



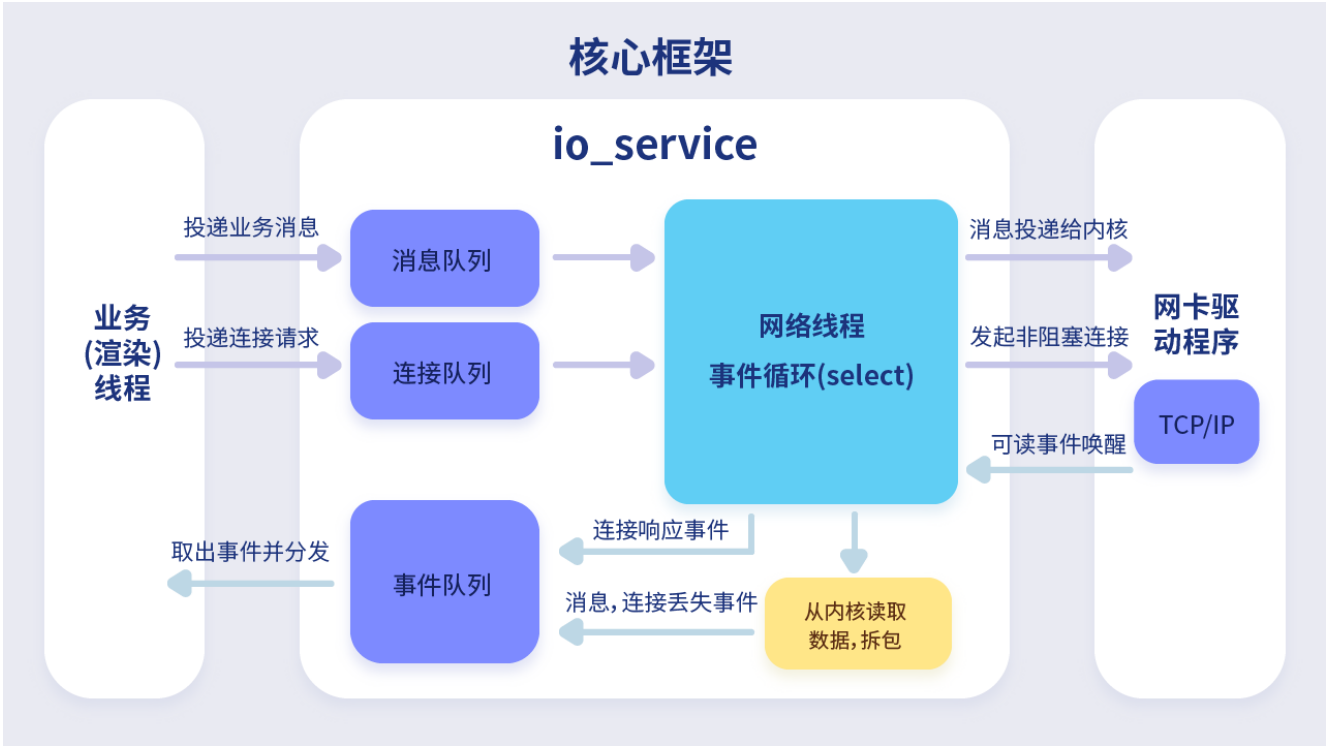
yasio `4E656568`  
`2D878763`

docs **passing**

yasio `2F4E4E8F917F8855F8765F6B` socket `5EFC15E86EA237E8BCFA8E547A4E54796B625E64766E625B627A7F7E6752B9`

- `656B8B8A`:
  - [English](#)
  - `78534E65`
- `8875F329`:
  - `7E8B58`:
    - Visual Studio 2013+
    - GCC4.7+
    - xcode9+
    - `5A4E5F63` C++11,14,17 `78768168`
  - `8767`: x86, x64, ARM `4989`
  - `68EE7C7E`: Windows, macOS, Linux, FreeBSD, iOS, Android `7838`
- `6788`:
  - `51CE6D51`: `io_service`
  - `4E59`: `io_channel`
  - `46854A8B`: `io_transport`

图 1-1-1:



5F905F59  
EB1F00CB

68584E7A5F785354 tool.chinaz.com 5309http88425E5378C65458586289

## C++

```
#include "yasio/yasio.hpp"
#include "yasio/obstream.hpp"
using namespace yasio;
using namespace yasio::inet;
int main()
{
    io_service service({"tool.chinaz.com", 80});
    service.set_option(YOPT_S_DEFERRED_EVENT, 0); // dispatch network event on network thread
    service.start([&](event_ptr&& ev) {
        switch (ev->kind())
        {
        case YEK_ON_PACKET: {
            auto packet = std::move(ev->packet());
            fwrite(packet.data(), packet.size(), 1, stdout);
            fflush(stdout);
            break;
        }
        case YEK_ON_OPEN:
            if (ev->status() == 0)
            {
                auto transport = ev->transport();
                if (ev->cindex() == 0)
                {
                    obstream obs;
                    obs.write_bytes("GET /index.htm HTTP/1.1\r\n");

                    obs.write_bytes("Host: tool.chinaz.com\r\n");

                    obs.write_bytes("User-Agent: Mozilla/5.0 (Windows NT 10.0; "
                                   "WOW64) AppleWebKit/537.36 (KHTML, like Gecko) "
                                   "Chrome/87.0.4820.88 Safari/537.36\r\n");
                    obs.write_bytes("Accept: */*;q=0.8\r\n");
                    obs.write_bytes("Connection: Close\r\n\r\n");

                    service.write(transport, std::move(obs.buffer()));
                }
            }
            break;
        case YEK_ON_CLOSE:
            printf("The connection is lost.\n");
            break;
        }
    });
    // open channel 0 as tcp client
    service.open(0, YCK_TCP_CLIENT);
    getchar();
}
```

## Lua

```
local ip138 = "tool.chinaz.com"
local service = yasio.io_service.new({host=ip138, port=80})
local respdata = ""
```

```
service:start(function(ev)
    local k = ev.kind()
    if (k == yasio.YEK_ON_PACKET) then
        respdata = respdata .. ev:packet():to_string()
    elseif k == yasio.YEK_ON_OPEN then
        if ev:status() == 0 then -- connect succeed
            local transport = ev:transport()
            local obs = yasio.obstream.new()
            obs:write_bytes("GET / HTTP/1.1\r\n")

            obs:write_bytes("Host: " .. ip138 .. "\r\n")

            obs:write_bytes("User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/
537.36 (KHTML, like Gecko) Chrome/79.0.3945.117 Safari/537.36\r\n")
            obs:write_bytes("Accept: */*;q=0.8\r\n")
            obs:write_bytes("Connection: Close\r\n\r\n")

            service:write(transport, obs)
        end
    elseif k == yasio.YEK_ON_CLOSE then
        print("request finish, respdata: " .. respdata)
    end
end)

-- Open channel 0 as tcp client and start non-blocking tcp 3 times handshake
service:open(0, yasio.YCK_TCP_CLIENT)

-- Call this function at thread which focus on the network event.
function gDispatchNetworkEvent(...)
    service:dispatch(128) -- dispatch max events is 128 per frame
end

_G.yaservice = service -- Store service to global table as a singleton instance
```

6D8B & 794F  
4B05 3A8B



6C61  
686F

8F88 Lua 794F7A5E FF4F62535F5E4F69 yasio - ibstream\_view::consume out of range! FF8F69794F7A5E9169615176FF8B4E5F576139  
6642 3A8B686F6C1A53766238E16E 6C692F3A8B686FCC456F69846CF76DC5286F62

- 6D8B:
  - echo\_server: TCP/UDP/KCP 6B646D2168
  - echo\_client: TCP/UDP/KCP 6B64A9627E
  - ssltest: SSL 6B89A9627E, 6969github.com 4E9856637684566262
  - tcptest: TCP 4B897A6F

- [speedtest](#): TCP,UDP,KCP
- [mcast](#):
- [794F3A8B](#):
- [ftp\\_server](#): yasio ftp
- [lua](#): Lua http TCP
- [xlua](#): xlua
- [DemoUE4](#): UE4

7F8B 6D8B & 794F  
16D1 4BD5 3A8B

- C++11 msvc , gcc , clang
- git , cmake installed
- :

```
git clone https://github.com/yasio/yasio
cd yasio
git submodule update --init --recursive
cd build
# for xcode should be: cmake .. -GXcode
cmake ..
cmake --build . --config Debug
```



# io\_service Class

```
socket.select tcp, udp, kcp, ssl-client
```

```
EDD5
```

```
namespace yasio { namespace inet { class io_service; } }
```

```
6254  
1058
```

```
515167905165  
6C718420FD70
```

Name	Description
io_service::io_service	io_service

```
6C516985
```

Name	Description
io_service::start	
io_service::stop	
io_service::open	
io_service::close	
io_service::is_open	
io_service::dispatch	
io_service::write	
io_service::write_to	DGRAM



Name	Description
io_service::schedule	
io_service::init_globals	
io_service::cleanup_globals	
io_service::channel_at	
io_service::set_option	

object\_pool

yasio.hpp

# io\_service::io\_service

io\_service

```
io_service::io_service();  
  
io_service::io_service(int channel_count);  
  
io_service::io_service(const io_hostent& channel_ep);  
  
io_service::io_service(const io_hostent* channel_eps, int channel_count);
```

channel\_count

channel\_ep

## channel\_eps

4F698F2A5757657499575789

794F  
3A8B

```
#include "yasio/yasio.hpp"
int main() {
    using namespace yasio;
    using namespace yasio::inet;
    io_service s1; // s1 only support 1 channel
    io_service s2(5); // s2 support 5 channels concurrency
    io_service s3(io_hostent{"github.com", 443}); // s3 support 1 channel
    io_hostent hosts[] = {
        {"192.168.1.66", 20336},
        {"192.168.1.88", 20337},
    };
    io_service s4(hosts, YASIO_ARRAYSIZE(hosts)); // s4 support 2 channels concurrency
    return 0;
}
```

## io\_service::start

54527F7C67577F7A82

```
void start(io_event_cb_t cb);
```

5365  
2278

## cb

7F7E464E6983FF6B8B49C9534E57 io\_service::dispatch 8C73897F7A895E82

794F  
3A8B

```
#include "yasio/yasio.hpp"
int main() {
    using namespace yasio;
    using namespace yasio::inet;
    auto service = yasio_shared_service(io_hostent{host="ip138.com", port=80});
    service->start([](event_ptr&& ev) {
        auto kind = ev->kind();
        if (kind == YEK_ON_OPEN)
        {
            if (ev->status() == 0)
                printf("[%d] connect succeed.\n", ev->cindex());
            else
                printf("[%d] connect failed!\n", ev->cindex());
        }
    });
}
```

```
    return 0;
}
```

## io\_service::stop

59697f7e67527f7a39

```
void stop()
```

6061  
e80f

59697f7e67527f7a69528f88, 6951654f539990514f535e795f51685e995139  
64fd791a616160fae1f77649857663880fa62

