



Cluster Monitoring



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Cluster Monitoring

Introduction

Version NG 719 or later.

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

These are the modules that will be executed as long as the node is active, they will “balance” from one node to another of the cluster, they will report in one agent or another depending on the machine that executes the application.

Balanced elements are only needed in the case of clusters of the Active - Pasive 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.

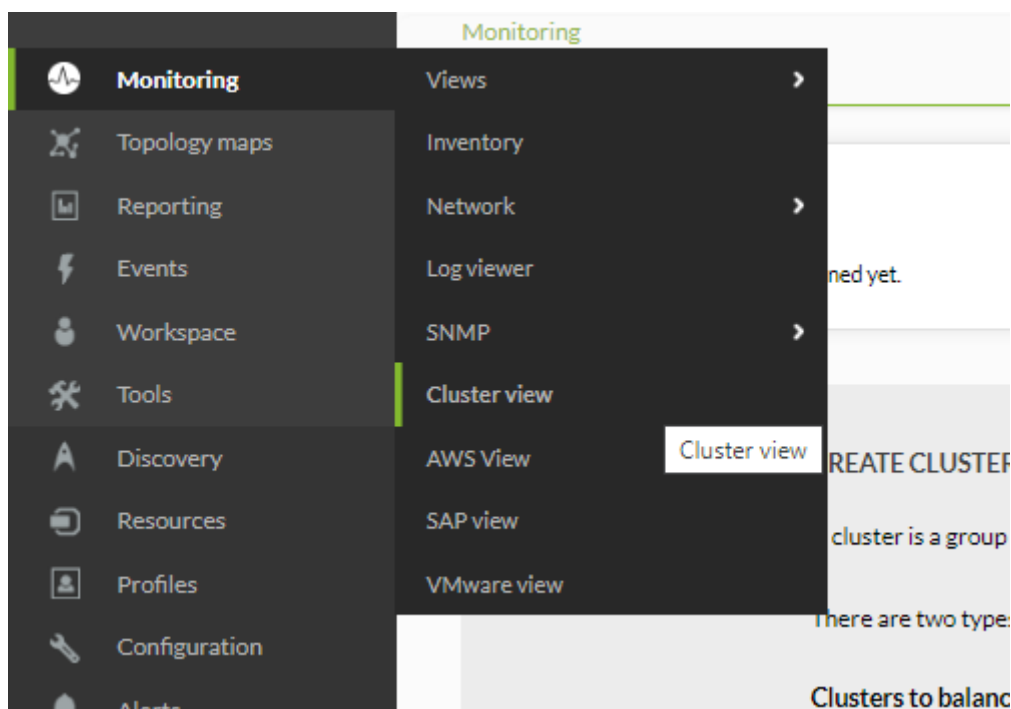
If it is a passive - active cluster

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:

Monitoring

CLUSTERS



INFORMATION

There are no clusters defined yet.

CREATE CLUSTER

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

There are two types, depending on how they provide that service:

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 executed (primary) and another will not (secondary). When the primary goes down, the secondary must take over and give the service instead. Even though many of the elements of this cluster are active-passive, it will also have active elements in both of them indicating 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 Create cluster to start the cluster creation wizard, selecting for this example the “Active - Active” Cluster type option:

Cluster list / Definition / Members
NEW CLUSTER » DEFINITION ?

Cluster name i Web Server cluster

Cluster type i Active - Active

Description

Group i Servers

Prediction server: i munchkin

Go back ✕ Next >

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

Cluster list / Definition / Members / A-A Modules / A-A thresholds / Alerts
NEW WEB SERVER CLUSTER » MEMBERS ?

Filter group Please select... Filter group Please select...

Group recursion Group recursion

Filter agent alias Filter agent alias

Available agents Selected cluster members

docker
koldo_m
ldap-server
lu
munchkin
munchkin_agent
parama
satellite_munchkin
stod_m

aristarcos
euclides
ptolomeo

Go back ✕ Update and continue >

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

The screenshot shows the Pandora FMS web interface for configuring A-A Modules for a cluster. The breadcrumb navigation is: Cluster list / Definition / Members / A-A Modules / A-A thresholds / Alerts. The page title is "UPDATE WEB SERVER CLUSTER » A-A MODULES".

The interface is divided into two columns for configuration:

- Left Column:**
 - Filter group: Please select... (dropdown)
 - Group recursion: (toggle)
 - Group recursion dropdown: (empty)
 - Filter options by module name: (text input)
 - Available modules (common):
 - DiskUsed_/_
 - Network_Usage_Bytes
- Right Column:**
 - Filter group: Please select... (dropdown)
 - Group recursion: (checkbox)
 - Group recursion dropdown: (empty)
 - Filter options by module name: (text input)
 - Selected active-active modules:
 - HTTPD_Status

Navigation buttons at the bottom: "Go back" (with a close icon) and "Update and continue" (with a right arrow icon).

