OpenShift Container Platform 4.15

Web console

Getting started with the web console in OpenShift Container Platform

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Abstract

This document provides instructions for accessing and customizing the OpenShift Container Platform web console.

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CHAPTER 1. WEB CONSOLE OVERVIEW

The Red Hat OpenShift Container Platform web console provides a graphical user interface to visualize your project data and perform administrative, management, and troubleshooting tasks. The web console runs as pods on the control plane nodes in the openshift-console project. It is managed by a **console-operator** pod. Both **Administrator** and **Developer** perspectives are supported.

Both **Administrator** and **Developer** perspectives enable you to create quick start tutorials for OpenShift Container Platform. A quick start is a guided tutorial with user tasks and is useful for getting oriented with an application, Operator, or other product offering.

1.1. ABOUT THE ADMINISTRATOR PERSPECTIVE IN THE WEB CONSOLE

The **Administrator** perspective enables you to view the cluster inventory, capacity, general and specific utilization information, and the stream of important events, all of which help you to simplify planning and troubleshooting tasks. Both project administrators and cluster administrators can view the **Administrator** perspective.

Cluster administrators can also open an embedded command-line terminal instance with the web terminal Operator in OpenShift Container Platform 4.7 and later.

NOTE

The default web console perspective that is shown depends on the role of the user. The **Administrator** perspective is displayed by default if the user is recognized as an administrator.

The **Administrator** perspective provides workflows specific to administrator use cases, such as the ability to:

- Manage workload, storage, networking, and cluster settings.
- Install and manage Operators using the Operator Hub.
- Add identity providers that allow users to log in and manage user access through roles and role bindings.
- View and manage a variety of advanced settings such as cluster updates, partial cluster updates, cluster Operators, custom resource definitions (CRDs), role bindings, and resource quotas.
- Access and manage monitoring features such as metrics, alerts, and monitoring dashboards.
- View and manage logging, metrics, and high-status information about the cluster.
- Visually interact with applications, components, and services associated with the **Administrator** perspective in OpenShift Container Platform.

1.2. ABOUT THE DEVELOPER PERSPECTIVE IN THE WEB CONSOLE

The **Developer** perspective offers several built-in ways to deploy applications, services, and databases. In the **Developer** perspective, you can:

- View real-time visualization of rolling and recreating rollouts on the component.

- View the application status, resource utilization, project event streaming, and quota consumption.
- Share your project with others.
- Troubleshoot problems with your applications by running Prometheus Query Language (PromQL) queries on your project and examining the metrics visualized on a plot. The metrics provide information about the state of a cluster and any user-defined workloads that you are monitoring.

Cluster administrators can also open an embedded command-line terminal instance in the web console in OpenShift Container Platform 4.7 and later.

NOTE

The default web console perspective that is shown depends on the role of the user. The **Developer** perspective is displayed by default if the user is recognised as a developer.

The **Developer** perspective provides workflows specific to developer use cases, such as the ability to:

- Create and deploy applications on OpenShift Container Platform by importing existing codebases, images, and container files.
- Visually interact with applications, components, and services associated with them within a project and monitor their deployment and build status.
- Group components within an application and connect the components within and across applications.
- Integrate serverless capabilities (Technology Preview).
- Create workspaces to edit your application code using Eclipse Che.

You can use the **Topology** view to display applications, components, and workloads of your project. If you have no workloads in the project, the **Topology** view will show some links to create or import them. You can also use the **Quick Search** to import components directly.

Additional resources

See Viewing application composition using the Topology view for more information on using the **Topology** view in **Developer** perspective.

1.3. ACCESSING THE PERSPECTIVES

You can access the **Administrator** and **Developer** perspective from the web console as follows:

Prerequisites

To access a perspective, ensure that you have logged in to the web console. Your default perspective is automatically determined by the permission of the users. The **Administrator** perspective is selected for users with access to all projects, while the **Developer** perspective is selected for users with limited access to their own projects

Additional resources

See Adding User Preferences for more information on changing perspectives.

Procedure

1. Use the perspective switcher to switch to the **Administrator** or **Developer** perspective.
2. Select an existing project from the **Project** drop-down list. You can also create a new project from this dropdown.

> **NOTE**
>
> You can use the perspective switcher only as **cluster-admin**.

Additional resources

- Learn more about Cluster Administrator
- Overview of the **Administrator** perspective
- Creating and deploying applications on OpenShift Container Platform using the **Developer** perspective
- Viewing the applications in your project
- Viewing cluster information
- Configuring the web console
- Customizing the web console
- About the web console
- Using the web terminal
- Creating quick start tutorials
- Disabling the web console

CHAPTER 2. ACCESSING THE WEB CONSOLE

The OpenShift Container Platform web console is a user interface accessible from a web browser. Developers can use the web console to visualize, browse, and manage the contents of projects.

2.1. PREREQUISITES

- JavaScript must be enabled to use the web console. For the best experience, use a web browser that supports WebSockets.
- Review the OpenShift Container Platform 4.x Tested Integrations page before you create the supporting infrastructure for your cluster.

2.2. UNDERSTANDING AND ACCESSING THE WEB CONSOLE

The web console runs as a pod on the control plane node. The static assets required to run the web console are served by the pod.

After you install OpenShift Container Platform using the **openshift-install create cluster** command, you can find the web console URL and login credentials for the installed cluster in the CLI output of the installation program. For example:

Example output

```
INFO Install complete!
INFO Run 'export KUBECONFIG=<your working directory>/auth/kubeconfig' to manage the cluster
with 'oc', the OpenShift CLI.
INFO The cluster is ready when 'oc login -u kubeadmin -p <provided>' succeeds (wait a few minutes).
INFO Access the OpenShift web-console here: https://console-openshift-
console.apps.demo1.openshift4-beta-abcorp.com
INFO Login to the console with user: kubeadmin, password: <provided>
```

Use those details to log in and access the web console.

For existing clusters that you did not install, you can use **oc whoami --show-console** to see the web console URL.

IMPORTANT

The **dir** parameter specifies the **assets** directory, which stores the manifest files, the ISO image, and the **auth** directory. The **auth** directory stores the **kubeadmin-password** and **kubeconfig** files. As a **kubeadmin** user, you can use the **kubeconfig** file to access the cluster with the following setting: **export KUBECONFIG= <install_directory>/auth/kubeconfig**. The **kubeconfig** is specific to the generated ISO image, so if the **kubeconfig** is set and the **oc** command fails, it is possible that the system did not boot with the generated ISO image. To perform debugging, during the bootstrap process, you can log in to the console as the **core** user by using the contents of the **kubeadmin-password** file.

Additional resources

- Enabling feature sets using the web console

CHAPTER 3. USING THE OPENSHIFT CONTAINER PLATFORM DASHBOARD TO GET CLUSTER INFORMATION

The OpenShift Container Platform web console captures high-level information about the cluster.

3.1. ABOUT THE OPENSHIFT CONTAINER PLATFORM DASHBOARDS PAGE

Access the OpenShift Container Platform dashboard, which captures high-level information about the cluster, by navigating to **Home → Overview** from the OpenShift Container Platform web console.

The OpenShift Container Platform dashboard provides various cluster information, captured in individual dashboard cards.

The OpenShift Container Platform dashboard consists of the following cards:

- **Details** provides a brief overview of informational cluster details.
  Status include **ok**, **error**, **warning**, **in progress**, and **unknown**. Resources can add custom status names.
  - Cluster ID
  - Provider
  - Version
- **Cluster Inventory** details number of resources and associated statuses. It is helpful when intervention is required to resolve problems, including information about:
  - Number of nodes
  - Number of pods
  - Persistent storage volume claims
  - Bare metal hosts in the cluster, listed according to their state (only available in **metal3** environment)
- **Status** helps administrators understand how cluster resources are consumed. Click on a resource to jump to a detailed page listing pods and nodes that consume the largest amount of the specified cluster resource (CPU, memory, or storage).
- **Cluster Utilization** shows the capacity of various resources over a specified period of time, to help administrators understand the scale and frequency of high resource consumption, including information about:
  - CPU time
  - Memory allocation
  - Storage consumed
  - Network resources consumed
  - Pod count

- **Activity** lists messages related to recent activity in the cluster, such as pod creation or virtual machine migration to another host.

3.2. RECOGNIZING RESOURCE AND PROJECT LIMITS AND QUOTAS

You can view a graphical representation of available resources in the **Topology** view of the web console **Developer** perspective.

If a resource has a message about resource limitations or quotas being reached, a yellow border appears around the resource name. Click the resource to open a side panel to see the message. If the **Topology** view has been zoomed out, a yellow dot indicates that a message is available.

If you are using **List View** from the **View Shortcuts** menu, resources appear as a list. The **Alerts** column indicates if a message is available.

CHAPTER 4. ADDING USER PREFERENCES

You can change the default preferences for your profile to meet your requirements. You can set your default project, topology view (graph or list), editing medium (form or YAML), language preferences, and resource type.

The changes made to the user preferences are automatically saved.

4.1. SETTING USER PREFERENCES

You can set the default user preferences for your cluster.

Procedure

1. Log in to the OpenShift Container Platform web console using your login credentials.
2. Use the masthead to access the user preferences under the user profile.
3. In the **General** section:
   a. In the **Theme** field, you can set the theme that you want to work in. The console defaults to the selected theme each time you log in.
   b. In the **Perspective** field, you can set the default perspective you want to be logged in to. You can select the **Administrator** or the **Developer** perspective as required. If a perspective is not selected, you are logged into the perspective you last visited.
   c. In the **Project** field, select a project you want to work in. The console defaults to the project every time you log in.
   d. In the **Topology** field, you can set the topology view to default to the graph or list view. If not selected, the console defaults to the last view you used.
   e. In the **Create/Edit resource method** field, you can set a preference for creating or editing a resource. If both the form and YAML options are available, the console defaults to your selection.
4. In the **Language** section, select **Default browser language** to use the default browser language settings. Otherwise, select the language that you want to use for the console.
5. In the **Notifications** section, you can toggle display notifications created by users for specific projects on the **Overview** page or notification drawer.
6. In the **Applications** section:
   a. You can view the default **Resource type**. For example, if the OpenShift Serverless Operator is installed, the default resource type is **Serverless Deployment**. Otherwise, the default resource type is **Deployment**.
   b. You can select another resource type to be the default resource type from the **Resource Type** field.

CHAPTER 5. CONFIGURING THE WEB CONSOLE IN OPENSHIFT CONTAINER PLATFORM

You can modify the OpenShift Container Platform web console to set a logout redirect URL or disable the quick start tutorials.

5.1. PREREQUISITES

- Deploy an OpenShift Container Platform cluster.

5.2. CONFIGURING THE WEB CONSOLE

You can configure the web console settings by editing the **console.config.openshift.io** resource.

- Edit the **console.config.openshift.io** resource:

```
$ oc edit console.config.openshift.io cluster
```

The following example displays the sample resource definition for the console:

```
apiVersion: config.openshift.io/v1
kind: Console
metadata:
  name: cluster
spec:
  authentication:
    logoutRedirect: "" (1)
status:
  consoleURL: "" (2)
```

(1) Specify the URL of the page to load when a user logs out of the web console. If you do not specify a value, the user returns to the login page for the web console. Specifying a **logoutRedirect** URL allows your users to perform single logout (SLO) through the identity provider to destroy their single sign-on session.

(2) The web console URL. To update this to a custom value, see **Customizing the web console URL**.

5.3. DISABLING QUICK STARTS IN THE WEB CONSOLE

You can use the **Administrator** perspective of the web console to disable one or more quick starts.

Prerequisites

- You have cluster administrator permissions and are logged in to the web console.

Procedure

1. In the **Administrator** perspective, navigate to **Administation → Cluster Settings**.
2. On the **Cluster Settings** page, click the **Configuration** tab.

3. On the **Configuration** page, click the **Console** configuration resource with the description **operator.openshift.io**.

4. From the **Action** drop-down list, select **Customize**, which opens the **Cluster configuration** page.

5. On the **General** tab, in the **Quick starts** section, you can select items in either the **Enabled** or **Disabled** list, and move them from one list to the other by using the arrow buttons.

   - To enable or disable a single quick start, click the quick start, then use the single arrow buttons to move the quick start to the appropriate list.

   - To enable or disable multiple quick starts at once, press Ctrl and click the quick starts you want to move. Then, use the single arrow buttons to move the quick starts to the appropriate list.

   - To enable or disable all quick starts at once, click the double arrow buttons to move all of the quick starts to the appropriate list.

CHAPTER 6. CUSTOMIZING THE WEB CONSOLE IN OPENSHIFT CONTAINER PLATFORM

You can customize the OpenShift Container Platform web console to set a custom logo, product name, links, notifications, and command-line downloads. This is especially helpful if you need to tailor the web console to meet specific corporate or government requirements.

6.1. ADDING A CUSTOM LOGO AND PRODUCT NAME

You can create custom branding by adding a custom logo or custom product name. You can set both or one without the other, as these settings are independent of each other.

Prerequisites

- You must have administrator privileges.
- Create a file of the logo that you want to use. The logo can be a file in any common image format, including GIF, JPG, PNG, or SVG, and is constrained to a **max-height** of **60px**. Image size must not exceed 1 MB due to constraints on the **ConfigMap** object size.

Procedure

1. Import your logo file into a config map in the **openshift-config** namespace:

```
$ oc create configmap console-custom-logo --from-file /path/to/console-custom-logo.png -n
openshift-config
```

TIP

You can alternatively apply the following YAML to create the config map:

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: console-custom-logo
  namespace: openshift-config
binaryData:
  console-custom-logo.png: <base64-encoded_logo> ... (1)
```

(1) Provide a valid base64-encoded logo.

2. Edit the web console's Operator configuration to include **customLogoFile** and **customProductName**:

```
$ oc edit consoles.operator.openshift.io cluster
```

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
spec:
```

```
customization:
  customLogoFile:
    key: console-custom-logo.png
    name: console-custom-logo
  customProductName: My Console
```

Once the Operator configuration is updated, it will sync the custom logo config map into the console namespace, mount it to the console pod, and redeploy.

3. Check for success. If there are any issues, the console cluster Operator will report a **Degraded** status, and the console Operator configuration will also report a **CustomLogoDegraded** status, but with reasons like **KeyOrFilenameInvalid** or **NoImageProvided**.
   To check the **clusteroperator**, run:

```
$ oc get clusteroperator console -o yaml
```

   To check the console Operator configuration, run:

```
$ oc get consoles.operator.openshift.io -o yaml
```

6.2. CREATING CUSTOM LINKS IN THE WEB CONSOLE

Prerequisites

- You must have administrator privileges.

Procedure

1. From **Administration → Custom Resource Definitions**, click on **ConsoleLink**.
2. Select **Instances** tab
3. Click **Create Console Link** and edit the file:

```
apiVersion: console.openshift.io/v1
kind: ConsoleLink
metadata:
  name: example
spec:
  href: 'https://www.example.com'
  location: HelpMenu (1)
  text: Link 1
```

(1) Valid location settings are **HelpMenu**, **UserMenu**, **ApplicationMenu**, and **NamespaceDashboard**.

   To make the custom link appear in all namespaces, follow this example:

```
apiVersion: console.openshift.io/v1
kind: ConsoleLink
metadata:
  name: namespaced-dashboard-link-for-all-namespaces
```

```
spec:
  href: 'https://www.example.com'
  location: NamespaceDashboard
  text: This appears in all namespaces
```

To make the custom link appear in only some namespaces, follow this example:

```
apiVersion: console.openshift.io/v1
kind: ConsoleLink
metadata:
  name: namespaced-dashboard-for-some-namespaces
spec:
  href: 'https://www.example.com'
  location: NamespaceDashboard
  # This text will appear in a box called "Launcher" under "namespace" or "project" in the web console
  text: Custom Link Text
  namespaceDashboard:
    namespaces:
    # for these specific namespaces
    - my-namespace
    - your-namespace
    - other-namespace
```

To make the custom link appear in the application menu, follow this example:

```
apiVersion: console.openshift.io/v1
kind: ConsoleLink
metadata:
  name: application-menu-link-1
spec:
  href: 'https://www.example.com'
  location: ApplicationMenu
  text: Link 1
  applicationMenu:
    section: My New Section
    # image that is 24x24 in size
    imageURL: https://via.placeholder.com/24
```

4. Click **Save** to apply your changes.

6.3. CUSTOMIZING CONSOLE ROUTES

For **console** and **downloads** routes, custom routes functionality uses the **ingress** config route configuration API. If the **console** custom route is set up in both the **ingress** config and **console-operator** config, then the new **ingress** config custom route configuration takes precedent. The route configuration with the **console-operator** config is deprecated.

6.3.1. Customizing the console route

You can customize the console route by setting the custom hostname and TLS certificate in the **spec.componentRoutes** field of the cluster **Ingress** configuration.

Prerequisites

- You have logged in to the cluster as a user with administrative privileges.
- You have created a secret in the **openshift-config** namespace containing the TLS certificate and key. This is required if the domain for the custom hostname suffix does not match the cluster domain suffix. The secret is optional if the suffix matches.

  TIP

  You can create a TLS secret by using the **oc create secret tls** command.

Procedure

1. Edit the cluster **Ingress** configuration:

```
$ oc edit ingress.config.openshift.io cluster
```

2. Set the custom hostname and optionally the serving certificate and key:

```
apiVersion: config.openshift.io/v1
kind: Ingress
metadata:
  name: cluster
spec:
  componentRoutes:
    - name: console
      namespace: openshift-console
      hostname: <custom_hostname> (1)
      servingCertKeyPairSecret:
        name: <secret_name> (2)
```

(1) The custom hostname.

(2) Reference to a secret in the **openshift-config** namespace that contains a TLS certificate (**tls.crt**) and key (**tls.key**). This is required if the domain for the custom hostname suffix does not match the cluster domain suffix. The secret is optional if the suffix matches.

3. Save the file to apply the changes.

NOTE

Add a DNS record for the custom console route that points to the application ingress load balancer.

6.3.2. Customizing the download route

You can customize the download route by setting the custom hostname and TLS certificate in the **spec.componentRoutes** field of the cluster **Ingress** configuration.

Prerequisites

- You have logged in to the cluster as a user with administrative privileges.

- You have created a secret in the **openshift-config** namespace containing the TLS certificate and key. This is required if the domain for the custom hostname suffix does not match the cluster domain suffix. The secret is optional if the suffix matches.

  TIP

  You can create a TLS secret by using the **oc create secret tls** command.

Procedure

1. Edit the cluster **Ingress** configuration:

```
$ oc edit ingress.config.openshift.io cluster
```

2. Set the custom hostname and optionally the serving certificate and key:

```
apiVersion: config.openshift.io/v1
kind: Ingress
metadata:
  name: cluster
spec:
  componentRoutes:
    - name: downloads
      namespace: openshift-console
      hostname: <custom_hostname> (1)
      servingCertKeyPairSecret:
        name: <secret_name> (2)
```

(1) The custom hostname.

(2) Reference to a secret in the **openshift-config** namespace that contains a TLS certificate (**tls.crt**) and key (**tls.key**). This is required if the domain for the custom hostname suffix does not match the cluster domain suffix. The secret is optional if the suffix matches.

3. Save the file to apply the changes.

NOTE

Add a DNS record for the custom downloads route that points to the application ingress load balancer.

6.4. CUSTOMIZING THE LOGIN PAGE

Create Terms of Service information with custom login pages. Custom login pages can also be helpful if you use a third-party login provider, such as GitHub or Google, to show users a branded page that they trust and expect before being redirected to the authentication provider. You can also render custom error pages during the authentication process.

NOTE

Customizing the error template is limited to identity providers (IDPs) that use redirects, such as request header and OIDC-based IDPs. It does not have an effect on IDPs that use direct password authentication, such as LDAP and htpasswd.

Prerequisites

- You must have administrator privileges.

Procedure

1. Run the following commands to create templates you can modify:

```
$ oc adm create-login-template > login.html
```

```
$ oc adm create-provider-selection-template > providers.html
```

```
$ oc adm create-error-template > errors.html
```

2. Create the secrets:

```
$ oc create secret generic login-template --from-file=login.html -n openshift-config
```

```
$ oc create secret generic providers-template --from-file=providers.html -n openshift-config
```

```
$ oc create secret generic error-template --from-file=errors.html -n openshift-config
```

3. Run:

```
$ oc edit oauths cluster
```

4. Update the specification:

```
apiVersion: config.openshift.io/v1
kind: OAuth
metadata:
  name: cluster
# ...
spec:
  templates:
    error:
        name: error-template
    login:
        name: login-template
    providerSelection:
        name: providers-template
```

Run **oc explain oauths.spec.templates** to understand the options.

