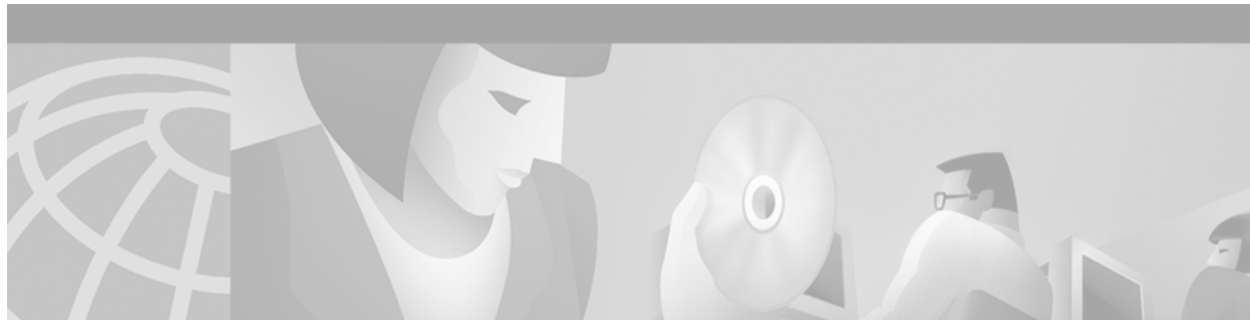




CLAW and TCP/IP Offload Commands

Use the commands in this chapter to configure and monitor the Cisco Mainframe Channel Connection (CMCC) products, which include the Channel Interface Processor (CIP) and the Channel Port Adapter (CPA). For hardware technical descriptions and for information about installing the router interfaces, refer to the hardware installation and maintenance publication for your particular product.



Note

Unless otherwise specified, all commands in this chapter are supported on the Cisco 7000 with RSP7000, Cisco 7500, and the Cisco 7200 series routers.

For interface configuration information and examples, refer to the “Configuring Cisco Mainframe Channel Connection Adapters” chapter of the *Cisco IOS Bridging and IBM Networking Configuration Guide*.

For a conversion table of the modular products and Cisco 7000 family processors, refer to the “Platform Support” appendix of the *Cisco IOS Configuration Fundamentals Command Reference*.

claw (primary)

To configure a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in IP datagram mode and also configure individual members of a CLAW backup group for the IP Host Backup feature, use the **claw** interface configuration command. To remove the CLAW device, use the **no** form of this command.

claw *path device-address ip-address host-name device-name host-app device-app* [**broadcast**]
[**backup**]

no **claw** *path device-address*

Syntax Description		
	<i>path</i>	Hexadecimal value in the range 0000 to FFFF. This value specifies the logical channel path and consists of two digits for the physical connection (either on the host or on the ESCON director), one digit for the channel logical address, and one digit for the control unit logical address. If the path is not specified in the IOCP, the default values for channel logical address and control unit logical address is 0.
	<i>device-address</i>	Hexadecimal value in the range 00 to FE. This is the unit address associated with the control unit number and path as specified in the host IOCP file. The device address must have an even value.
	<i>ip-address</i>	IP address specified in the HOME statement of the host TCP/IP application configuration file.
	<i>host-name</i>	Host name specified in the device statement in the host TCP/IP application configuration file.
	<i>device-name</i>	CLAW workstation name specified in the device statement in the host TCP/IP application configuration file.
	<i>host-app</i>	Host application name as specified in the host application file. If connected to the IBM TCP host offerings, or if the CLAW packing feature is not enabled on the mainframe TCPIP stack, this value will be tcpip , which is the constant specified in the host TCP/IP application file. When attached to other applications, this value must match the value hard coded in the host application. The value packed can be used for the <i>host-app</i> parameter to enable the CLAW packing feature.
	<i>device-app</i>	CLAW workstation application specified in the host TCPIP application. If connected to the IBM TCP host offerings, or if the CLAW packing feature is not enabled on the mainframe TCPIP stack, this value will be tcpip , which is the constant specified in the host TCP/IP application file. When attached to other applications, this value must match the value hard coded in the host application. The value packed can be used for the <i>device-app</i> parameter to enable the CLAW packing feature.
	broadcast	(Optional) Enables broadcast processing for this subchannel.
	backup	(Optional) Enables this CLAW connection to be used as part of a backup group of CLAW connections for the specified IP address.

