



NCIA Server Configuration Commands

This chapter describes the commands you use to configure Native Client Interface Architecture (NCIA) client/server support for Systems Network Architecture (SNA) devices. For NCIA Server configuration tasks and examples, refer to the “Configuring NCIA Client/Server Topologies” chapter of the *Bridging and IBM Networking Configuration Guide*.

Cisco’s NCIA server feature implements RFC 2114, Data Link Switch Client Access Protocol.

clear ncia circuit

Use the **clear ncia circuit** privileged EXEC command to drop a specified NCIA circuit.

clear ncia circuit [*id-number*]

Syntax Description

id-number (Optional) Number assigned to identify the circuit. If no circuit ID number is specified, the command drops all circuits.

Command Mode

Privileged EXEC

Usage Guideline

This command first appeared in Cisco IOS Release 11.2.

If no circuit ID number is specified, the command drops all circuits.

Example

The following example clears the active NCIA circuit identified as 791F8C:

```
clear ncia circuit 791F8C
```

Related Command

show ncia circuits

clear ncia client

Use the **clear ncia client** privileged EXEC command to terminate a specified active client connection.

clear ncia client [*ip-address*]

Syntax Description

ip-address (Optional) IP address of the client. If no IP address is specified in the command, the command terminates all active client connections.

Command Mode

Privileged EXEC

Usage Guideline

This command first appeared in Cisco IOS Release 11.2.

If no IP address is specified in the command, the command terminates all active client connections.

Example

The following example terminates the active connection to the client identified by the IP address 10.2.20.126:

```
clear ncia client 10.2.20.126
```

Related Command

show ncia client

clear ncia client registered

Use the **clear ncia client registered** privileged EXEC command to release the control block of a specified registered client after terminating the active connection to it.

clear ncia client registered [*ip-address*]

Syntax Description

ip-address (Optional) IP address of the registered client. If no IP address is specified in the command, the command releases the control blocks of all registered clients after terminating any active connections to them.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

If no IP address is specified in the command, the command releases the control blocks of all registered clients after terminating any active connections to them.

Example

The following example terminates the active connection to the registered client identified by the IP address 10.2.20.126 and releases its control block:

```
clear ncia client registered 10.2.20.126
```

Related Command

show ncia client

ncia

Use the **ncia** privileged EXEC command to stop and start an NCIA server.

```
ncia {start | stop}
```

Syntax Description

start	Starts the NCIA server when it has been stopped using the ncia stop command.
stop	Stops the NCIA server. When the server is stopped, all clients are disconnected, all circuits are dropped, and no clients can connect to the server.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

As soon as the NCIA server is configured, it begins running. If an NCIA server is configured and the configuration is stored in the NVRAM of the router, when the router boots up, the server is started automatically. Issuing the **ncia start** command when a server is already running causes the router to output the message:

```
NCIA server is running already!
```

Example

The following example stops an active NCIA server:

```
ncia stop
```

Related Command

ncia server

ncia client

Use the **ncia client** global configuration command to configure an NCIA client on a Cisco router. Use the **no** form of this command to remove the configuration.

ncia client *server-number client-ip-address virtual-mac-address* [**sna** | **all**]
no ncia client *server-number client-ip-address virtual-mac-address* [**sna** | **all**]

Syntax Description

<i>server-number</i>	Number assigned to identify the server. Currently, the server number must be configured with a value of 1.
<i>client-ip-address</i>	IP address of the client.
<i>virtual-mac-address</i>	Virtual MAC address of the client.
sna	(Optional) NCIA client only supports SNA traffic.
all	(Optional) NCIA client supports all types of traffic. If you do not specify all as the supported traffic type when you configure an NCIA client, the client only supports SNA traffic.

Default

No NCIA client is configured.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

You must use the **ncia server** command to configure an NCIA server on the router before using the **ncia client** command to configure an NCIA client.

