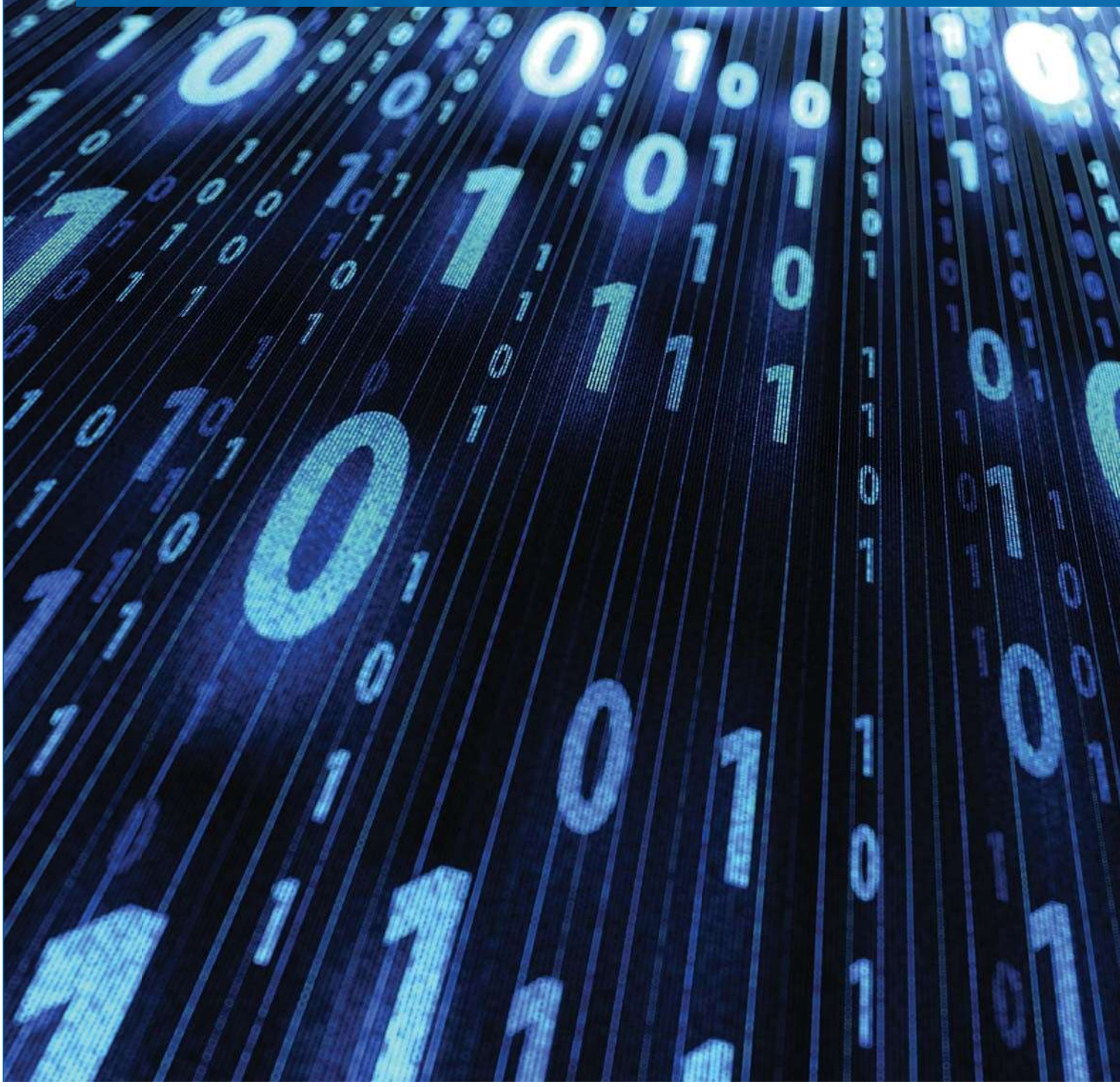
Eaton® Intelligent Power Manager® (IPM) Quick Start Guide for Dell-EMC® VxRail Solution



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Eaton Intelligent Power® Manager

Dell-EMC VxRail solution Quick Start guide

1. Eaton Solution for VxRail

IPM VxRail connector allows to connect to one VxRail unit.

Through this implementation, the scope is to protect the entire cluster from power events.
When Eaton IPM is embedded in the VxRail cluster, it's now possible to configure a cluster shutdown action based on a solution with Eaton Gigabit Network-M2 Card.
To create a VxRail connector, the user only needs to provide the :

- VxRail Manager IP address / or hostname (FQDN)
- vCenter IP address / or hostname (FQDN)
- credentials of vCenter or VxRail Manager

Once the connector is successfully configured, a VxRail Cluster node is created, and monitored in IPM.

Since VxRail Manager 4.7.000 ; cluster shutdown is compatible with IPM 1.67 :
"Configuration policies" and "advanced events and actions" features of IPM can be configured to ensure the protection of VxRail environment, in case of a power or environmental event.

Notes :

Prerequisites for the cluster shutdown feature with IPM :

- vSphere 6.7 (or above)
- IPM version 1.67 (or above) : IPM Virtual Appliance (OVA) package
- the "Optimize" license is required to activate the VxRail cluster shutdown feature :
- Enable infrastructure connectors in modules settings
- VxRail cluster protected by an Eaton UPS managed by Eaton Gigabit Network-M2 Card. (FW version 1.7.0 and above) : the shutdown script is relayed by the network card
- IPM is embedded into the cluster : IPM OVA is deployed on the same vCenter as the one managing the VxRail cluster
- VxRail Software manager version 4.7.000 and above
- Containers are not supported by IPM for the cluster shutdown sequence

2. Deploying IPM OVA in VMware vCenter

2.1 OVF template

Notes :
The setup of the OVA is the responsibility of the VMware cluster administrator.
At the end of the deployment of the OVA, you must edit the network settings if you want to have a static IP address assigned to the server. DHCP is configured by default.

To deploy the IPM virtual appliance:
1. Download the virtual appliance from https://www.eaton.com/us/en-us.html
2. Connect to the ESX/ESXi or vCenter from your client computer using vSphere 6.7 (or above)
3. Log in as a user who has permission to create, start, and stop virtual machines.
4. Choose File > Deploy OVF Template
5. Choose either Deploy from URL or Deploy from file, based on the location of OVA file.
6. Select the OVA file. Click Next.
7. Follow the instructions provided on the Deploy OVF Template.