## io\_service::open

525f4f9939

```
void open(size_t cindex, int kind);
```

5365  
c270

*cindex*

4f53295f39

*kind*

4f53768939

6061  
e80f

5948 TCP, 664af9425168529997985832f14b6267fa7aef978ef382

*cindex* 7950c598594eio\_service52c953e3794f5376cf89

*kind* 5f98664f4e674f504e4e:

- YCK\_TCP\_CLIENT
- YCK\_TCP\_SERVER
- YCK\_UDP\_CLIENT
- YCK\_UDP\_SERVER
- YCK\_KCP\_CLIENT
- YCK\_KCP\_SERVER

- YCK\_SSL\_CLIENT

## io\_service::close

51254F89628946854A8B89

```
void close(transport_handle_t transport);  
void close(int cindex);
```

5365  
C278

*transport*

5C895185764F8F4A8B89

*cindex*

5C895185764F8F89

6C61  
E88F

5B8F TCP 6F 5C4A5389409E74662C5898E6389

## io\_service::is\_open

52A04F89624F8F4A8B8954694E525F726989

```
bool is_open(transport_handle_t transport) const;  
bool is_open(int cindex) const;
```

5365  
C278

*transport*

4F8F4F8B536789  
20831A8B53C482

*cindex*

4F89205F89

8F5650  
B4DE3C

true: 5355FF false: 2A535F



8F5650  
04DE3C

645F53897662598276, < 0 : F86F637F198F89

6C61  
E88F

completion\_handler 4F2F63 KCP 39

7Abuffer4A796388F5756F4E464A8A63 completion\_handler 89

io\_service::write\_to

54UDP28834A886389766289

```
int write_to(  
    transport_handle_t thandle,  
    std::vector<char> buffer,  
    const ip::endpoint& to,  
    io_completion_cb_t completion_handler = nullptr  
);
```

5365  
2270

thandle

4F834A88E3C289

buffer

89538976buffer89

to

895389768F7A575789

completion\_handler

618188166E8189

8F5650  
04DE3C

765F538976598276, 5F < 0 F86F6F637F198F8F1A582F26834A88F273E5(TCP8F63A86678)89

6C61  
E88F

63F07845F7284E DGRAM 28834A886F73 UDP, KCP 39

538958166E81 completion\_handler 4F2F63 KCP 39

buffer completion\_handler

## io\_service::schedule

```
highp_timer_ptr schedule(  
    const std::chrono::microseconds& duration,  
    timer_cb_t cb  
);
```

*duration*

*cb*

std::shared\_ptr

```
// Register a once timer, timeout is 3 seconds.  
yasio_shared_service()->schedule(std::chrono::seconds(3), []()->bool{  
    printf("time called!\n");  
    return true;  
});  
  
// Register a loop timer, interval is 5 seconds.  
auto loopTimer = yasio_shared_service()->schedule(std::chrono::seconds(5), []()->bool{  
    printf("time called!\n");  
    return false;  
});
```

## io\_service::init\_globals

```
static void init_globals(print_fn2_t print_fn);
```

5365  
2270

*print\_fn*

8158487f7f656f6373f07889  
fa6a49516ef56f6373f07889

6061  
e88f

68f07869f28883736f48685f736787896c5f7ef656f90581f528a5849e56f7c78f8ff  
76725864736c6862c058f43aUE452U3D49e36f85fa89

794f  
3a8b

```
// yasio_uelua.cpp
// compile with: /EHsc
#include "yasio_uelua.h"
#include "yasio/platform/yasio_ue4.hpp"
#include "lua.hpp"
#if defined(NS_SLUA)
using namespace NS_SLUA;
#endif
#include "yasio/bindings/lyasio.cpp"

DECLARE_LOG_CATEGORY_EXTERN(yasio_ue4, Log, All);
DEFINE_LOG_CATEGORY(yasio_ue4);

void yasio_uelua_init(void* L)
{
    auto Ls = (lua_State*)L;
    print_fn2_t log_cb = [](int level, const char* msg) {
        FString text(msg);
        const TCHAR* tstr = *text;
        UE_LOG(yasio_ue4, Log, L"%s", tstr);
    };
    io_service::init_globals(log_cb);

    luaregister_yasio(Ls);
}
void yasio_uelua_cleanup()
{
    io_service::cleanup_globals();
}
```

io\_service::cleanup\_globals

876968656ef6f3a576574535c686289  
676968656ef6f3a576574535c686289

```
static void cleanup_globals();
```



6C61  
E80F

5378578081788F6354E15845E55F63786E8369A86958(.dll,.so)52E598837869F8656E6E8C9964787A5FE2A8869

io\_service::channel\_at

9A87EF83725F8762E159E36482

```
io_channel* channel_at(size_t cindex) const;
```

5365  
C270

*cindex*

4F537265

8F5650  
04DE3C

4F53E3646788, 55725F5888FA83F4F86E845E nullptr 82

io\_service::set\_option

887E889882

```
void set_option(int opt, ...);
```

5365  
C270

*opt*

8898674E, 89E768 YOPT\_X\_XXX.

794F  
3A8B

```
#include "yasio/yasio.hpp"

int main(){
    using namespace yasio;
    using namespace yasio::inet;
    io_hostent hosts[] = {
        {"192.168.1.66", 20336},
        {"192.168.1.88", 20337},
    };
    auto service = std::make_shared<io_service>(hosts, YASIO_ARRAYSIZE(hosts));
```

```
// for application protocol with length field, you just needs set this option.
// it's similar to java netty length frame based decode.
// such as when your protocol define as following
//     packet.header: (header.len=12bytes)
//         code:int16_t
//         datalen:int32_t (not contains packet.header.len)
//         timestamp:int32_t
//         crc16:int16_t
//     packet.data
service->set_option(YOPT_C_LFBFD_PARAMS,
    0,      // channelId, the channel index
    65535, // maxFrameLength, max packet size
    2,      // lengthFieldOffset, the offset of length field
    4,      // lengthFieldLength, the size of length field, can be 1,2,4
    12,     // lengthAdjustment. If the value of length feild ==
packet.header.len + packet.data.len, this parameter should be 0, otherwise should be
sizeof(packet.header)
);

// for application protocol without length field, just sets length field size to -1.
// then io_service will dispatch any packet received from server immediately,
// such as http request, this is default behavior of channel.
service->set_option(YOPT_C_LFBFD_PARAMS, 1, 65535, -1, 0, 0);
return 0;
}
```

8B5396  
F7C205

[io\\_event Class](#)

[io\\_channel Class](#)

[io\\_service Options](#)

[xxsocket Class](#)

[obstream Class](#)

[ibstream\\_view Class](#)

[ibstream Class](#)



# io\_channel Class

TCP/SSL/UDP/KCP

```
namespace yasio { namespace inet { class io_channel; } }
```

Name	Description
io_channel::get_service	io_service
io_channel::index	
io_channel::remote_port	
io_channel::bytes_transferred	
io_channel::connect_id	ID

io\_service  
io\_service::channel\_at

## io\_channel::get\_service

io\_service

```
io_service& get_service()
```

## io\_channel::index

87624f998f7a7ae3

```
int index() const
```

## io\_channel::remote\_port

87624f998f7a7ae3.

```
u_short remote_port() const;
```

8f5650  
04de3c

8f564f998f7a7ae3f7

- f98e2377a4f9988799041768f7a7ae3
- f98e6757a4f99887976547ae3

## io\_channel::bytes\_transferred

87624f998f7a7ae3f7

```
long long bytes_transferred() const;
```

8f5650  
04de3c

4e8e63fa7a5f585520ff633658598265ff786c784ef88a2377a636641c7

## io\_channel::connect\_id

87624f998f7a7ae3id

```
unsigned int connect_id() const;
```

8f5650  
04de3c

58677a4f9955208f63id



[io\\_service Class](#)

[io\\_event Class](#)



# io\_event Class

```
io_service
```

```
namespace yasio { namespace inet { class io_event; } }
```

Name	Description
io_event::kind	
io_event::status	
io_event::passive	
io_event::packet	
io_event::timestamp	
io_event::transport	
io_event::transport_id	ID
io_event::transport_udata	

## io\_event::kind

```
int kind() const;
```



8F	56	50
D4	DE	3C

4E	4E	7C	57	FF	53	4E	66	4E	4E	50
8B	F6	7B	8B	0C	EF	E5	2F	E5	0B	3C

- YEK\_ON\_PACKET : 88 69 48 45
- YEK\_ON\_OPEN : 52 66 48 45 6F F8 6F 53 67 7A F1 63 6C 45 88 6F 63 76 55
- YEK\_ON\_CLOSE : 73 28 66 45 6C F8 6F 49 67 7A F1 63 6C 45 88 6F 63 55 51

## io\_event::status

83	53	4E	4E	72	60	30
B7	D6	8B	F6	B6	01	02

```
int status() const;
```

8F	56	50
D4	DE	3C

- 0:  $\begin{bmatrix} 68 & 5E \\ 63 & 38 \end{bmatrix}$
- $\begin{bmatrix} 97 & 51 & 95 \\ 5E & FA & 19 \end{bmatrix}$  0:  $\begin{bmatrix} 75 & 62 & 53 & 97 & 89 & 7B & 53 & 62 & 53 & 53 & 30 \\ 28 & 37 & EA & 00 & 81 & 80 & 55 & 53 & 70 & 73 & EF & 02 \end{bmatrix}$

io\_event::passive

68	67	66	54	66	88	52	4E	4E
C0	E5	2F	26	2F	AB	A8	8B	F6

```
int passive() const
```

8F	56	50
D4	DE	3C

- ```

• 0: 8f88a38bf4f6f632f5a9374f4f5934f8f6f3f36f8f7f3f2f8f4f5f4f8f3f4f884f88f6f8f6f82
• 1: open62close67a7594f29f34f7f6f64ef5f3f6f7f8f9af7f YASIO_ENABLE_PASSIVE_EVENT 624f4f7f8f
4f4f4f637f59f6f6848f4f6f88f4f7f2f7f6f8f
143ad6377f59f6f6848f4f6f88f4f7f2f7f6f8f

```

io\_event::packet

|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 83 | 53 | 4E | 4E | 64 | 5E | 76 | 6D | 60 | 53 |
| B7 | D6 | 8B | F6 | 3A | 26 | 84 | 88 | 6F | 05 |

```
std::vector<char>& packet()
```

8F5650  
D4DE3C

886963241578, 286727454F73 std::move GC696F4E4E4E639080696389

## io\_event::timestamp

8362464E4F79785F7978F8F2F2F380

```
highp_time_t timestamp() const;
```

8F5650  
D4DE3C

547C7E65956551795F7978F8F2F2F380  
8CF8B6F6F4E87384AE62A7F6F43362

## io\_event::transport

8362464E4F784F8F4A8B53C782

```
transport_handle_t transport() const;
```

8F5650  
D4DE3C

8F565367FF5F6552655F4E4E65FF4F8F4F8B5367505065FF4E53754F575750688F38  
D4DEE5C46C533638AD6868F6F60C20931A00E5C4F231486C5FF285C38403C048362

