GDB Tutorial

Starting GDB:

- gdb *name-of-executable*
- gdb -e *name-of-executable* -c *name-of-core-file*
- gdb *name-of-executable* --pid=*process-id*
- For attaching gdb to a running process, use 'ps aux | grep *process-name* ' to find the process id.

GDB Commands:

Command	Command Description
help	List gdb command topics
help *command*	Gives the description of the command.
info args	List program command line arguments.
info breakpoints	List breakpoints
info registers	List the value of the registers
info threads	List threads in use

Break Commands:

Command	Command Description
break *function-name* break *line-number*	Suspend program at specified function/line
break *filename:line-number*	Specify filename and line number. break Directoy/Path/filename.cpp:62
break *address	Suspend processing at an instruction address
tbreak	Break only once. See break for options
clear	Delete the breakpoints. See break for options.
continue	Continue executing till the next break-point.
finish	Continue to the end of the function.

Line Execution::

Command	Command Description

step step *number-of-lines*	Step to the next line of code. Will step into the function.
next	Step to the next line of code. Will not step into the function.
break *address	Suspend processing at an instruction address
where	Shows current line number and which function you are in.

Stack:

Command	Command Description
backtrace	Shows trace of where you are currently, which functions you are in and prints stack backtrace.
backtrace full	Print values of local variables.
frame	Shows current stack frame
Info frame	List address, language, address of arguments/local variables and which registers were saved in frame.

Machine Language:

Command	Command Description
info line number	Display position in object-code for specified line in source.
disassemble *function-name* disassemble *0xstart 0xend*	Displays machine code for positions specified.
stepi/si nexti/ni	Step/Next Processor/Assembly instruction
x *0xaddress* x/nfu *0xaddress*	Examine the contents of the address. Examine the contents of the address with formatting n: number of items to print f: specify the format for the output u: specify the size of the data unit(eg. byte, word, ..)

Examine Variables::

Command	Command Description
print *variable-name*	Prints the value stored in the variable.

p *filename:variable-name*	

GDB Modes:

Command	Command Description
set *gdb-option value*	Set a GDB option
set *follow-fork-mode child*	Starts debugging the child process created.
set *logging on*	Turn on/off logging. Default name of file is gdb.txt

Start and Stop:

Command	Command Description
run	Start program execution from the beginning of the program.
continue	Continue the execution to the next break-point.
kill	Stop program execution.
quit	Quits GDB.

Reading Materials:

http://www.yolinux.com/TUTORIALS/GDB-Commands.html