

Ubuntu Server 18.04-LTS Virtual Machine

The intent of this README is to guide you in a deployment a **Standard_DS1_v2**.

It's good to bear in mind that there are different ways to deploy resources in Azure, here a few options if you want to dig on the Azure Universe. You can run this template either using [PowerShell](#), [Azure CLI](#), [Azure Portal](#) or your favorite SDK.

The Template

Don't let the size of the template scares you. The structure is very intuitive and once that you get the gist of it, you gonna see how easier your life will be regarding creating resources on Azure.

The only parameters that we need to inform are **adminUsername**, **adminPassword** and **vmName**.

Don't worry about changing anything on the file, either on the portal or using Azure CLI, you gonna be asked to insert this information, but bear in mind that there is some requirement for those two parameters:

- *adminUsername*: Usernames can be a maximum of 20 characters in length and cannot end in a period (".").

The following usernames are not allowed:

administrator	admin	user	user1
test	user2	test1	user3
admin1	1	123	a
actuser	adm	admin2	aspnet
backup	console	david	guest
john	owner	root	server
sql	support	support_388945a0	sys
test2	test3	user4	user5

- *adminPassword* There are varying password length requirements, depending on the tool you are using:

Portal - between 12 - 72 characters

PowerShell - between 8 - 123 characters

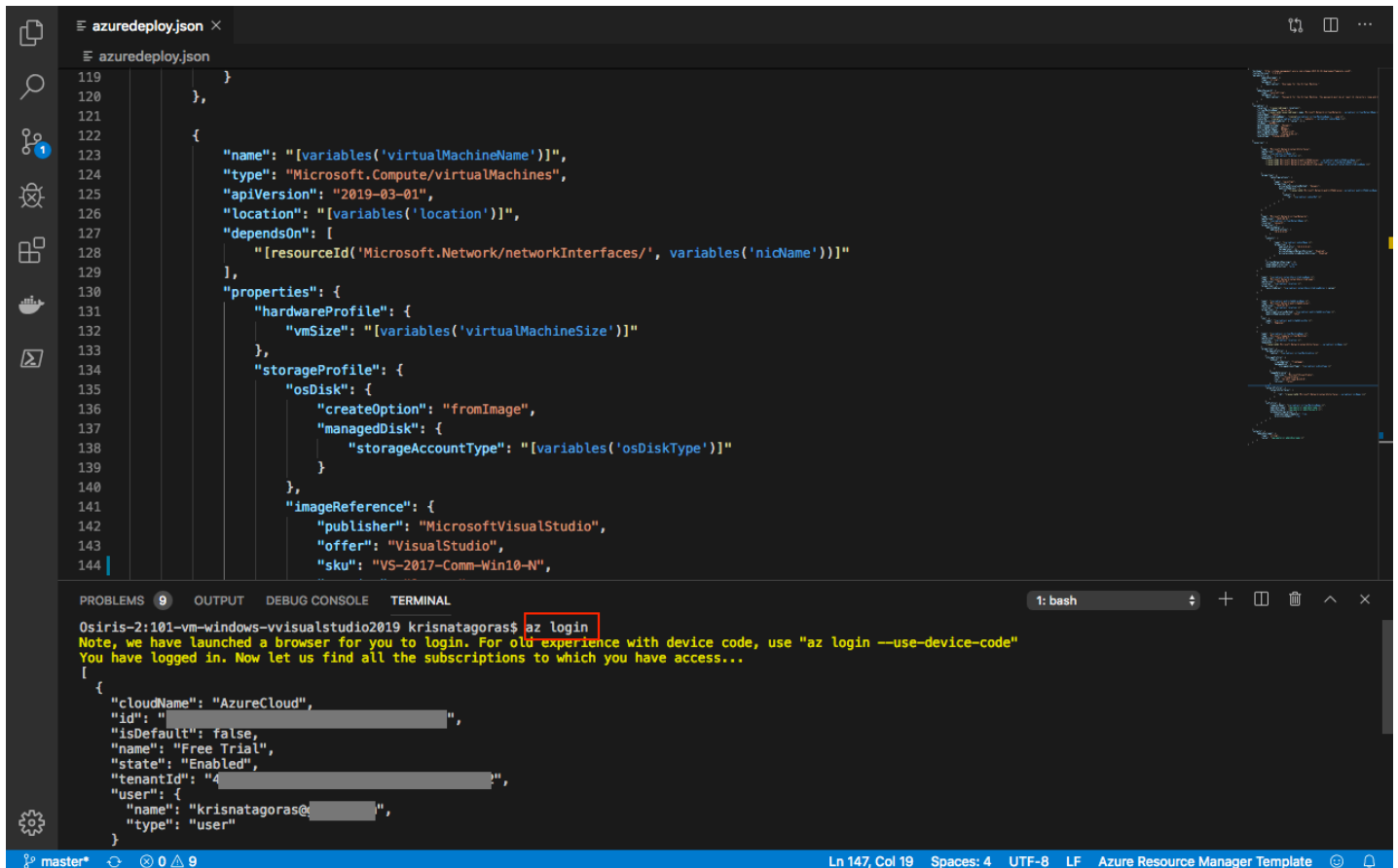
- Have lower characters
- Have upper characters
- Have a digit
- Have a special character (Regex match `[W_]`)

abc@123 iloveyou! P@\$w0rd P@ssw0rd P@ssword123 Pa\$\$word pass@word1 Password!
Password1 Password22

- Keeping that in mind, let's rock with the Deployment.

