H3C MSR Router Series

Comware 5 IPX Command Reference

New H3C Technologies Co., Ltd.
http://www.h3c.com

Software version: MSR-CMW520-R2516
Document version: 20180820-C-1.13

Preface

This command reference describes the IPX configuration commands.

This preface includes the following topics about the documentation:

- Audience.
- Conventions.
- Documentation feedback.

Audience

This documentation is intended for:

- Network planners.
- Field technical support and servicing engineers.
- Network administrators working with the routers.

Conventions

The following information describes the conventions used in the documentation.

Command conventions

Convention	Description
Boldface	**Bold** text represents commands and keywords that you enter literally as shown.
Italic	*Italic* text represents arguments that you replace with actual values.
[ ]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x | y | ... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[x | y | ...]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x | y | ... } *	Asterisk marked braces enclose a set of required syntax choices separated by vertical bars, from which you select a minimum of one.
[x | y | ...] *	Asterisk marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

GUI conventions

Convention	Description
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the **New User** window opens; click **OK**.
>	Multi-level menus are separated by angle brackets. For example, **File** > **Create** > **Folder**.

Symbols

Convention	Description
WARNING!	An alert that calls attention to important information that if not understood or followed can result in personal injury.
CAUTION:	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
IMPORTANT:	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
TIP:	An alert that provides helpful information.

Network topology icons

Convention	Description
	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the access controller engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a wireless terminator unit.
	Represents a wireless terminator.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load balancing device.
	Represents a security module, such as a firewall, load balancing, NetStream, SSL VPN, IPS, or ACG module.

Examples provided in this document

Examples in this document might use devices that differ from your device in hardware model, configuration, or software version. It is normal that the port numbers, sample output, screenshots, and other information in the examples differ from what you have on your device.

Documentation feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

Contents

IPX configuration commands

IPX is not available on the following routers:

- MSR 2600.
- MSR 30-11.
- MSR 30-11E.
- MSR 30-11F.
- MSR3600-51F.

display ipx interface

Use **display ipx interface** to display IPX information on a specified interface.

Syntax

display ipx interface [*interface-type interface-number*] [**|** { **begin** | **exclude** | **include** } *regular-expression*]

Views

Any view

Default command level

1: Monitor level

Parameters

interface-type interface-number: Displays IPX information for an interface.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

begin: Displays the first line that matches the specified regular expression and all lines that follow.

exclude: Displays all lines that do not match the specified regular expression.

include: Displays all lines that match the specified regular expression.

regular-expression: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

Usage guidelines

If no interface is specified, the command displays information about all IPX interfaces.

Examples

Display IPX information on Ethernet 1/1.

```
<Sysname> display ipx interface ethernet 1/1
Ethernet1/1 is up
   IPX address is 1.0000-5e19-1d01 [up]
   SAP is enabled
   Split horizon is enabled
   Update change only is disabled
   Forwarding of IPX type 20 propagation packet is disabled
   Delay of this IPX interface, in ticks is 1
   SAP GNS response is enabled
   RIP packet maximum size is 432 bytes
   SAP packet maximum size is 480 bytes
```

```
IPX encapsulation is Netware 802.3
0 received, 2 sent
0 bytes received, 74 bytes sent
0 RIP received, 1 RIP sent, 0 RIP discarded
0 RIP specific requests received, 0 RIP specific responses sent
0 RIP general requests received, 0 RIP general responses sent
0 SAP received, 0 SAP sent, 0 SAP discarded
0 SAP requests received, 0 SAP responses sent
```

