

Import azureml-sdk

Helping you from Scripting to Production



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**"Azure ML can help me track
my ML projects progress"**

“Azure ML makes it simpler
to leverage cloud compute
resources”

“I don’t have to be a
containers expert to deploy
my models using **Azure ML**”

Import azureml-sdk

The Platform that can help you from Scripting to Production



Build it Yourself

<https://aka.ms/azureml-sdk-fashion>

Azure Passes:
visit the site below



Create: Data Science Virtual Machine for Linux(Ubuntu)

Microsoft Azure

resource

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Center

inagement + Billing

support

Home > New > Data Science Virtual Machine for Linux (Ubuntu)

Data Science Virtual Machine for Linux (Ubuntu)

Microsoft

The Data Science Virtual Machine for Linux is an Ubuntu-based virtual machine image that makes it easy to get started with deep learning on Azure. The Microsoft Cognitive Toolkit, TensorFlow, MXNet, Caffe, Caffe2, Chainer, NVIDIA DIGITS, Deep Water, Keras, Theano, Torch, and PyTorch are built, installed, and configured so they are ready to run immediately. The NVIDIA driver, CUDA 9, and cuDNN 7 are also included. All frameworks are the GPU versions but work on the CPU as well. Many sample Jupyter notebooks are included. TensorFlow Serving, MXNet Model Server, and TensorRT are included to test inferencing.

The Data Science Virtual Machine for Linux also contains popular tools for data science and development activities, including:

- Microsoft R Server 9.3 with Microsoft R Open 3.4.3, MicrosoftML package with machine learning algorithms, RevoScaleR and revoscalepy for distributed and remote computing, and R and Python Operationalization
- Anaconda Python 2.7 and 3.5
- JupyterHub with sample notebooks
- Spark local 2.3.1 with PySpark and SparkR Jupyter kernels
- Single node local Hadoop
- Azure command-line interface
- Visual Studio Code, IntelliJ IDEA, PyCharm, and Atom
- H2O, Deep Water, and Sparkling Water
- Julia
- Vowpal Wabbit for online learning
- xgboost for gradient boosting
- SQL Server 2017
- Intel Math Kernel Library

You can view a full list of installed tools for the Linux edition [here](#).

Connect to the XFCE graphical desktop on the VM using X2Go. This virtual machine image let you jump-start deep learning, machine learning, or data science by including popular tools that are pre-installed and configured. Deep learning frameworks include CNTK, TensorFlow, MXNet, Caffe, Caffe2, DIGITS, H2O, Keras, Theano, and Torch. Many languages are supported, including R, python (2.7 and 3.5), SQL, Julia, Java, R, and python. Common packages are also installed, like scikit-learn, e1071, rpart, randomForest, caret, and many more. Weka allows easy graphical exploration and machine learning. Apache Drill is included for querying non-relational data using SQL. Other powerful machine learning tools and algorithms like Vowpal Wabbit, xgboost, and LightGBM are also included. Spark local is available for development and testing of big data algorithms. Microsoft R Server developer edition 9.0 comes with Microsoft's RevoScaleR package in R that enables high-performance, scalable, parallelized, and distributed R. Microsoft R Server also includes the ability to efficiently operationalize R models. Jupyter is available as a browser-based environment for creating documents with live code, visualizations, and explanatory text. Python, Julia, R, and Spark (Python and R) are supported. Sample notebooks are also included. JupyterHub provides multi-user capabilities.

Save for later

Run Program...

Terminal Emulator

Select a deployment model ⓘ
Resource Manager

Create

Want to deploy programmatically? Get started →

Azure AI

AI apps & agents



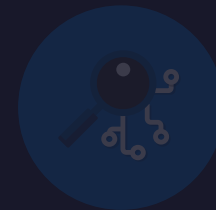
Azure Bot Service
Azure Cognitive Services

