# Configuring BGP on Cisco Routers

**Duration: 180 Days** **Course Code: BGP** **Version: 4.0** **Delivery Method: Elearning (Self-paced)**

## Overview:

This is an all-inclusive e-learning solution designed to provide students with an introductory to advanced level understanding of BGP concepts.The course covers the theory of BGP, configuration of BGP on Cisco IOS routers and detailed troubleshooting information. Extensive hands-on exercises are incorporated to provide learners with sufficient practice of the skills required to configure and troubleshoot BGP networks in a customer environment.
A core element of this training is the ability to learn new concepts and reinforce understanding through a wide range of integrated lab scenarios. These labs utilize Cisco IOS Software with Layer 2 and Layer 3 features and a CLI supported on IOS version 15 releases.
Instructional content is broken into manageable-sized segments with built-in assessments that provide students with feedback on their level of understanding and automated guidance back to sections of the training where further review may be needed.
Discovery labs complement the instructional content and are used to introduce new concepts, while graded Challenge questions and labs allow students to test their understanding of concepts and, when needed, provide access to hints and varied degrees of guidance.
Orientation videos are used to define course objectives and offer helpful hints on the product's use to help the learner get started. In addition, various "how to" videos within the product provide helpful illustrations of key fundamentals.

**Certification:** Not aligned to any certification

**Exam**: There is no exam associated to this course

**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.

**This course is worth 40 Credits in the Continuing Education Program**

## Target Audience:

Service Provider and Enterprise network engineers that design,deploy and maintain core IP network infrastructures running BGP

## Objectives:

- **After you complete this course you will 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
- 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 autonomoussystems

## Prerequisites:

**Attendees should meet the following prerequisites:**

- Intermediate to advanced Knowledge of Cisco IOS Software configuration - **CCNA Routing and Switching** or **CCNA Service Provider** recommended.
- Prior attendance of the **ENCOR** course is strongly recommended.
- CCNA - Implementing and Administering Cisco Solutions

## Testing and Certification

**Recommended preparation for exam(s):**

- No exam is currently aligned to this course.

## Follow-on-Courses:

- MPLS - Implementing Cisco MPLS

## Content:

BGP Overview

- Introducing BGP
- Understanding BGP Path Attributes
- Establishing BGP Sessions
- Processing BGP Routes
- Configuring Basic BGP
- Monitoring and Troubleshooting BGP

BGP Transit Autonomous Systems

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

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

Route Selection Using Attributes

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

Customer-to-Provider Connectivity with BGP

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

Scaling Service Provider Networks

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

Optimizing BGP Scalability

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

Labs

- Discovery 1: Configure Basic BGP
- Discovery 2: Announcing Networks in BGP
- Discovery 3: Implement BGP TTL Security Check
- Discovery 4: BGP Route Propagation
- Discovery 5: IBGP Full Mesh
- Discovery 6: BGP Administrative Distance
- Discovery 7: Configure Non-Transit Autonomous System
- Discovery 8: Filtering Customer Prefixes
- Discovery 9: Prefix-Based Outbound Route Filtering
- Discovery 10: Configure Route Maps as BGP Filters
- Discovery 11: Configure Per-Neighbor Weights
- Discovery 12: Configure and Monitor Local Preference
- Discovery 13: Configure Local Preference Using Route Maps
- Discovery 14: Configure AS Path Prepending
- Discovery 15: Configure MED
- Discovery 16: Configure Local Preference Using the Communities
- Discovery 17: Configure Route Reflector
- Discovery 18: Configure BGP Route Limiting
- Discovery 19: Configure BGP Peer Groups
- Discovery 20: Configure BGP Route Dampening
- Challenge 1: Configure a Basic BGP Network
- Challenge 2: Configure a BGP Transit AS
- Challenge 3: Configure BGP Using BGP Filtering
- Challenge 4: Configure BGP Route Selection Using BGP Attributes
- Challenge 5: Configure BGP Route Reflectors

## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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