



Speare Code Editor The Small Tcl IDE For Tcl Development

Copyright (C) 2020 Sevenuc Consulting

Version 0.0.1

Update: 4 Mar 2020

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 Tcl. 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++ extension for Tcl with Speare code editor, please refer this document:

<http://www.sevenuc.com/download/Small IDE for C and C++ development.pdf>

Debug Tcl 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 workspace 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 Tcl Debugger

The Tcl debugger of Speare code editor implemented with Tcl scripts and an extension written with C to parse Tcl source code, and support extend it by yourself. You can enjoy debugging almost all kinds of Tcl applications under the lightweight debugging environment of Speare code editor.

1. Download Speare Debug Server

http://sevenuc.com/download/tcl_debugger.tar.gz (223KB)

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

Please refer the readme.txt file.

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 ...

Modify the Tcl Debugger

The source code of the Tcl debugger can be directly customised to satisfy your requirements.

Switch Tcl Interpreter

You can directly switch the Tcl interpreter, e.g. Jim interpreter (<http://jim.tcl.tk/index.html/>), on the command line or debugging with your own self-compiled version of Tcl.

Extend Speare Code Editor for Tcl Development

Speare Code Editor can be easily extended to support any type of Tcl development including embedded system application development, Tcl/Tk desktop application development, web application development and any kinds of Tcl application.

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