

# opengear

Opengear Inc. USA Head Office  
630 West 9560 South Suite A  
Sandy, UT 84070

**Zenoss**<sup>TM</sup>  
Open Enterprise Management

Opengear provides Two ZenPacks for integration into Zenoss. The ZenPacks provide enhanced performance monitoring and event interpretation. This guide will explain their installation and use.

## Opengear Zenoss How-To

Opengear provide two ZenPacks available from <http://opengear.com> or <http://community.zenoss.org>. The ZenPacks provide enhanced performance monitoring and event interpretation. This guide will explain their installation and use.

### *Importing the Opengear ZenPacks*

ZenPack installation is explained in the Zenoss Core Administration Guide **13.2 Installing ZenPacks**. Download both the **ZenPacks.Opengear.MIBs** and **ZenPacks.Opengear.ConsoleServer** ZenPacks from the Zenoss Community web site. The ZenPacks will be in Zip Archives initially and will need to be decompressed before beginning installation.

1. Open the Zenoss Web User Interface and navigate **Management > Settings > ZenPacks**.

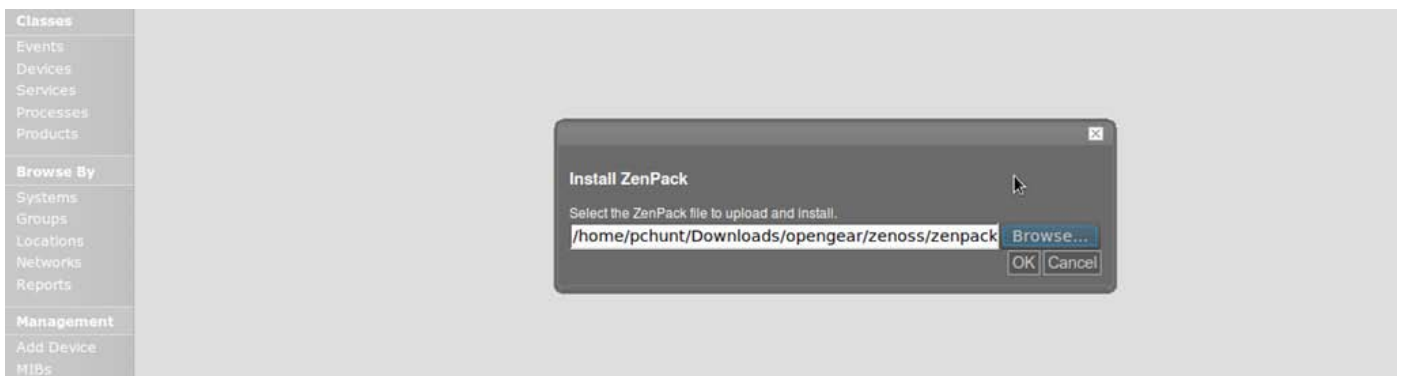
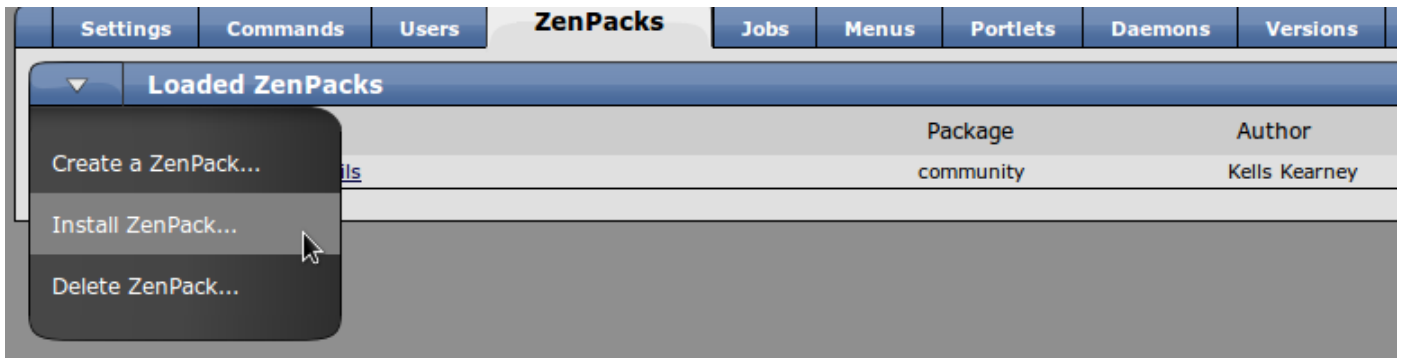


The screenshot shows the Zenoss Core ZenPackManager interface. The main content area displays a table titled "Loaded ZenPacks" with the following data:

Pack	Package
<input type="checkbox"/> <a href="#">ZenPacks.community.mib_utils</a>	community

