

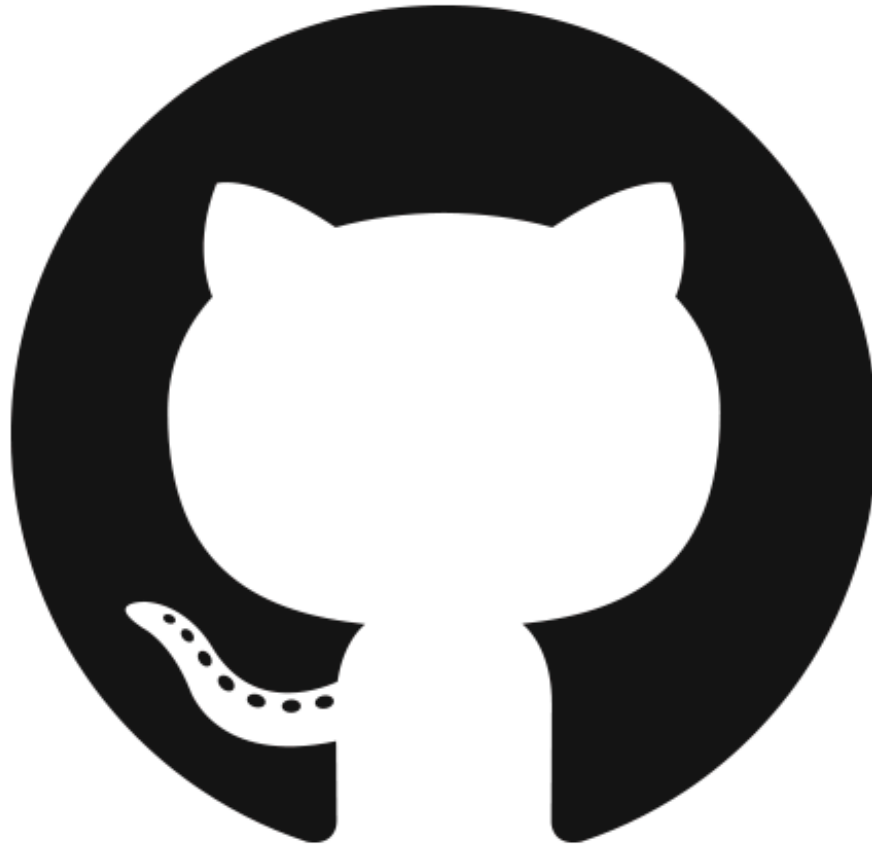


# Alternative Go Development Environment (Vim)

Building Forensics Tools in Go

DFRWS 2016

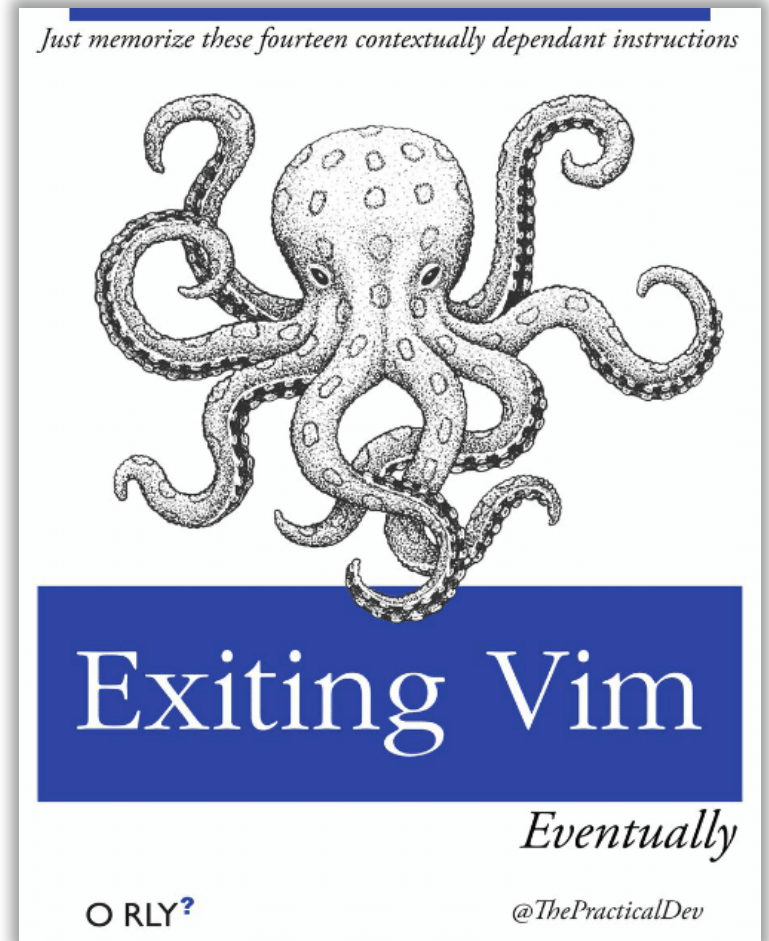
August 7, 2016



**Grab an Updated Copy of These Slides**

<https://github.com/jtsylve/slides>

Unless you're already a fan of Vim, these are probably not the slides you're looking for.



Our Suggested Development Environment:  
<https://goo.gl/WlneGr>

# Go

- Install Go
- Google has some pretty good documentation
  - <https://golang.org/doc/install>
- Make sure you test your installation
  - <https://golang.org/doc/install#testing>

# Go

- To install packages
  - Make sure the go binary is in your \$PATH
  - Make sure \$GOPATH is set
  - Open Command Prompt / Terminal
  - go get <package name>
- Go get uses VCS to download open source packages
  - Install git, svn, & mercurial to make your life easier

# Go

- Install Impl
  - `go get -u github.com/josharian/impl`
- Install go GoMetalinter
  - `go get -u github.com/alecthomas/gometalinter`
  - `gometalinter --install --update`

# VIM

- Text Editor on Steroids
- Free
  - No nag screens
  - Available for all platforms (already included in most \*nix and macOS systems)
- Extendable
  - Tons of additional features can be added
  - Plugins can be created in lots of different languages


# VIM

- Install VIM
  - <http://www.vim.org>
  - It's fairly straight forward, but if you need help
    - Mac
      - MacVim – <https://macvim-dev.github.io/macvim/>
      - brew install macvim --with-cscope --with-lua --override-system-vim
      - brew linkapps macvim
    - Debian/Ubuntu
      - sudo apt-get install vim-gtk
    - Redhat/Fedora
      - sudo yum install vim-enhanced vim-X11



# SPF13 VIM Distribution

- The Ultimate Vim Distribution
  - <http://vim.spf13.com>
- Pre-configured
  - Handy Plugins
  - Key Bindings
  - Code Folding
- Customizable