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

Cluster list / Definition / Members / A-A Modules / A-A thresholds / Alerts

UPDATE WEB SERVER CLUSTER » A-A THRESHOLDS ?

Please, set thresholds for all active-active modules ?

HTTPD_Status critical if % of balanced modules are down (equal or greater).

HTTPD_Status warning if % of balanced modules are down (equal or greater).

[Go back](#) [Update and continue](#)

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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 list / Definition / Members / A-A Modules / A-A thresholds / Alerts

UPDATE WEB SERVER CLUSTER » ALERTS ?

[> Alert control filter](#)

Total items: 0

 **INFORMATION**
No alerts defined

Module

Actions [+](#) Create action

Template [+](#) Create template

Threshold

[Go back](#) [Finish](#) [Add alert](#)

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After adding the alerts, click Finish. 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:

The screenshot displays the Pandora FMS interface for a 'Web Server cluster'. The top navigation bar shows 'Cluster list / Cluster details' and 'CLUSTER DETAILS » WEB SERVER CLUSTER'. The main content area is divided into several sections:

- Web Server cluster status:** A large green circle indicates 100% health. A heartbeat icon is visible. A legend shows 'Cluster' (green), 'Cluster agent' (black), and 'N/A' (grey). A small green dot and the number '1' are at the bottom.
- Cluster Map:** A diagram showing three agents connected to a central 'Web Server cluster' node. The agents are labeled 'ptolomeo » HTTPD_Status', 'euclides » HTTPD_Status', and 'aristarcos » HTTPD_Status'.
- Events (Last 24h):** A horizontal bar chart showing a continuous green bar from 22:00 to 22:00, indicating no events.
- List of modules:** A section with a search bar and filters. The status is set to 'All'. There is a search input field, a 'Module group' dropdown set to 'All', and a 'Show in hierarchy mode' toggle switch. 'Filter' and 'Reset' buttons are also present.

Cluster Map

It represents the agents that make up the cluster and their status.

