



Cisco IOS Optimized Edge Routing Feature Roadmap

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This roadmap lists the features documented in the Cisco IOS Optimized Edge Routing configuration guide and maps them to the modules in which they appear.

Feature and Release Support

Table 1 lists Cisco IOS Optimized Edge Routing (OER) feature support for the following Cisco IOS software release trains:

- [Cisco IOS Release 12.2SR](#)
- [Cisco IOS Release 12.2SX](#)
- [Cisco IOS Releases 12.3T, 12.4, and 12.4T](#)

Only features that were introduced or modified in Cisco IOS Release 12.3(8)T, 12.2(33)SRB, or a later release appear in the table. *Not all features may be supported in your Cisco IOS software release.*

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS and Catalyst OS software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.



Note

Table 1 lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.



Table 1 Supported Cisco IOS Optimized Edge Routing Features

Release	Feature Name	Feature Description	Where Documented
Cisco IOS Release 12.2SR			
12.2(33)SRB	OER BGP Inbound Optimization	This feature introduced support for best entrance selection for traffic that originates from prefixes outside an autonomous system destined for prefixes inside the autonomous system. External BGP (eBGP) advertisements from an autonomous system to another autonomous system (for example, an Internet service provider) can influence the entrance path for traffic entering the network. OER uses eBGP advertisements to manipulate the best entrance selection.	<ul style="list-style-type: none"> • Cisco IOS Optimized Edge Routing Overview • “Using OER to Profile the Traffic Classes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”
	OER DSCP Monitoring	This feature introduced automatic learning of traffic classes based on protocol, port numbers, and DSCP value. Traffic classes can be defined by a combination of keys comprising of protocol, port numbers, and DSCP values, with the ability to filter out traffic that is not required, and the ability to aggregate the traffic in which you are interested. Information such as protocol, port number, and DSCP information is now sent to the master controller database in addition to the prefix information. The new functionality allows OER to both actively and passively monitor application traffic.	<ul style="list-style-type: none"> • “Using OER to Profile the Traffic Classes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.2(33)SRB	OER Voice Traffic Optimization	This feature introduced support for outbound optimization of voice traffic based on the voice metrics, jitter and Mean Opinion Score (MOS). Jitter and MOS are important quantitative quality metrics for voice traffic and these voice metrics are measured using OER active probes.	<ul style="list-style-type: none"> • “OER Voice Traffic Optimization Using Active Probes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”
	OER Active Probe Source Address	This feature introduced the capability to configure a specific exit interface on the border router as the source for active probes.	“Measuring the Traffic Class Performance and Link Utilization Using OER”
	OER Application-Aware Routing: PBR	This feature introduced the capability to optimize IP traffic based on the type of application that is carried by the monitored prefix. Independent policy configuration is applied to the subset (application) of traffic.	<ul style="list-style-type: none"> • “Setting Up OER Network Components” • “Using OER to Profile the Traffic Classes” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.2(33)SRB	OER Support for Cost-Based Optimization and Traceroute Reporting	This feature introduced the capability to configure exit link policies based on the ISP billing cost. This feature also introduces the capability to configure traceroute probes to determine prefix characteristics on a hop-by-hop basis.	<ul style="list-style-type: none"> • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”
	OER Support for Policy-Rules Configuration	This feature introduces the capability to select an OER map and apply the configuration under OER master controller configuration mode, providing an improved method to switch between predefined OER maps.	“Configuring and Applying OER Policies”
	Port and Protocol Based Prefix Learning	This feature introduced the capability to configure a master controller to learn prefixes based on the protocol type and the TCP or UDP port number.	“Using OER to Profile the Traffic Classes”
	VPN IPsec/GRE Tunnel Optimization	This module documents an OER solution that describes how to configure IP security (IPsec)/Generic Routing Encapsulation (GRE) tunnel interfaces as OER-managed exit links. Only network-based IPsec VPNs are supported.	“Configuring VPN IPsec/GRE Tunnel Interfaces As OER-Managed Exit Links”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.2(33)SRB	Optimized Edge Routing (OER)	OER provides automatic route optimization and load distribution for multiple connections between networks. OER is an integrated Cisco IOS solution that allows you to monitor IP traffic flows and then define policies and rules based on prefix performance, link load distribution, link bandwidth monetary cost, and traffic type. OER provides active and passive monitoring systems, dynamic failure detection, and automatic path correction. Deploying OER enables intelligent load distribution and optimal route selection in an enterprise network.	<ul style="list-style-type: none"> • “Cisco IOS Optimized Edge Routing Overview” • “Setting Up OER Network Components” • “Using OER to Profile the Traffic Classes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”
Cisco IOS Release 12.2SX			
12.2(33)SXH	OER Border Router Only Functionality	In Cisco IOS Release 12.2(33)SXH support for using a Cisco Catalyst 6500 series switch as an OER border router was introduced. Only border router functionality is included in the Cisco IOS Release 12.2(33)SXH images; no master controller configuration is available. The master controller that communicates with the Cisco Catalyst 6500 series switch being used as a border router must be a router running Cisco IOS Release 12.4(6)T or a later release. The OER master controller software has been modified to handle the limited functionality supported by the Cisco Catalyst 6500 border routers. Using the Route Processor (RP), the Catalyst 6500 border routers can capture throughput statistics only for a traffic class compared to the delay, loss, unreachability, and throughput statistics collected by non-Catalyst 6500 border routers. A master controller automatically detects the limited capabilities of the Catalyst 6500 border routers and downgrades other border routers to capture only the throughput statistics for traffic classes. By ignoring other types of statistics, the master controller is presented with a uniform view of the border router functionality.	<ul style="list-style-type: none"> • “Setting Up OER Network Components” • “Using OER to Profile the Traffic Classes” • “Measuring the Traffic Class Performance and Link Utilization Using OER”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
Cisco IOS Releases 12.3T, 12.4, and 12.4T			
12.4(15)T	OER - Application Aware Routing with Static Application Mapping	This feature introduces the ability to configure standard applications using just one keyword. In Cisco IOS Release 12.4(9)T, and prior releases, the definition of application traffic involves some awkward configuration. This feature also introduces a learn list configuration mode that allows Optimized Edge Routing (OER) policies to be applied to traffic classes profiled in a learn list. Different policies can be applied to each learn list. New traffic-class and match traffic-class commands are introduced to simplify the configuration of traffic classes that OER can automatically learn, or that can be manually configured.	“Using OER to Profile the Traffic Classes”
	Performance Routing - Application Interface	This feature introduces support for an OER application interface. The application interface defines the mode of communication and messaging between applications and the network for the purpose of optimizing the traffic associated with the applications. A provider must be registered with an OER master controller before the application can interface with OER. Host devices in the provider network running an application that communicates with OER using the application interface must also be configured at an OER master controller with an IP address and key chain password.	“Setting Up OER Network Components”
	Performance Routing - Link Groups	This feature introduces the ability to define a group of exit links as a preferred set of links, or a fallback set of links for OER to use when optimizing traffic classes specified in an OER policy.	“Configuring and Applying OER Policies”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.4(9)T	OER BGP Inbound Optimization	This feature introduced support for best entrance selection for traffic that originates from prefixes outside an autonomous system destined for prefixes inside the autonomous system. External BGP (eBGP) advertisements from an autonomous system to another autonomous system (for example, an Internet service provider) can influence the entrance path for traffic entering the network. OER uses eBGP advertisements to manipulate the best entrance selection.	<ul style="list-style-type: none"> • Cisco IOS Optimized Edge Routing Overview • “Using OER to Profile the Traffic Classes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”
	OER DSCP Monitoring	This feature introduced automatic learning of traffic classes based on protocol, port numbers, and DSCP value. Traffic classes can be defined by a combination of keys comprising of protocol, port numbers, and DSCP values, with the ability to filter out traffic that is not required, and the ability to aggregate the traffic in which you are interested. Information such as protocol, port number, and DSCP information is now sent to the master controller database in addition to the prefix information. The new functionality allows OER to both actively and passively monitor application traffic.	<ul style="list-style-type: none"> • “Using OER to Profile the Traffic Classes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.4(6)T	OER Voice Traffic Optimization	This feature introduced support for outbound optimization of voice traffic based on the voice metrics, jitter and Mean Opinion Score (MOS). Jitter and MOS are important quantitative quality metrics for voice traffic and these voice metrics are measured using OER active probes.	<ul style="list-style-type: none"> • “OER Voice Traffic Optimization Using Active Probes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”
12.4(2)T	OER Active Probe Source Address	This feature introduced the capability to configure a specific exit interface on the border router as the source for active probes.	“Measuring the Traffic Class Performance and Link Utilization Using OER”
	OER Application-Aware Routing: PBR	This feature introduced the capability to optimize IP traffic based on the type of application that is carried by the monitored prefix. Independent policy configuration is applied to the subset (application) of traffic.	<ul style="list-style-type: none"> • “Setting Up OER Network Components” • “Using OER to Profile the Traffic Classes” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.3(14)T	OER Support for Cost-Based Optimization and Traceroute Reporting	This feature introduced the capability to configure exit link policies based on the ISP billing cost. This feature also introduces the capability to configure traceroute probes to determine prefix characteristics on a hop-by-hop basis.	<ul style="list-style-type: none"> • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”

