

# Integrated altering in PMM

Setup and manage alerts for databases with Integrated alerting in Percona Monitoring and Management

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# About Zoriana

- QA Analyst at Percona Platform team
- Main focus on Test Planning, Execution and Documentation, ensuring the final product meets not only requirements set but also customer expectations.
- First experience in open-source domain and I really enjoy it :)

# About Peter

- Principal Architect at Percona Consulting
- Focused on automation and performance tuning
- Among others, worked at Dropbox, Zuora, Sun microsystems

# Agenda

- Check out the nice title slide
- Check out the about us slides
- Going through the agenda <- We are here
- Demo setup
- Configuring integrated alerting
- Act surprised on a triggered alert
- Define a custom alert

# Demo setup

# Demo setup

- We will do demos!
- You can try yourself: <https://github.com/pboros/pmm2lab>
- Clone the git repo and do vagrant up

Disclaimer: not suitable for production use, it has hardcoded passwords.

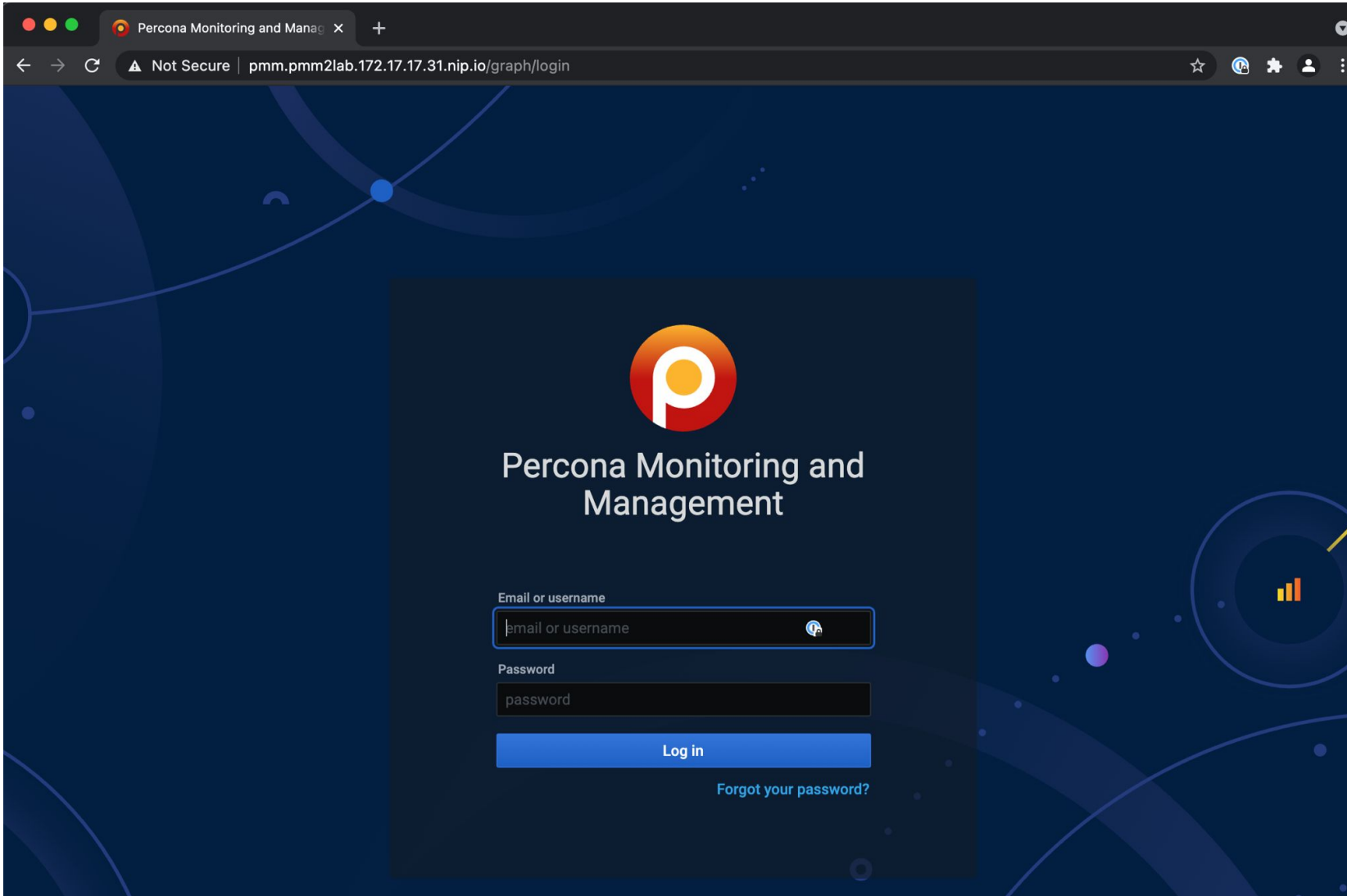
## Demo setup

```
$ vagrant status
```

Current machine states:


