

Creating GitHub CLI extensions

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Learn how to share new GitHub CLI commands with other users by creating custom extensions for GitHub CLI.

About GitHub CLI extensions [↗](#)

GitHub CLI extensions are custom GitHub CLI commands that anyone can create and use. For more information about how to use GitHub CLI extensions, see "[Using GitHub CLI extensions](#)."

You need a repository for each extension that you create. The repository name must start with `gh-`. The rest of the repository name is the name of the extension. The repository must have an executable file at its root with the same name as the repository or a set of precompiled binary executables attached to a release.

Note: When relying on an executable script, we recommend using a bash script because bash is a widely available interpreter. You may use non-bash scripts, but the user must have the necessary interpreter installed in order to use the extension. If you would prefer to not rely on users having interpreters installed, consider a precompiled extension.

Creating an interpreted extension with `gh extension create` [↗](#)

Note: Running `gh extension create` with no arguments will start an interactive wizard.

You can use the `gh extension create` command to create a project for your extension, including a bash script that contains some starter code.

- 1 Set up a new extension by using the `gh extension create` subcommand. Replace `EXTENSION-NAME` with the name of your extension.

```
gh extension create EXTENSION-NAME
```

- 2 Follow the printed instructions to finalize and optionally publish your extension.

Creating a precompiled extension in Go with `gh extension create` [↗](#)

You can use the `--precompiled=go` argument to create a Go-based project for your extension, including Go scaffolding, workflow scaffolding, and starter code.

- 1 Set up a new extension by using the `gh extension create` subcommand. Replace `EXTENSION-NAME` with the name of your extension and specify `--precompiled=go`.

```
gh extension create --precompiled=go EXTENSION-NAME
```

- 2 Follow the printed instructions to finalize and optionally publish your extension.

Creating a non-Go precompiled extension with `gh extension create` [↗](#)

You can use the `--precompiled=other` argument to create a project for your non-Go precompiled extension, including workflow scaffolding.

- 1 Set up a new extension by using the `gh extension create` subcommand. Replace `EXTENSION-NAME` with the name of your extension and specify `--precompiled=other`.

```
gh extension create --precompiled=other EXTENSION-NAME
```

- 2 Add some initial code for your extension in your compiled language of choice.
- 3 Fill in `script/build.sh` with code to build your extension to ensure that your extension can be built automatically.
- 4 Follow the printed instructions to finalize and optionally publish your extension.

Creating an interpreted extension manually [↗](#)

- 1 Create a local directory called `gh-EXTENSION-NAME` for your extension. Replace `EXTENSION-NAME` with the name of your extension. For example, `gh-whoami`.
- 2 In the directory that you created, add an executable file with the same name as the directory.

Note: Make sure that your file is executable. On Unix, you can execute `chmod +x file_name` in the command line to make `file_name` executable. On Windows, you can run `git init -b main`, `git add file_name`, then `git update-index --chmod=+x file_name`.

- 3 Write your script in the executable file. For example:

```
#!/usr/bin/env bash
set -e
exec gh api user --jq '"You are @\(.login) (\(.name))."'
```

- 4 From your directory, install the extension as a local extension.

```
gh extension install .
```

- 5 Verify that your extension works. Replace `EXTENSION-NAME` with the name of your extension. For example, `whoami`.

```
gh EXTENSION-NAME
```

- 6 From your directory, create a repository to publish your extension. Replace `EXTENSION-NAME` with the name of your extension.

```
git init -b main
git add . && git commit -m "initial commit"
gh repo create gh-EXTENSION-NAME --source=. --public --push
```

- 7 Optionally, to help other users discover your extension, add the repository topic `gh-extension`. This will make the extension appear on the [gh-extension topic page](#). For more information about how to add a repository topic, see "[Classifying your repository with topics](#)."

Tips for writing interpreted GitHub CLI extensions

Handling arguments and flags

All command line arguments following a `gh my-extension-name` command will be passed to the extension script. In a bash script, you can reference arguments with `$1`, `$2`, etc. You can use arguments to take user input or to modify the behavior of the script.

For example, this script handles multiple flags. When the script is called with the `-h` or `--help` flag, the script prints help text instead of continuing execution. When the script is called with the `--name` flag, the script sets the next value after the flag to `name_arg`. When the script is called with the `--verbose` flag, the script prints a different greeting.

```
#!/usr/bin/env bash
set -e

verbose=""
name_arg=""
while [ $# -gt 0 ]; do
  case "$1" in
    --verbose)
      verbose=1
      ;;
    --name)
      name_arg="$2"
      shift
      ;;
    -h|--help)
      echo "Add help text here."
      exit 0
      ;;
    esac
  shift
done
```

```
if [ -z "$name_arg" ]
then
    echo "You haven't told us your name."
elif [ -z "$verbose" ]
then
    echo "Hi $name_arg"
else
    echo "Hello and welcome, $name_arg"
fi
```

Calling core commands in non-interactive mode [↗](#)

Some GitHub CLI core commands will prompt the user for input. When scripting with those commands, a prompt is often undesirable. To avoid prompting, supply the necessary information explicitly via arguments.

