

# Creating custom deployment protection rules

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Use GitHub Apps to automate protecting deployments with third-party systems.

Custom deployment protection rules are available in public repositories for all plans. For access to custom deployment protection rules in private or internal repositories, you must use GitHub Enterprise. For more information, see "[GitHub's plans](#)."

**Note:** Custom deployment protection rules are currently in public beta and subject to change.

## About custom deployment protection rules

You can enable your own custom protection rules to gate deployments with third-party services. For example, you can use services such as Datadog, Honeycomb, and ServiceNow to provide automated approvals for deployments to GitHub.com.

Custom deployment protection rules are powered by GitHub Apps and run based on webhooks and callbacks. Approval or rejection of a workflow job is based on consumption of the `deployment_protection_rule` webhook. For more information, see "[Webhook events and payloads](#)" and "[Approving or rejecting deployments](#)."

Once you have created a custom deployment protection rule and installed it on your repository, the custom deployment protection rule will automatically be available for all environments in the repository.

## Using custom deployment protection rules to approve or reject deployments

Deployments to an environment can be approved or rejected based on the conditions defined in any external service like an approved ticket in an IT Service Management (ITSM) system, vulnerable scan result on dependencies, or stable health metrics of a cloud resource. The decision to approve or reject deployments is at the discretion of the integrating third-party application and the gating conditions you define in them. The following are a few use cases for which you can create a deployment protection rule.

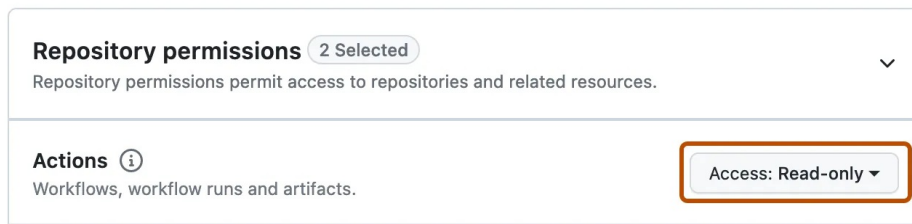
- ITSM & Security Operations: you can check for service readiness by validating quality, security, and compliance processes that verify deployment readiness.

- Observability systems: you can consult monitoring or observability systems (Asset Performance Management Systems and logging aggregators, cloud resource health verification systems, etc.) for verifying the safety and deployment readiness.
- Code quality & testing tools: you can check for automated tests on CI builds which need to be deployed to an environment.

Alternatively, you can write your own protection rules for any of the above use cases or you can define any custom logic to safely approve or reject deployments from pre-production to production environments.

## Creating a custom deployment protection rule with GitHub Apps

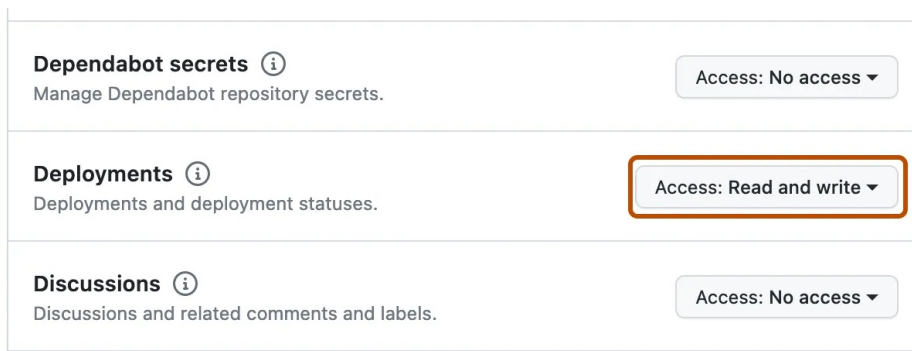
- 1 Create a GitHub App. For more information, see "[Registering a GitHub App](#)." Configure the GitHub App as follows.
  - a. Optionally, in the **Callback URL** text field under "Identifying and authorizing users," enter the callback URL. For more information, see "[About the user authorization callback URL](#)."
  - b. Under "Permissions," select **Repository permissions**.
  - c. To the right of "Actions," click the drop down menu and select **Access: Read-only**.