Table 1 Command output

Field	Description
Ethernet1/1 is up	Ethernet 1/1 is up.
IPX address	IPX network number and node number of the current interface.
[down] / [up]	IPX protocol status.
SAP is enabled	SAP is enabled.
Split horizon is enabled	Split horizon is enabled.
Update change only is disabled	Triggered update feature is disabled.
Forwarding of IPX type 20 propagation packet is disabled	Forwarding of IPX type 20 propagation packet is disabled.
Delay of this IPX interface	Delay value of the current interface in ticks (a tick is 1/18 second).
SAP GNS response is enabled/disabled	Whether the interface is enabled to respond to SAP GNS requests.
RIP packet maximum size	Maximum size of RIP updating packet on the current interface.
SAP packet maximum size	Maximum size of SAP updating packet on the current interface.
0 received	IPX packets received on the interface.
2 sent	IPX packets sent on the interface.
0 bytes received	IPX packet bytes received on the interface.
74 bytes sent	IPX packet bytes sent on the interface.
0 RIP received, 1 RIP sent, 0 RIP discarded	IPX RIP packets received, sent, discarded.
0 RIP specific requests received, 0 RIP specific responses sent	IPX RIP specific requests received, responses sent.
0 RIP general requests received, 0 RIP general responses sent	IPX RIP general requests received, responses sent.
0 SAP received, 0 SAP sent, 0 SAP discarded	Received, sent, discarded IPX SAP packets.
0 SAP requests received, 0 SAP responses sent	Received IPX SAP packets, sent IPX SAP responses.
IPX encapsulation	IPX encapsulation format on the current interface.

display ipx routing-table

Use **display ipx routing-table** to display active IPX routing information.

Syntax

display ipx routing-table [*network*] [**|** { **begin** | **exclude** | **include** } *regular-expression*]

Views

Any view

Default command level

1: Monitor level

Parameters

network: Displays active routing information for the network.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

begin: Displays the first line that matches the specified regular expression and all lines that follow.

exclude: Displays all lines that do not match the specified regular expression.

include: Displays all lines that match the specified regular expression.

regular-expression: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

Usage guidelines

If no network is specified, the command displays all active routes.

Examples

Display all active IPX routes.

```
<Sysname> display ipx routing-table
Routing tables:
Summary count: 1

Dest_Ntwk_IDProto  Pre Ticks Hops Nexthop           Interface
0x1         Direct 0   1     0    0.0000-0000-0000  Ethernt1/1
```

Table 2 Command output

Field	Description
Dest_Ntwk_ID	Destination network ID of the route.
Proto	Protocol type of the route.
Pre	Preference of the route.
Ticks	Delay time of the route in ticks (a tick is 1/18 second).
Hops	Hop value of the route.
Nexthop	Next hop of the route.
Interface	Outgoing interface of the route.

display ipx routing-table verbose

Use **display ipx routing-table verbose** to display detailed IPX routing information, including active and inactive routes.

Syntax

display ipx routing-table [*network*] **verbose** [**|** { **begin** | **exclude** | **include** } *regular-expression*]

Views

Any view

Default command level

1: Monitor level

Parameters

network: Displays detailed routing information for the network, including both active and inactive routes.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

begin: Displays the first line that matches the specified regular expression and all lines that follow.

exclude: Displays all lines that do not match the specified regular expression.

include: Displays all lines that match the specified regular expression.

regular-expression: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

Usage guidelines

If no network is specified, the command displays all detailed IPX routing information.

Examples

Display all detailed IPX routing information, including active and inactive routes.

```
<Sysname> display ipx routing-table verbose
Routing tables:
  Destinations: 2        Routes: 3
Destination Network ID: 0x1
          Protocol: Direct                  Preference: 0
          Ticks: 1                          Hops: 0
          Nexthop: 0.0000-0000-0000         Time: 0
          Interface: 1.0020-9c68-448e(Vlan-interface1)
          State: <Active>
          Protocol: Static                  Preference: -60
          Ticks: 1                          Hops: 1
          Nexthop: 2.000e-0001-0000         Time: 0
          Interface: 2.0020-9c68-448f(Vlan-interface2)
          State: <Inactive>
Destination Network ID: 0x2
          Protocol: Static                  Preference: 60
          Ticks: 1                          Hops: 1
          Nexthop: 1.000e-0001-0000         Time: 0
          Interface: 1.0020-9c68-448e(Vlan-interface1)
          State: <Active>
```

Table 3 Command output

Field	Description
Destinations	Total number of destinations.
Routes	Total number of routes.

Field	Description
Destination Network ID	Destination network ID of the route.
Protocol	Protocol type of the route.
Preference	Preference of the route.
Ticks	Delay time of the route in ticks (a tick is 1/18 second).
Hops	Hop value of the route.
Nexthop	Next hop of the route.
Time	Aging time of the route. 0 for directly connected routes and static routes, which do not age.
Interface	Address and name of the outbound interface.
State	State of the route, which could be active or inactive.

display ipx routing-table protocol

Use **display ipx routing-table protocol** to display IPX routing information for the specified route type.

