C H A P T E R 1

Novell IPX Commands

This chapter describes the commands used to configure Internet Packet Exchange (IPX) routing, such as IPX static routes, Routing Information Protocol (RIP), Service Point Access (SAP), and IPX service routes.

Timesaver: Instead of entering the complete spelled out command, which is shown in boldface, caps, and regular font, you can enter only the letters in all caps and bold shown in the syntax description at the beginning of each command page.

reset ipx route

To delete one or all static IPX routes for a profile, use the **reset ipx route** command.

REset **IPX RO**ute **AL**l | **DE**stination= <**netnum**> **GA**teway= **<net:node>**

Syntax Description

all	Deletes all static IPX routes for the profile.
destination netnum	The destination network number for the static route.
gateway netnum net:node	The host address of the next router in the path to the destination network.

Command Mode
Profile mode

Related Command
set ipx route

reset ipx service

To delete one or all static IPX service routes for a profile, use the **reset ipx service** command.

REset **IPX SE**rvice **AL**l | **NA**me =<**service-name**> **TY**pe=<**service-type**>

Syntax Description

all   Deletes all static IPX service routes for the profile.

name service-name Name of the service.

type service-type   Service type of the route. This is a hexadecimal number. Table 1-1 in the **set ipx service** section lists examples of service types.

Usage Guidelines

Use this command while in profile mode.

Example

The following example deletes all service routes for a profile:

```
reset ipx thissamplerouter all 0
```

set ipx framing

To set the frame type used by your IPX network, use the **set ipx framing** command.

SEt **IPX FR**aming **ET**hernet_II | **802.3** | **802.2** | **SN**ap | **NO**ne

Syntax Description

ethernet_II Sets the IPX framing for Ethernet II type. This is a rarely used, older version of Ethernet.

802.3 Sets the IPX framing for IEEE type 802.3 framing. This framing is used with 10BaseT and AUI connections.

802.2 Sets the IPX framing for IEEE 802.2 framing. This framing is used with coaxial Ethernet cabling.

snap Sets the IPX framing to Subnetwork Access Protocol (SNAP) framing. SNAP provides framing between a network entity in the subnetwork, and a network entity in the end system. SNAP provides data transfer, connection management, and quality of service selection.

none Specifies Internetwork Packet Exchange Control Protocol (IPXCP) framing. Use the **none** keyword when you are connecting two IPX routers that are using Point-to-Point Protocol (PPP).

Default

Profiles created with the **set user lan** command—**802.3**
Profiles created with the **set user** command—**ethernet-ii**

Command Mode

Profile mode

Example

The following example sets the frame type to IPXCP for profile 2503:

```
Host:2503> set ipx framing none
```

set ipx netbios

To specify whether NetBIOS (Type 20) packets are forwarded on to the LAN, use the **set ipx netbios** command.

SEt **IPX NETB**ios **AC**cept | **BL**ock

Syntax Description

accept   NetBIOS packets will be forwarded to the LAN. Use the **accept** keyword when IPX routing is enabled and when using a NetBIOS protocol, such as Windows for Workgroups.

block   NetBIOS packets will not be forwarded to the LAN.

Default
block

Command Mode
Profile mode

Example
The following example sets the profile 2503 to forward NetBIOS packets on to the LAN:

```
Host:2503> set ipx netbios accept
```

set ipx network

To set the IPX network address for a profile connection, use the **set ipx network address** command.

SEt **IPX NETW**orkaddress **<network number**>

Syntax Description

network number   Number of the IPX network to which this profile connects. This is an eight-digit hexadecimal number that uniquely identifies a network cable segment. It can be a number in the range of 1 to FFFFFFFD.

A network number of 0 instructs the router to attempt to learn the remote network address from incoming packets.

Default
The default IPX network address is 0.

Command Mode
Profile mode

Example
The following example sets the IPX network number for profile 2503:

```
Host:2503> set ipx network 3AAA
```

set ipx rip update

To specify when Routing Information Protocol (RIP) and Service Advertising Protocol (SAP) packets will be sent, use the **set ipx rip update** command.