Defaults

No default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
10.2	This command was introduced.
12.0	The following options were added: • backup • packed You can use the packed value as an optional keyword for the <i>host-app</i> and <i>device-app</i> arguments.

Usage Guidelines

This command defines information that is specific to the hardware interface and the IBM channels supported on the interface. When used with the **path** command, the claw command provides a quick way to configure a CLAW backup group.

CLAW devices are used to switch IP packets between a mainframe and a channel-attached router.

At most, 128 statements can be configured per interface because each interface is limited to 256 subchannels. Each CLAW device uses a read channel and a write channel. There is also a restriction of 64 unique paths.

A limit of 32 CLAW device configuration commands is recommended.

Duplicate IP addresses are invalid for nonbackup configurations.

Duplicate IP addresses are permitted if they appear within a backup group of only **claw** or **offload** interface configuration commands. All configuration commands in one backup group must specify the **backup** keyword.

You can use the **path** interface configuration command to specify a number of paths that belong to a backup group. In that case, a **claw** IP host backup configuration command is used that needs no *path* variable or **backup** keyword.

Examples

The following example shows how to enable IBM channel attach routing on channel interface 3/0, which is supporting an ESCON direct connection to the mainframe:

```
interface channel 3/0
ip address 172.18.4.49 255.255.255.248
claw c020 F4 172.18.4.52 HOSTB RTRA TCPIP TCPIP
```

The following example shows how to enable CLAW packing:

```
interface Channel 3/0
ip address 172.18.4.49 255.255.255.248
claw c010 F2 172.18.4.50 HOSTA RTRA PACKED PACKED
```

The following example shows how an IP host backup group is specified using the **backup** keyword:

```
interface Channel3/0
no ip address
no keepalive
no shutdown
```

■ claw (primary)

```

claw 0100 C0 10.30.1.2 CISCOVM EVAL TCPIP TCPIP backup
claw 0110 C0 10.30.1.2 CISCOVM EVAL TCPIP TCPIP backup
claw 0120 C0 10.30.1.2 CISCOVM EVAL TCPIP TCPIP backup
claw 0110 C2 10.30.1.3 CISCOVM EVAL TCPIP TCPIP

```

Related Commands	Command	Description
	claw (backup)	Configures a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of a CLAW backup group for the IP Host Backup feature.
	offload (primary)	Configures an Offload device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of an Offload backup group for the IP Host Backup feature.
	offload (backup)	Configures a backup group of Offload devices.
	show extended channel packing names	Displays CLAW packing names and their connection state.
	show extended channel packing stats	Displays CLAW packing statistics.
	show extended channel subchannel	Displays information about the CMCC adapter physical interfaces and displays information that is specific to the interface channel connection. The information displayed generally is useful only for diagnostic tasks performed by technical support personnel.
	show extended channel statistics	Displays statistical information about subchannels on the physical interface of a CMCC adapter and displays information that is specific to the interface channel devices. The information generally is useful only for diagnostic tasks performed by technical support personnel.

claw (backup)

To configure a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and configure individual members of a CLAW backup group for the IP Host Backup feature, use the **claw** command in IP host backup configuration mode. To remove the CLAW device, use the **no** form of this command.

claw *path device-address ip-address host-name device-name host-app device-app* [**broadcast**]

```
claw c000 00 198.92.10.5 sysa router1 tcpip tcpip backup
```

no *claw device-address*

Syntax Description		
<i>path</i>		Hexadecimal value in the range 0000 to FFFF. This value specifies the logical channel path and consists of two digits for the physical connection (either on the host or on the ESCON director), one digit for the channel logical address, and one digit for the control unit logical address. If the path is not specified in the IOCP, the default values for channel logical address and control unit logical address is 0.
<i>device-address</i>		Hexadecimal value in the range 00 to FE. This is the unit address associated with the control unit number and path as specified in the host IOCP file. The device address must have an even value.
<i>ip-address</i>		IP address specified in the HOME statement of the host TCP/IP application configuration file.
<i>host-name</i>		Host name specified in the device statement in the host TCP/IP application configuration file.
<i>device-name</i>		CLAW workstation name specified in the device statement in the host TCP/IP application configuration file.
<i>host-app</i>		Host application name as specified in the host application file. When connected to the IBM TCP host offerings, this value will be tcpip , which is the constant specified in the host TCP/IP application file. When attached to other applications, this value must match the value hard coded in the host application.
<i>device-app</i>		CLAW workstation application specified in the host TCPIP application. When connected to the IBM TCP host offerings, this value will be tcpip , which is the constant specified in the host TCP/IP application file. When attached to other applications, this value must match the value hard coded in the host application.
broadcast		(Optional) Enables broadcast processing for this subchannel.

