



APPN Configuration Commands

This chapter describes the commands to configure and monitor the Advanced Peer-to-Peer Networking (APPN) feature. For APPN configuration tasks and examples, refer to the “Configuring Advanced Peer-to-Peer Networking” chapter of the *Bridging and IBM Networking Configuration Guide*.

adjacent-cp-name

Use the **adjacent-cp-name** APPN link station configuration command to specify the name of the partner node for the link station. Use the **no** form of this command to delete the definition.

adjacent-cp-name *netid.cpname*
no adjacent-cp-name

Syntax Description

netid.cpname

Fully qualified network name of the remote control point.
A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:
A - Z, a - z
0 - 9
\$ # @
The first character of either string must not be a number. The default is that no partner nodes are specified.

Default

No partner nodes are specified.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

If the name configured with this command does not match the remote node's control point (CP) name, the link will not come up. If the **no** form of the command is issued, or the command is not issued at all, no checking is done. This command must be specified if the adjacent node is LEN.

Example

The following example defines a link station that specifies the name of the partner node:

```
appn link-station APPN1
port TR0
lan-dest-address 1000.C4C1.E5C5
adjacent-cp-name CISCO.APPN1
complete
```

Related Commands

appn link-station
show appn link-station

appn class-of-service

Use the **appn class-of-service** global configuration command to define an APPN class of service that is not an IBM-supplied default. Use the **no** form of this command to delete the definition. This command begins the APPN class of service configuration command mode.

```
appn class-of-service cosname
no appn class-of-service cosname
```

Syntax Description

<i>cosname</i>	Class of service (COS) name not among IBM default names. COS names must be a Type A character string. A Type A character string contains 1 to 8 of the following characters: A - Z, a - z 0 - 9 \$ # @
----------------	---

Defaults

There is no default class of service name.

If this command is not issued, an IBM default COS can be used. The IBM supplied default classes of service are #CONNECT, #BATCH, #INTER, #BATCHSC, #INTERSC, CPSVCMG, and SNASVCMG.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

COS is a definition of the transport network characteristics that should be used to establish a particular session. The COS definition assigns relative values to factors such as acceptable levels of security, cost per byte, cost per connect-time, propagation delay, and effective capacity. APPN network nodes use COS to select the best session routes between LUs.

If one of the IBM default classes of service does not meet the needs of a particular network, the **appn class-of-service** global configuration command can be used to create a user defined definition.

Example

The following example defines a COS with one node row and one tg row:

```
appn class-of-service #SECURE
node-row 1 weight 5 congestion no no route-additional-resistance 0 255
tg-row 1 weight 30 byte 0 255 time 0 255 capacity 0 255 delay 0 255 security 200 255 user1
0 255 user2 0 255 user3 0 255
complete
```

Related Commands

node-row

show appn class-of-service

tg-row

transmission-priority

appn connection-network

Use the **appn connection-network** global configuration command to specify the fully qualified network name for the connection network. Use the **no** form of this command to delete the definition. This command begins the APPN connection network configuration command mode.

```
appn connection-network netid.cname  
no appn connection-network netid.cname
```

Syntax Description

netid.cname Fully qualified network name for the connection network.
cname is the name of the virtual network node in the connection network.
A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:
A - Z, a - z
0 - 9
\$ # @
The first character of either string must not be a number.

Default

No default connection network name is assigned.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The connection network name must be the same on all nodes that define the connection network, and must be different from any other connection network, LU, or control point in the total network.

Example

The following example defines a connection network using APPN port TR0:

```
appn connection-network CISCO.CAPPN1  
port TR0  
complete
```

Related Commands

port (APPN connection network)
show appn connection-network

appn control-point

Use the **appn control-point** global configuration command to specify the fully qualified control point name for the node. Use the **no** form of this command to delete the name and clear all APPN definitions. This command begins the APPN control point configuration command mode.

appn control-point *netid.cpname*
no appn control-point *netid.cpname*

Syntax Description

netid.cpname

Fully qualified control point name for the local node.
A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:
A - Z, a - z
0 - 9
\$ # @
The first character of either string must not be a number.

Default

No default control point name is assigned.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

You must issue the **appn control-point** command to activate APPN routing. There can be only one control point definition in the system. The control point name must be unique in the network.

Example

The following example defines a control point named CISCO.APPN1:

```
appn control-point CISCO.APPN1
complete
```

Related Commands

appn routing
appn start
appn stop
backup-dlus (APPN control point)
buffer-percent
dlur
dlus (APPN control point)
interrupt-switched
max-cached-entries

max-cached-trees
maximum-memory
route-additional-resistance
safe-store-cycle
safe-store-host
safe-store-interval
show appn node
xid-block-number
xid-id-number

appn link-station

Use the **appn link-station** global configuration command to assign the name of an adjacent link station. Use the **no** form of this command to delete the link station name. This command begins the APPN link station configuration command mode.

```
appn link-station linkname  
no appn link-station linkname
```

Syntax Description

<i>linkname</i>	Name that identifies the link station. The name must be a Type A string. A Type A character string contains 1 to 8 of the following characters: A - Z, a - z 0 - 9 \$ # @
-----------------	--

Default

No default link station name is assigned.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

A link represents a connection between a local link station and a link station in an adjacent node. The link can be considered a direct connection between two distinct Type 2.1 or Type 2.0 nodes. The link station provides a route over which local sessions or intermediate sessions can pass. Two link stations are required to build a link: one on each node.

A link station can be predefined with the **appn link-station** command, or dynamically defined. If you specify **service-any** in the associated **appn port** command, link-stations can be dynamically defined when a connect request is received. In this case, the **appn link-station** command would not be required. You must define an APPN link station if you intend this node to initiate the connection to the adjacent node.

Example

The following example defines a link station using port TR0:

```
appn link-station CISCO1  
port TR0  
lan-destination-address 0200.0000.0001  
complete
```

Related Commands

adjacent-cp-name
atm-dest-address
backup-dlus (APPN link station)
connect-at-startup
cost-per-byte (APPN link station)
cost-per-connect-time (APPN link station)
cp-cp-sessions-supported
dlur-dspu-name
dlus (APPN link station)
effective-capacity (APPN link station)
fr-dest-address
lan-dest-address
limited-resource (APPN link station)
link-queuing
port (APPN link station)
ppp-dest-address
propagation-delay (APPN link station)
pu-type-20
retry-limit (APPN link station)
role (APPN link station)
sdlc-dest-address
security (APPN link station)
show appn link-station
smds-dest-address
tg-number
user-defined-1 (APPN link station)
user-defined-2 (APPN link station)
user-defined-3 (APPN link station)
verify-adjacent-node-type
x25-dest-address

appn mode

Use the **appn mode** global configuration command to specify a new mode or to change an IBM-defined mode and identify the class of service associated with the mode name. Use the **no** form of this command to delete the previous definition. This command begins the APPN mode configuration command mode.

appn mode *modename*
no appn mode *modename*

Syntax Description

modename Name of the mode. A Type A character string. A Type A character string contains 1 to 8 of the following characters:
A - Z, a - z
0 - 9
\$ # @

Default

IBM-defined [blank] mode

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The IBM-defined modes are #BATCH, #BATCHSC, #INTER, #INTERSC, #CPSVCMG, #SNASVCMG, #CPSVRMG, and [blank]. These definitions can not be changed.

This command is required when LEN nodes are using this node for network services. The LEN node will issue a BIND containing this mode name; this command will be used to associate the mode name with a COS name.

Example

The following example changes the IBM-defined mode #BATCH to use the #CONNECT class of service:

```
appn mode #BATCH
class-of-service #CONNECT
complete
```

Related Commands

class-of-service
show appn mode

appn partner-lu-location

Use the **appn partner-lu-location** global configuration command to specify an LU that would be the destination LU for an LU-LU session request from an LU using this node for network services. Use the **no** form of this command to delete the previous definition. This command begins the APPN partner LU configuration command mode.

```
appn partner-lu-location netid.luname  
no appn partner-lu-location netid.luname
```

Syntax Description

netid.luname Fully qualified name of the partner LU. A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:

- A - Z, a - z
- 0 - 9
- \$ # @

The first character of either string must not be a number.

Default

No default *netid.luname* is specified. You must supply a value; otherwise, the configuration will fail.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Use this command to define an entry in the directory database. This command improves network performance by allowing directed LOCATE (because the partner name is known) instead of a broadcast. The disadvantage is that definitions must be created. Alternatively, partner names can be discovered dynamically and added to the database as they are learned. This process, however, requires either prior sessions to the node or broadcast traffic (which causes additional network traffic) sent to locate the node.

Example

The following example defines the location of an LU named CISCO.LU21:

```
appn partner-lu-location CISCO.LU21  
owning-cp CISCO.CP2  
complete
```

Related Commands

```
owning-cp  
serving-nn  
show appn directory  
wildcard
```

appn port

Use the **appn port** global configuration command to define an APPN port and relate it to a previously defined interface.

```
appn port portname { interface | rsrb | vdlc }  
no appn port portname
```

Syntax Description

<i>portname</i>	Port name to be associated with the interface.
<i>interface</i>	Previously defined interface type and number with which the port name is to be associated.
rsrb	Specify rsrb instead of an interface if this port will utilize RSRB as a transport protocol.
vdlc	Specify vdlc to allow link stations using this virtual port to connect over DLSw+, or any other higher-layer protocol that is CLSI-compliant, using virtual data link control (VDLC).

Defaults

No default port name is specified. No default interface is provided. You must provide the port name and interface, or the configuration will fail.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

At least one APPN port must be defined for each interface that will participate in APPN routing. If more than one service access point (SAP) will be used over a particular port, then a port must be defined for each SAP.

If you configure APPN to run over DLSw+, you specify **vdlc**, and must also use the **vdlc** APPN port configuration command to identify which ring group the APPN VDLC port uses and, optionally, which virtual MAC address is used as the local MAC address identifying this APPN port.

Examples

The following example associates an APPN port named FDDI0 with FDDI interface 0:

```
appn port FDDI0 fddi0  
complete
```

In the following example, the **appn port vdlc** command creates an APPN VDLC port named “vdlcport,” and the **hdlc** APPN port configuration command identifies the ring group (100) and VDLC virtual MAC address (4000.3745.0000):

```
appn port VDLCPORT vdlc
hdlc 100 vmac 4000.3745.0000
complete
```

Related Commands

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

- appn start port**
- appn stop port**
- cost-per-byte (APPN port)**
- cost-per-connect-time (APPN port)**
- desired-max-send-btu-size**
- effective-capacity (APPN port)**
- interface †**
- limited-resource (APPN port)**
- local-sap**
- max-link-stations**
- max-rcv-btu-size**
- propagation-delay (APPN port)**
- reserved-inbound**
- reserved-outbound**
- retry-limit (APPN port)**
- role (APPN port)**
- rsrb-virtual-station**
- sdhc-sec-addr**
- security (APPN port)**
- service-any**
- show appn port**
- user-defined-1 (APPN port)**
- user-defined-2 (APPN port)**
- user-defined-3 (APPN port)**
- hdlc**
- x25-subaddress**

appn routing

Use the **appn routing** global configuration command to indicate that APPN routing should be activated. Use the **no** form to deactivate APPN routing.

appn routing
no appn routing

Syntax Description

This command has no arguments or keywords.

Default

APPN routing is disabled.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

For **appn routing** to complete successfully, an APPN control point must be configured using the **appn control-point** global configuration command.

Example

The following example activates APPN routing:

```
appn routing
```

Related Commands

appn control-point
appn start
appn stop

appn start

Use the **appn start** EXEC command to activate the APPN subsystem in this node.

appn start

Syntax Description

This command has no arguments or keywords.

