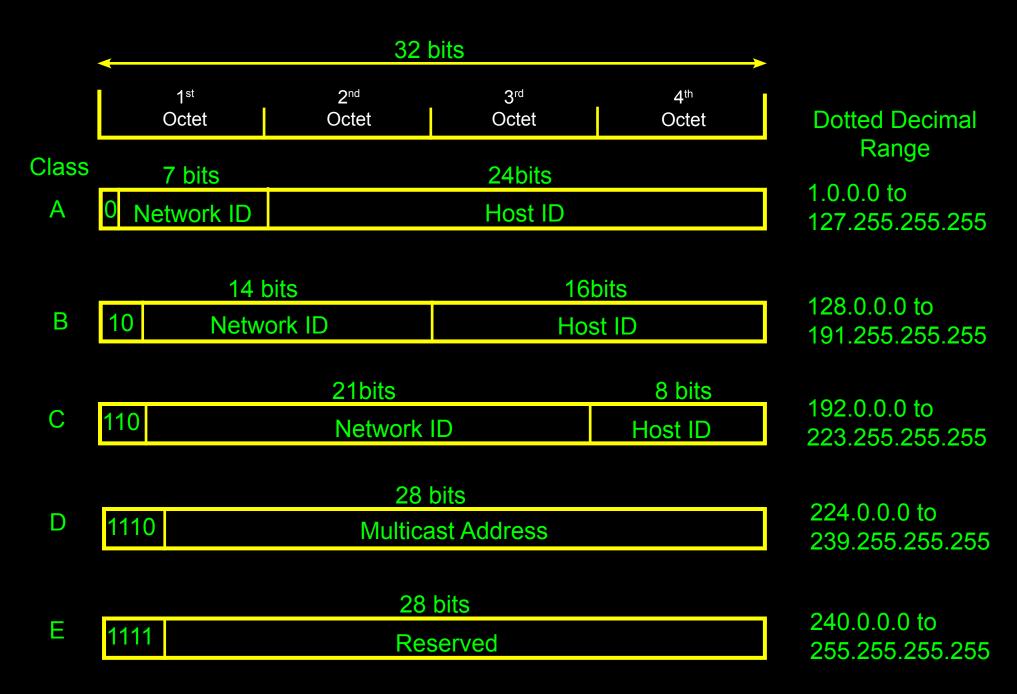
Classful and Special IPv4 Addressing



Router Protocols RIP, OSPF, BGP and IMCP

- 1. RIP, OSPF, and BGP are application layer protocols
- 2. ICMP is a transport layer protocol

- 1. Routing protocols are integral to layer 3, the network layer. Why then are routing protocols a layer 5, application layer, protocol?
- 2. ICMP is integral to layer 3, the network layer. Why then is ICMP a layer 4, transport layer, protocol?

IP Addresses Reserved for Private Networks

Prefix	Mask	Lowest Address	Highest Address
10.0.0.0/8	255.0.0.0	10.0.0.0	10.255.255.255
172.16.0.0/12	255.240.0.0	172.16.0.0	172.31.255.255
192.168.0.0/16	255.255.0.0	192.168.0.0	192.168.255.255
169.254.0.0/16	255.255.0.0	169.254.0.0	169.254.255.255

The prefixes reserved for use with private networks not connected to the global Internet. If a datagram sent to one of these addresses accidently reaches the Internet, an error will result.

Summary of Special IP Address Conventions

Startup source address All 0's All 1's Limited broadcast (local net) Net id All 1's Directed broadcast for net-id Directed broadcast for net-id Net id All 0's Anything often 0.0.1 127 Loopback (LocalHost)

IP Addresses Reserved for Private Networks

Prefix	Mask	Lowest Address	Highest Address
10.0.0.0/8	255.0.0.0	10.0.0.0	10.255.255.255
172.16.0.0/12	255.240.0.0	172.16.0.0	172.31.255.255
192.168.0.0/16	255.255.0.0	192.168.0.0	192.168.255.255
169.254.0.0/16	255.255.0.0	169.254.0.0	169.254.255.255

The prefixes reserved for use with private networks not connected to the global Internet. If a datagram sent to one of these addresses accidently reaches the Internet, an error will result.

How Subnet Masks Work (same subnet)

Source Host IP
Subnet /Notation
Subnet Mask Notation
Destination Host IP

Dotted Decimal
192.168.101.217
192.168.101/24
255.255.255.0
192.168.101.210

Source Host IP
Subnet Mask
Destination Host IP

Source & Mask Dest. & Mask

How Subnet Masks Work (different subnet)

0.217

	<u>Dotted Decimal</u>
Source Host IP	192.168.101.217
Subnet /Notation	192.168.101/24
Subnet Mask Notation	255.255.255.0
Destination Host IP	192.168.110.217

	<u> </u>
Source Host IP	11000000.10101000.01100101.11011001
Subnet Mask	111111111111111111111111100000000
Destination Host IP	11000000.10101000.01101110.11010010

Source & Mask 11000000.10101000.01100101.00000000 Dest. & Mask 11000000.10101000.01101110.00000000