

# Red Hat OpenShift AI Cloud Service 1

## Release notes

Features, enhancements, resolved issues, and known issues associated with this release

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## Red Hat OpenShift Al Cloud Service 1 Release notes

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### **Abstract**

These release notes provide an overview of new features, enhancements, resolved issues, and known issues in this release of Red Hat OpenShift Al. OpenShift Al is currently available in Red Hat OpenShift Dedicated and Red Hat OpenShift Service on Amazon Web Services (ROSA).

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## CHAPTER 1. OVERVIEW OF OPENSHIFT AI

Using Red Hat OpenShift AI, users can integrate data, artificial intelligence and machine learning software to execute end-to-end machine learning workflows. OpenShift AI is supported in two configurations:

- 1. Installed as an Add-on to a Red Hat managed environment such as Red Hat OpenShift Dedicated and Red Hat OpenShift Service on Amazon Web Services (ROSA).
- 2. Installed as a self-managed Operator on a self-managed environment, such as Red Hat OpenShift Container Platform.

For data scientists, OpenShift Al includes Jupyter and a collection of default notebook images optimized with the tools and libraries required for model development, and the TensorFlow and PyTorch frameworks. Deploy and host your models, integrate models into external applications, and export models to host them in any hybrid cloud environment. You can also accelerate your data science experiments through the use of graphics processing units (GPUs) and Habana Gaudi devices.

For administrators, OpenShift AI enables data science workloads in an existing Red Hat OpenShift or ROSA environment. Manage users with your existing OpenShift identity provider, and manage the resources available to notebook servers to ensure data scientists have what they require to create, train, and host models. Use accelerators to reduce costs and allow your data scientists to enhance the performance of their end-to-end data science workflows using graphics processing units (GPUs) and Habana Gaudi devices.

OpenShift AI offers two distributions:

- A managed cloud service add-on for Red Hat OpenShift Dedicated (with a Customer Cloud Subscription for AWS or GCP) or for Red Hat OpenShift Service on Amazon Web Services (ROSA).
  - For information about OpenShift AI on a Red Hat managed environment, see Product Documentation for Red Hat OpenShift AI.
- Self-managed software that you can install on-premise or on the public cloud in a self-managed environment, such as OpenShift Container Platform.
   For information about OpenShift AI as self-managed software on your OpenShift cluster in a connected or a disconnected environment, see Product Documentation for Red Hat OpenShift AI Self-Managed.

For information about OpenShift Al supported software platforms, components, and dependencies, see Supported configurations.

## **CHAPTER 2. NEW FEATURES AND ENHANCEMENTS**

This section describes new features and enhancements in Red Hat OpenShift Al.

### 2.1. NEW FEATURES

#### **Data Science Pipelines logs**

You can now review and analyze logs for each step in a triggered pipeline run. To help you troubleshoot and audit your pipelines, you can review and analyze the pipeline logs by using the log viewer in the OpenShift Al dashboard. You can search for specific log messages, stop or start the log for pipeline runs that are in progress, and download the step logs to your local machine.

### **Data Science Pipelines versions**

You can manage incremental changes to pipelines in OpenShift AI by using versioning. Versioning allows you to develop and deploy pipelines iteratively, preserving a record of your changes. You can track and manage your changes on the OpenShift AI dashboard, enabling you to schedule and execute runs against all available versions of your pipeline.

### OpenVINO Model Server runtime for the single model serving platform

The single model serving platform (which uses KServe) now includes an OpenVINO Model Server runtime. The runtime supports the following model frameworks:

- OpenVINO IR, operation set 11. See https://docs.openvino.ai/2023.3/openvino\_docs\_ops\_opset11.html.
- ONNX, version 1. See https://onnx.ai/onnx/intro.
- TensorFlow, versions 1 and 2. See https://www.tensorflow.org/guide.
- Paddle, version 2. See
   https://www.paddlepaddle.org.cn/documentation/docs/en/guides/index\_en.html.

### RStudio Server notebook image

With the **RStudio Server** notebook image, you can access the RStudio IDE, an integrated development environment for R. The R programming language is used for statistical computing and graphics to support data analysis and predictions.

To use the **RStudio Server** notebook image, you must first build it by creating a secret and triggering the **BuildConfig**, and then enable it in the OpenShift AI UI by editing the **rstudio-rhel9** image stream. See Building the RStudio Server notebook images for more information.



#### **IMPORTANT**

**Disclaimer:** Red Hat supports managing workbenches in OpenShift Al. However, Red Hat does not provide support for the RStudio software. RStudio Server is available through rstudio.org and is subject to their licensing terms. You should review their licensing terms before you use this sample workbench.

#### CUDA - RStudio Server notebook image

With the **CUDA - RStudio Server**notebook image, you can access the RStudio IDE and NVIDIA CUDA Toolkit. The RStudio IDE is an integrated development environment for the R programming language for statistical computing and graphics. With the NVIDIA CUDA toolkit, you can enhance your work by using GPU-accelerated libraries and optimization tools.

To use the **CUDA - RStudio Server**notebook image, you must first build it by creating a secret and triggering the **BuildConfig**, and then enable it in the OpenShift AI UI by editing the **rstudio-rhel9** image stream. See Building the RStudio Server notebook images for more information.



### **IMPORTANT**

**Disclaimer:** Red Hat supports managing workbenches in OpenShift Al. However, Red Hat does not provide support for the RStudio software. RStudio Server is available through rstudio.org and is subject to their licensing terms. You should review their licensing terms before you use this sample workbench.

The **CUDA - RStudio Server**notebook image contains NVIDIA CUDA technology. CUDA licensing information is available in the CUDA Toolkit documentation. You should review their licensing terms before you use this sample workbench.

### CHAPTER 3. TECHNOLOGY PREVIEW FEATURES



#### **IMPORTANT**

This section describes Technology Preview features in Red Hat OpenShift Al. Technology Preview features are not supported with Red Hat production service level agreements (SLAs) and might not be functionally complete. Red Hat does not recommend using them in production. These features provide early access to upcoming product features, enabling customers to test functionality and provide feedback during the development process.

For more information about the support scope of Red Hat Technology Preview features, see Technology Preview Features Support Scope.

#### Distributed workloads

Distributed workloads enable data scientists to use multiple cluster nodes in parallel for faster, more efficient data processing and model training. The CodeFlare framework simplifies task orchestration and monitoring, and offers seamless integration for automated resource scaling and optimal node utilization with advanced GPU support. Designed for data scientists, the CodeFlare framework enables direct workload configuration from Jupyter Notebooks or Python code, ensuring a low barrier of adoption, and streamlined, uninterrupted workflows. Distributed workloads significantly reduce task completion time, and enable the use of larger datasets and more complex models. The distributed workloads feature is currently available in Red Hat OpenShift AI as a Technology Preview feature.

### code-server notebook image

Red Hat OpenShift Al now includes the code-server notebook image. See code-server in GitHub for more information.

With the code-server notebook image, you can customize your notebook environment to meet your needs using a variety of extensions to add new languages, themes, debuggers, and connect to additional services. Enhance the efficiency of your data science work with syntax highlighting, auto-indentation, and bracket matching.



#### NOTE

Elyra-based pipelines are not available with the code-server notebook image.

The code-server notebook image is currently available in Red Hat OpenShift AI as a Technology Preview feature.

## **CHAPTER 4. SUPPORT REMOVALS**

This section describes major changes in support for user-facing features in Red Hat OpenShift Al.

## 4.1. REMOVAL OF BIAS DETECTION (TRUSTYAI)

OpenShift AI 2.7 removes the bias detection (TrustyAI) functionality. If you previously had this functionality enabled, upgrading to OpenShift AI 2.7 will remove the feature. The default TrustyAI notebook image remains supported.

# 4.2. VERSION 1.2 NOTEBOOK CONTAINER IMAGES FOR WORKBENCHES ARE NO LONGER SUPPORTED

When you create a workbench, you specify a notebook container image to use with the workbench. Starting with OpenShift AI 2.5, when you create a new workbench, version 1.2 notebook container images are not available to select. Workbenches that are already running with a version 1.2 notebook image continue to work normally. However, Red Hat recommends that you update your workbench to use the latest notebook container image.

### 4.3. NVIDIA GPU OPERATOR REPLACES NVIDIA GPU ADD-ON

Previously, to enable graphics processing units (GPUs) to help with compute-heavy workloads, you installed the NVIDIA GPU add-on. OpenShift AI no longer supports this add-on.

Now, to enable GPU support, you must install the NVIDIA GPU Operator. To learn how to install the GPU Operator, see NVIDIA GPU Operator on Red Hat OpenShift Container Platform (external).

## 4.4. KUBEFLOW NOTEBOOK CONTROLLER REPLACES JUPYTERHUB

In OpenShift AI 1.15 and earlier, JupyterHub was used to create and launch notebook server environments. In OpenShift AI 1.16 and later, JupyterHub is no longer included, and its functionality is replaced by Kubeflow Notebook Controller.

This change provides the following benefits:

- Users can now immediately cancel a request, make changes, and retry the request, instead of waiting 5+ minutes for the initial request to time out. This means that users do not wait as long when requests fail, for example, when a notebook server does not start correctly.
- The architecture no longer prevents a single user from having more than one notebook server session, expanding future feature possibilities.
- The removal of the PostgreSQL database requirement allows for future expanded environment support in OpenShift AI.