Default

The APPN subsystem is disabled.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example activates APPN:

```
appn start
```

Related Commands

appn routing

appn stop

appn start link-station

Use the **appn start link-station** EXEC command to activate a logical APPN link.

appn start link-station *linkname*

Syntax Description

<i>linkname</i>	Name of the link-station. Must be a Type A character string. A Type A character string contains 1 to 8 of the following characters: A - Z, a - z 0 - 9 \$ # @
-----------------	--

Default

No logical APPN links are activated.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example activates an APPN link station:

```
appn start link-station TR0
```

Related Commands

appn link-station
appn stop link-station
show appn link-station

appn start port

Use the **appn start port** EXEC command to activate APPN routing over a particular port.

appn start port *portname*

Syntax Description

<i>portname</i>	Name of the port. Must be a Type A character string. A Type A character string contains 1 to 8 of the following characters: A - Z, a - z 0 - 9 \$ # @
-----------------	---

Default

No APPN routing is activated.

Command Mode

EXEC

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

This command is also used when the APPN subsystem is already started and a port is added or a characteristic is changed by subcommand.

Example

The following example activates APPN routing over port TR0:

```
appn start port TR0
```

Related Commands

appn port
appn stop port
show appn port

appn stop

Use the **appn stop** EXEC command to deactivate APPN routing without affecting the current configuration.

appn stop

Syntax Description

This command has no arguments or keywords.

Default

This command has no default state.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following command deactivates APPN routing:

```
appn stop
```

Related Commands

appn control-point

appn routing

appn start

appn stop link-station

Use the **appn stop link-station** EXEC command to deactivate an APPN connection between the local node and an adjacent node.

appn stop link-station *linkname*

Syntax Description

<i>linkname</i>	Name of the link station. The name must be a Type A character string. A Type A character string contains 1 to 8 of the following characters: A - Z, a - z 0 - 9 \$ # @
-----------------	---

Default

This command has no default state.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following command deactivates an APPN link between the local node and an adjacent node:

```
appn stop link-station APPN1
```

Related Commands

appn link-station

appn start link-station

appn stop port

Use the **appn stop port** EXEC command to deactivate APPN routing over a specified port.

appn stop port *portname*

Syntax Description

<i>portname</i>	Name of the port. Must be a Type A character string. A Type A character string contains 1 to 8 of the following characters: A - Z, a - z 0 - 9 \$ # @
-----------------	--

Default

This command has no default state.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

For a port deactivation to be successful, no APPN link station can be active on that port.

Example

The following example deactivates APPN routing over port TR0:

```
appn stop port TR0
```

Related Commands

appn port
appn start port

atm-dest-address

Use the **atm-dest-address** APPN link station configuration command to specify the address of the partner node for ATM links. Use the **no** form of this command to delete the definition.

```
atm-dest-address pvc  
no atm-dest-address
```

Syntax Description

pvc Permanent virtual circuit (PVC) of the remote node. Valid range is 1 to 4096.

Defaults

No default PVC or SAP are provided.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1.

The command should be specified only if the APPN port used by the link station is an ATM port. Note that for the Cisco 4500, the default maximum number of PVCs allowed is 32.

Example

The following example specifies ATM destination address 1:

```
interface ATM2/0  
atm pvc 1 1 12 aal5nlpid  
map-group atm-appn2  
!  
appn control-point NETA.APPN2  
complete  
!  
appn port ATM ATM2/0  
complete  
!  
appn link-station ATMLINK  
port ATM  
atm-dest-address 1  
complete
```

Related Commands

```
appn link-station  
lan-dest-address  
sdhc-dest-address  
show appn link-station
```

backup-dlus (APPN control point)

Use the **backup dlus** APPN control point configuration command to specify the name of the default backup DLUS, which performs SSCP services for downstream PUs if the default DLUS is unable to provide the services. Use the **no** form of this command to delete the definition.

backup-dlus *netid.cpname*
no backup-dlus

Syntax Description

netid.cpname Fully qualified network name. A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:
A - Z, a - z
0 - 9
\$ # @
The first character of either string must not be a number.

Default

No backup DLUS is specified.

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

You must specify **dlur** and **dlus** before you can specify **backup-dlus**. You can use the **backup-dlus** link station configuration command to override this command for a particular link station.

Example

The following example defines an APPN control point with a backup DLUS:

```
appn control-point CISCO.ROUTER
dlur max-pus 100
dlus CISCO.APPN1
backup-dlus CISCO.APPN2
complete
```

Related Commands

appn control-point
backup-dlus (APPN link station)
dlus (APPN control point)

backup-dlus (APPN link station)

Use the **backup-dlus** APPN link station configuration command to specify the default backup DLUS node that provides SSCP services to the downstream PUs of the link in the event that the DLUS is unable to provide the DLUR function. Use the **no** form of this command to delete the definition.

```
backup-dlus netid.cpname
no backup-dlus
```

Syntax Description

netid.cpname Fully qualified network name. A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:

- A - Z, a - z
- 0 - 9
- \$ # @

The first character of either string must not be a number.

Default

The default state is **no backup-dlus**.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

You must specify the **dlur** and **dlus** APPN control point commands before you can specify **backup-dlus**. You can use the **backup-dlus** link station configuration command on the link station to override this command for that particular link station.

Example

The following example specifies the backup DLUS node for a link station:

```
appn link-station CISCO.HOST
port FDDI0
lan-dest-address 0200.0000.1234
dlus CISCO.APPN1
backup-dlus CISCO.APPN3
complete
```

Related Commands

```
appn link-station
backup-dlus (APPN control point)
dlus (APPN control point)
dlus (APPN link station)
```

buffer-percent

Use the **buffer-percent** APPN control point configuration command to specify the percent of buffers that are reserved for use by APPN. Use the **no** form of this command to cancel the buffer reservation.

buffer-percent *number*
no buffer-percent

Syntax Description

number Maximum percentage of I/O memory that APPN is allowed to allocate for buffers. The valid range is 1 to 100 percent. The default is 100 percent.

Default

100 percent

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Use the **buffer-percent** command to ensure that APPN will not monopolize the buffers. If other protocols are to be routed through the local node, this command can reserve buffers for protocols other than APPN.

Example

The following example limits APPN's buffer usage to 25 percent of the device's buffers:

```
appn control-point CISCO.ROUTER
buffer-percent 25
complete
```

Related Commands

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

appn control-point
show buffers †
show memory †

central-resource-registration

Use the **central-resource-registration** APPN control point configuration command to enable the central resource registration function. Use the **no** form of this command to disable the central resource registration function.

central-resource-registration
no central-resource-registration

Syntax Description

This command has no arguments or keywords.

Default

The central resource registration function is enabled.

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

By default, the central resource registration function is enabled in the router so that registration of downstream resources in the central directory server will be attempted by the router when it receives a request from the control point that owns the resource. If there is unpredictable behavior related to the central resource registration or central directory server, use the **no central-resource-registration** command to disable the central resource registration function. In normal circumstances there should not be any reason to disable the central resource registration function.

Example

The following example disables the central resource registration function:

```
appn control-point neta.router
no central-resource-registration
complete
```

Related Command

show appn directory

class-of-service

Use the **class-of-service** APPN mode configuration command to specify the class of service that maps to a particular mode name. Use the **no** form of this command to delete the definition.

class-of-service *cosname*
no class-of-service

Syntax Description

cosname Name of the class of service. Must be a Type A character string. A Type A character string contains 1 to 8 of the following characters:
A - Z, a - z
0 - 9
\$ # @
The default is #CONNECT.

Default

The default class-of-service name is #CONNECT.

Command Mode

APPN mode configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

LEN nodes use this node for network services. The mode name is passed in the BIND and this command is used to correlate the mode name to a class-of-service name.

Example

The following example defines a mode with class of service #INTER:

```
appn mode MAPPN1
class-of-service #INTER
complete
```

Related Command

appn mode

connect-at-startup

Use the **connect-at-startup** APPN link station configuration command to specify that the link will call out to the partner and attempt to bring up the link when the link's definition is complete. Use the **no** form of this command to delete the definition.

connect-at-startup
no connect-at-startup

Syntax Description

This command has no arguments or keywords.

Default

Connect-at-startup is enabled.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example deactivates call out for APPN link station ETHER12:

```
appn link-station ETHER12
appn port ETHER1
lan-dest-address 0200.0000.4321
no connect-at-startup
complete
```

Related Command

appn link-station

cp-cp-sessions-supported

Use the **cp-cp-sessions-supported** APPN link station configuration command to specify that a control point-control point (CP-CP) session can be established over this connection. Use the **no** form of this command to specify that a CP-CP session cannot be established over this link.

cp-cp-sessions-supported
no cp-cp-sessions-supported

Syntax Description

This command has no arguments or keywords.

Default

CP-CP sessions are supported.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The **no** form of this command must be specified for a link to a LEN node.

CP sessions to additional NNs are optional. Having fewer CP-CP sessions reduces the number of topology update messages and memory required, while increasing convergence time (the time required to update all network nodes).

Example

The following example specifies that no CP-CP sessions are supported:

```
appn link-station FDDI41
port FDDI1
lan-dest-address 0400.0000.2323
no cp-cp-sessions-supported
complete
```

Related Commands

appn link-station
show appn link-station
verify-adjacent-node-type

desired-max-send-btu-size

Use the **desired-max-send-btu-size** APPN port configuration command to specify the maximum BTU size on this link. Use the **no** form of this command to delete the definition.

desired-max-send-btu-size *size*
no desired-max-send-btu-size

Syntax Description

size BTU size (in bytes) on this link, in the range 99 to 5107. The default is 1024 bytes.

Default

The default size is 1024 bytes.

Command Mode

APPN port configuration

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

The MTU size must be big enough to accommodate the configured size of the BTU.

Example

The following example sets the maximum BTU size to 4000:

```
appn port TR0 tokenring 0/0
desired-max-send-btu-size 4000
complete
```

Related Commands

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

appn port
mtu †
show appn port

dlur

Use the **dlur** APPN control point configuration command to specify that the Dependent LU Requestor (DLUR) function is supported on this CP. Use the **no** form of this command to delete the definition.

dlur [**max-pus** *number*]
no dlur

Syntax Description

max-pus *number* (Optional) Maximum number of physical units (PUs) served by this DLUR, in the range 1 to 100000. There is no default. If **max-pus** is not specified, there is no limit on the number of PUs served by this DLUR.

Defaults

If the **dlur** command is not specified, the DLUR function is not supported on this CP. If **max-pus** is not specified, there is no limit on the number of PUs served by this DLUR.

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example specifies the DLUR function on the CP and specifies that the maximum number of PUs served by this DLUR is 100:

```
appn control-point CISCO.ROUTER
dlur max-pus 100
dlus CISCO.HOST
complete
```

Related Commands

appn control-point
dlus (APPN control point)
show appn dlur-lu
show appn dlur-pu
show appn dlus

dlur-dspu-name

Use the **dlur-dspu-name** APPN link station configuration command to specify the name of the downstream PU connected by this link. Use the **no** form of this command to delete the definition.

dlur-dspu-name *pu-name*
no dlur-dspu-name

Syntax Description

pu-name Type A character string. A Type A character string contains 1 to 8 of the following characters:
A - Z, a - z
0 - 9
\$ # @

Default

No default name is specified.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The DLUR function requires the specification of the DSPU name for a PU 2.0 node. Specification is also required when the DLUR function must activate the link to a PU 2.1 or PU 2.0 node, when driven by a host-initiated PU activation, and when the link to the PU is not active.

Example

The following example specifies the DSPU name of a downstream node:

```
appn link-station LINK4
port TR1
lan-dest-address 1000.2020.0211
dlur-dspu-name PU003334
pu-type-20
complete
```

Related Commands

appn link-station
dlur
dlus (APPN link station)

dlus (APPN control point)

Use the **dlus** APPN control point configuration command to specify the name of the default Dependent LU Server (DLUS) that provides SSCP services to the downstream PUs. Use the **no** form of this command to delete the definition.

```
dlus netid.cpname  
no dlus
```

Syntax Description

netid.cpname Fully qualified CP name. A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:

- A - Z, a - z
- 0 - 9
- \$ # @

The first character of either string must not be a number.

Default

No default DLUS is defined.

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The **dlur** command must be specified if **dlus** is specified. The name of the node-default DLUS should be specified when supporting downstream PUs that request or require ACTPUs, when DLUR does not currently have an active session with the DLUS, and when no DLUS or back-up DLUS name has been provided on the APPN link station definition.