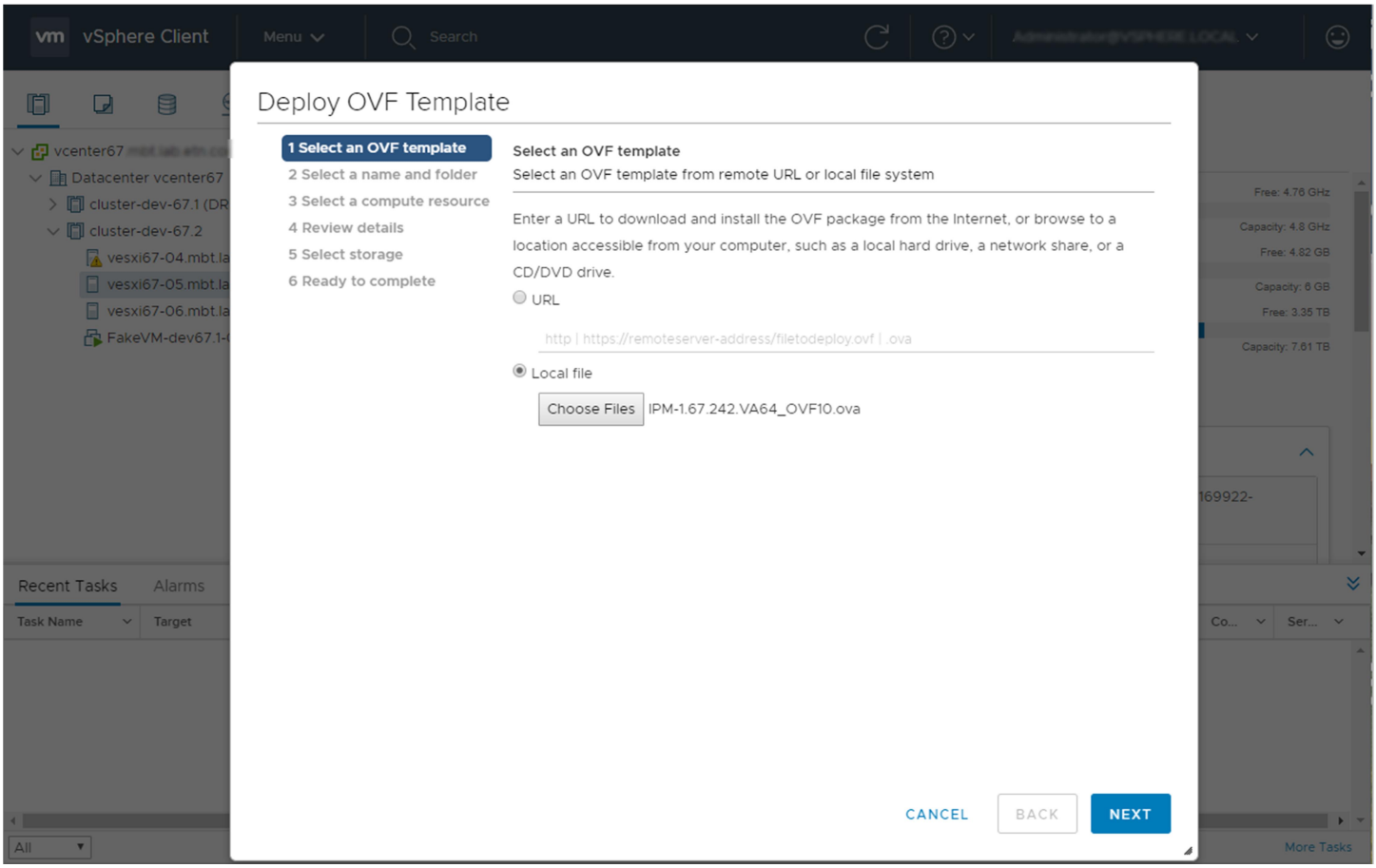

Figure 1. Deploy OVF Template Select OVA file

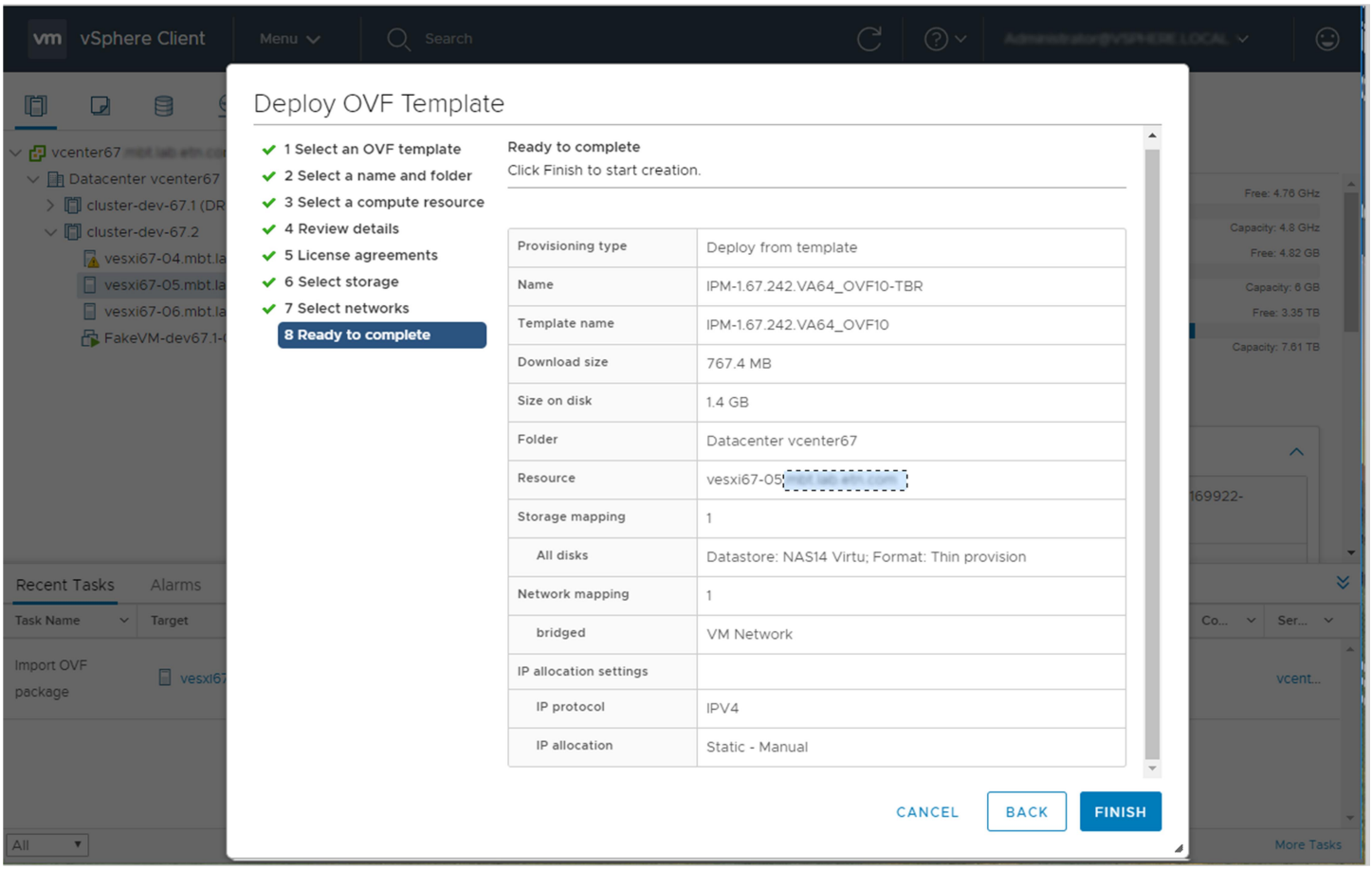

Figure 2. Deploy OVF template complete

2.2 Configuring a Virtual Appliance

To log into the virtual appliance you can use:

- Standard Console of your hypervisor
- SSH Client

With a Standard Console, you will see the following screen.

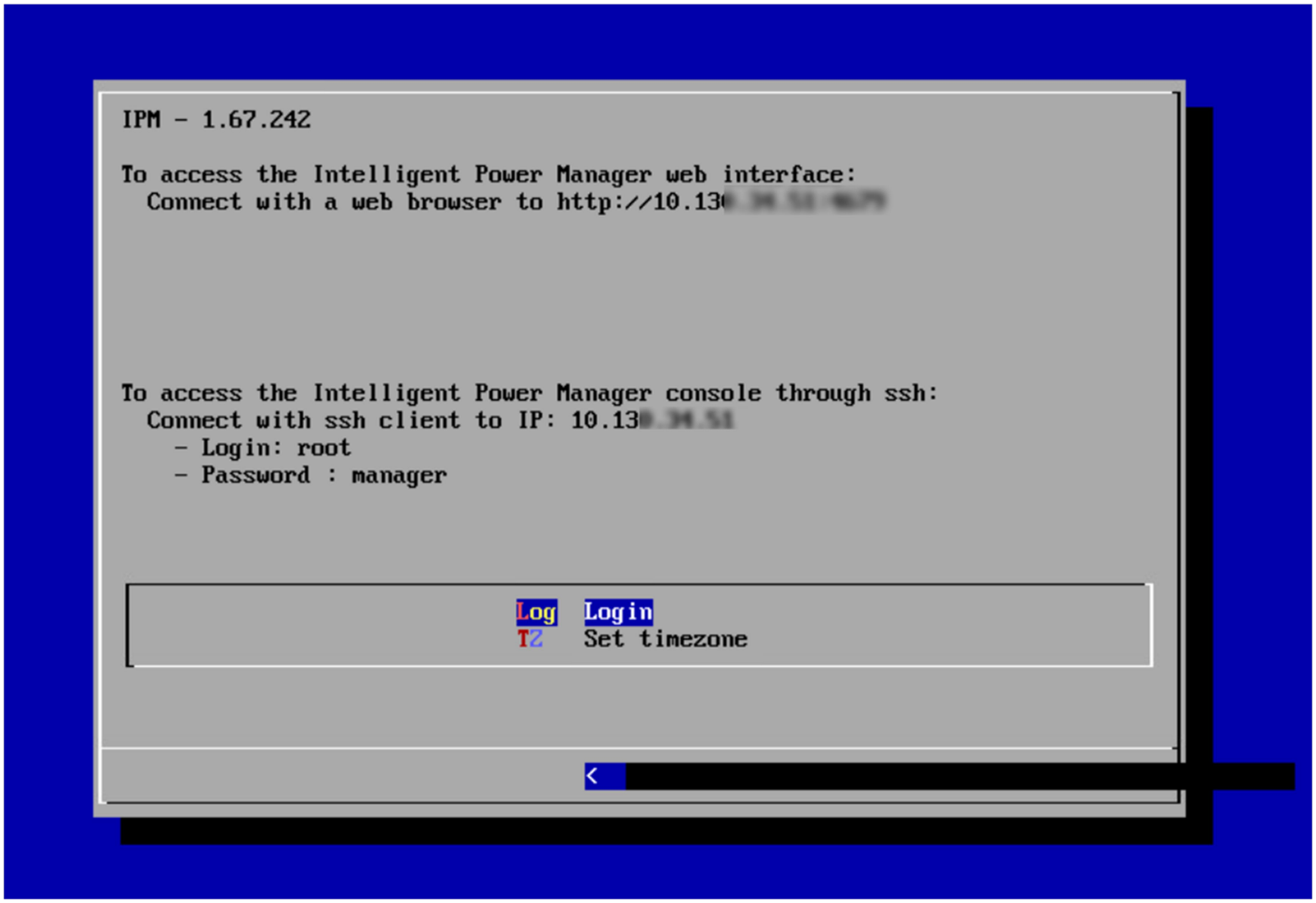

Figure 3. Standard console

2.3 Configuring networking on IPM Debian OVA

At the end of the deployment of the OVA, you must edit the network settings if you want to have a static IP address assigned to the server. DHCP is configured by default.

