Publication date : 12/19/2024

Course : Prometheus, monitor server metrics

The open source solution for application and infrastructure monitoring

Practical course - 2d - 14h00 - Ref. PTH

Price : 1610 CHF E.T.

Nouvelle édition

Prometheus is an open source software application for collecting server metrics and managing alerts based on critical thresholds. You'll get to grips with Prometheus in a complex application solution. You'll write PromQL queries and manage alerts with routing rules.

Teaching objectives

At the end of the training, the participant will be able to:

- How to set up a Prometheus monitoring server
- Know how to collect data, filter it and present it in graphical form
- Connecting Grafana to Prometheus
- Set up and manage alerts

Intended audience

Développeurs, chefs de projet, architectes, administrateurs système.

Prerequisites

Basic knowledge of Linux system administration and monitoring, notions of databases.

Course schedule

1 Introduction to Prometheus

- Introduction to modern monitoring and its challenges.
- What is Prometheus?
- The architecture of Prometheus.
- Prometheus' strengths and limitations.
- Comparison with other monitoring solutions.

Hands-on work

Installation and basic configuration of a Prometheus server.

PARTICIPANTS

Développeurs, chefs de projet, architectes, administrateurs système.

PREREQUISITES

Basic knowledge of Linux system administration and monitoring, notions of databases.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

2 Fundamental concepts and data models

- Types of metrics (counter, gauge, histogram, summary).
- Metric format and naming convention.
- Labels and time series.
- Multidimensional data model.
- Best practices for structuring metrics.

3 Instrumentation and data collection

- Native and custom exporters.
- Application instrumentation (Python, Java).
- PushGateway: use cases and limitations.
- Service discovery (focus on Kubernetes and Consul).
- Scraping and configuration.

Hands-on work

Setting up exporters and application instrumentation.

4 PromQL : The query language

- Basic syntax.
- Selectors and filters.
- Operators and functions.
- Aggregations and groups.
- Time intervals and offset.
- Good optimization practices.

Hands-on work

Practical exercises on PromQL.

5 Visualization with Grafana

- Introduction to Grafana.
- Data source configuration.
- Create dashboards.
- Templates and variables.
- Good visualization practices.

Hands-on work

Grafana dashboard creation.

6 Alerting with Prometheus

- Alerting architecture.
- AlertManager configuration.
- Definition of alert rules.
- Templates and annotations.
- Routing and grouping.
- Integration with different channels (email, Slack, etc.).
- Best practices and common patterns.

Hands-on work

Configuration d'une alerte simple avec notification vers la console de debug d'AlertManager et validation du fonctionnement.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

7 Rules and performance optimization

- Recording rules: presentation and use cases.
- Data optimization and reduction.
- Instantaneous vectors and range vectors.
- Best practices for writing rules.
- Impact on performance.

Hands-on work
Implement registration rules and measure impact.

Dates and locations

REMOTE CLASS
2026 : 21 May, 8 Oct., 3 Dec.