

IGRP Commands

This chapter describes the function and displays the syntax for Internet Gateway Routing Protocol (IGRP) commands. For more information about defaults and usage guidelines, see the corresponding chapter of the *Network Protocols Command Reference, Part 1*.

default-information

To control the candidate default routing information between IGRP or Enhanced IGRP processes, use the **default-information** router configuration command. To suppress IGRP or Enhanced IGRP candidate information in incoming updates, use the **no default-information in** command. To suppress IGRP or Enhanced IGRP candidate information in outbound updates, use the **no default-information out** command.

```
default-information { in | out } { access-list-number | name }  
no default-information { in | out }
```

in	Allows IGRP or Enhanced IGRP exterior or default routes to be received by an IGRP process.
out	Allows IGRP or Enhanced IGRP exterior routes to be advertised in updates.
<i>access-list-number</i> <i>name</i>	Number or name of an access list. It can be a number in the range 1 to 99 or an access list name.

default-metric (IGRP and Enhanced IGRP only)

To set metrics for IGRP or Enhanced IGRP, use this form of the **default-metric** router configuration command. To remove the metric value and restore the default state, use the **no** form of this command.

```
default-metric bandwidth delay reliability loading mtu  
no default-metric bandwidth delay reliability loading mtu
```

<i>bandwidth</i>	Minimum bandwidth of the route in kilobits per second. It can be 0 or any positive integer.
<i>delay</i>	Route delay in tens of microseconds. It can be 0 or any positive number that is a multiple of 39.1 nanoseconds.

<i>reliability</i>	Likelihood of successful packet transmission expressed as a number between 0 and 255. The value 255 means 100 percent reliability; 0 means no reliability.
<i>loading</i>	Effective bandwidth of the route expressed as a number from 0 to 255 (255 is 100 percent loading).
<i>mtu</i>	Minimum maximum transmission unit (MTU) size of the route in bytes. It can be 0 or any positive integer.

ip split-horizon

To enable the split horizon mechanism, use the **ip split-horizon** interface configuration command. To disable the split horizon mechanism, use the **no** form of this command.

```
ip split-horizon  
no ip split-horizon
```

metric holddown

To keep new IGRP routing information from being used for a certain period of time, use the **metric holddown** router configuration command. To disable this feature, use the **no** form of this command.

```
metric holddown  
no metric holddown
```

metric maximum-hops

To have the IP routing software to advertise as unreachable those routes with a hop count higher than is specified by the command (IGRP only), use the **metric maximum-hops** router configuration command. To reset the value to the default, use the **no** form of this command.

```
metric maximum-hops hops  
no metric maximum-hops hops
```

<i>hops</i>	Maximum hop count (in decimal). The default value is 100 hops; the maximum number of hops that can be specified is 255.
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metric weights

To allow the tuning of the IGRP or Enhanced IGRP metric calculations, use the **metric weights** router configuration command. To reset the values to their defaults, use the **no** form of this command.

```
metric weights tos k1 k2 k3 k4 k5  
no metric weights
```

<i>tos</i>	Type of service. Currently, it must always be zero.
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k1–k5 Constants that convert an IGRP or Enhanced IGRP metric vector into a scalar quantity.

neighbor (IGRP and RIP)

To define a neighboring router with which to exchange routing information, use this form of the **neighbor** router configuration command. To remove an entry, use the **no** form of this command.

neighbor *ip-address*
no neighbor *ip-address*

ip-address IP address of a peer router with which routing information will be exchanged.

network (IGRP and Enhanced IGRP)

To specify a list of networks for the Enhanced IGRP routing process, use this form of the **network** router configuration command. To remove an entry, use the **no** form of this command.

network *network-number*
no network *network-number*

network-number IP address of the directly connected networks.

offset-list

To add an offset to incoming and outgoing metrics to routes learned via IGRP, use the **offset-list** router configuration command. To remove an offset list, use the **no** form of this command.