Table 1 Supported Cisco IOS Optimized Edge Routing Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.3(11)T	OER Support for Policy-Rules Configuration	This feature introduces the capability to select an OER map and apply the configuration under OER master controller configuration mode, providing an improved method to switch between predefined OER maps.	“Configuring and Applying OER Policies”
	Port and Protocol Based Prefix Learning	This feature introduced the capability to configure a master controller to learn prefixes based on the protocol type and the TCP or UDP port number.	“Using OER to Profile the Traffic Classes”
	VPN IPsec/GRE Tunnel Optimization	This module documents an OER solution that describes how to configure IP security (IPsec)/Generic Routing Encapsulation (GRE) tunnel interfaces as OER-managed exit links. Only network-based IPsec VPNs are supported.	“Configuring VPN IPsec/GRE Tunnel Interfaces As OER-Managed Exit Links”
12.3(8)T	Optimized Edge Routing (OER)	OER provides automatic route optimization and load distribution for multiple connections between networks. OER is an integrated Cisco IOS solution that allows you to monitor IP traffic flows and then define policies and rules based on prefix performance, link load distribution, link bandwidth monetary cost, and traffic type. OER provides active and passive monitoring systems, dynamic failure detection, and automatic path correction. Deploying OER enables intelligent load distribution and optimal route selection in an enterprise network.	<ul style="list-style-type: none"> • “Cisco IOS Optimized Edge Routing Overview” • “Setting Up OER Network Components” • “Using OER to Profile the Traffic Classes” • “Measuring the Traffic Class Performance and Link Utilization Using OER” • “Configuring and Applying OER Policies” • “Using OER to Control Traffic Classes and Verify the Route Control Changes”

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