Syntax

display ipx routing-table protocol { **default** | **direct** | **rip** | **static** } [**inactive** | **verbose**] [**|** { **begin** | **exclude** | **include** } *regular-expression*]

Views

Any view

Default command level

1: Monitor level

Parameters

default: Displays default routing information.

direct: Displays all direct routing information.

rip: Displays all IPX RIP routing information.

static: Displays all IPX static routing information.

inactive: Displays inactive routing information.

verbose: Displays detailed routing information, including active and inactive routes.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

begin: Displays the first line that matches the specified regular expression and all lines that follow.

exclude: Displays all lines that do not match the specified regular expression.

include: Displays all lines that match the specified regular expression.

regular-expression: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

Usage guidelines

The command displays classified active and inactive routes if the **inactive** and **verbose** keywords are not specified.

Examples

Display default IPX routing information.

```
<Sysname> display ipx routing-table protocol default
Default routing tables:
  Summary count: 0

Default routing tables status:<active>:
  Summary count: 0

Default routing tables status:<inactive>:
  Summary count: 0
display ipx routing-table statistics
```

display ipx routing-table statistics

Use **display ipx routing-table statistics** to display IPX routing statistics.

Syntax

display ipx routing-table statistics [**|** { **begin** | **exclude** | **include** } *regular-expression*]

Views

Any view

Default command level

1: Monitor level

Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

begin: Displays the first line that matches the specified regular expression and all lines that follow.

exclude: Displays all lines that do not match the specified regular expression.

include: Displays all lines that match the specified regular expression.

regular-expression: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

Examples

Display IPX routing statistics.

```
<Sysname> display ipx routing-table statistics
Routing tables:
Proto/State      route       active      added       deleted     freed
Direct           1           1           2           1           1
Static           2           1           2           0           0
RIP              0           0           0           0           0
Default          0           0           0           0           0

Total            3           2           4           1           1
```

Table 4 Command output

Field	Description
Proto/State	Routing protocol.

Field	Description
route	Number of routes, including active and inactive routes.
active	Active routes.
added	Number of added routes.
deleted	Number of deleted routes.
freed	Number of released routes.

display ipx service-table

Use **display ipx service-table** to display IPX service information.

Syntax

display ipx service-table [**inactive** | **name** *name* | **network** *network* | **order** { **network** | **type** } | **type** *service-type*] [**verbose**] [**|** { **begin** | **exclude** | **include** } *regular-expression*]

Views

Any view

Default command level

1: Monitor level

Parameters

inactive: Displays inactive service information.

name *name*: Displays the service information for a server. The name is a string of 1 to 47 characters.

network *network*: Displays service information on a network, which is a hexadecimal number in the range of 0x1 to 0xFFFFFFFF. Leading 0s can be omitted.

order { **network** | **type** }: Displays sorted service information. The **network** keyword indicates that information is sorted by network. The **type** keyword indicates that information is sorted by type.

type *service-type*: Displays information about a specified service type, which is in the range of 0x1 to 0xFFFF.

verbose: Displays detailed service information.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

begin: Displays the first line that matches the specified regular expression and all lines that follow.

exclude: Displays all lines that do not match the specified regular expression.

include: Displays all lines that match the specified regular expression.

regular-expression: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

Usage guidelines

If no parameters are specified, the command displays only active service information.

Examples

Display active IPX service information.

```
<Sysname> display ipx service-table
Abbreviation: S - Static, Pref - Preference(Decimal), NetId - Network number,
NodeId - Node address, hop - Hops(Decimal), Recv-If - Interface from which the service
is received
```

```
  Number of Static Entries:  2
  Number of Dynamic Entries: 0
  Name                                                 Type      NetId
S Prn1                                                 0005      000d
S Prn2                                                 0005      0008
```

Display detailed IPX service information.

```
<Sysname> display ipx service-table verbose
Abbreviation: S - Static, Pref - Preference(Decimal), NetId - Network number,
NodeId - Node address, hop - Hops(Decimal), Recv-If - Interface from which the service
is received

  Number of Static Entries:  2
  Number of Dynamic Entries: 0
  Name  Type  NetId  NodeId          Sock Pref Hops  Recv-If
S Prn1  0005  000d   000a-000a-000a  0452 500   02     Vlan-interface1
S Prn2  0005  0008   000a-000a-000a  0452 500   03     Vlan-interface1
```

Table 5 Command output

Field	Description
Name	Server name.
Type	Service type.
NetId	Network ID.
NodeId	Node ID.
Sock	Socket.
Pref	Preference.
Hops	Hops to the server.
Recv-If	Name of the receiving interface.

display ipx statistics

Use **display ipx statistics** to display IPX packet statistics.