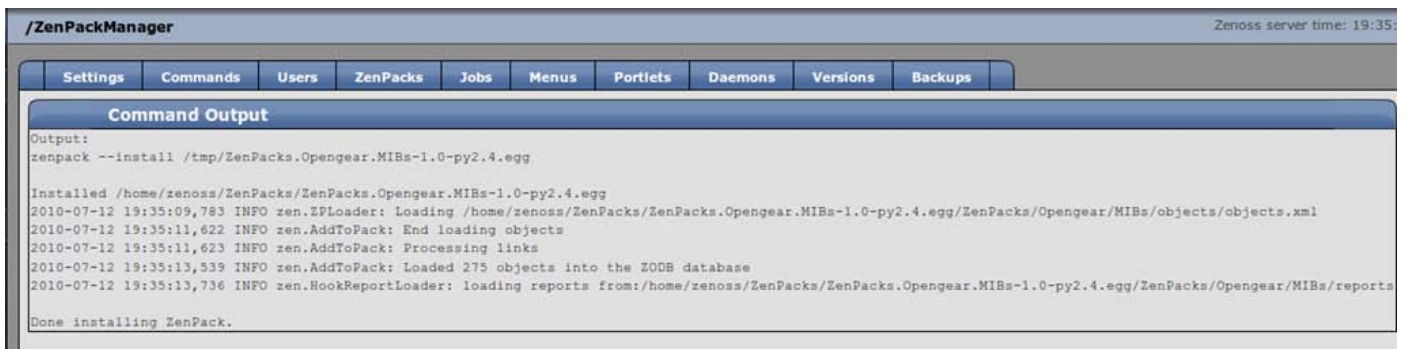
The interface includes a left-hand navigation menu with sections: Main Views (Dashboard, Event Console, Device List, Network Map), Classes (Events, Devices, Services, Processes, Products), Browse By (Systems, Groups, Locations, Networks, Reports), and Management (Add Device, MIBs, Collectors, Settings, Event Manager). The top navigation bar includes tabs for Settings, Commands, Users, ZenPacks (selected), Jobs, Menus, Portlets, and Daemons.

2. From the drop down menu select **Install ZenPack...** and navigate to the folder where you saved the downloaded ZenPacks to.



3. Select **ZenPacks.Opengear.MIBs.egg** and click **OK**.

4. The ZenPack should install with no errors.



5. Repeat steps 1, 2, 3 and 4 for **ZenPacks.Opengear.ConsoleServer.egg**.

```

Settings  Commands  Users  ZenPacks  Jobs  Menus  Portlets  Daemons  Versions  Backups
-----
Command Output
Output:
zenpack --install /tmp/ZenPacks.Opengear.ConsoleServer-1.0-py2.4.egg

Installed /home/zenoss/ZenPacks/ZenPacks.Opengear.ConsoleServer-1.0-py2.4.egg
2010-07-12 19:37:50,896 INFO zen.ZPLoader: Loading /home/zenoss/ZenPacks/ZenPacks.Opengear.ConsoleServer-1.0-py2.4.egg/ZenPacks/Opengear/ConsoleServer/objects/ob
2010-07-12 19:37:51,360 INFO zen.AddToPack: End loading objects
2010-07-12 19:37:51,362 INFO zen.AddToPack: Processing links
2010-07-12 19:37:52,023 INFO zen.AddToPack: Loaded 62 objects into the ZODB database
2010-07-12 19:37:52,167 INFO zen.HookReportLoader: loading reports from:/home/zenoss/ZenPacks/ZenPacks.Opengear.ConsoleServer-1.0-py2.4.egg/ZenPacks/Opengear/Cons
Done installing ZenPack.
    
```

6. Once completed you should see both of the newly added ZenPacks in the table at **Management > Settings > ZenPacks**.

Pack	Package	Author	Version	Egg
<input type="checkbox"/> ZenPacks.Opengear.ConsoleServer	Opengear	Peter Hunt <support@opengear.com>	1.0	Yes
<input type="checkbox"/> ZenPacks.Opengear.MIBs	Opengear	Peter Hunt <support@opengear.com>	1.0	Yes

```

[root@zenoss ~]# /etc/init.d/zenoss restart
Daemon: zeneventlog stopping...
Daemon: zenwin stopping...
Daemon: zenprocess stopping...
Daemon: zencommand stopping...
Daemon: zenperfsnmp stopping...
Daemon: zenmodeler stopping...
Daemon: zentrap stopping...
Daemon: zenactions stopping...
Daemon: zenstatus stopping...
Daemon: zensyslog stopping...
Daemon: zenping stopping...
Daemon: zenjobs stopping...
Daemon: zenhub stopping...
Daemon: zopectl .
daemon process stopped
Daemon: zeoctl .
daemon process stopped
Daemon: zeoctl .
daemon process started, pid=4038
Daemon: zopectl .
daemon process started, pid=4044
Daemon: zenhub starting...
Daemon: zenjobs starting...
    
```

