

How do I trigger a Prometheus alert?

- we need to create an alerting rule in prometheus alertmanager and then generate conditions in your monitored system that match the rule.

What is the difference between node exporter and mysql exporter ?

The node exporter and mysql exporter are both part of the prometheus ecosystem, but they serve different purposes:

- Node Exporter: Collects system-level metrics from a machine (CPU, memory, disk, network, etc.)
- MySQL Exporter: Collects MySQL database-specific metrics.

And one more thing the mysql exporter run in foreground by default but node exporter run in background

What is the maximum retention period to save data in Prometheus and how to increase it ?

- By default prometheus stores time-series data for 15 days in its local storage.
- There is no max hard limit for retention period in prometheus but we can configure it for store data for month or year it depending on available disk space bro.
- so how we can configure it
 - You can extend the data retention period using the `--storage.tsdb.retention.time` flag when starting prometheus we can update prometheus service file and add this command line with any retention time we need example

```
--storage.tsdb.retention.time=100d
```

What are the different PromQL data types available in Prometheus Expression language?

PromQL (Prometheus Query Language) has four main data types, which are used for querying and manipulating time-series data.

1. Scalar (Instant Value)

- A single numeric value (floating point).
- Represents a constant at a specific time.

2. Instant Vector

- A set of time-series data points at a single timestamp.
- It includes metric names, labels, and values.

3. Range Vector

- A set of time-series data over a time range.
- Used in functions that need historical data, such as rate calculations.

4. String (Experimental)

- Strings are not widely used in PromQL, as Prometheus mainly deals with numerical data.
- Some API responses return metadata as strings.

How To calculate the average request duration over the last 5 minutes from a histogram ?

```
rate(http_request_duration_seconds_sum[5m]) /  
rate(http_request_duration_seconds_count[5m])
```

What is Thanos Prometheus?

Thanos is an open-source project that extends Prometheus for long-term storage, high availability, and global querying across multiple Prometheus instances.

If we need long-term storage (months/years of metrics) or we have multiple Prometheus instances and need a single view or we want high availability and failover for monitoring.

What is promtool and how i can use it ?

promtool is a command-line tool provided with Prometheus that helps validate, debug, and test Prometheus configurations, rules, and TSDB data.

What types of Monitoring can be done via Grafana?

Grafana supports a wide range of monitoring use cases including: Infrastructure (Servers, Containers, Kubernetes)

- Application & Database Performance
- Network & Security Monitoring
- Business Analytics & IoT Metrics
- Synthetic Monitoring for Uptime & SLAs

Can we see different Servers CPU comparison in Grafana

Grafana allows you to compare CPU usage across multiple servers by querying Prometheus.