



# Azure ML workshop

Vendredi 28 février 2020

# Vos interlocuteurs

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- Cloud Solution Architect
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- Serge Retkowsky
- AI&ML specialist
- [serge.retkowsky@microsoft.com](mailto:serge.retkowsky@microsoft.com)



1) Connexion wifi  
visiteur

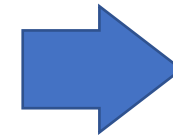
# Accès au Wifi visiteurs



1. Nom du réseau Wifi : **MSFTGUEST**
2. Bouton « **Visiting Guest** »
3. Ensuite « **Create a Guest Account** »
4. Mentionner ensuite l'email du parrain, votre nom ainsi que votre adresse email.

Email du parrain : [mdiallo@microsoft.com](mailto:mdiallo@microsoft.com)  
ou [seretkow@microsoft.com](mailto:seretkow@microsoft.com)

Vous aurez ensuite accès au réseau Wifi Microsoft après validation (prévoir quelques minutes)



Please complete the form to gain access to the network:

\* Email du parrain :

Email de la personne qui parraine ce compte.

\* Votre nom :

Veuillez saisir votre nom complet.

\* Adresse email :

Veuillez saisir votre adresse email.

Ce sera votre nom d'utilisateur pour vous connecter au réseau.

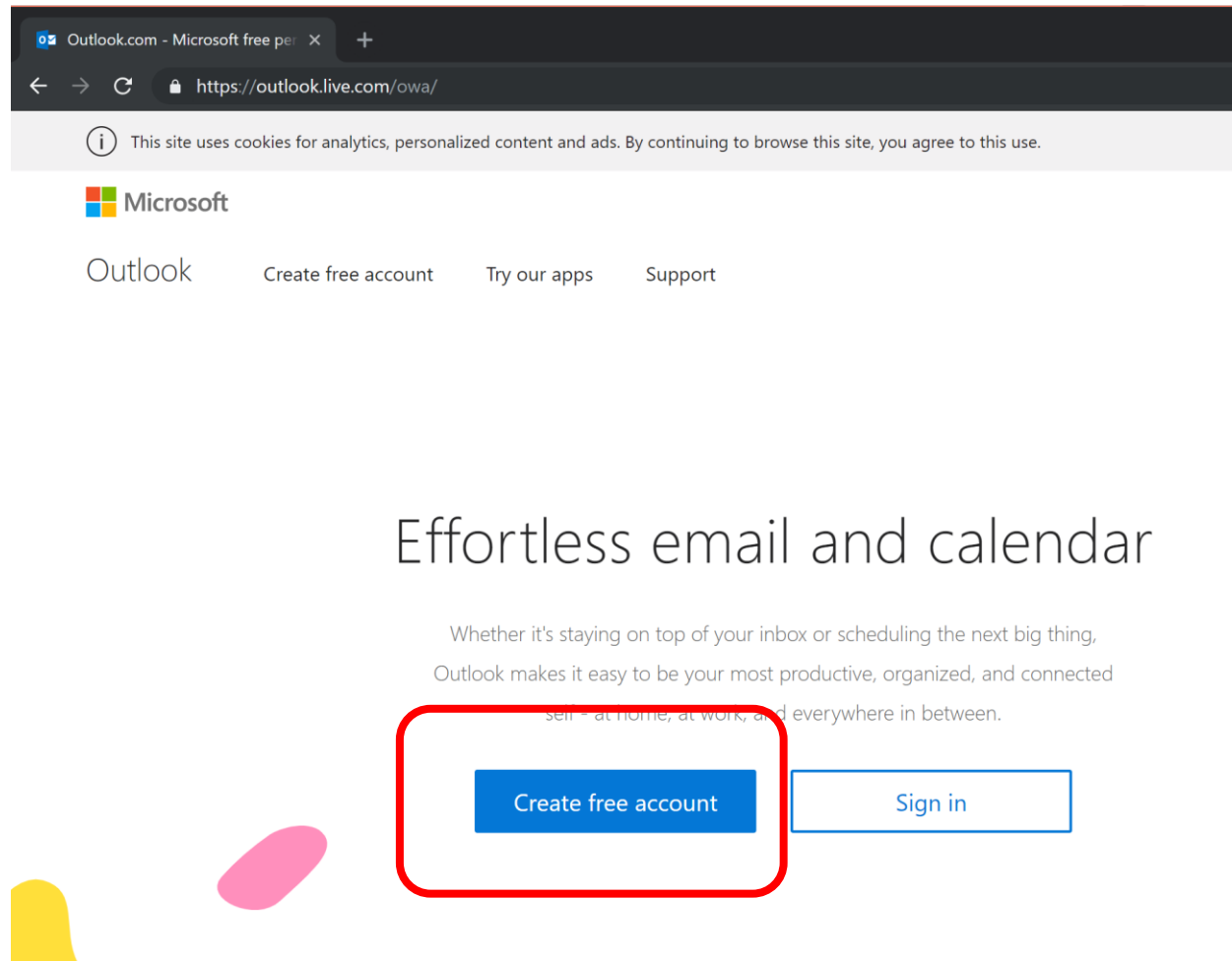
\* Confirmer :

