

# Cisco 360 Learning Program for CCIE Routing and Switching Self-Paced Lessons: IP Multicast



The centerpiece of this Lesson Module is the Configuring IP Multicast Routing video on demand (VoD) instruction. The split-screen format of each VoD module provides the powerful learning experience of shadowing a Cisco CCIE who is configuring and explaining IP Multicast

### Building the SPT from the Last-Hop Router

- R1 puts S1/1 on the OIL after receiving the join message from R3.
- Multicast traffic flows from the source to the client.

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R1# RPF neighbor: ? (10.1.24.2)
R1# RPF route/mask: 10.1.103.0/24
R1# RPF type: unicast (ospf 1)
R1# RPF recursion count: 0
R1# Doing distance-preferred lookups across tables
R4#
R4#
R4# show ip rpf 10.1.6.6
R4# RPF Information for ? (10.1.6.6)
R4# RPF interface: Serial1/1/0
R4# RPF neighbor: ? (10.1.24.2)
R4# RPF route/mask: 10.1.6.0/24
R4# RPF type: unicast (ospf 1)
R4# RPF recursion count: 0
R4# Doing distance-preferred lookups across tables
R4#
  
```

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## Duration: Three Hours and Forty Five Minutes

Each VoD is approximately 15–30 minutes in length, and the VoD modules are grouped into six blocks.

## Target Audience

The IP Multicast lesson is for professional-level networking engineers who have 3–5 years of network engineering experience or who have completed the Cisco CCNP certification. This self-paced Lesson Module is for engineers who want to develop expert level skills in networking

## Recommended Prerequisites and Corequisites

A CCNP level of understanding of IP routing is required. It is also recommended that this lesson be completed with these lessons:

- CCIE R&S Lesson: Interior Gateway Routing Protocols (IGP's)
- CCIE R&S Lesson: Border Gateway Protocol (BGP)
- CCIE R&S Lesson: Troubleshooting

## Lesson Module Objectives

Upon completion of this self-paced Lesson Module, learners should be able to formulate well-defined mental simulations to perform the following IP Multicast tasks with the minimally described parameters that are commonly found in CCIE-level tasks:

- Attain a basic understanding of IP Multicast
- Formulate an opening moves strategy to implement and troubleshoot IP Multicast
- Perform the configuration and troubleshooting of the IP Multicast routing protocols

## Lesson Module Outline

The VoDs in this Lesson Module discuss these topics:

### **Block 1: Reviewing Basic Multicast Operations**

- Reviewing methods of sending IP packets
- Reviewing IP multicast addressing
- IP multicast group membership
- Multicast distribution trees
- Multicast forwarding
- Protocol Independent Multicast
- Recommended reading

### **Block 2: PIM Dense Mode Operations**

- PIM dense mode
- Potential issues with PIM-DM

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### **Block 3: PIM Sparse Mode Operations**

- Comparison of multicast modes
- PIM sparse mode operations
- RP considerations

### **Block 4: PIM Protocol Extensions**

- Source-Specific Multicast
- Bidirectional PIM

### **Block 5: Interdomain Multicast Protocols**

- Multicast Source Discovery Protocol
- Anycast RP
- MBGP extensions for IP multicast

### **Block 6: Identifying Strategies for Multicast Tasks**

- Multicast opening-moves options analysis
- Troubleshooting a preexisting PIM-SM multicast configuration
- Common reasons for failure of an IP multicast configuration

### **For More Information**

For more information about Cisco 360 Learning Program for CCIE Routing and Switching, go to [www.cisco.com/go/360](http://www.cisco.com/go/360).

The Cisco 360 Learning Program for CCIE Routing and Switching Learning Portal is available at <http://cisco360.cisco.com>.



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