COMP 8005
Project
Testing

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Test	Expected	Actual	Screenshot
Run the program with no arguments **Command:** **./client**	fail	fail	Test 1
Run the program with only -s flag **Command:** **./client -s**	fail	fail	Test 2
Run the program with only -s flag and the ip address **Command:** **./client -s 192.168.1.67**	fail	fail	Test 3
Run the program with the -s flag and the ip address and the -p flag Command: ./client -s 192.168.1.67 -p	fail	fail	Test 4
Run the program with the -s flag and the ip address and the -p flag with the port number when server is running Command: ./client -s 192.168.1.67 -p 34000	pass	pass	Test 5
Run the program with the -s flag and the ip address and the -p flag with the port number and the -t flag Command: ./client -s 192.168.1.67 -p 34000 -t	fail	fail	Test 6
Run the program with the -s flag and the ip address and the -p flag with the port number and the -t flag with number of threads when server is running Command: ./client -s 192.168.1.67 -p 34000 -t 4	pass	pass	Test 7
Run the program with the -s flag and the ip address and the -p flag with the port number and the -t flag with number of threads while the server is not running Command: ./client -s 192.168.1.67 -p 34000 -t 4	fail	fail	Test 8
Run the program with no arguments	fail	fail	Test 9

Command: ./server			
Run the program with only -s flag Command: ./server -s	fail	fail	Test 10
Run the program with only -s flag and the ip address Command: ./server -s 192.168.1.67	fail	fail	Test 11
Run the program with the -s flag and the ip address and the -p flag Command: ./server -s 192.168.1.67 -p	fail	fail	Test 12
Run the program with the -s flag and the ip address and the -p flag with the port number Command: ./server -s 192.168.1.67 -p 34000	fail	fail	Test 13
Run the program with the -s flag and the ip address and the -p flag with the port number and the -H flag Command: ./server -s 192.168.1.67 -p 34000 -H	fail	fail	Test 14
Run the program with the -s flag and the ip address and the -p flag with the port number and the -H flag with the hash Command: ./server -s 192.168.1.67 -p 34000 -H '$2b$12$cNPD3sslWWNg2BkhS4eSD.KTC.6Y878H6MMHkbceIGNKcYV35nC8m'	pass	pass	Test 15
Server reclaims work when client disconnects **Command:**	pass	pass	Test 16
When worker times out, server reclaims work	pass	pass	Test 17
Assign reclaimed work to the next worker available	pass	pass	Test 18

Tests

Test 1


…/client/build main ● ❯ ./client
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.
TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 116.
Usage: ./client [OPTIONS]
Required options:
-s, --server <addr> Server IP address or hostname (required)
-p, --port <num> Server listen port (required)
Optional options:
-t, --threads <num> Number of threads the worker will use
(default: 4)
-h, --help Display this help message and exit
Examples:
./client --server 192.168.1.10 --port 5000
./client -s example.com -p 5000 -t 8
Notes:
• Long and short forms may be used interchangeably (e.g. --port or -p).
• If threads is omitted it defaults to 4.
• The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR The server IP address is required.
In file command_line.c in function handle_arguments on line 134
TRACE: STATE_CLEANUP
Entered state at line 258.

Test 2

```
…/client/build main ● ❯ ./client -s
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.

Usage: ./client [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
Optional options:
  -t, --threads <num>       Number of threads the worker will use
                             (default: 4)
  -h, --help                Display this help message and exit

Examples:
  ./client --server 192.168.1.10 --port 5000
  ./client -s example.com -p 5000 -t 8

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If threads is omitted it defaults to 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR Unknown option '-s'.
In file command_line.c in function parse_arguments on line 85
TRACE: STATE_CLEANUP
Entered state at line 258.
```