## io\_event::transport\_id

8362464E4F784F8F4A8B53C782  
ID82

```
unsigned int transport_id() const;
```

8F5650  
D4DE3C

324F4B4B2867747883F48551785F4E4EID82

## io\_event::transport\_udata

887E728363288F4A8B7857656280

```
template<typename _Uty>  
_Uty io_event::transport_udata();
```

```
template<typename _Uty>
void io_event::transport_udata(_Uty uservalue);
```

6C61  
E80F

73676789E1F97874 userdata 7951E8, 6F59:

- 65506FA3FA7A62524E4E6E558A8 userdata
- 62636FA325594E4E6E6574 userdata

8B5396  
F7C205

[io\\_service Class](#)

[io\\_channel Class](#)



# ostream Class

634f4f8b525f175252f0b9

- 3.35.0 basic\_ostream C++
- ostream int16~int64 float/double, ,
- fast\_ostream

8b6c  
ed05

```
namespace yasio {  
using ostream = basic_ostream<endian::network_convert_tag>;  
using fast_ostream = basic_ostream<endian::host_convert_tag>;  
}
```



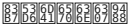


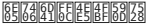
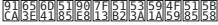
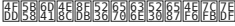
6254  
1058

515167905165  
6c718420fd70

| Name             | Description |
|------------------|-------------|
| ostream::ostream | ostream     |

5151636c  
6c718905



| Name                | Description              |
|---------------------|--------------------------|
| ostream::write      |                          |
| ostream::write_ix   | (7bit Encoded Int/Int64) |
| ostream::write_v    | (7bit Encoded Int)       |
| ostream::write_byte |                          |

| Name                                    | Description                                                                       |
|-----------------------------------------|-----------------------------------------------------------------------------------|
| <a href="#">obstream::write_bytes</a>   |  |
| <a href="#">obstream::empty</a>         |  |
| <a href="#">obstream::data</a>          |  |
| <a href="#">obstream::length</a>        |  |
| <a href="#">obstream::buffer</a>        |  |
| <a href="#">obstream::clear</a>         |  |
| <a href="#">obstream::shrink_to_fit</a> |  |
| <a href="#">obstream::save</a>          |  |



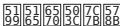
: obstream.hpp

## obstream::obstream

 obstream 

```
obstream(size_t capacity = 128);  
  
obstream(const obstream& rhs);  
  
obstream(obstream&& rhs);
```

## obstream::write



```
template<typename _Nty>  
void obstream::write(_Nty value);
```

5365  
C270

value

8951517959  
8159636430

6C61  
E88F

\_Nty 5849705757456948671~8598263637057626979705739

## ostream::write\_ix

5632/644F6968594E7Bit Encoded Int656F887F6451516989

```
template<typename _Intty>
void ostream::write_ix(_Intty value);
```

5365  
C270

value

895151795989  
815963643082

6C61  
E88F

\_Intty 705753896959487057

- int32\_t
- int64\_t

64F0708879707069696F7C68AE8Fdotnet504E6165

- [BinaryWriter.Write7BitEncodedInt](#)
- [BinaryWriter.Write7BitEncodedInt64](#)

## ostream::write\_v

51514E8F5268626C6C63529F5E5788(7Bit Encoded Int).

```
void write_v(cxx17::string_view sv);
```

5365  
C270

sv

89515176596238  
81996364786282

6C61  
E88F

69F17851497Bit Encoded7678636F51516378627F26, 608972 write\_bytes 515159826363.

## ostream::write\_byte

515114A598238  
99632A578282

```
void write_byte(uint8_t value);
```

5365  
C270

value

895151765938  
819963643C82

6C61  
E88F

69F1785288784F4E ostream::write

## ostream::write\_bytes

51515982637C38  
99635982787C82

```
void write_bytes(cxx17::string_view sv);  
  
void write_bytes(const void* data, int length);  
  
void write_bytes(std::streamoff offset, const void* data, int length);
```

5365  
C270

sv

5151string\_view5388685982637C.

data

8951515982637C4749865757.  
8199635982787C4749865757.



*length*

895151598265757479955.  
816965578278746477A6.

*offset*

895151598265757479685979.  
816965578278746477E8674F78.

6C61  
E88F

offset + length 78505F985C4E  
645C5F786F6E obstream::length

obstream::empty

5268406F524E7A82  
24A8496F263A7A82

```
bool empty() const;
```

8F5650  
04DE3C

true 7A; false 527A82

6C61  
E88F

695168784F4E length == 082  
697878494F6E

obstream::data

83536563639439  
87D8786E878882

```
const char* data() const;  
  
char* data();
```

8F5650  
04DE3C

598260656388575739  
598260656388575739

obstream::length

8353609F5E82  
87D8409FA682

```
size_t length() const;
```

8F5650  
04DE3C

8F56604F532476685982F539  
64664126632864685782F539

## ostream::buffer

8F56604F532476685982F539  
64664126632864685782F539

```
const std::vector<char>& buffer() const;  
  
std::vector<char>& buffer();
```

8F5650  
04DE3C

69642875632456236F22457F78  
std::move 629069

794F  
3A8B

```
// ostream_buffer.cpp  
// compile with: /EHsc  
#include "yasio/ostream.hpp"  
  
int main( )  
{  
    using namespace yasio;  
    using namespace cxx17;  
  
    ostream obs;  
    obs.write_v("hello world!");  
  
    const auto& const_buffer = obs.buffer();  
  
    // after this line, the obs will be empty  
    auto move_buffer = std::move(obs.buffer());  
  
    return 0;  
}
```

## ostream::clear

6F7460FF4F4F587539  
6566416C4F4F587539

```
void clear();
```

6C61  
E80F

6BFD78651A2165buffer5158FF594E8A653759755F1753582758677583

## ostream::shrink\_to\_fit

2A524065E815623A1A55655882

```
void shrink_to_fit();
```

## ostream::save

6C604F764F8F52598278624F5852654F82

```
void save(const char* filename) const;
```

794F  
3A8B

```
// ostream_save.cpp
// compile with: /EHsc
#include "yasio/ostream.hpp"
#include "yasio/istream.hpp"

int main( )
{
    using namespace yasio;
    using namespace cxx17;

    ostream obs;
    obs.write_v("hello world!");
    obs.save("ostream_save.bin");

    istream ibs;
    if(ibs.load("ostream_save.bin")) {
        // output should be: hello world!
        try {
            std::count << ibs.read_v() << "\n";
        }
        catch(const std::exception& ex) {
            std::count << "read_v fail: " <<
                << ex.message() << "\n";
        }
    }

    return 0;
}
```



[ibstream\\_view Class](#)

[ibstream Class](#)



# ibstream\_view Class

634f4f8b52725f57525f8032

6567

27c38f5716c77a4ef5524f63624b89f34792fa std::out\_of\_range 6568

886c  
ed05

```
namespace yasio {  
  // 206f5752877a6c4f81528f6259825f6c8925a8516c4685  
  using ibstream_view = basic_ibstream_view<endian::network_convert_tag>;  
  
  // 206f5752877a6c4f81528f6259825f6c8925a8516c4685  
  using fast_ibstream_view = basic_ibstream_view<endian::host_convert_tag>;  
}
```

6254  
1058

62716728

| Name                         | Description                |
|------------------------------|----------------------------|
| ibstream_view::ibstream_view | 672812a ibstream_view 6961 |

5151656c  
6c718905

| Name                   | Description                                        |
|------------------------|----------------------------------------------------|
| ibstream_view::reset   | 917f5f235ff2139362<br>2b685c68f17169362            |
| ibstream_view::read    | 7d7821776c88637838                                 |
| ibstream_view::read_ix | 7d7821776c8863 (7bit Encoded Int/Int64) 7d7838     |
| ibstream_view::read_v  | 88625e7f2e57 (7bit Encoded Int/Int64) 294e86327832 |

| Name                                      | Description                                                    |
|-------------------------------------------|----------------------------------------------------------------|
| <a href="#">ibstream_view::read_byte</a>  | <code>1145982</code>                                           |
| <a href="#">ibstream_view::read_bytes</a> | <code>8853635892584881526563<br/>F8D6879A7FA68C8B367862</code> |
| <a href="#">ibstream_view::empty</a>      | <code>2824415824517A</code>                                    |
| <a href="#">ibstream_view::data</a>       | <code>83636178626788</code>                                    |
| <a href="#">ibstream_view::length</a>     | <code>8363615958<br/>87D641278F</code>                         |
| <a href="#">ibstream_view::advance</a>    | <code>545278536168F8636669<br/>1146F8536168F8636669</code>     |
| <a href="#">ibstream_view::seek</a>       | <code>78526178F8636669<br/>F8A84164F8636669</code>             |

`6C61  
E80F`

`ibstream_view 11924C++17892479 std::string_view, 8153775478585384235F17538F7A268D4FA7134E4E GC89`

`896C  
8142`

`54874E`: ibstream.hpp

## ibstream\_view::ibstream\_view

`6428662A` `ibstream_view` `588C38`

```
ibstream_view();  
  
ibstream_view(const void* data, size_t size);  
  
ibstream_view(const ostream* obs);
```

`5365  
C278`

*data*

`85285F575348885678628850575788`

*size*

5F C0 5F 17 53 40 8F 52 63 62 59 6C 80

*obs*

F0 8F 17 53 70 61 80

istream\_view::reset

21 7F istream\_view 15 62 80 50 80

```
void istream_view::reset(const void* data, size_t size);
```

53 65  
C2 70

*data*

5F C0 5F 17 53 40 8F 52 63 62 80 57 57 80

*size*

5F 53 5F 52 53 40 8F 52 63 59 5C 80  
85 C0 8F 17 16 8C 80 36 70 6E 27 6F 82

istream\_view::read

4E 60 40 80 53 63 50 80  
CE 41 20 80 00 70 5C 80

```
template<typename _Nty>  
_Nty istream_view::read();
```

8F 50 50  
04 0E 3C

8F 50 80 52 70 50  
04 0E 80 30 64 30

6C 61  
E8 0F

\_Nty 50 80 70 80 52 40 60 40 61 1~8 50 82 63 63 70 52 62 60 70 70 52 80

istream\_view::read\_ix

80 53 7Bit Encoded Int 53 20 16 01 70 70 60 50 80

```
template<typename _Intty>  
_Intty istream_view::read_ix();
```



8F5650  
04DE3C

32/644F63785089

6C61  
E80F

\_Intty 795F985F4E4E7C57

- int32\_t
- int64\_t

7C7D787C8B4E Microsoft dotnet 894E7D78

- [BinaryReader.Read7BitEncodedInt\(\)](#)
- [BinaryReader.Read7BitEncodedInt64\(\)](#)

ibstream\_view::read\_v

8B5353974E8F52636282

```
cxx17::string_view read_v();
```

8F5650  
04DE3C

8F568B5352794E8F526363786E786E6E6E6E6E6E GC82

6C61  
E80F

7C7D787A4B8B537bit Encoded Int827576797897A658FF8B8978 read\_bytes 8B534E8B525982786282

ibstream\_view::read\_byte

8B5312A578282

```
uint8_t read_byte();
```

8F5650  
04DE3C

uint8\_t5082

6C61  
E80F

675163784F4E ibstream\_view::read

## ibstream\_view::read\_bytes

FB62676A9F5A598263626C63 GC82

```
cxx17::string_view read_bytes();
```

8F5650  
D4DE3C

4F6B52636274 cxx17::string\_view 7B67636F62

## ibstream\_view::empty

52636069544E7A82  
24AD412F263A7A82

```
bool empty() const;
```

8F5650  
D4DE3C

true 7A; false 604E8159535414F598262

6C61  
E80F

696363784F4E length == 082

## ibstream\_view::data

8F56606363639482  
D46E41786E678882

```
const char* data() const;
```

8F5650  
D4DE3C

846E6354694E28462A598276678882

## istream\_view::length

8752609275E39

```
size_t length() const;
```

8F5659  
D4DE3C

5F52609275E39  
53404177A682

## istream\_view::advance

545279526D8B536F6839  
1140FBAB41FB66386782

```
void advance(ptrdiff_t offset);
```

