

Sending Build Status to Source Control

Overview

A pipeline can send information about its current build status (*processing*, *success*, or *failure*) to a source repository for logging and display.

Most source control providers feature the ability to receive and log build status results from an external CI automation tool such as Pipelines. Source control users can then view those status logs through the source control's UI, or retrieve them through the source control manager's API.

Pipelines provides the [update_commit_status utility function](#) to send build status information to a [GitRepo](#) resource, associated with the sha of the GitRepo's latest commit.

You may wish to use this function to:

- Identify whether a pull request can successfully build prior to merge
- View the results of your build in your source provider UI
- Make build results visible to those who do not have accounts on your organization's JFrog Platform Deployment, or do not have permissions to view the pipeline in Pipelines
- Provide build status results to other automation tools through the source control API

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Source Control Build Status

An ability to log status information with your commits is a feature provided by many source control repository managers. Its availability and operation will differ according to your provider.

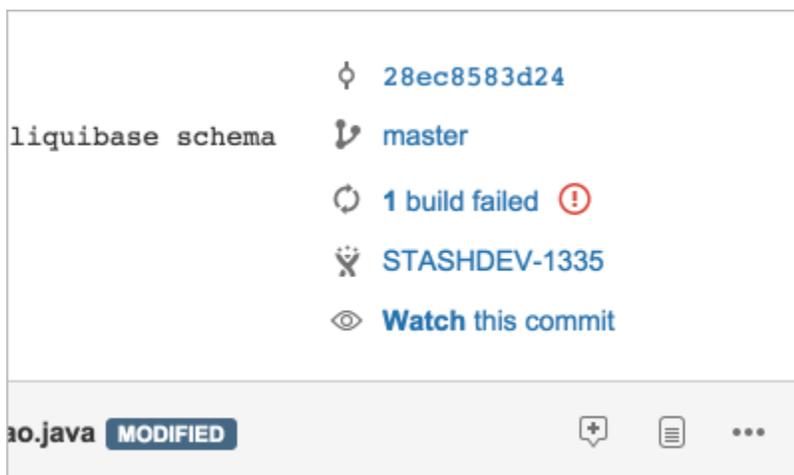
For example, the [status checks feature of GitHub](#) will mark each commit listed in the GitHub UI with the build status received, and the details of the status log can be viewed by clicking the mark. The build status log data can also be retrieved through the [GitHub REST APIs](#)



The screenshot shows a commit history for a user named 'octocat' who added some commits 18 hours ago. The commits are listed with their titles and corresponding commit hashes. The build status for each commit is indicated by a small icon: a green checkmark for successful builds and a red 'X' for failed builds.

Commit Title	Commit Hash	Build Status
Platform switcher broken out into own component	6052d0c	Success
using JS- classes so we know what is happening	a537a26	Success
removing duplicate css	9cd086e	Success
cleaning up the content	5db9a5f	Failed
Content updates	786d930	Failed
Spacing on tips	52a428d	Success

Similarly, the [build status feature in Bitbucket Server](#) displays the build status for the commit in the Bitbucket UI, and makes that information available through [REST resources](#).



The screenshot shows a commit view in Bitbucket Server. The commit hash is 28ec8583d24. The commit message is 'liquibase schema'. The build status is '1 build failed', indicated by a red exclamation mark icon. The user 'STASHDEV-1335' is associated with the commit. There is a 'Watch this commit' button. At the bottom, there is a file named 'ao.java' with a 'MODIFIED' status.

Sending Build Status from Pipelines

Where many CI automation servers require a plugin or custom integration to send build status to a source control repository, Pipelines provides a built-in utility function that can be used in any step.

To send build status from a pipeline step to a commit in a source repository, you must:

1. Declare the [GitRepo](#) in the step's `inputresources`.
2. Use the [update_commit_status utility function](#) in any of the step's execution blocks: `onStart`, `onExecute`, `onFailure`, or `onSuccess`.

The format of the `update_commit_status` function is:

```
update_commit_status <gitRepo resource name> --status <status> --message <message> --context <context>
```

You must specify the `GitRepo` resource in the `update_commit_status` function. The remaining parameters are all optional. By default, the function will infer the status from the execution block where it is invoked. Default message and context strings are constructed from the step and pipeline name.

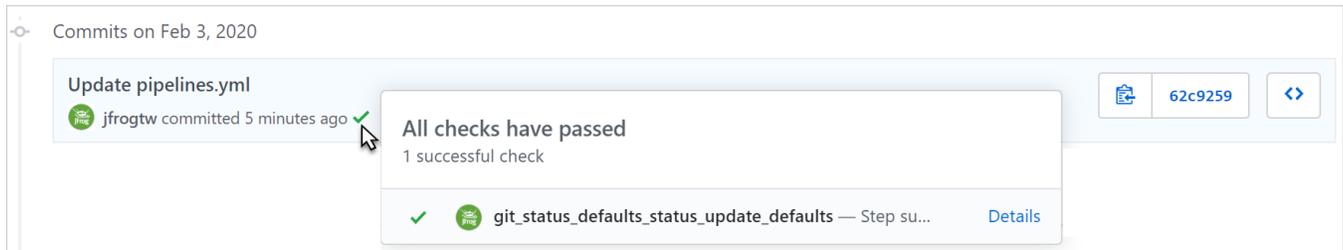
For example, this step will update the commit's build status for each execution phase using the defaults:

```
pipelines:
- name: git_status_defaults
  steps:
  - name: status_update_defaults
    type: Bash
    configuration:
      inputResources:
      - name: myGitRepo
    execution:
      onStart:
      - update_commit_status myGitRepo # Status: "processing"
      onExecute:
      - update_commit_status myGitRepo # Status: "processing"
      - echo "Hello World!"
      onFailure:
      - update_commit_status myGitRepo # Status: "failure"
      onSuccess:
      - update_commit_status myGitRepo # Status: "success"
```

When the above example pipeline is run:

- The receiving source repository will create a status log entry for the step.
- Each call to `update_commit_status` will overwrite the status and message values of that log entry.

