

## Enhanced Interior Gateway Routing Protocol

**Enhanced Interior Gateway Routing Protocol - (EIGRP)** is a Cisco proprietary routing protocol loosely based on their original IGRP. EIGRP is an advanced distance-vector routing protocol, with optimizations to minimize both the routing instability incurred after topology changes, as well as the use of bandwidth and processing power in the router. Routers that support EIGRP will automatically redistribute route information to IGRP neighbors by converting the 32 bit EIGRP metric to the 24 bit IGRP metric. Most of the routing optimizations are based on the Diffusing Update Algorithm (DUAL) work from SRI, which guarantees loop-free operation and provides a mechanism for fast convergence. **Configuring EIGRP**

The commands used to configure EIGRP on a Cisco router are consistent with the other IP routing protocol commands. The EIGRP commands are:

- . router eigrp autonomous\_system\_number configures EIGRP as the routing protocol on the router.
- . network network\_number [ wildcard\_mask ] defines the networks that are to participate in the EIGRP updates. The [ wildcard\_mask ] optional parameter identifies which interfaces are running EIGRP.
- . no network network\_number [ wildcard\_mask ] disables EIGRP.
- . no autosummary turns off automatic summarization.
- . ip summary address eigrp autonomous\_system\_number ip\_address subnet\_mask configures summarization at the interface level.
- . variance multiplier configures EIGRP to load-balance across unequal paths.
- . bandwidth line\_speed overrides the default bandwidth settings on the links.

### Verifying the EIGRP Configuration

There are a number of show and debug commands that can be used to configure, maintain, and troubleshoot a live EIGP network. The show commands are:

- . show ip eigrp neighbors, which provides detailed information on the neighbors.
- . show ip eigrp topology, which provides details about the routes held in the topology table and for detailed information on the networks that the router is aware of and the preferred paths to those networks, as well as the next logical hop as the first step in the path.
- . show ip eigrp topology all, which provides details about all the routes and alternative paths held in the topology table.
- . show ip eigrp traffic, which provides information on the aggregate traffic sent to and from the EIGRP process.
- . show ipx route, which shows the routing table for IPX and is the source of the information on how to reach the remote destination network.
- . show ip route, which provides detailed information on the networks that the router is aware of and the preferred paths to those networks.
- . show ip protocols, which displays the IP configuration on the router, including the interfaces and the configuration of the IP routing protocols.