Defaults No default behavior or values.

Command Modes IP host backup configuration

Command History

Release	Modification
12.0	This command was introduced.

Usage Guidelines

This command defines information that is specific to the hardware interface and the IBM channels supported on the interface.

CLAW devices are used to switch IP packets between a mainframe and a channel-attached router.

At most, 128 statements can be configured per interface because each interface is limited to 256 subchannels. Each CLAW device uses a read channel and a write channel. There is also a restriction of 64 unique paths.

A limit of 32 CLAW device configuration commands is recommended.

Duplicate IP addresses are invalid for non-backup configurations.

Duplicate IP addresses are permitted if they appear within a backup group of only **claw** or **offload** interface configuration commands. All configuration commands in one backup group must specify the **backup** keyword.

You can use the **path** interface configuration command to specify a number of paths that belong to a backup group. In that case, a **claw** IP host backup configuration command is used that needs no *path* variable or **backup** keyword.

Examples

The following examples show two methods for entering the same IP host backup group information. The first group of commands is the long form, using the **claw** interface configuration command. The second group is the shortcut, using the **path** interface configuration command and a **claw** IP host backup configuration command.

Long form:

```
claw c000 00 198.92.10.5 sysa router1 tcpip tcpip backup
claw c100 00 198.92.10.5 sysa router1 tcpip tcpip backup
claw c200 00 198.92.10.5 sysa router1 tcpip tcpip backup
```

Shortcut form:

```
path c000 c100 c200
    claw 00 198.92.10.5 sysa router1 tcpip tcpip
```

Related Commands

Command	Description
claw (primary)	Configures a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in IP datagram mode and also configures individual members of a CLAW backup group for the IP Host Backup feature.
offload (primary)	Configures an Offload device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of an Offload backup group for the IP Host Backup feature.
offload (backup)	Configures a backup group of Offload devices.
show extended channel packing names	Displays CLAW packing names and their connection state.

Command	Description
show extended channel packing stats	Displays CLAW packing statistics.
show extended channel subchannel	Displays information about the CMCC adapter physical interfaces and displays information that is specific to the interface channel connection. The information displayed generally is useful only for diagnostic tasks performed by technical support personnel.
show extended channel statistics	Displays statistical information about subchannels on the physical interface of a CMCC adapter and displays information that is specific to the interface channel devices. The information generally is useful only for diagnostic tasks performed by technical support personnel.

offload (primary)

To configure an Offload device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and configure individual members of an Offload backup group for the IP Host Backup feature, use the **offload** interface configuration command. To cancel the offload task on the CMCC adapter, use the **no** form of this command.

offload *path device-address ip-address host-name device-name host-ip-link device-ip-link host-api-link device-api-link* [**broadcast**] [**backup**]

no offload *path device-address*

Syntax Description		
<i>path</i>		Hexadecimal value in the range 0000 to FFFF. This value specifies the logical channel path and consists of two digits for the physical connection (either on the host or on the ESCON director), one digit for the channel logical address, and one digit for the control unit logical address. If the path is not specified in the IOCP, the default values for channel logical address and control unit logical address is 0.
<i>device-address</i>		Hexadecimal value in the range 00 to FE. This is the unit address associated with the control unit number and path as specified in the host IOCP file. The device address must have an even value.
<i>ip-address</i>		IP address specified in the host TCP/IP application configuration file.
<i>host-name</i>		Host name specified in the device statement in the host TCP/IP application configuration file.
<i>device-name</i>		CLAW workstation name specified in the device statement in the host TCP/IP application configuration file.
<i>host-ip-link</i>		CLAW host link name for the IP link as specified by the host application. For IBM VM and VMS TCP/IP stacks, this value is tcpip . When used with other applications, this value must match the value coded in the host application.
<i>device-ip-link</i>		CLAW workstation link name for the IP link as specified by the host application. For IBM VM and MVS TCP/IP stacks, this value is tcpip . When used with other applications, this value must match the value coded in the host application.
<i>host-api-link</i>		CLAW host link name for the API link as specified by the host application. For IBM VM and MVS TCP/IP stacks, this value is tcpip . When used with other applications, this value must match the value coded in the host application.
<i>device-api-link</i>		Offload link name for the API link as specified by the host application. For IBM VM and MVS TCP/IP stacks, this value is api . When used with other applications, this value must match the value coded in the host application.
broadcast		(Optional) Enables broadcast processing for this subchannel.
backup		(Optional) Enables this offload connection to be used as part of a backup group of offload connections for the specified IP address.