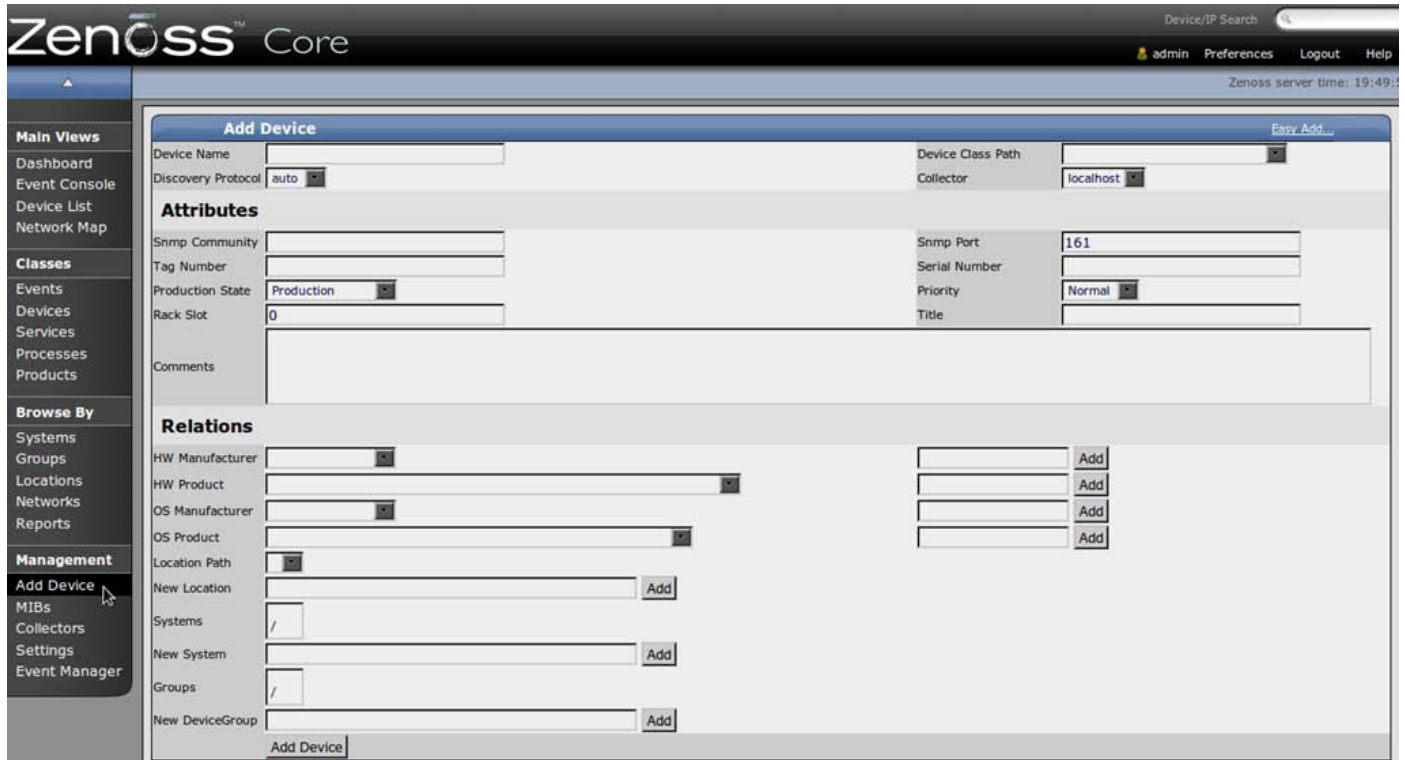
7. It is recommended that Zenoss be restarted at this point.

### Adding an Opengear Device

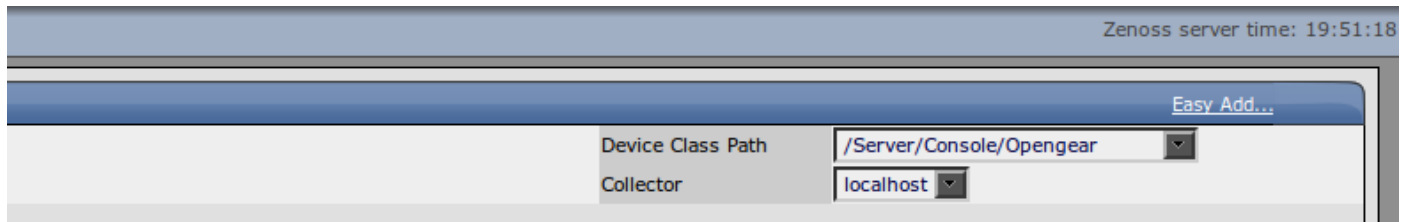
The enhanced monitoring provided by the Opengear ZenPacks uses a combination of SNMP and SSH

communication. To add a new Opengear Device:

1. Navigate to **Management > Add Device**.



2. Fill in the **Device Name** with either the IP Address or DNS Name of the Opengear Device.
3. Select **/Server/Console/Opengear** from the **Device Class Path** menu.



4. Ensure the **SNMP Community** matches the Opengear configuration. By default Zenoss will use SNMP v2c to monitor devices add as **/Server/Console/Opengear**, this can be changed later.

Snmp Community	<input type="text" value="public"/>	Snmp Port	<input type="text" value="161"/>
Tag Number	<input type="text"/>	Serial Number	<input type="text"/>
Production State	<input type="text" value="Production"/>	Priority	<input type="text" value="Normal"/>

5. Feel free to fill in other details such as the **Location Path** and the **Systems** details, then click **Add Device**.

Groups	<input type="text" value="/"/>	
New DeviceGroup	<input type="text"/>	<input type="button" value="Add"/>
		<input type="button" value="Add Device"/>

6. The Opengear Plugins will attempt to model the new device. Some errors may occur due to SNMP or SSH configuration, once the modeling has finished you can correct these.

