

DDN GridScaler ZenPack

Support

This ZenPack is developed by DDN for modelling and monitoring of DDN's GridScaler storage solution. It will also support modelling GridNAS.

Releases

Version: 0.0.5

Summary of changes: First release

Released on: 04/03/2015

Compatible with: Zenoss 4 & Zenoss 5

Background

DDN GridScaler Zenpack will provide modelling and monitoring functionality for DDN's GridScaler storage solutions. It can additionally model GridNAS storage solution also.

Prerequisites

This zenpack is dependent on DDN Gridscaler API to be available on all NSD nodes.

Additionally, this zenpack only works with old GS API upto 10.1

DDN Gridscaler API is only available from Gridscaler version 2.6 onwards.

Installed Items

Installing the ZenPack will add the following items to your Zenoss system.

Device Classes

Following device classes will be created once this ZenPack is installed.

- /Storage
- /Storage/DDN
- /Storage/DDN/Gridscaler

Configuration Properties

Following configuration properties to be added which is required for this ZenPack

- **zCommandUsername**
 - name of the user through which Zenoss system communicates with the device (Ex: **root**).
- **zCommandPassword**
 - password of that particular user through which Zenoss system communicates with the device (Ex: **root**).
- **ZKeyPath**
 - If passwordless SSH is configured provide the path of the private key file path. (Ex: **~/.ssh/id_rsa**).
- **zGSNSDList**
 - Management network address of NSD servers to be monitored (Ex: **192.168.111.8,192.168.111.9**). Provide atleast 2 servers address to ensure continued monitoring on failed nodes.

Modeler Plugins

List of modeler plugins for Gridscaler and GridNAS.

GridScaler

- ddn.ModelClient
- ddn.ModelCluster
- ddn.ModelFs
- ddn.ModelNSD

GridNAS

- ddn.GridNAS_ModelCIFS
- ddn.GridNAS_ModelGroup
- ddn.GridNAS_ModelNFS
- ddn.GridNAS_ModelShares
- ddn.GridNAS_ModelUser
- ddn.GridNAS_ModelVIP

Monitoring Templates

Defines the metrics, events and thresholds for modeled components.

Component Level

1. FS Perf

- a. closesThroughput
- b. freeSpace
- c. inodeUpdatesThroughput
- d. inuseSpace
- e. opensThroughput
- f. readDirCountThroughput
- g. readsThroughput
- h. totalSpace
- i. writesThroughput

2. Nsd Nodes Perf

- a. closesThroughput
- b. inodeUpdatesThroughput
- c. opensThroughput
- d. readDirCountThroughput
- e. readsThroughput
- f. writesThroughput

Graphs

1. FsLists

- a. FileSystemUsage
- b. IOThroughput
- c. MetaOps

2. Nsd Nodes

- a. IOThroughput
- b. MetaOps

Events

No Events defined.

Thresholds

No Thresholds defined.

Detailed Overview

Device classes

Below screenshot give the list of device class available in this ZenPack.

The screenshot shows the Zenoss Core Infrastructure page for the device class **/Storage/DDN/Gridscaler**. The left sidebar lists various device classes under 'DEVICES (2)', including Discovered (0), ES (0), HTTP (0), KVM (0), NetBotz (0), Network (0), Ping (0), Power (0), Printer (0), Server (1), Storage (1), DDN (1), and Gridscaler (1). The main panel displays a table with the following data:

Device	IP Address	Device Class	Production State	Events
GSv1	10.30.30.1	/Storage/DDN/Gridscaler	Production	

At the bottom right, it says 'DISPLAYING 1 - 1 of 1 ROWS' and '0 Jobs'.

Device Components

1. List of GS_FsLists

Below screenshot give the list of GridScaler GS_FsLists along with the Graph available in this ZenPack.