For this task, we gonna deploy using Visual Code and the portal and a little surprise for you at the end. :D

Using Azure CLI with Visual Code



```
119     },
120   },
121   {
122     "name": "[variables('virtualMachineName')]",
123     "type": "Microsoft.Compute/virtualMachines",
124     "apiVersion": "2019-03-01",
125     "location": "[variables('location')]",
126     "dependsOn": [
127       "[resourceId('Microsoft.Network/networkInterfaces/', variables('nicName'))]"
128     ],
129     "properties": {
130       "hardwareProfile": {
131         "vmSize": "[variables('virtualMachineSize')]"
132       },
133       "storageProfile": {
134         "osDisk": {
135           "createOption": "fromImage",
136           "managedDisk": {
137             "storageAccountType": "[variables('osDiskType')]"
138           }
139         },
140         "imageReference": {
141           "publisher": "MicrosoftVisualStudio",
142           "offer": "VisualStudio",
143           "sku": "VS-2017-Comm-Win10-N",
144         }
145       }
146     }
147   }
148 ]
```

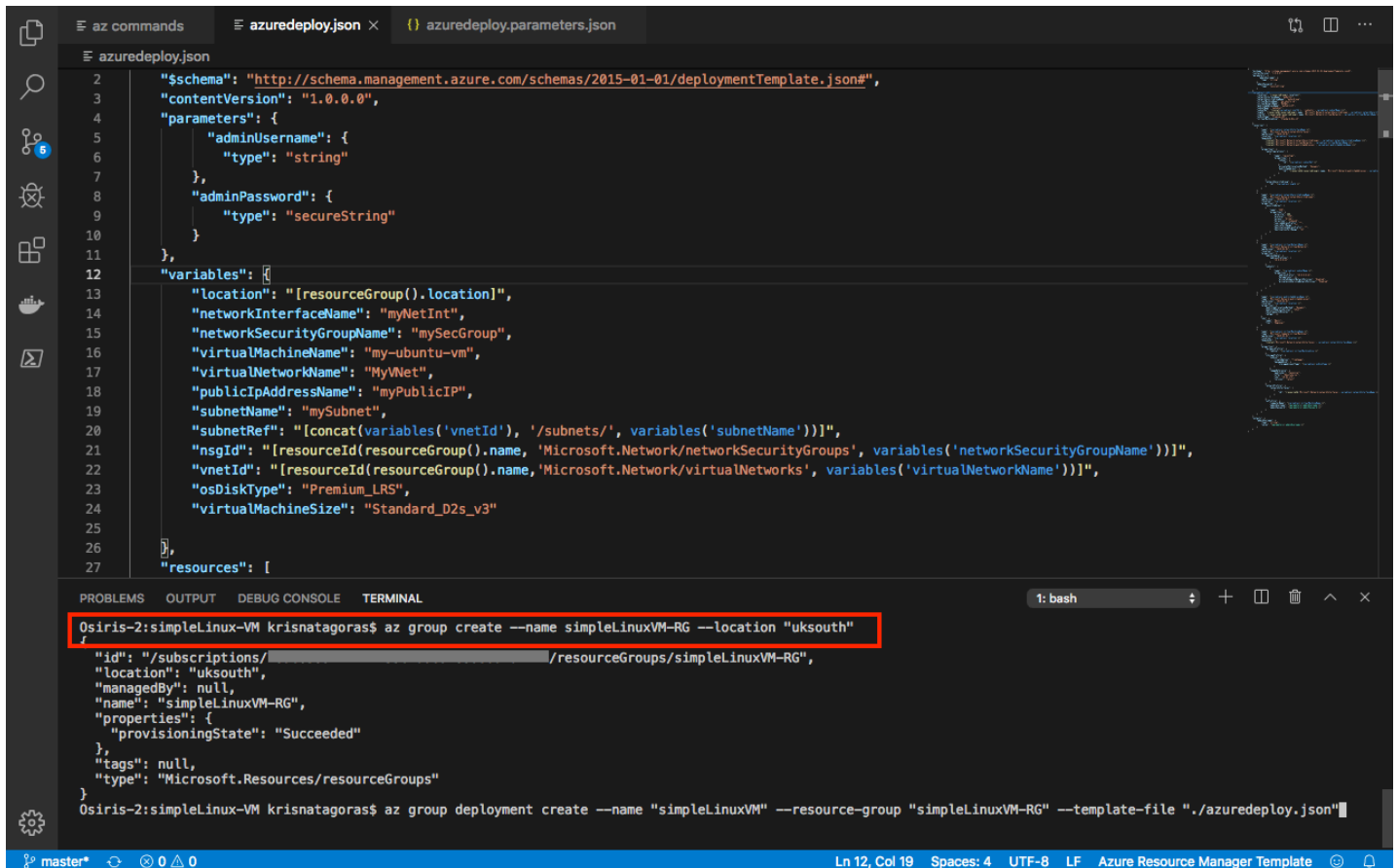
```
Osiris-2:101-vm-windows-visualstudio2019 krisnatagoras$ az login
Note, we have launched a browser for you to login. For old experience with device code, use "az login --use-device-code"
You have logged in. Now let us find all the subscriptions to which you have access...
{
  "cloudName": "AzureCloud",
  "id": "4d97b988-0000-0000-0000-000000000000",
  "isDefault": false,
  "name": "Free Trial",
  "state": "Enabled",
  "tenantId": "4d97b988-0000-0000-0000-000000000000",
  "user": {
    "name": "krisnatagoras@4d97b988-0000-0000-0000-000000000000",
    "type": "user"
  }
}
```

You gonna be redirected to the Azure Portal where you can use your credentials to login in.

After login, you gonna have your credentials.

In order to set the right subscription, you can use the following command:

az account set --subscription "< your subscription id >"



The image shows a VS Code editor with two tabs: `azuredeploy.json` and `azuredeploy.parameters.json`. The `azuredeploy.json` file contains an ARM template for a Linux VM. The terminal window shows the command to create a resource group and the output of the command.

```
2  "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
3  "contentVersion": "1.0.0.0",
4  "parameters": {
5    "adminUsername": {
6      "type": "string"
7    },
8    "adminPassword": {
9      "type": "secureString"
10   }
11 },
12 "variables": {
13   "location": "[resourceGroup().location]",
14   "networkInterfaceName": "myNetInt",
15   "networkSecurityGroupName": "mySecGroup",
16   "virtualMachineName": "my-ubuntu-vm",
17   "virtualNetworkName": "MyVNet",
18   "publicIpAddressName": "myPublicIP",
19   "subnetName": "mySubnet",
20   "subnetRef": "[concat(variables('vnetId'), '/subnets/', variables('subnetName'))]",
21   "nsgId": "[resourceId(resourceGroup().name, 'Microsoft.Network/networkSecurityGroups', variables('networkSecurityGroupName'))]",
22   "vnetId": "[resourceId(resourceGroup().name, 'Microsoft.Network/virtualNetworks', variables('virtualNetworkName'))]",
23   "osDiskType": "Premium_LRS",
24   "virtualMachineSize": "Standard_D2s_v3"
25 },
26
27 "resources": [
```

```
Osiris-2:simpleLinux-VM krisnatagoras$ az group create --name simpleLinuxVM-RG --location "uksouth"
{
  "id": "/subscriptions/.../resourceGroups/simpleLinuxVM-RG",
  "location": "uksouth",
  "managedBy": null,
  "name": "simpleLinuxVM-RG",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
Osiris-2:simpleLinux-VM krisnatagoras$ az group deployment create --name "simpleLinuxVM" --resource-group "simpleLinuxVM-RG" --template-file "./azuredeploy.json"
```