Here's command lines to execute in order to modify IP address :

1- `ip addr`
This will show the Ethernet adapter. For my OVA, 2 IP address available
- lo --> loopback
- lan0 --> this is the one to modify

2- `vi /etc/network/interfaces.d/lan0`

3- modify dhcp by static
iface lan0 inet dhcp --> iface lan0 inet static

4- add
- IP address
- Netmask
- Gateway
- dns-nameservers IP_address_DNS
- dns-search domain.com

Example of /etc/network/interfaces.d/lan0
auto lan0
iface lan0 inet static
address 192.168.1.198
netmask 255.255.255.0
gateway 192.168.1.1
dns-nameservers 192.168.1.2
dns-search domain.com

5- Restart networking `systemctl restart networking`

6- You might need to flush the interface `ip addr flush dev lan0`

Notes :
Caution: after these 2 operations, the IP is changed and as you are remotely connected, you should be disconnected.
That means that you need to reconnect with the new IP address. If this fails, the only way to retrieve a connection is the vSphere web pages that allows you to open the console of the OVA.

Set FQDN
`vi /etc/hostname`
IPM-VA64-1-67-243.domain.com

Edit /etc/hosts
Add domain name and address to the server
`vi /etc/hosts`
127.0.0.1 localhost
IP_address IPM-VA64-1-67-243.domain.com

eg. hosts file.
127.0.0.1 localhost
192.168.1.198 IPM-VA64-1-67-243.domain.com

Activate hostname
`hostname -F /etc/hostname`

Restart systemd-resolved daemon
`systemctl restart systemd-resolved`
VERIFY
```
hostname --short
hostname --domain
hostname --fqdn
hostname --ip-address
```

3. IPM configuration for VxRail connector

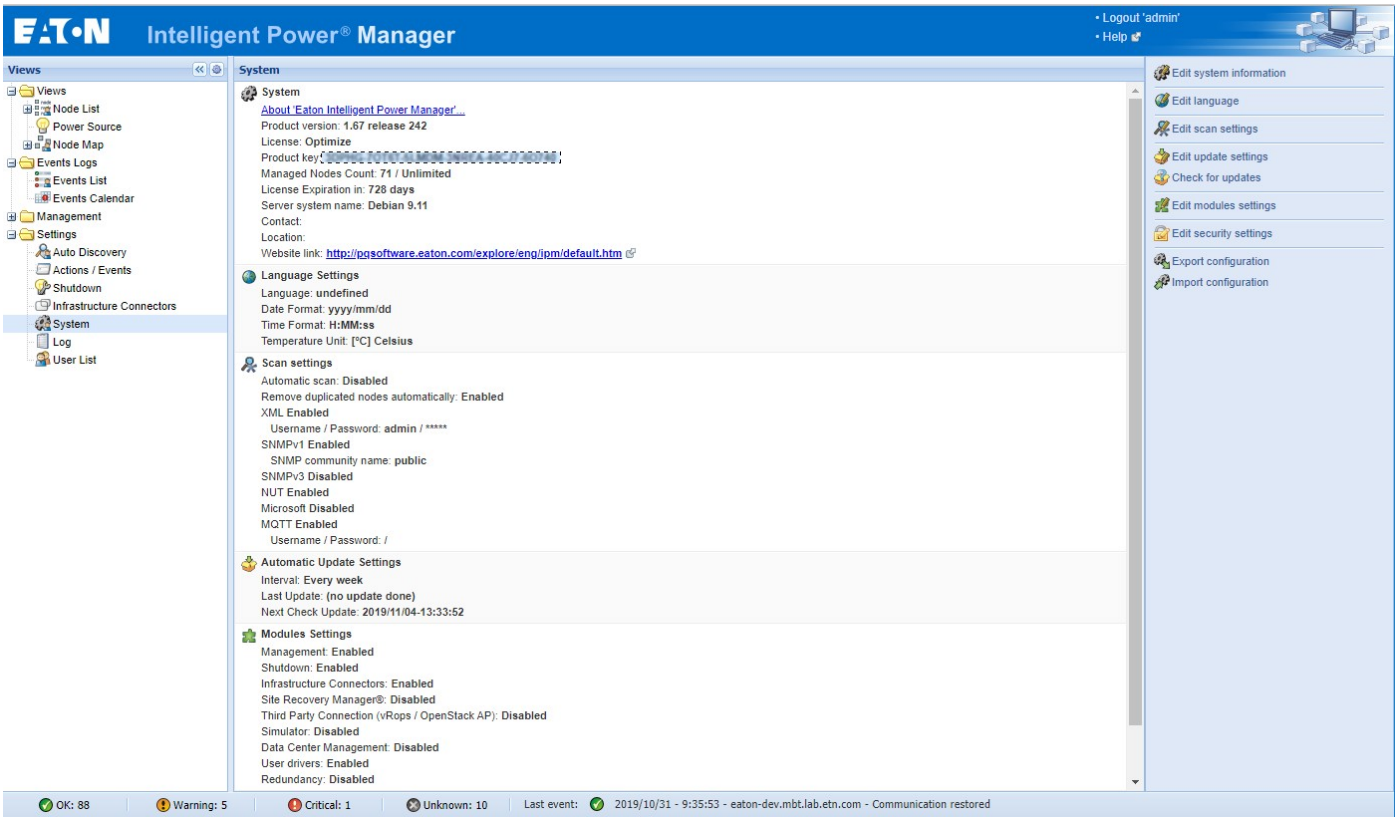

Figure 4. IPM System Menu Configuration

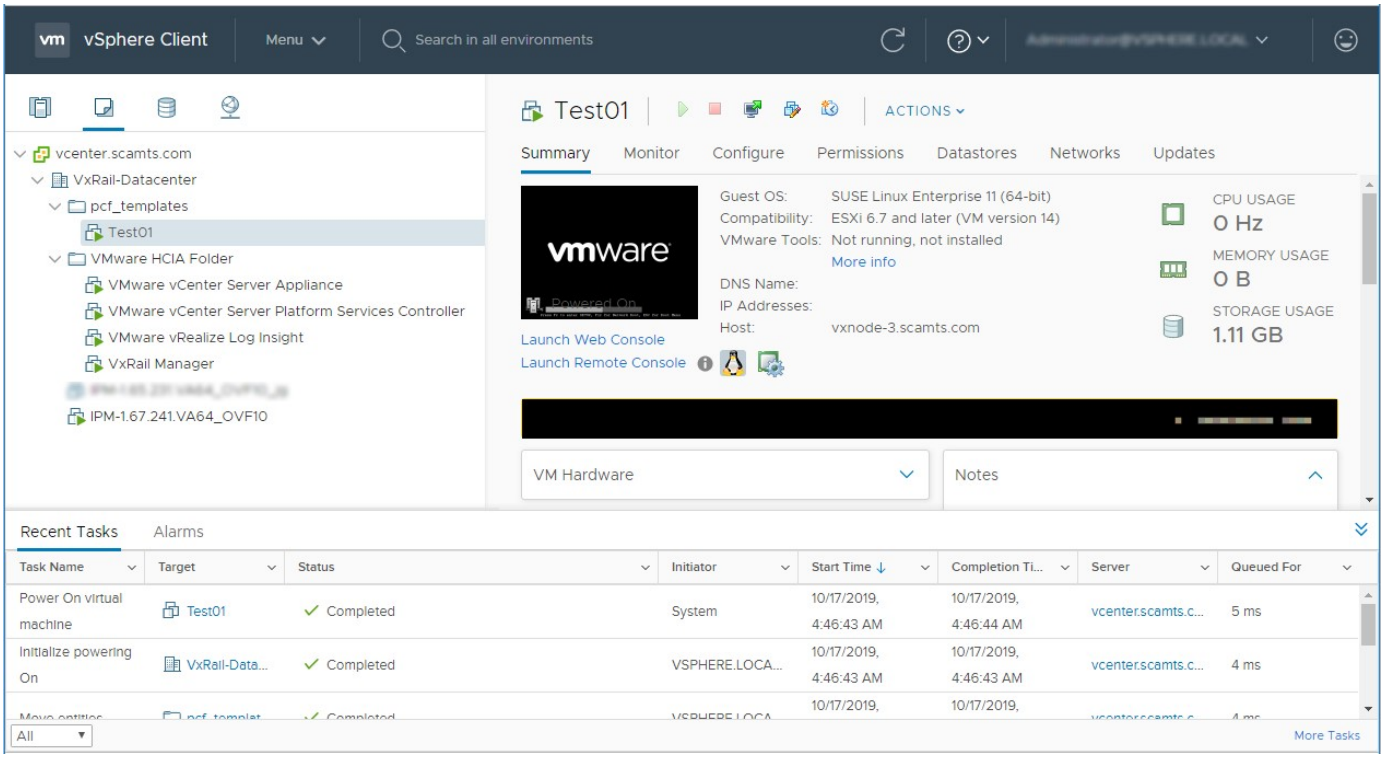

Figure 5. IPM OVA deployed on VxRail vCenter

3.1 Configure VxRail Connector :

Open Settings menu / infrastructure connector. Then select option “add connector” and select in the picklist : Dell/ EMC VxRail.

