Creating Applications with the OpenShift Web Console

Objectives

After completing this section, students should be able to:

- Create an application with the OpenShift web console.
- Manage and monitor the build cycle of an application.
- Examine resources for an application.

Accessing the OpenShift Web Console

The OpenShift web console allows users to execute many of the same tasks as the OpenShift command-line client. You can create projects, add applications to projects, view application resources, and manipulate application configurations as needed. The OpenShift web console runs as one or more pods, each pod running on a master node.

The web console runs in a web browser. The default URL is of the format `https://console-openshift-console.{wildcard DNS domain for the RHOCP cluster}/` By default, OpenShift generates a self-signed certificate for the web console. You must trust this certificate in order to gain access.

The web console uses a REST API to communicate with the OpenShift cluster. By default, the REST API endpoint is accessed with a different DNS name and self-signed certificate. You must also trust this certificate for the REST API endpoint.

After you have trusted the two OpenShift certificates, the console requires authentication to proceed.

Managing Projects

Upon successful login, the **Home** page displays a list of projects you can access. From this page you can create, edit, or delete a project.

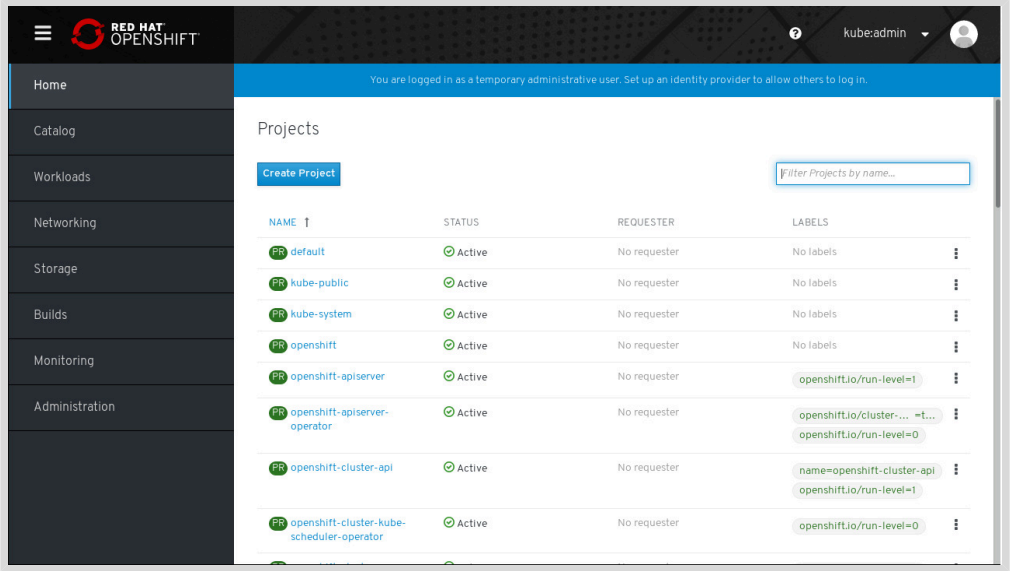

Figure 6.9: OpenShift web console home page

The ellipsis icon at the end of each row provides a menu with project actions. Select the appropriate entry to edit or delete the project.

If you click a project link in this view, you are redirected to the **Project Status** page which shows all of the applications created within that project space.

Navigating the Web Console

A navigation menu is located on the left side of the web console. Each item in the menu expands to provide access to a set of related management functions:

Catalog
: The **Developer Catalog** option displays a page for adding common applications to a project. Each application template uses parameters that you specify to create customized OpenShift resources. Other options allow you to manage Kubernetes Operators, or add items from the OpenShift marketplace. Operators and the OpenShift marketplace are beyond the scope of this course.

Workloads
: These options enable management of several types of Kubernetes and OpenShift resources, such as pods and deployment configurations. Other advanced deployment options that are accessible from this menu, such as configuration maps, secrets, and cron jobs, are beyond the scope of the course.