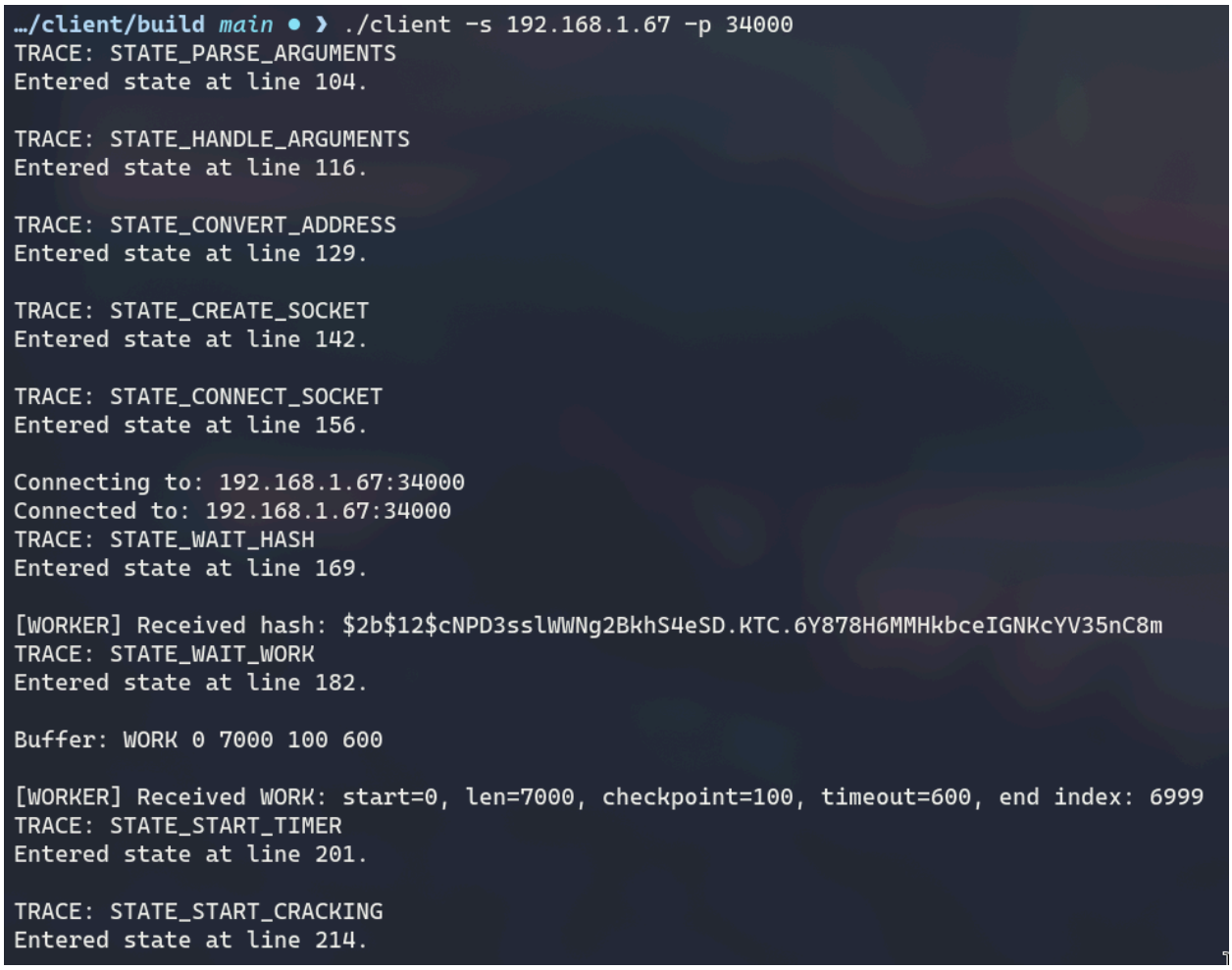
Test 3

```
…/client/build main ● ❯ ./client -s 192.168.1.67
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.

TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 116.

Usage: ./client [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
Optional options:
  -t, --threads <num>       Number of threads the worker will use
                             (default: 4)
  -h, --help                Display this help message and exit

Examples:
  ./client --server 192.168.1.10 --port 5000
  ./client -s example.com -p 5000 -t 8

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If threads is omitted it defaults to 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR The server port is required.
In file command_line.c in function handle_arguments on line 142
TRACE: STATE_CLEANUP
Entered state at line 258.
```

Test 4

```
…/client/build main ● ❯ ./client -s 192.168.1.67 -p
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.

Usage: ./client [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
Optional options:
  -t, --threads <num>       Number of threads the worker will use
                             (default: 4)
  -h, --help                Display this help message and exit

Examples:
  ./client --server 192.168.1.10 --port 5000
  ./client -s example.com -p 5000 -t 8

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If threads is omitted it defaults to 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR Unknown option '-p'.
In file command_line.c in function parse_arguments on line 85
TRACE: STATE_CLEANUP
Entered state at line 258.
```