Example

The following example defines the DLUS:

```
appn control-point CISCO.ROUTER1  
dlur  
dlus CISCO.APPN1  
complete
```

Related Commands

```
appn control-point  
dlur  
dlus (APPN link station)  
show appn dlur-lu
```

dlus (APPN link station)

Use the **dlus** APPN link station configuration command to specify the name of the default Dependent LU Server (DLUS) node that provides SSCP services to the downstream PUs of this link station. Use the **no** form of this command to delete the definition.

```
dlus netid.cpname  
no dlus
```

Syntax Description

netid.cpname Fully qualified CP name. A fully qualified name is a string of 1 to 8 characters, a period, and another a string of 1 to 8 characters. The following characters are acceptable:
A - Z, a - z
0 - 9
\$ # @
The first character of either string must not be a number.

Default

No default DLUS is specified.

Command Mode

APPN link station configuration

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

The **dlus** command is used to override the value of **dlus** specified in the control point definition.

Example

The following example specifies the DLUS for a specific APPN link station:

```
appn link-station LINK5  
port TR1  
lan-dest-address 0200.0000.5678  
dlus CISCO.APPN1  
complete
```

Related Commands

```
appn control-point  
dlur  
dlus (APPN control point)  
show appn dlus
```

effective-capacity (APPN link station)

Use the **effective-capacity** APPN link station configuration command to specify the bit rate for the connection. Use the **no** form of this command to delete the definition.

effective-capacity *capacity*
no effective-capacity

Syntax Description

capacity Number of bits per second in the range 0 to 100000000. The default is the value specified in the **appn port** command.

Default

The value specified in the **appn port** command.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The bit rate is compared to the class of service requirements when selecting routes. This can be specified on the link station command to identify the bit rate for this link station only. This value overrides the value specified on the port command. Effective capacity is used by the node to determine the least cost route for APPN intermediate sessions.

Example

The following example defines the effective capacity:

```
appn link-station FRLINK44
port FR0
fr-dest-address 44
effective-capacity 4000000
complete
```

Related Commands

appn link-station
effective-capacity (APPN port)
show appn link-station

effective-capacity (APPN port)

Use the **effective-capacity** APPN port configuration command to specify the effective capacity of a link. Use the **no** form of this command to delete the definition.

effective-capacity *capacity*
no effective-capacity

Syntax Description

capacity Number of bits per second in the range 0 to 100000000.
The default is media dependent.

Default

The default is media dependent:

Ethernet—10,000,000 bps

FDDI—100,000,000 bps

Frame Relay—56,000 bps

QLLC—56,000 bps

RSRB—56,000 bps

SDLC—56,000 bps

Token Ring—16,000,000 bps

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Specifying this command at the port level identifies the capacity for all link stations accessed through this port. Specifying this command on the link station command overrides the port value. This command also specifies the value for dynamically created transmission groups. The cost is used in route selection for a particular class of service.

Example

The following example defines the effective capacity:

```
appn port FR0 serial 1/1
effective-capacity 2000000
complete
```

Related Commands

appn port
effective-capacity (APPN link station)
show appn port

fr-dest-address

Use the **fr-dest-address** APPN link station configuration command to specify the address of the partner node for Frame Relay links. Use the **no** form of this command to delete the definition.

```
fr-dest-address dlci [sap]  
no fr-dest-address
```

Syntax Description

<i>dlci</i>	Number in the range 16 to 1007 that represents the DLCI, or virtual circuit, for a Frame Relay connection.
<i>sap</i>	(Optional) 1-byte hexadecimal number in the range 04 to EC, and divisible by 4.

Defaults

No default DLCI is provided.

The default SAP is 04 (hexadecimal)

Command Mode

APPN link station configuration

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

The command should be specified only if the APPN port used by the link station is a Frame Relay port.

Example

The following example specifies DLCI 100:

```
appn link-station FRLNK100  
port FR0  
fr-dest-address 100  
complete
```

Related Commands

appn link-station
lan-dest-address
sdhc-dest-address
show appn link-station

interrupt-switched

Use the **interrupt-switched** APPN control point configuration command to specify that ISR should be processed at the interrupt level. Use the **no** form of this command to cancel the specification.

interrupt-switched
no interrupt-switched

Syntax Description

This command has no arguments or keywords.

Default

Disabled

Command Mode

APPN control point

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command improves the performance of ISR routing. The command can be used only if segment size is the same on all nodes in the message path. Re-segmenting cannot be accomplished at the interrupt level. In addition, this command should only be used when routing between interfaces with similar speeds. This is because no pacing is done in the node when **interrupt-switched** is specified.

Example

The following example specifies that ISR should be processed at the interrupt level:

```
appn control-point CISCO.APPN1
interrupt-switched
complete
```

Related Commands

appn control-point
show appn intermediate-session

lan-dest-address

Use the **lan-dest-address** APPN link station configuration command to specify the MAC address of the partner node. Use the **no** form of this command to delete the definition.

```
lan-dest-address lan-addr [sap]  
no lan-dest-address
```

Syntax Description

<i>lan-addr</i>	12-byte hexadecimal number in the form <i>xxxx.xxxx.xxxx</i> .
<i>sap</i>	(Optional) 1-byte hexadecimal number in the range 04 to EC, and divisible by 4.

Defaults

No default *lan-addr* is specified.

The default SAP is 04 (hexadecimal).

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command is required for interface types Token Ring, Ethernet, or FDDI. It is not allowed for other interface types.

Example

The following example sets the MAC address and SAP for a link to a partner node:

```
appn link-station LINK0001  
port ETHER1  
lan-dest-address 1234.cfe0.9745 08  
complete
```

Related Commands

```
appn link-station  
fr-dest-address  
sdhc-dest-address  
show appn link-station
```

limited-resource (APPN link station)

Use the **limited-resource** APPN link station configuration command to specify that the connection be taken down when no sessions are using it. Use the **no** form of this command to specify that the connection will remain active when no sessions are using it.

limited-resource
no limited-resource

Syntax Description

This command has no arguments or keywords.

Default

The value specified in the **appn port** command.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command identifies a link that has a higher cost or is a switched connection and should not remain active if no resource is using the link. The **limited-resource** command issued at the APPN link station level overrides the same command issued at the APPN port level.

Example

The following example specifies that the link be taken down when no sessions are active:

```
appn link-station FRLINK34
port FR1
fr-dest-address 34
limited-resource
complete
```

Related Commands

appn link-station
limited-resource (APPN port)
show appn link-station

limited-resource (APPN port)

Use the **limited-resource** APPN link station configuration command to specify that the link be taken down when no sessions are using the link. Use the **no** form of this command to specify that the link will remain active when no sessions are using the link.

limited-resource
no limited-resource

Syntax Description

This command has no arguments or keywords.

Default

The default is no limited resource.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command identifies a link that has a higher cost or is a switched connection and should not remain active if no resource is using the link. This command applies to all link stations accessed through this port. Specifying limited resource at the link station level overrides this command.

Example

The following example activate limited resource:

```
appn port FR0 serial 0/2
limited-resource
complete
```

Related Commands

appn port
limited-resource (APPN link station)
show appn port

link-queuing

Use the **link-queuing** APPN link station configuration command to specify queuing options and parameters for the link station. Use the **no** form of the command to cancel the option.

```
link-queuing {priority level | custom queue-number}  
no link-queuing
```

Syntax Description

priority <i>level</i>	Priority level, indicated by one of the following keywords: high, medium, normal, low.
custom <i>queue-number</i>	Priority number used to specify custom queuing for the link station. The default is that no number is assigned.

Default

No default priority number is assigned.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example specifies medium priority level queuing for the link station:

```
link-queuing medium
```

Related Command

show appn link-station

local-sap

Use the **local-sap** APPN port configuration command to specify the local service access point (SAP) to activate on the interface. Use the **no** form of this command to delete the definition.

local-sap *sap*
no local-sap

Syntax Description

sap Hexadecimal number in the range 04 to EC, and divisible by 4.
The default is 04.

Default

The default local SAP is 04 (hexadecimal).

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example specifies the local SAP:

```
appn port TR0 tokenring 0
local-sap 44
complete
```

Related Commands

appn port
show appn port

max-cached-entries

Use the **max-cached-entries** APPN control point configuration command to specify the maximum number of cached directory entries. Use the **no** form of this command to delete the definition.

max-cached-entries *number*
no max-cached-entries

Syntax Description

number Maximum number of cached directory entries. The valid range is 0 to 32767. The default is 255.

Default

255 cached directory entries

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command enables you to balance memory usage and performance. A large number requires more memory, but reduces the number of network broadcasts. Cached directory entries are created as nodes learn locations of other network resources. This command affects cached entries only. A value of zero still allows location of node, but broadcasts are required.

Example

The following example specifies the maximum number of cached directory entries:

```
appn control-point CISCO.ROUTER
max-cached-entries 100
complete
```

Related Commands

appn control-point
show appn node

max-cached-trees

Use the **max-cached-trees** APPN control point configuration command to specify the maximum number of cached class of service routing trees. Use the **no** form of this command to delete the definition.

max-cached-trees *number*
no max-cached-trees

Syntax Description

number Maximum number of cached class of service routing trees. The valid range is 0 to 32767. The default is 20.

Default

20 trees

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command allows you to balance memory usage and performance. Each cached tree represents all paths through the network for a class of service. If you specify a lower number, fewer will be caches and longer processing time may be required to calculate the paths through the network and select a route.

Example

The following example specifies the maximum number of cached topology trees:

```
appn control-point CISCO.ROUTER
max-cached-trees 5
complete
```

Related Commands

appn control-point
show appn node

maximum-memory

Use the **maximum-memory** APPN control point configuration command to specify the maximum amount of memory available to APPN. Use the **no** form of the command to cancel the specification.

maximum-memory *bytes*
no maximum-memory

Syntax Description

bytes Maximum amount of memory (in bytes) available to APPN. The valid range is 3000000 to 64000000 bytes. The default is that APPN has access to all memory.

Default

The default is that APPN has access to all memory.

Command Mode

APPN control point configuration

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

This command ensures that APPN will not monopolize the memory of the device and that other protocols being routed will have memory available.

Example

The following example specifies the maximum amount of memory available to APPN as 16,000,000 bytes (16 MB):

```
appn control-point CISCO.APPN1
maximum-memory 16000000
complete
```

Related Command

appn control-point

max-link-stations

Use the **max-link-stations** APPN port configuration command to specify the maximum number of active link stations allowed on this port. Use the **no** form of the command to delete the definition.

max-link-stations *number*
no max-link-stations

Syntax Description

number Number in the range 1 to 255. Must be greater than or equal to the sum of **reserved-inbound** and **reserved-outbound**. The default is media dependent.

Default

The default is media dependent.

Ethernet—255
FDDI—255
Frame Relay—255
QLLC—1
RSRB—255
SDLC—1
Token Ring—255

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

For leased negotiable lines, the maximum value is 1.

For leased primary lines, not multidrop, the maximum value is 1 and inbound is 0.

For leased secondary lines and switched lines the maximum value is 1.

Example

The following example sets the maximum link stations:

```
appn port TR01 tokenring 0/1
max-link-stations 10
complete
```

Related Commands

appn port
reserved-inbound
reserved-outbound
show appn port

max-rcv-btu-size

Use the **max-rcv-btu-size** APPN port configuration command to specify the desired maximum receive BTU. Use the **no** form of this command to delete the definition.

max-rcv-btu-size *size*
no max-rcv-btu-size

Syntax Description

size Maximum receive BTU (in bytes), in the range 99 to 5107. The default is 1024 bytes.

Default

1024 bytes

Command Mode

APPN port configuration

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

The BTU specifies a maximum message size at the physical layer, similar to the MTU in TCP/IP. Do not confuse BTU with MAXRU, which is session related.

Example

The following example sets the maximum BTU value to 500:

```
appn port TR11 tokenring1/1
max-rcv-btu-size 500
complete
```

Related Commands

appn port
show appn port

minimum-memory

Use the **minimum-memory** APPN control point configuration command to specify the minimum amount of memory available to APPN. Use the **no** form of the command to cancel the specification.

minimum-memory *bytes*
no minimum-memory

Syntax Description

bytes Maximum amount of memory (in bytes) available to APPN. The valid range is 1000000 to 64000000. The default is 1000000 bytes.

