Configuring Github Copilot in GNU Emacs

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Audience

Experienced Emacs users with at least some familiarity customizing your Emacs configuration.

Disclaimer

I'm not an Emacs developer. It's been my primary editor for 25+ years but I'm still reluctant (scared??) to change without a compelling reason. There's usually at least 5 ways to do anything in Emacs, I have no intention of learning or supporting them all.

What follows is a minimal configuration necessary to get Emacs working with a registered Github Copilot account. Especially if you have a complex customization already, your mileage may vary!

Roadmap

1. Configure the package installer `straight.el`,
2. Install `copilot-emacs` & `copilot-chat`,
3. Initial setup and login,
4. Simple usage.

Warning: Back up any pre-existing configuration first!!

```
# save your config files and directory:
$ cp ~/.emacs ~/.emacs.pre-copilot
$ cp -r ~/.emacs.d/ ~/.emacs.d.pre-copilot/
```

Roadmap

1. Configure the package installer `straight.el`,
2. Install `copilot-emacs` & `copilot-chat`,
3. Initial setup and login,
4. Simple usage.

Quickstart for the impatient:

```
# configuration for steps (1) & (2):
$ cat ~benkirk/dot.emacs-copilot >> ~/.emacs

# This will take a couple minutes to configure
# the new packages
$ emacs
  M-x copilot-install-server
  M-x copilot-login
```

`straight.el`: Installs Emacs packages from `git` repositories

- We will use **`straight.el`** as our base package manager for installing **`copilot-emacs`** & **`copilot-chat`**
  - Other installation methods for these tools are available, but this is the one I got working first.
- See the **`straight.el`** **getting started** page

- Dependencies:
  - **`git`**, Emacs ≥25.1

`~/.emacs` snippet:

```
;-----------------------------------------------
; 1: boostrap straight.el
; https://github.com/radian-software/straight.el#getting-started
(defvar bootstrap-version)
(let ((bootstrap-file
       (expand-file-name
        "straight/repos/straight.el/bootstrap.el"
        (or (bound-and-true-p straight-base-dir)
            user-emacs-directory)))
      (bootstrap-version 7))
  (unless (file-exists-p bootstrap-file)
    (with-current-buffer
        (url-retrieve-synchronously
         "https://raw.githubusercontent.com/radian-software/straight.el/develop/install.el"
         'silent 'inhibit-cookies)
      (goto-char (point-max))
      (eval-print-last-sexp)))
  (load bootstrap-file nil 'nomessage))
(setq package-enable-at-startup nil)
```

copilot-emacs & copilot-chat

- **copilot-emacs**: autocomplete on steroids.
- **copilot-chat**: Emacs / ChatGPT-style integration.
- Dependencies:
  - **straight.el**, Emacs ≥27, **node.js**, **npm**

~/.emacs snippet:

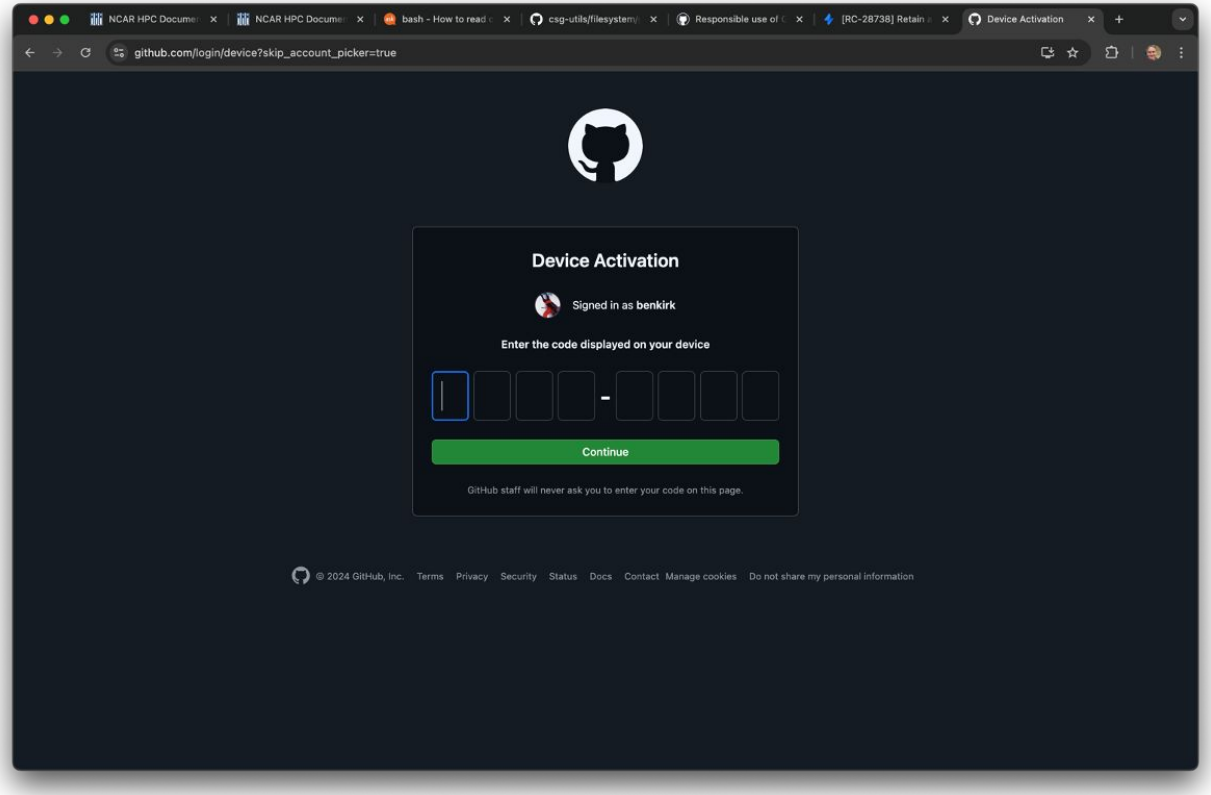
```
;----------------------------------------------
; 2: copilot-emacs
; https://github.com/copilot-emacs/copilot.el#installation
(use-package copilot
  :straight (:host github :repo "copilot-emacs/copilot.el" :files ("*.el"))
  :ensure t)
(require 'copilot)


;----------------------------------------------
; 3: copilot-chat
; https://github.com/chep/copilot-chat.el
(use-package copilot-chat
  :straight (:host github :repo "chep/copilot-chat.el" :files ("*.el"))
  :after (request))
```

Final Setup

1. Launch emacs,
   - After importing the previous config, this will take 1-2 minutes for first-time setup tasks

2. (once) Run
   - **`M-x copilot-install-server`**
   - **`M-x copilot-login`**
   - Navigate to `https://github.com/login/device` in a browser and enter the access code shown.
3. **`M-x copilot-mode`** to enable in a buffer



Demo

Common Functions

`copilot-mode`	Enables copilot-emacs auto completion for the current buffer.

`copilot-next-completion`
`copilot-accept-completion`
`[...]`
	Cycle through autocomplete options, etc…
	
	see https://robert.kra.hn/posts/2023-02-22-copilot-emacs-setup for customizing key bindings

`copilot-chat-explain`
`copilot-chat-fix`
`copilot-chat-review`
`copilot-chat-doc`
`copilot-chat-optimize`
`copilot-chat-test`
	For the selected code, ask Copilot to explain / fix / review etc…

`copilot-chat-display`
`copilot-chat-prompt`
`copilot-chat-prompt-send`
	Access a “prompt buffer” directly and send its contents as a query to Copilot

My General Impressions

Ben's overly-opinionated impressions:

- I personally don't much care for the autocomplete. I have used the built-in completion for years and find that sufficient - and works great offline too.
- I find the **`copilot-chat-{review,doc,explain,test}`** functions useful, so long as you have a healthy skepticism for the output.
- I do like **`copilot-chat-display`** simply because it allows me to stay in the editor vs. bouncing around to a web browser (and associated distractions).

Startup can be slower, so it's good to know about **`emacs -Q`** for rapid editing.

This same setup works on my Mac, which is typically where I run my editor for involved sessions.

- I find this gives me a better GUI experience.
- I use **TRAMP mode** for editing files remotely through a **`ssh`** connection.
- Let me know if this sounds interesting to you, but that's another talk.