**Repository permissions** 2 Selected ▼  
Repository permissions permit access to repositories and related resources.

**Actions** ⓘ Access: Read-only ▼  
Workflows, workflow runs and artifacts.

- d. To the right of "Deployments," click the drop down menu and select **Access: Read and write**.



**Dependabot secrets** ⓘ Access: No access ▼  
Manage Dependabot repository secrets.

**Deployments** ⓘ Access: Read and write ▼  
Deployments and deployment statuses.

**Discussions** ⓘ Access: No access ▼  
Discussions and related comments and labels.

- e. Under "Subscribe to events," select **Deployment protection rule**.

## Subscribe to events

Based on the permissions you've selected, what events would you like to subscribe to?

☐ **Meta** ⓘ

When this App is deleted and the associated hook is removed.

☐ **Security advisory** ⓘ

Security advisory published, updated, or withdrawn.

☐ **Deploy key** ⓘ

A deploy key is created or deleted from a repository.

☐ **Deployment** ⓘ

Repository was deployed or a deployment was deleted.

☐ **Deployment protection rule** ⓘ

Deployment protection rule requested for an environment.

- 2 Install the custom deployment protection rule in your repositories and enable it for use. For more information, see "[Configuring custom deployment protection rules](#)."

## Approving or rejecting deployments [🔗](#)

Once a workflow reaches a job that references an environment that has the custom deployment protection rule enabled, GitHub sends a `POST` request to a URL you configure containing the `deployment_protection_rule` payload. You can write your deployment protection rule to automatically send REST API requests that approve or reject the deployment based on the `deployment_protection_rule` payload. Configure your REST API requests as follows.

- 1 Validate the incoming `POST` request. For more information, see "[Validating webhook deliveries](#)."
- 2 Use a JSON Web Token to authenticate as a GitHub App. For more information, see "[Authenticating as a GitHub App](#)."
- 3 Using the installation ID from the `deployment_protection_rule` webhook payload, generate an install token. For more information, see "[About authentication with a GitHub App](#)."

```
curl --request POST \
  --url
  "https://api.github.com/app/installations/INSTALLATION_ID/ACCESS_TOKENS" \
  --header "Accept: application/vnd.github+json" \
  --header "Authorization: Bearer {jwt}" \
  --header "Content-Type: application/json" \
  --data \
  '{ \
    "repository_ids": [321], \
    "permissions": { \
      "deployments": "write" \
    } \
  }'
```

- 4 Optionally, to add a status report without taking any other action to GitHub.com, send a `POST` request to `/repos/OWNER/REPO/actions/runs/RUN_ID/deployment_protection_rule`. In the request body, omit the `state`. For more information, see "[Workflow runs](#)." You can post a status report on the same deployment up to 10 times. Status reports support Markdown formatting and can be up to 1024 characters long.
- 5 To approve or reject a request, send a `POST` request to

`/repos/OWNER/REPO/actions/runs/RUN_ID/deployment_protection_rule` . In the request body, set the `state` property to either `approved` or `rejected` . For more information, see "[Workflow runs](#)."

- 6 Optionally, request the status of an approval for a workflow run by sending a `GET` request to `/repos/OWNER/REPOSITORY_ID/actions/runs/RUN_ID/approvals` . For more information, see "[Workflow runs](#)."
- 7 Optionally, review the deployment on GitHub.com. For more information, see "[Reviewing deployments](#)."

## Publishing custom deployment protection rules in the GitHub Marketplace

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You can publish your GitHub App to the GitHub Marketplace to allow developers to discover suitable protection rules and install it across their GitHub repositories. Or you can browse existing custom deployment protection rules to suit your needs. For more information, see "[About GitHub Marketplace for apps](#)" and "[Listing an app on GitHub Marketplace](#)."

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