The screenshot shows a Vim editor window titled ".vimrc (~/.Code/spf13-vim) - VIM1". The editor displays the contents of the .vimrc file, which is a configuration file for Vim. The file is written in a dark theme with syntax highlighting. The content includes a header with the SPF13 logo and a personal note from Steve Francia. The file is organized into sections with fold markers, such as "21 lines: Environment", "66 lines: Bundles", "6 lines: Setting up the directories", "50 lines: Vim UI", "13 lines: Formatting", "80 lines: Key (re)Mappings", "202 lines: Plugins", "13 lines: GUI Settings", and "41 lines: Functions". The status bar at the bottom shows "N BR: 3.0 | .vimrc" and "unix | utf-8 | vim | 2% LN 15 C 4".

```
4 "
5 "
6 "
7 "
8 "
9 "
10 "
11 " This is the personal .vimrc file of Steve Francia.
12 " While much of it is beneficial for general use, I would
13 " recommend picking out the parts you want and understand.
14 "
15 " You can find me at http://spf13.com
16 "
17 "
18 ← 21 lines: Environment -----
19 "
20 "
21 "
22 "
23 "
24 "
25 "
26 "
27 "
28 "
29 "
30 "
31 "
32 "
33 "
34 "
35 "
36 "
37 "
38 "
39 "
40 ← 66 lines: Bundles -----
41 "
42 "
43 "
44 "
45 "
46 "
47 "
48 "
49 "
50 "
51 "
52 "
53 "
54 "
55 "
56 "
57 "
58 "
59 "
60 "
61 "
62 "
63 "
64 "
65 "
66 "
67 "
68 "
69 "
70 "
71 "
72 "
73 "
74 "
75 "
76 "
77 "
78 "
79 "
80 "
81 "
82 "
83 "
84 "
85 "
86 "
87 "
88 "
89 "
90 "
91 "
92 "
93 "
94 "
95 "
96 "
97 "
98 "
99 "
100 "
101 "
102 "
103 "
104 "
105 "
106 "
107 "
108 "
109 "
110 "
111 "
112 "
113 "
114 "
115 "
116 "
117 "
118 "
119 "
120 "
121 "
122 "
123 "
124 "
125 "
126 "
127 ← 6 lines: Setting up the directories -----
128 "
129 "
130 "
131 "
132 "
133 "
134 "
135 ← 50 lines: Vim UI -----
136 "
137 "
138 "
139 "
140 "
141 "
142 "
143 "
144 "
145 "
146 "
147 "
148 "
149 "
150 "
151 "
152 "
153 "
154 "
155 "
156 "
157 "
158 "
159 "
160 "
161 "
162 "
163 "
164 "
165 "
166 "
167 "
168 "
169 "
170 "
171 "
172 "
173 "
174 "
175 "
176 "
177 "
178 "
179 "
180 "
181 "
182 "
183 "
184 "
185 "
186 ← 13 lines: Formatting -----
187 "
188 "
189 "
190 "
191 "
192 "
193 "
194 "
195 "
196 "
197 "
198 "
199 "
200 ← 80 lines: Key (re)Mappings -----
201 "
202 "
203 "
204 "
205 "
206 "
207 "
208 "
209 "
210 "
211 "
212 "
213 "
214 "
215 "
216 "
217 "
218 "
219 "
220 "
221 "
222 "
223 "
224 "
225 "
226 "
227 "
