

## Configuring AppleTalk Enhanced IGRP

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This chapter describes how to configure AppleTalk enhanced IGRP on routers and interfaces configured for AppleTalk. For a complete description of the commands mentioned in this chapter, refer to the “AppleTalk Enhanced IGRP Commands” chapter of this manual. For a description of other AppleTalk configuration commands, refer to the *Router Products Configuration Guide* and the *Router Products Command Reference* publications. For historical background and a technical overview of AppleTalk, see the *Internetworking Technology Overview* publication.

### Cisco’s Implementation of AppleTalk Enhanced IGRP

AppleTalk enhanced IGRP provides the following features:

- Automatic redistribution. By default, AppleTalk RTMP routes are automatically redistributed into enhanced IGRP, and AppleTalk enhanced IGRP routes are automatically redistributed into RTMP. If desired, you can turn off redistribution. You also can completely turn off AppleTalk enhanced IGRP and AppleTalk RTMP on the router or on individual interfaces.
- Configuration of routing protocols on individual interfaces. You can configure interfaces that have been configured for AppleTalk to use either RTMP, enhanced IGRP, or both routing protocols. If two neighboring routers are configured to use both RTMP and enhanced IGRP, the enhanced IGRP routing information will supersede the RTMP information. However, both routers will continue to send RTMP routing updates. This feature allows you to control the excessive bandwidth usage of RTMP on WAN links. Because a WAN link is a point-to-point link, there are no other devices on the link, and hence, there is no need to run RTMP to perform end-node router discovery. Using enhanced IGRP on WAN links allows you to save bandwidth and, in the case of PSDNs, traffic charges.

### AppleTalk Enhanced IGRP Configuration Task List

To configure AppleTalk enhanced IGRP, complete the tasks in the following sections. At a minimum, you must create the AppleTalk enhanced IGRP routing process. The remaining tasks are optional.

- Enable AppleTalk Enhanced IGRP
- Configure Miscellaneous Parameters
- Monitor AppleTalk Enhanced IGRP on an AppleTalk Network

See the end of this chapter for a configuration example.

## Enable AppleTalk Enhanced IGRP

To create an AppleTalk enhanced IGRP routing process, perform the following tasks:

Task	Command
Step 1 Enable an AppleTalk enhanced IGRP routing process in global configuration mode.	<b>appletalk routing eigrp</b> <i>router-number</i>
Step 2 Enable enhanced IGRP on an interface in interface configuration mode.	<b>appletalk protocol eigrp</b>

For an example of how to enable AppleTalk enhanced IGRP, see the section “AppleTalk Enhanced IGRP Configuration Example” later in this chapter.

To associate multiple networks with an AppleTalk enhanced IGRP routing process, you can repeat this task.

## Configure Miscellaneous Parameters

To configure miscellaneous AppleTalk enhanced IGRP parameters, perform one or more of the following tasks:

- Disable Redistribution of Routing Information
- Adjust the Interval between Hello Packets and the Hold Time
- Disable Split Horizon

### Disable Redistribution of Routing Information

By default, the router redistributes AppleTalk RTMP routes into AppleTalk enhanced IGRP, and vice versa. Internal enhanced IGRP routes are always preferred over external enhanced IGRP routes. This means that if there are two enhanced IGRP paths to a destination, the path that originated within the enhanced IGRP autonomous system always will be preferred over the enhanced IGRP path that originated from outside of the autonomous system, regardless of the metric. Redistributed RTMP routes always are advertised in enhanced IGRP as external.

To disable route redistribution, perform the following task in global configuration mode:

Task	Command
Disable redistribution of RTMP routes into enhanced IGRP and enhanced IGRP routes into RTMP.	<b>no appletalk route-redistribution</b>

### Adjust the Interval between Hello Packets and the Hold Time

You can adjust the interval between hello packets and the hold time.

Routers periodically send hello packets to each other to dynamically learn of other routers on their directly attached networks. The routers use this information to discover who their neighbors are and to learn when their neighbors become unreachable or inoperative. By default, hello packets are sent every 5 seconds.

You can configure the hold time, in seconds, on a specified interface for the AppleTalk enhanced IGRP routing process designated by the autonomous system number. The hold time is advertised in hello packets and indicates to neighbors the length of time they should consider the sender valid. The default hold time is three times the hello interval, or 15 seconds.

On very congested and large networks, 15 seconds may not be sufficient time for all routers to receive hello packets from their neighbors. In this case, you may want to increase the hold time.

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**Note** Do not adjust the hold time without advising technical support.

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To change the interval between hello packets and the hold time, perform the following task in interface configuration mode:

Task	Command
Set the interval between hello packets and the hold time.	<b>appletalk eigrp-timers</b> <i>hello-interval hold-time</i>

## Disable Split Horizon

Split horizon controls the sending of AppleTalk enhanced IGRP update and query packets. When split horizon is enabled on an interface, these packets are not sent to destinations for which this interface is the next hop. This reduces the possibility of routing loops.

By default, split horizon is enabled on all interfaces.

Split horizon blocks information about routes from being advertised by a router out any interface from which that information originated. This behavior usually optimizes communication among multiple routers, particularly when links are broken. However, with nonbroadcast networks, such as Frame Relay and SMDS, situations can arise for which this behavior is less than ideal. For these situations, you may wish to disable split horizon.

To disable split horizon, perform the following task in interface configuration mode:

Task	Command
Disable split horizon.	<b>no appletalk eigrp-splithorizon</b>

## Monitor AppleTalk Enhanced IGRP on an AppleTalk Network

To monitor AppleTalk enhanced IGRP on an AppleTalk network, perform one or more of the following tasks at the EXEC prompt:

Task	Command
List the neighbors discovered by AppleTalk enhanced IGRP.	<b>show appletalk eigrp neighbors</b> [ <i>interface unit</i> ]
Display the contents of the AppleTalk enhanced IGRP topology table.	<b>show appletalk eigrp topology</b> [ <i>network-number</i>   <b>active</b>   <b>zero-successors</b> ]
Displays the contents of the AppleTalk routing table, including enhanced IGRP entries.	<b>show appletalk route</b> [ <i>network-number</i>   <i>interface unit</i> ]

## AppleTalk Enhanced IGRP Configuration Example

The following example shows how to configure AppleTalk enhanced IGRP. In this example, Ethernet interface 0 is configured for both enhanced IGRP and RTMP routing, and serial interface 0 is configured for only AppleTalk enhanced IGRP routing:

```
appletalk routing eigrp 1
appletalk route-redistribution
!
interface ethernet 0
appletalk cable-range 10-10 10.51
appletalk zone Ethernet 0
appletalk protocol eigrp
!
interface serial 0
appletalk cable-range 111-111 111.51
appletalk zone Serial 0
appletalk protocol eigrp
no appletalk protocol rtmp
```