Syntax

display ipx statistics [**|** { **begin** | **exclude** | **include** } *regular-expression*]

Views

Any view

Default command level

1: Monitor level

Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

begin: Displays the first line that matches the specified regular expression and all lines that follow.

exclude: Displays all lines that do not match the specified regular expression.

include: Displays all lines that match the specified regular expression.

regular-expression: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

Examples

Display IPX packet statistics.

```
<Sysname> display ipx statistics
 Received: 0 total, 0 packets pitched
           0 packets size errors, 0 format errors
           0 bad hops(>16), 0 discarded(hops=16)
           0 other errors, 0 local destination
           0 can not be dealt with
 Sent:     0 forwarded, 0 generated
           0 no route, 0 discarded
 RIP:      0 sent, 0 received
           0 responses sent, 0 responses received
           0 requests received, 0 requests dealt
           0 requests sent, 0 periodic updates
 SAP:      0 general requests received
           0 specific requests received
           0 GNS requests received
           0 general responses sent
           0 specific responses sent
           0 GNS responses sent
           0 periodic updates, 0 errors
 PING:     0 requests sent, 0 requests received
           0 responses sent, 0 responses received
           0 responses in time, 0 responses time out
```

ipx enable

Use **ipx enable** to enable IPX.

Use **undo ipx enable** to disable IPX.

Syntax

ipx enable [**node** *node*]

undo ipx enable

Default

IPX is disabled.

Views

System view

Default command level

2: System level

Parameters

node *node*: Global node address of the router, used by all non-Ethernet interfaces. It is in 48-bit length, represented by a triplet of 4-digit hexadecimal numbers separated by hyphen (-). It is neither a broadcast address nor a multicast address. If the argument is not specified, the router will assign

the MAC address of the first Ethernet interface as the global node address. If the router has no Ethernet interface, a node address will then be randomly generated according to the system clock.

Usage guidelines

Disabling IPX will result in removal of all settings that have been configured.

Examples

Enable IPX.

```
<Sysname> system-view
[Sysname] ipx enable
```

ipx encapsulation

Use **ipx encapsulation** to specify an IPX frame encapsulation format for the current interface.

Use **undo ipx encapsulation** to restore the default IPX frame encapsulation format.

Syntax

ipx encapsulation [**dot2** | **dot3** | **ethernet-2** | **snap**]

undo ipx encapsulation

Default

IPX frame encapsulation format is **dot3** (Ethernet_802.3).

Views

Interface view

Default command level

2: System level

Parameters

dot2: Specifies the encapsulation format as Ethernet_802.2.

dot3: Specifies the encapsulation format as Ethernet_802.3.

ethernet-2: Specifies the encapsulation format as Ethernet_II.

snap: Specifies the encapsulation format as Ethernet_SNAP.

Usage guidelines

The command is only applicable to the layer 3 Ethernet interface and the VLAN interface.

Examples

Specify the IPX frame encapsulation format on Ethernet 1/1 as Ethernet_II.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx encapsulation ethernet-2
```

ipx netbios-propagation

Use **ipx netbios-propagation** to enable the interface to forward the type 20 broadcast packets.

Use **undo ipx netbios-propagation** to disable the interface from forwarding the type 20 broadcast packets.

Syntax

ipx netbios-propagation

undo ipx netbios-propagation

Default

Type 20 broadcast packets are not forwarded.

Views

Interface view

Default command level

2: System level

Examples

Enable Ethernet 1/1 to forward type 20 broadcast packets.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx netbios-propagation
```

ipx network

Use **ipx network** to configure a network ID for the interface.

Use **undo ipx network** to delete the IPX network ID of the interface.

Syntax

ipx network *network-number*

undo ipx network

Default

No network ID is allocated to an interface. IPX is still disabled on the interface after IPX is enabled in system view.