Machine learning



Azure Databricks
Azure Machine Learning

Knowledge mining



Azure Cognitive Search

Machine Learning on Azure

Sophisticated pretrained models

To simplify solution development



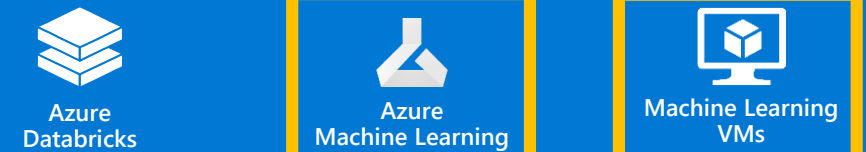
Popular frameworks

To build advanced deep learning solutions



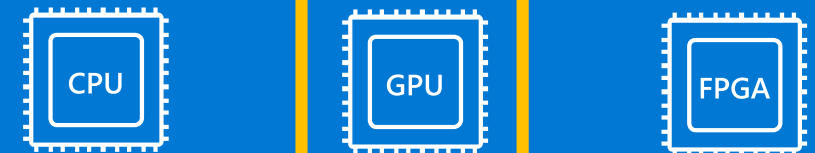
Productive services

To empower data science and development teams



Powerful infrastructure

To accelerate deep learning



Flexible deployment

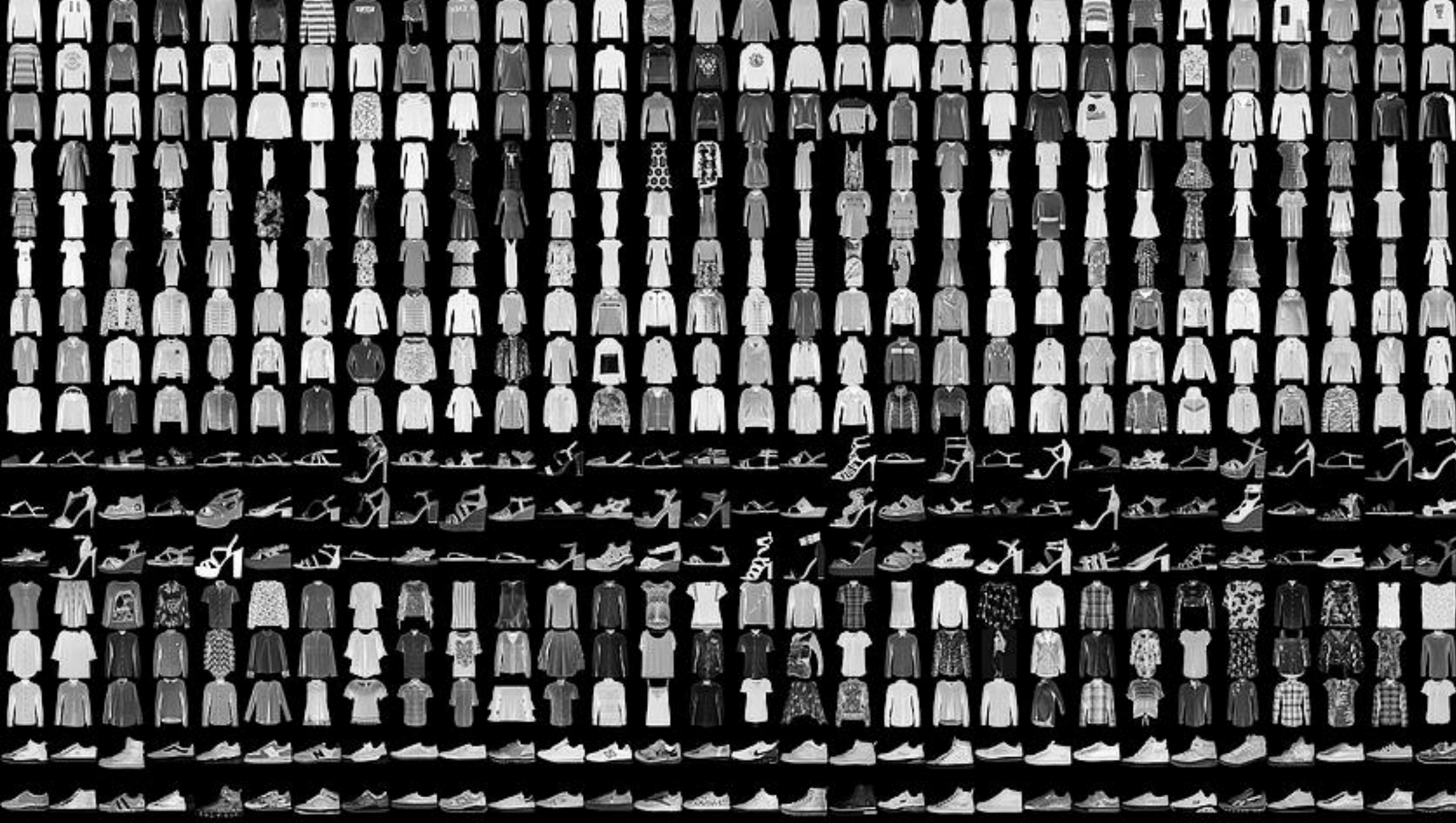
To deploy and manage models on intelligent cloud and edge



