PXF Logical Interface Options

Feature History

Release	Modification
12.2(20)S5	This feature was introduced.

This document describes the PXF Logical Interface Options feature introduced in Cisco IOS Release 12.2(20)S5. It contains the following sections:

Feature Overview

On the Cisco 7304 router using an NSE-100, the PXF processing path was enhanced in Cisco IOS Release 12.2(20)S5 to support up to 63 classes per QoS policy (previous Cisco IOS releases supported up to 23 classes per QoS policy). This enhancement, however, is only usable if the maximum number of PXF logical interfaces on the router is no more than 4,096.

By default, the Cisco 7304 router using an NSE-100 supports up to 16,384 PXF logical interfaces and up to 23 classes per QoS policy. The enhancement introduced in Cisco IOS Release 12.2(20)S5 allows the router to support more traffic classes per QoS policy if desired.

The **pxf max-logical-interfaces** command was introduced in Cisco IOS Release 12.2(20)S5 to allow users to choose the number of PXF logical interfaces they would like to support on their router, thereby allowing them to choose the number of QoS classes they would like to support in PXF per QoS policy on their router.

Restrictions

The configuration must be saved and the router reloaded for changes to the **pxf max-logical-interfaces** setting to take effect.

Related Documents

For information on PXF features on the Cisco 7304 router, see the *Cisco 7304 Router Troubleshooting and Configuration Notes* document.

Supported Platforms

- Cisco 7304 router using an NSE-100

Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at http://www.cisco.com/go/fn. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

Supported Standards, MIBs, and RFCs

Standards

None

MIBs

None

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

http://tools.cisco.com/ITDIT/MIBS/servlet/index

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://www.cisco.com/register

RFCs

None

Configuration Tasks

See the following sections for configuration tasks for the PXF Logical Interface Options feature. Each task in the list is identified as either required or optional.

- Configuring PXF Logical Interface Options
- Verifying PXF Logical Interface Options Settings

Configuring PXF Logical Interface Options

By default, the Cisco 7304 router using an NSE-100 supports 23 QoS traffic classes per policy in PXF and 16,384 PXF logical interfaces. The following procedure shows how to change this default setting:

	Command	Purpose
Step 1	`Router(config)# pxf max-logical-interfaces 4k`	Changes the number of supported PXF logical interfaces from 16,384 to 4,096. When 4,096 PXF logical interfaces are supported, up to 63 QoS traffic classes per policy are supported in the PXF processing path.
Step 2	`Router(config)# exit`	Exits global configuration mode.
Step 3	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration. If you have additional configuration changes to perform that you would like saved, perform those configurations before entering this command.
Step 4	`Router# reload`	Reloads the router. The changes to **pxf max-logical-interfaces** are not accepted by the router until the router is loaded with the **pxf max-logical-interfaces** setting saved in the startup configuration.

If you would like to return to the initial setting after changing it, follow this procedure:

	Command	Purpose

Step 1	`Router(config)# pxf max-logical-interfaces 16k`
	
	or
	
	`Router(config)# no pxf max-logical-interfaces 4k`
		Changes the number of supported PXF logical interfaces from 4,096 to 16,384. When 16,384 PXF logical interfaces are supported, up to 23 QoS traffic classes per policy are supported in the PXF processing path.

Step 2	`Router(config)# exit`	Exits global configuration mode.
Step 3	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration. If you have additional configuration changes to perform that you would like saved, perform those configurations before entering this command.
Step 4	`Router# reload`	Reloads the router. The changes to **pxf max-logical-interfaces** are not accepted by the router until the router is loaded with the **pxf max-logical-interfaces** setting saved in the startup configuration.

Verifying PXF Logical Interface Options Settings

The **show pxf max-logical-interfaces** command can be used to verify if the **pxf max-logical-interfaces** configuration change was accepted by the router. The output from this command provides the settings for the maximum number of classes permitted per QoS policy in PXF and the number of PXF logical interfaces as set in both the running configuration file and the startup configuration file. The settings listed in the startup configuration file are the current settings on the router; the settings listed in the running configuration will be the settings on the router when the router is reloaded.

Monitoring and Maintaining PXF Logical Interface Options

To monitor and maintain the PXF Logical Interface Options feature, use the following command:

Command	Purpose
`Router# show pxf max-logical-interfaces`	Displays the configured maximum number of classes permitted per QoS policy in PXF and the maximum number of PXF logical interfaces for both the running configuration and the startup configuration.

Configuration Examples

This section provides the following configuration examples:

- Changing PXF Logical Interface Options from the Default Settings Example
- Changing PXF Logical Interface Options to the Default Settings Example
- Verifying PXF Logical Interface Options Settings Example

Changing PXF Logical Interface Options from the Default Settings Example

By default, the Cisco 7304 router using an NSE-100 supports 23 QoS traffic classes per policy in PXF and 16,384 PXF logical interfaces. The following procedure shows how to change this default setting so that the Cisco 7304 router supports up to 63 QoS traffic classes per policy in PXF and 4,096 PXF logical interfaces.

```
Router(config)# pxf max-logical-interfaces 4k
Router(config)# exit
Router# copy running-config startup-config
Router# reload
```