Views

Interface view

Default command level

2: System level

Parameters

network-number: IPX network ID in hexadecimal format. The value range is 0x1 to 0xFFFFFFFD. Leading 0s can be omitted.

Examples

Assign network ID 675 to Ethernet 1/1.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx network 675
```

ipx rip import-route static

Use **ipx rip import-route static** to enable static route redistribution into RIP.

Use **undo ipx rip import-route static** to disable static route redistribution.

Syntax

ipx rip import-route static

undo ipx rip import-route static

Default

IPX RIP does not redistribute static routes.

Views

System view

Default command level

2: System level

Usage guidelines

RIP only redistributes active static routes.

Examples

Enable static route redistribution to RIP.

```
<Sysname> system-view
[Sysname] ipx rip import-route static
```

ipx rip mtu

Use **ipx rip mtu** to configure the maximum RIP updating packet size.

Use **undo ipx rip mtu** to restore the default.

Syntax

ipx rip mtu *bytes*

undo ipx rip mtu

Views

Interface view

Default command level

2: System level

Parameters

bytes: Maximum RIP updating packet size in the range of 432 to 1500 bytes.

Usage guidelines

The default is 432 bytes.

In RIP update packets, the size of each routing information item is 8 bytes and the size of IPX header plus RIP header is 32 bytes. So an updating packet can carry up to 50 routing information items at most.

Examples

Specify the maximum RIP updating packet size as 500 bytes on Ethernet 1/1.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx rip mtu 500
```

ipx rip multiplier

Use **ipx rip multiplier** to configure the aging interval for IPX RIP routing items.

Use **undo ipx rip multiplier** to restore the default.

Syntax

ipx rip multiplier *multiplier*

undo ipx rip multiplier

Default

The default is 180 seconds, which is 3 times the update interval.

Views

System view

Default command level

2: System level

Parameters

multiplier: Used to calculate the aging period of RIP routing items, in the range of 1 to 1000. The actual aging time is the value of *multiplier* multiplied by the RIP updating interval.

Usage guidelines

A timer is set for each routing entry to keep track of elapsed time since the route was received. Every time the updating packet containing the route is received, the timer is reset to zero. If a RIP route is not updated within the aging period, the system will regard the route as invalid and will delete it from the routing table.

Examples

Configure the aging interval to be 5 times the update interval.

```
<Sysname> system-view
[Sysname] ipx rip multiplier 5
```

Related commands

ipx rip timer update

ipx rip timer update

Use **ipx rip timer update** to specify a RIP update interval.

Use **undo ipx rip timer update** to restore the default.

Syntax

ipx rip timer update *seconds*

undo ipx rip timer update

Default

The update interval is 60 seconds.

Views

System view

Default command level

2: System level

Parameters

seconds: RIP updating interval in the range of 10 to 60000 seconds.

Examples

Specify a RIP update interval of 30 seconds.

```
<Sysname> system-view
[Sysname] ipx rip timer update 30
```

Related commands

ipx rip multiplier

ipx route-static

Use **ipx route-static** to configure an IPX static route.

Use **undo ipx route-static** to remove an IPX static route.

Syntax

ipx route-static *dest-network* { *network.node* | *interface-type interface-number* } [**preference** *value*] [**tick** *ticks* **hop** *hops*]

undo ipx route-static { *dest-network* [*nexthop-addr* | *interface-type interface-number*] | **all** }

Default

The IPX static route with a destination network ID of 0xFFFFFFFE is the default route.

Views

System view

Default command level

2: System level

Parameters

dest-*network*: Destination network ID of the IPX static route, an 8-digit hexadecimal number in the range of 0x1 to 0xFFFFFFFE.

network.node: Next hop address of the IPX static route. *network* is an 8-digit hexadecimal number in the range of 0x1 to 0xFFFFFFFD. The 48-bit *node* consists of three 4-digit hexadecimal numbers, separated by **hyphen (-)**; when entered, the leftmost 0s can be omitted.

interface-type interface-number: Specifies an outgoing interface that must support PPP encapsulation. It can be a Serial or POS interface.

preference *value*: Route preference in the range of 1 to 255. The smaller the value is, the higher the preference is. The preference of directly connected routes is fixed to 0 and cannot be changed. By default, the preference of IPX static routes is 60 and can be configured. The preference of dynamic IPX routes is fixed to 100 and cannot be changed.

tick *ticks*: Time needed to reach the destination network (1 tick = 1/18 second), in the range of 1 to 65534. The default is 1. When the tick value of the outgoing interface is modified, the tick value of the static route will also be changed. The *ticks* must be configured together with the *hops*.

hops: Number of routers on the route to the destination network, in the range of 1 to 15. By default, the value is 1. It must be configured together with the *ticks* argument.

all: All IPX static routes.