5365  
C278

*offset*

89545279527659799139  
811140FBAB844FFBCE82

6C61  
E86F

82\*offset\*4F8D65FF525364E379528B536F6839  
261F70419CB1E3FBAB8B66386782

## istream\_view::seek

79528B536F6839  
FBABFB66386782

```
ptrdiff_t seek(ptrdiff_t offset, int whence);
```

5365  
C278

*offset*

84\*whence\*76517959799139  
8173844FFBCE82

*whence*

544E78644EC68F63674E50FF SEEK\_SET, SEEK\_CUR, SEEK\_END 82  
2849496C8E

|    |    |    |
|----|----|----|
| 8F | 56 | 50 |
| D4 | DE | 3C |

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 8F | 56 | 79 | 52 | 54 | 76 | 5B | 4E | 6D | 99 | 5B | 82 | 50 | 79 | 30 |
| D4 | DE | FB | A8 | 0E | F8 | F9 | 8E | 41 | 96 | 57 | 82 | 4F | FB | 02 |

## ibstream Class



|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 63 | 4F | 4E | 8F | 52 | 65 | 63 | 52 | 8F | 54 | 53 | 5E | 52 | 53 | 52 | 80 | 30 |
| D0 | 9B | 8C | DB | 36 | 70 | 6E | A0 | 7D | 8C | CD | 8F | 17 | 16 | 9F | FD | 02 |

|    |    |
|----|----|
| 8B | 6C |
| ED | D5 |

```
namespace yasio {
using ibstream = basic_ibstream<endian::network_convert_tag>;
// 00
using fast_ibstream = basic_ibstream<endian::host_convert_tag>;
}
```

|    |    |
|----|----|
| 62 | 54 |
| 10 | 58 |

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 51 | 51 | 67 | 90 | 51 | 65 |
| 6C | 71 | 84 | 20 | FD | 70 |

| Name               | Description                                                                                                                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ibstream::ibstream |  67 99 1 4E ibstream  58 8C |

|    |    |    |    |
|----|----|----|----|
| 51 | 51 | 65 | 6C |
| 6C | 71 | B9 | D5 |

| Name           | Description                            |
|----------------|----------------------------------------|
| ibstream::load | 4E 65 4E 52 8F 6D<br>CE 87 F6 A6 7D 41 |

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 7E | 62 | 5C | 6B | 7E | 67 |
| E7 | 7F | 42 | 21 | D3 | 84 |

## istream\_view

ibstream

ibstream::ibstream

```
67904E4E ibstream 5B8C30
8420002A F96102
```

```
istream(std::vector<char> blob);  
  
istream(const ostream* obs);
```

`blob`

`obs`

`ostream`

`load`

`load(const char* filename) const;`

`load`

`load`

```
bool load(const char* filename) const;
```

`load`

`load`

`load`

`load`

`load`

`load`

`load`



# xxsocket Class

bsd socket API yasio

```
xxsocket accept_n xxx_n socket
```

```
namespace yasio { namespace inet { class xxsocket; } }
```

| Name               | Description |
|--------------------|-------------|
| xxsocket::xxsocket | xxsocket    |

| Name                  | Description |
|-----------------------|-------------|
| xxsocket::xpconnect   | TCP         |
| xxsocket::xpconnect_n | TCP         |
| xxsocket::pconnect    | TCP         |
| xxsocket::pconnect_n  | TCP         |
| xxsocket::pserve      | tcp         |
| xxsocket::swap        | socket      |
| xxsocket::open        | socket      |

| Name                                       | Description                                                                                |
|--------------------------------------------|--------------------------------------------------------------------------------------------|
| <a href="#">xxsocket::reopen</a>           |  socket   |
| <a href="#">xxsocket::is_open</a>          |  socket   |
| <a href="#">xxsocket::native_handle</a>    |  socket   |
| <a href="#">xxsocket::release_handle</a>   |  socket   |
| <a href="#">xxsocket::set_nonblocking</a>  |  socket   |
| <a href="#">xxsocket::test_nonblocking</a> |  socket   |
| <a href="#">xxsocket::bind</a>             |  socket   |
| <a href="#">xxsocket::bind_any</a>         |  socket   |
| <a href="#">xxsocket::listen</a>           |  TCP    |
| <a href="#">xxsocket::accept</a>           |  TCP    |
| <a href="#">xxsocket::accept_n</a>         |  TCP    |
| <a href="#">xxsocket::connect</a>          |  socket |
| <a href="#">xxsocket::connect_n</a>        |  socket |
| <a href="#">xxsocket::send</a>             |  socket |
| <a href="#">xxsocket::send_n</a>           |  socket |
| <a href="#">xxsocket::recv</a>             |  socket |
| <a href="#">xxsocket::recv_n</a>           |  socket |
| <a href="#">xxsocket::sendto</a>           |  DGRAM  |
| <a href="#">xxsocket::recvfrom</a>         |  DGRAM  |



| Name                                         | Description                                                                                       |
|----------------------------------------------|---------------------------------------------------------------------------------------------------|
| <a href="#">xxsocket::handle_write_ready</a> |  xxsocket        |
| <a href="#">xxsocket::handle_read_ready</a>  |  xxsocket        |
| <a href="#">xxsocket::local_endpoint</a>     |  xxsocket        |
| <a href="#">xxsocket::peer_endpoint</a>      |  xxsocket        |
| <a href="#">xxsocket::set_keepalive</a>      |  tcp keepalive   |
| <a href="#">xxsocket::reuse_address</a>      |  xxsocket        |
| <a href="#">xxsocket::exclusive_address</a>  |  xxsocket        |
| <a href="#">xxsocket::select</a>             |  xxsocket        |
| <a href="#">xxsocket::shutdown</a>           |  xxsocket      |
| <a href="#">xxsocket::close</a>              |  xxsocket      |
| <a href="#">xxsocket::tcp_rtt</a>            |  tcp rtt.      |
| <a href="#">xxsocket::get_last_errno</a>     |  xxsocket      |
| <a href="#">xxsocket::set_last_errno</a>     |  xxsocket      |
| <a href="#">xxsocket::strerror</a>           |  xxsocket      |
| <a href="#">xxsocket::gai_strerror</a>       |  getaddrinfo   |
| <a href="#">xxsocket::resolve</a>            |  xxsocket      |
| <a href="#">xxsocket::resolve_v4</a>         |  ipv4          |
| <a href="#">xxsocket::resolve_v6</a>         |  ipv6          |
| <a href="#">xxsocket::resolve_v4to6</a>      |  ipv4V4MAPPED |

| Name                             | Description      |
|----------------------------------|------------------|
| xxsocket::resolve_tov6           | ipv4V4MAPPEDipv6 |
| xxsocket::getipsv                | ip               |
| xxsocket::traverse_local_address |                  |

xxsocket::xxsocket

xxsocket

```
xxsocket::xxsocket();
xxsocket::xxsocket(socket_native_type handle);
xxsocket::xxsocket(xxsocket&& right);
xxsocket::xxsocket(int af, int type, int protocol);
```

handle

socketxxsocket

right

move

af

ip

protocol

TCP/UDP 0

xxsocket::xpconnect

TCP

```
int xxsocket::xpconnect(const char* hostname, u_short port, u_short local_port = 0);
```

hostname

IP 16 57 60 89

port

818f636752587a7af238

local\_port

7c5a9a4f7af23f7fc6b8a58 0 887a8f67529139

6c61  
e80f

4f8152686b2c67636178ip538f68727c8

8f5658  
b4be3c

0: 7252ff < 0 5129ff9a8f xxsocket::get\_last\_errno 875393ef7939

xxsocket::xpconnect\_n

8f8c7a675258fa7aTCP8f6389

```
int xxsocket::xpconnect_n(const char* hostname, u_short port, const std::chrono::microseconds&
wtimeout, u_short local_port = 0);
```

5365  
c270

hostname

818f636752587a7af23f7fc6b8a58 IP87a 16 5760 8

port

818f636752587a7af238

local\_port

7c5a9a4f7af23f7fc6b8a58 0 887a8f67529139

wtimeout

fa7a8f6389f8629539

8f5658  
b4be3c

0: 7252ff < 0 5129ff9a8f xxsocket::get\_last\_errno 875393ef7939

6c61  
e80f

4f8152686b2c67636178ip538f68727c8

## xxsocket::pconnect

548f7a675258ffa7aTCP8fa339

```
int xxsocket::pconnect(const char* hostname, u_short port, u_short local_port = 0);
int xxsocket::pconnect(const endpoint& ep, u_short local_port = 0);
```

5365  
c270

*hostname*

818fa3675258ffa7a60f0ef4e69 IP5757 16 5754 89

*ep*

818fa3675258ffa7a60f0ef4e69

*port*

818fa3675258ffa7a60f0ef4e69

*local\_port*

6752994f7aef3f6c088a50 0 88798967529139

8f5650  
646e3c

0: 6252ff < 0 59296f098f xxsocket::get\_last\_errno 875393ef7939

6c61  
e80f

4f4f6860676762626179ip538b6882

## xxsocket::pconnect\_n

548f7a675258ffa7aTCP8fa339

```
int pconnect_n(const char* hostname, u_short port, const std::chrono::microseconds& wtimeout,
u_short local_port = 0);
int pconnect_n(const char* hostname, u_short port, u_short local_port = 0);
int pconnect_n(const endpoint& ep, const std::chrono::microseconds& wtimeout, u_short
local_port = 0);
int pconnect_n(const endpoint& ep, u_short local_port = 0);
```

5365  
c270

*hostname*

818fa3675258ffa7a60f0ef4e69 IP5757 16 5754 89

*ep*

818f6367525879575739

*port*

818f63675258797af339

*local\_port*

67599a4f7af3f76c6b8859 0 88798f67529139

*wtimeout*

fa7a8f6389f8f50539

8f5659  
b4de3c

0: 1052ff < 0 51296c1a87 xxsocket::get\_last\_errno 8753938f7939

xxsocket::pserve

5f546757TCP6752795439  
602f2c30 0da1d12c02

```
int pserve(const char* addr, u_short port);  
int pserve(const endpoint& ep);
```