[illegible]

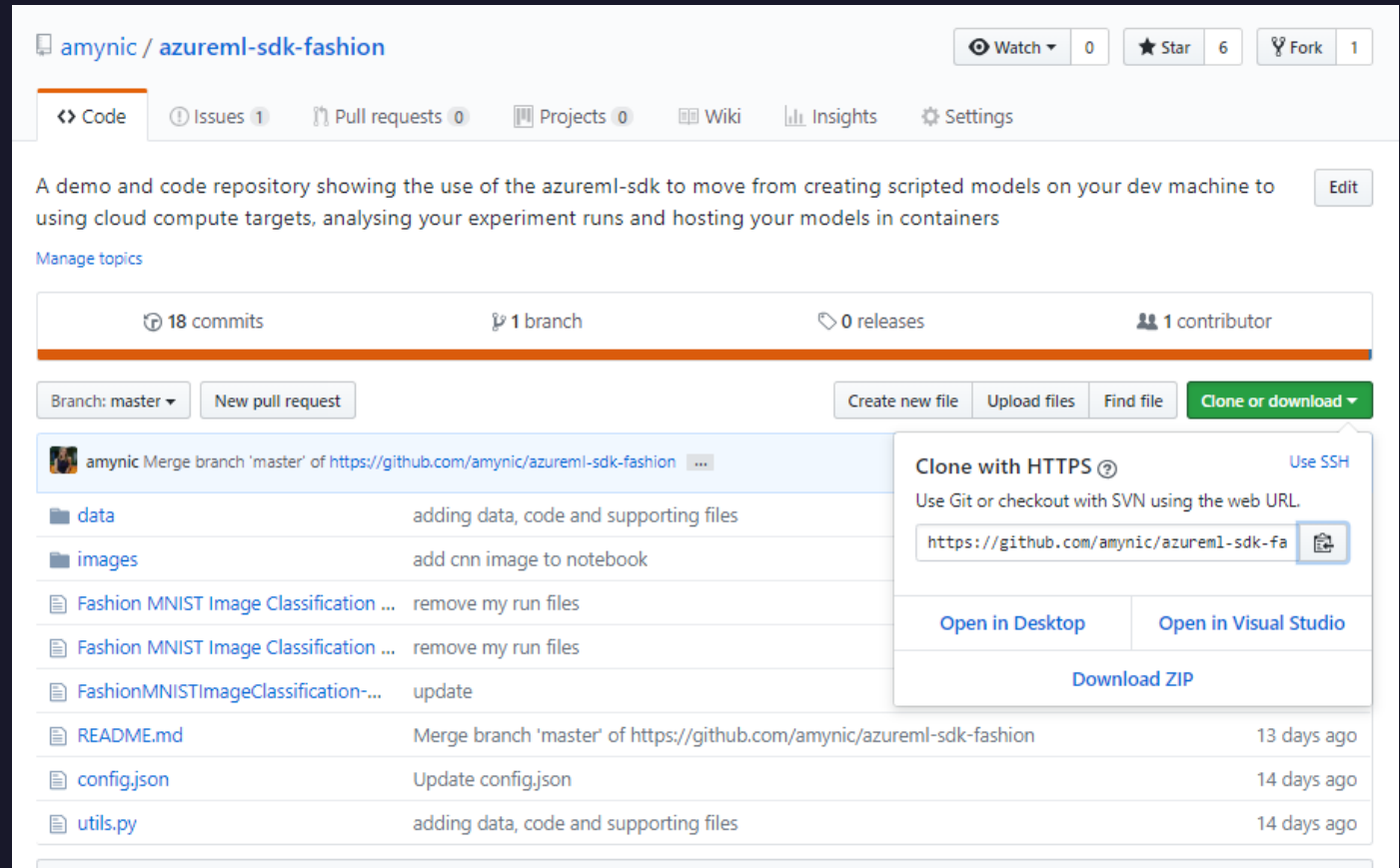
Zalando Fashion-MNIST Dataset

<https://github.com/zalandoresearch/fashion-mnist>

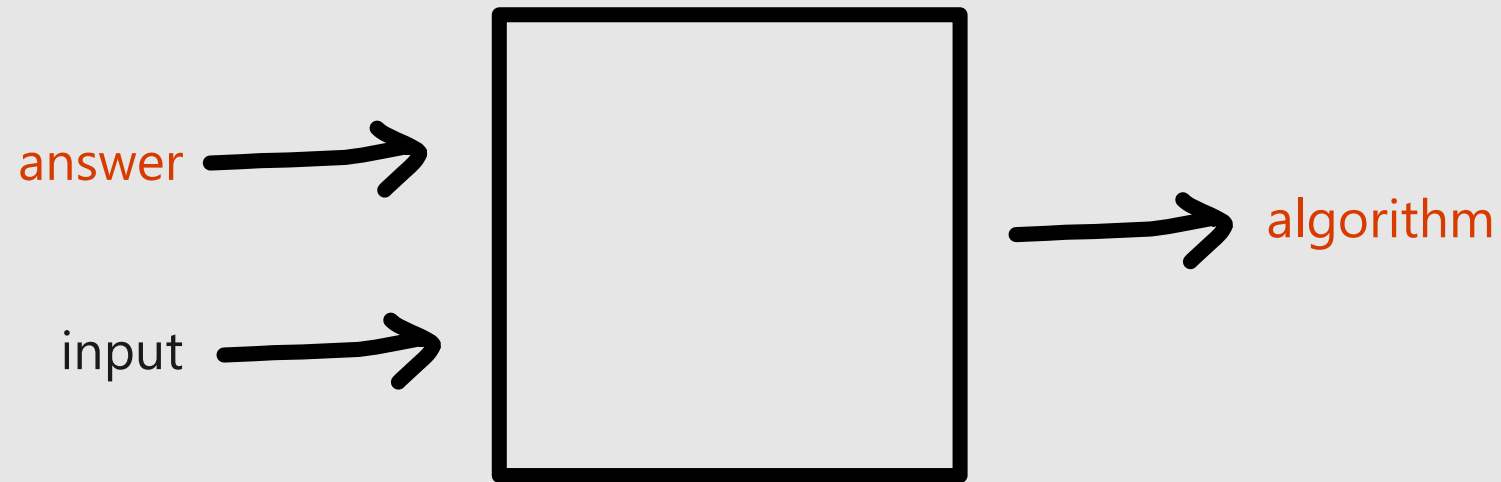


Git Clone Azure ML workshop repo

<https://aka.ms/azureml-sdk-fashion>



Machine Learning ...



Machine Learning ...



Science ...

question



research



hypothesis



test



analyze



report

Science ...

question



research



hypothesis

test



analyze



report



The Workspace - Logical

Workspace



compute



models



experiments



images



data stores



deployment

The Workspace - Physical



Workspace



storage



container
registry



key vault



application
insights

Create: Azure ML workspace

Machine Learning service workspace (preview)