The purpose in configuring a client is so the NCIA server can connect outward to a client. When an end station on the LAN side tries to connect to a client, the end station sends an explorer. When the server receives this explorer, the server tries to match the MAC address in the client database. If it finds a match, the server then connects to that client. If the ability for the server to connect outward to clients is not needed, there is no reason to configure any clients.

Each client is assigned a MAC address from the pool created by the **ncia server** command. There are two exceptions to this guideline:

- A MAC address outside the pool created by the **ncia server** command can be defined in the **ncia client** command.

When a client configured with a MAC address outside the pool connects to the server, the client's configured MAC address is used, rather than allocating a new one from the pool.

- If a client has its own MAC address, it uses that address.

The MAC address is recognized during the “capability exchange” period when the client establishes a session with the NCIA server. Normally, it is not necessary to configure any client. The server accepts a connection from any unconfigured client. If the unconfigured client does not have its own MAC address, a MAC address from the pool will be assigned to it. If the unconfigured client has its own MAC address, that MAC address is used. If the client has its own MAC address and it is configured using the **ncia client** command, the two MAC addresses must match; otherwise, the connection will not be established.

If you do not specify **all** as the supported traffic type when you configure an NCIA client, the client only supports SNA traffic.

Example

The following example configures an NCIA client on a router:

```
ncia client 1 10.2.20.5 1111.2222.3333
```

Related Commands

A dagger (†) indicates that the command is documented outside this chapter.

ncia server
dlsw local-peer †

ncia rsrb

Use the **ncia rsrb** global configuration command to configure an RSRB ring to associate with an NCIA server on a Cisco router. Use the **no** form of this command to remove the configuration.

```
ncia rsrb virtual-ring local-bridge local-ring ncia-bridge ncia-ring virtual-mac-address  
no ncia rsrb
```

Syntax Description

<i>virtual-ring</i>	RSRB ring group number. This number corresponds to the ring-number parameter defined by a source-bridge ring-group command.
<i>local-bridge</i>	Number of the bridge connecting the virtual ring and the local ring.
<i>local-ring</i>	Number of the virtual ring connecting the virtual ring and the NCIA ring.
<i>ncia-bridge</i>	Number of the bridge connecting the local ring and the NCIA ring.
<i>ncia-ring</i>	NCIA ring group number. This number corresponds to the ring-number parameter defined by a source-bridge ring-group command.
<i>virtual-mac-address</i>	Local ring virtual MAC address.

Default

No RSRB ring is configured.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

You must use the **ncia server** command to configure an NCIA server on the router before using the **ncia rsrb** command to configure an RSRB ring to associate with the server.

Example

The following example configures a virtual ring to associate with an NCIA server on a Cisco router:

```
source-bridge ring-group 22  
source-bridge ring-group 44  
ncia rsrb 44 4 33 3 22 1111.1111.2222
```

Related Commands

A dagger (†) indicates that the command is documented outside this chapter.

```
ncia server  
source-bridge ring-group †
```

ncia server

Use the **ncia server** global configuration command to configure an NCIA server on a Cisco router. Use the **no** form of this command to remove the configuration.

```
ncia server server-number server-ip-address server-virtual-mac-address virtual-mac-address
virtual-mac-range [inbound-only] [keepalive seconds] [tcp_keepalive minutes]
no ncia server
```

