

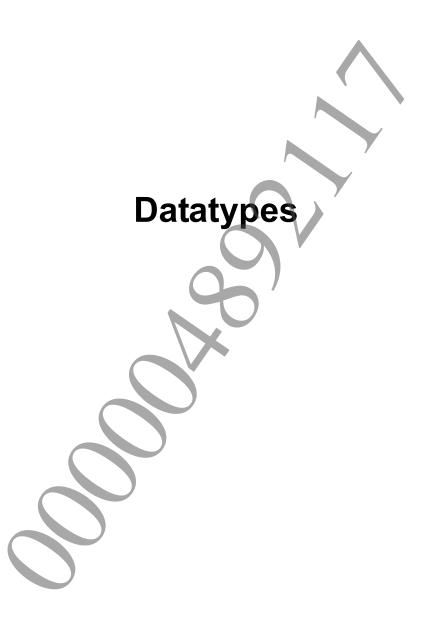
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SceNetEpolIData

epoll user data union

Definition

```
#include <net.h>
typedef union SceNetEpollData {
        void *ptr;
        int fd;
        SceUInt32 u32;
        SceUInt64 u64;
        struct SceNetEpollDataExt {
              SceNetId id;
              SceUInt32 u32;
        }ext;
} SceNetEpollData;
```

Members

ptr, fd, u32, u64 ext

BSD-compatible user data Extended user data

Description

This union is used in epoll user data.

Using a user data area of an event associated by sceNetEpollControl() makes it easier to describe processing when an output event occurs.

This area holds the contents set by applications. Therefore, for example, by setting a socket ID and a flag for applications to ext.id and ext.u32 of the user data respectively, it will be possible for an output event to refer to the user data. In other words, whether to use this 64-bit area or not is an option and the decision depends on an application. In addition, the system will not perform any processing by referring to this area.

Applications need not to hold this area after associating the area by sceNetEpollControl(). In the case of associating an area with more than one socket by sceNetEpollControl(), SceNetEpollEvent can be reused.

See Also

SceNetEpollEvent



SceNetEpollEvent

epoll event structure

Definition

Members

eventsEvents to be checked (input) or check result (output) eventsreservedAlways 0systemSystem data (Use with 0 clear, reference disabled)dataUser data

Description

This structure is used when setting check-target events (input) with sceNetEpollControl() or when receiving check result events (output) with sceNetEpollWait().

The OR value of the following bit flags will be stored to events. To detect an output event, a corresponding input event needs to be specified beforehand. An event that does not require any input event, however, detects the event whenever an output event occurs.

Value (events)	Input	Output	Description
SCE_NET_EPOLLIN	•		The receive functions (sceNetRecv(),
			<pre>sceNetRecvfrom(), sceNetRecvmsg(),</pre>
			sceNetAccept()) can be called without entering the
			wait state.
SCE_NET_EPOLLOUT			The send functions (sceNetSend(),
			sceNetSendto(), sceNetSendmsg()) can be
			called without entering the wait state.
			Or sceNetConnect() has been completed.
SCE_NET_EPOLLERR	-		Socket error occurred.
			Details on the error can be obtained by a socket option
			SCE_NET_SO_ERROR.
SCE_NET_EPOLLHUP	-		Operation was aborted by application.
			(e.g. sceNetSocketAbort())
SCE_NET_EPOLLDESCID	-		Event for DNS resolver occurred.
			(Input of SCE_NET_EPOLLIN must be specified to
			enter the event waiting state for DNS resolver.
			SCE_NET_EPOLLIN is output simultaneously)

^{*&}quot;-" in the input fields of the above table indicates where specification is not required.

data can refer to the input value given to sceNetEpollControl() as an output value of sceNetEpollWait() or sceNetEpollWaitCB(). Refer to the description of the SceNetEpollData structure for usage examples.

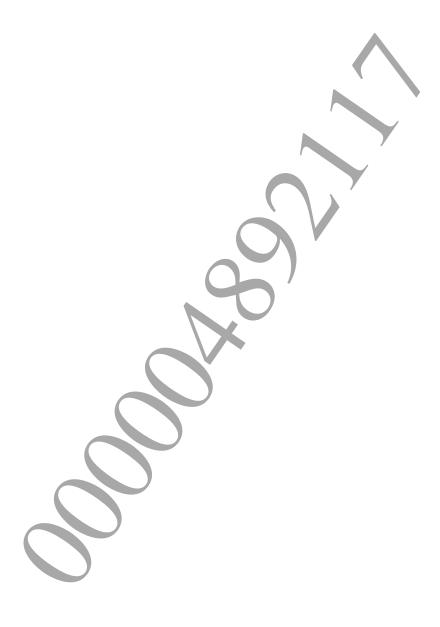
A SCE_NET_EPOLLOUT event will not occur when sending data with UDP or RAW.

SCE_NET_EPOLLERR and SCE_NET_EPOLLHUP are independent event of each other. In other words, SCE_NET_EPOLLERR does not include SCE_NET_EPOLLHUP, for example.

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See Also

sceNetEpollControl(), sceNetEpollWait(), sceNetEpollWaitCB()



SceNetFdSet

Socket ID bit set structure

Definition

Members

bits Bits that represent a set of socket IDs

Description

This data structure specifies a set of socket IDs by bit flags.

The macros SCE_NET_FD_SET(), SCE_NET_FD_CLR(), SCE_NET_FD_ZERO(), and SCE_NET_FD_ISSET() are used for operation and evaluation, so it is not necessary to know the details of the structure.

See Also

SCE_NET_FD_SET(), SCE_NET_FD_CLR(), SCE_NET_FD_ZERO(), SCE_NET_FD_ISSET()

SceNetInAddr

IPv4 address structure

Definition

Members

s_addr IPv4 address

Description

This structure is used for holding the IPv4 address.



Document serial number: 000004892117

SceNetlovec

iovec structure

Definition

Members

Description

This structure is used by the scatter/gather array of the message header structure.

See Also

SceNetMsghdr



SceNetLinger

Linger structure

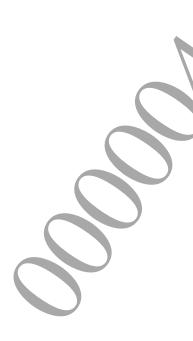
Definition

Members

1_onoff ON/OFF flag
1_linger Linger time (seconds)

Description

This structure controls the termination process of a TCP connection. The linger time does not enable adjustment of the time for maintaining the TCP TIME_WAIT state.



SceNetlpMreq

IP multicast setting structure

Definition

```
#include <net.h>
typedef struct SceNetIpMreq {
        SceNetInAddr imr_multiaddr;
        SceNetInAddr imr interface;
} SceNetIpMreq;
```

Members

```
imr_multiaddr IP multicast group (network byte order)
imr_interface Local IP address of interface (network byte order)
```

Description

This structure is used with SCE NET IP ADD MEMBERSHIP and SCE NET IP DROP MEMBERSHIP.



SceNetMsghdr

Message header structure

Definition

```
#include <net.h>
typedef struct SceNetMsghdr {
        void *msg name;
        SceNetSocklen t msg namelen;
        SceNetIovec *msg iov;
        int msg_iovlen;
        void *msg control;
        SceNetSocklen_t msg_controllen;
        int msg_flags;
} SceNetMsghdr;
```

Members

msg_name	Pointer to address structure
msg_namelen	Size of address structure
msg_iov	Pointer to scatter/gather array
msg_iovlen	Number of elements in msg_iov array
msg_control	(unsupported)
msg_controllen	(unsupported)
msg_flags	(unsupported)

Description

This structure is used when sending and receiving data with sceNetSendmsg() and sceNetRecvmsg().



SceNetSockaddr

Socket address structure

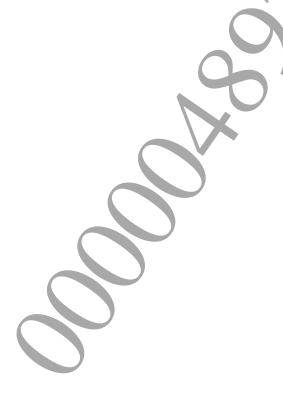
Definition

Members

sa_lenAddress structure sizesa_familyAddress familysa_dataProtocol-dependent address

Description

This structure is used to pass a reference of the socket address structure for each protocol family.



SceNetSockaddrIn

Socket address structure

Definition

Members

sin_len	Address structure size
sin_family	Address family (SCE_NET_AF_INET)
sin_port	Port number (network byte order)
sin_addr	IPv4 address (network byte order)
sin_vport	v port number (network byte order)
sin_zero	Unused (always 0)

Description

This structure is used to specify the socket address for a socket API function.

Note that sin vport is added.

The following is the relationship between port number and v port number.

Port number TCP: TCP port number

UDP: UDP port number UDPP2P: UDP port number

TCP over UDPP2P: TCP port number

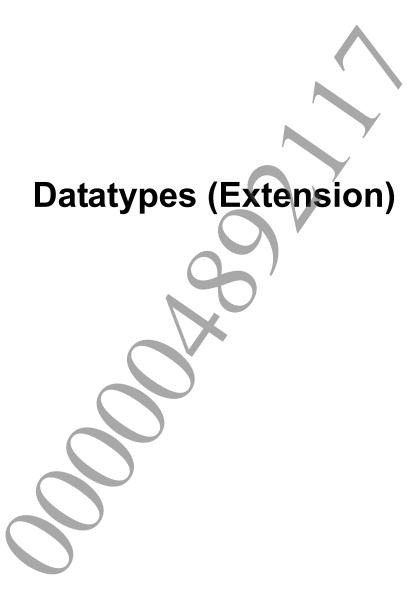
v port number TCP: 0

UDP: 0

UDPP2P: Virtual port number

TCP over UDPP2P: UDP port number





SceNetDnsInfo

DNS address setting structure

Definition

Members

dns_addr DNS address (network byte order)

Description

This structure is used to specify the DNS address on the application side.

When this feature is used, the DNS address used by the application is changed. Note that the application no longer uses the DNS address used by the system software for communication. The use of this function is not usually required.

Use libnetctl to obtain the DNS address.

See Also

sceNetSetDnsInfo()

SceNetEmulationParam

Network emulation parameter structure

Definition

```
#include <net.h>
typedef struct SceNetEmulationParam {
         SceUShort16 version;
         SceUShort16 option number;
         SceUShort16 current version;
         SceUShort16 result;
         SceUInt32 flags;
#define SCE_NET_EMULATION_PARAM FLAGS BPS LIMIT SHORT TIME 0x00000001
#define SCE NET EMULATION PARAM FLAGS API
                                                                0x00000100
#define SCE NET EMULATION PARAM FLAGS DEBUG
                                                                0x00000200
#define SCE NET EMULATION PARAM FLAGS HOSTTOOL
                                                                0x00000400
         SceUInt32 reserved1;
         SceNetEmulationData send;
         SceNetEmulationData recv;
         SceUInt32 seed;
         SceUChar8 reserved[44];
} SceNetEmulationParam;
typedef struct SceNetEmulationData
         SceUShort16 drop rate;
         SceUShort16 drop duration;
         SceUShort16 pass duration;
         SceUShort16 delay time;
         SceUShort16 delay jitter;
         SceUShort16 order rate;
         SceUShort16 order delay
         SceUShort16 duplication rate;
         SceUInt32 bps limit;
         SceUShort16 lower_size limit;
        SceUShort16 upper size limit;
SceUInt32 system policy pattern;
         SceUInt32 game_policy_pattern;
        SceUShort16 policy_flags[64];
SceUChar8 reserved[64];
} SceNetEmulationData;
```

Members

See "Emulation Parameters" in the "Network Emulation" chapter of the "libnet Overview" document. The following values are set to *flags* when the network emulation parameters are obtained.

Value	Description
SCE_NET_EMULATION_PARAM_FLAGS_API	Set with sceNetEmulationSet()
SCE_NET_EMULATION_PARAM_FLAGS_DEBUG	Set with ★Debug Settings
SCE_NET_EMULATION_PARAM_FLAGS_HOSTTOOL	Set with psp2ctrl utility

Description

This structure is used to set and obtain the network emulation parameters.

See Also

sceNetEmulationSet(), sceNetEmulationGet()



SceNetEtherAddr

Ethernet address structure

Definition

Members

data Ethernet address data

Description

This structure indicates the Ethernet address.

See Also

sceNetEtherStrton(),sceNetEtherNtostr()



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SceNetInitParam

Initialization parameter structure

Definition

Members

memory
size
Memory address to be used by libnet
Memory size to be used by libnet
(Specify 16 KiB (16,384 bytes) or more; 32 KiB (32,768 bytes) or more is recommended.
48 KiB (49,152 bytes) or more is recommended for the ad hoc communication mode.)

flags
Flag (always 0)

Description

This structure stores information passed to the initialization function sceNetInit().

The memory is used for internal dynamic memory allocation, and it is mainly broken down as follows. Determine the minimum available memory (check with sceNetShowIfconfig()) while leaving about 6 KiB.

- 4 KiB for future compatibility (consumed after calling the initialization function)
- 3 KiB for basic features of libnet
- Max. 4 KiB DNS cache
- 128 bytes/socket
- 1,300 bytes/DNS resolver



SceNetResolverParam

DNS resolver parameter structure

Definition

```
#include <net.h>
typedef void *(*SceNetResolverFunctionAllocate)(
        SceSize size,
        SceNetId rid,
        const char *name,
        void *user
);
typedef void (*SceNetResolverFunctionFree) (
        void *ptr,
        SceNetId rid,
        const char *name,
        void *user
);
typedef struct SceNetResolverParam {
        SceNetResolverFunctionAllocate alloca
        SceNetResolverFunctionFree free;
        void *user;
} SceNetResolverParam;
```

Members

size	Cize required for moment allegation
512E	Size required for memory allocation
rid	Resolver ID (hint)
name	Name (hint)
ptr	Address of memory to be freed
allocate	Dynamic memory allocation function
free	Free memory allocated with allocate
user	User data

Description

This structure stores information passed to sceNetResolverCreate().

Use allocate() to allocate the memory including the specified size, and have the address (pointer) indicating the allocated memory be the return value. If the memory cannot be allocated, have NULL be the return value. In addition, use a 4-byte alignment for the address. rid passes the resolver ID established when <code>sceNetResolverCreate()</code> ends normally. This rid assists in associating the memory allocated by the host side application with the resolver context, and rid cannot be used to operate the resolver functions at this time. name passes the name of <code>sceNetResolverCreate()</code> as a hint.

free() is used to pass the address specified with allocate() to ptr, so free the memory. rid is similar to name in that it is a hint, and rid cannot be used to operate the resolver functions at this time.