Default

The default is 1000000 bytes.

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command ensures that APPN will always have a specified amount of memory. Memory that is dedicated to APPN will not be available for other processing.

Example

The following example reserves 10000000 bytes (10 MB) of memory for APPN:

```
appn control-point CISCO.APPN1
minimum-memory 10000000
complete
```

Related Commands

appn control-point
maximum-memory

node-row

Use the **node-row** APPN class of service configuration command to specify a node description or node row, and associated weights defined for this class of service. Use the **no** form of this command to delete a previous node row description.

```
node-row index weight weight congestion {yes | no} {yes | no} route-additional-resistance
min max
no node-row index
```

Syntax Description

<i>index</i>	Specifies which row is being entered. The valid range is 1 to 8.
weight <i>weight</i>	Weight assigned to a node, given the characteristics identified in the remainder of the row. The weight of row n must be less than the weight of row n+1. The valid range is 0 to 255.
congestion	Minimum and maximum congestion tolerance for the node row.
yes yes	Only yes. Only congested transmission groups match this row.
no yes	Yes or no. Congestion does not affect class of service row.
no no	Only no. Only noncongested transmission groups match this row. The default is no no.
route-additional-resistance <i>min max</i>	Minimum and maximum additional resistance value for the row. The value is compared to the same parameter defined in the CP for each network node and exchanged on the topology database updates. The valid range for minimum and maximum is 0 to 255. The default range for minimum and maximum is 0 0.

Defaults

No default node row is specified.

No default weight is specified.

The default congestion tolerance is no no.

The default route additional resistance is 0 0.

Command Mode

APPN class of service configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

You can define up to 8 rows. Each row represents the characteristics of a node that meets the requirements for this class of service and defines a weight for the node that will be used in calculating the cost of a total route.

If the congestion maximum is set to “no,” the congestion minimum must also be set to “no.”

Example

The following example defines an APPN class of service with one node row:

```
appn class-of-service #SECURE
node-row 1 weight 5 congestion no no route-additional-resistance 0 255
tg-row 1 weight 30 byte 0 255 time 0 255 capacity 0 255 delay 0 255 security 200 255 user1
0 255 user2 0 255 user3 0 255
complete
```

Related Commands

appn class-of-service
show appn class-of-service

null-xid-poll

Use the **null-xid-poll** APPN port configuration command to specify that the null XID should be used to poll the remote node associated with this APPN port. Use the **no** form of the command to cancel the specification.

null-xid-poll
no null-xid-poll

Syntax Description

This command has no arguments or keywords.

Default

XID3 negotiation is used to poll remote devices.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

The **null-xid-poll** command permits PU 2.0 devices that connect in with XID0 to build a dynamic link station. It is no longer necessary to configure a link definition. When this command is used, the router expects its partner to reveal its identity first by responding with either XID3 or XID0.

This feature works in a mixed environment of PU 2.0 and PU 2.1 devices where the same APPN port is shared by both types of devices. By default, XID3 is used to poll the devices. When a PU 2.0 device responds with XID0, the link is created and established dynamically. PU 2.1 devices are not affected by this change, and go through the XID3 negotiation as usual.

Some care must be exercised when configuring **null-xid-poll**: If two Cisco APPN network node routers connect across ports configured with **null-xid-poll**, the APPN connection will fail because both routers expect the other to respond first using either XID0 or XID3. Similar behavior may occur when a port configured with **null-xid-poll** attempts communication with a front-end processor configured for XID polling. You only need to configure **null-xid-poll** when dealing with a PU 2.0 device that does not respond gracefully to the XID3 poll.

Example

The following example specifies that null XID should be used to poll the remote nodes associated with the APPN port FDDI0.

```
appn port FDDI0 fddi 0
null-xid-poll
complete
```

Related Command

appn port

owning-cp

Use the **owning-cp** APPN partner LU location configuration command to specify the name of the CP that owns the partner LU. Use the **no** form of this command to delete the definition.

owning-cp *netid.cpname*
no owning-cp

Syntax Description

netid.cpname Fully qualified network name. A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:
A - Z, a - z
0 - 9
\$ # @
The first character of either string must not be a number.

Default

No default name is assigned.

Command Mode

APPN partner LU location configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The *netid.cpname* argument must be unique in the network and must match the name specified as control point on the specific node.

Example

The following command sets the owning CP name:

```
appn partner-lu-location CISCO.LU000012
owning-cp CISCO.CP00001
complete
```

Related Commands

appn partner-lu-location
show appn directory

port (APPN connection network)

Use the **port** APPN connection network configuration command to specify the ports that have visibility to the connection network. Use the **no port** form of this command to delete the definition.

port *portname*
no port *portname*

Syntax Description

portname Type A name. A Type A character string contains 1 to 8 of the following characters:
A - Z, a - z
0 - 9
\$ # @

Default

No default port name is assigned.

Command Mode

APPN connection network configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Up to five ports can be specified by repeating the command. Port names must be previously defined by the **appn port** command.

Example

The following example specifies an APPN connection network with one port:

```
appn connection-network CISCO.CN1
port TR0
complete
```

Related Commands

appn connection-network
appn port
show appn connection-network

port (APPN link station)

Use the **port** APPN link station configuration command to specify the port that can be used to access the link station. Use the **no** form of this command to delete the definition.

port *portname*
no port

Syntax Description

portname Type A name. (Required when defining a new link station; optional on subsequent changes to the link station.)
A Type A character contains 1 to 8 of the following characters:
A - Z, a - z
0 - 9
\$ # @

Default

No default port is specified.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The *portname* argument must be a value defined in a previous **appn port** command. The **port** command is required to define an APPN link station.

Example

The following example defines the port:

```
appn link-station FDDLINK
port FDDI0
lan-dest-address 0200.0000.cfbf
complete
```

Related Commands

appn link-station
appn port
show appn link-station

ppp-dest-address

Use the **ppp-dest-address** APPN link station configuration command to specify the remote SAP of a node across a PPP interface. Use the **no** form of this command to delete the definition.

```
ppp-dest-address sap  
no ppp-dest-address
```

Syntax Description

<i>sap</i>	Service access point of the remote node. The default is 04 hexadecimal.
------------	---

Default

The default SAP is 04 hexadecimal.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1.

The command should be specified only if the APPN port used by the link station is a PPP port.

Related Commands

```
appn link-station  
show appn link-station
```

propagation-delay (APPN link station)

Use the **propagation-delay** APPN link station configuration command to specify the amount of inherent delay of the connection. Use the **no** form of this command to delete the definition.

```
propagation-delay { minimum | lan | telephone | packet-switched | satellite | maximum }  
no propagation-delay
```

Syntax Description

minimum	No delay.
lan	Less than 480 microseconds delay.
telephone	Between 480 and 49152 microseconds delay.
packet-switched	Between 49152 and 245760 microseconds delay.
satellite	Over 245760 microseconds delay.
maximum	Maximum delay allowed.

Default

The value specified in the **appn port** command.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The inherent delay is used in route selection by comparing this value to the value requested for a particular class of service. This value supersedes any value specified on the **appn port** command. Propagation delay is used by the node to determine the least cost route for APPN intermediate sessions.

Example

The following example specifies a delay of less than 480 microseconds:

```
appn link-station FRLINK12  
port FR1  
propagation-delay lan  
complete
```

Related Commands

appn link-station
show appn link-station

propagation-delay (APPN port)

Use the **propagation-delay** APPN port configuration command to specify the propagation delay of the link. Use the **no** form of this command to delete the definition.

```
propagation-delay { minimum | lan | telephone | packet-switched | satellite | maximum }
no propagation-delay
```

Syntax Description

minimum	No delay.
lan	Less than 480 microseconds delay.
telephone	Between 480 and 49152 microseconds delay.
packet-switched	Between 49152 and 245760 microseconds delay.
satellite	Over 245760 microseconds delay.
maximum	Maximum delay allowed.

Default

Media dependent:

```
Ethernet—lan
FDDI—lan
Frame Relay—packet-switched
QLLC—packet-switched
RSRB—packet-switched
SDLC—telephone
Token Ring—lan
```

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command applies to all link stations accessed through this port. Specifying propagation delay at the link station level overrides this command. The value of propagation delay is used by the node to determine the least cost route for APPN intermediate sessions.

Example

The following example specifies a delay of less than 480 microseconds:

```
appn port FR1 Serial1/1
propagation-delay lan
complete
```

Related Commands

appn port

show appn port

pu-type-20

Use the **pu-type-20** APPN link station configuration command to indicate that the downstream PU whose dependent LU request is propagated through the link is a PU type 2.0. Use the **no** form of this command, or omit this command, to indicate that the downstream PU is a type 2.1.

```
pu-type-20  
no pu-type-20
```

Syntax Description

This command has no arguments or keywords.

Default

The downstream PU is defined as a PU type 2.1.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command is normally used in conjunction with the **dlur-dspu-name** link-station configuration command.

Example

The following example indicates that the downstream PU is a PU type 2.0:

```
appn link-station LINK0001  
port TR0  
lan-dest-address 1000.4521.9812  
pu-type-20  
dlur-dspu-name PU009812  
complete
```

Related Commands

```
appn link-station  
dlur-dspu-name  
show appn link-station
```


retry-limit (APPN link station)

Use the **retry-limit** APPN link station configuration command to specify the number of times a link station attempts reactivation after failure. Use the **no** form of this command to specify the default.

```
retry-limit { retries | infinite [interval] }  
no retry-limit
```

Syntax Description

<i>retries</i>	Number of reactivation attempts. The valid range is 0 to 255 (0 equals infinite retries). The default is 5.
infinite	Infinite retries.
<i>interval</i>	(Optional) Amount of time allowed between reactivation attempts (in seconds). The valid range is 0 to 32767 seconds. The default is 30 seconds.

Defaults

The default number of retries is 5.

The default amount of time is 30 seconds.

Command Mode

APPN link station configuration

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

This value supersedes any value specified in the **appn port** command.

Example

The following example specifies 25 retries for APPN link station LINK12:

```
appn link-station LINK12  
port FDDI1  
lan-dest-address 4000.0211.4567  
retry-limit 25  
complete
```

Related Commands

appn link-station
show appn link-station

retry-limit (APPN port)

Use the **retry-limit** APPN port configuration command to specify how many times a line will attempt reactivation after failure. Use the **no** form of this command to delete the previous definition.

```
retry-limit { retries | infinite } [interval]  
no retry-limit
```

Syntax Description

<i>retries</i>	Number of reactivation attempts. The valid range is 0 to 255 (0 equals infinite retries). The default is 5.
infinite	Infinite retries.
<i>interval</i>	(Optional) Amount of time allowed between reactivation attempts (in seconds). The default is 30 seconds.

Defaults

The default number of retries is 5.

The default amount of time is 30 seconds.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command applies to all link stations accessed through this port. Specifying a retry limit at the link station level overrides this command.

Example

The following example specifies 25 retries:

```
appn port ETHER0 ethernet 0  
retry-limit 25  
complete
```

Related Commands

```
appn port  
show appn port
```

role (APPN link station)

Use the **role** APPN link station configuration command to specify the link station role used in XID negotiations. Use the **no** form of this command to delete a previous definition.

```
role {negotiable | primary | secondary}  
no role
```

Syntax Description

negotiable	The link station can be the primary or secondary end of the link station connection.
primary	The link station is the primary end of the link station connection.
secondary	The link station is the secondary end of the link station connection.

Default

The value specified in the **appn port** command.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command overrides the value specified on the port definition.

Example

The following example sets the role to primary:

```
appn link-station LINK44  
port ETHER1  
lan-dest-address 0200.98ab.de23  
role primary  
complete
```

Related Commands

appn link-station
show appn link-station

role (APPN port)

Use the **role** APPN port configuration command to specify the link station role used in XID negotiations for all link stations defined through this port. Use the **no** form of this command to delete a previous definition.

```
role {negotiable | primary | secondary}  
no role
```

Syntax Description

negotiable	The link station can be the primary or secondary end of the link station connection.
primary	The link station is the primary end of the link station connection.
secondary	The link station is the secondary end of the link station connection.