6.5. DEFINING A TEMPLATE FOR AN EXTERNAL LOG LINK

If you are connected to a service that helps you browse your logs, but you need to generate URLs in a particular way, then you can define a template for your link.

Prerequisites

- You must have administrator privileges.

Procedure

1. From **Administration → Custom Resource Definitions**, click on **ConsoleExternalLogLink**.
2. Select **Instances** tab
3. Click **Create Console External Log Link**and edit the file:

```
apiVersion: console.openshift.io/v1
kind: ConsoleExternalLogLink
metadata:
  name: example
spec:
  hrefTemplate: >-
    https://example.com/logs?
resourceName=${resourceName}&containerName=${containerName}&resourceNamespace=$
{resourceNamespace}&podLabels=${podLabels}
  text: Example Logs
```

6.6. CREATING CUSTOM NOTIFICATION BANNERS

Prerequisites

- You must have administrator privileges.

Procedure

1. From **Administration → Custom Resource Definitions**, click on **ConsoleNotification**.
2. Select **Instances** tab
3. Click **Create Console Notification** and edit the file:

```
apiVersion: console.openshift.io/v1
kind: ConsoleNotification
metadata:
  name: example
spec:
  text: This is an example notification message with an optional link.
  location: BannerTop (1)
  link:
    href: 'https://www.example.com'
    text: Optional link text
  color: '#fff'
  backgroundColor: '#0088ce'
```

(1) Valid location settings are **BannerTop**, **BannerBottom**, and **BannerTopBottom**.

4. Click **Create** to apply your changes.

6.7. CUSTOMIZING CLI DOWNLOADS

You can configure links for downloading the CLI with custom link text and URLs, which can point directly to file packages or to an external page that provides the packages.

Prerequisites

- You must have administrator privileges.

Procedure

1. Navigate to **Administration → Custom Resource Definitions**.
2. Select **ConsoleCLIDownload** from the list of Custom Resource Definitions (CRDs).
3. Click the **YAML** tab, and then make your edits:

```
apiVersion: console.openshift.io/v1
kind: ConsoleCLIDownload
metadata:
  name: example-cli-download-links
spec:
  description: |
    This is an example of download links
  displayName: example
  links:
  - href: 'https://www.example.com/public/example.tar'
    text: example for linux
  - href: 'https://www.example.com/public/example.mac.zip'
    text: example for mac
  - href: 'https://www.example.com/public/example.win.zip'
    text: example for windows
```

4. Click the **Save** button.

6.8. ADDING YAML EXAMPLES TO KUBERNETES RESOURCES

You can dynamically add YAML examples to any Kubernetes resources at any time.

Prerequisites

- You must have cluster administrator privileges.

Procedure

1. From **Administration → Custom Resource Definitions**, click on **ConsoleYAMLSample**.
2. Click **YAML** and edit the file:

```
apiVersion: console.openshift.io/v1
kind: ConsoleYAMLSample
metadata:
```

```
  name: example
spec:
  targetResource:
    apiVersion: batch/v1
    kind: Job
  title: Example Job
  description: An example Job YAML sample
  yaml: |
    apiVersion: batch/v1
    kind: Job
    metadata:
      name: countdown
    spec:
      template:
        metadata:
          name: countdown
        spec:
          containers:
          - name: counter
            image: centos:7
            command:
            - "bin/bash"
            - "-c"
            - "for i in 9 8 7 6 5 4 3 2 1 ; do echo $i ; done"
          restartPolicy: Never
```

Use **spec.snippet** to indicate that the YAML sample is not the full YAML resource definition, but a fragment that can be inserted into the existing YAML document at the user's cursor.

3. Click **Save**.

6.9. CUSTOMIZING USER PERSPECTIVES

The OpenShift Container Platform web console provides two perspectives by default, **Administrator** and **Developer**. You might have more perspectives available depending on installed console plugins. As a cluster administrator, you can show or hide a perspective for all users or for a specific user role. Customizing perspectives ensures that users can view only the perspectives that are applicable to their role and tasks. For example, you can hide the **Administrator** perspective from unprivileged users so that they cannot manage cluster resources, users, and projects. Similarly, you can show the **Developer** perspective to users with the developer role so that they can create, deploy, and monitor applications.

You can also customize the perspective visibility for users based on role-based access control (RBAC). For example, if you customize a perspective for monitoring purposes, which requires specific permissions, you can define that the perspective is visible only to users with required permissions.

Each perspective includes the following mandatory parameters, which you can edit in the YAML view:

- **id**: Defines the ID of the perspective to show or hide
- **visibility**: Defines the state of the perspective along with access review checks, if needed
- **state**: Defines whether the perspective is enabled, disabled, or needs an access review check

NOTE

By default, all perspectives are enabled. When you customize the user perspective, your changes are applicable to the entire cluster.

6.9.1. Customizing a perspective using YAML view

Prerequisites

- You must have administrator privileges.

Procedure

1. In the **Administrator** perspective, navigate to **Administration → Cluster Settings**.
2. Select the **Configuration** tab and click the **Console (operator.openshift.io)** resource.
3. Click the **YAML** tab and make your customization:
   a. To enable or disable a perspective, insert the snippet for **Add user perspectives** and edit the YAML code as needed:

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
spec:
  customization:
    perspectives:
      - id: admin
        visibility:
          state: Enabled
      - id: dev
        visibility:
          state: Enabled
```

   b. To hide a perspective based on RBAC permissions, insert the snippet for **Hide user perspectives** and edit the YAML code as needed:

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
spec:
  customization:
    perspectives:
      - id: admin
        requiresAccessReview:
          - group: rbac.authorization.k8s.io
            resource: clusterroles
            verb: list
      - id: dev
        state: Enabled
```

   c. To customize a perspective based on your needs, create your own YAML snippet:

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
spec:
  customization:
    perspectives:
      - id: admin
        visibility:
          state: AccessReview
          accessReview:
            missing:
              - resource: deployment
                verb: list
            required:
              - resource: namespaces
                verb: list
      - id: dev
        visibility:
          state: Enabled
```

4. Click **Save**.

6.9.2. Customizing a perspective using form view

Prerequisites

- You must have administrator privileges.

Procedure

1. In the **Administrator** perspective, navigate to **Administration → Cluster Settings**.
2. Select the **Configuration** tab and click the **Console (operator.openshift.io)** resource.
3. Click **Actions → Customize** on the right side of the page.
4. In the **General** settings, customize the perspective by selecting one of the following options from the dropdown list:
   - **Enabled**: Enables the perspective for all users
   - **Only visible for privileged users**: Enables the perspective for users who can list all namespaces
   - **Only visible for unprivileged users**: Enables the perspective for users who cannot list all namespaces
   - **Disabled**: Disables the perspective for all users
     A notification opens to confirm that your changes are saved.

NOTE

When you customize the user perspective, your changes are automatically saved and take effect after a browser refresh.

6.10. DEVELOPER CATALOG AND SUB-CATALOG CUSTOMIZATION

As a cluster administrator, you have the ability to organize and manage the Developer catalog or its sub-catalogs. You can enable or disable the sub-catalog types or disable the entire developer catalog.

The **developerCatalog.types** object includes the following parameters that you must define in a snippet to use them in the YAML view:

- **state**: Defines if a list of developer catalog types should be enabled or disabled.
- **enabled**: Defines a list of developer catalog types (sub-catalogs) that are visible to users.
- **disabled**: Defines a list of developer catalog types (sub-catalogs) that are not visible to users.

You can enable or disable the following developer catalog types (sub-catalogs) using the YAML view or the form view.

- **Builder Images**
- **Templates**
- **Devfiles**
- **Samples**
- **Helm Charts**
- **Event Sources**
- **Event Sinks**
- **Operator Backed**

6.10.1. Customizing a developer catalog or its sub-catalogs using the YAML view

You can customize a developer catalog by editing the YAML content in the YAML view.

Prerequisites

- An OpenShift web console session with cluster administrator privileges.

Procedure

1. In the **Administrator** perspective of the web console, navigate to **Administration → Cluster Settings**.
2. Select the **Configuration** tab, click the **Console (operator.openshift.io)** resource and view the **Details** page.
3. Click the **YAML** tab to open the editor and edit the YAML content as needed.
   For example, to disable a developer catalog type, insert the following snippet that defines a list of disabled developer catalog resources:

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
...
spec:
  customization:
    developerCatalog:
      categories:
      types:
        state: Disabled
        disabled:
          - BuilderImage
          - Devfile
          - HelmChart
...
```

4. Click **Save**.

NOTE

By default, the developer catalog types are enabled in the Administrator view of the Web Console.

6.10.2. Customizing a developer catalog or its sub-catalogs using the form view

You can customize a developer catalog by using the form view in the Web Console.

Prerequisites

- An OpenShift web console session with cluster administrator privileges.
- The Developer perspective is enabled.

Procedure

1. In the **Administrator** perspective, navigate to **Administration → Cluster Settings**.
2. Select the **Configuration** tab and click the **Console (operator.openshift.io)** resource.

3. Click **Actions → Customize**.

4. Enable or disable items in the **Pre-pinned navigation items**, **Add page**, and **Developer Catalog** sections.

   Verification

   After you have customized the developer catalog, your changes are automatically saved in the system and take effect in the browser after a refresh.

NOTE

As an administrator, you can define the navigation items that appear by default for all users. You can also reorder the navigation items.

TIP

You can use a similar procedure to customize Web UI items such as Quick starts, Cluster roles, and Actions.

6.10.2.1. Example YAML file changes

You can dynamically add the following snippets in the YAML editor for customizing a developer catalog.

Use the following snippet to display all the sub-catalogs by setting the *state* type to **Enabled**.

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
...
spec:
  customization:
    developerCatalog:
      categories:
      types:
        state: Enabled
```

Use the following snippet to disable all sub-catalogs by setting the *state* type to **Disabled**:

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
...
spec:
  customization:
    developerCatalog:
      categories:
      types:
        state: Disabled
```

-

Use the following snippet when a cluster administrator defines a list of sub-catalogs, which are enabled in the Web Console.

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
...
spec:
  customization:
    developerCatalog:
      categories:
      types:
        state: Enabled
        enabled:
          - BuilderImage
          - Devfile
          - HelmChart
          - ...
```

CHAPTER 7. DYNAMIC PLUGINS

7.1. OVERVIEW OF DYNAMIC PLUGINS

7.1.1. About dynamic plugins

Dynamic plugins are deployed as workloads on the cluster. They allow you to add custom pages and other extensions to your console user interface at runtime. The **ConsolePlugin** custom resource registers plugins with the console, and a cluster administrator enables plugins in the **console-operator** configuration.

7.1.2. Key features

A dynamic plugin allows you to make the following customizations to the OpenShift Container Platform experience:

- Add custom pages.
- Add perspectives beyond administrator and developer.
- Add navigation items.
- Add tabs and actions to resource pages.

7.1.3. General guidelines

When creating your plugin, follow these general guidelines:

- **Node.js** and **yarn** are required to build and run your plugin.
- Prefix your CSS class names with your plugin name to avoid collisions. For example, **my-plugin__heading** and **my-plugin__icon**.
- Maintain a consistent look, feel, and behavior with other console pages.
- Follow react-i18next localization guidelines when creating your plugin. You can use the **useTranslation** hook like the one in the following example:

```
conster Header: React.FC = () => {
  const { t } = useTranslation('plugin__console-demo-plugin');
  return <h1>{t('Hello, World!')}</h1>;
};
```

- Avoid selectors that could affect markup outside of your plugins components, such as element selectors. These are not APIs and are subject to change. Using them might break your plugin. Avoid selectors like element selectors that could affect markup outside of your plugins components.
- Provide valid JavaScript Multipurpose Internet Mail Extension (MIME) type using the **Content-Type** response header for all assets served by your plugin web server. Each plugin deployment should include a web server that hosts the generated assets of the given plugin.

7.1.4. PatternFly guidelines

When creating your plugin, follow these guidelines for using PatternFly:

- Use PatternFly components and PatternFly CSS variables. Core PatternFly components are available through the SDK. Using PatternFly components and variables help your plugin look consistent in future console versions.
  - Use Patternfly 4.x if you are using OpenShift Container Platform versions 4.14 and earlier.
  - Use Patternfly 5.x if you are using OpenShift Container Platform 4.15 or later.
- Make your plugin accessible by following PatternFly's accessibility fundamentals.
- Avoid using other CSS libraries such as Bootstrap or Tailwind. They can conflict with PatternFly and will not match the console look and feel. Plugins should only include styles that are specific to their user interfaces to be evaluated on top of base PatternFly styles. Avoid importing styles such as **@patternfly/react-styles/*/.css** or any styles from **@patternfly/patternfly** package in your plugin.
- The console application is responsible for loading base styles for all supported PatternFly version(s).

7.2. GETTING STARTED WITH DYNAMIC PLUGINS

To get started using the dynamic plugin, you must set up your environment to write a new OpenShift Container Platform dynamic plugin. For an example of how to write a new plugin, see Adding a tab to the pods page.

7.2.1. Dynamic plugin development

You can run the plugin using a local development environment. The OpenShift Container Platform web console runs in a container connected to the cluster you have logged into.

Prerequisites

- You must have an OpenShift cluster running.
- You must have the OpenShift CLI (**oc**) installed.
- You must have **yarn** installed.
- You must have Docker v3.2.0 or newer or Podman installed and running.

Procedure

1. In your terminal, run the following command to install the dependencies for your plugin using yarn.

```
$ yarn install
```

2. After installing, run the following command to start yarn.

```
$ yarn run start
```

3. In another terminal window, login to the OpenShift Container Platform through the CLI.

```
$ oc login
```

4. Run the OpenShift Container Platform web console in a container connected to the cluster you have logged into by running the following command:

```
$ yarn run start-console
```

Verification

- Visit localhost:9000 to view the running plugin. Inspect the value of **window.SERVER_FLAGS.consolePlugins** to see the list of plugins which load at runtime.

7.3. DEPLOY YOUR PLUGIN ON A CLUSTER

You can deploy the plugin to a OpenShift Container Platform cluster.

7.3.1. Build an image with Docker

To deploy your plugin on a cluster, you need to build an image and push it to an image registry.

Procedure

1. Build the image with the following command:

```
$ docker build -t quay.io/my-repositroy/my-plugin:latest .
```

2. Optional: If you want to test your image, run the following command:

```
$ docker run -it --rm -d -p 9001:80 quay.io/my-repository/my-plugin:latest
```

3. Push the image by running the following command:

```
$ docker push quay.io/my-repository/my-plugin:latest
```

7.3.2. Deploy your plugin on a cluster

After pushing an image with your changes to a registry, you can deploy the plugin to a cluster.

Procedure

1. To deploy your plugin to a cluster, install a Helm chart with the name of the plugin as the Helm release name into a new namespace or an existing namespace as specified by the **-n** command-line option. Provide the location of the image within the **plugin.image** parameter by using the following command:

```
$ helm upgrade -i  my-plugin charts/openshift-console-plugin -n my-plugin-namespace --
create-namespace --set plugin.image=my-plugin-image-location
```

Where:

n <my-plugin-namespace>

Specifies an existing namespace to deploy your plugin into.

--create-namespace

Optional: If deploying to a new namespace, use this parameter.

--set plugin.image=my-plugin-image-location

Specifies the location of the image within the **plugin.image** parameter.

2. Optional: You can specify any additional parameters by using the set of supported parameters in the **charts/openshift-console-plugin/values.yaml** file.

```
plugin:
  name: ""
  description: ""
  image: ""
  imagePullPolicy: IfNotPresent
  replicas: 2
  port: 9443
  securityContext:
    enabled: true
  podSecurityContext:
    enabled: true
    runAsNonRoot: true
    seccompProfile:
      type: RuntimeDefault
  containerSecurityContext:
    enabled: true
    allowPrivilegeEscalation: false
    capabilities:
      drop:
        - ALL
  resources:
    requests:
      cpu: 10m
      memory: 50Mi
  basePath: /
  certificateSecretName: ""
  serviceAccount:
    create: true
    annotations: {}
    name: ""
  patcherServiceAccount:
    create: true
    annotations: {}
    name: ""
  jobs:
    patchConsoles:
      enabled: true
      image: "registry.redhat.io/openshift4/ose-tools-
rhel8@sha256:e44074f21e0cca6464e50cb6ff934747e0bd11162ea01d522433a1a1ae116103"

      podSecurityContext:
        enabled: true
        runAsNonRoot: true
        seccompProfile:
          type: RuntimeDefault
```

```
containerSecurityContext:
  enabled: true
  allowPrivilegeEscalation: false
  capabilities:
    drop:
      - ALL
resources:
  requests:
    cpu: 10m
    memory: 50Mi
```

Verification

- View the list of enabled plugins by navigating from **Administration → Cluster Settings → Configuration → Console operator.openshift.io → Console plugins** or by visiting the **Overview** page.

> **NOTE**
>
> It can take a few minutes for the new plugin configuration to appear. If you do not see your plugin, you might need to refresh your browser if the plugin was recently enabled. If you receive any errors at runtime, check the JS console in browser developer tools to look for any errors in your plugin code.

7.3.3. Plugin service proxy

If you need to make HTTP requests to an in-cluster service from your plugin, you can declare a service proxy in its **ConsolePlugin** resource by using the **spec.proxy** array field. The console backend exposes the **/api/proxy/plugin/<plugin-name>/<proxy-alias>/<request-path>?<optional-query-parameters>** endpoint to proxy the communication between the plugin and the service. A proxied request uses a *service CA bundle* by default. The service must use HTTPS.

> **NOTE**
>
> The plugin must use the **consolefetch** API to make requests from its JavaScript code or some requests might fail. For more information, see "Dynamic plugin API".

For each entry, you must specify an endpoint and alias of the proxy under the **endpoint** and **alias** fields. For the Service proxy type, you must set the endpoint **type** field to **Service** and the **service** must include values for the **name**, **namespace**, and **port** fields. For example, **/api/proxy/plugin/helm/helm-charts/releases?limit=10** is a proxy request path from the **helm** plugin with a **helm-charts** service that lists ten helm releases.

Example service proxy

```
apiVersion: console.openshift.io/v1
kind: ConsolePlugin
metadata:
  name:<plugin-name>
spec:
  proxy:
  - alias: helm-charts (1)
    authorization: UserToken (2)
```

```
caCertificate: '-----BEGIN CERTIFICATE-----\nMIID....'en 3
endpoint: 4
  service:
    name: <service-name>
    namespace: <service-namespace>
    port: <service-port>
  type: Service
```

1. Alias of the proxy.
2. If the service proxy request must contain the logged-in user's OpenShift Container Platform access token, you must set the authorization field to **UserToken**.

> **NOTE**
>
> If the service proxy request does not contain the logged-in user's OpenShift Container Platform access token, set the authorization field to **None**.

3. If the service uses a custom service CA, the **caCertificate** field must contain the certificate bundle.
4. Endpoint of the proxy.

Additional resources

- Service CA certificates
- Securing service traffic using service serving certificate secrets
- Dynamic plugin API

7.3.4. Disabling your plugin in the browser

Console users can use the **disable-plugins** query parameter to disable specific or all dynamic plugins that would normally get loaded at run-time.

Procedure

- To disable a specific plugin(s), remove the plugin you want to disable from the comma-separated list of plugin names.
- To disable all plugins, leave an empty string in the **disable-plugins** query parameter.

> **NOTE**
>
> Cluster administrators can disable plugins in the **Cluster Settings** page of the web console

7.3.5. Additional resources

- Understanding Helm

7.4. DYNAMIC PLUGIN EXAMPLE

Before working through the example, verify that the plugin is working by following the steps in Dynamic plugin development

7.4.1. Adding a tab to the pods page

There are different customizations you can make to the OpenShift Container Platform web console. The following procedure adds a tab to the **Pod details** page as an example extension to your plugin.

> **NOTE**
>
> The OpenShift Container Platform web console runs in a container connected to the cluster you have logged into. See "Dynamic plugin development" for information to test the plugin before creating your own.

Procedure

1. Visit the **console-plugin-template** repository containing a template for creating plugins in a new tab.

   > **IMPORTANT**
   >
   > Custom plugin code is not supported by Red Hat. Only Cooperative community support is available for your plugin.

2. Create a GitHub repository for the template by clicking **Use this template** → ***Create new repository***.

3. Rename the new repository with the name of your plugin.

4. Clone the new repository to your local machine so you can edit the code.

5. Edit the **package.json** file, adding your plugin's metadata to the **consolePlugin** declaration. For example:

