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Databases run better with Percona

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Percona Monitoring and Management:

The Essential Tool for Monitoring and Managing Production Databases

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Arunjith Aravindan

- Over 13 years of experience in consulting on Open Source and MySQL.
- Joined Percona in July 2014.
- Specializes in providing consultation to Percona's Managed Services customers, on building and maintaining reliable and high-performance MySQL infrastructures.
- Explore contributions and insights on blogs at: https://www.percona.com/blog/author/arunjith-aravindan/

What is PMM?

- Percona Monitoring Management (PMM) is a comprehensive open-source platform for monitoring and managing databases.
- It provides real-time insights into database performance, enabling efficient troubleshooting and optimization.

What does PMM monitor?

PMM monitors various aspects of your database infrastructure, including:

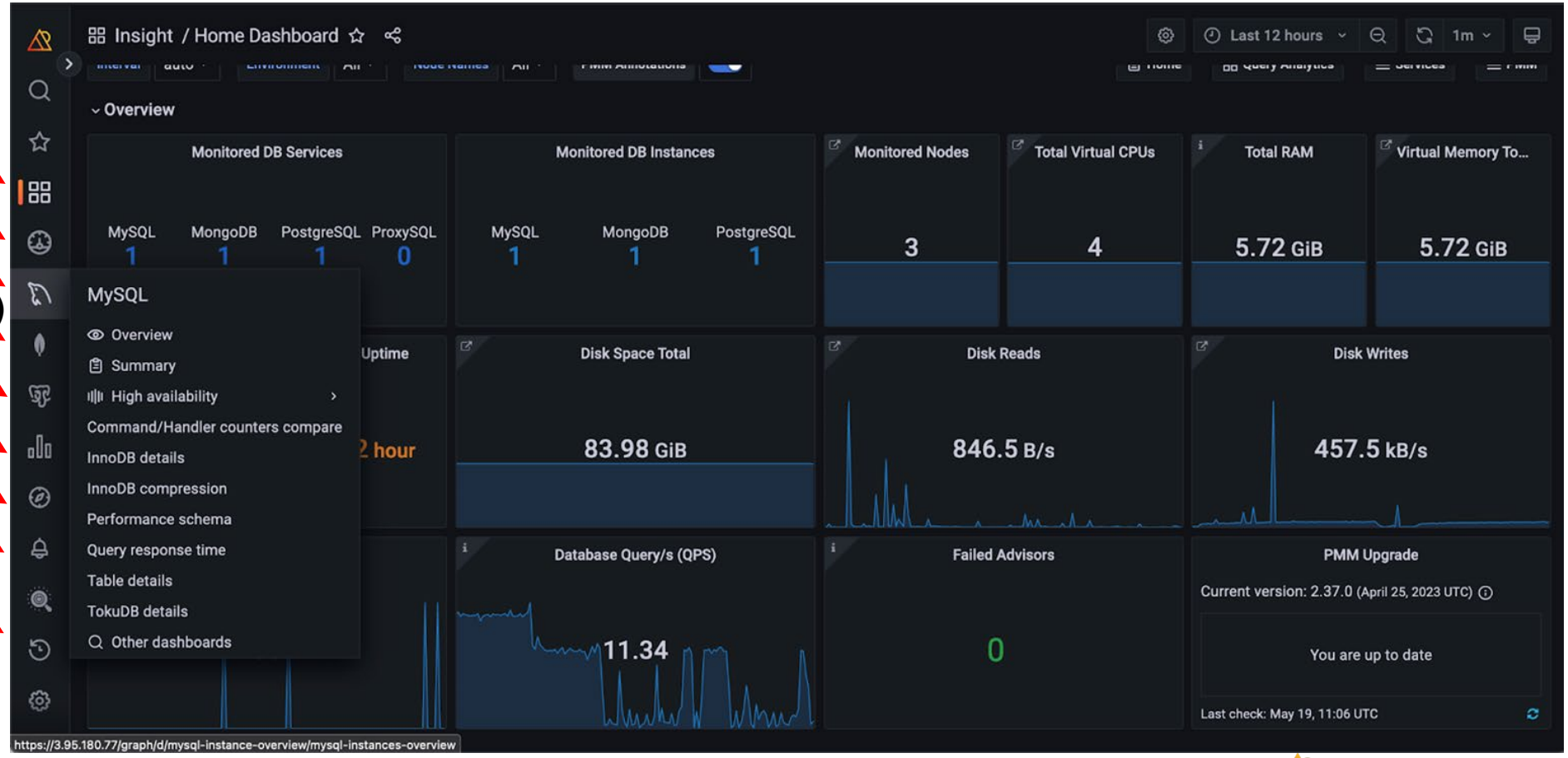
- Database server performance (CPU, memory, disk, etc.)
- Query performance and execution statistics
- Replication or cluster status and lag
- Storage engine performance
- Resource utilization and bottlenecks

Default Dashboard

Default Dashboard

This is how the default dashboard looks, on the left side you can find most of the features.