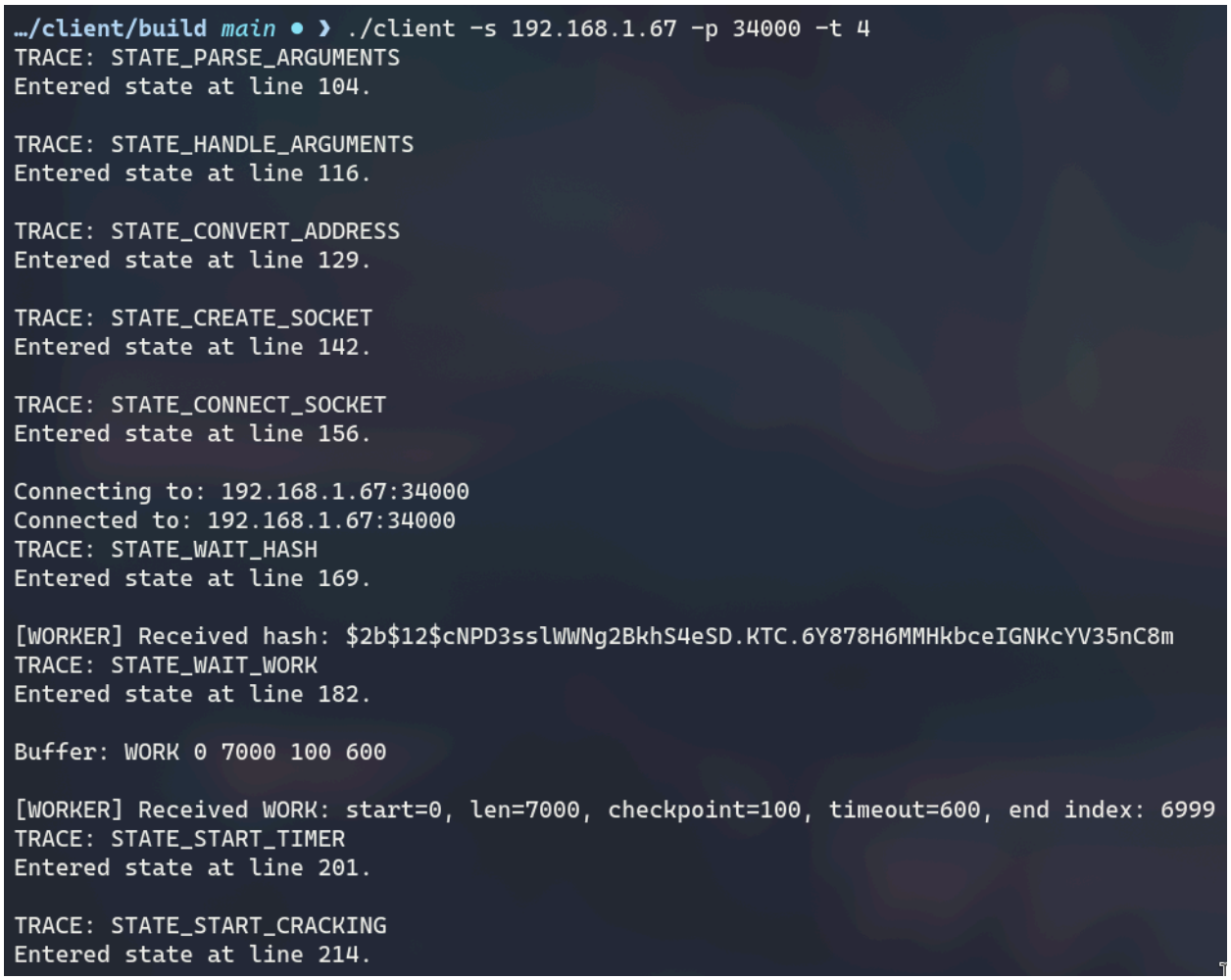
Test 5


…/client/build main ● ❯ ./client -s 192.168.1.67 -p 34000
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.
TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 116.
TRACE: STATE_CONVERT_ADDRESS
Entered state at line 129.
TRACE: STATE_CREATE_SOCKET
Entered state at line 142.
TRACE: STATE_CONNECT_SOCKET
Entered state at line 156.
Connecting to: 192.168.1.67:34000
Connected to: 192.168.1.67:34000
TRACE: STATE_WAIT_HASH
Entered state at line 169.
[WORKER] Received hash: $2b$12$cNPD3sslWWNg2BkhS4eSD.KTC.6Y878H6MMHkbceIGNKcYV35nC8m
TRACE: STATE_WAIT_WORK
Entered state at line 182.
Buffer: WORK 0 7000 100 600
[WORKER] Received WORK: start=0, len=7000, checkpoint=100, timeout=600, end index: 6999
TRACE: STATE_START_TIMER
Entered state at line 201.
TRACE: STATE_START_CRACKING
Entered state at line 214.

Test 6

```
…/client/build main ● ✕ ./client -s 192.168.1.67 -p 34000 -t
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.

Usage: ./client [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
Optional options:
  -t, --threads <num>       Number of threads the worker will use
                             (default: 4)
  -h, --help                Display this help message and exit

Examples:
  ./client --server 192.168.1.10 --port 5000
  ./client -s example.com -p 5000 -t 8

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If threads is omitted it defaults to 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR Unknown option '-t'.
In file command_line.c in function parse_arguments on line 85
TRACE: STATE_CLEANUP
Entered state at line 258.
```

Test 7


…/client/build main ● ❯ ./client -s 192.168.1.67 -p 34000 -t 4
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.
TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 116.
TRACE: STATE_CONVERT_ADDRESS
Entered state at line 129.
TRACE: STATE_CREATE_SOCKET
Entered state at line 142.
TRACE: STATE_CONNECT_SOCKET
Entered state at line 156.
Connecting to: 192.168.1.67:34000
Connected to: 192.168.1.67:34000
TRACE: STATE_WAIT_HASH
Entered state at line 169.
[WORKER] Received hash: $2b$12$cNPD3sslWWNg2BkhS4eSD.KTC.6Y878H6MMHkbceIGNKcYV35nC8m
TRACE: STATE_WAIT_WORK
Entered state at line 182.
Buffer: WORK 0 7000 100 600
[WORKER] Received WORK: start=0, len=7000, checkpoint=100, timeout=600, end index: 6999
TRACE: STATE_START_TIMER
Entered state at line 201.
TRACE: STATE_START_CRACKING
Entered state at line 214.

Test 8

```
…/client/build main ● ❯ ./client -s 192.168.1.67 -p 34000 -t 4
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 104.

TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 116.

TRACE: STATE_CONVERT_ADDRESS
Entered state at line 129.