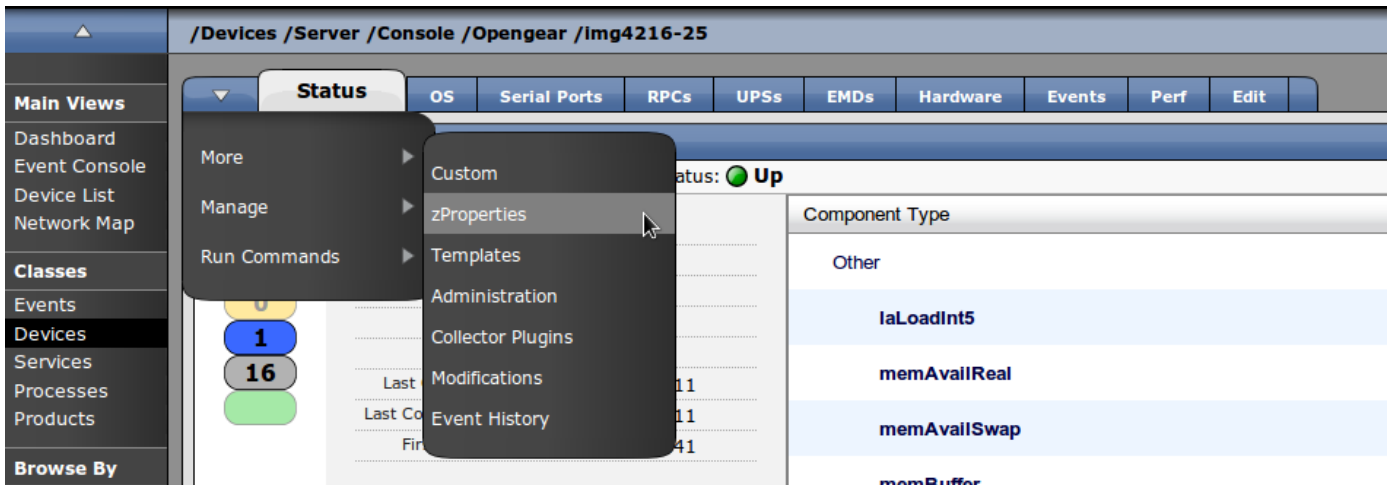
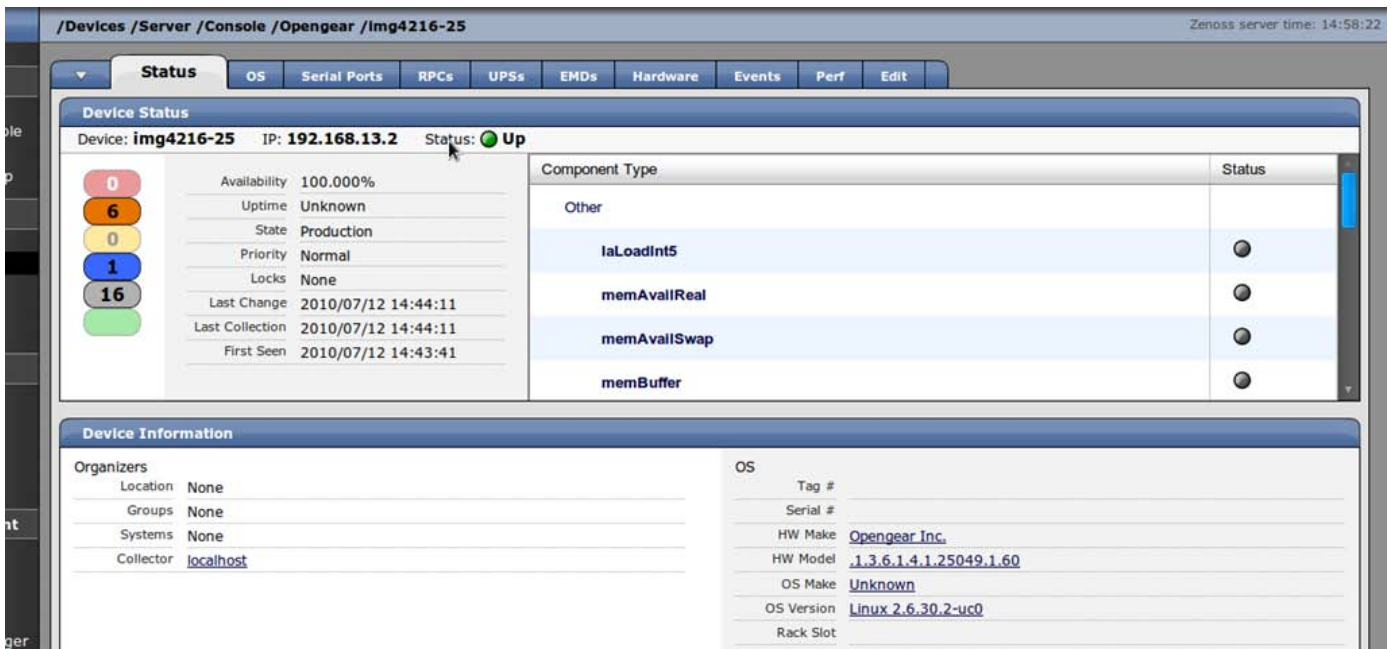
Time	Level	Module	Message
2010-07-12 14:43:41	INFO	zen.Device	device name '192.168.13.2' for ip "
2010-07-12 14:43:41	INFO	zen.Device	setting performance monitor to localhost
2010-07-12 14:43:42	INFO	zen.Utilis	Executing command: /home/zenoss/bin/zendisc run --now -d 192.168.13.2 --monitor localhost --deviceclass /Server/Console/Opengear --weblog
2010-07-12 14:43:55	INFO	zen.ZenDisc	Connecting to localhost:8789
2010-07-12 14:43:55	INFO	zen.ZenDisc	Connected to ZenHub
2010-07-12 14:43:55	INFO	zen.ZenDisc	Looking for 192.168.13.2
2010-07-12 14:44:00	INFO	zen.ZenDisc	Result: Discovered device 192.168.13.2.
2010-07-12 14:44:01	INFO	zen.ZenDisc	No WMI plugins found for 192.168.13.2
2010-07-12 14:44:01	INFO	zen.ZenDisc	No Python plugins found for 192.168.13.2
2010-07-12 14:44:01	INFO	zen.ZenDisc	Using SSH collection method for device 192.168.13.2
2010-07-12 14:44:01	INFO	zen.ZenDisc	plugins: SerialPorts, Emds, Rpcs, Upss
2010-07-12 14:44:01	INFO	zen.ZenDisc	SNMP collection device 192.168.13.2
2010-07-12 14:44:01	INFO	zen.ZenDisc	plugins: zenoss.snmp.NewDeviceMap, zenoss.snmp.DeviceMap, zenoss.snmp.InterfaceMap, zenoss.snmp.RouteMap, zenoss.snmp.IpServiceMap, zenoss.snmp.HRFileSystemMap, zenoss.snmp.HRSWInstalledMap, zenoss.snmp.HRSWRunMap, zenoss.snmp.CpuMap
2010-07-12 14:44:01	INFO	zen.ZenDisc	No portscan plugins found for 192.168.13.2
2010-07-12 14:44:01	INFO	zen.ZenDisc	Running 2 clients
2010-07-12 14:44:02	INFO	zen.SnmpClient	snmp client finished collection for 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	Processing zenoss.snmp.NewDeviceMap for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	processing zenoss.snmp.DeviceMap for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	Modeler zenoss.snmp.InterfaceMap processing data for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	processing zenoss.snmp.RouteMap for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	processing zenoss.snmp.IpServiceMap for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	Modeler zenoss.snmp.HRFileSystemMap processing data for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	processing zenoss.snmp.HRSWInstalledMap for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	Processing zenoss.snmp.HRSWRunMap for device 192.168.13.2
2010-07-12 14:44:02	INFO	zen.ZenDisc	processing zenoss.snmp.CpuMap for device 192.168.13.2
2010-07-12 14:44:11	INFO	zen.ZenDisc	Changes in configuration applied
2010-07-12 14:44:18	ERROR	zen.SshClient	SSH login to 192.168.13.2 with username root failed
2010-07-12 14:44:18	ERROR	zen.SshClient	SSH connection aborted after maximum login attempts.
2010-07-12 14:44:28	WARNING	zen.SshClient	SSH error from remote device (code 2): Too many authentication failures for root
2010-07-12 14:47:01	WARNING	zen.ZenDisc	Client 192.168.13.2 timeout
2010-07-12 14:47:01	INFO	zen.ZenDisc	Scan time: 180.95 seconds
2010-07-12 14:47:01	INFO	zen.ZenDisc	Daemon ZenDisc shutting down
2010-07-12 14:47:02	INFO	zen.DeviceLoader	Device 192.168.13.2 loaded!