Defaults

No default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.
12.0	The backup keyword was added.

Usage Guidelines

Offload devices provide IP connectivity to a mainframe while at the same time offloading a large part of the TCP/IP processing to the CMCC adapter. Not every mainframe TCP/IP stack supports offload.

The **offload** command uses the same underlying configuration parameters as does the **claw** command.

Examples

The following example shows how to enable IBM channel attach offload processing on a CMCC adapter's physical channel interface which is supporting a directly connected ESCON channel:

```
interface channel 3/0
ip address 198.92.0.1 255.255.255.0
offload 0100 00 198.92.0.21 CISCOVM EVAL TCPIP TCPIP TCPIP API
```

The following example shows how an IP host backup group is specified using the **backup** keyword:

```
interface Channel3/0
no ip address
no keepalive
shutdown
offload 0100 C0 10.30.1.2 TCPIP OS2TCP TCPIP TCPIP TCPIP API backup
offload 0110 C0 10.30.1.2 TCPIP OS2TCP TCPIP TCPIP TCPIP API backup
offload 0120 C0 10.30.1.2 TCPIP OS2TCP TCPIP TCPIP TCPIP API backup
offload 0110 C2 10.30.1.3 TCPIP OS2TCP TCPIP TCPIP TCPIP API
```

Related Commands

Command	Description
offload (backup)	Configures a backup group of Offload devices.
show extended channel packing names	Displays CLAW packing names and their connection state.
show extended channel ip-stack	Displays information about the IP stack running on CMCC channel interfaces.
show extended channel statistics	Displays statistical information about subchannels on the physical interface of a CMCC adapter and displays information that is specific to the interface channel devices. The information generally is useful only for diagnostic tasks performed by technical support personnel.
show extended channel subchannel	Displays information about the CMCC adapter physical interfaces and displays information that is specific to the interface channel connection. The information displayed generally is useful only for diagnostic tasks performed by technical support personnel.
show extended channel tcp-connections	Displays information about the TCP sockets on a channel interface.

Command	Description
show extended channel tcp-stack	Displays information about the TCP stack running on CMCC adapter interfaces.
show extended channel udp-listeners	Displays information about the UDP listener sockets running on the CMCC adapter interfaces.
show extended channel udp-stack	Displays information about the UDP stack running on the CMCC adapter interfaces.

offload alias

To assign a virtual IP address to a real IP address for an offload device on a CMCC adapter, use the **offload alias** interface configuration command. To remove the alias IP address, use the **no** form of this command.

offload alias *real-ip* *alias-ip*

no offload alias *real-ip* *alias-ip*

Syntax Description

<i>real-ip</i>	Real IP address of the offload-supported device.
<i>alias-ip</i>	Virtual IP address for the offload-supported device.

Defaults

No default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(7)T	This command was introduced.

Usage Guidelines

Configure the **offload alias** command after you configure TCP/IP offload support on a CMCC adapter. You can configure up to 8 different alias IP addresses for each real IP address of an offload device. You can assign the same alias IP address to multiple real IP addresses.

Examples

The following example configures TCP/IP offload support on a CMCC adapter for a host located at real IP address 10.10.21.3 with an alias IP address of 10.2.33.88:

```
interface channel 3/1
  offload E180 80 10.10.21.3 IPCLUST IPCLUST TCPIP TCPIP TCPIP API
  offload alias 10.10.21.3 10.2.33.88
```

Related Commands

Command	Description
offload (primary) (primary)	Configures an Offload device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of an Offload backup group for the IP Host Backup feature.
show extended channel icmp-stack	Displays information about the ICMP stack running on the CMCC channel interfaces.
show extended channel ip-stack	Displays information about the IP stack running on CMCC channel interfaces.

