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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'getnameinfo.3p' command

\$ man getnameinfo.3p

GETNAMEINFO(3P) POSIX Programmer's Manual GETNAMEINFO(3P)

PROLOG

This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior), or the interface may not be implemented on Linux.

NAME

getnameinfo ? get name information

SYNOPSIS

```
#include <sys/socket.h>
#include <netdb.h>

int getnameinfo(const struct sockaddr *restrict sa, socklen_t salen,
char *restrict node, socklen_t nodelen, char *restrict service,
socklen_t servicelen, int flags);
```

DESCRIPTION

The `getnameinfo()` function shall translate a socket address to a node name and service location, all of which are defined as in `freed? drinfo()`.

The `sa` argument points to a socket address structure to be translated. The `salen` argument contains the length of the address pointed to by `sa`.

If the socket address structure contains an IPv4-mapped IPv6 address or an IPv4-compatible IPv6 address, the implementation shall extract the embedded IPv4 address and lookup the node name for that IPv4 address.

If the address is the IPv6 unspecified address ("::"), a lookup shall not be performed and the behavior shall be the same as when the node's name cannot be located.

If the node argument is non-NULL and the nodelen argument is non-zero, then the node argument points to a buffer able to contain up to nodelen bytes that receives the node name as a null-terminated string. If the node argument is NULL or the nodelen argument is zero, the node name shall not be returned. If the node's name cannot be located, the numeric form of the address contained in the socket address structure pointed to by the sa argument is returned instead of its name.

If the service argument is non-NULL and the servicelen argument is non-zero, then the service argument points to a buffer able to contain up to servicelen bytes that receives the service name as a null-terminated string. If the service argument is NULL or the servicelen argument is zero, the service name shall not be returned. If the service's name cannot be located, the numeric form of the service address (for example, its port number) shall be returned instead of its name.

The flags argument is a flag that changes the default actions of the function. By default the fully-qualified domain name (FQDN) for the host shall be returned, but:

- * If the flag bit NI_NOFQDN is set, only the node name portion of the FQDN shall be returned for local hosts.
- * If the flag bit NI_NUMERICHOST is set, the numeric form of the address contained in the socket address structure pointed to by the sa argument shall be returned instead of its name.
- * If the flag bit NI_NAMEREQD is set, an error shall be returned if the host's name cannot be located.
- * If the flag bit NI_NUMERICSERV is set, the numeric form of the service address shall be returned (for example, its port number) instead of its name.
- * If the flag bit NI_NUMERICSCOPE is set, the numeric form of the scope identifier shall be returned (for example, interface index) instead of its name. This flag shall be ignored if the sa argument

is not an IPv6 address.

- * If the flag bit `NI_DGRAM` is set, this indicates that the service is a datagram service (`SOCK_DGRAM`). The default behavior shall assume that the service is a stream service (`SOCK_STREAM`).

Notes:

1. The two `NI_NUMERICxxx` flags are required to support the `-n` flag that many commands provide.
2. The `NI_DGRAM` flag is required for the few `AF_INET` and `AF_INET6` port numbers (for example, `[512,514]`) that represent different services for UDP and TCP.

The `getnameinfo()` function shall be thread-safe.

RETURN VALUE

A zero return value for `getnameinfo()` indicates successful completion; a non-zero return value indicates failure. The possible values for the failures are listed in the `ERRORS` section.

Upon successful completion, `getnameinfo()` shall return the node and service names, if requested, in the buffers provided. The returned names are always null-terminated strings.

ERRORS

The `getnameinfo()` function shall fail and return the corresponding value if:

[`EAI_AGAIN`] The name could not be resolved at this time. Future attempts may succeed.

[`EAI_BADFLAGS`]

The flags had an invalid value.

[`EAI_FAIL`] A non-recoverable error occurred.

[`EAI_FAMILY`]

The address family was not recognized or the address length was invalid for the specified family.

[`EAI_MEMORY`]

There was a memory allocation failure.

[`EAI_NONAME`]

The name does not resolve for the supplied parameters.

NI_NAMEREQD is set and the host's name cannot be located,
or both nodename and servname were null.

[EAI_OVERFLOW]

An argument buffer overflowed. The buffer pointed to by the
node argument or the service argument was too small.

[EAI_SYSTEM]

A system error occurred. The error code can be found in `errno`.

The following sections are informative.

EXAMPLES

None.

APPLICATION USAGE

If the returned values are to be used as part of any further name resolution (for example, passed to `getaddrinfo()`), applications should provide buffers large enough to store any result possible on the system.

Given the IPv4-mapped IPv6 address `::ffff:1.2.3.4`, the implementation performs a lookup as if the socket address structure contains the IPv4 address `"1.2.3.4"`.

The IPv6 unspecified address (`:::`) and the IPv6 loopback address (`:::1`) are not IPv4-compatible addresses.

RATIONALE

None.

FUTURE DIRECTIONS

None.

SEE ALSO

`endservent()`, `freeaddrinfo()`, `gai_strerror()`, `inet_ntop()`, `socket()`

The Base Definitions volume of POSIX.1-2017, `<netdb.h>`, `<sys_socket.h>`

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