☐ J'accepte les [conditions d'utilisation](#)

S'inscrire

## 2) Création d'un compte Azure avec un passe Azure

# Création adresse email outlook



<https://outlook.live.com/owa/>

# Activer votre passe Azure

<https://www.microsoftazurepass.com>

← → ↻  https://www.microsoftazurepass.com

Microsoft Azure

## Ready to get started?

### Try Microsoft Azure Pass

We're offering an Azure Pass, so for a limited time period, you can try Azure for free

\*No credit card required


Start >

Microsoft Azure

The following Microsoft Account will be used for Azure Pass:

Given name: serge

Surname: Retkowsky

Microsoft Email: 

If the above email address is incorrect, please [sign out](#) and redeem using the correct Microsoft Account

Enter Promo code:

Enter promo code

Claim Promo Code



# Validation de votre passe Azure

<https://www.microsoftazurepass.com>

Microsoft Azure

⋮ We are processing your request

Please do not navigate away from this page.

Do not refresh your browser window, or press the Back button.

© 2019 Microsoft

## Azure Pass - Sponsorship

This offer provides access to Microsoft Azure for a set monetary limit and time duration, whichever is reached first.

### 1 Agreement


- ☐ I agree to the [subscription agreement](#), [offer details](#), and [privacy statement](#)
- ☒ I would like information, tips, and offers from Microsoft or selected partners about Azure, including Azure Newsletter, Pricing updates, and other Microsoft products and services.

Sign up



# Emails de notifications

Vous allez recevoir ensuite deux emails :

- 
1. Confirmation de la validation de votre passe Azure
  2. Notification du lien de votre portail Azure

# Après validation vous êtes directement connecté à votre portail Azure

Services Azure [Afficher tout \(+100\) >](#)

Machines virtuelles Comptes de stockage

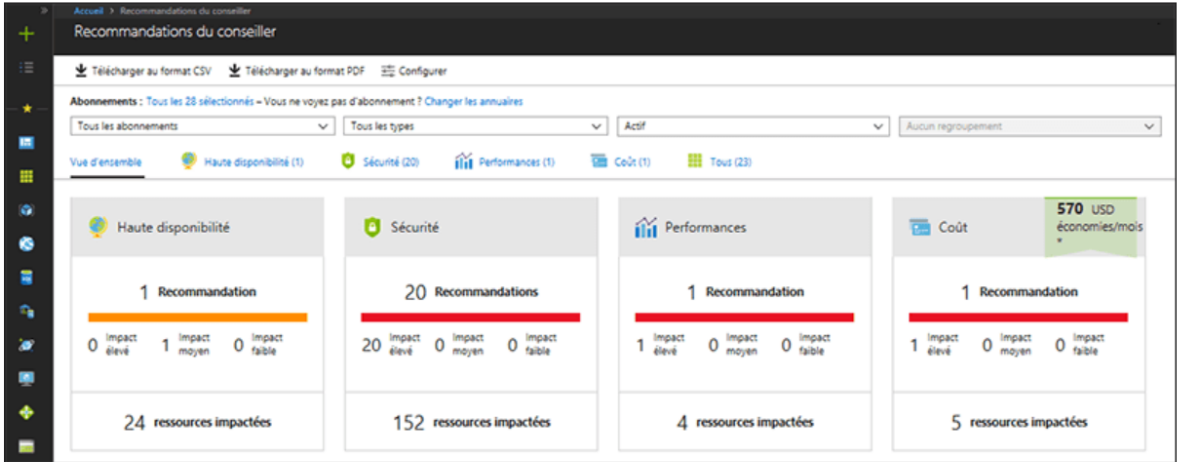
Tirer le meilleur parti de vos ressources Azure

