NAME

icmp, ICMP – Internet Control Message Protocol

SYNOPSIS

#include <sys/socket.h>

#include <netinet/in.h>

#include <netinet/ip_icmp.h>

s = socket(AF_INET, SOCK_RAW, *proto***);**

t = t_open("/dev/icmp", O_RDWR);

DESCRIPTION

ICMP is the error and control message protocol used by the Internet protocol family. It is used by the kernel to handle and report errors in protocol processing. It may also be accessed by programs using the socket interface or the Transport Level Interface (TLI) for network monitoring and diagnostic functions. When used with the socket interface, a "raw socket" type is used. The protocol number for ICMP, used in the *proto* parameter to the socket call, can be obtained from **getprotobyname**(3N). ICMP file descriptors and sockets are connectionless, and are normally used with the **t_sndudata** / **t_rcvudata** and the **sendto( )** / **recvfrom( )** calls.

Outgoing packets automatically have an Internet Protocol (IP) header prepended to them. Incoming packets are provided to the user with the IP header and options intact.

ICMP is an datagram protocol layered above IP. It is used internally by the protcol code for various purposes including routing, fault isolation, and congestion control. Receipt of an ICMP "redirect" message will add a new entry in the routing table, or modify an existing one. ICMP messages are routinely sent by the protocol code. Received ICMP messages may be reflected back to users of higher-level protocols such as TCP or UDP as error returns from system calls. A copy of all ICMP message received by the system is provided to every holder of an open ICMP socket or TLI descriptor.

SEE ALSO

getprotobyname(3N), **recv**(3N), **send**(3N), **t_rcvudata**(3N), **t_sndudata**(3N), **routing**(4), **inet**(7P), **ip**(7P)

Postel, Jon, *Internet Control Message Protocol — DARPA Internet Program Protocol Specification*, RFC 792, Network Information Center, SRI International, Menlo Park, Calif., September 1981.

DIAGNOSTICS

A socket operation may fail with one of the following errors returned:

EISCONN An attempt was made to establish a connection on a socket which already has one, or when trying to send a datagram with the destination address specified and the socket is already connected.

ENOTCONN An attempt was made to send a datagram, but no destination address is specified, and the socket has not been connected.

ENOBUFS The system ran out of memory for an internal data structure.

EADDRNOTAVAIL An attempt was made to create a socket with a network address for which no network interface exists.

NOTES

Replies to ICMP "echo" messages which are source routed are not sent back using inverted source routes, but rather go back through the normal routing mechanisms.