Navigate to device [192.168.13.2](#)

## Configuring SNMP and SSH

If the Opengear device default configuration has been altered you will need to configure Zenoss to match.

1. Navigate to **Main Views > Device List** and click on the newly added Opengear Device name.



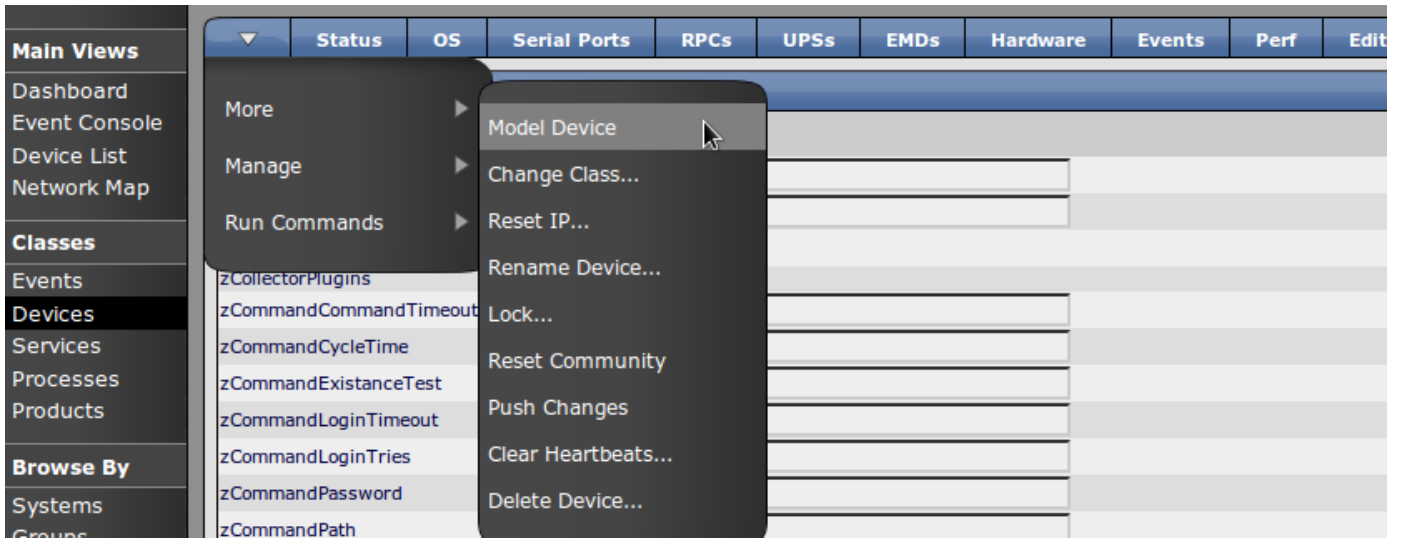
2. Click on the device menu arrow the **More > zProperties**.
  