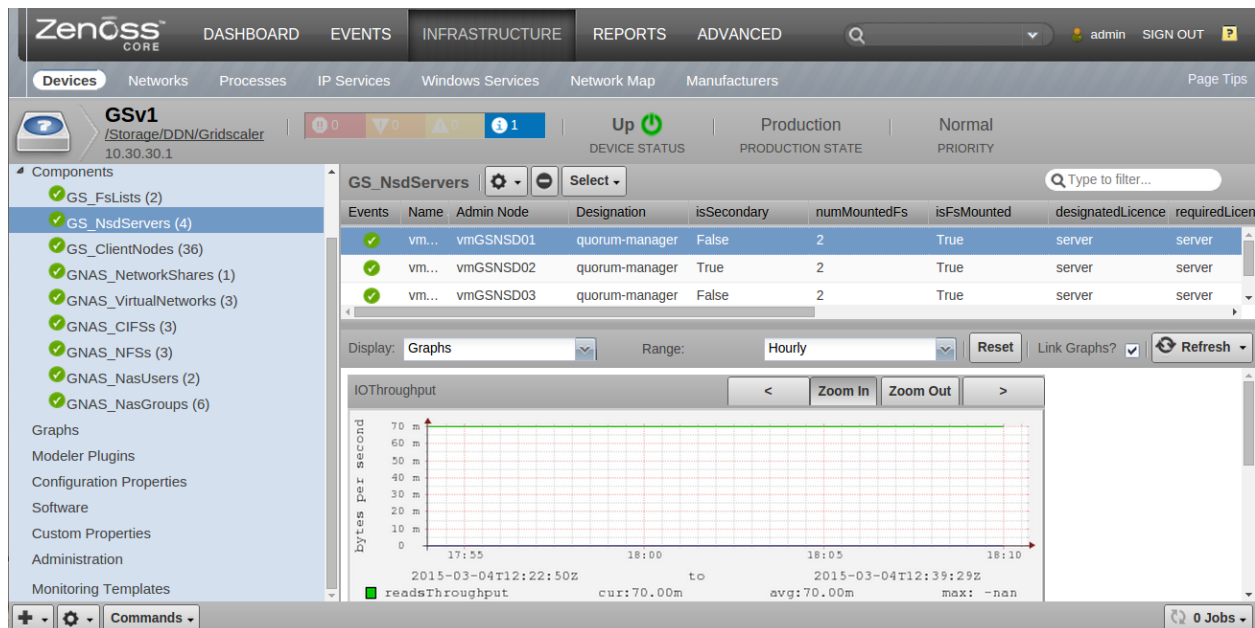
The screenshot shows the Zenoss Core Infrastructure page for the device **GSv1** (IP: 10.30.30.1). The left sidebar lists components under 'Components', including GS_FsLists (2), GS_NsdServers (4), GS_ClientNodes (36), GNAS_NetworkShares (1), GNAS_VirtualNetworks (3), GNAS_CIFSs (3), GNAS_NFSSs (3), GNAS_NasUsers (2), and GNAS_NasGroups (6). The main panel displays a table for **GS_FsLists** with the following data:

Events	Name	largeLUNSupport	numMounts	minFragSize	blockSize	version	strictReplicaAllocat	perFileSetQu
✓	fs2	Yes	10	8192	262144	13.23 (3.5.0.7)	whenpossible	no
✓	gpfs	Yes	10	131072	4194304	13.23 (3.5.0.7)	whenpossible	yes

Below the table, there is a graph titled 'MetaOps' showing the 'Number of operations per second' over time. The graph shows a peak around 17:55 and a dip around 18:00. The x-axis ranges from 17:55 to 18:15. The y-axis ranges from 0 to 20. The graph is labeled 'inodeUpdatesThroughput'.

