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Rocky Enterprise Linux 9.2 Manual Pages on command 'icmp.7'

$ man icmp.7

ICMP(7)   Linux Programmer's Manual   ICMP(7)

NAME

   icmp - Linux IPv4 ICMP kernel module.

DESCRIPTION

   This kernel protocol module implements the Internet Control Message

   Protocol defined in RFC 792. It is used to signal error conditions and

   for diagnosis.   The user doesn't interact directly with this module;

   instead it communicates with the other protocols in the kernel and

   these pass the ICMP errors to the application layers. The kernel ICMP

   module also answers ICMP requests.

   A user protocol may receive ICMP packets for all local sockets by open‐

   ing a raw socket with the protocol IPPROTO_ICMP. See raw(7) for more

   information. The types of ICMP packets passed to the socket can be

   filtered using the ICMP_FILTER socket option. ICMP packets are always

   processed by the kernel too, even when passed to a user socket.

   Linux limits the rate of ICMP error packets to each destination.

   ICMP_REDIRECT and ICMP_DEST_UNREACH are also limited by the destination

   route of the incoming packets.

/proc interfaces

ICMP supports a set of /proc interfaces to configure some global IP pa?
rameters.   The parameters can be accessed by reading or writing files
in the directory /proc/sys/net/ipv4/. Most of these parameters are
rate limitations for specific ICMP types.   Linux 2.2 uses a token
bucket filter to limit ICMPs. The value is the timeout in jiffies un?
til the token bucket filter is cleared after a burst. A jiffy is a
system dependent unit, usually 10ms on i386 and about 1ms on alpha and
ia64.

icmp_destunreach_rate (Linux 2.2 to 2.4.9)

Maximum rate to send ICMP Destination Unreachable packets. This
limits the rate at which packets are sent to any individual
route or destination.   The limit does not affect sending of
ICMP_FRAG_NEEDED packets needed for path MTU discovery.

icmp_echo_ignore_all (since Linux 2.2)

If this value is nonzero, Linux will ignore all ICMP_ECHO re?
quests.

icmp_echo_ignore_broadcasts (since Linux 2.2)

If this value is nonzero, Linux will ignore all ICMP_ECHO pack?
ets sent to broadcast addresses.

icmp_echoreply_rate (Linux 2.2 to 2.4.9)

Maximum rate for sending ICMP_ECHOREPLY packets in response to
ICMP_ECHOREQUEST packets.

icmp_errors_use_inbound_ifaddr (Boolean; default: disabled; since Linux
2.6.12)

If disabled, ICMP error messages are sent with the primary ad?
dress of the exiting interface.

If enabled, the message will be sent with the primary address of
the interface that received the packet that caused the ICMP er?
ror. This is the behavior that many network administrators will
expect from a router. And it can make debugging complicated
network layouts much easier.

Note that if no primary address exists for the interface se?

lected, then the primary address of the first non-loopback in?

terface that has one will be used regardless of this setting.

icmp_ignore_bogus_error_responses (Boolean; default: disabled; since

Linux 2.2)

Some routers violate RFC1122 by sending bogus responses to

broadcast frames.   Such violations are normally logged via a

kernel warning. If this parameter is enabled, the kernel will

not give such warnings, which will avoid log file clutter.

icmp_paramprob_rate (Linux 2.2 to 2.4.9)

Maximum rate for sending ICMP_PARAMETERPROB packets. These

packets are sent when a packet arrives with an invalid IP

header.

icmp_ratelimit (integer; default: 1000; since Linux 2.4.10)

Limit the maximum rates for sending ICMP packets whose type

matches icmp_ratemask (see below) to specific targets.   0 to

disable any limiting, otherwise the minimum space between re?

sponses in milliseconds.

icmp_ratemask (integer; default: see below; since Linux 2.4.10)

Mask made of ICMP types for which rates are being limited.

Significant bits: IHGFEDCBA9876543210

Default mask: 0000001100000011000 (0x1818)

Bit definitions (see the Linux kernel   source   file   in?

clude/linux/icmp.h):

0 Echo Reply

3 Destination Unreachable *

4 Source Quench *

5 Redirect

8 Echo Request

B Time Exceeded *

C Parameter Problem *

D Timestamp Request

E Timestamp Reply

F Info Request

G Info Reply

H Address Mask Request

I Address Mask Reply

The bits marked with an asterisk are rate limited by default (see the
default mask above).

icmp_timeexceed_rate (Linux 2.2 to 2.4.9)

Maximum rate for sending ICMP_TIME_EXCEEDED packets.   These
packets are sent to prevent loops when a packet has crossed too
many hops.

ping_group_range (two integers; default: see below; since Linux 2.6.39)

Range of the group IDs (minimum and maximum group IDs, inclu?
sive) that are allowed to create ICMP Echo sockets. The default
is "1 0", which means no group is allowed to create ICMP Echo
sockets.

VERSIONS

Support for the ICMP_ADDRESS request was removed in 2.2.

Support for ICMP_SOURCE_QUENCH was removed in Linux 2.2.

NOTES

As many other implementations don't support IPPROTO_ICMP raw sockets,
this feature should not be relied on in portable programs.

ICMP_REDIRECT packets are not sent when Linux is not acting as a
router.   They are also accepted only from the old gateway defined in
the routing table and the redirect routes are expired after some time.

The 64-bit timestamp returned by ICMP_TIMESTAMP is in milliseconds
since the Epoch, 1970-01-01 00:00:00 +0000 (UTC).

Linux ICMP internally uses a raw socket to send ICMPs. This raw socket
may appear in netstat(8) output with a zero inode.

SEE ALSO

ip(7), rdisc(8)

RFC 792 for a description of the ICMP protocol.

COLOPHON

This page is part of release 5.10 of the Linux man-pages project.   A
description of the project, information about reporting bugs, and the

latest version of this page, can be found at
https://www.kernel.org/doc/man-pages/.

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