3. Provide the password for the administration user user as **zCommandUsername** and **zCommandPassword**, **zCommandProtocol** should be **SSH**.

zProperties Configuration				
Property	Value	Type	Path	
zCollectorClientTimeout	180	int	/	
zCollectorDecoding	latin-1	string	/	
zCollectorLogChanges	True	boolean	/	
zCollectorPlugins	Edit	lines	/Server/Console/Opengear	
zCommandCommandTimeout	30.0	float	/Server/Console/Opengear	
zCommandCycleTime	60	int	/	
zCommandExistenceTest	test -f %s	string	/	
zCommandLoginTimeout	10.0	float	/	
zCommandLoginTries	1	int	/	
zCommandPassword	*****	password	/Server/Console/Opengear	
zCommandPath	\$ZENHOME/libexec	string	/	
zCommandPort	22	int	/	
zCommandProtocol	ssh	string	/	
zCommandSearchPath		lines	/	
zCommandUsername	root	string	/Server/Console/Opengear	

4. If you wish to use a different SNMP protocol version to monitor the Opengear make sure **zSnmVer** is set to the desired version and other details such as **zSnmCommunity** and **zSnmAuthPassword** are set appropriately. Click **Save** when all the details are correct.

zSnmAuthPassword		password	/	
zSnmAuthType		string	/	
zSnmCommunities	public private	lines	/	
zSnmCommunity	public	string	/	
zSnmMonitorIgnore	False	boolean	/	
zSnmPort	161	int	/	
zSnmPrivPassword		password	/	
zSnmPrivType		string	/	
zSnmSecurityName		string	/	
zSnmTimeout	2.5	float	/	
zSnmTries	2	int	/	
zSnmVer	v2c	string	/Server/Console/Opengear	
zSshConcurrentSessions	10	int	/	

5. After the SSH and SNMP details have been verified click on the menu arrow and select **Manage > Model Device**. The plugins will re-model the device and no errors should occur this time.



```

15:11:30
2010-07-12 15:11:30 INFO zen.ZenModeler No WMI plugins found for 192.168.13.2
2010-07-12 15:11:30 INFO zen.ZenModeler No Python plugins found for 192.168.13.2
2010-07-12 15:11:30 INFO zen.ZenModeler Using SSH collection method for device 192.168.13.2
2010-07-12 15:11:30 INFO zen.ZenModeler plugins: SerialPorts, Emds, Rpcs, Upss
2010-07-12 15:11:30 INFO zen.ZenModeler SNMP collection device 192.168.13.2
2010-07-12 15:11:30 INFO zen.ZenModeler plugins: zenoss.snmp.NewDeviceMap, zenoss.snmp.DeviceMap, zenoss.snmp.InterfaceMap, zenoss.snmp.RouteMap, zenoss.snmp.IpServiceMap, zenoss.snmp.HRFileSystemMap, zenoss.snmp.HRSWInstalledMap, zenoss.snmp.HRSWRunMap, zenoss.snmp.CpuMap
2010-07-12 15:11:30 INFO zen.ZenModeler No portscan plugins found for 192.168.13.2
2010-07-12 15:11:30 INFO zen.ZenModeler Running 2 clients
2010-07-12 15:11:31 INFO zen.SnmpClient snmp client finished collection for 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler Processing zenoss.snmp.NewDeviceMap for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler processing zenoss.snmp.DeviceMap for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler Modeler zenoss.snmp.InterfaceMap processing data for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler processing zenoss.snmp.RouteMap for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler processing zenoss.snmp.IpServiceMap for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler Modeler zenoss.snmp.HRFileSystemMap processing data for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler processing zenoss.snmp.HRSWInstalledMap for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler Processing zenoss.snmp.HRSWRunMap for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler processing zenoss.snmp.CpuMap for device 192.168.13.2
2010-07-12 15:11:31 INFO zen.ZenModeler Changes in configuration applied
2010-07-12 15:11:42 INFO zen.SshClient Connected to device 192.168.13.2
2010-07-12 15:11:44 INFO zen.CmdClient command client finished collection for 192.168.13.2
2010-07-12 15:11:44 INFO zen.ZenModeler processing Upss for device 192.168.13.2
2010-07-12 15:11:44 INFO zen.ZenModeler processing SerialPorts for device 192.168.13.2
2010-07-12 15:11:45 INFO zen.ZenModeler processing Emds for device 192.168.13.2
2010-07-12 15:11:45 ERROR zen.ZenModeler No EMD name provided
2010-07-12 15:11:45 ERROR zen.ZenModeler No EMD name provided
2010-07-12 15:11:45 INFO zen.ZenModeler processing Rpcs for device 192.168.13.2
2010-07-12 15:11:45 WARNING zen.ZenModeler No name found for RPC: 1, skipping
2010-07-12 15:11:45 WARNING zen.ZenModeler No name found for RPC: 1, skipping
2010-07-12 15:11:52 INFO zen.ZenModeler Changes in configuration applied
2010-07-12 15:11:55 INFO zen.ZenModeler Scan time: 25.06 seconds
2010-07-12 15:11:55 INFO zen.ZenModeler Daemon ZenModeler shutting down
2010-07-12 15:11:55 INFO zen.PerformanceConf configuration collected
  