Default

The default role is **negotiable**.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command applies to all link stations accessed through this port. Specifying a role at the link station overrides this command.

Example

The following example sets the role to primary:

```
appn port FDDI0 fddi 0  
role primary  
complete
```

Related Commands

```
appn port  
show appn port
```

route-additional-resistance

Use the **route-additional-resistance** APPN control point configuration command to specify an arbitrary value for the local node. Use the **no** form of this command to delete the definition.

route-additional-resistance *number*
no route-additional-resistance

Syntax Description

number Arbitrary value in the range of 0 to 255. The default is 128.

Default

The default resistance value is 128.

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The route additional resistance value is included in topology updates and is used by network nodes to select a least-cost path associated with a particular class of service. You use this command to assign an arbitrary value and to indicate preference or nonpreference for particular nodes in route paths.

Example

The following example specifies a route additional resistance value of 200:

```
appn control-point CISCO.ROUTER
route-additional-resistance 200
complete
```

Related Commands

appn control-point
show appn node

rsrb-virtual-station

Use the **rsrb-virtual-station** APPN port configuration command to configure APPN for remote source-route bridging. Use the **no** form of this command to delete the configuration.

```
rsrb-virtual-station mac-address local-ring bridge-number target-ring  
no rsrb-virtual-station
```

Syntax Description

<i>mac-address</i>	Virtual MAC address on which APPN resides.
<i>local-ring</i>	Virtual ring number on which the APPN station resides. The valid range is 1 to 255.
<i>bridge-number</i>	Bridge number connecting the local virtual ring and the RSRB target virtual ring. The valid range is 1 to 15.
<i>target-ring</i>	Target ring through which the local ring bridges data. The valid range is 1 to 255.

Default

No defaults are defined.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example defines an APPN port that uses RSRB as a transport protocol:

```
appn port rsrb  
rsrb-virtual-station 1234.1234.1234 50 1 60  
complete
```

Related Commands

```
appn port  
show appn port
```


safe-store-host

Use the **safe-store-host** APPN control point configuration command to specify the IP host address and the file path for safe store. Use the **no** form of this command to delete the previous definition.

```
safe-store-host ip-address address directory path  
no safe-store-host
```

Syntax Description

ip-address <i>address</i>	Host IP address.
directory <i>path</i>	File path for safe store.

Default

No defaults are assigned.

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Some TFTP hosts might require you to create the file entries in advance. Refer to the **safe-store-cycle** command reference entry for the file naming convention.

Example

The following example specifies that the IP host address and the file path where the database will be stored:

```
appn control-point CISCO.APPN1  
safe-store-host ip-address 171.69.44.1 directory appnsafe  
safe-store-cycle 3  
complete
```

Related Command

appn control-point

safe-store-interval

Use the **safe-store-interval** APPN control point configuration command to specify how often the directory database is stored to permanent media. Use the **no** form of this command to delete the previous definition.

safe-store-interval *interval*
no safe-store-interval

Syntax Description

interval Interval in minutes between storage of the directory database to permanent media. The valid range is 0 to 32767 minutes. The default is 20 minutes.

Default

20 minutes

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command allows you to balance processor usage with potential performance savings. A longer interval reduces the processor cycles used to save data, but potentially reduces the validity of the data due to less frequent updates.

Example

The following example specifies that the database will be stored to permanent media every 30 minutes:

```
appn control-point CISCO.APPN1
safe-store-host ip-address 171.69.44.1 directory appnsafe
safe-store-interval 30
complete
```

Related Command

appn control-point

sdlc-dest-address

Use the **sdlc-dest-address** APPN link station configuration command to specify the local address of the partner node for nonswitched SDLC. Use the **no** form of this command to delete the definition.

sdlc-dest-address *address*
no sdlc-dest-address *address*

Syntax Description

address A 2-digit hexadecimal number in the range of 00 to FE.

Default

No default address is assigned.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command is optional if the interface type is switched SDLC. It is not allowed for other interface types.

Example

The following example assigns address F1:

```
appn link-station LINK12
port SDLC1
sdlc-dest-address f1
complete
```

Related Commands

appn link-station
show appn link-station

sdlc-sec-addr

Use the **sdlc-sec-addr** command to configure APPN for SDLC. Use the **no** form of this command to delete the configuration.

```
sdlc-sec-addr sdlc-address  
no sdlc-sec-addr
```

Syntax Description

sdlc-address SDLC secondary address. The valid range is 00 to FE (hexadecimal). The default is 00.

Default

The default address is 00.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Example

The following example defines a port with a local SDLC address of 2.

```
appn port serial 1  
sdlc-sec-addr 2  
complete
```

Related Commands

```
appn port  
show appn port
```

security (APPN link station)

Use the **security** APPN link station configuration command to specify the security level of the connection. Use the **no** form of this command to delete the previous definition.

security *security-level*
no security

Syntax Description

security-level

One of the following keywords: **nonsecure**, **public-switched**, **underground-cable**, **secure-conduit**, **guarded-conduit**, **encrypted**, **guarded-radiation**. The default is the value specified in the **appn port** command.

Default

The default value specified in the **appn port** command.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The security level is used in route selection.

Example

The following example sets the security level to encrypted:

```
appn link-station LINK12
security encrypted
complete
```

Related Commands

appn link-station
show appn link-station

security (APPN port)

Use the **security** APPN port configuration command to specify security level of the connection. Use the **no** form of this command to delete the previous definition.

security *security-level*
no security

Syntax Description

security-level

One of the following keywords: **nonsecure**, **public-switched**, **underground-cable**, **secure-conduit**, **guarded-conduit**, **encrypted**, **guarded-radiation**. The default is **nonsecure**.

Default

The default security is **nonsecure**.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The command applies to all link stations accessed through this port. Specifying security at the link station level overrides this command.

Example

The following command sets the security level to encrypted:

```
appn port TR0 tokenring 0
security encrypted
complete
```

Related Commands

appn port
show appn port

service-any

Use the **service-any** APPN port configuration command to specify that this port will create dynamic transmission groups for outbound or inbound links. Use the **no** form of this command to specify that the link station must be defined through configuration commands.

service-any
no service-any

Syntax Description

This command has no arguments or keywords.

Default

The default state is **service-any**.

Command Mode

APPN port configuration

Usage Guideline

This command first appeared in Cisco IOS Release 11.0.

Specifying **no service-any** serves as a security mechanism to control who may or may not connect to the local node.

Example

The following example deactivates service any:

```
appn port FDDI0 fddi0
no service-any
complete
```

Related Commands

appn port
show appn port

serving-nn

Use the **serving-nn** APPN partner LU location configuration command to specify the name of the network node server servicing the partner LU. Use the **no** form of this command to delete the definition.

```
serving-nn netid.cpname  
no serving-nn
```

Syntax Description

netid.cpname

Fully qualified network name. A fully qualified name is a string of 1 to 8 characters, a period, and another string of 1 to 8 characters. The following characters are acceptable:

A - Z, a - z

0 - 9

\$ # @

The first character of either string must not be a number. The default is the CP name of the local network node.

Default

The CP name of the local network node.

Command Mode

APPN partner LU location configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The **serving-nn** may be specified as null if the LU name is specified as null. This specification indicates a wildcard definition for all LUs.

Example

The following example specifies the name of the network node server for the partner LU CISCO.APPN1:

```
appn partner-lu-location CISCO.LU000012  
serving-nn CISCO.APPN1  
complete
```

Related Commands

```
appn partner-lu-location  
show appn directory
```

show appn class-of-service

Use the **show appn class-of-service** EXEC command to display the APPN classes of service defined to the local node.

show appn class-of-service [brief | detail]

Syntax Description

brief (Optional) A short display of APPN classes of service.

detail (Optional) A long display of APPN classes of service.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

Brief:

```

Number of class of service definitions          7
APPN Classes of Service
  Name      Trans. Pri.  Node Rows  TG Rows
-----
1> #CONNECT Medium          8         8
2> CPSVCMG  Network         8         8
3> SNASVCMG Network         8         8
4> #INTER   High          8         8
5> #INTERSC High          8         8
6> #BATCH   Low           8         8
7> #BATCHSC Low           8         8

```

Detail:

This example shows just one part of one table. There could be up to 8 node rows and 8 TGs and multiple tables. This shows, however, the correspondence between the configuration commands and **show** commands.

```

Number of class of service definitions          8
1> Class of service name                       #connect
  Transmission priority                       Medium
  Number of node rows                         8
  Number of TG rows                           8
1.1> Node row weight                           5
  Congestion min                             no
  Congestion max                             no
  Route additional resistance min              0
  Route additional resistance max             31
.

```

show appn class-of-service

```

1.1>TG row weight                               30
    Cost per connect time min                    0
    Cost per connect time max                    0
    Cost per byte min                            0
    Cost per byte max                            0
    Security min                                 Nonsecure
    Security max                                 Maximum security
    Propagation delay min                        0 microseconds (minimum)
    Propagation delay max                        384 microseconds (local area network)
    Effective capacity min                       4 megabits per second
    Effective capacity max                       604 gigabits per second
    User defined parameter 1 min                 0
    User defined parameter 1 max                 255
    User defined parameter 2 min                 0
    User defined parameter 2 max                 255
    User defined parameter 3 min                 0
    User defined parameter 3 max                 255

```

Table 46 Show APPN Class-of-Service Detail Field Descriptions

Field	Description
Class of service name	Administratively assigned name for this COS.
Transmission priority	Relative priority this COS will receive when transmitting out of this node.
Number of node rows	Number of node rows associated with this COS.
Node of TG rows	Number of TG rows associated with this COS.
Node row weight	Weight assigned to this node given the characteristics identified in the remainder of this row.
Congestion min	If set to "yes," this node row will be chosen only if the node is congested. If set to "no," this node row may be chosen if the node is congested. If the congestion maximum is set to "no," the congestion minimum must also be set to "no."
Congestion max	If set to "yes," this node row may be chosen if the node is congested. If set to "no," this node row will never be chosen for this COS.
Route additional resistance min	Minimum route additional resistance for this node row.
Route additional resistance max	Maximum route additional resistance for this node row.
TG row weight	Weight associated with this TG given the characteristics identified in the remainder of this row.
Cost per connect time min	Minimum acceptable value for cost per connect time for this TG row.
Cost per connect time max	Maximum acceptable value for cost per connect time for this TG row.
Cost per byte min	Minimum acceptable value for cost per byte for this TG row.
Cost per byte max	Maximum acceptable value for cost per byte for this TG row.
Security min	Minimum acceptable value for security for this TG row.
Security max	Maximum acceptable value for security for this TG row.
Propagation delay min	Minimum acceptable value for propagation delay for this TG row.
Propagation delay max	Maximum acceptable value for propagation delay for this TG row.
Effective capacity min	Minimum acceptable value for effective capacity for this TG row.
Effective capacity max	Maximum acceptable value for effective capacity for this TG row.
User defined parameter 1 min	Minimum value for a network-unique TG characteristic—parameter 1.

Table 46 Show APPN Class-of-Service Detail Field Descriptions (Continued)

User defined parameter 1 max	Maximum value for a network-unique TG characteristic—parameter 1.
User defined parameter 2 min	Minimum value for a network-unique TG characteristic—parameter 2.
User defined parameter 2 max	Maximum value for a network-unique TG characteristic—parameter 2.
User defined parameter 3 min	Minimum value for a network-unique TG characteristic—parameter 3.
User defined parameter 3 max	Maximum value for a network-unique TG characteristic—parameter 3.

