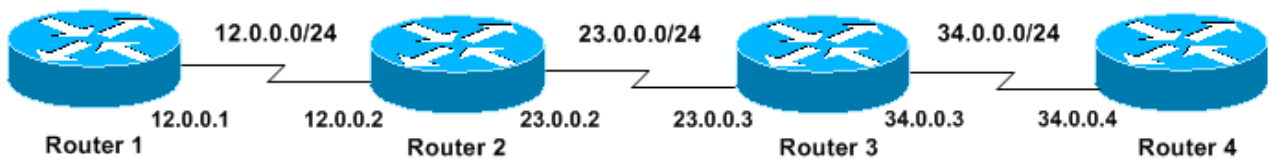# Ping

Introduction

This illustrates the use of **ping** command

References

- https://www.cisco.com/c/en/us/support/docs/ios-nx-os-software/ios-software-releases-121-mainline/12778-ping-traceroute.html

Background Information

The **ping** command is a very common method for troubleshooting the accessibility of devices. It uses a series of Internet Control Message Protocol (ICMP) Echo messages to determine.

- Whether a remote host is active or inactive
- The round-trip delay in communicating with the host
- Packet loss

The ping command first sends an echo request packet to an address, then waits for a reply. The ping is successful only if,

- the echo request gets to the destination, and
- the destination is able to get an echo reply back to the source within a predetermined time called a timeout.

The TTL value of a **ping** packet cannot be changed

```
Router 1# ping 23.0.0.3

Pinging www.google.com [23.0.0.3] with 32 bytes of data:
Reply from 23.0.0.3: bytes=32 time=293ms TTL=128
Reply from 23.0.0.3: bytes=32 time=320ms TTL=128
Reply from 23.0.0.3: bytes=32 time=244ms TTL=128
Reply from 23.0.0.3: bytes=32 time=243ms TTL=128

Ping statistics for 23.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 243ms, Maximum = 320ms, Average = 275ms
```

ICMP - type value

ICMP Type	Literal
0	echo-reply
3	destination unreachable code 0 = net unreachable 1 = host unreachable 2 = protocol unreachable 3 = port unreachable 4 = fragmentation needed and DF set 5 = source route failed
4	source-quench
5	redirect code 0 = redirect datagrams for the network 1 = redirect datagrams for the host 2 = redirect datagrams for the type of service and network 3 = redirect datagrams for the type of service and host
6	alternate-address
8	echo
9	router-advertisement
10	router-solicitation
11	time-exceeded code 0 = time to live exceeded in transit 1 = fragment reassembly time exceeded
12	parameter-problem
13	timestamp-request
14	timestamp-reply
15	information-request
16	information-reply
17	mask-request
18	mask-reply
31	conversion-error
32	mobile-redirect