TRACE: STATE_CREATE_SOCKET
Entered state at line 142.

TRACE: STATE_CONNECT_SOCKET
Entered state at line 156.

Connecting to: 192.168.1.67:34000
ERROR Connection refused
In file server_config.c in function socket_connect on line 41
TRACE: STATE_CLEANUP
Entered state at line 258.
```

Test 9

```
…/server/build main ● ❯ ./server
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 92.

TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 104.

Usage: ./server [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
  -H, --hash <hash>         Hashed password to crack (required)

Optional options:
  -w, --work-size <num>     Number of passwords assigned per node request
                             (default: 1000)
  -c, --checkpoint <num>    Number of attempts before a node sends a checkpoint
                             (default: work-size / 4)
  -t, --timeout <num>       Seconds to wait for a checkpoint from a client
                             (default: 600)
  -h, --help                Display this help message and exit

Examples:
  ./server --server 192.168.1.10 --port 5000 --hash $6$... --work-size 1000
  ./server -s example.com -p 5000 -H <hash> -c 500 -t 300

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If work-size is omitted it defaults to 1000.
  • If checkpoint is omitted it defaults to work-size / 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR The server IP address is required.
In file command_line.c in function handle_arguments on line 193
TRACE: STATE_CLEANUP
Entered state at line 234.
```

Test 10

```
…/server/build main ● ❯ ./server -s
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 92.

Usage: ./server [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
  -H, --hash <hash>         Hashed password to crack (required)

Optional options:
  -w, --work-size <num>     Number of passwords assigned per node request
                             (default: 1000)
  -c, --checkpoint <num>    Number of attempts before a node sends a checkpoint
                             (default: work-size / 4)
  -t, --timeout <num>       Seconds to wait for a checkpoint from a client
                             (default: 600)
  -h, --help                Display this help message and exit

Examples:
  ./server --server 192.168.1.10 --port 5000 --hash $6$... --work-size 1000
  ./server -s example.com -p 5000 -H <hash> -c 500 -t 300

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If work-size is omitted it defaults to 1000.
  • If checkpoint is omitted it defaults to work-size / 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR Unknown option '-s'.
In file command_line.c in function parse_arguments on line 138
TRACE: STATE_CLEANUP
Entered state at line 234.
```