db1.pmm2lab.172.17.17.11.nip.io	running (virtualbox)
db2.pmm2lab.172.17.17.12.nip.io	running (virtualbox)
sysbench.pmm2lab.172.17.17.21.nip.io	running (virtualbox)
pmm.pmm2lab.172.17.17.31.nip.io	running (virtualbox)

# Demo setup



Percona Monitoring and Management

Not Secure | pmm.pmm2lab.172.17.17.31.nip.io/graph/login



Percona Monitoring and Management

Email or username

Password

Log in

[Forgot your password?](#)



# Configuring integrated alerting

# Turn on integrated alerting

The screenshot displays the Percona Alerting configuration page. On the left sidebar, the 'Alerting' menu is expanded, showing 'Integrated Alerting' as the selected option. The main content area is divided into two columns. The left column contains settings for 'Metrics Resolution', 'Advanced Settings', 'SSH Key', 'Alertmanager Integration', 'Percona Platform', and 'Communication'. The right column contains settings for 'Data retention' (30 days), 'Telemetry' (enabled), 'Check for updates' (enabled), 'Security Threat Tool' (enabled), 'Execution Intervals' (Rare: 78 hours, Standard: 24 hours, Frequent: 4 hours), 'Public Address' (with a 'Get from browser' button), and 'Technical preview features'. Within the 'Technical preview features' section, the 'Integrated Alerting' toggle is turned on, and the 'Microsoft Azure monitoring' toggle is turned off. A red arrow points to the 'Integrated Alerting' toggle. Another red arrow points to the 'Communication' option in the left sidebar. A third red arrow points to the 'Integrated Alerting' option in the expanded sidebar menu. At the bottom of the main content area, there is an 'Apply changes' button. The URL bar at the bottom left shows 'https://3.143.18.224/graph/alerting/list'.

Metrics Resolution

Advanced Settings

SSH Key

Alertmanager Integration

Percona Platform

Communication

Alerting

Integrated Alerting

Alert Rules

Notification channels

Data retention ⓘ 30 days

Telemetry ⓘ ☒

Check for updates ⓘ ☒

Security Threat Tool ⓘ ☒

Execution Intervals ⓘ

Rare interval 78 hours

Standard interval 24 hours

Frequent interval 4 hours

Public Address ⓘ  [Get from browser](#)

Technical preview features

*These are technical preview features, not recommended to be used in production environments. Read more about feature status [here](#)*