You cannot set either allocate() or free() (only one of the two) to NULL.

During the execution of allocate() and free(), libnet functions from different threads or other library functions that use libnet enter the wait state, so ensure that allocate() and free() are completed within a reasonable amount of time.

Setting allocate() and free() and using these functions allows handling of the memory to be used internally by the DNS resolver. If both are set to NULL, the memory specified with sceNetInit() will be used.

SceNetSockInfo

Structure for receiving/passing connection information

Definition

```
#include <net.h>
#define SCE NET DEBUG NAME LEN MAX 31
typedef struct SceNetSockInfo {
        char name[SCE NET DEBUG NAME LEN MAX + 1];
        ScePid pid;
        SceNetId s;
        SceInt8 socket type;
        SceInt8 policy;
        SceInt16 reserved16;
        int recv queue length;
        int send queue length;
        SceNetInAddr local adr;
        SceNetInAddr remote adr;
        SceNetInPort t local port;
        SceNetInPort t remote port;
        SceNetInPort t local vport;
        SceNetInPort t remote_vport;
        int state;
        int flags;
        int reserved[8];
} SceNetSockInfo;
```

Members

name (Unused) pid (Unused) Socket ID, DNS resolver ID Socket type (SCE NET SOCK *) socket_type (Note) The value 11 indicates I/O multiplexing (epoll ID). It is not an operable socket; however, the member s can be referenced to check the created epoll ID for debug purposes. Policy number to be used in network emulation policy reserved16 Reserved recv queue length Number of data bytes in receive buffer 1ength send queue Number of data bytes in send buffer local adr Local address (network byte order) remote adr Remote address (network byte order) local port Local port number (network byte order) Remote port number (network byte order) remote port Local v port number (network byte order) local vport remote vport Remote v port number (network byte order) state Connection state flags Flags reserved Reserved

Description

This structure is used to obtain information regarding connections.

See the description of ${\tt SceNetSockaddrIn}$ for the relationship between port number and v port number.

One of the following values will be stored for state.

Value	(Number)	Description (Corresponding Protocol)
SCE_NET_SOCKINFO_STATE_UNKNOWN	0	State unknown
SCE_NET_SOCKINFO_STATE_CLOSED	1	Closed
SCE_NET_SOCKINFO_STATE_OPENED	2	Opened
SCE_NET_SOCKINFO_STATE_LISTEN	3	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_SYN_SENT	4	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_SYN_RECEIVED	5	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_ESTABLISHED	6	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_FIN_WAIT_1	7	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_FIN_WAIT_2	8	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_CLOSE_WAIT	9	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_CLOSING	10	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_LAST_ACK	11	Internal state of TCP and TCP over UDPP2P
SCE_NET_SOCKINFO_STATE_TIME_WAIT	12	Internal state of TCP and TCP over UDPP2P

The OR value of the following bit flags will be stored to flags.

Value	Description
SCE_NET_SOCKINFO_F_SELF	Socket created by own process
SCE_NET_SOCKINFO_F_KERNEL	Socket created by kernel
SCE_NET_SOCKINFO_F_OTHERS	Socket created by separate process
SCE_NET_SOCKINFO_F_RECV_WAIT	Receive wait socket
SCE_NET_SOCKINFO_F_SEND_WAIT	Send wait socket
SCE_NET_SOCKINFO_F_RECV_EWAIT	<pre>sceNetEpollWait() and sceNetEpollWaitCB()</pre>
	receive wait socket
SCE_NET_SOCKINFO_F_SEND_EWAIT	<pre>sceNetEpollWait() and sceNetEpollWaitCB()</pre>
	send wait socket
SCE_NET_SOCKINFO_F_WAKEUP_SIGNAL	Intermittent connection wakeup signal

SceNetStatisticsInfo

Statistics information structure

Definition

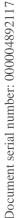
```
#include <net.h>
typedef struct SceNetStatisticsInfo {
        int kernel mem free size;
        int kernel mem free min;
        int packet count;
        int packet_qos_count;
        int libnet mem free size;
        int libnet mem free min;
} SceNetStatisticsInfo;
```

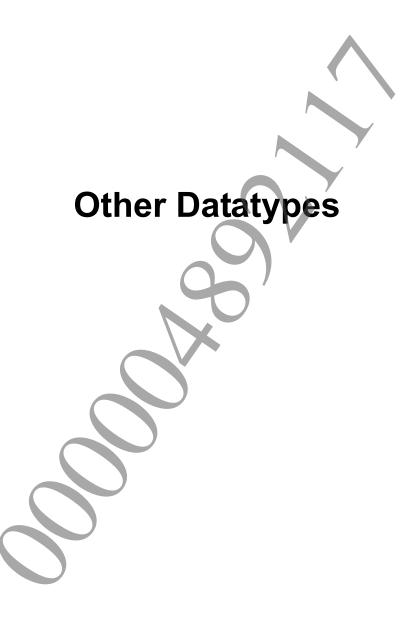
Members

Number of currently free memory bytes (kernel) kernel mem free size Minimum number of currently free memory bytes (kernel) kernel mem free min packet count Total number of packets held in kernel Total number of QoS packets held in kernel packet qos count libnet mem free size Number of currently free memory bytes (library) Minimum number of currently free memory bytes (library) libnet mem free min

Description

This structure is used to obtain statistics information





SceNetIcmpHeader

ICMP header

Definition

```
#include <net.h>
typedef struct SceNetIcmpHeaderEcho {
               SceUShort16 id;
               SceUShort16 sequence;
} SceNetIcmpHeaderEcho;
typedef struct SceNetIcmpHeaderFrag {
               SceUShort16 unused;
               SceUShort16 mtu;
} SceNetIcmpHeaderFrag;
typedef union SceNetIcmpHeaderUnion {
               SceNetIcmpHeaderEcho echo;
               unsigned int gateway;
               SceNetIcmpHeaderFrag frag;
} SceNetIcmpHeaderUnion;
typedef struct SceNetIcmpHeader {
              SceUChar8 type;
#define SCE NET ICMP TYPE ECHO REPLN
#define SCE NET ICMP TYPE DEST UNREACH
#define SCE NET ICMP TYPE SOURCE QUENCH
#define SCE NET ICMP TYPE REDIRECT
                                                                                 5
#define SCE NET ICMP TYPE ECHO REQUEST
                                                                                 8
#define SCE NET ICMP TYPE TIME EXCEEDED
#define SCE NET ICMP TYPE PARAMETER PROBLEM
#define SCE NET ICMP TYPE TIMESTAMP REQUEST
                                                                                 13
#define SCE_NET_ICMP_TYPE_TIMESTAMP_REPLY
#define SCE_NET_ICMP_TYPE_INFORMATION_REQUEST
                                                                                 14
#define SCE_NET_ICMP_TYPE INFORMATION_REPLY 16
#define SCE_NET_ICMP_TYPE ADDRESS_MASK_REQUEST 17
#define SCE_NET_ICMP_TYPE_ADDRESS_MASK_REPLY 18
              SceUChar8 code;
SceUChar8 code;

/* DEST_UNREACH */

#define SCE_NET_ICMP_CODE_DEST_UNREACH_NET_UNREACH 0

#define SCE_NET_ICMP_CODE_DEST_UNREACH_HOST_UNREACH 1

#define SCE_NET_ICMP_CODE_DEST_UNREACH_PROTO_UNREACH 2

#define SCE_NET_ICMP_CODE_DEST_UNREACH_PORT_UNREACH 3

#define SCE_NET_ICMP_CODE_DEST_UNREACH_FRAG_AND_DF 4

#define SCE_NET_ICMP_CODE_DEST_UNREACH_SRC_HOST_FAILED 5

#define SCE_NET_ICMP_CODE_DEST_UNREACH_DST_NET_UNKNOWN 6

#define SCE_NET_ICMP_CODE_DEST_UNREACH_DST_HOST_UNKNOWN 7

#define SCE_NET_ICMP_CODE_DEST_UNREACH_DST_HOST_UNKNOWN 7

#define SCE_NET_ICMP_CODE_DEST_UNREACH_NET_ADMIN_PROHIBITED 9

#define SCE_NET_ICMP_CODE_DEST_UNREACH_NET_ADMIN_PROHIBITED 9
#define SCE_NET_ICMP_CODE_DEST_UNREACH_NET_HOST_PROHIBITED #define SCE_NET_ICMP_CODE_DEST_UNREACH_NET_TOS
                                                                                                       11
#define SCE_NET_ICMP_CODE_DEST_UNREACH_HOST_TOS
                                                                                                       12
#define SCE_NET_ICMP_CODE_TIME_EXCEEDED_TTL_EXCEEDED
#define SCE_NET_ICMP_CODE_TIME_EXCEEDED_FRT_EXCEEDED
              SceUShort16 checksum;
               SceNetIcmpHeaderUnion un;
} SceNetIcmpHeader;
```

Description

This is the ICMP header. For information on the members, refer to the reference material such as RFC for ICMP headers.



SceNetIpHeader

IP header

Definition

```
#include <net.h>
typedef struct SceNetIpHeaderIpVerHl {
        SceUChar8 hl:4;
        SceUChar8 ver:4;
} SceNetIpHeaderIpVerHl;
typedef union SceNetIpHeaderUnion {
        SceNetIpHeaderIpVerHl ip ver hl;
        SceUChar8 ver hl;
} SceNetIpHeaderUnion;
typedef struct SceNetIpHeader {
        SceNetIpHeaderUnion un;
#define SCE NET IPVERSION
        SceUChar8 ip tos;
        SceUShort16 ip len;
        SceUShort16 ip id;
        SceUShort16 ip_off;
#define SCE NET IP RF
#define SCE NET IP DF
                           0x4000
#define SCE NET IP MF
                           0x2000
#define SCE NET IP OFFMASK 0x1fff
        SceUChar8 ip_ttl;
        SceUChar8 ip_p;
        SceUShort16 ip_sum;
        SceNetInAddr ip src;
        SceNetInAddr ip_dst;
} SceNetIpHeader;
```

Description

This is the IP header. For information on the members, refer to the reference material such as RFC for IP headers.



sceNetInit

Initialize libnet

Definition

Arguments

param Pointer to initialization parameter structure

Return Values

Value	Description
0	Normal termination
SCE_NET_ERROR_EBUSY	Initialization was not performed with the function call because libnet
	has already been initialized
SCE_NET_ERROR_EINVAL	Function called due to invalid argument or content

Other errors may be returned.

Description

This function initializes libnet.

It is not necessary to keep the actual structure indicated by <code>param</code> after completing the calling of this function. If libnet has not been initialized but a function requiring its initialization is called, that function will return <code>SCE NET ERROR ENOTINIT</code>.

sce net errno is an invalid value.

Notes

This function is not multi-thread safe.

This function can be called again to re-initialize libnet after terminating it with sceNetTerm().

sceNetTerm

Terminate libnet

Definition

#include <net.h>
int sceNetTerm(void)

Arguments

None

Return Values

Value	Description
0	Normal termination
SCE_NET_ERROR_ENOTINIT	Not initialized

Description

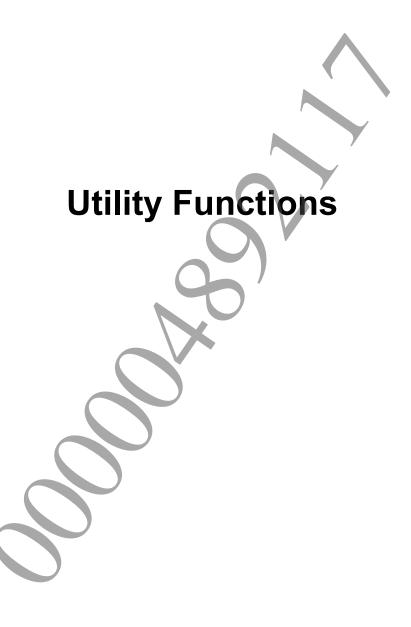
This function terminates libnet.

sce net errno is an invalid value.

Notes

This function is not multi-thread safe.





sceNetInetNtop

Convert address structure into numeric string address

Definition

Arguments

```
af Address family (SCE_NET_AF_INET)

src Pointer to area for storing address in network format (network byte order)

dst Pointer to area for storing address expressed as a numeric string size Size of area pointed to by dst (SCE_NET_INET_ADDRSTRLEN (=16, NULL end) bytes or more)
```

Return Values

Value	Description	
dst	Normal termination	
NULL	Error	

If an error occurs, details of the error can be found with sce net errno.

I	Value		Description	
	SCE NET	EAFNOSUPPORT	Invalid addres	s family

Description

This function converts the address information specified with *src* to a numerically expressed string in the address family specified with *af*. The conversion result is stored to the area specified with *dst* and *size*.

sceNetInetPton

Convert numeric string address into address structure

Definition

Arguments

```
af Address family (SCE_NET_AF_INET)
```

src Address expressed as a string (only decimal addresses are valid)

dst Pointer to area for storing address in network format (network byte order)

Return Values

Value	Description
Positive number	Normal termination
0	Invalid character string
Negative number	Error

If an error occurs, details of the error can be found with sce_net_errno.

Value	Description
SCE_NET_EAFNOSUPPORT	Invalid address family

Description

This function converts the address expressed as a string, <code>src</code>, to an address in network format, based on the address family <code>af</code>.

Sufficient space must be allocated to store a SceNetInAddr structure in dst.



Document serial number: 000004892117

sceNetHtonII

Convert 64-bit value byte order (from host to network)

Definition

Arguments

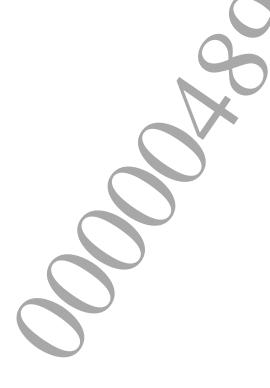
host 64 Value for byte order conversion

Return Values

Value converted to byte order is returned.

Description

This function converts 64-bit value data from host byte order to network byte order.



Document serial number: 000004892117

sceNetHtonl

Convert 32-bit value byte order (from host to network)

Definition

Arguments

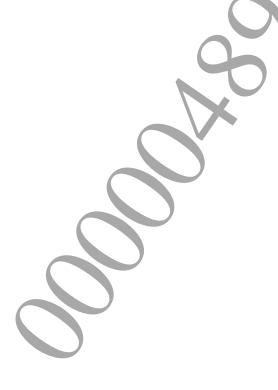
host32 Value for byte order conversion

Return Values

Value converted to byte order is returned.