However, this update also creates the following behavior changes:

- For IT Operations administrators, the notebook server administration interface does not currently allow login access to data scientist users' notebook servers. This is planned to be added in future releases.
- For data scientists, the JupyterHub interface URL is no longer valid. Update your bookmarks to point to the OpenShift Al Dashboard.

The JupyterLab interface is unchanged and data scientists can continue to use JupyterLab to work with their notebook files as usual.

## **CHAPTER 5. RESOLVED ISSUES**

This section describes notable issues that have been resolved in Red Hat OpenShift AI.

# RHOAIENG-535 - Metrics graph showing HTTP requests for deployed models is incorrect if there are no HTTP requests

Previously, if a deployed model did not receive at least one HTTP request for each of the two data types (success and failed), the graphs that show HTTP request performance metrics (for all models on the model server or for the specific model) rendered incorrectly, with a straight line that indicated a steadily increasing number of failed requests. This issue is now resolved.

#### RHOAIENG-1467 - Serverless net-istio controller pod might hit OOM

Previously, the Knative **net-istio-controller** pod (which is a dependency for KServe) might continuously crash due to an out-of-memory (OOM) error. This issue is now resolved.

## RHOAIENG-1899 (previously documented asRHODS-6539) - The Anaconda Professional Edition cannot be validated and enabled

Previously, you could not enable the Anaconda Professional Edition because the dashboard's key validation for it was inoperable. This issue is now resolved.

### RHOAIENG-2269 - (Single-model) Dashboard fails to display the correct number of model replicas

Previously, on a single-model serving platform, the **Models and model servers** section of a data science project did not show the correct number of model replicas. This issue is now resolved.

#### RHOAIENG-2270 - (Single-model) Users cannot update model deployment settings

Previously, you couldn't edit the deployment settings (for example, the number of replicas) of a model you deployed with a single-model serving platform. This issue is now resolved.

## RHOAIENG-2479 - ModelMesh monitoring stack is not deleted during upgrade from 2.4 or 2.5 to 2.6

Previously, if you upgraded the Red Hat OpenShift Al Operator from version 2.4 to 2.5, and then updated the Operator to version 2.6, all components related to hardware resource-consuming model monitoring were removed from the cluster. Some residual model-monitoring resources, which do not consume hardware resources, were still present. This issue is now resolved.

## RHODS-8865 - A pipeline server fails to start unless you specify an Amazon Web Services (AWS) Simple Storage Service (S3) bucket resource

Previously, when you created a data connection for a data science project, the **AWS\_S3\_BUCKET** field was not designated as a mandatory field. However, if you attempted to configure a pipeline server with a data connection where the **AWS\_S3\_BUCKET** field was not populated, the pipeline server failed to start successfully. This issue is now resolved. The **Configure pipeline server** dialog has been updated to include the **Bucket** field as a mandatory field.

#### RHOAIENG-84 - Cannot use self-signed certificates with KServe

Previously, the single model serving platform did not support self-signed certificates. This issue is now resolved. To use self-signed certificates with KServe, follow the steps described in the Red Hat Knowledgebase solution article How to use self-signed certificates with KServe.

## RHOAIENG-164 - Number of model server replicas for Kserve is not applied correctly from the dashboard

Previously, when you set a number of model server replicas different from the default (1), the model (server) was still deployed with 1 replica. This issue is now resolved.

#### RHOAIENG-288 - Recommended image version label for workbench is shown for two versions

Most of the workbench images that are available in OpenShift AI are provided in multiple versions. The only recommended version is the latest version. In Red Hat OpenShift AI 2.4 and 2.5, the **Recommended** tag was erroneously shown for multiple versions of an image. This issue is now resolved.

## RHOAIENG-293 - Deprecated ModelMesh monitoring stack not deleted after upgrading from 2.4 to 2.5

In Red Hat OpenShift AI 2.5, the former ModelMesh monitoring stack was no longer deployed because it was replaced by user workload monitoring. However, the former monitoring stack was not deleted during an upgrade to OpenShift AI 2.5. Some components remained and used cluster resources. This issue is now resolved.

## RHOAIENG-343 - Manual configuration of OpenShift Service Mesh and OpenShift Serverless does not work for KServe

If you installed OpenShift Serverless and OpenShift Service Mesh and then installed Red Hat OpenShift Al with KServe enabled, KServe was not deployed. This issue is now resolved.

### RHOAIENG-517 - User with edit permissions cannot see created models

A user with edit permissions could not see any created models, unless they were the project owner or had admin permissions for the project. This issue is now resolved.

### RHOAIENG-804 - Cannot deploy Large Language Models with KServe on FIPS-enabled clusters

Previously, Red Hat OpenShift AI was not yet fully designed for FIPS. You could not deploy Large Language Models (LLMs) with KServe on FIPS-enabled clusters. This issue is now resolved.

### RHOAIENG-908 - Cannot use ModelMesh if KServe was previously enabled and then removed

Previously, when both ModelMesh and KServe were enabled in the **DataScienceCluster** object, and you subsequently removed KServe, you could no longer deploy new models with ModelMesh. You could continue to use models that were previously deployed with ModelMesh. This issue is now resolved.

#### RHOAIENG-2184 - Cannot create Ray clusters or distributed workloads

Previously, users could not create Ray clusters or distributed workloads in namespaces where they have **admin** or **edit** permissions. This issue is now resolved.

#### ODH-DASHBOARD-1991 - ovms-qpu-ootb is missing recommended accelerator annotation

Previously, when you added a model server to your project, the **Serving runtime** list did not show the **Recommended serving runtime** label for the NVIDIA GPU. This issue is now resolved.

### RHOAIENG-807 - Accelerator profile toleration removed when restarting a workbench

Previously, if you created a workbench that used an accelerator profile that in turn included a toleration, restarting the workbench removed the toleration information, which meant that the restart could not complete. A freshly created GPU-enabled workbench might start the first time, but never successfully restarted afterwards because the generated pod remained forever pending. This issue is now resolved.

## DATA-SCIENCE-PIPELINES-OPERATOR-294 - Scheduled pipeline run that uses data-passing might fail to pass data between steps, or fail the step entirely

A scheduled pipeline run that uses an S3 object store to store the pipeline artifacts might fail with an error such as the following:

Bad value for --endpoint-url "cp": scheme is missing. Must be of the form http://<hostname>/ or https://<hostname>/

This issue occurred because the S3 object store endpoint was not successfully passed to the pods for the scheduled pipeline run. This issue is now resolved.

#### RHODS-4769 - GPUs on nodes with unsupported taints cannot be allocated to notebook servers

GPUs on nodes marked with any taint other than the supported *nvidia.com/gpu* taint could not be selected when creating a notebook server. This issue is now resolved.

## RHODS-6346 - Unclear error message displays when using invalid characters to create a data science project

When creating a data science project's data connection, workbench, or storage connection using invalid special characters, the following error message was displayed:

the object provided is unrecognized (must be of type Secret): couldn't get version/kind; json parse error: unexpected end of JSON input ({"apiVersion":"v1","kind":"Sec ...)

The error message failed to clearly indicate the problem. The error message now indicates that invalid characters were entered.

#### RHODS-6950 - Unable to scale down workbench GPUs when all GPUs in the cluster are being used

In earlier releases, it was not possible to scale down workbench GPUs if all GPUs in the cluster were being used. This issue applied to GPUs being used by one workbench, and GPUs being used by multiple workbenches. You can now scale down the GPUs by selecting **None** from the **Accelerators** list.

## RHODS-8939 - Default shared memory for a Jupyter notebook created in a previous release causes a runtime error

Starting with release 1.31, this issue is resolved, and the shared memory for any new notebook is set to the size of the node.

For a Jupyter notebook created in a release earlier than 1.31, the default shared memory for a Jupyter notebook is set to 64 MB and you cannot change this default value in the notebook configuration.

To fix this issue, you must recreate the notebook or follow the process described in the Knowledgebase article How to change the shared memory for a Jupyter notebook in Red Hat OpenShift Al .

## RHODS-9030 - Uninstall process for OpenShift AI might become stuck when removingkfdefs resources

The steps for uninstalling the OpenShift AI managed service are described in Uninstalling OpenShift AI.

However, even when you followed this guide, you might have seen that the uninstall process did not finish successfully. Instead, the process stayed on the step of deleting **kfdefs** resources that were used by the Kubeflow Operator. As shown in the following example, **kfdefs** resources might exist in the **redhat-ods-applications**, **redhat-ods-monitoring**, and **rhods-notebooks** namespaces:

#### \$ oc get kfdefs.kfdef.apps.kubeflow.org -A

NAMESPACE	NAME	AGE
redhat-ods-applications	rhods-anaconda	3h6m
redhat-ods-applications	rhods-dashboard	3h6m
redhat-ods-applications	rhods-data-science-pip	elines-operator 3h6m
redhat-ods-applications	rhods-model-mesh	3h6m
redhat-ods-applications	rhods-nbc	3h6m
redhat-ods-applications	rhods-osd-config	3h6m
redhat-ods-monitoring	modelmesh-monitoring	3h6m
redhat-ods-monitoring	monitoring	3h6m
rhods-notebooks	rhods-notebooks	3h6m
rhods-notebooks	rhods-osd-config	3h5m

Failed removal of the **kfdefs** resources might have also prevented later installation of a newer version of OpenShift Al. This issue no longer occurs.

### RHODS-9764 - Data connection details get reset when editing a workbench

When you edited a workbench that had an existing data connection and then selected the **Create new data connection** option, the edit page might revert to the **Use existing data connection** option before you had finished specifying the new connection details. This issue is now resolved.