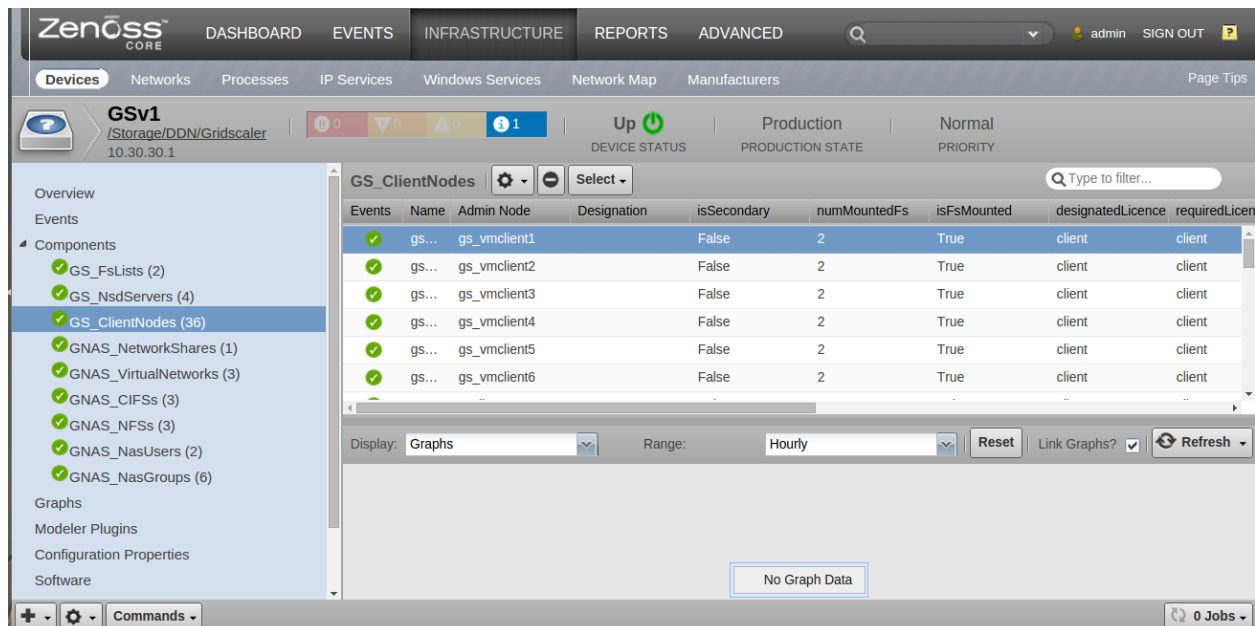
2. List of GS_NsdServers

Below screenshot give the list of GridScaler GS_NsdServers in this ZenPack.



3. List of GS_ClientNodes

Below screenshot give the list of GridScaler GS_ClientNodes in this ZenPack.



Below components and screenshots are visible, only if the solution is configured as GridNAS as well.

4. List of GNAS_NetworkShares

Below screenshot give the list of GridNAS GNAS_NetworkShares in this ZenPack.

The screenshot shows the Zenoss Core interface for device GSV1 (Storage/DDN/Gridscaler, 10.30.30.1). The left sidebar lists components, with GNAS_NetworkShares (1) selected. The main panel displays the configuration for GNAS_NetworkShares, showing a table with one entry: 'myshare' with path '/gpfs/myshare' and options 'abe=n'. The table has columns: Events, Name, Path, Options, Monitored, and Locking. Below the table, there are controls for Display (Graphs), Range (Hourly), and a Refresh button. A 'No Graph Data' message is displayed at the bottom.

Events	Name	Path	Options	Monitored	Locking
✓	myshare	/gpfs/myshare	abe=n	✓	

5. List of GNAS_VirtualNetworks

Below screenshot give the list of GridNAS GNAS_VirtualNetworks in this ZenPack.

The screenshot shows the Zenoss Core interface for device GSV1 (Storage/DDN/Gridscaler, 10.30.30.1). The left sidebar lists components, with GNAS_VirtualNetworks (3) selected. The main panel displays the configuration for GNAS_VirtualNetworks, showing a table with three entries. The table has columns: Events, Name, Network Address, Network Mask, ActiveNode, ActiveInterface, StandbyNode, Monitored, and Locking. Below the table, there are controls for Display (Graphs), Range (Hourly), and a Refresh button. A 'No Graph Data' message is displayed at the bottom.

Events	Name	Network Address	Network Mask	ActiveNode	ActiveInterface	StandbyNode	Monitored	Locking
✓	VirtuallP_1...	192.168.111.30	24	vmGSNSD01	eth0	[vmGSNSD02]	✓	
✓	VirtuallP_1...	192.168.111.31	24	vmGSNSD03	eth0	[vmGSNSD01]	✓	
✓	VirtuallP_1...	192.168.111.32	24	vmGSNSD02	eth0	[vmGSNSD03]	✓	

6. List of GNAS_CIFSs

Below screenshot give the list of GridNAS GNAS_CIFSs in this ZenPack.

The screenshot shows the Zenoss Core interface for device GSV1. The left sidebar lists components, with GNAS_CIFSs (3) selected. The main panel displays a table of GNAS_CIFSs with columns: Events, Name, Network Address, Status, ActiveDirectoryStat, Monitored, and Locking. The table lists three entries: CIFS_vmGSNSD01, CIFS_vmGSNSD02, and CIFS_vmGSNSD03, all with a status of 'Running' and 'Not Joined' for ActiveDirectoryStat. Below the table, there are controls for Display (Graphs), Range (Hourly), and a Refresh button. A 'No Graph Data' message is displayed in the graph area.

Events	Name	Network Address	Status	ActiveDirectoryStat	Monitored	Locking
✓	CIFS_vmGSNSD01	192.168.111.8	Running	Not Joined	✓	
✓	CIFS_vmGSNSD02	192.168.111.9	Running	Not Joined	✓	
✓	CIFS_vmGSNSD03	192.168.111.10	Running	Not Joined	✓	

7. List of GNAS_NFSs

Below screenshot give the list of GridNAS GNAS_NFSs in this ZenPack.

