## Please follow the steps listed below to configure Eaton Intelligent Power Manager (IPM) for use with vSAN systems to provide graceful shutdown.

Eaton's Intelligent Power Manager is a proven leader in IT power protection. Users of HyperConverged Infrastructure (HCI) are asking for the power management SW to be within the cluster and require graceful shutdown to ensure the HCI devices and clusters are properly shutdown to avoid unnecessary, lengthy start-up issues. This is extremely useful for management of IT and power devices at remote sites, including retail.

In this document, we show the user how to configure IPM for shutdown of a vSAN cluster. You will see that IPM has a secure connector, providing secure authentication and communication between itself and the cluster. We strive to simplify the set-up with automatic detection of IPM and vCenter, and automated settings updates with vSphere and vCenter.

## vSAN clusters shutdown scenarios

#### Eaton Intelligent Power manager is compatible with VMware vSAN cluster for virtual asset monitoring and Cluster power action.

Two types of cluster configuration are supported for cluster shutdown action:

- vSAN cluster without critical VMs (IPM and VCSA outside the cluster)
- vSAN cluster with critical VMs (IPM or VCSA embedded in the cluster)

### Configuration 1: IPM and vCenter outside the cluster

#### **PRE-REQUISITE:**

Shutdown Management VMs (IPM and vCenter) out of the cluster

The vCenter appliance (VCSA) and/

or IPM are hosted in the cluster to

We recommend hosting these two

vSAN Stretched Cluster not supported

appliances on the same ESXi

vSAN Stretched Cluster not supported

#### SHUTDOWN WORKFLOW without critical VMs (HA disabled):

Guest shutdown of all VMs

SHUTDOWN WORKFLOW:

Once VM shutdown timeout has been reached IPM will put host in maintenance mode with No Action option for all ESXi in sequential order Shutdown all ESXi hosts

#### **STARTUP:**

- Customer exit ESXi from maintenance mode
- Customer Power On VMs

### Configuration 2: IPM and vCenter embedded in the cluster

#### **PRE-REQUISITE:**

shutdown

#### Parameters:

- A list of critical VMs. Critical VMs will be shutdown at the end of the shutdown scenario. ESXi IPM and VCSA are automatically added to this list.
- vmShutdownTimeout: the delay (in second) IPM will wait for the VMs to shutdown
- vmMigrationTimeout: the delay (in second) IPM will wait for the critical VMs to migrate to the "ultimate" ESXi. It's important to evaluate the right value for this parameter (the time used to migrate all critical VMs).

#### Scenario:

- Disable DRS
- Disable HA
- Shutdown all non-critical VMs
- Wait for all the VMs to be shutdown until the delay expires
- If some non-critical VMs are still up, then power them off
- · Determine the "ultimate ESXi", generally the ESXi hosting the VCSA
- Migrate the critical VMs to the "ultimate ESXi".
- Wait for delay "vmMigrationTimeout".
- Redefine the auto-start list of all ESXis (except the "ultimate") with no VMs
- Redefine the auto-start list of the "ultimate ESXi" with the critical VMs
- Set the VSAN storage policy FTT (Faults To Tolerate) to 0.
- Shutdown all ESXis except the "ultimate"
- Shutdown the "ultimate ESXi"

#### **STARTUP:**

#### Automatic startup:

- Only the critical VMs are restarted on the "ultimate ESXi"
- Enable HA (if IPM has disabled it)
- Enable DRS (if IPM has disabled it)
- Reset the vSAN storage policy FTT to the previous value

#### Manual operations:

- Restart the non-critical VMs



#### **PRE-REQUISITE:**

Create the VMware vSAN infrastructure connector in IPM:

Infrastructure Connectors				
Hostname or IP address 🔺	Plugin S	SRM state	Connecti	Product
🖃 Product: VMware vCenter (1 Item)				
vcenter67u3-vsan.	Ø	8	Ø	VMware vCenter
		~	~	

E-T-N Intell	igent Power® Mana	ger	
Views	Infrastructure Connectors		Add a connector
Uiews	Hostname or IP address 🔺	Plugin SRM s Conne Product	C Edit connector
Rever Source	Product: VMware vCenter (1 Item)		Remove connector
C Power Components	vcenter67u3-vsan	🕥 😒 🔗 VMware vCenter	Wpgrade connector
Events List Events List Management Nodes Settings Nodes Settings Settings Settings Settings Sudo Discovery Suddown Infrastructure Connectors Data Center Management System Log Suser List		Add a connector Product: VMware vCenter Hostname or IP address Username: Domain/Administrator Password: vCenter Plugin: Save Cancel	

After the connector creation all virtual assets managed by the connector are retrieved in the node list: Cluster, ESXi, and VMs  $\,$ 

