



# Implementing Segment Routing on Cisco IOS XR (SEGRTE201)

## What you'll learn in this course

The Implementing Segment Routing on Cisco IOS XR (SEGRTE201) v2.0 course covers the fundamental concepts of Segment Routing (SR), how to configure and verify segment routing within an Interior Gateway Protocol (IGP), and the interworking of Label Distribution Protocol (LDP) with segment routing. You will learn how to implement Topology-Independent Loop-Free Alternate (TI-LFA) using segment routing, and how to instantiate and verify segment routing traffic engineering policies. You will also learn how to implement segment routing within Border Gateway Protocol (BGP).

## Course duration

- Instructor-led training: 4 days in the classroom with hands-on lab practice
- Virtual instructor-led training: 5 days of web-based classes with hands-on lab practice
- E-learning: Equivalent of 4 days of instruction with hands-on lab practice

## How you'll benefit

This course will help you:

- Learn how to configure and verify segment routing within an Interior Gateway Protocol (IGP)
- Prepare to implement topology-independent loop-free alternate using segment routing
- Learn to implement segment routing within Border Gateway Protocol

## Who should enroll

- Systems engineers
- Network engineers
- Field engineers
- Technical support personnel
- Channel partners and resellers

## Technology areas

- Networking
- Service provider

## Course details

### Objectives:

After taking this course, you should be able to:

- Describe the key concepts of segment routing
- Implement and verify IGP segment routing
- Migrate an existing Multiprotocol Label Switching (MPLS) LDP-based network to segment routing
- Implement and verify TI-LFA segment routing
- Instantiate segment routing policies
- Instantiate multidomain segment routing policies
- Configure and verify BGP prefix segments and SR-based services

### Recommended knowledge and training

Before taking this course, you should have:

- Familiarity with Cisco Internetwork Operating System (IOS®) XR software
- Knowledge of general networking concepts

## Outline

- Introduction to Segment Routing
  - Introduction
  - Examining Unified Fabric Routing
  - Exploring Segment Routing Concepts
  - Examining Segment Types
  - Examining the Segment Routing Global Block (SRGB)
- IGP Segment Routing Implementation and Verification
  - Introduction
  - Examining the IGP Control Plane
  - Examining SRGB and IGP Interactions
  - Examining Prefix and Adjacency SIDs
  - Intermediate System to Intermediate System (IS-IS) Multilevel and Open Shortest Path First (OSPF) Multi-Area
  - Configuring and Verifying IS-IS SR Operation
  - Configuring and Verifying OSPF SR Operation
- Segment Routing and LDP Interworking
  - Introduction
  - SR and LDP Interworking Data Plane
  - Mapping Server Function and Configuration
  - Interworking Deployment Models
- Topology Independent – Loop Free Alternate
  - Introduction
  - Examining Classic LFA
  - Examining TI-LFA Fundamentals
  - Implementing and Verifying TI-LFA for SR Traffic
  - Implementing and Verifying SR TI-LFA for LDP Traffic
  - TI-LFA and SR LDP Interworking
- Segment Routing Policies – Traffic Engineering (SR-TE)
  - Introduction
  - Exploring SR Policies
  - Anycast and Binding SIDs
  - Enabling and Verifying SR-TE
  - Explicit path SR-TE policies
  - Constrained dynamic path SR-TE policies
  - Instantiating SR Policies
  - Instantiating SR Policies using BGP Dynamic
- Multidomain SR Policies
  - Introduction
  - Configuring and Verifying a Path Computation Element (PCE)
  - Configuring and Verifying BGP Link-State (LS)
  - Configuring Multidomain SR Policies with a PCE
  - Configuring Multidomain SR Policies with On Demand Next-Hop (ODN)
- BGP Prefix Segment and Egress Peer Engineering
  - Introduction
  - Examining the BGP-based data center
  - Examining the BGP Prefix-SID Operation
  - Configuring and Verifying the BGP Prefix SID
  - Examining Egress Peer Engineering
  - Examining BGP peering segments
  - Configuring and verifying egress peer engineering

## How to enroll

To enroll in the SEGRTE201 course or explore our larger catalog of courses on Cisco Digital Learning, contact us at <training@fastlane-mea.com>

### Lab outline

- Configuring and Verifying IGP Segment Routing
- Migrating from LDP to Segment Routing
- Configuring and Verifying TI-LFA Fast Reroute
- Configuring and Verifying SR Policies
- Configuring and Verifying Multidomain SR-TE
- Configuring and Verifying BGP Segment Routing