Formez-vous sur Azure avec des cours en ligne gratuits par Microsoft

Ressources récentes

**Vous avez des recommandations Azure Advisor gratuites !**

Azure Advisor est une offre gratuite qui analyse votre utilisation Azure et fournit des recommandations sur la façon dont vous pouvez économiser de l'argent, améliorer les performances, bénéficier d'une sécurité accrue et améliorer la fiabilité des solutions déjà en cours d'exécution dans Azure.[En savoir plus](#)



[Afficher mes recommandations gratuites](#)

Lorsque vous visitez des ressources, celles-ci sont répertoriées dans les ressources récemment utilisées. Vous pouvez ainsi y accéder rapidement et facilement.

[Créer une ressource](#)

[Rester informé des mises à jour Azure](#)

Apprenez-en davantage, découvrez ce qui est prévu sur la feuille de route et abonnez-vous aux notifications pour rester informé.

Azure.Source regroupe toutes les actualités de la semaine précédente dans Azure.

### 3) Provisionnement du service Azure ML service

# Provisionnement du service Azure ML service

[Home](#) > [Machine Learning](#) > Machine Learning

## Machine Learning

Create

[Main \\*](#) [Tags](#) [Review \\*](#)

Workspace Name \*

MachineLearning



Subscription

Microsoft Azure Internal Consumption (



Resource group

(New) mlserviceRG



[Create new](#)

Location

West Europe



Workspace edition [View full pricing details](#) ⓘ


Enterprise



For your convenience, these resources are added automatically to the workspace, if regionally available: [Azure storage](#), [Azure Application Insights](#) and [Azure Key Vault](#).

# Création en cours...

[Home](#) > Microsoft.MachineLearningServices - Overview

 **Microsoft.MachineLearningServices - Overview**  
Deployment

Overview

Inputs


Outputs

Template

DeleteCancelRedeployRefresh




■ ■ ■

## Your deployment is underway

 Deployment name: Microsoft.MachineLearningServices  
Subscription: [Microsoft Azure Internal Consumption \(70b8f39e-88...](#)  
Resource group: [mlserviceRG](#)

Start time: 07/11/2019 à 13:52:10  
Correlation ID:


Deployment details [\(Download\)](#)

Resource	Type	Status	Operation details
 machinelearnin7815532...	Microsoft.Storage/stora...	Accepted	<a href="#">Operation details</a>
 machinelearnin648760673	Microsoft.Insights/comp...	OK	<a href="#">Operation details</a>
 machinelearnin9427122...	Microsoft.KeyVault/vaults	OK	<a href="#">Operation details</a>

Next steps

# Fin de la création

[Home](#) > Microsoft.MachineLearningServices - Overview


 **Microsoft.MachineLearningServices - Overview**  
Deployment


Overview


Inputs


Outputs


Template


 Delete


 Cancel

 Redeploy

 Refresh

 **Your deployment is complete**

 Deployment name: Microsoft.MachineLearningServices  
Subscription: [Microsoft Azure Internal Consumption \(70b8f39e-88...](#)  
Resource group: [mlserviceRG](#)

Start time: 07/11/2019 à 13:52:10  
Correlation ID: 

▼ Deployment details [\(Download\)](#)

^ Next steps


[Go to resource](#)

# Ressources associées générées automatiquement

- [Azure Container Registry](#): Registers docker containers that you use during training and when you deploy a model. To minimize costs, ACR is **lazy-loaded** until deployment images are created.
- [Azure Storage account](#): Is used as the default datastore for the workspace. Jupyter notebooks that are used with your Azure Machine Learning Notebook VM are stored here as well.
- [Azure Application Insights](#): Stores monitoring information about your models.
- [Azure Key Vault](#): Stores secrets that are used by compute targets and other sensitive information that's needed by the workspace.

# Accès au service

[Home](#) > [Microsoft.MachineLearningServices - Overview](#) > MachineLearning

**MachineLearning**  
Machine Learning

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Events

Assets

Experiments

Pipelines

Compute

Models

Images

Deployments

Activities

Settings

Properties

Locks

Export template

Monitoring

Download config.json

Delete

Workspace edition : Enterprise

Resource group : mlserviceRG

Location : West Europe

Subscription : [Microsoft Azure Internal Consumption](#)


Subscription ID : 70b8f39e-8863-49f7-b6ba-34a80799550c

Storage : [machinelearnin7815532217](#)

Registry : ...

