RIP

RIP Implementations

packetlife.net

Attributes

RIPv1

Original RIP implementation, limited to classful routing (obsolete)

RIPv2

Type

Algorithm

Admin Distance

Distance Vector Bellman-Ford 120

Introduced support for classless routing, authentication,

Metric Hop count (max 15)

triggered updates, and multicast announcements (RFC 2453)

RIPng (RIP Next Generation)

Extends RIPv2 to support IPv6 routing (RFC 2080); functions very similarly to RIPv2 and is subsequently as limited

Protocols Comparison

RIPv1 RIPv2 RIPng

Standard

Protocols

Transport

Authentication Multicast IP

RFCs 2080, 2453 IPv4, IPv6

UDP

Plaintext, MD5 224.0.0.9/FF02::9

IP

IPv4

IPv4 IPv6

Terminology

Admin Distance 120 120 120 UDP Port 520 520 521 Classless No Yes Yes

Adv. Address Broadcast 224.0.0.9 FF02::9 Authentication None Plain, MD5 None

RIPv2 Configuration

! Enable RIPv2 IPv4 routing

router rip

version 2

Split Horizon

A rule that states a router may not advertise a route back to the neighbor from which it was learned

Route Poisoning

When a network becomes unreachable, an update with an infinite metric is generated to explicitly advertise the route as unreachable

Poison Reverse

A router advertises a network as unreachable through the interface on which it was learned

Timer Defaults

! Disable RIPv2 automatic summarization no auto-summary

! Designate RIPv2 interfaces by network

Update Invalid

30 sec 180 sec

Flush

Hold-down

240 sec 180 sec

network network

! Identify unicast-only neighbors neighbor IP-address

! Originate a default route

default-information originate

! Designate passive interfaces

passive-interface {interface | default}

! Modify timers

timers basic update invalid hold flush RIPng Configuration

! Enable IPv6 routing

ipv6 unicast-routing

! Enable RIPng IPv6 routing

ipv6 router rip name

! Toggle split-horizon and poison-reverse [no] split-horizon

[no] poison-reverse

! Modify timers

timers basic update invalid hold flush

RIPv2 Interface Configuration

! Configure manual route summarization ip summary-address rip network mask

! Enable MD5 authentication (RIPv2 only) ip rip authentication mode md5

ip rip authentication key-chain key-chain RIPng Interface Configuration

! Enable RIPng on the interface

ipv6 rip name enable

! Configure manual route summarization ipv6 rip name summary-address prefix

Troubleshooting

show ip[v6] protocols

show ip[v6] rip database

show ip[v6] route rip

debug ip rip { database | events } debug ipv6 rip [interface]

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