Examples

Configure an IPX static route with destination network ID being 0x5a, the next hop being 1000.0-0c91-f61f, ticks 10 and hops 2.

```
<Sysname> system-view
[Sysname] ipx route-static 5a 1000.0-0c91-f61f tick 10 hop 2
```

ipx route load-balance-path

Use **ipx route load-balance-path** to specify the maximum number of equivalent routes to the same destination.

Use **undo ipx route load-balance-path** to restore the default.

Syntax

ipx route load-balance-path *paths*

undo ipx route load-balance-path

Default

The default is 1.

Views

System view

Default command level

2: System level

Parameters

paths: Maximum number of equivalent routes for load balancing, in the range of 1 to 64.

Usage guidelines

1 is the maximum active equivalent route number of the system. If a newly configured number is smaller than the previous, the system will change the excessive active routes to inactive routes.

Examples

Specify the maximum equivalent route number to the same destination address as 30.

```
<Sysname> system-view
[Sysname] ipx route load-balance-path 30
```

ipx route max-reserve-path

Use **ipx route max-reserve-path** to specify the maximum number of routes to the same destination.

Use **undo ipx route max-reserve-path** to restore the default.

Syntax

ipx route max-reserve-path *paths*

undo ipx route max-reserve-path

Default

The value is 4.

Views

System view

Default command level

2: System level

Parameters

paths: Maximum number of routes to the same destination, including both static and dynamic routes, in the range of 1 to 255.

Usage guidelines

When the route number to the same destination address exceeds the maximum value configured, the newly found dynamic routes will not be added into the routing table, but discarded directly. If the newly configured value is less than the original one, the excessive routes in the current routing table will not be deleted until they get aged out or are deleted manually.

Examples

Specify the maximum number of routes to the same destination to 200.

```
<Sysname> system-view
[Sysname] ipx route max-reserve-path 200
```

ipx sap disable

Use **ipx sap disable** to disable IPX SAP on the current interface.

Use **undo ipx sap disable** to enable IPX SAP on the current interface.

Syntax

ipx sap disable

undo ipx sap disable

Default

The SAP is enabled on the interface after IPX is enabled.

Views

Interface view

Default command level

2: System level

Examples

Disable SAP on Ethernet 1/1.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx sap disable
```

ipx sap gns-disable-reply

Use **ipx sap gns-disable-reply** to disable the interface from responding to IPX GNS requests.

Use **undo ipx sap gns-disable-reply** to enable the interface to respond to IPX GNS requests.

Syntax

ipx sap gns-disable-reply

undo ipx sap gns-disable-reply

Default

An interface is capable of responding to GNS requests.

Views

Interface view

Default command level

2: System level

Examples

Disable Ethernet 1/1 from responding to IPX GNS requests.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx sap gns-disable-reply
```

ipx sap gns-load-balance

Use **ipx sap gns-load-balance** to configure the router to respond to GNS requests in the Round-robin mode.

Use **undo ipx sap gns-load-balance** to configure the router to respond with the nearest server.

Syntax

ipx sap gns-load-balance

undo ipx sap gns-load-balance

Default

The Round-Robin mode is used—the router informs the clients of servers in turn lest a server shoulders too much pressure.

Views

System view

Default command level

2: System level

Examples

Configure the router to respond to clients with the nearest server.

```
<Sysname> system-view
[Sysname] undo ipx sap gns-load-balance
```

Related commands

ipx sap gns-disable-reply

ipx sap max-reserve-servers

Use **ipx sap max-reserve-servers** to specify the maximum reserve queue length of the same type service information.

Use **undo ipx sap max-reserve-servers** to restore the default.

Syntax

ipx sap max-reserve-servers *length*

undo ipx sap max-reserve-servers

Default

The value is 2048.

Views

System view

Default command level

2: System level

Parameters

length: Maximum reserve queue length of the same type service information, in the range of 1 to 2048.