Description

This function converts 32-bit value data from host byte order to network byte order.



Document serial number: 000004892117

sceNetHtons

Convert 16-bit value byte order (from host to network)

Definition

Arguments

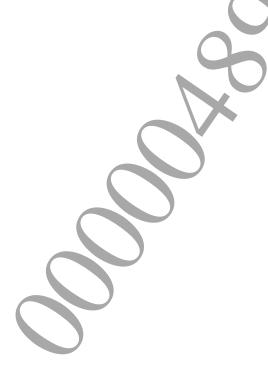
host16 Value for byte order conversion

Return Values

Value converted to byte order is returned.

Description

This function converts 16-bit value data from host byte order to network byte order.



sceNetNtohll

Convert 64-bit value byte order (from network to host)

Definition

Arguments

net 64 Value for byte order conversion

Return Values

Value converted to byte order is returned.

Description

This function converts 64-bit value data from network byte order to host byte order.



sceNetNtohl

Convert 32-bit value byte order (from network to host)

Definition

Arguments

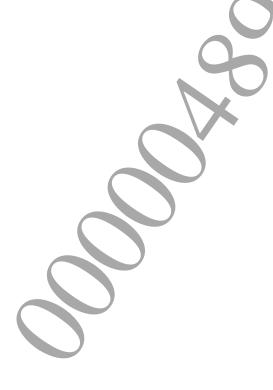
net32 Value for byte order conversion

Return Values

Value converted to byte order is returned.

Description

This function converts 32-bit value data from network byte order to host byte order.



sceNetNtohs

Convert 16-bit value byte order (from network to host)

Definition

Arguments

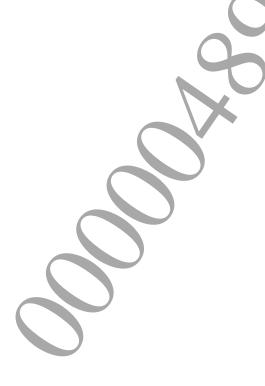
net16 Value for byte order conversion

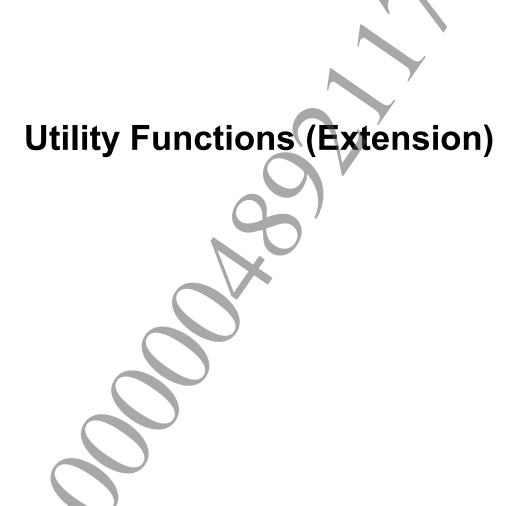
Return Values

Value converted to byte order is returned.

Description

This function converts 16-bit value data from network byte order to host byte order.





sceNetEtherStrton

Convert string address into 48-bit Ethernet address

Definition

```
#include <net.h>
int sceNetEtherStrton(
        const char *str,
        SceNetEtherAddr *n
);
```

Arguments

String expressing an Ethernet address str Pointer to Ethernet address structure

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net error

Value	Description	
SCE_NET_EINVAL	Function called due to in	nvalid argument or content

Description

This function converts a string expressing an Ethernet address (xx:xx:xx:xx:xx) to a 48-bit Ethernet address.



sceNetEtherNtostr

Convert 48-bit Ethernet address into string address

Definition

```
#include <net.h>
int sceNetEtherNtostr(
        const SceNetEtherAddr *n,
        char *str,
        SceSize len
);
```

Arguments

n Pointer to Ethernet address structure

Pointer to area for storing Ethernet address str

len Size of area for storing Ethernet address

(SCE NET ETHER ADDRSTRLEN (=18) bytes or more)

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce ne

Value	Description		
SCE_NET_EINVAL	Function called du	e to invalid argument or cor	itent

Description

This function converts a 48-bit Ethernet address to a string expression (xx:xx:xx:xx:xx).



sceNetGetMacAddress

Get MAC address

Definition

```
#include <net.h>
int sceNetGetMacAddress(
        SceNetEtherAddr *addr,
        int flags
);
```

Arguments

addr Pointer to Ethernet address structure flags Flag (always 0)

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net error

Value	Description	
SCE_NET_EINVAL	Function called due to in	valid argument or content

Description

This function gets the MAC address. This API can be called at any time if libnet has been prepared, and always returns the MAC address of Wi-Fi (wlan0). Therefore, note that this MAC address differs from the MAC address that is actually used for communication when performing development with USB ethernet, for example.

Furthermore, note that it is not guaranteed that a specific hardware can be roughly identified by, for example, using a value range of the MAC address, that is to say OUI (the vendor code indicated by the first three bytes of the address) for the title release, etc.

See Also

"libnetctl Reference", "OpenPSID Overview", "OpenPSID Reference"





sceNetAccept

Get socket for which TCP connection was established

Definition

Arguments

Listening socket (sceNetBind() and sceNetListen() completed socket)

addr

Pointer to area for storing destination address structure

paddrlen

Pointer to area for storing size of addr

Return Values

If a normal termination occurs, the socket ID for the new client is returned.

If an error occurs, a negative value is returned.

Details of the error can be obtained with sce_net_erro.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetSocketAbort()
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EWOULDBLOCK	Established connection does not exist (for non-blocking)
SCE_NET_EFAULT	Invalid argument
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EOPNOTSUPP	Invalid call for that socket
SCE_NET_ECONNABORTED	Connection was aborted
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

Description

This function takes out the existing connection from the client while running as a TCP server and obtains the socket ID. At the same time, the address structure of the client is stored in *addr, and the size is stored in *paddrlen.

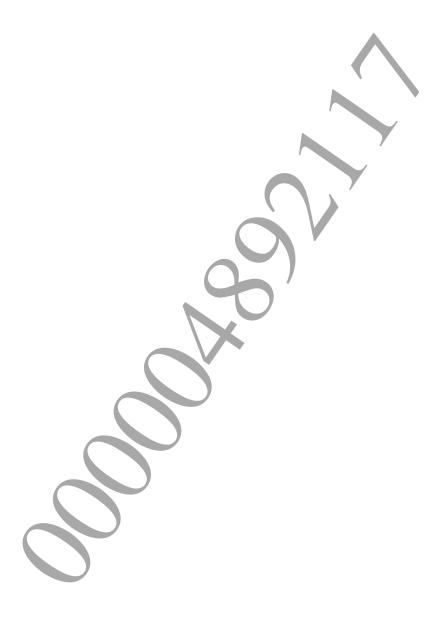
Before calling this function, store the size of the area pointed to by addr to *paddrlen.

The timeout time can be set using one of the following two methods.

- Use the SCE NET SO RCVTIMEO socket option
- Use sceNetEpollWait() / sceNetEpollWaitCB()

Notes

Note that you cannot wait for a connection from the other party with the disconnected state because of the introduction of intermittent connection (refer to the "Intermittent Connection and Intermittent Disconnection (Internet Communication Mode)" chapter in the "Network Overview" document).



sceNetBind

Bind address to socket

Definition

Arguments

s Socket ID to which local address is be bound

addr Pointer to local address structure
addrlen Size of local address structure

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EACCES	Attempted to use the port reserved by the system
SCE_NET_EFAULT	Invalid argument specified
SCE_NET_EINVAL	Function called due to invalid argument or content
	Socket already bound
SCE_NET_EAFNOSUPPORT	((SceNetSockaddrIn*)addr)>sin_familyfor
	sceNetBind() is invalid
SCE_NET_EADDRINUSE	sceNetBind() called for local port being used
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

Description

This function binds a local address (IP address and port number) to a socket.

The local address specified with addr and addrlen is bound to socket s.

Notes

Measures to reduce the number of warnings of cast to SceNetSockaddr are implemented in the actual header of this function.

sceNetConnect

Connect to destination

Definition

Arguments

s Socket ID used for connection
addr Pointer to local address structure
addrlen Size of local address structure

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description	
SCE_NET_EINTR	Aborted by sceNetSocketAbort()	
SCE_NET_EBADF	Invalid socket ID specified	
SCE_NET_EACCES	Attempted to establish a connection to an invalid address (such as	
	a broadcast address)	
SCE_NET_EINVAL	Function called due to invalid argument or content	
SCE_NET_EINPROGRESS	Attempting to establish a connection (for non-blocking)	
SCE_NET_EALREADY	Socket is already in use	
SCE_NET_EAFNOSUPPORT	Address family of specified address is invalid	
SCE_NET_EADDRINUSE	Specified address already in use	
SCE_NET_EADDRNOTAVAIL	Invalid address specified	
SCE_NET_EISCONN	Attempted to open an established connection	
	(including the case that the function is called again in a	
	non-blocking state)	
SCE_NET_EWOULDBLOCK	Timeout occurred when establishing connection	
SCE_NET_ETIMEDOUT	TCP resend timeout occurred	
SCE_NET_ECONNREFUSED	Connection refused by destination	
SCE_NET_ERETURN	libnetctl error was returned	
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode	
SCE_NET_EOPNOTSUPP	Connection was attempted to a listening socket	
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait	
	condition and being executed	
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent	
	disconnection or system suspend.	

This function is used to connect to a server on the client side.

Socket *s* is used to connect to the address indicated by *addr* and *addrlen*. For TCP, this is used to establish a connection. For UDP, the destination is specified, so the behavior is as though a connection were established.

The timeout time can be set using one of the following two methods.

- Use the SCE_NET_SO_RCVTIMEO socket option
- Use sceNetEpollWait() / sceNetEpollWaitCB()

The basic concept for the latter method is to wait for a multiplex I/O event through sceNetEpollWait() / sceNetEpollWaitCB() following the execution of sceNetConnect(). Similar to this method, when event waiting of multiplex I/O is executed on another thread first, the socket is linked to the multiplex I/O after confirming that sceNetConnect() is executed.

Notes



sceNetGetpeername

Get destination information of socket

Definition

Arguments

Socket ID for which information is to be obtained
 addr
 Pointer to area for storing address structure of destination host
 paddrlen
 Pointer to area for storing size of addr

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

Description

This function is used to obtain the destination address information of a socket.

The address structure of the destination host of socket *s* is stored to the area specified with *addr* and *paddrlen*.

Notes

sceNetGetsockname

Get local information of socket

Definition

Arguments

Socket ID for which information is to be obtained
 addr
 Pointer to area for storing local address structure of socket
 Pointer to area for storing size of local address structure of socket

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent disconnection or system suspend.

Description

This function is used to obtain the local address information of a socket.

The local address structure of socket *s* is stored to the area specified with *addr* and *paddrlen*.

Notes

sceNetGetsockopt

Get socket option

Definition

Arguments

Socket ID for which socket option is to be obtained

level Socket option level
optname Socket option name

optval Pointer to area for storing socket option value

optlen Pointer to area for storing size of socket option value

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	scription	
SCE_NET_EBADF	alid socket ID specified	
SCE_NET_EINVAL	alid value specified	
SCE_NET_ENOPROTOOPT	alid combination of specified level (level	and option
	otname)	
SCE_NET_EINACTIVEDISABLE	twork disconnection occurred owing to into	ermittent
	connection or system suspend.	

Description

This function is used to obtain the socket options, such as error information and buffer size.

The value of the socket option specified with level and optname of the socket specified with s is stored to the area specified with optval and optlen.

sceNetListen

Accept TCP connection

Definition

Arguments

Socket ID for which to perform TCP connection wait

backlog Size of queue for accepting connections (number of pending connections)

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EOPNOTSUPP	Socket type cannot accept connections
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

Description

This function is used to declare that socket s is to wait for a TCP connection (behave as a server). backlog indicates the maximum length of the queue for accepting connections.

sceNetRecv

Receive data

Definition

Arguments

s ID of socket to receive data

Pointer to area for storing receive data1enSize of data to be received (bytes)

flags Flags

The following values can be set to flags.

Value	Description
SCE_NET_MSG_DONTWAIT	Calls as non-blocking
SCE_NET_MSG_PEEK	Leaves receive data unchanged in receive buffer
SCE_NET_MSG_WAITALL	Blocks until specified buffer size is received
SCE_NET_MSG_PEEKLEN	Obtains size of received data

Return Values

Value	Description
0	FIN received (TCP)
Positive number	Size of received data
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetSocketAbort()
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EAGAIN	Socket is in blocking state (when non-blocking)
SCE_NET_EWOULDBLOCK	Timeout occurred (when SCE_NET_SO_RCVTIMEO option is
	specified)
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_ENOTCONN	Connection not established
SCE_NET_ECONNABORTED	Connection was aborted
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

This function is used to receive data from a connected socket.

len bytes are received from socket *s*, and the received data is stored to the area specified with *buf*. This function does not timeout implicitly.

When SCE_NET_MSG_WAITALL is specified to *flags*, the function returns a value when one of the following conditions is true.

- Data of the number of bytes specified with 1en has been received
- FIN is received (TCP only)
- A timeout, etc. has occurred

If SCE_NET_MSG_WAITALL has not been specified with TCP, the function may return a value when the size of the receive data has not reached the number of bytes specified with *len*. For UDP, the function will return a value regardless of the number of specified bytes as long as one packet is received.

When SCE_NET_MSG_PEEKLEN is specified to <code>flags</code>, specify NULL to <code>buf</code> and the maximum length to <code>len</code>. The point at which the size of the receive data is obtained is the same as for <code>SCE_NET_MSG_PEEK</code>. In other words, a buffer of the maximum size to be received with <code>SCE_NET_MSG_PEEK</code> is required in order to obtain the data size, but <code>SCE_NET_MSG_PEEKLEN</code> does not require this buffer.

SCE NET MSG PEEK cannot be used together with SCE NET MSG WAITALL.



sceNetRecvfrom

Receive data (with sender address)

Definition

Arguments

s ID of socket to receive data
buf Pointer to area for storing receive data
len Size of data to be received (bytes)
flags Flags
addr Pointer to area for storing address structure of sending host
paddrlen Pointer to area for storing size of address structure of sending host

The following values can be set to flags.

