                        |
| Reduction Profile  |                   |    | ✓   |     | The amount of data and number of records that is included in the buckets, or stated differently – how much reduction is performed on the statistics collected. The extent of reduction can be determined on the Short Term Collector when 1hr buckets are reduced before being transferred to the Long Term Collector. |
| Aging Profile      |                   | ✓  |     | ✓   | The amount of time for which statistical data is stored on the server. This can be determined both on the short term and the long term collector.                                                                                                                                                                      |
| Deployment Profile | ✓                 |    |     |     | The balance of system resources allocated in a service gateway (e.g: number of rules / number of connections). This profile is not relevant to the NetXplorer Database and is not discussed in this chapter. For more information consult the Service Gateway Hardware guides.                                         |

### 7.4.3 Profiles – Available Options

The available options for the reduction and aging profiles are summarized in the table below:

| PROFILE           | STC                                                                                                                                             | LTC                                                                                                                    |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Reduction Profile | ISP History<br><b>ISP Normal</b><br>ISP Accuracy<br>Enterprise History<br>Enterprise Normal<br>Enterprise Accuracy                              | N/A                                                                                                                    |
| Aging Profile     | ISP 10k<br>ISP Accuracy<br><b>ISP Normal</b><br>ISP History<br>ISP Long Hours<br>Enterprise Accuracy<br>Enterprise Normal<br>Enterprise History | ISP 10k<br>ISP Accuracy<br>ISP Normal<br>ISP History<br>Enterprise Accuracy<br>Enterprise Normal<br>Enterprise History |

#### Reduction Profile on STC

There are 6 different types of STC reduction profiles

- ISP Accuracy
- ISP Normal
- ISP History
- Enterprise Accuracy
- Enterprise Normal
- Enterprise History

The default NetXplorer profile is ISP Normal. The profiles determine the amount of reduction which takes place on conversation records when 1hr buckets are imported from the Short Term Collector to the Long Term Collector. In the History profiles, fewer records are saved, while in the Accuracy profiles, more buckets are saved.

#### Aging Profile on STC and LTC

The aging profiles determine for how long data is maintained on the short term database (whether it is on the NetXplorer or an external collector) and on the long term database. There are 9 different types of aging profiles. The default NetXplorer profile is ISP Normal. The table below shows the lengths of time for

which different data resolutions are stored for each profile, on both the STC and the LTC.

|            |              | STC      |          |          | LTC      |          |          |
|------------|--------------|----------|----------|----------|----------|----------|----------|
|            |              | 30 sec   | 5 min    | 1hr      | 1hr      | 1 day    | 1 mon    |
| ISP        | 10k          | 15min    | 12 hours | 12 hours | 1 month  | 2 months | 6 months |
|            | Accuracy     | 1 hour   | 24 hours | 24 hours | 1 month  | 2 months | 6 months |
|            | Normal       | 2 hours  | 36 hours | 36 hours | 2 months | 6 months | 1 year   |
|            | History      | 6 hours  | 48 hours | 48 hours | 4 months | 1 year   | 1 year   |
|            | Long Hours   | 0        | 48 hours | 6 months | 0        | 0        | 0        |
|            | STC Extended | 15min    | 12 hours | 12 hours | 1 month  | 2 months | 6 months |
| Enterprise | Accuracy     | 2 hours  | 24 hours | 24 hours | 2 months | 6 months | 1 year   |
|            | Normal       | 4 hours  | 48 hours | 48 hours | 3 months | 1 year   | 1 year   |
|            | History      | 12 hours | 96 hours | 96 hours | 6 months | 2 years  | 2 years  |

**Hours**                                   **Months**

**Figure 7-1: Length of time for which data is stored under different profiles**

**Warning:** Changing the default reduction and aging profiles can impact the performance of your solution. Different aging and reduction profiles have been designed to suit particular setups. You should not change any of these profiles from their default value without first consulting with Allot Customer Support.

**Note:** When working with multi-blade Service Gateways (e.g: SG-Tera or SG-Sigma E), the history profile chosen should be **isp\_10k**

#### 7.4.4 Profiles - Configuration

There are 3 places where you need to configure the different profiles.

- Configure the Reduction Profile on the Short Term Collector (which may be part of the NetXplorer or deployed externally as described above). This determines the extent of reduction carried out when passing the aggregated 1hr buckets between the short term collector and the long term collector.
- Configure the Data Ageing profile on the Short Term Collector. This determines how long data is kept in the STC.
- Configure the Data Ageing profile on the Long Term Collector. This determines how long data is kept in the LTC.

**Warning:** Changing the default reduction and aging profiles can impact the performance of your solution. Different aging and reduction profiles have been designed to suit particular setups. You should not change any of these profiles from their default value without first consulting with Allot Customer Support.

### To change the reduction profile on the STC:

1. Open a command prompt window
2. Go to <allot home directory>\bin (opt/allot/bin on a Linux server or a distributed monitoring collector.)
3. Run the following command: **reduction\_profile\_upd.bat** This changes the configuration for the reduction algorithm that runs on the STC server when transferring the 1hr aggregated buckets from the short term collector to the long term collector.
  - ◆ The available parameters to choose are:
    - ent\_accuracy
    - ent\_normal
    - ent\_history
    - isp\_accuracy
    - isp\_normal
    - isp\_history
  - ◆ Note that for reduction\_profile\_upd.bat there is no need for quotes around the profile name
4. After changing the profile you need to restart the NetXplorer Service. You can do so from the services control panel (for Windows) or by entering **service netxplorer start** (For Linux)

### To change the aging profile on the STC and LTC:

1. Open a command prompt window
2. Go to <allot home directory>\bin (opt/allot/bin on a Linux server or a distributed monitoring collector.)
3. Run one of the following commands:
  - **stc\_profile\_upd.bat** – changes data aging parameters in Short term database
  - **ltc\_profile\_upd.bat** – changes data aging parameters for the Long term database.

4. For each one of the commands you should specify one of the following parameters that describes the profile you wish to use:

- ◆ isp\_10k
- ◆ isp\_accuracy
- ◆ isp\_normal
- ◆ isp\_history
- ◆ isp\_long\_hours
- ◆ ent\_accuracy
- ◆ ent\_normal
- ◆ ent\_history

Note: **For the commands stc\_profile\_upd.bat and ltc\_profile\_upd.bat the parameter should be in quotes ("") while for reduction\_profile\_upd.bat there is no need for quotes.**

5. After changing the profile you need to restart the NetXplorer Service. You can do so from the services control panel.

## 8

# Command Line Interface (CLI)

The Server CLI described in this chapter enables you to modify the Service Gateway or NetXplorer database from the command line rather than the GUI. The CLI supplies a set of commands to add, change, rename and remove Service Gateway entities, such as, Pipes, Virtual Channels or other Catalog entries and change the configuration of the Service Gateway. You can also use the CLI to set system parameters and device settings.

There are two types of NetXplorer Server CLI:

- Provisioning CLI, which enables you to create traffic policies via CLI without using the NetXplorer GUI
- Monitoring CLI, which enables you to generate .csv based traffic and subscriber network usage reports via CLI without using the NX GUI

The Allot Command Line Interface is available in both Windows and Linux format. When NetXplorer Server is installed on a Linux server, either format may be used. However, if NetXplorer is installed on a server running Windows, only the Windows CLI is available.

**Note:** **The computer used to send CLI commands to the NetXplorer or to Service Gateway devices must have Java installed and be included in the allowedHosts.properties.**

Before beginning to work with provisioning CLI or monitoring CLI, make sure that the following ports are open between the Client running the CLI and the NetXplorer server:

- TCP 1099
- TCP 1098
- TCP 4446
- TCP 80

## Scripts

Scripts can contain CLI commands in order to automate the data entry process.

## 8.1

# Provisioning CLI

## To use the provisioning CLI in Linux:

1. The NetXplorer server must be configured to allow your computer to use its web services. In the NetXplorer GUI go to the Servers tab of the

Network configuration screen and add the IP address of computer you wish to use to access the CLI in the Allowed Hosts list.

2. Unzip the file \<VERSION NUMBER>\RnD\WScli.zip to the root/cli folder on the NetXplorer Server.
3. The newly created folder contains five .sh files: topologyCLI.sh, policyCLI.sh, catalogsCLI.sh, wuCLI.sh and configurationCLI.sh.
4. From the NetXplorer client machine, SSH to the folder on the server to which you extracted the files and enter CLI commands.

#### To use the provisioning CLI in Windows:

1. Unzip the file \<VERSION NUMBER>\RnD\WScli.zip on the NetXplorer Software CD to a folder on the computer from which you wish to access the statistics.
2. The newly created folder contains 5 batch files: **topologyCLI.bat**, **policyCLI.bat**, **catalogsCLI.bat**, **wuCLI.bat** and **configurationCLI.bat**. Each of these files needs to be edited. Open a .bat file using a text editor. Look for the **-Dserver** parameter. It is set by default to the local host, 127.0.0.1. Change the value to the IP Address of the NetXplorer Server you wish to work with.
3. The NetXplorer server must be configured to allow your computer to use its web services. In the NetXplorer GUI go to the Servers tab of the Network configuration screen and add the IP address of computer you wish to use to access the CLI in the Allowed Hosts list.
4. Open cmd and go to the folder to which you extracted the files, run the batch files you require and enter CLI commands.

There are 9 types of provisioning CLI:

- **Topology CLI** is used to add, import or remove Service Gateway devices from the managed network.
- **Catalog CLI** is used to create, delete or modify the catalogs used to build traffic policies
- **Policy CLI** is used to create lines, pipes and VCs (collectively known as “tubes”) and to add and remove catalogs from them.
- **WU CLI** is used to update the service catalog to the latest protocol pack and roll-back if necessary.
- **Configuration CLI** is used to configure certain device level settings on the NE/SG

- **Alarms CLI** is used to configure certain events and alarms settings.
- **Subscriber CLI** is used to request subscriber information.
- **QuotaEvents CLI** is used to request information concerning Quota events for different subscribers.
- **Gdpr CLI** is used to configure General Data Protection Regulation (GDPR), a collection of EU privacy regulations.

### 8.1.1 Topology CLI

Topology CLI commands are used to add, import or remove Service Gateways on the Network

The Topology CLI syntax on Windows is:

```
topologyCLI <action> <option> <value> [<value>] [<option> <value> [<value>]] ...
```

The Topology CLI syntax on Linux is:

```
./topologyCLI.sh -<action> <option> -<value> [<value>] [<option> <value> [<value>]] ...
```

The following actions are possible:

#### Add Device

```
topologyCLI –addDevice
```

**options:**

```
-uiName      <value: name>
-netAddress   <value: ip>
-password     <value: password>
```

#### Import Device

```
topologyCLI –importDevice
```

**options:**

```
-uiName      <value: name>
-netAddress   <value: ip>
-password     <value: password>
```

#### Delete Device

```
topologyCLI –deleteDevice
```

**options:**

-uiName <value: device name>

### Add Mediation Device

topologyCLI -addMdDevice

#### Required options:

-uiName <value: mediation device name>

-netAddress <value: ip>

-mdType <value: pcc/qm/smfp/stc/stcExt/dataMediation/router/bi/dw>

#### Optional options:

-backupCollectorName <value: mediation device name> (For stc collector only)

-wideband <value: {on/off}> (For SMP devices only)

### Examples

- -addMdDevice -uiName stc -netAddress 10.10.10.10  
-mdType stc -backupCollectorName "Short-Term Collector"
- -addMdDevice -uiName SmpPCC -netAddress 10.10.10.10  
-mdType pcc
- -addMdDevice -uiName SmpQM -netAddress 10.10.10.10  
-mdType qm
- -addMdDevice -uiName SmpSMF -netAddress 10.10.10.10  
-mdType smf
- -addMdDevice -uiName STC-EXT -netAddress 10.10.10.10  
-mdType stcExt
- addMdDevice -uiName DM-110 -netAddress 10.150.101.110 -mdType dataMediation -outputProfileNames P1 P2 -sourceUnitNeNames NE
- addMdDevice -uiName DM-110 -netAddress 10.150.101.110 -mdType dataMediation -outputProfileNames P1 P2 -sourceUnitNeNames NE NE-109 -sourceUnitSmpGroupNames SMP-111
- addMdDevice -uiName Router -netAddress 10.150.101.110 -mdType router
- addMdDevice -uiName BI -netAddress 10.150.101.151 -mdType bi

### Delete Mediation Device

topologyCLI -deleteMdDevice

**Required options:**

-uiName <value: mediation device name>

**Examples**

- -deleteMdDevice -uiName stc
- -deleteMdDevice -uiName router
- -deleteMdDevice -uiName BI

### Update Mediation Device

topologyCLI -updateMdDevice

**Required options:**

-uiName <value: mediation device name>

-NetAddress <value: Standalone MD Device IP>

**Examples**

- - updateMdDevice -uiName SmpPCC -netAddress 10.10.10.10

### Add SMP Group

topologyCLI - addSmpGroup

**Required options:**

- -uiName <value: smp group name>
- -smpGroupType <value: standalone / cluster>
- -smpName <value: smp name for standalone and  
two name's for cluster>
- -clusterIp <value for cluster only: ip>
- -associateNeGroup <value: NE name:domain name>

**Optional Arguments:**

- -onlineChargingSubsCapacity <value:according to license>
- -onlineChargingIpSesCapacity <value:according to license>
- -offlineChargingSubsCapacity <value:according to license>
- -offlineChargingIpSesCapacity <value:according to license>
- -volumeSubsCapacity <value:according to license>
- -volumeIpSesCapacity <value:according to license>
- -quotaSubsCapacity <value:according to license>

- -quotaIpSesCapacity <value:according to license>
- -tieredServicesGxSubsCapacity <value:according to license>
- -tieredServicesGxIpSesCapacity <value:according to license>
- -tieredServicesSubsCapacity <value:according to license>
- -tieredServicesIpSesCapacity <value:according to license>
- -mobileReportsIpSesCapacity <value:according to license>
- -mobileReportsSubsCapacity <value:according to license>

**Examples**

- -addSmpGroup -uiName smp-Group -smpGroupType cluster -clusterIp 1.0.0.0 -smpName smp,smp-113 -associateNeGroup NE-1:NE-109:dom -tieredServicesGxIpSesCapacity 1000 -offlineChargingIpSesCapacity 500 -volumeIpSesCapacity 200 -onlineChargingIpSesCapacity 1000
- -addSmpGroup -uiName smp-Group -smpGroupType standalone -smpName smp-113 -associateNeGroup NE-1:dom,NE-2:dom -tieredServicesIpSesCapacity 1500 -offlineChargingIpSesCapacity 100 -onlineChargingIpSesCapacity 150

**Update SMP Group**

topologyCLI - updateSmpGroup

**Required options:**

&lt;GROUP NAME&gt;

- clusterIp <value: new SMP Cluster IP>
- cmtsFilePath <value: new CMTS file path for group>

**Examples**

- - updateSmpGroup Group1 -clusterIp 1.0.0.1
- - updateSmpGroup Group1 – cmtsFilePath /opt/sybase/data/MyCmtsList

**Delete SMP Group**

topologyCLI - deleteSmpGroup

**Required options:**

-uiName &lt;value: smp group name&gt;

**Examples**

- -deleteSmpGroup -uiName smp-Group

### Assign Smp Group to Smp Router

topologyCLI -assignSmpGroupToSmpRouter

#### Required options:

- routerName <value: existing router name>
- smpGroupName < value: existing smp group name>

#### Example

- -assignSmpGroupToSmpRouter -routerName router -smpGroupName GR1

### Unassign SMP Group From SMP Router

topologyCLI –unassignSmpGroupFromSmpRouter

#### Required options:

- routerName <value: existing router name>
- smpGroupName < value: existing smp group name>

#### Example

- -unassignSmpGroupFromSmpRouter -routerName router -smpGroupName gr1

### Update CMTS File

topologyCLI -updateCmtsFile

#### Required options:

- uiName <value: smp group name>
- cmtsFilePath <Value: cmts file path>

#### Examples

- -updateCmtsFile -uiName SMPG -cmtsFilePath C:\\cmts.txt

### Add BI HA Group

topologyCLI --addBiHaGroup

#### Required options:

- uiName
- biHaGroupVip
- biHaNames (List of bi devices which are configured to be in HA mode)

#### Example

- -addBiHaGroup -uiName Gr -biHaGroupVip 10.1.1.1 -biHaNames biHa1,biHa2

Note: It is possible to create a BI HA group with only one device.

### Delete BI HA Group

topologyCLI –deleteBiHaGroup

#### Required options:

-uiName

#### Example

- -deleteBiHaGroup -uiName Gr

### Get Topology Devices

topologyCLI –getTopologyDevices

#### Required options:

None

#### Example

- –getTopologyDevices

### Get Topology Collectors

topologyCLI –getTopologyCollectors

### Get Topology Device by Name

topologyCLI –getTopologyDeviceByName

#### Required options:

-uiName

#### Example

- -getTopologyDeviceByName –uiName ne

### Get Collector by Name

topologyCLI –getTopologyCollectorByName

#### Required options:

-uiName

#### Example

- –getTopologyCollectorByName –uiName smp

## 8.1.2 Catalog CLI

Catalog CLI is used to add, modify and delete catalogs

The Catalog CLI Syntax in Windows is:

**catalogsCLI -<action> -<catalog> [<-option> <value>]**

The Catalog CLI Syntax in Linux is:

**./catalogsCLI.sh -<action> -<catalog> [<-option> <value>]**

### Catalogs

The different catalogs names which can be used as part of the Catalog CLI syntax are as follows:

tos, dos, qos, vlan, gre, vlan group, gre group, alert, action, time, host, host group, service, service group, service activation, VAS Chain, service plan, interface port, interface group

Note: **The Service Activation catalog includes captive portal, vlan redirection, local service, integrated service and integrated service chain**

### Actions

The different available actions which can be used as part of the Catalog CLI syntax are as follows:

- list\_all
- get
- delete
- add
- update

Each of these actions has its own set of arguments, listed in this chapter.

### List All Catalog Arguments

**catalogsCLI –list\_all –{CATALOG TYPE}**

#### Required Arguments:

–catalog type

#### Example

–list\_all -host

## Get Catalog Arguments

`catalogsCLI –get –{CATALOG TYPE} –{CATALOG NAME}`

**Required arguments:**

–catalog type –existing name of the required catalog

**Example**

**–get –host –name myhost**

## Delete Catalog Arguments

`catalogsCLI –delete –catalog name`

**Required arguments:**

–name – existing name of the required catalog

## Add Catalog Arguments

`catalogsCLI –add –catalog name`

**Required arguments:**

–name - existing name of the required catalog

**Arguments:**

See [Options](#) for the specific catalog and global options.

## Update Catalog Arguments

`catalogsCLI – update –catalog name`

**Required arguments:**

–name – existing catalog name

**Arguments:**

See [Options](#) for the specific catalog and global options.

When adding new catalogs or updating existing ones, specific options are available depending on the catalog being added/updated. These arguments are listed below.

## Global Options

| ARGUMENT NAME | DESCRIPTION  | OPTIONS |
|---------------|--------------|---------|
| Name          | Catalog name |         |

| ARGUMENT NAME | DESCRIPTION             | OPTIONS                                                                       |
|---------------|-------------------------|-------------------------------------------------------------------------------|
| access_right  | Access right            | 0-read only<br>1-provisioned user<br>2-super user<br>3-super provisioned user |
| Admin         | Desirable source status | 0-unknown<br>1-enabled<br>2-disabled<br>3-deleted                             |
| description   | Catalog description     |                                                                               |

### DoS Catalog Arguments

| ARGUMENT NAME    | DESCRIPTION                                                                   | OPTIONS                   |
|------------------|-------------------------------------------------------------------------------|---------------------------|
| max_connections  | The maximum number of allowed connections                                     |                           |
| max_CER          | The maximum connection establishment rate                                     |                           |
| violation_action | What action to take if the maximum CER or connection number limit is violated | DEFAULT<br>DROP<br>REJECT |

For example, to add a new DoS Catalog entry called “MY\_DOS” which drops packets over a connection establishment rate of 200 per second, use the following command:

```
catalogsCLI -add -dos -name MY_DOS -max_cer 200 -
violation_action DROP
```

## VLAN Catalog Arguments

| ARGUMENT NAME | DESCRIPTION                                                                                             | OPTIONS                                                                                     |
|---------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| vlan_type     | Defines if the VLAN tag ignores the priority bits, ignores the VLAN ID or just refers to priority bits. | DO_NOT_IGNORE<br>IGNORE_VLAN_ID<br>IGNORE_PRIORITY_BITS<br>IGNORE_VLAN_ID_AND_PRIORITY_BITS |
| vlan_tag      | VLAN value (User Priority:VLAN ID)                                                                      | 0 – 7:0 - 4095                                                                              |

When using the VLAN type options above to create or update a VLAN catalog, bear in mind the following:

- For the VLAN Catalog CLI to work, the command must include both a vlan\_tag and vlan\_type, where vlan\_tag must be in the x:x format, while vlan\_type can have any of the values listed in the table above
- DO\_NOT\_IGNORE disables the “any user priority” and “any VLAN ID” options, meaning that the tag value can be 0-7:-4095
- IGNORE\_VLAN\_ID enables the “Any VLAN ID” option meaning that the tag value can only be 0-7:0
- IGNORE\_PRIORITY\_BITS enables the “Any User Priority” option, meaning that the tag value can only be 0:0-4095
- IGNORE\_VLAN\_ID\_AND\_PRIORITY\_BITS means that the tag value can only be 0:0

For example, to list all VLAN catalogs, use the following command:

**catalogsCLI -list\_all -vlan**

For example, to update an existing VLAN catalog called vlanABC, use the following:

**catalogsCLI -update -vlan -name vlanABC -vlan\_tag 6:0 -vlan\_type DO\_NOT\_IGNORE**

For example, to add a VLAN catalog called “vlan\_name” with a VLAN tag of 128 and set to ignore VLAN ID and priority bits, use the following command

**catalogsCLI -add -vlan -name vlan\_name -description “vlan description” -vlan\_type 3 -tag 128**

For example, to delete a VLAN catalog called `vlan_name`, use the following command:

```
catalogsCLI -delete -vlan -name vlan_name
```

### GRE Catalog Arguments

The available options when adding or updating a GRE Catalog are:

- `gre_type`
- `source_ip`
- `destination_ip`
- `tos`

For example, add a GRE catalog called “myGRE”, use the following command:

```
-add -gre -name myGre -gre_type 4 -source_ip 4.4.4.4 -destination_ip 4.4.4.4 -tos 44
```

### VLAN Group Catalog Arguments

| ARGUMENT NAME            | DESCRIPTION                 | REMARKS                          |
|--------------------------|-----------------------------|----------------------------------|
| <code>add_vlan</code>    | Add VLANs to the group      | VLANs should be separated by “,” |
| <code>remove_vlan</code> | Remove VLANs from the group |                                  |

For example, to create a new VLAN group called “myVlanGroup” containing the predefined VLAN catalog “myVlan”, use the following command:

```
catalogsCLI -add -vlan_group -name myVlanGroup -add_vlan myVlan
```

### GRE Group Catalog Arguments

| ARGUMENT NAME           | DESCRIPTION                       | REMARKS                          |
|-------------------------|-----------------------------------|----------------------------------|
| <code>add_gre</code>    | Add GRE tunnels to the group      | VLANs should be separated by “,” |
| <code>remove_gre</code> | Remove GRE tunnels from the group |                                  |

For example, to create a new GRE group called “myGREGroup” containing the predefined GRE catalog “myGRE”, use the following command:

```
catalogsCLI -add -gre_group -name myGreGroup -add_gre myVlan
```

## Mobile Catalog

| ARGUMENT NAME                 | DESCRIPTION                                                               | REMARKS                                                     |
|-------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------|
| replace_mobile_device_type_db | Replace all of the mobile records in the DB with the ones in the CSV file | This is the only possible action on mobile catalog from CLI |

## ToS Catalog Arguments

| ARGUMENT NAME | DESCRIPTION | OPTIONS                                                          |
|---------------|-------------|------------------------------------------------------------------|
| tos_type      |             | 0-Ignore Tos bytes<br>1-Differentiated services<br>2-Free format |
| tos_byte      | Tos value   |                                                                  |

For example, to delete a new ToS catalog entry, use the following command:

```
catalogsCLI -add tos -name myTos -tos_type 1 -tos_byte 156
```

## Alert Catalog Arguments

| ARGUMENT NAME | DESCRIPTION                                                 | OPTIONS               |
|---------------|-------------------------------------------------------------|-----------------------|
| alert_type    | The Event Name as appears in the NetXplorer GUI             |                       |
| oid           | OID of the corresponding MIB counter                        |                       |
| is_alarm      | Whether the alert is or is not an alarm                     | NOT_ALARM<br>AN_ALARM |
| mode          | Whether or not the alert applies to every template instance | REGULAR<br>TEMPLATES  |

| ARGUMENT NAME | DESCRIPTION                                             | OPTIONS                                                                         |
|---------------|---------------------------------------------------------|---------------------------------------------------------------------------------|
| severity      |                                                         | UNKNOWN,<br>CLEARED,<br>INDETERMINATE,<br>CRITICAL,<br>MAJOR, MINOR,<br>WARNING |
| relation      |                                                         | EQUAL,<br>GREATER, LESS,<br>NOT_EQUAL                                           |
| threshold     | The value which triggers the alert                      |                                                                                 |
| normal        | Normal value                                            |                                                                                 |
| register      | % time in the sample to start the event (start barrier) |                                                                                 |
| unregister    | % time in the sample to stop the event(stop_barrier)    |                                                                                 |

For example, to add a new Alert, use the following command:

```
catalogsCLI -add -alert -name "new-alert" -alert_type 1 -relation GREATER -is_alarm  
NOT_ALARM -mode REGULAR -normal 70 -register 90 -threshold 80 -unregister 50 -  
severity INDETERMINATE -oid "1.3.6.1.4.1.2603.5.5.5.0"
```

## QoS Catalog Arguments

| ARGUMENT NAME | DESCRIPTION          | OPTIONS                                                                                                                                                                                                                                                                                                                              |
|---------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| qos_type      |                      | 1-ignore<br>2-each_VC<br>3-both_VC<br>4-each_pipe<br>5-both_pipe<br>6-half_dup_pipe<br>7-each_line<br>8-both_line<br>9-half_dup_line<br>10-PCMM<br>11-SDX<br>12 -ENH_EACH_VC<br>13 -ENH_BOTH_VC<br>14 -ENH_EACH_PIPE<br>15 - ENH_BOTH_PIPE<br>16 - ENH_EACH_LINE<br>17 - ENH_BOTH_LINE<br>18 - ENH_EACH_SLINE<br>19 - ENH_BOTH_SLINE |
| qos_action    |                      | ADMIT<br>REJECT<br>DROP<br>REJECT_ICMP<br>DROP_ICMP                                                                                                                                                                                                                                                                                  |
| exp_frw       | Expedited Forwarding | true<br>false                                                                                                                                                                                                                                                                                                                        |
| drop_prec     | Drop Precedence      | 0-4                                                                                                                                                                                                                                                                                                                                  |
| qos_wire      |                      | direction<br>priority<br>min-bandwidth<br>max-bandwidth<br>min-bandwidth-reserved<br>(true/false)<br>vc-min-bandwidth<br>vc-max-bandwidth<br>burst<br>vc-traffic-shaping-mode<br>bandwidth-type (true/false)<br>delay<br>maximum-bandwidth-percent                                                                                   |

For example, to add a new QoS entry, use the following command:

```
catalogsCLI -add -qos -name qosName -qos_type BOTH_LINE -qos_action ADMIT -qos_wire BOTH,4,0,0,false,0,0,0,BURST,false,0
```

For example, to add a new Enhanced QoS entry, use the following command:

```
catalogsCLI.bat -add -qos -name New_Enh_QoS1 -access_right 1 -admin 1 -qos_type ENH_BOTH_LINE -qos_action ADMIT -exp_frw true -drop_prec 3 -qos_wire BOTH,4,0,0,false,0,0,0,BURST,false,0
```

## Action Catalog Arguments

| ARGUMENT NAME | DESCRIPTION                                   | OPTIONS                                            |
|---------------|-----------------------------------------------|----------------------------------------------------|
| location      | Action source                                 | 0 –Application server<br>1–device                  |
| action_type   | Action type                                   | 1-script<br>2-email<br>3-sms<br>4-stored procedure |
| actor         | Script, stored procedure name, e-mail address |                                                    |

For example, to add a new alarm action entry, to enable an email to be sent when an alarm is triggered, use the following command:

```
catalogsCLI -add -action -name myAction -location 1 -action_type 2 -actor administrator@isp.com
```

## Host Catalog Arguments

```
-add -host -name myHost -add_entry name:zzE
-add -host -name myHost -add_entry name:abC -device_id 20
-add -host -name myHost -add_entry IPV6_PREFIX_RANGE:2002.1234..0-2102.1234..0\64
-update -host -name myHost -add_entry IP_ADDRESS:1.2.3.4
-update -host -name myHost -add_entry SUBNET:1.2.0.0:255.255.0.0
-update -host -name myHost -add_entry RANGE:1.2.0.0:1.3.0.0
-update -host -name myHost -add_entry MAC_ADDRESS:aa.bb.cc.dd.ee.ff
-update -host -name myHost -add_entry IPV6_PREFIX:2000.1234..0/64
```

| ARGUMENT NAME        | DESCRIPTION             | OPTIONS                                                                                                                       |
|----------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| file_path            | For external datasource |                                                                                                                               |
| device_id            | Host device             | For common host – device ID is null                                                                                           |
| add_entry            | New host-entries        | Syntax:<br>TYPE:value[,...]<br>TYPE values are:<br>Name /<br>ip_address /<br>subnet / range /<br>Mac_address /<br>all_address |
| remove_entry         | Entries to remove       |                                                                                                                               |
| suppress_distributed | True / false            |                                                                                                                               |

For example, to change the value of an existing host catalog called testA, use the following:

**catalogsCLI -update –host –name testA -add\_entry ip\_address:1.1.1.1**

For example, to add a new host catalog called testB, use the following:

**catalogsCLI -add –host –name testB -add\_entry ip\_address:2.2.2.2**

### Host – Group Catalog Arguments

**-add -host\_group -name myHostGroup –suppress\_distributed [true | false]**

**-update -host\_group -name myHostGroup -add\_host myHost**

| ARGUMENT NAME | DESCRIPTION                                        | OPTIONS                  |
|---------------|----------------------------------------------------|--------------------------|
| add_host      | Host list that will be added to the host group     | Syntax<br>hostname[,...] |
| remove_host   | Host list that will be removed from the host group |                          |
| file_path     | For External Data Source                           |                          |

|                      |                                     |  |
|----------------------|-------------------------------------|--|
| suppress_distributed | Unified QOS per group configuration |  |
|----------------------|-------------------------------------|--|

For example, to remove existing hosts from a host group, use the following:

```
catalogsCLI -update -host_group -name group1 -remove_host  
host1,host2 -add_host host3
```

## Service Catalog Arguments

| ARGUMENT NAME           | DESCRIPTION                               | OPTIONS                                                                                                           |
|-------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| service_type            | Service type                              | 0 - secondary service - content definition<br>1-primary service - ports characteristics                           |
| application             | An existing application name              | Null for all.                                                                                                     |
| add_port                |                                           | Protocol:port_type:host_type :host_name :from-port:[to-port]<br>[,...]                                            |
| remove_port             |                                           | Protocols {TCP,UDP,IP,NON_IP}.<br>Port types:<br>{SIGNATURE,DEF AULT,PORT_BAS ED}<br>host_type:{HOST ,HOST_GROUP} |
| parent                  | Parent service (for service content only) |                                                                                                                   |
| add_content_item        | For service content use.                  | Syntax:<br>content_key:content_value                                                                              |
| remove_content_item     | For service content use.                  |                                                                                                                   |
| pdpi_type               | 1 2                                       | Optional parameter                                                                                                |
| pdpi_false_positive_max | [0..100]                                  | Optional parameter                                                                                                |
| pdpi_false_negative_max | [0..100]                                  | Optional parameter                                                                                                |

For example, to add a port based citrix service, use the following command:

```
catalogsCLI -add -service -service_type PRIMARY -name
service1 -type 1 -application "Citrix ICA" -add_port
TCP:PORT_BASED:1000:1000,UDP:DEFAULT:1100:1111
```

For example, to add a service content item for uploading 100BAO Peer to peer traffic, use the following command:

```
catalogsCLI -add -service -service_type CONTENT -name
"lilach by CLI" -description "added by CLI" -parent "100BAO" -
add_item Direction:Upload
```

### Service – Group Catalog Arguments

| ARGUMENT NAME  | DESCRIPTION                                              | OPTIONS                   |
|----------------|----------------------------------------------------------|---------------------------|
| add_service    | service list that will be added to the service group     | Syntax service-name[,...] |
| Remove_service | service list that will be removed from the service group |                           |

For example, to add a new Service Group, use the following command:

```
catalogsCLI -add -service_group -name mySG
```

### Service – Dynamic Text Host Arguments

| ARGUMENT NAME | DESCRIPTION                                | OPTIONS                                             |
|---------------|--------------------------------------------|-----------------------------------------------------|
| Add           | dyn_text_host<br>filename must be supplied | Syntax -dyn_text_host<br>true -file_path [filename] |

For example, to add a new Dynamic Text Host list, use the following command:

```
catalogsCLI.bat -add -host -name dyn -dyn_text_host true -
file_path c:\file.txt
```

## Service – Country Classification Arguments

| ARGUMENT NAME | DESCRIPTION                                            | OPTIONS                                           |
|---------------|--------------------------------------------------------|---------------------------------------------------|
| Add           | country_classification list of countries must be added | Syntax country_-country_list [country1, country2] |

## Time Catalog Arguments

| ARGUMENT NAME | DESCRIPTION                                           | OPTIONS                                                                                                                                                  |
|---------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| add_item      | Time items that will be added time catalog            | Syntax service-TYPE:DAY[:TIME] [...]<br>while Type is {DAILY,WEEKLY,MONTHLY,ANUALLY}, DAY is the day number in week/month/year, Time format: hh:mm-hh:mm |
| remove_item   | Time items that will be removed from the time catalog |                                                                                                                                                          |

## Time Options Syntax

DAILY:[FROM\_HOUR].[FROM\_MINUTE].[TO\_HOUR].[TO\_MINUTE]  
 WEEKLY:[WEEK\_DAY].[FROM\_HOUR].[FROM\_MINUTE].[TO\_HOUR].[TO\_MINUTE]  
 MONTHLY:[MONTH\_DAY].[FROM\_HOUR].[FROM\_MINUTE].[TO\_HOUR].[TO\_MINUTE]  
 ANNUALLY:[MONTH].[MONTH\_DAY].[FROM\_HOUR].[FROM\_MINUTE].[TO\_HOUR].[TO\_MINUTE]

## Week\_Day Options

SUNDAY, MONDAY, TUESDAY, WEDNSDAY, THURSDAY, FRIDAY, SATURDAY

Note: If the time entry should indicate the entire selected day, use the value *all-day* in place of [FROM\_HOUR].[FROM\_MINUTE].[TO\_HOUR].[TO\_MINUTE] in the syntax above.