To set the connection with VxRail, following information are required :

- Hostname or IP address : VxRail Software Manager
- Username
- Password
- vCenter Hostname

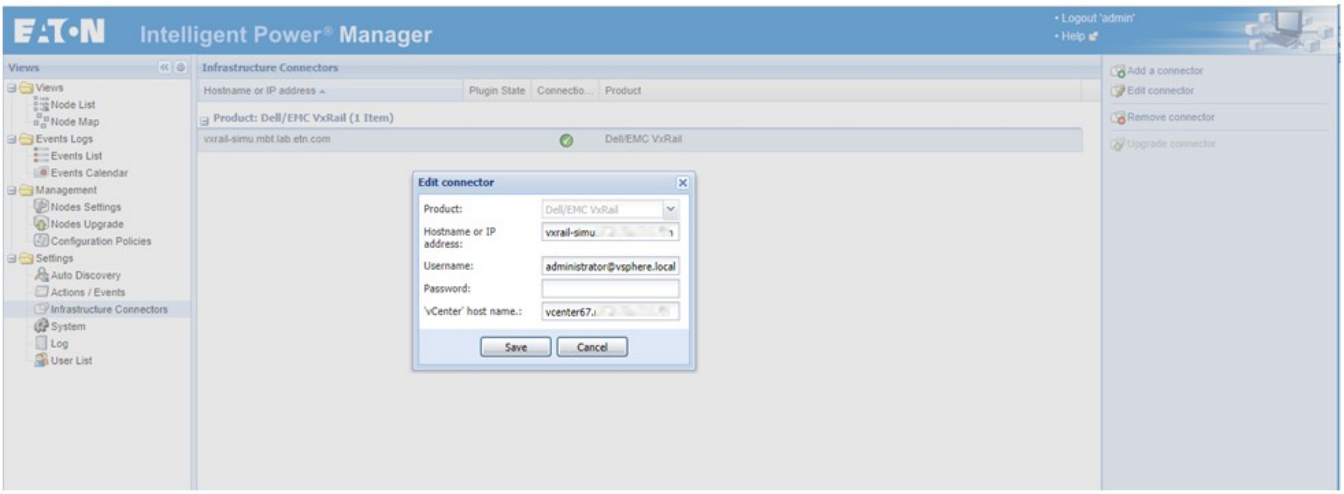

Figure 6. Edit Dell/EMC VxRail connector

Once configuration is done and connection established with VxRail, connector is displayed in the infrastructure connector with a green icon

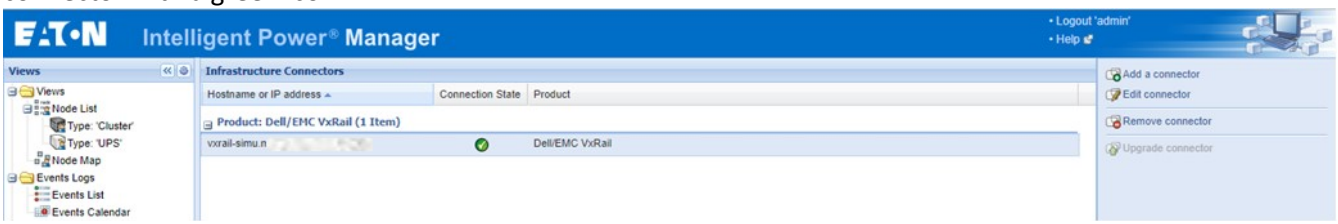

Figure 7. Dell/EMC VxRail connector configured

3.2 Cluster Monitoring :

Then in the node list, virtual asset managed by the VxRail connector are retrieved and displayed in the node list. In this case, the VxRail cluster.

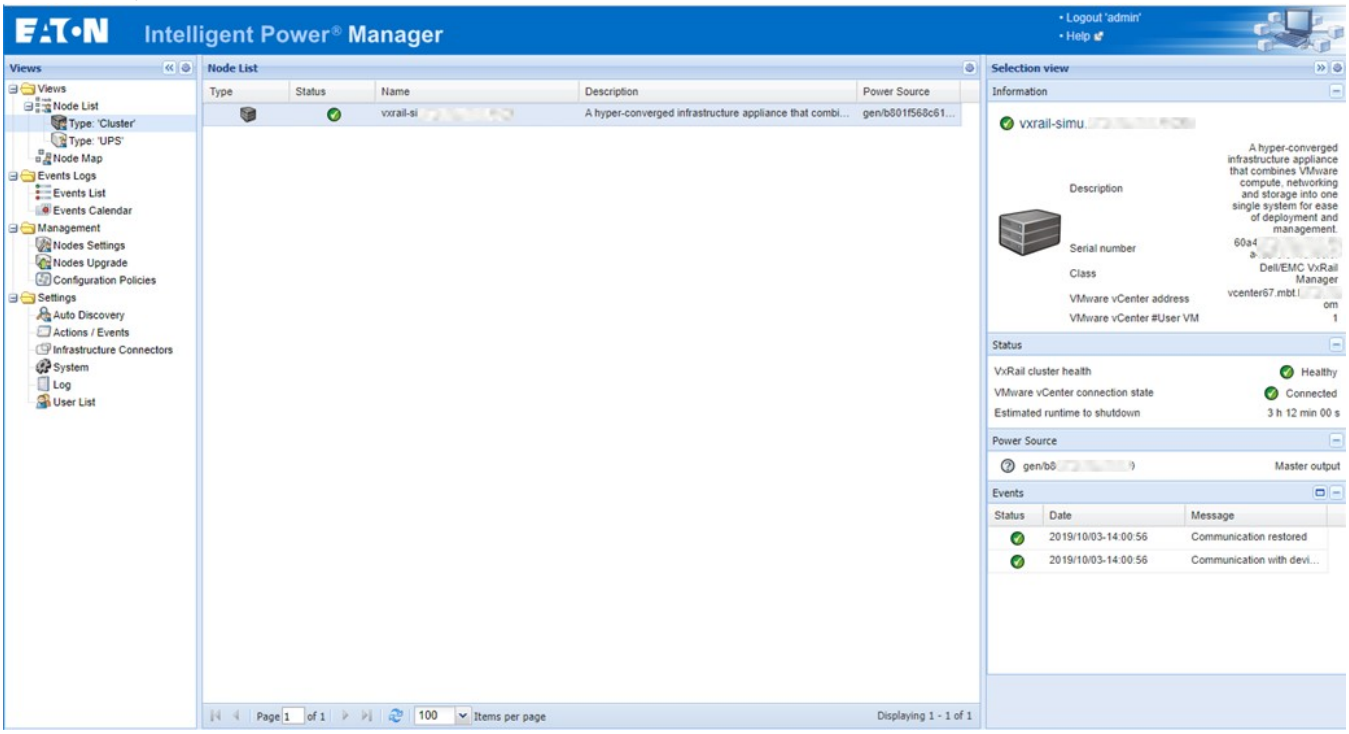

Figure 8. Dell/EMC VxRail Cluster monitoring

3.3 Eaton Gigabit Network-M2 Card settings :

Discover the card : settings / auto discovery
If you know the IP address of the card, please use "Address Scan" option

