Debuggers

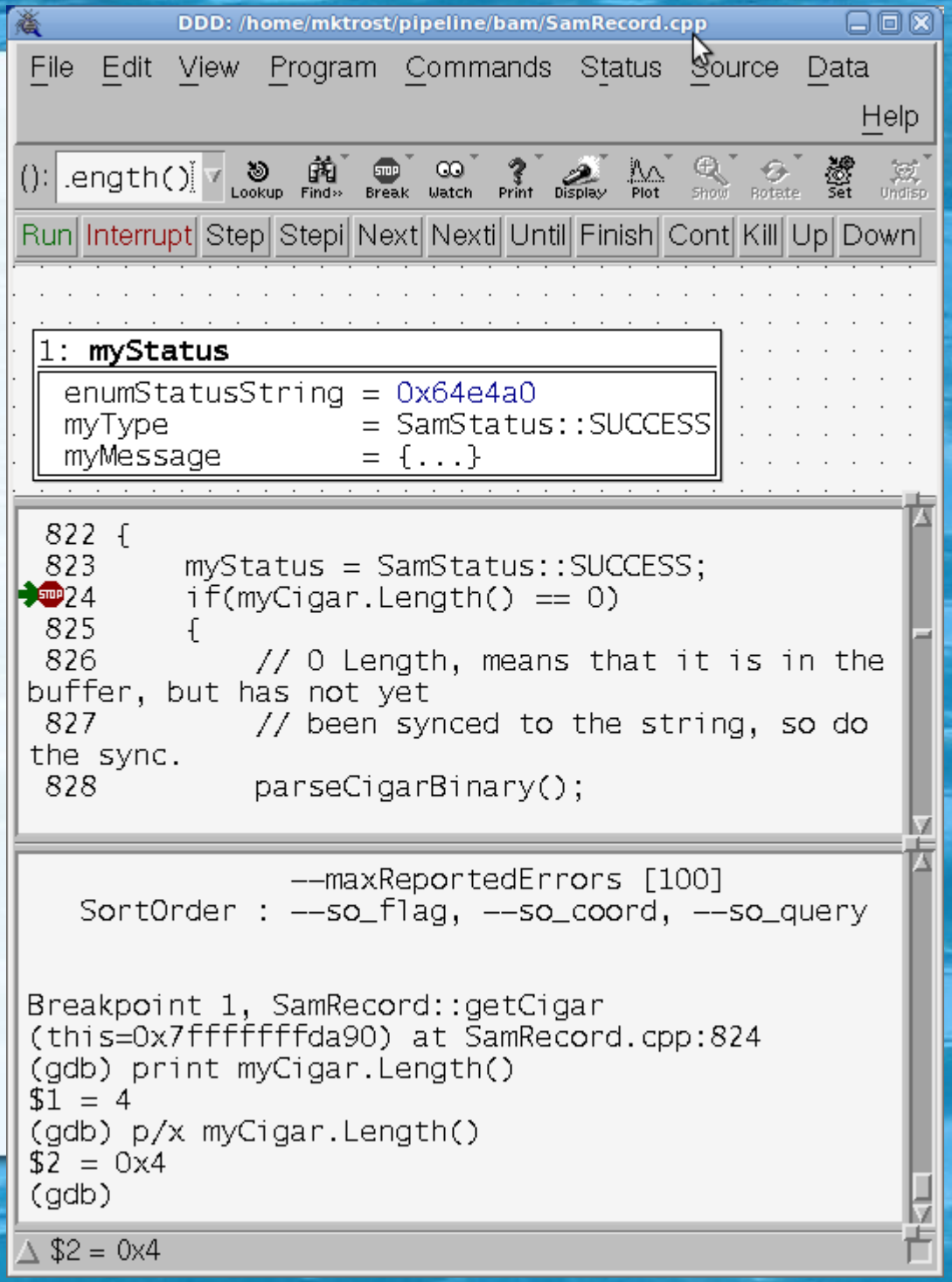
Mary Kate Trost

Debugger Advantages/Disadvantages

- Advantages
  - Single step through the code
  - Stop execution at a given point to investigate where it goes and what the values are
  - Attach to already running program
- Disadvantages
  - Not running real-time, so may not expose all problems

DDD

Deugging tools:
Run: start the program
Interreupt: stop the program from running
Step: Go into the function call (or go to next line of code)
Next: Go over a function call (execute it, but do not step into it)
Finish: Continue execution until the end of the current method
Cont: Continue execution until the next breakpoint or the end of the program is reached.
Kill: stop the program from running.



Basic How To Use

- Bring up a file in the viewer:
  - l <filename>:<line#>
    - l SamRecord.cpp:1
  - l <class>::<method>
    - l SamRecord::getCigar
- Set a breakpoint
  - Use mouse right-click on the line number
    - Set Breakpoint (can set properties – break after hit X number of times, etc)
  - b <class>::<method>
- Attach to already running process
  - File->Attach to Process

Basic How To Use (cont)

- Run with options
  - On the command line (type run in place of your executable name):
    - run <options>
- Backtrace (see where you are in execution, look up/down the call stack):
  - Status->Backtrace
- See a variable's value:
  - Right click the variable in the source code window and click “Print” (or to keep it tracked, click “Display”)
  - On command line: p <variable>
    - In hex: p/x <variable>

Other Testing Advice

- Reduce test size from one that takes hours to one that is much quicker.
  - Reduce file sizes
  - Turn off unnecessary sections
- Write a set of automated tests that test the different cases so they can be re-run each time the library changes
- When you find a bug, write a test that exposes the bug (fails), fix the bug, rerun the test (succeeds)