Related Commands

appn class-of-service

class-of-service

show appn connection-network

Use the **show appn connection-network** EXEC command to display the APPN connection networks defined to the local node.

show appn connection-network [brief | detail]

Syntax Description

- brief** (Optional) A short display of APPN connection networks.
- detail** (Optional) A long display of APPN connection networks.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

Brief:

```

Connection network definitions                2
  APPN Connection Networks
  Resource Name      Attached Ports  First Port Name
  -----
1> NETA.CN           2          TR0
                   ABCDEFGH
2> NETADDDD.WWWEEEE 1          TR0
    
```

Detail:

```

Connection network definitions                1

1>Connection network name                    NETA.CONNECT
  Effective capacity                          15974400 bits per second
  Cost per connect time                       0
  Cost per byte                               0
  Propagation delay                          384 microseconds (local area network)
  User defined parameter 1                   128
  User defined parameter 2                   128
  User defined parameter 3                   128
  Security                                    Nonsecure
  Attached ports                              1

1.1>Port name                                TR0
    
```

Table 47 Show APPN Connection-Network Detail Field Descriptions

Field	Description
Connection network name	Fully qualified name of the connection network.
Effective capacity	Bit rate for the connection network.
Cost per connect time	Relative cost of this connection network's TG.
Cost per byte	Cost-per-byte of transmitting a byte over this TG.
Propagation delay	Inherent delay of the connection network
User defined parameter 1	Value for a network-unique TG characteristic — parameter 1.
User defined parameter 2	Value for a network-unique TG characteristic — parameter 2.
User defined parameter 3	Value for a network-unique TG characteristic — parameter 3.
Security	Security level for this connection network.
Attached ports	Number of ports associated with the connection network.
Port Name	Port supporting this connection network.

Related Command**appn connection-network**

show appn directory

Use the **show appn directory** EXEC command to display the contents of the APPN directory database.

show appn directory [**name** *cp-name*] [**brief** | **detail**]

Syntax Description

- name** *cp-name* (Optional) Filter by fully qualified CP name.
- brief** (Optional) A short display of the APPN directory database.
- detail** (Optional) A long display of the APPN directory database.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

Brief:

```

Total directory entries                    5
APPN Directory Entries
Resource Name      Owning CP Name      NN Server      Entry Type
-----
1> NETA.BART       NETA.BART             NETA.BART     Register
2> NETA.DUMB       NETA.MARGE            NETA.BART     Register
3> NETA.DUMBER     NETA.MARGE            NETA.BART     Register
4> NETA.DUMBEST    NETA.MARGE            NETA.BART     Register
5> NETA.MARGELU1   NETA.MARGE            NETA.BART     Register
    
```

Detail:

The following examples show very small directories, but point out key characteristics of the displays.

In this example, the LU was added to the directory through registration when resources were activated.

```

Total directory entries                    2
Network node entries                      1

1>Network node CP name                    CISCO.BARNEY
   Number of associated LUs                1

1.1>LU name                               CISCO.MARGELU1
   Owning CP name                          CISCO.MARGE
   LU entry type                            Register
    
```

```

Local and adjacent node entries      0
Local and adjacent node entries      0

```

This example shows whether the downstream resources had asked to be registered in the Central Directory Service (CDS).

```

Total directory entries              2

1>LU name                            NETA.ROUTER1
   Owing CP name                      NETA.ROUTER1
   Network node CP name               NETA.ROUTER1
   LU entry type                      Registered
   CRR/CDS requested                  Yes

2>LU name                            NETA.ROUTER2
   Owing CP name                      NETA.ROUTER2
   Network node CP name               NETA.ROUTER2
   LU entry type                      Registered
   CRR/CDS requested                  Yes

```

Table 48 Show APPN Directory Detail Field Descriptions

Field	Description
LU name	LU name belonging to the Network node.
Owing CP name	Control point owning this partner LU.
Network node CP name	Fully qualified name of the resource entry
Number of associated LUs	Number of LUs associated with the above CP.
LU entry type	Type of entry this LU is in the directory database.
CRR/CDS requested	Indicator that downstream resources asked to be registered in the central directory server. By default, the central resource registration is enabled in the router such that registration of downstream resources in the central directory server will be attempted by the router when it receives a request.

Related Commands

appn partner-lu-location
central-resource-registration

show appn dlur-lu

Use the **show appn dlur-lu** EXEC command to display all active SSCP dependent LUs known to DLUR.

show appn dlur-lu [*pu pu-name*] [**brief** | **detail**]

Syntax Description

pu <i>pu-name</i>	An 8-character Type-A string of a specific PU.
brief	(Optional) A short display of the APPN directory database.
detail	(Optional) A long display of the APPN directory database.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

Brief:

```

APPN DLUR-LU:
  LU Name      PU Name      DLUS Name      PLU Name
  -----      -
1> SJDRLU11    BEAGLE        NETA.CPAC      NETA.TSO0005
    
```

Detail:

```

LU name                SJDRLU11
PU name                BEAGLE
Dependent LU Server Name NETA.CPAC
LU location            Remote
NAU address            2
PLU name                NETA.TSO0005
    
```

Table 49 Show APPN DLUR-LU Field Descriptions

Field	Description
LU name	Logical unit name of the active SSCP dependent LUs supported by DLUR.
PU name	Physical unit name of the active SSCP dependent LU.
DLUS name	Fully qualified name of the DLUS providing SSCP services for the SSCP dependent LU.
LU location	Always identifies the LUs as remote LUs.
NAU address	Network addressable unit of the LU.
PLU name	When the SSCP dependent LU has an active session, the name of the primary LU name will be displayed.

Related Commands

backup-dlus (APPN control point)

dlur

dlus (APPN control point)

show appn dlur-pu

show appn dlus

show appn dlur-pu

Use the **show appn dlur-pu** EXEC command to display all active SSCP dependent PUs known to DLUR.

show appn dlur-pu [*dlus dlus-name*] [**brief** | **detail**]

Syntax Description

- dlus dlus-name** (Optional) A 17-character Type-A string of a specific DLUS.
- brief** (Optional) A short display of the APPN directory database.
- detail** (Optional) A long display of the APPN directory database.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

Brief:

```
APPN DLUR-PU:
  PU Name   Active DLUS   Defined DLUS   Backup DLUS
-----
1> BEAGLE   NETA.CPAC
```

Detail:

```
PU name                BEAGLE
Defined DLUS name
Backup DLUS name
Physical unit (PU) Node ID    05D00010
PU location              Downstream
Active DLUS name          NETA.CPAC
ANS support              Continue
PCID                    D6DB11281AF90044
Fully qualified CP name    NETA.WONDER
```

Table 50 Show APPN DLUR-PU Detail Field Descriptions

Field	Description
PU name	Physical unit name of active SSCP dependent PUs.
Defined DLUS name	DLUS name specified with the dlus (APPN link station) configuration command.
Backup DLUS name	DLUS name specified with the backup-dlus (APPN link station) configuration command.
PU Node ID	IDBLK and IDNUM of the PU.
PU Location	Always identifies the PU as downstream.
Active DLUS name	Fully qualified name of the DLUS providing SSCP services for the PU.
ANS support	Identifies whether DLUR will keep active LU-LU sessions (Continue) when the connection to the DLUS is lost or whether DLUR will tear down active LU-LU sessions (Stop).
PCID	Procedure correlation identifier used to distinguish encapsulated traffic associated with this PU.
Fully qualified CP name	Fully qualified CP name of the CP which generated the PCID above.

Related Commands

backup-dlus (APPN control point)

dlur

dlus (APPN control point)

show appn dlur-lu

show appn dlus

show appn dlus

Use the **show appn dlus** EXEC command to display all LUs known to DLUR.

show appn dlus [brief | detail]

Syntax Description

brief (Optional) A short display of the APPN directory database.

detail (Optional) A long display of the APPN directory database.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

Brief:

```

APPN DLUS:
      DLUS Name   State   # Active PUs
      -----   -
1> NETA.CPAC    ACTIVE           1
    
```

Detail:

```

Dependent LU Server Name           NETA.CPAC
Is this default DLUS?              Yes
Is this default backup DLUS?       No
Pipe State                          Active
Number of active PUs                1
Pipe statistics
# of REQACTPU requests sent         1
# of REQACTPU responses received    1
# of ACTPU requests received        1
# of ACTPU responses sent           1
# of REQDACTPU requests sent        0
# of REQDACTPU responses received   0
# of DACTPU requests received       0
# of DACTPU responses sent          0
# of ACTLU requests received        1
# of ACTLU responses sent           1
# of DACTLU requests received       0
# of DACTLU responses sent          0
# of SSCP_PU MUs received           0
# of SSCP_PU MUs sent               0
# of SSCP_LU MUs received           4
# of SSCP_LU MUs sent               5
    
```

Table 51 Show APPN DLUS Detail Field Descriptions

Field	Description
DLUS name	Fully qualified DLUS name.
default DLUS	Identifies the DLUS as the node default DLUS.
default backup DLUS	Identifies the DLUS as the node backup default DLUS.
Pipe State	Identifies the state of the DLUS-DLUR connection.
Number of active PUs	Total number of active PUs.
REQACTPU sent/rcvd	Number of REQACTPU requests sent to the DLUS and the number of REQACTPU responses received from DLUS.
ACTPU rcvd/sent	Number of ACTPU responses sent to the DLUs and the number of ACTPU requests received from the DLUS.
REQDACTPU rcvd/sent	Number of REQDACTPU requests sent to the DLUS and the number of REQDACTPU responses received from the DLUS.
DACTPU sent/rcvd	Number of DACTPU responses sent to the DLUS and the number of DACTPU requests received from the DLUS.
ACTLU rcvd/sent	Number of ACTLU responses sent to the DLUS and the number of ACTLU requests received from the DLUS.
DACTLU rcvd/sent	Number of DACTLU responses sent to the DLUS and the number of DACTLU requests received from the DLUS.
SSCP PU MUs rcvd/sent	Number of SSCP PU MUs sent and received from the DLUS.
SSCP LU MUs rcvd/sent	Number of SSCP LU MUs sent and received from the DLUS.

Related Commands**backup-dlus (APPN control point)****dlur****dlus (APPN control point)**

show appn intermediate-session

Use the **show appn intermediate-session** EXEC command to display information about the SNA sessions that are currently being routed through the local node.

show appn intermediate-session [**pcid** *pcid*] [**name** *lu-name*] [**brief** | **detail**]

Syntax Description

pcid <i>pcid</i>	(Optional) Filter by procedure correlation identifier (PCID). PCID is a 16-byte hexadecimal number.
name <i>lu-name</i>	(Optional) Filter by fully qualified LU name.
brief	(Optional) A short display of APPN intermediate session information.
detail	(Optional) A long display of APPN intermediate session information.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0. The following keywords and arguments first appeared in Cisco IOS Release 11.1: **pcid** *pcid*, **uname** *lu-name*.

Sample Displays

Brief:

```

Number of intermediate sessions          1
APPN Intermediate Sessions
  PCID (hex)      Primary LU Name      Secondary LU Name      Mode      COS
  -----
1> C6D328B0922EE4FF  NETA.MARGE      NETA.APU              #INTER    #INTER
    
```

Detail:

```

Number of intermediate sessions          2

1>Procedure correlator ID (PCID) X'SS3321E8934CF101'
Primary LU name NETA.LISA
Secondary LU name NETA.BART
Mode name #INTER
Class of service name #INTER
Primary side adjacent CP name           NETA.PATY
Secondary side adjacent CP name         CISCO.MARGE
Primary side link name                   PATY
Secondary side link name                 MARGE
PCID generator CP name                   NETA.PATY
    
```

```

2>Procedure correlator ID (PCID) X'DD3321E8944CF101'
Primary LU Name NETA.LISA
Secondary LU Name NETA.BART
Mode name SNASVCMG
Class of service name SNASVCMG
Primary side adjacent CP name          NETA.PATY
Secondary side adjacent CP name        CISCO.MARGE
Primary side link name                  PATTY
Secondary side link name                MARGE
PCID generator CP name                  NETA.PATY

```

Table 52 Show APPN Intermediate-Session Detail Field Descriptions

Field	Description
Procedure correlator ID (PCID)	PCID for this session.
Primary LU name	Primary LU name for this session.
Secondary LU name	Secondary LU name for this session.
Mode name	Mode used by this session.
Class of service name	Class of service used by this session.
Primary side adjacent CP name	Fully qualified name of the adjacent CP on the primary side.
Secondary side adjacent CP name	Fully qualified name of the adjacent CP on the secondary side.
Primary side link name	Link name used on the primary side.
Secondary side link name	Link name used on the secondary side.
PCID generator CP name	Fully qualified CP name that generated the PCID.
Session interrupt switched	Specifies is this session is processed at interrupt-level.

