Red Hat Plug-ins for Backstage 2.0

Tekton plugin for Backstage

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Abstract

The Tekton plugin enables you to visualize the PipelineRun resources available on the Kubernetes cluster.
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CHAPTER 1. TEKTON PLUGIN FOR BACKSTAGE

The Tekton plugin enables you to visualize the PipelineRun resources available on the Kubernetes cluster.

1.1. FOR ADMINISTRATORS

1.1.1. Setting up the Tekton plugin

The Red Hat Plug-ins for Backstage (RHPIB) packages are hosted in a separate NPM registry, which is maintained by Red Hat. To use these packages, you must adjust your NPM configuration to pull the @redhat scoped packages:

```bash
# update your .npmrc or .yarnrc file
yarn config set "@redhat:registry" https://npm.registry.redhat.com
# then pull a package
yarn add @redhat/backstage-plugin-quay
```

For more information, see npm docs.

Creating a .npmrc file ensures that all the packages are scoped under @redhat and are fetched from Red Hat’s NPM registry, while the rest dependencies remain sourced from other registry.

Using this configuration, you can proceed with the installation of the individual packages.

Prerequisites

- The Kubernetes plugins including @backstage/plugin-kubernetes and @backstage/plugin-kubernetes-backend are installed and configured by following the installation and configuration guides.

- The following customResources component is added in the app-config.yaml file:

  ```yaml
  kubernetes:
  ...
  customResources:
  - group: 'tekton.dev'
    apiVersion: 'v1beta1'
    plural: 'pipelineruns'
  - group: 'tekton.dev'
    apiVersion: 'v1beta1'
    plural: 'taskruns'
  ...
  ``

- The Kubernetes plugin is configured and connects to the cluster using a ServiceAccount.

- The ClusterRole must be granted for custom resources (PipelineRuns and TaskRuns) to ServiceAccount accessing the cluster.

- To view the pod logs, you have granted the permissions for pods/log.

- If you have the Backstage Kubernetes Plugin configured, then the ClusterRole is already granted.
  You can use the following code to grant the ClusterRole for custom resources:
You can use the prepared manifest for a read-only `ClusterRole`, which provides access for both Kubernetes plugin and Tekton plugin.

- The following annotation is added to the entity’s `catalog-info.yaml` file to identify whether an entity contains the Kubernetes resources:

  ```yaml
  annotations:
  ...
  backstage.io/kubernetes-id: <BACKSTAGE_ENTITY_NAME>
  ```

You can also add the `backstage.io/kubernetes-namespace` annotation to identify the Kubernetes resources using the defined namespace.

  ```yaml
  annotations:
  ...
  backstage.io/kubernetes-namespace: <RESOURCE_NS>
  ```

- The following annotation is added to the `catalog-info.yaml` file of entity to view the latest `PipelineRun` in the CI/CD tab of the application:

  ```yaml
  annotations:
  ...
  janus-idp.io/tekton-enabled: 'true'
  ```

- A custom label selector can be added, which Backstage uses to find the Kubernetes resources. The label selector takes precedence over the ID annotations.
The following label is added to the resources so that the Kubernetes plugin gets the Kubernetes resources from the requested entity:

```ts
textarea: true
```
1.2. FOR USERS

1.2.1. Using the Tekton plugin in Backstage

Tekton is a front-end plugin that enables you to view the *PipelineRun* resources.

**Prerequisites**

- Your Backstage application is installed and running.
- You have installed the Tekton plugin. For the installation process, see Setting up the Tekton plugin.

**Procedure**

1. Open your Backstage application and select a component from the **Catalog** page.

2. Go to the **CI/CD** tab.
   - The **CI/CD** tab displays the latest *PipelineRun* resources associated to a Kubernetes cluster. The resources include tasks to complete. When you hover the mouse pointer on a task card, you can view the steps to complete that particular task.

![Latest Pipeline Run](image)

   There is also a **GO TO TEKTON** option at the bottom, which redirects you to the **TEKTON** tab.

3. Click **GO TO TEKTON** or select the **TEKTON** tab in the entity view page.
   - The **TEKTON** tab contains the list of pipeline runs related to a cluster. The list contains pipeline run details, such as **NAME**, **STATUS**, **TASK STATUS**, **STARTED**, and **DURATION**.
4. Click a PipelineRun name in the list to view the PipelineRun visualization.

To go back to the PipelineRun list, you can click the Back to PipelineRun list option.