For example to add a time catalog (called time\_name), daily at 10-1:00am, use the following command

```
catalogsCLI -add -time -name time_name -add_item
DAILY:10:00-11:00,WEEKLY:2:10:00-11:00
```

## Http Header Enrichment Catalog Arguments

-add -hhe -name [NAME] -add\_header [Options]

```
-add -hhe -name myHhe -add_header
name:name1,value:val1,encoding:en1,encoding_key:enkey1
-update -hhe -name myHhe -remove_header name:name1
-delete -hhe -name myHhe
```

| ARGUMENT NAME     | DESCRIPTION                                                  | OPTIONS                                                |
|-------------------|--------------------------------------------------------------|--------------------------------------------------------|
| add_header        | http header items that will be added time catalog            | See time item options                                  |
| Remove_header     | http header items that will be removed from the time catalog |                                                        |
| Time item options |                                                              | name:name1,value:val1,encoding:en1,encoding_key:enkey1 |

## Service Activation Catalog Arguments

There are five different types of Service Activation Catalogs, each with its own set of arguments:

- CAPTIVE\_PORTAL
- VLAN\_REDIR
- LOCAL\_SERVICE
- INTG\_SERVICE
- INTG\_SERVICE\_CHAIN

## Global Arguments

| ARGUMENT NAME | DESCRIPTION  | OPTIONS                                            |
|---------------|--------------|----------------------------------------------------|
| service_act   | Catalog name | Mandatory for all Service Activation catalog items |

| ARGUMENT NAME | DESCRIPTION                             | OPTIONS                                                                                 |
|---------------|-----------------------------------------|-----------------------------------------------------------------------------------------|
| service_type  | Mandatory for add/delete/update actions | CAPTIVE_PORTAL,<br>VLAN_REDIR,<br>LOCAL_SERVICE,<br>INTG_SERVICE,<br>INTG_SERVICE_CHAIN |

### Captive Portal Arguments

| ARGUMENT NAME | DESCRIPTION                                                               | OPTIONS    |
|---------------|---------------------------------------------------------------------------|------------|
| url           | Url Address                                                               |            |
| noserver_act  | What to do if there is no active server at the captive portal URL address | PASS, DROP |

For example, to add a new captive portal:

```
catalogsCLI -add -service_act -service_type CAPTIVE_PORTAL -name "CP1" -noserver_act PASS -url www.allot.com
```

For example, to delete a captive portal:

```
catalogsCLI -delete -service_act -service_type CAPTIVE_PORTAL -name "CP1"-update -service_act -service_type CAPTIVE_PORTAL -name "CP1" -noserver_action DROP -url allot1.com
```

### VLAN Redirection Arguments

| ARGUMENT NAME     | DESCRIPTION                                                          | OPTIONS                   |
|-------------------|----------------------------------------------------------------------|---------------------------|
| rate_limit        | Rate limit                                                           | NO_LIMIT,<br>BLOCK_SERVER |
| tracking_interval | Tracking interval<br><br>Mandatory parameter on creating a new entry |                           |

| ARGUMENT NAME      | DESCRIPTION                                                                                 | OPTIONS                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| tracking_timeout   | Tracking timeout<br>Mandatory parameter on creating a new entry                             |                                                                                                                                                 |
| num_redund_servers | Number of redundant servers                                                                 |                                                                                                                                                 |
| add_servers        | To add servers to a previously created item                                                 | Server syntax for VLAN_REDIR: <ul style="list-style-type: none"><li>• IP:3.3.3.3:VLAN_ID:1234</li><li>• Delimiter between servers – ;</li></ul> |
| delete_servers     | To delete servers when updating an item.                                                    | Server syntax for VLAN_REDIR: delimiters between server names - ";"                                                                             |
| update_servers     | To update servers when updating an item.<br><br>May change only the VLAN_ID and not the IP. |                                                                                                                                                 |
| load_bal_method    | The load balancing method used                                                              | HASH_BY_INTERNAL_IP,<br>HASH_BY_EXTERNAL_IP                                                                                                     |
| tracking_interface |                                                                                             | MANAGEMENT,<br>IN_BAND                                                                                                                          |
| tracking_method    |                                                                                             | NONE, PING, TCP_80,<br>HTTP_80                                                                                                                  |

| ARGUMENT NAME  | DESCRIPTION                | OPTIONS              |
|----------------|----------------------------|----------------------|
| service_un_act | Service unavailable action | DROP, BYPASS         |
| noserver_act   | Server unavailable action  | BYPASS, DROP, REHASH |

### Local Service Arguments

| ARGUMENT NAME     | DESCRIPTION                                                                                                                         | OPTIONS                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| description       | description                                                                                                                         |                                                                                 |
| vas_service_type  | Service type<br>Mandatory parameter – cannot be changed on update                                                                   | GENERIC_REDIRECTION,<br>GENERIC_MIRRORING,<br>MEDIA_SWIFT,<br>SERVICE_PROTECTOR |
| service_status    | Status of service                                                                                                                   | IN_ACTIVE, ACTIVE                                                               |
| load_bal_method   | Load balancing method                                                                                                               | HASH_BY_INTERNAL_IP,<br>HASH_BY_EXTERNAL_IP,<br>CYCLIC                          |
| noserver_act      | Server unavailable action                                                                                                           | BYPASS, REDISPATCH,<br>BLOCK                                                    |
| service_un_act    | Service unavailable action                                                                                                          | BYPASS, BLOCK                                                                   |
| tracking_retries  | Tracking retries                                                                                                                    |                                                                                 |
| tracking_interval | Tracking interval                                                                                                                   |                                                                                 |
| srv_cap_reach_act | Server capacity reached action                                                                                                      | BYPASS, REDISPATCH,<br>BLOCK                                                    |
| min_act_svrs      | Minimum active servers                                                                                                              |                                                                                 |
| flow_dir          | Flow direction                                                                                                                      | BOTH, CLIENT_SERVER,<br>SERVER_CLIENT                                           |
| device_id         | Device name for private scope                                                                                                       |                                                                                 |
| local_ip          | Local IP address                                                                                                                    |                                                                                 |
| tracking_method   | <ul style="list-style-type: none"> <li>• SERVICE_PROTECTOR enable only NONE</li> <li>• MEDIA_SWIFT enable all except BFD</li> </ul> | NONE, BFD, PING, SYN_80,<br>HTTP_REQ                                            |

## Command Line Interface (CLI)

| ARGUMENT NAME     | DESCRIPTION                                                                                 | OPTIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| add_server        | To add servers to a previously created item                                                 | <p>Server syntax for LOCAL_SERVICE:</p> <ul style="list-style-type: none"> <li>• server name must be one word, with no spaces</li> <li>• delimiters between server data - "&amp;"</li> <li>• delimiters between parameters - ","</li> <li>• The number of parameters is 21, if a parameter is not defined use "". The word "end" must always appear at the end of the parameters.</li> <li>• use "" also to set default system value</li> <li>• It is recommended that servers are added one-by-one after creation</li> </ul> |
| delete_servers    | To delete servers when updating an item.                                                    | Server syntax for LOCAL_SERVICE: delimiters between server names - ";"                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| update_servers    | To update servers when updating an item.<br><br>May change only the VLAN_ID and not the IP. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| application_rules | serviceName,serviceName,...                                                                 | Maximum 256 services                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| l4_port_rules     | Port,direction;<br>Port,direction;....                                                      | Maximum 10 port rules<br><br>INTERNAL_DIRECTION = 0<br><br>EXTERNAL_DIRECTION = 1                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| ARGUMENT NAME         | DESCRIPTION                                                  | OPTIONS                     |
|-----------------------|--------------------------------------------------------------|-----------------------------|
| L4_connection_state   | IGNORE / FIRST_PACKET/<br>FIRST_SECOND_PACKET/<br>ANY_PACKET |                             |
| load_balancing_weight |                                                              | Values: 1-100 (default = 5) |

For example, to add a new local service (ServiceProtector):

```
catalogsCLI -add -service_act -service_type LOCAL_SERVICE -
name VAS008 -description "vas test" -vas_service_type
SERVICE_PROTECTOR -service_status ACTIVE -load_bal_method
HASH_BY_INTERNAL_IP -noserver_act REDISPATCH -
service_un_act BYPASS -tracking_method NONE -tracking_retries
3 -tracking_interval 1 -srv_cap_reach_act REDISPATCH -
min_act_srvs 5 -flow_dir CLIENT_SERVER -local_ip 3.3.3.3 -
device_id 72 -add_servers vas2-
s2,ACTIVE,INTERNAL,,9,,,,,,0,0,0,0,2,4,5,0000000110000000,!&vas
2-
s1,ACTIVE,INTERNAL,,10,,,,,22:22:22:22:22:22,11:22:22:22:44:43,0
,0,0,3,6,7,0000000110000000,!
```

For example, to update a Local Service entry:

```
catalogsCLI -update -service_act -service_type LOCAL_SERVICE -
name VAS008 -description "vas test" -vas_service_type
SERVICE_PROTECTOR -service_status ACTIVE -load_bal_method
HASH_BY_INTERNAL_IP -noserver_act REDISPATCH -service_un_act
BYPASS -tracking_method NONE -tracking_retries 3 -tracking_interval
1 -srv_cap_reach_act REDISPATCH -min_act_srvs 5 -flow_dir
CLIENT_SERVER -update_servers vas2-
s2,ACTIVE,INTERNAL,,12,,,,,,0,0,0,0,2,4,7,0000000110001000,!&vas2-
s1,ACTIVE,INTERNAL,,13,,,,,22:22:22:22:22:22,11:22:22:22:44:43,0,0,0,
,3,6,8,0010000110000000,!
```

## Integrated Service Catalog Arguments

| ARGUMENT NAME | DESCRIPTION                                                 | OPTIONS                                        |
|---------------|-------------------------------------------------------------|------------------------------------------------|
| intg_service  | Catalog name                                                | Mandatory for Integrated Service catalog items |
| add_members   | Add member to an existing INTG_SERVICE catalog item by name | Syntax – delimiter between items – “;”         |

| ARGUMENT NAME      | DESCRIPTION                                                | OPTIONS                                                                                                                                                                                                                                                      |
|--------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| delete_members     | Delete members item from INTG_SERVICE and not from catalog |                                                                                                                                                                                                                                                              |
| Dynamic_activation | ENABLED/DISABLED                                           | Example of dynamic activation:<br><br>-add -intg_service -name "GTR_VS2" -description "vs_test" -add_members LS -l4_connection_state ANY_PACKET - application_rules MYTH,Dofus - execution_order 21 - l4_port_rules 25,1;1026,0 - dynamic_activation ENABLED |

## Integrated Service Creation Rules

- Integrated services are always global and are therefore not related with any particular NE or SG device id.
- Integrated services should have a minimum of one member and the last remaining member cannot be deleted.
- An Integrated service may include only members with the same service type.
- An Integrated service cannot include more than one member defined to the same device.
- If the name of a Local Service Server has a space included, you need to change the space to a % sign.

For example, to add a new integrated service:

```
catalogsCLI -add -service_act -service_type INTG_SERVICE -name "IS123" -load_bal_method HASH_BY_INTERNAL_IP -service_un_act DROP -tracking_interface IN_BAND -tracking_method NONE -rate_limit 123 -noserver_act REHASH -tracking_interval 1 -tracking_timeout 10 -num_redund_servers 1 -add_servers IP:2.2.2.2:VLAN_ID:123;IP:3.3.3.3:VLAN_ID:1234
```

For example, to update server information on an integrated service:

```
-update -service_act -service_type INTG_SERVICE -name "IS2" -tracking_interval 1 -tracking_timeout 10 -update_servers IP:3.3.3.3:VLAN_ID:4321
```

## Integrated Service Chain Catalog Arguments

| ARGUMENT NAME     | DESCRIPTION                                                                                                                                                                                                                                                    | OPTIONS                                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| service_act_group | Catalog name<br>Mandatory for Integrated Service Chain catalog items                                                                                                                                                                                           |                                              |
| add_members       | Add member – existing Local Service item by name<br><br>Only 2 Local Services: WebSafe and HTTP Monitoring have global scope. Not possible to add other. If the name of a Local Service Server has a space included, you need to change the space to a % sign. | Syntax – delimiter between items – “,”       |
| reorder_members   | Sets order according to order in command                                                                                                                                                                                                                       | Syntax – delimiter between items – “;”       |
| delete_members    | Delete members item from chain and not from catalog                                                                                                                                                                                                            | Syntax – delimiter between items – “;”       |
| type              | Sets Chain or Dynamic Group                                                                                                                                                                                                                                    | CHAIN_TYPE = 0<br><br>DYNAMIC_GROUP_TYPE = 1 |

For example, to add a new Integrated Service Chain:

```
catalogsCLI -add -intg_service_chain -name "VAS Chain" -
description "first test" -add_members
HTTP%Monitoring;WebSafe;GM_VS
```

For example, to add a new member to an existing Intergrated Service Chain:

```
catalogsCLI -update -intg_service_chain -name "VAS Chain" -
add_members gtr_VS
```

## Service Plan Catalog Arguments

| ARGUMENT NAME | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | OPTIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service_plan  | Catalog name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Mandatory for Service Plan catalog items                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| sp_type       | Service Plan Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TYPE_PIPE,TYPE_VC – mandatory for new catalog                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| app_add       | <p>Syntax:</p> <pre>name:[],quota:[],next_sp:[], cond:[],act:[]</pre> <p>Detailed:</p> <pre>name:[name], quota:[quota1#quota2#...], next_sp:[service plan], cond:[Host][#][Host Group][#][Service][#][Service Group][#][Time][#][TOS][#][VLAN] #[GRE] #[VLAN_GROUP] #[GRE_GROUP] [User_specific_service][#][tethering], act:[Access][#][Local Service][#][Integrated Service][#][Integrated Service Chain][#][DoS][#][QoS][#][ToS][#] [IFC_GROUP][#][nextHopAS][#] [destinationAS][#][Hhe]</pre> | <p>Relevant only for Pipe Service Plan</p> <p>Access values:<br/>ACCEPT,DROP,REJECT,BYPASS</p> <p>Name is mandatory parameter. Hhe is mandatory parameter for actions</p> <p><b>Condition syntax note:</b></p> <ol style="list-style-type: none"> <li>only one [Service] or [Service Group] may be defined</li> <li>only one [VLAN] or [GRE] or [VLAN_GROUP] or [GRE_GROUP]</li> <li>only [IFC_GROUP] may be defined for ServicePlan – else used IFC_PORT "Any" value by default</li> <li>only one [Host] or [Host Group] may be defined</li> <li>the tethering options: IGNORE / ENABLE / DISABLE</li> </ol> <p><b>Action syntax note:</b></p> <p>only one [Local Service] or [Integrated Service] or [Integrated Service Chain] may be defined. Default value for Hhe - Ignore</p> <p><b>Additional notes:</b></p> <ol style="list-style-type: none"> <li>Delimiter between items into "quota", "cond" and "act" parts is "#"</li> <li>For names with spaces use quotation marks.</li> <li>If some field is empty – entry will be filled with default value defined by system. Delimiter between multiple filter in service plan (pipe/vc/application in pipe) is ":"</li> </ol> |

| ARGUMENT NAME | DESCRIPTION                                                                              | OPTIONS                                                                                                        |
|---------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| app_del       | Syntax: name1,name2,...                                                                  | Relevant only for Pipe Service Plan.<br>Existence of 1 application is mandatory.                               |
| app_upd       | The same syntax as for "app_add"                                                         | Relevant only for Pipe Service Plan<br>If any field is empty on update the previous value will not be changed. |
| app_reord     | Syntax: name1,name2,...                                                                  | Relevant only for Pipe Service Plan                                                                            |
| data_add      | The same syntax as for "app_add" but without name:<br>quota:[],next_sp:[],cond:[],act:[] | Relevant for Pipe and VC Service Plan                                                                          |
| data_upd      | The same syntax as for "app_add" without name:<br>quota:[],next_sp:[],cond:[],act:[]     | If any field is empty on update the previous value will not be changed                                         |

For example, to create a VC Service Plan with default parameters:

```
-add -service_plan -sp_type TYPE_VC -name TEST_SP_VC -description "first test"
```

For example, to create a Pipe Service Plan with one application:

```
-add -service_plan -sp_type TYPE_PIPE -name SP1 -description "first test" -data_add quota:"Test Quota Time"#"Test Quota Volume",next_sp:"TEST_SP_VC",cond:PService##PTime#PToS#P VLAN####PIFC_GR,act:REJECT#WebSafe###PDoS#PQoS#PToS -app_add name:123,quota:"Test Quota Time"#"Test Quota Volume",next_sp:"TEST_SP_VC",cond:PService##PTime#PToS#P VLAN####PIFC_GR,act: REJECT#WebSafe###PDoS#PQoS#PToS
```

For example, to add an application to an existing Service Plan:

Command Line Interface (CLI)

```
-update -service_plan -name TEST_SP_PIPE -app_add  
name:123,quota:,next_sp:,cond:PService##PTime#PToS#PVLAN,  
act:DROP#VAS1##PDoS#PQoS#PToS
```

## IFC\_PORT Catalog Arguments

| ARGUMENT NAME | DESCRIPTION                              | OPTIONS |
|---------------|------------------------------------------|---------|
| switch_id     | Interface switch id<br>Mandatory for add |         |
| port_id       | Interface port id<br>Mandatory for add   |         |
| device_id     | device name<br>Mandatory for add         |         |
| label         | Device interface label                   |         |

Note: As an alternative, instead of using `switch_id` and `port_id`, to get interface info you may use this command: `-list_all -ifc_port -device_id [name]`

## IFC\_GROUP Catalog Arguments

| ARGUMENT NAME | DESCRIPTION       | OPTIONS                 |
|---------------|-------------------|-------------------------|
| device_id     | device name       |                         |
| add_members   | New group members | Syntax: [name1];[name2] |
| remove_entry  | Entries to remove | Syntax: [name1];[name2] |

## Charging Application Catalog Arguments

```
catalogsCLI.bat -add -charging_application -name app -  
offline_units OFFLINE_UNITS_TIME -application_id 33 -  
add_service SERVICE_NAME:Skype:Yes,SERVICE_ID:29:0  
catalogsCLI.bat -update -charging_application -name app -  
application_id 98 -offline_units Volume -update_service  
SERVICE_ID:64>No -remove_service SERVICE_NAME:WinMX
```

| ARGUMENT NAME  | OPTION                                                                                                                             | REMARKS                                                      |
|----------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| application_id | Application_id                                                                                                                     | Must be unique                                               |
| offline_units  | <i>VOLUME-1</i><br><i>TIME-2</i><br><i>VOLUME_AND_TIME-4</i>                                                                       |                                                              |
| add_service    | type<br><br>SERVICE_ID<br>SERVICE_NAME<br>SERVICE_GROUP_ID<br>SERVICE_GROUP_NAME<br><br>tethering<br><br>Yes-0<br>No-1<br>Ignore-2 | Syntax:<br>[type:value:tethering],<br>[type:value:tethering] |
| update_service | type<br><br>SERVICE_ID<br>SERVICE_NAME<br>SERVICE_GROUP_ID<br>SERVICE_GROUP_NAME<br><br>tethering<br><br>Yes-0<br>No-1<br>Ignore-2 | Syntax:<br>[type:value:tethering],<br>[type:value:tethering] |

|                |                                                                              |                                      |
|----------------|------------------------------------------------------------------------------|--------------------------------------|
| remove_service | type<br>SERVICE_ID<br>SERVICE_NAME<br>SERVICE_GROUP_ID<br>SERVICE_GROUP_NAME | Syntax:<br>[type:value],[type:value] |
|----------------|------------------------------------------------------------------------------|--------------------------------------|

catalogsCLI.bat -delete -charging\_application -name app

### Charging Plan Catalog Arguments

```

catalogsCLI.bat -add -charging_plan -name chrgPlan -add_application
app:45:monitor:off,Session:5::on

catalogsCLI.bat -update -charging_plan -name chrgPlan -add_application
app1:65:enforcement:off -remove_application app -update_application
Session:::off

catalogsCLI.bat -get -charging_plan -name chrgPlan

catalogsCLI.bat -list_all -charging_plan -name chrgPlan

catalogsCLI.bat -delete -charging_plan -name chrgPlan

```

| ARGUMENT NAME      | OPTION            |                                                                                          | REMARKS                                                                                                                          |
|--------------------|-------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| add_application    | Application name  | name                                                                                     | Syntax:<br>[appName:rating:<br>SessionExclusion:<br>Monitor status],<br>[appName:rating:<br>SessionExclusion:<br>Monitor status] |
|                    | Rating group      | number                                                                                   |                                                                                                                                  |
|                    | Session exclusion | <i>off</i><br><i>monitor-1</i><br><i>enforcement-2</i><br><i>enforcementMonitoring-3</i> |                                                                                                                                  |
|                    | Monitor status    | <i>off-0</i><br><i>on-1</i>                                                              |                                                                                                                                  |
| update_application | Application name  | name                                                                                     |                                                                                                                                  |
|                    | Rating group      | number                                                                                   |                                                                                                                                  |

| ARGUMENT NAME      | OPTION            |                                                                                            | REMARKS |
|--------------------|-------------------|--------------------------------------------------------------------------------------------|---------|
|                    | Session exclusion | <i>off-0</i><br><i>monitor-1</i><br><i>enforcement-2</i><br><i>enforcementMonitoring-3</i> |         |
|                    | Monitor status    | <i>off-0</i><br><i>on-1</i>                                                                |         |
| remove_application | Application name  |                                                                                            |         |

### Autonomous System Catalog Arguments

| ARGUMENT NAME   | OPTION                                         | REMARKS                               |
|-----------------|------------------------------------------------|---------------------------------------|
| Add_asn_list    | Autonomous system number separate by comma ',' |                                       |
| update_asn_list | Autonomous system number separate by comma ',' | Update list replace the previous list |

Example:

```
CatalogCLI.bat -add -autonomous_system -name myAS -add_asn_list 1,2,3,4,5
```

### Service Plan Add On Catalog Arguments

| ARGUMENT NAME     | OPTION                             | REMARKS                                         |
|-------------------|------------------------------------|-------------------------------------------------|
| charging_app_name | Existing charging application name | One word string<br>More than one word using "   |
| Qos_name          | Existing Qos name                  | One word string<br>More than one word using " " |

|          |                   |                                                 |
|----------|-------------------|-------------------------------------------------|
| Tos_name | Existing Tos name | One word string<br>More than one word using " " |
|----------|-------------------|-------------------------------------------------|

Examples:

- catalogsCLI.bat -add –service\_plan\_add\_on -name rule1 – charging\_app\_name\_Session -tos\_name "Ignore ToS" -qos\_name "Ignore Qos"
- catalogsCLI.bat -update –service\_plan\_add\_on -name rule1 – charging\_app\_name ap1 –tos\_name Expedited
- catalogsCLI.bat -get –service\_plan\_add\_on -name rule1
- catalogsCLI.bat –list\_all –service\_plan\_add\_on
- catalogsCLI.bat -delete –service\_plan\_add\_on -name rule1
  - ◆ Charging application should be defined when adding or updating service\_plan\_add\_on. If there is no intention to change charging application (in update), name of already attached charging application should be inserted.
  - ◆ At least one action (tos or qos) should be defined when adding or updating service plan add on.

## Monitored Service Group Catalog Arguments

| ARGUMENT NAME       | OPTION                | REMARKS                                                     |
|---------------------|-----------------------|-------------------------------------------------------------|
| Add_service_list    | Existing service name | Optional<br>One word string<br>More than one word using " " |
| Delete_service_list | Existing service name | Optional<br>One word string<br>More than one word using " " |

Examples:

- catalogsCLI.bat -add –monitored\_service\_group -name g1

- catalogsCLI.bat -add – monitored\_service\_group -name g1 – add\_service\_list "All IP","All Service",Ares
- catalogsCLI.bat -update – monitored\_service\_group -name g1 – add\_service\_list "All IP"
- catalogsCLI.bat -update – monitored\_service\_group -name g1 – delete\_service\_list "All IP"
- catalogsCLI.bat -update – monitored\_service\_group -name g1 – add\_service\_list "All IP" – delete\_service\_list "All Service",Ares
- catalogsCLI.bat –get – monitored\_service\_group -name g1
- catalogsCLI.bat –list\_all – monitored\_service\_group
- catalogsCLI.bat -delete – monitored\_service\_group -name g1

### User Specific Service Catalog Arguments

Example:

- CatalogCLI.bat -list\_all -user\_specific\_service
- CatalogCLI.bat -get -user\_specific\_service -name Android\_Browsing

### Quota Catalog Arguments

| ARGUMENT NAME | OPTION               |                         | REMARKS                                                  |
|---------------|----------------------|-------------------------|----------------------------------------------------------|
| quota_type    | volume-1<br>time-2   |                         |                                                          |
| period        | monthly-1<br>daily-2 |                         |                                                          |
| capacity      | direction            | in-0<br>out-2<br>both-3 | For quota_type- volume<br>Syntax:<br>[type:amount:units] |
|               | amount               |                         |                                                          |
|               | units                | KB-1                    |                                                          |

| ARGUMENT NAME | OPTION                            |                                                                                      | REMARKS                                                                                                                   |
|---------------|-----------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|               |                                   | MB-2<br>GB-3                                                                         |                                                                                                                           |
| time_limit    | quantity                          |                                                                                      | For quota_type- time<br>Period- monthly<br>Syntax:<br>[days:hours:minutes]<br>Period- daily<br>Syntax:<br>[hours:minutes] |
| start_at      | number (1...31)                   |                                                                                      | For period- monthly<br>Number (1...31)                                                                                    |
| covers_type   | full-0<br>partDay-1<br>partWeek-2 |                                                                                      | For period- monthly<br>full/ partWeek<br>For period- daily<br>full/partDay                                                |
| Covers_part   | partWeek                          | start day<br>end day                                                                 | For partWeek<br>Syntax:<br>[start day:end day]                                                                            |
|               | partDay                           | start hour<br>start part day –<br>AM-0/PM-1<br>end hour<br>end part day<br>AM-0/PM-1 | For partDay<br>Syntax:<br>[start hour:start part day:<br>end hour:end part day]                                           |

## Examples

#### Command Line Interface (CLI)

- catalogsCLI.bat -add -quota -name newQuota -quota\_type time -period daily -time\_limit 5:8 -covers\_type partDay -covers\_part 8:AM:12:AM
- catalogsCLI.bat -add -quota -name quota -quota\_type 1 -period 1 -capacity in:45:GB -start\_at 15 -covers\_type 0
- catalogsCLI.bat -get -quota -name newQuota
- catalogsCLI.bat -list\_all -quota
- catalogsCLI.bat -update -quota -name newQuota -period monthly -covers\_type 2 -covers\_part 5:6
- catalogsCLI.bat -delete -quota -name quota

### 8.1.3 Policy CLI

Policy CLI commands are used to create or remove rules from the policy table. For the purposes of Policy CLI, a line, pipe or VC rule is known as a “tube”. In addition, Policy CLI is used to add pre-defined catalogs or alarms to these rules. For the purposes of Policy CLI, a condition catalog is known as a “filter” and an action catalog is known as an “action”

The Policy CLI Syntax on Windows is:

```
policyCLI <action> <option> <value> [<value>] [<option> <value> [<value>]] ...
```

The Policy CLI Syntax on Linux is:

```
./policyCLI.sh -<action> <option> -<value> [<value>] [<option> <value> [<value>]] ...
```

#### Actions

help, addTube, addTubes, addFilter, addAlarm, listTube, listPolicy, deleteTube, deleteFilter, deleteAlarm, updateTube, distribute policy

#### Options

| ARGUMENT NAME        | DESCRIPTION            | OPTIONS                                                                                             |
|----------------------|------------------------|-----------------------------------------------------------------------------------------------------|
| tubeDeviceName       | Device Name            | Only active devices                                                                                 |
| tubeDevicePolicyName | Policy name            | Mandatory parameter for NE supporting the orthogonal policy feature<br>Only from NX 13.3.10 build 4 |
| tubeType             | Tube Type              | line, pipe, VC                                                                                      |
| tubeName             | Tube Name              |                                                                                                     |
| tubeOffset           | Tube Offset (location) | First filter is offset 0                                                                            |
| tubeLineName         | Tube Line Name         |                                                                                                     |
| tubePipeName         | Tube Pipe Name         |                                                                                                     |
| tubeld               | Tube ID                |                                                                                                     |

| ARGUMENT NAME           | DESCRIPTION            | OPTIONS                                |
|-------------------------|------------------------|----------------------------------------|
| tubeVcName              | Tube VC Name           |                                        |
| tubePolicyId            | Policy ID              | Currently all options work with active |
| filterId                | Filter ID              |                                        |
| filterDirection         | Direction              | 0-Bi, 1-Int. to Ext.,2- Ext to Int     |
| filterService           | Service ID             |                                        |
| filterServiceGroup      | Service Group ID       |                                        |
| filterExternalHost      | External Host ID       |                                        |
| filterExternalHostGroup | External Host Group ID |                                        |
| filterInternalHost      | Internal Host ID       |                                        |
| filterInternalHostGroup | Internal Host Group ID |                                        |
| filterTime              | Time Catalog ID        |                                        |
| filterTos               | Filter Tos ID          |                                        |
| filterVlan              | Vlan Name              |                                        |
| filterGre               | Gre name               |                                        |
| filterVlanGroup         | Vlan group name        |                                        |
| filterGreGroup          | Gre group name         |                                        |
| filterIfcPort           | Ifc Port Id            |                                        |
| filterIfcGroup          | Ifc Group Id           |                                        |
| actionQos               | Qos ID                 |                                        |
| actionDos               | Dos ID                 |                                        |

| ARGUMENT NAME            | DESCRIPTION                     | OPTIONS                                                                                                                          |
|--------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| actionTos                | Action Tos ID                   |                                                                                                                                  |
| actionAccess             | Action Access                   |                                                                                                                                  |
| actionLocalService       | Action Local Service            | Only one of actionLocalService or actionIntegrService or actionIntegrServiceChain should be set to policy                        |
| actionIntegrService      | ActionIntegrated Service        | Only one of actionLocalService or actionIntegrService or actionIntegrServiceChain should be set to policy                        |
| actionIntegrServiceChain | Action Integrated Service Chain | Only one of actionLocalService or actionIntegrService or actionIntegrServiceChain should be set to policy                        |
| actionId                 | Action ID                       |                                                                                                                                  |
| alarmId                  | alarm ID                        |                                                                                                                                  |
| alarmActionId            | alarms' action ID               |                                                                                                                                  |
| alarmAlertId             | Alarms' Alert ID                |                                                                                                                                  |
| alarmParams              | Alarm Params                    |                                                                                                                                  |
| distributePolicy         | distributePolicy                | Invokes the ws distribute policy (exportPolicy) method.<br>Params are :<br>srcDeviceName (optional)<br>destDeviceName (optional) |

### Add Tube

policyCLI – addTube

For example: To add a line called “newline” (12<sup>th</sup> in the list) to SG 73, you would use the following command:

```
policyCLI -addTube -tubeDeviceName 73 -tubeType line -tubeOffset 11 -
tubeName newLine
```

**Required Arguments:**

|                 |                                 |
|-----------------|---------------------------------|
| -tubeDeviceName | Device Name                     |
| -tubeType       | Tube Type (line, pipe, VC)      |
| -tubeName       | Tube Name (unique in its level) |
| -tubeOffset     | Tube Offset (starting at 0)     |
| -tubeLineName   | required for pipe and VC only   |
| -tubePipeName   | required for VC only            |

**Optional Arguments (if not specified, defaults apply):**

- All filter options except filterId
- All action options except actionId
- All alarm options except alarmed

### Add Filter

```
policyCLI - addFilter
```

**Required Arguments:**

|                 |                            |
|-----------------|----------------------------|
| -tubeDeviceName |                            |
| -tubeType       |                            |
| - tubeLineName  |                            |
| - tubePipeName  | - Required for pipe and VC |
| - tubeVcName    | - Required for VC only     |

**Optional Arguments:**

- All filter options except filterId

### Add Alarm

```
policyCLI -addAlarm
```

**Required Arguments:**

|                 |                            |
|-----------------|----------------------------|
| -tubeDeviceName |                            |
| -tubeType       |                            |
| -tubeLineName   |                            |
| -tubePipeName   | - Required for pipe and VC |
| -tubeVcName     | - Required for VC only     |

- alarmActionId

- alarmAlertId

**Optional Arguments:**

- alarmParams

### List Tube

policyCLI -listTube

**Required Arguments:**

- tubeDeviceName

- tubeType

- tubeLineName

- tubePipeName - Required for pipe and VC

- tubeVcName – Required for VC only

### List Policy

policyCLI -listPolicy

**Required Arguments:**

- tubeDeviceName

- tubeDevicePolicyName (only for NE that supports orthogonal policy)

### Delete Tube/Filter/Alarm

PolicyCLI -deleteTube/-deleteFilter/-deleteAlarm

For example, to delete a VC called VV1 from the fallback pipe in the fallback line of NE 73, you would use the following command:

```
policyCLI -deleteTube -tubeType vc -tubeDeviceName 73 -  
tubeLineName Fallback -tubePipeName Fallback -tubeVcName  
vv1
```

Required Arguments:

- tubeDeviceName

- tubeType

- tubeLineName

- tubePipeName - Required for pipe and VC

- tubeVcName – Required for VC only

- filterId - For delete Filter only

-alarmId - For delete Alarm only

### **Update Tube**

policyCLI –updateTube

For example, to change the action catalog of the “newVc” VC on the “newPipe” pipe on the “newline” line of NE 73 to a “Best Effort” ToS catalog, enter the following

**-updateTube -tubeDeviceName 73 -tubeType vc -tubeLineName newLine -tubePipeName newPipe -tubeVcName newVc -actionTos “Best Effort”**

#### **Required Arguments:**

- tubeDeviceName
- tubeType
- tubeLineName
- tubePipeName - Required for pipe and VC
- tubeVcName – Required for VC only
- filterId – If filter fields were modified
- alarmId – if alarm fields were modified

#### **Optional Arguments:**

- tubeName
- All filter options
- All alarm options
- All action options

### **Update QOS in Multiple VCs**

PolicyCLI.bat -updateVCQosMultiple -tubeDeviceName <name> [-tubeDevicePolicyName <name>] -filePath <path>

#### **Example:**

- PolicyCLI.bat -updateVCQosMultiple -tubeDeviceName 111 -tubeDevicePolicyName 0 -filePath C:\Temp\qos\_change.txt

File format:

VC\_ID (from TUBE table)

VC\_ID=QOS\_ID (from QOS table)

...