228 "
229 "
230 "
231 "
232 "
233 "
234 "
235 "
236 "
237 "
238 "
239 "
240 "
241 "
242 "
243 "
244 "
245 "
246 "
247 "
248 "
249 "
250 "
251 "
252 "
253 "
254 "
255 "
256 "
257 "
258 "
259 "
260 "
261 "
262 "
263 "
264 "
265 "
266 "
267 "
268 "
269 "
270 "
271 "
272 "
273 "
274 "
275 "
276 "
277 "
278 "
279 "
280 "
281 "
282 "
283 "
284 "
285 "
286 "
287 "
288 "
289 "
290 "
291 "
292 "
293 "
294 "
295 "
296 "
297 "
298 "
299 "
300 "
301 "
302 "
303 "
304 "
305 "
306 "
307 "
308 "
309 "
310 "
311 "
312 "
313 "
314 "
315 "
316 "
317 "
318 "
319 "
320 "
321 "
322 "
323 "
324 "
325 "
326 "
327 "
328 "
329 "
330 "
331 "
332 "
333 "
334 "
335 "
336 "
337 "
338 "
339 "
340 "
341 "
342 "
343 "
344 "
345 "
346 "
347 "
348 "
349 "
350 "
351 "
352 "
353 "
354 "
355 "
356 "
357 "
358 "
359 "
360 "
361 "
362 "
363 "
364 "
365 "
366 "
367 "
368 "
369 "
370 "
371 "
372 "
373 "
374 "
375 "
376 "
377 "
378 "
379 "
380 "
381 "
382 "
383 "
384 "
385 "
386 "
387 "
388 "
389 "
390 "
391 "
392 "
393 "
394 "
395 "
396 "
397 "
398 "
399 "
400 "
401 "
402 "
403 "
404 "
405 "
406 "
407 "
408 "
409 "
410 "
411 "
412 "
413 "
414 "
415 "
416 "
417 "
418 "
419 "
420 "
421 "
422 "
423 "
424 "
425 "
426 "
427 "
428 "
429 "
430 "
431 "
432 "
433 "
434 "
435 "
436 "
437 "
438 "
439 "
440 "
441 "
442 "
443 "
444 "
445 "
446 "
447 "
448 "
449 "
450 "
451 "
452 "
453 "
454 "
455 "
456 "
457 "
458 "
459 "
460 "
461 "
462 "
463 "
464 "
465 "
466 "
467 "
468 "
469 "
470 "
471 "
472 "
473 "
474 "
475 "
476 "
477 "
478 "
479 "
480 "
481 "
482 "
483 "
484 ← 13 lines: GUI Settings -----
485 "
486 "
487 "
488 "
489 "
490 "
491 "
492 "
493 "
494 "
495 "
496 "
497 "
498 ← 41 lines: Functions -----
499 "
500 "
501 "
502 "
503 "
504 "
505 "
506 "
507 "
508 "
509 "
510 "
511 "
512 "
513 "
514 "
515 "
516 "
517 "
518 "
519 "
520 "
521 "
522 "
523 "
524 "
525 "
526 "
527 "
528 "
529 "
530 "
531 "
532 "
533 "
534 "
535 "
536 "
537 "
538 "
539 "
540 "
541 "
542 "
543 "
544 "
545 "
546 "
547 "
548 "
549 "
550 "
551 "
552 "
553 "
554 "
555 "
556 "
557 "
558 "
559 "
560 "
561 "
562 "
563 "
564 "
565 "
566 "
567 "
568 "
569 "
570 "
571 "
572 "
573 "
574 "
575 "
576 "
577 "
578 "
579 "
580 "
581 "
582 "
583 "
584 "
585 "
586 "
587 "
588 "
589 "
590 "
591 "
592 "
593 "
594 "
595 "
596 "
597 "
598 "
599 "
600 "
601 "
602 "
603 "
604 "
605 "
606 "
607 "
608 "
609 "
610 "