Test 11


…/server/build main ● ❯ ./server -s 192.168.1.67
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 92.
TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 104.
Usage: ./server [OPTIONS]
Required options:
-s, --server <addr> Server IP address or hostname (required)
-p, --port <num> Server listen port (required)
-H, --hash <hash> Hashed password to crack (required)
Optional options:
-w, --work-size <num> Number of passwords assigned per node request (default: 1000)
-c, --checkpoint <num> Number of attempts before a node sends a checkpoint (default: work-size / 4)
-t, --timeout <num> Seconds to wait for a checkpoint from a client (default: 600)
-h, --help Display this help message and exit
Examples:
./server --server 192.168.1.10 --port 5000 --hash 6... --work-size 1000
./server -s example.com -p 5000 -H <hash> -c 500 -t 300
Notes:
• Long and short forms may be used interchangeably (e.g. --port or -p).
• If work-size is omitted it defaults to 1000.
• If checkpoint is omitted it defaults to work-size / 4.
• The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR The server port is required.
In file command_line.c in function handle_arguments on line 201
TRACE: STATE_CLEANUP
Entered state at line 234.

Test 12

```
…/server/build main ● ❯ ./server -s 192.168.1.67 -p
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 92.

Usage: ./server [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
  -H, --hash <hash>         Hashed password to crack (required)

Optional options:
  -w, --work-size <num>     Number of passwords assigned per node request
                             (default: 1000)
  -c, --checkpoint <num>    Number of attempts before a node sends a checkpoint
                             (default: work-size / 4)
  -t, --timeout <num>       Seconds to wait for a checkpoint from a client
                             (default: 600)
  -h, --help                Display this help message and exit

Examples:
  ./server --server 192.168.1.10 --port 5000 --hash $6$... --work-size 1000
  ./server -s example.com -p 5000 -H <hash> -c 500 -t 300

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If work-size is omitted it defaults to 1000.
  • If checkpoint is omitted it defaults to work-size / 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR Unknown option '-p'.
In file command_line.c in function parse_arguments on line 138
TRACE: STATE_CLEANUP
Entered state at line 234.
```

Test 13

```
…/server/build main ● ❯ ./server -s 192.168.1.67 -p 34000
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 92.

TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 104.

Usage: ./server [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
  -H, --hash <hash>         Hashed password to crack (required)

Optional options:
  -w, --work-size <num>     Number of passwords assigned per node request
                             (default: 1000)
  -c, --checkpoint <num>    Number of attempts before a node sends a checkpoint
                             (default: work-size / 4)
  -t, --timeout <num>       Seconds to wait for a checkpoint from a client
                             (default: 600)
  -h, --help                Display this help message and exit

Examples:
  ./server --server 192.168.1.10 --port 5000 --hash $6$... --work-size 1000
  ./server -s example.com -p 5000 -H <hash> -c 500 -t 300

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If work-size is omitted it defaults to 1000.
  • If checkpoint is omitted it defaults to work-size / 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR The Hash is required!
In file command_line.c in function handle_arguments on line 209
TRACE: STATE_CLEANUP
Entered state at line 234.
```