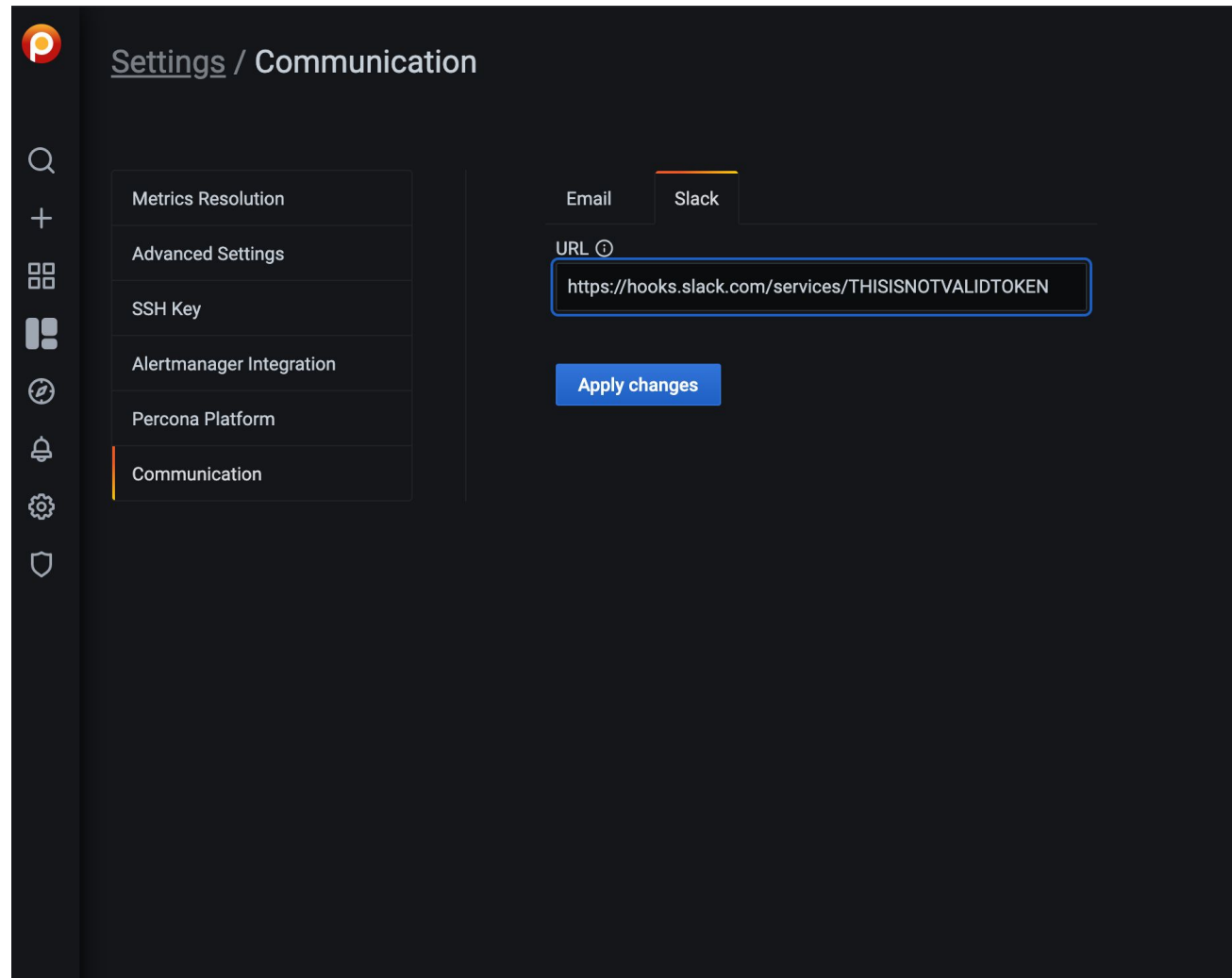
Integrated Alerting ⓘ ☒

Microsoft Azure monitoring ⓘ ☐

[Apply changes](#)

<https://3.143.18.224/graph/alerting/list>

# Communication setting for Slack



The screenshot shows the Percona Settings / Communication page. On the left is a sidebar with a search icon, a plus icon, and several menu items: Metrics Resolution, Advanced Settings, SSH Key, Alertmanager Integration, Percona Platform, and Communication (which is highlighted with a red bar). The main content area has two tabs: Email and Slack. The Slack tab is active. Below the tabs is a URL input field with a help icon (i) and the text "URL". The input field contains the text "https://hooks.slack.com/services/THISISNOTVALIDTOKEN". Below the input field is a blue button labeled "Apply changes".