For example, to create an issue programmatically, specify the title and body:

```
gh issue create --title "My Title" --body "Issue description"
```

Fetching data programmatically [↗](#)

Many core commands support the `--json` flag for fetching data programmatically. For example, to return a JSON object listing the number, title, and mergeability status of pull requests:

```
gh pr list --json number,title,mergeStateStatus
```

If there is not a core command to fetch specific data from GitHub, you can use the [gh api](#) command to access the GitHub API. For example, to fetch information about the current user:

```
gh api user
```

All commands that output JSON data also have options to filter that data into something more immediately usable by scripts. For example, to get the current user's name:

```
gh api user --jq '.name'
```

For more information, see [gh help formatting](#).

Creating a precompiled extension manually [↗](#)

- 1 Create a local directory called `gh-EXTENSION-NAME` for your extension. Replace `EXTENSION-NAME` with the name of your extension. For example, `gh-whoami`.
- 2 In the directory you created, add some source code. For example:

```
package main
import (
    "github.com/cli/go-gh"
    "fmt"
)

func main() {
    args := []string{"api", "user", "--jq", `"You are @\(.login) (\(.name))"`}
}
```

```

stdOut, _, err := gh.Exec(args...)
if err != nil {
    fmt.Println(err)
    return
}
fmt.Println(stdOut.String())
}

```

- 3 From your directory, install the extension as a local extension.

```
gh extension install .
```

- 4 Build your code. For example, with Go, replacing `YOUR-USERNAME` with your GitHub username:

```

go mod init github.com/YOUR-USERNAME/gh-whoami
go mod tidy
go build

```

- 5 Verify that your extension works. Replace `EXTENSION-NAME` with the name of your extension. For example, `whoami`.

```
gh EXTENSION-NAME
```

- 6 From your directory, create a repository to publish your extension. Replace `EXTENSION-NAME` with the name of your extension.

Note: Be careful not to commit the binary produced by your compilation step to version control.

```

git init -b main
echo "gh-EXTENSION-NAME" >> .gitignore
git add main.go go.* .gitignore && git commit -m 'Initial commit'
gh repo create "gh-EXTENSION-NAME"

```

- 7 Create a release to share your precompiled extension with others. Compile for each platform you want to support, attaching each binary to a release as an asset. Binary executables attached to releases must follow a naming convention and have a suffix of `OS-ARCHITECTURE[EXTENSION]`.

For example, an extension named `whoami` compiled for Windows 64bit would have the name `gh-whoami-windows-amd64.exe` while the same extension compiled for Linux 32bit would have the name `gh-whoami-linux-386`. To see an exhaustive list of OS and architecture combinations recognized by `gh`, see [this source code](#).

Note: For your extension to run properly on Windows, its asset file must have a `.exe` extension. No extension is needed for other operating systems.

Releases can be created from the command line. For example:

```

git tag v1.0.0
git push origin v1.0.0
GOOS=windows GOARCH=amd64 go build -o gh-EXTENSION-NAME-windows-amd64.exe
GOOS=linux GOARCH=amd64 go build -o gh-EXTENSION-NAME-linux-amd64
GOOS=darwin GOARCH=amd64 go build -o gh-EXTENSION-NAME-darwin-amd64

```

```
gh release create v1.0.0 ./amd64*
```

- 8 Optionally, to help other users discover your extension, add the repository topic `gh-extension`. This will make the extension appear on the [gh-extension topic page](#). For more information about how to add a repository topic, see "[Classifying your repository with topics](#)."

Tips for writing precompiled GitHub CLI extensions [↗](#)

Automating releases [↗](#)

Consider adding the [gh-extension-precompile](#) action to a workflow in your project. This action will automatically produce cross-compiled Go binaries for your extension and supplies build scaffolding for non-Go precompiled extensions.

Using GitHub CLI features from Go-based extensions [↗](#)

Consider using [go-gh](#), a Go library that exposes pieces of `gh` functionality for use in extensions.

Next steps [↗](#)

To see more examples of GitHub CLI extensions, look at [repositories with the gh-extension topic](#).

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