SEt **IPX RIP UP**date=**PE**riodic | **DE**mand | **SN**apshot

Syntax Description

periodic RIP and SAP packets are sent both periodically and whenever there is a change in the RIP or SAP tables. Use this keyword for the LAN profile so that RIP and SAP information is passed to the LAN at regular intervals.

demand RIP and SAP packets are sent both when the Integrated Services Digital Network (ISDN) line first connects and when a change occurs in the RIP or SAP tables. Use this keyword for WAN connections to avoid bringing up the ISDN line unnecessarily.

snapshot The two period for routing updates are quiet and active. During the active period routing updates or exchanges are in a normal process. Once the active period expires, the quiet period begins and the routing table is frozen in that state. There is no activity until the quiet period expires.

Default
periodic

Command Mode
Profile mode

Example
The following example disables IPX RIP and SAP packets for the profile 2503:

```
Host:2503> set ipx rip update off
```

set ipx route

To enter a static router in a profile RIP table, use the **set ipx route** command.

SEt **IPX ROUTE DE**stination =**<netwnum**> **GA**teway <**net:node**> [**HO**ps= <**hops**>] [**CO**st= <**ticks**>]

Syntax Description

destination netnum Destination network number in the form of an eight-digit hexadecimal number that uniquely identifies a network cable segment. It can be a number in the range of 1 to FFFFFFFD.

gateway net:node (Optional) The host address of the next router to which packets will be forwarded.

hops (Optional) Number of routers between this router and the destination network. If this keyword is not used, the default is 1.

cost ticks (Optional) Number of ticks (one-eighteenth of one second) to the destination network.

Default

No static IPX routes are configured.

Command Mode

Profile mode

Example

The following example sets the ipx route to network 150, with four hops between the source and the destination router.

```
Host: 2503> set ipx route destination 150 4
```

set ipx routing

To enable or disable routing for a profile interface, use the **set ipx routing** command.

SEt **IPX ROUTI**ng **ON**| **OF**f

Syntax Description

on Enables IPX routing for the profile interface.

off Disables IPX routing for the profile interface.

Default
off (disabled)

Command Mode
Profile mode

Example
The following example enables IPX routing for profile 2503:

```
Host:2503> set ipx routing on
```

set ipx service

To add a service route to your network, use the **set ipx service** command:

> **SE**t **IPX SE**rvice **NA**me= **<service-name**>**TY**pe**=<service-type**> **AD**dress=
> **<net:node:socket**>**[HO**ps=< **hops**>]

Syntax Description

all	Deletes all static IPX service routes for the profile.
name service-name	Name of the service destination; a 48-byte object name assigned to the server. The service name combined with the service type uniquely identifies a server on a network.
type service-type	Service type of the route; a hexadecimal number. Table 1-1 lists examples of service types.
address net: **node:socket**	The address of the host on which the service resides. The address must be in the following format: • network—Destination network number in the form of an eight-digit hexadecimal number that uniquely identifies a network cable segment. It can be a number in the range 1 to FFFFFFFD. • node—MAC address of the host or server. • socket—The software structure serving as the communications endpoint on the network device.
hops	(Optional) Number of routers across which packets will be forwarded when being routed to the service.

Default

No service routes are configured.

Command Mode

Profile mode

Usage Guidelines

Table 1-1 lists some sample IPX SAP types. For more information about SAP types, contact Novell.

Table 1-1   Sample IPX SAP Services

Service Type (Hexadecimal)	Description
0	All SAP services; IPX defines server type 0 to be an unknown service.
1	User
2	User group
3	Print server queue
4	File server
5	Job server
7	Print server
9	Archive server
A	Queue for job servers
21	NAS SNA gateway
2D	Time Synchronization VAP
2E	Dynamic SAP
47	Advertising print server
4B	Btrieve VAP 5.0
4C	SQL VAP

Service Type (Hexadecimal)	Description
7A	TES—NetWare for VMS
98	NetWare access server
9A	Named Pipes server
9E	Portable NetWare—UNIX
111	Test server
166	NetWare management (Novell's Network Management Station [NMS])
26A	NetWare management (NMS console)
FFF	Wildcard (any SAP service)

set ipx spoofing

To enable or disable ipx spoofing for IPX watchdog packets, use the **set ipx spoofing** command.

