

Updated 07/27/2023

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Presentation

Our Prometheus training course will teach you how to monitor your applications effectively. This time series database ([TSDB](#)) is optimized for log monitoring as part of DevOps missions. Indeed, its scrapping functionality enables it to collect metrics via HTTP. This enables centralized control of data, so you can be alerted quickly to any failures in your infrastructure. Speaking of alerts, our training course will provide you with best practices for [configuring these warnings](#). During this course, you'll learn how to install and configure Prometheus, set up your alerts, create queries via PromQL and deploy dashboards. By the end of this Prometheus training course, you'll be familiar with its basic principles and know how to monitor your applications.

Training content

- 2 days training
- Over 20 hours of video training (Monitoring Systems and Services with Prometheus LFS241)

Objectives

- Understanding Prometheus, its advantages and limitations
- Monitoring applications with Prometheus
- Create dashboards and set alerts

Target audience

- DevOps
- System administrators
- Developers
- Architects

Prerequisites

- Knowledge of system administration
- Knowledge of containerization

Prometheus Training Program

Introduction to Prometheus and monitoring

- What is monitoring?
- What is Prometheus?
- The tool's advantages and limitations
- What isn't Prometheus?

Architecture

- The link between applications and Prometheus
- The different elements
 - Client Libraries
 - Exporters
 - Service discovery
 - Scraping
 - Storage
 - Long-Term Storage
 - Dashboards
 - Recording Rules
 - Alerts
 - Querying

Installation and configuration

- Download
- Installation
- Create a configuration file
- Use the browser expression
- Launch the Node Exporter
- Alerting

First step with the tool

- Data model and format
- Perform queries
- Start discovery service
- What is instrumentation?

- Competition and efficiency
- Label metrics
- Create metrics
- Instrumentation
 - The counter
 - The gauge
 - Histogram
 - Unit testing

PromQL

- The syntax
- The structure of language
- Types of results and nodes
- PromLens
- Select series
- Rates and derivatives
- Querying on graphs
- Filtering
- Sorting

The dashboard

- Configure data collection rules
- Create a new dashboard
- Configuring a graphics panel
- Add visualizations
- Good visualization practices
- Default and custom variables
- Create an alert rule

Alerting

- Alert expressions
- Annotations
- SLO alerts
- Scrape health alerts
- Using the alertmanager
 - Routes
 - Receivers
 - Inhibit rules
 - View alerts and notifications

Monitor hosted metrics

- Detailed presentation of the Node Exporter
- Scrape the Node Exporter
- Check metrics ingestion
- Using metrics
- Using custom metrics

Monitor container metrics

- Integrating Prometheus with Kubernetes
- Configuration
- Create a Namespace and a Cluster
- Creating a config map
- Deploying Kubernetes and its dashboard
- Troubleshooting

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.