



This version of GitHub Enterprise was discontinued on 2023-03-15. No patch releases will be made, even for critical security issues. For better performance, improved security, and new features, <u>upgrade to the latest version of GitHub Enterprise</u>. For help with the upgrade, <u>contact GitHub Enterprise support</u>.

Extending GitHub Actions Importer with custom transformers

In this article

About custom transformers

Using custom transformers with GitHub Actions Importer

Creating custom transformers for items

Creating custom transformers for runners

Creating custom transformers for environment variables

Legal notice

GitHub Actions Importer offers the ability to extend its built-in mapping.

Legal notice

About custom transformers *₽*

GitHub Actions Importer offers the ability to extend its built-in mapping by creating custom transformers. Custom transformers can be used to:

- Convert items that GitHub Actions Importer does not automatically convert, or modify how items are converted. For more information, see "<u>Creating custom</u> <u>transformers for items</u>."
- Convert references to runners to use different runner labels. For more information, see "Creating custom transformers for runners."
- Convert environment variable values from your existing pipelines to GitHub Actions workflows. For more information, see "<u>Creating custom transformers for environment</u> variables."

Using custom transformers with GitHub Actions Importer @

A custom transformer contains mapping logic that GitHub Actions Importer can use to transform your plugins, tasks, runner labels, or environment variables to work with GitHub Actions. Custom transformers are written with a domain-specific language (DSL) built on top of Ruby, and are defined within a file with the .rb file extension.

You can use the --custom-transformers CLI option to specify which custom transformer files to use with the audit, dry-run, and migrate commands.

For example, if custom transformers are defined in a file named transformers.rb , you can use the following command to use them with GitHub Actions Importer:

```
gh actions-importer ... --custom-transformers transformers.rb
```

Alternatively, you can use the glob pattern syntax to specify multiple custom transformer files. For example, if multiple custom transformer files are within a directory named transformers, you can provide them all to GitHub Actions Importer with the following command:

```
gh actions-importer ... --custom-transformers transformers/*.rb
```

Note: When you use custom transformers, the custom transformer files must reside in the same directory, or in subdirectores, from where the <code>gh</code> actions-importer command is run.

Creating custom transformers for items &

You can create custom transformers that GitHub Actions Importer will use when converting existing build steps or triggers to their equivalent in GitHub Actions. This is especially useful when:

- GitHub Actions Importer doesn't automatically convert an item.
- You want to change how an item is converted by GitHub Actions Importer.
- Your existing pipelines use custom or proprietary extensions, such as shared libraries in Jenkins, and you need to define how these steps should function in GitHub Actions.

GitHub Actions Importer uses custom transformers that are defined using a DSL built on top of Ruby. In order to create custom transformers for build steps and triggers:

- Each custom transformer file must contain at least one transform method.
- Each transform method must return a Hash, an array of Hash's, or nil. This returned value will correspond to an action defined in YAML. For more information about actions, see "<u>Understanding GitHub Actions</u>."

Example custom transformer for a build step $\mathscr {D}$

The following example converts a build step that uses the "buildJavascriptApp" identifier to run various npm commands:

```
transform "buildJavascriptApp" do |item|
  command = ["build", "package", "deploy"].map do |script|
        "npm run #{script}"
  end

{
    name: "build javascript app",
    run: command.join("\n")
  }
end
```

The above example results in the following GitHub Actions workflow step. It is comprised of converted build steps that had a buildJavascriptApp identifier:

```
    name: build javascript app
    run: |
    npm run build
    npm run package
    npm run deploy
```

The transform method uses the identifier of the build step from your source CI/CD instance in an argument. In this example, the identifier is buildJavascriptLibrary . You can also use comma-separated values to pass multiple identifiers to the transform method. For example, transform "buildJavascriptApp", "buildTypescriptApp" { |item| ... } .

Note: The data structure of item will be different depending on the CI/CD platform and the type of item being converted.

Creating custom transformers for runners &

You can customize the mapping between runners in your source CI/CD instance and their equivalent GitHub Actions runners.