Key Vault : [machinelearnin9427122382](#)


Application Insights : [machinelearnin6487606737](#)





## Launch the new Azure Machine Learning studio


Introducing a new immersive experience (preview) for managing the end-to-end machine learning lifecycle.

### Getting Started

**View Documentation**  
Learn how to use Azure Machine Learning.

**View more samples at GitHub**  
Get inspired by a large collection of machine learning examples.

**View Forum**  
Join the discussion of Azure Machine Learning.

**Learn about Enterprise Edition**  
Use the Enterprise edition to access UI-based tools for all skill levels, built-in MLOps and more



# Azure ML Studio

Preview

Microsoft Azure Machine Learning

New

Home

Author

Notebooks

Automated ML

Designer

Assets

Datasets

Experiments

Pipelines

Models

Endpoints

Manage

Compute

Datastores

Data labeling

MachineLearning > Home

## Welcome to the studio!

Create new ▾

Notebooks

Code with Python SDK and run sample experiments.

Start now

Automated ML

Automatically train and tune a model using a target metric.

Start now

Designer

Drag-and-drop interface from prepping data to deploying models.

Start now

### Tutorials

What is Azure Machine Learning?

Train your first ML model with Notebook

What is Automated Machine Learning?

What is Azure Machine Learning Designer?

Compute targets: where to train and deploy models

Deploy models with Azure Machine Learning

View all tutorials →

### Links

Blog

Follow us and find updates


Documentation

Find step-by-step tutorials, concepts, how-to guides, and more

## 4) Paramétrage pour le workshop

# Accès au service

[Home](#) > [Microsoft.MachineLearningServices - Overview](#) > MachineLearning

**MachineLearning**  
Machine Learning

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Events

Assets

Experiments

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Compute

Models

Images

Deployments

Activities

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Properties

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Export template

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Workspace edition : Enterprise

Resource group : mlserviceRG

Location : West Europe

Subscription : [Microsoft Azure Internal Consumption](#)


Subscription ID : 70b8f39e-8863-49f7-b6ba-34a80799550c

Storage : [machinelearnin7815532217](#)

Registry : ...

Key Vault : [machinelearnin9427122382](#)


Application Insights : [machinelearnin6487606737](#)




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# Azure ML Studio : <https://ml.azure.com>

Preview

Microsoft Azure Machine Learning

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Models

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MachineLearning > Home

Welcome to the studio!

+

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View all tutorials →

Links

Blog

Follow us and find updates

Documentation

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# Création d'une VM Compute Instance

Preview

Microsoft Azure Machine Learning

New

Home

Author

Notebooks

Automated ML

Designer

Accate

workshop-aml-2020 > Compute > Compute Instances

Compute

Compute Instances

Training clusters

Inference clusters

ⓘ

Compute instance is replacing the Notebook VM. You cannot create new

+ New

↺ Refresh

▶ Start

⏏ Stop

↺ Restart

🗑 Delete

New Compute Instance

Compute name \* ⓘ

standardd12v2 \*

Region \* ⓘ

westeurope \*

Virtual Machine size \* ⓘ

Standard\_DS12\_v2 \*

🔌




Enable SSH access ⓘ


> Advanced settings

# La VM notebook a été créée avec succès

Preview

Microsoft Azure Machine Learning





New

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Datasets

Experiments

Pipelines

Models

Endpoints

Manage

Compute


Datastores








Data Labeling


workshop-aml-2020 > Compute > Compute Instances


Compute

Compute Instances Training clusters Inference clusters Attached compute

 Compute instance is replacing the Notebook VM. You cannot create new Notebook VMs, but you can still use existing Notebook VMs. [Learn More.](#)

 New  Refresh  Start  Stop  Restart  Delete  Show created by me only

 Search to filter items...

Name	Status	Application URI	Virtual Machine size	Created on ↓
<a href="#">standardd13v2</a>	 Running	<div>JupyterLab Jupyter RStudio SSH</div>	STANDARD_D13_V2	Feb 14, 2020 9:33 AM

< Prev

Next >

# On accède à Jupyter Notebooks



Quit

Files

Running

Clusters

AzureML Samples

Select items to perform actions on them.

