

PANDORAFMS



Cluster Management

19-09-2021





Cluster Management

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Cluster Management

Introduction

From version 719, Pandora FMS has a new feature that allows to monitor clusters regardless of the system or the application you use.

The purpose of this system is to ensure fast and easy cluster monitoring, but specially to be user-friendly.

There are two types of clusters:

Active - Passive

These are those clusters where there is only one node running simultaneously.

Active - Active

These are those where the application or service provided is balanced between all cluster nodes.

In a cluster, there are several types of elements:

Common Elements

Modules that must remain active in all cluster nodes, essential for clustering to work.

Balanced Elements

only required for “Active - Passive” type clusters. These are the modules that will be executed as long as the node is active i. e., they will be those modules that will go “balancing” from one node to another of the cluster depending on which machine is running my application at that moment, they will report in one agent or another.



Balanced elements are only needed in the case of clusters of the **Active - Passive** type.



Planning monitoring

When monitoring a cluster, this must be taken into account:

If it is an active- active cluster

The common modules to be monitored must be present in all cluster agents. Otherwise it will not be possible to select them.

Then it will be necessary to create identical monitors on all cluster agents to monitor the desired resources.

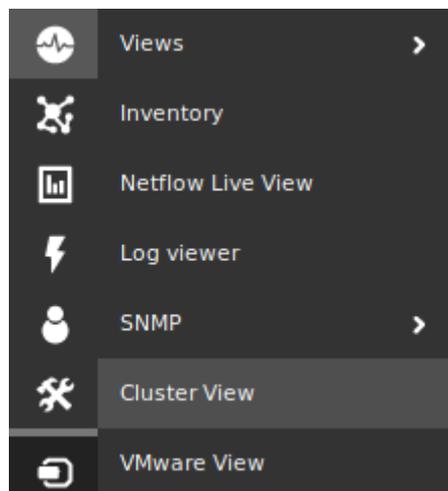
If it is a passive - active cluster

Common modules will follow the same setup as an active - active. But balance module monitoring must be only configured **in the active node**.

To be able to monitor “the active node”, use conditioned monitoring, where the module will only report when a series of terms are met.

Configuring a new cluster

To create a new cluster, go to *Monitoring > Cluster view*.



If this is the first time you access this screen, you should see a page similar to the next one:



INFORMATION

There are no clusters defined yet.



CREATE CLUSTER

A cluster is a group of devices that provide the same service in high availability.

Depending on how they provide that service, we can find two types:

Clusters to balance the service load: these are active - active (A/A) mode clusters. It means that all the nodes (or machines that compose it) are working. They must be working because if one stops working, it will overload the others.

Clusters to guarantee service: these are active - passive (A/P) mode clusters. It means that one of the nodes (or machines that make up the cluster) will be running (primary) and another won't (secondary). When the primary goes down, the secondary must take over and give the service instead. Although many of the elements of this cluster are active-passive, it will also have active elements in both of them that indicate that the passive node is "online", so that in the case of a service failure in the master, the active node collects this information.

Create Cluster

Configuring a new cluster Active-Active

Click on "Create" to start the cluster creation wizard, selecting for this example the "Active - Active" cluster option:

CLUSTER » NEW

Step 1 » Cluster settings | Step 2 » Cluster agents | Step 3 » A/A modules | Step 4 » A/A modules limits

Cluster name ★ ✓

Cluster type

Description

Group

Create >

Once you have selected a name, a cluster type and a target group, press "next" to access the section on selecting agents.



CLUSTER EDIT » CLUSTER DE PRUEBA

Step 1 » Cluster settings | **Step 2 » Cluster agents** | Step 3 » A/A modules | Step 4 » A/A modules limits | Step 5 » Alerts

Cluster name: Cluster de Prueba

Adding agents to the cluster

Agents ✓ Agents in Cluster ✓

Group recursion

Filter group: All

Filter agent:

Agents list: 192.168.50.2, 192.168.50.3, 192.168.50.4, 192.168.50.5, 192.168.50.6, LAPTOP-LOVOBFTQ, localhost.localdomain, localhost.localdomain, Prueba agente, Prueba GIS

Agents in Cluster list: 192.168.50.1, 192.168.50.10, 192.168.50.11, 192.168.50.12, 192.168.50.14

Update and view cluster

In this step, select all **critical modules for the service** to monitor from those agents that have been added to the cluster:

CLUSTER » NEW

Step 1 » Cluster settings | Step 2 » Cluster agents | **Step 3 » A/A modules** | Step 4 » A/A modules limits

Cluster name: Apache Cluster

Adding common modules ★

Common in agents ✓ Added common modules ✓

Common in agents list: Connections opened, Corosync running, CPU Usage, Disk_Free, DRBD running, Memory_free, Network Traffic (Incoming), Network Traffic (Outgoing), Pacemaker running, System Log File

Added common modules list: Apache running

Update and Next

Select a threshold in percentage of nodes (%) to define the cluster states based on common modules (OK/not OK).



