

## Configuring BGP on Cisco Routers (BGP)

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In this CONFIGURING BGP ON CISCO ROUTERS (BGP) course provides an in-depth exploration of Border Gateway Protocol, focusing on how BGP is used to build scalable, policy-driven, and resilient enterprise and service provider networks. It is designed for network engineers and architects who need a deep understanding of BGP behavior, route selection, and large-scale deployment considerations. The curriculum balances protocol theory with hands-on implementation and troubleshooting.

Students begin with BGP fundamentals, including session establishment, path attributes, route processing, and basic configuration. The course then advances into transit autonomous system design, exploring IBGP and EBGP interactions, packet forwarding behavior, and operational troubleshooting in transit environments. Policy control is a major focus, with detailed coverage of filtering techniques using prefix lists, AS-path filters, outbound route filtering, and route maps.

Advanced modules examine how BGP attributes such as weight, local preference, AS-path prepending, MED, and communities influence route selection. The course also covers customer-to-provider connectivity models, multihoming strategies, and service provider scaling techniques using route reflectors, confederations, peer groups, and route dampening. Extensive hands-on labs reinforce these concepts, allowing students to configure, monitor, and optimize BGP behavior in realistic enterprise and service provider scenarios.

### Why Attend with Current Technologies CLC

- Our Instructors are in the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses

### Who Should Attend

The primary audience for this course is as follows:

- Network administrators
- Network engineers
- Network managers
- Systems engineers (who would like to implement BGP)

### Prerequisites

The knowledge and skills that a learner must have before attending this course are as follows:

- Intermediate to advanced knowledge of Cisco IOS Software configuration
- Configuring and troubleshooting RIP, EIGRP, OSPF and IS-IS
- Skills and knowledge equivalent to those learned in:
  - Implementing and Administering Cisco Solutions (CCNA)
  - Implementing Cisco Advanced Routing and Services (ENARSI)
  - Implementing and Operating Cisco Service Provider Core Technologies (SPCOR)

#### Course Duration

5 days

#### Course Price

\$4,295.00 or 43 CLCs

#### Methods of Delivery

- Instructor Led
- Virtual ILT
- On-Site

## OUTLINE

### Module 1: BGP Overview

- Introduction to BGP
- BGP Session Establishment
- BGP Path Attributes
- BGP Route Processing
- Basic BGP Configuration
- Monitoring and Troubleshooting BGP

### Module 2: BGP Transit Autonomous Systems

- Working with a Transit AS
- Interacting with IBGP and EBGP in a Transit AS
- Forwarding Packets in a Transit AS
- Configuring a Transit AS
- Monitoring and Troubleshooting IBGP in a Transit AS

### Module 3: Route Selection Using Policy Controls

- Using Multihomed BGP Networks
- Employing AS Path Filters
- Filtering with Prefix Lists
- Using Outbound Route Filtering
- Applying Route Maps as BGP Filters
- Implementing Changes in BGP Policy

### Module 4: Route Selection Using Attributes

- Influencing BGP Route Selection with Weights
- Setting BGP Local Preference
- Using AS-Path Prepending
- Understanding BGP Multi-Exit Discriminator (MED)
- Addressing BGP Communities

### Module 5: Customer-to-Provider Connectivity with BGP

- Understanding Customer-to-Provider Connectivity Requirements
- Implementing Customer Connectivity Using Static Routes
- Connecting a Multihomed Customer to a Single Service Provider
- Connecting a Multihomed Customer to Multiple Service Providers

### Module 6: Scaling Service Provider Networks

- Scaling IGP and BGP in Service Provider Networks
- Introduction to Route Reflectors
- Designing Networks and Route Reflectors
- Configuring and Monitoring Route Reflectors
- Introducing Confederations
- Configuring and Monitoring Confederations

### Module 7: Optimizing BGP Scalability

- Improving BGP Convergence
- Limiting the Number of Prefixes Received from a BGP Neighbor
- Implementing BGP Peer Groups
- Using BGP Route Dampening

## **LAB OUTLINE**

Lab 1: Configure Basic BGP

Lab 2: Announcing Networks in BGP

Lab 3: Implement BGP TTL Security Check

Lab 4: BGP Route Propagation

Lab 5: IBGP Full Mesh

Lab 6: BGP Administrative Distance

Lab 7: Configure Non-Transit Autonomous System

Lab 8: Filtering Customer Prefixes

Lab 9: Prefix-Based Outbound Route Filtering

Lab 10: Configure Route Maps as BGP Filters

Lab 11: Configure Per-Neighbor Weights

Lab 12: Configure and Monitor Local Preference

Lab 13: Configure Local Preference Using Route Maps

Lab 14: Configure AS Path Prepending

Lab 15: Configure MED

Lab 16: Configure Local Preference Using the Communities

Lab 17: Configure Route Reflector

Lab 18: Configure BGP Route Limiting

Lab 19: Configure BGP Peer Groups