Super simple, right? Now that we have our **Resource Group** created, let's deploy our Virtual Machine.

az group deployment create --name "name of your deployment" --resource-group "simpleLinuxVM-RG" --template-file "./azuredeploy.json"

The screenshot shows the Visual Studio Code editor with two files open: `azuredeploy.json` and `azuredeploy.parameters.json`. The `azuredeploy.json` file contains a Bicep template for deploying an Ubuntu VM. The template includes parameters for `adminUsername` and `adminPassword`, and variables for `location`, `networkInterfaceName`, `networkSecurityGroupName`, `virtualMachineName`, `virtualNetworkName`, `publicIpAddressName`, `subnetName`, `subnetRef`, `nsgId`, `vnetId`, `osDiskType`, and `virtualMachineSize`. The `resources` section defines the VM resource.

```
2  "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
3  "contentVersion": "1.0.0.0",
4  "parameters": {
5    "adminUsername": {
6      "type": "string"
7    },
8    "adminPassword": {
9      "type": "secureString"
10   }
11 },
12 "variables": {
13   "location": "[resourceGroup().location]",
14   "networkInterfaceName": "myNetInt",
15   "networkSecurityGroupName": "mySecGroup",
16   "virtualMachineName": "my-ubuntu-vm",
17   "virtualNetworkName": "MyVNet",
18   "publicIpAddressName": "myPublicIP",
19   "subnetName": "mySubnet",
20   "subnetRef": "[concat(variables('vnetId'), '/subnets/', variables('subnetName'))]",
21   "nsgId": "[resourceId(resourceGroup().name, 'Microsoft.Network/networkSecurityGroups', variables('networkSecurityGroupName'))]",
22   "vnetId": "[resourceId(resourceGroup().name, 'Microsoft.Network/virtualNetworks', variables('virtualNetworkName'))]",
23   "osDiskType": "Premium_LRS",
24   "virtualMachineSize": "Standard_D2s_v3"
25 },
26
27 "resources": [
```

The `TERMINAL` pane shows the output of the `az group deployment create` command. The output indicates that the deployment was successful, with the `provisioningState` set to `Succeeded`.

```
{
  "id": "/subscriptions/[REDACTED]/resourceGroups/simpleLinuxVM-RG",
  "location": "uksouth",
  "managedBy": null,
  "name": "simpleLinuxVM-RG",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```

Osiris-2:simpleLinux-VM krisnatagoras\$ az group deployment create --name "simpleLinuxVM" --resource-group "simpleLinuxVM-RG" --template-file "./azuredeploy.json"

Please provide string value for 'adminUsername' (? for help): karaujo

Please provide securestring value for 'adminPassword' (? for help):

Running ..

As you can see, it's running. Go grab a cup of coffee, have some fresh air and I'm sure that before you come back you gonna have your Ubuntu Server Virtual Machine ready.

And there we go, our deploy is Succeeded:

```
az commands  azuredeploy.json x  azuredeploy.parameters.json

azuredeploy.json
2  "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
3  "contentVersion": "1.0.0.0",
4  "parameters": {
5    "adminUsername": {
6      "type": "string"
7    },
8    "adminPassword": {
9      "type": "secureString"
10   }
11 },
12 "variables": {
13   "location": "[resourceGroup().location]",
14   "networkInterfaceName": "myNetInt",
15   "networkSecurityGroupName": "mySecGroup",
16   "virtualMachineName": "my-ubuntu-vm",
17   "virtualNetworkName": "MyVNet",
18   "publicIpAddressName": "myPublicIP",
19   "subnetName": "mySubnet",
20   "subnetRef": "[concat(variables('vnetId'), '/subnets/', variables('subnetName'))]",
21   "nsgId": "[resourceId(resourceGroup().name, 'Microsoft.Network/networkSecurityGroups', variables('networkSecurityGroupName'))]",
22   "vnetId": "[resourceId(resourceGroup().name, 'Microsoft.Network/virtualNetworks', variables('virtualNetworkName'))]",
23   "osDiskType": "Premium_LRS",
24   "virtualMachineSize": "Standard_D2s_v3"
25 },
26 ],
27 "resources": [
28   {
29     "resourceType": "virtualMachines"
30   },
31   {
32     "provisioningState": "Succeeded",
33     "template": null,
34     "templateHash": "12673323086516715193",
35     "templateLink": null,
36     "timestamp": "2019-10-24T11:24:51.564602+00:00"
37   },
38   {
39     "resourceGroup": "simpleLinuxVM-RG",
40     "type": "Microsoft.Resources/deployments"
41   }
42 ]