Settings / Communication

Metrics Resolution

Advanced Settings

SSH Key

Alertmanager Integration

Percona Platform

Communication

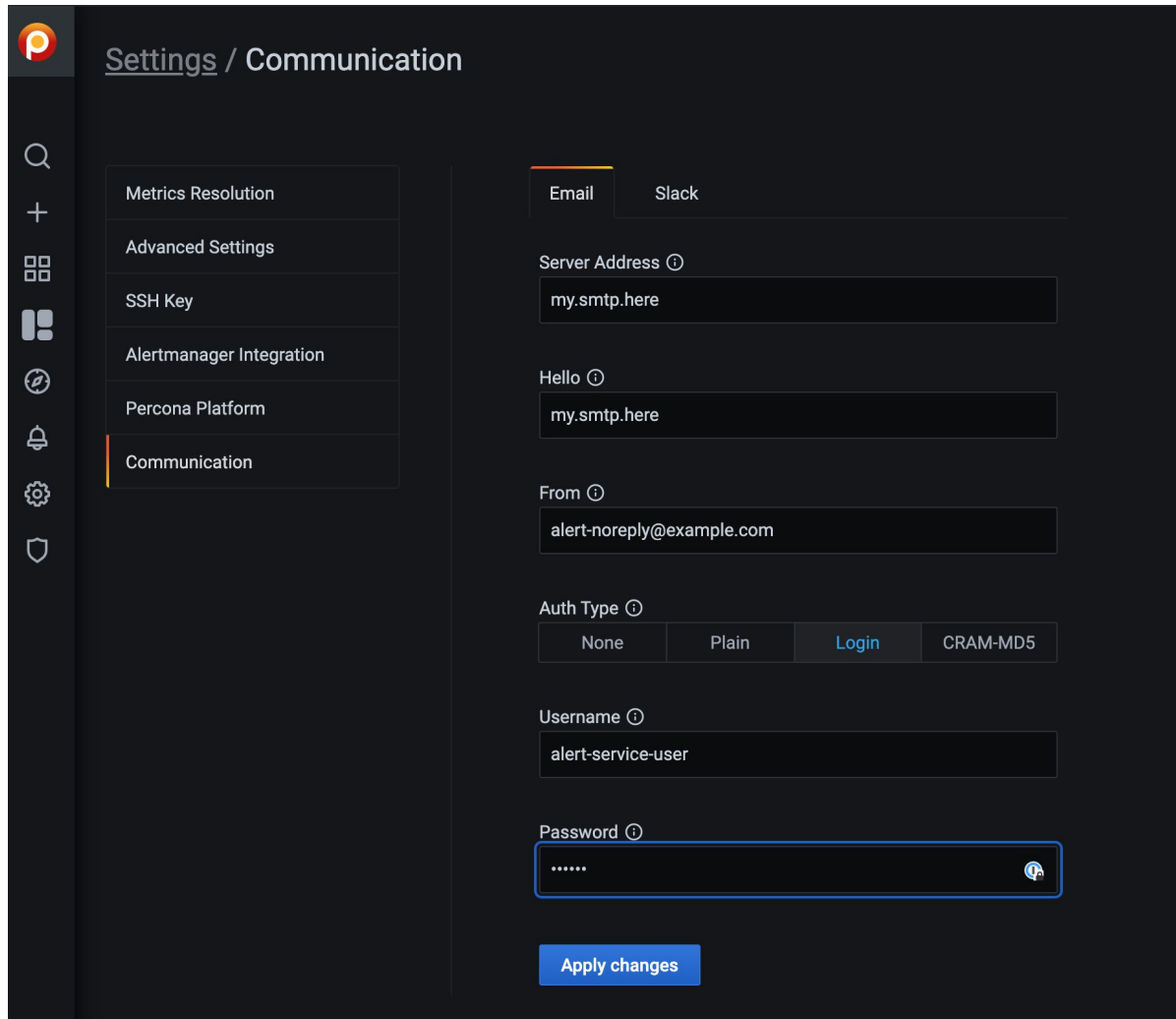
Email Slack

URL ⓘ

https://hooks.slack.com/services/THISISNOTVALIDTOKEN

Apply changes

# Communication setting for Email



The screenshot shows the 'Settings / Communication' page in the Percona interface. On the left is a sidebar with a search icon and a list of settings categories: Metrics Resolution, Advanced Settings, SSH Key, Alertmanager Integration, Percona Platform, and Communication (which is highlighted with an orange bar). The main content area has two tabs: 'Email' (selected) and 'Slack'. Under the 'Email' tab, there are several configuration fields: 'Server Address' with the value 'my.smtp.here', 'Hello' with the value 'my.smtp.here', 'From' with the value 'alert-noreply@example.com', 'Auth Type' with a dropdown menu showing 'None', 'Plain', 'Login' (selected), and 'CRAM-MD5', 'Username' with the value 'alert-service-user', and 'Password' with a masked input field containing six dots. At the bottom of the form is a blue button labeled 'Apply changes'.

