



Enabling Protocol Discovery

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Network-Based Application Recognition (NBAR) includes a feature called Protocol Discovery. Protocol Discovery provides an easy way to discover the application protocols that are operating on an interface. When you configure NBAR, the first task is to enable Protocol Discovery.

This module contains concepts and tasks for enabling the Protocol Discovery feature.

Finding Feature Information in This Module

Your Cisco IOS software release may not support all of the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To reach links to specific feature documentation in this module and to see a list of the releases in which each feature is supported, use the [“Feature Information for Enabling Protocol Discovery”](#) section on page 7.

Finding Support Information for Platforms and Cisco IOS and Catalyst OS Software Images

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Prerequisites for Enabling Protocol Discovery

Before enabling Protocol Discovery, read the information in the [“Classifying Network Traffic Using NBAR”](#) module.

Information About Protocol Discovery

Before enabling Protocol Discovery, you should understand the following concept:

- [Protocol Discovery Functionality, page 2](#)

Protocol Discovery Functionality

NBAR determines which protocols and applications are currently running on your network. NBAR includes a feature called Protocol Discovery. Protocol Discovery provides an easy way of discovering the application protocols that are operating on an interface so that appropriate quality of service (QoS) features can be applied. With Protocol Discovery, you can discover any protocol traffic that is supported by NBAR and obtain statistics that are associated with that protocol.

Protocol Discovery maintains the following per-protocol statistics for enabled interfaces:

- Total number of input packets and bytes
- Total number of output packets and bytes
- Input bit rates
- Output bit rates

The statistics can then be used when you later define classes and traffic policies (sometimes known as policy maps) for each traffic class. The traffic policies (policy maps) are used to apply specific QoS features and functionality to the traffic classes.

How to Configure Protocol Discovery

This section contains the following tasks:

- [Enabling Protocol Discovery on an Interface, page 2](#) (required)
- [Reporting Protocol Discovery Statistics, page 3](#) (optional)

Enabling Protocol Discovery on an Interface

To enable Protocol Discovery on an interface, perform the following steps.

ip nbar protocol-discovery Command and Layer 2/3 Etherchannel Support

The **ip nbar protocol-discovery** command is used to enable Protocol Discovery on an interface. With Cisco IOS Release 12.2(18)ZYA, intended for use on the Cisco 6500 series switch that is equipped with a Supervisor 32/PISA, the **ip nbar protocol-discovery** command is supported on both Layer 2 and Layer 3 Etherchannels.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number* [*name-tag*]
4. **ip nbar protocol-discovery**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	interface <i>type number</i> [<i>name-tag</i>] Example: Router(config)# interface ethernet 2/4	Configures an interface type and enters interface configuration mode. <ul style="list-style-type: none"> • Enter the interface type and the interface number.
Step 4	ip nbar protocol-discovery Example: Router(config-if)# ip nbar protocol-discovery	Configures NBAR to discover traffic for all protocols known to NBAR on a particular interface.
Step 5	end Example: Router(config-if)# end	(Optional) Exits interface configuration mode.

Reporting Protocol Discovery Statistics

To display a report of the Protocol Discovery statistics per interface, perform the following steps.

SUMMARY STEPS

1. **enable**
2. **show policy-map interface** *type number*
3. **show ip nbar protocol-discovery** [**interface** *type number*] [**stats** {**byte-count** | **bit-rate** | **packet-count** | **max-bit-rate**}] [**protocol** *protocol-name* | **top-n** *number*]
4. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none">• Enter your password if prompted.
Step 2	show policy-map interface <i>type number</i> Example: Router# show policy-map interface Fastethernet 6/0	(Optional) Displays the packet and class statistics for all policy maps on the specified interface. <ul style="list-style-type: none">• Enter the interface type and the interface number.
Step 3	show ip nbar protocol-discovery [interface <i>type number</i>] [stats { byte-count bit-rate packet-count max-bit-rate }] [protocol <i>protocol-name</i> top-n <i>number</i>] Example: Router# show ip nbar protocol-discovery interface Fastethernet 6/0	Displays the statistics gathered by the NBAR Protocol Discovery feature. <ul style="list-style-type: none">• (Optional) Enter keywords and arguments to fine-tune the statistics displayed.
Step 4	exit Example: Router# exit	(Optional) Exits privileged EXEC mode.

Configuration Examples for Enabling Protocol Discovery

This section provides the following configuration examples:

- [Enabling Protocol Discovery on an Interface: Example, page 4](#)
- [Reporting Protocol Discovery Statistics: Example, page 5](#)

Enabling Protocol Discovery on an Interface: Example

In the following sample configuration, Protocol Discovery is enabled on Ethernet interface 2/4.

```
Router> enable
Router# configure terminal
Router(config)# interface ethernet 2/4
Router(config-if)# ip nbar protocol-discovery
Router(config-if)# end
```

Reporting Protocol Discovery Statistics: Example

The following example displays output from the `show ip nbar protocol-discovery` command for the five most active protocols on an Ethernet interface:

```
Router# show ip nbar protocol-discovery top-n 5
```

```
Ethernet2/0
```

Protocol	Input	Output
	Packet Count Byte Count 30sec Bit Rate (bps) 30sec Max Bit Rate (bps)	Packet Count Byte Count 30sec Bit Rate (bps) 30sec Max Bit Rate (bps)
rtp	3272685 242050604 768000 2002000	3272685 242050604 768000 2002000
gnutella	513574 118779716 383000 987000	513574 118779716 383000 987000
ftp	482183 37606237 121000 312000	482183 37606237 121000 312000
http	144709 32351383 105000 269000	144709 32351383 105000 269000
netbios	96606 10627650 36000 88000	96606 10627650 36000 88000
unknown	1724428 534038683 2754000 4405000	1724428 534038683 2754000 4405000
Total	6298724 989303872 4213000 8177000	6298724 989303872 4213000 8177000

Where to Go Next

After you enable Protocol Discovery, you have the option to configure NBAR using the Modular Quality of Service (QoS) Command-Line Interface (CLI) (MQC). To configure NBAR using the MQC, see the [“Configuring NBAR Using the MQC”](#) module.

Additional References

The following sections provide references related to enabling Protocol Discovery.

Related Documents

Related Topic	Document Title
QoS commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	Cisco IOS Quality of Service Solutions Command Reference
Concepts and information about NBAR	“Classifying Network Traffic Using NBAR” module
Configuring NBAR using the MQC	“Configuring NBAR Using the MQC” module
Adding application recognition modules (also known as PDLMS)	“Adding Application Recognition Modules” module
Creating a custom protocol	“Creating a Custom Protocol” module

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	http://www.cisco.com/techsupport

Feature Information for Enabling Protocol Discovery

Table 1 lists the release history for this feature.

For information on a feature in this technology that is not documented here, see the “[Classifying Network Traffic Using NBAR Features Roadmap](#)” module.

Not all commands may be available in your Cisco IOS software release. For release information about a specific command, see the command reference documentation.

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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 Feature Information for Enabling Protocol Discovery

Feature Name	Releases	Feature Information
NBAR—Network-Based Application Recognition	12.2(18)ZYA	Integrates NBAR and Firewall Service Module (FWSM) functionality on the Catalyst 6500 series switch that is equipped with a Supervisor 32/programmable intelligent services accelerator (PISA). The following commands were modified: ip nbar protocol-discovery , show ip nbar protocol-discovery .

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