### RHODS-9583 - Data Science dashboard did not detect an existing OpenShift Pipelines installation

When the OpenShift Pipelines Operator was installed as a global operator on your cluster, the OpenShift Al dashboard did not detect it. The OpenShift Pipelines Operator is now detected successfully.

#### ODH-DASHBOARD-1639 - Wrong TLS value in dashboard route

Previously, when a route was created for the OpenShift Al dashboard on OpenShift, the **tls.termination** field had an invalid default value of **Reencrypt**. This issue is now resolved. The new value is **reencrypt**.

### ODH-DASHBOARD-1638 - Name placeholder in Triggered Runs tab shows Scheduled run name

Previously, when you clicked **Pipelines** > **Runs** and then selected the **Triggered** tab to configure a triggered run, the example value shown in the **Name** field was **Scheduled run name**. This issue is now resolved.

## ODH-DASHBOARD-1547 - "We can't find that page" message displayed in dashboard when pipeline operator installed in background

Previously, when you used the **Data Science Pipelines** page of the dashboard to install the OpenShift Pipelines Operator, when the Operator installation was complete, the page refreshed to show a "We can't find that page" message. This issue is now resolved. When the Operator installation is complete, the dashboard redirects you to the **Pipelines** page, where you can create a pipeline server.

## ODH-DASHBOARD-1545 - Dashboard keeps scrolling to bottom of project when Models tab is expanded

Previously, on the **Data Science Projects** page of the dashboard, if you clicked the **Deployed models** tab to expand it and then tried to perform other actions on the page, the page automatically scrolled back to the **Deployed models** section. This affected your ability to perform other actions. This issue is now resolved.

#### NOTEBOOKS-156 - Elyra included an example runtime called Test

Previously, Elyra included an example runtime configuration called **Test**. If you selected this configuration when running a data science pipeline, you could see errors. The **Test** configuration has now been removed.

## RHODS-9622 - Duplicating a scheduled pipeline run does not copy the existing period and pipeline input parameter values

Previously, when you duplicated a scheduled pipeline run that had a periodic trigger, the duplication process did not copy the configured execution frequency for the recurring run or the specified pipeline input parameters. This issue is now resolved.

## RHODS-8932 - Incorrect cron format was displayed by default when scheduling a recurring pipeline run

When you scheduled a recurring pipeline run by configuring a cron job, the OpenShift Al interface displayed an incorrect format by default. It now displays the correct format.

## RHODS-9374 - Pipelines with non-unique names did not appear in the data science project user interface

If you launched a notebook from a Jupyter application that supported Elyra, or if you used a workbench, when you submitted a pipeline to be run, pipelines with non-unique names did not appear in the **Pipelines** section of the relevant data science project page or the **Pipelines** heading of the data science pipelines page. This issue has now been resolved.

### RHODS-9329 - Deploying a custom model-serving runtime could result in an error message

Previously, if you used the OpenShift Al dashboard to deploy a custom model-serving runtime, the deployment process could fail with an **Error retrieving Serving Runtime** message. This issue is now resolved.

## RHODS-9064 - After upgrade, the Data Science Pipelines tab was not enabled on the OpenShift Al dashboard

When you upgraded from OpenShift Al 1.26 to OpenShift Al 1.28, the **Data Science Pipelines** tab was not enabled in the OpenShift Al dashboard. This issue is resolved in OpenShift Al 1.29.

### RHODS-9443 - Exporting an Elyra pipeline exposed S3 storage credentials in plain text

In OpenShift AI 1.28.0, when you exported an Elyra pipeline from JupyterLab in Python DSL format or YAML format, the generated output contained S3 storage credentials in plain text. This issue has been resolved in OpenShift AI 1.28.1. However, after you upgrade to OpenShift AI 1.28.1, if your deployment contains a data science project with a pipeline server and a data connection, you must perform the following additional actions for the fix to take effect:

- 1. Refresh your browser page.
- 2. Stop any running workbenches in your deployment and restart them.

Furthermore, to confirm that your Elyra runtime configuration contains the fix, perform the following actions:

1. In the left sidebar of JupyterLab, click **Runtimes** (



2. Hover the cursor over the runtime configuration that you want to view and click the **Edit** button



The Data Science Pipelines runtime configuration page opens.

- 3. Confirm that **KUBERNETES\_SECRET** is defined as the value in the **Cloud Object Storage Authentication Type** field.
- 4. Close the runtime configuration without changing it.

## RHODS-8460 - When editing the details of a shared project, the user interface remained in a loading state without reporting an error

When a user with permission to edit a project attempted to edit its details, the user interface remained in a loading state and did not display an appropriate error message. Users with permission to edit projects cannot edit any fields in the project, such as its description. Those users can edit only components belonging to a project, such as its workbenches, data connections, and storage.

The user interface now displays an appropriate error message and does not try to update the project description.

## RHODS-8482 - Data science pipeline graphs did not display node edges for running pipelines

If you ran pipelines that did not contain Tekton-formatted **Parameters** or **when** expressions in their YAML code, the OpenShift Al user interface did not display connecting edges to and from graph nodes. For example, if you used a pipeline containing the **runAfter** property or **Workspaces**, the user interface displayed the graph for the executed pipeline without edge connections. The OpenShift Al user interface now displays connecting edges to and from graph nodes.

## RHODS-8923 - Newly created data connections were not detected when you attempted to create a pipeline server

If you created a data connection from within a Data Science project, and then attempted to create a pipeline server, the **Configure a pipeline server** dialog did not detect the data connection that you created. This issue is now resolved.

## RHODS-8461 - When sharing a project with another user, the OpenShift Al user interface text was misleading

When you attempted to share a Data Science project with another user, the user interface text misleadingly implied that users could edit all of its details, such as its description. However, users can edit only components belonging to a project, such as its workbenches, data connections, and storage. This issue is now resolved and the user interface text no longer misleadingly implies that users can edit all of its details.

#### RHODS-8462 - Users with "Edit" permission could not create a Model Server

Users with "Edit" permissions can now create a Model Server without token authorization. Users must have "Admin" permissions to create a Model Server with token authorization.

## RHODS-8796 - OpenVINO Model Server runtime did not have the required flag to force GPU usage

OpenShift AI includes the OpenVINO Model Server (OVMS) model-serving runtime by default. When you configured a new model server and chose this runtime, the **Configure model server** dialog enabled you to specify a number of GPUs to use with the model server. However, when you finished configuring

the model server and deployed models from it, the model server did not actually use any GPUs. This issue is now resolved and the model server uses the GPUs.

## RHODS-8861 - Changing the host project when creating a pipeline ran resulted in an inaccurate list of available pipelines

If you changed the host project while creating a pipeline run, the interface failed to make the pipelines of the new host project available. Instead, the interface showed pipelines that belong to the project you initially selected on the **Data Science Pipelines** > **Runs** page. This issue is now resolved. You no longer select a pipeline from the **Create run** page. The pipeline selection is automatically updated when you click the **Create run** button, based on the current project and its pipeline.

### RHODS-8249 - Environment variables uploaded as ConfigMap were stored in Secret instead

Previously, in the OpenShift Al interface, when you added environment variables to a workbench by uploading a **ConfigMap** configuration, the variables were stored in a **Secret** object instead. This issue is now resolved.

#### RHODS-7975 - Workbenches could have multiple data connections

Previously, if you changed the data connection for a workbench, the existing data connection was not released. As a result, a workbench could stay connected to multiple data sources. This issue is now resolved.

### RHODS-7948 - Uploading a secret file containing environment variables resulted in doubleencoded values

Previously, when creating a workbench in a data science project, if you uploaded a YAML-based secret file containing environment variables, the environment variable values were not decoded. Then, in the resulting OpenShift secret created by this process, the encoded values were encoded again. This issue is now resolved.

# RHODS-6429 - An error was displayed when creating a workbench with the Intel OpenVINO or Anaconda Professional Edition images

Previously, when you created a workbench with the Intel OpenVINO or Anaconda Professional Edition images, an error appeared during the creation process. However, the workbench was still successfully created. This issue is now resolved.

#### RHODS-6372 - Idle notebook culler did not take active terminals into account

Previously, if a notebook image had a running terminal, but no active, running kernels, the idle notebook culler detected the notebook as inactive and stopped the terminal. This issue is now resolved.

### RHODS-5700 - Data connections could not be created or connected to when creating a workbench

When creating a workbench, users were unable to create a new data connection, or connect to existing data connections.

## RHODS-6281 - OpenShift Al administrators could not access Settings page if an admin group was deleted from cluster

Previously, if a Red Hat OpenShift Al administrator group was deleted from the cluster, OpenShift Al administrator users could no longer access the **Settings** page on the OpenShift Al dashboard. In particular, the following behavior was seen:

- When an OpenShift Al administrator user tried to access the Settings → User management page, a "Page Not Found" error appeared.
- Cluster administrators did not lose access to the Settings page on the OpenShift Al dashboard.
  When a cluster administrator accessed the Settings → User management page, a warning
  message appeared, indicating that the deleted OpenShift Al administrator group no longer
  existed in OpenShift. The deleted administrator group was then removed from
  OdhDashboardConfig, and administrator access was restored.

This issue is now resolved.

#### RHODS-1968 - Deleted users stayed logged in until dashboard was refreshed

Previously, when a user's permissions for the Red Hat OpenShift Al dashboard were revoked, the user would notice the change only after a refresh of the dashboard page.