Related Command**show appn connection-network**

show appn link-station

Use the **show appn link-station** EXEC command to display information about the APPN link stations active on or defined to the local node.

show appn link-station [**name** *link-station-name*] [**port** *port-name*] [**brief** | **detail**]

Syntax Description

name <i>link-station-name</i>	(Optional) Filter by link station name.
port <i>port-name</i>	(Optional) Filter by port name.
brief	(Optional) A short display of active APPN links. Brief is the default display.
detail	(Optional) A long display of active APPN links with more information.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0. The following keywords and options first appeared in Cisco IOS Release 11.1: **name** *link-station-name*, **port** *port-name*.

Sample Displays

Brief:

```

Number of active links 1
APPN Logical Links
  Link Name  State      Port Name  Adjacent CP Name  Node Type
  -
1> @LS00001  Active    VDLC       NETA.APU          Learn
2> HOST      Inactive  FDDIO
3> DOWNSTR  Inactive  RSRB
4> HOMER    Inactive  FDDIO          Learn
    
```

Detail:

```

Number of active links          1

1>Link name                      @LS00001
  Port name                      VDLC
  Interface name                 VDLC100
  Destination DLC address (remote SAP) 1111.2222.3333 (04)
  Link state                     Active
  Deactivating link              No
  Max frame data (BTU) size      0
  Adjacent node CP name          NETA.APU
    
```

Adjacent node type	End node
CP-CP session support	Yes
Link station role	negotiable
Line type	Shared access transport facility
Transmission group number	0
Effective capacity	100000000 bits per second
Cost per connect time	0
Cost per byte	0
Propagation delay	384 microseconds (local area network)
User defined parameter 1	128
User defined parameter 2	128
User defined parameter 3	128
Security	Nonsecure

Table 53 Show APPN Link-Station Field Descriptions

Field	Description
Link name	Name of the link station.
Port name	Port this link station is using.
Interface name	Interface used by this link.
Destination DLC address (remote SAP)	DLC address of the partner node and its SAP.
Link Activated	Specifies which node activated this link.
Link state	State of the link.
Deactivating link	Indicates if the link is deactivating.
Max frame data (BTU) size	Maximum BTU size this link can support.
Adjacent node CP name	Name of the partner node for the link station.
Adjacent node type	Node type of the partner node of this link.
CP-CP session support	Specifies whether CP-CP sessions can be supported.
Link station role	Specifies the role the link uses in XID negotiation.
Line type	Specifies the line type.
Transmission group number	TG assigned to this link.
Effective capacity	Bit rate of this link.
Cost per connect time	Relative cost of this link.
Cost per byte	Cost-per-byte of transmitting a byte over this link.
Propagation delay	Specifies the inherent delay of the link.
User defined parameter 1	Value for a network-unique TG characteristic — parameter 1.
User defined parameter 2	Value for a network-unique TG characteristic — parameter 2.
User defined parameter 3	Value for a network-unique TG characteristic — parameter 3.
Security	Security level of the link.

Related Command

appn link-station

show appn mode

Use the **show appn mode EXEC** command to display information about the APPN modes defined to the local node.

show appn mode

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Display

```
Number of modes                               8
APPN Modes
Name      Associated COS
-----
1>        #CONNECT
2> #BATCH  #BATCH
3> #BATCHSC #BATCHSC
4> #INTER  #INTER
5> #INTERSC #INTERSC
6> CPSVCMG CPSVCMG
7> SNASVCMG SNASVCMG
8> CPSVRMGR SNASVCMG
```

Table 54 Show APPN Mode Field Descriptions

Field	Description
Name	Mode name.
Associated COS	Class of service this mode maps to.

Related Command

appn mode

show appn node

Use the **show appn node** EXEC command to display information about the local APPN control point.

show appn node

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Display

```

Network name                CISCO
Control point (CP) name     BARNEY
Node ID (for XID)          X'07700000'
Route additional resistance  128
Maximum directory cache entries 255
Current directory cache entries 0
Directory save interval    20

```

Table 55 Show APPN Node Field Descriptions

Field	Description
Network name	Network name for this node.
Control point (CP) name	Control point name for this node.
Node ID (for XID)	8-digit hexadecimal node ID value for this node.
Route additional resistance	Arbitrary value associated with the cost of sessions passing through this node.
Maximum directory cache entries	Maximum number of cached directory entries.
Current directory cache entries	Current number of cached directory entries
Directory save interval	Time (in minutes) between directory safe stores.

Related Command

appn control-point

show appn port

Use the **show appn port** EXEC command to display information about the APPN ports active on the local node.

show appn port [**port** *port-name*] [**brief** | **detail**]

Syntax Description

- port** *port-name* (Optional) Filter by port name.
- brief** (Optional) A short display of APPN port definitions.
- detail** (Optional) A long display of APPN port definitions.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0. The **port** keyword first appeared in Cisco IOS Release 11.1.

Sample Displays

Brief:

```

Number of ports                               2
APPN Ports
  Name      State      SAP  Interface
  -----  -
1> TR0      Active     x04  TokenRing0
2> ABCDEFGH Active     x04  Ethernet0
    
```

Detail:

```

Number of ports                               2

1>Port name                                   FDDI0
  Interface name                             Fddi0
  Port State                                  Active
  SAP                                          X'04'
  Link station role                           Negotiable
  Line type                                    Shared access transport facility
  Limited resource                            No
  Limited resource timeout                    0
  Max frame data (BTU) size                   521
  Maximum link stations                       0
  Asynchronous balanced mode                 No
  Effective capacity                          100000000 bits per second
  Cost per connect time                       0
  Cost per byte                               0
  Propagation delay                           384 microseconds (local area network)
    
```

```

User defined parameter 1      0
User defined parameter 2      0
User defined parameter 3      0
Security                       Nonsecure

```

Table 56 Show APPN Port Detail Field Descriptions

Field	Description
Port name	Name of this port.
Interface name	Interface used by this port
Port State	Current state of this port.
SAP	Default service access point for links on this port.
Link station role	Specifies the role link stations use in XID negotiation.
Line type	Specifies the line type.
Limited resource	Specifies if links on this port should be taken down when no sessions are using the link.
Limited resource timeout	Time (in seconds) before the links on this port will be taken down if there are no sessions.
Max frame data (BTU) size	Maximum BTU size for links on this port.
Maximum link stations	Maximum number of link stations allowed on this port.
Asynchronous balanced mode	Specifies whether or not asynchronous balanced mode is supported.
Effective capacity	Bit rate of this port.
Cost per connect time	Relative cost of the links on this port.
Cost per byte	Cost-per-byte of transmitting a byte over the links on this port.
Propagation delay	Specifies the inherent delay of the port.
User defined parameter 1	Value for a network-unique TG characteristic — parameter 1.
User defined parameter 2	Value for a network-unique TG characteristic — parameter 2.
User defined parameter 3	Value for a network-unique TG characteristic — parameter 3.
Security	Security level of this port.

Related Command**appn port**

show appn session

Use the **show appn session** EXEC command to display information about the SNA LU 6.2 sessions, such as CP-CP sessions, that originate from the local node.

show appn session [*pcid pcid*] [*name lu-name*] [**brief** | **detail**]

Syntax Description

pcid <i>pcid</i>	(Optional) Filter by PCID. PCID is a 16-byte hexadecimal number.
name <i>lu-name</i>	(Optional) Filter by fully qualified LU name.
brief	(Optional) A short display of APPN session information.
detail	(Optional) A long display of APPN session information.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0. The following keywords and arguments first appeared in Cisco IOS Release 11.1: **pcid** *pcid*, **name** *lu-name*.

Sample Displays

Brief:

```

Number of sessions                               4
APPN Endpoint Sessions
  PCID (hex)      Local LU Name      Partner LU Name      Mode      COS
  -----
1> C6D328B0912EE4FF  NETA.BART      NETA.MARGE      CPSVCMG  CPSVCMG
2> F1DBABC818AB53AC  NETA.BART      NETA.APU        CPSVCMG  CPSVCMG
3> F37F3BE237DE7242  NETA.BART      NETA.MARGE      CPSVCMG  CPSVCMG
4> F37F3BE237DE7243  NETA.BART      NETA.APU        CPSVCMG  CPSVCMG
    
```

Detail:

```

Number of sessions                               6

1>LU name                                         CISCO.BARNEY
  Partner LU name                               NETA.HOMER
  Mode name                                      CPSVCMG
Class of service name CPSVCMG
  Link name                                      FHOMER
  Send maximum RU size                          512
  Receive maximum RU size                      512
  Send pacing window                           2
  Receive pacing window                        9
    
```

```

Pacing type                               Adaptive
Outbound destination address (DAF)        X'00'
Outbound origin address (OAF)             X'02'
OAF-DAF assignor indicator (ODAI)         B'1'
Procedure correlator ID (PCID)            X'E48712C9077C03C3'
PCID generator CP name                     NETA.HOMER
Session ID                                 X'00000000007ED384'
Conversation group ID                       X'00000022'

2>LU name                                  CISCO.BARNEY
  Partner LU name                          NETA.HOMER
  Mode name                                 CPSVCMG
Class of service name CPSVCMG
  Link name                                 FHOMER
Send maximum RU size 512
  Receive maximum RU size                   512
  Send pacing window                        2
  Receive pacing window                     8
Pacing type                                 Adaptive
Outbound destination address (DAF)        X'02'
Outbound origin address (OAF)             X'00'
OAF-DAF assignor indicator (ODAI)         B'0'
Procedure correlator ID (PCID)            X'CDEFA1343053A784'
PCID generator CP name                     CISCO.BARNEY
Session ID                                 X'00000000007ED368'
Conversation group ID                       X'00000023'

```

Table 57 Show APPN Session Detail Field Descriptions

Field	Description
LU name	Fully qualified name of the local LU.
Partner LU name	Fully-qualified name of the partner LU.
Mode name	Mode used by this session.
Class of service name	Class of service used by this session.
Link name	Link this session traverses.
Send maximum RU size	Maximum RU size that can be sent on this sessions.
Receive maximum RU size	Maximum RU size that can be received on this session.
Send pacing window	Current send pacing window size.
Receive pacing window	Current receive pacing window size.
Pacing type	Type of pacing used by this session.
Outbound destination address (DAF)	Session routing destination address.
Outbound origin address (OAF)	Session routing origin address.
OAF-DAF assignor indicator (ODAI)	Defines which session partner chose the addresses (DAF and OAF) for a session. Together with the DAF and OAF values, the ODAI forms the local form session identifier (LFSID). The DAF and OAF values used in the transmission header (TH) in one direction are reversed in the other direction.
Procedure correlator ID (PCID)	PCID used by this session.
PCID generator CP name	Fully qualified CP name which generated this PCID.
Session ID	Local session ID.
Conversation group ID	Conversation group ID for this session.

show appn topology

Use the **show appn topology** EXEC command to display the contents of the APPN topology database.

show appn topology [**name** *cp-name*] [**brief** | **detail**]

Syntax Description

- name** *cp-name* (Optional) Filter by fully qualified CP name.
- brief** (Optional) A short display of APPN topology information.
- detail** (Optional) A long display of APPN topology information.

Default

The default is **brief**.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

This command shows the information contained in the topology databases. Note that CISCO.BARNEY has two TGs connected: one to CISCO.HOMER, which is a network node and stored in the network topology, and one to CISCO.PATTY, which is stored in the local topology. There would be additional entries for other network nodes and TGs in the network to provide the complete network topology.

