

Daytime クライアント作成

C言語プログラム

```
#include <stdio.h>
#include <stdlib.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>
#include <string.h>
#include <unistd.h>
#include <getopt.h>

#define DEFAULT_PORT 13

static struct option longopts[] = {
    {"port", required_argument, NULL, 'p'},
    {"ip", required_argument, NULL, 'i'},
    {"help", no_argument, NULL, 'h'},
    {0, 0, 0, 0}
};

int main(int argc, char *argv[]) {
    int opt, sock;
    int port = DEFAULT_PORT;
    char *ipaddr;
    char buf[128];
    struct sockaddr_in server;
    struct sockaddr_in6 server_ipv6;

    while ((opt = getopt_long(argc, argv, "p:i:", longopts, NULL)) != -1) {
        switch (opt) {
            case 'p':
                port = atoi(optarg);
                break;
            case 'i':
                ipaddr = optarg;
                break;
            case 'h':
                fprintf(stdout, "Usage %s [-p PORT] [-i IPADDR]\n", argv[0]);
                exit(0);
            case '?':
                fprintf(stderr, "Usage %s [-p PORT] [-i IPADDR]\n", argv[0]);
                exit(1);
        }
    }

    if (!ipaddr){
        fprintf(stderr, "%s : ip address not designated.\n", argv[0]);
        exit(1);
    }
}
```

```

} else if ((inet_pton(AF_INET, ipaddr, &server.sin_addr)) > 0) {
    server.sin_family = AF_INET;
    server.sin_port = htons(port);
    sock = socket(AF_INET, SOCK_STREAM, 0);
    connect(sock, (struct sockaddr *)&server, sizeof(server));

} else if ((inet_pton(AF_INET6, ipaddr, &server_ipv6.sin6_addr)) > 0){
    server_ipv6.sin6_family = AF_INET6;
    server_ipv6.sin6_port = htons(port);
    sock = socket(AF_INET6, SOCK_STREAM, 0);
    connect(sock, (struct sockaddr *)&server_ipv6, sizeof(server_ipv6));
} else {
    fprintf(stderr, "%s : Invalid ip pattern\n", argv[0]);
    exit(1);
}
memset(buf, 0, sizeof(buf));
if ((read(sock, buf, sizeof(buf))) < 0){
    perror("Something went wrong");
    exit(1);
}
printf("%s\n", buf);
exit(0);
}

```

結果

- IPアドレスを指定しない場合

```

hidehisa@login1:~$ ./tcp_client
./tcp_client : ip address not designated.

```

- IPアドレスパターンがおかしい場合

```

hidehisa@login1:~$ ./tcp_client -i 222
./tcp_client : Invalid ip pattern

```

- IPv4指定

```

hidehisa@login1:~$ ./tcp_client -i 54.249.36.78
Sat May  5 03:41:10 2018

```

- IPv6指定

```
hidehisa@login1:~$ ./tcp_client --ip=2406:da14:941:3c03::20
Sat May  5 03:42:37 2018
```

- ポート指定

```
hidehisa@login1:~$ ./tcp_client --ip=2406:da14:941:3c03::20 --port=22
SSH-2.0-OpenSSH_7.2p2 Ubuntu-4ubuntu2.4
```

```
hidehisa@login1:~$ ./tcp_client --ip=2406:da14:941:3c03::20 -p 13
Sat May  5 03:45:27 2018
```

- ヘルプ

```
hidehisa@login1:~$ ./tcp_client --help
Usage ./tcp_client [-p PORT] [-i IPADDR]
```