SEt **IPX SP**oofing **\<minutes\>** | **OF**f

Syntax Description

minutes Enables IPX spoofing for an idle ISDN connection for a specified number of minutes. The range is 1 to 32,000 minutes.

off   Disables IPX spoofing.

Default
off (disabled)

Command Mode
Profile mode

Usage Guidelines
IPX routing must be enabled for any profile on which you wish to enable spoofing.

Example

The following example enables spoofing for one hour on the profile 2503:

```
Host:2503> set ipx spoofing 60
```

Note   IPX routing must be enabled for spoofing to function.

Related Command

set ipx routing

show ipx config

To display IPX configurations for one or all profiles, use the **show ipx config** command.

SHow **IPX CO**nfig **[AL**l**]**

Syntax Description

all (Optional) Displays IPX configurations for all filters.

Command Mode

System level or profile mode

Usage Guidelines

Use this command while in profile mode to display IPX configurations for that profile. Use this command at the system level to display IPX configurations for all profiles.

Sample Display

The following sample display shows the output from the **show ipx config al**l command:

```
Host> show ipx config all

Profile Routing Frame NetNum Updates Spoof(min) NetBios 2503 ON 802.3 8889
Periodic 60 Block
Internal ON 802.3 FFFF9 Periodic 0 Block
```

Table 1-2 describes the fields shown in the **show ipx config** display.

Table 1-2   **Show IPX Config Field Descriptions**

Field	Description
Profile	Profile with which the IPX configuration is associated.
Routing	IPX routing enabled or disabled for the connection.
NetNum	Network number to which the connection is made.
Updates	RIP and SAP updates used for the connection—Off, Demand, or Periodic.
Spoof	Spoofing configuration for the connection—Off or number of minutes.
NetBios	NetBIOS packets blocked or accepted on the connection.

show ipx connections

To display information about all IPX connections, use the **show ipx connections** command.

SHow **IPX CONN**ections

Syntax Description

This command has no arguments or keywords.

Command Mode

System level or profile mode

Usage Guidelines

This command will display information about all connections when used at the system level or when used while in profile mode.

Sample Display

The following sample display shows the output from the **show ipx connections** command:

```
Host> show ipx connections
Conn #Chan Routing Address InPkts OutPkts InErr OutErr
21 ON 8889:40F902C34C 930434 470510 0 0
INT 1 ON 0FFFF9:40F902C34C 468384 931414 0 0
```

Table 1-3 describes the fields shown in the display.

Table 1-3   Show IPX Connections Field Descriptions

Field	Description
Conn	Connection number assigned by the router when the connection is established.
#Chan	ISDN B channel being used for the connection.
Routing	IPX routing enabled or disabled.
Address	Network and MAC to which the router is connected.
InPkts	Number of incoming packets.
OutPkts	Number of outgoing packets.
InErr	Number of incoming packets lost because of errors.
OutErr	Number of outgoing packets lost because of errors.

show ipx demand

To display IPX RIP and SAP packet statistics, use the **show ipx demand** command.

SHow **IPX DE**mand

Syntax Description

This command has no arguments or keywords.

Usage Guidelines

Use this command at the system level for testing purposes.

Sample Display

The following sample display shows the output from the **show ipx demand** command:

```
Host> show ipx demand

IPX Demand Statistics
Input Requests 0 Output Requests 0
Input Acks 0 Output Acks 0
Input Response Pkts 0
Output Response Pkts 0
Input Fragments 0
Output Fragments 0
Reassembly Retries 0 Reassembly Timeouts 0
Retransmit Retries 0 Retransmit Timeouts 0
Pkt Too Short 0 Duplicate Fragment 0
Bad Fragment Count 0  Bad Fragment Number 0
Bad Sequence Number 0 Timer Failure 0
```

show ipx rip snapshot

To display the current snapshot parameters use the command **show ipx rip snapshot** command.

SHow **IPX RIp SN**apshot **[AL**l**]**

Syntax Description

all   (Optional) Displays current snapshot parameters
for all profiles.

Usage Guidelines

System level or profile mode.

Sample Display

The following sample display shows the output from the **show ipx rip snapshot** command:

```
Host> show ipx rip snapshot
```

show ipx route

To display the current routing table with static and learned routes, use the **show ipx route** command.

SHow **IPX RO**ute [**AL**l]

Syntax Description

all   (Optional) Displays routing tables for all profiles.