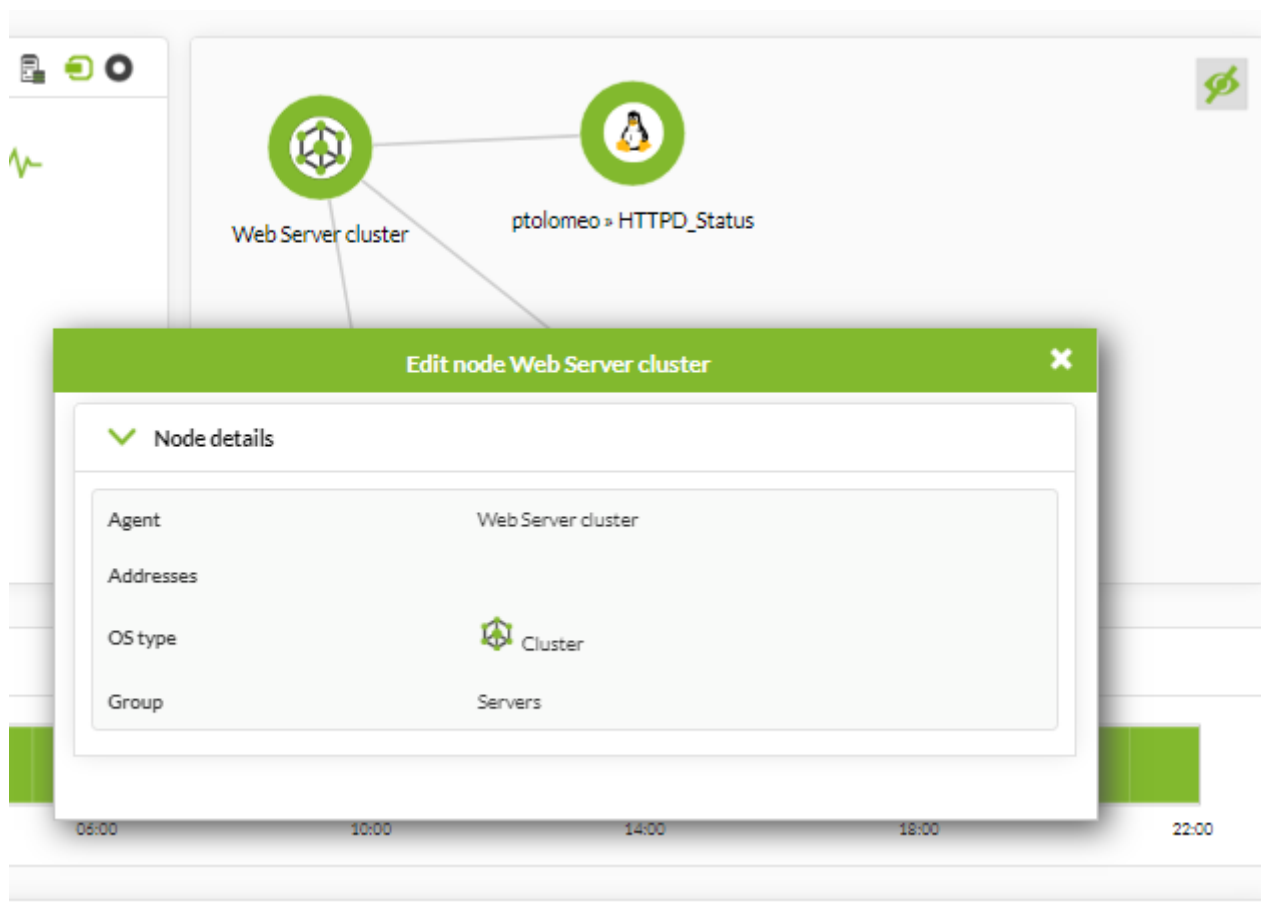
Status Overview

It shows the health status of the cluster, as well as the list of its elements.

Metrics View

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 the map icon):



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

- 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.
- These thresholds indicate module percentage in a state different from normal.

Configuring a new Active-Passive cluster

Click New cluster to start the cluster creation wizard, selecting for this example the “Active - Passive” Cluster type option:

Cluster list / Definition / Members

NEW CLUSTER » DEFINITION

Cluster name ⓘ MySQL cluster

Cluster type ⓘ Active - Passive

Description

Group ⓘ Servers

Prediction server: ⓘ stod

Next >

Go back ✕

Once you have selected a name, a cluster type and a target group, click Next to access the selecting agent section. You may return to the previous step at any point of the process by means of the Go back button.

NEW MYSQL CLUSTER » MEMBERS



Filter group

Please select...

Filter group

Please select...

Group recursion



Group recursion



Filter agent alias

Filter agent alias

Available agents

192.168.80.1
192.168.80.11
192.168.80.12
192.168.80.15
192.168.80.24
192.168.80.30
192.168.80.31
192.168.80.32
192.168.80.34

Selected cluster members

192.168.80.10
192.168.80.20



Update and continue >

Go back ✕

Select in this step all the critical modules for the service that you wish to monitor among the agents that have been added to the cluster:

UPDATE MYSQL CLUSTER » A-P MODULES

Filter group

Group recursion

Filter options by module name

Filter group

Group recursion

Filter options by module name

Available modules (common)

Latency

Selected active-active modules

Host Alive

>

<

Update and continue >

Go back ✕

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

Cluster list / Definition / Members / A-A Modules / **A-A thresholds** / A-P module / Critical A-P modules / Alerts

UPDATE MYSQL CLUSTER » A-A THRESHOLDS ?

Please, set thresholds for all active-active modules ?

MySQL_ActiveCONN critical if	<input type="text" value="66"/>	% of balanced modules are down (equal or greater).
MySQL_ActiveCONN warning if	<input type="text" value="33"/>	% of balanced modules are down (equal or greater).

Go back ✕ Update and continue >

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

UPDATE MYSQL CLUSTER » A-P MODULE



Filter group

Please select...

Group recursion

Filter options by module
name

Available modules (any)

- loopback_0_ifInOctets
- loopback_0_ifOperStatus
- loopback_0_ifOutOctets
- memTotalFree
- other_32768_ifInOctets
- other_32768_ifOperStatus
- other_32768_ifOutOctets
- ssCpuSystem
- sysName



Filter group

Please select...

Group recursion



Filter options by module name

Selected active-passive modules

sysUpTime


Update and continue >

Go back ✕

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

Cluster list / Definition / Members / A-P Modules / A-P thresholds / A-P module / Critical A-P modules / Alerts

UPDATE MYSQL CLUSTER » CRITICAL A-P MODULES

Please, check all active-passive modules critical for this cluster 

sysUpTime	<input checked="" type="checkbox"/>
-----------	-------------------------------------

[Update and continue >](#)

[Go back ✕](#)

The modules on the passive node are not created automatically, they must be manually configured and then added to the cluster.

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 list / Definition / Members / A-P Modules / A-P thresholds / A-P module / Critical A-P modules / Alerts

UPDATE MYSQL CLUSTER » ALERTS



> Alert control filter

Total items: 0



INFORMATION

No alerts defined

Module

Select

Actions

Default action



Create action

Template

Select



Create template

Threshold

0 seconds



Add alert

Finish >

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

Active - passive cluster view

Example:



Cluster Map

It represents the agents that make up the cluster and their status.

Metric View

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:

Cluster list / Cluster details
CLUSTER DETAILS » MYSQL CLUSTER ?

MySQL cluster

75%

Cluster
Cluster agent
N/A

1 3

ptolomeo » MySQL_ActiveCONN

Edit node ptolomeo » MySQL_ActiveCONN

Node details

Agent	ptolomeo
Addresses	
OS type	Linux
Group	Servers

Status: All Free text for search (*) Module group All Show in hierarchy mode Filter Reset

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