Value	Description
SCE_NET_MSG_DONTWAIT	Calls as non-blocking
SCE_NET_MSG_PEEK	Leaves receive data unchanged in receive buffer
SCE_NET_MSG_WAITALL	Blocks until specified buffer size is received
SCE_NET_MSG_PEEKLEN	Obtains size of received data

Return Values

Value	Description
Positive number	Size of received data
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetSocketAbort()
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EAGAIN	Socket is in blocking state (when non-blocking)
SCE_NET_EWOULDBLOCK	Timeout occurred (when SCE_NET_SO_RCVTIMEO option is
	specified)
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_ENOTCONN	Connection not established
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

This function receives data from a socket and, at the same time, obtains the address information of the sending host.

Data is received from socket *s* in the form of *len* bytes, and the received data is stored to the area specified with *buf*.

The address structure of the sending host is stored to the area specified with addr and paddrlen. This function does not timeout implicitly.

For details on flags, Refer to the sceNetRecv() description.

Notes



sceNetRecvmsg

Receive data using message header structure

Definition

Arguments

s ID of socket to receive data

msg Pointer to message header structure for storing data

flags Flags

The following values can be set to flags.

Value	Description
SCE_NET_MSG_DONTWAIT	Calls as non-blocking
SCE_NET_MSG_PEEK	Leaves receive data unchanged in receive buffer
SCE_NET_MSG_WAITALL	Blocks until specified buffer size is received

Return Values

Value	Description	
Positive number	Size of received data	a
Negative number	Error	

Details of the error can be obtained with sce_net_errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetSocketAbort()
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EAGAIN	Socket is in blocking state (when non-blocking)
SCE_NET_EWOULDBLOCK	Timeout occurred (when SCE_NET_SO_RCVTIMEO option is
	specified)
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EMSGSIZE	Size of msg_iovlen is too large
SCE_NET_ENOTCONN	Connection not established
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

This function is used to receive data from a socket and store it to the message header structure.

Data is received from socket s, and the received data and address structure of the sender are stored to the message header structure specified with msg.

To obtain the address structure of the sending host, specify a pointer to the area for storing the address structure in msg->msg_name, and specify the size in msg->msg_namelen.

The receive data is stored sequentially from the beginning of the scatter/gather structure array. The maximum value of array elements that can be specified with $msg \rightarrow msg$ iov is 1024.

SCE_NET_MSG_PEEKLEN cannot be specified to flags. For details on flags, Refer to the sceNetRecv() description.



sceNetSend

Send data

Definition

Arguments

s ID of socket to send data
 buf Pointer to send data
 len Size of data to be sent (bytes)

flags Flags

The following values can be set to flags.

Value	Description
SCE_NET_MSG_DONTWAIT	Calls as non-blocking
SCE_NET_MSG_USECRYPTO	Encrypts send data
	(Valid only when socket type is SCE_NET_SOCK_DGRAM_P2P)
SCE_NET_MSG_USESIGNATURE	Appends signature to send data
	(Valid only when socket type is SCE_NET_SOCK_DGRAM_P2P)

Return Values

Value	Description
0 or higher	Size of sent data
Negative number	Error

Details of the error can be obtained with sce_net_errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetSocketAbort()
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EAGAIN	Socket is in blocking state (when non-blocking)
SCE_NET_EWOULDBLOCK	Timeout occurred (when SCE_NET_SO_SNDTIMEO option is
	specified)
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EPIPE	Writing side of socket already closed
SCE_NET_EMSGSIZE	Message size is too large
SCE_NET_EDESTADDRREQ	Invalid send request (sceNetSendto() should be used)
SCE_NET_EHOSTDOWN	Other side is down and unreachable
SCE_NET_EHOSTUNREACH	Network unreachable
SCE_NET_ENETDOWN	Interface is down
SCE_NET_ENETUNREACH	Destination is unreachable
SCE_NET_ECONNRESET	Connection was reset (TCP only)
SCE_NET_ENOTCONN	Connection not established
SCE_NET_ERETURN	libnetctl error was returned

Value	Description
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

This function sends data.

Data in the area specified with *buf* is sent to socket *s* in the form of *len* bytes.

Notes

When sending data to a blocking socket, the TCP socket will perform blocking until data of the specified send data size is sent.

The maximum size of data that can be sent by UDP/UDPP2P is 9216 bytes (default value).

The maximum size of data that can be sent by a RAW socket is always 8192 bytes.



sceNetSendto

Send data (specify receiving host)

Definition

Arguments

s ID of socket to send data
buf Pointer to send data
len Size of data to be sent (bytes)

flags Flags

addr Pointer to address structure of receiving host addrlen Size of address structure of receiving host

The following values can be set to flags.

Value	Description
SCE_NET_MSG_DONTWAIT	Calls as non-blocking
SCE_NET_MSG_USECRYPTO	Encrypts send data
	(Valid only when socket type is SCE_NET_SOCK_DGRAM_P2P)
SCE_NET_MSG_USESIGNATURE	Appends signature to send data
	(Valid only when socket type is SCE_NET_SOCK_DGRAM_P2P)

Return Values

Value	Description
0 or higher	Size of sent data
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetSocketAbort()
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EACCES	Attempted to send data to a broadcast address without specifying
	the SCE_NET_SO_BROADCAST socket option
SCE_NET_EISCONN	Specified connection is already established
SCE_NET_EAGAIN	Socket is in blocking state (when non-blocking)
SCE_NET_EWOULDBLOCK	Timeout occurred (when SCE_NET_SO_SNDTIMEO option is
	specified)
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EPIPE	Writing side of socket already closed
SCE_NET_EMSGSIZE	Message size is too large
SCE_NET_EHOSTDOWN	Other side is down and unreachable

Value	Description
SCE_NET_EHOSTUNREACH	Network unreachable
SCE_NET_ENETDOWN	Interface is down
SCE_NET_ENETUNREACH	Destination is unreachable
SCE_NET_ENOTCONN	Connection not established
SCE_NET_ERETURN	libnetctl error was returned
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

This function is used to send data by specifying the destination.

Data is sent from socket *s* in the form of *len* bytes. Specify the send data with *buf* and the address structure of the receiving host with *addr* and *addrlen*.

For RAW sockets, the IP header area is not included in the send data. By specifying SCE_NET_IP_HDRINCL with sceNetSetsockopt(), the IP header area can be edited as needed. Also refer to sceNetSend().

Notes

sceNetSendmsg

Send data using message header structure

Definition

Arguments

s ID of socket to send data

msg Pointer to message header structure for send data

flags Flags

The following values can be set to flags.

Value	Description
SCE_NET_MSG_DONTWAIT	Calls as non-blocking
SCE_NET_MSG_USECRYPTO	Encrypts send data
	(Valid only when socket type is SOCK_DGRAM_P2P)
SCE_NET_MSG_USESIGNATURE	Appends signature to send data
	(Valid only when socket type is SOCK_DGRAM_P2P)

Return Values

Value	Description
0 or higher	Size of sent data
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetSocketAbort()
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EAGAIN	Socket is in blocking state (when non-blocking)
SCE_NET_EWOULDBLOCK	Timeout occurred (when SCE_NET_SO_SNDTIMEO option is
	specified)
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EPIPE	Writing side of socket already closed
SCE_NET_EHOSTDOWN	Other side is down and unreachable
SCE_NET_EHOSTUNREACH	Network unreachable
SCE_NET_ENETDOWN	Interface is down
SCE_NET_ENETUNREACH	Destination is unreachable
SCE_NET_ECONNRESET	Connection was reset (TCP only)
SCE_NET_EMSGSIZE	Size of msg_iovlen is too large
SCE_NET_ENOTCONN	Connection not established
SCE_NET_ERETURN	libnetctl error was returned
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_ECANCELED	Close processing was called for a socket that is in the wait
	condition and being executed

Value	Description
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

This function is used to send data contained in the message header structure.

Data of the message header structure specified with msg is sent to socket s. When specifying the destination, specify the address structure and size of the destination host with $msg -> msg_name$ and $msg -> mag_namelen$.

The send data is sent sequentially from the beginning of the scatter/gather structure array.

The maximum value of array elements that can be specified with $msg \rightarrow msg_iov$ is 1024. Also refer to sceNetSend().



sceNetSetsockopt

Set socket options

Definition

Arguments

Socket ID for which socket option is to be set level Socket option level

optname Socket option name

optval Pointer to area for storing socket option value

optlen Size of socket option value

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EINVAL	Invalid value specified
SCE_NET_ENOPROTOOPT	Invalid combination of specified level (level) and option
	(optname)
SCE_NET_EADDRNOTAVAIL	Invalid address specified
SCE_NET_ETOOMANYREFS	Too many multicast addresses specified
SCE_NET_ECONNRESET	Connection had already been reset for TCP related settings
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

Description

This function is used to set the socket options.

The value specified with optval and optlen is set to the socket option specified with level and optname of the socket specified with s.

Refer to the "List of Socket Options" section for the supported socket options.

sceNetShutdown

Shut down socket

Definition

Arguments

s ID of socket to be shut down how Shutdown method

The following values can be specified with how.

Value	Description
SCE_NET_SHUT_RD	Shuts down reading
SCE_NET_SHUT_WR	Shuts down writing
SCE NET SHUT RDWR	Shuts down reading and writing

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EPIPE	Writing side of socket already closed
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

Description

This function shuts down a socket.

It prohibits communication over socket s in part or in full. When SCE_NET_SHUT_RD is specified for how, subsequent receiving is prohibited. When SCE_NET_SHUT_WR is specified for how, subsequent sending is prohibited. When SCE_NET_SHUT_RDWR is specified for how, subsequent sending and receiving is prohibited.

The socket resources are not freed, so sceNetSocketClose() must be called.

sceNetSocket

Create socket

Definition

Arguments

name Debugging Name

family Address family of socket to be created (SCE NET AF INET)

type Socket type

protocol Protocol (valid for RAW socket)

The following values can be set to type.

Value	Description
SCE_NET_SOCK_STREAM	TCP socket
SCE_NET_SOCK_DGRAM	UDP socket
SCE_NET_SOCK_DGRAM_P2P	UDPP2P socket
SCE_NET_SOCK_RAW	RAW socket
SCE NET SOCK STREAM P2P	TCP over UDPP2P socket

Return Values

The ID of the created socket (0 or higher) is returned.

If an error occurs, a negative value is returned.

Details of the error can be obtained with sce_net_errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EMFILE	Insufficient space in socket ID table
SCE_NET_EPROTONOSUPPORT	Invalid socket type or protocol family
SCE_NET_EADHOC	UDP or TCP was attempted in the ad hoc communication mode
SCE_NET_EPROTOTYPE	Unsupported protocol type was specified

Description

This function creates a socket.

It creates a socket with the address family indicated by family and the socket type indicated by type, and returns the descriptor for that socket.

sceNetSocketClose

Close socket

Definition

```
#include <net.h>
int sceNetSocketClose(
        SceNetId s
);
```

Arguments

s ID of socket to be closed

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net error

Value	Description
SCE_NET_EBADF	Invalid socket ID specified

Description

This function ends the use of a socket and frees its resources.

If communication of the socket specified with s has not been closed with sceNetShutdown(), communication is closed, and then the termination process is performed.

The socket ID becomes invalid when this function is called. Thereafter, do not perform processes with this socket ID.

 $\verb|sceNetSocketClose|()| does not perform blocking unless the linger option is specified.$

sceNetSocketAbort

Abort socket processing

Definition

Arguments

s ID of socket to be aborted flags Flags

The following values can be set to flags.

Value	Description
	Saves abort processing to receive functions (sceNetRecv(),
_RCV_PRESERVATION	<pre>sceNetRecvfrom(), sceNetRecvmsg(), sceNetAccept())</pre>
SCE_NET_SOCKET_ABORT_FLAG	Saves abort processing to send functions (sceNetSend(),
_SND_PRESERVATION	<pre>sceNetSendto(), sceNetSendmsg(), sceNetConnect())</pre>

Return Values

Value	Description	
0	Normal termination	
Negative number	Error	

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description	
SCE_NET_EINVAL	Function called due to invalid argument or content	
SCE_NET_EBADF	Invalid socket ID specified	
SCE_NET_ENOTBLK	Function called for socket not in wait state	
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent	
	disconnection or system suspend.	

Description

This function aborts processing for a socket.

It unblocks sockets blocked by functions such as sceNetSend() and sceNetRecv() specified with s. Namely, the applicable functions return an error as $sce_net_erroo = SCE_NET_EINTR$.

If flags is not specifically specified, calling this function for a socket that is not in wait state returns an error and the abort process is not performed. To change this action and have the abort process performed when the next receive or send function is called, set the conditions in flags. When the target receive or send function is performed at this time and it is determined that the abort process is saved, an error is returned immediately as $sce_net_erros = SCE_NET_EINTR$ even if sending or receiving can be performed. Moreover, each condition being independent, no influence can be exerted on one of the flags conditions.

This socket only performs the abort process. Following the release of a block, send/receive and other processing can be resumed for that socket. Moreover, to close a socket, sceNetSocketClose() must be called separately.

Notes

Regarding TCP and TCP over UDP socket transmission during block operation, when there is no available space in the socket send buffer, the socket processing is blocked until transmission of all the data has been completed. If abort process is performed at this time, in the case where there is any data that was successfully sent up to that time, the target send function returns the size of that data and on other hands, SCE_NET_ERROR_EINTR is returned.

The UDP, UDPP2P and RAW sockets are not blocked, but if the send function is called in the state where the abort process has been saved, SCE_NET_ERROR_EINTR is returned in the same way as for the TCP and TCP over UDP sockets.





sceNetEpollCreate

Create multiplex I/O

Definition

```
#include <net.h>
SceNetId sceNetEpollCreate(
        const char *name,
        int flags
);
```

Arguments

name Debugging Name Flag (always 0) flags

Return Values

The ID of the created multiplex I/O (epoll ID, 0 or higher) is returned.

If an error occurs, a negative value is returned.

Details of the error can be obtained with sce net errno

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EMFILE	Insufficient space in epoll ID table

Description

This function creates an ID for multiplex I/O.