Usage guidelines

If a newly configured value is smaller than the previous one, the excessive items in the service information table (SIT for short) will not be deleted. If the service information item number for the same service type exceeds the maximum value, new service information will not be added.

Examples

Set the maximum reserve queue length of the same type service information to 1024.

```
<Sysname> system-view
[Sysname] ipx sap max-reserve-servers 1024
```

ipx sap mtu

Use **ipx sap mtu** to configure the maximum size of SAP updating packets.

Use **undo ipx sap mtu** to restore the default.

Syntax

ipx sap mtu *bytes*

undo ipx sap mtu

Default

The value is 480 bytes. The size of the IPX header plus SAP header is 32 bytes, so a 480-byte SAP updating packet contains 7 service information items (64 bytes each).

Views

Interface view

Default command level

2: System level

Parameters

bytes: Maximum SAP packet size in the range of 480 to 1500 bytes.

Examples

Set the maximum size of SAP updating packets on Ethernet 1/1 to 674 bytes (10 service information items at most).

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx sap mtu 674
```

ipx sap multiplier

Use **ipx sap multiplier** to configure the aging interval of SAP service information items.

Use **undo ipx sap multiplier** to restore the default.

Syntax

ipx sap multiplier *multiplier*

undo ipx sap multiplier

Default

The default aging time is three times the IPX SAP update interval.

Views

System view

Default command level

2: System level

Parameters

multiplier: Value multiplied by the updating interval to yield the aging interval for SAP service information items. The value range is 1 to 1000.

Examples

Set the aging interval of SAP service information items to be 5 times the updating interval.

```
<Sysname> system-view
[Sysname] ipx sap multiplier 5
```

Related commands

ipx sap timer update

ipx sap timer update

Use **ipx sap timer update** to specify the IPX SAP updating interval.

Use **undo ipx sap timer update** to restore the default.

Syntax

ipx sap timer update *seconds*

undo ipx sap timer update

Default

The update interval is 60 seconds.

Views

System view

Default command level

2: System level

Parameters

seconds: SAP updating interval in the range of 10 to 60000 seconds.

Usage guidelines

Using this command does not take effect on an interface that adopts triggered update.

Examples

Specify the SAP updating interval as 300 seconds.

```
<Sysname> system-view
[Sysname] ipx sap timer update 300
```

Related commands

- **ipx sap multiplier**
- **ipx update-change-only**

ipx service

Use **ipx service** to add an IPX static service information item.

Use **undo ipx service** to delete an IPX static service information item.

Syntax

ipx service *service-type server-name network.node socket* **hop** *hopcount* [**preference** *preference*]

undo ipx service { *service-type* [*server-name* [*network.node*]] [**preference** *preference*] | **all** }

Views

System view

Default command level

2: System level

Parameters

service-type: Service type in the range of 0 to 0xFFFF. A value of 0 indicates all service types.

server-name: Name of the server which provides the service, a string of 1 to 47 characters.

network.node: Network ID and node ID of a server. Network ID is an 8-bit hexadecimal number in the range of 0x1 to 0xFFFFFFFD. Node ID has a length of 48 bits, represented by a triplet of 4-digit hexadecimal numbers separated by **hyphen (-)**. Leading 0s can be omitted.

socket: Specifies a 4-bit hexadecimal number in the range of 0x1 to 0xFFFF.

hop *hop-count*: Number of hops to reach the server, in the range of 1 to 15. Note that hop count more than or equal to 16 implies the service is unreachable.

preference *preference*: Preference of service information, in the range of 1 to 255. The smaller the value is, the higher the preference is. By default, the preference of the static service information items is 60 and is configurable, and the preference of the dynamic items is 500 and cannot be configured.

all: Deletes all static service information items.

Examples

Add a static service information item with the service type being 4, service name **FileServer**, server network ID 130, node value **0000-0a0b-abcd**, server hop 1 and server preference 60.

```
<Sysname> system-view
[Sysname] ipx service 4 FileServer 130.0000-0a0b-abcd 451 hop 1 preference 60
```

ipx split-horizon

Use **ipx split-horizon** to enable split horizon on the current interface.

Use **undo ipx split-horizon** to disable split horizon on the current interface.

Syntax

ipx split-horizon

undo ipx split-horizon

Default

Split horizon is enabled on the interface.

Views

Interface view

Default command level

2: System level

Examples

Enable split horizon on Ethernet 1/1.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] ipx split-horizon
```

ipx tick

Use **ipx tick** to specify a delay for sending IPX packets on the interface.