Command	Description
show extended channel tcp-connections	Displays information about the TCP sockets on a channel interface.
show extended channel tcp-stack	Displays information about the TCP stack running on CMCC adapter interfaces.
show extended channel udp-stack	Displays information about the UDP listener sockets running on the CMCC adapter interfaces.

offload (backup)

To configure a backup group of Offload devices, use the **offload** IP host backup configuration command. To cancel the offload task on the CMCC adapter, use the **no** form of this command.

offload *device-address ip-address host-name device-name host-ip-link device-ip-link host-api-link device-api-link* [**broadcast**]

no offload *path device-address*

Syntax Description

<i>device-address</i>	Hexadecimal value in the range 0000 to FFFF. This value specifies the logical channel path and consists of two digits for the physical connection (either on the host or on the ESCON director), one digit for the channel logical address, and one digit for the control unit logical address. If the path is not specified in the IOCP, the default values for channel logical address and control unit logical address is 0.
<i>ip-address</i>	Hexadecimal value in the range 00 to FE. This is the unit address associated with the control unit number and path as specified in the host IOCP file. The device address must have an even value.
<i>host-name</i>	Host name specified in the device statement in the host TCP/IP application configuration file.
<i>device-name</i>	CLAW workstation name specified in the device statement in the host TCP/IP application configuration file.
<i>host-ip-link</i>	Host link name for the IP link as specified by the host application. For IBM VM and MVS TCP/IP stacks, this value is tcpip . When used with other applications, this value must match the value coded in the host application.
<i>device-ip-link</i>	Workstation link name for the IP link as specified by the host application. For IBM VM and MVS TCP/IP stacks, this value is tcpip . When used with other applications, this value must match the value coded in the host application.
<i>host-api-link</i>	Host link name for the API link as specified by the host application. For IBM VM and MVS TCP/IP stacks, this value is tcpip . When used with other applications, this value must match the value coded in the host application.
<i>device-api-link</i>	Offload link name for the API link as specified by the host application. For IBM VM and MVS TCP/IP stacks, this value is api . When used with other applications, this value must match the value coded in the host application.
broadcast	(Optional) Enables broadcast processing for this subchannel.

Defaults

No default behavior or values.

Command Modes

IP host backup configuration

Command History

Release	Modification
12.0	This command was introduced.

Usage Guidelines

Along with the **path** command, the **offload** backup command provides a quick way to configure an Offload backup group.

Offload devices provide IP connectivity to a mainframe while at the same time offloading a large part of the TCP/IP processing to the CMCC adapter. Not every mainframe TCP/IP stack supports offload.

The **offload** command in IP host backup configuration mode uses the same underlying configuration parameters as the **claw** command in IP host backup configuration mode.

Examples

The following examples show two methods for entering the same IP host backup group information. The first group of commands is the long form, using the **offload** interface configuration command. The second group is the shortcut, using the **path** interface configuration command and a **offload** IP host backup configuration command.

Long form:

```
offload c000 00 198.92.10.5 sysa router1 tcpip tcpip tcpip api backup
offload c100 00 198.92.10.5 sysa router1 tcpip tcpip tcpip api backup
offload c200 00 198.92.10.5 sysa router1 tcpip tcpip tcpip api backup
```

Shortcut form:

```
path c000 c100 c200
  offload 00 198.92.10.5 sysa router1 tcpip tcpip tcpip api
```

Related Commands

Command	Description
show extended channel ip-stack	Displays information about the IP stack running on CMCC channel interfaces.
show extended channel statistics	Displays statistical information about subchannels on the physical interface of a CMCC adapter and displays information that is specific to the interface channel devices. The information generally is useful only for diagnostic tasks performed by technical support personnel.
show extended channel subchannel	Displays information about the CMCC adapter physical interfaces and displays information that is specific to the interface channel connection. The information displayed generally is useful only for diagnostic tasks performed by technical support personnel.
show extended channel tcp-connections	Displays information about the TCP sockets on a channel interface.
show extended channel tcp-stack	Displays information about the TCP stack running on CMCC adapter interfaces.
offload (primary) (primary)	Configures an Offload device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of an Offload backup group for the IP Host Backup feature.
show extended channel packing names	Displays CLAW packing names and their connection state.