offset-list {*access-list-number* | *name*} {**in** | **out**} *offset* [*type number*]
no offset-list {*access-list-number* | *name*} {**in** | **out**} *offset* [*type number*]

access-list-number | *name* Standard access list number or name to be applied. Access list number 0 indicates all access lists. If *offset* is 0, no action is taken. For IGRP, the offset is added to the delay component only.

in Applies the access list to incoming metrics.

out Applies the access list to outgoing metrics.

offset Positive offset to be applied to metrics for networks matching the access list. If the offset is 0, no action is taken.

type (Optional) Interface type to which the offset-list is applied.

number (Optional) Interface number to which the offset-list is applied.

router igrp

To configure the Interior Gateway Routing Protocol (IGRP) routing process, use the **router igrp** global configuration command. To shut down an IGRP routing process, use the **no** form of this command.

router igrp *autonomous-system*
no router igrp *autonomous-system*

autonomous-system Autonomous system number that identifies the routes to the other IGRP routers. It is also used to tag the routing information.

set metric

To set the metric value for IGRP in a route-map, use the **set metric** route-map configuration command. To return to the default metric value, use the **no** form of this command.

set metric *bandwidth delay reliability loading mtu*
no set metric *bandwidth delay reliability loading mtu*

bandwidth Metric value or IGRP bandwidth of the route in kilobits per second. It can be in the range 0 to 4294967295.

delay Route delay in tens of microseconds. It can be in the range 0 to 4294967295.

reliability Likelihood of successful packet transmission expressed as a number between 0 and 255. The value 255 means 100 percent reliability; 0 means no reliability.

loading Effective bandwidth of the route expressed as a number from 0 to 255 (255 is 100 percent loading).

mtu Minimum maximum transmission unit (MTU) size of the route in bytes. It can be in the range 0 to 4294967295.

timers basic

To adjust IGRP network timers, use the **timers basic** router configuration command. To restore the default timers, use the **no** form of this command.

timers basic *update invalid holddown flush [sleeptime]*
no timers basic

update Rate in seconds at which updates are sent. This is the fundamental timing parameter of the routing protocol.

<i>invalid</i>	Interval of time in seconds after which a route is declared invalid; it should be at least three times the value of <i>update</i> . A route becomes invalid when there is an absence of updates that refresh the route. The route then enters holddown. The route is marked inaccessible and advertised as unreachable. However, the route is still used for forwarding packets.
<i>holddown</i>	Interval in seconds during which routing information regarding better paths is suppressed. It should be at least three times the value of <i>update</i> . A route enters into a holddown state when an update packet is received that indicates the route is unreachable. The route is marked inaccessible and advertised as unreachable. However, the route is still used for forwarding packets. When holddown expires, routes advertised by other sources are accepted and the route is no longer inaccessible.
<i>flush</i>	Amount of time in seconds that must pass before the route is removed from the routing table; the interval specified must be at least the sum of <i>invalid</i> and <i>holddown</i> . If it is less than this sum, the proper holddown interval cannot elapse, which results in a new route being accepted before the holddown interval expires.
<i>sleeptime</i>	(Optional) Interval in milliseconds for postponing routing updates in the event of a flash update. The <i>sleeptime</i> value should be less than the <i>update</i> time. If the <i>sleeptime</i> is greater than the <i>update</i> time, routing tables will become unsynchronized.

traffic-share

To control how traffic is distributed among routes when there are multiple routes for the same destination network that have different costs, use the **traffic-share** router configuration command. To disable this function, use the **no** form of the command.

```
traffic-share { balanced | min }
no traffic share { balanced | min }
```

balanced	Distributes traffic proportionately to the ratios of the metrics.
min	Uses routes that have minimum costs.

validate-update-source

To have the Cisco IOS software validate the source IP address of incoming routing updates for RIP and IGRP routing protocols, use the **validate-update-source** router configuration command. To disable this function, use the **no** form of this command.

```
validate-update-source
no validate-update-source
```

