

The parsing options for the command line arguments are defined in the `hping_optlist` array in the `parseoptions.c` file.

This array is a list of struct `ago_optlist` objects, each of which represents a command line option. Each object in the array has a short option character, a long option string, an option ID, and a set of flags that specify whether the option requires an argument and whether it is disabled when the program is running with `setuid` privileges.

The options include but are not limited to:

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- 'c', "count", OPT_COUNT
- 'i', "interval", OPT_INTERVAL
- 'n', "numeric", OPT_NUMERIC
- 'q', "quiet", OPT_QUIET
- 'I', "interface", OPT_INTERFACE
- 'h', "help", OPT_HELP
- 'v', "version", OPT_VERSION
- 'p', "destport", OPT_DESTPORT
- 's', "baseport", OPT_BASEPORT
- 't', "ttl", OPT_TTL
- 'N', "id", OPT_ID
- 'w', "win", OPT_WIN
- 'a', "spooft", OPT_SPOOF
- 'F', "fin", OPT_FIN
- 'S', "syn", OPT_SYN
- 'R', "rst", OPT_RST
- 'P', "push", OPT_PUSH
- 'A', "ack", OPT_ACK
- 'U', "urg", OPT_URG
- 'X', "xmas", OPT_XMAS
- 'Y', "ymas", OPT_YMAS
- 'f', "frag", OPT_FRAG
- 'x', "morefrag", OPT_MOREFRAG
- 'y', "dontfrag", OPT_DONTFRAG
- 'g', "fragoff", OPT_FRAGOFF
- 'O', "tcpoff", OPT_TCPOFF
- 'r', "rel", OPT_REL
- 'd', "data", OPT_DATA
- '0', "rawip", OPT_RAWIP
- '1', "icmp", OPT_ICMP
- '2', "udp", OPT_UDP
- '8', "scan", OPT_SCAN
- 'z', "bind", OPT_BIND
- 'Z', "unbind", OPT_UNBIND

- 'D', "debug", OPT_DEBUG
- 'V', "verbose", OPT_VERBOSE
- 'W', "winid", OPT_WINID
- 'k', "keep", OPT_KEEP
- 'E', "file", OPT_FILE
- 'j', "dump", OPT_DUMP
- 'J', "print", OPT_PRINT
- 'e', "sign", OPT_SIGN
- '9', "listen", OPT_LISTEN
- 'B', "safe", OPT_SAFE
- 'T', "traceroute", OPT_TRACEROUTE
- 'o', "tos", OPT_TOS
- 'm', "mtu", OPT_MTU
- 'Q', "seqnum", OPT_SEQNUM
- 'b', "badcksum", OPT_BADCKSUM
- 'M', "setseq", OPT_SETSEQ
- 'L', "setack", OPT_SETACK
- 'C', "icmptype", OPT_ICMPTYPE
- 'K', "icmpcode", OPT_ICMPCODE
- 'u', "end", OPT_END
- 'G', "rroute", OPT_RROUTE
- 'H', "ipproto", OPT_IPPROTO
- '\0', "icmp-help", OPT_ICMP_HELP
- '\0', "icmp-ipver", OPT_ICMP_IPVER
- '\0', "icmp-iphlen", OPT_ICMP_IPHLEN
- '\0', "icmp-iplen", OPT_ICMP_IPLLEN
- '\0', "icmp-ipid", OPT_ICMP_IPID
- '\0', "icmp-ipproto", OPT_ICMP_IPPROTO
- '\0', "icmp-cksum", OPT_ICMP_CKSUM
- '\0', "icmp-ts", OPT_ICMP_TS
- '\0', "icmp-addr", OPT_ICMP_ADDR
- '\0', "tcpexitcode", OPT_TCPEXITCODE
- '\0', "fast", OPT_FAST
- '\0', "faster", OPT_FASTER
- '\0', "tr-keep-ttl", OPT_TR_KEEP_TTL
- '\0', "tcp-timestamp", OPT_TCP_TIMESTAMP
- '\0', "tr-stop", OPT_TR_STOP
- '\0', "tr-no-rtt", OPT_TR_NO_RTT
- '\0', "rand-dest", OPT_RAND_DEST
- '\0', "rand-source", OPT_RAND_SOURCE
- '\0', "lsrr", OPT_LSRR
- '\0', "ssrr", OPT_SSRR
- '\0', "route-help", OPT_ROUTE_HELP
- '\0', "apd-send", OPT_APD_SEND

