Speare Code Editor
The Small Perl IDE
For Perl Development

Version 0.0.1
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Free, Lightweight, Open Source, Extendable Flexibility

Speare (http://www.sevenuc.com/en/speare.html) is an ultra lightweight code editor and a small IDE that has an efficient code navigation and call routines tracing ability, and has integrated debugging environment for C, C++ and Perl. It was originally developed to providing a native scripting language debugging environment that seamlessly integrated with C and C++. It not only has very concise user interface but also has a very flexible architecture to easily add a new programming language in it.

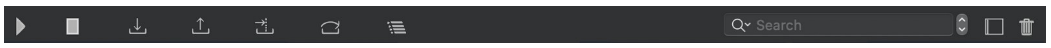
For general information of debugging C and C++ projects with Speare code editor, please refer this document:
http://www.sevenuc.com/download/Small_IDE_for_C_and_C++_development.pdf

Debug Perl Projects

1. Show the debug toolbar

Click main menu "Navigate" → "Toggle Output".

2. Debug toolbar



From left to right: Start, Stop, Step Into, Step Out, Run To/Continue, Step Over/Step Next, Show Watches. The command "Run To" tell the debugger run to meet a breakpoint or an exception occurred or the program exited. On the rightmost there are three other icons, they are, search items in the stackview, siding stackview, and clean debug output.

Search in the debug output

Click in the output area to let it got focus and use the shortcut key "Command + F" to do the searching.

3. Socket Port

You can set the socket communication port number both used by Debug Server and the editor. Open the Preferences of Speare and select the "Extra" panel and then input your number.

Note: Please remember to empty the port number when you switched to debugging with the default built-in programming languages with default port number.

4. Watches

Watch List: click debug toolbar "Show Watches" to manage watched variables and expressions, batches of watched items can be removed by multiple selection.

a. Whenever values of watched variables changed, debug session will pause at that point.
b. The values of evaluated expressions will be sent as a *"virtual stack node"* that paired the expression and its value together and representing as JSON key and value.

When watched variables and expressions display in stackview, their nodes normally has a different icon and text colour, and always placed on the top of stackview.

Add Watches:

a. Click debug toolbar "Show Watches".
b. Right click stackview and select menu item "Watch Variable".

Remove Watches:

a. Click debug toolbar "Show Watches".
b. Right click stackview and select menu item "Remove Watch".

5. Run Extra Commands

a. Click main menu "Debug" → "Send Debug Command".

b. Right click stackview and select menu item "Send Command". When send an extra debug command, the input box will prompt in stackview, so please click stackview to let it got focus before select menu item.

6. Show Stackview Item Values
Right click stackview and select menu item "View Value AS", variables can be configured to display as "Hex", "Decimal", "Octal", "UTF-8" and "Unicode" sequences.

Caution:
Please ensure all source files have been dragged in the left side Treeview (Workspace Explorer) before start a debug session, because macOS app can't be allowed to access files outside of its sandbox.

Startup Debugging Session

1. Launch a Terminal.app window or tab, and start Debug Server.
Note: *The content directly printed by the debugging program will be displayed in the terminal instead of in the debug "output view".*

2. Click ▷ start button on the "Debug toolbar" to start debugging session.

3. Continually click "Step Over" button several times on the "Debug toolbar" to ignore some initialising steps in debugging session until it reached the main entry point.

The Perl Debugger

The Perl debugger of Speare code editor implemented as a patched version of perl5db.pl, and support extend it by yourself. The debugger was based on the built-in debugger of Perl, so it can work with all versions of Perl interpreter that perl5db.pl supported.

Start Debugging Steps:

1. Download Speare Debug Server
http://sevenuc.com/download/perl_debugger.tar.gz (104KB)

The source code of the perl debugger can be directly customised to meet special requirements of your projects.

2. Uncompress the tarball
Uncompress it to your local directory. e.g ~/Desktop and take a look at the readme.txt in it.

3. Start the debug server

```
$ cd ~/Desktop/debugger
$ perl -I ~/Desktop/debugger/Speare -d:Debugger fullpath.pl
```
** Warning: fullpath.pl the file must input with full path.*

4. Debug session start
Click "Start" button on the debug toolbar of Speare code editor.
Add breakpoint, step in, step out, step next, watch stack trace ...

5. Run extra commands:
Right click in the stackview (bottom left side) and then input any Perl debug command when the debugging session paused. Left click anywhere outside of the input box to close it and the command will be directly send to the debug server.

a. Add function breakpoints
. b functionname: add a function breakpoint.

b. Add condition breakpoints
. via breakpoint marker: right click on the breakpoint, on the prompt menu, → select "Condition" and then input expression or use empty string to remove the condition, left click outside of the input box to close it and execute the command. e.g. x > 5 means: Pause on the breakpoint only if x > 5 is true.

. b fullpath.pl condition: e.g. b /xxx/xxx/code.pl 6 $x > 5.
/xxx/xxx/code.pl: fullpath of the script file. (do the same thing, optional)

c. Watchpoint operation
. w expr: add a watchpoint expr.
. W expr: delete watchpoint expr.
. W *: delete all watchpoints.
d. Evaluate express

. e expr: e.g. "e $x+$y".

e. Display variable value
. p $x: print value of variable x.
. p expr: print value of expression expr.
...

About Perl Programming language

Perl is always the hero in real programmers' heart. When the inherited languages failed to accomplish tasks, such as Python and Ruby, please invite Perl to do the hard works, it never let you down. In fact, there're so many mature and reliable modules on cpan provided for people to do challenge works.

Switch Perl Interpreter

You can directly switch the Perl interpreter on the command line or debugging with your own self-compiled version of Perl.

Extend Speare Code Editor for Perl Development

Speare Code Editor can be easily extended to support any type of Perl development including web applications that based on web frameworks or any kinds of command line tool or standalone Perl applications.

To add scripts to better support Perl debugging in Speare code editor, please download the guide document and following description int it.