Settings / Communication

Metrics Resolution

Advanced Settings

SSH Key

Alertmanager Integration

Percona Platform

Communication

Email Slack

Server Address ⓘ

my.smtp.here

Hello ⓘ

my.smtp.here

From ⓘ

alert-noreply@example.com

Auth Type ⓘ

None Plain Login CRAM-MD5

Username ⓘ

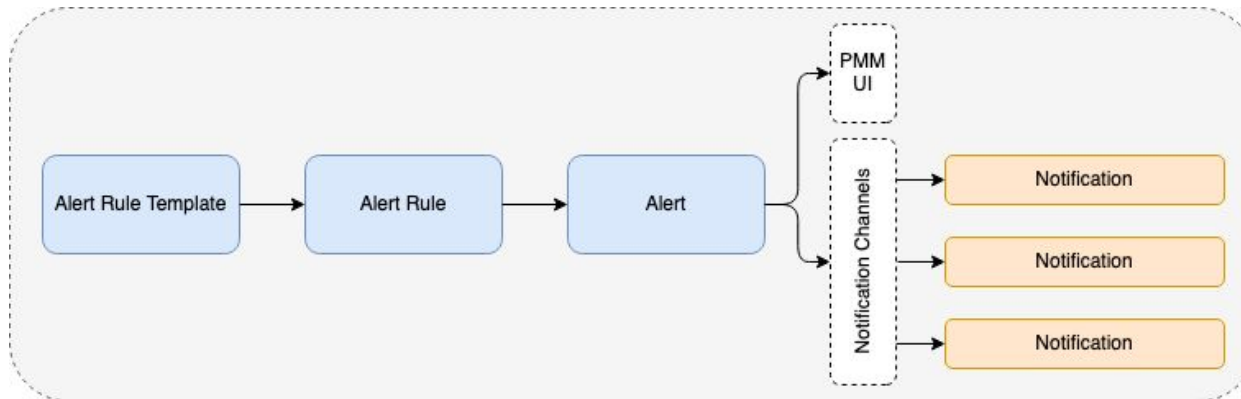
alert-service-user

Password ⓘ

.....

Apply changes

# Architecture



- Alert rule template
- Alert rule
- Alert
- Notification channels
- Notification

# Alert rule template

- Sources for creating alert rules
- Built-in ones can be used
- Custom ones can be created
- Each alert rule needs a template

























# Built-in templates

## Integrated Alerting / Alert Rule Templates

ⓘ This feature is in Technical Preview stage

Alerts Alert Rules **Alert Rule Templates** Notification Channels

+ Add

Name	Source	Created	Actions
Memory used by MongoDB connections	Built-in		 
Memory used by MongoDB	Built-in		 
MongoDB restarted	Built-in		 
MySQL down	Built-in		 
MySQL restarted	Built-in		 
MySQL connections in use	Built-in		 
Node high CPU load	Built-in		 
Node out of memory	Built-in		 
Node high swap filling up	Built-in		 
PostgreSQL down	Built-in		 
PostgreSQL restarted	Built-in		 
PostgreSQL connections in use	Built-in		 

# Alert rule

Add Alert Rule

Template

MySQL connections in use

Name

Too many MySQL connections

Threshold - A percentage from configured maximum (% , min: 0, max: 100)

20

Duration (s)

10

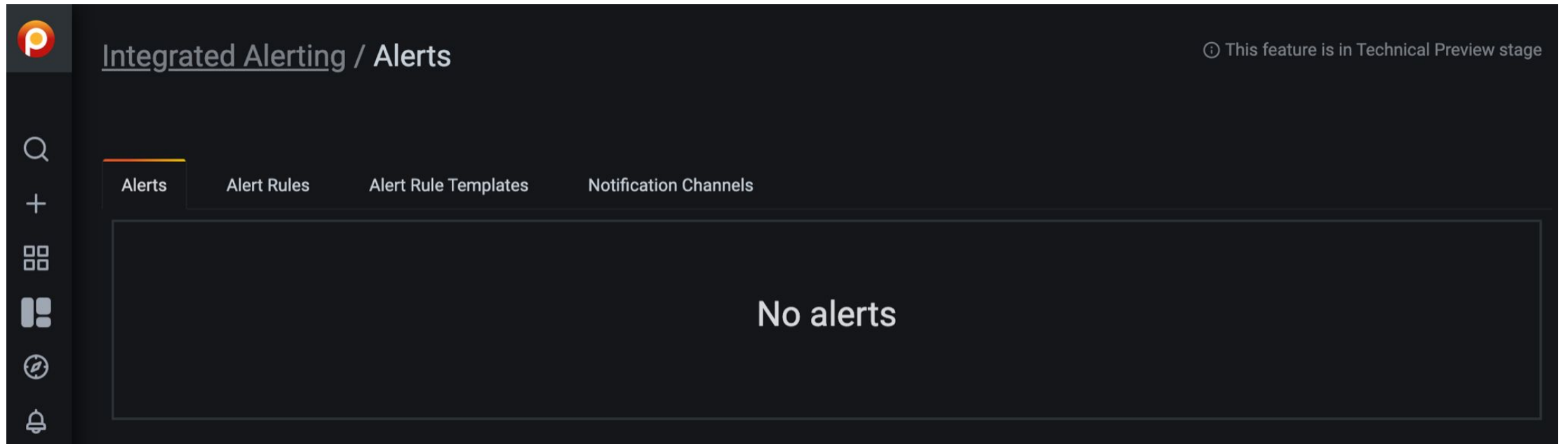
Severity

Critical

- Source template
- Alert name
- Threshold
- Duration
- Severity
- Channel
- Optional filters



