

Learning Services

Configuring BGP on Cisco Routers (BGP) v4.0



Overview

The Configuring BGP on Cisco Routers (BGP) version 4.0 Cisco® Training on Demand course provides you with in-depth knowledge of Border Gateway Protocol (BGP), the routing protocol that is one of the underlying foundations of the Internet, and newer technologies such as Multiprotocol Label Switching (MPLS). This course prepares you to design and implement efficient, optimal, and trouble-free BGP networks.

In addition, you learn the theory of BGP and how to configure BGP on Cisco IOS® routers. You learn detailed troubleshooting information and the skills necessary for configuring and troubleshooting BGP networks in customer environments. Finally, you learn about BGP network design issues and usage rules for various features.

Duration

The BGP Training on Demand is a self-paced course based on the 5-day instructor-led training. It consists of 34 sections of instructor video and text instruction, along with interactive activities, 25 hands-on lab exercises, content review questions, and challenge questions.

Target Audience

This course is designed for network engineers and technicians, support engineers, systems engineers, network analysts, and senior network administrators.

Objective

After completing this course, you should be able to:

- Configure, monitor, and troubleshoot basic BGP to enable interdomain routing in a network scenario with multiple domains
- Use BGP policy controls to influence the route selection process with minimal impact on BGP route processing in a network scenario where you must support connections to multiple Internet service providers

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- Use BGP attributes to influence the route selection process in a network scenario where you must support multiple connections
 - Implement the correct BGP configuration to successfully connect the customer network to the Internet in a network scenario where you must support multiple connections
 - Enable the provider network to behave as a transit autonomous system (AS) in a typical service provider network with multiple BGP connections to other autonomous systems
 - Identify common BGP scaling issues and enable route reflection and confederations as possible solutions to these issues in a typical service provider network with multiple BGP connections to other autonomous systems

Course Prerequisites

The knowledge and skills necessary before attending this course are:

- Completion of Interconnecting Cisco Networking Devices (ICND1) or the Cisco CCNA® certification
- Completion of Building Scalable Cisco Internetworks (BSCI) or equivalent

Course Outline

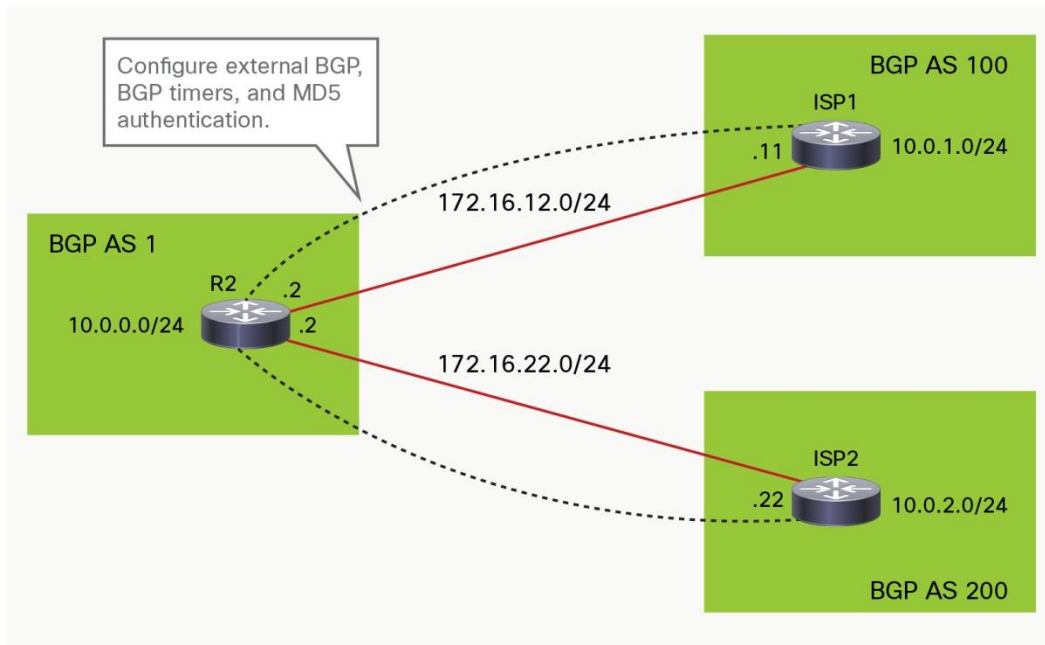
- Section 1: Introducing BGP
- Section 2: Understanding BGP Path Attributes
- Section 3: Establishing BGP Sessions
- Section 4: Processing BGP Routes
- Section 5: Configuring Basic BGP
- Section 6: Monitoring and Troubleshooting BGP
- Section 7: Summary Challenge: Configuring Basic BGP
- Section 8: Working with a Transit AS
- Section 9: Interacting with IBGP and EBGP in a Transit AS
- Section 10: Forwarding Packets in a Transit AS
- Section 11: Monitoring and Troubleshooting IBGP on a Transit AS
- Section 12: Summary Challenge: Configuring a Transit AS
- Section 13: Using Multihomed BGP Networks
- Section 14: Employing AS Path Filters
- Section 15: Filtering with Prefix Lists
- Section 16: Using Outbound Route Filtering
- Section 17: Applying Route Maps as BGP Filters
- Section 18: Implementing Changes in BGP Policy
- Section 19: Summary Challenge: Configure BGP Using BGP Filtering
- Section 20: Influencing BGP Route Selection with Weights
- Section 21: Setting BGP Local Preference
- Section 22: Using AS Path Prepending
- Section 23: Understanding the BGP MED