This issue is now resolved. When a user's permissions are revoked, the OpenShift AI dashboard locks the user out within 30 seconds, without the need for a refresh.

## RHODS-6384 - A workbench data connection was incorrectly updated when creating a duplicated data connection

When creating a data connection that contained the same name as an existing data connection, the data connection creation failed, but the associated workbench still restarted and connected to the wrong data connection. This issue has been resolved. Workbenches now connect to the correct data connection.

#### RHODS-6370 - Workbenches failed to receive the latest toleration

Previously, to acquire the latest toleration, users had to attempt to edit the relevant workbench, make no changes, and save the workbench again. Users can now apply the latest toleration change by stopping and then restarting their data science project's workbench.

## RHODS-6779 - Models failed to be served after upgrading from OpenShift AI 1.20 to OpenShift AI 1.21

When upgrading from OpenShift Al 1.20 to OpenShift Al 1.21, the **modelmesh-serving** pod attempted to pull a non-existent image, causing an image pull error. As a result, models were unable to be served using the model serving feature in OpenShift Al. The **odh-openvino-servingruntime-container-v1.21.0-15** image now deploys successfully.

#### RHODS-5945 - Anaconda Professional Edition could not be enabled in OpenShift Al

Anaconda Professional Edition could not be enabled for use in OpenShift Al. Instead, an **InvalidImageName** error was displayed in the associated pod's **Events** page. Anaconda Professional Edition can now be successfully enabled.

## RHODS-5822 - Admin users were not warned when usage exceeded 90% and 100% for PVCs created by data science projects.

Warnings indicating when a PVC exceeded 90% and 100% of its capacity failed to display to admin users for PVCs created by data science projects. Admin users can now view warnings about when a PVC exceeds 90% and 100% of its capacity from the dashboard.

## RHODS-5889 - Error message was not displayed if a data science notebook was stuck in "pending" status

If a notebook pod could not be created, the OpenShift AI interface did not show an error message. An error message is now displayed if a data science notebook cannot be spawned.

## RHODS-5886 - Returning to the Hub Control Panel dashboard from the data science workbench failed

If you attempted to return to the dashboard from your workbench Jupyter notebook by clicking on File → Log Out, you were redirected to the dashboard and remained on a "Logging out" page. Likewise, if you attempted to return to the dashboard by clicking on File → Hub Control Panel, you were incorrectly redirected to the Start a notebook serverpage. Returning to the Hub Control Panel dashboard from the data science workbench now works as expected.

#### RHODS-6101 - Administrators were unable to stop all notebook servers

OpenShift AI administrators could not stop all notebook servers simultaneously. Administrators can now stop all notebook servers using the **Stop all servers** button and stop a single notebook by selecting **Stop server** from the action menu beside the relevant user.

### RHODS-5891 - Workbench event log was not clearly visible

When creating a workbench, users could not easily locate the event log window in the OpenShift Al interface. The **Starting** label under the **Status** column is now underlined when you hover over it, indicating you can click on it to view the notebook status and the event log.

### RHODS-6296 - ISV icons did not render when using a browser other than Google Chrome

When using a browser other than Google Chrome, not all ISV icons under **Explore** and **Resources** pages were rendered. ISV icons now display properly on all supported browsers.

#### RHODS-3182 - Incorrect number of available GPUs was displayed in Jupyter

When a user attempts to create a notebook instance in Jupyter, the maximum number of GPUs available for scheduling was not updated as GPUs are assigned. Jupyter now displays the correct number of GPUs available.

## RHODS-5890 - When multiple persistent volumes were mounted to the same directory, workbenches failed to start

When mounting more than one persistent volume (PV) to the same mount folder in the same workbench, creation of the notebook pod failed and no errors were displayed to indicate there was an issue.

#### RHODS-5768 - Data science projects were not visible to users in Red Hat OpenShift Al

Removing the **[DSP]** suffix at the end of a project's **Display Name** property caused the associated data science project to no longer be visible. It is no longer possible for users to remove this suffix.

#### RHODS-5701 - Data connection configuration details were overwritten

When a data connection was added to a workbench, the configuration details for that data connection were saved in environment variables. When a second data connection was added, the configuration details are saved using the same environment variables, which meant the configuration for the first data connection was overwritten. At the moment, users can add a maximum of one data connection to each workbench.

## RHODS-5252 - The notebook Administration page did not provide administrator access to a user's notebook server

The notebook **Administration** page, accessed from the OpenShift Al dashboard, did not provide the means for an administrator to access a user's notebook server. Administrators were restricted to only starting or stopping a user's notebook server.

#### RHODS-2438 - PyTorch and TensorFlow images were unavailable when upgrading

When upgrading from OpenShift Al 1.3 to a later version, PyTorch and TensorFlow images were unavailable to users for approximately 30 minutes. As a result, users were unable to start PyTorch and TensorFlow notebooks in Jupyter during the upgrade process. This issue has now been resolved.

### RHODS-5354 - Environment variable names were not validated when starting a notebook server

Environment variable names were not validated on the **Start a notebook server**page. If an invalid environment variable was added, users were unable to successfully start a notebook. The environmental variable name is now checked in real-time. If an invalid environment variable name is entered, an error message displays indicating valid environment variable names must consist of alphabetic characters, digits, \_\_, -, or \_, and must not start with a digit.

## RHODS-4617 - The Number of GPUs drop-down was only visible if there were GPUs available

Previously, the **Number of GPUs** drop-down was only visible on the **Start a notebook server**page if GPU nodes were available. The **Number of GPUs** drop-down now also correctly displays if an autoscaling machine pool is defined in the cluster, even if no GPU nodes are currently available, possibly resulting in the provisioning of a new GPU node on the cluster.

## RHODS-5420 - Cluster admin did not get administrator access if it was the only user present in the cluster

Previously, when the cluster admin was the only user present in the cluster, it did not get Red Hat OpenShift administrator access automatically. Administrator access is now correctly applied to the cluster admin user.

### RHODS-4321 - Incorrect package version displayed during notebook selection

The **Start a notebook server** page displayed an incorrect version number (11.4 instead of 11.7) for the CUDA notebook image. The version of CUDA installed is no longer specified on this page.

### RHODS-5001 - Admin users could add invalid tolerations to notebook pods

An admin user could add invalid tolerations on the **Cluster settings** page without triggering an error. If a invalid toleration was added, users were unable to successfully start notebooks. The toleration key is now checked in real-time. If an invalid toleration name is entered, an error message displays indicating valid toleration names consist of alphanumeric characters, -, \_, or ., and must start and end with an alphanumeric character.

### RHODS-5100 - Group role bindings were not applied to cluster administrators

Previously, if you had assigned cluster admin privileges to a group rather than a specific user, the dashboard failed to recognize administrative privileges for users in the administrative group. Group role bindings are now correctly applied to cluster administrators as expected.

### RHODS-4947 - Old Minimal Python notebook image persisted after upgrade

After upgrading from OpenShift AI 1.14 to 1.15, the older version of the Minimal Python notebook persisted, including all associated package versions. The older version of the Minimal Python notebook no longer persists after upgrade.

## RHODS-4935 - Excessive "missing x-forwarded-access-token header" error messages displayed in dashboard log

The **rhods-dashboard** pod's log contained an excessive number of "missing x-forwarded-access-token header" error messages due to a readiness probe hitting the /**status** endpoint. This issue has now been resolved.

## RHODS-2653 - Error occurred while fetching the generated images in the sample Pachyderm notebook

An error occurred when a user attempted to fetch an image using the sample Pachyderm notebook in Jupyter. The error stated that the image could not be found. Pachyderm has corrected this issue.

### RHODS-4584 - Jupyter failed to start a notebook server using the OpenVINO notebook image

Jupyter's **Start a notebook server**page failed to start a notebook server using the OpenVINO notebook image. Intel has provided an update to the OpenVINO operator to correct this issue.

### RHODS-4923 - A non-standard check box displayed after disabling usage data collection

After disabling usage data collection on the **Cluster settings** page, when a user accessed another area of the OpenShift Al dashboard, and then returned to the **Cluster settings** page, the **Allow collection of usage data** check box had a non-standard style applied, and therefore did not look the same as other check boxes when selected or cleared.

### RHODS-4938 - Incorrect headings were displayed in the Notebook Images page

The **Notebook Images** page, accessed from the **Settings** page on the OpenShift Al dashboard, displayed incorrect headings in the user interface. The **Notebook image settings** heading displayed as **BYON image settings**, and the **Import Notebook images** heading displayed as **Import BYON images**. The correct headings are now displayed as expected.

#### RHODS-4818 - Jupyter was unable to display images when the NVIDIA GPU add-on was installed

The **Start a notebook server**page did not display notebook images after installing the NVIDIA GPU add-on. Images are now correctly displayed, and can be started from the **Start a notebook server**page.

#### RHODS-4797 - PVC usage limit alerts were not sent when usage exceeded 90% and 100%

Alerts indicating when a PVC exceeded 90% and 100% of its capacity failed to be triggered and sent. These alerts are now triggered and sent as expected.

#### RHODS-4366 - Cluster settings were reset on operator restart

When the OpenShift AI operator pod was restarted, cluster settings were sometimes reset to their default values, removing any custom configuration. The OpenShift AI operator was restarted when a new version of OpenShift AI was released, and when the node that ran the operator failed. This issue occurred because the operator deployed ConfigMaps incorrectly. Operator deployment instructions have been updated so that this no longer occurs.

#### RHODS-4318 - The OpenVINO notebook image failed to build successfully

The OpenVINO notebook image failed to build successfully and displayed an error message. This issue has now been resolved.