Upload

New ▾



☐ 0 ▾ /

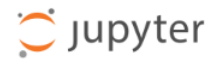
Name ▾

Last Modified

File size

The notebook list is empty.

# Accès au terminal



Quit

Files

Running

Clusters

AzureML Samples

Select items to perform actions on them.

Upload

New



0 /

Name

Notebook:

Python 3

Python 3.6 - AzureML

R

Other:

Text File

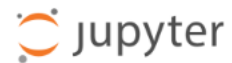
Folder

Terminal

The notebook list is empty.



# On clone le git qui contient les notebooks du workshop



```
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.
```

```
azureuser@vmstds3v298c95387f80:/mnt/azmnt/code/Users$ git clone https://github.com/retkowsky/CloudWorkshopAML2019
```


`git clone https://github.com/retkowsky/WorkshopAML2020`

# Clone du repo en cours

To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo\_root" for details.

```
azureuser@vmstds3v298c95387f80:/mnt/azmnt/code/Users$ git clone https://github.com/retkowsky/Workshop_AzureML_2019
Cloning into 'Workshop_AzureML_2019'...
remote: Enumerating objects: 31, done.
remote: Counting objects: 100% (31/31), done.
remote: Compressing objects: 100% (31/31), done.
remote: Total 112 (delta 6), reused 0 (delta 0), pack-reused 81
Receiving objects: 100% (112/112), 13.24 MiB | 8.47 MiB/s, done.
Resolving deltas: 100% (33/33), done.
Checking connectivity... done.
error: unable to create file 20news.pkl (No such file or directory)
Checking out files: 100% (28/28), done.
```

# Liste des notebooks

 jupyter

Quit

FilesRunningClustersAzureML Samples

Select items to perform actions on them.