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sceNetEpollDestroy

Destroy multiplex I/O

Definition

```
#include <net.h>
int sceNetEpollDestroy(
        SceNetId eid
);
```

Arguments

eid epoll ID

Return Values

Value	Description	
0	Normal termination	
Negative number	Error	

Details of the error can be obtained with sce net error

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid epoll ID specified

Description

This function destroys the target epoll ID

Operations for this epoll ID can no longer be performed after this function is called.



sceNetEpollControl

Required operation for event waiting of multiplex I/O

Definition

Arguments

eid epoll ID

op Operation type

id libnet ID associated with epoll ID

event Pointer to area for storing associated event

The following values can be set to op. (OR cannot be specified.)

Value	Description
SCE_NET_EPOLL_CTL_ADD	Associates to eid of id
SCE_NET_EPOLL_CTL_MOD	Resets associated event
SCE_NET_EPOLL_CTL_DEL	Deletes association from eid of id (event is always NULL)

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid epoll ID or libnet ID specified
SCE_NET_EBUSY	(Does not occur after SDK 0.990)
SCE_NET_EEXIST	SCE_NET_EPOLL_CTL_ADD specified to previously associated libnet ID
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent disconnection or system suspend.

Description

This function sets, resets and deletes a libnet ID that is waiting for an event to a target epoll ID.

The supported event delivering method is only the delivered level trigger operation in either the readable or the writable states.

The libnet IDs that can wait for epoll are socket IDs and DNS resolver IDs. A separate epoll ID or dump ID cannot be specified. The area of <code>event</code> does not need to be held after calling the function. Refer to the description of the <code>SceNetEpollEvent</code> structure for associated events.

Events can be set, re-set, and canceled from a different thread for <code>eid</code> waiting for an event with <code>sceNetEpollWait()</code> or <code>sceNetEpollWaitCB()</code>. However, <code>sceNetEpollAbort()</code> must be used for block release of <code>sceNetEpollWait()</code> or <code>sceNetEpollWaitCB()</code>.



sceNetEpollWait, sceNetEpollWaitCB

Event waiting of multiplex I/O

Definition

Arguments

eid epoll ID

events Pointer to area for storing usable event

maxevents Number of events of area for storing events (1 or higher)

timeout_us Timeout (-1 (negative value) means infinite timeout, microseconds)

Return Values

Value	Description
0	Timeout occurred while there were no events
Positive number	Number of libnet IDs of which usable events have occurred
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Blocking canceled
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid epoll ID specified

Description

This function waits for multiplex I/O and checks libnet IDs associated by sceNetEpollControl() for the state that can be used for input/output. Using this function enables the simultaneous processing of multiple libnet IDs that can wait for epoll on a single thread.

The sufficient maximum number of maxevents is the number of libnet IDs associated with epoll IDs (eid) by sceNetEpollControl(). When the input events of $SCE_NET_EPOLLIN$ and $SCE_NET_EPOLLOUT$ are set to a socket ID, and then these events are output simultaneously, the return value is 1.

Note that the timeout time unit is the microsecond.

Notes

For the events that occur, refer to SceNetEpollEvent.

If the abort process is performed for libnet IDs that can wait for epoll associated with an epoll ID (sceNetSocketAbort(), for example), an event occurs for the target epoll ID, and SCE_NET_EPOLLHUP is notified to the libnet IDs.

 ${\tt sceNetEpollWaitCB} \ () \ is a function that can wait for CB. \ Refer to the kernel feature for use of CB waiting.$



sceNetEpollAbort

Destroy multiplex I/O

Definition

Arguments

eid epoll ID of target flags Flag

The following values can be set to flags.

Value	Description
SCE_NET_EPOLL_ABORT_FLAG_PRESERVATION	Saves abort process

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE NET EBADF	Invalid epoll ID specified

Description

This function aborts multiplex I/O that is being executed with the target epoll ID. Given this feature, the multiplex I/O target to singularly cancel a wait for can be aborted even if the libnet ID that can wait for epoll and associated with epoll waiting changes.

If flags is not specifically specified, calling this function for an epoll ID that is not in wait state returns an error and the abort process is not performed. To change this action and have the abort process performed when the next epoll event waiting is called, set the conditions in flags. When the target epoll event waiting is performed at this time and it is determined that the abort process is saved, an error is returned immediately as $sce_net_erros = SCE_NET_EINTR$ even in the state where the event exists.

This function only performs the abort process. Following block release, the processing for that epoll ID can be resumed. Moreover, to terminate epoll, <code>sceNetEpollDestroy()</code> must be called separately.



sceNetGetSockInfo

Get socket information

Definition

Arguments

s Socket ID

Pointer to buffer for storing obtained socket information

n Maximum number of entries to obtain

flags Flag (always 0)

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid socket ID specified
SCE_NET_EINACTIVEDISABLED	Network disconnection occurred owing to intermittent
	disconnection or system suspend.

Description

This function is used to obtain information about a socket.

When a socket ID is specified to s, information about that socket is stored to the buffer indicated with p. The required buffer size is sizeof (SceNetSockInfo) bytes.

When -1 (negative value) is specified to s, information about all sockets is stored to the buffer indicated with p. n is the number of information items about a socket, so specify the value dividing the size of the provided buffer with sizeof(SceNetSockInfo). Specifying NULL to p returns the number of current sockets, so it is possible to use this to find out the appropriate value of p and the buffer size.

For information of sockets already closed, -1 is returned for socket ${\tt ID}\ s$ of the SceNetSockInfo structure.

See Also

SceNetSockInfo, sceNetGetpeername(), sceNetGetsockname()

sceNetGetSockIdInfo

Get socket ID bit string

Definition

Arguments

fds sockinfo_flags flags Pointer to socket bit set Condition flags for which to search Flag (always 0)

Return Values

Value	Description
0 or higher	Normal termination (number of times target socket ID bit is set to 1)
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE NET EINVAL	Function called due to invalid argument or content

Description

This function is used to obtain the bit string of a socket ID.

The same flags of the flags member of the SceNetSockInfo structure can be specified to sockinfo_flags. For example, when specifying SCE_NET_SOCKINFO_F_RECV_WAIT, the target bit is set to 1 for the receive wait socket ID.

This function can be used to obtain information for a socket that does not require dynamic memory allocation of an application. Namely, this function can be used to find out information of all required socket IDs by calling sceNetGetSockInfo() for each socket ID for which the target bit is set to 1.

sceNetGetStatisticsInfo

Get statistics information

Definition

```
#include <net.h>
int sceNetGetStatisticsInfo(
        SceNetStatisticsInfo *info,
        int flags
)
```

Arguments

info Pointer to area for storing statistics information flags Flag (always 0)

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content

Description

This function obtains statistics information.



sceNetDumpCreate

Start log acquisition

Definition

```
#include <net.h>
SceNetId sceNetDumpCreate(
        const char *name,
        int len,
        int flags
);
```

Arguments

name Debugging Name Maximum log buffer length (2048 or more) len flags Flag (always 0)

Return Values

Value	Description
0 or higher	Log ID
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE NET EMFILE	Insufficient space in log ID table

Description

This function starts log (tcpdump format log) acquisition.



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sceNetDumpDestroy

End log acquisition

Definition

```
#include <net.h>
int sceNetDumpDestroy(
        SceNetId id
);
```

Arguments

id Log ID

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net error

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid log ID specified

Description

This function ends use of the target log ID.

Operations for this log ID can no longer be performed after this function is called.

sceNetDumpRead

Get log

Definition

Arguments

id Log ID

buf Area for saving log

pflags Flags

The following values can be set to flags.

Value	Description
SCE_NET_DUMP_DONTWAIT	Calls as non-blocking (input side)
SCE_NET_DUMP_PEEK	Leaves receive data unchanged in receive buffer (input side)
SCE_NET_DUMP_OVERFLOW	Blocks until specified buffer size is received (output side)

Return Values

Value	Description
0 or higher	Normal termination (log size)
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid log ID specified

Description

This function obtains the started log.

When SCE_NET_DUMP_PEEK is specified for an input level flag, the log remains in the log buffer.

When SCE_NET_DUMP_DONTWAIT is specified but there is no data in the log buffer, the function returns from the call without blocking. When not using this function, perform initialization with 0.

When the SCE_NET_DUMP_OVERFLOW bit for the output level flag is 1, this indicates that the log data did not fit in the buffer specified at the time the log ID was created.

sceNetDumpAbort

Stop log acquisition

Definition

Arguments

rid Target log ID flags Flag

The following values can be set to flags.

Value			Description	
SCE_NET_DUM	P_ABORT_FLAG	_PRESERVATION	Saves abort proce	ess

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE NET EBADF	Invalid log ID specified

Description

This function stops log acquisition that is being performed with the target log ID.

To end log acquisition, sceNetDumpDestroy() must be called separately.

If flags is not specifically specified, calling this function for a log ID that is not in wait state returns an error and the abort process is not performed. To change this action and have the abort process performed when the next log obtaining function is called, set the conditions in flags. The target function is executed at this time and if it is determined that the abort process was saved, $sce_net_erroo = SCE_NET_EINTR$ is returned as an error.

This function performs only the abort process, so the processing for that log ID can be resumed following block release. To terminate log acquisition, sceNetDumpDestroy() must be called.

sceNetSetDnsInfo

Set DNS address

Definition

Arguments

infoPointer to area for storing DNS addressflagsFlag (always 0)

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE NET EINVAL	Function called due to invalid argument or content

Description

This function sets the DNS address required by the application.

A valid address must be set to <code>info->dns_addr[0]</code>. To clear the DNS address setting, specify NULL for <code>info</code>.

The use of this function is not usually required.

See Also

SceNetDnsInfo

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sceNetClearDnsCache

Clear DNS cache

Definition

```
#include <net.h>
int sceNetClearDnsCache(
        int flags
)
```

Arguments

flags Flag (always 0)

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net error

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description			
SCE_NET_EINVAL	Function called due to i	nvalid	argur	nent or content

Description

This function clears the DNS cache.

The use of this function is not usually required.





sceNetResolverCreate

Create DNS resolver ID

Definition

Arguments

name Debugging Name

param Pointer to DNS resolver parameters

flags Flag (always 0)

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE NET EINVAL	Function called due to invalid argument or content

Description

This function obtains the DNS resolver ID, which is the libnet ID. The same DNS resolver ID can be repeated to resolve the name.

When NULL is specified for the DNS resolver parameters, the function operates as though the parameters are not set

Saving the DNS resolver parameters can be safely omitted, with the exception of the user data pointer destination, following execution of this function.

Refer to the SceNetResolverParam structure for the meanings of the parameters.

(The memory required for DNS resolver is as described in the description of the SceNetInitParam structure, so it is recommended to use the memory of libnet after estimating the maximum usage amount, instead of using dynamic memory allocation via the DNS resolver parameters.)

sceNetResolverDestroy

Destroy DNS resolver ID

Definition

```
#include <net.h>
SceNetId sceNetResolverDestroy(
        SceNetId rid
)
```

Arguments

rid Target DNS resolver ID

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net error

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EBADF	Invalid DNS resolver ID specified
SCE_NET_RESOLVER_EBUSY	Specified DNS resolver ID already in use (target ID not destroyed)

Description

This function ends use of the target DNS resolver ID.

This DNS resolver ID can no longer be operated after this function is called and ends normally.

SCE NET RESOLVER EBUSY indicates that operations of the target DNS resolver ID, such as calling sceNetResolverAbort(), must be stopped.

sceNetResolverStartNtoa

Perform forward lookup name resolution

Definition

Arguments

rid DNS resolver ID

hostname Host name of name resolution target

addr Pointer to area for storing IP address (network byte order) corresponding to host

name

timeout_us Inquiry resend interval (microseconds)

retry Inquiry resend count

flags Flags

Specify the following values to flags.

Value		Description
0		Default operation
SCE_NET_RESOLVER_ASYNC		Non-blocking operation
SCE_NET_RESOLVER_START_NTOA_DISA	ABLE_IPADDRESS	Operation that returns an error when
		IP address is specified for host name

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetResolverAbort()
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid DNS resolver ID specified
SCE_NET_EMFILE	Insufficient space in socket ID table
SCE_NET_EHOSTDOWN	Did not reach other side
SCE_NET_EHOSTUNREACH	Network unreachable
SCE_NET_ERETURN	libnetctl error was returned
SCE_NET_RESOLVER_EBUSY	Specified DNS resolver ID already in use
SCE NET RESOLVER ENOSPACE	Insufficient memory (library)

Refer to Notes in sceNetResolverGetError() for other errors.

Description

This function performs forward lookup name resolution for the target DNS resolver ID.

This function inquires as to the IP address corresponding to the host name specified with <code>hostname</code>, and stores that information in the area specified with <code>addr</code>. For default operation, IP address can be specified for the host name. If name resolution ends normally with non-blocking operation, the result is stored in the area specified by <code>addr</code> as same as with blocking operation.

Supplement

When 0 is specified to <code>timeout_us</code>, this is handled as though specified at the default value of 1 second. When 0 is specified to <code>retry</code>, this is handled as though specified at the default value of 5 times. When the value specified for <code>timeout_us</code> is less than 2 seconds, <code>timeout_us</code> is set to the value of 2 seconds, and correction is made by only subtracting 1 so that 0 is not specified to <code>retry</code>. Then, the actual timeout time is calculated as follows based on <code>timeout (=timeout us</code> (seconds)) and <code>retry</code>.

Timeout time when primary DNS only is set

Retry	Timeout time
First	timeout seconds
Second	timeout x 2 seconds
Third	timeout x 4 seconds
:	:
retry time	timeout x (2 ^ (retry-1)) seconds

When the default values are specified to both timeout_us and retry, the maximum wait time for a function call is calculated as follows:

2+4+8+16 = 30 seconds

Timeout time when both primary and secondary DNS are set

Retry	Timeout Time
First (primary DNS)	timeout seconds
First (secondary DNS)	timeout seconds
Second (primary DNS)	timeout seconds
Second (secondary DNS)	timeout seconds
Third (primary DNS)	timeout x 2 seconds
Third (secondary DNS)	timeout x 2 seconds
	:
retry time (primary DNS)	timeout x (2 ^ (retry -2)) seconds
retry time (secondary DNS)	timeout x (2 ^ (retry -2)) seconds

When the default values are specified to both timeout_us and retry, the maximum wait time for a function call is calculated as follows:

(2+2)+(2+2)+(4+4)+(8+8) = 32 seconds

If *flags* is not specifically specified, this function is blocked until name resolution ends normally or an error is returned.