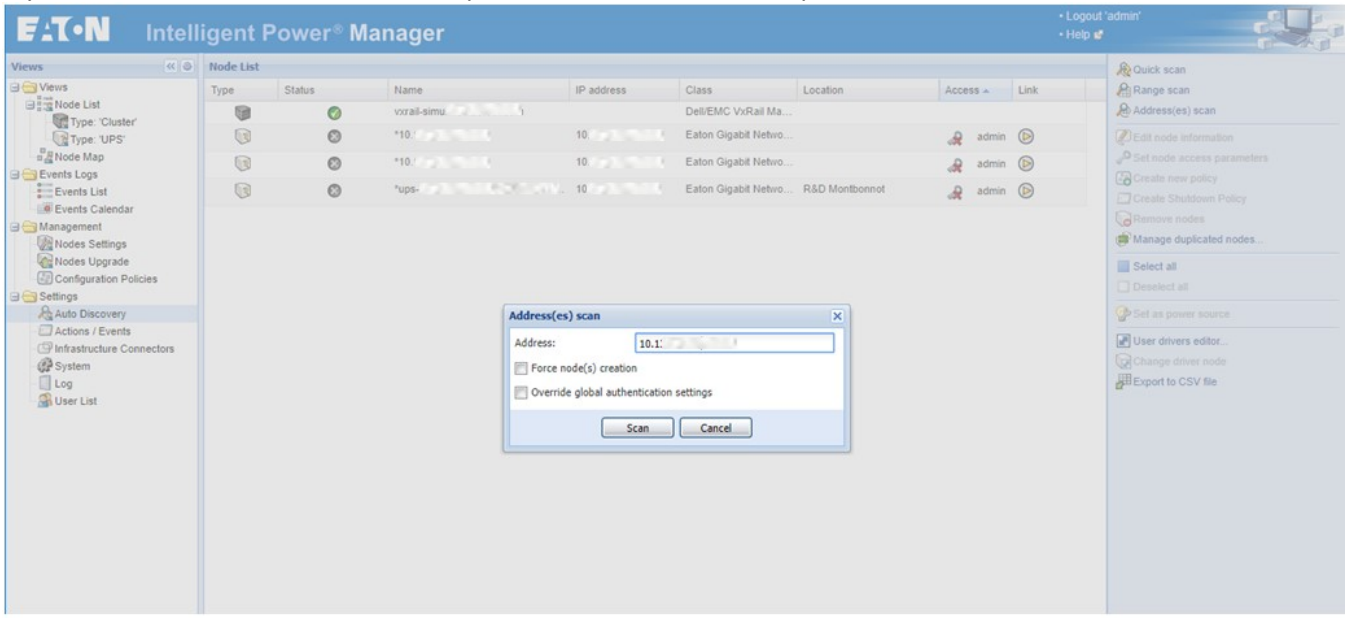

Figure 9. Discovering the Eaton Gigabit Network-M2 card

Once Network card is discovered, credential must be set : Please select the card and click on "Set node access parameters" and set the card credentials.

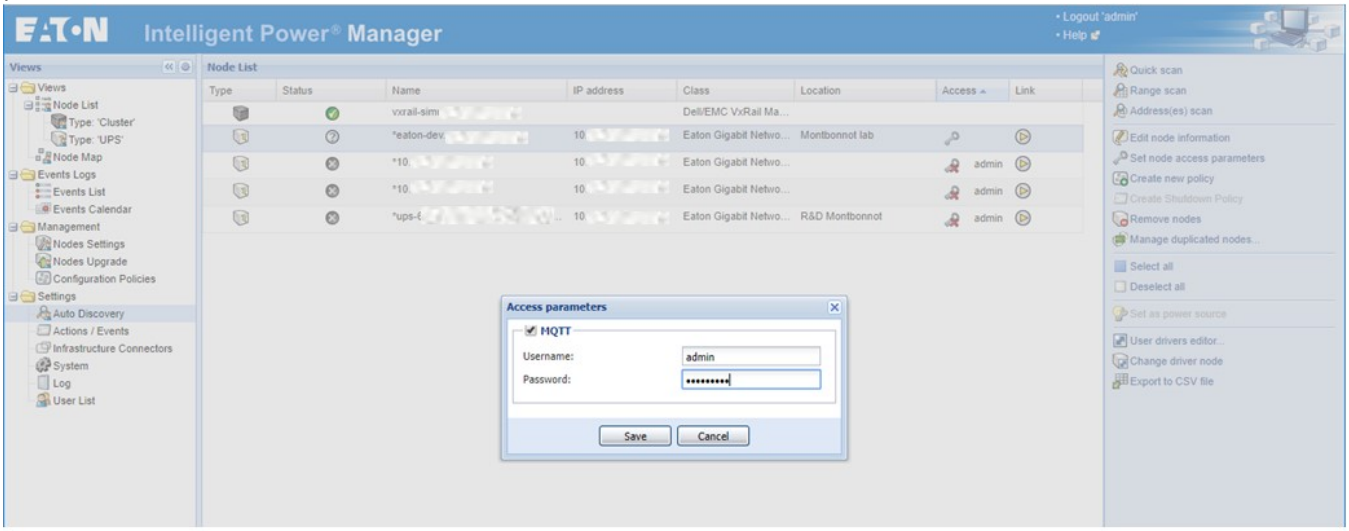

Figure 10. Set Node access parameters to Eaton Gigabit Network-M2 card

Then connection with Network card is Ok

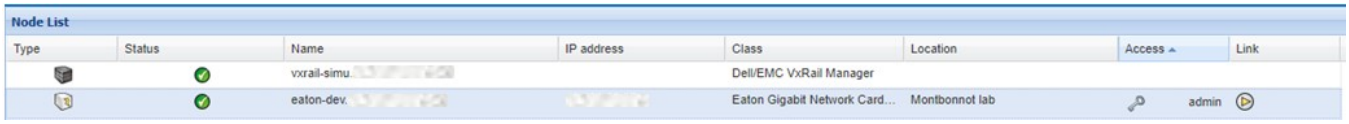

Figure 11. Eaton Gigabit Network-M2 card access parameters configured

And, the UPS managed by the card is correctly monitored by IPM

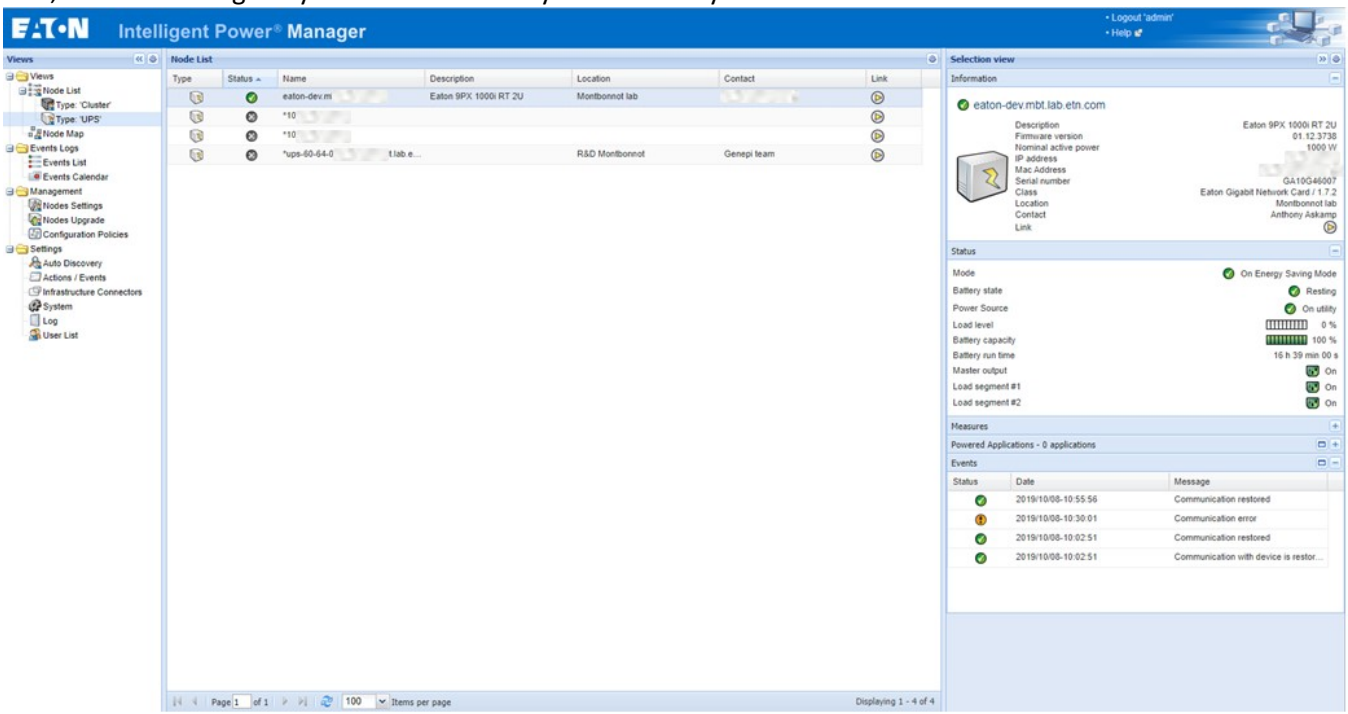

Figure 12. Monitoring of the UPS managed by Eaton Gigabit Network-M2 card

4. VxRail Cluster Protection Policy

4.1 Configuration Policy

Define a protection policy by targeting the VxRail cluster and defining the power source of the cluster : the UPS managed by Eaton Gigabit Network-M2 Card.