CLUSTER » APACHE CLUSTER

Step 1 » Cluster settings | Step 2 » Cluster agents | Step 3 » A/A modules | **Step 4 » A/A modules limits**

Common modules	Critical if equal or greater than	Warning if equal or greater than	Actions
Apache running	60 % are down	10 % are down	

Add **Update and Next**

After configuring the cluster, add alerts about the different cluster elements so that a certain action is carried out when changing the selected modules to a specific status.

CLUSTER » NEW

Step 1 » Cluster settings | Step 2 » Cluster agents | Step 3 » A/A modules | Step 4 » A/A modules limits | **Step 5 » Alerts**

Total items: 0

INFORMATION
No alerts defined

Module:

Actions: Create Action

Template: Create Template

Threshold: seconds

Add alert **Finish and view cluster**

After module evaluation, you will see the cluster map with the status information.

Active - Active cluster view

If your cluster is Active - Active, you can only see the common elements.

This is the view after following the creation example described in the previous section:



There are three different sections:

Cluster Map

(Top left). It represents the agents that make up the cluster and their status.

Status Overview

(Top right). It shows the health status of the cluster, as well as the list of its elements.

Metrics View

(bottom) shows the complete list of metrics registered in the cluster.

If you click on an item in the cluster map, you may see extra information about that item:

Detailed view of cluster status (click on map).



Module name	Status	Data	Graph
Apache running	Yellow	20	Graph icon

Detailed view of common module status (click on status overview).

Agent alias	Module name	Status	Data	Graph	Last contact
Apache server 1	Apache running	Green	1.00000	101	19/02/2018 - 19:10:04
Apache server 2	Apache running	Red	0.00000	101	19/02/2018 - 19:10:04
Apache server 3	Apache running	Green	1.00000	101	19/02/2018 - 19:10:04
Apache server 4	Apache running	Green	1.00000	101	19/02/2018 - 19:10:04
Apache server 5	Apache running	Green	1.00000	101	19/02/2018 - 19:10:04

When interpreting data shown in data and status columns, it is important to keep in mind the following considerations:

- The data column shows module percentage in not normal status. For example, if there is a cluster module that contains three modules:



- If the three of them are in normal status, the value will be 0.
- If there is two of them in normal and one in warning status, you will see 33.3.
- If there is one in normal, one in warning and one in critical, you will see 66.7.
- The status column checks the set thresholds. These thresholds indicate module percentage in not normal status.

Configuring a new Active-Passive cluster

Click on “Create” to start the cluster creation wizard, selecting for this example the “Active - Passive” cluster option:

CLUSTER » NEW

Step 1 » Cluster settings | **Step 2 »** Cluster agents | **Step 3 »** A/A modules | **Step 4 »** A/A modules limits

Cluster name ★ ✓

Cluster type

Description

Group

Create >

Once you have selected a name, a cluster type and a target group, press “next” to access the selecting agent section.

CLUSTER EDIT » CLUSTER AP

Step 1 » Cluster settings | **Step 2 »** Cluster agents | **Step 3 »** A/A modules | **Step 4 »** A/A modules limits | **Step 5 »** A/P modules | **Step 6 »** Critical A/P modules | **Step 7 »** Alerts

Cluster name AP

Adding agents to the cluster

Agents ✓ | **Agents in Cluster** ✓

Group recursion

Filter group

Filter agent

192.168.50.2 192.168.50.3 192.168.50.4 192.168.50.5 192.168.50.6 LAPTOP-LOVOBFTQ localhost.localdomain localhost.localdomain Prueba agente Prueba GIS	>	192.168.50.1 192.168.50.10 192.168.50.11 192.168.50.12 192.168.50.14
--	---	--

Update and view cluster ↻



This step consists of selecting all the **critical modules for the service** that you want to monitor from among the agents that have been added to the cluster:

CLUSTER » NEW

Step 1 » Cluster settings | Step 2 » Cluster agents | **Step 3 » A/A modules** | Step 4 » A/A modules limits | Step 5 » A/P modules | Step 6 » Critical A/P modules

Cluster name: MySQL cluster

Adding common modules ★

Common in agents ✓

- MySQL fragmentation ratio
- MySQL response time average
- MySQL Running

Added common modules ✓

- Corosync running
- DRBD running
- Pacemaker running

Update and Next ↻

Then a node percentage threshold (%) is selected to define the cluster states based on common modules (OK/not OK).

CLUSTER » MYSQL CLUSTER

Step 1 » Cluster settings | Step 2 » Cluster agents | Step 3 » A/A modules | **Step 4 » A/A modules limits** | Step 5 » A/P modules | Step 6 » Critical A/P modules

Common modules	Critical if equal or greater than	Warning if equal or greater than	Actions
Corosync running	100 % are down	1 % are down	🗑️
DRBD running	100 % are down	1 % are down	🗑️
Pacemaker running	100 % are down	1 % are down	🗑️

Add ➕ | Update and Next ↻

In this step, the balanced modules are added (those that are reporting in the active agent). The list shows all the modules of all agents that are part of the cluster.