```
"consolePlugin": {
  "name": "my-plugin", (1)
  "version": "0.0.1", (2)
  "displayName": "My Plugin", (3)
  "description": "Enjoy this shiny, new console plugin!", (4)
  "exposedModules": {
    "ExamplePage": "./components/ExamplePage"
  },
  "dependencies": {
    "@console/pluginAPI": "/*"
  }
}
```

(1) Update the name of your plugin.

(2) Update the version.

(3) Update the display name for your plugin.

(4) Update the description with a synopsis about your plugin.

6. Add the following to the **console-extensions.json** file:

```
{
  "type": "console.tab/horizontalNav",
  "properties": {
    "page": {
      "name": "Example Tab",
      "href": "example"
    },
    "model": {
      "group": "core",
      "version": "v1",
      "kind": "Pod"
    },
    "component": { "$codeRef": "ExampleTab" }
  }
}
```

7. Edit the **package.json** file to include the following changes:

```
        "exposedModules": {
            "ExamplePage": "./components/ExamplePage",
            "ExampleTab": "./components/ExampleTab"
        }
```

8. Write a message to display on a new custom tab on the **Pods** page by creating a new file **src/components/ExampleTab.tsx** and adding the following script:

```
import * as React from 'react';

export default function ExampleTab() {
    return (
        <p>This is a custom tab added to a resource using a dynamic plugin.</p>
    );
}
```

9. Install a Helm chart with the name of the plugin as the Helm release name into a new namespace or an existing namespace as specified by the **-n** command-line option to deploy your plugin on a cluster. Provide the location of the image within the **plugin.image** parameter by using the following command:

```
$ helm upgrade -i  my-plugin charts/openshift-console-plugin -n my-plugin-namespace --
create-namespace --set plugin.image=my-plugin-image-location
```

NOTE

For more information on deploying your plugin on a cluster, see "Deploy your plugin on a cluster".

Verification

- Visit a **Pod** page to view the added tab.

7.5. DYNAMIC PLUGIN REFERENCE

You can add extensions that allow you to customize your plugin. Those extensions are then loaded to the console at run-time.

7.5.1. Dynamic plugin extension types

7.5.1.1. console.action/filter

ActionFilter can be used to filter an action.

Name	Value Type	Optional	Description
contextId	**string**	no	The context ID helps to narrow the scope of contributed actions to a particular area of the application. Examples include **topology** and **helm**.
filter	**CodeRef<(scope: any, action: Action) ⇒ boolean>**	no	A function that will filter actions based on some conditions. **scope**: The scope in which actions should be provided for. A hook might be required if you want to remove the **ModifyCount** action from a deployment with a horizontal pod autoscaler (HPA).

7.5.1.2. console.action/group

ActionGroup contributes an action group that can also be a submenu.

Name	Value Type	Optional	Description
id	**string**	no	ID used to identify the action section.
label	**string**	yes	The label to display in the UI. Required for submenus.

Name	Value Type	Optional	Description
submenu	**boolean**	yes	Whether this group should be displayed as submenu.
insertBefore	**string** | **string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string** | **string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. The **insertBefore** value takes precedence.

7.5.1.3. console.action/provider

ActionProvider contributes a hook that returns list of actions for specific context.

Name	Value Type	Optional	Description
contextId	**string**	no	The context ID helps to narrow the scope of contributed actions to a particular area of the application. Examples include **topology** and **helm**.
provider	**CodeRef<Extension Hook<Action[], any>>**	no	A React hook that returns actions for the given scope. If **contextId** = **resource**, then the scope will always be a Kubernetes resource object.

7.5.1.4. console.action/resource-provider

ResourceActionProvider contributes a hook that returns list of actions for specific resource model.

Name	Value Type	Optional	Description

Name	Value Type	Optional	Description
model	**ExtensionK8sKindVersionModel**	no	The model for which this provider provides actions for.
provider	**CodeRef<ExtensionHook<Action[], any>>**	no	A react hook which returns actions for the given resource model

7.5.1.5. console.alert-action

This extension can be used to trigger a specific action when a specific Prometheus alert is observed by the Console based on its **rule.name** value.

Name	Value Type	Optional	Description
alert	**string**	no	Alert name as defined by **alert.rule.name** property
text	**string**	no	
action	**CodeRef<(alert: any) ⇒ void>**	no	Function to perform side effect

7.5.1.6. console.catalog/item-filter

This extension can be used for plugins to contribute a handler that can filter specific catalog items. For example, the plugin can contribute a filter that filters helm charts from specific provider.

Name	Value Type	Optional	Description
catalogId	**string | string[]**	no	The unique identifier for the catalog this provider contributes to.
type	**string**	no	Type ID for the catalog item type.
filter	**CodeRef<(item: CatalogItem) ⇒ boolean>**	no	Filters items of a specific type. Value is a function that takes **CatalogItem[]** and returns a subset based on the filter criteria.

7.5.1.7. console.catalog/item-metadata

This extension can be used to contribute a provider that adds extra metadata to specific catalog items.

Name	Value Type	Optional	Description
catalogId	**string | string[]**	no	The unique identifier for the catalog this provider contributes to.
type	**string**	no	Type ID for the catalog item type.
provider	**CodeRef<ExtensionHook<CatalogItemMetadataProviderFunction, CatalogExtensionHookOptions>>**	no	A hook which returns a function that will be used to provide metadata to catalog items of a specific type.

7.5.1.8. console.catalog/item-provider

This extension allows plugins to contribute a provider for a catalog item type. For example, a Helm Plugin can add a provider that fetches all the Helm Charts. This extension can also be used by other plugins to add more items to a specific catalog item type.

Name	Value Type	Optional	Description
catalogId	**string | string[]**	no	The unique identifier for the catalog this provider contributes to.
type	**string**	no	Type ID for the catalog item type.
title	**string**	no	Title for the catalog item provider
provider	**CodeRef<ExtensionHook<CatalogItem<any>[], CatalogExtensionHookOptions>>**	no	Fetch items and normalize it for the catalog. Value is a react effect hook.

Name	Value Type	Optional	Description
priority	**number**	yes	Priority for this provider. Defaults to **0**. Higher priority providers may override catalog items provided by other providers.

7.5.1.9. console.catalog/item-type

This extension allows plugins to contribute a new type of catalog item. For example, a Helm plugin can define a new catalog item type as HelmCharts that it wants to contribute to the Developer Catalog.

Name	Value Type	Optional	Description
type	**string**	no	Type for the catalog item.
title	**string**	no	Title for the catalog item.
catalogDescription	**string** | **CodeRef<React.ReactNode>**	yes	Description for the type specific catalog.
typeDescription	**string**	yes	Description for the catalog item type.
filters	**CatalogItemAttribute[]**	yes	Custom filters specific to the catalog item.
groupings	**CatalogItemAttribute[]**	yes	Custom groupings specific to the catalog item.

7.5.1.10. console.catalog/item-type-metadata

This extension allows plugins to contribute extra metadata like custom filters or groupings for any catalog item type. For example, a plugin can attach a custom filter for HelmCharts that can filter based on chart provider.

Name	Value Type	Optional	Description
type	**string**	no	Type for the catalog item.

Name	Value Type	Optional	Description
filters	**CatalogItemAttribute[]**	yes	Custom filters specific to the catalog item.
groupings	**CatalogItemAttribute[]**	yes	Custom groupings specific to the catalog item.

7.5.1.11. console.cluster-overview/inventory-item

Adds a new inventory item into cluster overview page.

Name	Value Type	Optional	Description
component	**CodeRef<React.ComponentType<{}>>**	no	The component to be rendered.

7.5.1.12. console.cluster-overview/multiline-utilization-item

Adds a new cluster overview multi-line utilization item.

Name	Value Type	Optional	Description
title	**string**	no	The title of the utilization item.
getUtilizationQueries	**CodeRef<GetMultilineQueries>**	no	Prometheus utilization query.
humanize	**CodeRef<Humanize>**	no	Convert Prometheus data to human-readable form.
TopConsumerPopovers	**CodeRef<React.ComponentType<TopConsumerPopoverProps>[]>**	yes	Shows Top consumer popover instead of plain value.

7.5.1.13. console.cluster-overview/utilization-item

Adds a new cluster overview utilization item.

Name	Value Type	Optional	Description
title	**string**	no	The title of the utilization item.
getUtilizationQuery	**CodeRef<GetQuery>**	no	Prometheus utilization query.
humanize	**CodeRef<Humanize>**	no	Convert Prometheus data to human-readable form.
getTotalQuery	**CodeRef<GetQuery>**	yes	Prometheus total query.
getRequestQuery	**CodeRef<GetQuery>**	yes	Prometheus request query.
getLimitQuery	**CodeRef<GetQuery>**	yes	Prometheus limit query.
TopConsumerPopover	**CodeRef<React.ComponentType<TopConsumerPopoverProps>>**	yes	Shows Top consumer popover instead of plain value.

7.5.1.14. console.context-provider

Adds a new React context provider to the web console application root.

Name	Value Type	Optional	Description
provider	**CodeRef<Provider<T>>**	no	Context Provider component.
useValueHook	**CodeRef<() ⇒ T>**	no	Hook for the Context value.

7.5.1.15. console.dashboards/card

Adds a new dashboard card.

Name	Value Type	Optional	Description
tab	**string**	no	The ID of the dashboard tab to which the card will be added.

Name	Value Type	Optional	Description
position	**'LEFT' | 'RIGHT' | 'MAIN'**	no	The grid position of the card on the dashboard.
component	**CodeRef<React.ComponentType<{}>>**	no	Dashboard card component.
span	**OverviewCardSpan**	yes	Card's vertical span in the column. Ignored for small screens; defaults to **12**.

7.5.1.16. console.dashboards/custom/overview/detail/item

Adds an item to the Details card of Overview Dashboard.

Name	Value Type	Optional	Description
title	**string**	no	Details card title
component	**CodeRef<React.ComponentType<{}>>**	no	The value, rendered by the OverviewDetailItem component
valueClassName	**string**	yes	Value for a className
isLoading	**CodeRef<() ⇒ boolean>**	yes	Function returning the loading state of the component
error	**CodeRef<() ⇒ string>**	yes	Function returning errors to be displayed by the component

7.5.1.17. console.dashboards/overview/activity/resource

Adds an activity to the Activity Card of Overview Dashboard where the triggering of activity is based on watching a Kubernetes resource.

Name	Value Type	Optional	Description
k8sResource	**CodeRef<FirehoseResource & { isList: true; }>**	no	The utilization item to be replaced.

Name	Value Type	Optional	Description
component	**CodeRef<React.ComponentType<K8sActivityProps<T>>>**	no	The action component.
isActivity	**CodeRef<(resource: T) ⇒ boolean>**	yes	Function which determines if the given resource represents the action. If not defined, every resource represents activity.
getTimestamp	**CodeRef<(resource: T) ⇒ Date>**	yes	Time stamp for the given action, which will be used for ordering.

7.5.1.18. console.dashboards/overview/health/operator

Adds a health subsystem to the status card of the **Overview** dashboard, where the source of status is a Kubernetes REST API.

Name	Value Type	Optional	Description
title	**string**	no	Title of Operators section in the pop-up menu.
resources	**CodeRef<FirehoseResource[]>**	no	Kubernetes resources which will be fetched and passed to **healthHandler**.
getOperatorsWithStatuses	**CodeRef<GetOperatorsWithStatuses<T>>**	yes	Resolves status for the Operators.
operatorRowLoader	**CodeRef<React.ComponentType<OperatorRowProps<T>>>**	yes	Loader for pop-up row component.
viewAllLink	**string**	yes	Links to all resources page. If not provided, then a list page of the first resource from resources prop is used.

7.5.1.19. console.dashboards/overview/health/prometheus

Adds a health subsystem to the status card of Overview dashboard where the source of status is Prometheus.

Name	Value Type	Optional	Description
title	**string**	no	The display name of the subsystem.
queries	**string[]**	no	The Prometheus queries.
healthHandler	**CodeRef<PrometheusHealthHandler>**	no	Resolve the subsystem's health.
additionalResource	**CodeRef<FirehoseResource>**	yes	Additional resource which will be fetched and passed to **healthHandler**.
popupComponent	**CodeRef<React.ComponentType<PrometheusHealthPopupProps>>**	yes	Loader for pop-up menu content. If defined, a health item is represented as a link, which opens a pop-up menu with the given content.
popupTitle	**string**	yes	The title of the popover.
disallowedControlPlaneTopology	**string[]**	yes	Control plane topology for which the subsystem should be hidden.

7.5.1.20. console.dashboards/overview/health/resource

Adds a health subsystem to the status card of Overview dashboard where the source of status is a Kubernetes Resource.

Name	Value Type	Optional	Description
title	**string**	no	The display name of the subsystem.
resources	**CodeRef<WatchK8sResources<T>>**	no	Kubernetes resources that will be fetched and passed to **healthHandler**.

Name	Value Type	Optional	Description
healthHandler	**CodeRef<ResourceHealthHandler<T>>**	no	Resolve the subsystem's health.
popupComponent	**CodeRef<WatchK8sResults<T>>**	yes	Loader for pop-up menu content. If defined, a health item is represented as a link, which opens a pop-up menu with the given content.
popupTitle	**string**	yes	The title of the popover.

7.5.1.21. console.dashboards/overview/health/url

Adds a health subsystem to the status card of Overview dashboard where the source of status is a Kubernetes REST API.

Name	Value Type	Optional	Description
title	**string**	no	The display name of the subsystem.
url	**string**	no	The URL to fetch data from. It will be prefixed with base Kubernetes URL.
healthHandler	**CodeRef<URLHealthHandler<T, K8sResourceCommon | K8sResourceCommon[]>>**	no	Resolve the subsystem's health.
additionalResource	**CodeRef<FirehoseResource>**	yes	Additional resource which will be fetched and passed to **healthHandler**.
popupComponent	**CodeRef<React.ComponentType<{ healthResult?: T; healthResultError?: any; k8sResult?: FirehoseResult<R>; }>>**	yes	Loader for popup content. If defined, a health item will be represented as a link which opens popup with given content.

Name	Value Type	Optional	Description
popupTitle	**string**	yes	The title of the popover.

7.5.1.22. console.dashboards/overview/inventory/item

Adds a resource tile to the overview inventory card.

Name	Value Type	Optional	Description
model	**CodeRef<T>**	no	The model for **resource** which will be fetched. Used to get the model's **label** or **abbr**.
mapper	**CodeRef<StatusGroupMapper<T, R>>**	yes	Function which maps various statuses to groups.
additionalResources	**CodeRef<WatchK8sResources<R>>**	yes	Additional resources which will be fetched and passed to the **mapper** function.

7.5.1.23. console.dashboards/overview/inventory/item/group

Adds an inventory status group.

Name	Value Type	Optional	Description
id	**string**	no	The ID of the status group.
icon	**CodeRef<React.ReactElement<any, string | React.JSXElementConstructor<any>>>**	no	React component representing the status group icon.

7.5.1.24. console.dashboards/overview/inventory/item/replacement

Replaces an overview inventory card.

Name	Value Type	Optional	Description

Name	Value Type	Optional	Description
model	**CodeRef<T>**	no	The model for **resource** which will be fetched. Used to get the model's **label** or **abbr**.
mapper	**CodeRef<StatusGroupMapper<T, R>>**	yes	Function which maps various statuses to groups.
additionalResources	**CodeRef<WatchK8sResources<R>>**	yes	Additional resources which will be fetched and passed to the **mapper** function.

7.5.1.25. console.dashboards/overview/prometheus/activity/resource

Adds an activity to the Activity Card of Prometheus Overview Dashboard where the triggering of activity is based on watching a Kubernetes resource.

Name	Value Type	Optional	Description
queries	**string[]**	no	Queries to watch.
component	**CodeRef<React.ComponentType<PrometheusActivityProps>>**	no	The action component.
isActivity	**CodeRef<(results: PrometheusResponse[]) ⇒ boolean>**	yes	Function which determines if the given resource represents the action. If not defined, every resource represents activity.

7.5.1.26. console.dashboards/project/overview/item

Adds a resource tile to the project overview inventory card.

Name	Value Type	Optional	Description

Name	Value Type	Optional	Description
model	**CodeRef<T>**	no	The model for **resource** which will be fetched. Used to get the model's **label** or **abbr**.
mapper	**CodeRef<StatusGroupMapper<T, R>>**	yes	Function which maps various statuses to groups.
additionalResources	**CodeRef<WatchK8sResources<R>>**	yes	Additional resources which will be fetched and passed to the **mapper** function.

7.5.1.27. console.dashboards/tab

Adds a new dashboard tab, placed after the **Overview** tab.

Name	Value Type	Optional	Description
id	**string**	no	A unique tab identifier, used as tab link **href** and when adding cards to this tab.
navSection	**'home' | 'storage'**	no	Navigation section to which the tab belongs to.
title	**string**	no	The title of the tab.

7.5.1.28. console.file-upload

This extension can be used to provide a handler for the file drop action on specific file extensions.

Name	Value Type	Optional	Description
fileExtensions	**string[]**	no	Supported file extensions.
handler	**CodeRef<FileUploadHandler>**	no	Function which handles the file drop action.

7.5.1.29. console.flag

Gives full control over the web console feature flags.

Name	Value Type	Optional	Description
handler	**CodeRef<FeatureFlagHandler>**	no	Used to set or unset arbitrary feature flags.

7.5.1.30. console.flag/hookProvider

Gives full control over the web console feature flags with hook handlers.

Name	Value Type	Optional	Description
handler	**CodeRef<FeatureFlagHandler>**	no	Used to set or unset arbitrary feature flags.

7.5.1.31. console.flag/model

Adds a new web console feature flag driven by the presence of a **CustomResourceDefinition** (CRD) object on the cluster.

Name	Value Type	Optional	Description
flag	**string**	no	The name of the flag to set after the CRD is detected.
model	**ExtensionK8sModel**	no	The model which refers to a CRD.

7.5.1.32. console.global-config

This extension identifies a resource used to manage the configuration of the cluster. A link to the resource will be added to the **Administration → Cluster Settings → Configuration** page.

Name	Value Type	Optional	Description
id	**string**	no	Unique identifier for the cluster config resource instance.
name	**string**	no	The name of the cluster config resource instance.

Name	Value Type	Optional	Description
model	**ExtensionK8sModel**	no	The model which refers to a cluster config resource.
namespace	**string**	no	The namespace of the cluster config resource instance.

7.5.1.33. console.model-metadata

Customize the display of models by overriding values retrieved and generated through API discovery.

Name	Value Type	Optional	Description
model	**ExtensionK8sGroupModel**	no	The model to customize. May specify only a group, or optional version and kind.
badge	**ModelBadge**	yes	Whether to consider this model reference as Technology Preview or Developer Preview.
color	**string**	yes	The color to associate to this model.
label	**string**	yes	Override the label. Requires **kind** be provided.
labelPlural	**string**	yes	Override the plural label. Requires **kind** be provided.
abbr	**string**	yes	Customize the abbreviation. Defaults to all uppercase characters in **kind**, up to 4 characters long. Requires that **kind** is provided.

7.5.1.34. console.navigation/href

This extension can be used to contribute a navigation item that points to a specific link in the UI.

Name	Value Type	Optional	Description
id	**string**	no	A unique identifier for this item.
name	**string**	no	The name of this item.
href	**string**	no	The link **href** value.
perspective	**string**	yes	The perspective ID to which this item belongs to. If not specified, contributes to the default perspective.
section	**string**	yes	Navigation section to which this item belongs to. If not specified, render this item as a top level link.
dataAttributes	**{ [key: string]: string; }**	yes	Adds data attributes to the DOM.
startsWith	**string[]**	yes	Mark this item as active when the URL starts with one of these paths.
insertBefore	**string | string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string | string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. **insertBefore** takes precedence.
namespaced	**boolean**	yes	If **true**, adds **/ns/active-namespace** to the end.
prefixNamespaced	**boolean**	yes	If **true**, adds **/k8s/ns/active-namespace** to the beginning.

7.5.1.35. console.navigation/resource-cluster

This extension can be used to contribute a navigation item that points to a cluster resource details page. The K8s model of that resource can be used to define the navigation item.

Name	Value Type	Optional	Description
id	**string**	no	A unique identifier for this item.
model	**ExtensionK8sModel**	no	The model for which this navigation item links to.
perspective	**string**	yes	The perspective ID to which this item belongs to. If not specified, contributes to the default perspective.
section	**string**	yes	Navigation section to which this item belongs to. If not specified, render this item as a top-level link.
dataAttributes	**{ [key: string]: string; }**	yes	Adds data attributes to the DOM.
startsWith	**string[]**	yes	Mark this item as active when the URL starts with one of these paths.
insertBefore	**string | string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string | string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. **insertBefore** takes precedence.
name	**string**	yes	Overrides the default name. If not supplied the name of the link will equal the plural value of the model.

7.5.1.36. console.navigation/resource-ns

This extension can be used to contribute a navigation item that points to a namespaced resource details page. The K8s model of that resource can be used to define the navigation item.

Name	Value Type	Optional	Description
id	**string**	no	A unique identifier for this item.
model	**ExtensionK8sModel**	no	The model for which this navigation item links to.
perspective	**string**	yes	The perspective ID to which this item belongs to. If not specified, contributes to the default perspective.
section	**string**	yes	Navigation section to which this item belongs to. If not specified, render this item as a top-level link.
dataAttributes	**{ [key: string]: string; }**	yes	Adds data attributes to the DOM.
startsWith	**string[]**	yes	Mark this item as active when the URL starts with one of these paths.
insertBefore	**string | string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string | string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. **insertBefore** takes precedence.
name	**string**	yes	Overrides the default name. If not supplied the name of the link will equal the plural value of the model.

7.5.1.37. console.navigation/section

This extension can be used to define a new section of navigation items in the navigation tab.

Name	Value Type	Optional	Description
id	**string**	no	A unique identifier for this item.
perspective	**string**	yes	The perspective ID to which this item belongs to. If not specified, contributes to the default perspective.
dataAttributes	**{ [key: string]: string; }**	yes	Adds data attributes to the DOM.
insertBefore	**string | string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string | string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. **insertBefore** takes precedence.
name	**string**	yes	Name of this section. If not supplied, only a separator will be shown above the section.

7.5.1.38. console.navigation/separator

This extension can be used to add a separator between navigation items in the navigation.

Name	Value Type	Optional	Description
id	**string**	no	A unique identifier for this item.
perspective	**string**	yes	The perspective ID to which this item belongs to. If not specified, contributes to the default perspective.

Name	Value Type	Optional	Description
section	**string**	yes	Navigation section to which this item belongs to. If not specified, render this item as a top level link.
dataAttributes	**{ [key: string]: string; }**	yes	Adds data attributes to the DOM.
insertBefore	**string | string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string | string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. **insertBefore** takes precedence.

7.5.1.39. console.page/resource/details

Name	Value Type	Optional	Description
model	**ExtensionK8sGroupKindModel**	no	The model for which this resource page links to.
component	**CodeRef<React.ComponentType<{ match: match<{}>; namespace: string; model: ExtensionK8sModel; }>>**	no	The component to be rendered when the route matches.

7.5.1.40. console.page/resource/list

Adds new resource list page to Console router.

Name	Value Type	Optional	Description
model	**ExtensionK8sGroupKindModel**	no	The model for which this resource page links to.

Name	Value Type	Optional	Description
component	**CodeRef<React.ComponentType<{ match: match<{}>; namespace: string; model: ExtensionK8sModel; }>>**	no	The component to be rendered when the route matches.

7.5.1.41. console.page/route

Adds a new page to the web console router. See React Router.

Name	Value Type	Optional	Description
component	**CodeRef<React.ComponentType<RouteComponentProps<{}, StaticContext, any>>>**	no	The component to be rendered when the route matches.
path	**string | string[]**	no	Valid URL path or array of paths that **path-to-regexp@^1.7.0** understands.
perspective	**string**	yes	The perspective to which this page belongs to. If not specified, contributes to all perspectives.
exact	**boolean**	yes	When true, will only match if the path matches the **location.pathname** exactly.

7.5.1.42. console.page/route/standalone

Adds a new standalone page, rendered outside the common page layout, to the web console router. See React Router.

Name	Value Type	Optional	Description

Name	Value Type	Optional	Description
component	**CodeRef<React.ComponentType<RouteComponentProps<{}, StaticContext, any>>>**	no	The component to be rendered when the route matches.
path	**string | string[]**	no	Valid URL path or array of paths that **path-to-regexp@^1.7.0** understands.
exact	**boolean**	yes	When true, will only match if the path matches the **location.pathname** exactly.

7.5.1.43. console.perspective

This extension contributes a new perspective to the console, which enables customization of the navigation menu.

Name	Value Type	Optional	Description
id	**string**	no	The perspective identifier.
name	**string**	no	The perspective display name.
icon	**CodeRef<LazyComponent>**	no	The perspective display icon.
landingPageURL	**CodeRef<(flags: { [key: string]: boolean; }, isFirstVisit: boolean) ⇒ string>**	no	The function to get perspective landing page URL.
importRedirectURL	**CodeRef<(namespace: string) ⇒ string>**	no	The function to get redirect URL for import flow.

Name	Value Type	Optional	Description
default	**boolean**	yes	Whether the perspective is the default. There can only be one default.
defaultPins	**ExtensionK8sModel[]**	yes	Default pinned resources on the nav
usePerspectiveDetection	**CodeRef<() ⇒ [boolean, boolean]>**	yes	The hook to detect default perspective

7.5.1.44. console.project-overview/inventory-item

Adds a new inventory item into the **Project Overview** page.

Name	Value Type	Optional	Description
component	**CodeRef<React.ComponentType<{ projectName: string; }>>**	no	The component to be rendered.

7.5.1.45. console.project-overview/utilization-item

Adds a new project overview utilization item.

Name	Value Type	Optional	Description
title	**string**	no	The title of the utilization item.
getUtilizationQuery	**CodeRef<GetProjectQuery>**	no	Prometheus utilization query.
humanize	**CodeRef<Humanize>**	no	Convert Prometheus data to human-readable form.
getTotalQuery	**CodeRef<GetProjectQuery>**	yes	Prometheus total query.
getRequestQuery	**CodeRef<GetProjectQuery>**	yes	Prometheus request query.

Name	Value Type	Optional	Description
getLimitQuery	**CodeRef<GetProjectQuery>**	yes	Prometheus limit query.
TopConsumerPopover	**CodeRef<React.ComponentType<TopConsumerPopoverProps>>**	yes	Shows the top consumer popover instead of plain value.

7.5.1.46. console.pvc/alert

This extension can be used to contribute custom alerts on the PVC details page.

Name	Value Type	Optional	Description
alert	**CodeRef<React.ComponentType<{ pvc: K8sResourceCommon; }>>**	no	The alert component.

7.5.1.47. console.pvc/create-prop

This extension can be used to specify additional properties that will be used when creating PVC resources on the PVC list page.

Name	Value Type	Optional	Description
label	**string**	no	Label for the create prop action.
path	**string**	no	Path for the create prop action.

7.5.1.48. console.pvc/delete

This extension allows hooking into deleting PVC resources. It can provide an alert with additional information and custom PVC delete logic.

Name	Value Type	Optional	Description
predicate	**CodeRef<(pvc: K8sResourceCommon) ⇒ boolean>**	no	Predicate that tells whether to use the extension or not.

Name	Value Type	Optional	Description
onPVCKill	**CodeRef<(pvc: K8sResourceCommon) ⇒ Promise<void>>**	no	Method for the PVC delete operation.
alert	**CodeRef<React.ComponentType<{ pvc: K8sResourceCommon; }>>**	no	Alert component to show additional information.

7.5.1.49. console.pvc/status

Name	Value Type	Optional	Description
priority	**number**	no	Priority for the status component. A larger value means higher priority.
status	**CodeRef<React.ComponentType<{ pvc: K8sResourceCommon; }>>**	no	The status component.
predicate	**CodeRef<(pvc: K8sResourceCommon) ⇒ boolean>**	no	Predicate that tells whether to render the status component or not.

7.5.1.50. console.redux-reducer

Adds new reducer to Console Redux store which operates on **plugins.<scope>** substate.

Name	Value Type	Optional	Description
scope	**string**	no	The key to represent the reducer-managed substate within the Redux state object.
reducer	**CodeRef<Reducer<any, AnyAction>>**	no	The reducer function, operating on the reducer-managed substate.

7.5.1.51. console.resource/create

This extension allows plugins to provide a custom component (i.e., wizard or form) for specific resources, which will be rendered, when users try to create a new resource instance.

Name	Value Type	Optional	Description
model	**ExtensionK8sModel**	no	The model for which this create resource page will be rendered
component	**CodeRef<React.ComponentType<CreateResourceComponentProps>>**	no	The component to be rendered when the model matches

7.5.1.52. console.resource/details-item

Adds a new details item to the default resource summary on the details page.

Name	Value Type	Optional	Description
model	**ExtensionK8sModel**	no	The subject resource's API group, version, and kind.
id	**string**	no	A unique identifier.
column	**DetailsItemColumn**	no	Determines if the item will appear in the 'left' or 'right' column of the resource summary on the details page. Default: 'right'
title	**string**	no	The details item title.
path	**string**	yes	An optional, fully-qualified path to a resource property to used as the details item value. Only primitive type values can be rendered directly. Use the component property to handle other data types.
component	**CodeRef<React.ComponentType<DetailsItemComponentProps<K8sResourceCommon, any>>>**	yes	An optional React component that will render the details item value.

Name	Value Type	Optional	Description
sortWeight	**number**	yes	An optional sort weight, relative to all other details items in the same column. Represented by any valid JavaScriptNumber. Items in each column are sorted independently, lowest to highest. Items without sort weightsare sorted after items with sort weights.

7.5.1.53. console.storage-class/provisioner

Adds a new storage class provisioner as an option during storage class creation.

Name	Value Type	Optional	Description
CSI	**ProvisionerDetails**	yes	Container Storage Interface provisioner type
OTHERS	**ProvisionerDetails**	yes	Other provisioner type

7.5.1.54. console.storage-provider

This extension can be used to contribute a new storage provider to select, when attaching storage and a provider specific component.

Name	Value Type	Optional	Description
name	**string**	no	Displayed name of the provider.
Component	**CodeRef<React.ComponentType<Partial<RouteComponentProps<{}, StaticContext, any>>>>**	no	Provider specific component to render.

7.5.1.55. console.tab

Adds a tab to a horizontal nav matching the **contextId**.

Name	Value Type	Optional	Description
contextId	**string**	no	Context ID assigned to the horizontal nav in which the tab will be injected. Possible values: **dev-console-observe**
name	**string**	no	The display label of the tab
href	**string**	no	The **href** appended to the existing URL
component	**CodeRef<React.ComponentType<PageComponentProps<K8sResourceCommon>>>**	no	Tab content component.

7.5.1.56. console.tab/horizontalNav

This extension can be used to add a tab on the resource details page.

Name	Value Type	Optional	Description
model	**ExtensionK8sKindVersionModel**	no	The model for which this provider show tab.
page	**{ name: string; href: string; }**	no	The page to be show in horizontal tab. It takes tab name as name and href of the tab
component	**CodeRef<React.ComponentType<PageComponentProps<K8sResourceCommon>>>**	no	The component to be rendered when the route matches.

7.5.1.57. console.telemetry/listener

This component can be used to register a listener function receiving telemetry events. These events include user identification, page navigation, and other application specific events. The listener may use this data for reporting and analytics purposes.

Name	Value Type	Optional	Description
listener	**CodeRef<Telemetry EventListener>**	no	Listen for telemetry events

7.5.1.58. console.topology/adapter/build

BuildAdapter contributes an adapter to adapt element to data that can be used by the Build component.

Name	Value Type	Optional	Description
adapt	**CodeRef<(element: GraphElement) ⇒ AdapterDataType<BuildConfigData> | undefined>**	no	Adapter to adapt element to data that can be used by Build component.

7.5.1.59. console.topology/adapter/network

NetworkAdapater contributes an adapter to adapt element to data that can be used by the **Networking** component.

Name	Value Type	Optional	Description
adapt	**CodeRef<(element: GraphElement) ⇒ NetworkAdapterType | undefined>**	no	Adapter to adapt element to data that can be used by Networking component.

7.5.1.60. console.topology/adapter/pod

PodAdapter contributes an adapter to adapt element to data that can be used by the **Pod** component.

Name	Value Type	Optional	Description
adapt	**CodeRef<(element: GraphElement) ⇒ AdapterDataType<PodsAdapterDataType> | undefined>**	no	Adapter to adapt element to data that can be used by Pod component.

7.5.1.61. console.topology/component/factory

Getter for a **ViewComponentFactory**.

Name	Value Type	Optional	Description
getFactory	**CodeRef<ViewComponentFactory>**	no	Getter for a **ViewComponentFactory**.

7.5.1.62. console.topology/create/connector

Getter for the create connector function.

Name	Value Type	Optional	Description
getCreateConnector	**CodeRef<CreateConnectionGetter>**	no	Getter for the create connector function.

7.5.1.63. console.topology/data/factory

Topology Data Model Factory Extension

Name	Value Type	Optional	Description
id	**string**	no	Unique ID for the factory.
priority	**number**	no	Priority for the factory
resources	**WatchK8sResourcesGeneric**	yes	Resources to be fetched from **useK8sWatchResources** hook.
workloadKeys	**string[]**	yes	Keys in resources containing workloads.
getDataModel	**CodeRef<TopologyDataModelGetter>**	yes	Getter for the data model factory.
isResourceDepicted	**CodeRef<TopologyDataModelDepicted>**	yes	Getter for function to determine if a resource is depicted by this model factory.
getDataModelReconciler	**CodeRef<TopologyDataModelReconciler>**	yes	Getter for function to reconcile data model after all extensions' models have loaded.

7.5.1.64. console.topology/decorator/provider

Topology Decorator Provider Extension

Name	Value Type	Optional	Description
id	**string**	no	ID for topology decorator specific to the extension
priority	**number**	no	Priority for topology decorator specific to the extension
quadrant	**TopologyQuadrant**	no	Quadrant for topology decorator specific to the extension
decorator	**CodeRef<TopologyDecoratorGetter>**	no	Decorator specific to the extension

7.5.1.65. console.topology/details/resource-alert

DetailsResourceAlert contributes an alert for specific topology context or graph element.

Name	Value Type	Optional	Description
id	**string**	no	The ID of this alert. Used to save state if the alert should not be shown after dismissed.
contentProvider	**CodeRef<(element: GraphElement) ⇒ DetailsResourceAlertContent | null>**	no	Hook to return the contents of the alert.

7.5.1.66. console.topology/details/resource-link

DetailsResourceLink contributes a link for specific topology context or graph element.

Name	Value Type	Optional	Description

Name	Value Type	Optional	Description
link	**CodeRef<(element: GraphElement) ⇒ React.Component | undefined>**	no	Return the resource link if provided, otherwise undefined. Use the **ResourceIcon** and **ResourceLink** properties for styles.
priority	**number**	yes	A higher priority factory will get the first chance to create the link.

7.5.1.67. console.topology/details/tab

DetailsTab contributes a tab for the topology details panel.

Name	Value Type	Optional	Description
id	**string**	no	A unique identifier for this details tab.
label	**string**	no	The tab label to display in the UI.
insertBefore	**string | string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string | string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. The **insertBefore** value takes precedence.

7.5.1.68. console.topology/details/tab-section

DetailsTabSection contributes a section for a specific tab in the topology details panel.

Name	Value Type	Optional	Description
id	**string**	no	A unique identifier for this details tab section.

Name	Value Type	Optional	Description
tab	**string**	no	The parent tab ID that this section should contribute to.
provider	**CodeRef<DetailsTabSectionExtensionHook>**	no	A hook that returns a component, or if null or undefined, renders in the topology sidebar. SDK component: **<Section title=\{}>...** padded area
section	**CodeRef<(element: GraphElement, renderNull?: () ⇒ null) ⇒ React.Component | undefined>**	no	Deprecated: Fallback if no provider is defined. renderNull is a no-op already.
insertBefore	**string | string[]**	yes	Insert this item before the item referenced here. For arrays, the first one found in order is used.
insertAfter	**string | string[]**	yes	Insert this item after the item referenced here. For arrays, the first one found in order is used. The **insertBefore** value takes precedence.

7.5.1.69. console.topology/display/filters

Topology Display Filters Extension

Name	Value Type	Optional	Description
getTopologyFilters	**CodeRef<() ⇒ TopologyDisplayOption[]>**	no	Getter for topology filters specific to the extension
applyDisplayOptions	**CodeRef<TopologyApplyDisplayOptions>**	no	Function to apply filters to the model

7.5.1.70. console.topology/relationship/provider

Topology relationship provider connector extension

Name	Value Type	Optional	Description
provides	**CodeRef<RelationshipProviderProvides>**	no	Use to determine if a connection can be created between the source and target node
tooltip	**string**	no	Tooltip to show when connector operation is hovering over the drop target, for example, "Create a Visual Connector"
create	**CodeRef<RelationshipProviderCreate>**	no	Callback to execute when connector is drop over target node to create a connection
priority	**number**	no	Priority for relationship, higher will be preferred in case of multiple

7.5.1.71. console.user-preference/group

This extension can be used to add a group on the console user-preferences page. It will appear as a vertical tab option on the console user-preferences page.

Name	Value Type	Optional	Description
id	**string**	no	ID used to identify the user preference group.
label	**string**	no	The label of the user preference group
insertBefore	**string**	yes	ID of user preference group before which this group should be placed
insertAfter	**string**	yes	ID of user preference group after which this group should be placed

7.5.1.72. console.user-preference/item

This extension can be used to add an item to the user preferences group on the console user preferences page.

Name	Value Type	Optional	Description
id	**string**	no	ID used to identify the user preference item and referenced in insertAfter and insertBefore to define the item order
label	**string**	no	The label of the user preference
description	**string**	no	The description of the user preference
field	**UserPreferenceField**	no	The input field options used to render the values to set the user preference
groupId	**string**	yes	IDs used to identify the user preference groups the item would belong to
insertBefore	**string**	yes	ID of user preference item before which this item should be placed
insertAfter	**string**	yes	ID of user preference item after which this item should be placed

7.5.1.73. console.yaml-template

YAML templates for editing resources via the yaml editor.

Name	Value Type	Optional	Description
model	**ExtensionK8sModel**	no	Model associated with the template.
template	**CodeRef<string>**	no	The YAML template.

Name	Value Type	Optional	Description
name	**string**	no	The name of the template. Use the name **default** to mark this as the default template.

7.5.1.74. dev-console.add/action

This extension allows plugins to contribute an add action item to the add page of developer perspective. For example, a Serverless plugin can add a new action item for adding serverless functions to the add page of developer console.

Name	Value Type	Optional	Description
id	**string**	no	ID used to identify the action.
label	**string**	no	The label of the action.
description	**string**	no	The description of the action.
href	**string**	no	The **href** to navigate to.
groupId	**string**	yes	IDs used to identify the action groups the action would belong to.
icon	**CodeRef<React.ReactNode>**	yes	The perspective display icon.
accessReview	**AccessReviewResourceAttributes[]**	yes	Optional access review to control the visibility or enablement of the action.

7.5.1.75. dev-console.add/action-group

This extension allows plugins to contibute a group in the add page of developer console. Groups can be referenced by actions, which will be grouped together in the add action page based on their extension definition. For example, a Serverless plugin can contribute a Serverless group and together with multiple add actions.

Name	Value Type	Optional	Description

Name	Value Type	Optional	Description
id	**string**	no	ID used to identify the action group
name	**string**	no	The title of the action group
insertBefore	**string**	yes	ID of action group before which this group should be placed
insertAfter	**string**	yes	ID of action group after which this group should be placed

7.5.1.76. dev-console.import/environment

This extension can be used to specify extra build environment variable fields under the builder image selector in the developer console git import form. When set, the fields will override environment variables of the same name in the build section.

Name	Value Type	Optional	Description
imageStreamName	**string**	no	Name of the image stream to provide custom environment variables for
imageStreamTags	**string[]**	no	List of supported image stream tags
environments	**ImageEnvironment[]**	no	List of environment variables

7.5.1.77. console.dashboards/overview/detail/item

Deprecated. use **CustomOverviewDetailItem** type instead

Name	Value Type	Optional	Description
component	**CodeRef<React.ComponentType<{}>>**	no	The value, based on the **DetailItem** component

7.5.1.78. console.page/resource/tab

Deprecated. Use **console.tab/horizontalNav** instead. Adds a new resource tab page to Console router.

Name	Value Type	Optional	Description
model	**ExtensionK8sGroupKindModel**	no	The model for which this resource page links to.
component	**CodeRef<React.ComponentType<RouteComponentProps<{}, StaticContext, any>>>**	no	The component to be rendered when the route matches.
name	**string**	no	The name of the tab.
href	**string**	yes	The optional **href** for the tab link. If not provided, the first **path** is used.
exact	**boolean**	yes	When true, will only match if the path matches the **location.pathname** exactly.

7.5.2. Dynamic plugin API

7.5.2.1. useActivePerspective

Hook that provides the currently active perspective and a callback for setting the active perspective. It returns a tuple containing the current active perspective and setter callback.

Example