RHODS-3743 - Starburst Galaxy quick start did not provide download link in the instruction steps

The Starburst Galaxy quick start, located on the **Resources** page on the dashboard, required the user to open the **explore-data.ipynb notebook**, but failed to provide a link within the instruction steps. Instead, the link was provided in the quick start's introduction.

### RHODS-1974 - Changing alert notification emails required pod restart

Changes to the list of notification email addresses in the Red Hat OpenShift Al Add-On were not applied until after the **rhods-operator** pod and the **prometheus-\*** pod were restarted.

## RHODS-2738 - Red Hat OpenShift API Management 1.15.2 add-on installation did not successfully complete

For OpenShift AI installations that are integrated with the Red Hat OpenShift API Management 1.15.2 add-on, the Red Hat OpenShift API Management installation process did not successfully obtain the SMTP credentials secret. Subsequently, the installation did not complete.

### RHODS-3237 - GPU tutorial did not appear on dashboard

The "GPU computing" tutorial, located at Gtc2018-numba, did not appear on the **Resources** page on the dashboard.

### RHODS-3069 - GPU selection persisted when GPU nodes were unavailable

When a user provisioned a notebook server with GPU support, and the utilized GPU nodes were subsequently removed from the cluster, the user could not create a notebook server. This occurred because the most recently used setting for the number of attached GPUs was used by default.

### RHODS-3181 - Pachyderm now compatible with OpenShift Dedicated 4.10 clusters

Pachyderm was not initially compatible with OpenShift Dedicated 4.10, and so was not available in OpenShift Al running on an OpenShift Dedicated 4.10 cluster. Pachyderm is now available on and compatible with OpenShift Dedicated 4.10.

## RHODS-2160 - Uninstall process failed to complete when both OpenShift AI and OpenShift API Management were installed

When OpenShift AI and OpenShift API Management are installed together on the same cluster, they use the same Virtual Private Cluster (VPC). The uninstall process for these Add-ons attempts to delete the VPC. Previously, when both Add-ons are installed, the uninstall process for one service was blocked because the other service still had resources in the VPC. The cleanup process has been updated so that this conflict does not occur.

### RHODS-2747 - Images were incorrectly updated after upgrading OpenShift AI

After the process to upgrade OpenShift AI completed, Jupyter failed to update its notebook images. This was due to an issue with the image caching mechanism. Images are now correctly updating after an upgrade.

## RHODS-2425 - Incorrect TensorFlow and TensorBoard versions displayed during notebook selection

The **Start a notebook server**page displayed incorrect version numbers (2.4.0) for TensorFlow and TensorBoard in the TensorFlow notebook image. These versions have been corrected to TensorFlow 2.7.0 and TensorBoard 2.6.0.

#### RHODS-24339 - Quick start links did not display for enabled applications

For some applications, the **Open quick start** link failed to display on the application tile on the **Enabled** page. As a result, users did not have direct access to the quick start tour for the relevant application.

### RHODS-2215 - Incorrect Python versions displayed during notebook selection

The **Start a notebook server**page displayed incorrect versions of Python for the TensorFlow and PyTorch notebook images. Additionally, the third integer of package version numbers is now no longer displayed.

#### RHODS-1977 - Ten minute wait after notebook server start fails

If the Jupyter leader pod failed while the notebook server was being started, the user could not access their notebook server until the pod restarted, which took approximately ten minutes. This process has been improved so that the user is redirected to their server when a new leader pod is elected. If this process times out, users see a 504 Gateway Timeout error, and can refresh to access their server.

### **CHAPTER 6. KNOWN ISSUES**

This section describes known issues in Red Hat OpenShift AI and any known methods of working around these issues.

#### RHOAIENG-3355 - OVMS on KServe does not use accelerators correctly

When you deploy a model using the single-model serving platform and select the **OpenVINO Model**Server serving runtime, if you request an accelerator to be attached to your model server, the accelerator hardware is detected but is not used by the model when responding to queries. The queries are computed by using the CPUs only.

#### Workaround

To configure OVMS to use accelerators in preference to CPUs, update your OVMS runtime template to add **--target\_device AUTO** to the CLI options.

RHOAIENG-3134 - OVMS supports different model frameworks in single- and multi-model serving platforms

When you deploy a model using the single-model serving platform and select the **OpenVINO Model Server** runtime, you see additional frameworks in the **Model framework (name - version)** list.

#### Workaround

None.

RHOAIENG-3025 - OVMS expected directory layout conflicts with the KServe StoragePuller layout

When you use the OpenVINO Model Server (OVMS) runtime to deploy a model on the single model serving platform (which uses KServe), there is a mismatch between the directory layout expected by OVMS and that of the model-pulling logic used by KServe. Specifically, OVMS requires the model files to be in the /<mnt>/models/1/ directory, while KServe places them in the /<mnt>/models/ directory.

#### Workaround

Perform the following actions:

- In your S3-compatible storage bucket, place your model files in a directory called 1/, for example, /<s3\_storage\_bucket>/models/1/<model\_files>.
- 2. To use the OVMS runtime to deploy a model on the single model serving platform, choose one of the following options to specify the path to your model files:
  - If you are using the OpenShift Al dashboard to deploy your model: In the **Path** field for your data connection, use the /**<s3\_storage\_bucket>/models**/ format to specify the path to your model files. Do not specify the **1**/ directory as part of the path.
  - If you are creating your own **InferenceService** custom resource to deploy your model: Configure the value of the **storageURI** field as /**s3\_storage\_bucket>/models**/. Do not specify the **1**/ directory as part of the path.

KServe pulls model files from the subdirectory in the path that you specified. In this case, KServe correctly pulls model files from the /**<s3\_storage\_bucket>/models/1**/ directory in your S3-compatible storage.

RHOAIENG-3018 - OVMS on KServe does not expose the correct endpoint in the dashboard

When you use the OpenVINO Model Server (OVMS) runtime to deploy a model on the single-model serving platform, the URL shown in the **Inference endpoint** field for the deployed model is not complete. To send queries to the model, you must add the /v2/models/\_<model-name>\_/infer string to the end of the URL. Replace \_<model-name>\_ with the name of your deployed model.

#### Workaround

None.

### RHOAIENG-2542 - Inference service pod does not always get an Istio sidecar

When you deploy a model using the single model serving platform (which uses KServe), the **istio-proxy** container might be missing in the resulting pod, even if the inference service has the **sidecar.istio.io/inject=true** annotation.

In OpenShift AI 2.7, the missing **istio-proxy** container might not present a problem. However, if the pod experiences connectivity issues, they might be caused by the missing container.

#### Workaround

Delete the faulty pod. OpenShift Al automatically creates a new pod, which should have the missing container.

## RHOAIENG-404 - No Components Found page randomly appears instead of Enabled page in OpenShift Al dashboard

A No Components Found page might appear when you access the Red Hat OpenShift Al dashboard.

#### Workaround

Refresh the browser page.

### RHOAIENG-880 - Default pipelines service account is unable to create Ray clusters

You cannot create Ray clusters using the default pipelines Service Account.

#### Workaround

Authenticate using the CodeFlare SDK, by adding the following lines to the pipeline code:

```
from codeflare_sdk.cluster.auth import TokenAuthentication
  auth = TokenAuthentication(
    token=openshift_token, server=openshift_server, skip_tls=True
)
  auth_return = auth.login()
```

#### RHOAIENG-1452 - The Red Hat OpenShift Al Add-on gets stuck

The Red Hat OpenShift Al Add-on uninstall does not delete OpenShift Al components after being triggered via OCM APIs.

#### Workaround

Manually delete the remaining OpenShift Al resources as follows:

- 1. Delete the **DataScienceCluster** CR.
- 2. Wait until all pods are deleted from the **redhat-ods-applications** namespace.

- 3. If Serverless was set to **Managed** in the **DataScienceCluster** CR, wait until all pods are deleted from the **knative-serving** namespace.
- 4. Delete the **DSCInitialization** CR.
- 5. If Service Mesh was set to **Managed** in the **DSCInitialization** CR, wait until all pods are deleted from the **istio-system** namespace.
- 6. Uninstall the Red Hat OpenShift Al Operator.
- 7. Wait until all pods are deleted from the **redhat-ods-operator** namespace and the **redhat-ods-monitoring** namespace.

## RHOAIENG-1919 - Model Serving page fails to fetch or report the model route URL soon after its deployment

When deploying a model from the OpenShift Al dashboard, the system displays the following warning message while the **Status** column of your model indicates success with an **OK**/green checkmark.

Failed to get endpoint for this deployed model. routes.rout.openshift.io"<model\_name>" not found

#### Workaround

Refresh your browser page.

### RHOAIENG-2183 - Endpoint performance graphs might show incorrect labels

In the **Endpoint performance** tab of the model metrics screen, the graph tooltip might show incorrect labels.

#### Workaround

None available.

RHOAIENG-2228 - The performance metrics graph changes constantly when the interval is set to 15 seconds

On the **Endpoint performance** tab of the model metrics screen, if you set the **Refresh interval** to 15 seconds and the **Time range** to 1 hour, the graph results change continuously.

#### Workaround

None available.

### RHOAIENG-2312 - Importing numpy fails in code-server workbench

Importing **numpy** in your code-server workbench fails.

#### Workaround

- In your code-server workbench, from the Activity bar, select the menu icon( ) > View > Command Palette to open the Command Palette.
   In Firefox, you can use the F1 keyboard shortcut to open the command palette.
- 2. Enter python: s.