When SCE_NET_RESOLVER_ASYNC is specified to <code>flags</code> for non-blocking operation, non-blocking operation is performed, and if this function ends normally, this indicates that name resolution has started. The calling of <code>sceNetEpollWait()</code> or <code>sceNetEpollWaitCB()</code> is required for name resolution to proceed, and this is performed using the called thread context. In other words, just the normal termination of this function does not mean the name resolution is completed.

An arbitrary value can be specified for the timeout value. Also, if name resolution execution is not carried out in one go, the timeout time is extended proportionally to the time during which name resolution is not executed.

Also the ending of name resolution is determined by calling either sceNetEpollWait() or sceNetEpollWaitCB(). Thereafter, use sceNetResolverGetError() to determine whether name resolution ended normally or an error occurred.



sceNetResolverStartAton

Perform reverse lookup name resolution

Definition

Arguments

rid DNS resolver ID

addr Pointer to area for storing IP address (network byte order) for inquiry

hostname Pointer to area for storing host name

hostname_len Size of area for storing host name (size including NULL end characters)

timeout_us Inquiry resend interval (microseconds)

retry Inquiry resend count

flags Flags

Specify the following values to flags.

Value	Description
0	Default operation
SCE NET RESOLVER ASYNC	Non-blocking operation

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce_net_errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINTR	Aborted by sceNetResolverAbort()
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid DNS resolver ID specified
SCE_NET_EMFILE	Insufficient space in socket ID table
SCE_NET_EHOSTDOWN	Did not reach other side
SCE_NET_EHOSTUNREACH	Network unreachable
SCE_NET_ERETURN	libnetctl error was returned
SCE_NET_RESOLVER_EBUSY	Specified DNS resolver ID already in use
SCE_NET_RESOLVER_ENOSPACE	Insufficient memory (library)
	Insufficient size of area for storing host name

Refer to Notes in ${\tt sceNetResolverGetError}$ () for other errors.

Description

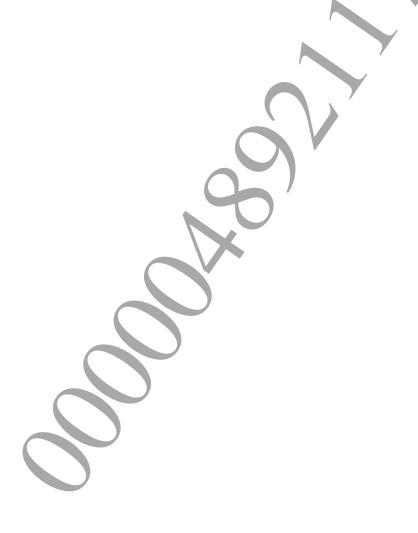
This function performs reverse lookup name resolution for the target DNS resolver ID.

This function inquires as to the host name corresponding to the IP address specified with <code>addr</code>, and stores the host name in the area specified with <code>hostname</code>. If <code>hostname_len</code> is insufficient for the reply host name, an error is returned. Therefore, it is recommended that

(SCE_NET_RESOLVER_HOSTNAME_LEN_MAX + 1) be specified for the area size of <code>hostname</code>. If name resolution ends normally with non-blocking operation, the result is stored in the area specified by <code>hostname</code> as same as with blocking operation.

Supplement

The same supplement to sceNetResolverStartNtoa() applies to other features.



sceNetResolverGetError

Get name resolution execution result

Definition

Arguments

rid DNS resolver ID

result Pointer to area for storing execution result

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid DNS resolver ID specified

Description

This function obtains the result of the name resolution previously performed for the target DNS resolver ID. This is used to check errors of name resolution for which normal non-blocking operation was performed.

The following are the meanings of the *result value. The error value is the Sce error code as same as to the return value.

Value	Description
0	Name resolution ends normally
Negative number	Name resolution ends with an error.

Notes

The following results are stored in *result.

Value	Description
SCE_NET_ERROR_EINTR	Aborted by sceNetResolverAbort()
SCE_NET_ERROR_RESOLVER_ENOSPACE	Insufficient memory (library)
SCE_NET_ERROR_RESOLVER_EPACKET	Invalid DNS response
SCE_NET_ERROR_RESOLVER_ENODNS	DNS server not specified
SCE_NET_ERROR_RESOLVER_ETIMEDOUT	Timeout occurred
SCE_NET_ERROR_RESOLVER_ENOSUPPORT	Unsupported feature requested by server
SCE_NET_ERROR_RESOLVER_EFORMAT	Invalid response from server
SCE_NET_ERROR_RESOLVER_ESERVERFAILURE	Temporary error from server
SCE_NET_ERROR_RESOLVER_ENOHOST	Inquired host name does not exist
SCE_NET_ERROR_RESOLVER_ENOTIMPLEMENTED	Inquired feature is not implemented
SCE_NET_ERROR_RESOLVER_ESERVERREFUSED	Inquiry denied
SCE_NET_ERROR_RESOLVER_ENORECORD	Inquired record does not exist



sceNetResolverAbort

Stop name resolution

Definition

Arguments

rid Target DNS resolver ID flags Flag

The following values can be set to flags.

Value	Description
SCE_NET_RESOLVER_ABORT_FLAG_NTOA_PRESERVATION	Saves abort process of lookup
	name resolution execution
SCE_NET_RESOLVER_ABORT_FLAG_ATON_PRESERVATION	Saves abort process of reverse
	lookup name resolution execution

Return Values

Value	Description
0 or higher	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_EINVAL	Function called due to invalid argument or content
SCE_NET_EBADF	Invalid DNS resolver ID specified

Description

This function stops name resolution that is being performed with the target DNS resolver ID. This function also stops name resolution being performed with non-blocking.

To destroy the DNS resolver ID, sceNetResolverDestroy() must be called separately.

If flags is not specifically specified, calling this function for a DNS resolver ID that is not in wait state returns an error and the abort process is not performed. To change this action and have the abort process performed when the next name resolution function is called, set the conditions in flags. The target name resolution is executed at this time, and if it is determined that the abort process was saved, $sce_net_erros = SCE_NET_EINTR$ is returned as an error even when send/receive is enabled. Moreover, each condition being independent, no influence can be exerted on one of the flags conditions.

Since this function only performs the abort process, the processing can be resumed that DNS resolver following block release. To terminate a DNS resolver ID, sceNetResolverDestroy() must be called.



sceNetShowlfconfig

Display interface state

Definition

#include <net.h> int sceNetShowIfconfig(void);

Arguments

None

Return Values

Value	Description	
0	Normal termination	

Description

This function displays the interface states and name server information. Refer to the "libnet Overview" document for the display information.

As TTY output control during debugging, sceNetGetStatisticsInfo() can be used when one needs to know just the network memory state.



sceNetShowNetstat

Display socket information

Definition

#include <net.h> int sceNetShowNetstat(void);

Arguments

None

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno

Value	Description
SCE_NET_ENOLIBMEM	Insufficient memory (library)

Description

This function displays the socket and resolver ID states. Refer to the "libnet Overview" document for the display information.

As TTY output control during debugging, sceNetGetSockInfo() can be used when one needs to know the state of a specific socket or resolver ID.



sceNetShowRoute

Display routing information

Definition

#include <net.h>
int sceNetShowRoute(void);

Arguments

None

Return Values

Value	Description	
0	Normal termination	

Description

This function displays routing information.



sceNetEmulationSet

Set network emulation parameters

Definition

Arguments

param Parameters to be set flags Flag

The following values can be set to flags.

Value	Description
SCE_NET_EMULATION_FLAG_ETH(USB Ethernet interface
SCE_NET_EMULATION_FLAG_WLAN	Wireless interface

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_ENODEV	Target device does not exist
SCE_NET_EINVAL	Invalid argument or flag has been specified
SCE_NET_ENOSPC	Attempted to set an invalid parameter value
SCE_NET_ENOENT	param->version value is invalid
SCE_NET_ENOTSUP	This call is invalid (SDK 2.000 or later)

Description

This function sets the network emulation parameters. Refer to the "libnet Overview" document for the meanings of the parameters.

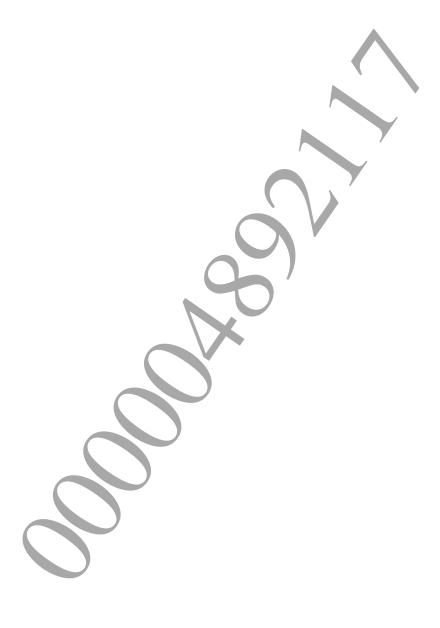
One physical interface to which the network emulation parameters are set must be specified for *flags*. The parameters are applied to this function only during the "development mode". Note that after your title is released, the emulation operation is not executed even if the values of parameters are valid, while the function is terminated normally.

this indicates that the emulation operation was not executed owing to the condition described in the "Network Emulation" chapter of the "libnet Overview" document.

When the return value is SCE_NET_ERROR_ENOSPC error, the parameter whose setting value is not correct can be identified by calling sceNetEmulationGet() and then confirming the position of the member of param indicated by the param->result value. For instance, if the param->result value is 24, it means param->send.delay_jitter is wrong.

Notes

This function can be used only for development purposes. This function cannot be used for master packages.



sceNetEmulationGet

Get network emulation parameters

Definition

Arguments

param Parameter storage destination flags Flag

The following values can be set to flags.

Valu	e				Description
SCE_	NET_	_EMULATION_	_FLAG_	ETH0	USB Ethernet interface
SCE	NET	EMULATION	FLAG	WLAN0	Wireless interface

Return Values

Value	Description
0	Normal termination
Negative number	Error

Details of the error can be obtained with sce net errno.

Other than the error codes below, libnet common error codes [common] described in the "Error Codes" section may return.

Value	Description
SCE_NET_ENODEV	Target device does not exist
SCE NET EINVAL	Invalid argument or flag has been specified

Description

This function obtains the currently set network emulation parameters. Refer to the "libnet Overview" document for the meanings of the parameters.

One physical interface from which the network emulation parameters are obtained must be specified for *flags*.

Notes

This function can be used only for development purposes. This function cannot be used for master packages.



SCE_NET_FD_CLR

Clear socket ID

Definition

```
#include <net.h>
SCE_NET_FD_CLR(n, p)
```

Arguments

- n Socket ID
- P Pointer to SceNetFdSet structure

Description

This macro removes certain socket IDs from a socket ID set.

It sets the bit corresponding to the socket ID specified with p of the SceNetFdSet structure specified with p to 0.



SCE_NET_FD_ISSET

Examine socket ID

Definition

#include <net.h>
SCE_NET_FD_ISSET(n, p)

Arguments

- n Socket ID
- P Pointer to SceNetFdSet structure

Return Values

Value	Description
Not 0	Socket ID <i>n</i> is set (bit is 1)
0	Socket ID <i>n</i> is not set (bit is 0)

Description

This macro checks whether or not a certain socket ID is set.

It returns whether or not the bit corresponding to the socket ID specified with n of the SceNetFdSet structure specified with p is 1.



SCE_NET_FD_SET

Set socket ID

Definition

```
#include <net.h>
SCE_NET_FD_SET(n, p)
```

Arguments

- n Socket ID
- P Pointer to SceNetFdSet structure

Description

This macro adds certain socket IDs to a socket ID set.

It sets the bit corresponding to the socket ID specified with p of the SceNetFdSet structure specified with p to 1.



SCE_NET_FD_ZERO

Initialize socket ID set with 0

Definition

#include <net.h>
SCE_NET_FD_ZERO(p)

Arguments

P Pointer to SceNetFdSet structure

Description

This macro initializes the socket ID set.

It sets all of the bits of the SceNetFdSet structure specified with p to 0.





List of Socket Options

List of socket options

Socket Level	Option Name	get	set
SCE_NET_SOL_SOCKET	SCE_NET_SO_BROADCAST	get	set
	SCE_NET_SO_ERROR	get	-
	SCE_NET_SO_ERROR_EX	get	-
	SCE_NET_SO_KEEPALIVE	get	set
	SCE_NET_SO_LINGER	get	set
	SCE_NET_SO_RCVBUF	get	set
	SCE_NET_SO_SNDBUF	get	set
	SCE_NET_SO_RCVTIMEO	get	set
	SCE_NET_SO_SNDTIMEO	get	set
	SCE_NET_SO_REUSEADDR	get	set
	SCE_NET_SO_REUSEPORT	get	set
	SCE_NET_SO_TYPE	get	-
	SCE_NET_SO_NBIO	get	set/
	SCE_NET_SO_ONESBCAST	get	set
	SCE_NET_SO_USECRYPTO	get	set
	SCE_NET_SO_USESIGNATURE	get	set
	SCE_NET_SO_TPPOLICY	get	set
	SCE_NET_SO_NAME	7	set
SCE_NET_IPPROTO_IP	SCE_NET_IP_MULTICAST_IF	get	set
	SCE_NET_IP_MULTICAST_TTL	get	set
	SCE_NET_IP_MULTICAST_LOOP	get	set
	SCE_NET_IP_ADD_MEMBERSHIP	-	set
	SCE_NET_IP_DROP_MEMBERSHIP	-	set
	SCE_NET_IP_HDRINCL	get	set
	SCE_NET_IP_TTL	get	set
	SCE_NET_IP_TTLCHK	get	set
	SCE_NET_IP_MAXTTL	get	-
	SCE_NET_IP_DONTFRAG	get	set
	SCE_NET_IP_TOS	get	set
SCE_NET_IPPROTO_TCP	SCE_NET_TCP_NODELAY	get	set
	SCE NET TCP MAXSEG	get	set
	SCE_NET_TCP_MSS_TO_ADVERTISE	get	set

SCE_NET_SO_BROADCAST

Allow sending of broadcast datagrams

Definition

int

Value

0 Disable [default] Non-zero Enable (allow)

Description

This option allows a socket to send broadcast datagrams. It is valid only when the socket type is SCE_NET_SOCK_DGRAM or SCE_NET_SOCK_DGRAM_P2P. Other socket types are not affected even if they are set.