- > Dashboard
- > Operating System
- > Mysql
- > MongoDB
- > PostgreSQL
- > Query Analytics (QAN)
- > Explore (For Metrics)
- > Alerting
- > Backup



Default Dashboard

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Default Dashboard

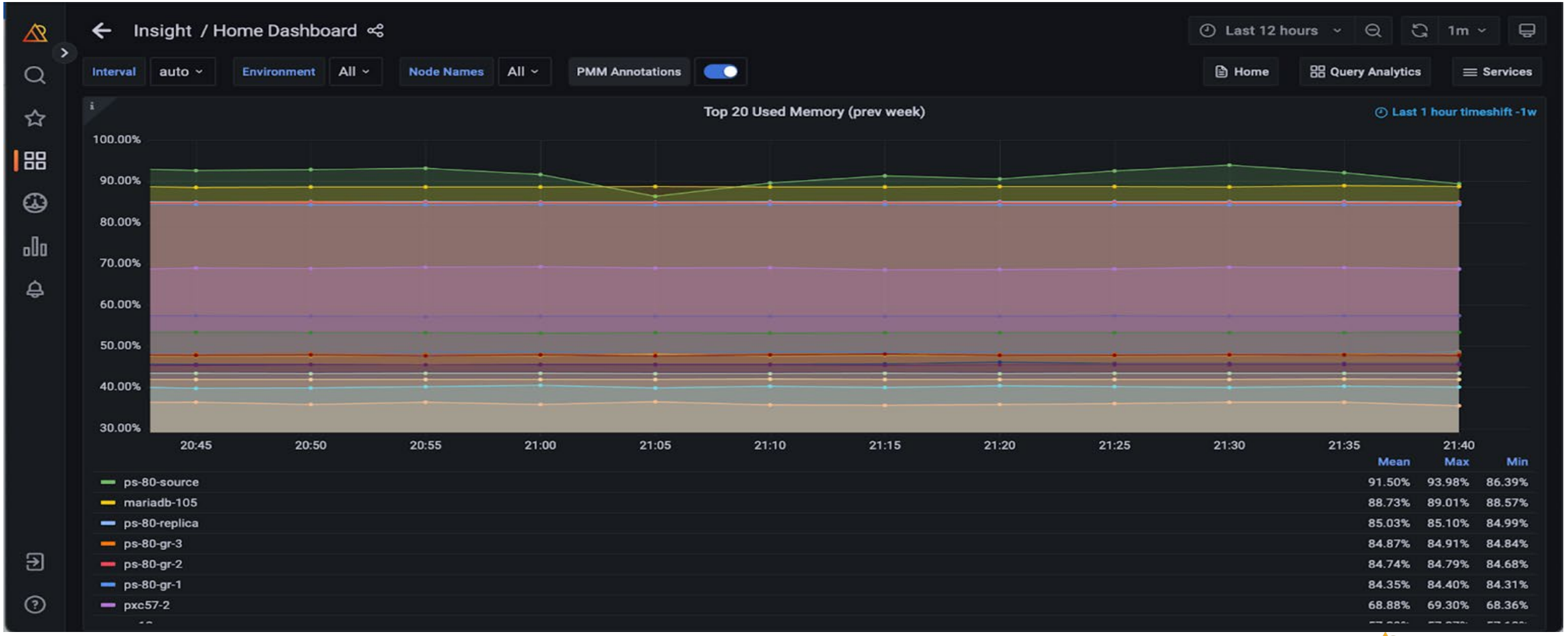
➢ COMMAND CENTER

Further down the page, you'll discover additional metrics, for example including CPU usage, memory usage, and more.

Default Dashboard

➢ COMMAND CENTER

Memory usage



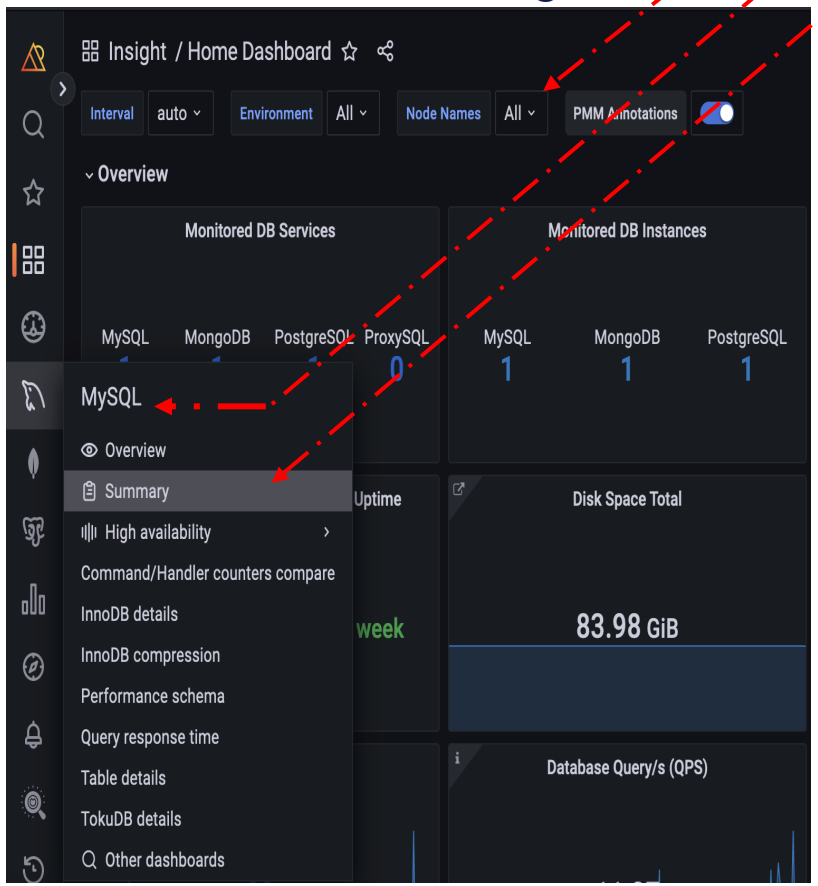
Troubleshooting Production Issues.

Example !

PMM – Troubleshooting Production Issues.