On the node list :

- Select the cluster
- Right click and select Create new policy

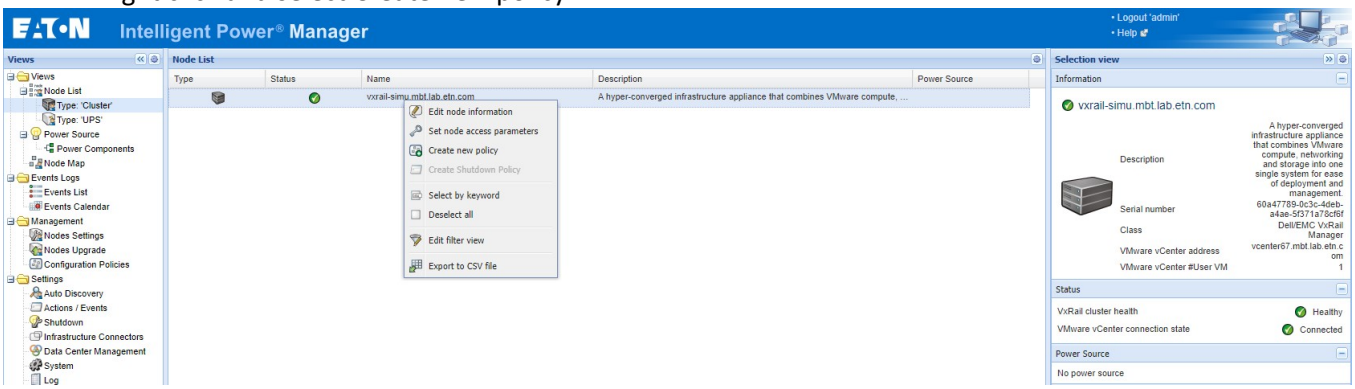

Figure 13. Create New Policy on the VxRail Cluster

Then configure the parameters :

- Target nodes = the VxRail Cluster to protect
- Class list = Power source
- Power source= the UPS protecting the VxRail Cluster

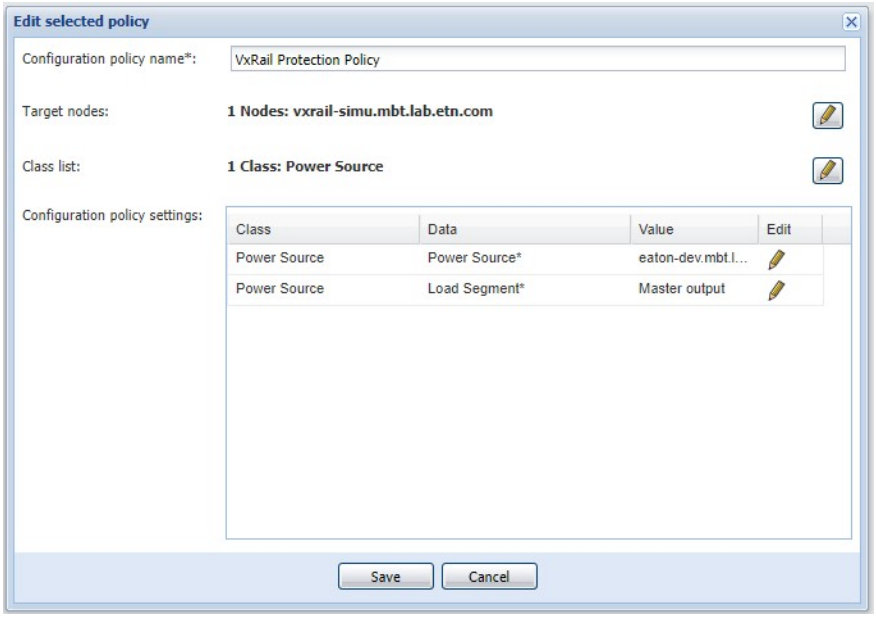

Figure 14. Edit Policy on the VxRail Cluster

Save the policy : the power source of the cluster is set.

IPM will propose to create a shutdown action : click on "yes" (or create it from Actions/events menu)

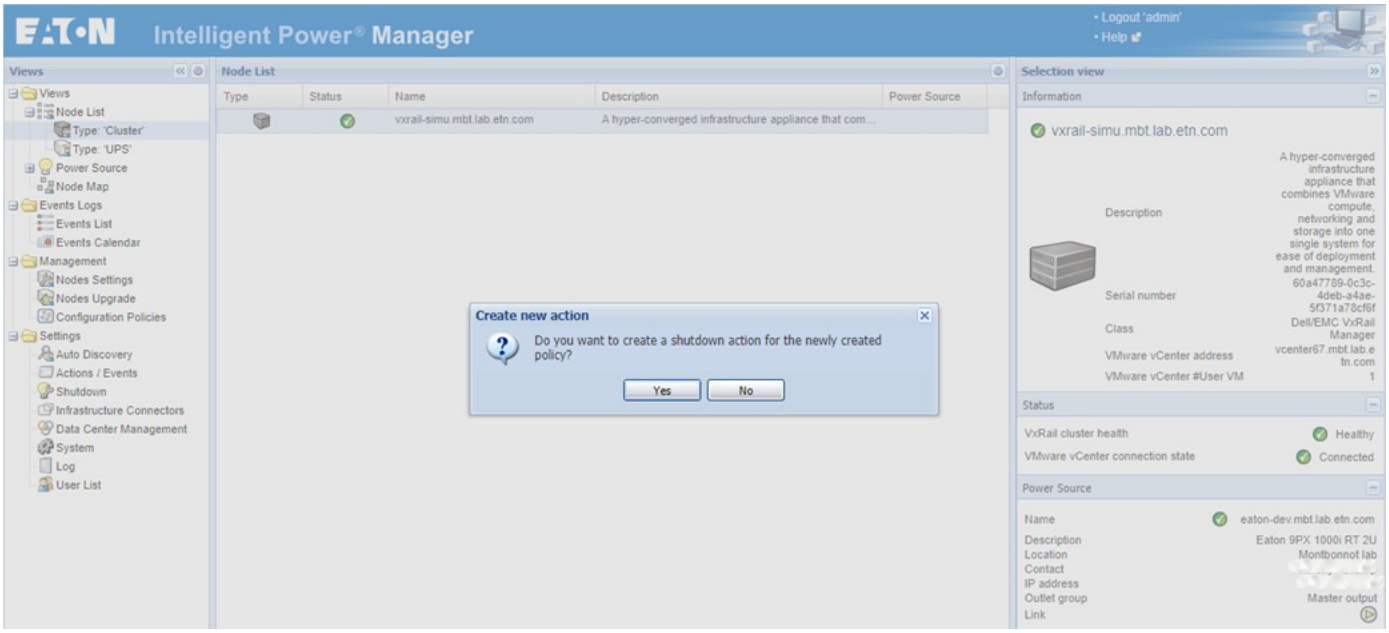

Figure 15. Create New Shutdown Action on the VxRail Cluster

4.2 Configure New Action : Cluster shutdown

The modal opens and is based on the policy previously configured :

- Define the Action Name
- Define in the events list the trigger that will start the action : example "power failure" on the UPS
- Then select the action type : "Cluster Shutdown".
- In action settings, select the VxRail Cluster as Target of the action
- Configure timeout values
- Save action