Syntax Description

<i>server-number</i>	Number assigned to identify the server. Currently, the server number must be configured with a value of 1.
<i>server-ip-address</i>	IP address used to accept the incoming connection, or to make an out-going connection.
<i>server-virtual-mac-address</i>	MAC address of the server.
<i>virtual-mac-address</i>	The first MAC address of the virtual MAC address pool.
<i>virtual-mac-range</i>	The range of virtual MAC addresses that can be assigned to the client. The valid range is 1 to 4095. This number sets the upper limit on the number of contiguous MAC addresses that make up the MAC address pool.
inbound-only	(Optional) When inbound-only is configured, the NCIA server cannot make an out-going connection.
keepalive <i>seconds</i>	(Optional) NDLC keepalive processing interval in seconds. The valid range is 0 to 1200 seconds. Setting the value to 0 turns the keepalive off.
tcp_keepalive <i>minutes</i>	(Optional) TCP keepalive processing interval in minutes. The valid range is 0 to 99 minutes. Setting the value to 0 stops TCP from sending keepalive packets when an NCIA client is idle. If no tcp_keepalive value is set, the default waiting period for TCP keepalive packets is 20 minutes.

Default

No NCIA server is configured.

The default **tcp_keepalive** value is 20 minutes.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Before configuring an NCIA server, you must use the **dlsw local-peer** command to configure a DLSw+ local peer on this router. Depending on your network design, you may need to use the **ncia client** command to configure an NCIA client on this router (optional), or use the **ncia rsrb** command to configure an RSRB ring to associate with this router (optional).

If you use the **inbound-only** option, there is no need to configure any NCIA clients (the server does not make out-going connections).

In a DSPU configuration, before a client can establish a connection to a downstream PU, such as a PC or workstation, the MAC address of the server (*server-virtual-mac-address*) must be defined at the PC or workstation as the destination MAC address. This MAC address appears as the server MAC address in the output of the **show ncia circuits** command.

Example

The following example configures an NCIA server on a Cisco router:

```
ncia server 1 10.2.20.4 4000.3174.0001 4000.0000.0001 128 keepalive 0 tcp_keepalive 0
```

Related Commands

A dagger (†) indicates that the command is documented outside this chapter.

dlsw local-peer †

ncia client

ncia rsrb

show ncia circuits

Use the **show ncia circuits** privileged EXEC command to display the state of all circuits involving this MAC address as a source and destination.

```
show ncia circuits [id-number]
```

Syntax Description

id-number (Optional) Number assigned to identify the circuit. If no ID number is specified, the command lists information for all circuits.

Default

If no ID number is specified, the command lists information for all circuits.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Use the **show ncia client** command to list the active circuits by circuit ID number, then use a specific circuit ID number in the **show ncia-circuits** command.

Sample Display

The following is sample output from the **show ncia circuits** command:

```
Router# show ncia circuits

IP                State                ID                Mac                SAP CW  GP
10.2.20.125      START_DL_RCVD      (Client)10000000  1000.0000.0001    4   0   0
                  (Server)163D04    4000.1060.1000  4   10  0
```

Table 59 describes significant fields shown in the display.

Table 59 Show NCIA Circuits Field Descriptions

Field	Description
IP	IP address of the client.
State	Communication state of the circuit.
ID	Circuit ID number. The server circuit ID is used by the server to identify a circuit. Use this ID in the show ncia circuits command. The client circuit ID is for information only.
Mac	Client MAC address is the MAC address used by the client; server MAC address is the MAC address used by the host. In a DSPU configuration, the server MAC address is the one defined in the dspu ncia command as <i>server-virtual-mac-address</i> .

Table 59 Show NCIA Circuits Field Descriptions (Continued)

Field	Description
SAP	Local address (LSAP), specified in the dspu enable-pu command
CW	Current Window, the number of packets that can be increased or decreased for each Increment or Decrement operation.
GP	Granted Packets, the number of packets the client or server is permitted to send to the other.

show ncia client

Use the **show ncia client** EXEC command to display the status of the NCIA client.

```
show ncia client [sap-list] [ip-address]
```

Syntax Description

sap-list	(Optional) Display the SAPs supported by the client. If the sap-list option is not specified, the command does not display SAP list information.
<i>ip-address</i>	(Optional) Client IP address. If no IP address is specified, the command lists information for all clients.

Defaults

If the **sap-list** option is not specified, the command does not display SAP list information.