611 "
612 "
613 "
614 "
615 "
616 "
617 "
618 "
619 "
620 "
621 "
622 "
623 "
624 "
625 "
626 "
627 "
628 "
629 "
630 "
631 "
632 "
633 "
634 "
635 "
636 "
637 "
638 "
639 "
640 "
641 "
642 "
643 "
644 "
645 "
646 "
647 "
648 "
649 "
650 "
651 "
652 "
653 "
654 "
655 "
656 "
657 "
658 "
659 "
660 "
661 "
662 "
663 "
664 "
665 "
666 "
667 "
668 "
669 "
670 "
671 "
672 "
673 "
674 "
675 "
676 "
677 "
678 "
679 "
680 "
681 "
682 "
683 "
684 "
685 "
686 "
687 "
688 "
689 "
690 "
691 "
692 "
693 "
694 "
695 "
696 "
697 "
698 "
699 "
700 "
701 "
702 "
703 "
704 "
705 "
706 "
707 "
708 "
709 "
710 "
711 "
712 "
713 "
714 "
715 "
716 "
717 "
718 "
719 "
720 "
721 "
722 "
723 "
724 "
725 "
726 "
727 "
728 "
729 "
730 "
731 "
732 "
733 "
734 "
735 "
736 "
737 "
738 "
739 "
740 "
741 "
742 "
743 "
744 "
745 "
746 "
747 "
748 "
749 "
750 "
751 "
752 "
753 "
754 "
755 "
756 "
757 "
758 "
759 "
760 "
761 "
762 "
763 "
764 "
765 "
766 "
767 "
768 "
769 "
770 "
771 "
772 "
773 "
774 "
775 "
776 "
777 "
778 "
779 "
780 "
781 "
782 "
783 "
784 "
785 "
786 "
787 "
788 "
789 "
790 "
791 "
792 "
793 "
794 "
795 "
796 "
797 "
798 "
799 "
800 "
801 "
802 "
803 "
804 "
805 "
806 "
807 "
808 "
809 "
810 "
811 "
812 "
813 "
814 "
815 "
816 "
817 "
818 "
819 "
820 "
821 "
822 "
823 "
824 "
825 "
826 "
827 "
828 "
829 "
830 "
831 "
832 "
833 "
834 "
835 "
836 "
837 "
838 "
839 "
840 "
841 "
842 "
843 "
844 "
845 "
846 "
847 "
848 "
849 "
850 "
851 "
852 "
853 "
854 "
855 "
856 "
857 "
858 "
859 "
860 "
861 "
862 "
863 "
864 "
865 "
866 "
867 "
868 "
869 "
870 "
871 "
872 "
873 "
874 "
875 "
876 "
877 "
878 "
879 "
880 "
881 "
882 "
883 "
884 "
885 "
886 "
887 "
888 "
889 "
890 "
891 "
892 "
893 "
894 "
895 "
896 "
897 "
898 "
899 "
900 "
901 "
902 "
903 "
904 "
905 "
906 "
907 "
908 "
909 "
910 "
911 "
912 "
913 "
914 "
915 "
916 "
917 "
918 "
919 "
920 "
921 "
922 "
923 "
924 "
925 "
926 "
927 "
928 "
929 "
930 "
931 "
932 "
933 "
934 "
935 "
936 "
937 "
938 "
939 "
940 "
941 "
942 "
943 "
944 "
945 "
946 "
947 "
948 "
949 "
950 "
951 "
952 "
953 "
954 "
955 "
956 "
957 "
958 "
959 "
960 "
961 "
962 "
963 "
964 "
965 "
966 "
967 "
968 "
969 "
970 "
971 "
972 "
973 "
974 "
975 "
976 "
977 "
978 "
979 "
980 "
981 "
982 "
983 "
984 "
985 "
986 "
987 "
988 "
989 "
990 "
991 "
992 "
993 "
994 "
995 "
996 "
997 "
998 "
999 "
1000 "
```