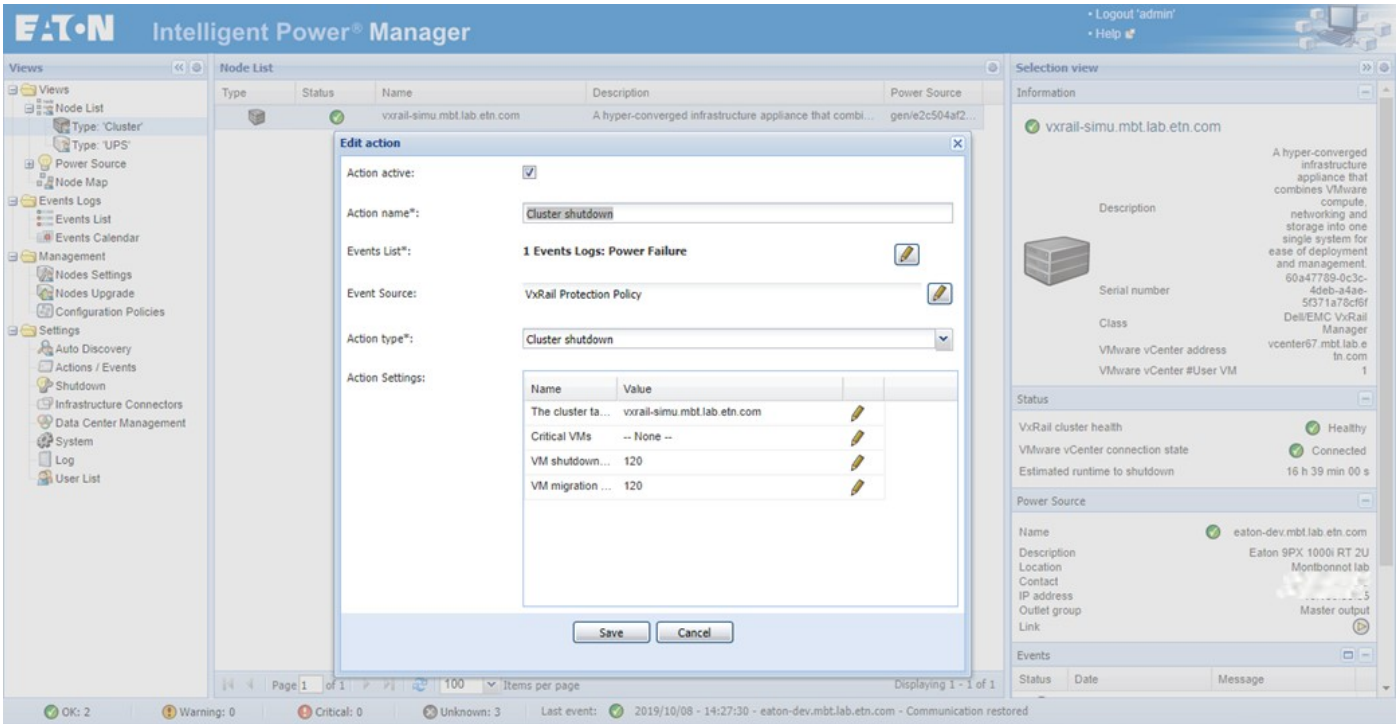

Figure 16. Edit Shutdown Action on the VxRail Cluster

Policy is saved : power source of the VxRail is configured

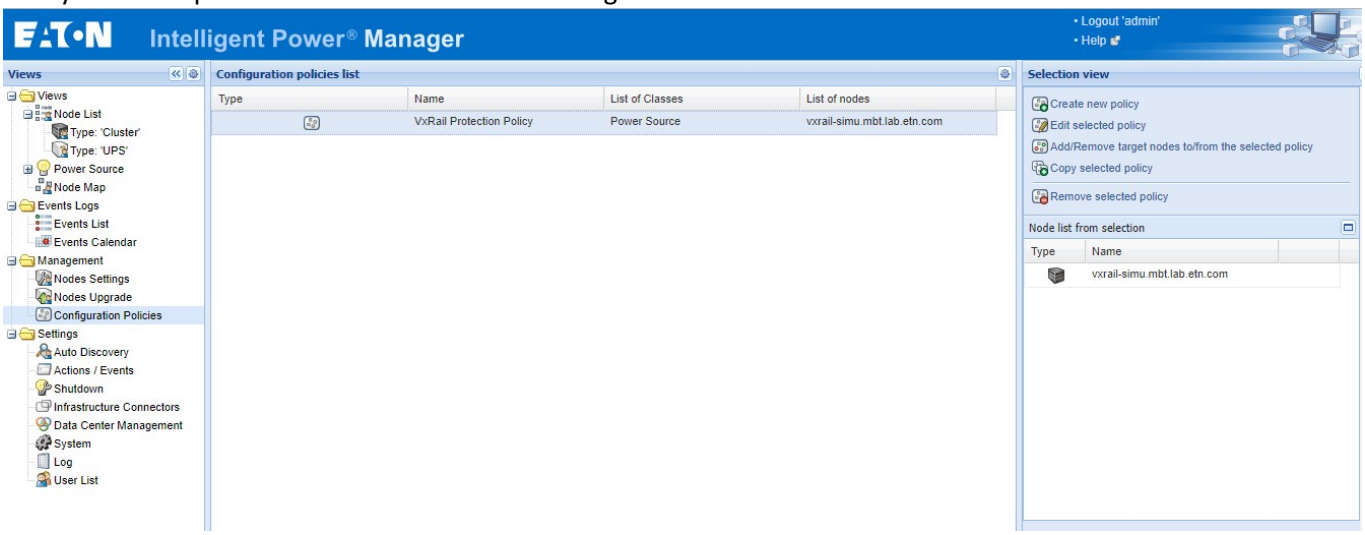

Figure 17. Policy configured for the VxRail Cluster

Shutdown action is configured : now, select the action and click on "test selected action" to trigger the action. It will simulate a power event and start the cluster shutdown action.

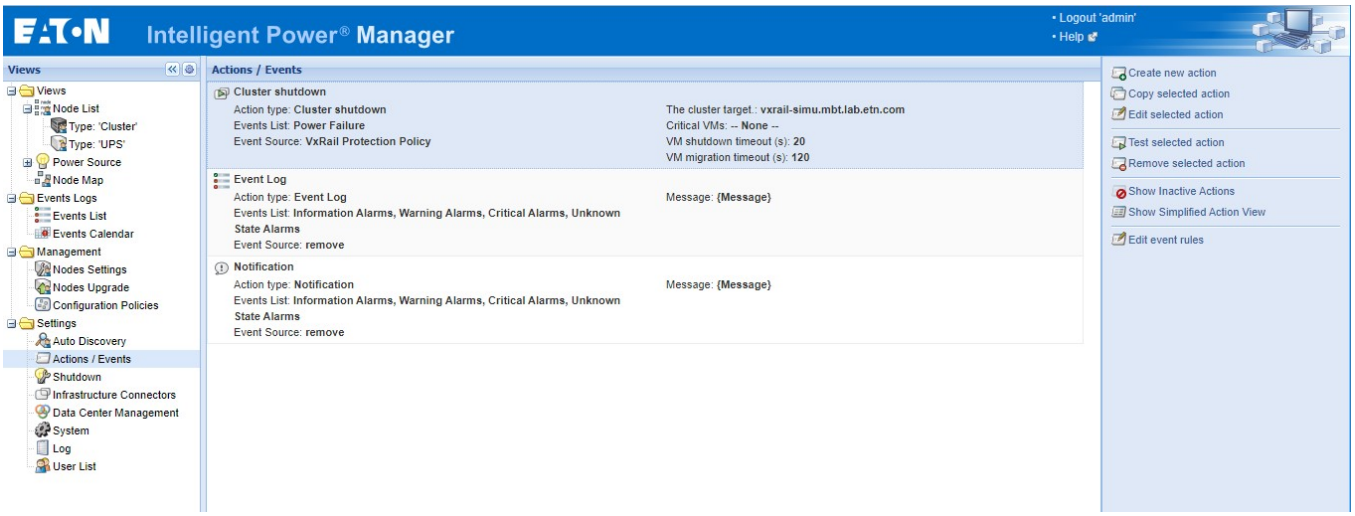

Figure 18. Action configured for the Vxrail Cluster

4.3 Execution logs for VxRail Cluster shutdown

After a cluster shutdown, execution logs are available directly from the Eaton Gigabit Network-M2 Card :
Card Menu/System logs/Download System logs/File name : System