```

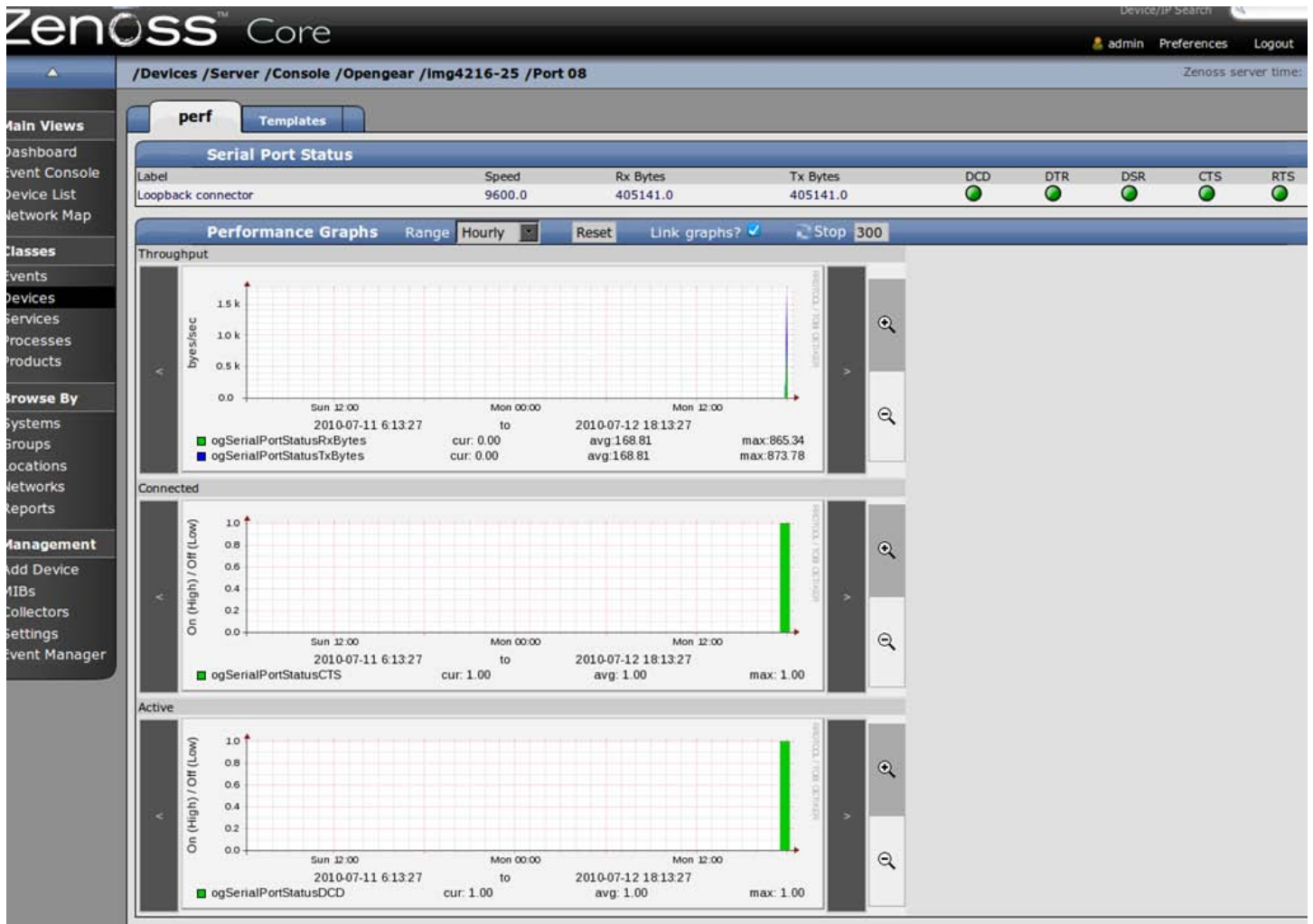
## Monitoring Serial Ports

Serial Port status is available by navigating to the new Opengear page via the **Device List** then clicking on the **Serial Ports** tab. From here you can see the current configuration of each serial port on the device as well as up to date signal states.

The screenshot shows the Zenoss Core interface for a device named 'Opengear /img4216-25'. The 'Serial Ports' tab is active, displaying a table of 16 serial ports. Each row includes a port ID, label, mode, log level, parameters, flow control, and status indicators for DCD, DTR, DSR, CTS, and RTS. The table is paginated to show 1 of 16 items.