- 3. From the drop-down list, select the **Python: Select interpreter** action.
- 4. In the Select Interpreter dialog, select Enter interpreter path....
- 5. Enter /opt/app-root/bin/python3 as the interpreter path and press Enter.
- 6. From the drop-down list, select the new Python interpreter.
- 7. Confirm that the new interpreter (**app-root**) appears on the **Status bar**. The selected interpreter persists if the workbench is stopped and started again, so the workaround should need to be performed only once for each workbench.

## RHOAIENG-2468 - Services in the same project as KServe might become inaccessible in OpenShift

If you deploy a non-OpenShift Al service in a data science project that contains models deployed on the single model serving platform (which uses KServe), the accessibility of the service might be affected by the network configuration of your OpenShift cluster. This is particularly likely if you are using the OVN-Kubernetes network plugin in combination with host network namespaces.

#### Workaround

Perform one of the following actions:

- Deploy the service in another data science project that does not contain models deployed on the single model serving platform. Or, deploy the service in another OpenShift project.
- In the data science project where the service is, add a network policy to accept ingress traffic to your application pods, as shown in the following example:

```
apiVersion: networking.k8s.io/v1 kind: NetworkPolicy metadata: name: allow-ingress-to-myapp spec: podSelector: matchLabels: app: myapp ingress: - {}
```

## RHOAIENG-2555 - Model framework selector does not reset when changing Serving Runtime in form

When you use the **Deploy model** dialog to deploy a model on the single model serving platform, if you select a runtime and a supported framework, but then switch to a different runtime, the existing framework selection is not reset. This means that it is possible to deploy the model with a framework that is not supported for the selected runtime.

#### Workaround

While deploying a model, if you change your selected runtime, click the **Select a framework** list again and select a supported framework.

RHOAIENG-2585 - UI does not display an error/warning when UWM is not enabled in the cluster

Red Hat OpenShift AI does not correctly warn users if User Workload Monitoring (UWM) is **disabled** in the cluster. UWM is necessary for the correct functionality of model metrics.

#### Workaround

Manually ensure that UWM is enabled in your cluster, as described in Enabling monitoring for user-defined projects.

RHOAIENG-2602 - "Average response time" server metric graph shows multiple lines due to ModelMesh pod restart

The Average response time server metric graph shows multiple lines if the ModelMesh pod is restarted.

#### Workaround

None available.

RHOAIENG-2724 - Model deployment fails because fields automatically reset in dialog

When you deploy a model or edit a deployed model, the **Model servers** and **Model framework** fields in the "Deploy model" dialog might reset to the default state. The **Deploy** button might remain enabled even though these mandatory fields no longer contain valid values.

If you click **Deploy** when the **Model servers** and **Model framework** fields are not set, the model deployment pods are not created.

#### Workaround

None available.

RHOAIENG-2759 - Model deployment fails when both secured and regular model servers are present in a project

When you create a second model server in a project where one server is using token authentication, and the other server does not use authentication, the deployment of the second model might fail to start.

#### Workaround

None available.

RHOAIENG-2869 - Cannot edit existing model framework and model path in a multi-model project

When you try to edit a model in a multi-model project using the **Deploy model** dialog, the **Model** framework and **Path** values do not update.

#### Workaround

None available.

RHOAIENG-3378 - Internal Image Registry is an undeclared hard dependency for Jupyter notebooks spawn process

Before you can start OpenShift AI notebooks and workbenches, you must first enable the internal, integrated container image registry in OpenShift Dedicated. Attempts to start notebooks or workbenches without first enabling the image registry will fail with an "InvalidImageName" error.

You can confirm whether the image registry is enabled for a cluster by using the following command:

\$ oc get pods -n openshift-image-registry

#### Workaround

Enable the internal, integrated container image registry in OpenShift Dedicated.

See Image Registry Operator in OpenShift Dedicated for more information about how to set up and configure the image registry.

## RHOAIENG-66 - Ray dashboard route deployed by CodeFlare SDK exposes self-signed certs instead of cluster cert

When you deploy a Ray cluster by using the CodeFlare SDK with the **openshift\_oauth=True** option, the resulting route for the Ray cluster is secured by using the **passthrough** method. As a result, the self-signed certificate used by the OAuth proxy is exposed.

#### Workaround

Use one of the following workarounds:

- Set the openshift\_oauth option to False.
- Add the self-signed certificate used by the OAuth proxy to the client's truststore.
- Create a route manually, using a route configuration and certificate that is based on the needs of the client.

### RHOAIENG-88 - Cannot log in to Red Hat OpenShift AI dashboard

Sometimes, when you try to log in to Red Hat OpenShift AI, the **500 internal error** error message is shown.

#### Workaround

Disable and re-enable the dashboard component in the DataScienceCluster object.

### RHOAIENG-130 - Synchronization issue when the model is just launched

When the status of the KServe container is **Ready**, a request is accepted even though the TGIS container is not ready.

#### Workaround

Wait a few seconds to ensure that all initialization has completed and the TGIS container is actually ready, and then review the request output.

## RHOAIENG-131 - gRPC endpoint not responding properly after the InferenceService reports as Loaded

When numerous **InferenceService** instances are generated and directed requests, Service Mesh Control Plane (SMCP) becomes unresponsive. The status of the **InferenceService** instance is **Loaded**, but the call to the gRPC endpoint returns with errors.

### Workaround

Edit the **ServiceMeshControlPlane** custom resource (CR) to increase the memory limit of the Istio egress and ingress pods.

#### RHOAIENG-162 - Project remains selected after navigating to another page

When you select a project on the **Data Science Projects** page, the project remains selected, even after you navigate to another page. For example, if you subsequently open the **Model Serving** page, the page lists only the models for the previously selected project, instead of the models for all projects.

#### Workaround

From the **Project** list, select **All projects**.

#### RHOAIENG-282 - Workload should not be dispatched if required resources are not available

Sometimes a workload is dispatched even though a single machine instance does not have sufficient resources to provision the RayCluster successfully. The **AppWrapper** CRD remains in a **Running** state and related pods are stuck in a **Pending** state indefinitely.

#### Workaround

Add extra resources to the cluster.

### RHOAIENG-307 - Removing the DataScienceCluster deletes all OpenShift Serverless CRs

If you delete the **DataScienceCluster** custom resource (CR), all OpenShift Serverless CRs (including knative-serving, deployments, gateways, and pods) are also deleted. A warning message is not shown.

## RHOAIENG-497 - Removing DSCI Results In OpenShift Service Mesh CR Being Deleted Without User Notification

If you delete the **DSCInitialization** resource, the OpenShift Service Mesh CR is also deleted. A warning message is not shown.

## RHOAIENG-545 - Cannot specify a generic default node runtime image in JupyterLab pipeline editor

When you edit an Elyra pipeline in the JupyterLab IDE pipeline editor, and you click the **PIPELINE PROPERTIES** tab, and scroll to the **Generic Node Defaults** section and edit the **Runtime Image** field, your changes are not saved.

#### Workaround

Define the required runtime image explicitly for each node. Click the **NODE PROPERTIES** tab, and specify the required image in the **Runtime Image** field.

#### RHOAIENG-2099 - Data science pipeline server fails to deploy in fresh cluster

When you create a data science pipeline server on a fresh cluster, the user interface remains in a loading state and the pipeline server does not start. A "Pipeline server failed" error message might be displayed.

### Workaround

Delete the pipeline server and create a new one.

If the problem persists, disable the database health check in the DSPA custom resource:

- 1. Use the following command to edit the custom resource:
  - \$ oc edit dspa pipelines-definition -n my-project
- 2. Set the spec.database.disableHealthCheck value to true.
- 3. Save the change.

## RHOAIENG-2541 - KServe controller pod experiences OOM because of too many secrets in the cluster

If your OpenShift cluster has a large number of secrets, the KServe controller pod might continually crash due to an out-of-memory (OOM) error.

#### Workaround

Reduce the number of secrets in the OpenShift cluster until the KServe controller pod becomes stable.

## RHOAIENG-1619 (previously documented as DATA-SCIENCE-PIPELINES-165) - Poor error message when S3 bucket is not writable

When you set up a data connection and the S3 bucket is not writable, and you try to upload a pipeline, the error message **Failed to store pipelines** is not helpful.

#### Workaround

Verify that your data connection credentials are correct and that you have write access to the bucket you specified.

### KUBEFLOW-177 - Bearer token from application not forwarded by OAuth-proxy

You cannot use an application as a custom workbench image if its internal authentication mechanism is based on a bearer token. The OAuth-proxy configuration removes the bearer token from the headers, and the application cannot work properly.

### ODH-DASHBOARD-1335 - Rename Edit permission to Contributor

The term *Edit* is not accurate:

- For *most* resources, users with the **Edit** permission can not only edit the resource, they can also create and delete the resource.
- Users with the **Edit** permission cannot edit the project.

The term Contributor more accurately describes the actions granted by this permission.

### ODH-DASHBOARD-1758 - Error duplicating OOTB custom serving runtimes several times

If you duplicate a model-serving runtime several times, the duplication fails with the **Serving runtime name "<name>" already exists** error message.

#### Workaround

Change the **metadata.name** field to a unique value.

#### ODH-DASHBOARD-1771 - JavaScript error during Pipeline step initializing

Sometimes the pipeline **Run details** page stops working when the run starts.

#### Workaround

Refresh the page.