5365  
c270

*addr*

676a636a7f67 IP6a7 89

*ep*

6767575739  
2c5a504082

*port*

TCP79547af339

8f5659  
b4de3c

0: 1052ff < 0 51296c1a87 xxsocket::get\_last\_errno 8753938f7939

794f  
3a8b

```
// xxsocket-serve.cpp  
#include <signal.h>  
#include <vector>  
#include "yasio/xxsocket.hpp"
```

```
using namespace yasio;
using namespace yasio::inet;

xxsocket g_server;
static bool g_stopped = false;
void process_exit(int sig)
{
    if (sig == SIGINT)
    {
        g_stopped = true;
        g_server.close();
    }
    printf("exit");
}
int main()
{
    signal(SIGINT, process_exit);

    if (g_server.pserve("0.0.0.0", 1219) != 0)
        return -1;
    const char reply_msg[] = "hi, I'm server\n";
    do
    {
        xxsocket cs = g_server.accept();
        if (cs.is_open())
        {
            cs.send(reply_msg, sizeof(reply_msg) - 1);
            std::this_thread::sleep_for(std::chrono::milliseconds(100));
        }
    } while (!g_stopped);

    return 0;
}
```

## xxsocket::swap

 socket

```
xxsocket& swap(xxsocket& who);
```



*who*





xxsocket 

## xxsocket::open

xxsocket

```
bool open(int af = AF_INET, int type = SOCK_STREAM, int protocol = 0);
```

*af*

AF\_INET (ipv4) AF\_INET6 (ipv6)

*type*

SOCK\_STREAM (TCP), SOCK\_DGRAM (UDP)

*protocol*

TCP/UDP 0

true: false xxsocket::get\_last\_errno

## xxsocket::reopen

xxsocket

```
bool reopen(int af = AF_INET, int type = SOCK_STREAM, int protocol = 0);
```

*af*

AF\_INET (ipv4) AF\_INET6 (ipv6)

*type*

SOCK\_STREAM (TCP), SOCK\_DGRAM (UDP)

*protocol*

TCP/UDP 0

true: false xxsocket::get\_last\_errno

6C61  
E80F

8267socket50635F6F6851654F5151F56F6B2168636F82

## xxsocket::is\_open

52A8socket2F24F2536682

```
bool is_open() const;
```

8F5650  
D4DE3C

true: 2953666F false: 5A636682

## xxsocket::native\_handle

8368socket654F6F6F7882

```
socket_native_type native_handle() const;
```

8F5650  
D4DE3C

socket6748636F786F yasio::inet::invalid\_socket 887A2868socket82

## xxsocket::release\_handle

21636555socket6F6F78A7564382

```
socket_native_type release_handle() const;
```

8F5650  
D4DE3C

21635276socket6748636F78

## xxsocket::set\_nonblocking

8876socket74827885825A6F82

```
int set_nonblocking(bool nonblocking) const;
```



5365  
C270

*nonblocking*

true: 9798586A5F6F false: 9858215F62

8F5650  
04DE3C

0: 6252FF < 0 5129FFA987 xxsocket::get\_last\_errno 875393287932

xxsocket::test\_nonblocking

6840socket2F544E9798586A5F62

```
int test_nonblocking() const;
```

8F5650  
04DE3C

1: 9798586A5F6F 0: 9858215F62

6C61  
E80F

6840winsock2FC6A8FA374 SOCK\_STREAM 7057socket1A845E -1 32

xxsocket::bind

7F5Asocket676767575739

```
int bind(const char* addr, unsigned short port) const;  
int bind(const endpoint& ep) const;
```

5365  
C270

*addr*

676763587F53ip575739

*port*

817158737AFA39

*ep*

897158737A575739

8F5650  
04DE3C

0: 1052FF < 0 5129FF9A07 xxsocket::get\_last\_errno 875393EF7039

## xxsocket::bind\_any

7F5Asocket276A4B61506089

```
int bind_any(bool ipv6) const;
```

5365  
C270

*ipv6*

6F547F5B67674E61IPv65767  
2F26616A2C3A4B0F

8F5650  
04DE3C

0: 1052FF < 0 5129FF9A07 xxsocket::get\_last\_errno 875393EF7039

## xxsocket::listen

6F2B705263EA TCP69577A63E746F96589

```
int listen(int backlog = SOMAXCONN) const;
```

5365  
C270

*backlog*

6F5970546580  
8027612C7080

8F5650  
04DE3C

0: 1052FF < 0 5129FF9A07 xxsocket::get\_last\_errno 875393EF7039

## xxsocket::accept

6353464F5B627A8F6380  
A307602A5237E80F6380

```
xxsocket accept() const;
```

8F5650  
04DE3C

5458627A984F78 xxsocket FB8C39

## xxsocket::accept\_n

878858636F6A57664A58677A8E6389

```
int accept_n(socket_native_type& new_sock) const;
```

5365  
C278

*new\_sock*

83FAC2686C6458627A984F786554socketE3C455Z8

8F5650  
04DE3C

0: 6252FF < 0 5928FF98CF xxsocket::get\_last\_errno 8763938F7889

6C61  
E88F

82676867658F58 0 6Fnew\_sock 4A28887E4E2798586A6F82

8978687A7848586CF8762A38373 xxsocket::set\_nonblocking 66socket887E4A2798586A6F82

## xxsocket::connect

FA7A8E6389

```
int connect(const char* addr, u_short port);  
int connect(const endpoint& ep);
```

5365  
C278

*addr*

8F7A4867ip575789

*port*

8F7A48677A5389

*ep*

8F7A4867575789

8F5650  
04DE3C

0: f252ff < 0 5929ff1a2f xxsocket::get\_last\_errno 8753932ff7839

6061  
e88f

TCP: 5189TCP 4f68e362

UDP: f57a43375758

## xxsocket::connect\_n

f57a8fa339  
fa7a8fa339

```
int connect_n(const char* addr, u_short port, const std::chrono::microseconds& wtimeout);  
int connect_n(const endpoint& ep, const std::chrono::microseconds& wtimeout);  
int connect_n(const endpoint& ep);
```

5365  
c298

*addr*

8f7a4667575739  
8f7a4667575739

*port*

8f7a46677a5339  
8f7a46677a5339

*ep*

8f7a4667575739  
8f7a4667575739

*wtimeout*

f57a8fa37a89f6f5f539  
f57a8fa37a89f6f5f539

8F5650  
04DE3C

0: f252ff < 0 5929ff1a2f xxsocket::get\_last\_errno 8753932ff7839

6061  
e88f

TCP: 5189TCP 4f68e362

UDP: f57a43375758

## xxsocket::connect\_n

xxsocket::connect\_n

```
int disconnect() const;
```

xxsocket::connect\_n

```
if (errno < 0) xxsocket::get_last_errno
```

xxsocket::connect\_n

SOCK\_DGRAM (UDP) socket

## xxsocket::send

xxsocket::send

```
int send(const void* buf, int len, int flags = 0);
```

xxsocket::send

buf

xxsocket::send

len

xxsocket::send

flags

xxsocket::send

xxsocket::send

```
if (len < 0) xxsocket::get_last_errno
```

## xxsocket::send\_n

xxsocket::send\_n

```
int send_n(const void* buf, int len, const std::chrono::microseconds& wtimeout, int flags = 0);
```

5365  
C270

*buf*

89518863627680595982575739

*len*

895188636276955E39

*wtimeout*

618188F6F6F482

*flags*

618178625542678839

8F5650  
04DE3C

```
==len: 6252FF < len 598DFF9A8F xxsocket::get_last_errno 835395887839
```

xxsocket::recv

AE516863298F7A4E6751898F67769656239

```
int recv(void* buf, int len, int flags = 0) const;
```

5365  
C270

*buf*

A352786275B25A39

*len*

A352786275B25A725E39

*flags*

A35278625542678839

8F5650  
04DE3C

```
==len: 6252FF < len 598DFF9A8F xxsocket::get_last_errno 835395887839
```

6C61  
E88F

68F17869547A538F59FF53514Esocket678E695469 8288589A5E 39

## xxsocket::recv\_n

5480F2F2F2A1566A4E846862FA636A7F56766289

```
int recv_n(void* buf, int len, const std::chrono::microseconds& wtimeout, int flags = 0)
const;
```

5365  
C278

*buf*

A368786E75625A82

*len*

A368786E75625A7F5682

*wtimeout*

A36880F2F2F282

*flags*

A36565635E5C688839  
A568786E9542678882

8F5659  
D4DE3C

```
==len: 6252FF < len 598D6C7A8F xxsocket::get_last_errno 836395887882
```

## xxsocket::sendto

54807A4E675389 DGRAM 68UDP69656282

```
int sendto(const void* buf, int len, const endpoint& to, int flags = 0) const;
```

5365  
C278

*buf*

656188656275625A82

*len*

656188656275625A7F5682

*to*

61817868574682

*flags*

618178625542688882

8F5650  
04DE3C

```
==len: 6252FF < len 5989FF99FF xxsocket::get_last_errno 835395887839
```

## xxsocket::recvfrom

4E815888248C7A4E675189276374986282

```
int recvfrom(void* buf, int len, endpoint& peer, int flags = 0) const;
```

5365  
C278

*buf*

A358986275515A89

*len*

A358986275515A955682

*peer*

A35898626468FF85FA239889

*flags*

A35898625E5C688882

8F5650  
04DE3C

```
==len: 6252FF < len 5989FF99FF xxsocket::get_last_errno 835395887839
```

6C61  
E80F

68716869547A538458FF52514Esocket6788585468 828858255F 82

## xxsocket::handle\_write\_ready

785Fsocket535182

```
int handle_write_ready(const std::chrono::microseconds& wtimeout) const;
```

5365  
C278

*wtimeout*

785F886262F282



8F5650  
04DE3C

0: 80F3FF 1: F652FF < 0: 5189FF9A8F xxsocket::get\_last\_errno 876393887839

6C61  
E80F

9A585F516861887F6251696F76C95146FF69F67674F7A53846889

## xxsocket::handle\_read\_ready

7865socket278889

```
int handle_read_ready(const std::chrono::microseconds& wtimeout) const;
```

5365  
C270

*wtimeout*

7865886565F389

8F5650  
04DE3C

0: 80F3FF 1: F652FF < 0: 5189FF9A8F xxsocket::get\_last\_errno 876393887839

## xxsocket::local\_endpoint

876345374994F766757575789

```
endpoint local_endpoint() const;
```

8F5650  
04DE3C

8458675757575789

6C61  
E80F

59676A6789788F xxsocket::connect 6288TCP8E63328E31626768626E9945846879575766 0.0.0.0

## xxsocket::peer\_endpoint

876345374994F7667A575789

```
endpoint peer_endpoint() const;
```

8F5658  
04DE3C

8F566257575738  
04DE2C30304082

6C61  
E88F

5962666969728F xxsocket::connect 1689 TCP8E63369E31626268626E99458F587857572F 0.0.0.0

## xxsocket::set\_keepalive

887FTCP5E52518878C5F9C23682

```
int set_keepalive(int flag = 1, int idle = 7200, int interval = 75, int probes = 10);
```

5365  
C278

*flag*

1 : 55546555524F88C5F9FF 0 : 71E582

*idle*

5351785C6967464F6868454E54FF54525E5C5388C5F8A24878675989F8F8F46C534FF79FF38  
5351785C6967464F6868454E54FF54525E5C5388C5F8A24878675989F8F8F46C534FF79FF38