Node List				0	Selection	view	> @
Туре 🔺	Status	Name	Location		Informatio	n	-
<b>F</b>	0	cluster-dev-67.3 (vS	vcenter67u3-vsan.		Churs	ter dev 67.2 (VSAN)	
	0	FRORE IN PEORE			U Cius	CI-CCV-OT.5 (VOAN)	and stilled and data be to
	0	vcenter67u3-vsan.m				Serial number	\$1d05eb45683-dumain-c7
	0	Debian 8 - 01	vesxi67-09.r			Location	vcenter67u3-vsan.
	0	Debian 8 - 02	vesxi67-09.r				
	<b>Ø</b>	Debian 8 - 03	vesxi67-07.r		Status		
	<b>Ø</b>	Debian 8 - 04	vesxi67-08.r		Dynamic F	Resource Scheduler	🔗 Enabled
	<b>Ø</b>	Empty 01	vesxi67-07.r		High Avail	ability	S Enabled
		IPM 1.68.244 Win10	vesxi67-09.r		Virtual Sto	rage	Enabled
	0	VA64_OVF10	vesxi67-09.r		Power Sou	rce	+
<b>I</b>	0	vcenter67u3-vsan	vesxi67-08.r		Events		
1	Ø	vesxi67-07	vcenter67u3-vsan		Status	Date	Message
1	0	vesxi67-08	vcenter67u3-vsan		Ø	12/06/2020-11:05:38	Communication restored
	Ø	vesxi67-09	vcenter67u3-vsan		Ø	12/06/2020-11:05:38	Communication with device is re

#### **1 – CREATE A SHUTDOWN POLICY FOR THE CLUSTER**

е	Status	Name	Description	Location		Contact	Lin
9	0	cluster-dev-67.3 (v	SAN)	vcenter67u3-vs	an.mbt.lab.et		
							7
	Edit selec	cted policy	10			×	
	Configura	ation policy name*:	vSAN cluster shutdown Policy	ý			
	Target n	odes:	1 Nodes: cluster-dev-67.3	(VSAN)			
	rargeen		Thought claster act on b	(12/11)		Ø	
	Class list	:	2 Class: Runtime threshold	settings, Power Source			
	Configura	ation policy settings:					
	conngun	adon poncy seamgs.	Class	Data	Value	Edit	
			Runtime threshold settings	Timer	-1 s	Ø	
			Runtime threshold settings	Remaining Time Limit	0 s	Ø	
			Runtime threshold settings	Remaining Capacity Limit	0 %	Ø	
			Runtime threshold settings	Shutdown Duration	120 s	Ø	11 11
			Power Source	Power Source*		Ø	
			Power Source	Load Segment*	Master outpu	t 🥒	
							1.0
							1.1.2.5
			Save	Cancel			1.1
			Sare	Cuncer			

The user must provide a name for the configuration policy. In this case, it is named 'vSAN cluster shutdown policy' as shown in the first line of the policy set up screen. To select the Target node, click on edit (the pencil icon) then select the cluster. The cluster name 'cluster-dev-67.3 (vSAN)' is provided by the user after the vCenter Connector is activated.

For Class list, select both 'Runtime threshold settings' and 'power source'.

You will see four items in runtime threshold settings. They run in parallel, the first one that becomes true will trigger the event. Timer: set amount of time to elapse after event (a negative number disables the timer). Remaining battery can be set either with percentage of battery remaining or time of battery remaining. Shutdown duration is the amount of time it takes to perform the shutdown action. This will be the default.

The power source is the UPS that registers the event. If an action is to be taken for a power outage, the UPS will provide the notification of the power loss event.

Save the policy. IPM will then prompt the user to develop a shutdown action for this policy, as shown below:

reate r	lew action
?	Do you want to create a shutdown action for the newly created policy?
4	
	Yes No

#### 2 - CONFIGURE THE SHUTDOWN ACTION (SAME PROCESS FOR VSAN CLUSTER CONFIGURATIONS)

Edit action			VM m 🗙
Action active:			
Action name*:	Cluster shutdown vSAN		
Events List*:	Runtime Threshold Reach	ned	
Event Source:	vSAN cluster shutdown Polic	у	
Action type*:	Cluster shutdown		~
Action Settings:	Name	Value	
	The cluster target.*	cluster-dev-67.3 (vSAN)	Ø
	Critical VMs	Criticals VMs ***Hosting vCenter***	Ø
	VM shutdown timeout* (s)	120	Ø
	VM migration timeout* (s)	120	Ø
	Save	Cancel	

User must configure the following information:

- The user must provide a name for the shutdown action. In the screenshot above, the action is called 'Cluster shutdown vSAN'.
- · Event source: Action is linked to the shutdown policy previously created by default, but it can be changed by the user
- Action Type: select 'Cluster Shutdown'

· Action settings :

- Cluster Target: select the vSAN cluster to shutdown, in this case it is 'cluster-dev-67.3 (vSAN)'
- Critical VM: (not mandatory)
  - · IPM will detect the IPM VM and VCSA, and add them to the list of critical VMs to shutdown
  - If other VMs should be considered as Critical, the user must create a configuration policy on these VMs; then select the policy as a Value in critical VMs field :

Edit parameter	×
Critical VMs	
A configuration policy group containing the critical VMs, That is the VM be shut down at the latest possible moment, and which will be restarte is considered as 'critical' if it hosts a critical application like VMware vCenter DHCP, LDAP/AD server, etc. and so on. If you use a vSAN cluster, please du configure critical VMs to perform Graceful shutdown. Leave this value to 'No	s that will d first. A VM or a DNS, on't one'.
Criticals VMs ***Hosting vCenter***	<b>`</b>
None	

- Then user must configure the timeout duration for:
  - VM shutdown action
  - VM migration action
- Save action

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