Command Mode

System level or profile mode

Usage Guidelines

Use this command while in profile mode to display only static RIP and SAP entries for that profile. Use this command at the system level to display the RIP routing table stored in RAM. Use this command with the all keyword to display all static and dynamic information of all active profiles.

Sample Display

The following example shows the output from the **show ipx route** command used at the system level:

```
4321> show ipx route

Destination Gateway Conn Hops Time Flags
7200 8889:40F90056B2 2 3 8 3
7100 8889:40F90056B2 2 3 8 3
4300 8889:40F90056B2 2 3 8 3
4200 8889:40F90056B2 2 3 8 3
4100 8889:40F90056B2 2 3 8 3
5300 8889:40F90056B2 2 3 8 3
5200 8889:40F90056B2 2 3 8 3
6200 8889:40F90056B2 2 3 8 3
6100 8889:40F90056B2 2 3 8 3
```

```
FF10 8889:40F90056B2 2 5 14 3
9090 8889:40F90056B2 2 2 5 3
0FFEE8 8889:40F90056B2 2 3 8 3
1968 8889:40F90056B2 2 3 8 3
```

Table 1-4 shows the fields displayed with the **show ipx route** command.

Table 1-4   **Show IPX Route Field Descriptions**

Field	Description
Destination	Route's destination network address.
Gateway	Route's local-network default gateway.
Conn	Route's connection number assigned by the router when the connection is established.
Hops	Number of routers to the destination network.
Time	Number of minutes between incoming RIP packets.
Flags	Number of internal flags (used for troubleshooting).

show ipx service

To display static service routes, use the **show ipx service** command.

SHow**IPX SE**rvice

Syntax Description

This command has no arguments or keywords.

Command Mode

System level or profile mode

Usage Guidelines

Use this command in profile mode to display static service routes for that profile only. Use this command at the system level to display service routes stored in RAM. Enter the **all** keyword either in profile mode or at the system level to display static and dynamic service information for all active profiles.

Sample Display

The following sample display is an output from the **show ipx service** command at the system level:

```
Host> show ipx service

Type Conn Hops Time Address Name
4 2 3 1 091492:01:0451 ADMIN
4 2 3 1 0FF2:01:0451 BMW
4 2 5 1 2EB7F81C:01:0451 BENZ
4 2 3 1 09999250:01:0451 CHEVY
4 2 3 1 082468:01:0451 ENGIN
4 2 6 1 2F522FCB:01:0451 JEEP
4 2 4 1 2F51FD85:01:0451 JAGUAR
4 2 3 1 1968:01:0451 FORD
4 2 5 1 02502509:01:0451 VIPER
```

Table 1-5 shows the fields displayed by the **show ipx service** command.

Table 1-5   **Show IPX Service Field Descriptions**

Field	Description
Type	IPX service type.
Conn	Connection number (assigned by the router) of the service route.
Hops	Number of routers to the service.
Time	Time (in ticks) to the service.
Address	Network and node address of the service.
Name	Service name.

show ipx statistics

To display IPX, IPX RIP, and IPX SAP statistics, use the **show ipx statistics** command.

SHow **IPX ST**atistic**s**

Syntax Description

This command has no arguments or keywords.

Command Mode

System level

Sample Display

The following sample display shows the output from the **show ipx statistics** command:

```
Host> show ipx statistics

IPX Statistics
Input Packets Total 1398664 Output Packets 14836
Packets Forwarded 1386933 Output Errors 0
Packets No Route 20 Bad NetBIOS Packets 0
Packets Dropped 0 Packet Hops Exceeded 0
Packets Filtered 0 Packets TooShort 0
Input PacketsSAP:9094 RIP:2617 IPX:0 SPX:0 NCP:0 NETBIOS:0 IPXWAN:0

RIP Input Requests 305 Output Requests 0
RIP Input Responses 2312 Output Responses 5358
RIP Packets Filtered 0 Packets TooShort 0

SAP Input Packets 9094 SAP Output Packets 9478
SAP Packets Filtered 0 SAP Packets TooShort 0
SAP Table Entries 28 Lock Failed 0
SAP Entries Added 418 Service Down Entries 56
SAP Entries Modified 8 Entries Timed Out 334
```