(An Example)

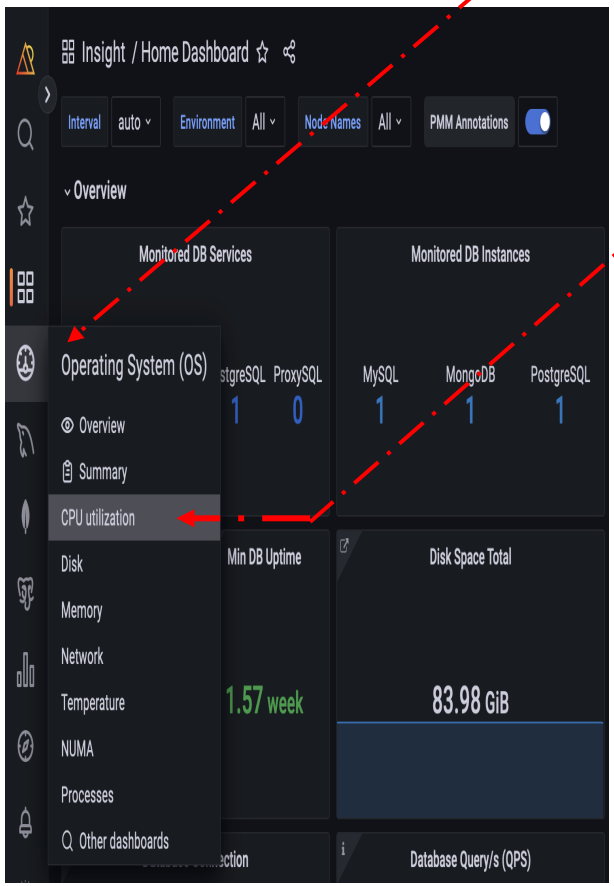
- With real-time monitoring, you can quickly identify resource bottlenecks causing performance degradation or issues.
- Historical data analysis helps trace back and diagnose past incidents for effective troubleshooting.

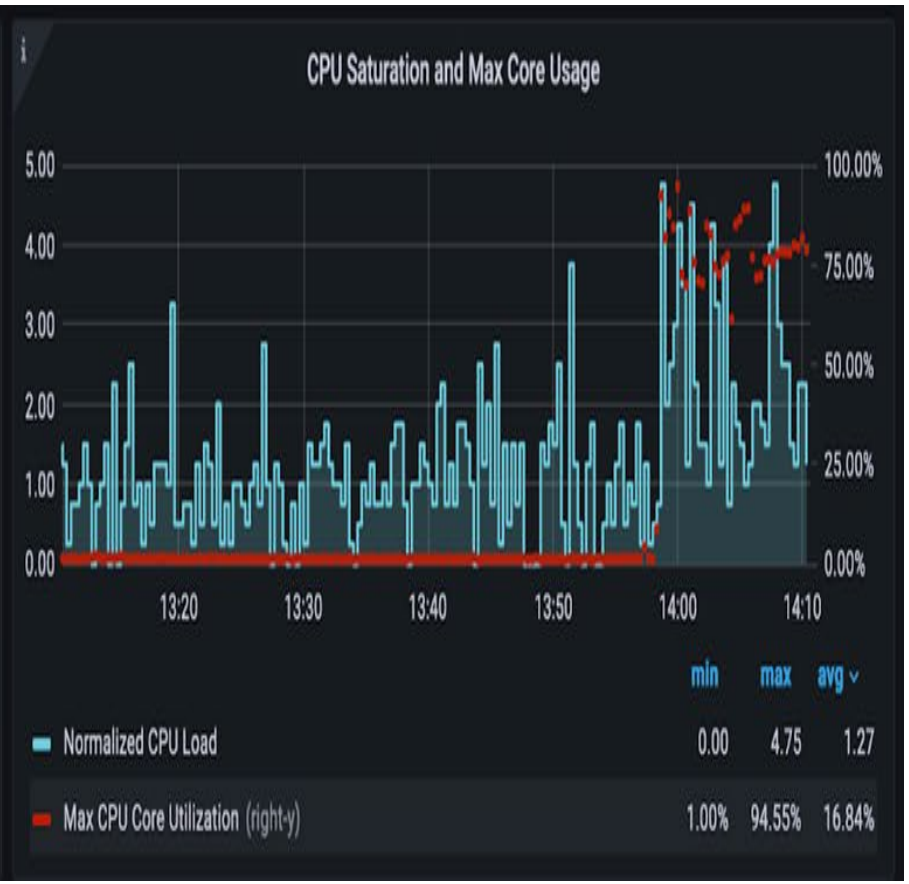


PMM – Troubleshooting Production Issues.

(An Example)