Networking
: This menu contains options to manage OpenShift resources that affect application access, such as services and routes, for a project. Other options for configuring an OpenShift Network Policy or Ingress are available, but these topics are outside the scope of this course.

Storage
: This menu contains options to configure persistent storage for project applications. In particular, persistent volumes and persistent volume claims for a project are managed from the **Storage** menu.

Builds
: The **Build Configs** option displays a list of project build configurations. Click a build configuration link in this view to access an overview page for the specified build configuration. From this page, you can view and edit the application's build configuration.

  The **Builds** option provides a list of recent build processes for application container images in the project. Click the link for a particular build to access the build logs for that particular build process.

  The **Image Streams** option provides a list of image streams defined in the project. Click an image stream entry in this list to access an overview page to view and manage that image stream.

Monitoring
: Provides options to access and manage alerts for the OpenShift cluster. Functions in the **Monitoring** section are outside the scope of this course.

Administration
: Provides options to manage cluster and project settings, such as resource quotas and role-based access controls. Functions in the **Administration** section are outside the scope of this course.

Creating New Applications

Use the **Developer Catalog** option in the **Catalog** menu to add a new application to an OpenShift project. A selection of Source-to-Image (S2I) templates are available to create a technology-specific application image from the application's source code. Select a desired template, and provide the necessary information to deploy the new application.

You are not limited to deploying an application from only its source code. You can also deploy an application using:

- A container image hosted on a remote container registry.
- A YAML file that specifies the Kubernetes and OpenShift resources to create.

To create an application with either of these two methods, use the **Add** menu in the upper right of the Developer Catalog Page. Use the **Deploy Image** option to deploy an existing container image. Use the **Import YAML** option to create the resources specified in a YAML file, such as the type of file generated using the **`oc export`** command.

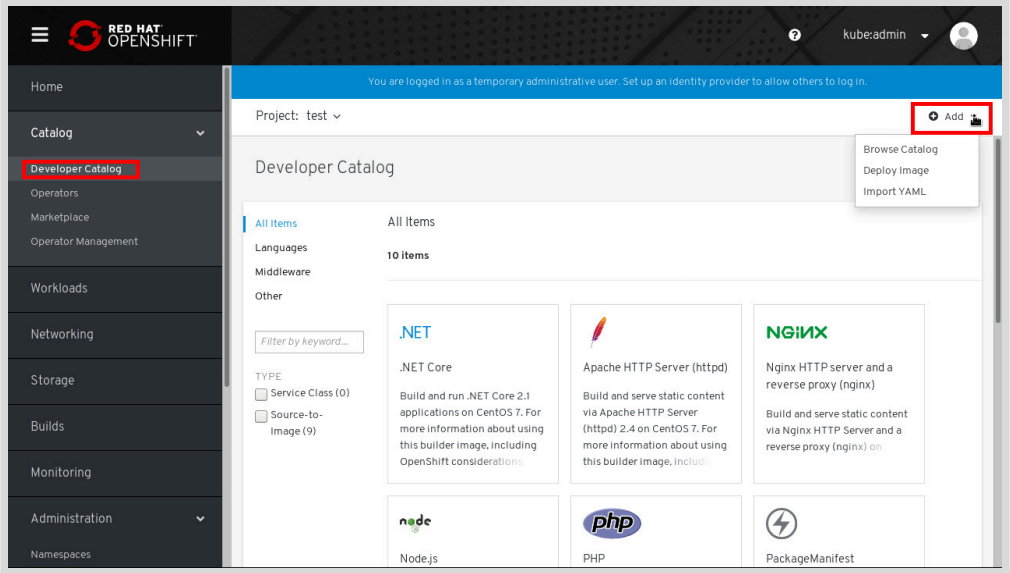

Figure 6.10: OpenShift Developer Catalog page

Managing Application Builds

Click the **Build Configs** option of the **Builds** menu after you add a Source-to-Image application to a project. The new build configuration is accessible from this view:

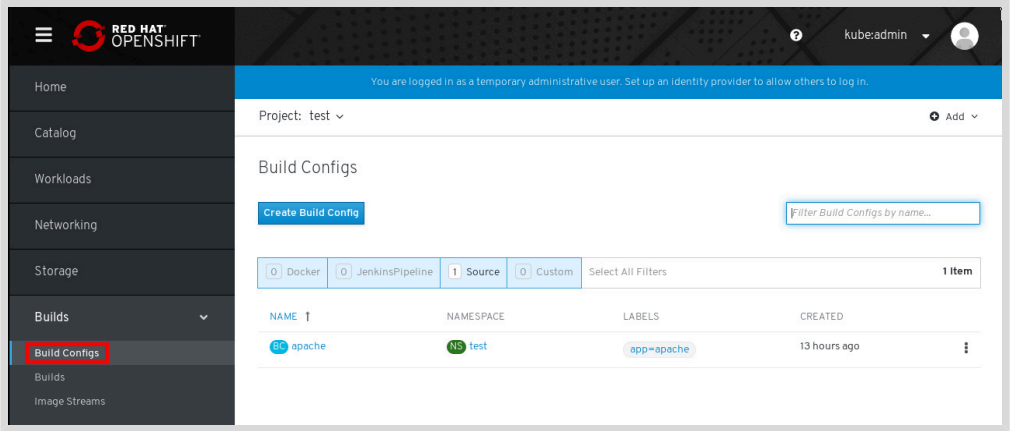

Figure 6.11: OpenShift build configurations page

Click a build configuration in the list to view an overview page for the selected build configuration. From the overview page, you can:

- View the build configuration parameters, such as the URL for the source code's Git repository.
- View and edit the environment variables that are set in the builder container, during an application build process.
- View a list of recent application builds, and click a selected build to access logs from the build process.

Managing Deployed Applications

The **Workloads** menu provides access to deployment configurations in the project.

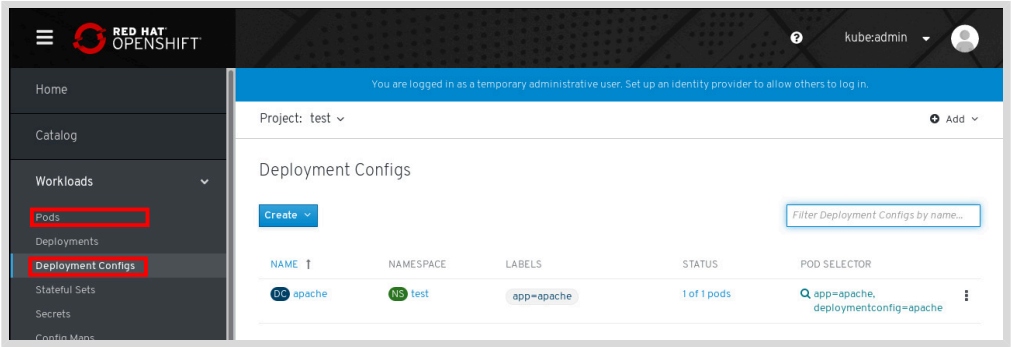

Figure 6.12: OpenShift Workloads menu

Click a deployment configuration entry in the list to view an overview page for the selection. From the overview page, you can:

- View the deployment configuration parameters, such as the specifications of an application container image.
- Change the desired number of application pods to manually scale the application.
- View and edit the environment variables that are set in the deployed application container.
- View a list of application pods, and click a selected pod to access logs for that pod.

Other Web Console Features

The web console allows you to:

- Manage resources, such as project quotas, user membership, secrets, and other advanced resources.
- Create persistent volume claims.
- Monitor builds, deployments, pods, and system events.
- Create continuous integration and deployment pipelines with Jenkins.

Detailed usage for the above features is outside the scope of this course.