# Alerts (ideal case)



# Alerts (non-ideal case)

Integrated Alerting / Alerts This feature is in Technical Preview stage

Alerts Alert Rules Alert Rule Templates Notification Channels

Name	Severity	State	Labels	Active Since	Last Notified	Actions
Node high CPU load (pmm-server)	Notice	Firing	alertgroup=PMM Integrated Alerting alertname=/rule_id/5b60f8d7-e05d-42e8-8a3a-1a85a8e1cb23 ia=1 node_name=pmm-server rule_id=/rule_id/5b60f8d7-e05d-42e8-8a3a-1a85a8e1cb23 severity=notice template_name=pmm_node_high_cpu_load	2021-04-29 13:08:43.455	2021-04-29 13:48:43.435	
Node high CPU load (ip-10-178-1-196.us-east-2.compute.internal)	Notice	Firing	alertgroup=PMM Integrated Alerting alertname=/rule_id/5b60f8d7-e05d-42e8-8a3a-1a85a8e1cb23 ia=1 node_name=ip-10-178-1-196.us-east-2.compute.internal rule_id=/rule_id/5b60f8d7-e05d-42e8-8a3a-1a85a8e1cb23 severity=notice template_name=pmm_node_high_cpu_load	2021-04-29 13:08:43.455	2021-04-29 13:48:43.435	
MySQL too many connections (rds-mysql56)	Critical	Firing	agent_id=/agent_id/29951476-af39-429f-b79a-cbea9a2ac806 agent_type=mysql_exporter alertgroup=PMM Integrated Alerting alertname=/rule_id/03b33bfc-1a98-4390-84e9-d12637514b81 az=us-east-1c ia=1 instance=/agent_id/29951476-af39-429f-b79a-cbea9a2ac806 node_id=/node_id/3e1b4c8a-bd20-4712-aeb8-ae5620cbfb7d node_name=rds-mysql56 node_type=remote_rds region=us-east-1 rule_id=/rule_id/03b33bfc-1a98-4390-84e9-d12637514b81 service_id=/service_id/37592b45-fc50-4a54-8322-fa529747e08c service_name=rds-mysql56 service_type=mysql severity=critical template_name=pmm_mysql_too_many_connections	2021-04-29 13:18:38.824	2021-04-29 13:48:38.825	
Node swap is filling up (rds-mysql56)	Critical	Firing	agent_id=/agent_id/88d74e2d-ab28-47d7-877f-28f5fc72bb61 agent_type=rds_exporter alertgroup=PMM Integrated Alerting alertname=/rule_id/f08156ea-e118-4c70-a306-d21d3c84b645 az=us-east-1c ia=1 instance=rds-mysql56 job-rds_exporter_127_0_0_1_42003_mr-10s node_id=/node_id/3e1b4c8a-bd20-4712-aeb8-ae5620cbfb7d node_name=rds-mysql56 node_type=remote_rds region=us-east-1 rule_id=/rule_id/f08156ea-e118-4c70-a306-d21d3c84b645 severity=critical template_name=pmm_node_swap_filled_up	2021-04-29 13:17:45.607	2021-04-29 13:48:45.611	
MySQL down (md_10.5.3.143.18.224_1)	High	Firing	alertgroup=PMM Integrated Alerting alertname=/rule_id/81c4652e-e163-484a-bcea-55cc10e58011 ia=1 node_name=ip-10-178-1-196.us-east-2.compute.internal rule_id=/rule_id/81c4652e-e163-484a-bcea-55cc10e58011 service_name=md_10.5.3.143.18.224_1 severity=error template_name=pmm_mysql_down	2021-04-29 12:58:01.158	2021-04-29 13:49:01.116	