- Section 24: Addressing BGP Communities
- Section 25: Summary Challenge: Configuring BGP Route Selection Using BGP Attributes
- Section 26: Understanding Customer-to-Provider Connectivity Requirements
- Section 27: Implementing Customer Connectivity Using Static Routing
- Section 28: Connecting a Customer to a Single Service Provider
- Section 29: Connecting a Multihomed Customer to Multiple Service Providers
- Section 30: Scaling IGP and BGP in Service Provider Networks
- Section 31: Introducing Route Reflectors
- Section 32: Summary Challenge: Configuring Route Reflectors
- Section 33: Improving BGP Convergence
- Section 34: Optimizing BGP Scalability

Labs Outline

This course contains 25 hands-on lab exercises.

Representative topology for all labs in the course:



The labs included in this course are:

- Discovery Lab 5.4: Configure Basic BGP
- Discovery Lab 5.7: Announce Networks in BGP
- Discovery Lab 5.10: Implement the BGP Support for TTL Security Check Feature
- Graded Lab 7.2: Configuring Basic BGP
- Discovery Lab 8.7: BGP Route Propagation
- Discovery Lab 9.8: IBGP Full Mesh

- Discovery Lab 10.6: BGP Administrative Distance
- Graded Lab 12.2: Configuring a Transit AS
- Discovery Lab 14.7: Configure a Nontransit Autonomous System
- Discovery Lab 15.7: Filter Customer Prefixes
- Discovery Lab 16.8: Prefix-Based Outbound Route Filtering
- Discovery Lab 17.8: Configure Route Maps as BGP Filters
- Graded Lab 19.2: Configure BGP Using BGP Filtering
- Discovery Lab 20.5: Configure Per-Neighbor Weights
- Discovery Lab 21.6: Configure and Monitor Local Preference
- Discovery Lab 21.8: Configure Local Preference Using Route Maps
- Discovery Lab 22.5: Configure AS Path Prepending
- Discovery Lab 23.5: Configure the MED
- Discovery Lab 24.6: Configure Local Preference Using the Communities
- Graded Lab 25.2: Configuring BGP Route Selection Using BGP Attributes
- Discovery Lab 31.12: Configure Route Reflector
- Graded Lab 32.2: Configuring Route Reflectors
- Discovery Lab 34.4: Configure BGP Route Limiting
- Discovery Lab 34.9: Configure BGP Peer Groups
- Discovery Lab 34.18: Configure BGP Route Dampening

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