### ODH-DASHBOARD-1781 - Missing tooltip for Started Run status

Data science pipeline runs sometimes don't show the tooltip text for the status icon shown.

#### Workaround

For more information, view the pipeline Run details page and see the run output.

#### ODH-DASHBOARD-1908 - Cannot create workbench with an empty environment variable

When creating a workbench, if you click **Add variable** but do not select an environment variable type from the list, you cannot create the workbench. The field is not marked as required, and no error message is shown.

#### ODH-DASHBOARD-1928 - Custom serving runtime creation error message is unhelpful

When you try to create or edit a custom model-serving runtime and an error occurs, the error message does not indicate the cause of the error.

Example error message: Request failed with status code 422

#### Workaround

Check the YAML code for the serving runtime to identify the reason for the error.

## ODH-DASHBOARD-2140 - Package versions displayed in dashboard do not match installed versions

The dashboard might display inaccurate version numbers for packages such as JupyterLab and Notebook. The package version number can differ in the image if the packages are manually updated.

#### Workaround

To find the true version number for a package, run the **pip list** command and search for the package name, as shown in the following examples:

```
$ pip list | grep jupyterlab
jupyterlab 3.5.3
$ pip list | grep notebook
notebook 6.5.3
```

## RHODS-12432 - Deletion of the notebook-culler ConfigMap causes Permission Denied on dashboard

If you delete the **notebook-controller-culler-config** ConfigMap in the **redhat-ods-applications** namespace, you can no longer save changes to the **Cluster Settings** page on the OpenShift Al dashboard. The save operation fails with an **HTTP request has failed** error.

#### Workaround

Complete the following steps as a user with **cluster-admin** permissions:

- 1. Log in to your cluster by using the **oc** client.
- 2. Enter the following command to update the **OdhDashboardConfig** custom resource in the **redhat-ods-applications** application namespace:

\$ oc patch OdhDashboardConfig odh-dashboard-config -n redhat-ods-applications -- type=merge -p '{"spec": {"dashboardConfig": {"notebookController.enabled": true}}}'

RHODS-12798 - Pods fail with "unable to init seccomp" error

Pods fail with **CreateContainerError** status or **Pending** status instead of **Running** status, because of a known kernel bug that introduced a **seccomp** memory leak. When you check the events on the namespace where the pod is failing, or run the **oc describe pod** command, the following error appears:

runc create failed: unable to start container process: unable to init seccomp: error loading seccomp filter into kernel: error loading seccomp filter: errno 524

#### Workaround

Increase the value of **net.core.bpf\_jit\_limit** as described in the Red Hat Knowledgebase solution Pods failing with error loading seccomp filter into kernel: errno 524 in OpenShift 4.

#### RHODS-12899 - OpenVINO runtime missing annotation for NVIDIA GPUs

Red Hat OpenShift Al currently includes an out-of-the-box serving runtime that supports NVIDIA GPUs: OpenVINO model server (support GPUs) You can use the accelerator profile feature introduced in OpenShift Al 2.4 to select a specific accelerator in model serving, based on configured accelerator profiles. If the cluster had NVIDIA GPUs enabled in an earlier OpenShift Al release, the system automatically creates a default NVIDIA accelerator profile during upgrade to OpenShift Al 2.4. However, the OpenVINO model server (supports GPUs)runtime has not been annotated to indicate that it supports NVIDIA GPUs. Therefore, if a user selects the OpenVINO model server (supports GPUs) runtime and selects an NVIDIA GPU accelerator in the model server user interface, the system displays a warning that the selected accelerator is not compatible with the selected runtime. In this situation, you can ignore the warning.

## RHODS-12928 - Using unsupported characters can generate Kubernetes resource names with multiple dashes

When you create a resource and you specify unsupported characters in the name, then each space is replaced with a dash and other unsupported characters are removed, which can result in an invalid resource name.

## RHODS-12946 - Cannot install from PyPI mirror in disconnected environment or when using private certificates

In disconnected environments, Red Hat OpenShift AI cannot connect to the public-facing PyPI repositories, so you must specify a repository inside your network. If you are using private TLS certificates, and a data science pipeline is configured to install Python packages, the pipeline run fails.

#### Workaround

Add the required environment variables and certificates to your pipeline, as described in the Red Hat Knowledgebase solution Install packages from PyPI Mirror fails on Data Science Pipelines in disconnected installation.

### RHOAIENG-11 - Separately installed instance of CodeFlare Operator not supported

In Red Hat OpenShift AI, the CodeFlare Operator is included in the base product and not in a separate Operator. Separately installed instances of the CodeFlare Operator from Red Hat or the community are not supported.

### Workaround

Delete any installed CodeFlare Operators, and install and configure Red Hat OpenShift AI, as described in the Red Hat Knowledgebase solution How to migrate from installed CodeFlare Operator to Red Hat OpenShift Data Science.

#### RHOAIENG-12 - Cannot access Ray dashboard from some browsers

In some browsers, users of the distributed workloads feature might not be able to access the Ray dashboard, because the browser automatically changes the prefix of the dashboard URL from **http** to **https**. The distributed workloads feature is currently available in Red Hat OpenShift AI as a Technology Preview feature. See Technology Preview features.

#### Workaround

Change the URL prefix from https to http.

### RHOAIENG-52 - Token authentication fails in clusters with self-signed certificates

If you use self-signed certificates, and you use the Python **codeflare-sdk** in a notebook or in a Python script as part of a pipeline, token authentication will fail.

### RHOAIENG-133 - Existing workbench cannot run Elyra pipeline after notebook restart

If you use the Elyra JupyterLab extension to create and run data science pipelines within JupyterLab, and you configure the pipeline server *after* you created a workbench and specified a notebook image within the workbench, you cannot execute the pipeline, even after restarting the notebook.

#### Workaround

- 1. Stop the running notebook.
- 2. Edit the workbench to make a small modification. For example, add a new dummy environment variable, or delete an existing unnecessary environment variable. Save your changes.
- 3. Restart the notebook.
- 4. In the left sidebar of JupyterLab, click Runtimes.
- 5. Confirm that the default runtime is selected.

### RHOAIENG-3115 - Model cannot be queried for a few seconds after it is shown as ready

Models deployed using the multi-model serving platform might be unresponsive to queries despite appearing as **Ready** in the dashboard. You might see an "Application is not available" response when querying the model endpoint.

#### Workaround

Wait 30-40 seconds and then refresh the page in your browser.

### NOTEBOOKS-210 - A notebook fails to export as a PDF file in Jupyter

When you export a notebook as a PDF file in Jupyter, the export process fails with an error.

## DATA-SCIENCE-PIPELINES-OPERATOR-349 - The Import Pipeline button is prematurely accessible

When you import a pipeline to a workbench that belongs to a data science project, the **Import Pipeline** button is prematurely accessible before the pipeline server is fully available.

#### Workaround

Refresh your browser page and import the pipeline again.

## DATA-SCIENCE-PIPELINES-OPERATOR-362 - Pipeline server fails that uses object storage signed by an unknown authority

Data science pipeline servers fail if you use object storage signed by an unknown authority. As a result, you cannot currently use object storage with a self-signed certificate. This issue has been observed in a disconnected environment.

#### Workaround

Configure your system to use object storage with a self-signed certificate, as described in the Red Hat Knowledgebase solution Data Science Pipelines workaround for an object storage connection with a self-signed certificate.

## ODH-DASHBOARD-1776 - Error messages when user does not have project administrator permission

If you do not have administrator permission for a project, you cannot access some features, and the error messages do not explain why. For example, when you create a model server in an environment where you only have access to a single namespace, an **Error creating model server** error message appears. However, the model server is still successfully created.

#### RHODS-11791 - Usage data collection is enabled after upgrade

If you previously had the **Allow collection of usage data** option deselected (that is, disabled), this option becomes selected (that is, enabled) when you upgrade OpenShift Al.

#### Workaround

Manually reset the **Allow collection of usage data** option. To do this, perform the following actions:

- In the OpenShift Al dashboard, in the left menu, click Settings → Cluster settings.
   The Cluster Settings page opens.
- 2. In the Usage data collection section, deselect Allow collection of usage data.
- 3. Click Save changes.

#### ODH-DASHBOARD-1741 - Cannot create a workbench whose name begins with a number

If you try to create a workbench whose name begins with a number, the workbench does not start.

#### Workaround

Delete the workbench and create a new one with a name that begins with a letter.

## RHODS-6913 (ODH-DASHBOARD-1699) - Workbench does not automatically restart for all configuration changes

When you edit the configuration settings of a workbench, a warning message appears stating that the workbench will restart if you make any changes to its configuration settings. This warning is misleading because in the following cases, the workbench does not automatically restart:

- Edit name
- Edit description
- Edit, add, or remove keys and values of existing environment variables

#### Workaround

Manually restart the workbench.

## KUBEFLOW-157 - Logging out of JupyterLab does not work if you are already logged out of the OpenShift Al dashboard

If you log out of the OpenShift AI dashboard before you log out of JupyterLab, then logging out of JupyterLab is not successful. For example, if you know the URL for a Jupyter notebook, you are able to open this again in your browser.

#### Workaround

Log out of JupyterLab before you log out of the OpenShift AI dashboard.

## RHODS-9789 - Pipeline servers fail to start if they contain a custom database that includes a dash in its database name or username field

When you create a pipeline server that uses a custom database, if the value that you set for the **dbname** field or **username** field includes a dash, the pipeline server fails to start.

#### Workaround

Edit the pipeline server to omit the dash from the affected fields.