Command	Description
show extended channel udp-listeners	Displays information about the UDP listener sockets running on the CMCC adapter interfaces.
show extended channel udp-stack	Displays information about the UDP stack running on the CMCC adapter interfaces.

path

To specify one or more data paths for the IP host backup, use the **path** interface configuration command. To delete a single path, use the **no path** form of this command.

path *path...*

no path *path*

Syntax Description	<i>path</i>	Hexadecimal value in the range 0000 to FFFF. This value specifies the logical channel path and consists of two digits for the physical connection (either on the host or on the ESCON director), one digit for the channel logical address, and one digit for the control unit logical address. If the path is not specified in the IOCP, the default values for channel logical address and control unit logical address is 0.
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Defaults	No default behavior or values.
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Command Modes	Interface configuration
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Command History	Release	Modification
	12.0	This command was introduced.

Usage Guidelines	Up to 16 values for the <i>path</i> argument can be specified in the path command. The path command places you in IP host backup configuration mode, where you can enter additional commands to define backup groups for CLAW and offload connections.
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Examples	The following examples show two methods for entering the same IP host backup group information. The first group is the long form, using the offload interface configuration command. The second group of commands is the shortcut, using the path interface configuration command and a offload IP host backup configuration command.
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Long form:

```
offload c000 00 198.92.10.5 sysa router1 tcpip tcpip backup
offload c100 00 198.92.10.5 sysa router1 tcpip tcpip backup
offload c200 00 198.92.10.5 sysa router1 tcpip tcpip backup
```

Shortcut form:

```
path c000 c100 c200
  offload 00 198.92.10.5 sysa router1 tcpip tcpip
```


Related Commands	Command	Description
	claw (backup)	Configures a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of a CLAW backup group for the IP Host Backup feature.
	offload (backup)	Configures a backup group of Offload devices.

show extended channel backup

To display information about the CLAW and offload commands for each backup group configured on CMCC channel interfaces, use the **show extended channel backup** privileged EXEC command.

```
show extended channel slot/port backup [ip-address]
```

Syntax Description	slot	Slot number.
	port	Port number.
	backup	Displays all claw or offload commands associated with the backup group.
	ip-address	(Optional) Displays information about all devices in the backup group defined by the <i>ip-address</i> argument.

Command Modes	Privileged EXEC
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Command History	Release	Modification
	12.0	This command was introduced.

Examples

The following is sample output from the **show extended channel backup** command:

Router# **show extended channel 0/1 backup**

Mode Path Device IP Address: 80.11.198.2
OFFLOAD E200 50 CISCOVM RISPIX TCPIP TCPIP TCPIP API
OFFLOAD E300 50 CISCOVM RISPIX TCPIP TCPIP TCPIP API
Last statistics 4 seconds old, next in 6 seconds

Related Commands	Command	Description
	claw (backup)	Configures a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of a CLAW backup group for the IP Host Backup feature.
	offload (backup)	Configures a backup group of Offload devices.

show extended channel packing names

To display CLAW packing names and their connection state, use the **show extended channel packing names EXEC** command.

show extended channel *slot/port* **packing names** [*path* [*device-address*]]

Syntax Description

<i>slot</i>	Slot number.
<i>port</i>	Port number.
<i>path</i>	(Optional) Hexadecimal value in the range 0000 to FFFF. This value specifies the logical channel path and consists of two digits for the physical connection (either on the host or on the ESCON director), one digit for the channel logical address, and one digit for the control unit logical address. If the path is not specified in the IOCP, the default values for channel logical address and control unit logical address is 0.
<i>device-address</i>	(Optional) Hexadecimal value in the range 00 to FE. This is the unit address associated with the control unit number and path as specified in the host IOCP file. The device address must have an even value.

Command Modes

EXEC

Command History

Release	Modification
12.0	This command was introduced.

Examples

The following is sample output from the **show extended channel packing names** command:

```
Router# show extended channel 3/0 packing names
```

```
Path: C010  Devices: F2,F3 CLAW Link: 1
```

Sublink	Link Names
0	CONTROL
1	IP IP
2	CKSUM CKSUM

```
Path: C030  Devices: F6,F7 CLAW Link: N
```

Sublink	Link Names
DISCONNECTED	CONTROL
DISCONNECTED	IP IP
DISCONNECTED	CKSUM CKSUM

Table 25 describes the fields shown in the display

Table 25 *show extended channel packing names Field Descriptions*

Field	Description
Path	Path from the CLAW configuration. It indicates which port on the switch is used by the channel side of the configuration.
Devices	Device address for each device. One CLAW connection requires 2 devices. You need only specify the even address.
CLAW Link	Established CLAW link number used for all CLAW packing messages. A number value indicates that a CONTROL sublink is connected. "N" indicates that a control sublink is disconnected.
Sublink	DISCONNECTED indicates that a sublink connection for a particular link name is not established. 0 indicates that the CONTROL sublink is established. 1 to 15 indicates the negotiated sublink number for each application pair.
Link Names	Name used to represent the type of traffic that flows over a particular sublink: - CONTROL indicates the sublink used to transport CLAW packing control messages. - IP indicates the sublink used to send IP datagrams whose TCP checksum is handled by the host. CKSUM indicates the sublink used to send IP datagrams that use the CMCC checksum assist feature.