# SPF13 VIM Plugins

- Vundle
  - Plugin Manager
- NERDTree
  - File Navigation
- Syntastic
  - Integrated Syntax Checking
- Fugitive
  - Deep git integration
- Neocomplete
  - Autocompletion
- Ctrlp
  - Fuzzy file searching
- Surround
  - Manage all the “’[{}()]”’
- Vim-go
  - Go support for Vim

# SPF13 Go Configuration

- Not on by default, need to make changes
- `$HOME/.vimrc.before.local`
  - Add this line to configure plugin bundles:
    - `let g:spf13_bundle_groups=['general', 'writing', 'programming', 'neocomplete', 'html', 'go', 'misc',]`
  - Other options:
    - Autocomplete
      - `snipmate`, `youcompleteme`, `neocomplcache`
    - Languages
      - `php`, `python`, `javascript`, `scala`, `haskell`, `ruby`, `puppet`, `elixir`

# SPF13 Go Configuration

- `$HOME/.vimrc.bundles.local`
  - Add impl functionality to vim
  - Add the following content:
    - `If count(g:spf13_bundle_groups, 'go')`  
    `if executable('impl')`  
        `Bundle 'rhysd/vim-go-impl'`  
    `endif`  
    `endif`

# Install SPF13 Vim

- Installation Instructions
  - <http://vim.spf13.com/#install>
  - Mac / Linux
    - curl <http://j.mp/spf13-vim> -L -o - | sh
  - Windows
    - Follow the instructions.

# Go Features

- <leader>r
  - Run current code
- <leader>b
  - Build code
- <leader>t
  - Test code
- <leader>co
  - Display test coverage
- <leader>e
  - Rename object under cursor
- :GoImple <receiver>  
<interface>
  - Create stub implementation of interface
- :Errors
  - Run linters and show errors
- Default <leader> is “
  - ,r
  - ,b

# Note on Linters

- By default SPF13 Vim is configured to run
  - golint, govet, and errcheck
- To configure metalinter
  - Create `$HOME/.vimrc.local` with content:
    - `let g:syntastic_go_checkers = ['gometalinter']`
- To make linters run on save
  - Add to `$HOME/.vimrc.local`
    - `let g:syntastic_mode_map = {'mode': 'active', 'active_filetypes': ['go']}`

# Go Play!

- You should now be all set up
- If you're not familiar with Go yet take the tour
  - <https://tour.golang.org>



# Questions / Comments / Problems

- Joshua Barone, M.S.
  - [joshua.barone@gmail.com](mailto:joshua.barone@gmail.com)
  - @tygarsai