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 1: bash
Osiris-2:simpleLinux-VM krisnatagoras$
```

Let's go and check the resource at the Azure Portal: Go the Resource Group, find the Resource group you've created. And there it's your brand new **Virtual Machine**:

Microsoft Azure

Search resources, services, and docs (G+I)

Jobs Utilities Idiomas Teaching Traductor Writing Books Tools Mais visitados Tech iCloud Photos ElastaCloud Diffchecker - Online...

Create a resource

Home

Dashboard

All services

FAVORITES

All resources

Templates

Resource groups

Resource Explorer

App registrations

Roles

Subscriptions

Azure Active Directory

Quickstart Center

App Services

Function App

SQL databases

Azure Cosmos DB

Virtual machines

Load balancers

Overview

Activity log

Access control (IAM)

Tags

Events

Settings

Quickstart

Deployments

Policies

Properties

Locks

Export template

Cost Management

Cost analysis

Cost alerts

Budgets

Advisor recommendations

simpleLinuxVM-RG

Resource group

Search (Cmd+I)

+ Add

Edit columns

Delete resource group

Refresh

Move

Export to CSV

More

Subscription (change)

Azure for Students

Subscriptions ID

Tags (change)

Click here to add tags

Filter by name...

Type == all

Location == all

Add filter

No grouping

Showing 1 to 6 of 6 records.

Show hidden types

Name	Type	Location
my-ubuntu-vm	Virtual machine	UK South
my-ubuntu-vm_disk1_41683901e1e54a1db037a8fbaf8...	Disk	UK South
myNetInt	Network interface	UK South
myPublicIP	Public IP address	UK South
mySecGroup	Network security group	UK South
MyVNet	Virtual network	UK South

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Next >

Note that beyond your Virtual Machine there are also all the resources that the VM needs in order to run:

Virtual Network Interface

Public IP Address

Storage Account

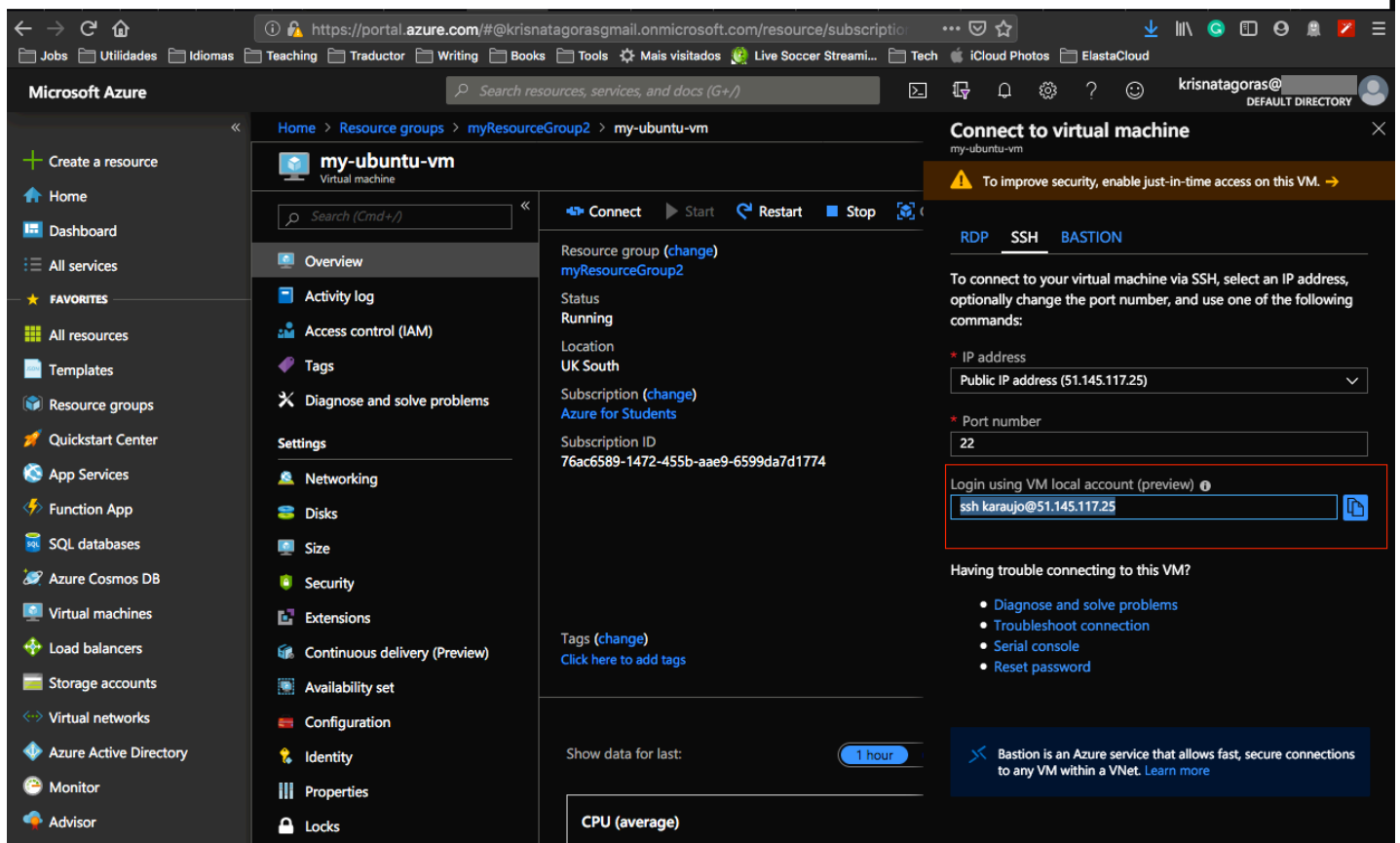
Virtual Network

Disks

Compare these resources with your ARM Template is a good exercise to have a better understanding.

Open your Virtual Machine and then click on the button **connect**.

There you gonna see the ssh command to connect to your Virtual Machine. Copy the command and open your terminal.

The screenshot shows the Microsoft Azure portal interface. On the left is a navigation sidebar with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main area displays the details for a virtual machine named 'my-ubuntu-vm'. It shows the resource group 'myResourceGroup2', status 'Running', location 'UK South', and subscription ID '76ac6589-1472-455b-aae9-6599da7d1774'. On the right, a 'Connect to virtual machine' panel is open, showing the 'SSH' tab. It provides instructions on how to connect via SSH and displays the command 'ssh karaujo@51.145.117.25' in a text box, which is highlighted with a red rectangle. Below the command, there are links for 'Having trouble connecting to this VM?' and a 'Bastion' service recommendation.

Paste the command and press **Enter**.

Insert the password you've created.

And Voilà, there you have a brandy new Windows Virtual Machine with Visual Studio.