CPU Usage





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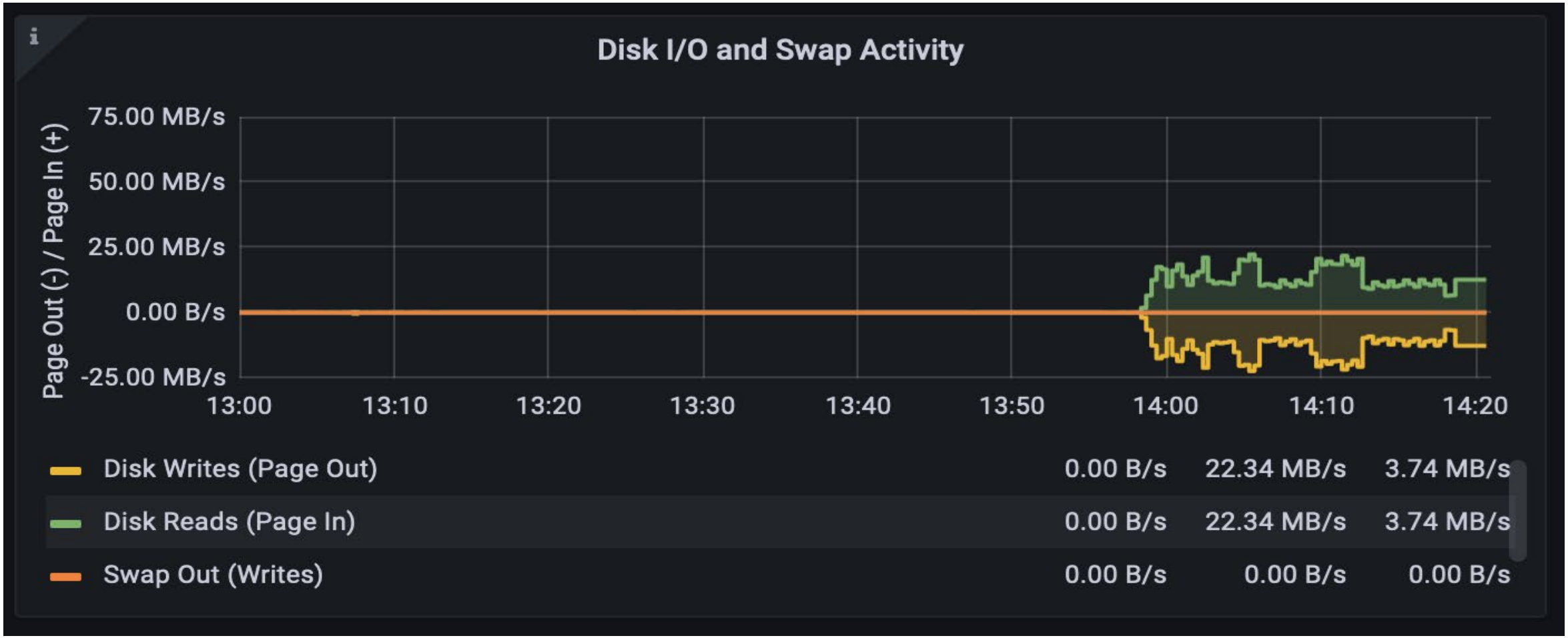
PMM – Troubleshooting Production Issues.

(An Example)

Disk IO



PMM – Troubleshooting Production Issues.

(An Example)

Disk

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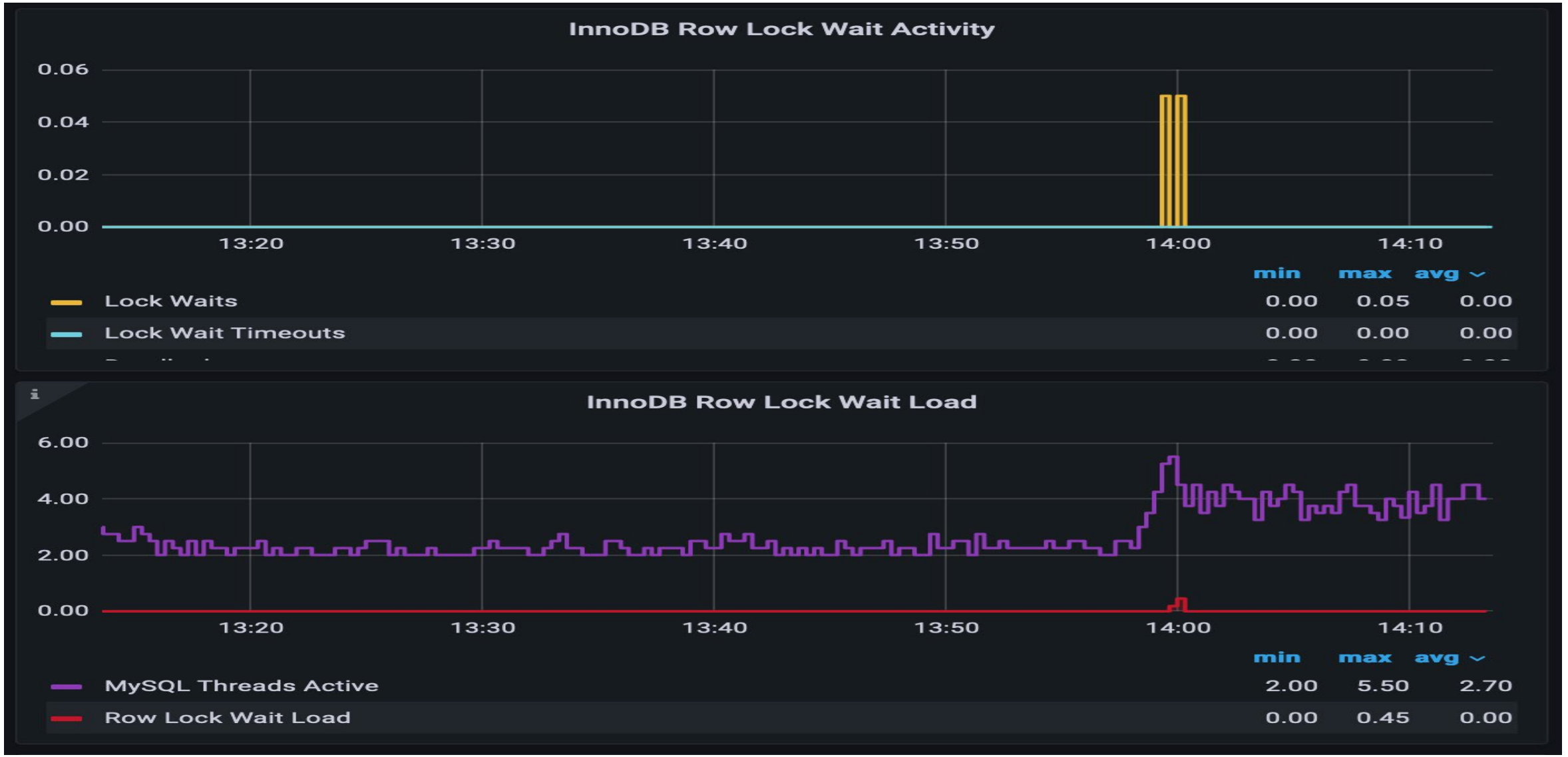
PMM – Troubleshooting Production Issues.
(An Example)



