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## *Red Hat Enterprise Linux Release 9.2 Manual Pages on 'ddp.7' command*

***$ man ddp.7***

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

NAME

ddp - Linux AppleTalk protocol implementation

SYNOPSIS

#include <sys/socket.h>

#include <netatalk/at.h>

ddp_socket = socket(AF_APPLETALK, SOCK_DGRAM, 0);

raw_socket = socket(AF_APPLETALK, SOCK_RAW, protocol);

DESCRIPTION

Linux implements the AppleTalk protocols described in Inside AppleTalk. Only the DDP layer and AARP are present in the kernel. They are de? signed to be used via the netatalk protocol libraries. This page docu? ments the interface for those who wish or need to use the DDP layer di? rectly.

The communication between AppleTalk and the user program works using a BSD-compatible socket interface. For more information on sockets, see socket(7).

An AppleTalk socket is created by calling the socket(2) function with a AF_APPLETALK socket family argument. Valid socket types are SOCK_DGRAM to open a ddp socket or SOCK_RAW to open a raw socket. protocol is the AppleTalk protocol to be received or sent. For SOCK_RAW you must spec? ify ATPROTO_DDP.

Raw sockets may be opened only by a process with effective user ID 0 or

when the process has the CAP_NET_RAW capability.

Address format

An AppleTalk socket address is defined as a combination of a network number, a node number, and a port number.

```
struct at_addr {
    unsigned short s_net;
    unsigned char  s_node;
};
struct sockaddr_atalk {
    sa_family_t    sat_family;    /* address family */
    unsigned char  sat_port;      /* port */
    struct at_addr sat_addr;      /* net/node */
};
```

sat_family is always set to AF_APPLETALK. sat_port contains the port. The port numbers below 129 are known as reserved ports. Only processes with the effective user ID 0 or the CAP_NET_BIND_SERVICE capability may bind(2) to these sockets. sat_addr is the host address. The net mem? ber of struct at_addr contains the host network in network byte order. The value of AT_ANYNET is a wildcard and also implies ?this network.? The node member of struct at_addr contains the host node number. The value of AT_ANYNODE is a wildcard and also implies ?this node.? The value of ATADDR_BCAST is a link local broadcast address.

Socket options

No protocol-specific socket options are supported.

/proc interfaces

IP supports a set of /proc interfaces to configure some global Ap? pleTalk parameters. The parameters can be accessed by reading or writ? ing files in the directory /proc/sys/net/atalk/.

aarp-expiry-time

The time interval (in seconds) before an AARP cache entry ex? pires.

aarp-resolve-time

The time interval (in seconds) before an AARP cache entry is re?

solved.

aarp-retransmit-limit

The number of retransmissions of an AARP query before the node is declared dead.

aarp-tick-time

The timer rate (in seconds) for the timer driving AARP.

The default values match the specification and should never need to be changed.

Ioctls

All ioctls described in socket(7) apply to DDP.

ERRORS

EACCES The user tried to execute an operation without the necessary permissions. These include sending to a broadcast address with? out having the broadcast flag set, and trying to bind to a re? served port without effective user ID 0 or CAP_NET_BIND_SERVICE.

EADDRINUSE

Tried to bind to an address already in use.

EADDRNOTAVAIL

A nonexistent interface was requested or the requested source address was not local.

EAGAIN Operation on a nonblocking socket would block.

EALREADY

A connection operation on a nonblocking socket is already in progress.

ECONNABORTED

A connection was closed during an accept(2).

EHOSTUNREACH

No routing table entry matches the destination address.

EINVAL Invalid argument passed.

EISCONN

connect(2) was called on an already connected socket.

EMSGSIZE

Datagram is bigger than the DDP MTU.

ENODEV Network device not available or not capable of sending IP.

ENOENT SIOCGSTAMP was called on a socket where no packet arrived.

ENOMEM and ENOBUFS

Not enough memory available.

ENOPKG A kernel subsystem was not configured.

ENOPROTOOPT and EOPNOTSUPP

Invalid socket option passed.

ENOTCONN

The operation is defined only on a connected socket, but the socket wasn't connected.

EPERM User doesn't have permission to set high priority, make a con? figuration change, or send signals to the requested process or group.

EPIPE The connection was unexpectedly closed or shut down by the other end.

ESOCKTNOSUPPORT

The socket was unconfigured, or an unknown socket type was re? quested.

VERSIONS

AppleTalk is supported by Linux 2.0 or higher. The /proc interfaces exist since Linux 2.2.

NOTES

Be very careful with the SO_BROADCAST option; it is not privileged in Linux. It is easy to overload the network with careless sending to broadcast addresses.

Compatibility

The basic AppleTalk socket interface is compatible with netatalk on BSD-derived systems. Many BSD systems fail to check SO_BROADCAST when sending broadcast frames; this can lead to compatibility problems.

The raw socket mode is unique to Linux and exists to support the alter? native CAP package and AppleTalk monitoring tools more easily.

BUGS

There are too many inconsistent error values.

The ioctls used to configure routing tables, devices, AARP tables, and other devices are not yet described.

## SEE ALSO

recvmsg(2), sendmsg(2), capabilities(7), socket(7)

## 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/.