SCE NET SO ERROR

Get pending error

Definition

int

Value

Pending error value

Description

This option obtains a pending error value for the socket. (an error code obtained with sce_net_errno). In the case that no error occurs, 0 is obtained. Once an error value is obtained, the error is cleared to 0 for that socket.

An error from libnetctl is only expressed as SCE NET ERETURN. To obtain the details on the error, use SCE NET SO ERROR EX instead of SCE NET SO ERROR.

Typical usage of this option is as follows:

- The error for the socket after the event of SCE NET EPOLLERR can be referenced.
- The result of the sceNetConnect() process after sceNetConnect() is returned with sce net errno = SCE NET EINPROGRESS can be referenced.



SCE_NET_SO_ERROR_EX

Get pending error (Extended)

Definition

int

Value

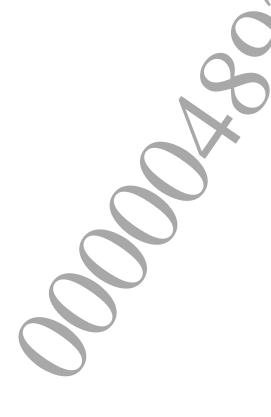
Pending error value

Description

This option obtains a pending Sce error code value for the socket. (refer to the "libnet Overview" document.)

In the case that no error occurs, 0 is obtained. Once an error value is obtained, the error is cleared to 0 for that socket. Also, the error obtained with $SCE_NET_SO_ERROR$ is cleared to 0 at the same time.

The error codes obtained with this option include the error codes from libnetctl.



SCE NET SO KEEPALIVE

Send TCP keep-alive probe

Definition

int

Value

0 Disable [default]

Non-zero Enable (send keep-alive probe)

Description

This option relates to sending a keep-alive probe. It is valid only when the socket type is SCE_NET_SOCK_STREAM or SCE_NET_SOCK_STREAM_P2P. If this option is enabled and no data is sent or received over the socket within two hours, TCP automatically sends a keep-alive probe to the destination.



SCE NET SO LINGER

Control TCP connection termination process

Definition

SceNetLinger

Value

1 onoff

0 Disable [default]

Non-zero Enable (reference 1_linger)

1 linger

0 Reset

>0 Linger time specification (seconds)

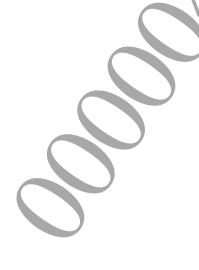
Description

This option controls the termination process of a TCP connection. It is valid only when the socket type is SCE NET SOCK STREAM or SCE NET SOCK STREAM P2P.

If <code>l_onoff</code> is enabled and <code>l_linger</code> is 0, TCP immediately discards the data existing in the send buffer for a closed connection and sends RST.

If 1_onoff is enabled and 1_linger is a positive number, TCP performs linger operations for a closed connection. In other words, all of the data in the send buffer is sent and blocking is performed until an ACK is received from the destination or the linger time has elapsed. If blocking is required on a non-blocking socket, an error occurs and see net error = SCE NET EWOULDBLOCK is returned.

The linger time cannot control the time of the TCP TIME_WAIT state.



SCE NET SO RCVBUF

Receive buffer size

Definition

int

Value

Receive buffer size (bytes)

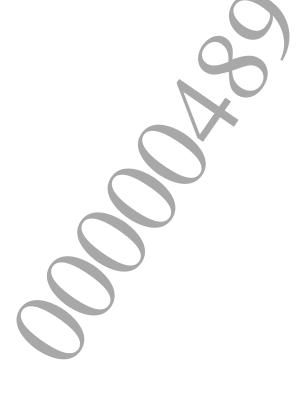
Description

This option relates to the receive buffer size of a socket.

The receive buffer size of TCP or TCP over UDPP2P can be specified up to 512 KiB, and this size is used for window notification to the destination.

Up to 512KiB can be specified as the receive buffer size for UDP, UDPP2P and RAW.

For the default value, refer to the "Socket Buffer Sizes" section in the "Internal Operations" chapter of the "libnet Overview" document.



SCE_NET_SO_SNDBUF

Send buffer size

Definition

int

Value

Send buffer size (bytes)

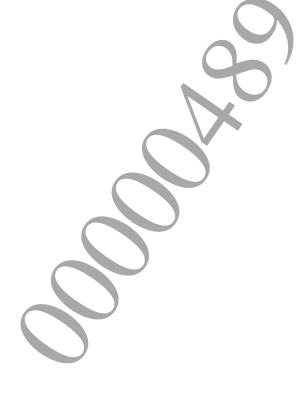
Description

This option relates to the send buffer size of a socket.

The send buffer size of TCP or TCP over UDPP2P can be specified up to 512 KiB.

Setting this option for UDP, UDPP2P and RAW is meaningless.

For the default value, refer to the "Socket Buffer Sizes" section in the "Internal Operations" chapter of the "libnet Overview" document.



SCE_NET_SO_RCVTIMEO

Receive timeout time

Definition

int

Value

<=0 Disable [default]

>0 Timeout time (microseconds)

Description

This option relates to the receive timeout time for a blocking socket.

When 0 seconds is specified for the timeout time, no timeout occurs. Set the non-blocking mode with the SCE_NET_SO_NBIO socket option when wishing to execute the target function without entering the wait state.

The timeout time applies to sceNetRecv(), sceNetRecvfrom(), and sceNetRecvmsg(), and sceNetAccept().



SCE NET SO SNDTIMEO

Send timeout time

Definition

int

Value

<=0 Disable [default]

>0 Timeout time (microseconds)

Description

This option relates to the send timeout time for a blocking socket.

When 0 seconds is specified for the timeout time, no timeout occurs. Set the non-blocking mode with the $SCE_NET_SO_NBIO$ socket option when wishing to execute the target function without entering the wait state.

The timeout time applies to sceNetConnect(), sceNetSend(), sceNetSendto(), and sceNetSendmsg().

SCE_NET_SO_REUSEADDR

Allow duplicate bindings for the same port

Definition

int

Value

0 Disable [default] Non-zero Enable (allow)

Description

This option determines the behavior when sceNetBind() is executed to bind a port to a socket when that port is already bound to an existing socket.

When SCE_NET_SO_REUSEADDR is enabled, the execution of duplicate bindings of local IP addresses and wildcards is allowed. The duplicate binding of multiple sockets to the same multicast address or same port is also allowed.

Notes

For servers receiving connection waiting for a TCP connection, it is recommended to enable the SCE_NET_SO_REUSEADDR option before executing sceNetBind() for the waiting socket.

SCE_NET_SO_REUSEPORT

Allow duplicate bindings for the same address and same port

Definition

int

Value

0 Disable [default] Non-zero Enable (allow)

Description

This option allows a socket to be bound to the same address and port that are already bound to an existing socket when <code>sceNetBind()</code> is executed. However, the <code>SCE_NET_SO_REUSEPORT</code> option must be enabled for all target sockets.

This option is used to receive UDP broadcast or multicast datagrams over multiple sockets.

Notes

When the target address to be bound is a multicast address, using the SCE_NET_SO_REUSEADDR option achieves the same operation as when the SCE_NET_SO_REUSEADDR option is allowed.

©SCEI

SCE_NET_SO_TYPE

Get socket type

Definition

int

Value

Socket type

Description

This option obtains one of the following socket types.

- SCE NET SOCK STREAM
- SCE_NET_SOCK_DGRAM
- SCE NET SOCK RAW
- SCE_NET_SOCK_STREAM_P2P
- SCE_NET_SOCK_DGRAM_P2P



SCE NET SO NBIO

Set non-blocking

Definition

int

Value

0 Disable [default] Non-zero Enable (non-blocking)

Description

This option determines the non-blocking operation for a socket. It is possible to change to blocking mode even after setting to non-blocking mode.

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SCE_NET_SO_ONESBCAST

Handling of conversion of broadcast send address

Definition

int

Value

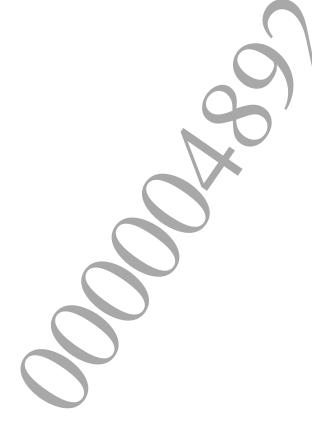
0 Disable (perform conversion) [default]

Non-zero Enable (destination broadcast address is used as is)

Description

When this option is disabled and data is sent to address 255.255.255.255 with the send function, the address is converted to the broadcast address that was set for the interface.

To explicitly send data to the address 255.255.255, enable this option.



SCE_NET_SO_USECRYPTO

Encrypt and decrypt data

Definition

int

Value

0 Disable [default]

Non-zero Enable (encrypt and decrypt)

Description

This option relates to whether or not to encrypt data when sending and decrypt data when receiving. It is valid only when the socket type is SCE_NET_SOCK_DGRAM_F2P or SCE_NET_SOCK_STREAM_P2P. When the option is enabled, a 4-byte initial vector is assigned to each packet.



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SCE NET SO USESIGNATURE

Generate and verify data signatures

Definition

int

Value

0 Disable [default]

Enable (generate and verify signature) Non-zero

Description

This option relates to whether or not to generate a signature for data when sending and verify a signature for data when receiving. It is valid only when the socket type is SCE NET SOCK DGRAM P2P or SCE NET SOCK STREAM P2P.

When the option is enabled, a 4-byte signature is assigned to each packet.



SCE_NET_SO_TPPOLICY

Policy number of socket

Definition

int

Value

Policy number (0 [default] - 31)

Description

This option is used with network emulation. Refer to the "libnet Overview" document for details.



SCE_NET_SO_NAME

Debug name of socket

Definition

char *

Value

Character string (maximum character count is 31 characters, not including termination character)

Description

This option sets the debug name of sockets , etc for which <code>sceNetAccept()</code> was executed. The length of the character string not including the termination character is passed.



SCE_NET_IP_MULTICAST_IF

Specify IPv4 multicast datagram send interface

Definition

SceNetInAddr

Value

SCE_NET_INADDR_ANY IPv4 address

Reference the route control table [default] Send interface address (network byte order)

Description

This option relates to the specification of the interface for sending an IPv4 multicast datagram. It is supported when the socket type is SCE_NET_SOCK_DGRAM.



SCE_NET_IP_MULTICAST_TTL

TTL value of IPv4 multicast datagram

Definition

unsigned char or int

Value

TTL (default value = 1, "within local network")

Description

This option relates to the TTL value when sending an IPv4 multicast datagram.



SCE NET IP MULTICAST LOOP

Existence of local loopback for IPv4 multicast datagram

Definition

unsigned char or int

Value

- 0 No loopback
- 1 Loopback [default]

Description

This option relates to whether or not there is a local loopback for an outgoing IPv4 multicast datagram. If this option is enabled and the send interface joins the destination multicast group of a send datagram, the send datagram is copied and processed as a receive datagram.



SCE NET IP ADD MEMBERSHIP

Join IPv4 multicast group

Definition

SceNetIpMreq

Value

imr_multiaddr
imr interface

Address of multicast group to join Receive interface address

Description

This option allows a specified interface to join an IPv4 multicast group. The specification method of the receive interface is the same as that of the SCE_NET_IP_MULTICAST_IF.



SCE NET IP DROP MEMBERSHIP

Leave IPv4 multicast group

Definition

SceNetIpMreq

Value

imr_multiaddr
imr interface

Address of IP multicast group to leave Receive interface address

Description

This option allows a specified interface to leave an IPv4 multicast group.

The specification method of the receive interface is the same as that of SCE_NET_IP_MULTICAST_IF. If a socket that belongs to a group is not explicitly withdrawn, the socket is withdrawn automatically when the socket is closed.



SCE NET IP HDRINCL

Add send IP header when using RAW socket

Definition

int

Value

0 Do not include IP header in user payload [default]

Non-zero Include IP header in user payload

Description

This option relates to whether or not to specify a send IP header when using a RAW socket. It is supported when the socket type is SCE_NET_SOCK_RAW. When the setting is enabled, data to be sent to the socket must start with an IP header. In addition, the IP header is changed according to the following conditions.

- IP header checksum: IP header is changed without exception.
- Sender IP address: in the case of '0', the IP header is changed to its own IP address.
- IP header ID: in the case of '0', the IP header is changed.



SCE NET IP TTL

TTL value of IP header of send data

Definition

int

Value

TTL value

Description

This option relates to the TTL value of the IP header of send data. This applies to all sockets, but this does not have an effect when creating an IP header with $SCE_NET_IP_HDRINCL$ for a RAW socket.



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SCE_NET_IP_TTLCHK

Start and end recording of maximum TTL value of incoming packets

Definition

int

Value

0 End recording [default]

Non-zero Start recording

Description

This option is for recording the maximum TTL value of incoming packets. It applies to all sockets except RAW sockets.



SCE NET IP MAXTTL

Maximum TTL value of incoming packets

Definition				
	int			
Value				

TTL value

Description

This option obtains the maximum TTL value of incoming packets in an interval recorded with the SCE_NET_IP_TTLCHK option. The TTL value is initialized to 0 at the start of recording, and the TTL value is held after the end of recording. It applies to all sockets except RAW sockets.



SCE_NET_IP_DONTFRAG

IP header Don't Fragment flag value

Definition

int

Value

0 Permit fragmenting with IP level [default] Non-0 Prohibit fragmenting with IP level

Description

This option is related to the IP Don't Fragment flag of send packets.

It is applied to UDP, UDPP2P, and RAW sockets. However, it does not have an effect for RAW sockets when creating an IP header with SCE_NET_IP_HDRINCL.



SCE_NET_IP_TOS

Type-Of-Service (TOS) field value

Definition

int

Value

TOS value

Description

This option relates to the IP TOS value of outgoing packets. It applies to all sockets. However, this does not have an effect when creating an IP header with SCE_NET_IP HDRINCL for a RAW socket.



SCE NET TCP NODELAY

Prohibit use of TCP Nagle algorithm

Definition

int

Value

0 Use Nagel algorithm [default]

Non-zero Prohibit use

Description

This option determines whether or not to prohibit use of the TCP Nagle algorithm. It is valid only when the socket type is SCE_NET_SOCK_STREAM or SCE_NET_SOCK_STREAM_P2P. This option can be set at any time.

The Nagle algorithm prevents the sending of data smaller than the maximum segment size (MSS) if there is send data that has not received an ACK. In addition, when an ACK is sent to the receive data, a delayed ACK is sent after waiting a maximum of 200 milliseconds. As a result, when using the Nagle algorithm with an application that continuously sends and receives small packets over short periods of time, the response time may appear to become longer.