Related Commands

Command	Description
claw (primary) (primary)	Configures a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in IP datagram mode and also configures individual members of a CLAW backup group for the IP Host Backup feature.
offload (primary) (primary)	Configures an Offload device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of an Offload backup group for the IP Host Backup feature.

show extended channel packing stats

To display CLAW packing statistics, use the **show extended channel packing stats** EXEC command.

show extended channel *slot/port* **packing stats** [*path* [*device-address*]]

Syntax Description	<i>slot</i>	Slot number.
	<i>port</i>	Port number.
	<i>path</i>	(Optional) Hexadecimal value in the range 0000 to FFFF. This specifies the data path and consists of two digits for the physical connection (either on the host or on the ESCON Director switch): one digit for the control unit address, and one digit for the channel logical address. If not specified, the control unit address and channel logical address default to 0.
	<i>device-address</i>	(Optional) Hexadecimal value in the range 00 to FE. This value is the unit address associated with the control unit number and path as specified in the host IOCP file. For CLAW and offload support, the device address must have an even value.

Command Modes	EXEC
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Command History	Release	Modification
	12.0	This command was introduced.

Examples The following is sample output from the **show extended channel packing stats** command:

Router# **show extended channel 3/0 packing stats**

```

Path: C010 Devs: F2,F3 CLAW Link: 1  Read Blks: 4584      Wrt Blks: 15054
      Packets                Bytes                Drops
Linkname  Read    Write    Read    Write    Read    Write    Err C
CONTROL   4        2       128     64       0        0       0 Y
IP         5        5       500     500       0        0       0 Y
CKSUM     4694     93584   187854  53889648  0        0       0 Y
Total:    4703     93591   188482  53890212  0        0       0

Path: C030 Devs: F6,F7 CLAW Link: N  Read Blks: UNKNOWN  Wrt Blks: UNKNOWN
      Packets                Bytes                Drops
Linkname  Read    Write    Read    Write    Read    Write    Err C
CONTROL   0        0        0        0       0        0       0 N
IP         0        0        0        0       0        0       0 N
CKSUM     0        0        0        0       0        0       0 N
Total:    0        0        0        0       0        0       0

```

Table 26 describes the fields shown in the display

Table 26 *show extended channel packing stats Field Descriptions*

Field	Description
Path	Path from the CLAW, offload, or CSNA configuration.
Devs	Device address for each device. One CLAW connection requires 2 devices. You need only specify the even address.
CLAW Link	Established CLAW link number used for all CLAW packing messages. A number value indicates that a CONTROL sublink is connected. "N" indicates that a control sublink is disconnected.
Read Blks	Number of CLAW channel blocks read.
Write Blks	Number of CLAW channel blocks written.
Linkname	Name used to represent the type of traffic that flows over a particular sublink. - CONTROL indicates the sublink used to transport CLAW packing control messages. - IP indicates the sublink used to send IP datagrams whose TCP checksum is handled by the host. CKSUM indicates the sublink used to send IP datagrams that use the CMCC checksum assist feature.
Packets Read Write	Total number of packets read and written for each sublink.
Bytes Read Write	Total number of bytes read and written for each sublink.
Drops Read Write	Total number of dropped read and write packets for each sublink.
Err	Number of errors. Each error produces an error message at the router console.
C	Connection state of a sublink. 'Y' indicates connected. 'N' indicates not connected.
Total	Total for each of the recorded statistics.

Related Commands

Command	Description
claw (primary) (primary)	Configures a CLAW device (read and write subchannel) for communication with a mainframe TCP/IP stack in IP datagram mode and also configures individual members of a CLAW backup group for the IP Host Backup feature.
offload (primary) (primary)	Configures an Offload device (read and write subchannel) for communication with a mainframe TCP/IP stack in offload mode and also configures individual members of an Offload backup group for the IP Host Backup feature.