

## Introduction

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Welcome to the Xilinx ML Suite Lab. By completing this lab, you will gain valuable hands on experience in using the Xilinx ML Suite. This lab covers how to use Python APIs to deploy the included models, as well as how to compile and quantize custom models with the xfdnn Python tools.

The lab is divided into two parts, and uses Jupyter Notebooks

## Launching your ML Suite AWS Instance

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For this event, each registered participant has been attributed a preconfigured EC2 F1 instance and should have received an email with the following details,

You should have received a IAM user number.

1. You should have been provided a link to login AWS.

Use the number you were provided with for the IAM user name.



Account ID or alias

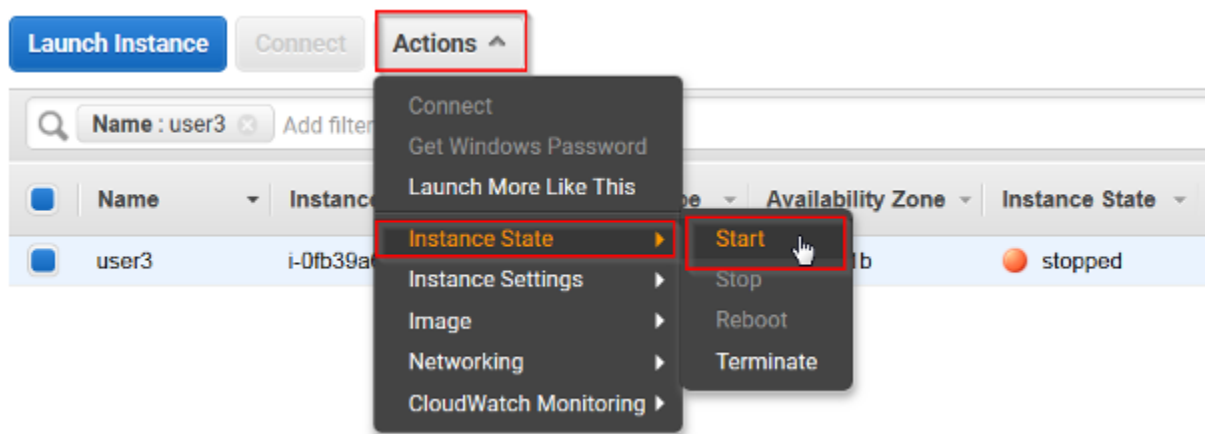
IAM user name

Password

Sign In

In the AWS sign-in page, enter the password **xlnx-mlsuite**

2. Click **Sign In**.
  - a. You should now be logged in the AWS EC2 Console and you should see an **f1.2xlarge** instance in the **stopped** state.
3. Start the instance by choosing the **Actions** button, then select **Instance State > Start**.



- a. Allow about 10 seconds for the instance to start and to enter the **Running** state.
  - b. If required, click the **Refresh** icon (↻) in the top-right corner of the EC2 Console to update the instance status information.
4. When the instance is running, find and note the **IPv4 Public IP** address of your instance. This is displayed in EC2 Console next to the instance status.
  - a. This IP address is used to connect to your instance.

Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
running	✓ 2/2 checks ...	🔄 Loading...	ec2-54-208-39-202.compute-1.amazonaws.com	54.208.39.202

# Open Jupyter Notebooks

1. Open a web browser to <IPv4 Public IP address>:8888
2. Enter **cvpr** for the note book password and clock the Log in button



Password:

....|

Log in

3. Click on the `## Start--Here ## XDF--Lab Into--.ipynb` notebook to begin the lab

 Quit Logout

Files Running Clusters

Duplicate Shutdown View Edit  Upload New

1

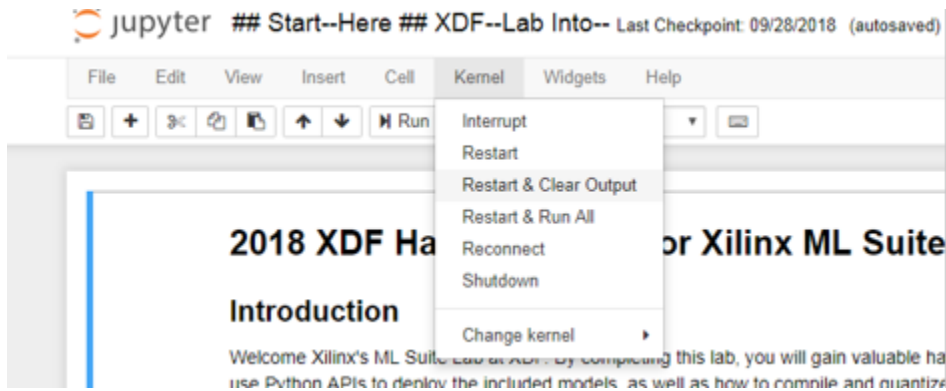
/

	Name	Last Modified	File size
<input type="checkbox"/>	backup	5 months ago	
<input type="checkbox"/>	work	5 months ago	
<input checked="" type="checkbox"/>	## Start--Here ## XDF--Lab Into--.ipynb	Running 2 months ago	2.06 kB
<input type="checkbox"/>	compiler_caffe.ipynb	4 hours ago	36.8 kB
<input type="checkbox"/>	image_classification_caffe.ipynb	4 hours ago	453 kB
<input type="checkbox"/>	quantizer_caffe.ipynb	4 hours ago	208 kB
<input type="checkbox"/>	notebook.tex	5 months ago	16.2 kB
<input type="checkbox"/>	sdaccel_profile_summary.csv	4 hours ago	0 B
<input type="checkbox"/>	sdaccel_profile_summary.html	4 hours ago	433 B

4. You are now ready to walk through the Jupyter notebooks.

**Hints:** If you have not used Jupyter notebooks before:

- You can enter **ShiftEnter** in the python code sections to automatically execute all the code
- To start over on any page select **Kernel > Restart and Clear Output**



5. **Optional:** If you would like to view a visual representation of the networks used in these labs, you can load the prototxt files into a Caffe Viewer :

<http://ethereum.github.io/netscope/quickstart.html>

## Editor

You can use the inline editor to enter your network definition (currently limited to valid Caffe's prototxt) and visualize the network.

Press **Shift+Enter** in the editor to render your network.

Launch Editor

To access the prototxt files (after they are created) browse to the /work dir and select the file, and then copy the text into the Caffe Viewer



Files

Running

Clusters

Duplicate

Rename

Move

Download

View

Edit

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/ work

..

☐ bvlc\_googlenet\_without\_lrn.caffemodel\_data

☐ resnet50.caffemodel\_data

☐ bvlc\_googlenet\_without\_lrn.cmd

☐ bvlc\_googlenet\_without\_lrn.cmd.json

☐ fpga.cmds

☐ fpga.cmds.json

☐ optimized.png

☐ optimized\_model.caffemodel

☒ optimized\_model.prototxt