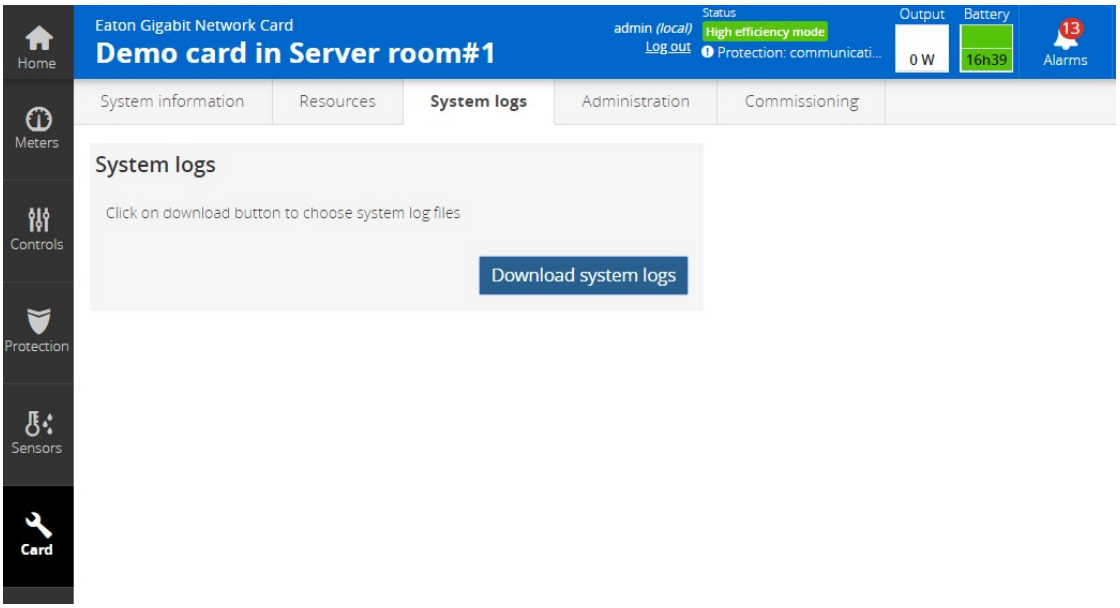

Figure 19. Eaton Gigabit Network-M2 card user interface

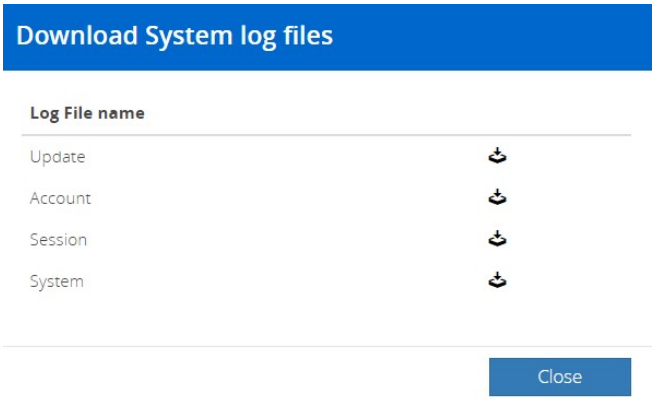

Figure 20. Eaton Gigabit Network-M2 card download System log files

From the CSV file downloaded, these logs will track the success of the cluster shutdown action :

Date Time(UTC)	Facility	Priority	Application	Message	User
2019-10-17T15:09:31	local4	info	protection	Start execution of script "Custom Shutdown Procedure". (0984d3f3-585f-56ec-abd6-b9c0f39af590)	system
2019-10-17T15:09:41	local4	info	logmessage	VxRail system is Healthy	system
2019-10-17T15:10:50	local4	notice	logmessage	VxRail is shutting-down with request c5d230cb-421e-4baa-b1bc-e5a0ab63ea1b	system
2019-10-17T15:11:54	local4	notice	logmessage	VxRail shutdown completed	system
2019-10-17T15:11:54	local4	info	protection	Execution of script "Custom Shutdown Procedure" succeeded. (0984d3f3-585f-56ec-abd6-b9c0f39af590)	system

5. Cluster shutdown scenario for Dell-EMC VxRail

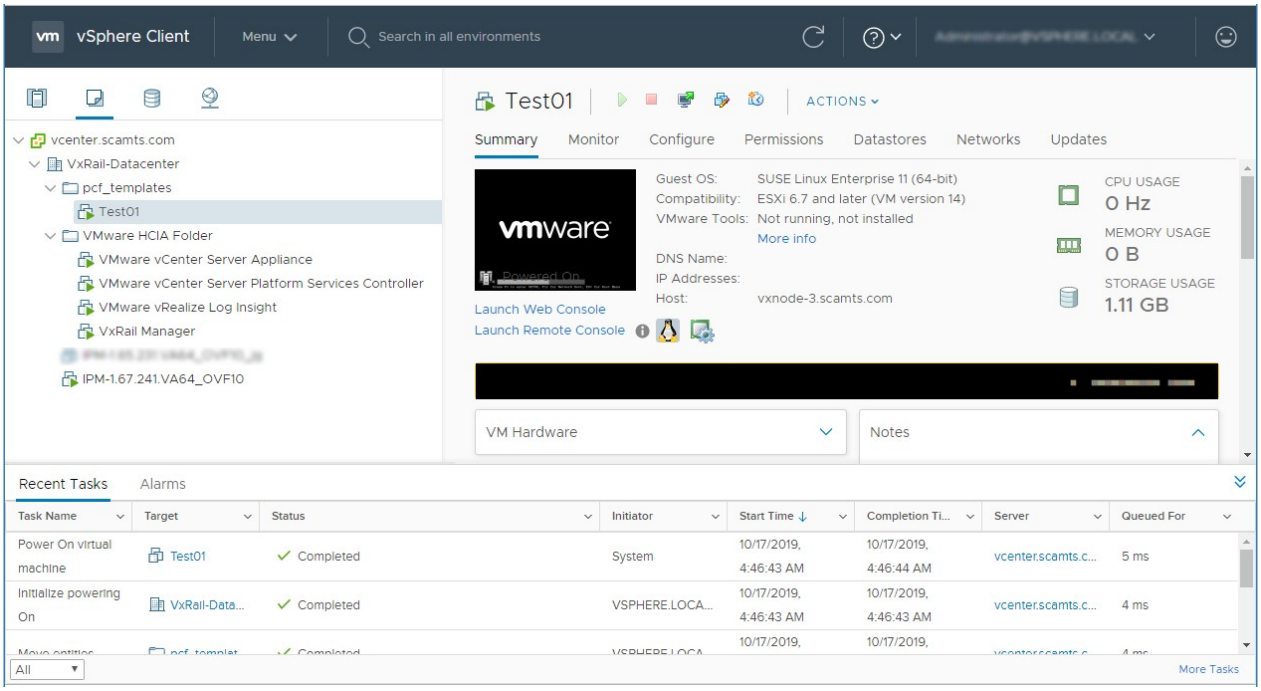

Figure 21. IPM OVA deployed on VxRail vCenter

5.1 *Shutdown workflow with Critical VMs and Management VMs :*

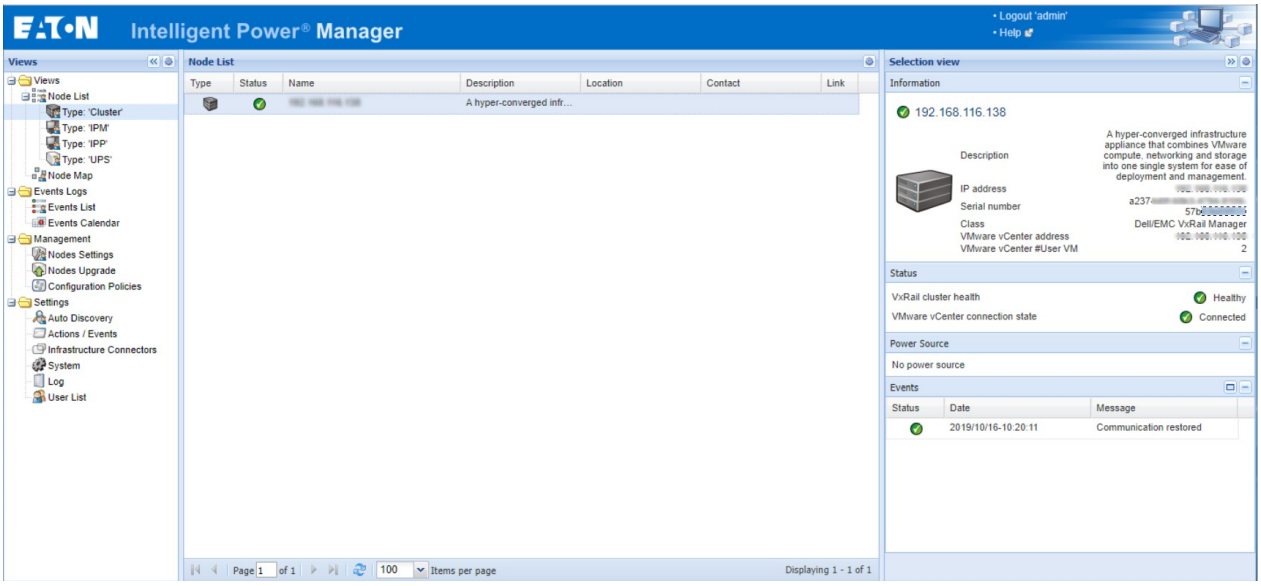

Figure 22. VxRail Cluster Monitoring

System VMs are hidden in IPM UI to prevent user to configure unsupported action on them. Only the VxRail Cluster is displayed in IPM.
User VMs and management VMs are detected automatically by IPM, no need to add them to the critical VMs in the configuration Policy.
Shutdown sequence : **Trigger event will initiate the shutdown :**

- Guest Shutdown User and Business VMs : shutdown first non-critical then critical
- IPM order to the Eaton Gigabit Network-M2 Card to schedule the cluster shutdown
- Shutdown IPM VM
- Eaton Gigabit Network M2 Card request the VxRail Cluster shutdown API endpoint.
- Shutdown System/management VMs : (managed by VxRail Software manager) :
    - VMware vCenter Server Appliance
    - VMware vCenter Server Platform Services Controller
    - VxRail Manager
    - VMware vRealize Log Insight
    - ESRS_VE.x86_64

End of scenarios

Notes :
Cluster shutdown can’t start if VMs are still running on the cluster.
IPM 1.67 do not support Containers.
IPM 1.67 do not support the restart of the VxRail cluster