

gethostbyname

GETHOSTBYNAME(3) System Library Functions Manual GETHOSTBYNAME(3)

NAME

gethostbyname, gethostbyname2, gethostbyaddr, gethostent, sethostent, endhostent, hstrerror, perror - get network host entry

SYNOPSIS

```
#include <netdb.h>
extern int h_errno;

struct hostent *
gethostbyname(const char *name);

struct hostent *
gethostbyname2(const char *name, int af);

struct hostent *
gethostbyaddr(const char *addr, int len, int af);

struct hostent *
gethostent(void);

void
sethostent(int stayopen);

void
endhostent(void);

void
perror(const char *string);

const char *
hstrerror(int err);
```

DESCRIPTION

The gethostbyname() and gethostbyaddr() functions each return a pointer to an object with the following structure describing an internet host referenced by name or by address, respectively. This structure contains either information obtained from the name server (i.e., resolver(3) and named(8)), broken-out fields from a line in /etc/hosts, or database entries supplied by the yp(8) system. resolv.conf(5) describes how the particular database is chosen.

```
struct hostent {
    char    *h_name;           /* official name of host */
    char    **h_aliases;      /* alias list */
    int     h_addrtype;       /* host address type */
    int     h_length;         /* length of address */
    char    **h_addr_list;    /* list of addresses from name server */
};
```

```
#define h_addr h_addr_list[0] /* address, for backward compatibility */
```

The members of this structure are:

```
h_name      Official name of the host.
h_aliases   A zero-terminated array of alternate names for the host.
h_addrtype  The type of address being returned.
h_length    The length, in bytes, of the address.
h_addr_list A zero-terminated array of network addresses for the host.
            Host addresses are returned in network byte order.
h_addr      The first address in h_addr_list; this is for backward com-
            patibility.
```

The function `gethostbyname()` will search for the named host in the current domain and its parents using the search lookup semantics detailed in `resolv.conf(5)` and `hostname(7)`.

`gethostbyname2()` is an advanced form of `gethostbyname()` which allows lookups in address families other than `AF_INET`, for example `AF_INET6`.

The `gethostbyaddr()` function will search for the specified address of length `len` in the address family `af`. The only address family currently supported is `AF_INET`.

The `sethostent()` function may be used to request the use of a connected TCP socket for queries. If the `stayopen` flag is non-zero, this sets the option to send all queries to the name server using TCP and to retain the connection after each call to `gethostbyname()` or `gethostbyaddr()`. Otherwise, queries are performed using UDP datagrams.

The `endhostent()` function closes the TCP connection.

The `herror()` function prints an error message describing the failure. If its argument string is non-null, it is prepended to the message string and separated from it by a colon (':') and a space. The error message is printed with a trailing newline. The contents of the error message is the same as that returned by `hstrerror()` with argument `h_errno`.

FILES

```
/etc/hosts
/etc/resolv.conf
```

DIAGNOSTICS

Error return status from `gethostbyname()`, `gethostbyname2()`, and `gethostbyaddr()` is indicated by return of a null pointer. The external integer `h_errno` may then be checked to see whether this is a temporary failure or an invalid or unknown host.

The variable `h_errno` can have the following values:

```
HOST_NOT_FOUND  No such host is known.

TRY_AGAIN      This is usually a temporary error and means that the
               local server did not receive a response from an authori-
```

tative server. A retry at some later time may succeed.

NO_RECOVERY Some unexpected server failure was encountered. This is a non-recoverable error.

NO_DATA The requested name is valid but does not have an IP address; this is not a temporary error. This means that the name is known to the name server but there is no address associated with this name. Another type of request to the name server using this domain name will result in an answer; for example, a mail-forwarder may be registered for this domain.

SEE ALSO

resolver(3), getaddrinfo(3), getnameinfo(3), hosts(5), resolv.conf(5), hostname(7), named(8)

CAVEAT

If the search routines in resolv.conf(5) decide to read the /etc/hosts file, gethostent() and other functions will read the next line of the file, re-opening the file if necessary.

The sethostent() function opens and/or rewinds the file /etc/hosts. If the stayopen argument is non-zero, the file will not be closed after each call to gethostbyname(), gethostbyname2(), or gethostbyaddr().

The endhostent() function closes the file.

HISTORY

The herror() function appeared in 4.3BSD. The endhostent(), gethostbyaddr(), gethostbyname(), gethostent(), and sethostent() functions appeared in 4.2BSD.

BUGS

These functions use static data storage; if the data is needed for future use, it should be copied before any subsequent calls overwrite it. Only the Internet address formats are currently understood.

YP does not support any address families other than AF_INET and uses the traditional database format.

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