#### **Example:**

699

699=1

700

700=7

### Distribute Policy

Policycli.bat -distributePolicy

#### Optional Arguments:

-srcDeviceName srcDevName

-destDeviceName destDevName

-destGroupName

**Note:** You cannot distribute policies between Service gateways if one of them supports orthogonal policy and the second does not.

**Protocol pack should be the same in all devices in the group and source device.**

#### Example

- -distributePolicyToGroup -srcDeviceName 10.150.3.103 -destGroupName group

### Add Service Plan Pipe or VC

PolicyCli.bat -addServicePlanTube

#### Required Arguments:

-tubeDeviceName Device Name

-servicePlanName Service plan name

-tubeOffset Tube Offset (starting at 0)

-tubeLineName required for pipe and vc

-tubePipeName required for vc only

**Note:** Disable for secondary policy if orthogonal policy is enabled

### Add Charging Rule

PolicyCli.bat -addChargingRule

#### Required Arguments:

-ruleName Charging rule name

-chargingRuleOffset      Charging rule offset  
 -chargingPolicyName      Policy name  
 -addConditionServicePlan      Service plan name

**Optional Arguments:**

-actionChargingPlan      Charging plan name  
 -description      Description

**Examples:**

- policyCLI.bat -addChargingRule -chargingPolicyName offline - chargingRuleName rule10 -chargingRuleOffset 0 -actionChargingPlan cp1 - addConditionServicePlan Any
- policyCLI.bat -addChargingRule -chargingPolicyName offline - chargingRuleName rule20 -chargingRuleOffset 1 -addConditionServicePlan SP1,SP2

**Delete Charging Rule**

PolicyCli.bat -deleteChargingRule

**Required Arguments:**

-ruleName      Charging rule name  
 -chargingPolicyName      Policy name

**Examples:**

- policyCLI.bat -deleteChargingRule -chargingPolicyName offline - chargingRuleName rule10

**Update Charging Rule**

PolicyCli.bat -updateChargingRule

**Required Arguments:**

-ruleName      Charging rule name  
 -chargingPolicyName      Policy name

**Optional Arguments:**

-actionChargingPlan      charging plan name  
 -addConditionServicePlan      service plan name  
 -removeConditionServicePlan      service plan name  
 -description      description

**Examples:**

- policyCLI.bat -updateChargingRule -chargingPolicyName offline - chargingRuleName rule20 -addConditionServicePlan SP1 - removeConditionServicePlan Any
- policyCLI.bat -updateChargingRule -chargingPolicyName offline - chargingRuleName rule20 -description "rule description" - actionChargingPlan cp1
- policyCLI.bat -updateChargingRule -chargingPolicyName online - chargingRuleName Fallback -actionChargingPlan cp1

### List Charging Rule

PolicyCli.bat -listChargingRule

Examples:

- policyCLI.bat -listChargingRule -chargingPolicyName online - chargingRuleName Fallback
- policyCLI.bat -listChargingRule -chargingPolicyName offline - chargingRuleName rule10

### List Charging policy

PolicyCli.bat -listChargingPolicy

Examples:

- policyCLI.bat -listChargingPolicy -chargingPolicyName offline

### Add Tubes

PolicyCli.bat -addTubes

**Required Arguments:**

-tubes Tubes command, according to add tube. Each tube separated by quotes (" ") . Within each tube it is not possible to quote but you can use quotation mark (' ')

**Example:**

- -addTubes -tubes "-tubeDeviceName NE -tubeType line -tubeOffset 11 -tubeName L1 -actionQos 'Ignore QoS' -filterDirection ext2int -filterInternalHost 'New Host List' -filterService 'Other Security'" "-tubeDeviceName NE -tubeType line -tubeOffset 11 -tubeName L2 -actionQos 'Normal Line QoS' -filterDirection ext2int -filterInternalHost 'New Host List1' -filterService 'eDonkey Enc'" "-tubeDeviceName NE -tubeType vc -tubeOffset 3 -tubeName newVC1 -tubeLineName L1 -tubePipeName Fallback -filterService 'Club Penguin'" "-tubeDeviceName NE -tubeType vc -tubeOffset 3 -tubeName newVC2 -tubeLineName newL2 -tubePipeName Fallback -filterService 'Club Penguin'" "-tubeDeviceName NE -tubeType pipe -tubeOffset 2 -tubeName newP1 -tubeLineName newL2 -filterService 'Club Penguin'"

### Delete Tubes

PolicyCli.bat -deleteTubes

#### Required Arguments:

-tubes Tubes command, according to add tube. Each tube separated by quotes (" "). Within each tube it is not possible to quote but you can use quotation mark (' ')

#### Example:

- policyCLI.bat -deleteTubes -tubes "-tubeDeviceName 102 -tubeType line -tubeLineName l2" "-tubeDeviceName 111 -tubeType line -tubeLineName l2 -tubeDevicePolicyName 1"
- policyCLI.bat -deleteTubes -tubes "-tubeDeviceName 102 -tubeType line -tubeLineName l2" "-tubeDeviceName 3.15 -tubeType line -tubeLineName l5" "-tubeDeviceName 3.15 -tubeType vc -tubeVcName vc5 -tubeDevicePolicyName 1" "-tubeDeviceName 3.15 -tubeType vc -tubeVcName vc6 -tubeDevicePolicyName 1"

### Return Codes

A return code appears when using PolicyCLI commands, indicating if the command succeeded or failed.

#### Examples

When the command fails:

```
-addTubes -tubes “-tubeDeviceName 10.152.103.17 -tubeType line -tubeOffset 0 -tubeName ArkadyLine -filterOffset 0” “-tubeDeviceName 10.152.103.17 -tubeType line -tubeOffset 0 -tubeName MosheLine -filterOffset 0”
```

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```
14:51:14,088 INFO [remoting] JBoss Remoting version 4.0.6.Final
14:51:14,348 INFO [remoting] EJBCLIENT000017: Received server
version 2 and marshalling strategies [river]
14:51:14,377 INFO [remoting] EJBCLIENT000013: Successful version
handshake completed for receiver context
EJBReceiverContext{clientContext=org.jboss.ejb.client.EJBClientCo
nnectext@6d2a209c, receiver=Remoting connection EJB receiver
[connection=org.jboss.ejb.client.remoting.ConnectionPool$PooledCo
nnection@75329a49, channel=jboss.ejb, nodename=nms-acp1610-10117]}
on channel Channel ID e5f1fe43 (outbound) of Remoting connection
0dadf6f0 to /10.152.101.17:80
Device:[10.152.103.17], id:[2], policy id:[-1] supports multiple
policy.
trying to find encoding
Device:[10.152.103.17], id:[2], policy id:[-1] supports multiple
policy.
[error|add|10.152.103.17|ArkadyLine|line|31]
[error|add|10.152.103.17|MosheLine|line|31]
Update policy to device:[2] and policy id:[-1] throw exception
Duplicate tube name ArkadyLine
[[error]]
```

When the command succeeds:

```
ARGS received:
-addTubes -tubes -tubeDeviceName 10.152.103.6 -tubeType line -
tubeOffset 0 -tubeName ArkadyLine1 -filterOffset 0 -tubeDeviceName
10.152.103.6 -tubeType line -tubeOffset 0 -tubeName MosheLine -
filterOffset 0
12:51:55,214 INFO [remoting] JBoss Remoting version 4.0.6.Final
12:51:55,417 INFO [remoting] EJBCLIENT000017: Received server
version 2 and marshalling strategies [river]
12:51:55,425 INFO [remoting] EJBCLIENT000013: Successful version
handshake completed for receiver context
EJBReceiverContext{clientContext=org.jboss.ejb.client.EJBClientCo
nnectext@6ac13091, receiver=Remoting connection EJB receiver
[connection=org.jboss.ejb.client.remoting.ConnectionPool$PooledCo
nnection@5e316c74, channel=jboss.ejb, nodename=nms-acp1610-10117]}
on channel Channel ID c44e7939 (outbound) of Remoting connection
5b83cbc to /10.152.101.17:80
Device:[10.152.103.6], id:[3], policy id:[-1] supports multiple
policy.
trying to find encoding
Device:[10.152.103.6], id:[3], policy id:[-1] supports multiple
policy.
Added Successfully:2 tubes to device ID:[3] and policy id:[-1]
[ok|add|10.152.103.6|ArkadyLine1|line|1]
[ok|add|10.152.103.6|MosheLine|line|1]
[[ok]]
```

## PolicyCli Examples

### Without Othagonal Policy

- policyCLI.bat -addTube -tubeDeviceName 170 -tubeType line -tubeOffset 0 -tubeName newLine2
- policyCLI.bat -addTube -tubeDeviceName 170 -tubeType line -tubeOffset 0 -tubeName newLine3 -filterGre 1
- policyCLI.bat -addTube -tubeDeviceName 170 -tubeType line -tubeOffset 0 -tubeName newLine5 -filterGreGroup 3
- policyCLI.bat -updateTube -tubeDeviceName 170 -tubeType line -tubeLineName newLine4 -filterGre 1
- policyCLI.bat -deleteTube -tubeType line -tubeDeviceName 170 -tubeLineName newLine4

### With orthogonal policy:

- policyCLI.bat -listTube -tubeDeviceName 102 -tubeType vc -tubeLineName l1\_102 -tubePipeName p1\_102 -tubeVcName vc1\_102 -tubeDevicePolicyName 0
- policyCLI.bat -deleteAlarm -tubeDeviceName 111 -tubeType line -tubeLineName l1 -tubeDevicePolicyName 0 -alarmId 1
- policyCLI.bat -deleteFilter -tubeDeviceName 111 -tubeType line -tubeLineName l1 -tubeDevicePolicyName 0 -filterId 576
- policyCLI.bat -deleteTube -tubeDeviceName 111 -tubeType line -tubeLineName l2 -tubeDevicePolicyName 0
- policyCLI.bat -addTube -tubeDeviceName 111 -tubeType line -tubeOffset 3 -tubeName newLine -tubeDevicePolicyName 0
- policyCLI.bat -addTube -tubeDeviceName 3.15 -tubeType vc -tubeOffset 1 -tubeVcName vc\_test1 -tubeDevicePolicyName 1
- policyCLI.bat -updateTube -tubeDeviceName 111 -tubeType pipe -tubePipeName p1 -tubeLineName l1 -actionIntegrService MS\_VS -tubeDevicePolicyName 0
- policyCLI.bat -deleteTube -tubeDeviceName 111 -tubeType line -tubeLineName 5 -tubeDevicePolicyName 0

- policyCLI.bat -deleteTubes -tubes "-tubeDeviceName 102 -tubeType line -tubeLineName I2" "-tubeDeviceName 111 -tubeType line -tubeLineName I2 -tubeDevicePolicyName 0"
- policyCLI.bat -deleteTubes -tubes "-tubeDeviceName 102 -tubeType line -tubeLineName I2" "-tubeDeviceName 3.15 -tubeType line -tubeLineName I5" "-tubeDeviceName 3.15 -tubeType vc -tubeVcName vc5 -tubeDevicePolicyName 1"
- policyCLI.bat -addTubes -tubes "-tubeDeviceName 102 -tubeType line -tubeName I2 -tubeOffset 0" "-tubeDeviceName 3.15 -tubeType line -tubeName I5 -tubeOffset 0" "-tubeDeviceName 3.15 -tubeType vc -tubeVcName vc5 -tubeName vc5 -tubeOffset 0 -tubeDevicePolicyName 1" "-tubeDeviceName 3.15 -tubeType vc -tubeName vc6 -tubeOffset 1 -tubeDevicePolicyName 1"

## 8.1.4 Web Updates CLI

WebUpdates CLI is used to populate new Protocol Packs to both the netXplorer as well as Service Gateways.

The Web Updates CLI Syntax in Windows is:

**wuCLI <option> [<value>] [<option> <value> [<value>]] ...**

The Web Updates CLI Syntax in Linux is:

**./wuCLI.sh -<option> [<value>] [-<option> <value> [<value>]] ...**

### Update Server

wuCLI -updateServer

Updates the Service catalog of the NetXplorer Server via the Internet

### Update Server from File

wuCLI -updateFromFile -filePath <file path>

Updates the Service catalog of the NetXplorer Server via a pre-downloaded file.

### Update Device

wuCLI -updateDevice -deviceName <device name> -updateNumber <update number>

Updates the Service Catalog of the selected device

**NOTE** For the update number, use the minor version ONLY. For example, rather than PP3.119, enter 119 as the update number.

### Redistribute Signatures

wuCLI –redistributeSignatures -deviceName <device name> -filePath <file path>

Distributes a downloaded PP to the selected devices. The file path listed should be to the PP file.

### Update Number

wuCLI -updateNumber

Selects the Protocol Pack to be used in the update.

For example, to update NE2 to protocol pack 3.39, use the following

- wuCLI -updateDevice -deviceName Name-of-device-in-NX –updateNumber 39

Please note that **Name-of-device-in-NX** is the name of the device as it is listed in the NX policy configuration, therefore, if the name of the device is AC1440-2, then the syntax should be as follows:

- wuCLI -updateDevice –deviceName AC1440-2 –updateNumber 39

### Help

wuCLI -help

Provides usage and help information.

### Rollback Server

wuCLI -rollbackServer

Rolls back the last update to the Services Catalog of the NetXplorer Server

### Rollback Device

wuCLI -rollbackDevice -deviceName <device name>

Rolls back the last update to the Services Catalog of the selected device

For example to rollback NE2 to the last update, use the following command:

- wuCLI -rollbackDevice -deviceName NE2

## 8.1.5 Configuration CLI

Configuration CLI can change and view the configuration

The Configuration CLI Syntax in Linux is:

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**./ConfigurationCLI.sh <option> [<value>] [<option> <value> [<value>]] ...**

The Configuration CLI Syntax in Windows is:

**ConfigurationCli.bat <option> [<value>] [<option> <value> [<value>]] ...**

| OPTION NAME             | ARGUMENTS                                                                                                                                                                                                                                                                                                  | NOTES                |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| setAccounting           | exportRootDir interval<br>timeToKeepFiles mode                                                                                                                                                                                                                                                             |                      |
| setDate                 | datetime<br>timezone                                                                                                                                                                                                                                                                                       |                      |
| setDeviceIdentification | Gateway<br>host<br>cocIpAddress<br>cocNetworkMask<br>domainName<br>cocGateway<br>gatewayInband<br>gatewayOB<br>gatewayOutband<br>ipAddress<br>ipAddressInband<br>ipAddressOutband<br>managementStatus<br>vlanId<br>vlanIdInband<br>vlanIdOutband<br>networkMask<br>networkMaskInband<br>networkMaskOutband |                      |
| setServiceProtector     | SPIp<br>SPUser<br>SPPass                                                                                                                                                                                                                                                                                   | No devicename needed |
| setSNMP                 | SNMPcontact SNMPLocation<br>SNMPSysDescription<br>SNMPSysName                                                                                                                                                                                                                                              |                      |

| OPTION NAME   | ARGUMENTS                                                                                                                                                                                                                                                                                                            | NOTES                      |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| setSecurity   | consoleSSHTimeout<br>enhancedTcpSec<br>httpEnabled<br>pingEnabled<br>SSHEnabled<br>lcdEnabled<br>sshEnabled<br>sslEnabled<br>unlimitedAccess                                                                                                                                                                         |                            |
| setNetworking | spanningTree learningBridge<br>doubleSession deviceMode<br>udsState enablePDPI<br>bypassUnit<br>udsState (true / false)<br>tetheringDetect (true / false)<br>selectiveBypass (true / false)<br>vlanGroupName<br>hostListName<br>enableIPV6( true/false)<br>httpMultipleGets (disabled,<br>parseAll, parseAsRequired) | regular /tap / unavailable |
| getWebsafe    |                                                                                                                                                                                                                                                                                                                      |                            |
| setWebsafe    | allSources<br>operatorSources<br>updateServerTrackingRate<br>updateServerBlacklistDown<br>operatorDirectory<br>Operational_mode<br>actionOnMatch<br>SNMPStatNotify<br>distributeWSFiles                                                                                                                              |                            |
| getAlarm      |                                                                                                                                                                                                                                                                                                                      |                            |

| OPTION NAME      | ARGUMENTS                                                                          | NOTES                                                                                                                 |
|------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| setAlarm         | alarmEventActionId<br>alarmDeviceId<br>alarmConfigId<br>alarmTubeId<br>alarmParams |                                                                                                                       |
| setSnmpTrapsMode | v2<br>v3<br>v2v3<br><br>NOTE This Parameter is mandatory                           | Set change of SNMP external traps version (default v2)<br><br>After command execution NetXplorer should be restarted. |

## Global Configuration

### Syntax:

ConfigurationCli.bat -setNXGeneral [-option value]

ConfigurationCli.bat -getetNXGeneral

| ACTION       | OPTIONS             | NOTES                 |
|--------------|---------------------|-----------------------|
| setNXGeneral | setOrthPolicyEnable | Values:<br>true/false |
| getNXGeneral |                     |                       |

### Examples:

- ConfigurationCli.bat -setNXGeneral -setOrthPolicyEnable false
- ConfigurationCli.bat -getNXGeneral

## Web Safe CLI Syntax

Display current websafe configuration: ConfigurationCli.bat -getWebsafe

Change configuration : ConfigurationCli.bat -setWebsafe [-option value]

| OPTIONS                   | NOTES                   |
|---------------------------|-------------------------|
| operationalMode           |                         |
| portalURL                 |                         |
| allSources                |                         |
| operatorSources           |                         |
| updateServerTrackingRate  |                         |
| updateServerBlacklistDown |                         |
| operatorDirectory         |                         |
| Operational_mode          |                         |
| actionOnMatch             |                         |
| SNMPStatNotify            |                         |
| distributeWSFiles         |                         |
| updateTimeout             | range of 0-720 hours    |
| updateTimeoutEnable       | 0(disable) / 1(enabled) |

### Example :

- ConfigurationCli.bat -setWebsafe -portalURL www.portal.url - operatorDirectory c:\blablblbal -operatorSources source1 source2 source3 source4 sourceN - SNMPStatNotify 1

To distribute the files over all devices, use :

- ConfigurationCLI.bat -setWebsafe -distributeWSFiles

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- ConfigurationCLI.sh -setWebsafe -operatorSources IWF -SNMPStatNotify true

### Managing WebSafe Users

| OPTION             | ARGUMENT                                        | NOTES                                         |
|--------------------|-------------------------------------------------|-----------------------------------------------|
| -addWebSafeUser    | -username<br>-description<br>-role<br>-password | -role –<br>0: “configuration”<br>1: “monitor” |
| -updateWebSafeUser | -username<br>-description<br>-role<br>-password |                                               |
| -deleteWebSafeUser | -username                                       |                                               |
| -getWebSafeUsers   |                                                 |                                               |

#### Examples

- ConfigurationCLI.sh -addWebSafeUser -username newUser -password User1 -role configuration -description "user user user 34 5554"
- ConfigurationCLI.sh -updateWebSafeUser -username newUser -password User2 -role 1
- ConfigurationCLI.sh -deleteWebSafeUser -username newUser

### Device configuration

Configuration Cli can be used to view and set configuration values.

#### Example :

- ConfigurationCli.bat -getDevice -deviceName 10.90.90.7 -getNIC -getDeviceSNMP -getIdentification -getSecurity -getDate -getNetwork -getASIP -getSlotsAndBoards -getDeviceGeneral -getDeviceIPProperty

Note:

Bandwidth format part example for -getIdentification

- Bandwidth limits type=1 Bandwidth limits inbound=3000 Bandwidth limits outbound=3500

Types defined as:

*LIMITS\_IN\_AND\_OUT\_EACH* = 1

*LIMITS\_IN\_AND\_OUT\_SAME* = 2

*LIMITS\_HALF\_DUPLEX* = 3

configurationCli can be used to alter these configuration options :

| ACTION                  | OPTIONS                                                                                                                                                                                                                                                                                                                                                  | NOTES                                                                                                                                                         |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| setDate                 | datetime<br>timezone                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                               |
| setDeviceIdentification | gateway<br>host<br>cocIpAddress<br>cocNetworkMask<br>domainName<br>cocGateway<br>gatewayInband<br>gatewayOB<br>gatewayOutband<br>ipAddress<br>ipAddressInband<br>ipAddressOutband managementStatus<br>vlanId<br>vlanIdInband<br>vlanIdOutband<br>networkMask<br>networkMaskInband networkMaskOutband<br>directAccess<br>primaryServer<br>secondaryServer | *for primary and secondary servers may be used non-IP value "NO_DNS" for deleting.<br><br>** cannot be deleted primary server if secondary has defined value. |
| setServiceProtector     | SPIp<br>SPUser<br>SPPass                                                                                                                                                                                                                                                                                                                                 | No devicename needed                                                                                                                                          |

| ACTION                     | OPTIONS                                                                                                                                                                                                                                                                                                                                      | NOTES                                                                    |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| setSNMP                    | SNMPcontact SNMPlocation<br>SNMPSysDescription SNMPSysName                                                                                                                                                                                                                                                                                   |                                                                          |
| setSecurity                | consoleSSHTimeout<br>enhancedTcpSec httpEnabled<br>pingEnabled SSHEnabled lcdEnabled<br>sshEnabled sslEnabled<br>unlimitedAccess                                                                                                                                                                                                             |                                                                          |
| setNetworking              | spanningTree learningBridge<br>doubleSession deviceMode udsState<br>enablePDPI<br><br>bypassUnit<br><br>udsState (true / false)<br>tetheringDetect (true / false)<br>selectiveBypass (true / false)<br><br>vlanGroupName<br><br>hostListName<br><br>enableIPV6( true/false)<br><br>httpMultipleGets (disabled, parseAll,<br>parseAsRequired) | regular /tap /<br>unavailable                                            |
| setDeviceServiceActivation | httpCdrGenerationEnable<br><br>httpCdrGenerationRatePerSecond<br><br>httpCdrGenerationCompressionType                                                                                                                                                                                                                                        | ENABLE / DISABLE<br><br>Time in second (up to<br>999)<br><br>NONE / GZIP |
|                            | enableVoipReports<br><br>captivePortal<br><br>passphrase<br><br>redirectionTechnique(default,<br>onReply, onRequest)                                                                                                                                                                                                                         | True / false                                                             |
| setDeviceLicense           |                                                                                                                                                                                                                                                                                                                                              | New license as<br>parameter<br><br>AC3040-314.....                       |

## Command Line Interface (CLI)

| ACTION                          | OPTIONS                                                                                      | NOTES                                                                                                                                                                                                                                                                                          |
|---------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| setDeviceBandwidth              |                                                                                              | <p>&lt;type&gt;:&lt;bandwidth limits<br/>Inbound&gt;:&lt;bandwidth limits Outbound&gt;</p> <p>Possible types:<br/><code>IN_AND_OUT_EACH</code><br/><code>IN_AND_OUT_SAME</code><br/><code>HALF_DUPLEX</code></p> <p>Value=0 – maximum</p> <p>Example:<br/><code>IN_AND_OUT_EACH:0:0</code></p> |
| setDeviceGeneral                | setMultiPolicyEnable<br><br>setInternalToExternal<br><br>setExternalToInternal               | enable/disable<br><br>list of policy names<br>comma separated<br>example: “0,1,2”                                                                                                                                                                                                              |
| setMmdr                         | mmdrGenerationEnable<br><br>mmdrGenerationCompressionType<br><br>mmdrGenerationRatePerSecond | Anable / disable<br><br>NONE / GZIP<br><br>number                                                                                                                                                                                                                                              |
| -<br>setDeviceServiceActivation | -dynamicGrouping<br><br>-deviceName                                                          | Enable/disable<br><br>“Device name”                                                                                                                                                                                                                                                            |

### Examples:

- ConfigurationCli.bat -setDevice -setNetworking -deviceName 10.90.90.7 - learningBridge true

- ConfigurationCLI.bat -setDevice -setDeviceServiceActivation -dynamicGrouping enable -deviceName 6k
- ConfigurationCLI.bat -setDevice -setDeviceServiceActivation -setHttpCdr -httpCdrGenerationEnable enable -deviceName NE-109 -httpCdrGenerationRatePerSecond 456 -httpCdrGenerationCompressionType none -enableVoipReports true
- ConfigurationCLI.bat -setDevice -setNetworking -deviceName NE-108 -selectiveBypass true -vlanGroupName "New Vlan Group" -tetheringDetect false
- ConfigurationCLI.bat -setDevice -deviceName NE-10.150.140.106 -setDeviceServiceActivation -captivePortal -passphrase 123 -redirectionTechnique onReply
- ConfigurationCLI.bat -setDevice -deviceName NE-10.150.140.106 -setNetworking -httpMultipleGets parseAsRequired
- ConfigurationCLI.bat -setDevice -deviceName 3.111 -setDeviceLicense "AC3040-314....."
- ConfigurationCLI.bat -setDevice -setDeviceGeneral -deviceName 3.15 -setMultiPolicyEnable disable -setInternalToExternal 0,1 -setExternalToInternal 0,1
- ConfigurationCLI.bat -setDevice -setNetworking -deviceName NE-108 -selectiveBypass true -vlanGroupName "New Vlan Group" -hostListName "host list name" -tetheringDetect false
- ConfigurationCLI.bat -setDevice -setDeviceServiceActivation -setMmDR -deviceName NE-108 -mmDRGenerationEnable ENABLE -mmDRGenerationCompressionType GZIP -mmDRGenerationRatePerSecond 2000

### NetAwareness configuration

NetAwareness Configuration Cli can be used to view configuration values.

#### Example :

- ConfigurationCLI.bat -getNetAwareness

NetAwareness configurationCli can be used to alter these configuration options :

| ACTION                          | OPTION                                                                           | NOTES           |
|---------------------------------|----------------------------------------------------------------------------------|-----------------|
| workingMode                     | <i>disabled</i> (0)<br><i>standAlone</i> (1)<br><i>PCRFbased</i> (2)<br>CMTS (3) |                 |
| intervalTime                    | Time on minutes                                                                  |                 |
| congestionTime                  | (5/10/15/.../60)                                                                 |                 |
| clearTime                       |                                                                                  |                 |
| addCongestionServicePlan        | servicePlan name /                                                               |                 |
| editCongestionServicePlan       | servicePlan id                                                                   |                 |
| removeCongestionServicePlan     |                                                                                  |                 |
| uploadFile                      | Path to cells file (file<br>should save on client<br>machine)                    |                 |
| filePath                        |                                                                                  |                 |
| cmtsChannelUpdateInterval       |                                                                                  | Cmts parameter. |
| cmtsInterfaceUpdateInterval     |                                                                                  | Cmts parameter. |
| cmtsInterfaceClearanceInterval  |                                                                                  | Cmts parameter. |
| cmtsCongestionThreshold         |                                                                                  | Cmts parameter. |
| cmtsClearanceThreshold          |                                                                                  | Cmts parameter. |
| editCmtsCongestionServicePlan   | CMTS congestion rule<br>(sevice plan name/ id)                                   | Cmts only.      |
| editCmtsCongestionServicePlan   |                                                                                  |                 |
| removeCmtsCongestionServicePlan |                                                                                  |                 |

### Examples

- ConfigurationCLI.bat -setNetAwareness -clearTime 35 -congestionTime 40 -intervalTime 25
- ConfigurationCLI.bat -setNetAwareness -workingMode disabled
- ConfigurationCLI.bat -setNetAwareness -workingMode cmts - cmtsCongestionThreshold 82
- ConfigurationCLI.bat -setNetAwareness -addCongestionServicePlan "Default Service Plan" "Block Service Plan"

- ConfigurationCLI.bat -setNetAwareness -editCongestionServicePlan "Default Service Plan":"Block Service Plan" "Block Service Plan":"Unlimited Service Plan"
- ConfigurationCLI.bat -setNetAwareness -uploadFile -filePath C:\cell.csv

### Product Capabilities configuration

Product capabilities configuration CLI can be used to reload product capabilities after they were modified in the product\_capabilities database table.

**Example:**

- ConfigurationCLI.bat –reloadProductCapabilities

### SMP configuration

SMP Configuration Cli can be used to view configuration values.

Example :

- ConfigurationCLI.bat –getSmp -getGeneral –getPolicyAndCharging –getSessionParameters -getBillingDomain

configurationCli can be used to alter these configuration options :

| ACTION     | OPTIONS            | NOTES                                                                                    |
|------------|--------------------|------------------------------------------------------------------------------------------|
| setGeneral | workingEnv         | staticSubscribers(0)<br>floatingSubscribers(1)                                           |
|            | domainType         | ipDomain(0)<br>subscriberDomain(1)                                                       |
|            | maxSubsPerSmp      | (million)                                                                                |
|            | defaultDomain      | Domain id or name<br>Or N\A                                                              |
|            | defaultServicePlan | Service plan id or name                                                                  |
|            | ipSessionPerSubs   | multipleIpSessionPerSubs(0)<br>singleIpSessionPerSubs(1)<br>singleIpSessionPerSubsApn(2) |
|            | blockNewSubs       | disable (0)<br>enable (1)                                                                |

### Command Line Interface (CLI)

| ACTION               | OPTIONS           | NOTES                                                        |
|----------------------|-------------------|--------------------------------------------------------------|
|                      | enableIpTimeout   | disable (0)<br>enable (1)                                    |
|                      | ipLeaseTime       | (second)                                                     |
|                      | enableTimeoutTrap | disable (0)<br>enable (1)                                    |
|                      | inactivityTime    | (hours)<br><br>Zero represent that auto deletion its disable |
| setPolicyAndCharging | policySource      | radius(0)<br>pcrf(1)                                         |
|                      | onlineManager     | off(0)<br>ocsAndGy(1)                                        |
|                      | billingDomain     | off(0)<br>cdr(1)                                             |
|                      | sdrCollection     | off(0)<br>on(1)                                              |
|                      | dynamicRule       | off(0)<br>on(1)                                              |

| ACTION              | OPTIONS         | NOTES                                                                                                                                                                                                                                                                             |
|---------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| setSessionParameter | parameterName   | sgsnAddress(0)<br>userLocation(1)<br>ggsnAddress(2)<br>mccMncImsi(3)<br>mccMncGgsn(4)<br>mccMncSgsn(5)<br>imeisv(6)<br>msTimeZone(7)<br>ratType(8)<br>chargingId(9)<br>ipCanType(10)<br>acctSessionId(11)<br>msisdn(12)<br>imsi(13)<br>calledStationId(14)<br>framedIpAddress(15) |
|                     | value           | For<br>ratType - UMTS(0) ,GPRS(1) ,NA(2),<br>HSPA(3), LTE(4), CDMA(5)<br>ipCanType - GPRS_UMTS(0), LTE(1),<br>NA(2)                                                                                                                                                               |
|                     | isPCRF          | disable (0)<br>enable (1)                                                                                                                                                                                                                                                         |
|                     | isOCS           | disable (0)<br>enable (1)                                                                                                                                                                                                                                                         |
|                     | isBillingDomain | disable (0)<br>enable (1)                                                                                                                                                                                                                                                         |
|                     | isSDR           | disable (0)<br>enable (1)                                                                                                                                                                                                                                                         |

| ACTION           | OPTIONS                 | NOTES                     |
|------------------|-------------------------|---------------------------|
| setBillingDomain | recordGenerationTrigger | disable (0)<br>enable (1) |
|                  | timeInterval            | (5 / 10 / .. / 60)        |
|                  | primaryPath             |                           |
|                  | alternativePath         |                           |
|                  | fileClosureTimeInterval | (10 / 20 / .. / 1140)     |

Examples:

- ConfigurationCLI.bat -setSmp -setGeneral -workingEnv staticSubscribers - domainType subscriberDomain -maxSubsPerSmp 3 -defaultDomain dom - defaultServicePlan "Default Service Plan" -ipSessionPerSubs singleIpSessionPerSubsApm -blockNewSubs enable -enableIpTimeout enable -ipLeaseTime 5656 -enableTimeoutTrap enable -inactivityTime 2
- ConfigurationCLI.bat -setSmp -setGeneral -workingEnv 1 -domainType 0 - maxSubsPerSmp 2 -defaultDomain N\A -defaultServicePlan 2 - ipSessionPerSubs 1 -blockNewSubs 0 -enableIpTimeout 1 -ipLeaseTime 5600 -enableTimeoutTrap 0 -inactivityTime 5
- ConfigurationCLI.bat -setSmp -setPolicyAndCharging -policySource radius - onlineManager ocsAndGy -billingDomain cdr -sdrCollection off
- ConfigurationCLI.bat -setSmp -setPolicyAndCharging -policySource 1 - onlineManager 0 -billingDomain 0 -sdrCollection 1
- ConfigurationCLI.bat -setSmp -setSessionParameter -parameterName ratType -value UMTS -isPCRF enable -isOCS disable -isBillingDomain enable -isSDR disable
- ConfigurationCLI.bat -setSmp -setSessionParameter -parameterName 2 - value 1.1.1.1 -isPCRF 0
- ConfigurationCLI.bat -setSmp -setBillingDomain -recordGenerationTrigger 1 -timeInterval 15 -primaryPath opt/allot -alternativePath opt/allot/temp - fileClosureTimeInterval 30
- ConfigurationCLI.bat -setSmp -setBillingDomain -recordGenerationTrigger disable -primaryPath opt/allot -fileClosureTimeInterval 40

## Set Accounting configuration

Configuration Cli can be used to view and set Accounting (NetAccounting TAB in GUI) configuration values.

| ACTION        | OPTIONS                                              | NOTES |
|---------------|------------------------------------------------------|-------|
| setAccounting | exportRootDir<br>interval<br>timeToKeepFiles<br>mode |       |
| getAccounting |                                                      |       |

Possible values of mode : NX\_ACCOUNTING = 1; LEGACY\_ACCOUNTING = 2;

### Examples:

- ConfigurationCLI.bat -setAccounting -mode 2 -interval 1 - timeToKeepFiles 12 -ExportRootDir /opt/allot/accounting\_export2
- ConfigurationCLI.bat -getAccounting

## Set NX license

Set NX license function intended for set license on NX Server

### Syntax:

-setNxLicense -key <license key> -serial <serial number>

|              |        |                                  |
|--------------|--------|----------------------------------|
| setNxLicense | key    | NX server encoded license string |
|              | serial | Serial number                    |

### Example:

- -setNxLicense -key NMS-abc- .....100000RK1... -123A68C410 -serial abc

## Domain

SMP Configuration Cli can be used to view domain values.

### Example :

- ConfigurationCLI.bat -getAllDomains

configurationCli can be used to alter these configuration options :

| ACTION       | OPTION       | REMARKS                                   |
|--------------|--------------|-------------------------------------------|
| addDomain    | domainName   | Add domain according to name and ipRanges |
|              | addRanges    |                                           |
| updateDomain | domainName   | Update domain according to user command   |
|              | addRanges    |                                           |
|              | updateRanges |                                           |
|              | removeRanges |                                           |
| deleteDomain | domainName   | Delete domain according to name           |

**Examples :**

- ConfigurationCLI.bat -addDomain -domainName newDomain -addRanges IpRange,1.0.0.1,2.0.0.2#IpSubnet,1.0.0.0,255.255.255.0#Ipv6PrefixRange,4567::/3,9876::/3
- ConfigurationCLI.bat -addDomain -domainName newDomain1 -addRanges IpRange,2.0.0.2,3.0.0.3#IpRange,1.0.0.1,2.0.0.2#IpSubnet,4.5.0.0,255.255.255.128
- ConfigurationCLI.bat -updateDomain -domainName newDom -updateRanges IpRange,3.0.0.1,6.0.0.2#IpSubnet,2.0.0.0,255.255.255.0
- ConfigurationCLI.bat -updateDomain -domainName newDom -addRanges IpRange,5.0.0.1,9.0.0.2 -removeRanges IpSubnet,2.0.0.0,255.255.255.0
- ConfigurationCLI.bat -deleteDomain -domainName newDomain

## Cell Sectors

Get Cell Sectors by criteria in to CSV format

**Example :**

- ConfigurationCLI.bat -fetchCellSectors -prefix CELL -filePath C:/Temp/cells.txt

| ACTION           | OPTION   | REMARKS                                                                                                                                                                                         |
|------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| fetchCellSectors | prefix   | 1. Fetch and copy all Cell Sectors according to prefix criteria.<br>2. filePath is mandatory option<br>3. In case of prefix as criteria for search not defined, ouput will be all Cell Sectors. |
|                  | filePath |                                                                                                                                                                                                 |

Output format is exactly as GUI output format:

| Name   | Capacity In (Kbps) | Capacity Out (Kbps) | Congest... In Rate (%) | Congest... Out Rate (%) | Congest... In Clear Rate(%) | Congest... Out Clear Rate(%) | Action            | Congest... Status | Last Changed         |
|--------|--------------------|---------------------|------------------------|-------------------------|-----------------------------|------------------------------|-------------------|-------------------|----------------------|
| CELL1  | 1000               | 1000                | 80                     | 90                      | 60                          | 70                           | mon & enforcement |                   | Mar 27 2012 10:07:44 |
| CELL10 | 1000               | 1000                | 80                     | 90                      | 60                          | 70                           | mon & enforcement |                   | Mar 27 2012 10:07:44 |

**Output examples:**

- "CELL1","1000","1000","80","90","60","70","monitoring&enforcement","not congested","Mar 27 2012 10:07:44"
- "CELL10","1000","1000","80","90","60","70","monitoring&enforcement","not congested","Mar 27 2012 10:07:44"
- "CELL100","1000","1000","80","90","60","70","monitoring&enforcement","not congested","Mar 27 2012 10:07:44"

## Data Mediation Configuration

Get data mediation configuration

**Example :**

- ConfigurationCLI.bat -getDataMediation

Note: **data mediation profile name should be enclosed in quotation marks**

| ACTION                    | OPTION                                                                    | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
|---------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------|---|----|---|-------|--|-----|---|------|---|------|---|---------------------------------------------------------------------------|
| setDmProfileEscapeChar    | profileName<br>escapeChar                                                 | <p>profile name</p> <p>New delimiter character<br/>(default is ")<br/>Possible values are:<br/>' \ / ` %   * ? &lt; &gt; ~ , ; ! # \$<br/>Exclusions in syntax for these delimiter characters:</p> <table> <thead> <tr> <th>Delimiter</th> <th>Syntax</th> </tr> </thead> <tbody> <tr> <td>*</td> <td>*/</td> </tr> <tr> <td>\</td> <td>\\"\\</td> </tr> <tr> <td> </td> <td>\\" </td> </tr> <tr> <td>&gt;</td> <td>\\"&gt;</td> </tr> <tr> <td>&lt;</td> <td>\\"&lt;</td> </tr> <tr> <td>"</td> <td>default<br/>(sometimes need to use quotation marks when not works without)</td> </tr> </tbody> </table> | Delimiter | Syntax | * | */ | \ | \\"\\ |  | \\" | > | \\"> | < | \\"< | " | default<br>(sometimes need to use quotation marks when not works without) |
| Delimiter                 | Syntax                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| *                         | */                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| \                         | \\"\\                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
|                           | \\"                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| >                         | \\">                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| <                         | \\"<                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| "                         | default<br>(sometimes need to use quotation marks when not works without) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| getDmGlobalTriggerTimeout |                                                                           | Fetch profile trigger timeout. Timeout is in minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| setDmGlobalTriggerTimeout | interval                                                                  | Interval in minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| getDmFieldExtention       |                                                                           | Fetch profile field extention.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| setDmFieldExtention       | value                                                                     | Set value to profile field extention.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |
| getDmEncryptionKey        |                                                                           | Get value of encryption key (ex: AllotDM123456789)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |   |    |   |       |  |     |   |      |   |      |   |                                                                           |

### Command Line Interface (CLI)

| ACTION                   | OPTION                                                     | REMARKS                                                                                                                                                                            |
|--------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| setDmEncryptionKey       | value                                                      | Set value of encryption key, should be exact 16 characters (ex: AllotDM123456789)                                                                                                  |
| getDMOutputRecords       | [name]                                                     | Prints only basic info of output record/s – (name, description, version, format, crossUnits).<br><br>If 'name' specified, only details of specified output record will be printed. |
| getDMOutputRecordDetails | name [outputFields /excludingInputRecords /outputTriggers] | prints one of details : outputFields, excludingInputRecords or outputTriggers                                                                                                      |

| ACTION               | OPTION                                                                                                                                                                                                                     | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| addDMOutputRecord    | name<br>version<br>format<br>[description]<br>[crossUnits]<br>bucketType<br>fieldList { sourceField<br>[fieldName ]<br>[operator] [format]<br>[obfuscation]<br>[exportEnable]<br>[persistent]<br>[extensionMandatory]<br>} | "Version" is an integer number.<br>Possible values for "format" are: CSV, BINARY.<br>Possible values for "crossUnits" are: true, false, True, False<br>Possible values for "bucketType" are: HDR, VDR, BDR, UDR, SDR, MOU, CONV, VC, CMDR, CMCS, CMBM. These values are taken from data dictionary.<br>"sourceField" is the name of field from input bucket "bucketType".<br>Possible values for "operator" are: COPY, MIN, MAX, SUM, AVE, CONCAT.<br>Possible values for "obfuscation " are: NO, HASH, ENCRYPT.<br>Possible values for "exportEnable", "persistent", "extensionMandatory" are: true, false, True, False. |
| deleteDMOutputRecord | name                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

#### Command Line Interface (CLI)

| ACTION               | OPTION                                                                                 | REMARKS                                                                                                                                                                     |
|----------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputRecord | name<br>general<br>[setName]<br>[description]<br>[version]<br>[format]<br>[crossUnits] | Update general info.<br>"Version" is an integer number.<br>Possible values for "format" are: CSV, BINARY.<br>Possible values for "crossUnits" are: true, false, True, False |

| ACTION               | OPTION                                                                                                                                                                            | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputRecord | name<br>addFields<br>bucketType<br>fieldList { sourceField<br>[fieldName ]<br>[operator] [format]<br>[obfuscation]<br>[exportEnable]<br>[persistent]<br>[extensionMandatory]<br>} | Add new fields to output record.<br>Supported only for output records where all output fields are from the same bucket type and no output keys defined.<br>Possible values for "bucketType" are: HDR, VDR, BDR, UDR, SDR, MOU, CONV, VC, CMDR, CMCS, CMBM. These values are taken from data dictionary.<br>"sourceField" is the name of field from input bucket "bucketType".<br>Possible values for "operator" are: COPY, MIN, MAX, SUM, AVE, CONCAT.<br>Possible values for "obfuscation" are: NO, HASH, ENCRYPT.<br>Possible values for "exportEnable", "persistent", "extensionMandatory" are: true, false, True, False. |

| ACTION                   | OPTION                                                                                                                                                        | REMARKS                                                                                                                                                                                                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputRecord     | name<br>updateField<br>fieldName<br>[setName]<br>[operator]<br>[format]<br>[obfuscation]<br>[exportEnable]<br>[persistent]<br>[extensionMandatory]<br>[index] | Update field of output record.<br><br>Possible values for "operator" are: COPY, MIN, MAX, SUM, AVE, CONCAT.<br><br>Possible values for "obfuscation" are: NO, HASH, ENCRYPT.<br><br>Possible values for "exportEnable", "persistent", "extensionMandatory" are: true, false, True, False. |
| updateDMOutputRecord     | name<br>deleteFields<br>fieldList {fieldname}                                                                                                                 | Delete fields of output record.<br><br>Supported only for output records where all output fields are from the same bucket type and no output keys defined.                                                                                                                                |
| getDMOutputRecordDetails | name<br>outputFields<br>[fieldName]                                                                                                                           | Print details of output fields of output record.<br><br>If "fieldname" specified, only details of the specified field will be printed.                                                                                                                                                    |

| ACTION                   | OPTION                                                                            | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| getDMOutputRecordDetails | Name<br>excludingInputRecords<br>[ID]                                             | Print details of excluding input records of output record. Prints also IDs.<br>If "ID" specified, prints only specified excluding input record.                                                                                                                                                                                                                                                                                                              |
| updateDMOutputRecord     | name<br>addExcludingInputRecord<br>bucketType<br>sourceField<br>operator<br>value | Add excluding input record to output record.<br>Possible values for "bucketType" are: HDR, VDR, BDR, UDR, SDR, MOU, CONV, VC, CMDR, CMCS, CMBM. These values are taken from data dictionary.<br>Possible values for 'sourceField' are all usable source fields for the selected bucket type.<br>Possible value for 'operator' are EQU, NEQ, LSS, GTR for numeric fields and EQU, NEQ for not numeric fields.<br>'Value' should be integer for numeric field. |

### Command Line Interface (CLI)

| ACTION               | OPTION                                                                                          | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputRecord | name<br>updateExcludingInputRecord ID<br>[bucketType]<br>[sourceField]<br>[operator]<br>[value] | Update excluding input record of output record.<br>ID specifies the excluding input record for update.<br>Possible values for "bucketType" are: HDR, VDR, BDR, UDR, SDR, MOU, CONV, VC, CMDR, CMCS, CMBM. These values are taken from data dictionary.<br>Possible values for 'sourceField' are all usable source fields for the selected bucket type.<br>Possible value for 'operator' are EQU, NEQ, LSS, GTR for numeric fields and EQU, NEQ for not numeric fields.<br>'Value' should be integer for numeric field. |
| updateDMOutputRecord | name<br>deleteExcludingInputRecord ID                                                           | Delete excluding input record from output record.<br>ID specifies the excluding input record for delete.                                                                                                                                                                                                                                                                                                                                                                                                               |

#### Command Line Interface (CLI)

| ACTION                   | OPTION                                  | REMARKS                                                                                                                                          |
|--------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| getDMOutputRecordDetails | name<br>outputTriggers<br>[triggerName] | Print details of output triggers for output record.<br><br>If 'triggerName' specified, only details of specified output trigger will be printed. |

| ACTION               | OPTION                                                                                                                                                                         | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputRecord | name<br>addTrigger<br>triggerName<br>[description]<br>setType<br>[exportRecord]<br>[resetPersistance]<br>[fieldName]<br>[operator]<br>[value]<br>[timeDrivenType]<br>[timeout] | Add output trigger for output record.<br><br>Possible values for "setType" are:<br>IMMEDIATE,<br>DATA_DRIVEN,<br>TIME_DRIVEN.<br><br>Possible values for "exportRecord" and "resetPersistance" are true, false, True, False<br><br>"fieldName",<br>"operator", "value" are relevant only for DATA_DRIVEN type.<br><br>"timeDrivenType",<br>"timeout" are relevant only for TIME_DRIVEN type.<br><br>Possible values for "timeDrivenType" are ON_ROUND_TIME,<br>ON_TIMEOUT.<br><br>"timeout" is in minutes. For ON_TIMEOUT the range is 5...1440, for ON_ROUND_TIME it should be one of: 5, 10, 15, 20, 30, 60<br><br>Possible values for "operator" are EQU, NEQ, LSS, LEQ, GTR, GEQ, EXIST. |

| ACTION               | OPTION                                                                                                                                                                                                      | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputRecord | name<br>updateTrigger<br>triggerName<br>[setName]<br>[description]<br>[setType]<br>[exportRecord]<br>[resetPersistance]<br>[fieldName]<br>[operator]<br>[value]<br>[timeDrivenType]<br>[timeout]<br>[index] | Update output trigger for output record.<br>'triggerName' specifies output trigger for update.<br>Possible values for "setType" are:<br>IMMEDIATE,<br>DATA_DRIVEN,<br>TIME_DRIVEN.<br>Possible values for "exportRecord" and "resetPersistance" are true, false, True, False<br>"fieldName", "operator", "value" are relevant only for DATA_DRIVEN type.<br>"timeDrivenType", "timeout" are relevant only for TIME_DRIVEN type.<br>Possible values for "timeDrivenType" are ON_ROUND_TIME, ON_TIMEOUT.<br>"timeout" is in minutes. For ON_TIMEOUT the range is 5...1440, for ON_ROUND_TIME it should be one of: 5, 10, 15, 20, 30, 60<br>Possible values for "operator" are EQU, NEQ, LSS, LEQ, GTR, GEQ, EXIST. |

| ACTION                           | OPTION                                         | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputRecord             | name<br>deleteTrigger<br>triggerName           | Delete output trigger from output record.<br><br>'triggerName' specifies output trigger for delete.                                                                                                                                                                                                                                                                                                                                                                |
| getDMGlobalExcludingInputRecords | [ID]                                           | Print details of global excluding input records.<br><br>If ID specified, only details of specified excluding input record should be printed.                                                                                                                                                                                                                                                                                                                       |
| addDMGlobalExcludingInputRecord  | bucketType<br>sourceField<br>operator<br>value | Add global excluding input record.<br><br>Possible values for "bucketType" are: HDR, VDR, BDR, UDR, SDR, MOU, CONV, VC, CMDR, CMCS, CMBM. These values are taken from data dictionary.<br><br>Possible values for 'sourceField' are all usable source fields for the selected bucket type.<br><br>Possible value for 'operator' are EQU, NEQ, LSS, GTR for numeric fields and EQU, NEQ for not numeric fields.<br><br>'Value' should be integer for numeric field. |

### Command Line Interface (CLI)

| ACTION                             | OPTION                                                       | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMGlobalExcludingInputRecord | ID<br>[bucketType]<br>[sourceField]<br>[operator]<br>[value] | Update global excluding input record.<br><br>ID specifies global excluding input record for update.<br><br>Possible values for "bucketType" are: HDR, VDR, BDR, UDR, SDR, MOU, CONV, VC, CMDR, CMCS, CMBM. These values are taken from data dictionary.<br><br>Possible values for 'sourceField' are all usable source fields for the selected bucket type.<br><br>Possible value for 'operator' are EQU, NEQ, LSS, GTR for numeric fields and EQU, NEQ for not numeric fields.<br><br>'Value' should be integer for numeric field. |
| deleteDMGlobalExcludingInputRecord | ID                                                           | Delete global excluding input record.<br><br>ID specifies global excluding input record for delete.                                                                                                                                                                                                                                                                                                                                                                                                                                 |

### Command Line Interface (CLI)

| ACTION                    | OPTION                            | REMARKS                                                                                                                                                                                         |
|---------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| getDMOutputProfiles       | [profileName]                     | Prints only basic info of output profiles – (name, description, escapeChar, list of output record names).<br>If 'profileName' specified, only info of specified output profile will be printed. |
| getDMOutputProfileDetails | profileName<br>[outputRecordName] | Prints profile basic info + details of output file and push properties of output records. If a specific output record selected, so print details of specific output record only.                |

| ACTION                | OPTION                                                                                                                                                                                                                                                                                                         | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| addDMOutputProfile    | profileName<br>[profileDescr]<br>[escapeChar] - outputRecordName<br>[setFileCompress]<br>[setSizeLimit]<br>[setCloseTimeInterval]<br>[setRetentionPeriod]<br>[folderName]<br>[fileSchemaName]<br>[setPush]<br>[setEnablePush]<br>[setPushMethod]<br>[setUsername]<br>[setPassword]<br>[setServer]<br>[setPath] | Add output profile.<br>Possible values for "setFileCompress" are: NONE, GZIP, ZIP. Default is GZIP.<br>"setSizeLimit" is in bytes. Default value is 102400000. Max value is 1073741824 (1 GB)<br>"setCloseTimeInterval" is in seconds. Default value is 300.<br>Must be between 1 and 3600 (1h)<br>"setRetentionPeriod" is in minutes. Default value is 1440. Must be between 1 and 4320 (3d)<br>"folderName", and "fileSchemaName" contain bucketType by default (exclude invalid characters !!!!, for example "_").<br>Possible values for setPushMethod are: SFTP, FTP, COPY, SCP. Default is SFTP. |
| deleteDMOutputProfile | profileName                                                                                                                                                                                                                                                                                                    | Delete output profile. 'profileName' specifies name of output profile to delete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| ACTION                | OPTION                                                                                                                                                                                                                                                                                                                                                         | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputProfile | profileName<br>[profileNewName]<br>[profileDescr]<br>[escapeChar]                                                                                                                                                                                                                                                                                              | Update output profile.<br>'profileName' specifies name of output profile to update.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| updateDMOutputProfile | profileName<br>[profileNewName]<br>[profileDescr]<br>[escapeChar]<br>addOutputRecord<br>outputRecordName<br>[setFileCompress]<br>[setFileSizeLimit]<br>[setFileCloseTimeInterval]<br>[setRetentionPeriod]<br>[folderName]<br>[fileSchemaName]<br>[setPush]<br>[setEnablePush]<br>[setPushMethod]<br>[setUsername]<br>[setPassword]<br>[setServer]<br>[setPath] | Update common details of output profile + add output record.<br><br>Possible values for "setFileCompress" are: NONE, GZIP, ZIP. Default is GZIP.<br><br>"setFileSizeLimit" is in bytes. Default value is 102400000. Max value is 1073741824 (1 GB)<br><br>"setFileCloseTimeInterval" is in seconds. Default value is 300. Must be between 1 and 3600 (1h)<br><br>"setRetentionPeriod" is in minutes. Default value is 1440. Must be between 1 and 4320 (3d)<br><br>" folderName", and " fileSchemaName" contain bucketType by default (exclude invalid characters !!!!, for example "_").<br><br>Possible values for setPushMethod are: SFTP, FTP, COPY, SCP. Default is SFTP. |

| ACTION                | OPTION                                                                                                                                                                                                                                                                                                                                                 | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputProfile | profileName<br>[profileNewName]<br>[profileDescr]<br>[escapeChar]<br>updateOutputRecord<br>outputRecordName<br>[fileCompressType]<br>[fileSizeLimit]<br>[fileCloseInterval]<br>[retentionPeriod]<br>[folderName]<br>[fileSchemaName]<br>[setPush]<br>[setEnablePush]<br>[setPushMethod]<br>[setUsername]<br>[setPassword]<br>[setServer]<br>[-setPath] | Update common details of output profile + update output record.<br>'outputRecordName' specifies name of output record for update.<br>Possible values for "setFileCompress" are: NONE, GZIP, ZIP.<br>Default is GZIP.<br>"setSizeLimit" is in bytes. Default value is 102400000. Max value is 1073741824 (1 GB)<br>"setFileCloseTimeInterval" is in seconds.<br>Default value is 300.<br>Must be between 1 and 3600 (1h)<br>"setRetentionPeriod" is in minutes. Default value is 1440. Must be between 1 and 4320 (3d)<br>"folderName", and "fileSchemaName" contain bucketType by default (exclude invalid characters !!!!, for example " _").<br>Possible values for setPushMethod are: SFTP, FTP, COPY, SCP.<br>Default is SFTP. |

| ACTION                | OPTION                                                                                                      | REMARKS                                                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| updateDMOutputProfile | profileName<br>[profileNewName]<br>[profileDescr]<br>[escapeChar]<br>deleteOutputRecord<br>outputRecordName | Update common details of output profile + delete output record.<br>'outputRecordName' specifies name of output record for delete. |

**Escape character definition per profile:**

- ConfigurationCLI.bat -setDmProfileEscapeChar -profileName profileName - escapeChar %

**Profile trigger timeout:**

- ConfigurationCLI.bat – getDmGlobalTriggerTimeout
- ConfigurationCLI.bat - setDmGlobalTriggerTimeout -interval 2001

**Profile field extention:**

- ConfigurationCLI.bat –getDmFieldExtention
- ConfigurationCLI.bat -setDmFieldExtention - value test\_value

**Encryption key:**

- ConfigurationCLI.bat –getDmEncryptionKey

Encryption key: AllotDM123456789

- ConfigurationCLI.bat - setDmEncryptionKey - value AllotDM123456789

**All output records – basic details**

- ConfigurationCLI.bat -getDMOutputRecords

**Specific output record – basic details**

- ConfigurationCLI.bat -getDMOutputRecords –name AAA

**Add output record:**

- ConfigurationCLI.bat -addDMOutputRecord -name R1 -version 1 -format CSV -bucketType HDR -fieldList "sourceField=RequestHeader.Host, fieldName=REQUESTHEADER.HOST, operator=COPY, format=String, obfuscation= HASH, exportEnable=false, persistent=true, extensionMandatory=false; sourceField=HTTPMethod, fieldName=AA BB"

**Delete output record:**

- ConfigurationCLI.bat -deleteDMOutputRecord -name AA

#### **Update output record – basic details:**

- ConfigurationCLI.bat -updateDMOutputRecord -name AA -general -  
setName AA\_NEW\_NAME -description DFFDF -version 1 -format CSV -  
crossUnits true

#### **Update output record – add output fields:**

- ConfigurationCLI.bat -updateDMOutputRecord -name R1 -addFields -  
bucketType HDR -fieldList "sourceField=REQUESTHEADER.HOST,  
fieldName=AA BB, operator= SUM, format=String, obfuscation= HASH,  
exportEnable=false, persistent=true, extensionMandatory=false;  
sourceField=HTTPMethod, fieldName=AA BB"

#### **Update output record – update output field**

- ConfigurationCLI.bat -updateDMOutputRecord -name R1 -updateField -  
fieldName MyServerIP setName=MyServerIP\_New

#### **Update output record – delete output fields**

- ConfigurationCLI.bat -updateDMOutputRecord -name R1 -deleteFields -  
fieldList SourceUnitName, FFF

#### **Get details of all output fields of output record:**

- ConfigurationCLI.bat -getDMOutputRecordDetails -name R1 -  
outputFields

#### **Get details of specific output field of output record:**

- ConfigurationCLI.bat -getDMOutputRecordDetails -name R1 -  
outputFields -fieldName F1

#### **Get details of all excluding input reports of output record:**

- ConfigurationCLI.bat -getDMOutputRecordDetails -name R1 -  
excludingInputRecords [-ID]

#### **Get details of specific excluding input report of output record:**

- ConfigurationCLI.bat -getDMOutputRecordDetails -name R1 -  
excludingInputRecords -ID 5

#### **Update output record – add excluding input record:**

- ConfigurationCLI.bat -updateDMOutputRecord -name R1 -  
addExcludingInputRecord -bucketType MOU -sourceField ServicePlanID -  
operator EQU -value 33

#### **Update output record – update excluding input record:**

- ConfigurationCLI.bat -updateDMOutputRecord –name R1 – updateExcludingInputRecord –ID 55 –bucketType MOU –sourceField ServicePlanID –operator EQU –value 33

**Update output record – delete excluding input record:**

- ConfigurationCLI.bat -updateDMOutputRecord –name R1 – deleteExcludingInputRecord –ID 5

**Get details of all output triggers of output record:**

- ConfigurationCLI.bat -getDMOutputRecordDetails –name R1 – outputTriggers [-triggerName]

**Get details of specific output trigger of output record:**

- ConfigurationCLI.bat -getDMOutputRecordDetails –name R1 – outputTriggers –triggerName T1

**Add IMMEDIATE output trigger to output record:**

- ConfigurationCLI.bat -updateDMOutputRecord -name ARK\_Default1234 – description D1 -addTrigger -triggerName imm1 -setType IMMEDIATE - exportRecord false -resetPersistance true

**Add DATA-DRIVEN output trigger to output record:**

- ConfigurationCLI.bat -updateDMOutputRecord -name ARK\_Default1234 – description D1 -addTrigger -triggerName DD1 -setType DATA\_DRIVEN - exportRecord false -resetPersistance true -description AA -fieldName SessionDuration -operator LEQ -value 678

**Add TIME-DRIVEN output trigger to output record:**

- ConfigurationCLI.bat -updateDMOutputRecord -name ARK\_Default1234 – description D1 -addTrigger –triggerName TD1 -setType TIME\_DRIVEN - exportRecord false -resetPersistance true -description AA -timeDrivenType ON\_ROUND\_TIME –timeout 20

**Update output trigger of output record:**

- ConfigurationCLI.bat -updateDMOutputRecord –name R1 –updateTrigger –triggerName T1 –setName T11 -setType TIME\_DRIVEN -exportRecord false -resetPersistance true -description AA -timeDrivenType ON\_ROUND\_TIME –timeout 20

**Delete output trigger of output record:**

- ConfigurationCLI.bat -updateDMOutputRecord –name R1 –deleteTrigger –triggerName T1

**Get details of all global excluding input records:**

- ConfigurationCLI.bat -getDMGlobalExcludingInputRecords

**Get details of specific global excluding input record:**

- ConfigurationCLI.bat -getDMGlobalExcludingInputRecords –ID 5

**Add specific global excluding input record:**

- ConfigurationCLI.bat -addDMGlobalExcludingInputRecord –bucketType MOU –sourceField ServicePlanID –operator EQU –value 33

**Update specific global excluding input record:**

- ConfigurationCLI.bat -updateDMGlobalExcludingInputRecord –ID 55 –bucketType MOU –sourceField ServicePlanID -operator EQU –value 33

**Delete specific global excluding input record:**

- ConfigurationCLI.bat –deleteDMGlobalExcludingInputRecord –ID 55

**Get basic details of all output profiles:**

- ConfigurationCLI.bat -getDMOutputProfiles

**Get basic details of specific output profile:**

- ConfigurationCLI.bat -getDMOutputProfiles –profileName P1

**Get basic details + details of all output records for output profile:**

- ConfigurationCLI.bat -getDMOutputProfileDetails –profileName P1

**Get basic details + details of specific output record for output profile:**

- ConfigurationCLI.bat -getDMOutputProfileDetails –profileName P1 –outputRecordName R1

**Add output profile:**

**Basic details only:**

- ConfigurationCLI.bat -addDMOutputProfile -profileName ARKADY -profileDescr "DDD KKK" -escapeChar % -outputRecordName VC\_CS

**Specify output file details for output record:**

- ConfigurationCLI.bat -addDMOutputProfile -profileName ARKADY1 -profileDescr "DDD KKK1" -escapeChar % -outputRecordName VC\_CS -setFileCompress ZIP -setFileSizeLimit 2 -setFileCloseTimeInterval 3 -setRetentionPeriod 4 -folderName GG -fileSchemaName FF

**Specify push properties of output record:**

## Command Line Interface (CLI)

- ConfigurationCLI.bat -addDMOutputProfile -profileName ARKADY461 -fileSchemaName www -outputRecordName VC\_CS -setPush -setEnablePush true -setUsername arkady -setServer zelekman -setPassword allot -setPath ddd -setPushMethod FTP

### Delete output profile:

- ConfigurationCLI.bat -deleteDMOutputProfile -profileName P1

### Update output profile – basic info only:

- ConfigurationCLI.bat -updateDMOutputProfile -profileName P2 -profileNewName P1 -profileDescr GFDGDF -escapeChar %

### Update output profile – basic info + add output record:

- ConfigurationCLI.bat -updateDMOutputProfile -profileName P1 -profileNewName P2 -addOutputRecord -outputRecordName R1 -setFileCompress ZIP -setSizeLimit 2 -setFileCloseTimeInterval 3 -setRetentionPeriod 4 -folderName GG -fileSchemaName FF -setPush -setEnablePush true -setUsername arkady -setServer zelekman -setPassword allot -setPath ddd -setPushMethod FTP

### Update output profile – basic info + update output record:

- ConfigurationCLI.bat -updateDMOutputProfile -profileName P1 -profileNewName P2 ] -updateOutputRecord -outputRecordName R1 -setRetentionPeriod 4 -folderName GG -fileSchemaName FF

### Update output profile – delete output record:

- ConfigurationCLI.bat -updateDMOutputProfile -profileName P1 -profileNewName P2 -deleteOutputRecord -outputRecordName R1

## CMTS Report

| ACTION               | OPTION    | REMARKS |
|----------------------|-----------|---------|
| -getCmtsReportStatus | no        |         |
| -cmtsFilterName      | CMTS name |         |

|                            |                                          |  |
|----------------------------|------------------------------------------|--|
| -cmtsFilterDirection       | DOWNSTREAM / UPSTREAM / BOTH             |  |
| -cmtsFilterInterfaceType   | ALL / BONDING_GROUP / CHANNEL / WIDEBAND |  |
| -cmtsFilterCongestionState | ALL / CLEARED / CONGESTED                |  |

- -getCmtsReportStatus
- -getCmtsReportStatus CMTS1

### Work server

| ACTION             | OPTION | REMARKS    |
|--------------------|--------|------------|
| -addWorkServer     | no     |            |
| -getAllWorkServers | no     |            |
| -setType           |        | Proxy - 13 |
| -setName           |        |            |
| -setParams         |        |            |

- -getAllWorkServers

## Proxy

| ACTION              | OPTION | REMARKS |
|---------------------|--------|---------|
| -addProxyServer     | no     |         |
| -getProxyServer     | no     |         |
| - updateProxyServer | no     |         |
| -deleteProxyServer  | no     |         |
| -setIpAddress       |        |         |
| -setPort            |        |         |
| -setUsername        |        |         |
| -setPassword        |        |         |

- -updateProxyServer -setPort 3442
- -addProxyServer -setIpAddress 125.24.76.196 -setPort 3442
- -getProxyServer

## Policy Distribution Groups

ConfigurationCLI.bat <-action>

| ACTION                          | OPTION | REMARKS                           |
|---------------------------------|--------|-----------------------------------|
| -addPolicyDistributionGroup     | no     | Add group                         |
| -getPolicyDistributionGroups    | no     | Get all groups                    |
| - getPolicyDistributionGroup    | no     | Get one group by name             |
| - deletePolicyDistributionGroup | no     | Delete group                      |
| - updatePolicyDistributionGroup | no     | Update group (add/remove devices) |

| OPTION | PARAMETER | REMARKS |
|--------|-----------|---------|
|        |           |         |

|                                          |                       |                             |
|------------------------------------------|-----------------------|-----------------------------|
| -policyDistributionGroupName             | string                | Group name                  |
| removeDevicesFromPolicyDistributionGroup | List of devices names | To be used only with update |
| - addDevicesToPolicyDistributionGroup    | List of devices names | To be used only with update |

**Examples:**

- -addPolicyDistributionGroup -policyDistributionGroupName gr1 - policyDistributionGroupDevices 10.150.3.101,10.150.3.103
- -updatePolicyDistributionGroup -policyDistributionGroupName gr1 - removeDevicesFromPolicyDistributionGroup ne
- -updatePolicyDistributionGroup -policyDistributionGroupName gr2 - addDevicesToPolicyDistributionGroup 10.150.3.103 - removeDevicesFromPolicyDistributionGroup ne
- -getPolicyDistributionGroup -policyDistributionGroupName gr4
- -getPolicyDistributionGroups

**Syslog**

ConfigurationCLI.bat &lt;-action&gt;

| ACTION                | OPTION      | REMARKS                                |
|-----------------------|-------------|----------------------------------------|
| - getSyslogConnection | no          | Get host and port of syslog connection |
| -setSyslogConnection  | -syslogIp   | IP of syslog connection (optional)     |
|                       | -syslogPort | Port of syslog connection (optional)   |
| -getSyslogEnabled     | no          | Check if syslog enable or disable      |

## Command Line Interface (CLI)

|                              |                           |                                                                                         |
|------------------------------|---------------------------|-----------------------------------------------------------------------------------------|
| <pre>-setSyslogEnabled</pre> | <pre>-syslogEnabled</pre> | <p>Possible values are:<br/>disable (0)<br/>enable (1)</p> <p>Enable/disable syslog</p> |
|------------------------------|---------------------------|-----------------------------------------------------------------------------------------|

- ConfigurationCLI.bat -getSyslogConnection
- ConfigurationCLI.bat -setSyslogConnection -syslogIp 10.150.101.122 -syslogPort 514
- ConfigurationCLI.bat -getSyslogEnabled
- ConfigurationCLI.bat -setSyslogEnabled -syslogEnabled enable
- ConfigurationCLI.bat -setSyslogEnabled -syslogEnabled disable

### ClearSee

ConfigurationCLI.bat <-action>

| ACTION          | PARAMETERS     | REMARKS  |
|-----------------|----------------|----------|
| -createCsSystem | cs system name | required |
| -updateCsSystem | cs system name | required |
| -deleteCsSystem | cs system name | required |
| -getCsSystem    | cs system name | required |

| ADDITIONAL ACTIONS | PARAMETER        | REMARKS                                      |
|--------------------|------------------|----------------------------------------------|
| -csSystemName      | String           | Required with create/update/delete cs system |
| -biName            | Existing bi name | Required with create cs system               |
| -biHaGroupName     | Bi group name    | Required with create cs system               |

### Command Line Interface (CLI)

|                         |                              |                                  |
|-------------------------|------------------------------|----------------------------------|
| -transportMethod        | FTP/SFTP                     | Required with create             |
| -username               | String                       | Required with SFTP               |
| -password               | String                       | Required with username           |
| -maxPendingExtractFiles | Number only                  | Optional                         |
| - setAggregations       | Aggregation names and params | Optional                         |
| -setSnmplps             | Ip only                      | Optional                         |
| -addEtlGroup            | Etl group name and params    | Requires more params – see below |
| -updateEtlGroup         | Etl group name and params    | Requires more params – see below |
| -deleteEtlGroup         | Etl group name and params    |                                  |
| -setDms                 | no                           |                                  |
| -setDmsParams           | Name:mode (list)             | String: enable/disable           |
| -setDws                 | no                           |                                  |
| -dwsNames               | List of names                | Separated with “,”               |
|                         |                              |                                  |
| Aggregations            |                              |                                  |
| -vdrDay                 | Data retention,delay         | Numbers only                     |
| -conversationDay        | Data retention,delay         |                                  |
| - hdrDay                | Data retention,delay         |                                  |
| - cmdrDay               | Data retention,delay         |                                  |
| - vdrHour               | Data retention,delay         |                                  |
| - conversationHour      | Data retention,delay         |                                  |

|                                      |                      |          |
|--------------------------------------|----------------------|----------|
| - hdrHour                            | Data retention,delay |          |
| Data Source files                    |                      |          |
| -setDataSourceFiles                  | no                   | Optional |
| -setSubscribersFilePath              | .csv file path       |          |
| -setDevicesFilePath                  | .csv file path       |          |
| -setLanaFilePath                     | .csv file path       |          |
| - setNetworkAccessTechnologyFilePath | .csv file path       |          |

### Examples

- -createCsSystem -csSystemName system1 -biHaGroupName gr - transportMethod SFTP -username user -password pass - maxPendingExtractFiles 40
- -createCsSystem -csSystemName system1 -biHaGroupName gr - transportMethod FTP
- -deleteCsSystem -csSystemName system1
- -updateCsSystem -csSystemName system1 -transportMethod FTP - maxPendingExtractFiles 30 -setAggregations -vdrDay 3,2 -hdrDay 5,6
- -updateCsSystem -csSystemName system1 -transportMethod SFTP - username admin -password allot -setSnmplps 1.0.0.1,1.0.0.2,1.0.0.3
- -updateCsSystem -csSystemName system1 -addEtlGroup -etlName etlGr -setDms -setDmsParams dm1:enable,dm2:disable
- -updateCsSystem -csSystemName system1 -updateEtlGroup -etlName etlGr -setDms -setDmsParams dm1:enable,dm2:disable -setDws dw1,dw2,dw3
- -updateCsSystem -csSystemName system1 -deleteEtlGroup -etlName etlGr
- -updateCsSystem -csSystemName system1 -setDataSourceFiles - setSubscribersFilePath C:\Users\ Desktop\subscribers.csv
- -getCsSystem - csSystemName system1

## DataExportConfig

- -setDataExportConfigFile -filePath C:\Users\admin\Desktop\DataExportConfig.xml
- -getDataExportConfigFile

## Set Generic Event

This event is defined by default as an Alarm and will be displayed at GUI Alarm Viewer with custom message.

| OPTION           | ARGUMENTS                                     | NOTES                                                                                                   |
|------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| -setGenericEvent |                                               | Free text included in quotas                                                                            |
| -severity        | Info<br>critical<br>major<br>minor<br>warning | Optional parameter, may be used in case of change event severity, default value defined at DB is "info" |

### Example

- ./ConfigurationCLI.sh -setGenericEvent "Critical Event is configured via cli"  
-severity critical

This command provides the ability to write a script which can trigger an event.

When writing a script it will typically be based on condition/s and an action. The Set Generic Event command may be included in the script so that an Event may be logged when action of the script is fired.

E.g: If “X” Happens THEN send an event to the NX with “Y” severity and “Z” descriptive text.

## Add External Authentication

These commands can be used to add an External Server (such as an LDAP server) for Authentication.

| OPTION                        | ARGUMENTS                                   | NOTES                                                                              |
|-------------------------------|---------------------------------------------|------------------------------------------------------------------------------------|
| -setExternalAuthentication    |                                             |                                                                                    |
| -enableExternalAuthentication | 1 = Enable<br>0 = Disable                   |                                                                                    |
| -clientIdentifier             | <EMAIL ADDRESS>                             | Must Match Protocol Configuration dialog in NetXplorer > User Configuration        |
| -addServers                   | <IP>,<PORT>,<TYPE>,<ENCRYPTION_KEY>,<ORDER> | Values for Type: LDAP, RADIUS OR TACACS<br><br>ENCRYPTION KEY for RADIUS or TACACS |
| -radiusRequestTimeout         | <SECONDS>                                   |                                                                                    |
| -tacacsRequestTimeout         | <SECONDS>                                   |                                                                                    |
| -requestRetries               | <NUMBER>                                    |                                                                                    |
| -ldapBaseDN                   | <LDAP DN>                                   |                                                                                    |
| -ldapUpdateRoles              | <ROLES>                                     | Must Match Internal User Configuration roles in NetXplorer > User Configuration    |

### Example

- ./ConfigurationCLI.sh -setExternalAuthentication -enableExternalAuthentication 1 -clientIdentifier "[AllotNX@operator.net](mailto>AllotNX@operator.net)" -radiusRequestTimeout 504 -tacacsRequestTimeout 503 -requestRetries 1 -ldapBaseDn "OU=NmsLDAP,OU=Allot\_Test\_Accounts,DC=rdlab,DC=local" -ldapUpdateRoles 1=ALLOT\_NX\_ADMIN,4=ALLOT\_NX\_DPO,3=ALLOT\_NX\_MONITOR,2=ALLOT\_NX\_REGULAR -addServers 5.3.4.111,589,LDAP, ,1

### Feature Toggle

The FEATURE\_TOGGLE command is used for features that the user may wish to turn on and off regularly that affect the entire deployment including the GUI.

The syntax used is as follows:

```
ConfigurationCLI.sh -setParam -paramName FEATURE_TOGGLE -
paramSubName <FEATURE NAME> -setIntegerParam <VALUE>
```

## Toggling White Labeling

“White Labeling” removes certain information from the NX GUI.

To enable this feature enter the following command:

```
ConfigurationCLI.sh -setParam -paramName FEATURE_TOGGLE -paramSubName  
whiteLabeling -setIntegerParam 1
```

To disable this feature enter the following command:

```
ConfigurationCLI.sh -setParam -paramName FEATURE_TOGGLE -paramSubName  
whiteLabeling -setIntegerParam 0
```

After changing this feature toggle, the NX Server and the GUI must both be restarted.

## Toggling Selective Steering

This feature added a drop down menu to the Pre-Classification section when defining a Local Service, which enables only one direction of traffic to be steered.

To enable this feature enter the following command:

```
ConfigurationCLI.sh -setParam -paramName FEATURE_TOGGLE -paramSubName  
selectiveSteering -setIntegerParam 1
```

To disable this feature enter the following command:

```
ConfigurationCLI.sh -setParam -paramName FEATURE_TOGGLE -paramSubName  
selectiveSteering -setIntegerParam 0
```

After changing this feature toggle, the NX Server and the GUI must both be restarted.

## Changing Catalog Limits

It is possible to change the maximum number of entries of certain catalogs using the following commands:

### Charging Plan

It is possible to change the maximum number of entries in the Charging Plan catalog from 64 to 128 with the following command:

```
ConfigurationCLI.sh -setParam -paramName CHARGING_PLAN -paramSubName  
maxLocalId -setIntegerParam 128
```

To check which value has been set, use the following command:

```
ConfigurationCLI.sh -getParam -paramName CHARGING_PLAN -paramSubName  
maxLocalId
```

## Service Plan

The number of Service Plans in the catalog may be configured using the following command:

```
ConfigurationCLI.sh -setParam -paramName Catalog_entries_limit -
paramSubName service_plan -setIntegerParam <VALUE>
```

**NOTE** The typical value is 5800

## Quality of Service

The maximum number of QoS entries in the catalog may be configured with the following command:

```
ConfigurationCLI.sh -setParam -paramName Catalog_entries_limit -
paramSubName qos -setIntegerParam <VALUE>
```

**NOTE** The typical value is 6100

## SNMP Trap Forwarding

### Set Trap Version

This command can change the SNMP version used for SNMP Trap Forwarding to a third party server. By default the traps are forwarded in SNMP V2.

```
ConfigurationCLI.sh -setParam -paramName ENTERPRISE_SNMP_TOPIC
-paramSubName traps_security_mode -setIntegerParam <VALUE>
```

Values for setIntegerParam:

1 - only v2

2 - only v3

3 - v2 and v3

## SNMP v3 Trap User Data

If SNMP v3 has been enabled, default user data is sent. If the user wishes to change the defaults, use the command below.

**NOTE** All parameters are mandatory

```
ConfigurationCLI.sh -setSnmpv3User -v3secName <VALUE> -snmpv3authPass
<VALUE> -v3encPass <VALUE> -v3authProtocol 5 -v3privProtocol 4
```

| ACTION          | PARAMETERS      | DESCRIPTION                                                                                                                                      |
|-----------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| - setSnmpv3User | -v3secName      | security name (e.g: snmpv3)                                                                                                                      |
|                 | -snmpv3authPass | authentication password (e.g: snmpv3Auth)                                                                                                        |
|                 | -v3encPass      | encoding password (e.g: snmpv3Enc)                                                                                                               |
|                 | -v3authProtocol | Sets Authentication level. Possible values are:<br>1 = MD5<br>2 = SHA-1 (160 bit)<br>3 = HMAC128SHA224<br>4 = HMAC192SHA256<br>5 = HMAC256SHA384 |
|                 | -v3privProtocol | Encryption. Possible values include:<br>1 = DES<br>2 = AES127<br>3 = AES192<br>4 = AES256                                                        |

### 8.1.6 Alarms CLI

Alarms CLI is used to request any currently existed alarms from the NX Server based on certain criteria. In addition this CLI can execute requests for all license Alarms on the NX Server.

The Alarms CLI Syntax is:

**AlarmsCli.bat <option> [<value>] ...**

| OPTION NAME | ARGUMENTS                                | NOTES                                                                                                                                            |
|-------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| list_all    | None                                     | Displays all alarms                                                                                                                              |
| Alarms      | device_name<br>event_type_id<br>severity | Displays alarms according to criteria<br><br>Possible severity values:<br>UNKNOWN, CLEARED,<br>INDETERMINATE, CRITICAL,<br>MAJOR, MINOR, WARNING |

| OPTION NAME    | ARGUMENTS                                | NOTES                                                                                                                                                     |
|----------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| license_alarms | device_name<br>event_type_id<br>severity | Displays license alarms according to criterias<br><br>Possible severity values:<br>UNKNOWN, CLEARED,<br>INDETERMINATE, CRITICAL,<br>MAJOR, MINOR, WARNING |
| Help           | None                                     | Displays usage instruction                                                                                                                                |

Alarm output

format:"id;eventID;eventTypeID;severity;sourceName;description;date"

Note: **Device name for NX is "AS"**

**Event type id is integer value from EVENT\_DEF\_CORE table in CFG DB**

**Examples:**

- **Alarms by criteria:**

alarmsCLI -alarms -device\_name 14.2 -severity MAJOR -event\_type\_id 10  
output: 44;63;10;MAJOR;14.2;Data Source in 172.18.18.83 is  
down;28/12/2011 13:43:27

- **License Alarms of NX Server:**

alarmsCLI -license\_alarms -device\_name AS

## 8.1.7 Subscriber CLI

Subscriber CLI is used to request subscriber information.

The Subscriber CLI Syntax is:

SubscriberCli.bat <action> [<option>] ...

### Actions

searchSubscribers

### Options

| ARGUMENT NAME  | DESCRIPTION          | OPTIONS |
|----------------|----------------------|---------|
| subscriberName | Subscriber Name      |         |
| subscriberId   | Subscriber ID Number |         |

| ARGUMENT NAME        | DESCRIPTION                       | OPTIONS                            |
|----------------------|-----------------------------------|------------------------------------|
| email                | Subscriber's email                |                                    |
| servicePlanName      | Name of Subscriber's service plan |                                    |
| servicePlanSource    |                                   | BASIC<br>CURRENT<br>BOTH (default) |
| limit (default 1000) |                                   | (default 1000)                     |

**Examples**

- subscriberCLI.bat -searchSubscribers -servicePlanName Gold -subscriberId 94012345678999
- subscriberCLI.bat -searchSubscribers -servicePlanName Gold –limit 50 – servicePlanSource BASIC

## 8.1.8 QuotaEvents CLI

Quota events CLI syntax

QuotaEventsCLI –action [-option] ...

**Actions:**

List

Help

**Options:**

From (value: date string, e.g "1/1/2014 15:00:00")

To (value: date string)

Last\_days (value: number of days, e.g 5)

Last\_weeks (value: number of weeks)

Last\_hours (value: number of hours)

Last\_minutes (value: number of minutes)

Service\_plan (value: existing service plan name, e.g SP1)

Subscribers\_list (value: list of subscribers NAMES, separated by comma. E.g sub1,sub2,sub3)

**Notes:**

Subscribers\_list is mandatory

Time definition is mandatory: "from to" or last\_days/weeks/hours/minutes

If service plan is not passed as parameter, events will be fetched for all service plans

Only one service plan can be passed as parameter.

### 8.1.9 GdprCLI

General Data Protection Regulation (GDPR) is a collection of EU privacy regulations. GDPR aims primarily to give citizens and residents control over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU. The regulations affect all organizations that collect the data of EU residents.

For addition information on how Allot products comply with GDPR and how to enable and use all specific GDPR features, see ATN 1902 – GDPR Compliance.

#### Processing Right of Access Requests

To process a Right of Access request, from the NetXplorer GdprCLI:

1. To send a **Right of Access** request, enter the following command:

```
GdprCLI.sh -getSubscriberDataRequest -
transactions "-subscriberId '<ID>' -upToTime
'<HH:MM:SS DD-MM-YYYY>'"
```

Where <ID> is the ID of the subscriber requesting their information, and <HH:MM:SS DD-MM-YYYY> is the current date and time.

**Note:** The information start time is the earliest time that there is information on the subscriber.

**Note:** The -upToTime parameter at the end of the Right of Access API does not affect the API behavior. The subscriber's data will be extracted up to the time that the request is executed in the ClearSee database. The parameter should be populated with the current (now) timestamp for each API invocation.

A token is returned identifying the **transaction ID** of the request, for example, a9fdbd289-3ad8-4176-91c6-b9d579023137.

2. To get a status on the request, enter the following command:

```
GdprCLI.sh -getSubscriberDataStatus -
transactions <TOKEN>
```

Where <TOKEN> is the **transaction ID** that you received after the original request

The status is returned, as follows:

- ◆ **Success** if the subscriber's information is ready for download
- ◆ **In progress** if the subscriber's information is not yet ready for download
- ◆ **Fail** if an error occurred

**Note:** If you do not supply a <TOKEN> in the command, then you will receive statuses for all pending Right of Access requests.

3. After you receive a status of success, to download the subscriber's information, enter the following command:

```
GdprCLI.sh -getSubscriberData -transactionId
'<TOKEN>' -location <PATH>
```

Where <TOKEN> is the **transaction ID** that you received after the original request, and <PATH> is the location where you want the information saved, for example, **/opt/admin/GDPR**

The subscriber's information is received in ZIP form, with a CSV file for each of the Vertica records listed above. The ZIP file format is as follows:

```
<transaction ID>.zip
```

Where <transaction ID> is the token which was received after the original request, as described above.

## Processing Right to Be Forgotten Requests

To process a Right to Be Forgotten request, from the NetXplorer GdprCLI:

1. To send a **Right to Be Forgotten** request, enter the following command:

```
GdprCLI.sh -deleteSubscriberDataRequest -
transactions "-subscriberId '<ID>' -upToTime
'<HH:MM:SS DD-MM-YYYY>'"
```

Where <ID> is the ID of the subscriber requesting to be forgotten, and <HH:MM:SS DD-MM-YYYY> is the current date and time.

**Note:** The information start time is the earliest time that there is information on the subscriber.

**Note:** The -upToTime parameter at the end of the Right to be Forgotten API does not affect the API behavior. The subscriber's data will be deleted up to the time that the request is executed in the ClearSee database. The parameter should be populated with the current (now) timestamp for each API invocation.

A token is returned identifying the **transaction ID** of the request, for example, a9fdbd289-3ad8-4176-91c6-b9d579023137.

2. To get a status on the request, enter the following command:

```
GdprCLI.sh -deleteSubscriberDataStatus -
transactions <TOKEN>
```

Where <TOKEN> is the transaction ID that you received after the original request

The status is returned, as follows:

- ◆ **Success** if the subscriber's information has been deleted
- ◆ **In progress** if the subscriber's information has not yet been deleted
- ◆ **Fail** if an error occurred

**Note:** If you do not supply a <TOKEN> in the command, then you will receive statuses for all pending Right of to Be Forgotten requests.

## 8.2 Monitoring CLI

The NetXplorer GUI may only display up to 50 items in a monitoring graph. Using monitoring CLI, reports may be generated as CSV files that include hundreds or thousands of items.

By using the Export to CLI function in the NetXplorer GUI, you can create a template for the monitoring CLI command and then simply change the parameters later.

**Note:** The computer used to send CLI commands to the NetXplorer or to Service Gateway devices must have Java installed and be included in the allowedHosts.properties.

### To enable the monitoring CLI in Windows:

1. Unzip the file \<VERSION NUMBER>\RnD\monitorCLI.zip on the NetXplorer Software CD to a folder on the computer from which you wish to access the statistics.
2. In the newly created folder, open monitorCLI.bat with a text editor and change the value of the parameter SERVER\_URL to the IP address or domain name of the NetXplorer server.
3. Open a DOS window, run monitorCli.bat and enter a command requesting monitoring CLI command. The command is sent to the NetXplorer server. Any monitoring data returned by the NetXplorer server is stored in a .csv file.

The Monitoring CLI Syntax in Windows is:

**monitorCLI <option> [<value>] [<option> <value> [<value>]] ...**

### To enable the monitoring CLI in Linux:

1. Unzip the file \<VERSION NUMBER>\RnD\monitorCLI.zip on the NetXplorer Server.
2. The newly created folder contains monitorCLI.sh.
3. From the NetXplorer client machine, SSH to the folder on the server to which you extracted the file and enter CLI commands.

The Monitoring CLI Syntax in Linux is:

```
./monitorCLI.sh -<option> [<value>] [-<option> <value> [<value>]]  
...
```

### 8.2.1 Export to CLI

It is possible to create a monitoring CLI command by first creating the report definition in the NetXplorer GUI and then generated a code string which may be edited and entered into the CLI.

#### To export a graph definition to CLI:

1. Create a graph definition using the NetXplorer user interface
2. Right click on the graph and select **Export to CLI** from the drop down menu.
3. The report definition is saved as a .txt file in whatever directory you choose.
4. You may edit the file to alter the report definition.

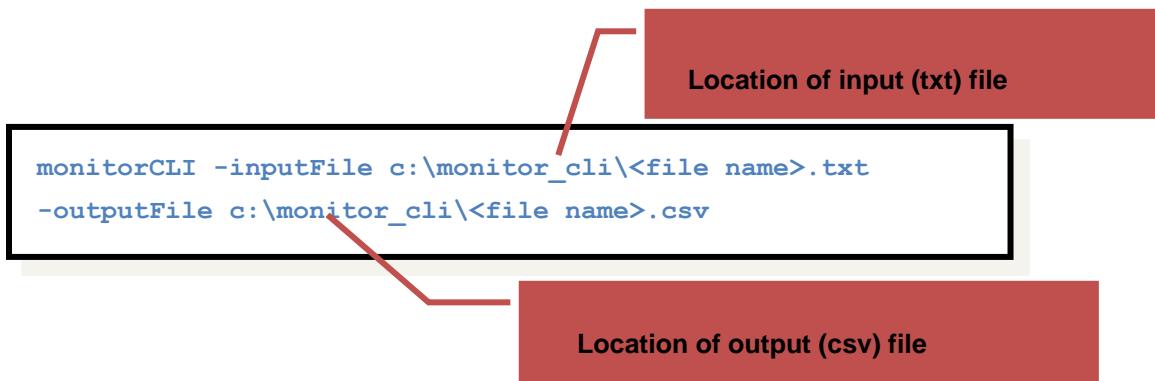
For example if the graph shows the 10 most active Pipes, you can edit the .text file so that the CLI command will generate a graph showing the 100 most active Pipes simply by changing the value.

5. The file may now be used as input for the monitoring CLI

To run the file, open a Command Prompt and run the monitoringCLI.

6. Use the –inputFile parameter to specify the path to the .txt file and use the –outputFile parameter to specify the location and name of the output (.CSV) file (as shown below).

Command Line Interface (CLI)



## Monitoring Arguments

| ARGUMENT NAME       | DESCRIPTION                          | OPTIONS                                                                                                                                                                                                                                                                 |
|---------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -dayDefinitionArray | DayDefinitionList                    | Day Definition List in UTC used by Typical (50):<br>[Day(1-sun,2-mon,7-sat,0-all),startHour0,endHour0,startHour1,endHour1,<br>,startHourn,endHourn]<br>[Day,startHour0,endHour0,startHour1,endHour1,startHourn,endHourn]                                                |
| -allSubjectsInScope | Regular req All Subjects in scope.   |                                                                                                                                                                                                                                                                         |
| -inputFile <file>   | Input request file                   |                                                                                                                                                                                                                                                                         |
| -help               | Provides usage and help information. |                                                                                                                                                                                                                                                                         |
| -longTermRequest    | Long Term Reporting.                 |                                                                                                                                                                                                                                                                         |
| -mostActive         | Most Active Request.                 |                                                                                                                                                                                                                                                                         |
| -relativeTimeUnit   |                                      | <relativeTimelid><br>Relative Time (default 1) :<br>[RelativeTimeUnit[Seconds=7],<br>RelativeTimeUnit[Minutes=6],<br>RelativeTimeUnit[Hours=1],<br>RelativeTimeUnit[Days=2],<br>RelativeTimeUnit[Weeks=3],<br>RelativeTimeUnit[Months=4],<br>RelativeTimeUnit[Years=5]] |

| ARGUMENT NAME      | DESCRIPTION                  | OPTIONS                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -typicalType       |                              | <TypicalTypeId><br>Request Typical Type :<br>[TypicalType [Day=1],<br>TypicalType[Week=2]]                                                                                                                                                                                                                                                                                   |
| -subject           |                              | <subjectId><br>Request Subject (default 0) :<br>[SubjectType[Enterprise=0],<br>SubjectType[SG=1],<br>SubjectType[Line=2],<br>SubjectType[Pipe=3],<br>SubjectType[Virtual<br>Channel=4],<br>SubjectType[Host=5],<br>SubjectType[Internal Host=6],<br>SubjectType[External Host=7],<br>SubjectType[Protocol=8],<br>SubjectType[Conversation=9],<br>SubjectType[Subscriber=10]] |
| -time              | fromDate/Time<br>toDate/Time | Request Date & Time<br>{dd/MM/yyyy,HH:mm:ss}.                                                                                                                                                                                                                                                                                                                                |
| -relativeTimeCount | relativeTimeCount            | Relative Time count (default 0) : 1..50.                                                                                                                                                                                                                                                                                                                                     |
| -allAsOne          | Regular req All as one.      |                                                                                                                                                                                                                                                                                                                                                                              |

### Command Line Interface (CLI)

| ARGUMENT NAME    | DESCRIPTION | OPTIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -sortingCriteria |             | <statisticId><br>Most Active req Sort Based On<br>(default 1) :<br>[StatisticType[TotalBandwidth=1],<br>StatisticType[BandwidthIn=2],<br>StatisticType[BandwidthOut=3],<br>StatisticType[LiveConnections=4],<br>StatisticType[DroppedConnections=6],<br>StatisticType[NewConnections=5],<br>StatisticType[packetsIn=7],<br>StatisticType[packetsOut=8],<br>StatisticType[HostCount=9],<br>StatisticType[BurstIn1=20],<br>StatisticType[BurstIn2=21],<br>StatisticType[BurstIn3=22],<br>StatisticType[BurstIn4=23],<br>StatisticType[BurstIn5=24],<br>StatisticType[BurstOut1=25],<br>StatisticType[BurstOut2=26],<br>StatisticType[BurstOut3=27],<br>StatisticType[BurstOut4=28],<br>StatisticType[BurstOut5=29]] |
| -subjectCapacity |             | <capacity><br>Most Active req Subject capacity (default 5) : 1..50.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| ARGUMENT NAME   | DESCRIPTION | OPTIONS                                                                                                                                                                                                                                                                                |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -distributor    |             | <distributorId><br>Most Active req Stack result by element:<br>[DistributorType[SG=1],<br>DistributorType[Line=2],<br>DistributorType[Pipe=3],<br>DistributorType[Virtual<br>Channel=4],<br>DistributorType[Host=5],<br>DistributorType[Protocol=6],<br>DistributorType[Subscriber=7]] |
| -outputFile     |             | <file><br>Output file result                                                                                                                                                                                                                                                           |
| -hostFilerArray |             | <hostFilterList><br>Host Filter List(50): [hostIp or<br>hostName] ... [hostIp<br>or hostName]                                                                                                                                                                                          |
| -subjectArray   |             | <subjectDefinerList><br>Regular req Subject Definer<br>List Inluded in Graph(50) :<br>[NE,Line,Pipe,Vc]<br>[NE,Line,Pipe,Vc] or [hostIp or<br>hostName]<br>[hostIp or hostName] or<br>[serviceId]<br>[serviceId] or<br>[hostIpIn,hostIpOut]<br>[hostIpIn,hostIpOut]                    |

### Command Line Interface (CLI)

| ARGUMENT NAME      | DESCRIPTION | OPTIONS                                                                                                                                                                                                                                               |
|--------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -scopeLimiterType  |             | <ScopeLimiterId><br>Request Scope Limiter (Most active default 0) :<br>[ScopeLimiterType[Enterprise=0], ScopeLimiterType[SG=1], ScopeLimiterType[Line=2], ScopeLimiterType[Pipe=3], ScopeLimiterType[Virtual Channel=4]]                              |
| -scopeLimiterArray |             | <ScopeLimiterList><br>Scope Limiter List(50):<br>[NE,Line,Pipe,Vc] ...<br>[NE,Line,Pipe,Vc]                                                                                                                                                           |
| -isAllOthers       |             | Most Active req All Others                                                                                                                                                                                                                            |
| -splitter          |             | <splitterId><br>Most Active req Display Separately for each element:<br>[SplitterType[Host=1], SplitterType[Protocol=2], SplitterType[Subscriber=7], SplitterType[SG=3], SplitterType[Line=4], SplitterType[Pipe=5], SplitterType[Virtual Channel=6]] |

| ARGUMENT NAME      | DESCRIPTION                                                                       | OPTIONS                                                                                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -resolution        |                                                                                   | <resolutionId><br>Request Resolution (default 1)<br>:<br>[AggregationResType[Level<br>0=1],<br>AggregationResType[Level<br>1=2],<br>AggregationResType[Hour=3],<br>AggregationResType[Day=4],<br>AggregationResType[Month=5]<br>] |
| -serviceFilerArray |                                                                                   | <serviceFilterList><br>Service Filter List(50):<br>[servicId] [servicId]                                                                                                                                                          |
| -adjustTime        |                                                                                   | Adjust Time                                                                                                                                                                                                                       |
| -volume            | This option is used to switch the output from bandwidth rates to bandwidth volume |                                                                                                                                                                                                                                   |

### Links Format

[NE,Line,Pipe,Vc] / [NE,Line,Pipe,Vc,Template] /  
 [NE,Line,Pipe,Vc,InstanceType,instanceValue]:  
 1) [NE,Line,Pipe,Vc] simple VC = 1,2,3,4 ; simple Line = 1,2,0,0  
 2) [NE,Line,Pipe,Vc,Template] VC Template = 1,2,3,4,T ; Pipe Template = 1,2,3,0,T  
 3) [NE,Line,Pipe,Vc,InstanceType,instanceValue] VC Instance = 1,2,3,4,2,9999 ;  
 Pipe Instance = 1,2,3,0,1,9999 [InstanceType[Pipe=1], InstanceType[Virtual  
Channel=2]]

### Examples

5 Most Active NEs on Level0 resolution :

- monitorCLI -mostActive -subject 1 -resolution 1 -time  
22/11/2005,11:20:00

5 Most Active Hosts on Days resolution scope limited to NE #32 & #37 :

- monitorCLI -mostActive -subject 5 -longTermRequest -resolution 4  
-time 20/11/2005,00:00:00 23/11/2005,23:59:59 -scopeLimiterType 1  
-scopeLimiterArray 32,0,0,0 37,0,0,0

10 Most Active VCs on Level0 resolution scope limited to NE #32 stack result by Protocol

- monitorCLI -subjectCapacity 10 -mostActive -subject 4 -resolution 1 -time 22/11/2005,11:20:00 22/11/2005,11:25:00 -scopeLimiterArray 32,0,0,0 -distributor 6

Statistics on NE #37, last 5Min on Level0 resolution :

- monitorCLI -subject 1 -resolution 1 -time 22/11/2005,11:20:00  
22/11/2005,11:25:00 -subjectArray 37,0,0,0

Pipes Distribution on Network, last 5Min on Level0 resolution :

- monitorCLI -subject 3 -resolution 1 -time 22/11/2005,11:20:00  
22/11/2005,11:25:00 -scopeLimiterType 0 -scopeLimiterArray 0,0,0,0

Statistics on VC Instance #37,1,1,1,2,42 last 5Min on Level0 resolution :

- monitorCLI -subject 4 -resolution 1 -time 22/11/2005,11:20:00 -relativeTimeUnit 2 -subjectArray 37,1,1,1,2,42

Use regular monitor request file & create monitor result file (csv format) :

- monitorCLI -inputFile c:\monitor\_cli\monitor42060.req -outputFile c:\monitor\_cli\monitor42060.csv

Use most active monitor request file & create monitor result file (csv format) :

- monitorCLI -inputFile c:\monitor\_cli\monitor42061.req -outputFile c:\monitor\_cli\monitor42061.csv

# 9 Troubleshooting

## 9.1 Troubleshooting Basics

### 9.1.1 First Steps

There are some basic checks to begin with when troubleshooting almost any type of problem:

1. Validate that the NetXplorer server and relevant Service Gateways are actually up and running.
2. NetXplorer components (GUI, Server and Service Gateways) communicate with each other using the protocols and ports listed on p 2-17. Validate that the communication is not blocked by using the following command (on either the NetXplorer or Service Gateway):  
**netstat -an**
3. Each one of the NetXplorer components has configured time settings. It is crucial that the component times are synchronized.

### 9.1.2 Processes

#### NetXplorer

There are certain processes that should be running on the NetXplorer Server. These processes can be identified using several different tools when using Windows:

1. Use Windows Services (Start > Control Panel > Administrative Tools > Services) to check that NetXplorer Server is running
2. Use Windows Task Manager (CTRL+ALT+DEL and click Task Manager) to check that the following processes are running:
  - ◆ **dbsrv12** (3 instances) - These are the databases process, one for each DB. You can see at the printout which database each row belongs to: cfg, stc or ltc.
  - ◆ **swKeeper** – This process keeps all other process alive and restart them in case of a failure.
  - ◆ **poller, converter** and **loader** – these are the stc processes.
  - ◆ **ltc\_poller** and **ltc\_loader** - the processes of the ltc.
  - ◆ **ltreducer** (runs periodically – therefore may not be seen) and

- ◆ **manifest\_manager** (runs periodically) – an additional process of the Itc.
- ◆ **Java** – the application process.
- ◆ **ntpd** – the synchronization process.

When on a Linux based server, use the command **ps -ef|grep allot** or **ps -ef|grep ntp** to list running processes.

## Service Gateway

There are several processes that should always be running on the Service Gateway. These processes can be identified using the following command:

**keeperMgr -SW**

Some of the main processes include:

- The **DataSrv** maintains the policy database of the device. It receives the updates from the NX and forwards them to the **DBAgent** which then translates and forwards the policy to the Real-Time tasks. This process will not run on CC.
- The **DBAgent** is responsible for translation of the policy to a simpler data structure for the Real-Time tasks.
- The **StatisticMgr** is responsible for the statistic collection and buckets creation – one processes per XLR. This process is not running on the host blade
- The **DataSource** is responsible for the IP to subscriber mapping table – a process is running per XLR.
- The **AllSnmpAgent** is an SNMP interface for alerts sent out from the NE/SG, and for SNMP set/get commands to the NE/SG from the management station.
- The **frameDispatcher/Dispatcher** is responsible for the packet dispatching to the active CCs. Dispatcher process is running per XLR.
- The **plm** is the Protocol Learning Manager responsible for the dynamic protocol learning. (especially used for P2P protocol recognition).
- All processes starting with **SP** are part of the Service Protector functionalities. These are covered in the CSPA training.
- **MitigationSrv** is also used when working with SP. It receives NBAD signatures from the SP Controller & forwards them to the **MitigationAgent**.

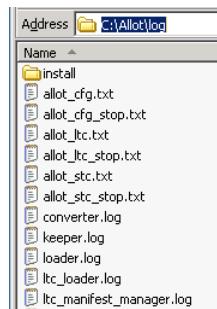
Each time a process is restarted, its value increases. If one of the values is significantly higher than the others, it indicates that a process has been restarted. Restart may have been initiated automatically or manually.

### 9.1.3 Log Files

Several key log files are stored on the NetXplorer Server. For the sake of convenience we can divide these into three main categories.

#### Database Logs

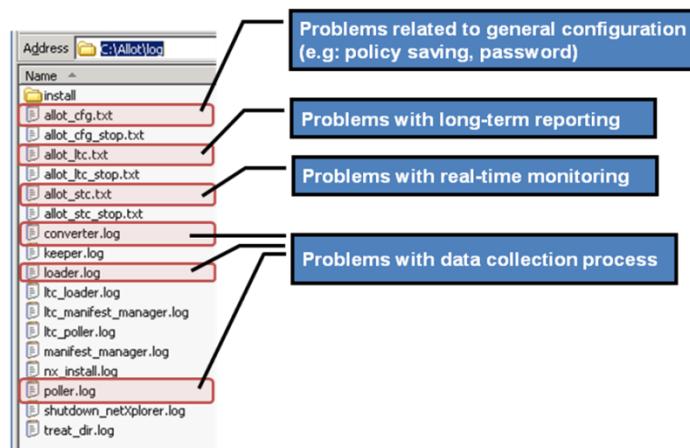
Database log files are stored in **C:\Allot\log** (or **/opt/allot/log** on a Linux server). These files log the performance of the NetXplorer's three main databases – cfg, stc and ltc as well as the data collection processes.



**Figure 9-1: Database Logs**

The **allot\_cfg log** can be consulted for problems related to general configuration (e.g: saving policy, password). The **allot\_ltc log** can be consulted for problems with long-term reporting, and the **allot\_stc log** for problems with real-time monitoring.

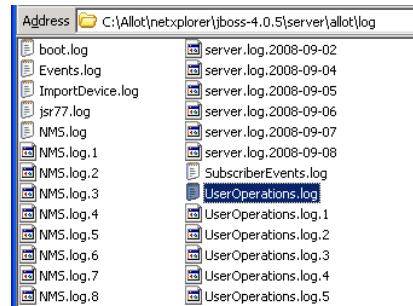
In addition, the logs which record the data collection processes are also useful, specifically the **Poller**, **Convertor** and **Loader** logs. The **keeper.log** records the status of the keeper process which makes sure that all other processes are up.



**Figure 9-2: Key Database Logs**

## Application Server Logs

The application server log files are stored in **C:\Allot\NetXplorer\wildfly-8.2.0.Final\server\allot\log** (or **/opt/allot/netxplorer/wildfly-8.2.0.Final/server/allot/log** on a Linux server). These files are responsible for logging all of the java-based activity which takes place on the application server.

**Figure 9-3: Application Server Logs**

The **events.log** records every event in the NetXplorer server. It can help you for example to view alarms that have been cleared from the GUI.

The **NMS.log** records every activity carried out by the application server such as records of alarms, GUI errors, web update checks, scheduled reports, and Service Gateways which have been added or imported. As soon as this log reaches 5Mb, a new one is created, and a log history is maintained up to a total of 20 NMS logs. The latest log is called simply **NMS.log**.