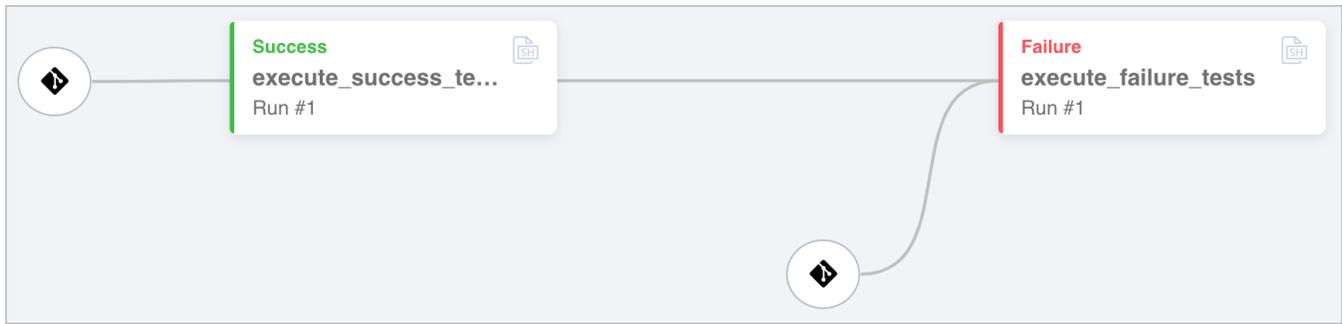
The resulting build status log for the commit can be viewed in the source repository's UI (on GitHub):



The screenshot shows a GitHub commit interface for a file named 'Update pipelines.yml'. The commit was made by 'jfrogtw' 5 minutes ago. A status box indicates that 'All checks have passed' with '1 successful check'. Below this, a specific check is listed: 'git_status_defaults_status_update_defaults' with a green checkmark and the label 'Step su...'. A 'Details' link is provided for this check. The commit ID '62c9259' is visible in the top right corner.

Example Pipeline

The following example pipeline demonstrates sending build status messages to the source control repository that will create a status log entry for each executed step.



The `resources` for the pipeline declares the [GitRepo](#) of the source control repository.

pipelines.resources.yml

```
resources:  
  - name: myGitRepo  
    type: GitRepo  
    configuration:  
      gitProvider: myGitHub  
      path: myaccount/myproject
```

The pipeline consists of two dummy steps, one that will always execute successfully and one that will always fail to execute. The `update_commit_status` function will send build status messages to the source repository for each step.

pipelines.steps.yml

```
pipelines:
- name: git_status_test
  steps:
  ##
  ## Step 1: Execute a simple, always successful test
  ##
  - name: success_test
    type: Bash
    configuration:
      inputResources:
        - name: myGitRepo
    execution:
      onStart:
        - update_commit_status myGitRepo --message "starting..." --context "$step_name"
      onExecute:
        - update_commit_status myGitRepo --message "running..." --context "$step_name"
        - echo "Hello World!"
      onFailure:
        - update_commit_status myGitRepo --message "Failed!" --context "$step_name"
      onSuccess:
        - update_commit_status myGitRepo --message "Succeeded :-)" --context "$step_name"

  ##
  ## Step 2: Execute a simple, always failing test
  ##
  - name: failure_test
    type: Bash
    configuration:
      inputResources:
        - name: myGitRepo
        trigger: false
      inputSteps:
        - name: success_test
    execution:
      onStart:
        - update_commit_status myGitRepo --message "starting..." --context "$step_name"
      onExecute:
        - update_commit_status myGitRepo --message "running..." --context "$step_name"
        - cd fail # No such directory -- guaranteed to fail
      onFailure:
        - update_commit_status myGitRepo --message "Failed!" --context "$step_name"
      onSuccess:
        - update_commit_status myGitRepo --message "Succeeded :-)" --context "$step_name"
```

When viewed in the source repository's UI (on GitHub), the build status log for the commit shows both a successful and a failed execution of each step:

Commits on Jan 31, 2020

Update pipelines.yml

jfrogtw committed 18 minutes ago

Some checks were not successful
1 failing and 1 successful checks

	failure_test — Failed!	Details
	success_test — Succeeded :-)	Details



Since the context option is always set to the `$step_name` environment variable in the example, the receiving source control repository will create a build status log entry for each step.

If you wanted to log only a single build status for the entire pipeline, you might set the context option to the `$pipeline_name` environment variable instead. To log a build status for each run of the pipeline, you might combine it with the `$run_number` environment variable:

```
update_commit_status myGitRepo --context "$pipeline_name:$run_number"
```