*interval*

5351626552C5F836E54F86FCB1585189C5F8A248A2F8F4F4846C534FF79FF38  
5351626552C5F836E54F86FCB1585189C5F8A248A2F8F4F4846C534FF79FF38

*probes*

5351626552C5F836E54F86FCB1585189C5F8A248A2F8F4F4846C534FF79FF38  
5351626552C5F836E54F86FCB1585189C5F8A248A2F8F4F4846C534FF79FF38

8F5658  
04DE3C

0 : 188F6C < 0 5129FF9A8F xxsocket::get\_last\_errno 876893887882

794F  
3A8B

```
// xxsocket-keepalive.cpp
#include "yasio/xxsocket.hpp"
using namespace yasio;
using namespace inet;

int main(){
    xxsocket client;
    if(0 == client.pconnect("192.168.1.19", 80)) {
```

```
        client.set_keepalive(1, 5, 10, 2);
    }
    return 0;
}
```

## xxsocket::reuse\_address

xxsocket::reuse\_address

```
void reuse_address(bool reuse);
```

xxsocket::reuse\_address

reuse

xxsocket::reuse\_address

xxsocket::reuse\_address

xxsocket::reuse\_address

## xxsocket::exclusive\_address

xxsocket::exclusive\_address

```
void exclusive_address(bool exclusive);
```

xxsocket::exclusive\_address

exclusive

xxsocket::exclusive\_address

xxsocket::exclusive\_address

xxsocket::exclusive\_address

## xxsocket::set\_optval

xxsocket::set\_optval

```
template <typename _Ty> int set_optval(int level, int optname, const _Ty& optval);
```

5365  
C270

*level*

socket899979A72B39

*optname*

8999797C5739  
8979788882

*optval*

89995889

8F5658  
04DE3C

0: 1252FF < 0 5129FF1A8F xxsocket::get\_last\_errno 8753958F7839

6C61  
E80F

64F07854bsd socket setsockopt 528878546FE35F4F786A6750886CF4694F4F7539

xxsocket::get\_optval

887Esocket899989

```
template <typename _Ty> _Ty get_optval(int level, int optname) const
```

5365  
C270

*level*

socket899979A72B39

*optname*

8999797C5739  
8979788882

8F5658  
04DE3C

846E89995889

6C61  
E80F

64F07854bsd socket getsockopt 528878546FE35F4F786A6750886CF4694F4F7539

## xxsocket::select

7952socket846848484839

```
int select(fd_set* readfds, fd_set* writefds, fd_set* exceptfds, const
std::chrono::microseconds& wtimeout)
```

5365  
C270

*readfds*

F2F84848F2F878657430

*writefds*

F2514848F2F878657430

*exceptfds*

55584848F2F878657430

*wtimeout*

7851484889F8484830

8F5650  
D4DE3C

0:80F2FF > 0:6262FF < 0:5989FF908F xxsocket::get\_last\_errno 870819887930

## xxsocket::shutdown

73E8TCP48851A8830

```
int shutdown(int how = SD_BOTH) const;
```

5365  
C270

*how*

73E81A887988FFEF204E486A674E50

- SD\_SEND : 51891A88
- SD\_RECEIVE : 63631A88
- SD\_BOTH : 88E873E8

8F5650  
04DE3C

0: f252ff < 0: 5129ff992f xxsocket::get\_last\_errno 876293227932

## xxsocket::close

7322socket6f2a62767f446662

```
void close(int shut_how = SD_BOTH);
```

5365  
c270

*shut\_how*

73221A9378576f6f2f454b4545674e52

- SD\_SEND : 51811A93
- SD\_RECEIVE : 63539993
- SD\_BOTH : 21282325
- SD\_NONE : 51282325

8F5650  
04DE3C

0: f252ff < 0: 5129ff992f xxsocket::get\_last\_errno 876293227932

6C61  
E80F

5262 shut\_how != SD\_NONE 6f62f0781A488328 shutdown 6f518c786522 close 62

## xxsocket::tcp\_rtt

8752TCP8f6379RTT39

```
uint32_t tcp_rtt() const;
```

8F5650  
04DE3C

8458TCP79RTTf5f36c634b: 5E79 39

## xxsocket::get\_last\_errno

xxsocket::get\_last\_errno

```
static int get_last_errno();
```

xxsocket::get\_last\_errno

```
0: errno > 0 ? xxsocket::strerror(errno) : 0
```

xxsocket::get\_last\_errno

xxsocket::get\_last\_errno

## xxsocket::set\_last\_errno

xxsocket::set\_last\_errno

```
static void set_last_errno(int error);
```

xxsocket::set\_last\_errno

error

xxsocket::set\_last\_errno

xxsocket::set\_last\_errno

xxsocket::set\_last\_errno

## xxsocket::not\_send\_error

xxsocket::not\_send\_error

```
static bool not_send_error(int error);
```

xxsocket::not\_send\_error

error

xxsocket::not\_send\_error

8F5650  
04DE3C

true : socket69586C false : socket7260F27E6179938BFC655373E6socket7E6290AF62

6C61  
E80F

4E536389644F8F6E50 < 0 F8FC837869F07832

xxsocket::not\_recv\_error

7260F27E6179938BFC655373E6socket7E6290AF62

```
static bool not_recv_error(int error);
```

5365  
C270

error

78EF7832

8F5650  
04DE3C

true : socket69586C false : socket7260F27E6179938BFC655373E6socket7E6290AF62

6C61  
E80F

4E536363644F8F6E50 < 0 F8FC837869F07832

xxsocket::strerror

5C9588788F634E597B4E30  
8619EE616C623A57263262

```
static const char* strerror(int error);
```

5365  
C270

error

78EF7832

8F5650  
04DE3C

8989F1697659784E30  
19EF7832



## xxsocket::gai\_strerror

`getaddrinfo`

```
static const char* gai_strerror(int error);
```

`error`

*error*

`error`

`error`

`error`

## xxsocket::resolve

`resolve`

```
int resolve(std::vector<endpoint>& endpoints, const char* hostname, unsigned short port = 0,
int socktype = SOCK_STREAM);
```

`endpoints`

*endpoints*

`endpoints`

*hostname*

`hostname`

*port*

`port`

*socktype*

`socktype`

`socktype`

`0: 0 > 0 0 xxsocket::strerror 0`

## xxsocket::resolve\_v4

IPv4

```
int resolve_v4(std::vector<endpoint>& endpoints, const char* hostname, unsigned short port = 0, int socktype = SOCK_STREAM);
```

*endpoints*

*hostname*

*port*

*socktype*

*socket*

0: 0 > 0 1A 8F xxsocket::strerror 8C 63 4A E8 7E 19 E8 4F 69 39

## xxsocket::resolve\_v6

IPv6

```
int resolve_v6(std::vector<endpoint>& endpoints, const char* hostname, unsigned short port = 0, int socktype = SOCK_STREAM);
```

*endpoints*

*hostname*

*port*

*socktype*

socket7957397b8b62

8f5650d4de3c

0: 636366ff > 0 9a2f xxsocket::strerror 8f634a887619884f6939

## xxsocket::resolve\_v4to6

4f89675754535476c5e3606f67652b24IPv457575f8f634aIPv6 V4MAPPED685f393c6f62

```
int resolve_v4to6(std::vector<endpoint>& endpoints, const char* hostname, unsigned short port
= 0, int socktype = SOCK_STREAM);
```

5365c270

*endpoints*

8f5153653983faC27062

*hostname*

5754396f6062

*port*

7af339ef

*socktype*

socket7957397b8b62

8f5650d4de3c

0: 636366ff > 0 9a2f xxsocket::strerror 8f634a887619884f6939

## xxsocket::resolve\_tov6

89676760632b64606757576f89676760632b64606757576fIPv457574f8f634aIPv6 V4MAPPED685f393c6f62

```
int resolve_tov6(std::vector<endpoint>& endpoints, const char* hostname, unsigned short port =
0, int socktype = SOCK_STREAM);
```

|    |    |
|----|----|
| 53 | 65 |
| C2 | 70 |

*endpoints*

|    |    |    |    |    |
|----|----|----|----|----|
| 8F | 51 | 53 | 65 | 30 |
| 93 | FA | C2 | 70 | 02 |

*hostname*

|    |    |    |
|----|----|----|
| 57 | 54 | 30 |
| DF | 0D | 02 |

*port*

|    |    |    |
|----|----|----|
| 7A | 53 | 30 |
| EF | E3 | 02 |

socktype

socket<sup>7C</sup><sub>7B</sub><sup>57</sup><sub>8B</sub><sup>30</sup><sub>02</sub>

|    |    |    |
|----|----|----|
| 8F | 56 | 50 |
| D4 | DE | 3C |

```
0: 65 05 8B FF > 0 90 8F xxsocket::strerror 8F 63 4E 8B 7E 95 8B 4F 60 30
E0 19 EF 0C 1A C7 6C 62 3A E6 C6 19 EF E1 6F 02
```

## xxsocket::getipsv

83 53 67 67 65 63 76 IP 53 88 68 68 5F 4F 30  
B7 D6 2C 3A 2F 01 84 4F AE 08 07 D7 4D 02

```
static int getipsv();
```

|    |    |    |
|----|----|----|
| 8F | 56 | 50 |
| D4 | DE | 3C |

- `ipsv_ipv4`: 67 67 63 63 | IPv4 47 88 89
- `ipsv_ipv6`: 67 67 63 63 | IPv6 47 88 89
- `ipsv_dual_stack`: 67 67 63 63 | IPv4 47 | IPv6 77 68 43 88 89

|    |    |
|----|----|
| 6C | 61 |
| E8 | 0F |

5F 8F 56 50 65 63 53 68 53 8B 66 FF 75 62 5E 5F 59 7E 4F 51 4F 75 IPv4 90 4F FF  
53 D4 DE 3C 2F 01 CC 08 4F AE 2F 0C 28 37 94 53 CB C8 18 48 7F 28 1A E1 0C

4f 59 66 80 62 67 88 59 57 54 65 5f 54 wifi 54 87 7a 7f 7e 65 ff 5c 4f 4f 51 90 62  
8b 82 7a fd 48 3a be 07 28 0c f6 00 2f 8c 02 9d 51 dc f6 0c 06 1a 18 48 09 e9 wifi ff

 <https://github.com/halx99/yasio/issues/130>

|    |    |
|----|----|
| 79 | 4F |
| 3A | 8B |

```
// xxsocket-ipsv.cpp
#include <vector>
#include "yasio/xxsocket.hpp"
using namespace yasio;
using namespace yasio::inet;
```

```
int main(){
    const char* host = "github.com";
    std::vector<ip::endpoint> eps;
    int flags = xxsocket::get_ipsv();
    if(flags & ipsv_ipv4) {
        xxsocket::resolve_v4(eps, host, 80);
    }
    else if(flags & ipsv_ipv6) {
        xxsocket::resolve_tov6(eps, host, 80);
    }
    else {
        std::cerr << "Local network not available!\n";
    }
    return 0;
}
```

## xxsocket::traverse\_local\_address

674E6767575769  
9A3E676A564069

```
static void traverse_local_address(std::function<bool(const ip::endpoint&)> handler);
```

