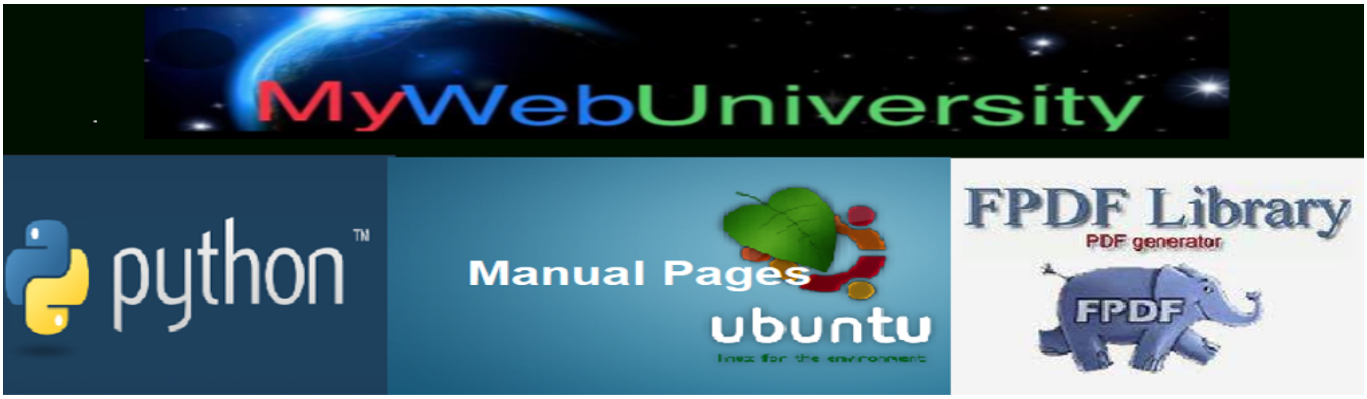

Rocky Enterprise Linux 9.2 Manual Pages on command 'inet_pton.3'

$ man inet_pton.3

INET_PTON(3) Linux Programmer's Manual INET_PTON(3)

NAME

inet_pton - convert IPv4 and IPv6 addresses from text to binary form

SYNOPSIS

#include <arpa/inet.h>

int inet_pton(int af, const char *src, void *dst);

DESCRIPTION

This function converts the character string src into a network address structure in the af address family, then copies the network address structure to dst. The af argument must be either AF_INET or AF_INET6. dst is written in network byte order.

The following address families are currently supported:

AF_INET

src points to a character string containing an IPv4 network address in dotted-deci? mal format, "ddd.ddd.ddd.ddd", where ddd is a decimal number of up to three digits in the range 0 to 255. The address is converted to a struct in_addr and copied to dst, which must be sizeof(struct in_addr) (4) bytes (32 bits) long.

AF_INET6

src points to a character string containing an IPv6 network address. The address is converted to a struct in6_addr and copied to dst, which must be sizeof(struct in6_addr) (16) bytes (128 bits) long. The allowed formats for IPv6 addresses fol? low these rules:

1. The preferred format is x:x:x:x:x:x:x:x. This form consists of eight hexadeci? mal numbers, each of which expresses a 16-bit value (i.e., each x can be up to 4

hex digits).

2. A series of contiguous zero values in the preferred format can be abbreviated to ::. Only one instance of :: can occur in an address. For example, the loopback address 0:0:0:0:0:0:0:1 can be abbreviated as ::1. The wildcard address, con? sisting of all zeros, can be written as ::.

3. An alternate format is useful for expressing IPv4-mapped IPv6 addresses. This form is written as x:x:x:x:x:x:d.d.d.d, where the six leading xs are hexadecimal values that define the six most-significant 16-bit pieces of the address (i.e., 96 bits), and the ds express a value in dotted-decimal notation that defines the least significant 32 bits of the address. An example of such an address is ::FFFF:204.152.189.116.

See RFC 2373 for further details on the representation of IPv6 addresses.

RETURN VALUE

inet_pton() returns 1 on success (network address was successfully converted). 0 is re? turned if src does not contain a character string representing a valid network address in the specified address family. If af does not contain a valid address family, -1 is re? turned and errno is set to EAFNOSUPPORT.

ATTRIBUTES

For an explanation of the terms used in this section, see attributes(7).

Interface	Attribute	Value
inet_pton()	Thread safety	MT-Safe locale

CONFORMING TO

POSIX.1-2001, POSIX.1-2008.

NOTES

Unlike inet_aton(3) and inet_addr(3), inet_pton() supports IPv6 addresses. On the other hand, inet_pton() accepts only IPv4 addresses in dotted-decimal notation, whereas inet_aton(3) and inet_addr(3) allow the more general numbers-and-dots notation (hexadeci? mal and octal number formats, and formats that don't require all four bytes to be explic? itly written). For an interface that handles both IPv6 addresses, and IPv4 addresses in numbers-and-dots notation, see getaddrinfo(3).

BUGS

AF_INET6 does not recognize IPv4 addresses. An explicit IPv4-mapped IPv6 address must be supplied in src instead.

EXAMPLES

The program below demonstrates the use of inet_pton() and inet_ntop(3). Here are some ex? ample runs:

```
$ ./a.out i6 0:0:0:0:0:0:0:0
::
$ ./a.out i6 1:0:0:0:0:0:0:8
1::8
$ ./a.out i6 0:0:0:0:0:FFFF:204.152.189.116
::ffff:204.152.189.116
```

Program source

```
#include <arpa/inet.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int
main(int argc, char *argv[])
{
    unsigned char buf[sizeof(struct in6_addr)];
    int domain, s;
    char str[INET6_ADDRSTRLEN];
    if (argc != 3) {
        fprintf(stderr, "Usage: %s {i4|i6|<num>} string\n", argv[0]);
        exit(EXIT_FAILURE);
    }
    domain = (strcmp(argv[1], "i4") == 0) ? AF_INET :
            (strcmp(argv[1], "i6") == 0) ? AF_INET6 : atoi(argv[1]);
    s = inet_pton(domain, argv[2], buf);
    if (s <= 0) {
        if (s == 0)
            fprintf(stderr, "Not in presentation format");
```

```
            else
                perror("inet_pton");
            exit(EXIT_FAILURE);
        }
        if (inet_ntop(domain, buf, str, INET6_ADDRSTRLEN) == NULL) {
            perror("inet_ntop");
            exit(EXIT_FAILURE);
        }
        printf("%s\n", str);
        exit(EXIT_SUCCESS);
    }
```

SEE ALSO

getaddrinfo(3), inet(3), inet_ntop(3)

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/.