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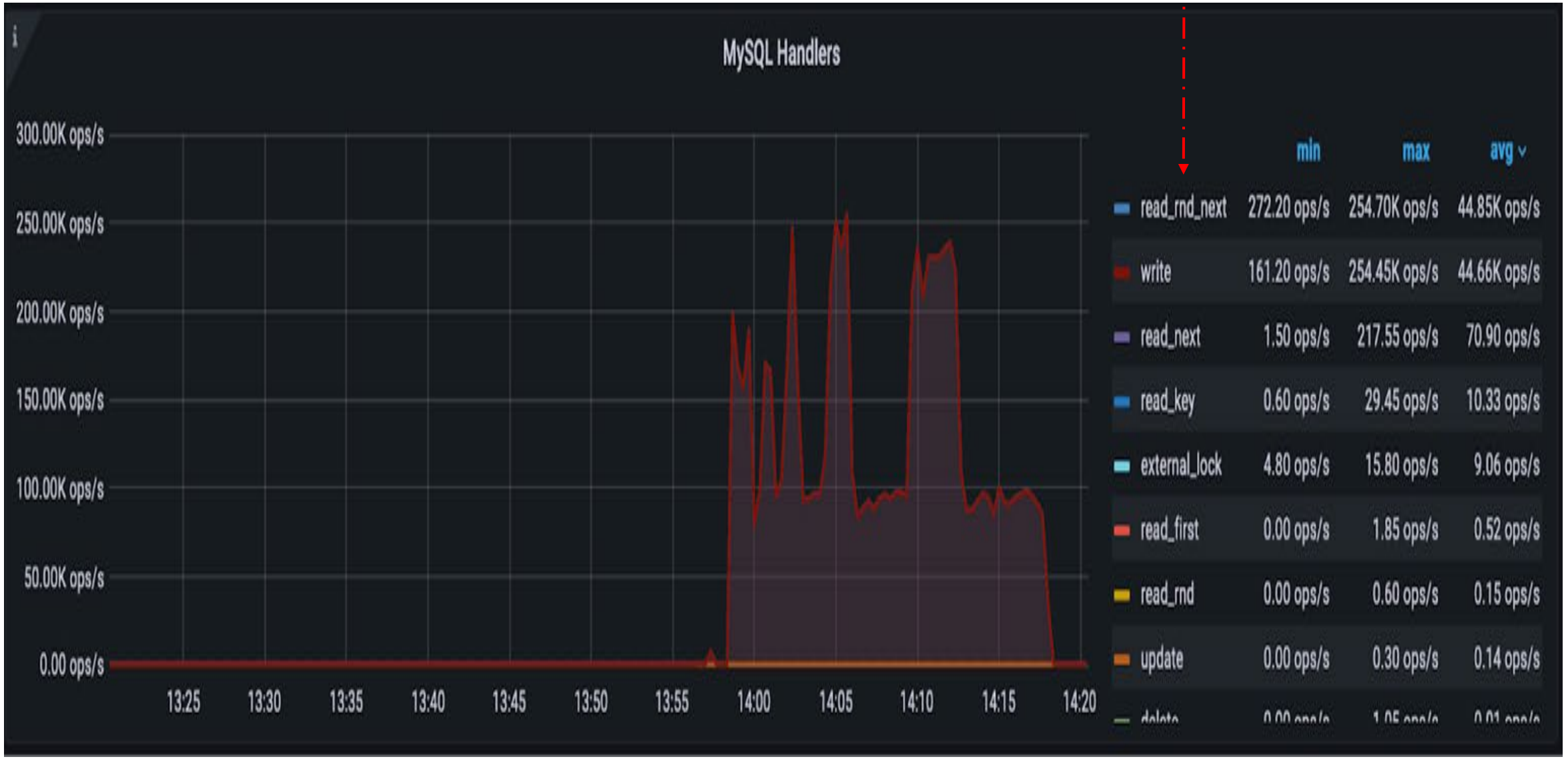
PMM – Troubleshooting Production Issues.
(An Example)