```
Terminal Shell Edit View Window Help 1.20 GB 98% 15 Oct 16:30
krisnatagoras — karaujo@my-ubuntu-vm: ~ — ssh karaujo@51.145.117.25 — 181x50
Last login: Tue Oct 15 14:48:26 on ttys000
0siris-2:~ krisnatagoras$ ssh karaujo@51.145.117.25
The authenticity of host '51.145.117.25 (51.145.117.25)' can't be established.
ECDSA key fingerprint is SHA256:5S3/4RaIQe/hrIp70c06jK9tCPYJqIaGE3WnprrgGT1.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '51.145.117.25' (ECDSA) to the list of known hosts.
karaujo@51.145.117.25's password:
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 5.0.0-1018-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Tue Oct 15 15:29:53 UTC 2019

System load:  0.03          Processes:      116
Usage of /:   4.2% of 28.9GB Users logged in:  0
Memory usage: 4%           IP address for eth0: 10.0.0.4
Swap usage:   0%

7 packages can be updated.
7 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

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

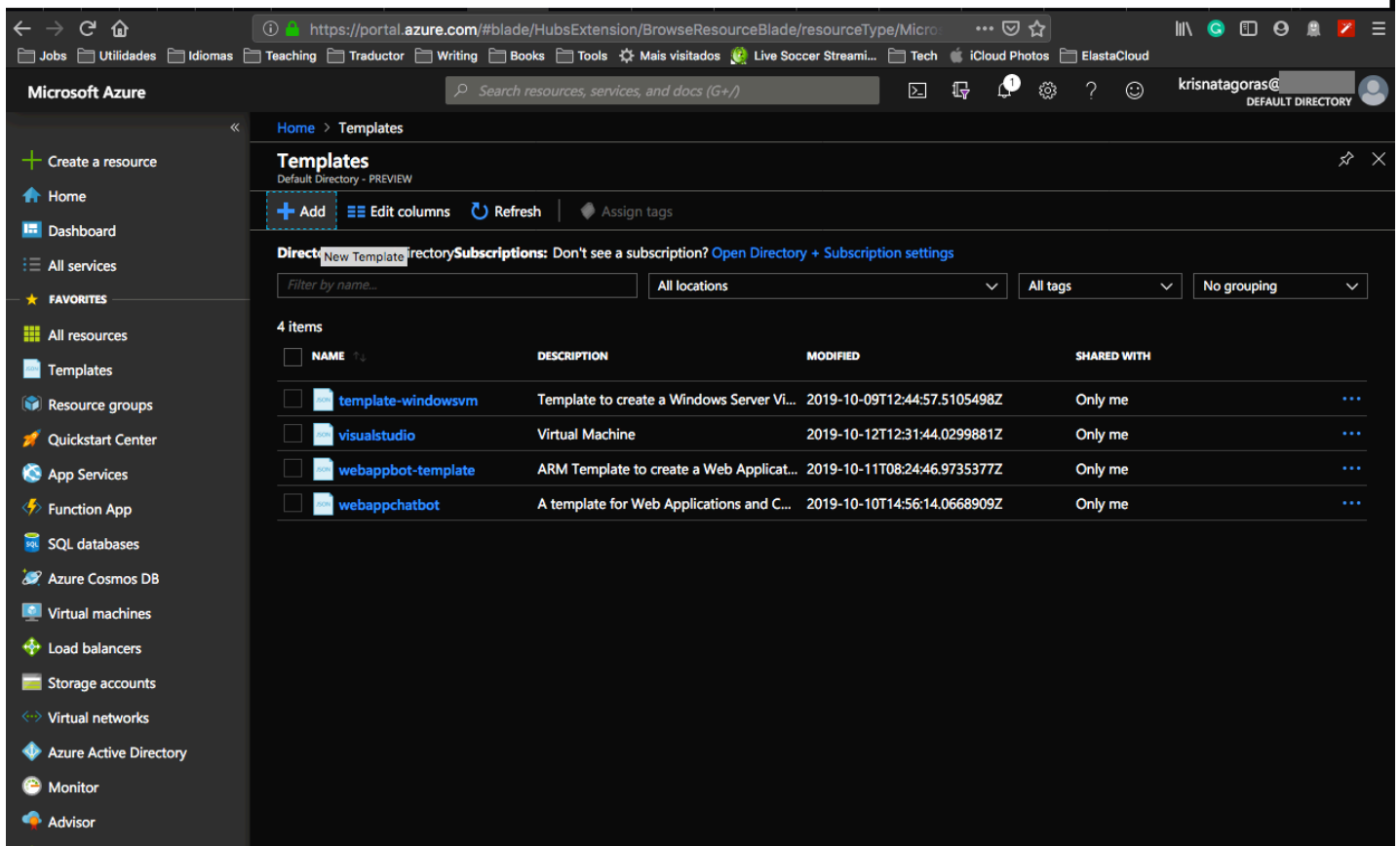
karaujo@my-ubuntu-vm:~$
```

Don't forget to have fun!

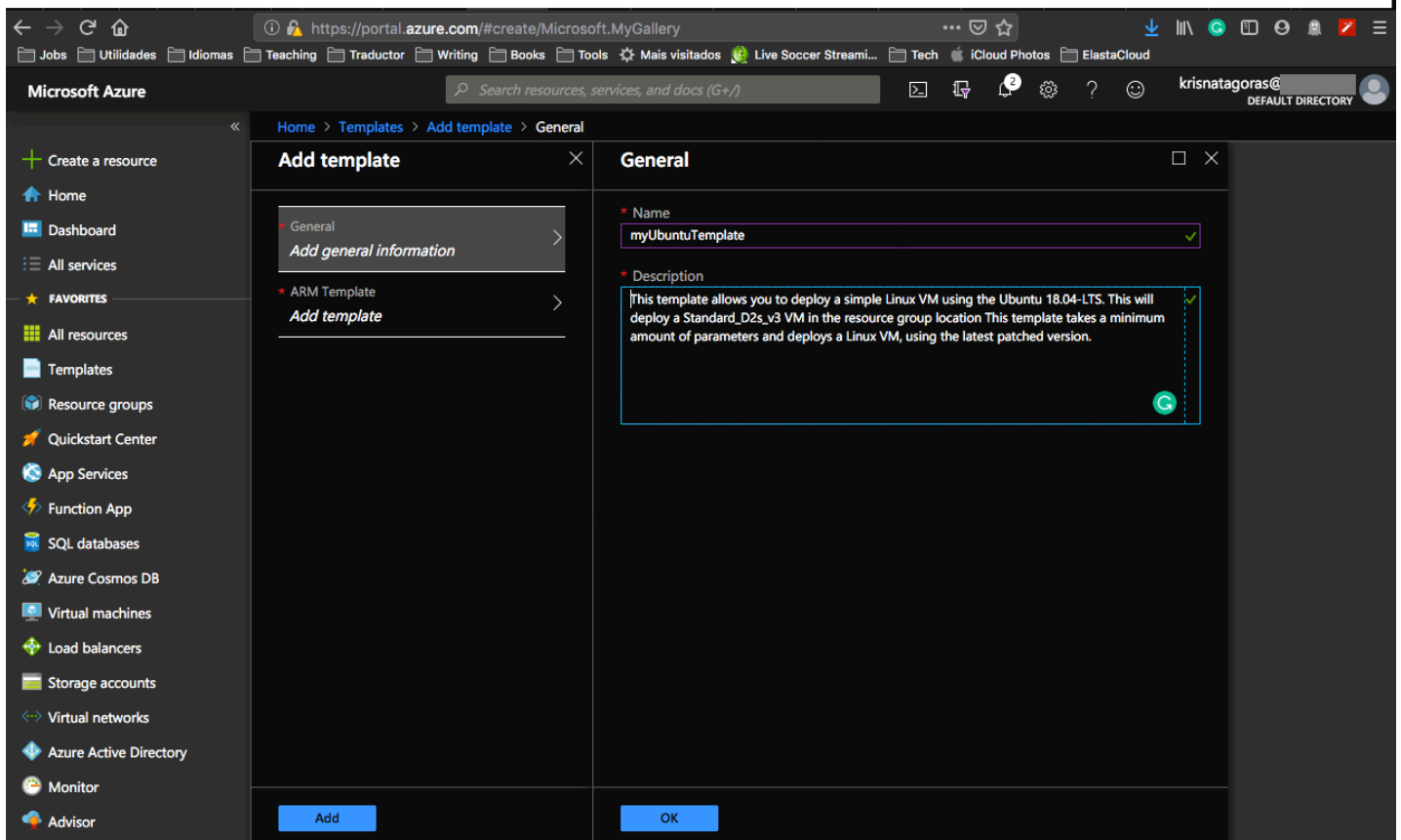
Using the Portal