UploadNew↺

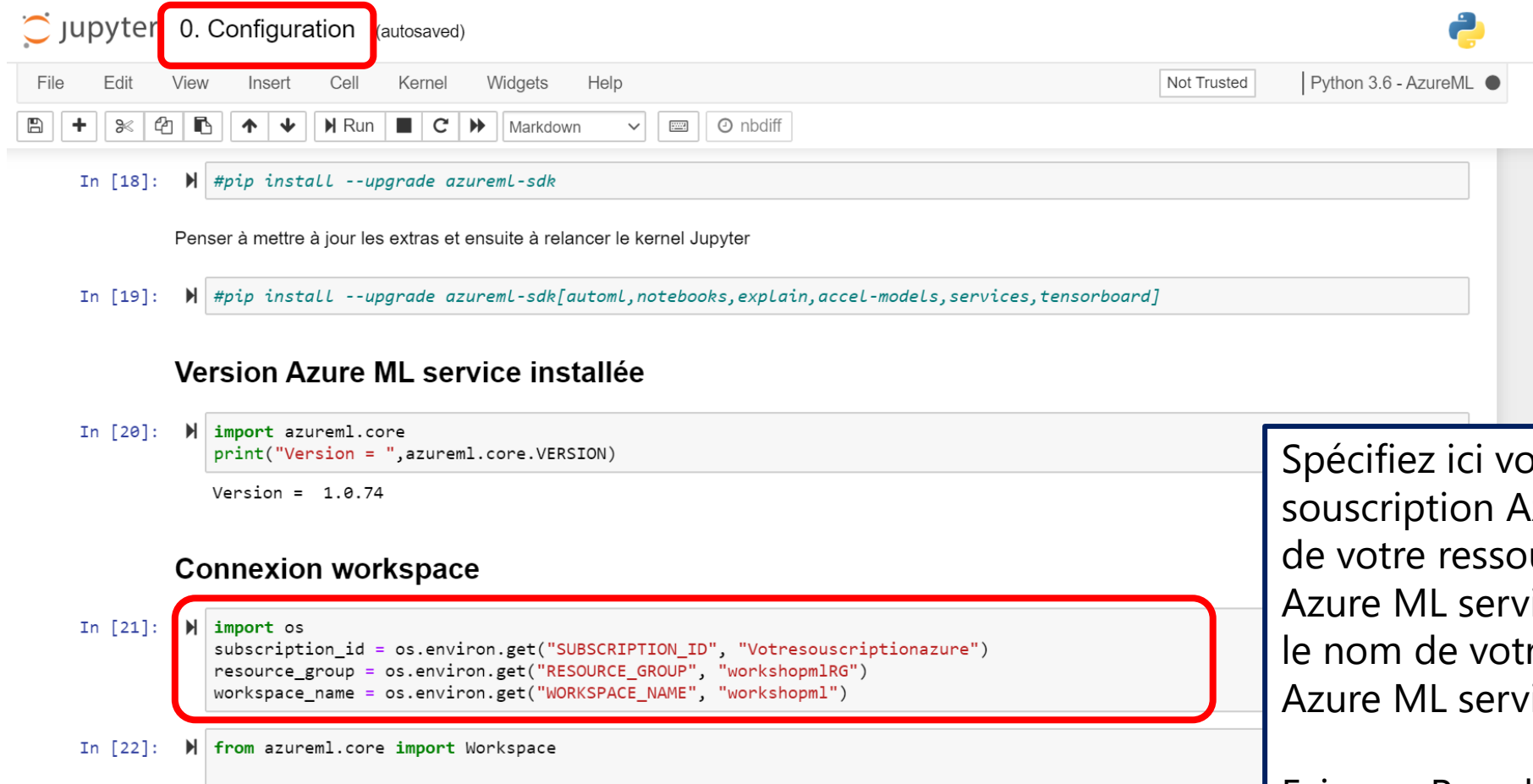
☐ 0 ▾

/ Users / seretkow / Workshop

Name ▾Last ModifiedFile size

<input type="checkbox"/>	..	seconds ago	
<input type="checkbox"/>	data	3 days ago	
<input type="checkbox"/>	graphiques	3 days ago	
<input type="checkbox"/>	model	3 days ago	
<input type="checkbox"/>	outputs	3 days ago	
<input type="checkbox"/>	sample_projects	3 days ago	
<input type="checkbox"/>	scripts	3 days ago	
<input type="checkbox"/>	tf-resume-training	3 days ago	
<input type="checkbox"/>	train-on-amlcompute	3 days ago	
<input type="checkbox"/>	0 Configuration.ipynb	17 minutes ago	8.58 kB
<input type="checkbox"/>	1 Introduction Azure ML.ipynb	3 days ago	62 kB
<input type="checkbox"/>	10 Hyperparameter Tuning TF.ipynb	3 days ago	348 kB
<input type="checkbox"/>	11 TensorFlow GPU.ipynb	3 days ago	71.9 kB
<input type="checkbox"/>	2 AutoML Classification.ipynb	3 days ago	93.7 kB
<input type="checkbox"/>	3 AutoML Regression.ipynb	3 days ago	114 kB
<input type="checkbox"/>	4 AutoML Forecast.ipynb	3 days ago	1.01 MB
<input type="checkbox"/>	5 AML Compute.ipynb	3 days ago	108 kB
<input type="checkbox"/>	6 Déploiement ACI.ipynb	3 days ago	254 kB
<input type="checkbox"/>	7 Azure ML service Pipelines.ipynb	3 days ago	44.2 kB
<input type="checkbox"/>	8 Interprétation des modèles.ipynb	3 days ago	33.6 kB
<input type="checkbox"/>	9 Deep Learning.ipynb	3 days ago	47.4 kB
<input type="checkbox"/>			

# Edition du notebook de configuration



Jupyter 0. Configuration (autosaved)

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3.6 - AzureML

In [18]: `#pip install --upgrade azureml-sdk`

Penser à mettre à jour les extras et ensuite à relancer le kernel Jupyter

In [19]: `#pip install --upgrade azureml-sdk[automl,notebooks,explain,accel-models,services,tensorboard]`

### Version Azure ML service installée

In [20]: `import azureml.core  
print("Version = ",azureml.core.VERSION)`

Version = 1.0.74

### Connexion workspace

In [21]: `import os  
subscription_id = os.environ.get("SUBSCRIPTION_ID", "Votresouscriptionazure")  
resource_group = os.environ.get("RESOURCE_GROUP", "workshopmlRG")  
workspace_name = os.environ.get("WORKSPACE_NAME", "workshopml")`

In [22]: `from azureml.core import Workspace`

Spécifiez ici votre souscription Azure, le nom de votre ressource group Azure ML service ainsi que le nom de votre service Azure ML service.

Faire un Run du notebook.

# Contenu du cloud workshop

<https://aka.ms/WorkshopAML2020>