5365  
C270

### handler

674E575759598C39  
9A3E30400E0362

794F  
3A8B

```
// xxsocket-traverse.cpp
#include <vector>
#include "yasio/xxsocket.hpp"
using namespace yasio;
using namespace yasio::inet;
int main(){
    int flags = 0;
    xxsocket::traverse_local_address([&](const ip::endpoint& ep) -> bool {
        switch (ep.af())
        {
            case AF_INET:
                flags |= ipsv_ipv4;
                break;
            case AF_INET6:
                flags |= ipsv_ipv6;
                break;
        }
        return (flags == ipsv_dual_stack);
    });
    YASIO_LOG("Supported ip stack flags=%d", flags);
}
```

```
    return flags;  
}
```

|    |    |    |
|----|----|----|
| 8B | 53 | 96 |
| F7 | C2 | 05 |

io\_service Class



## io\_service options

io\_service

| Name                         | Description                                                                                                                                                                                                                                                                                    |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>YOPT_S_DEFER_EVENT_CB</i> | Set defer event callback<br>params: callback:defer_event_cb_t<br>remarks:<br>a. User can do custom packet resolve at network thread, such as decompress and crc check.<br>b. Return true, io_service will continue enqueue to event queue.<br>c. Return false, io_service will drop the event. |
| <i>YOPT_S_DEFERRED_EVENT</i> | Set whether deferred dispatch event, default is: 1<br>params: deferred_event:int(1)                                                                                                                                                                                                            |
| <i>YOPT_S_RESOLV_FN</i>      | Set custom resolve function, native C++ ONLY<br>params: func:resolv_fn_t*                                                                                                                                                                                                                      |
| <i>YOPT_S_PRINT_FN</i>       | Set custom print function native C++ ONLY<br>parmas: func:print_fn_t<br>remarks: you must ensure thread safe of it                                                                                                                                                                             |
| <i>YOPT_S_PRINT_FN2</i>      | Set custom print function with log level<br>parmas: func:print_fn2_t<br>you must ensure thread safe of it                                                                                                                                                                                      |
| <i>YOPT_S_EVENT_CB</i>       | Set event callback<br>params: func:event_cb_t*                                                                                                                                                                                                                                                 |
| <i>YOPT_S_TCP_KEEPALIVE</i>  | Set tcp keepalive in seconds, probes is tries.<br>params: idle:int(7200), interal:int(75), probes:int(10)                                                                                                                                                                                      |
| <i>YOPT_S_NO_NEW_THREAD</i>  | Don't start a new thread to run event loop.<br>params: value:int(0)                                                                                                                                                                                                                            |
| <i>YOPT_S_SSL_CACERT</i>     | Sets ssl verification cert, if empty, don't verify.<br>params: path:const char*                                                                                                                                                                                                                |



| Name                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>YOPT_S_CONNECT_TIMEOUT</i>     | Set connect timeout in seconds.<br>params: connect_timeout:int(10)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>YOPT_S_DNS_CACHE_TIMEOUT</i>   | Set dns cache timeout in seconds.<br>params: dns_cache_timeout : int(600),                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>YOPT_S_DNS_QUERIES_TIMEOUT</i> | Set dns queries timeout in seconds, default is: 5000.<br>params: dns_queries_timeout : int(5000)<br>remark:<br>a. this option must be set before 'io_service::start'<br>b. only works when have c-ares<br>c. since v3.33.0 it's milliseconds, previous is seconds.<br>d. the timeout algorithm of c-ares is complicated, usually, by default, dns queries will failed with timeout after more than 75 seconds.<br>e. for more detail, please see:<br><a href="https://c-ares.haxx.se/ares_init_options.html">https://c-ares.haxx.se/ares_init_options.html</a> |
| <i>YOPT_S_DNS_QUERIES_TRIES</i>   | Set dns queries tries when timeout reached, default is: 5.<br>params: dns_queries_tries : int(5)<br>remarks:<br>a. this option must be set before 'io_service::start'<br>b. relative option: <i>YOPT_S_DNS_QUERIES_TIMEOUT</i>                                                                                                                                                                                                                                                                                                                                 |
| <i>YOPT_S_DNS_DIRTY</i>           | Set dns server dirty.<br>params: reserved : int(1)<br>remarks:<br>a. this option only works with c-ares enabled<br>b. you should set this option after your mobile network changed                                                                                                                                                                                                                                                                                                                                                                             |
| <i>YOPT_C_LFBFD_FN</i>            | Sets channel length field based frame decode function.<br>params: index:int, func:decode_len_fn_t*<br>remark: native C++ ONLY                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>YOPT_C_LFBFD_PARAMS</i>        | Sets channel length field based frame decode params.<br>params:<br>index:int,<br>max_frame_length:int(10MBytes),<br>length_field_offset:int(-1),<br>length_field_length:int(4),<br>length_adjustment:int(0),                                                                                                                                                                                                                                                                                                                                                   |

| Name                          | Description                                                                                                                               |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <i>YOPT_C_LFBFD_IBTS</i>      | Sets channel length field based frame decode initial bytes to strip.<br>params: index:int, initial_bytes_to_strip:int(0)                  |
| <i>YOPT_C_REMOTE_HOST</i>     | Sets channel remote host.<br>params: index:int, ip:const char*                                                                            |
| <i>YOPT_C_REMOTE_PORT</i>     | Sets channel remote port.<br>params: index:int, port:int                                                                                  |
| <i>YOPT_C_REMOTE_ENDPOINT</i> | Sets channel remote endpoint.<br>params: index:int, ip:const char*, port:int                                                              |
| <i>YOPT_C_LOCAL_HOST</i>      | Sets local host for client channel only.<br>params: index:int, ip:const char*                                                             |
| <i>YOPT_C_LOCAL_PORT</i>      | Sets local port for client channel only.<br>params: index:int, port:int                                                                   |
| <i>YOPT_C_LOCAL_ENDPOINT</i>  | Sets local endpoint for client channel only.<br>params: index:int, ip:const char*, port:int                                               |
| <i>YOPT_C_MOD_FLAGS</i>       | Mods channel flags.<br>params: index:int, flagsToAdd:int, flagsToRemove:int                                                               |
| <i>YOPT_C_ENABLE_MCAST</i>    | Enable channel multicast mode.<br>params: index:int, multi_addr:const char*, loopback:int                                                 |
| <i>YOPT_C_DISABLE_MCAST</i>   | Disable channel multicast mode.<br>params: index:int                                                                                      |
| <i>YOPT_C_KCP_CONV</i>        | The kcp conv id, must equal in two endpoint from the same connection.<br>params: index:int, conv:int                                      |
| <i>YOPT_T_CONNECT</i>         | Change 4-tuple association for io_transport_udp.<br>params: transport:transport_handle_t<br>remark: only works for udp client transport   |
| <i>YOPT_T_DISCONNECT</i>      | Dissolve 4-tuple association for io_transport_udp.<br>params: transport:transport_handle_t<br>remark: only works for udp client transport |

| Name                        | Description                                                                           |
|-----------------------------|---------------------------------------------------------------------------------------|
| <code>YOPT_B_SOCKOPT</code> | Sets io_base sockopt.<br>params: io_base*,level:int,optname:int,optval:int,optlen:int |

8B5396  
F7C205

[io\\_service Class](#)



API

54547A95  
7D0D7AF4

```
namespace yasio {}
```

5151656C  
6C71B9D5

| Name                   | Description            |
|------------------------|------------------------|
| yasio::host_to_network | 4B6A59825F8C717E59825F |
| yasio::network_to_host | 717E59825F8C717E59825F |
| yasio::xhighp_clock    | 876A6362A7F6F433       |
| yasio::highp_clock     | 876A6362A7F6F433       |
| yasio::clock           | 876A6362A7F6F433       |
| yasio::set_thread_name | 8B7E8C23887F7A5A       |
| yasio::basic_strerror  | 686F72592B45           |

yasio::host\_to\_network

4B6A59825F8C717E59825F82

59654E  
3487F6

yasio/detail/endian\_portable.hpp

```
template <typename _Ty>  
inline _Ty host_to_network(_Ty value);  
inline int host_to_network(int value, int size);
```

5365  
c270

value

818f637d7950ffvalue7657\_Ty 2345294f011~859827d507c5739

size

818f637d7950ff3c694857827d6cfafd2f1~4598239

8f5650  
646e3c

7f7e59825f7d5039

794f  
3a8b

```
#include <stdio.h>
#include <inttypes.h>
#include "yasio/detail/endian_portable.hpp"
int main(){
    uint16_t v1 = 0x1122;
    uint32_t v2 = 0x11223344;
    uint64_t v3 = 0x1122334455667788;
    // output will be: net.v1=2211, net.v2=44332211, net.v3=8877665544332211
    printf("net.v1=%04" PRIx16 " ", net.v2=%08" PRIx32 " ", net.v3=%016" PRIx64 "\n",
        yasio::host_to_network(v1),
        yasio::host_to_network(v2),
        yasio::host_to_network(v3));
    return 0;
}
```

yasio::network\_to\_host

7f7e59825f7d5039

59654f  
3487f6

yasio/detail/endian\_portable.hpp

```
template <typename _Ty>
inline _Ty network_to_host(_Ty value);
inline int network_to_host(int value, int size);
```

5365  
c270

value

818f637d7950ffvalue7657\_Ty 2345294f011~859827d507c5739

size

818f6376655067655b8265ff5380691~45b8239

8f5658  
646e3c

4f5758825f785839

794f  
3a8b

```
#include <stdio.h>
#include <inttypes.h>
#include "yasio/detail/endian_portable.hpp"
int main(){
    uint16_t v1 = 0x2211;
    uint32_t v2 = 0x44332211;
    uint64_t v3 = 0x8877665533442211;
    // output will be: net.v1=1122, net.v2=11223344, net.v3=1122334455667788
    printf("host.v1=%04" PRIx16 " ", host.v2=%08" PRIx32 " ", host.v3=%016" PRIx64 " \n",
        yasio::network_to_host(v1),
        yasio::network_to_host(v2),
        yasio::network_to_host(v3));
    return 0;
}
```

yasio::xhighp\_clock

876863627978f8f36382

59654e  
3487f6

yasio/detail/utils.hpp

```
template <typename _Ty = steady_clock_t>
inline highp_time_t xhighp_clock();
```

6a675365  
2177c278

\_Ty

- yasio::steady\_clock\_t: 8f685527767ff8f3637169f8f363
- yasio::system\_clock\_t: 8f68787fUTCf8f363

8F5650  
040E3C

7E797F63F36389

## yasio::highp\_clock

8762AE7379F2F36389

59654E  
3487F6

yasio/detail/utils.hpp

```
template <typename _Ty = steady_clock_t>  
inline highp_time_t highp_clock();
```

6A675365  
217FC270

\_Ty

- yasio::steady\_clock\_t: 8F5650527C7E63F3638979F2F363
- yasio::system\_clock\_t: 846E7B7EUTC F2F363