Additional Resources

Required ~/.emacs configuration

```
;----------------------------------------------
; 1: boostrap straight.el
; https://github.com/radian-software/straight.el#getting-started
(defvar bootstrap-version)
(let ((bootstrap-file
       (expand-file-name
        "straight/repos/straight.el/bootstrap.el"
        (or (bound-and-true-p straight-base-dir)
            user-emacs-directory)))
      (bootstrap-version 7))
  (unless (file-exists-p bootstrap-file)
    (with-current-buffer
        (url-retrieve-synchronously
         "https://raw.githubusercontent.com/radian-software/straight.el/develop/install.el"
         'silent 'inhibit-cookies)
      (goto-char (point-max))
      (eval-print-last-sexp)))
  (load bootstrap-file nil 'nomessage))
(setq package-enable-at-startup nil)

;----------------------------------------------
; 2: copilot-emacs
; https://github.com/copilot-emacs/copilot.el#installation
(use-package copilot
  :straight (:host github :repo "copilot-emacs/copilot.el" :files ("*.el"))
  :ensure t)
(require 'copilot)

;----------------------------------------------
; 3: copilot-chat
; https://github.com/chep/copilot-chat.el
(use-package copilot-chat
  :straight (:host github :repo "chep/copilot-chat.el" :files ("*.el"))
  :after (request))
```

Copilot-aware Functions and Custom Key Bindings

```
*Completions*
 :straight (:host github :repo "copilot-emacs/copilot.el" :files ("*.el"))
 :ensure t)
(require 'copilot)
U:---  mac.emacs     74%   L98   Git:master  (Lisp +1) [71%]
 :ensure t)
(require 'copilot)

; https://robert.kra.hn/posts/2023-02-22-copilot-emacs-setup/
(defun rk/copilot-complete-or-accept ()
  "Command that either triggers a completion or accepts one if one
is available."
  (interactive)
  (if (copilot--overlay-visible)
      (progn
        (copilot-accept-completion)
        (open-line 1)
        (next-line))
    (copilot-complete)))

(define-key copilot-mode-map (kbd "M-C-<next>") #'copilot-next-completion)
(define-key copilot-mode-map (kbd "M-C-<prior>") #'copilot-previous-completion)
(define-key copilot-mode-map (kbd "M-C-<right>") #'copilot-accept-completion-by-word)
(define-key copilot-mode-map (kbd "M-C-<down>") #'copilot-accept-completion-by-line)
(define-key copilot-mode-map (kbd "M-<tab>") #'copilot-accept-completion)
(define-key global-map (kbd "M-C-<return>") #'rk/copilot-complete-or-accept)


;---------------------------------------------------
; https://github.com/chep/copilot-chat.el
(use-package copilot-chat
  :straight (:host github :repo "chep/copilot-chat.el" :files ("*.el"))
  :after (request))


;; Local Variables:
U:---  mac.emacs     76%   L101  Git:master  (Lisp +1) [71%]
In this buffer, type RET to select the completion near point.

41 possible completions:
copilot-accept-completion            copilot-accept-completion-by-line    copilot-accept-completion-by-paragraph
copilot-accept-completion-by-word    copilot-chat                         copilot-chat-add-current-buffer
copilot-chat-ask-and-insert          copilot-chat-custom-prompt-selection copilot-chat-del-current-buffer
copilot-chat-display                 copilot-chat-doc                     copilot-chat-explain
copilot-chat-fix                     copilot-chat-list                    copilot-chat-list-add-or-remove-buffer
copilot-chat-list-clear-buffers      copilot-chat-list-mode               copilot-chat-list-refresh
copilot-chat-mode                    copilot-chat-optimize                copilot-chat-prompt
copilot-chat-prompt-history-next     copilot-chat-prompt-history-previous copilot-chat-prompt-mode
copilot-chat-prompt-send             copilot-chat-prompt-split-and-list   copilot-chat-reset
copilot-chat-review                  copilot-chat-test                    copilot-clear-overlay
copilot-complete                     copilot-diagnose                     copilot-install-server
copilot-login                        copilot-logout                       copilot-mode
copilot-next-completion              copilot-panel-complete               copilot-previous-completion
copilot-reinstall-server             copilot-uninstall-server
U:%*-  *Completions*   Bot   L14    (Completion List +1) [71%]
M-x copilot-
```