CLUSTER » MYSQL CLUSTER

Step 1 » Cluster settings | Step 2 » Cluster agents | Step 3 » A/A modules | Step 4 » A/A modules limits | **Step 5 » A/P modules** | Step 6 » Critical A/P modules

Cluster name MySQL cluster

Adding balanced modules

Modules ✓

- Corosync running
- DRBD running
- Pacemaker running

Added balanced modules ✓

- MySQL fragmentation ratio
- MySQL response time average
- MySQL Running

Update and Next

In this last section, the balanced modules critical for the cluster must be selected:

CLUSTER » NEW

Step 1 » Cluster settings | Step 2 » Cluster agents | Step 3 » A/A modules | Step 4 » A/A modules limits | Step 5 » A/P modules | **Step 6 » Critical A/P modules**

BALANCED MODULES SETTINGS

Balanced module	Is critical module	Actions
MySQL fragmentation ratio	<input type="checkbox"/>	
MySQL response time average	<input type="checkbox"/>	
MySQL Running	<input checked="" type="checkbox"/>	

Add **Update and Finish**

After cluster setup, you may add alerts on the different cluster elements, so that a specific action is performed when changing the desired modules to a specific status.

CLUSTER EDIT » JUAN

Step 1 » Cluster settings | Step 2 » Cluster agents | Step 3 » A/A modules | Step 4 » A/A modules limits | Step 5 » A/P modules | Step 6 » Critical A/P modules | **Step 7 » Alerts**

Total items : 0

INFORMATION
No alerts defined

Module

Actions **+ Create Action**

Template **+ Create Template**

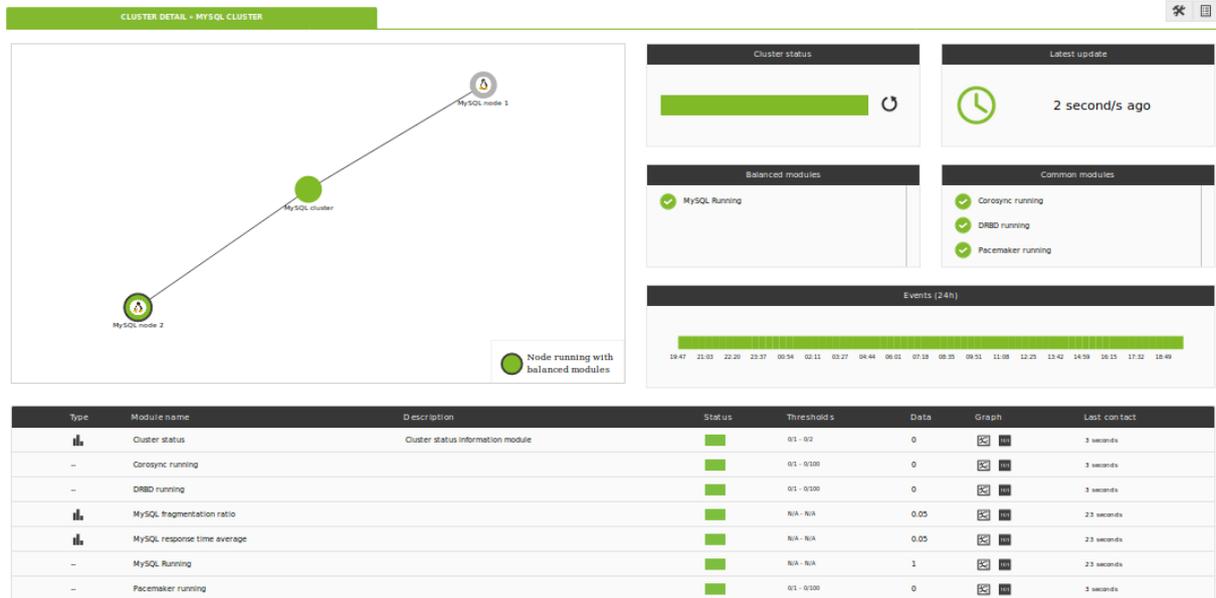
Threshold seconds

After evaluating the modules you will see the cluster map with the status information.



Active - passive cluster view

Following the creation example described in the previous section, this is the view:



In there, there is a distinction between three sections:

Cluster Map

(Top left). It represents the agents that make up the cluster and their status.

Status Overview

(Top right). It shows the health status of the cluster, as well as the list of its elements.

Metric View

(Bottom). It shows the complete list of metrics registered in the cluster.

If you click on an item in the cluster map, you may see extra information about that item:

Detailed view of cluster status (click on map).



MYSQL CLUSTER

Node Details

Agent MySQL cluster

Addresses 127.0.0.1

Group Servers

Common modules list

Module name	Status	Data	Graph
Corosync running	■	0	101
DRBD running	■	0	101
Pacemaker running	■	0	101

Balanced modules list

Module name	Status	Data	Graph
MySQL fragmentation ratio	■	0.05	101
MySQL response time average	■	0.05	101
MySQL Running	■	1	101

Detailed cluster module status view (click on status overview).

Balanced modules

- ✔ MySQL Running

Agent alias	Module name	Status	Data	Graph	Last contact
MySQL node 2	MySQL Running	■	1.00000	101	19/02/2018 - 19:45:00
MySQL node 1	MySQL Running	■	1.00000	101	02/02/2018 - 14:26:52

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