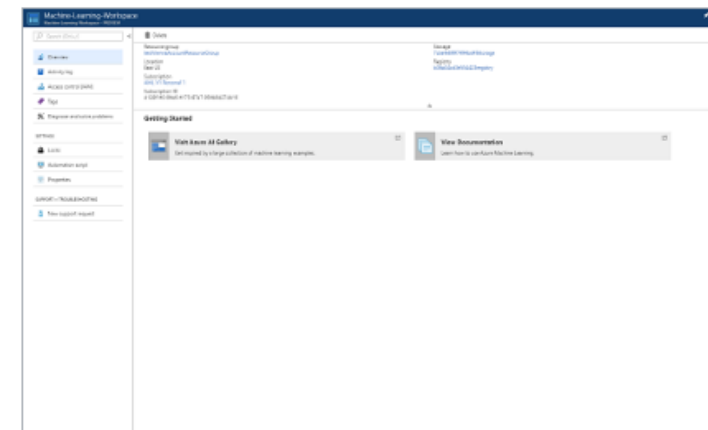
Microsoft

Azure Machine Learning is a secure and powerful cloud-based offering for rapidly building, deploying, and monitoring advanced machine learning and analytics solutions.

Use this template to create an Azure Machine Learning service workspace. This workspace contains the tools to train, manage, and deploy machine-learning experiments and web services for Azure Machine Learning service.

This workspace is different from and not compatible with the Machine Learning Studio Workspace, which offers users a serverless, drag-n-drop environment.

Save for later



PUBLISHER


Microsoft

USEFUL LINKS

[Documentation](#)
[Pricing Details](#)
[Azure AI Gallery](#)

Create

Login: Jupyter Notebooks

 jupyter

LogoutControl Panel

FilesRunningClustersConda

Select items to perform actions on them.