Use **undo ipx tick** to restore the default.

Syntax

ipx tick *ticks*

undo ipx tick

Default

The delay on an Ethernet or a VLAN interface is 1 tick, that on an asynchronous serial port is 30 ticks, and that on a synchronous serial port is 6 ticks.

Views

Interface view

Default command level

2: System level

Parameters

ticks: Delay in the range of 0 to 30000 ticks. 1 tick is 1/18 second (approximately 55 ms).

Examples

Configure the delay for sending IPX packets as 5 ticks on Ethernet 1/1.

```
<Sysname> system-view
[Sysname] interface Ethernet 1/1
[Sysname-Ethernet1/1] ipx tick 5
```

ipx update-change-only

Use **ipx update-change-only** to enable the triggered update feature on the current interface.

Use **undo ipx update-change-only** to disable the triggered update feature on the current interface.

Syntax

ipx update-change-only

undo ipx update-change-only

Default

The triggered update feature is disabled on an interface.

Views

Interface view

Default command level

2: System level

Examples

Enable the triggered update feature on Ethernet 1/1.

```
<Sysname> system-view
[Sysname] interface Ethernet 1/1
[Sysname-Ethernet1/1] ipx update-change-only
```

ping ipx

Use **ping ipx** to check host reachability and network connectivity in an IPX network.

Syntax

ping ipx *network.node* [**-c** *count* | **-s** *size* | **-t** *timeout*] *

Views

Any view

Default command level

0: Visit level

Parameters

network.node: Destination address. The argument *network* is an 8-bit hexadecimal number in the range of 0x1 to 0xFFFFFFFD. The argument *node* is a 48-bit value represented by a triplet of 4-digit hexadecimal numbers separated by **hyphen (-)**. The 0s in front can be omitted when inputting.

-c *count*: Number of ping packets to be sent. By default, the value is 5. The value range for the *count* argument is 1 to 4294967295.

-s *size*: Ping packet size, in bytes. By default, the value is 100 bytes. The value range for the *size* argument is 44 to 1500.

-t *timeout*: Timeout interval of ping packets, in milliseconds. By default, the value is 2 milliseconds. The value range for the *timeout* argument is 0 to 65535.

Examples

Ping the destination at 675.0000-a0b0-fefe.

```
<Sysname> ping ipx 675.0000-a0b0-fefe
```

reset ipx statistics

Use **reset ipx statistics** to clear IPX statistics.

Syntax

reset ipx statistics

View

User view

Default command level

1: Monitor level

Examples

Clear IPX statistics.

```
<Sysname> reset ipx statistics
```

reset ipx routing-table statistics protocol

Use **reset ipx routing-table statistics protocol** to clear the statistics of a specified IPX route type.

Syntax

reset ipx routing-table statistics protocol { **all** | **default** | **direct** | **rip** | **static** }

Views

User view

Default command level

2: System level

Parameters

all: Clears the statistics of IPX routes of all types.

default: Clears the statistics of the default IPX route.

direct: Clears the statistics of the direct IPX routes.

rip: Clears the statistics of the IPX RIP routes.

static: Clears the statistics of the static IPX routes.

Examples

Configure 5 IPX static routes, delete them, add 9 IPX static routes and then display IPX routing statistics.

```
<Sysname> display ipx routing-table statistics
Routing tables:
Proto/State      route       active      added       deleted     freed
Direct           1           1           1           0           0
Static           9           9           14          5           5
RIP              0           0           0           0           0
Default          0           0           0           0           0

Total            10          10          15          5           5
```

Clear IPX static route statistics.

```
<Sysname> reset ipx routing-table statistics protocol static
This will erase the specific routing counters information.
Are you sure?[Y/N]:y
<Sysname>
```

Display IPX routing statistics. You can see the changes.

```
<Sysname>dis ipx routing-table statistics
Routing tables:
Proto/State      route       active      added       deleted     freed
Direct           1           1           1           0           0
Static           9           9           0           0           0
RIP              0           0           0           0           0
Default          0           0           0           0           0

Total            10          10          1           0           0
```

Related commands

display ipx routing-table statistics

Index