```
const Component: React.FC = (props) => {
  const [activePerspective, setActivePerspective] = useActivePerspective();
  return <select
    value={activePerspective}
    onChange={(e) => setActivePerspective(e.target.value)}
  >
    {
      // ...perspective options
    }
  </select>
}
```

7.5.2.2. GreenCheckCircleIcon

Component for displaying a green check mark circle icon.

Example

```
<GreenCheckCircleIcon title="Healthy" />
```

Parameter Name	Description
className	(optional) additional class name for the component
title	(optional) icon title
size	(optional) icon size: (**sm**, **md**, **lg**, **xl**)

7.5.2.3. RedExclamationCircleIcon

Component for displaying a red exclamation mark circle icon.

Example

```
<RedExclamationCircleIcon title="Failed" />
```

Parameter Name	Description
className	(optional) additional class name for the component
title	(optional) icon title
size	(optional) icon size: (**sm**, **md**, **lg**, **xl**)

7.5.2.4. YellowExclamationTriangleIcon

Component for displaying a yellow triangle exclamation icon.

Example

```
<YellowExclamationTriangleIcon title="Warning" />
```

Parameter Name	Description
className	(optional) additional class name for the component
title	(optional) icon title
size	(optional) icon size: (**sm**, **md**, **lg**, **xl**)

7.5.2.5. BlueInfoCircleIcon

Component for displaying a blue info circle icon.

Example

```
<BlueInfoCircleIcon title="Info" />
```

Parameter Name	Description
className	(optional) additional class name for the component
title	(optional) icon title
size	(optional) icon size: ('sm', 'md', 'lg', 'xl')

7.5.2.6. ErrorStatus

Component for displaying an error status popover.

Example

```
<ErrorStatus title={errorMsg} />
```

Parameter Name	Description
title	(optional) status text
iconOnly	(optional) if true, only displays icon
noTooltip	(optional) if true, tooltip won't be displayed
className	(optional) additional class name for the component
popoverTitle	(optional) title for popover

7.5.2.7. InfoStatus

Component for displaying an information status popover.

Example

```
<InfoStatus title={infoMsg} />
```

Parameter Name	Description
title	(optional) status text
iconOnly	(optional) if true, only displays icon

Parameter Name	Description
noTooltip	(optional) if true, tooltip won't be displayed
className	(optional) additional class name for the component
popoverTitle	(optional) title for popover

7.5.2.8. **ProgressStatus**

Component for displaying a progressing status popover.

Example

```
<ProgressStatus title={progressMsg} />
```

Parameter Name	Description
title	(optional) status text
iconOnly	(optional) if true, only displays icon
noTooltip	(optional) if true, tooltip won't be displayed
className	(optional) additional class name for the component
popoverTitle	(optional) title for popover

7.5.2.9. **SuccessStatus**

Component for displaying a success status popover.

Example

```
<SuccessStatus title={successMsg} />
```

Parameter Name	Description
title	(optional) status text
iconOnly	(optional) if true, only displays icon
noTooltip	(optional) if true, tooltip won't be displayed
className	(optional) additional class name for the component

Parameter Name	Description
popoverTitle	(optional) title for popover

7.5.2.10. checkAccess

Provides information about user access to a given resource. It returns an object with resource access information.

Parameter Name	Description
resourceAttributes	resource attributes for access review
impersonate	impersonation details

7.5.2.11. useAccessReview

Hook that provides information about user access to a given resource. It returns an array with **isAllowed** and **loading** values.

Parameter Name	Description
resourceAttributes	resource attributes for access review
impersonate	impersonation details

7.5.2.12. useResolvedExtensions

React hook for consuming Console extensions with resolved **CodeRef** properties. This hook accepts the same argument(s) as **useExtensions** hook and returns an adapted list of extension instances, resolving all code references within each extension's properties.

Initially, the hook returns an empty array. After the resolution is complete, the React component is re-rendered with the hook returning an adapted list of extensions. When the list of matching extensions changes, the resolution is restarted. The hook will continue to return the previous result until the resolution completes.

The hook's result elements are guaranteed to be referentially stable across re-renders. It returns a tuple containing a list of adapted extension instances with resolved code references, a boolean flag indicating whether the resolution is complete, and a list of errors detected during the resolution.

Example

```
const [navItemExtensions, navItemsResolved] = useResolvedExtensions<NavItem>(isNavItem);
// process adapted extensions and render your component
```

Parameter Name	Description
typeGuards	A list of callbacks that each accept a dynamic plugin extension as an argument and return a boolean flag indicating whether or not the extension meets desired type constraints

7.5.2.13. HorizontalNav

A component that creates a Navigation bar for a page. Routing is handled as part of the component. **console.tab/horizontalNav** can be used to add additional content to any horizontal navigation.

Example

```
const HomePage: React.FC = (props) => {
  const page = {
    href: '/home',
    name: 'Home',
    component: () => <>Home</>
  }
  return <HorizontalNav match={props.match} pages={[page]} />
}
```

Parameter Name	Description
resource	The resource associated with this Navigation, an object of K8sResourceCommon type
pages	An array of page objects
match	match object provided by React Router

7.5.2.14. VirtualizedTable

A component for making virtualized tables.

Example

```
const MachineList: React.FC<MachineListProps> = (props) => {
  return (
    <VirtualizedTable<MachineKind>
     {...props}
     aria-label='Machines'
     columns={getMachineColumns}
     Row={getMachineTableRow}
    />
  );
}
```

Parameter Name	Description
data	data for table
loaded	flag indicating data is loaded
loadError	error object if issue loading data
columns	column setup
Row	row setup
unfilteredData	original data without filter
NoDataEmptyMsg	(optional) no data empty message component
EmptyMsg	(optional) empty message component
scrollNode	(optional) function to handle scroll
label	(optional) label for table
ariaLabel	(optional) aria label
gridBreakPoint	sizing of how to break up grid for responsiveness
onSelect	(optional) function for handling select of table
rowData	(optional) data specific to row

7.5.2.15. TableData

Component for displaying table data within a table row.

Example

```
const PodRow: React.FC<RowProps<K8sResourceCommon>> = ({ obj, activeColumnIDs }) => {
  return (
    <>
      <TableData id={columns[0].id} activeColumnIDs={activeColumnIDs}>
        <ResourceLink kind="Pod" name={obj.metadata.name} namespace={obj.metadata.namespace}
/>
      </TableData>
      <TableData id={columns[1].id} activeColumnIDs={activeColumnIDs}>
        <ResourceLink kind="Namespace" name={obj.metadata.namespace} />
      </TableData>
```

```
    </>
  );
};
```

Parameter Name	Description
id	unique ID for table
activeColumnIDs	active columns
className	(optional) option class name for styling

7.5.2.16. useActiveColumns

A hook that provides a list of user-selected active TableColumns.

Example

```
// See implementation for more details on TableColumn type
  const [activeColumns, userSettingsLoaded] = useActiveColumns({
    columns,
    showNamespaceOverride: false,
    columnManagementID,
  });
  return userSettingsAreLoaded ? <VirtualizedTable columns={activeColumns} {...otherProps} /> : null
```

Parameter Name	Description
options	Which are passed as a key-value map
\{TableColumn[]} options.columns	An array of all available TableColumns
{boolean} [options.showNamespaceOverride]	(optional) If true, a namespace column will be included, regardless of column management selections
{string} [options.columnManagementID]	(optional) A unique ID used to persist and retrieve column management selections to and from user settings. Usually a group/version/kind (GVK) string for a resource.

A tuple containing the current user selected active columns (a subset of options.columns), and a boolean flag indicating whether user settings have been loaded.

7.5.2.17. ListPageHeader

Component for generating a page header.

Example

```
const exampleList: React.FC = () => {
  return (
    <>
      <ListPageHeader title="Example List Page"/>
    </>
  );
};
```

Parameter Name	Description
title	heading title
helpText	(optional) help section as react node
badge	(optional) badge icon as react node

7.5.2.18. ListPageCreate

Component for adding a create button for a specific resource kind that automatically generates a link to the create YAML for this resource.

Example

```
const exampleList: React.FC<MyProps> = () => {
  return (
    <>
      <ListPageHeader title="Example Pod List Page"/>
        <ListPageCreate groupVersionKind="Pod">Create Pod</ListPageCreate>
      </ListPageHeader>
    </>
  );
};
```

Parameter Name	Description
groupVersionKind	the resource group/version/kind to represent

7.5.2.19. ListPageCreateLink

Component for creating a stylized link.

Example

```
const exampleList: React.FC<MyProps> = () => {
 return (
  <>
   <ListPageHeader title="Example Pod List Page"/>
      <ListPageCreateLink to={'/link/to/my/page'}>Create Item</ListPageCreateLink>
   </ListPageHeader>
```

```
    </>
  );
};
```

Parameter Name	Description
to	string location where link should direct
createAccessReview	(optional) object with namespace and kind used to determine access
children	(optional) children for the component

7.5.2.20. ListPageCreateButton

Component for creating button.

Example

```
const exampleList: React.FC<MyProps> = () => {
  return (
    <>
      <ListPageHeader title="Example Pod List Page"/>
        <ListPageCreateButton createAccessReview={access}>Create Pod</ListPageCreateButton>
      </ListPageHeader>
    </>
  );
};
```

Parameter Name	Description
createAccessReview	(optional) object with namespace and kind used to determine access
pfButtonProps	(optional) Patternfly Button props

7.5.2.21. ListPageCreateDropdown

Component for creating a dropdown wrapped with permissions check.

Example

```
const exampleList: React.FC<MyProps> = () => {
  const items = {
    SAVE: 'Save',
    DELETE: 'Delete',
  }
  return (
    <>
     <ListPageHeader title="Example Pod List Page"/>
```

```
      <ListPageCreateDropdown createAccessReview={access}
items={items}>Actions</ListPageCreateDropdown>
    </ListPageHeader>
   </>
  );
};
```

Parameter Name	Description
items	key:ReactNode pairs of items to display in dropdown component
onClick	callback function for click on dropdown items
createAccessReview	(optional) object with namespace and kind used to determine access
children	(optional) children for the dropdown toggle

7.5.2.22. ListPageFilter

Component that generates filter for list page.

Example

```
  // See implementation for more details on RowFilter and FilterValue types
  const [staticData, filteredData, onFilterChange] = useListPageFilter(
    data,
    rowFilters,
    staticFilters,
  );
  // ListPageFilter updates filter state based on user interaction and resulting filtered data can be
rendered in an independent component.
  return (
    <>
      <ListPageHeader .../>
      <ListPagBody>
        <ListPageFilter data={staticData} onFilterChange={onFilterChange} />
        <List data={filteredData} />
      </ListPageBody>
    </>
  )
```

Parameter Name	Description
data	An array of data points
loaded	indicates that data has loaded

Parameter Name	Description
onFilterChange	callback function for when filter is updated
rowFilters	(optional) An array of RowFilter elements that define the available filter options
nameFilterPlaceholder	(optional) placeholder for name filter
labelFilterPlaceholder	(optional) placeholder for label filter
hideLabelFilter	(optional) only shows the name filter instead of both name and label filter
hideNameLabelFilter	(optional) hides both name and label filter
columnLayout	(optional) column layout object
hideColumnManagement	(optional) flag to hide the column management

7.5.2.23. useListPageFilter

A hook that manages filter state for the ListPageFilter component. It returns a tuple containing the data filtered by all static filters, the data filtered by all static and row filters, and a callback that updates rowFilters.

Example

```
  // See implementation for more details on RowFilter and FilterValue types
  const [staticData, filteredData, onFilterChange] = useListPageFilter(
    data,
    rowFilters,
    staticFilters,
  );
  // ListPageFilter updates filter state based on user interaction and resulting filtered data can be
rendered in an independent component.
  return (
    <>
      <ListPageHeader .../>
      <ListPagBody>
        <ListPageFilter data={staticData} onFilterChange={onFilterChange} />
        <List data={filteredData} />
      </ListPageBody>
    </>
  )
```

Parameter Name	Description
data	An array of data points

Parameter Name	Description
rowFilters	(optional) An array of RowFilter elements that define the available filter options
staticFilters	(optional) An array of FilterValue elements that are statically applied to the data

7.5.2.24. ResourceLink

Component that creates a link to a specific resource type with an icon badge.

Example

```
<ResourceLink
  kind="Pod"
  name="testPod"
  title={metadata.uid}
/>
```

Parameter Name	Description
kind	(optional) the kind of resource i.e. Pod, Deployment, Namespace
groupVersionKind	(optional) object with group, version, and kind
className	(optional) class style for component
displayName	(optional) display name for component, overwrites the resource name if set
inline	(optional) flag to create icon badge and name inline with children
linkTo	(optional) flag to create a Link object - defaults to true
name	(optional) name of resource
namesapce	(optional) specific namespace for the kind resource to link to
hideIcon	(optional) flag to hide the icon badge
title	(optional) title for the link object (not displayed)

Parameter Name	Description
dataTest	(optional) identifier for testing
onClick	(optional) callback function for when component is clicked
truncate	(optional) flag to truncate the link if too long

7.5.2.25. ResourceIcon

Component that creates an icon badge for a specific resource type.

Example

```
<ResourceIcon kind="Pod"/>
```

Parameter Name	Description
kind	(optional) the kind of resource i.e. Pod, Deployment, Namespace
groupVersionKind	(optional) object with group, version, and kind
className	(optional) class style for component

7.5.2.26. useK8sModel

Hook that retrieves the k8s model for provided K8sGroupVersionKind from redux. It returns an array with the first item as k8s model and second item as **inFlight** status.

Example

```
const Component: React.FC = () => {
  const [model, inFlight] = useK8sModel({ group: 'app'; version: 'v1'; kind: 'Deployment' });
  return ...
}
```

Parameter Name	Description
groupVersionKind	group, version, kind of k8s resource K8sGroupVersionKind is preferred alternatively can pass reference for group, version, kind which is deprecated, i.e, group/version/kind (GVK) K8sResourceKindReference.

7.5.2.27. useK8sModels

Hook that retrieves all current k8s models from redux. It returns an array with the first item as the list of k8s model and second item as **inFlight** status.

Example

```
const Component: React.FC = () => {
  const [models, inFlight] = UseK8sModels();
  return ...
}
```

7.5.2.28. useK8sWatchResource

Hook that retrieves the k8s resource along with status for loaded and error. It returns an array with first item as resource(s), second item as loaded status and third item as error state if any.

Example

```
const Component: React.FC = () => {
  const watchRes = {
        ...
      }
  const [data, loaded, error] = useK8sWatchResource(watchRes)
  return ...
}
```

Parameter Name	Description
initResource	options needed to watch for resource.

7.5.2.29. useK8sWatchResources

Hook that retrieves the k8s resources along with their respective status for loaded and error. It returns a map where keys are as provided in initResouces and value has three properties data, loaded and error.

Example

```
const Component: React.FC = () => {
  const watchResources = {
        'deployment': {...},
        'pod': {...}
        ...
      }
  const {deployment, pod} = useK8sWatchResources(watchResources)
  return ...
}
```

Parameter Name	Description

Parameter Name	Description
initResources	Resources must be watched as key-value pair, wherein key will be unique to resource and value will be options needed to watch for the respective resource.

7.5.2.30. consoleFetch

A custom wrapper around **fetch** that adds console specific headers and allows for retries and timeouts.It also validates the response status code and throws appropriate error or logs out the user if required. It returns a promise that resolves to the response.

Parameter Name	Description
url	The URL to fetch
options	The options to pass to fetch
timeout	The timeout in milliseconds

7.5.2.31. consoleFetchJSON

A custom wrapper around **fetch** that adds console specific headers and allows for retries and timeouts. It also validates the response status code and throws appropriate error or logs out the user if required. It returns the response as a JSON object. Uses **consoleFetch** internally. It returns a promise that resolves to the response as JSON object.

Parameter Name	Description
url	The URL to fetch
method	The HTTP method to use. Defaults to GET
options	The options to pass to fetch
timeout	The timeout in milliseconds
cluster	The name of the cluster to make the request to. Defaults to the active cluster the user has selected

7.5.2.32. consoleFetchText

A custom wrapper around **fetch** that adds console specific headers and allows for retries and timeouts.

It also validates the response status code and throws appropriate error or logs out the user if required. It returns the response as a text. Uses **consoleFetch** internally. It returns a promise that resolves to the response as text.

Parameter Name	Description
url	The URL to fetch
options	The options to pass to fetch
timeout	The timeout in milliseconds
cluster	The name of the cluster to make the request to. Defaults to the active cluster the user has selected

7.5.2.33. getConsoleRequestHeaders

A function that creates impersonation and multicluster related headers for API requests using current redux state. It returns an object containing the appropriate impersonation and clustr requst headers, based on redux state.

Parameter Name	Description
targetCluster	Override the current active cluster with the provided targetCluster

7.5.2.34. k8sGetResource

It fetches a resource from the cluster, based on the provided options. If the name is provided it returns one resource else it returns all the resources matching the model. It returns a promise that resolves to the response as JSON object with a resource if the name is providedelse it returns all the resources matching the model. In case of failure, the promise gets rejected with HTTP error response.

Parameter Name	Description
options	Which are passed as key-value pairs in the map
options.model	k8s model
options.name	The name of the resource, if not provided then it will look for all the resources matching the model.
options.ns	The namespace to look into, should not be specified for cluster-scoped resources.
options.path	Appends as subpath if provided

Parameter Name	Description
options.queryParams	The query parameters to be included in the URL.
options.requestInit	The fetch init object to use. This can have request headers, method, redirect, etc. See Interface RequestInit for more.

7.5.2.35. k8sCreateResource

It creates a resource in the cluster, based on the provided options. It returns a promise that resolves to the response of the resource created. In case of failure promise gets rejected with HTTP error response.

Parameter Name	Description
options	Which are passed as key-value pairs in the map
options.model	k8s model
options.data	Payload for the resource to be created
options.path	Appends as subpath if provided
options.queryParams	The query parameters to be included in the URL.

7.5.2.36. k8sUpdateResource

It updates the entire resource in the cluster, based on providedoptions. When a client needs to replace an existing resource entirely, they can use k8sUpdate. Alternatively can use k8sPatch to perform the partial update. It returns a promise that resolves to the response of the resource updated. In case of failure promise gets rejected with HTTP error response.

Parameter Name	Description
options	Which are passed as key-value pair in the map
options.model	k8s model
options.data	Payload for the k8s resource to be updated
options.ns	Namespace to look into, it should not be specified for cluster-scoped resources.
options.name	Resource name to be updated.
options.path	Appends as subpath if provided

Parameter Name	Description
options.queryParams	The query parameters to be included in the URL.

7.5.2.37. k8sPatchResource

It patches any resource in the cluster, based on provided options. When a client needs to perform the partial update, they can use k8sPatch. Alternatively can use k8sUpdate to replace an existing resource entirely. See Data Tracker for more. It returns a promise that resolves to the response of the resource patched. In case of failure promise gets rejected with HTTP error response.

Parameter Name	Description
options	Which are passed as key-value pairs in the map.
options.model	k8s model
options.resource	The resource to be patched.
options.data	Only the data to be patched on existing resource with the operation, path, and value.
options.path	Appends as subpath if provided.
options.queryParams	The query parameters to be included in the URL.

7.5.2.38. k8sDeleteResource

It deletes resources from the cluster, based on the provided model, resource. The garbage collection works based on **Foreground**|**Background** can be configured with propagationPolicy property in provided model or passed in json. It returns a promise that resolves to the response of kind Status. In case of failure promise gets rejected with HTTP error response.

Example

kind: 'DeleteOptions', apiVersion: 'v1', propagationPolicy

Parameter Name	Description
options	Which are passed as key-value pair in the map.
options.model	k8s model
options.resource	The resource to be deleted.
options.path	Appends as subpath if provided

Parameter Name	Description
options.queryParams	The query parameters to be included in the URL.
options.requestInit	The fetch init object to use. This can have request headers, method, redirect, etc. See Interface RequestInit for more.
options.json	Can control garbage collection of resources explicitly if provided else will default to model's "propagationPolicy".

7.5.2.39. k8sListResource

Lists the resources as an array in the cluster, based on provided options. It returns a promise that resolves to the response.

Parameter Name	Description
options	Which are passed as key-value pairs in the map
options.model	k8s model
options.queryParams	The query parameters to be included in the URL and can pass label selector's as well with key "labelSelector".
options.requestInit	The fetch init object to use. This can have request headers, method, redirect, etc. See Interface RequestInit for more.

7.5.2.40. k8sListResourceItems

Same interface as k8sListResource but returns the sub items. It returns the apiVersion for the model, i.e., **group/version**.

7.5.2.41. getAPIVersionForModel

Provides apiVersion for a k8s model.

Parameter Name	Description
model	k8s model

7.5.2.42. getGroupVersionKindForResource

Provides a group, version, and kind for a resource. It returns the group, version, kind for the provided resource. If the resource does not have an API group, group "core" will be returned. If the resource has an invalid apiVersion, then it will throw an Error.

Parameter Name	Description
resource	k8s resource

7.5.2.43. getGroupVersionKindForModel

Provides a group, version, and kind for a k8s model. This returns the group, version, kind for the provided model. If the model does not have an apiGroup, group "core" will be returned.

Parameter Name	Description
model	k8s model

7.5.2.44. StatusPopupSection

Component that shows the status in a popup window. Helpful component for building **console.dashboards/overview/health/resource** extensions.

Example