UploadNew↺

☐ 0

▼

📁 /

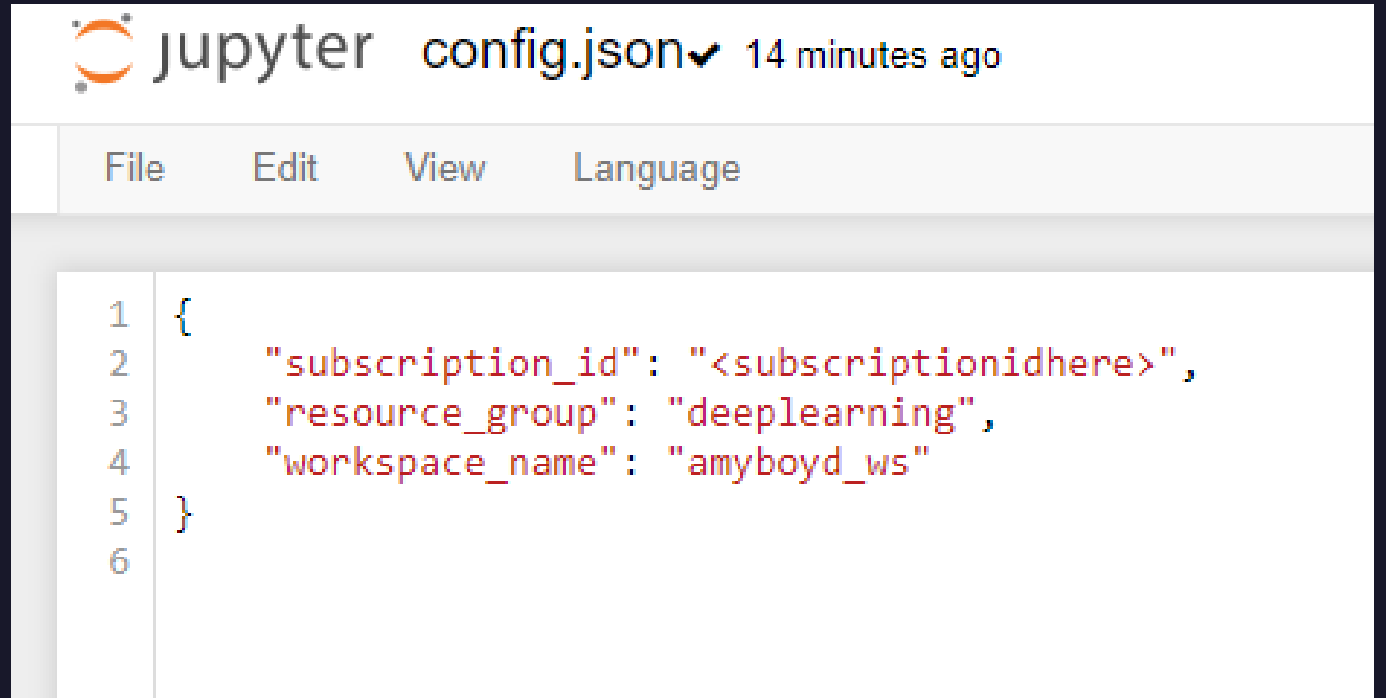
Name▼

Last Modified

File size

<input type="checkbox"/>	📁 AzureML	a month ago	
<input type="checkbox"/>	📁 azureml-sdk-fashion	14 minutes ago	
<input type="checkbox"/>	📁 BatchAI	a month ago	
<input type="checkbox"/>	📁 catboost	a month ago	
<input type="checkbox"/>	📁 Deep_learning_frameworks	a month ago	
<input type="checkbox"/>	📁 Deep_learning_tutorials	a month ago	
<input type="checkbox"/>	📁 deep_water	a month ago	
<input type="checkbox"/>	📁 h2o	a month ago	
<input type="checkbox"/>	📁 julia	a month ago	
<input type="checkbox"/>	📁 MMLSpark	a month ago	
<input type="checkbox"/>	📁 SparkML	a month ago	
<input type="checkbox"/>	📄 DocumentDBSample.ipynb	a month ago	7.72 kB
<input type="checkbox"/>	📄 Introduction to Azure ML R notebooks.ipynb	a month ago	32.7 kB
<input type="checkbox"/>	📄 Introduction to Microsoft R Operationalization.ipynb	a month ago	28.1 kB
<input type="checkbox"/>	📄 IntroToJupyterPython.ipynb	a month ago	311 kB
<input type="checkbox"/>	📄 IntroTutorialinMicrosoftR.ipynb	a month ago	131 kB
<input type="checkbox"/>	📄 IntroTutorialinR.ipynb	a month ago	352 kB
<input type="checkbox"/>	📄 IrisClassifierPyMLWebService.ipynb	a month ago	6.53 kB
<input type="checkbox"/>	📄 LoadDataIntoDW.ipynb	a month ago	27.6 kB
<input type="checkbox"/>	📄 SQLDW_Explorations.ipynb	a month ago	246 kB

Update: Config.json

A screenshot of the JupyterLab interface. The top bar shows the Jupyter logo, the text 'jupyter', the filename 'config.json' with a checkmark, and '14 minutes ago'. Below the top bar is a menu bar with 'File', 'Edit', 'View', and 'Language'. The main area displays a code editor with a line number gutter on the left. The code is a JSON object with three key-value pairs: 'subscription_id' with a placeholder '<subscriptionidhere>', 'resource_group' with the value 'deeplearning', and 'workspace_name' with the value 'amyboyd_ws'.

```
1 {  
2     "subscription_id": "<subscriptionidhere>",  
3     "resource_group": "deeplearning",  
4     "workspace_name": "amyboyd_ws"  
5 }  
6
```



Workspace



compute



models



experiments



images



data stores



deployment

Demo

Workspaces and Compute

<https://aka.ms/azureml-sdk-fashion>



Workspace



compute



models



experiments



images

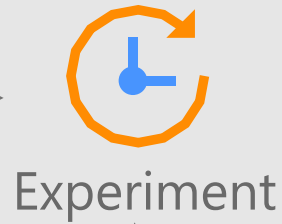


data stores



deployment

1. Snapshot folder and
send to experiment



2. create docker image



Docker Image

3. Deploy docker
and snapshot to
compute

5. Launch script



Compute Target

4. Mount datastore
to compute

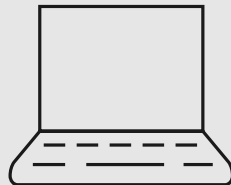


Data Store

6. Stream
stdout,
logs,
metrics

6. Stream
stdout,
logs,
metrics

7. Copy over outputs



My Computer

Demo Datastore

<https://aka.ms/azureml-sdk-fashion>

Prepare



Prepare
Data



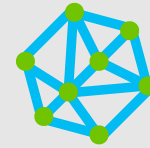
Experiment



Build model
(your favorite
IDE)