If no IP address is specified, the command lists information for all clients.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Use the **show ncia server** command to list the active clients by IP address, then use a specific IP address in the **show ncia-client** command.

Sample Displays

The following are sample outputs from the **show ncia client** command:

```
Router# show ncia client

IP                State  MacAddr          Flags  Num SAP  PktRxd  PktTxd  Drop
10.2.20.123       4     1000.0000.0011  0x0800  3         27       36       0
  Circuit[1] : 791F8C
10.2.20.126       4     1000.0000.0011  0x0800  1         28       58       0
  Circuit[2] : 793500
```

```
Router# show ncia client sap-list 10.2.20.123
```

```
IP                Num SAPS  Sap List
10.2.20.123       3         4 8 c
```

Table 60 describes significant fields shown in the display.

Table 60 Show NCIA Client Field Descriptions

Field	Description
IP	IP address of the client.
State	Communication state of the client. Possible values are: 0 CLOSED—Read and write pipe closed 1 OPEN_WAIT—Active open 2 CAP_WAIT—Waiting for a cap exchange request 3 CAP_NEG—Waiting for a cap exchange req/rsp 4 OPENED—Both pipes opened 5 BUSY—WAN transport is congested 6 CLOSE_WAIT—Close connection 7 SHUTDOWN_PENDING—TCP, HOST or router shutdown
MacAddr	MAC address of the client.
Flags	Current operational status of the client. Possible values are: 0x0100—Client is configured 0x0200—Client is registered (a client connects to the server to register itself, and then disconnects) 0x0800—Client is active
Num SAP	The number of SAPs supported by this client. 0 indicates this client supports all SAPs.
PktRxd	Number of packets transmitted downstream from the server toward a client workstation.
PktTxd	Number of packets the server received from a downstream client workstation.
Drop	Number of packets that should have been transmitted to a downstream client, but dropped by the server because the TCP connection has failed. Normally, no packets should be dropped.
Circuit[n]	The bracketed decimal indicates the order of the circuit in the list. The hexadecimal circuit ID is used by the server to identify a circuit. The circuit ID can be used to query circuit status in the show ncia circuits command.
SAP List	The list of SAPs supported by this client. A client can specify a maximum of 16 SAPs. If the “Num SAP” field is 0, no SAPs are displayed in this field.

show ncia server

Use the **show ncia server** EXEC command to display the state of the NCIA server.

```
show ncia server [server-number]
```

Syntax Description

server-number (Optional) NCIA server number. If no server number is specified, the command lists information for all servers.

Default

If no server number is specified, the command lists information for all servers.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Sample Display

The following is sample output from the **show ncia server** command:

```
Router# show ncia server

NCIA Server [1]:
  IP address: 10.2.20.4
  Server Virtual MAC address: 4000.3174.0001
  Starting MAC address: 1000.0000.0001
  MAC address range: 128
  Flags: 0x02
  Number of MAC addresses being used: 0
```

Table 61 describes significant fields shown in the display.

Table 61 Show NCIA Server Field Descriptions

Field	Description
NCIA Server	Server number. Currently, only a single NCIA server is supported.
IP Address	Server IP address, used to accept incoming connections.
Server Virtual MAC Address	Virtual MAC address that represents this server.
Starting MAC Address	Virtual MAC address that begins the virtual MAC address pool range.
MAC Address Range	Virtual MAC address range that can be assigned to the NCIA client. This number sets the upper limit on the number of contiguous MAC addresses that make up the MAC address pool.

Table 61 Show NCIA Server Field Descriptions (Continued)

Field	Description
Flags	Current operational status of the NCIA server: 0x01: NCIA server is configured 0x02: NCIA server is running 0x03: NCIA server is configured and is running
Number of MAC addresses being used	Number of MAC addresses in the MAC address pool that have been assigned to clients. This number reflects connected clients that do not have their own MAC addresses and must be assigned one from the MAC address pool.