- '\0', "icmp-ipsrc", OPT_ICMP_IPSRC
- '\0', "icmp-ipdst", OPT_ICMP_IPDST
- '\0', "icmp-gw", OPT_ICMP_GW
- '\0', "icmp-srcport", OPT_ICMP_SRCPORT
- '\0', "icmp-dstport", OPT_ICMP_DSTPORT
- '\0', "force-icmp", OPT_FORCE_ICMP
- '\0', "beep", OPT_BEEP
- '\0', "flood", OPT_FLOOD
- '\0', "clock-skew", OPT_CLOCK_SKEW
- '\0', "clock-skew-win", OPT_CS_WINDOW
- '\0', "clock-skew-win-shift", OPT_CS_WINDOW_SHIFT
- '\0', "clock-skew-packets-per-sample", OPT_CS_VECTOR_LEN

The `parse_options` function is the main function in this file. It uses the `antigetopt` library to parse the command-line arguments according to the options defined in `hping_optlist`. For each option it recognizes, it sets the corresponding global variable or flag to the value provided by the user. In `main.c` file: Lines 199-203 parse the command line options. If no host argument is provided, the program prints an error message and exits. The `parse_options` function uses a switch-case structure to handle each possible command-line option. For each option, it performs the necessary actions, such as setting variables, copying strings, or calling other functions. Here are some examples:

For the `OPT_DESTPORT` option, it checks if the argument starts with a '+'. If it does, it sets `opt_incdport` to `TRUE` and increments the argument pointer. It then checks again for a '+', and if it finds one, it sets `opt_force_incdport` to `TRUE` and increments the argument pointer again.

Finally, it converts the argument to a long integer and stores it in `base_dst_port` and `dst_port`. For the `OPT_BASEPORT` option, it converts the argument to a long integer and stores it in `initsport`.

For the `OPT_TTL` option, it converts the argument to a long integer, stores it in `src_ttl`, and sets `src_ttl_set` to 1.

For the `OPT_SPOOF` option, it copies the argument to `spoofaddr`.

For the `OPT_FIN`, `OPT_SYN`, `OPT_RST`, `OPT_PUSH`, `OPT_ACK`, `OPT_URG`, `OPT_XMAS`, and `OPT_YMAS` options, it sets the corresponding bit in `tcp_th_flags`.

For the `OPT_FRAG`, `OPT_MOREFRAG`, `OPT_DONTFRAG`, `OPT_REL`, `OPT_RAWIP`, `OPT_ICMP`, `OPT_ICMP_TS`, `OPT_ICMP_ADDR`, `OPT_UDP`, `OPT_SCAN`, `OPT_LISTEN`, `OPT_ICMP`, `OPT_BIND`, `OPT_UNBIND`, `OPT_DEBUG`, `OPT_VERBOSE`, `OPT_WINID`, `OPT_KEEP`, `OPT_FILE`, `OPT_DUMP`, `OPT_PRINT`, `OPT_SIGN`, `OPT_SAFE`, and `OPT_END` options, it sets the corresponding option variable to `TRUE`.

For the `OPT_FRAGOFF`, `OPT_TCPOFF`, `OPT_DATA`, `OPT_IPPROTO`, `OPT_ICMPTYPE`, and `OPT_ICMPCODE` options, it converts the argument to a long integer and stores it in the corresponding variable.

For the `OPT_SCAN` option, it sets `opt_scanmode` to `TRUE` and duplicates the argument string to `opt_scanports`.

For the OPT_LISTEN and OPT_SIGN options, it sets the corresponding option variable to TRUE, copies the argument to sign, and sets signlen to the length of the argument.