8F5650  
040E3C

7E797F63F36389

## yasio::clock

8762AE7379F2F36389

59654E  
3487F6

yasio/detail/utils.hpp

```
template <typename _Ty = steady_clock_t>  
inline highp_time_t clock();
```

6A675365

\_Ty

- yasio::steady\_clock\_t: 846E53527C7E63F3638979F2F363



- `yasio::system_clock_t`: 8A5B7C7EUTC F2F453

8F5659  
04DE3C

EB797E65256238  
62A7F6F43382

## yasio::set\_thread\_name

8B7B8573897E7A6439  
66628373896B6082

59654E  
3487F6

`yasio/detail/thread_name.hpp`

```
inline void set_thread_name(const char* name);
```

5365  
C278

*name*

87898B7E7E7A5479  
86818E6E6F6B6DFA

6C61  
E80F

5165754E8B65597E7A7A5E975E677538  
64FD78217F8ECAAD1A6F6B6B8F5E38692862

## yasio::basic\_strfmt

51656A67FF685F535B7B4E6289585B7B4E38  
FD78217F8E6C6F16572B3216898D5B7B3282

59654E  
3487F6

`yasio/detail/strfmt.hpp`

```
template <class _Elem, class _Traits = std::char_traits<_Elem>,  
         class _Alloc = std::allocator<_Elem>>  
inline std::basic_string<_Elem, _Traits, _Alloc> basic_strfmt(size_t n, const _Elem*  
format, ...);
```

5365  
2270

*n*

5758buffer5959  
1058

*format*

686F587843FF54687C655 printf 7854

8F5650  
04DE3C

8F68685F535278 std::string 7C5759784E30  
040E3C6F106E64

6C61  
E80F

68994F73FCE778634F75507E584858785254  
0E997F786CE778634F75507E584858785254

- yasio::strfmt: 686F52597855
- yasio::wcsfmt: 686F5358597845

794F  
3A8B

```
#include "yasio/detail/strfmt.hpp"
int main() {
    std::string str1 = yasio::strfmt(64, "My age is %d", 19);
    std::wstring str2 = yasio::wcsfmt(64, L"My age is %d", 19);
    return 0;
}
```





yasio yasio/detail/config.hpp

| Name                               | Description                                                            |
|------------------------------------|------------------------------------------------------------------------|
| YASIO_HAVE_KCP                     | kcpkcp                                                                 |
| YASIO_HEADER_ONLY                  | yasio                                                                  |
| YASIO_SSL_BACKEND                  | SSLSSL OpenSSL/MbedTLS 3.36.0 (YASIO_HAVE_SSL) 1 (OpenSSL) 2 (mbedtls) |
| YASIO_ENABLE_UDS                   | unix domain socket unix win10 RS5+                                     |
| YASIO_HAVE_CARES                   | c-aresc-ares yasiodns 10 c-ares                                        |
| YASIO_VERBOSE_LOG                  |                                                                        |
| YASIO_NT_COMPAT_GAI                | Windows XP getaddrinfo API                                             |
| YASIO_USE_SPSC_QUEUE               | SPSC io_service::write                                                 |
| YASIO_USE_SHARED_PACKET            | std::shared_ptr                                                        |
| YASIO_HAVE_HALF_FLOAT              | half.hpp                                                               |
| YASIO_DISABLE_OBJECT_POOL          |                                                                        |
| YASIO_DISABLE_CONCURRENT_SINGLETON |                                                                        |
| YASIO_ENABLE_PASSIVE_EVENT         | open/close                                                             |



yasio 7C535974  
98050406

yasio 767C68535974464E8458TCP 6F694EUDP 6C826763897A697E63618067526F4E6F45786476656F597439734E6582674E79695F:

- 1A2Fio\_service0909 YOPT\_C\_LFBFD\_PARAMS 8B7F4F99536539
- 1A2Fio\_service0909 YOPT\_C\_LFBFD\_FN 8B7F815845639F5E8361F078 decode\_len\_fn\_t 09

6C61E80F

8158456976397F5E7D785B78F8F55CE55982694E8B63int58F86C45584B897F78678A5A806C647363F8F88B3ARM87775982F98F8288SIGBUS 6258E28882E24E5289817FE961639F5E7D785B78io\_channel::\_\_builtin\_decode\_len 09

YOPT\_C\_LFBFD\_PARAMS

8B7F4F997462F36289

5365C278

max\_frame\_length

6759539F5E6F8B8756893E5E586389

length\_field\_offset

639F5E596978F84E6B6F6368628859824FF889

length\_field\_length

639F5E5969596F6F62631~489829293(uint8\_t,uint16\_t,uint24\_t,int32\_t)89

length\_adjustment

639F5E8C645C8899585978426C8B524FA8F04FA8B898B895954688F5F8C5592F5E586B5C8328888F54F86F1264584E0 6C520124A 8B8F597F5E 09

6C61E80F

8B8F639F5E586B85F87F7872810C57825E7F78388B6777517F897853955E5873:

```
int io_channel::__builtin_decode_len(void* d, int n)
{
    int loffset = uparams_.length_field_offset;
    int lsize   = uparams_.length_field_length;
    if (loffset >= 0)
    {
        int len = 0;
        if (n >= (loffset + lsize))
```

```
{
    ::memcpy(&len, (uint8_t*)d + loffset, lsize);
    len = yasio::network_to_host(len, lsize);
    len += uparams_.length_adjustment;
    if (len > uparams_.max_frame_length)
        len = -1;
}
return len;
}
return n;
}
```

## decode\_len\_fn\_t

41 93 93 73 68 68 53 9f 56 fd 78 6f 57 88 89

```
typedef std::function<int(void* d, int n)> decode_len_fn_t;
```

53 65  
c2 70

*d*

65 93 53 63 62 88 58 82 57 57 89

*n*

6f 93 53 63 62 9f a6 89

8f 56 50  
84 b6 3c

84 68 88 68 53 78 62 6e 99 9f a6 89

- > 0 : 93 78 63 9f 56 62 57 89
- == 0 : a3 62 78 62 46 89 4f 93 78 88 68 53 68 99 9f 56 6f yasio 55 42 4a 7f 7e a3 63 63 62 6f 48 63 63 52 63 63 62 6f 4f 6b 21 83 73 62 51 78 89
- < 0 : 93 78 63 9f 56 62 56 6c 4f 99 61 55 52 48 85 4f 88 63 66 89

6c 61  
e8 0f

93 78 88 68 53 9f a6 fd 78 6f 57 88 89 7e 7a 58 51 76 fd 4f 59 f9 4e Lua 19 46 2f 61 88 7e 2a 5a 49 93 78 88 68 53 9f a6 fd 78 89

## yasio Interop

Unity C# yasio C: [https://github.com/yasio/yasio/blob/master/yasio/bindings/yasio\\_ni.cpp](https://github.com/yasio/yasio/blob/master/yasio/bindings/yasio_ni.cpp)

## OpenNSM2

Unity yasio-3.37.1 NetworkServiceManager unity: <https://github.com/yasio/OpenNSM2>





## FAQ

91709598897B  
CD89EE98E354

yasio 24469874687688?

yasio 74583f4579988464f80464f7945655f4e4f804e4f8e51904f884e5f595c7478777f651454e9f2189597576125717f55ffxxsocketf969yasio79906ff23675f69  
886f61697648f25465686584eboost.asio82

4545454f75  
5Ac0487728yasio?

- 6f6872f3f27c6886764797c765567asio,libevent,libev,libuv6f454e634e74f9829258f748747c9858f788fio697329576c746c6475f3855247f73  
iocp,kqueue,epoll,select7829876ff73595967747c7f6f838e63757646TCP7663616478f88768f538f9f962689
- yasio6c8f637974ffTCPc263f95f885245554269
- yasio5cTCP,UDP,KCP7ef456628cf72Transportf952654ef7f2869
- yasiof9982f75f6c26275f3274f72select717289

yasio 5f5469639799585f548967?

f961ff4687894688c-ares596f8546552f885878DNSf788ff76ff45587845d7387select6158765647f736c67669967f8876567f7a889896765662fc-ares6fyasio51  
284f4a69696764896765676a88467a88887558106282f6f9245f467a82f56676a59897488

yasio 2f246f63SSL/TLS4688?

f961ff4687894688OpenSSL7289MbedTLS89

594f4e io\_event 45887f548353 userdata 2688f6e8c8706

f97c283ff[https://github.com/yasio/ftp\\_server/blob/master/ftp\\_server.cpp#L98](https://github.com/yasio/ftp_server/blob/master/ftp_server.cpp#L98)

yasio 66545974 SIGPIPE 4f53ff 2f266466 f1f71f

4e 3.30 782765f8f9697489

636246697a6f6e6882fios527279f8986688839f9f21a2263SIGPIPE7963f8f1APP288f663762626f254e2263TCP8f638266f6f38f326f838f4f69: Broken pipe  
8889: <https://github.com/yasio/yasio/issues/170>

**ios** **ec=65, detail:No route to host**

- **ios**:
  - **APP** **ios14.1+** **Local Network Permission**
  - **10161** **SNMP via TLS**
- **ios**: **APP** **49152~65535**
- **ios**: <https://www.speedguide.net/port.php>

**macOS** **UDP** **40** **Message too long**

- **macOS** **UDP** **9126**
- **socket** **UDP**:
  - **xxsocket**: `sock_udp.set_optval(SOL_SOCKET, SO_SNDBUF, (int)65535);`
  - **io\_service**: <https://github.com/yasio/yasio/blob/master/tests/speed/main.cpp#L223>

**io\_service** **schedule**

**io\_service**

**std::thread**

**std::thread**: <https://github.com/yasio/yasio/issues/244>

**xxsocket** **\_nodelay**

**\_nodelay** **internal**

**YOPT\_TCP\_KEEPALIVE**

**YOPT\_TCP\_KEEPALIVE**: <https://github.com/yasio/yasio/issues/117>

## Lua

### • c++11:

- `kaguya` `c++` `lua_newuserdata`, `placement new`  
`xcode clang release`
- `bing.com` `LUA_USER_ALIGNMENT_T=max_align_t`
- `, max_align_t` `xcode clang` `long double` `16`
- `: http://lua-users.org/lists/lua-l/2019-07/msg00197.html`

### • c++14:

- `sol2` `sol2` `kaguya` `sol2` `lua_newuserdata`  
`clang release`

### • c++17:

- `sol2` `xcode` `ios11` `C++17` `new` `Aligned allocation/deallocation`  
`-faligned-allocation`
- `ios10` `std::shared_mutex` `(yasio` `Apple` `pthread`)
- 
- `Lua` `double` `max_align_t` `C11` `https://en.cppreference.com/w/c/types/max_align_t` `Lua` `ANSI C89` `LUA_USER_ALIGNMENT_T`
- `C++11` `std::max_align_t` `https://en.cppreference.com/w/cpp/types/max_align_t`

`max_align_t` `llvm` `__stddef_max_align_t.h`

## Can't load xxx.bundle on macOS?

The file `xxx.bundle` needs change attr by command `sudo xattr -r -d com.apple.quarantine xxx.bundle`

## xxsocket resolve socketype

- `winsock`
- `0` `IP`

`F41A38C1EE98`

`F7C265 987E5E52F3`