



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.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Prerequisites for Enabling Protocol Discovery

Before enabling Protocol Discovery, read the information in the "Classifying Network Traffic Using NBAR" module.



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Information About Protocol Discovery

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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

- [Enabling Protocol Discovery on an Interface, page 2](#)
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Enabling Protocol Discovery on an Interface

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.

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

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

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

DETAILED STEPS

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

Configuration Examples for Enabling Protocol Discovery

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

Example Enabling Protocol Discovery on an Interface

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
```

Example Reporting Protocol Discovery Statistics

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	Packet Count	Byte Count
		30sec Bit Rate (bps)		30sec Bit Rate (bps)
		30sec Max Bit Rate (bps)		30sec Max Bit Rate (bps)
-----	-----	-----	-----	-----
rtp	3272685		3272685	
			242050604	
	768000		768000	
	2002000		2002000	
gnutella	513574		513574	
	118779716		118779716	
	383000		383000	
	987000		987000	
ftp	482183		482183	
	37606237		37606237	
	121000		121000	
	312000		312000	
http	144709		144709	
	32351383		32351383	
	105000		105000	
	269000		269000	
netbios	96606		96606	
	10627650		10627650	
	36000		36000	
	88000		88000	
unknown	1724428		1724428	
	534038683		534038683	
	2754000		2754000	
	4405000		4405000	
Total	6298724		6298724	
	989303872		989303872	
	4213000		4213000	
	8177000		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	<i>Cisco IOS Quality of Service Solutions Command Reference</i>
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
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Enabling Protocol Discovery

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

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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