



Enabling Protocol Discovery

Last Updated: June 21, 2011

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.

Information About Protocol Discovery

- [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

- [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	enable Example: Router> enable	Enables privileged EXEC mode. • 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. • 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 [<i>interface type number</i>] [<i>stats {byte-count bit-rate packet-count max-bit-rate}</i>] [<i>protocol protocol-name top-n 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

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

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

Feature Name	Releases	Feature Information
		programmable intelligent services accelerator (PISA). The following commands were modified: ip nbar protocol-discovery , show ip nbar protocol-discovery .

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