The screenshot shows the Zenoss Core interface for device GSV1. The left sidebar lists components, with GNAS_NFSs (3) selected. The main panel displays a table of GNAS_NFSs with columns: Events, Name, Network Address, Status, Monitored, and Locking. The table lists three entries: NFS_vmGSNSD01, NFS_vmGSNSD02, and NFS_vmGSNSD03, all with a status of 'Running' and checked for Monitored. Below the table, there are controls for Display (Graphs), Range (Hourly), and a Refresh button. A 'No Graph Data' message is displayed in the graph area.

Events	Name	Network Address	Status	Monitored	Locking
✓	NFS_vmGSNSD01	192.168.111.8	Running	✓	
✓	NFS_vmGSNSD02	192.168.111.9	Running	✓	
✓	NFS_vmGSNSD03	192.168.111.10	Running	✓	

8. List of GNAS_NasUsers

Below screenshot give the list of GridNAS GNAS_NasUsers in this ZenPack.

The screenshot shows the Zenoss Core interface. The left sidebar lists components, with **GNAS_NasUsers (2)** selected. The main panel displays a table of users for device **GSV1** (IP: 10.30.30.1). The table has columns: Name, UID, Primary Group, Enabled, Monitored, and Locking. Two users are listed: Administrator and Guest. Below the table, there are controls for Display (Graphs), Range (Hourly), and a Refresh button. The bottom status bar shows 0 Jobs.

Name	UID	Primary Group	Enabled	Monitored	Locking
Administrator	600000	Local Admins (...)	yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Guest	600001	Local Guests (...)	no	<input checked="" type="checkbox"/>	<input type="checkbox"/>

9. List of GNAS_Groups

Below screenshot give the list of GridNAS GNAS_Groups in this ZenPack.

The screenshot shows the Zenoss Core interface. The left sidebar lists components, with **GNAS_NasGroups (6)** selected. The main panel displays a table of groups for device **GSV1** (IP: 10.30.30.1). The table has columns: Name, GID, Domain, Monitored, and Locking. Six groups are listed: Administrators, Guests, Local Admins, Local Guests, Local Users, and Users. Below the table, there are controls for Display (Graphs), Range (Hourly), and a Refresh button. The bottom status bar shows 0 Jobs.

Name	GID	Domain	Monitored	Locking
Administrators	600003	BUILTIN	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Guests	600005	BUILTIN	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Local Admins	600002	MARYLANDNA...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Local Guests	600001	MARYLANDNA...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Local Users	600000	MARYLANDNA...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Users	600004	BUILTIN	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ZenPack Installation

1. Download the appropriate egg file for the version of the Zenoss you are running.
2. Ensure you are logged in as Zenoss user.

```
>>> su - Zenoss
```

3. Install ZenPack

a. Zenoss 4

```
>>> zenpack -- install ZenPacks.DDN.Gridscaler -*.egg
```

b. Zenoss 5

```
>>> sudo serviced service run zenpack install ZenPacks.DDN.Gridscaler -*.egg
```

4. Restart Zenoss

a. Zenoss 4

```
>>> zenoss restart
```

b. Zenoss 5

```
>>> sudo serviced service stop <service name>
```

[Get the service name by running command "sudo serviced service status"]

```
>>> sudo serviced service start <service name>
```

To list all installed ZenPacks

a. Zenoss 4

```
>>> zenpack -- list
```

b. Zenoss 5

```
>>> sudo serviced service run zope zenpack list
```

Steps to uninstall ZenPacks

a. Zenoss 4

```
>>> zenpack -- remove <zen pack>
```

b. Zenoss 5

```
>>> sudo serviced service run zope zenpack uninstall <zen pack>
```

Instructions to model Gridscaler through Zenoss

A Gridscaler solution is a cluster of devices. So it cannot be modeled and monitored directly like other devices. This zenpack expects a pseudo network device to be created locally. This pseudo network device shall be used to register the cluster. A zProperty ('zGSNSDList') is defined to map the network address of NSD Servers in the cluster.

Follow the below instructions to model a gridscaler solution through zenoss:

1. Create a pseudo network device:
 - a. `sudo ip link add link em1 address 44:44:44:44:44:44 em1:10 type macvlan`
 - b. `sudo ifconfig em1:10 10.1.1.4 netmask 255.255.224.0`

2. add this IP (10.1.1.4) into newly created device

You can choose to use any local private IP instead of 10.1.1.4 and any unique MAC address for the interface.

3. Update the zProperty accordingly before modeling. For ex. if you have 4 NSD Nodes reachable at address (IP1, IP2, IP3, IP4) [management interfaces], you can either add them all or atleast 2 to ensure connectivity even on node failure. Using one valid IP will also complete the modeling successfully.