GitHub Actions Importer uses custom transformers that are defined using a DSL built on top of Ruby. To create custom transformers for runners:

- The custom transformer file must have at least one runner method.
- The runner method accepts two parameters. The first parameter is the source CI/CD instance's runner label, and the second parameter is the corresponding GitHub Actions runner label. For more information on GitHub Actions runners, see "About GitHub-hosted runners."

Example custom transformers for runners \mathscr{O}

The following example shows a runner method that converts one runner label to one GitHub Actions runner label in the resulting workflow.

```
Ruby

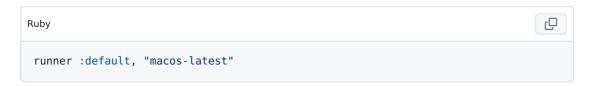
runner "linux", "ubuntu-latest"
```

You can also use the runner method to convert one runner label to multiple GitHub Actions runner labels in the resulting workflow.

```
Ruby

runner "big-agent", ["self-hosted", "xl", "linux"]
```

GitHub Actions Importer attempts to map the runner label as best it can. In cases where it cannot do this, the <code>ubuntu-latest</code> runner label is used as a default. You can use a special keyword with the <code>runner</code> method to control this default value. For example, the following custom transformer instructs GitHub Actions Importer to use <code>macos-latest</code> as the default runner instead of <code>ubuntu-latest</code>.



Creating custom transformers for environment variables $\mathscr P$

You can customize the mapping between environment variables in your source CI/CD pipelines to their values in GitHub Actions.

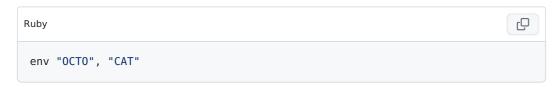
GitHub Actions Importer uses custom transformers that are defined using a DSL built on top of Ruby. To create custom transformers for environment variables:

- The custom transformer file must have at least one env method.
- The env method accepts two parameters. The first parameter is the name of the
 environment variable in the original pipeline, and the second parameter is the
 updated value for the environment variable for GitHub Actions. For more information
 about GitHub Actions environment variables, see "Variables."

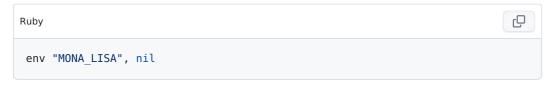
Example custom transformers for environment variables $\mathscr O$

There are several ways you can set up custom transformers to map your environment variables.

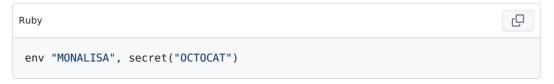
 The following example sets the value of any existing environment variables named 0CTO, to CAT when transforming a pipeline.



You can also remove all instances of a specific environment variable so they are not transformed to an GitHub Actions workflow. The following example removes all environment variables with the name MONA LISA.

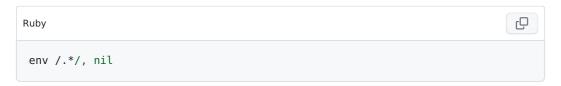


 You can also map your existing environment variables to secrets. For example, the following env method maps an environment variable named MONALISA to a secret named OCTOCAT.



This will set up a reference to a secret named <code>OCTOCAT</code> in the transformed workflow. For the secret to work, you will need to create the secret in your GitHub repository. For more information, see "Encrypted secrets."

 You can also use regular expressions to update the values of multiple environment variables at once. For example, the following custom transformer removes all environment variables from the converted workflow:



The following example uses a regular expression match group to transform environment variable values to dynamically generated secrets.



env /^(.+) SSH KEY/, secret("%s SSH KEY)

Note: The order in which env methods are defined matters when using regular expressions. The first env transformer that matches an environment variable name takes precedence over subsequent env methods. You should define your most specific environment variable transformers first.

Legal notice @

Portions have been adapted from https://github.com/github/gh-actions-importer/ under the MIT license:

MIT License

Copyright (c) 2022 GitHub

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Legal

© 2023 GitHub, Inc. <u>Terms</u> <u>Privacy</u> <u>Status</u> <u>Pricing</u> <u>Expert services</u> <u>Blog</u>