```

2008-09-14 14:26:09 [COLLECTORS-pool-10-thread-2] ERROR
host.util.CountryIpFileUpdater - Retrieving CSV file failed
2008-09-14 14:26:09 [COLLECTORS-pool-10-thread-2] INFO
host.util.CountryHostGroupsManager - loading static block from class loader
org.jboss.util.loading.DelegatingClassLoader@17536e7
2008-09-14 14:26:09 [COLLECTORS-pool-10-thread-2] INFO
host.util.CountryHostGroupsManager - checking if
Full2ShiftMapping.properties exists and result is false
2008-09-14 14:26:09 [COLLECTORS-pool-10-thread-2] INFO
host.util.countryHostGroupsManager - checking if CountryGroupsMapping.ser
exists and result is false
2008-09-14 14:26:09 [COLLECTORS-pool-10-thread-2] INFO
host.util.CountryHostGroupsManager - No new CSV file found

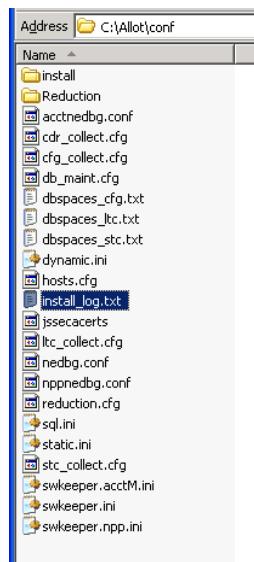
```

**Figure 9-4: NMS.log Example**

The **NMS-Monitor.log** records everything related to graphs and reports and the **UserOperations.log** records of what has been done in the GUI by each user. This log can reach a total of 10Mb and the NetXplorer will store 20 such historic logs in the folder before over-writing the oldest one.

## Installation Log

The **install\_log** can be found in **C:\Allot\conf** (or **/opt/allot/conf** if you are working on a Linux server). This simple log details the history of NX installations on the server. You can see here for example if the current installation was an upgrade from a previous version or a clean installation. This may be useful for detecting specific problems that are related to upgraded NetXplorers only.

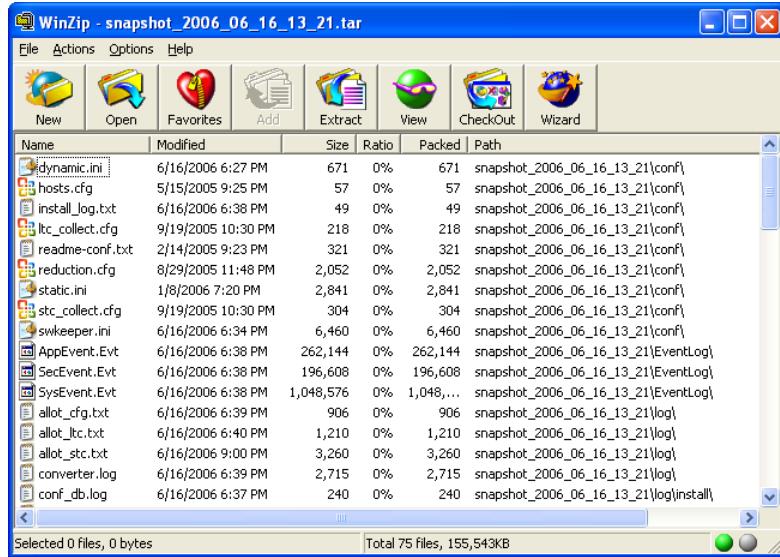


**Figure 9-5: Install Log**

### 9.1.4 Snapshots

#### Windows

This will prepare a zip-file that contains log and configuration files from all NetXplorer components (Application Server, Collector, Databases) and the last backup of the CFG (configuration allot\_cfg) database.



**Figure 9-6: Snapshot File**

### To create a snapshot in Windows:

1. Open MSDOS command window (cmd.exe). Run from command-line - `%ALLOT_HOME%\bin\ create_snapshot_logs.bat`.
2. A message will appear in the command window indicating that the snapshot was taken successfully and its location.  
Zip-file - `snapshot_<yyyy_mm_dd_hh_mi>.tar.gz` will be located in `%ALLOT_HOME%\tmp` directory.  
Message Example –  
**Snapshot zip-file - D:\Allot\tmp\snapshot\_2005\_10\_26\_19\_09.tar.gz is ready**

### To create a snapshot in Linux:

1. Open directory `/opt/allot/bin/`
2. Run the following command:  
`./create_snapshot_logs.sh`
3. A message will appear in the command window indicating that the snapshot was taken successfully and its location.

Message example -

**Snapshot zip-file - /opt/allot/tmp/snapshot\_2008\_05\_28\_14\_15.tar.gz is ready**

### 9.1.5 How to restore CFG (allot\_cfg) database from the Snapshot-File

1. Install the appropriate NetXplorer version from <snapshot>\conf\install\_log.txt file.
2. From the <snapshot>\conf\dynamic.ini file discover the CFG path.
3. After installation, reboot the computer and stop the NetXplorer service.
4. Restore allot\_cfg database using db\_maint.exe from %ALLOT\_HOME%\bin directory using the following command line operation:  

```
db_maint -a restore -n cfg -t incremental -s <snapshot>\backup_cfg -g 1 -i <max incr number(1-22)> -d %ALLOT_HOME%\data\db\cfg
```
5. <max incr number> - max number(1-22) in directory name from <snapshot>\backup\_cfg\1\incremental (example: 10)
6. Start the NetXplorer service
7. The NetXplorer server is now ready to work with snapshot allot\_cfg database

## 9.2 Login Errors

Login errors can occur for several reasons:

### 9.2.1 Incorrect Java Version

An error messages stating that netxplorer.jnlp is an unrecognized file extension typically indicates that the correct version of Java has not been installed.

- If the root cause of the issue is with Java, you can often solve it by clearing the Java Cache on the machine that cannot access the NetXplorer, and then reinstalling Java.
- Go to *control panel* and choose *Java*.
- On the *General tab*, under *Temporary Internet Files*, click on *delete* and then **OK**.  
 This action will clear the java cache files. It will also remove the NetXplorer shortcut from the desktop.
- Open browser with NX server IP address (<http://<NXServer-IP>>) and choose the first option “Install Java JRE First”. Now launch the application.

If the previous method does not solve the problem, run Java WebStart - *javaws.exe* from the Java environment.

This will typically be located at a location similar to: *C:\Program Files\Java\<VERSION>\bin*.

Delete anything shown on this screen (this will clear the cache).

### 9.2.2 Lack of Connectivity

A common cause of GUI initialization problems is a lack of communication between the GUI and the NetXplorer, that is there is something on the network which may be blocking the traffic.

For information about required ports, see ATN 1811 - Communication Ports and Protocols.

### 9.2.3 Antivirus Conflict

Antivirus or backup utilities could be interfering with the database, locking the file and not permitting changes to it. Antivirus and backup utilities can also cause many other types of problems for any operation involving a database modification.

It is highly recommended **NOT** to run antivirus or backup programs on folders where the databases reside. The database folder is usually located in:

**C:\Allot\data\dc\<DatabaseName>**

## 9.3 Policy Saving Errors

Typically, inability to save a policy can result from a communication problem between the GUI and the server, a communication problem between the Service Gateway and the server or a synchronization problem between the Service Gateway and the NetXplorer server.

To troubleshoot this problem, you must first understand how the provisioning data is updated in the system.

The process consists of 3 stages.

- First of all, the NetXplorer server sends an XML command to the Service Gateway
- The Service Gateway then performs the required changes and updates the counters.
- Finally, the Service Gateway sends a trap back to the server.

If the server has successfully sent the XML, the request should be received by the DataSrv on the Service Gateway. The DataSrv should acknowledge receipt, apply the change and confirm.

We can therefore check if the second stage has been passed, by examining the DataSrv log file to see if the request has been received by looking at the following log file:

### **\$SWGL/nedb.DataSrv.log**

Having confirmed this, we should look at **allotProvision.xml**. This is the actual policy configuration file on the Service Gateway. By analyzing this file, we can verify that the changes have actually been written.

If there is a synchronization problem between the NetXplorer and the Service Gateway, perhaps caused by a temporary loss of communication between the two, a tool that can help solve the problem is to perform a full policy export.

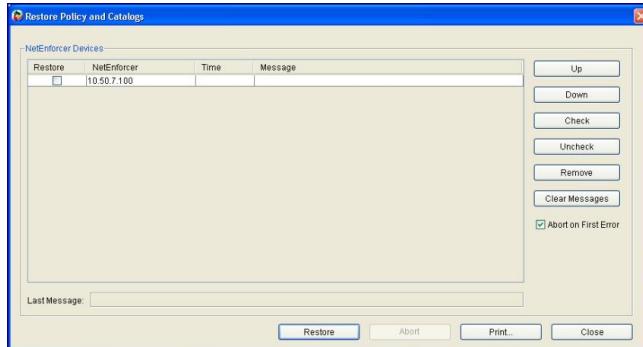
Using the **Restore Policy and Catalog** feature it is possible to restore the saved image of the Policy Table and catalogs which is stored for each Service Gateway and updated periodically. This feature should be used if a Service Gateway becomes corrupted or its policies and catalogs become damaged, requiring a roll back to a previous, working configuration.

#### **To restore policies and catalogs:**

**NOTE** The full Restore Policy & Catalog operation can cause some software modules to restart themselves, therefore it is recommended that this be done during maintenance windows only.

1. Select Restore Policy and Catalogs from the Tools menu.

The Restore Policy and Catalogs dialog is displayed.



**Figure 9-7: Restore Policy and Catalogs Dialog**

2. The **NetEnforcer Devices** list will populate with all Service Gateways on the network. Each relevant Service Gateway is listed by name, with the time it received the new policies and any system messages.
3. Click the **Restore** checkbox to include that Service Gateway in the restoration or select a Service Gateway and use the **Check** and **Uncheck** buttons.

4. Select a Service Gateway and click **Up** or **Down** to change its location in the distribution order.
5. Select a Service Gateway and click **Remove** to delete the Service Gateway from the list or **Clear Messages** to delete any system messages.
6. Select the **Abort on First Error** checkbox to instruct NetXplorer to cancel the entire Policy Distribution operation on the first error.
7. Click **Restore** to restore the saved Policy table and catalogs to each device. The Service Gateways selected will be restored in order, starting at the top of the list.
8. Click **Abort** at any time to stop the process or **Print** to print the **Results** list.

Note: **Aborting the restoration will not roll back the Policy Tables or Catalogs of any Service Gateways already overwritten.**

9. Click **Close** to close the Restore Policy and Catalogs dialog box.

## 9.4 Data Display Errors

When there is no data in a graph for a certain period of time, this typically indicates a problem with data collection.

- **Data Transmission**  
Check whether the Service Gateway is sending statistics buckets to the NetXplorer server.
- **Data Reception**  
It could be that buckets are being sent, but because of communication problems, they are not reaching their destination.
- **Data Loss**  
It could be that buckets are sent to the server and received, but are subsequently dropped.  
  
A common reason for this is a lack of synchronization. If the time of the bucket is dramatically different from that of the NetXplorer server time, then buckets will be discarded.
- **Stress**  
Alternatively, the problem could be one of “stress”. If there is more data than the NetXplorer server can handle, the server will only handle buckets that have already been received and will discard any new buckets.

### 9.4.1 Data Transmission

As the first step of our troubleshooting we do not need to leave the NX GUI. Using the GUI, we examine the event and alarms logs.

In most cases there will be an alert that shows us where the problem lies.

| ID  | Date      | Time      | Severity                                     | Type             | Category        | Description                  |
|-----|-----------|-----------|----------------------------------------------|------------------|-----------------|------------------------------|
| 446 | Jul 18... | 11:55...  | <span style="color: green;">●</span> Cleared | Device Reach...  | Application ... | 2500 is reachable            |
| 442 | Jul 18... | 11:54...  | <span style="color: red;">●</span> Critical  | Device Unre...   | Application ... | 2500 is unreachable          |
| 445 | Jul 18... | 11:54...  | <span style="color: green;">●</span> Cleared | Link Up [ID=15]  | Device conf...  | Link MGMT is up: admin st    |
| 444 | Jul 18... | 11:53...  | <span style="color: yellow;">●</span> Major  | Link Down [D...  | Device conf...  | Link MGMT is down: admin     |
| 440 | Jul 18... | 10:19...  | <span style="color: green;">●</span> Cleared | External Data... | Security        | Data Source in 10.50.53.1 is |
| 437 | Jul 18... | 10:11...  | <span style="color: green;">●</span> Cleared | Device Reach...  | Application ... | 2500 is reachable            |
| 438 | Jul 18... | 10:10...  | <span style="color: green;">●</span> Cleared | Link Up [ID=15]  | Device conf...  | Link MGMT is up: admin st    |
| 435 | Jul 18... | 9:59:5... | <span style="color: yellow;">●</span> Major  | External Data... | Security        | Data Source in 10.50.53.1 is |
| 432 | Jul 18... | 9:58:3... | <span style="color: red;">●</span> Critical  | Device Unre...   | Application ... | 2500 is unreachable          |
| 434 | Jul 18... | 9:57:3... | <span style="color: yellow;">●</span> Major  | Link Down [D...  | Device conf...  | Link MGMT is down: admin     |
| 430 | Jul 18... | 9:51:0... | <span style="color: green;">●</span> Cleared | Device Reach...  | Application ... | 2500 is reachable            |
| 429 | Jul 18... | 9:50:1... | <span style="color: green;">●</span> Info    | NetEnforcer C... | Application ... | NetEnforcer configuration im |
| 421 | Jul 18... | 9:50:0... | <span style="color: green;">●</span> Info    | Cold Start [D... | Device conf...  | Cold Start                   |

Figure 9-8: Events Log

For example, if we see the event: “Collector Reported Device Unreachable”, this indicates that the data collector cannot access the Service Gateway for short term data collection. In this case, you should check network connectivity, possible firewall and ACL (access control list) rules.

If we see the event: “Invalid Bucket Time on Collector”, this indicates that the time on the Service Gateway and on the NetXplorer Data Collector is not synchronized. Make sure you synchronize the time for the Service Gateway, Data Collector and NetXplorer. (See the “Time Synchronization Issues” module for further information)

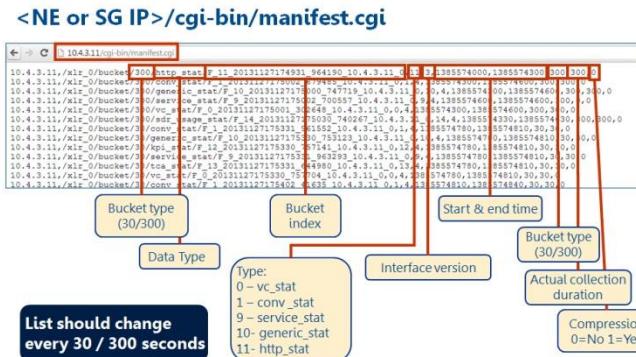
The event “Real Time Bucket Overload in Collector” indicates a problem of stress.

### 9.4.2 Data Reception

It could be that buckets are not being sent from the Service Gateway in the first place.

This can be checked by consulting the manifest of a specific Service Gateway.

The Manifest is the list of buckets that the Service Gateway has created and that are waiting to be sent to the NetXplorer. This can be accessed using any web browser.



**Figure 9-9: Bucket Manifest**

To see the 30 seconds buckets waiting to be sent, enter:

[http://<NE\\_IP>/bucket/30/manifest](http://<NE_IP>/bucket/30/manifest)

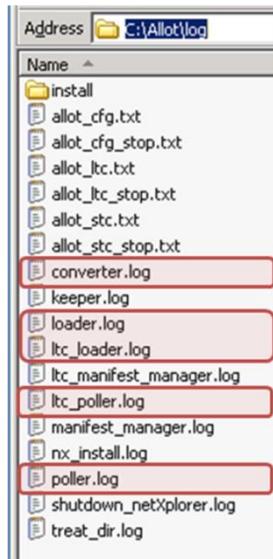
To see the 300 seconds buckets waiting to be sent, enter:

[http://<NE\\_IP>/bucket/300/manifest](http://<NE_IP>/bucket/300/manifest)

Refresh the browser window a few times to check that the Service Gateway is continuously creating buckets.

### 9.4.3 Data Loss

To confirm that the data, once received, is not being dropped, check the log files that are created by the data collection processes and are located on the NetXplorer server. Here we can check if the NetXplorer and/or distributed collector has received the collected data. The poller process is responsible for polling the buckets from the manifest file on the Service Gateway. This process is logged in the poller log.



**Figure 9-10: Data Logs**

The convertor process then converts the buckets from binary into ASCII form – this is logged in the convertor log.

Finally, the loader process, logged in the loader log is responsible for loading the converted buckets into the short term database.

The Ltc\_poller polls the 1hour buckets from the short term collector and the Ltc\_loader loads them into the long term collector.

You can look in the log files and see if there are any error indications.

#### 9.4.4 Stress

What should you do if the events suggest a situation where buckets are being dropped due to excess stress? Firstly, check the Collection Configuration to validate that the Service Gateway is actually configured to collect the data you expect to see.

One thing you can do to reduce stress is to disable real-time data collection. This will lower the number of buckets dramatically.

- Disabling Real-Time Collection stops the import of 30 sec buckets from the Service Gateway to the NetXplorer. Therefore you will not be able to see real-time monitoring graphs at 30 sec resolution. You will still be able to see real-time monitoring graphs at other resolutions though, and long term reporting which relies on the 300 sec buckets is not affected at all.

- Disabling Long-Term Collection stops the import of 1 hr buckets from the short term database on the NX to its Long Term database. By disabling this option, you will not be able to view long-term reports at all.
- Short Term Collection refers to the 300 seconds, or 5 minutes, buckets. What happened when you disable Short Term collecting depends on whether Long Term collecting is enabled or not. If Long Term Collection is also disabled, the only graphs that you will be able to see are real-time graphs at 30 sec resolution. If Long Term collection is enabled, short term data (300 sec buckets) will be imported to the NX regardless of the state selected in the short term collection dialog. This is because Long term data is aggregated from the 300 sec buckets.

## 9.5 Add Device Errors

In some situations, the attempt to add a device to the NetXplorer may fail. What might be the reasons for this failure?

The more obvious reasons could be down to an incorrect IP address or an incompatible software version.

There may be communication problems between NetXplorer and the Service Gateway. These might arise due to problems with a firewall or with a router access list for example. Alternatively, this problem can arise when management traffic and user traffic are not fully separated.

By consulting with the NX server log (NMS.log), you can see at exactly which stage, the “add device” process failed. There are eleven stages to adding a device.

You can see which stage has succeeded and which has failed by looking at the NetXplorer’s NMS.log.

There are fourteen stages to adding a Service Protector. To start tracking the add device messages in the log file, look for the string: “CREATE (1/14)” or for the string “create device”

- In stages one and two of the add device process, NetXplorer prepares its database tables for the new device topology. Normally you should not encounter problems at these stages.
- In stage three, the NetXplorer validates that the device has a software version that matches that version on the NetXplorer Server. If there are error messages here you might need to upgrade the device software version.

- At stage four, the NetXplorer reads the Service Gateway's configuration file: rc.conf. The file is sent via SNMP on port 161. Issues can occur when there is a communication problem, or if the SNMP agent is not running on the Service Gateway. If there is a problem at this stage, check the following:
  - ◆ Run netstat -an on the Service Gateway or Server and check whether a connection on port 161 is established
  - ◆ Run swgadmin and validate that allSNMPAgent is running
  - ◆ Check that nothing is blocking SNMP traffic along the way
  - ◆ Check that the database is up and available
- In stage five, the NetXplorer verifies the topology of the Service Gateway.
- At stage six the catalogs are sent from the NetXplorer to the Service Gateway. There are a few things that can go wrong at this stage:
  - ◆ Communication issues – communication is carried out on HTTP port 80. An error can occur if communication is blocked or if the Service Gateway is not listening for requests on port 80. To validate that Service Gateway is running the HTTP daemon, run **ps -awx** and look for HTTPD
  - ◆ Incorrect password – this happens when the password for the admin user that was supplied in the “Add Device” dialog is not the right password. If you have forgotten the password you can change the password by logging into the Service Gateway as “root” and using the menu>change password option.
- During stage seven, the default policy is exported to the Service Gateway by HTTP over port 80. The process could fail at this stage if there is a timeout issue. This can be verified by looking at the nms.log. If this is the case, you will need to contact Allot support for a fix.

- At stage eight, the server performs several updates, one of which is updating NTP. Issues can occur when the Service Gateway is set up in a way that management traffic flows through the Service Gateway. This happens when the management port is connected to the same part of the network as the external connection is. In such cases, an NTP update can occur before the Service Gateway update is complete. This interrupts the update process.

A possible solution can be to switch the SG into bypass mode until the addition process is complete. In any case, it is recommended to connect the management port to the internal section of the network.

- During the stages nine - eleven, the NetXplorer updates its databases. A problem at this stage could result from the unavailability of one of the databases. In this case, try to stop and restart the NetXplorer service. This may kick-start the unavailable database. If this does not work, you may have to recreate the database that is unavailable.
- During stage twelve, dynamic hosts are added to the Service Gateway
- In stage thirteen, SNMP information, which was set up in the Integrated Services Tab in the NetXplorer GUI are distributed.
- In the final stage of the process, stage fourteen, WebSafe blacklist files are updated in the Service Gateway from their destination as defined in the Integrated Services Tab in the NetXplorer GUI.

Adding a new collector has only 6 steps. These can be found in the server's NMS log by looking for the string "CREATE (1/6)" or "create collector".

The process of importing a device has 16 steps and the relevant messages can be found by looking for "IMPORT (1/16)"

## 9.6 NX-HAP Troubleshooting

### 9.6.1 Synchronizing Each Node with an NTP Server

When working with NX-HAP, it is strongly recommended to use an external NTP server for each of the NX-HAP nodes as well as for all of the NE/SG devices and Short Term Collectors which are connected to the NetXplorer.

To configure an external NTP server for each NX-HAP node, open the `/etc/ntp.conf` file for editing and find the line which contains the NX server IP – e.g: 10.11.12.54 maxpoll 8 minpoll 6 iburst. Replace this IP address with the

dedicated NTP server IP. Then restart the NTP daemon. Perform this on both NX-HAP nodes and make sure that all of the devices connected to the NetXplorer are also synchronized with the same NTP server.

### 9.6.2 Viewing Available Resources

The **crm\_mon** command can be used to analyze which node in the cluster is using system resources. This tells the system administrator which node is currently active.

```
=====
Last updated: Mon Jun 1 19:24:44 2009
Current DC: NX-1.allot.com (13425fesfth)
2 Nodes configured.
1 Resources configured.

