Red Hat Developer Hub 0.2

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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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:

```
# 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.
annnotations:
...

backstage.io/kubernetes-label-selector: 'app=my-app,component=front-end'

• The following label is added to the resources so that the Kubernetes plugin gets the Kubernetes resources from the requested entity:

labels:
...

backstage.io/kubernetes-id: <BACKSTAGE_ENTITY_NAME>'''

NOTE

When using the label selector, the mentioned labels must be present on the resource.

Procedure

1. Install the Tekton plugin using the following command:

   yarn workspace app add @redhat/backstage-plugin-tekton

2. Enable the TEKTON tab on the entity view page using the packages/app/src/components/catalog/EntityPage.tsx file:

```
```tsx title="packages/app/src/components/catalog/EntityPage.tsx"
/* highlight-add-next-line */
import { TektonPage } from '@redhat/backstage-plugin-tekton';

const serviceEntityPage = (  
  <EntityPageLayout>
    {/* ... */}
    {/* highlight-add-start */}
    <EntityLayout.Route path="/tekton" title="Tekton">  
      <TektonPage />  
    </EntityLayout.Route>
    {/* highlight-add-end */}
  </EntityPageLayout>
);
```

3. Enable latest PipelineRun visualization in the CI/CD tab on the entity view page. The linkTekton property is optional and takes boolean value, if not specified or set to true, then the GO TO TEKTON option is displayed.

```
```tsx title="packages/app/src/components/catalog/EntityPage.tsx"
/* highlight-add-next-line */
import { LatestPipelineRun, isTektonCIAvailable } from '@redhat/backstage-plugin-tekton';

const cicdContent = (  
  <EntitySwitch>
    {/* ... */}
    {/* highlight-add-start */}
```
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.