



IST100: Microservices and Istio Bootcamp

Microservices security, resiliency, and monitoring using Istio

The Istio Microservices and Istio Bootcamp (IST100) is a 2 day instructor-led training covering Service Mesh, Istio Architecture, and Envoy Proxy. Students will gain hands-on experience with Istio's core features including Traffic management and Security for applications running on Kubernetes. The course is broken up into two sections: **lectures** and **labs**.

The **lectures** provide a high level overview of service mesh ecosystem, Istio architecture, Traffic management, Telemetry with Istio, and Network Policy enforcements.

The **labs** provide a hands-on experience with Istio components and concepts.

Course Details

- Duration: 2 Days
- Hours: 9:00 a.m. - 5:00 p.m

Course Objectives

- Explain the service mesh and its ecosystem
- Explain the components of Istio and their features
- Understand how to deploy microservices application with Istio
- Understand how to configure advanced traffic routing features with Istio

- Understand how to monitor microservices with Istio
- Understand how to improve resilience for microservices with Istio
- Understand how to secure traffic between microservices with Istio
- Explain the different hybrid cloud scenarios and solutions provided by Istio

Target Audience

- Software Engineers
- Cloud Operations Engineers
- DevOps Engineers
- Cloud Architects
- Site Reliability Engineers looking to adopt Istio as the service mesh provider on Kubernetes.

Prerequisites

- Basic experience using Linux command line
- Strong understanding of virtualization technologies (i.e. Hypervisors, virtual networks, containers)
- Strong understanding of Kubernetes (KD250 or equivalent)

Labs Requirements

- Laptop with WiFi connectivity
- Web browser supporting HTML5
- SSH client

Content Overview & Timeline

Day 1

- **Module 1:** Introduction to Service Mesh
- **Lab 1:** Classroom Environment
- **Module 2:** Istio Architecture
- **Lab 2:** Istio Installation and App Development
- **Module 3:** Istio Ingress & Egress Controllers
- **Lab 3:** Istio Ingress Controller
- **Module 4:** Traffic control
- **Lab 4:** Shifting and Steering Traffic with Canary Deployments

Day 2

- **Module 5:** Telemetry with Istio
- **Lab 5:** Monitoring Microservices
- **Module 6:** Microservices Resiliency
- **Lab 6:** Fault Injection, Rate Limiting, and Circuit Breaking
- **Module 7:** Microservices Security
- **Lab 7:** Mutual TLS & RBAC