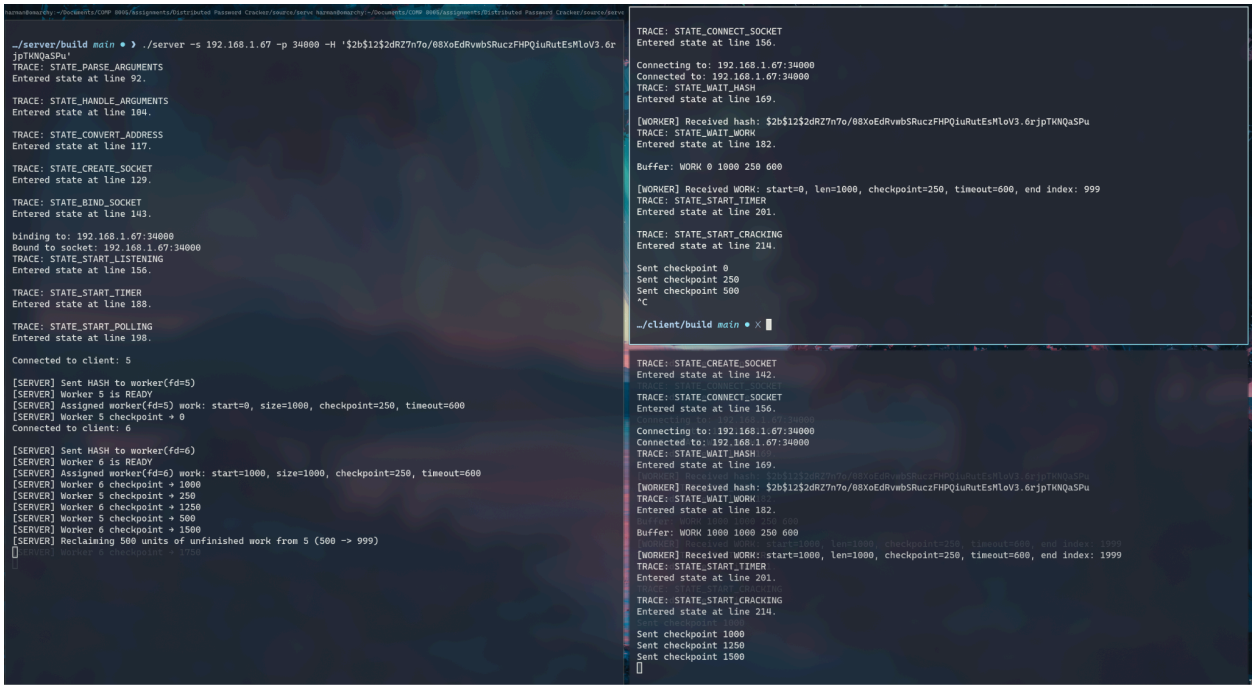
Test 14

```
…/server/build main ● ❯ ./server -s 192.168.1.67 -p 34000 -H
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 92.

Usage: ./server [OPTIONS]

Required options:
  -s, --server <addr>       Server IP address or hostname (required)
  -p, --port <num>          Server listen port (required)
  -H, --hash <hash>         Hashed password to crack (required)

Optional options:
  -w, --work-size <num>     Number of passwords assigned per node request
                             (default: 1000)
  -c, --checkpoint <num>    Number of attempts before a node sends a checkpoint
                             (default: work-size / 4)
  -t, --timeout <num>       Seconds to wait for a checkpoint from a client
                             (default: 600)
  -h, --help                Display this help message and exit

Examples:
  ./server --server 192.168.1.10 --port 5000 --hash $6$... --work-size 1000
  ./server -s example.com -p 5000 -H <hash> -c 500 -t 300

Notes:
  • Long and short forms may be used interchangeably (e.g. --port or -p).
  • If work-size is omitted it defaults to 1000.
  • If checkpoint is omitted it defaults to work-size / 4.
  • The program will validate numeric ranges (e.g. port must fit in uint16).
ERROR Unknown option '-H'.
In file command_line.c in function parse_arguments on line 138
TRACE: STATE_CLEANUP
Entered state at line 234.
```

Test 15

```
…/server/build main ● ❯ ./server -s 192.168.1.67 -p 34000 -H '$2b$12$cNPD3sslWWNg2BkhS4eSD.KTC.6Y878H6MMHkbceIGN
KcYV35nC8m'
TRACE: STATE_PARSE_ARGUMENTS
Entered state at line 92.

TRACE: STATE_HANDLE_ARGUMENTS
Entered state at line 104.

TRACE: STATE_CONVERT_ADDRESS
Entered state at line 117.

TRACE: STATE_CREATE_SOCKET
Entered state at line 129.

TRACE: STATE_BIND_SOCKET
Entered state at line 143.

binding to: 192.168.1.67:34000
Bound to socket: 192.168.1.67:34000
TRACE: STATE_START_LISTENING
Entered state at line 156.

TRACE: STATE_START_TIMER
Entered state at line 188.

TRACE: STATE_START_POLLING
Entered state at line 198.
```

Test 16



Test 17

Test 18