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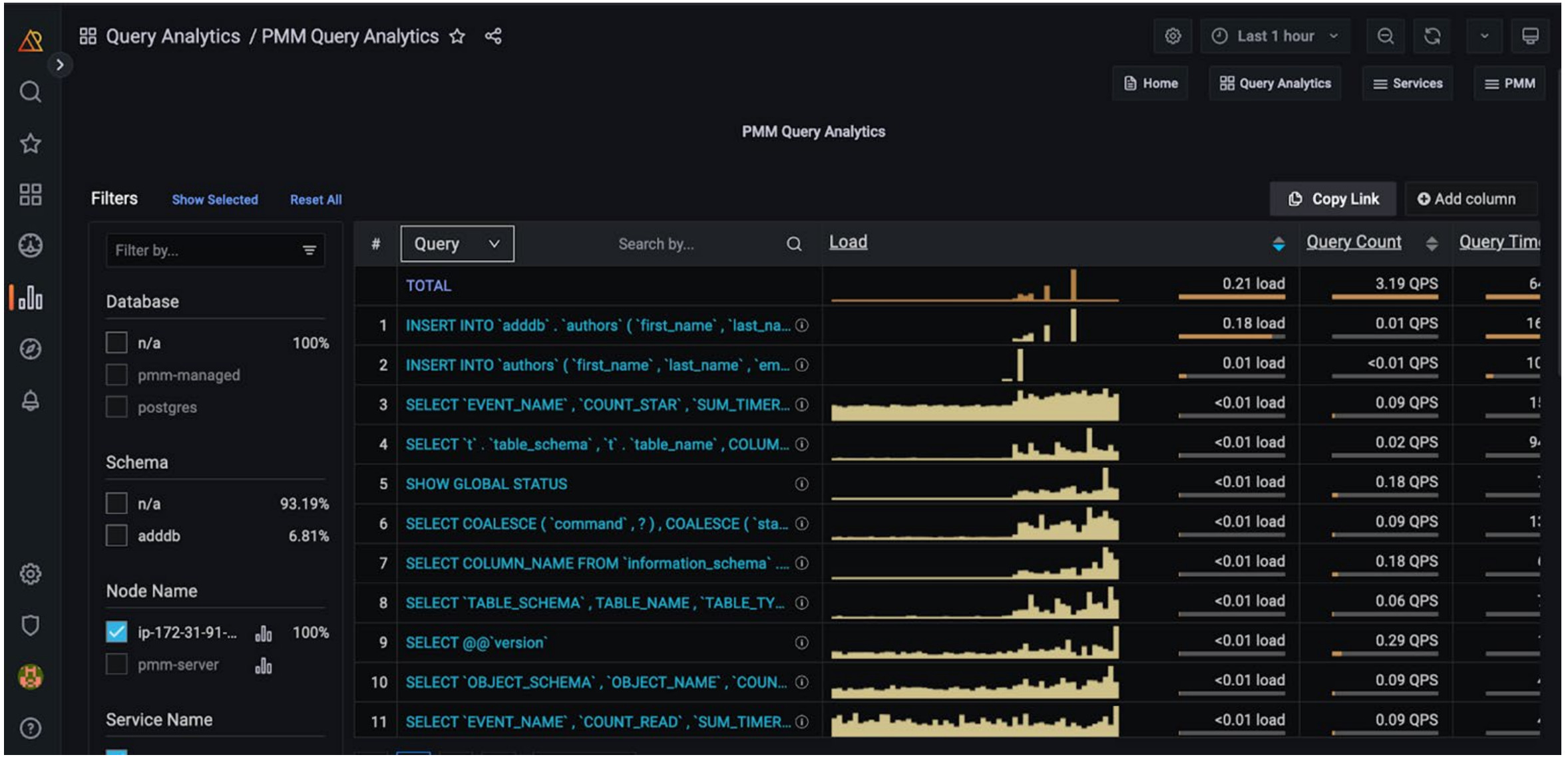
PMM – Troubleshooting Production Issues.
(An Example)



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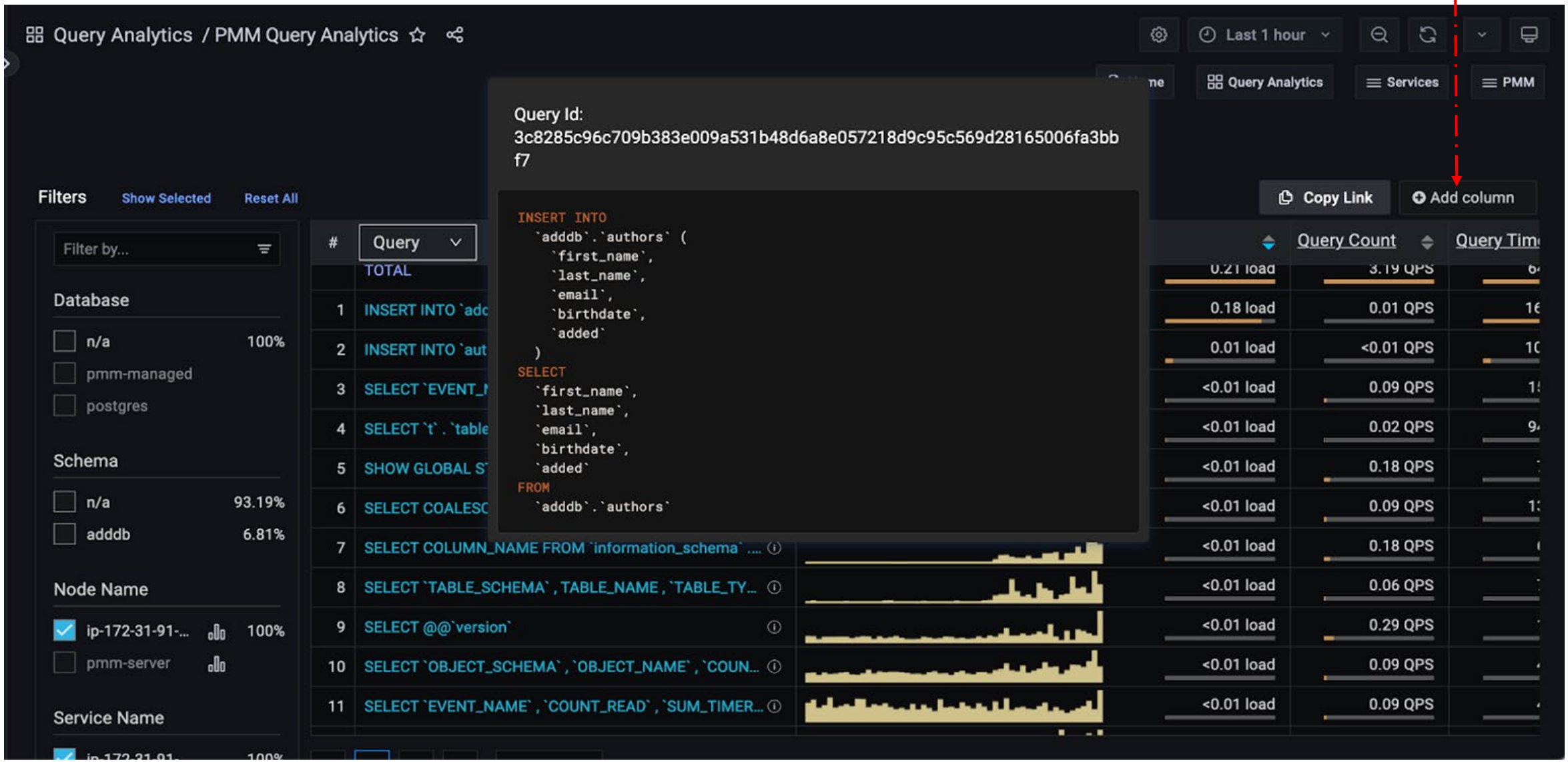
PMM – Troubleshooting Production Issues.
(An Example)