SCE NET TCP MAXSEG

Maximum segment size (MSS)

Definition

int

Value

Maximum segment size (bytes)

Description

This option relates to the maximum segment size (MSS) of a TCP connection. With this option, the packet size sent by own socket is controlled so as not to exceed the specified MSS.

It is valid only when the socket type is SCE_NET_SOCK_STREAM or SCE_NET_SOCK_STREAM_P2P. This can be set after establishing a connection.



SCE_NET_TCP_MSS_TO_ADVERTISE

MSS value to be reported to destination by initial packet (MSS option value of SYN packet)

Definition

unsigned short

Value

0 MSS value of interface [default] 1 or higher MSS value for reporting (bytes)

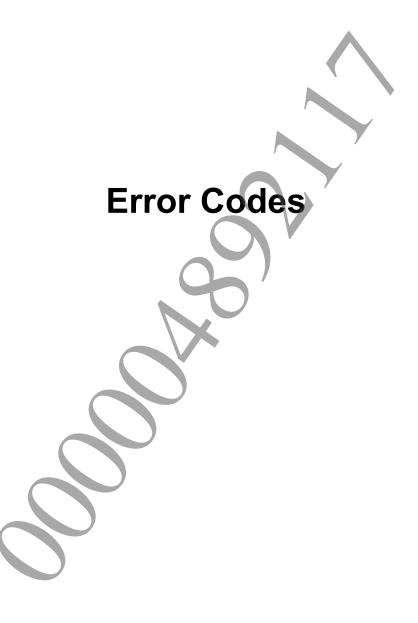
Description

This option relates to the maximum segment size (MSS) that is contained in the SYN packet when a TCP connection is established. With this option, the packet size sent by the other terminal is controlled so as not to exceed the specified MSS.

It is valid only when the socket type is SCE_NET_SOCK_STREAM or SCE_NET_SOCK_STREAM_P2P. This must be set before trying to establish a connection. For example, by setting this option to the listening socket that has called sceNetAccept(), the MSS value specified for the connected socket that has been obtained with sceNetAccept() is applied.

If the set MSS value is not an appropriate value, such as when it exceeds the MSS value of the interface, the value is adjusted internally.





Document serial number: 000004892117

sce net errno

Get or set network error value (network errno)

Definition

```
#include <net.h>
int *sceNetErrnoLoc(void);
#define sce_net_errno (*sceNetErrnoLoc())
```

Arguments

None

Return Values

Most recent libnet error value

Description

This macro obtains the value of the error that occurred most recently with libnet.

The value can be overwritten.

Error values are retained separately by thread.

Note that the value is updated only when an error occurs with libnet and that the value is not cleared when there are no errors.

Error Codes

Error codes obtained with sce_net_errno

Definition

The following are the common libnet error codes.

As a general rule, the error codes of errors that can occur with each function are listed with each function, but common error codes that can occur with all functions, such as that for insufficient memory (SCE_NET_ENOMEM), have been omitted from the function descriptions (indicated as [common]). [reserved] indicates error codes that are currently not returned.

Value	(Number)	Description
None [common]	-1	Internal error for protocol stack
SCE_NET_ENOENT	2	No resources are in wait state
SCE_NET_EINTR	4	Blocking canceled by abort function
SCE NET EBADF	9	Invalid libnet ID specified
SCE NET ENOMEM [common]	12	Insufficient memory (kernel)
SCE_NET_EACCES	13	Attempted to use an area reserved by the system
		Attempted to send to a broadcast address
SCE_NET_EFAULT	14	Invalid argument specified
SCE_NET_ENOTBLK	15	Abort process called while target is not in wait state
SCE_NET_EBUSY	16	libnet already initialized
SCE_NET_EEXIST	17	SCE NET EPOLL CTL ADD specified to previously
		associated libnet ID
SCE_NET_ENODEV	19	Target device does not exist
SCE_NET_EINVAL	22	Invalid argument specified
SCE_NET_EMFILE	24	Insufficient space in socket table
SCE_NET_ENOSPC	28	Size specified with dst is too small to store string
SCE_NET_EPIPE	32	Writing side of socket already closed
SCE_NET_EAGAIN	35	Socket is in blocking state (when non-blocking)
SCE_NET_EWOULDBLOCK		Timeout occurred (when SCE NET SO SNDTIMEO or
		SCE NET SO RCVTIMEO option is specified)
SCE_NET_EINPROGRESS	36	Attempting to establish a connection
SCE_NET_EALREADY	37	Socket is already in use
SCE_NET_EDESTADDRREQ	39	Invalid send request (sceNetSendto() should be
		used)
SCE_NET_EMSGSIZE	40	Message size is too large
SCE_NET_EPROTOTYPE	41	Unsupported protocol type was specified
SCE_NET_ENOPROTOOPT	42	Option is not supported
SCE_NET_EPROTONOSUPPORT	43	Invalid protocol family
SCE_NET_EOPNOTSUPP	45	Invalid call for that socket
SCE_NET_EPFNOSUPPORT	46	Unsupported protocol family was specified
[reserved]		
SCE_NET_EAFNOSUPPORT	47	Value of specified address family is not supported by
		socket protocol family
SCE_NET_EADDRINUSE	48	Attempted to bind to bound port
SCE_NET_EADDRNOTAVAIL	49	Invalid address specified
SCE_NET_ENETDOWN	50	Interface is down
SCE_NET_ENETUNREACH	51	Destination is unreachable
SCE_NET_ECONNABORTED	53	Connection was aborted
SCE_NET_ECONNRESET	54	Connection was reset
SCE_NET_ENOBUFS [common]	55	Memory limited (kernel work area is insufficient)
		(refer to "libnet Overview" document)

Value	(Number)	Description
SCE_NET_EISCONN	56	Specified connection is already established
SCE_NET_ENOTCONN	57	Specified connection does not exist
SCE_NET_ESHUTDOWN [reserved]	58	Shutdown in progress
SCE_NET_ETOOMANYREFS	59	Too many multicast addresses specified
SCE_NET_ETIMEDOUT	60	Timeout occurred (indicates a protocol timeout,
		unlike SCE_NET_EAGAIN)
SCE_NET_ECONNREFUSED	61	Connection request was denied
SCE_NET_EHOSTDOWN	64	Did not reach other side
SCE_NET_EHOSTUNREACH	65	Network unreachable
SCE_NET_ENOTSUP	86	This call is invalid (SDK 2.000 or later)
SCE_NET_ECANCELED	87	Close processing was called for a socket that is in the
		wait condition and being executed
SCE_NET_EADHOC	160	UDP or TCP was attempted in the ad hoc
		communication mode
SCE_NET_EDISABLEDIF	161	(Internal error)
[common]		
SCE_NET_ERESUME [reserved]	162	The sockets were recovered by the system between
		process suspend and process resume
		(sceNetSocketClose() must be called)
SCE_NET_EIPADDRCHANGED	163	Network disconnection occurred owing to
SCE_NET_EINACTIVEDISABLED		intermittent disconnection or system suspend.
		(sceNetSocketClose() must be called)
SCE_NET_ENOTINIT	200	libnet not initialized
SCE_NET_ENOLIBMEM	201	Insufficient memory (library)
SCE_NET_ECALLBACK	203	(Internal error)
SCE_NET_EINTERNAL	204	Fatal internal error
SCE_NET_ERETURN	205	libnetctl error was returned
·		

The following are the error codes related to the DNS resolver.

Value	(Number)	Description
SCE_NET_RESOLVER_EINTERNAL	220	Fatal internal error
SCE_NET_RESOLVER_EBUSY	221	Resolver was in use
SCE_NET_RESOLVER_ENOSPACE	222	Insufficient memory (library)
SCE_NET_RESOLVER_EPACKET	223	Invalid DNS response
SCE_NET_RESOLVER_ENODNS	225	DNS server not specified
SCE_NET_RESOLVER_ETIMEDOUT	226	Timeout occurred
SCE_NET_RESOLVER_ENOSUPPORT	227	Unsupported feature requested by server
SCE_NET_RESOLVER_EFORMAT	228	Invalid response from server
SCE_NET_RESOLVER_ESERVERFAILURE	229	Temporary error from server
SCE_NET_RESOLVER_ENOHOST	230	Inquired host name does not exist
SCE_NET_RESOLVER_ENOTIMPLEMENTED	231	Inquired feature is not implemented
SCE_NET_RESOLVER_ESERVERREFUSED	232	Inquiry denied
SCE_NET_RESOLVER_ENORECORD	233	Inquired record does not exist
SCE_NET_RESOLVER_EALIGNMENT	234	Invalid alignment

Notes

Sce error codes correspond to the following values.

SCE_NET_ERROR_ENOENT 0x80410102 SCE_NET_ERROR_ENDER 0x80410104 SCE_NET_ERROR_ENDER 0x80410109 SCE_NET_ERROR_ENOMEM 0x80410100 SCE_NET_ERROR_ENOMEM 0x80410100 SCE_NET_ERROR_EACCES 0x80410100 SCE_NET_ERROR_EACCES 0x80410100 SCE_NET_ERROR_ENOTBLK 0x80410106 SCE_NET_ERROR_ENOTBLK 0x80410101 SCE_NET_ERROR_ENOTBLK 0x80410110 SCE_NET_ERROR_ENOTBLK 0x80410110 SCE_NET_ERROR_ENOTEV 0x80410111 SCE_NET_ERROR_ENODEV 0x80410111 SCE_NET_ERROR_ENODEV 0x80410113 SCE_NET_ERROR_ENONEV 0x80410116 SCE_NET_ERROR_ENONEV 0x80410116 SCE_NET_ERROR_ENONEV 0x80410116 SCE_NET_ERROR_ENONEV 0x80410116 SCE_NET_ERROR_ENONEV 0x80410120 SCE_NET_ERROR_ENDERD 0x80410120 SCE_NET_ERROR_ENDERD 0x80410120 SCE_NET_ERROR_ENDERD 0x80410124 SCE_NET_ERROR_ENDERD 0x80410125 SCE_NET_ERROR_ENDERDORD 0x80410126 SCE_NET_ERROR_ENDERDORD 0x80410126 SCE_NET_ERROR_ENDERDORD 0x80410126 SCE_NET_ERROR_ENDERDORD 0x80410126 SCE_NET_ERROR_ENDERDORD 0x80410126 SCE_NET_ERROR_ENDERDORD 0x80410136 SCE_NET_ERROR_ENDORDN 0x80410136 SC	Value		respond to the following values.	(Number)
SCE_NET_ERROR_EINTR		ERROR	ENOENT	· · · · · · · · · · · · · · · · · · ·
SCE_NET_ERROR_EBADF 0x8041010c				
SCE NET ERROR ENOMEM Dx8041010c				
SCE NET				
SCE NET ERROR EFAULT 0x8041010e SCE NET ERROR ENOTELK 0x8041010f SCE NET ERROR EBUSY 0x80410110 SCE NET ERROR EEXIST 0x80410113 SCE NET ERROR ENODEV 0x80410113 SCE NET ERROR ENODEV 0x80410116 SCE NET ERROR ENODEV 0x80410116 SCE NET ERROR ENODEV 0x80410116 SCE NET ERROR EMILE 0x80410116 SCE NET ERROR ENOSPC 0x80410112 SCE NET ERROR ENOSPC 0x80410123 SCE NET ERROR EAPIDE 0x80410123 SCE NET ERROR EAPIDE 0x80410123 SCE NET ERROR EALREADY 0x80410124 SCE NET ERROR EALREADY 0x80410125			_	
SCE NET ERROR ENOTELK 0x8041010f				
SCE NET_ERROR EBUSY			_	
SCE NET ERROR EEXIST	SCE NET	ERROR	- EBUSY	
SCE NET_ERROR ENODEV	SCE NET	ERROR	EEXIST	
SCE NET ERROR EMFILE 0x80410118 SCE NET ERROR ENOSPC 0x80410120 SCE NET ERROR EPIPE 0x80410120 SCE NET ERROR EAGAIN 0x80410123 SCE NET ERROR EWOULDBLOCK SCE NET ERROR EALREADY 0x80410124 SCE NET ERROR EALREADY 0x80410126 SCE NET ERROR ENSOTITE 0x80410122 SCE NET ERROR ENOTOTYPE 0x80410122 SCE NET ERROR EPROTONOSUPPORT 0x80410126	SCE NET	ERROR	ENODEV	
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SCE NET ERROR ENOTSUP $0x80410156$	SCE NET		_	0x80410141
				0x80410150
			_	0x80410137
SCE NET ERROR EDISABLEDIF 0x804101a1			_	
				0x804101a2
			_	0x804101a3
SCE_NET_ERROR_EINACTIVEDISABLED			_	27.00 210 140
SCE_NET_ERROR_ENOTINIT 0x804101c8	SCE_NET	ERROR	ENOTINIT	0x804101c8

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Value	(Number)
SCE_NET_ERROR_ENOLIBMEM	0x804101c9
SCE_NET_ERROR_ECALLBACK	0x804101cb
SCE_NET_ERROR_EINTERNAL	0x804101cc
SCE_NET_ERROR_ERETURN	0x804101cd
SCE_NET_ERROR_RESOLVER_EINTERNAL	0x804101dc
SCE_NET_ERROR_RESOLVER_EBUSY	0x804101dd
SCE_NET_ERROR_RESOLVER_ENOSPACE	0x804101de
SCE_NET_ERROR_RESOLVER_EPACKET	0x804101df
SCE_NET_ERROR_RESOLVER_ENODNS	0x804101e1
SCE_NET_ERROR_RESOLVER_ETIMEDOUT	0x804101e2
SCE_NET_ERROR_RESOLVER_ENOSUPPORT	0x804101e3
SCE_NET_ERROR_RESOLVER_EFORMAT	0x804101e4
SCE_NET_ERROR_RESOLVER_ESERVERFAILURE	0x804101e5
SCE_NET_ERROR_RESOLVER_ENOHOST	0x804101e6
SCE_NET_ERROR_RESOLVER_ENOTIMPLEMENTED	0x804101e7
SCE_NET_ERROR_RESOLVER_ESERVERREFUSED	0x804101e8
SCE_NET_ERROR_RESOLVER_ENORECORD	0x804101e9
SCE_NET_ERROR_RESOLVER_EALIGNMENT	0x804101ea