Brief:

```

Number of network nodes                3
APPN Topology Entries
Resource Name      Type      TG#  Dest. Node      TG Type  TG Status
-----
1> NETA.BARNEY    Network Node
  1>                0  NETA.CN         Intermed  Active
  2>                0  NETA.CN1        Intermed  Active
  3>                21 NETA.R2CP0389   Intermed  Active
  4>                21 NETA.BART       Intermed  Active
    
```

Detail:

```

Number of network nodes                2

1>Network node CP name                  CISCO.BARNEY
Node type Network Node
Route additional resistance              128
Congested?                              No
Quiescing?                              No
ISR depleted?                            No
    
```

```

Number of TGs                2

1.1>TG partner CP name      CISCO.HOMER
  Transmission group number  21
  TG partner node type      real
Tg Type Intermediate Routing
TG Status Active
  Quiescing?                No
  Topology                   Network
  Effective capacity         98 megabits per second
  Cost per connect time     0
  Cost per byte              0
  Propagation delay         384 microseconds
  User defined parameter 1  128
  User defined parameter 2  128
  User defined parameter 3  128
  Security                   Nonsecure

```

Table 58 Show APPN Topology Field Descriptions

Field	Description
Network node CP name	Fully qualified name of the resource.
Node type	Resource type of this node.
Route additional resistance	Arbitrary number associated with the cost of using this node.
Congested?	Specifies whether or not the node is capable of processing requests.
Quiescing?	Specifies whether or not the node is stopping.
ISR depleted?	Specifies whether or not the node is capable processing additional ISR requests.
Number of TGs	Number of TGs associated with the network node.
TG partner CP name	Partner node's fully-qualified name.
Transmission group number	Transmission group number.
TG partner node type	Resources type for the partner of this TG.
TG Type	Type of TG: Intermediate or Endpoint.
TG Status	Status of the transmission group.
Quiescing?	Specifies whether or not the TG is in the process of stopping
Topology	Topology type: local or network.
Effective capacity	Bit rate of the TG.
Cost per connect time	Relative cost of the TG.
Cost per byte	Cost-per-byte of transmitting a byte over the TG.
Propagation delay	Specifies the inherent delay of the TG.
User defined parameter 1	Value for a network-unique TG characteristic—parameter 1.
User defined parameter 2	Value for a network-unique TG characteristic—parameter 2.
User defined parameter 3	Value for a network-unique TG characteristic—parameter 3.
Security	Security level of the TG.

Related Command**show appn connection-network**

smds-dest-address

Use the **smds-dest-address** APPN link station configuration command to specify the SMDS address of the partner node. Use the **no** form of this command to delete the definition.

```
smds-dest-address smds-addr [sap]  
no smds-dest-address
```

Syntax Description

<i>smds-addr</i>	8-byte hexadecimal number in the form HD.DD.DD.HH.
<i>sap</i>	1-byte hexadecimal number in the range 04 to EC, and divisible by 4.

Defaults

No default *smds-addr* is specified.

The default SAP is 04 (hexadecimal).

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1.

This command is required for interface types Token Ring, Ethernet, or FDDI. It is not allowed for other interface types.

Example

The following example sets the MAC address and SAP for a link to a partner node:

```
appn link-station LINK0001  
port ETHER1  
smds-dest-address 11.22.33.44 08  
complete
```

Related Commands

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

```
appn link-station  
fr-dest-address  
sdlc-dest-address  
show appn link-station  
smds address †
```


tg-row

Use the **tg-row** APPN class of service configuration command to specify a transmission group description, or transmission group row, and associated weight for the row. Use the **no** form of this command to delete the previous definition.

```

tg-row index weight weight byte min max time min max capacity min max delay min max
security min max user1 min max user2 min max user3 min max
no tg-row index
    
```

Syntax Description

<i>index</i>	Specifies which row is being entered. The valid range is 1 to 8.
weight <i>weight</i>	Weight assigned to a transmission group, given the characteristics defined in the remainder of the row.
byte <i>min max</i>	Minimum and maximum cost-per-byte values, compared with the cost-per-byte command on the port or link station command.
time <i>min max</i>	Minimum and maximum cost-per-connect-time values, compared with the cost-per-connect-time command on the port or link station command.
capacity <i>min max</i>	Minimum and maximum capacity values, compared with the effective-capacity command on the port or link station command.
delay <i>min max</i>	Two values compared with the propagation-delay command.
security <i>min max</i>	Value compared with the security command. The minimum and maximum are specified with one the defined values, in ascending order:
user1 <i>min max</i>	Number in the range 1 to 255.
user2 <i>min max</i>	Number in the range 1 to 255.
user3 <i>min max</i>	Number in the range 1 to 255.

Default

There is no default provided. A minimum of one transmission group row must be provided or the configuration will fail.

Command Mode

APPN class of service configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The characteristics of transmission groups in the topology database are compared to the characteristics in each row. A weight is assigned which determines a low-cost route for a session. You can define from one to eight transmission group rows.

Example

The following example defines an APPN class of service with one transmission group row:

```
appn class-of-service #SECURE
node-row 1 weight 5 congestion no no route-additional-resistance 0 255
tg-row 1 weight 30 byte 0 255 time 0 255 capacity 0 255 delay 0 255 security 200 255 user1
0 255 user2 0 255 user3 0 255
complete
```

Related Commands

appn class-of-service

show appn class-of-service

transmission-priority

Use the **transmission-priority** APPN class of service configuration command to specify the transmission priority for the class of service. Use the **no** form of this command to delete the previous definition.

transmission priority *priority*
no transmission priority

Syntax Description

priority One of the following keywords: **network**, **high**, **medium**, **low**.

Default

The default priority is **medium**.

Command Mode

APPN class of service configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The value **network** is reserved for control traffic and cannot be specified for LU-LU sessions. High, medium, and low reflect the priority that traffic for an individual application should receive when congestion begins to build and queues form.

Example

The following example defines an APPN class of service with a transmission priority of high:

```
appn class-of-service #SECURE
transmission-priority high
node-row 1 weight 5 congestion no no route-additional-resistance 0 255
tg-row 1 weight 30 byte 0 255 time 0 255 capacity 0 255 delay 0 255 security 200 255 user1
0 255 user2 0 255 user3 0 255
complete
```

Related Commands

appn class-of-service
show appn class-of-service

vdlc

Use the **vdlc** APPN port configuration command to identify which ring group the APPN VDLC port uses and, optionally, which virtual MAC address is used as the local MAC address identifying this APPN port. Use the **no** form of this command to delete the configuration.

```
vdlc ring-group [vmac vdlc-mac-address]  
no vdlc ring-group [vmac vdlc-mac-address]
```

Syntax Description

<i>ring-group</i>	Ring group number matching the number you specified with the source-bridge ring-group command. The valid range is 1 to 4095.
vmac <i>vdlc-mac-address</i>	(Optional) Virtual MAC address used as the local MAC address identifying this APPN port.

Default

No defaults are defined.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Use the **appn port vdlc** command to define a VDLC port before using the **vdlc** command.

The virtual MAC address must be defined in either the **source-bridge ring-group** command or in the **vdlc** command. If a virtual MAC address is defined in the **source-bridge ring-group** command, providing a virtual MAC address in the **vdlc** command is optional.

To avoid an address conflict on the virtual MAC address, use a locally-administered address in the form 4000.xxx.xxxx.

Examples

The following example defines an APPN port that uses VDLC. The **vdlc** subcommand specifies both the ring group (100) and the virtual MAC address (4000.3745.0000) to be used as the local MAC address identifying this port.

```
appn port VDLCPORT vdlc  
vdlc 100 vmac 4000.3745.0000  
complete
```

The following example defines an APPN port that uses VDLC. The MAC address to be used as the local MAC address identifying this virtual port is the MAC address specified in the **source-bridge ring-group** command. The **vdlc** subcommand only specifies the ring group.

```
source-bridge ring-group 100 4000.3745.0000
dlsw local-peer peer-id 172.18.3.111
dlsw remote-peer 0 tcp 172.18.3.125
!
interface ethernet 0
 ip address 172.18.3.111 255.255.255.0
 loopback
 media-type 10BaseT
!
interface TokenRing 0
 no ip address
 ring-speed 16
!
appn control-point NETA.BART
 complete
!
appn port VDLC vdlc
 vdlc 100
 complete
!
appn port TR0 TokenRing 0
 complete
```

Related Commands

appn port

show appn port

verify-adjacent-node-type

Use the **verify-adjacent-node-type** APPN link station configuration command to specify that the adjacent node type must be verified as a requirement of link activation. Use the **no** form of this command to delete the definition.

```
verify-adjacent-node-type {learn | len | nn}  
no verify-adjacent-node-type
```

Syntax Description

learn	Any adjacent node type is accepted.
len	Only LEN adjacent node type is accepted.
nn	Only NN adjacent node type is accepted.

Default

The default node type is **learn**.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

If the adjacent node type is LEN, the **cp-cp-sessions-supported** command must specify no.

If the adjacent node type is LEN, the **adjacent-cp-name** must be specified.

There is no verification for type EN.

Example

The following example specifies that any adjacent node type is accepted:

```
appn link-station NN4  
port ETHER1  
lan-dest-address 0200.5672.3212  
verify-adjacent-node-type nn  
complete
```

Related Commands

```
appn link-station  
show appn link-station
```

wildcard

Use the **wildcard** APPN partner LU location configuration command to specify this entry as a “wildcard.” Use the **no** form of this command to delete the previous definition.

wildcard
no wildcard

Syntax Description

This command has no arguments or keywords.

Default

The default state is **no wildcard**.

Command Mode

APPN partner LU location configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

A wildcard entry serves any LU whose name matches the configured name up to the length of the configured name. Without an LU name and wildcard specified, the entry services all LUs.

Example

The following example defines a wildcard that represents any LU that starts with LU2, such as LU21, LU221, LU234, and so on:

```
appn partner-lu-location LU2
owning-cp CISCO.CP2
wildcard
complete
```

Related Commands

appn partner-lu-location
show appn directory

x25-dest-address

Use the **x25-dest-address** APPN link station configuration command to specify the local address of the partner node for QLLC. Use the **no** form of this command to delete the specification.

```
x25-dest-address [pvc | svc] address  
no x25-dest-address
```

Syntax Description

pvc	(Optional) Uses X.25 permanent virtual circuit.
svc	(Optional) Uses X.25 switched virtual circuit.
<i>address</i>	X.25 destination link station address.

Default

No default address is specified.

Command Mode

APPN link station configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The *address* argument must be a valid X.121 address. This address must match that assigned by the X.25 network service provider.

Example

The following example configures the X.25 destination address:

```
appn link-station QLLC  
port QLLC1  
x25-dest-address 170090  
complete
```

Related Commands

```
appn link-station  
show appn link-station
```

x25-subaddress

Use the **x25-subaddress** APPN port configuration command to configure APPN over QLLC. Use the **no** form of this command to delete the configuration.

```
x25-subaddress [pvc | svc] address  
no x25-subaddress
```

Syntax Description

pvc	(Optional) Uses X.25 permanent virtual circuit.
svc	(Optional) Uses X.25 switched virtual circuit.
<i>address</i>	X.25 subaddress from which data is received.

Default

No default address is assigned.

Command Mode

APPN port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The *address* argument must be a valid X.121 address. This address must match that assigned by the X.25 network service provider.

Example

The following example configures the X.25 subaddress from which data is received:

```
appn port QLLC1 Serial0/1  
x25-subaddress svc 0001121  
complete
```

Related Commands

```
appn port  
show appn port
```

xid-block-number

Use the **xid-block-number** APPN control point configuration command to specify the first three digits of the node identifier for the local node. Use the **no** form of this command to delete the definition.

xid-block-number *number*
no xid-block-number

Syntax Description

number Three-digit hexadecimal number in the range 000 to FFF. The default is 077.

Default

The default is 077 (hexadecimal).

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

A unique ID is required for links to older versions of VTAM.

Example

The following example specifies XID block number 456:

```
appn control-point CISCO.ROUTER
xid-block-number 456
complete
```

Related Commands

appn control-point
show appn node

xid-id-number

Use the **xid-id-number** APPN control point configuration command to specify the last five digits of the node ID for the local node. Use the **no** form of this command to delete the previous definition.

xid-id-number *number*
no xid-id-number

Syntax Description

number Five-digit hexadecimal number in the range 00000 to FFFFF.

Default

The default is 00000 (hexadecimal).

Command Mode

APPN control point configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

The XID ID and block numbers are included in XID exchanges and alert information, and are required for communicating with older versions of VTAM.

Example

The following example specifies XID ID number 0cab7:

```
appn control-point CISCO.ROUTER
xid-id-number 0cab7
complete
```

Related Commands

appn control-point
show appn node