# Notification Channels

Add Notification Channel

Name

channel email

Type

Email

Addresses

my-email@donotreply.com

Add

Cancel

Add Notification Channel

Name

channel slack

Type

Slack

Channel

integrated-alerting

Add

Cancel

Add Notification Channel

Name

channel pagerduty

Type

Pager Duty

Routing key

Service key

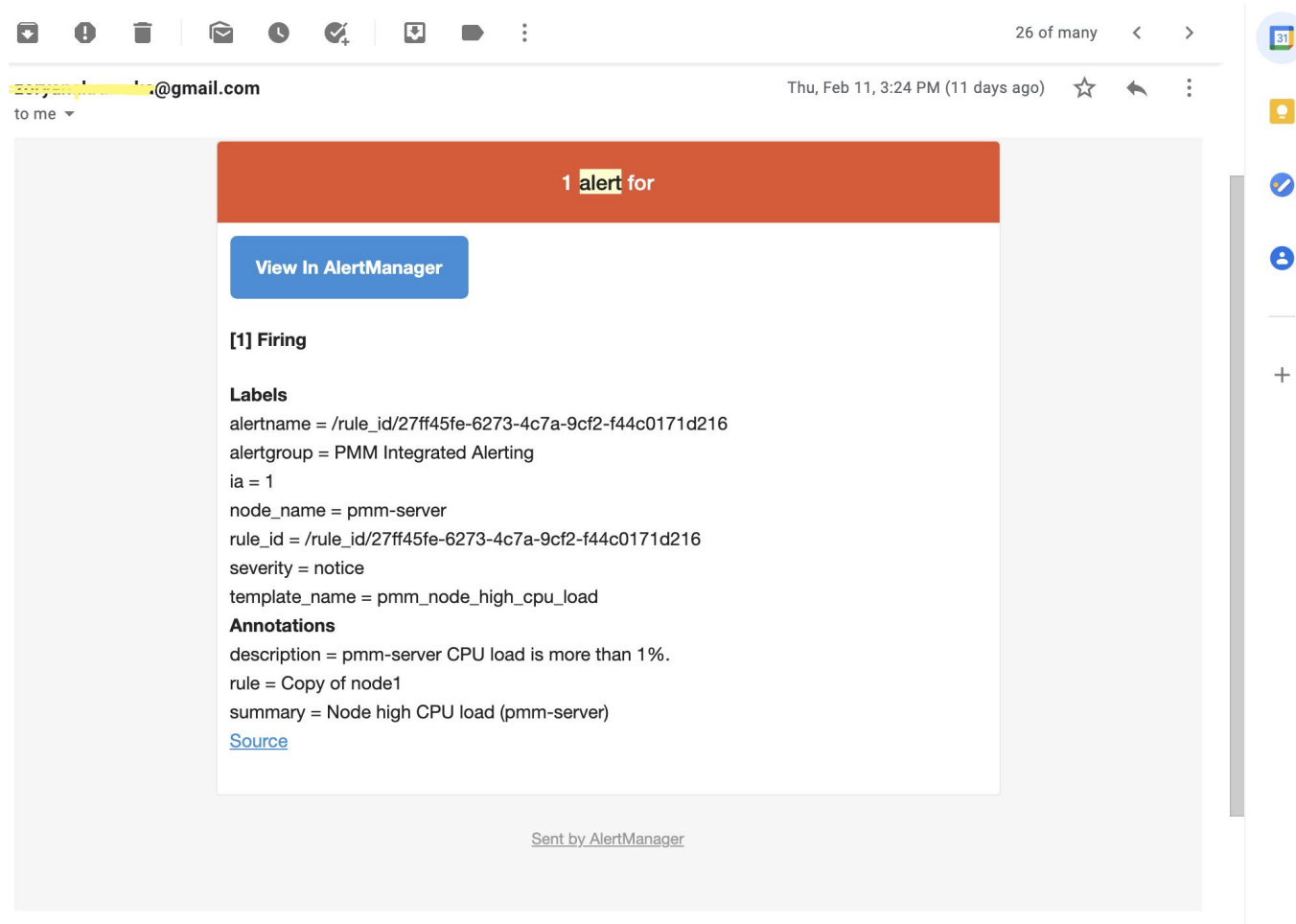
Service key

test-key

Add

Cancel








# Example e-mail alert



# Example slack alert

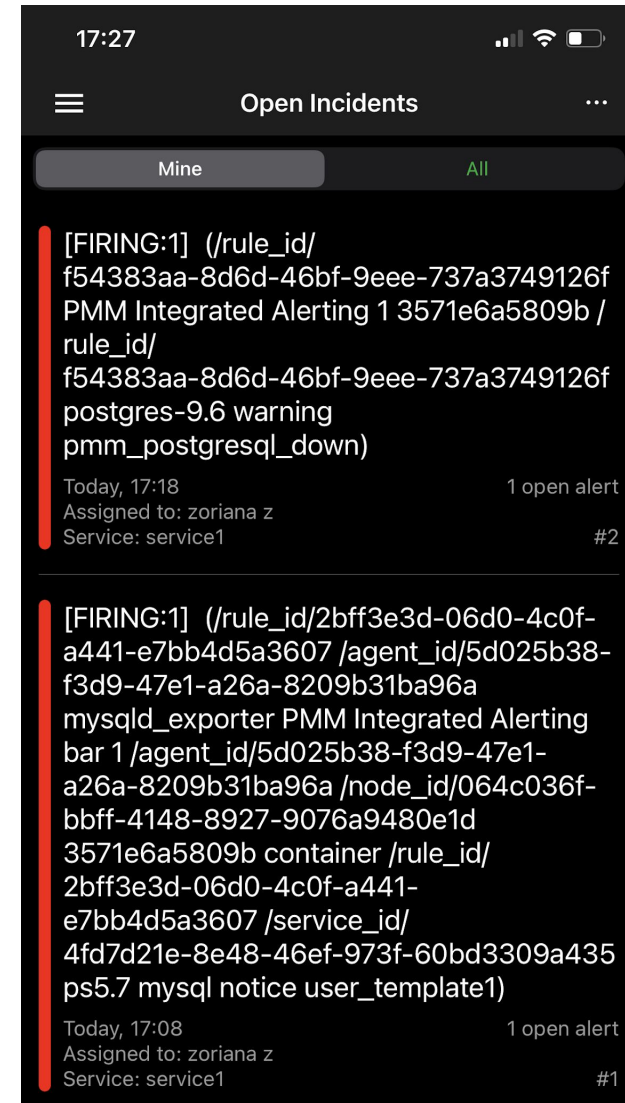
!! AlertManager APP 12:26 PM  
[FIRING:1] (/rule\_id/278fd808-c737-49bc-9a92-684668e75080  
/agent\_id/0e6c6009-64b8-4bf0-a120-94f7fa18c000 mysql\_exporter PMM  
Integrated Alerting 1 /agent\_id/0e6c6009-64b8-4bf0-a120-94f7fa18c000  
/machine\_id/c4d9468c4968de47a05bb418473a0959 /node\_id/6e2ef222-7958-  
4523-94f6-d21fd78d8233 db1.pmm2lab.172.17.17.11.nip.io generic  
/rule\_id/278fd808-c737-49bc-9a92-684668e75080 /service\_id/c9b517cc-c9c3-  
4a5d-a3e0-fe429dc210fc db1.pmm2lab.172.17.17.11.nip.io-mysql mysql critical  
pmm\_mysql\_too\_many\_connections)

Send a message to #integrates-alerting

⚡ | B I       

Aa @ 😊 📎 ➤

## Example PagerDuty alert



Alert triggered!

# Custom alerts



# Custom template

Add Alert Rule Template

Alert Rule Template

```
---
templates:
  - name: user_template
    version: 1
    summary: MySQL connections in use
    tiers: [anonymous, registered]
    expr: |-
      max_over_time(mysql_global_status_threads_connected[5m]) / ignoring (job)
      mysql_global_variables_max_connections
      * 100
      > [[ .threshold ]]
    params:
```

Upload

AddCancel

# Custom template II.

```
---
templates:
- name: pmm_mongodb_high_memory_usage
  version: 1
  summary: Memory used by MongoDB
  expr: |-
    sum by (node_name) (mongodb_ss_mem_resident * 1024 * 1024)
    / on (node_name) (node_memory_MemTotal_bytes)
    * 100
    > [[ .threshold ]]
  params:
    - name: threshold
      summary: A percentage from configured maximum
      unit: "%"
      type: float
      range: [0, 100]
      value: 80
  for: 5m
  severity: warning
  labels:
    custom_label: demo
  summary: MongoDB high memory usage ({{ $labels.service_name }})
  description: |-
    {{ $value }}% of memory (more than [[ .threshold ]]) is used
    by {{ $labels.service_name }} on {{ $labels.node_name }}.
```

Thank you!

# Q&A