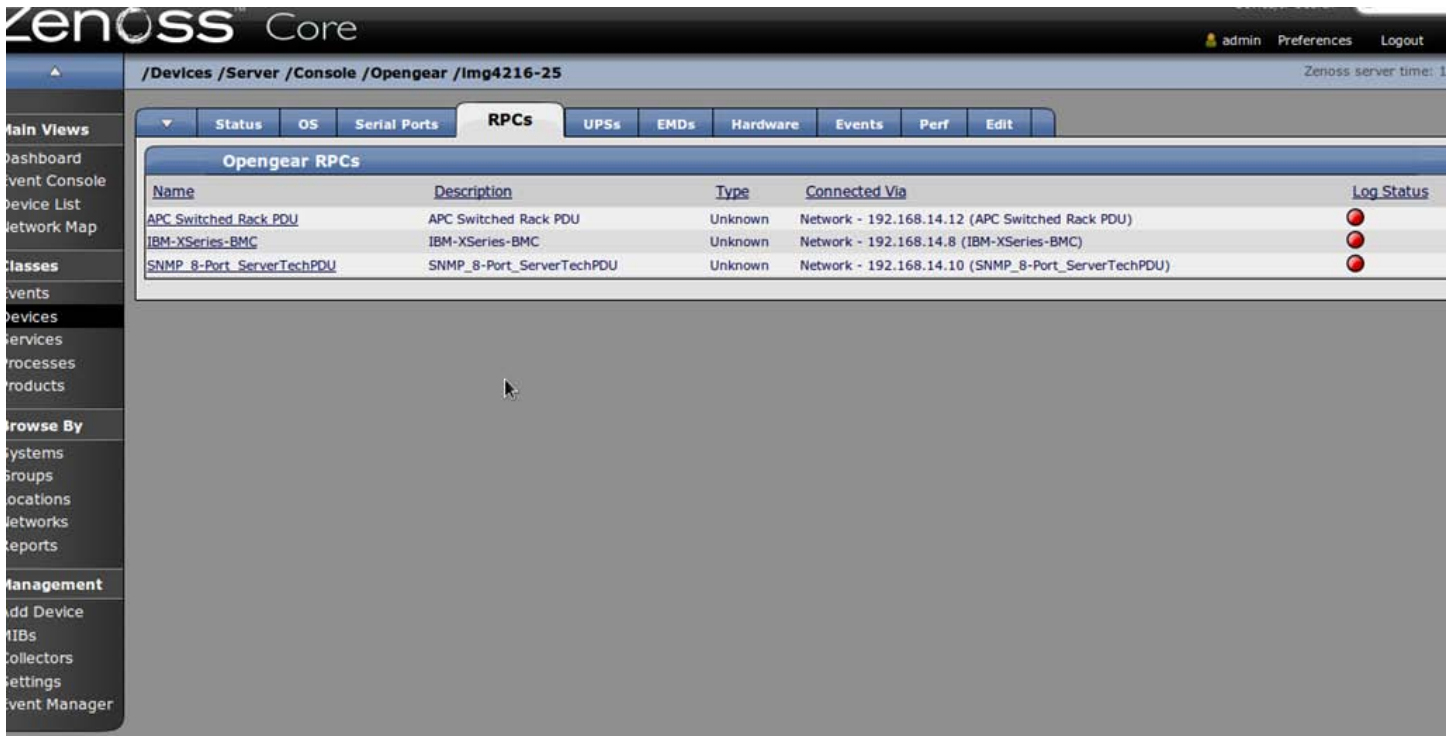
Port	Label	Mode	Log Level	Parameters	Flow Control	DCD	DTR	DSR	CTS	RTS
Port 01	IP Power	Console	0	19200-8-N-1	None	●	●	●	●	●
Port 02	Cisco 2501	Console (SSH)	2	9600-8-N-1	None	●	●	●	●	●
Port 03	Cisco 2900	Console (SSH)	2	9600-8-N-1	None	●	●	●	●	●
Port 04	8 Port Server Tech PDU	Console	2	9600-8-N-1	None	●	●	●	●	●
Port 05	TrippLite 450 UPS	Environmental	0	9600-8-N-1	None	●	●	●	●	●
Port 06	APC Smart -UPS 1400XL	Environmental	0	9600-8-N-1	None	●	●	●	●	●
Port 07	IM4248 Console	Console (SSH)	2	115200-8-N-1	None	●	●	●	●	●
Port 08	Loopback connector	Console (SSH, Telnet)	1	9600-8-N-1	None	●	●	●	●	●
Port 09	Port 9	Environmental	0	9600-8-N-1	None	●	●	●	●	●
Port 10	Port 10	Environmental	0	9600-8-N-1	None	●	●	●	●	●
Port 11	Port 11	Console	0	9600-8-N-1	None	●	●	●	●	●
Port 12	Port 12	Console	0	9600-8-N-1	None	●	●	●	●	●
Port 13	Port 13	Console	0	9600-8-N-1	None	●	●	●	●	●
Port 14	Port 14	Console (SSH, Telnet)	0	115200-8-N-1	None	●	●	●	●	●
Port 15	Demo Server Rack	Environmental	0	9600-8-N-1	None	●	●	●	●	●
Port 16	Demo Server Room	Environmental	0	9600-8-N-1	None	●	●	●	●	●

To view serial port performance history such as throughput and connection status click on the port name in the left most column.



## Monitoring RPCs

To view the current state and configuration of RPCs navigate to Opengear device via the **Device List** and click on the **RPCs** tab.



RPC alert information can be accessed by clicking on the RPC **Name**.

### Monitoring UPSs

UPS details are available by clicking on the tab labeled **UPSs**.



UPS performance history for **Temperature**, **Battery Charge**, **Input**, **Output** and **Load** can be viewed by clicking on the UPS **Name**.

### Monitoring EMDs

To view the current configuration state of EMDs (Environmental Monitoring Devices) navigate to the Opengear device via the **Device List** and click on the **EMDs** tab.

## Monitoring Opengear Events

The Opengear ZenPacks provide some interpretation of SNMP Notifications / Traps. First the Opengear device must be configured to forward SNMP Alerts to the Zenoss collector. If the Opengear is configured to generate SNMP events for such things as serial port signal changes, user connections / disconnections, or environmental events they will be interpreted and transformed into Zenoss events which can be viewed at **Main Views > Event Console**.

The screenshot shows the Zenoss Core Event Console interface. The top navigation bar includes 'Zenoss Core', a search field, and user options like 'admin', 'Preferences', 'Logout', and 'Help'. The main content area is titled '/Events / Event Console' and shows a table of events. The table has columns for Status, Severity, Device, Component, Event Class, Summary, First Seen, Last Seen, and Count. Three events are listed, all with a severity of 'Warning' and a count of 1.

Status	Severity	Device	Component	Event Class	Summary	First Seen	Last Seen	Count
Warning	Warning	img4216-25		/HW/Serial	Signal 'CTS' is HIGH on port #3 (Cisco 2900)	2010-07-12 14:34:55	2010-07-12 14:34:55	1
Warning	Warning	img4216-25		/HW/Serial	Signal 'CTS' is HIGH on port #4 (8 Port Server Tech PDU)	2010-07-12 14:35:13	2010-07-12 14:35:13	1
Warning	Warning	img4216-25		/HW/Serial	Signal 'CTS' is HIGH on port #8 (Loopback connector)	2010-07-12 14:35:32	2010-07-12 14:35:32	1