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PMM – Troubleshooting Production Issues.
(An Example)

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An insightful Video Highlighting Key MySQL Metrics!

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Extend Metrics

PMM – Extend Metrics

Enable the textfile collector

By default, the collector is enabled. Different folders are utilized for various resolutions.

```
root        3268    3260  0 May18 ?        01:01:52 /usr/local/percona/pmm2/exporters/node_exporter --collector.bonding --collector.buddyinfo --collector.cpu --collector
.diskstats --collector.entropy --collector.filefd --collector.filesystem --collector.hwmon --collector.loadavg --collector.meminfo --collector.meminfo_numa --collector.n
etdev --collector.netstat --collector.netstat.fields=^(.*_(InErrors|InErrs|InCsumErrors)|Tcp_(ActiveOpens|PassiveOpens|RetransSegs|CurrEstab|AttemptFails|OutSegs|InSegs|
EstabResets|OutRsts|OutSegs)|Tcp_Rto(Algorithm|Min|Max)|Udp_(RcvbufErrors|SndbufErrors)|Udp(6?|Lite6?)_(InDatagrams|OutDatagrams|RcvbufErrors|SndbufErrors|NoPorts)|Icmp6
?_(OutEchoReps|OutEchos|InEchos|InEchoReps|InAddrMaskReps|InAddrMasks|OutAddrMaskReps|OutAddrMasks|InTimestampReps|InTimestamps|OutTimestampReps|OutTimestamps|OutErrors|
InDestUnreachs|OutDestUnreachs|InTimeExcds|InRedirects|OutRedirects|InMsgs|OutMsgs)|IcmpMsg_(InType3|OutType3)|Ip(6|Ext)_(InOctets|OutOctets)|Ip_Forwarding|TcpExt_(Liste
n.*|Syncookies.*|TCPTimeouts))$ --collector.processes --collector.standard.go --collector.standard.process --collector.stat --collector.textfile.directory.hr=/usr/local/
percona/pmm2/collectors/textfile-collector/high-resolution --collector.textfile.directory.lr=/usr/local/percona/pmm2/collectors/textfile-collector/low-resolution --colle
ctor.textfile.directory.mr=/usr/local/percona/pmm2/collectors/textfile-collector/medium-resolution --collector.textfile.hr --collector.textfile.lr --collector.textfile.m
r --collector.time --collector.uname --collector.vmstat --collector.vmstat.fields=^(pg(steal_(kswapd|direct)|refill|alloc)_(movable|normal|dma3?2?)|nr_(dirty.*|slab.*|vm
scan.*|isolated.*|free.*|shmem.*|i?n?active.*|anon_transparent_.*|writeback.*|unstable|unevictable|mlock|mapped|bounce|page_table_pages|kernel_stack)|drop_slab|slabs_sca
nned|pgd?e?activate|pgpg(in|out)|pswp(in|out)|pgm?a?j?fault)$ --no-collector.arp --no-collector.bcache --no-collector.conntrack --no-collector.drbd --no-collector.edac -
-no-collector.infiniband --no-collector.interrupts --no-collector.ipvs --no-collector.ksmd --no-collector.logind --no-collector.mdadm --no-collector.mountstats --no-coll
ector.netclass --no-collector.nfs --no-collector.nfsd --no-collector.ntp --no-collector.qdisc --no-collector.runit --no-collector.sockstat --no-collector.supervisord --n
o-collector.systemd --no-collector.tcpstat --no-collector.timex --no-collector.wifi --no-collector.xfs --no-collector.zfs --web.disable-exporter-metrics --web.listen-add
ress=:42000 --web.config=/tmp/node_exporter/agent_id/44d6f604-06de-4c17-ac35-ea270984ef16/webConfigPlaceholder
```

```
root@DB1mysql80 #ls -ltr /usr/local/percona/pmm2/collectors/textfile-collector/
total 12
drwxr-xr-x 2 pmm-agent pmm-agent 4096 May 18 11:14 medium-resolution
drwxr-xr-x 2 pmm-agent pmm-agent 4096 May 18 11:14 low-resolution
drwxr-xr-x 2 pmm-agent pmm-agent 4096 May 18 11:14 high-resolution
root@DB1mysql80 #
```

PMM – Extend Metrics

Enable the textfile collector

Examples of shell commands for custom metrics

```
root@DB1mysql80 #cat /etc/cron.d/loggedin_users
*/1 * * * *     root    /usr/bin/who | /usr/bin/wc -l | sed -ne 's/^/node_loggedin_users /p' > /usr/local/percona/pmm2/collectors/textfile-collector/high-resolution/node
_users.prom

root@DB1mysql80 #
```