```
<StatusPopupSection
  firstColumn={
    <>
      <span>{title}</span>
      <span className="text-secondary">
        My Example Item
      </span>
    </>
  }
  secondColumn='Status'
>
```

Parameter Name	Description
firstColumn	values for first column of popup
secondColumn	(optional) values for second column of popup
children	(optional) children for the popup

7.5.2.45. StatusPopupItem

Status element used in status popup; used in **StatusPopupSection**.

Example

```
<StatusPopupSection
  firstColumn='Example'
  secondColumn='Status'
>
  <StatusPopupItem icon={healthStateMapping[MCGMetrics.state]?.icon}>
    Complete
  </StatusPopupItem>
  <StatusPopupItem icon={healthStateMapping[RGWMetrics.state]?.icon}>
     Pending
  </StatusPopupItem>
</StatusPopupSection>
```

Parameter Name	Description
value	(optional) text value to display
icon	(optional) icon to display
children	child elements

7.5.2.46. **Overview**

Creates a wrapper component for a dashboard.

Example

```
<Overview>
  <OverviewGrid mainCards={mainCards} leftCards={leftCards} rightCards={rightCards} />
</Overview>
```

Parameter Name	Description
className	(optional) style class for div
children	(optional) elements of the dashboard

7.5.2.47. **OverviewGrid**

Creates a grid of card elements for a dashboard; used within **Overview**.

Example

```
<Overview>
  <OverviewGrid mainCards={mainCards} leftCards={leftCards} rightCards={rightCards} />
</Overview>
```

Parameter Name	Description
mainCards	cards for grid
leftCards	(optional) cards for left side of grid
rightCards	(optional) cards for right side of grid

7.5.2.48. **InventoryItem**

Creates an inventory card item.

Example

```
return (
  <InventoryItem>
    <InventoryItemTitle>{title}</InventoryItemTitle>
    <InventoryItemBody error={loadError}>
      {loaded && <InventoryItemStatus count={workerNodes.length} icon={<MonitoringIcon />} />}
    </InventoryItemBody>
  </InventoryItem>
)
```

Parameter Name	Description
children	elements to render inside the item

7.5.2.49. **InventoryItemTitle**

Creates a title for an inventory card item; used within **InventoryItem**.

Example

```
return (
  <InventoryItem>
    <InventoryItemTitle>{title}</InventoryItemTitle>
    <InventoryItemBody error={loadError}>
      {loaded && <InventoryItemStatus count={workerNodes.length} icon={<MonitoringIcon />} />}
    </InventoryItemBody>
  </InventoryItem>
)
```

Parameter Name	Description
children	elements to render inside the title

7.5.2.50. **InventoryItemBody**

Creates the body of an inventory card; used within **InventoryCard** and can be used with **InventoryTitle**.

Example

```
return (
  <InventoryItem>
    <InventoryItemTitle>{title}</InventoryItemTitle>
    <InventoryItemBody error={loadError}>
      {loaded && <InventoryItemStatus count={workerNodes.length} icon={<MonitoringIcon />} />}
    </InventoryItemBody>
  </InventoryItem>
)
```

Parameter Name	Description
children	elements to render inside the Inventory Card or title
error	elements of the div

7.5.2.51. **InventoryItemStatus**

Creates a count and icon for an inventory card with optional link address; used within **InventoryItemBody**

Example

```
return (
  <InventoryItem>
    <InventoryItemTitle>{title}</InventoryItemTitle>
    <InventoryItemBody error={loadError}>
      {loaded && <InventoryItemStatus count={workerNodes.length} icon={<MonitoringIcon />} />}
    </InventoryItemBody>
  </InventoryItem>
)
```

Parameter Name	Description
count	count for display
icon	icon for display
linkTo	(optional) link address

7.5.2.52. **InventoryItemLoading**

Creates a skeleton container for when an inventory card is loading; used with **InventoryItem** and related components

Example

```
if (loadError) {
   title = <Link to={workerNodesLink}>{t('Worker Nodes')}</Link>;
} else if (!loaded) {
  title = <><InventoryItemLoading /><Link to={workerNodesLink}>{t('Worker Nodes')}</Link></>;
}
return (
  <InventoryItem>
    <InventoryItemTitle>{title}</InventoryItemTitle>
  </InventoryItem>
)
```

7.5.2.53. useFlag

Hook that returns the given feature flag from FLAGS redux state. It returns the boolean value of the requested feature flag or undefined.

Parameter Name	Description
flag	The feature flag to return

7.5.2.54. CodeEditor

A basic lazy loaded Code editor with hover help and completion.

Example

```
<React.Suspense fallback={<LoadingBox />}>
  <CodeEditor
    value={code}
    language="yaml"
  />
</React.Suspense>
```

Parameter Name	Description
value	String representing the yaml code to render.
language	String representing the language of the editor.
options	Monaco editor options. For more details, please, visit Interface IStandAloneEditorConstructionOptions.
minHeight	Minimum editor height in valid CSS height values.
showShortcuts	Boolean to show shortcuts on top of the editor.
toolbarLinks	Array of ReactNode rendered on the toolbar links section on top of the editor.

Parameter Name	Description
onChange	Callback for on code change event.
onSave	Callback called when the command CTRL / CMD + S is triggered.
ref	React reference to **{ editor?: IStandaloneCodeEditor }**. Using the **editor** property, you are able to access to all methods to control the editor. For more information, visit Interface IStandaloneCodeEditor.

7.5.2.55. ResourceYAMLEditor

A lazy loaded YAML editor for Kubernetes resources with hover help and completion. The component use the YAMLEditor and add on top of it more functionality likeresource update handling, alerts, save, cancel and reload buttons, accessibility and more. Unless **onSave** callback is provided, the resource update is automatically handled.It should be wrapped in a **React.Suspense** component.

Example

```
<React.Suspense fallback={<LoadingBox />}>
  <ResourceYAMLEditor
    initialResource={resource}
    header="Create resource"
    onSave={(content) => updateResource(content)}
  />
</React.Suspense>
```

Parameter Name	Description
initialResource	YAML/Object representing a resource to be shown by the editor. This prop is used only during the initial render
header	Add a header on top of the YAML editor
onSave	Callback for the Save button. Passing it will override the default update performed on the resource by the editor

7.5.2.56. ResourceEventStream

A component to show events related to a particular resource.

Example

```
const [resource, loaded, loadError] = useK8sWatchResource(clusterResource);
```

```
return <ResourceEventStream resource={resource} />
```

Parameter Name	Description
resource	An object whose related events should be shown.

7.5.2.57. usePrometheusPoll

Sets up a poll to Prometheus for a single query. It returns a tuple containing the query response, a boolean flag indicating whether the response has completed, and any errors encountered during the request or post-processing of the request.

Parameter Name	Description
{PrometheusEndpoint} props.endpoint	one of the PrometheusEndpoint (label, query, range, rules, targets)
{string} [props.query]	(optional) Prometheus query string. If empty or undefined, polling is not started.
{number} [props.delay]	(optional) polling delay interval (ms)
{number} [props.endTime]	(optional) for QUERY_RANGE enpoint, end of the query range
{number} [props.samples]	(optional) for QUERY_RANGE enpoint
{number} [options.timespan]	(optional) for QUERY_RANGE enpoint
{string} [options.namespace]	(optional) a search param to append
{string} [options.timeout]	(optional) a search param to append

7.5.2.58. Timestamp

A component to render timestamp. The timestamps are synchronized between invidual instances of the Timestamp component. The provided timestamp is formatted according to user locale.

Parameter Name	Description
timestamp	the timestamp to render. Format is expected to be ISO 8601 (used by Kubernetes), epoch timestamp, or an instance of a Date.
simple	render simple version of the component omitting icon and tooltip.

Parameter Name	Description
omitSuffix	formats the date ommiting the suffix.
className	additional class name for the component.

7.5.2.59. **useModal**

A hook to launch Modals.

Example

```
const context: AppPage: React.FC = () => {<br/> const [launchModal] = useModal();<br/> const
onClick = () => launchModal(ModalComponent);<br/> return (<br/>   <Button onClick=
{onClick}>Launch a Modal</Button><br/> )<br/>}<br/>`
```

7.5.2.60. **ActionServiceProvider**

Component that allows to receive contributions from other plugins for the **console.action/provider** extension type.

Example

```
  const context: ActionContext = { 'a-context-id': { dataFromDynamicPlugin } };

  ...

  <ActionServiceProvider context={context}>
    {({ actions, options, loaded }) =>
      loaded && (
        <ActionMenu actions={actions} options={options} variant={ActionMenuVariant.DROPDOWN}
/>
      )
    }
  </ActionServiceProvider>
```

Parameter Name	Description
context	Object with contextId and optional plugin data

7.5.2.61. **NamespaceBar**

A component that renders a horizontal toolbar with a namespace dropdown menu in the leftmost position. Additional components can be passed in as children and will be rendered to the right of the namespace dropdown. This component is designed to be used at the top of the page. It should be used on pages where the user needs to be able to change the active namespace, such as on pages with k8s resources.

Example

```
const logNamespaceChange = (namespace) => console.log(`New namespace: ${namespace}`);

...

<NamespaceBar onNamespaceChange={logNamespaceChange}>
  <NamespaceBarApplicationSelector />
</NamespaceBar>
<Page>

  ...
```

Parameter Name	Description
onNamespaceChange	(optional) A function that is executed when a namespace option is selected. It accepts the new namespace in the form of a string as its only argument. The active namespace is updated automatically when an option is selected, but additional logic can be applied via this function. When the namespace is changed, the namespace parameter in the URL will be changed from the previous namespace to the newly selected namespace.
isDisabled	(optional) A boolean flag that disables the namespace dropdown if set to true. This option only applies to the namespace dropdown and has no effect on child components.
children	(optional) Additional elements to be rendered inside the toolbar to the right of the namespace dropdown.

7.5.2.62. ErrorBoundaryFallbackPage

Creates full page ErrorBoundaryFallbackPage component to display the "Oh no! Something went wrong." message along with the stack trace and other helpful debugging information. This is to be used inconjunction with an component.

Example

```
//in ErrorBoundary component
 return (
   if (this.state.hasError) {
     return <ErrorBoundaryFallbackPage errorMessage={errorString} componentStack=
{componentStackString}
      stack={stackTraceString} title={errorString}/>;
   }

   return this.props.children;
)
```

Parameter Name	Description
errorMessage	text description of the error message
componentStack	component trace of the exception
stack	stack trace of the exception
title	title to render as the header of the error boundary page

7.5.2.63. QueryBrowser

A component that renders a graph of the results from a Prometheus PromQL query along with controls for interacting with the graph.

Example

```
<QueryBrowser
  defaultTimespan={15 * 60 * 1000}
  namespace={namespace}
  pollInterval={30 * 1000}
  queries={[
    'process_resident_memory_bytes{job="console"}',
    'sum(irate(container_network_receive_bytes_total[6h:5m])) by (pod)',
  ]}
/>
```

Parameter Name	Description
customDataSource	(optional) Base URL of an API endpoint that handles PromQL queries. If provided, this is used instead of the default API for fetching data.
defaultSamples	(optional) The default number of data samples plotted for each data series. If there are many data series, QueryBrowser might automatically pick a lower number of data samples than specified here.
defaultTimespan	(optional) The default timespan for the graph in milliseconds - defaults to 1,800,000 (30 minutes).
disabledSeries	(optional) Disable (don't display) data series with these exact label / value pairs.
disableZoom	(optional) Flag to disable the graph zoom controls.
filterLabels	(optional) Optionally filter the returned data series to only those that match these label / value pairs.

Parameter Name	Description
fixedEndTime	(optional) Set the end time for the displayed time range rather than showing data up to the current time.
formatSeriesTitle	(optional) Function that returns a string to use as the title for a single data series.
GraphLink	(optional) Component for rendering a link to another page (for example getting more information about this query).
hideControls	(optional) Flag to hide the graph controls for changing the graph timespan, and so on.
isStack	(optional) Flag to display a stacked graph instead of a line graph. If showStackedControl is set, it will still be possible for the user to switch to a line graph.
namespace	(optional) If provided, data is only returned for this namespace (only series that have this namespace label).
onZoom	(optional) Callback called when the graph is zoomed.
pollInterval	(optional) If set, determines how often the graph is updated to show the latest data (in milliseconds).
queries	Array of PromQL queries to run and display the results in the graph.
showLegend	(optional) Flag to enable displaying a legend below the graph.
showStackedControl	Flag to enable displaying a graph control for switching between stacked graph mode and line graph mode.
timespan	(optional) The timespan that should be covered by the graph in milliseconds.
units	(optional) Units to display on the Y-axis and in the tooltip.

7.5.2.64. useAnnotationsModal

A hook that provides a callback to launch a modal for editing Kubernetes resource annotations.

Example

```
const PodAnnotationsButton = ({ pod }) => {
  const { t } = useTranslation();
  const launchAnnotationsModal = useAnnotationsModal<PodKind>(pod);
  return <button onClick={launchAnnotationsModal}>{t('Edit Pod Annotations')}</button>
}
```

Parameter Name	Description
resource	The resource to edit annotations for an object of K8sResourceCommon type.

Returns

A function which will launch a modal for editing a resource's annotations.

7.5.2.65. **useDeleteModal**

A hook that provides a callback to launch a modal for deleting a resource.

Example

```
const DeletePodButton = ({ pod }) => {
  const { t } = useTranslation();
  const launchDeleteModal = useDeleteModal<PodKind>(pod);
  return <button onClick={launchDeleteModal}>{t('Delete Pod')}</button>
}
```

Parameter Name	Description
resource	The resource to delete.
redirectTo	(optional) A location to redirect to after deleting the resource.
message	(optional) A message to display in the modal.
btnText	(optional) The text to display on the delete button.
deleteAllResources	(optional) A function to delete all resources of the same kind.

Returns

A function which will launch a modal for deleting a resource.

7.5.2.66. **useLabelsModel**

A hook that provides a callback to launch a modal for editing Kubernetes resource labels.

Example

```
const PodLabelsButton = ({ pod }) => {
  const { t } = useTranslation();
  const launchLabelsModal = useLabelsModal<PodKind>(pod);
  return <button onClick={launchLabelsModal}>{t('Edit Pod Labels')}</button>
}
```

Parameter Name	Description
resource	The resource to edit labels for, an object of K8sResourceCommon type.

Returns

A function which will launch a modal for editing a resource's labels.

7.5.2.67. **useActiveNamespace**

Hook that provides the currently active namespace and a callback for setting the active namespace.

Example

```
const Component: React.FC = (props) => {
   const [activeNamespace, setActiveNamespace] = useActiveNamespace();
   return <select
     value={activeNamespace}
     onChange={(e) => setActiveNamespace(e.target.value)}
   >
     {
       // ...namespace options
     }
   </select>
}
```

Returns

A tuple containing the current active namespace and setter callback.

7.5.2.68. **PerspectiveContext**

Deprecated: Use the provided **usePerspectiveContext** instead. Creates the perspective context.

Parameter Name	Description
PerspectiveContextType	object with active perspective and setter

7.5.2.69. **useAccessReviewAllowed**

Deprecated: Use **useAccessReview** from **@console/dynamic-plugin-sdk** instead. Hook that provides allowed status about user access to a given resource. It returns the **isAllowed** boolean value.

Parameter Name	Description
resourceAttributes	resource attributes for access review
impersonate	impersonation details

7.5.2.70. useSafetyFirst

Deprecated: This hook is not related to console functionality. Hook that ensures a safe asynchronnous setting of React state in case a given component could be unmounted. It returns an array with a pair of state value and its set function.

Parameter Name	Description
initialState	initial state value

7.5.2.71. YAMLEditor

Deprecated: A basic lazy loaded YAML editor with hover help and completion.

Example

```
<React.Suspense fallback={<LoadingBox />}>
  <YAMLEditor
    value={code}
  />
</React.Suspense>
```

Parameter Name	Description
value	String representing the yaml code to render.
options	Monaco editor options.
minHeight	Minimum editor height in valid CSS height values.
showShortcuts	Boolean to show shortcuts on top of the editor.
toolbarLinks	Array of ReactNode rendered on the toolbar links section on top of the editor.
onChange	Callback for on code change event.

Parameter Name	Description
onSave	Callback called when the command CTRL / CMD + S is triggered.
ref	React reference to **{ editor?: IStandaloneCodeEditor }**. Using the **editor** property, you are able to access to all methods to control the editor.

7.5.3. Troubleshooting your dynamic plugin

Refer to this list of troubleshooting tips if you run into issues loading your plugin.

- Verify that you have enabled your plugin in the console Operator configuration and your plugin name is the output by running the following command:

```
$ oc get console.operator.openshift.io cluster -o jsonpath='{.spec.plugins}'
```

  - Verify the enabled plugins on the status card of the **Overview** page in the **Administrator** perspective. You must refresh your browser if the plugin was recently enabled.

- Verify your plugin service is healthy by:
  - Verifying your plugin pod status is running and your containers are ready.
  - Verifying the service label selector matches the pod and the target port is correct.
  - Curl the **plugin-manifest.json** from the service in a terminal on the console pod or another pod on the cluster.
- Verify your **ConsolePlugin** resource name (**consolePlugin.name**) matches the plugin name used in **package.json**.
- Verify your service name, namespace, port, and path are declared correctly in the **ConsolePlugin** resource.
- Verify your plugin service uses HTTPS and service serving certificates.
- Verify any certificates or connection errors in the console pod logs.
- Verify the feature flag your plugin relys on is not disabled.
- Verify your plugin does not have any **consolePlugin.dependencies** in **package.json** that are not met.
  - This can include console version dependencies or dependencies on other plugins. Filter the JS console in your browser for your plugin's name to see messages that are logged.
- Verify there are no typos in the nav extension perspective or section IDs.
  - Your plugin may be loaded, but nav items missing if IDs are incorrect. Try navigating to a plugin page directly by editing the URL.

- Verify there are no network policies that are blocking traffic from the console pod to your plugin service.
  - If necessary, adjust network policies to allow console pods in the openshift-console namespace to make requests to your service.
- Verify the list of dynamic plugins to be loaded in your browser in the **Console** tab of the developer tools browser.
  - Evaluate **window.SERVER_FLAGS.consolePlugins** to see the dynamic plugin on the Console frontend.

Additional resources

- Understanding service serving certificates

CHAPTER 8. WEB TERMINAL

8.1. INSTALLING THE WEB TERMINAL

You can install the web terminal by using the Web Terminal Operator listed in the OpenShift Container Platform OperatorHub. When you install the Web Terminal Operator, the custom resource definitions (CRDs) that are required for the command line configuration, such as the **DevWorkspace** CRD, are automatically installed. The web console creates the required resources when you open the web terminal.

8.1.1. Prerequisites

- You are logged into the OpenShift Container Platform web console.
- You have cluster administrator permissions.

8.1.2. Procedure

1. In the **Administrator** perspective of the web console, navigate to **Operators → OperatorHub**.
2. Use the **Filter by keyword** box to search for the Web Terminal Operator in the catalog, and then click the **Web Terminal** tile.
3. Read the brief description about the Operator on the **Web Terminal** page, and then click **Install**.
4. On the **Install Operator** page, retain the default values for all fields.
   - The **fast** option in the **Update Channel** menu enables installation of the latest release of the Web Terminal Operator.
   - The **All namespaces on the cluster** option in the **Installation Mode** menu enables the Operator to watch and be available to all namespaces in the cluster.
   - The **openshift-operators** option in the **Installed Namespace** menu installs the Operator in the default **openshift-operators** namespace.
   - The **Automatic** option in the **Approval Strategy** menu ensures that the future upgrades to the Operator are handled automatically by the Operator Lifecycle Manager.
5. Click **Install**.
6. In the **Installed Operators** page, click the **View Operator** to verify that the Operator is listed on the **Installed Operators** page.

   NOTE

   The Web Terminal Operator installs the DevWorkspace Operator as a dependency.

7. After the Operator is installed, refresh your page to see the command-line terminal icon ( ) in the masthead of the console.

8.2. CONFIGURING THE WEB TERMINAL

You can configure timeout and image settings for the web terminal, either for your current session or for all user sessions if you are a cluster administrator.

8.2.1. Configuring the web terminal timeout for a session

You can change the default timeout period for the web terminal for your current session.

Prerequisites

- You have access to an OpenShift Container Platform cluster that has the Web Terminal Operator installed.
- You are logged into the web console.

Procedure

1. Click the web terminal icon ( ).
2. Optional: Set the web terminal timeout for the current session:
   a. Click Timeout.
   b. In the field that appears, enter the timeout value.
   c. From the drop-down list, select a timeout interval of **Seconds**, **Minutes**, **Hours**, or **Milliseconds**.
3. Optional: Select a custom image for the web terminal to use.
   a. Click Image.
   b. In the field that appears, enter the URL of the image that you want to use.
4. Click **Start** to begin a terminal instance using the specified timeout setting.

8.2.2. Configuring the web terminal timeout for all users

You can use the **Administrator** perspective of the web console to set the default web terminal timeout period for all users.

Prerequisites

- You have cluster administrator permissions and are logged in to the web console.
- You have installed the Web Terminal Operator.

Procedure

1. In the **Administrator** perspective, navigate to **Administation → Cluster Settings**.
2. On the **Cluster Settings** page, click the **Configuration** tab.

3. On the **Configuration** page, click the **Console** configuration resource with the description **operator.openshift.io**.

4. From the **Action** drop-down list, select **Customize**, which opens the **Cluster configuration** page.

5. Click the **Web Terminal** tab, which opens the **Web Terminal Configuration** page.

6. Set a value for the timeout. From the drop-down list, select a time interval of **Seconds**, **Minutes**, **Hours**, or **Milliseconds**.

7. Click **Save**.

8.2.3. Configuring the web terminal image for a session

You can change the default image for the web terminal for your current session.

Prerequisites

- You have access to an OpenShift Container Platform cluster that has the Web Terminal Operator installed.
- You are logged into the web console.

Procedure

1. Click the web terminal icon ( ).

2. Click **Image** to display advanced configuration options for the web terminal image.

3. Enter the URL of the image that you want to use.

4. Click **Start** to begin a terminal instance using the specified image setting.

8.2.4. Configuring the web terminal image for all users

You can use the **Administrator** perspective of the web console to set the default web terminal image for all users.

Prerequisites

- You have cluster administrator permissions and are logged in to the web console.
- You have installed the Web Terminal Operator.

Procedure

1. In the **Administrator** perspective, navigate to **Administation → Cluster Settings**.
2. On the **Cluster Settings** page, click the **Configuration** tab.
3. On the **Configuration** page, click the **Console** configuration resource with the description **operator.openshift.io**.

4. From the **Action** drop-down list, select **Customize**, which opens the **Cluster configuration** page.
5. Click the **Web Terminal** tab, which opens the **Web Terminal Configuration** page.
6. Enter the URL of the image that you want to use.
7. Click **Save**.

8.3. USING THE WEB TERMINAL

You can launch an embedded command-line terminal instance in the web console. This terminal instance is preinstalled with common CLI tools for interacting with the cluster, such as **oc**, **kubectl**,**odo**, **kn**, **tkn**, **helm**, and **subctl**. It also has the context of the project you are working on and automatically logs you in using your credentials.

8.3.1. Accessing the web terminal

After the Web Terminal Operator is installed, you can access the web terminal. After the web terminal is initialized, you can use the preinstalled CLI tools like **oc**, **kubectl**, **odo**, **kn**, **tkn**, **helm**, and **subctl** in the web terminal. You can re-run commands by selecting them from the list of commands you have run in the terminal. These commands persist across multiple terminal sessions. The web terminal remains open until you close it or until you close the browser window or tab.

Prerequisites

- You have access to an OpenShift Container Platform cluster and are logged into the web console.
- The Web Terminal Operator is installed on your cluster.

Procedure

1. To launch the web terminal, click the command-line terminal icon ( ) in the masthead of the console. A web terminal instance is displayed in the **Command line terminal** pane. This instance is automatically logged in with your credentials.

2. If a project has not been selected in the current session, select the project where the **DevWorkspace** CR must be created from the **Project** drop-down list. By default, the current project is selected.

NOTE

- One **DevWorkspace** CR defines the web terminal of one user. This CR contains details about the user's web terminal status and container image components.
- The **DevWorkspace** CR is created only if it does not already exist.
- The **openshift-terminal** project is the default project used for cluster administrators. They do not have the option to choose another project. The Web Terminal Operator installs the DevWorkspace Operator as a dependency.

3. Optional: Set the web terminal timeout for the current session:
   a. Click Timeout.
   b. In the field that appears, enter the timeout value.
   c. From the drop-down list, select a timeout interval of **Seconds**, **Minutes**, **Hours**, or **Milliseconds**.
4. Optional: Select a custom image for the web terminal to use.
   a. Click Image.
   b. In the field that appears, enter the URL of the image that you want to use.
5. Click **Start** to initialize the web terminal using the selected project.
6. Click **+** to open multiple tabs within the web terminal in the console.

8.4. TROUBLESHOOTING THE WEB TERMINAL

8.4.1. Web terminal and network policies

The web terminal might fail to start if the cluster has network policies configured. To start a web terminal instance, the Web Terminal Operator must communicate with the web terminal's pod to verify it is running, and the OpenShift Container Platform web console needs to send information to automatically log in to the cluster within the terminal. If either step fails, the web terminal fails to start and the terminal panel is in a loading state until a **context deadline exceeded error** occurs.

To avoid this issue, ensure that the network policies for namespaces that are used for terminals allow ingress from the **openshift-console** and **openshift-operators** namespaces.

The following samples show **NetworkPolicy** objects for allowing ingress from the **openshift-console** and **openshift-operators** namespaces.

Allowing ingress from the openshift-console namespace

```
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: allow-from-openshift-console
spec:
  ingress:
  - from:
    - namespaceSelector:
        matchLabels:
          kubernetes.io/metadata.name: openshift-console
  podSelector: {}
  policyTypes:
  - Ingress
```

Allowing ingress from the openshift-operators namespace

```
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: allow-from-openshift-operators
spec:
  ingress:
  - from:
    - namespaceSelector:
        matchLabels:
          kubernetes.io/metadata.name: openshift-operators
  podSelector: {}
  policyTypes:
  - Ingress
```

8.5. UNINSTALLING THE WEB TERMINAL

Uninstalling the Web Terminal Operator does not remove any of the custom resource definitions (CRDs) or managed resources that are created when the Operator is installed. For security purposes, you must manually uninstall these components. By removing these components, you save cluster resources because terminals do not idle when the Operator is uninstalled.

Uninstalling the web terminal is a two-step process:

1. Uninstall the Web Terminal Operator and related custom resources (CRs) that were added when you installed the Operator.
2. Uninstall the DevWorkspace Operator and its related custom resources that were added as a dependency of the Web Terminal Operator.

8.5.1. Removing the Web Terminal Operator

You can uninstall the web terminal by removing the Web Terminal Operator and custom resources used by the Operator.

Prerequisites

- You have access to an OpenShift Container Platform cluster with cluster administrator permissions.

- You have installed the **oc** CLI.

Procedure

1. In the **Administrator** perspective of the web console, navigate to **Operators → Installed Operators**.
2. Scroll the filter list or type a keyword into the **Filter by name** box to find the Web Terminal Operator.
3. Click the Options menu ⋮ for the Web Terminal Operator, and then select **Uninstall Operator**.
4. In the **Uninstall Operator** confirmation dialog box, click **Uninstall** to remove the Operator, Operator deployments, and pods from the cluster. The Operator stops running and no longer receives updates.

8.5.2. Removing the DevWorkspace Operator

To completely uninstall the web terminal, you must also remove the DevWorkspace Operator and custom resources used by the Operator.

IMPORTANT

The DevWorkspace Operator is a standalone Operator and may be required as a dependency for other Operators installed in the cluster. Follow the steps below only if you are sure that the DevWorkspace Operator is no longer needed.

Prerequisites

- You have access to an OpenShift Container Platform cluster with cluster administrator permissions.
- You have installed the **oc** CLI.

Procedure

1. Remove the **DevWorkspace** custom resources used by the Operator, along with any related Kubernetes objects:

```
$ oc delete devworkspaces.workspace.devfile.io --all-namespaces --all --wait
```

```
$ oc delete devworkspaceroutings.controller.devfile.io --all-namespaces --all --wait
```

> **WARNING**
>
> If this step is not complete, finalizers make it difficult to fully uninstall the Operator.

2. Remove the CRDs used by the Operator:

> **WARNING**
>
> The DevWorkspace Operator provides custom resource definitions (CRDs) that use conversion webhooks. Failing to remove these CRDs can cause issues in the cluster.

```
$ oc delete customresourcedefinitions.apiextensions.k8s.io
devworkspaceroutings.controller.devfile.io
```

```
$ oc delete customresourcedefinitions.apiextensions.k8s.io
devworkspaces.workspace.devfile.io
```

```
$ oc delete customresourcedefinitions.apiextensions.k8s.io
devworkspacetemplates.workspace.devfile.io
```

```
$ oc delete customresourcedefinitions.apiextensions.k8s.io
devworkspaceoperatorconfigs.controller.devfile.io
```

3. Verify that all involved custom resource definitions are removed. The following command should not display any output:

```
$ oc get customresourcedefinitions.apiextensions.k8s.io | grep "devfile.io"
```

4. Remove the **devworkspace-webhook-server** deployment, mutating, and validating webhooks:

```
$ oc delete deployment/devworkspace-webhook-server -n openshift-operators
```

```
$ oc delete mutatingwebhookconfigurations controller.devfile.io
```

```
$ oc delete validatingwebhookconfigurations controller.devfile.io
```

NOTE

If you remove the **devworkspace-webhook-server** deployment without removing the mutating and validating webhooks, you can not use **oc exec** commands to run commands in a container in the cluster. After you remove the webhooks you can use the **oc exec** commands again.

5. Remove any remaining services, secrets, and config maps. Depending on the installation, some resources included in the following commands may not exist in the cluster.

```
$ oc delete all --selector app.kubernetes.io/part-of=devworkspace-operator,app.kubernetes.io/name=devworkspace-webhook-server -n openshift-operators
```

```
$ oc delete serviceaccounts devworkspace-webhook-server -n openshift-operators
```

```
$ oc delete clusterrole devworkspace-webhook-server
```

```
$ oc delete clusterrolebinding devworkspace-webhook-server
```

6. Uninstall the DevWorkspace Operator:

   a. In the **Administrator** perspective of the web console, navigate to **Operators → Installed Operators**.

   b. Scroll the filter list or type a keyword into the **Filter by name** box to find the DevWorkspace Operator.

   c. Click the Options menu ⋮ for the Operator, and then select **Uninstall Operator**.

   d. In the **Uninstall Operator** confirmation dialog box, click **Uninstall** to remove the Operator, Operator deployments, and pods from the cluster. The Operator stops running and no longer receives updates.

CHAPTER 9. DISABLING THE WEB CONSOLE IN OPENSHIFT CONTAINER PLATFORM

You can disable the OpenShift Container Platform web console.

9.1. PREREQUISITES

- Deploy an OpenShift Container Platform cluster.

9.2. DISABLING THE WEB CONSOLE

You can disable the web console by editing the **consoles.operator.openshift.io** resource.

- Edit the **consoles.operator.openshift.io** resource:

```
$ oc edit consoles.operator.openshift.io cluster
```

The following example displays the parameters from this resource that you can modify:

```
apiVersion: operator.openshift.io/v1
kind: Console
metadata:
  name: cluster
spec:
  managementState: Removed (1)
```

(1) Set the **managementState** parameter value to **Removed** to disable the web console. The other valid values for this parameter are **Managed**, which enables the console under the cluster's control, and **Unmanaged**, which means that you are taking control of web console management.

CHAPTER 10. CREATING QUICK START TUTORIALS IN THE WEB CONSOLE

If you are creating quick start tutorials for the OpenShift Container Platform web console, follow these guidelines to maintain a consistent user experience across all quick starts.

10.1. UNDERSTANDING QUICK STARTS

A quick start is a guided tutorial with user tasks. In the web console, you can access quick starts under the **Help** menu. They are especially useful for getting oriented with an application, Operator, or other product offering.

A quick start primarily consists of tasks and steps. Each task has multiple steps, and each quick start has multiple tasks. For example:

- Task 1
  - Step 1
  - Step 2
  - Step 3
- Task 2
  - Step 1
  - Step 2
  - Step 3
- Task 3
  - Step 1
  - Step 2
  - Step 3

10.2. QUICK START USER WORKFLOW

When you interact with an existing quick start tutorial, this is the expected workflow experience:

1. In the **Administrator** or **Developer** perspective, click the **Help icon** and select **Quick Starts**.
2. Click a quick start card.
3. In the panel that appears, click **Start**.
4. Complete the on-screen instructions, then click **Next**.
5. In the **Check your work** module that appears, answer the question to confirm that you successfully completed the task.
   a. If you select **Yes**, click **Next** to continue to the next task.

   b. If you select **No**, repeat the task instructions and check your work again.

6. Repeat steps 1 through 6 above to complete the remaining tasks in the quick start.

7. After completing the final task, click **Close** to close the quick start.

10.3. QUICK START COMPONENTS

A quick start consists of the following sections:

- **Card**: The catalog tile that provides the basic information of the quick start, including title, description, time commitment, and completion status
- **Introduction**: A brief overview of the goal and tasks of the quick start
- **Task headings**: Hyper-linked titles for each task in the quick start
- **Check your work module**: A module for a user to confirm that they completed a task successfully before advancing to the next task in the quick start
- **Hints**: An animation to help users identify specific areas of the product
- **Buttons**
  - **Next and back buttons**: Buttons for navigating the steps and modules within each task of a quick start
  - **Final screen buttons**: Buttons for closing the quick start, going back to previous tasks within the quick start, and viewing all quick starts

The main content area of a quick start includes the following sections:

- **Card copy**
- **Introduction**
- **Task steps**
- **Modals and in-app messaging**
- **Check your work module**

10.4. CONTRIBUTING QUICK STARTS

OpenShift Container Platform introduces the quick start custom resource, which is defined by a **ConsoleQuickStart** object. Operators and administrators can use this resource to contribute quick starts to the cluster.

Prerequisites

- You must have cluster administrator privileges.

Procedure

1. To create a new quick start, run:

```
$ oc get -o yaml consolequickstart spring-with-s2i > my-quick-start.yaml
```

2. Run:

```
$ oc create -f my-quick-start.yaml
```

3. Update the YAML file using the guidance outlined in this documentation.
4. Save your edits.

10.4.1. Viewing the quick start API documentation

Procedure

- To see the quick start API documentation, run:

```
$ oc explain consolequickstarts
```

Run **oc explain -h** for more information about **oc explain** usage.

10.4.2. Mapping the elements in the quick start to the quick start CR

This section helps you visually map parts of the quick start custom resource (CR) with where they appear in the quick start within the web console.

10.4.2.1. conclusion element

Viewing the conclusion element in the YAML file

```
...
summary:
  failed: Try the steps again.
  success: Your Spring application is running.
title: Run the Spring application
conclusion: >-
  Your Spring application is deployed and ready. (1)
```

(1) conclusion text

Viewing the conclusion element in the web console

The conclusion appears in the last section of the quick start.

10.4.2.2. description element

Viewing the description element in the YAML file

```
apiVersion: console.openshift.io/v1
kind: ConsoleQuickStart
metadata:
  name: spring-with-s2i
spec:
  description: 'Import a Spring Application from git, build, and deploy it onto OpenShift.' (1)
...
```

(1) description text

Viewing the description element in the web console

The description appears on the introductory tile of the quick start on the **Quick Starts** page.

10.4.2.3. displayName element

Viewing the displayName element in the YAML file

```
apiVersion: console.openshift.io/v1
kind: ConsoleQuickStart
metadata:
  name: spring-with-s2i
spec:
  description: 'Import a Spring Application from git, build, and deploy it onto OpenShift.'
  displayName: Get started with Spring (1)
  durationMinutes: 10
```

(1) **displayName** text.

Viewing the displayName element in the web console

The display name appears on the introductory tile of the quick start on the **Quick Starts** page.

10.4.2.4. durationMinutes element

Viewing the durationMinutes element in the YAML file

```
apiVersion: console.openshift.io/v1
kind: ConsoleQuickStart
metadata:
  name: spring-with-s2i
spec:
  description: 'Import a Spring Application from git, build, and deploy it onto OpenShift.'
  displayName: Get started with Spring
  durationMinutes: 10 (1)
```

1. **durationMinutes** value, in minutes. This value defines how long the quick start should take to complete.

Viewing the durationMinutes element in the web console

The duration minutes element appears on the introductory tile of the quick start on the **Quick Starts** page.

10.4.2.5. icon element

Viewing the icon element in the YAML file

```
...
spec:
  description: 'Import a Spring Application from git, build, and deploy it onto OpenShift.'
  displayName: Get started with Spring
  durationMinutes: 10
  icon: >-  (1)


