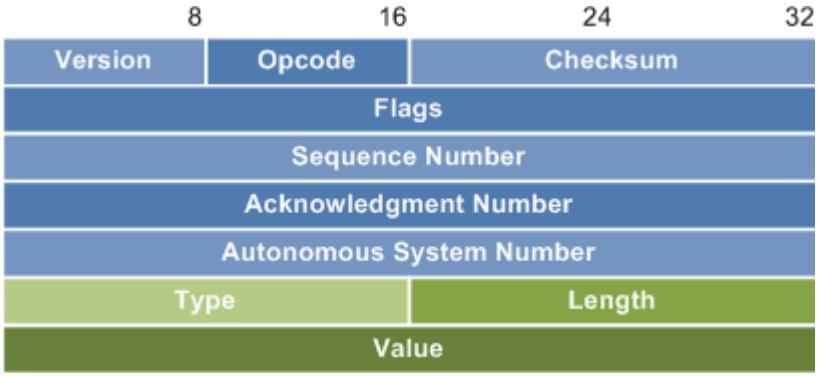
EIGRP

Protocol Header



Metric Formula

$$256 * (K_1 * \mathbf{bw} + \frac{K_2 * \mathbf{bw}}{256 - \mathbf{load}} + K_3 * \mathbf{delay}) * \frac{K_5}{\mathbf{reliability} + K_4}$$

bw = 10^7 / Interface bandwidth in Kbps
delay = Interface delay in usecs / 10

EIGRP Configuration

Protocol Configuration

```
! Enable EIGRP
router eigrp <ASN>

! Add interfaces to advertise
 network <IP address> <wildcard mask>

! Configure K values
 metric weights 0 <k1> <k2> <k3> <k4> <k5>

! Disable automatic route summarization
 no auto-summary

! Designate passive interfaces
 passive-interface (<interface> | <default>)

! Enable stub routing
 eigrp stub [receive-only | connected | static | summary]

! Statically identify a neighboring router
 neighbor <IP address> <interface>
```

Interface Configuration

```
! Set maximum bandwidth EIGRP can consume
ip bandwidth-percent eigrp <percentage>

! Configure manual summarization of outbound advertisements
ip summary-address eigrp <ASN> <IP address> <mask> [<AD>]

! Enable MD5 authentication
ip authentication mode eigrp <ASN> md5
ip authentication key-chain eigrp <ASN> <key-chain>

! Configure hello and hold timers
ip hello-interval eigrp <ASN> <seconds>
ip hold-time eigrp <ASN> <seconds>

! Disable split horizon for EIGRP
no ip split-horizon eigrp <ASN>
```

Attributes

Type	Distance Vector
Algorithm	DUAL
Internal AD	90
External AD	170
Summary AD	5
Standard	Cisco proprietary
Protocols	IP, IPX, Appletalk
Transport	IP 88
Authentication	MD5
Multicast IP	224.0.0.10
Hello Timer	5 / 60
Hold Timer	15 / 180

K Defaults	
K1	1
K2	0
K3	1
K4	0
K5	0

Packet Types	
1	Update
3	Query
4	Reply
5	Hello
8	Acknowledge

Terminology

Reported Distance · The metric for a route advertised by a neighbor

Feasible Distance · The distance advertised by a neighbor *plus* the cost to get to that neighbor

Stuck In Active (SIA) · The condition when a route becomes unreachable and not all queries are answered; adjacencies with unresponsive neighbors are reset

Passive Interface · An interface which does not participate in EIGRP but whose network is advertised

Stub Router · A router which does not relay updates between neighbors or participate in querying

Troubleshooting

```
show ip eigrp interfaces
show ip eigrp neighbors
show ip eigrp topology
show ip eigrp traffic
clear ip eigrp neighbors
debug ip eigrp [packet | neighbors]
```