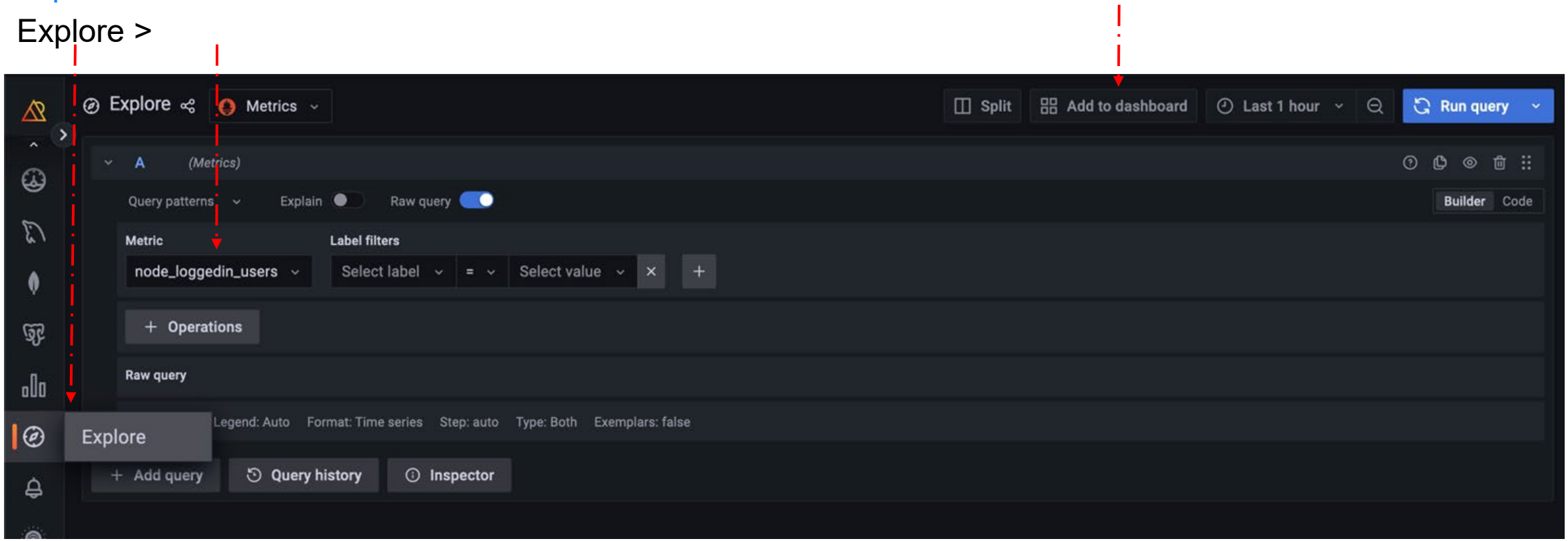
```
root@DB1mysql80 #cat /usr/local/percona/pmm2/collectors/textfile-collector/high-resolution/node_users.prom
node_loggedin_users 2
root@DB1mysql80 #
```

PMM – Extend Metrics

Login to the PMM:

https://52.90.239.57/

Explore >



PMM – Extend Metrics

Login to the PMM:

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Explore >

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Quick Installation Guide

Quick Installation Guide

Step 1: Install PMM Server

Run the easy installation script that will check and install, if necessary, any missing software. Run the command as a user with sudo privileges or as root.

Linux or macOS

Using `curl`:

curl -fsSL https://www.percona.com/get/pmm | /bin/bash

Using `wget`:

wget -O - https://www.percona.com/get/pmm | /bin/bash

- Installs Docker if it is not already installed on your system.
- Stops and backs up any PMM Server Docker containers that are currently running.
- Pulls and runs the latest PMM Server Docker image.

Quick Installation Guide

Step 2: Install PMM Client

RedHat: Install PMM Client

1. Download and install Percona Repo Package

sudo yum install https://repo.percona.com/yum/percona-release-latest.noarch.rpm

2. Install Percona Monitoring and Management Client

sudo yum install pmm2-client

Ubuntu: Install PMM Client

1. Download Percona Repo Package

wget https://repo.percona.com/apt/percona-release_latest.$(lsb_release -sc)_all.deb

2. Install Percona Repo Package

sudo dpkg -i percona-release_latest.$(lsb_release -sc)_all.deb

3. Update apt cache

sudo apt-get update

4. Install Percona Monitoring and Management Client

sudo apt-get install pmm2-client

Quick Installation Guide

Step 3: Connect Client to Server

Requirements: Client to server communication to secure port on pmm-server (443 assumed) — must be performed on every system to be monitored.

Register Percona Monitoring and Management client with server

sudo pmm-admin config --server-insecure-tls --server-url=https://admin:<password>@pmm.example.com

Step 4: Create a PMM user for monitoring

MySQL 8.0

Create a Percona Monitoring and Management specific user for monitoring (using mysql CLI)

CREATE USER 'pmm'@'localhost' IDENTIFIED BY 'pass' WITH MAX_USER_CONNECTIONS 10;
GRANT SELECT, PROCESS, SUPER, REPLICATION CLIENT, RELOAD, BACKUP_ADMIN ON *.* TO 'pmm'@'localhost';

Register the server for monitoring

sudo pmm-admin add mysql --username=pmm --password=<password> --query-source=perfschema

References

Pmm demo : https://pmmdemo.percona.com

PMM Demo Video https://www.youtube.com/watch?v=FIO-vI4IFW4

Pmm : https://docs.percona.com/percona-monitoring-and-management/index.html

Pmm quickstart : https://www.percona.com/software/pmm/quickstart

Questions?

Thank You!