### RHODS-9412 - Elyra pipeline fails to run if workbench is created by a user with edit permissions

If a user who has been granted edit permissions for a project creates a project workbench, that user sees the following behavior:

- During the workbench creation process, the user sees an **Error creating workbench** message related to the creation of Kubernetes role bindings.
- Despite the preceding error message, OpenShift AI still creates the workbench. However, the error message means that the user will not be able to use the workbench to run Elyra data science pipelines.
- If the user tries to use the workbench to run an Elyra pipeline, Jupyter shows an **Error making** request message that describes failed initialization.

#### Workaround

A user with administrator permissions (for example, the project owner) must create the workbench on behalf of the user with edit permissions. That user can then use the workbench to run Elyra pipelines.

### RHODS-8921 - You cannot create a pipeline server when cumulative character limit is exceeded

When the cumulative character limit of a data science project name and a pipeline server name exceeds 62 characters, you are unable to successfully create a pipeline server.

#### Workaround

Rename your data science project so that it does not exceed 30 characters.

## RHODS-7718 - User without dashboard permissions is able to continue using their running notebooks and workbenches indefinitely

When a Red Hat OpenShift AI administrator revokes a user's permissions, the user can continue to use their running notebooks and workbenches indefinitely.

#### Workaround

When the OpenShift Al administrator revokes a user's permissions, the administrator should also stop any running notebooks and workbenches for that user.

## RHODS-6907 - Attempting to increase the size of a Persistent Volume (PV) fails when it is not connected to a workbench

Attempting to increase the size of a Persistent Volume (PV) that is not connected to a workbench fails. When changing a data science project's storage, users can still edit the size of the PV in the user interface, but this action does not have any effect.

### RHODS-6955 - An error can occur when trying to edit a workbench

When editing a workbench, an error similar to the following can occur:

#### Error creating workbench

Operation cannot be fulfilled on notebooks.kubeflow.org "workbench-name": the object has been modified; please apply your changes to the latest version and try again

# RHODS-6383 - An ImagePullBackOff error message is not displayed when required during the workbench creation process

Pods can experience issues pulling container images from the container registry. If an error occurs, the relevant pod enters into an **ImagePullBackOff** state. During the workbench creation process, if an **ImagePullBackOff** error occurs, an appropriate message is not displayed.

#### Workaround

Check the event log for further information on the **ImagePullBackOff** error. To do this, click on the workbench status when it is starting.

#### RHODS-6373 - Workbenches fail to start when cumulative character limit is exceeded

When the cumulative character limit of a data science project's title and workbench title exceeds 62 characters, workbenches fail to start.

## RHODS-6356 - The notebook creation process fails for users who have never logged in to the dashboard

The dashboard's notebook **Administration** page displays users belonging to the user group and admin group in OpenShift. However, if an administrator attempts to start a notebook server on behalf of a user who has never logged in to the dashboard, the server creation process fails and displays the following error message:

Request invalid against a username that does not exist.

#### Workaround

Request that the relevant user logs into the dashboard.

#### RHODS-6216 - The ModelMesh oauth-proxy container is intermittently unstable

ModelMesh pods do not deploy correctly due to a failure of the ModelMesh **oauth-proxy** container. This issue occurs intermittently and only if authentication is enabled in the ModelMesh runtime environment. It is more likely to occur when additional ModelMesh instances are deployed in different namespaces.

RHODS-5906 - The NVIDIA GPU Operator is incompatible with OpenShift 4.11.12

Provisioning a GPU node on a OpenShift 4.11.12 cluster results in the **nvidia-driver-daemonset** pod getting stuck in a CrashLoopBackOff state. The NVIDIA GPU Operator is compatible with OpenShift 4.11.9 and 4.11.13.

### RHODS-5763 - Incorrect package version displayed during notebook selection

The **Start a notebook server**page displays an incorrect version number for the Anaconda notebook image.

## RHODS-5543 - When using the NVIDIA GPU Operator, more nodes than needed are created by the Node Autoscaler

When a pod cannot be scheduled due to insufficient available resources, the Node Autoscaler creates a new node. There is a delay until the newly created node receives the relevant GPU workload. Consequently, the pod cannot be scheduled and the Node Autoscaler's continuously creates additional new nodes until one of the nodes is ready to receive the GPU workload. For more information about this issue, see the Red Hat Knowledgebase solution When using the NVIDIA GPU Operator, more nodes than needed are created by the Node Autoscaler.

#### Workaround

Apply the **cluster-api**/accelerator label in **machineset.spec.template.spec.metadata**. This causes the autoscaler to consider those nodes as unready until the GPU driver has been deployed.

### RHODS-5251 - Notebook server administration page shows users who have lost permission access

If a user who previously started a notebook server in Jupyter loses their permissions to do so (for example, if an OpenShift Al administrator changes the user's group settings or removes the user from a permitted group), administrators continue to see the user's notebook servers on the server **Administration** page. As a consequence, an administrator is able to restart notebook servers that belong to the user who's permissions were revoked.

#### RHODS-4799 - Tensorboard requires manual steps to view

When a user has TensorFlow or PyTorch notebook images and wants to use TensorBoard to display data, manual steps are necessary to include environment variables in the notebook environment, and to import those variables for use in your code.

#### Workaround

When you start your notebook server, use the following code to set the value for the TENSORBOARD\_PROXY\_URL environment variable to use your OpenShift AI user ID.

import os

os.environ["TENSORBOARD\_PROXY\_URL"]= os.environ["NB\_PREFIX"]+"/proxy/6006/"

## RHODS-4718 - The Intel® oneAPI AI Analytics Toolkits quick start references nonexistent sample notebooks

The Intel® oneAPI AI Analytics Toolkits quick start, located on the **Resources** page on the dashboard, requires the user to load sample notebooks as part of the instruction steps, but refers to notebooks that do not exist in the associated repository.

## RHODS-4627 - The CronJob responsible for validating Anaconda Professional Edition's license is suspended and does not run daily

The CronJob responsible for validating Anaconda Professional Edition's license is automatically suspended by the OpenShift Al operator. As a result, the CronJob does not run daily as scheduled. In

addition, when Anaconda Professional Edition's license expires, Anaconda Professional Edition is not indicated as disabled on the OpenShift Al dashboard.

### RHODS-4502 - The NVIDIA GPU Operator tile on the dashboard displays button unnecessarily

GPUs are automatically available in Jupyter after the NVIDIA GPU Operator is installed. The **Enable** button, located on the NVIDIA GPU Operator tile on the **Explore** page, is therefore redundant. In addition, clicking the **Enable** button moves the NVIDIA GPU Operator tile to the **Enabled** page, even if the Operator is not installed.

### RHODS-3985 - Dashboard does not display \*Enabled page content after ISV operator uninstall

After an ISV operator is uninstalled, no content is displayed on the **Enabled** page on the dashboard. Instead, the following error is displayed:

Error loading components HTTP request failed

#### Workaround

Wait 30-40 seconds and then refresh the page in your browser.

#### RHODS-3984 - Incorrect package versions displayed during notebook selection

In the OpenShift Al interface, the **Start a notebook server page**displays incorrect version numbers for the JupyterLab and Notebook packages included in the oneAPI Al Analytics Toolkit notebook image. The page might also show an incorrect value for the Python version used by this image.

#### Workaround

When you start your oneAPI Al Analytics Toolkit notebook server, you can check which Python packages are installed on your notebook server and which version of the package you have by running the **!pip list** command in a notebook cell.

### RHODS-2956 - Error can occur when creating a notebook instance

When creating a notebook instance in Jupyter, a **Directory not found** error appears intermittently. This error message can be ignored by clicking **Dismiss**.

### RHODS-2881 - Actions on dashboard not clearly visible

The dashboard actions to revalidate a disabled application license and to remove a disabled application tile are not clearly visible to the user. These actions appear when the user clicks on the application tile's **Disabled** label. As a result, the intended workflows might not be clear to the user.

### RHODS-2879 - License revalidation action appears unnecessarily

The dashboard action to revalidate a disabled application license appears unnecessarily for applications that do not have a license validation or activation system. In addition, when a user attempts to revalidate a license that cannot be revalidated, feedback is not displayed to state why the action cannot be completed.

#### RHODS-2650 - Error can occur during Pachyderm deployment

When creating an instance of the Pachyderm operator, a webhook error appears intermittently, preventing the creation process from starting successfully. The webhook error is indicative that, either the Pachyderm operator failed a health check, causing it to restart, or that the operator process exceeded its container's allocated memory limit, triggering an Out of Memory (OOM) kill.

#### Workaround

Repeat the Pachyderm instance creation process until the error no longer appears.

### RHODS-2096 - IBM Watson Studio not available in OpenShift Al

IBM Watson Studio is not available when OpenShift AI is installed on OpenShift Dedicated 4.9 or higher, because it is not compatible with these versions of OpenShift Dedicated. Contact Marketplace support for assistance manually configuring Watson Studio on OpenShift Dedicated 4.9 and higher.

### RHODS-1888 - OpenShift AI hyperlink still visible after uninstall

When the OpenShift AI Add-on is uninstalled from an OpenShift Dedicated cluster, the link to the OpenShift AI interface remains visible in the application launcher menu. Clicking this link results in a "Page Not Found" error because OpenShift AI is no longer available.

## **CHAPTER 7. PRODUCT FEATURES**

Red Hat OpenShift AI provides a rich set of features for data scientists and IT operations administrators. To learn more, see Introduction to Red Hat OpenShift AI.