Node: NX-1.allot.com (13425fesfth): online
Node: NX-2.allot.com (fewf834271h): online

Resource Group: nx_ha
vip      (ocf::heartbeat:IPAddr2):     started NX-1.allot.com
db      (ocf::heartbeat:Filesystem): started NX-1.allot.com
nx      (lsb:netxplorer):           started NX-1.allot.com
```

The output of this command shows us that there are two nodes in the cluster and that both are on-line. The Resource Group, nx-ha consists of 3 sub-resources:

- vip: which is the virtual IP address of the cluster
- db: which is the database
- nx: which is the NetXplorer service

Adjacent to each of these sub-resources you will see on which node it is running. In this case, we see clearly that NX-1.allot.com is the active node in the cluster.

In case problems are detected, the administrator may run **crm -rf**. This gives an extended view of the cluster resources and includes fail messages for each of the nodes.

### 9.6.3 Stopping Pacemaker/Heartbeat Service

To stop the Pacemaker or Heartbeat service on the currently active node, opening an SSH session to this node and enter one of the command:

On CentOS 6.4 or later enter: **service pacemaker stop**

This will stop the cluster suite running on the currently active node and the second node will take control of the resources.

**Warning:** After entering the command, wait until you receive an “OK” message. This may take several minutes. Even after receiving the “OK”, this does not necessarily mean that the heartbeat process has stopped. The heartbeat process may take up to 15 minutes to stop each time. You are advised to wait 15 minutes before proceeding. You can check that heartbeat is stopped by entering: `ps -ef | grep heartbeat | grep -v grep`. If the heartbeat process has stopped, the output of this command will be empty.

# 10 Appendices

## 10.1 Appendix A: Lenovo Storage Management

1. In order to access and use the Allot Storage Manager:  
Log into the following IP: 192.168.128.103.

The Login screen appears.



Figure 10-1: Lenovo Storage Management – Log in

2. Enter the user name and password.
3. The Storage Management System screen opens.



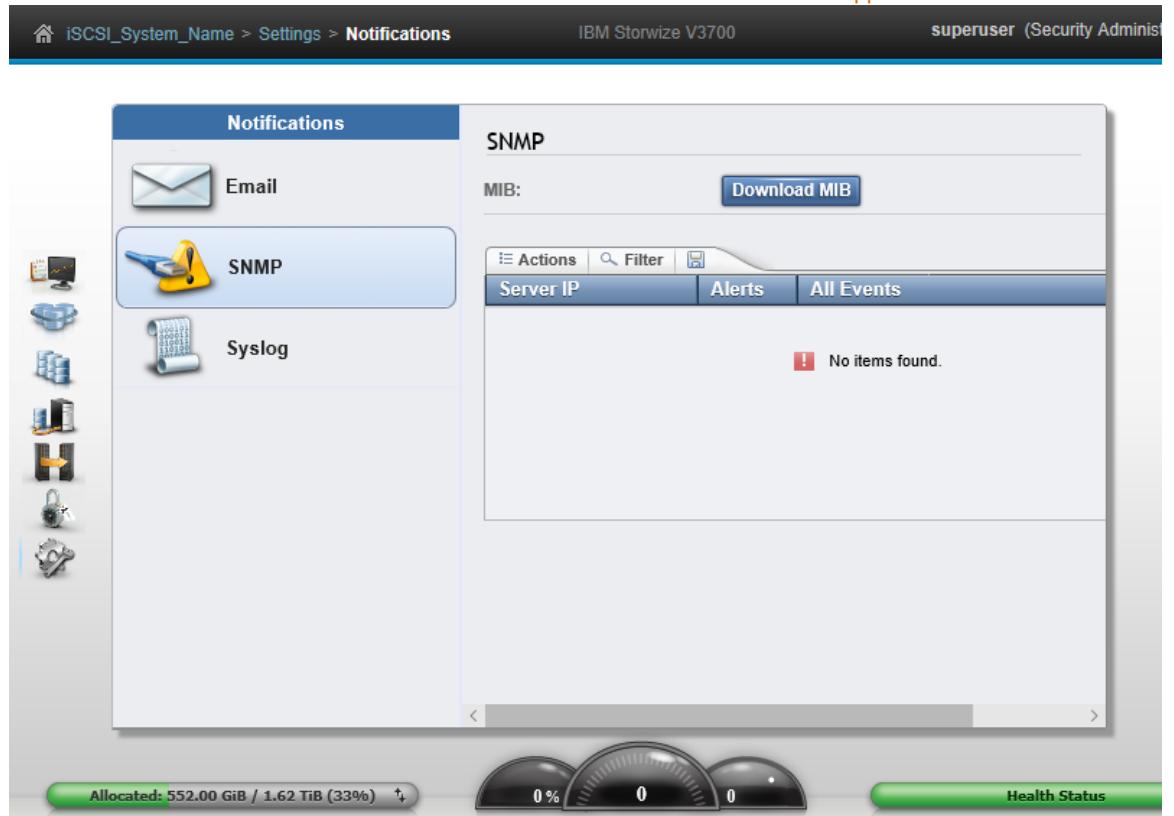
Figure 10-2: Lenovo Storage Management – System Screen

### 10.1.1 Configuring Storage Management to Send SNMP Traps from the Storage Device

Follow the steps below to send SNMP traps to an external trap receiver:

1. Right click on Settings Icon (the last icon on the left hand side) and select **Notifications** from the menu.

The Notifications dialog box appears.



**Figure 10-3: Notifications**

2. Open the SNMP tab and from the Actions menu click Add.
3. The Add SNMP Server dialog appears.



**Figure 10-4: Add SNMP Server dialog**

4. Enter a Server IP, Port and Community for SNMP Traps to be sent to.
5. From the Events drop down menu, select Alerts or All Events.
6. Click Add

## 10.2 Appendix B: Events and Recommended Actions

In the table below you will find a list of events which can be recorded in the NetXplorer Interface and their recommended actions. Note that in the ALARM column, X indicates that the event will trigger an alarm in NX. In the Sent to External Server section, an X under AUTO means that a trap is automatically sent from the NX to the NMS while an X under MANUAL means that the user can manually configure the event to send a trap, signal and alarm or perform an action.

Note: **Disk Usage, Memory Usage and CPU Usage (Hardware based TCAs) are supported on the SG-Tera only**

| ID | EVENT                                  | DESCRIPTION / RECOMMENDED ACTION                                                                                                            | ALARM | SENT TO EXTERNAL SERVER |        |
|----|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|    |                                        |                                                                                                                                             |       | AUTO                    | MANUAL |
| 1  | Rising TCA (Threshold Crossing Alarm)  | The relevant action here depends on the particular alarm which has been triggered                                                           | X     | X                       | X      |
| 2  | Falling TCA (Threshold Crossing Alarm) |                                                                                                                                             |       |                         |        |
| 3  | Device Configuration                   | Someone made changes to the configuration of the SG. Review the audit trail to see who made the change and what changes had been made       |       |                         | X      |
| 4  | Line Policy Change                     | Someone made changes to the policy. Review the audit trail to see who made the change and what changes had been made                        |       |                         | X      |
| 5  | Pipe Policy Change                     |                                                                                                                                             |       |                         | X      |
| 6  | Virtual Channel Policy Change          |                                                                                                                                             |       |                         | X      |
| 7  | Catalog Entry Change                   | Someone made changes to the Catalog Entry. Review the audit trail to see who made the change and what changes were made                     |       |                         | X      |
| 8  | Suspected DoS Attack Started           | Perform further analysis of incoming traffic – check threat detection and mitigation systems (such as Allot Service Protector) if installed | X     | X                       |        |

Appendices

| ID | EVENT                             | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                                                             | ALARM | SENT TO EXTERNAL SERVER |        |
|----|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|    |                                   |                                                                                                                                                                                                                                              |       | AUTO                    | MANUAL |
| 9  | Suspected DoS Attack Stopped      | Information Only – No Action Required                                                                                                                                                                                                        |       |                         |        |
| 10 | External Data Source Down         | Information Only – DataSource is used for NTP. When it says External Data Source is Down, it means communication has been lost with the NTP server. Up means communication with the NTP server has been restored.                            | X     | X                       | X      |
| 11 | External Data Source Up           |                                                                                                                                                                                                                                              |       | X                       |        |
| 12 | Software Problem                  | Open an incident with support@allot.com for unit with valid maintenance contract                                                                                                                                                             |       |                         | X      |
| 13 | In-line Platform Access Violation | Attempted access from list machines. Too many entries could mean intrusion. Try to connect device's management port to a local network, if it is on a public one.                                                                            |       |                         | X      |
| 14 | Link Down                         | Can be information only as the link may be down administratively or not connected. Otherwise, check physical connectivity of NE or SG.                                                                                                       | X     | X                       | X      |
| 15 | Link Up                           | Information Only – No Action Required                                                                                                                                                                                                        |       |                         |        |
| 16 | Cold Start                        | A cold start event is sent if the SNMP agent process on the SG re-initialized itself or if the platform reboots. Check logs to find out cause. On the SGSV blade, check the nedbg.swKeeper.log. On the CC blade, check the nedbg.prcMngr.log |       |                         | X      |
| 17 | Warm Start (Not In Use)           |                                                                                                                                                                                                                                              |       |                         | X      |
| 18 | Authentication Failure            | Wrong password. Check and enter a valid one.                                                                                                                                                                                                 |       |                         | X      |
| 19 | NetEnforcer IP Address Change     | IP Address of the SG was changed. Make sure that this was intentional                                                                                                                                                                        |       |                         | X      |
| 20 | Connection Routing Configuration  | A change was made in the routing setting                                                                                                                                                                                                     |       |                         | X      |

Appendices

| ID | EVENT                                 | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                                                                                                                                                                                                                          | ALARM | SENT TO EXTERNAL SERVER |        |
|----|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|    |                                       |                                                                                                                                                                                                                                                                                                                                                                                                           |       | AUTO                    | MANUAL |
| 21 | Device Status Down                    | NE or SG is not active. Check logs to identify root cause.                                                                                                                                                                                                                                                                                                                                                | X     | X                       | X      |
| 22 | Device Status Up                      | Information only. No action required.                                                                                                                                                                                                                                                                                                                                                                     |       |                         |        |
| 23 | Application Info                      | Information only. This is an "Application general information trap –with a string of information".<br><br>For example when the NetXplorer tries to send an Invalid Catalog configuration to the SG, the platform will always send an "OK" message even if it cannot accept it for some reason. In this case an alApplicationInfoTrap will be sent explaining why this configuration will not be enforced. | X     | X                       | X      |
| 24 | Protocol Update Installation          | Information only. No action required                                                                                                                                                                                                                                                                                                                                                                      | X     |                         |        |
| 25 | Board Status Changed                  | If an intentional change has been made to the device (e.g: blade inserted or removed) no action is necessary. If no intentional change has been made, analyze current status of all boards from the slots&boards tab of the NX GUI                                                                                                                                                                        | X     |                         | X      |
| 26 | Input optical signal status changed   | A change has been made to the Inbound optical signal. Information only. No action required.                                                                                                                                                                                                                                                                                                               |       |                         | X      |
| 27 | Output optical signal status changed  | A change has been made to the Outbound optical signal. Information only. No action required.                                                                                                                                                                                                                                                                                                              |       |                         | X      |
| 28 | Input frame error rate status changed | A change has been made to the Inbound signal frame error rate. Information only. No action required.                                                                                                                                                                                                                                                                                                      |       |                         | X      |

## Appendices

| ID  | EVENT                                  | DESCRIPTION / RECOMMENDED ACTION                                                                                                                  | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                        |                                                                                                                                                   |       | AUTO                    | MANUAL |
| 29  | Output frame error rate status changed | A change has been made to the Outbound signal frame error rate. Information only. No action required.                                             |       |                         | X      |
| 30  | Link Down                              | The specific link has gone down.                                                                                                                  | X     | X                       | X      |
| 31  | Link Up                                | The specific link has been restored. Information only. No action required.                                                                        |       |                         |        |
| 100 | Server Unreachable                     | No connectivity between NE/SG and NX. Check network communication and make sure all required firewall ports are open (see ATN 1811 for full list) | X     | X                       | X      |
| 101 | Server Reachable                       | Information only. No action required.                                                                                                             |       |                         |        |
| 102 | Device Unreachable                     | NE or SG cannot be pinged. Make sure all required firewall ports are open (see ATN 1811 above for full list)                                      | X     | X                       | X      |
| 103 | Device Reachable                       | Information only. No action required.                                                                                                             |       |                         |        |
| 104 | User Forced Clear                      | Information only. No action required                                                                                                              |       |                         |        |
| 107 | Device Hardware Change                 | A replacement of device is identified. No action required, unless it is not intentional.                                                          |       |                         | X      |
| 108 | User Force Cleared All Alarms          | Information only. No action required.                                                                                                             |       |                         |        |
| 109 | User Logged In                         | Information only. No action required.                                                                                                             |       |                         | X      |
| 110 | User Logged Out                        | Information only. No action required.                                                                                                             |       |                         | x      |
| 111 | Catalogs Synchronization Problem       | Indicates there is a problem with synchronizing the NetXplorer catalogs with the device.                                                          |       |                         | x      |

Appendices

| ID  | EVENT                                                                     | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                                           |                                                                                                                                                                                                 |       | AUTO                    | MANUAL |
| 112 | Catalog Rejected by NetEnforcer                                           | Indicates the catalog has been refused by the NetXplorer.                                                                                                                                       |       |                         | X      |
| 113 | Automatic Alarm Purge                                                     | The server removes all the alarms (e.g: due to SG reboot)                                                                                                                                       |       |                         |        |
| 114 | Policy and Catalogs Export                                                | Information only. No action required.                                                                                                                                                           |       |                         | X      |
| 115 | NetEnforcer Configuration Import                                          | Configuration of policies is being imported from SG to NX DB.                                                                                                                                   |       |                         | X      |
| 116 | Server Management Ownership Taken from Device                             | There is more than one NX managing the device. Make sure you do not add new device on another NX server. (another server added the SG to its DB and the SG is deleted from the current server). | X     | X                       | X      |
| 117 | Server Management Ownership of Device Taken                               | There is mismatch between the device events counter and the server events counter - the server is trying to find the missing events but failed                                                  | X     | X                       | X      |
| 118 | Missing Events Were not Found on Device Trap Table During Synchronization |                                                                                                                                                                                                 |       |                         | X      |
| 119 | Device Add                                                                | Information only. No action required.                                                                                                                                                           |       |                         | X      |
| 120 | License expiration warning                                                | A license expiration warning will appear when your license reaches 70% of its maximum value. Contact <a href="mailto:support@allot.com">support@allot.com</a> for a new NX license              | X     | X                       | X      |
| 121 | License is expired                                                        |                                                                                                                                                                                                 | X     | X                       |        |
| 122 | Server license registered                                                 | Information only. No action required.                                                                                                                                                           | X     | X                       |        |
| 123 | Clear license expiration warning                                          | Information only. This will appear when the licensed parameter returns to under 90% of its maximum value. No action required.                                                                   |       |                         |        |
| 124 | Device policy replaced with rescue policy                                 | Existing policies are refreshed with default one. This can be software related problems.                                                                                                        |       |                         | X      |

Appendices

| ID  | EVENT                                            | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                                            | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                  |                                                                                                                                                                                                                             |       | AUTO                    | MANUAL |
| 125 | Policy data is not synchronized on device        | Save the policy again, to sync it. And remove the alarm from log manually.                                                                                                                                                  |       |                         | X      |
| 126 | AS does not support device software version      | Invalid firmware used on device. Update the firmware to the release supported by the NX server. Consult Allot support for more information, if necessary.                                                                   | X     | X                       | X      |
| 127 | Device was deleted from system                   | If it is not intentional, identify the reason why NE or SG was removed from the NX.                                                                                                                                         |       |                         |        |
| 128 | Collector was deleted from system                |                                                                                                                                                                                                                             |       |                         |        |
| 129 | Catalog Action Failed                            | Information only. No action required.                                                                                                                                                                                       | X     | X                       | X      |
| 130 | Configuration Database Incremental Backup failed | Failure of the backup process                                                                                                                                                                                               |       |                         | X      |
| 131 | Configuration Database Full Backup failed        |                                                                                                                                                                                                                             |       |                         | X      |
| 132 | Country classification file updated              | Information only. No action required.                                                                                                                                                                                       | X     | X                       | X      |
| 133 | New Protocol Updates are Available               | If you have a valid support contract, you can download the new protocol updates to your NetXplorer server and to your device by following the instructions in the NetXplorer Operations Guide (Chapter 4: Service Catalogs) | X     | X                       | X      |
| 134 | Install new protocol updates to AS               | Information only. No action required.                                                                                                                                                                                       | X     | X                       | X      |
| 135 | Install new protocol updates to device           | Information only. No action required.                                                                                                                                                                                       | X     | X                       | X      |

Appendices

| ID  | EVENT                                                | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                                                                                                         | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                      |                                                                                                                                                                                                                                                                                          |       | AUTO                    | MANUAL |
| 136 | Scheduler forced clear alarms                        | Note that all alarms will have been cleared.                                                                                                                                                                                                                                             |       |                         | X      |
| 137 | Device license expiration warning                    | Contact <a href="mailto:support@allot.com">support@allot.com</a> for a new NE or SG license                                                                                                                                                                                              | X     | X                       | X      |
| 138 | Device license is expired                            |                                                                                                                                                                                                                                                                                          | X     | X                       | X      |
| 139 | Clear device license expiration warning              | Information only. No action required.                                                                                                                                                                                                                                                    |       |                         |        |
| 140 | Rollback AS protocol updates                         | Information only. No action required.                                                                                                                                                                                                                                                    | X     | X                       | X      |
| 141 | Rollback device protocol updates                     | Information only. No action required.                                                                                                                                                                                                                                                    | X     | X                       | X      |
| 142 | Asymmetric remote device configuration changed       | A change has been made to the asymmetric traffic configuration. If this change was intentional, no further action is required. If not, check the current asymmetric configuration is as required by right clicking on the device from the NX GUI and selecting 'Asymmetry Configuration' |       |                         | X      |
| 143 | Asymmetric remote device Health Check Status changed |                                                                                                                                                                                                                                                                                          | X     |                         | X      |
| 144 | Blacklist source up                                  | Information only. No action required.                                                                                                                                                                                                                                                    |       |                         |        |
| 145 | Blacklist source down                                | Check communication with the Websafe blacklist files                                                                                                                                                                                                                                     | X     | X                       | X      |
| 146 | Blacklist server status up                           | Information only. No action required.                                                                                                                                                                                                                                                    |       |                         |        |
| 147 | Blacklist server down                                | Check communication with the server from which Websafe blacklist files are downloaded                                                                                                                                                                                                    | X     | X                       | X      |
| 148 | License Warning                                      | The attribute stated in the warning is approaching the limit set by your license. Review your license.                                                                                                                                                                                   | X     | X                       | X      |

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| ID  | EVENT                                      | DESCRIPTION / RECOMMENDED ACTION                                                                                                           | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                            |                                                                                                                                            |       | AUTO                    | MANUAL |
| 149 | License Critical                           | The attribute stated in the warning has reached the limit of your license. Review your license urgently                                    | X     | X                       | X      |
| 150 | Board Temperature Status                   | Check the temperature readings on each of the sensors on the blade, either via the CLIA command or from the Boards&Slots tab on the NX GUI | X     |                         | X      |
| 151 | WebSafe update trap                        | Information only. No action required.                                                                                                      |       |                         | X      |
| 152 | Generic Trap                               | Information only. No action required.                                                                                                      |       |                         | X      |
| 153 | Board status changed extended              | Information only. No action required.                                                                                                      |       |                         | X      |
| 154 | No updated Blacklist file                  | Information only. No action required.                                                                                                      | X     | X                       | X      |
| 155 | Updated Blacklist file                     | Information only. No action required.                                                                                                      |       | X                       |        |
| 156 | Board host activity status changed         | Information only. No action required.                                                                                                      | X     |                         | X      |
| 157 | Integrated Service is Up                   | Information only. No action required.                                                                                                      |       |                         |        |
| 158 | Integrated Service is Down                 | Information only. No action required.                                                                                                      | X     | X                       | X      |
| 159 | Integrated Service Server is Up            | Information only. No action required.                                                                                                      |       |                         |        |
| 160 | Integrated Service Server is Down          | Information only. No action required.                                                                                                      | X     | X                       | X      |
| 161 | Board is up                                | Information only. No action required.                                                                                                      |       |                         |        |
| 162 | Board is down                              | Information only. No action required.                                                                                                      | X     | X                       | X      |
| 163 | Server of Integrated Service is Overloaded | Information only. No action required.                                                                                                      | X     | X                       | X      |

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| ID  | EVENT                                    | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                           | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                          |                                                                                                                                                                                                            |       | AUTO                    | MANUAL |
| 164 | Server of Integrated Service is Up       | Information only. No action required.                                                                                                                                                                      |       |                         |        |
| 165 | Geo Redundancy backup failed             | Information only. No action required.                                                                                                                                                                      | X     | X                       | X      |
| 166 | Geo Redundancy backup resumed            | Information only. No action required.                                                                                                                                                                      |       |                         |        |
| 167 | Facebook Configuration Event             | Information only. No action required.                                                                                                                                                                      |       |                         | X      |
| 168 | Generic Event                            | User definable event, via CLI.                                                                                                                                                                             | X     |                         | X      |
| 169 | NHR HA is up                             | Information only. No action required.                                                                                                                                                                      |       |                         | X      |
| 170 | NHR HA is down                           | Information only. No action required.                                                                                                                                                                      | X     | X                       |        |
| 171 | Integrated Service Server is Up (Ver2)   | Information only. No action required.                                                                                                                                                                      |       |                         | X      |
| 172 | Integrated Service Server is Down (Ver2) | Information only. No action required.                                                                                                                                                                      | X     | X                       |        |
| 173 | External Data Source Down (Ver 2)        | Information only. No action required.                                                                                                                                                                      | X     | X                       |        |
| 174 | External Data Source Up (Ver 2)          | Information only. No action required.                                                                                                                                                                      |       |                         | X      |
| 200 | Collector Reported Device Unreachable    | Data Collector cannot ping / access the SG for short term data collection. Check network, possible firewall and ACL rules.                                                                                 | X     | X                       | X      |
| 201 | Collector Reported Device Reachable      | Information only. No action required.                                                                                                                                                                      |       |                         |        |
| 202 | Invalid Bucket Time in Collector         | Time on SG and NX/Data Collector is not synchronized. Make sure you set the SG's time, Data Collector's time and NX's time and they are the same. May require to reboot the device and/or Data Collectors. | X     | X                       | X      |

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| ID  | EVENT                                               | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                                                                                                                    | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                     |                                                                                                                                                                                                                                                                                                     |       | AUTO                    | MANUAL |
| 203 | Valid Bucket Time in Collector                      | Information only. No action required                                                                                                                                                                                                                                                                |       |                         |        |
| 204 | Invalid Bucket in Collector                         | The bucket collected from the device was invalid in some way. This could be due to an incorrect sequence number. Normally it means this bucket was discarded so there will be a certain loss of data.                                                                                               |       |                         | X      |
| 205 | Real Time Bucket Overload in Collector              | There is high load on the server and the DB isn't able to handle all the buckets (for example weak server with a lot of devices). As a result there may be some data missing from graphs. If problem persists open a support incident with <a href="mailto:support@allot.com">support@allot.com</a> |       |                         | X      |
| 206 | Short-term Bucket Overload in Collector             | There is high load on the server and the DB isn't able to handle all the buckets (for example weak server with a lot of devices). As a result there may be some data missing from graphs. If problem persists open a support incident with <a href="mailto:support@allot.com">support@allot.com</a> |       |                         | X      |
| 207 | Bucket Validated in Collector                       | End of bucket overload. No action required.                                                                                                                                                                                                                                                         |       |                         |        |
| 208 | Invalid Bucket Time in Collector                    | Time on SG and NX/Data Collector is not synchronized. Make sure you set SG, Data Collector and NX to the same time. May require to reboot the SG and/or Data Collectors                                                                                                                             | X     | X                       | X      |
| 209 | Valid Bucket Time in Collector                      | Information only. No action required.                                                                                                                                                                                                                                                               |       |                         |        |
| 210 | Real Time + Short-term Bucket Overload in Collector | There is high load on the server and the DB isn't able to handle all the buckets (for example weak server with a lot of devices)                                                                                                                                                                    |       |                         | X      |
| 211 | Bucket Overload in Collector Finished               | Information only. No action required.                                                                                                                                                                                                                                                               |       |                         |        |
| 212 | Collector Reported Disk Space Problem               | Not enough free space on the ST Collector hard disk. (less than 10%)                                                                                                                                                                                                                                | X     | X                       | X      |
| 213 | Collector Reported Disk Space Problem Fixed         | Information only. No action required.                                                                                                                                                                                                                                                               |       |                         |        |

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| ID  | EVENT                                                         | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                               |                                                                                                                                                                                 |       | AUTO                    | MANUAL |
| 214 | Short Term Collector Reported Database Full Backup failed     | STC database incremental backup failed.                                                                                                                                         |       |                         | X      |
| 300 | Long Term Collector Reported Short Term Collector Unreachable | Long term data collection process cannot gather from the short term database. If data collector is installed, check NX to data collector connectivity.                          | X     | X                       | X      |
| 301 | Long Term Collector Reported Short Term Collector Reachable   | Information only. No action required.                                                                                                                                           |       |                         |        |
| 302 | Invalid Bucket Time in Collector                              | Information only. No action required.                                                                                                                                           | X     | X                       | X      |
| 303 | Valid Bucket Time in Collector                                | Information only. No action required.                                                                                                                                           |       |                         |        |
| 304 | Long Term Collector Reported Disk Space Problem               | Not enough free space on the LT Collector hard disk. (less than 10%)                                                                                                            | X     | X                       | X      |
| 305 | Long Term Collector Reported Disk Space Problem Fixed         | Information only. No action required.                                                                                                                                           |       |                         |        |
| 306 | Long Term Collector Reported Database Full Backup failed      | Information only. No action required.                                                                                                                                           |       |                         | X      |
| 401 | Quota violation                                               | A subscriber has used all of his quota. In most cases, this event is for information only and no action is required.                                                            |       |                         | X      |
| 402 | Quota recovery                                                | A subscriber was in violation of his quota, but now the quota cycle is over and his quota has been reset. In most cases, this event is for information only. No action required |       |                         |        |

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| ID  | EVENT                       | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                                                                               | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                             |                                                                                                                                                                                                                                                                |       | AUTO                    | MANUAL |
| 403 | Domain not found            | A particular subscriber has been allocated an IP which doesn't fall into a predefined domain. Check the IP that has been allocated to this subscriber and decide if you wish to extend an existing domain or create an additional one to cover this IP address |       |                         | X      |
| 404 | SMP provision error trap    | Review the details of the event and fix the provisioning error using tools presented in the troubleshooting section of the SMP User Guide.                                                                                                                     |       |                         | X      |
| 405 | SMP multi fail trap         |                                                                                                                                                                                                                                                                |       |                         | X      |
| 406 | SMP High Availability Trap  | Troubleshoot the high availability platform using tools presented in the troubleshooting section of the SMP User Guide.                                                                                                                                        |       |                         | X      |
| 407 | SMP System Trap             | This communication trap is now deprecated.                                                                                                                                                                                                                     |       |                         | X      |
| 408 | SMP provisioning error trap | This trap is sent when a provisioning error occurs.                                                                                                                                                                                                            |       |                         | X      |
| 409 | SMP multi fail trap         | This trap is sent whenever the same provision errors are received for multiple subscribers. It includes the following details: <ul style="list-style-type: none"> <li>• Initiating Process</li> <li>• Fail Cause</li> </ul>                                    |       |                         | X      |
| 410 | SMP system trap             | This communication trap is now deprecated                                                                                                                                                                                                                      |       |                         | X      |
| 411 | SMP net aware trap          | This trap is sent upon cell congestion or when congestion in a cell is cleared                                                                                                                                                                                 |       |                         | X      |

| ID  | EVENT                                    | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                                                                                                                                                                                                                                                                                     | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | AUTO                    | MANUAL |
| 412 | SMP provisioning error trap Ipv6         | <p>This trap is sent whenever the SMP server fails to provision a particular subscriber. The details included in the trap are:</p> <ul style="list-style-type: none"> <li>• Initiating Process</li> <li>• Provisioning Type</li> <li>• Fail Cause</li> <li>• Subscriber Name</li> <li>• Subscriber IP</li> <li>• Subscriber IPv6 Address</li> <li>• Subscriber IPv6 Prefix</li> </ul> <p>This trap replaces the now deprecated SMP provision error trap (ID 404)</p> | X     |                         | X      |
| 413 | SMP lost connection with PCRF            | This trap is sent to indicate that the SMP has lost connection with the PCRF                                                                                                                                                                                                                                                                                                                                                                                         | X     |                         | X      |
| 414 | SMP reestablished connection with PCRF   | This "clear" trap is sent to indicate that the SMP has re-established its connection with the PCRF                                                                                                                                                                                                                                                                                                                                                                   |       |                         |        |
| 415 | SMP lost connection with OCS             | This trap is sent to indicate that the SMP has lost connection with the OCS                                                                                                                                                                                                                                                                                                                                                                                          | X     |                         | X      |
| 416 | SMP reestablished connection with OCS    | This "clear" trap is sent to indicate that the SMP has re-established its connection with the OCS                                                                                                                                                                                                                                                                                                                                                                    |       |                         |        |
| 417 | Domain Controller connection lost        | This trap is sent to indicate that the SMP has lost connection with the Domain Controller                                                                                                                                                                                                                                                                                                                                                                            | X     | X                       | X      |
| 418 | Domain Controller connection established | This "clear" trap is sent to indicate that the SMP has re-established its connection with the Domain Controller                                                                                                                                                                                                                                                                                                                                                      |       |                         |        |
| 419 | SMP FUP connection established           | This trap is sent to indicate that the SMP has lost its FUP connection with the indicated device                                                                                                                                                                                                                                                                                                                                                                     | X     | X                       | X      |

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| ID  | EVENT                                            | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                                | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                  |                                                                                                                                                                                                 |       | AUTO                    | MANUAL |
| 420 | SMP FUP connection lost                          | This "clear" trap is sent to indicate that the SMP has re-established its FUP connection with the indicated device                                                                              |       |                         |        |
| 450 | DM Copy To Failure Up trap                       | This trap is sent whenever a file push failed. The alarm is raised provided that a configured interval has passed since the last time a copytofailure alarm was raised towards the same target. | X     | X                       | X      |
| 451 | DM Record Rate Up trap                           | This trap is sent if the rate of CDRs processed per second passes the configured threshold for each interval.                                                                                   | X     | X                       | X      |
| 452 | DM Record Rate Down trap                         | This trap is sent if the rate of CDRs processed per second returns to below the configured threshold for each interval.                                                                         |       | X                       |        |
| 453 | DM Copy To Failure Down trap                     | This trap is sent if there was a failure to push a file to the target host. The trap will include the failed target host.                                                                       |       | X                       |        |
| 454 | DM Get File Failure Up trap                      | This trap is sent if the "get file" operation from the SG failed. The trap will include the relevant SG and the relevant filename.                                                              | X     | X                       | X      |
| 500 | Disk Storage Trap                                | Check the hardware status                                                                                                                                                                       | X     | X                       | X      |
| 600 | Reaching 70 percents storage utilization Up trap | This trap is sent if storage utilization reaches 70%, until it reaches 80%.                                                                                                                     | X     | X                       | X      |
| 601 | Storage Utilization above 70 percents Down trap  | This trap is sent if storage utilization drops below 70%.                                                                                                                                       |       |                         |        |
| 602 | Reaching 80 percents storage utilization Up trap | This trap is sent if storage utilization reaches 80%, until it reaches 90%.                                                                                                                     | X     | X                       | X      |

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| ID  | EVENT                                            | DESCRIPTION / RECOMMENDED ACTION                                                                                                                                                      | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                  |                                                                                                                                                                                       |       | AUTO                    | MANUAL |
| 603 | Storage Utilization above 80 percents Down trap  | This trap is sent if storage utilization drops below 80%.                                                                                                                             |       |                         |        |
| 604 | Reaching 90 percents storage utilization Up trap | This trap is sent if storage utilization reaches 90%.                                                                                                                                 | X     | X                       | X      |
| 605 | Storage Utilization above 90 percents Down trap  | This trap is sent if storage utilization drops below 90%.                                                                                                                             |       |                         |        |
| 606 | DM Communication Loss Up trap                    | This trap is sent immediately if a communication loss is detected with the DM, whether for communication issues or the DM is down.                                                    | X     | X                       | X      |
| 607 | DM Communication Loss Down trap                  | This trap is sent after communication is reestablished with the DM, which is determined by five minutes without communication loss.                                                   |       |                         |        |
| 608 | No Data Uploaded Up trap                         | This trap is sent if no data is uploaded to ClearSee for three consecutive intervals. ClearSee finds files but fails to extract/copy them, for example, on account of an FTP problem. | X     | X                       | X      |
| 609 | No Data Uploaded Down trap                       | This trap is sent after data is uploaded again to ClearSee for three consecutive intervals.                                                                                           |       |                         |        |
| 610 | Over 30 percents Total Corrupted files           | This trap is sent if over 30% of the incoming files since the last interval are corrupted.                                                                                            | X     | X                       | X      |
| 611 | Total Corrupted files below 30 percents          | This trap is sent if the number of corrupted incoming files falls below 30%.                                                                                                          |       |                         |        |
| 612 | BI Failover Occurred                             | This trap is sent upon the event of a failover, which is when a unit changes HA status from passive to active. Applicable for BI only.                                                | X     | X                       | X      |
| 613 | Passive BI is Up Event                           | This trap is sent by the active unit when it connects to a passive unit in HA mode. Applicable for BI only.                                                                           |       |                         |        |

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| ID  | EVENT                                              | DESCRIPTION / RECOMMENDED ACTION                                                                     | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|----------------------------------------------------|------------------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                    |                                                                                                      |       | AUTO                    | MANUAL |
| 614 | Failure to push configuration                      | This trap is sent when the device configuration is not successfully pushed to the relevant platform. | X     | X                       | X      |
| 615 | Push configuration succeed                         | Information only. No action required.                                                                |       |                         |        |
| 616 | BI cluster servers are out of sync                 | Information only. No action required.                                                                | X     | X                       | X      |
| 617 | BI servers are now in-sync                         | Information only. No action required.                                                                |       |                         |        |
| 618 | ClearSee Reports are unavailable                   | Information only. No action required.                                                                | X     | X                       | X      |
| 619 | ClearSee Reports are now available                 | Information only. No action required.                                                                |       |                         |        |
| 620 | ClearSee Reports High-Availability is down         | Information only. No action required.                                                                | X     | X                       | X      |
| 621 | ClearSee Reports High-Availability restored        | Information only. No action required.                                                                |       |                         |        |
| 622 | ClearSee system is down                            | Information only. No action required.                                                                | X     | X                       | X      |
| 623 | ClearSee system active                             | Information only. No action required.                                                                |       |                         |        |
| 624 | ClearSee Data-Warehouse High-Availability is down  | Information only. No action required.                                                                | X     | X                       | X      |
| 625 | ClearSee Data-Warehouse High-Availability restored | Information only. No action required.                                                                |       |                         |        |
| 626 | ClearSee system-wide High-Availability is down     | Information only. No action required.                                                                | X     | X                       | X      |

Appendices

| ID  | EVENT                                           | DESCRIPTION / RECOMMENDED ACTION                                                           | ALARM | SENT TO EXTERNAL SERVER |        |
|-----|-------------------------------------------------|--------------------------------------------------------------------------------------------|-------|-------------------------|--------|
|     |                                                 |                                                                                            |       | AUTO                    | MANUAL |
| 627 | ClearSee system-wide High-Availability restored | Information only. No action required.                                                      |       |                         |        |
| 628 | ClearSee system is down                         | Information only. No action required.                                                      | X     | X                       | X      |
| 629 | ClearSee system active                          | Information only. No action required.                                                      |       |                         |        |
| 630 | ClearSee system - file backlog occurred         | This trap is sent when reports are not able to be generated due to a file backlog.         | X     | X                       | X      |
| 631 | ClearSee system - file backlog cleared          | Information only. No action required.                                                      |       |                         |        |
| 632 | ClearSee system - aggregation backlog occurred  | This trap is sent when reports are not able to be generated due to an aggregation backlog. | X     | X                       | X      |
| 633 | ClearSee system - aggregation backlog cleared   | Information only. No action required.                                                      |       |                         |        |
| 634 | ClearSee system - connection to CDC lost        | Information only. No action required.                                                      | X     | X                       | X      |
| 635 | ClearSee system - connection to CDC is up       | Information only. No action required.                                                      |       |                         |        |

## 10.3 Appendix C: NX IP Address for UI Script

The **set\_nx\_ip4ui.sh** (Linux) or **set\_nx\_ip4ui.bat** (Windows) script is located in the /opt/allot/bin directory. The script can be used in either of the circumstances listed below:

- Changing the NetXplorer IP address (before NX operation)
- Selecting a NetXplorer IP address from multiple IPs (to be used by GUI)

### 10.3.1 Changing the NetXplorer IP Address

The script can be used where the IP address of a NetXplorer server needs to be changed after the NetXplorer software has been installed, but before the NetXplorer is operational. A typical example of such a need is when NX-SRV has been purchased (NetXplorer software pre-installed on a dedicated IBM server). NX-SRV is shipped with a default IP address of 11.11.11.1. After changing the IP address at a Linux level, the customer will need to run the **set\_nx\_ip4ui.sh** script in order to bind the new IP address.

**Note:** If you wish to change the IP address of a NetXplorer server *after* the NetXplorer has become operational, contact [support@allot.com](mailto:support@allot.com)

### 10.3.2 Selecting a NetXplorer IP Address for the GUI

In cases where the NetXplorer has been defined with multiple IP addresses (e.g: multiple network interfaces or multiple addresses on the same interface), the NX GUI (from NX11.1) can communicate with the NX Server over only one of these.

The customer will need to run the **set\_nx\_ip4ui** script in order to select the required IP address.

**Note:** After installing NX-HAP, the script needs to be run on each NX node and the Virtual IP address of the NX-HAP should be chosen.

### 10.3.3 Running the Script

Run the script from its location and follow the on-screen prompts. You will be asked to enter the IP address that the NX GUI should communicate to the server over. The script then updates the NetXplorer configuration files accordingly.

Once the procedure is completed, the NetXplorer service should be restarted.

## 10.4 Appendix D: Using the BMC

The Baseboard Management Controller (BMC) is provided with every Allot appliance based on Lenovo Gen 6 hardware that is shipped from Allot.

The module enables an administrator to connect remotely as if connecting locally via a console connection.

The BMC interface on the rear of the NX-SRV appliance is detailed below



**Figure 10-5: Connection to the BMC on the rear of the SR630 Server**

### 10.4.1 Home

The screenshot shows the XClarity Controller Home screen for a ThinkSystem SR630 server. The left sidebar includes links for Home, Events, Inventory, Utilization, Remote Console, Firmware Update, Server Configuration, and BMC Configuration. The main area is divided into several sections:

- Health Summary:** Shows Active System Events (2) and status for CPU, Memory, Local Storage, PCI, Power Supply, Fan, System Board, and Others.
- System Information and Settings:** Displays the server's name (ThinkSystem SR630), power status (Power Off), machine type (TX02CTO1WW), serial number (S4ASL780), and various configuration parameters like BMC IP Address, Hostname, and Version.
- Quick Actions:** Includes Power Action, Location LED Off, and Service.
- Power Utilization:** Shows power consumption (15W Input, 12W Output) and distribution by component (CPU, Memory, Others).
- System Utilization:** Shows CPU, Memory, I/O, and System utilization.
- Temperature:** Displays temperatures for CPU1 (33 °C) and CPU2 (34 °C).
- Remote Console Preview:** Shows a thumbnail of the remote console interface with options to Capture Screen, Settings, Recorded Videos, and Latest Failure Screen.

**Figure 10-6: BMC, System Status Screen**

Open the Home screen to view the status of the server that you are accessing.

From the Home pages, you can:

- Monitor the power status of the server and view the state of the operating system
- View the server temperature readings, voltage thresholds, and fan speeds
- View the latest server operating-system-failure screen capture

From the Event Log page, you can:

- View certain events that are recorded in the event log of the IMM
- View the severity of events

## 10.4.2 BMC Configuration

Use the links under BMC Configuration in the toolbar to configure the BMC.

From the Users page, you can:

- Set login profiles to control access to the IMM
- Configure global login settings, such as the lockout period after unsuccessful login attempts
- Configure the account security level

From the Network page, you can set up the Ethernet connection for the IMM and you can configure:

- SNMP setup
- DNS setup
- SSH protocol
- SMTP setup
- LDAP setup
- Service location protocol

From the Security page, you can install and configure the Secure Sockets Layer (SSL) settings.

From the Backup and Restore page, you can back up, modify, and restore the configuration of the BMC.

**Note:** **Restarting the BMC or changing BMC configuration does not involve the server operating system or functionality. The server continues to run as is.**

## 10.5 Appendix E: Using the IMM

The Integrated Management Module (IMM) is provided with every Allot appliance based on Gen 5 IBM/Lenovo hardware that is shipped from Allot.

The module enables an administrator to connect remotely as if connecting locally via a console connection.

The IMM interface on the rear of the NX-SRV appliance is detailed below



**Figure 10-7: Connection to the IMM on the rear of the M5 Server**

Once Configured, IMM functions are divided into five groups; System Status, Events, Service and Support, Server Management and IMM Management. These groups can be accessed from the Menu bar of the IMM Interface.

### 10.5.1 System Status

| Severity | Source | Date                         | Message                                      |
|----------|--------|------------------------------|----------------------------------------------|
| Error    | Power  | 27 Apr 2017, 07:29:57.618 PM | Redundancy Lost for Power Unit has asserted. |

| Component Type  | Status   |
|-----------------|----------|
| Cooling Devices | Normal   |
| Power Modules   | Critical |
| Local Storage   | Normal   |
| Processors      | Normal   |
| Memory          | Normal   |
| System          | Normal   |

**Figure 10-8: IMM, System Status Screen**

Open the System Status screen to view the status of the server that you are accessing.

From the System Status pages, you can:

- Monitor the power status of the server and view the state of the operating system
- View the server temperature readings, voltage thresholds, and fan speeds
- View the latest server operating-system-failure screen capture

From the Event Log page, you can:

- View certain events that are recorded in the event log of the IMM
- View the severity of events

## 10.5.2 Server Management

Use the functions under the Server Management menu item to directly control the actions of the IMM and your server. The tasks that you can perform depend on the server in which the IMM is installed.

You can perform the following tasks:

- View server power and restart activity
- Remotely control the power status of the server
- Remotely access the server console, as if you are located near the server itself with console cable connected to it
- Remotely attach a disk or disk image to the server, via the remote connection

**Note:** When you are performing an action that requires large amount of bandwidth between the IMM and the server please verify that you have enough bandwidth available.

## 10.5.3 IMM Management

Use the links under IMM Management in the toolbar to configure the IMM.

From the Users page, you can:

- Set login profiles to control access to the IMM
- Configure global login settings, such as the lockout period after unsuccessful login attempts
- Configure the account security level

From the Alerts page, you can:

- Configure remote alert recipients
- Set the number of remote alert attempts
- Select the delay between alerts

- Select which alerts are sent and how they are forwarded

From the IMM Properties page, you can:

- Configure the baud rate of serial port 2 (COM2) for serial redirection
- Specify the keystroke sequence that is used to switch between the serial redirection and the command-line interface (CLI)
- Change the port numbers of IMM services.

From the Network page, you can set up the Ethernet connection for the IMM and you can configure:

- SNMP setup
- DNS setup
- SSH protocol
- SMTP setup
- LDAP setup
- Service location protocol

From the Security page, you can install and configure the Secure Sockets Layer (SSL) settings.

From the IMM Configuration page, you can back up, modify, and restore the configuration of the IMM.

From the Reset IMM to Factory Defaults page, you can reset the IMM configuration to the factory defaults.

From the Restart IMM page, you can restart the IMM.

**Note: Restarting the IMM or changing IMM configuration does not involve the server operating system or functionality. The server continues to run as is.**

## 10.6 Appendix F: GEO Redundancy

Geo Redundancy is Allot's management service disaster recovery plan, providing service continuity for NetXplorer. NetXplorer is deployed in at least two sites, one active and one backup. In the event of a disaster, you can manually switch to the backup NetXplorer.

With Geo Redundancy we're adding protections to prevent situations in which two NXs are active.

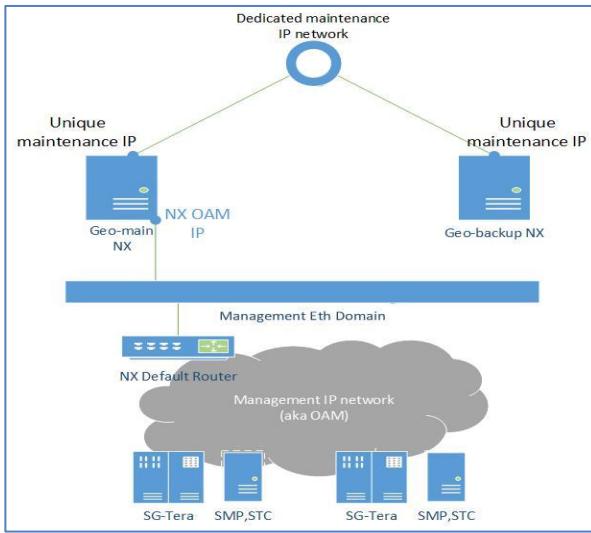
### 10.6.1 Geo Redundancy Requirements

- The NX at the first site is active and connected to the network at all times.
- The NX at the second site is connected to a backup network only for synchronization, and not connected to network at all.
- Both NX installations must have the same IP address.
- When one site is active the other NX will not be able to become active (if you connect both to network)
- Only the CFG log is backed up, once an hour

### 10.6.2 Geo Redundancy Architecture

NetXplorer is installed at more than one NetXplorer site, in different geographic locations. Each site is configured as a HAP, with a pair of nodes. One site is active, called Geo-Main, and the other, called Geo-Backup, is backup and waiting to take over.

Both Geo-Main and Geo-Backup are connected to a dedicated maintenance network, called the Geo-Backup network, and have the same IP address. Only a single site may be connected to the Management IP network at any given time, and, before an incident, this is the Geo-Main site.



**Figure 10-9: Geo Redundancy Architecture**

To maintain a recent configuration, a full configuration database (CDB) backup is transferred over Geo-Backup network to the backup site daily, and an incremental backup is transferred hourly.

### 10.6.3 Connectivity

For redundancy, each network connection is supported by two network cards. Each server must connect to the Management IP network, to the other server in the HAP network and to the Geo-Backup network. Therefore, six network cards should be installed on each host prior to system installation.

The following scheme shows the network connectivity to set up Geo Redundancy:

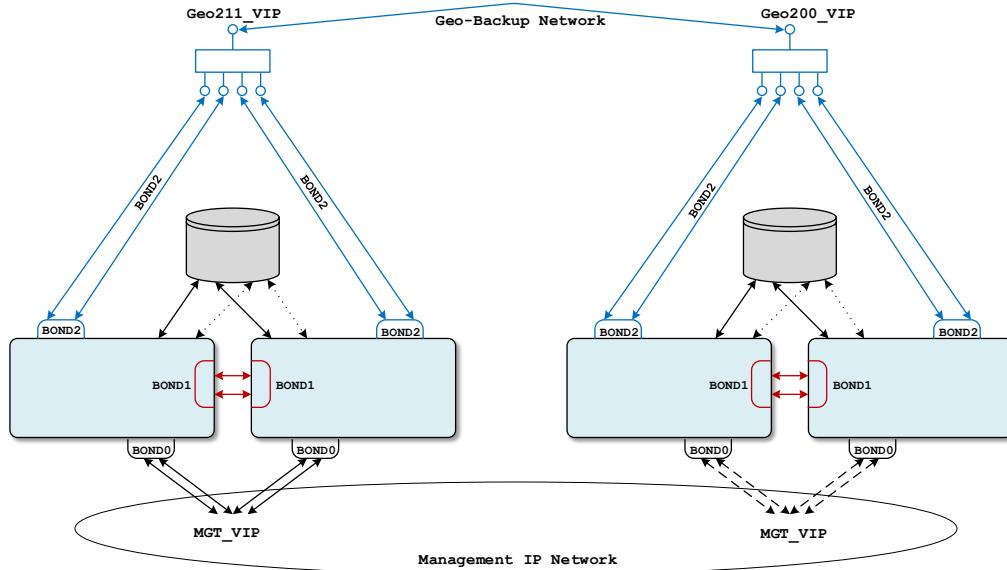


Figure 10-10: Geo Redundancy Connectivity

Bond connectivity is as follows:

- **BOND0:** Connected to the Management IP network, the NetXplorer HAP VIP must belong to the same network as these IPs.
- **BOND1:** Connected to the appropriate ports on the node pair. The IP address of bond1 is configured to 192.168.168.2.
- **BOND2:** Connected to the Geo-Backup network, the Geo-Backup VIP should belong to the same network as these IPs, which are defined in the course of Geo Redundancy Configuration.

#### 10.6.4 Site Mode Configuration

There are three different modes of site operation, and each NetXplorer site must be configured in one of the following modes:

- **Disabled:** Geo-Redundancy is disabled at this site. This is a regular NetXplorer HA system.
- **Geo-Main:** This is the active site. Copy CFG DB updates to the Geo-Backup site via Geo-Backup-Network.
- **Geo-Backup:** This is the backup site. NX is not running, the site receives CFG DB updates from the Geo-Main site via Geo-Backup network.

Both nodes in the HAP must be in the same Geo Redundancy mode, one active and one passive.

## 10.6.5 Configuration

For details see appropriate Allot installation manual for each step.

The Geo Redundancy configuration script is **Allot\_NX\_GeoSetup.sh**, which is located in the **/opt/allot/conf/ha** folder. The user, as root, runs the script on all servers (Primary and Secondary) on both sites (Geo-Backup and Geo-Main).

To install the Geo Redundancy feature:

1. Do the following:
  - ◆ Upgrade all the servers to 14.5.210 or later.
  - ◆ Verify that the NetXplorer HAP system is configured at both sites.
  - ◆ Verify the configuration of the virtual IP at each site connecting to the Management IP network.
  - ◆ Verify that all servers at both sites are up and connected to the Geo-Backup network.

Note: **The next steps must be done in the correct order, starting with the Geo-Backup Secondary server. To verify that you are on the Geo-Backup Secondary server, run the *ifconfig* command, which yields a list of the bonds and their IP addresses. The IP address of Bond 1 is 192.168.168.2.**

2. On the Geo-Backup Secondary server, do the following:

- ◆ Run the Geo Redundancy configuration script:

**opt/allot/conf/ha/Allot\_NX\_GeoSetup.sh**

The following menu appears, enabling you to change configuration parameters:

```
~~~~~
Geo Redundancy Configuration Menu
~~~~~

Secondary host
~~~~~
1. Geo Status [En/Dis] = Disabled
2. Geo Mode [Main/Backup] = Backup

9. Run Geo configuration
Enter choice [1 - 10] :
```

- ◆ Enter **1** for **Geo Status**, and then, when prompted, enter **Enabled**.
- ◆ Enter **2** for **Geo Mode**, and then, when prompted, enter **Backup**.
- ◆ Enter **9** to run the Geo Redundancy configuration script.

3. On the Geo-Backup Primary server, do the following:

- ◆ Run the Geo Redundancy configuration script:  
**opt/allot/conf/ha/Allot\_NX\_GeoSetup.sh**  
The configuration menu appears, enabling you to change configuration parameters.
- ◆ Enter **1** for **Geo Status**, and then, when prompted, enter **Enabled**.
- ◆ Enter **2** for **Geo Mode**, and then, when prompted, enter **Backup**.
- ◆ Enter **3** for **GeoBackup-VIP**, and then, when prompted, enter the virtual IP of the Geo-Backup network.
- ◆ Enter **4** for **GeoBackup-IP1**, and then, when prompted, enter the IP of the Geo-Backup Primary server.
- ◆ Enter **5** for **GeoBackup-IP2**, and then, when prompted, enter the IP of the Geo-Backup Secondary server.
- ◆ Enter **6** for **Geo-NETMASK**, and then, when prompted, enter the Geo-Backup-Network netmask, in the following format:  
**255.xxx.xxx.xxx**
- ◆ Enter **9** to run the Geo Redundancy configuration script.  
The script proceeds with a few questions.
- ◆ Complete the questions as follows:

```
...Overwrite (y/n)? ENTER
Are you sure you want to continue connecting (yes/no)? yes
```

Note: **During the transfer you will be requested to enter the root password several times.**

4. On the Secondary Geo-Main server, and then on the Primary Geo-Main server, do the following:
  - ◆ Run the Geo Redundancy configuration script:  
**opt/allot/conf/ha/Allot\_NX\_GeoSetup.sh**  
The configuration menu appears, enabling you to change configuration parameters.
  - ◆ Enter **1** for **Geo Status**, and then, when prompted, enter **Enabled**.
  - ◆ Enter **2** for **Geo Mode**, and then, when prompted, enter **Main**.
  - ◆ Enter **3** for **GeoBackup-VIP**, and then, when prompted, enter the virtual IP of the Geo-Backup network.
  - ◆ Enter **4** for **GeoBackup-IP1**, and then, when prompted, enter the IP of the Geo-Backup Primary server.

- ◆ Enter **5** for **GeoBackup-IP2**, and then, when prompted, enter the IP of the Geo-Backup Secondary server.
- ◆ Enter **6** for **Geo-NETMASK**, and then, when prompted, enter the Geo-Backup-Network netmask, in the following format:  
**255.xxx.xxx.xxx**
- ◆ Enter **7** for **BOND2-IP**, and then, when prompted, enter the IP of Bond2.
- ◆ Enter **9** to run the Geo Redundancy configuration script.  
The script generates the SSH-key and proceeds with a few questions.
- ◆ Complete the questions as follows:

```
...Overwrite (y/n)? ENTER
Are you sure you want to continue connecting (yes/no)? yes
```

Note: **During the transfer you will be requested to enter admin password several times.**

From this point onward, Geo Redundancy backs up the new Geo-Main server every 45 minutes into every hour.

Note: **If the Geo-Main site was installed before the Geo-Backup site, or if the SSH-key transfer fails for any other reason, then the Allot\_NX\_GeoSetup.sh script should be run again using option 8 in the menu. This installs the SSH-key on the Geo-Backup servers.**

## 10.6.6 Switching to the Geo-Backup Site

In the event of a disaster in which the Geo-Main servers have been knocked out or compromised, you can manually switch, via the CLI, to the Geo-Backup servers.

To switch to the backup NetXplorer:

1. Connect the backup servers to the Management Network.
2. Change the mode of the backup servers from Geo-Backup to Geo-Main, according to the following order:
  - ◆ The current Secondary Geo-Backup server
  - ◆ The current Primary Geo-Backup server

### Connecting to the Management Network

Before changing the site mode of the backup NetXplorer servers from Geo-Backup to Geo-Main, you must connect the backup servers to the Management Network.

3. On the servers that are currently Geo-Backup, perform a database restore, so that the full configuration database (CDB) and incremental database become the active database.

4. Verify that the original Geo-Main servers are disconnected from the Management Network.
5. Physically connect the servers that are currently Geo-Backup to the Management Network.

## Changing Mode to Main

This procedure must be performed only after you have connected to the management network as described above. The secondary server remains secondary, and the primary remains primary.

To change the site mode of the backup servers from Geo-Backup to Geo-Main, do the following, first on the server that is currently the Secondary Geo-Backup server, and then on the server that is currently the Primary Geo-Backup server:

1. Run the script:

**opt/allot/conf/ha/Allot\_NX\_GeoSetup.sh**

The script proceeds with the following:

```
This is GeoBackup site.
Do you want to Convert it to GeoMain site (y/n) ? : y
```

2. Enter **y**.

The configuration menu appears, enabling you to change configuration parameters.

3. From the menu, enter all of the relevant parameters for the Secondary Geo-Main site, as follows:
  - ◆ Enter **1** for **Geo Status**, and then, when prompted, type **Enabled**.
  - ◆ Enter **2** for **Geo Mode**, and then, when prompted, type **Main**.
  - ◆ Enter **3** for **GeoBackup-VIP**, and then, when prompted, enter the virtual IP of the Geo-Backup network.
  - ◆ Enter **4** for **GeoBackup-IP1**, and then, when prompted, enter the IP of the Geo-Backup Primary server.
  - ◆ Enter **5** for **GeoBackup-IP2**, and then, when prompted, enter the IP of the Geo-Backup Secondary server.
  - ◆ Enter **6** for **Geo-NETMASK**, and then, when prompted, enter the Geo-Backup-Network netmask, in the following format:  
**255.xxx.xxx.xxx**
  - ◆ Enter **7** for **BOND2-IP**, and then, when prompted, enter the IP of Bond2.

- ◆ Enter 9 to run the Geo Redundancy configuration script.

The script proceeds with a few questions.

- ◆ Complete the questions as follows:

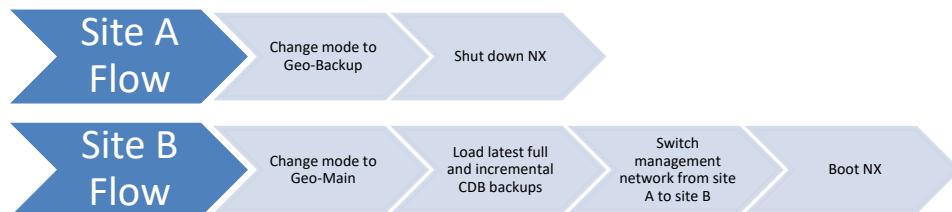
```
...Overwrite (y/n)? ENTER
Are you sure you want to continue connecting (yes/no)? yes
```

Note: **During the transfer you will be requested to enter admin password several times.**

From this point onward, Geo Redundancy backs up the new Geo-Main server every 45 minutes into every hour, even if there is currently no Geo-Backup server to receive it.

## 10.6.7 Recovery Workflow

When you switch the Geo-Main NetXplorer site to the Geo-Backup site, the following occurs:



## 10.7 Appendix G – Server Hardware Specifications

The Servers provided by Allot with purchase of the NX, NX-HAP, NX-HAP (DC), STC, Extended STC and ASRA Server adhere to the following specifications:

### 10.7.1 NX

Hardware specifications for a standalone NX Server.

#### P/N SNX-SRV

|                     |                                                     |
|---------------------|-----------------------------------------------------|
| Power Supply        | ThinkSystem x 750W Hotswap Platinum AC Power Supply |
| Network Connections | RJ45                                                |

|        |                                                    |
|--------|----------------------------------------------------|
| CPU    | 1 x Intel Xeon Silver 4214                         |
| SSDs   | 2 x 480GB 2.5" 5200 SATA 6GB Hotswap               |
| Memory | 2 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM |

**P/N SNX-SRV-DC**

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Power Supply        | ThinkSystem x 48VDC Power Supply                   |
| Network Connections | RJ45                                               |
| CPU                 | 1 x Intel Xeon Silver 4214                         |
| SSDs                | 2 x 480GB 2.5" 5200 SATA 6GB Hotswap               |
| Memory              | 2 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM |

**P/N SNX-SRV-GEN5**

|                     |                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 750W High Efficiency Platinum AC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                           |
| CPU                 | IBM Xeon E5 2620                                                                                                               |
| HDDs                | 4 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                                    |
| Memory              | 4 x 8GB (32GB total) TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                               |
| Dimensions          | Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)                                                       |
| Heat Dissipation    | Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)                               |

**P/N SNX-SRV-GEN5-DC**

|                     |                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 900W High Efficiency -48 V DC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                        |
| CPU                 | IBM Xeon E5 2620                                                                                                            |
| HDDs                | 4 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                                 |
| Memory              | 4 x 8GB (32GB total) TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                            |
| Dimensions          | Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)                                                    |
| Heat Dissipation    | Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)                            |

**10.7.2 NX-HAP**

Hardware specifications for an NX Server in a High Availability configuration.

**P/N SNX-SRV-HAP**

|                     |                                                     |
|---------------------|-----------------------------------------------------|
| Power Supply        | ThinkSystem x 750W Hotswap Platinum AC Power Supply |
| Network Connections | RJ45                                                |
| CPU                 | 2 x Intel Xeon Silver 4214                          |
| SSDs                | 2 x 480GB 2.5" 5200 SATA 6GB Hotswap                |
| Memory              | 4 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM  |

**P/N SNX-SRV-HAP-GEN6-XL**

This HAP deployment comes with 2 NX-HAP servers, two LTC-HAP servers and a Storage server for each pair.

**NX and LTC Servers**

|              |                                                                  |
|--------------|------------------------------------------------------------------|
| Power Supply | 2 x ThinkSystem 1100W (230V/115V) Platinum Hot-Swap Power Supply |
|--------------|------------------------------------------------------------------|

## Appendices

|        |                                                              |
|--------|--------------------------------------------------------------|
| CPU    | 2 x Intel Xeon Platinum 8280 28C 205W 2.7GHz                 |
| SSDs   | 2 x ThinkSystem 2.5" 5200 480GB Mainstream SATA 6Gb Hot Swap |
| Memory | 16 x 64GB TruDDR4 2933MHz (2Rx4 1.2V) RDIMM                  |

### NX-HAP Storage

|              |                                                |
|--------------|------------------------------------------------|
| Power Supply | AC Power Supply HE                             |
| SSDs         | 5 x 800GB 3DWPD 12 Gb SAS 2.5 Inch Flash Drive |

### LTC-HAP Storage

|              |                                            |
|--------------|--------------------------------------------|
| Power Supply | AC Power Supply HE                         |
| SSDs         | 18 x 3.84TB 12 Gb SAS 2.5 Inch Flash Drive |

### P/N SNX-SRV-HAP-DC

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Power Supply        | ThinkSystem x 48VDC Power Supply                   |
| Network Connections | RJ45                                               |
| CPU                 | 2 x Intel Xeon Silver 4214                         |
| SSDs                | 2 x 480GB 2.5" 5200 SATA 6GB Hotswap               |
| Memory              | 4 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM |

### P/N SNX-SRV-HAP-GEN5

|                     |                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 750W High Efficiency Platinum AC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                           |
| CPU                 | IBM Xeon E5 2620                                                                                                               |
| HDDs                | Server: 4 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD<br>Storage: 5 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                    |

## Appendices

|                  |                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Memory           | 8 x 8GB (64GB total)TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                                                                                |
| Dimensions       | Server: Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)<br>Storage: Height: 3.47 in./88.07 mm, width: 18.98 in./482.10 mm, depth: 19.60 in./497.93 mm |
| Heat Dissipation | Server:<br>Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)<br>Storage: 1,127 (BTU per hour)                                   |

### P/N SNX-SRV-HAP-GEN5-DC

Hardware specifications for a DC powered NX Server in a High Availability configuration.

|                     |                                                                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 900W High Efficiency -48 V DC Power Supply                                                                                                                       |
| Network Connections | RJ45                                                                                                                                                                           |
| CPU                 | IBM Xeon E5 2620                                                                                                                                                               |
| HDDs                | Server: 4 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD<br>Storage: 5 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                    |
| Memory              | 8 x 8GB (64GB total)TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                                                                                |
| Dimensions          | Server: Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)<br>Storage: Height: 3.47 in./88.07 mm, width: 18.98 in./482.10 mm, depth: 19.60 in./497.93 mm |
| Heat Dissipation    | Server:<br>Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)<br>Storage: 1,127 (BTU per hour)                                   |

### 10.7.3 STC

#### P/N STC-NX

|              |                                                     |
|--------------|-----------------------------------------------------|
| Power Supply | ThinkSystem x 750W Hotswap Platinum AC Power Supply |
|--------------|-----------------------------------------------------|

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Network Connections | RJ45                                               |
| CPU                 | 1 x Intel Xeon Silver 4214                         |
| SSDs                | 2 x 480GB 2.5" 5200 SATA 6GB Hotswap               |
| Memory              | 2 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM |

**P/N SNX-SRV-DC**

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Power Supply        | ThinkSystem x 48VDC Power Supply                   |
| Network Connections | RJ45                                               |
| CPU                 | 1 x Intel Xeon Silver 4214                         |
| SSDs                | 2 x 480GB 2.5" 5200 SATA 6GB Hotswap               |
| Memory              | 2 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM |

**P/N STC-NX-GEN5**

Hardware specifications for an STC Data Collector.

|                     |                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 750W High Efficiency Platinum AC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                           |
| CPU                 | IBM Xeon E5 2620                                                                                                               |
| HDDs                | 2 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                                    |
| Memory              | 4 x 8GB (32GB total)TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                                |
| Dimensions          | Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)                                                       |
| Heat Dissipation    | Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)                               |

**P/N STC-NX-GEN5-DC**

Hardware specifications for an STC Data Collector.

|                     |                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 900W High Efficiency -48 V DC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                        |
| CPU                 | IBM Xeon E5 2620                                                                                                            |
| HDDs                | 2 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                                 |
| Memory              | 4 x 8GB (32GB total) TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                            |
| Dimensions          | Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)                                                    |
| Heat Dissipation    | Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)                            |

## 10.7.4 Enhanced STC

**STC-NX-ENH**

|                     |                                                     |
|---------------------|-----------------------------------------------------|
| Power Supply        | ThinkSystem x 750W Hotswap Platinum AC Power Supply |
| Network Connections | RJ45                                                |
| CPU                 | 2 x Intel Xeon Silver 4214                          |
| SSDs                | 4 x 480GB 2.5" 5200 SATA 6GB Hotswap                |
| Memory              | 4 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM  |

**STC-NX-ENH-DC**

|                     |                                  |
|---------------------|----------------------------------|
| Power Supply        | ThinkSystem x 48VDC Power Supply |
| Network Connections | RJ45                             |
| CPU                 | 2 x Intel Xeon Silver 4214       |

|        |                                                    |
|--------|----------------------------------------------------|
| SSDs   | 4 x 480GB 2.5" 5200 SATA 6GB Hotswap               |
| Memory | 4 x 16GB TruDDR4 Memory (2Rx8, 1.2V) 2933MHz RDIMM |

**STC-NX-ENH-GEN5**

Hardware specifications for an Enhanced STC Data Collector.

|                     |                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 750W High Efficiency Platinum AC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                           |
| CPU                 | IBM Xeon E5 2620                                                                                                               |
| HDDs                | 4 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                                    |
| Memory              | 8 x 8GB (64GB total)TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                                |
| Dimensions          | Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)                                                       |
| Heat Dissipation    | Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)                               |

**STC-NX-ENH-GEN5-DC**

Hardware specifications for a DC Powered Enhanced STC Data Collector.

|                     |                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 900W High Efficiency -48 V DC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                        |
| CPU                 | IBM Xeon E5 2620                                                                                                            |
| HDDs                | 4 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                                 |
| Memory              | 8 x 8GB (64GB total)TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                             |
| Dimensions          | Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)                                                    |

|                  |                                                                                                  |
|------------------|--------------------------------------------------------------------------------------------------|
| Heat Dissipation | Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts) |
|------------------|--------------------------------------------------------------------------------------------------|

## 10.7.5 ASRA Server

### P/N ASRA-SRV-GEN5

Hardware specifications for an ASRA Server, used with the Autonomous System catalog.

|                     |                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Power Supply        | ThinkSystem x 750W High Efficiency Platinum AC Power Supply<br>Minimum Power Input: 0.14 kVA<br>Maximum Power Input: 0.994 kVA |
| Network Connections | RJ45                                                                                                                           |
| CPU                 | IBM Xeon E5 2620                                                                                                               |
| HDDs                | 4 x 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD                                                                                    |
| Memory              | 4 x 8GB (32GB total)TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM                                                |
| Dimensions          | Height: 43 mm (1.7 in), width: 429 mm (16.9 in), depth: 734 mm (28.9 in)                                                       |
| Heat Dissipation    | Minimum configuration: 461 Btu/hr (135 watts)<br>Maximum configuration: 4043 Btu/hr (1185 watts)                               |