Changing PXF Logical Interface Options to the Default Settings Example

By default, the Cisco 7304 router using an NSE-100 supports 23 QoS traffic classes per policy in PXF and 16,384 PXF logical interfaces. The following procedure shows how to revert back to this setting if this setting was previously changed:

```
Router(config)# pxf max-logical-interfaces 16k
Router(config)# exit
Router# copy running-config startup-config
Router# reload
```

The following commands can also be used to revert back to the default settings if the setting was previously changed:

```
Router(config)# no pxf max-logical-interfaces 4k
Router(config)# exit
Router# copy running-config startup-config
Router# reload
```

Verifying PXF Logical Interface Options Settings Example

In the following example, the **pxf max-logical-interfaces 16k** command has been entered to change the setting from the previous setting of 4k. The router, however, has not been rebooted with the changes saved to the running configuration.

```
Router# show pxf max-logical-interfaces
Running configuration:
    PXF Max classes per interface: 23
    Max PXF interfaces:            16K

Startup configuration:
    PXF Max classes per interface: 64
    Max PXF interfaces:            4K
```

Command Reference

This section documents new and modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

- **pxf max-logical-interfaces**
- **show pxf max-logical-interfaces**

pxf max-logical-interfaces

To configure the maximum number of PXF logical interfaces, use the **pxf max-logical-interfaces** command in global configuration mode. To restore the default number of PXF logical interfaces, use the **no** form of this command.

pxf max-logical-interfaces [**4k** | **16k**]

no pxf max-logical-interfaces [**4k** | **16k**]

Syntax Description

4k	Specifies that 4,096 logical interfaces are supported in PXF. When this value is selected, up to 63 QoS classes can be supported in PXF.
16k	Specifies that 16,384 logical interfaces are supported in PXF. When this value is selected, up to 23 QoS classes can be supported in PXF. This is the default setting.

Defaults

16k

Command Modes

Global configuration

Command History

Release	Modification
12.2(20)S5	This command was introduced.

Usage Guidelines

This command is only available on Cisco 7304 routers using an NSE-100. The NPE-G100 does not have any restrictions regarding the number of QoS classes per policy in PXF or the number of PXF logical interfaces, so this command is unnecessary on the NPE-G100.

There is a direct trade-off between the number of supported PXF logical interfaces and the number of supported QoS traffic classes per policy in PXF. If the router is configured to support 4,096 PXF logical interfaces (**pxf max-logical-interfaces 4k**), up to 63 QoS classes per policy can be supported in PXF. If the router is configured to support 16,384 logical interfaces (which is the default setting, or which can be restored using **pxf max-logical-interfaces 16k**), up to 23 QoS classes per policy can be supported in PXF.

Both the **no pxf max-logical-interfaces 4k** and the **no pxf max-logical-interfaces 16k** restore the default value of 16k.

This configuration is not accepted by the router until it is saved to the startup configuration and the router is reloaded.

Use the **show pxf max-logical-interfaces** command to gather information about PXF logical interface settings.

Examples

By default, the Cisco 7304 router using an NSE-100 supports 23 QoS traffic classes per policy in PXF and 16,384 PXF logical interfaces. The following procedure shows how to change this default setting so that the Cisco 7304 router supports up to 63 QoS traffic classes per policy in PXF and 4,096 PXF logical interfaces.

```
Router(config)# pxf max-logical-interfaces 4k
Router(config)# exit
Router# copy running-config startup-config
Router# reload
```

The following example shows how to restore the default setting after it has been changed:

```
Router(config)# pxf max-logical-interfaces 16K
Router(config)# exit
Router# copy running-config startup-config
Router# reload
```

The default setting can also be restored by entering the following commands:

```
Router(config)# no pxf max-logical-interfaces 4k
Router(config)# exit
Router# copy running-config startup-config
Router# reload
```

Related Commands

Command	Description
show pxf max-logical-interfaces	Displays the configured settings for the maximum number of classes permitted per QoS policy in PXF and the maximum number of PXF logical interfaces.

show pxf max-logical-interfaces

To display the configuration for the maximum number of classes permitted per QoS policy in PXF and the maximum number of PXF logical interfaces allowed on the router, enter the **show pxf max-logical-interfaces** command in global configuration mode.

show pxf max-logical-interfaces

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(20)S5	This command was introduced.

Usage Guidelines

The **show pxf max-logical-interfaces** command is used to verify if the **pxf max-logical-interfaces** configuration change was accepted by the router. The output from this command provides the settings for the maximum number of classes permitted per QoS policy in PXF and the number of PXF logical interfaces as set in both the running configuration file and the startup configuration file. The settings listed in the startup configuration file are the current settings on the router; the settings listed in the running configuration will be the settings on the router when the router is reloaded.

Examples

In the following example, the **pxf max-logical-interfaces 16k** command has been entered to change the setting from the previous setting of 4k. The router, however, has not been rebooted with the changes saved to the running configuration.

```
Router# show pxf max-logical-interfaces
Running configuration:
    PXF Max classes per interface: 23
    Max PXF interfaces:            16K

Startup configuration:
    PXF Max classes per interface: 64
    Max PXF interfaces:            4K
```

Related Commands

Command	Description
pxf max-logical-interfaces	Configures the maximum number of PXF logical interfaces permitted on the router.