100 XP

Azure Machine Learning workspaces

5 minutes

A workspace is a context for the experiments, data, compute targets, and other assets associated with a machine learning workload.

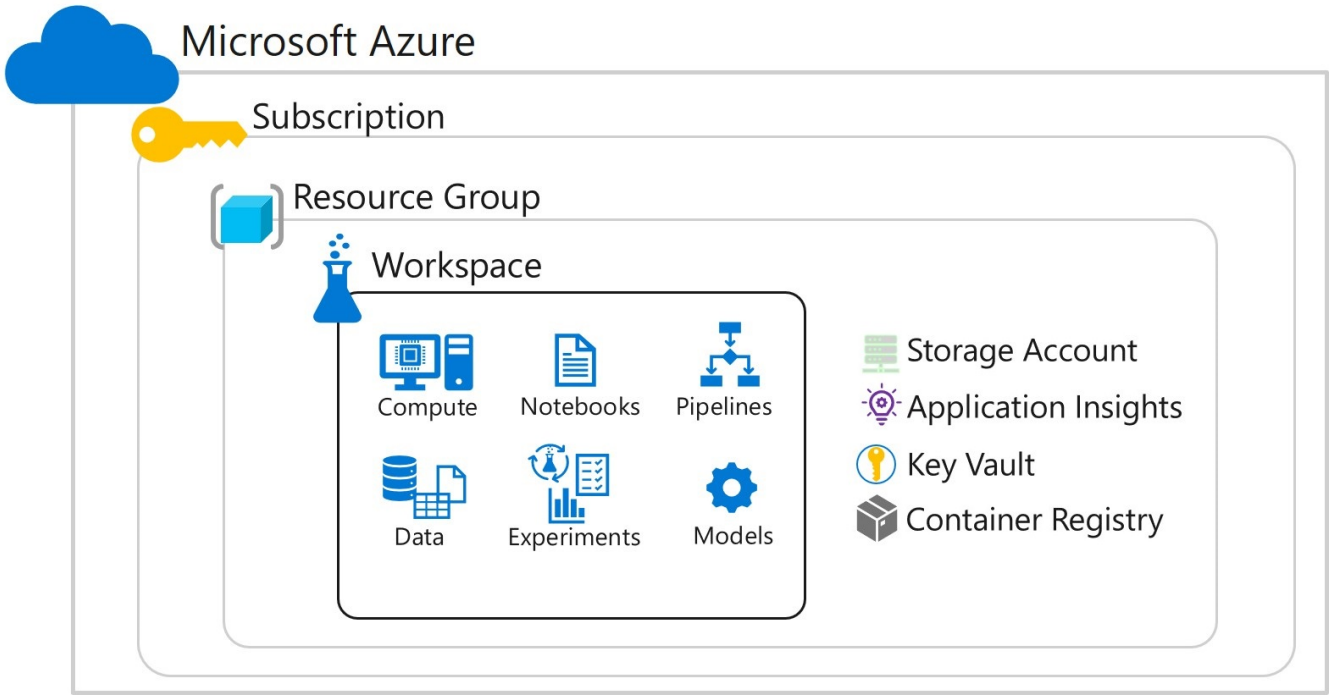
Workspaces for Machine Learning Assets

A workspace defines the boundary for a set of related machine learning assets. You can use workspaces to group machine learning assets based on projects, deployment environments (for example, test and production), teams, or some other organizing principle. The assets in a workspace include:

- Compute targets for development, training, and deployment.
- Data for experimentation and model training.
- Notebooks containing shared code and documentation.
- Experiments, including run history with logged metrics and outputs.
- Pipelines that define orchestrated multi-step processes.
- Models that you have trained.

Workspaces as Azure Resources

Workspaces are Azure resources, and as such they are defined within a resource group in an Azure subscription, along with other related Azure resources that are required to support the workspace.



The Azure resources created alongside a workspace include:

- A storage account - used to store files used by the workspace as well as data for experiments and model training.
- An Application Insights instance, used to monitor predictive services in the workspace.
- An Azure Key Vault instance, used to manage secrets such as authentication keys and credentials used by the workspace.
- A container registry, created as-needed to manage containers for deployed models.

Role-Based Access Control

You can assign role-based authorization policies to a workspace, enabling you to manage permissions that restrict what actions specific Azure Active Directory (AAD) principals can perform. For example, you could create a policy that allows only users in the **IT Operations** group to create compute targets and datastores, while allowing users in the **Data Scientists** group to create and run experiments and register models.

Creating a Workspace

You can create a workspace in any of the following ways:

- In the Microsoft Azure portal, create a new **Machine Learning** resource, specifying the subscription, resource group and workspace name.
- Use the Azure Machine Learning Python SDK to run code that creates a workspace. For example, the following code creates a workspace named *aml-workspace* (assuming the

Azure ML SDK for Python is installed and a valid subscription ID is specified):

Python Copy

```
from azureml.core import Workspace

ws = Workspace.create(name='aml-workspace',
                      subscription_id='123456-abc-123...',
                      resource_group='aml-resources',
                      create_resource_group=True,
                      location='eastus'
                     )
```

- Use the Azure Command Line Interface (CLI) with the Azure Machine Learning CLI extension. For example, you could use the following command (which assumes a resource group named *aml-resources* has already been created):

Bash Copy

```
az ml workspace create -w 'aml-workspace' -g 'aml-resources'
```

- Create an Azure Resource Manager template. For more information the template format for an Azure Machine Learning workspace, see the Azure Machine Learning documentation .

Next unit: Exercise - Create a workspace

Continue >