JMYXllcl8xIiBkYXRhLW5hbWU9IkxheWVyIDEiIHZpZXdCb3g9IjAgMCAxMDI0IDEwMjQiPjxkZWZzPjxz
HlsZT4uY2xzLTF7ZmlsbDojMTUzZDNjO30uY2xzLTJ7ZmlsbDojZDhkYTlkO30uY2xzLTN7ZmlsbDojNT
hjMGE4O30uY2xzLTR7ZmlsbDojZmZmO30uY2xzLTV7ZmlsbDojM2Q5MTkxO308L3N0eWxlPjwvZGV
mcz48dGl0bGU+c25vd2Ryb3BfaWNvbl9yZ2JfZGVmYXVsdDwvdGl0bGU+PHBhdGggY2xhc3M9ImNsc
y0xIiBkPSJNMTAxMi42OSw1OTNjLTExLjEyLTM4LjA3LTMxLTczLTU5LjIxLTEwMy44LTkuNS0xMS4zL
TIzLjIxLTI4LjI5LTM5LjA2LTQ3Ljk0QzgzMy41MywzNDEsNzQ1LjM3LDIzNC4xOCw2NzQsMTY4Ljk0Yy
01LTUuMjYtMTAuMjYtMTAuMzEtMTUuNjUtMTUuMDdhMjQ2LjQ5LDI0Ni40OSwwLDAsMC0zNi41NS
0yNi44LDE4Mi41LDE4Mi41LDAsMCwwLTIwLjMtMTEuNzcsMjAxLjUzLDIwMS41MywwLDAsMC00My4
xOS0xNUExNTUuMjQsMTU1LjI0LDAsMCwwLDUyOCw5NS4yYy02Ljc2LS42OC0xMS43NC0uODEtM
TQuMzktLjgxaDBsLTEuNjIsMC0xLjYyLDBhMTc3LjMsMTc3LjMsMCwwLDAtMzEuNzcsMy4zNSwyMDg
uMjMsMjA4LjIzLDAsMCwwLTU2LjEyLDE3LjU2LDE4MSwxODEsMCwwLDAtMjAuMjcsMTEuNzUsMjQ
3LjQzLDI0Ny40MywwLDAsMC0zNi41NywyNi44MUMzNjAuMjUsMTU4LjYyLDM1NSwxNjMuNjgsMzUw
LDE2OWMtNzEuMzUsNjUuMjUtMTU5LjUsMTcyLTI0MC4zOSwyNzIuMjhDOTMuNzMsNDYwLjg4LDg
wLDQ3Ny44Nyw3MC41Miw0ODkuMTcsNDIuMzUsNTIwLDIyLjQzLDU1NC45LDExLjMxLDU5MywwNz
IsNjI5LjIyLTEuNzMsNjY3LjY5LDQsNzA3LjMxLDE1LDc4Mi40OSw1NS43OCw4NTkuMTIsMTE4LjkzLD
kyMy4wOWEyMiwyMiwwLDAsMCwxNS41OSw2LjUyaDEuODNsMS44Ny0uMzJjODEuMDYtMTMuOT
EsMTEwLTc5LjU3LDE0My40OC0xNTUuNiwzLjkxLTguODgsNy45NS0xOC4wNSwxMi4yLTI3LjQzcTU
uNDIsOC41NCwxMS4zOSwxNi4yM2MzMS44NSw0MC45MSw3NS4xMiw2NC42NywxMzIuMzIsNzIuNj
NsMTguOCwyLjYyLDQuOTUtMTguMzNjMTMuMjYtNDkuMDcsMzUuMy05MC44NSw1MC42NC0xMT
YuMTksMTUuMzQsMjUuMzQsMzcuMzgsNjcuMTIsNTAuNjQsMTE2LjE5bDUsMTguMzMsMTguOC0yL
jYyYzU3LjItOCwxMDAuNDctMzEuNzIsMTMyLjMyLTcyLjYzcTYtNy42OCwxMS4zOS0xNi4yM2M0LjI1L
DkuMzgsOC4yOSwxOC41NSwxMi4yLDI3LjQzLDMzLjQ5LDc2LDYyLjQyLDE0MS42OSwxNDMuNDgs
MTU1LjZsMS44MS4zMWgxLjg5YTIyLDIyLDAsMCwwLDE1LjU5LTYuNTJjNjMuMTUtNjQsMTAzLjk1LT
E0MC42LDExNC44OS0yMTUuNzhDMTAyNS43Myw2NjcuNjksMTAyMy4yOCw2MjkuMjIsMTAxMi42O
Sw1OTNaIi8+PHBhdGggY2xhc3M9ImNscy0yIiBkPSJNMzY0LjE1LDE4NS4yM2MxNy44OS0xNi40LDM
```

0LjctMzAuMTUsNDkuNzctNDAuMTFhMjEyLDIxMiwwLDAsMSw2NS45My0yNS43M0ExOTgsMTk4LDA
sMCwxLDUxMiwxMTYuMjdhMTk2LjExLDE5Ni4xMSwwLDAsMSwzMiwzLjFjNC41LjkxLDkuMzYsMi4wN
wxNC41MywzLjUyLDYwLjQxLDIwLjQ4LDg0LjkyLDkxLjA1LTQ3LjQ0LDI0OC4wNi0yOC43NSwzNC4x
Mi0xNDAuNywxOTQuODQtMTg0LjY2LDI2OC40MmE2MzAuODYsNjMwLjg2LDAsMCwwLTMzLjIyLD
U4LjMyQzI3Niw2NTUuMzQsMjY1LjQsNTk4LDI2NS40LDUyMC4yOSwyNjUuNCwzNDAuNjEsMzExLjY
5LDI0MC43NCwzNjQuMTUsMTg1LjIzWiIvPjxwYXRoIGNsYXNzPSJjbHMtMyIgZD0iTTUyNy41NCwzO
DQuODNjODQuMDYtOTkuNywxMTYuMDYtMTc3LjI4LDk1LjIyLTIzMC43NCwxMS42Miw4LjY5LDI0LD
E5LjIsMzcuMDYsMzEuMTMsNTIuNDgsNTUuNSw5OC43OCwxNTUuMzgsOTguNzgsMzM1LjA3LDAs
NzcuNzEtMTAuNiwxMzUuMDUtMjcuNzcsMTc3LjRhNjI4LjczLDYyOC43MywwLDAsMC0zMy4yMy01OC
4zMmMtMzktNjUuMjYtMTMxLjQ1LTE5OS0xNzEuOTMtMjUyLjI3QzUyNi4zMywzODYuMjksNTI3LDM4
NS41Miw1MjcuNTQsMzg0LjgzWiIvPjxwYXRoIGNsYXNzPSJjbHMtNCIgZD0iTTEzNC41OCw5MDguM
DdoLS4wNmEuMzkuMzksMCwwLDEtLjI3LS4xMWMtMTE5LjUyLTEyMS4wNy0xNTUtMjg3LjQtNDcuN
TQtNDA0LjU4LDM0LjYzLTQxLjE0LDEyMC0xNTEuNiwyMDIuNzUtMjQyLjE5LTMuMTMsNy02LjEyLDE
0LjI1LTguOTIsMjEuNjktMjQuMzQsNjQuNDUtMzYuNjcsMTQ0LjMyLTM2LjY3LDIzNy40MSwwLDU2LjU
zLDUuNTgsMTA2LDE2LjU5LDE0Ny4xNEEzMDcuNDksMzA3LjQ5LDAsMCwwLDI4MC45MSw3MjND
MjM3LDgxNi44OCwyMTYuOTMsODkzLjkzLDEzNC41OCw5MDguMDdaIi8+PHBhdGggY2xhc3M9ImN
scy01IiBkPSJNNTgzLjQzLDgxMy43OUM1NjAuMTgsNzI3LjcyLDUxMiw2NjQuMTUsNTEyLDY2NC4xN
XMtNDguMTcsNjMuNTctNzEuNDMsMTQ5LjY0Yy00OC40NS02Ljc0LTEwMC45MS0yNy41Mi0xMzUu
NjYtOTEuMThhNjQ1LjY4LDY0NS42OCwwLDAsMSwzOS41Ny03MS41NGwuMjEtLjMyLjE5LS4zM2M
zOC02My42MywxMjYuNC0xOTEuMzcsMTY3LjEyLTI0NS42Niw0MC43MSw1NC4yOCwxMjkuMSwxO
DIsMTY3LjEyLDI0NS42NmwuMTkuMzMuMjEuMzJhNjQ1LjY4LDY0NS42OCwwLDAsMSwzOS41Nyw
3MS41NEM2ODQuMzQsNzg2LjI3LDYzMS44OCw4MDcuMDUsNTgzLjQzLDgxMy43OVoiLz48cGF0a
CBjbGFzcz0iY2xzLTQiIGQ9Ik04ODkuNzUsOTA4YS4zOS4zOSwwLDAsMS0uMjcuMTFoLS4wNkM4M
DcuMDcsODkzLjkzLDc4Nyw4MTYuODgsNzQzLjA5LDcyM2EzMDcuNDksMzA3LjQ5LDAsMCwwLDIwL
jQ1LTU1LjU0YzExLTQxLjExLDE2LjU5LTkwLjYxLDE2LjU5LTE0Ny4xNCwwLTkzLjA4LTEyLjMzLTE3M
y0zNi42Ni0yMzcuNHEtNC4yMi0xMS4xNi04LjkzLTIxLjdjODIuNzUsOTAuNTksMTY4LjEyLDIwMS4wNS
wyMDIuNzUsMjQyLjE5QzEwNDQuNzksNjIwLjU2LDEwMDkuMjcsNzg2Ljg5LDg4OS43NSw5MDhaIi8+
PC9zdmc+Cg==
...

1 The icon defined as a base64 value.

Viewing the icon element in the web console

The icon appears on the introductory tile of the quick start on the **Quick Starts** page.

10.4.2.6. introduction element

Viewing the introduction element in the YAML file

```
...
  introduction: >- (1)
    **Spring** is a Java framework for building applications based on a distributed microservices architecture.

    - Spring enables easy packaging and configuration of Spring applications into a self-contained executable application which can be easily deployed as a container to OpenShift.

    - Spring applications can integrate OpenShift capabilities to provide a natural "Spring on OpenShift" developer experience for both existing and net-new Spring applications. For example:

    - Externalized configuration using Kubernetes ConfigMaps and integration with Spring Cloud Kubernetes

    - Service discovery using Kubernetes Services

    - Load balancing with Replication Controllers

    - Kubernetes health probes and integration with Spring Actuator

    - Metrics: Prometheus, Grafana, and integration with Spring Cloud Sleuth

    - Distributed tracing with Istio

    - Developer tooling through Red Hat OpenShift and Red Hat CodeReady developer tooling to quickly scaffold new Spring projects, gain access to familiar Spring APIs in your favorite IDE, and deploy to Red Hat OpenShift
...
```

1. The introduction introduces the quick start and lists the tasks within it.

Viewing the introduction element in the web console

After clicking a quick start card, a side panel slides in that introduces the quick start and lists the tasks within it.

Get started with Spring 10 minutes

Spring is a Java framework for building applications based on a distributed microservices architecture.

- Spring enables easy packaging and configuration of Spring applications into a self-contained executable application which can be easily deployed as a container to OpenShift.
- Spring applications can integrate OpenShift capabilities to provide a natural "Spring on OpenShift" developer experience for both existing and net-new Spring applications. For example:
- Externalized configuration using Kubernetes ConfigMaps and integration with Spring Cloud Kubernetes
- Service discovery using Kubernetes Services
- Load balancing with Replication Controllers
- Kubernetes health probes and integration with Spring Actuator
- Metrics: Prometheus, Grafana, and integration with Spring Cloud Sleuth
- Distributed tracing with Istio & Jaeger tracing
- Developer tooling through Red Hat OpenShift and Red Hat CodeReady developer tooling to quickly scaffold new Spring projects, gain access to familiar Spring APIs in your favorite IDE, and deploy to Red Hat OpenShift

In this quick start, you will complete 6 tasks:

1. Create a Spring application
2. View the build status
3. View the associated Git repository
4. View the pod status
5. Change the deployment icon to Spring
6. Run the Spring application

Start

10.4.3. Adding a custom icon to a quick start

A default icon is provided for all quick starts. You can provide your own custom icon.

Procedure

1. Find the **.svg** file that you want to use as your custom icon.
2. Use an online tool to convert the text to base64 .
3. In the YAML file, add **icon: >-**, then on the next line include **data:image/svg+xml;base64** followed by the output from the base64 conversion. For example:

```
icon: >-


ciIHJvbGU9ImltZyIgdmlld.
```

10.4.4. Limiting access to a quick start

Not all quick starts should be available for everyone. The **accessReviewResources** section of the YAML file provides the ability to limit access to the quick start.

To only allow the user to access the quick start if they have the ability to create **HelmChartRepository** resources, use the following configuration:

```
accessReviewResources:
  - group: helm.openshift.io
    resource: helmchartrepositories
    verb: create
```

To only allow the user to access the quick start if they have the ability to list Operator groups and package manifests, thus ability to install Operators, use the following configuration:

```
accessReviewResources:
  - group: operators.coreos.com
    resource: operatorgroups
    verb: list
  - group: packages.operators.coreos.com
    resource: packagemanifests
    verb: list
```

10.4.5. Linking to other quick starts

Procedure

- In the **nextQuickStart** section of the YAML file, provide the **name**, not the **displayName**, of the quick start to which you want to link. For example:

```
nextQuickStart:
  - add-healthchecks
```

10.4.6. Supported tags for quick starts

Write your quick start content in markdown using these tags. The markdown is converted to HTML.

Tag	Description
'b',	Defines bold text.
'img',	Embeds an image.
'i',	Defines italic text.
'strike',	Defines strike-through text.
's',	Defines smaller text
'del',	Defines smaller text.
'em',	Defines emphasized text.
'strong',	Defines important text.
'a',	Defines an anchor tag.
'p',	Defines paragraph text.
'h1',	Defines a level 1 heading.
'h2',	Defines a level 2 heading.
'h3',	Defines a level 3 heading.
'h4',	Defines a level 4 heading.
'ul',	Defines an unordered list.
'ol',	Defines an ordered list.
'li',	Defines a list item.
'code',	Defines a text as code.
'pre',	Defines a block of preformatted text.
'button',	Defines a button in text.

10.4.7. Quick start highlighting markdown reference

The highlighting, or hint, feature enables Quick Starts to contain a link that can highlight and animate a component of the web console.

The markdown syntax contains:

- Bracketed link text
- The **highlight** keyword, followed by the ID of the element that you want to animate

10.4.7.1. Perspective switcher

```
[Perspective switcher]{{highlight qs-perspective-switcher}}
```

10.4.7.2. Administrator perspective navigation links

```
[Home]{{highlight qs-nav-home}}
[Operators]{{highlight qs-nav-operators}}
[Workloads]{{highlight qs-nav-workloads}}
[Serverless]{{highlight qs-nav-serverless}}
[Networking]{{highlight qs-nav-networking}}
[Storage]{{highlight qs-nav-storage}}
[Service catalog]{{highlight qs-nav-servicecatalog}}
[Compute]{{highlight qs-nav-compute}}
[User management]{{highlight qs-nav-usermanagement}}
[Administration]{{highlight qs-nav-administration}}
```

10.4.7.3. Developer perspective navigation links

```
[Add]{{highlight qs-nav-add}}
[Topology]{{highlight qs-nav-topology}}
[Search]{{highlight qs-nav-search}}
[Project]{{highlight qs-nav-project}}
[Helm]{{highlight qs-nav-helm}}
```

10.4.7.4. Common navigation links

```
[Builds]{{highlight qs-nav-builds}}
[Pipelines]{{highlight qs-nav-pipelines}}
[Monitoring]{{highlight qs-nav-monitoring}}
```

10.4.7.5. Masthead links

```
[CloudShell]{{highlight qs-masthead-cloudshell}}
[Utility Menu]{{highlight qs-masthead-utilitymenu}}
[User Menu]{{highlight qs-masthead-usermenu}}
[Applications]{{highlight qs-masthead-applications}}
[Import]{{highlight qs-masthead-import}}
[Help]{{highlight qs-masthead-help}}
[Notifications]{{highlight qs-masthead-notifications}}
```

10.4.8. Code snippet markdown reference

You can execute a CLI code snippet when it is included in a quick start from the web console. To use this feature, you must first install the Web Terminal Operator. The web terminal and code snippet actions that execute in the web terminal are not present if you do not install the Web Terminal Operator. Alternatively, you can copy a code snippet to the clipboard regardless of whether you have the Web Terminal Operator installed or not.

10.4.8.1. Syntax for inline code snippets

```
`code block`{{copy}}
`code block`{{execute}}
```

NOTE

If the **execute** syntax is used, the **Copy to clipboard** action is present whether you have the Web Terminal Operator installed or not.

10.4.8.2. Syntax for multi-line code snippets

```
```
multi line code block
```{{copy}}

```
multi line code block
```{{execute}}
```

10.5. QUICK START CONTENT GUIDELINES

10.5.1. Card copy

You can customize the title and description on a quick start card, but you cannot customize the status.

- Keep your description to one to two sentences.
- Start with a verb and communicate the goal of the user. Correct example:

  > Create a serverless application.

10.5.2. Introduction

After clicking a quick start card, a side panel slides in that introduces the quick start and lists the tasks within it.

- Make your introduction content clear, concise, informative, and friendly.
- State the outcome of the quick start. A user should understand the purpose of the quick start before they begin.
- Give action to the user, not the quick start.

- **Correct example**:

  > In this quick start, you will deploy a sample application to {product-title}.

- **Incorrect example**:

  > This quick start shows you how to deploy a sample application to {product-title}.

- The introduction should be a maximum of four to five sentences, depending on the complexity of the feature. A long introduction can overwhelm the user.
- List the quick start tasks after the introduction content, and start each task with a verb. Do not specify the number of tasks because the copy would need to be updated every time a task is added or removed.
  - **Correct example**:

    > Tasks to complete: Create a serverless application; Connect an event source; Force a new revision

  - **Incorrect example**:

    > You will complete these 3 tasks: Creating a serverless application; Connecting an event source; Forcing a new revision

10.5.3. Task steps

After the user clicks **Start**, a series of steps appears that they must perform to complete the quick start.

Follow these general guidelines when writing task steps:

- Use "Click" for buttons and labels. Use "Select" for checkboxes, radio buttons, and drop-down menus.
- Use "Click" instead of "Click on"
  - **Correct example**:

    > Click OK.

  - **Incorrect example**:

    > Click on the OK button.

- Tell users how to navigate between **Administrator** and **Developer** perspectives. Even if you think a user might already be in the appropriate perspective, give them instructions on how to get there so that they are definitely where they need to be.
  Examples:

  > Enter the Developer perspective: In the main navigation, click the dropdown menu and select Developer.
  > Enter the Administrator perspective: In the main navigation, click the dropdown menu and select Admin.

- Use the "Location, action" structure. Tell a user where to go before telling them what to do.
  - **Correct example**:

    > In the node.js deployment, hover over the icon.

  - **Incorrect example**:

    > Hover over the icon in the node.js deployment.

- Keep your product terminology capitalization consistent.
- If you must specify a menu type or list as a dropdown, write "dropdown" as one word without a hyphen.
- Clearly distinguish between a user action and additional information on product functionality.
  - **User action**:

    > Change the time range of the dashboard by clicking the dropdown menu and selecting time range.

  - **Additional information**:

    > To look at data in a specific time frame, you can change the time range of the dashboard.

- Avoid directional language, like "In the top-right corner, click the icon". Directional language becomes outdated every time UI layouts change. Also, a direction for desktop users might not be accurate for users with a different screen size. Instead, identify something using its name.
  - **Correct example**:

    > In the navigation menu, click Settings.

  - **Incorrect example**:

    > In the left-hand menu, click Settings.

- Do not identify items by color alone, like "Click the gray circle". Color identifiers are not useful for sight-limited users, especially colorblind users. Instead, identify an item using its name or copy, like button copy.
  - **Correct example**:

    > The success message indicates a connection.

  - **Incorrect example**:

    > The message with a green icon indicates a connection.

- Use the second-person point of view, you, consistently:
  - **Correct example**:

> Set up your environment.

- **Incorrect example**:

> Let's set up our environment.

10.5.4. Check your work module

- After a user completes a step, a **Check your work** module appears. This module prompts the user to answer a yes or no question about the step results, which gives them the opportunity to review their work. For this module, you only need to write a single yes or no question.
  - If the user answers **Yes**, a check mark will appear.
  - If the user answers **No**, an error message appears with a link to relevant documentation, if necessary. The user then has the opportunity to go back and try again.

10.5.5. Formatting UI elements

Format UI elements using these guidelines:

- Copy for buttons, dropdowns, tabs, fields, and other UI controls: Write the copy as it appears in the UI and bold it.
- All other UI elements—including page, window, and panel names: Write the copy as it appears in the UI and bold it.
- Code or user-entered text: Use monospaced font.
- Hints: If a hint to a navigation or masthead element is included, style the text as you would a link.
- CLI commands: Use monospaced font.
- In running text, use a bold, monospaced font for a command.
- If a parameter or option is a variable value, use an italic monospaced font.
- Use a bold, monospaced font for the parameter and a monospaced font for the option.

10.6. ADDITIONAL RESOURCES

- For voice and tone requirements, refer to PatternFly's brand voice and tone guidelines.
- For other UX content guidance, refer to all areas of PatternFly's UX writing style guide.

CHAPTER 11. OPTIONAL CAPABILITIES AND PRODUCTS IN THE WEB CONSOLE

You can further customize the OpenShift Container Platform web console by adding additional capabilities to your existing workflows and integrations through products.

11.1. ENHANCING THE OPENSHIFT CONTAINER PLATFORM WEB CONSOLE WITH OPERATORS

Cluster administrators can install Operators on clusters in the OpenShift Container Platform web console by using the OperatorHub to provide customization outside of layered products for developers. For example, the Web Terminal Operator allows you to start a web terminal in your browser with common CLI tools for interacting with the cluster.

Additional resources

- Understanding OperatorHub
- Installing the web terminal

11.2. RED HAT OPENSHIFT PIPELINES IN THE WEB CONSOLE

Red Hat OpenShift Pipelines is a cloud-native, continuous integration and continuous delivery (CI/CD) solution based on Kubernetes resources. Install the Red Hat OpenShift Pipelines Operator using the OperatorHub in the OpenShift Container Platform web console. Once the Operator is installed, you can create and modify pipeline objects on **Pipelines** page.

Additional resources

- Working with Red Hat OpenShift Pipelines in the web console
- Pipeline execution statistics in the web console

11.3. RED HAT OPENSHIFT SERVERLESS IN THE WEB CONSOLE

Red Hat OpenShift Serverless enables developers to create and deploy serverless, event-driven applications on OpenShift Container Platform. You can use the OpenShift Container Platform web console OperatorHub to install the OpenShift Serverless Operator.

Additional resources

- Installing the OpenShift Serverless Operator from the web console .

11.4. RED HAT DEVELOPER HUB IN THE OPENSHIFT CONTAINER PLATFORM WEB CONSOLE

The Red Hat Developer Hub is a platform you can use to experience a streamlined development environment. Red Hat Developer Hub is driven by a centralized software catalog, providing efficiency to your microservices and infrastructure. It enables your product team to deliver quality code without any compromises. A quick start is available for you to learn more about how to install the developer hub.

11.4.1. Installing the Red Hat Developer Hub using the OpenShift Container Platform web console

The web console provides a quick start with instructions on how to install the Red Hat Developer Hub Operator.

Prerequisites

- You must be logged in to the OpenShift Container Platform web console with **admin** privileges.

Procedure

1. On the **Overview** page of the Administrator perspective, click **Install Red Hat Developer Hub (RHDH) with an Operator** in the **Getting started resources** tile.
2. A quick start pane is displayed with instructions for you to install the Red Hat Developer Hub with an Operator. Follow the quick start for instructions on how to install the Operator, create a Red Hat Developer Hub instance, and add your instance to the **OpenShift Console Application** menu.

Verification

1. You can click the **Application launcher** link that is displayed to verify your **Application** tab is available.
2. Verify your Janus IDP instance can be opened.

Additional resources

- Product Documentation for Red Hat Developer Hub