Train & Test
Model



Register and
Manage Model



Build
Image



Deploy
Service
Monitor
Model



Workspace



compute



models



experiments



images



data stores



deployment

Create an Image



models

+



Scoring file.py

+

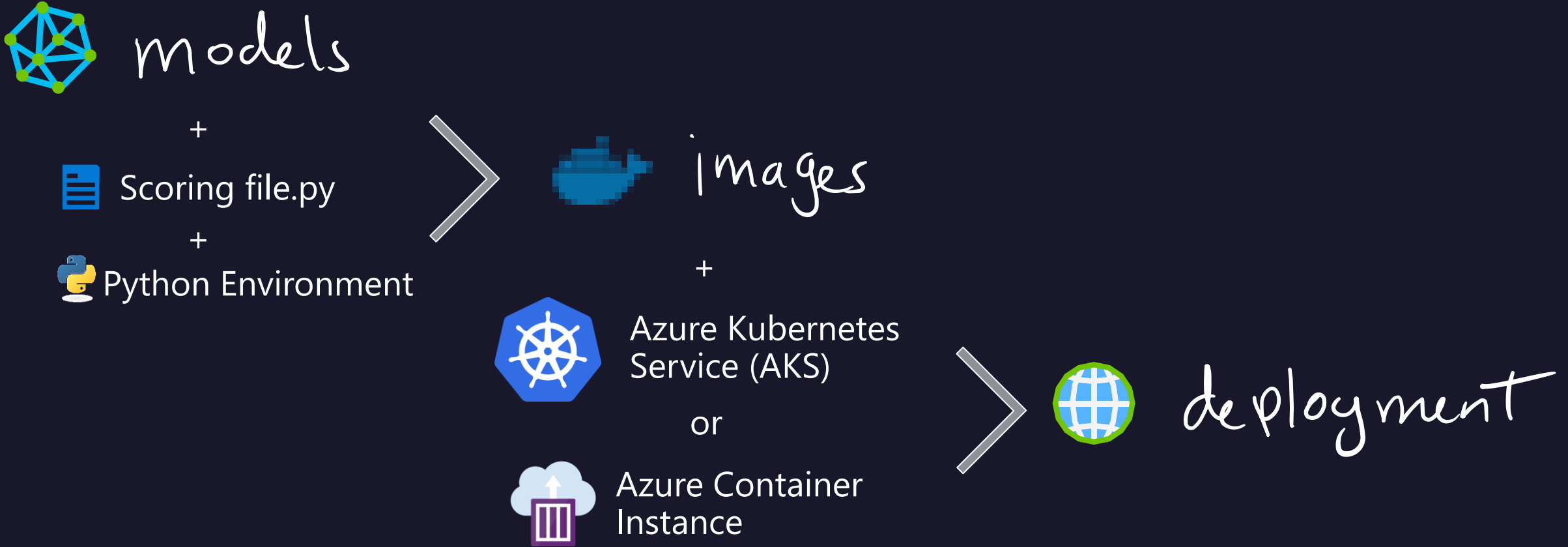


Python Environment



images

Deploy an Image



Demo

Deploy your model

<https://aka.ms/azureml-sdk-fashion>

The Workspace - Logical



Workspace



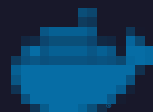
compute



models



experiments



images



data stores



deployment

Azure ML SDK: Key Takeaways

- Azure ML can help you track your ML projects progress
- Azure ML makes it simpler to leverage cloud compute resources
- I don't have to be a containers expert to deploy my models using Azure ML

Azure ML SDK

- **Azure ML SDK Fashion Sample:**
<https://aka.ms/azureml-sdk-fashion/>
- **Azure ML Documentation:**
<https://docs.microsoft.com/en-us/azure/machine-learning/service/overview-what-is-azure-ml>
- **Visual Studio Code Tools for AI:**
<https://marketplace.visualstudio.com/items?itemName=ms-toolsai.vscode-ai>

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