At the Portal, in All Services look for **Templates**, you can favorite this service.

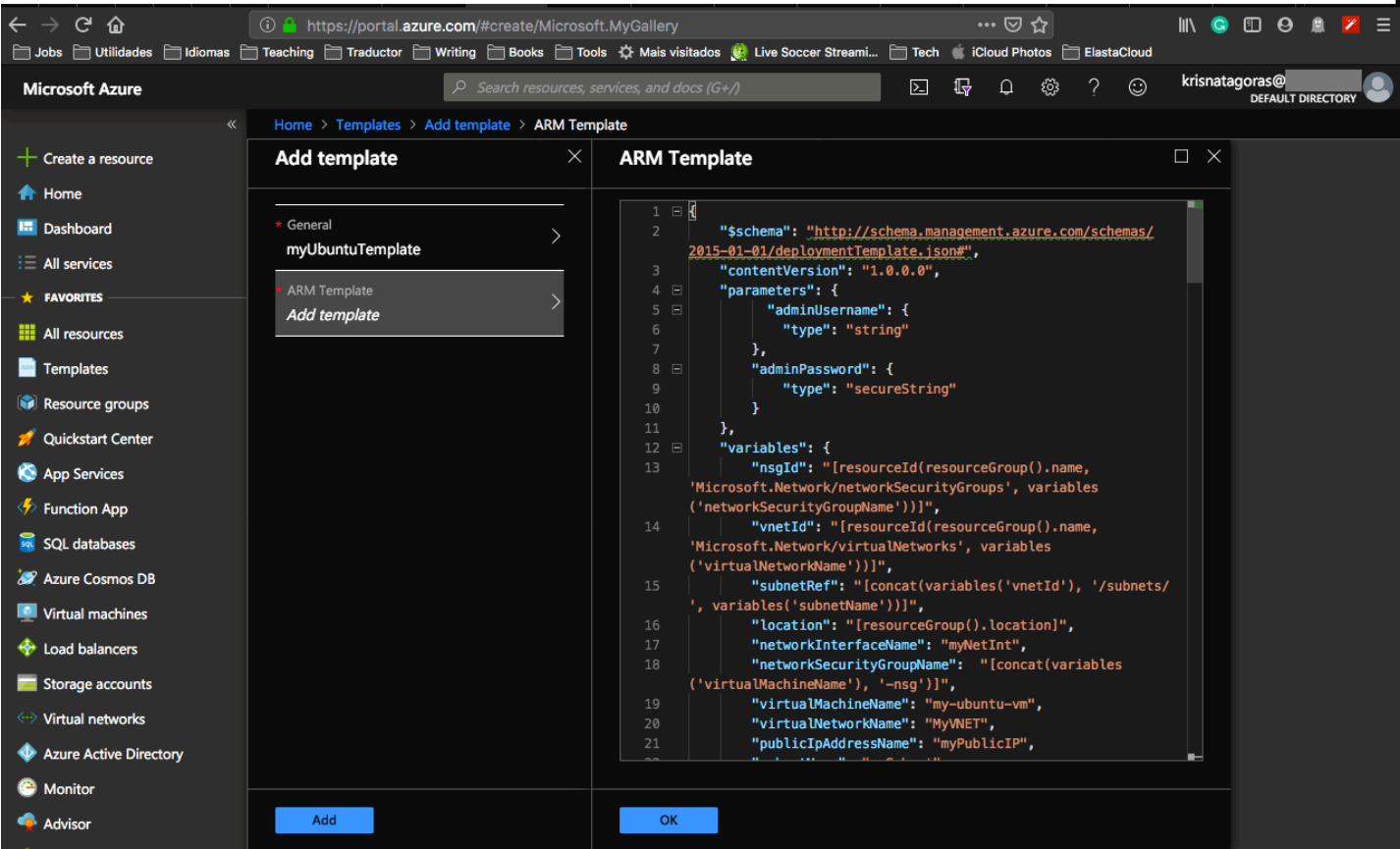
Click in **Add** to add your template:



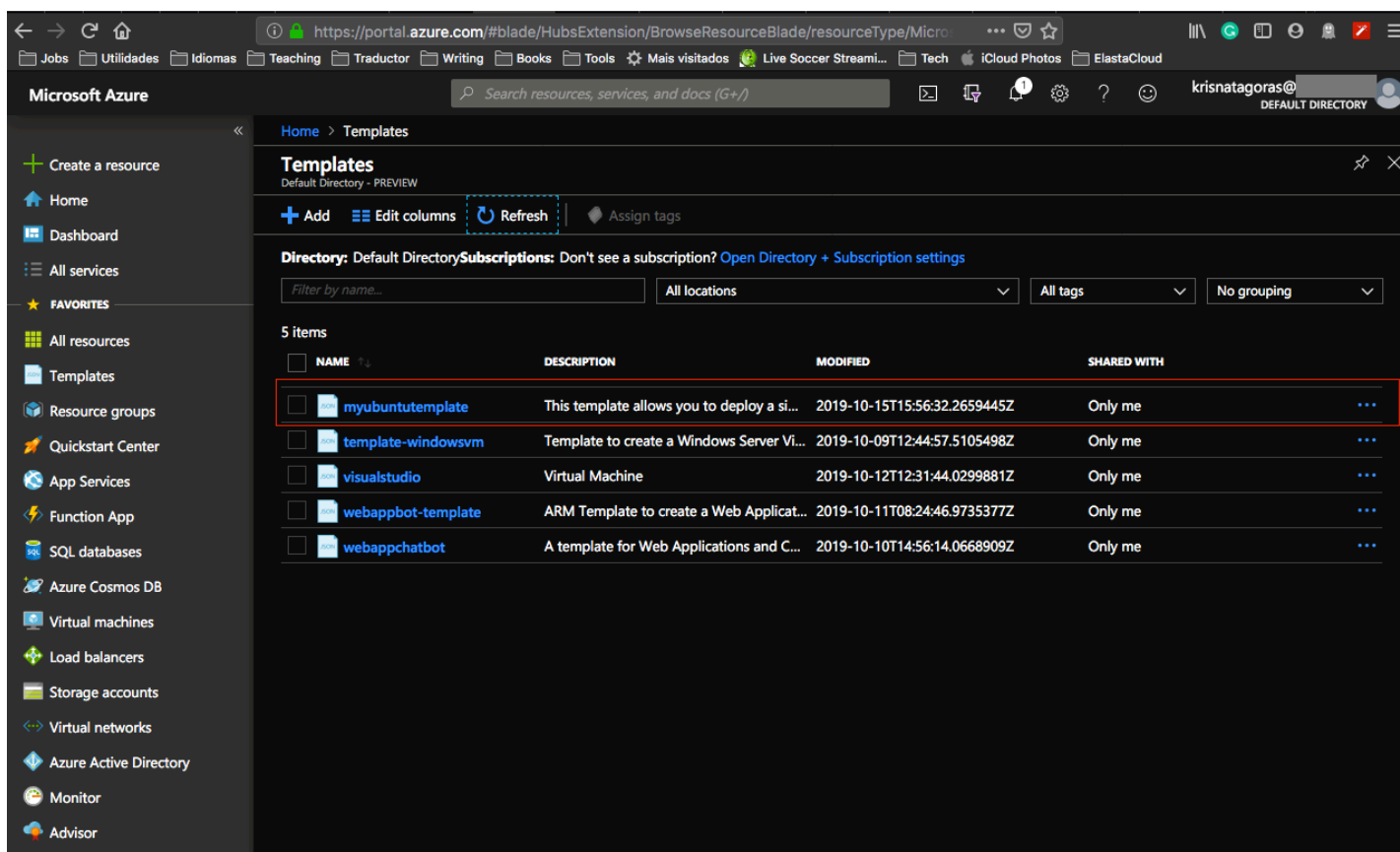
On General, type a name and a description for your template, and click on [OK].



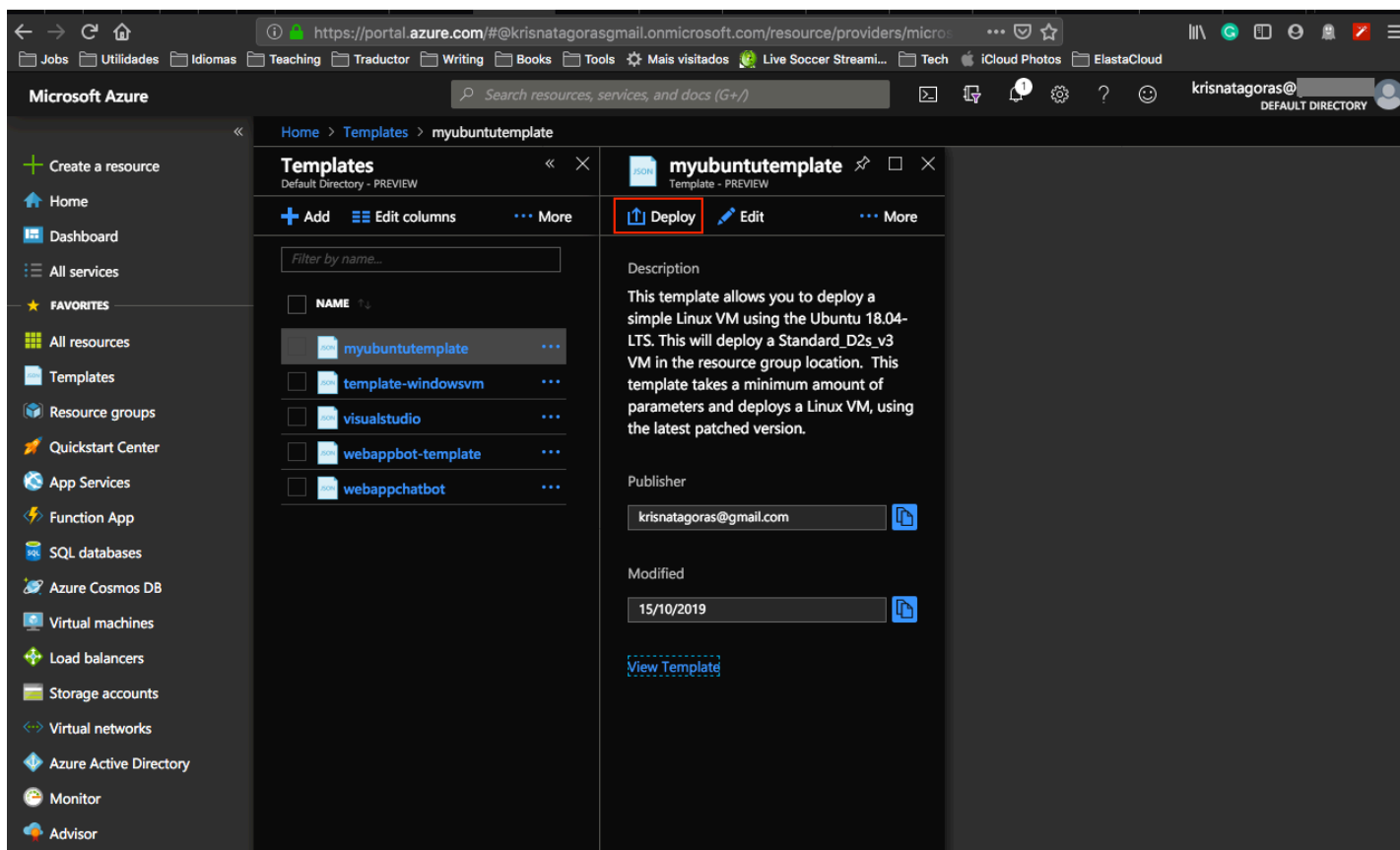
On ARM Template, replace the contents of the template with your template, and click on [OK].



Click on the refresh button and there is your template:

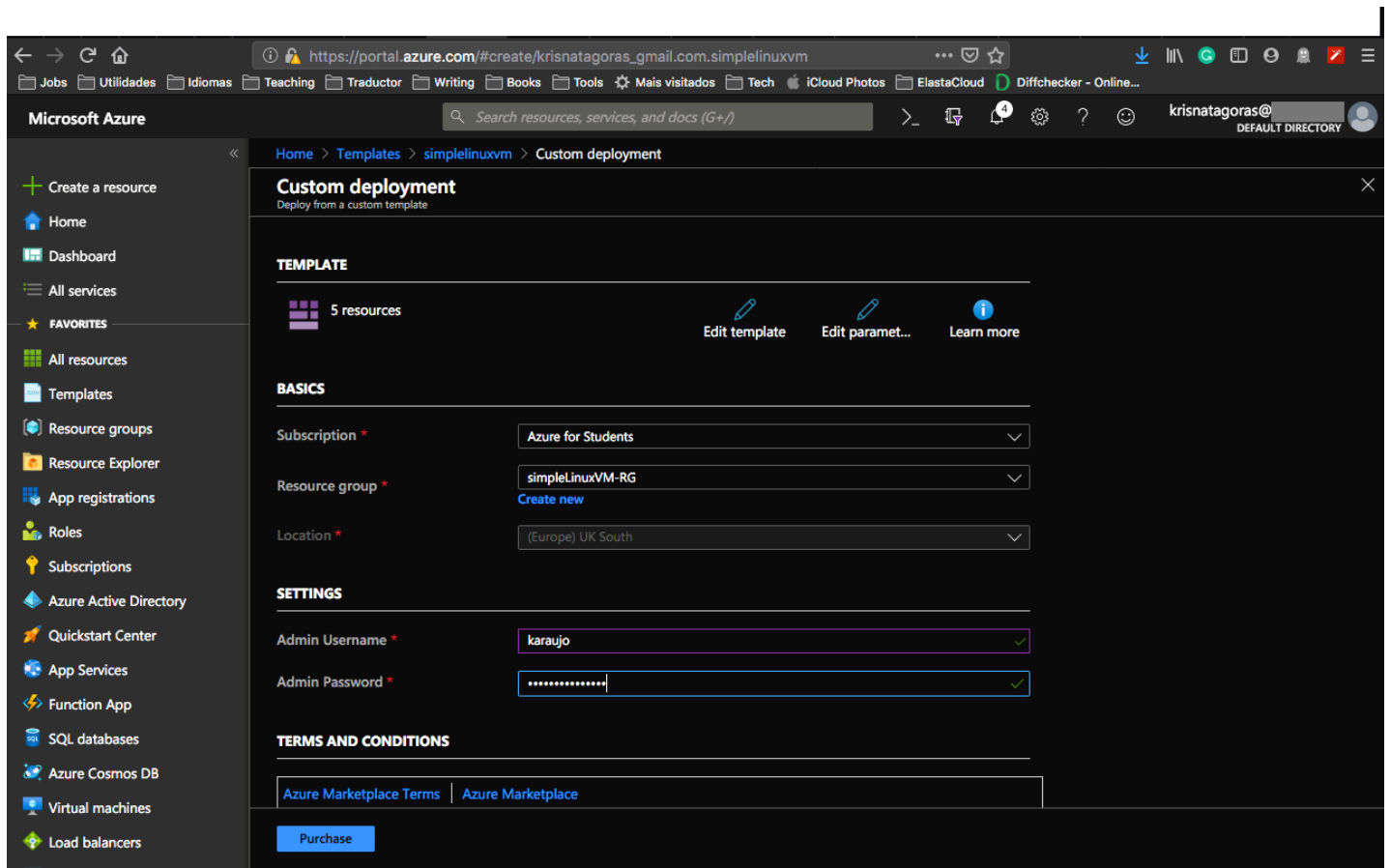


Open the template and click in [Deploy]



On the screen Custom Deployment, check your information and if you don't have the Resource Group you can click and [create new]:

Insert all the information, by now you should be familiar with it, select [I agree] and click on [Purchase].



And voilà, you have your new VM deployed.

Repeat the connection process that you have done before and enjoy your bash terminal :D .

p.s.: Pretty easy to create resources on Azure, right? But if you are the sort of IT guy that always looks for automating things on the extreme :D Surprise, surprise!. Just click on the button below and it will automatically deploy the VM on your Azure Portal.

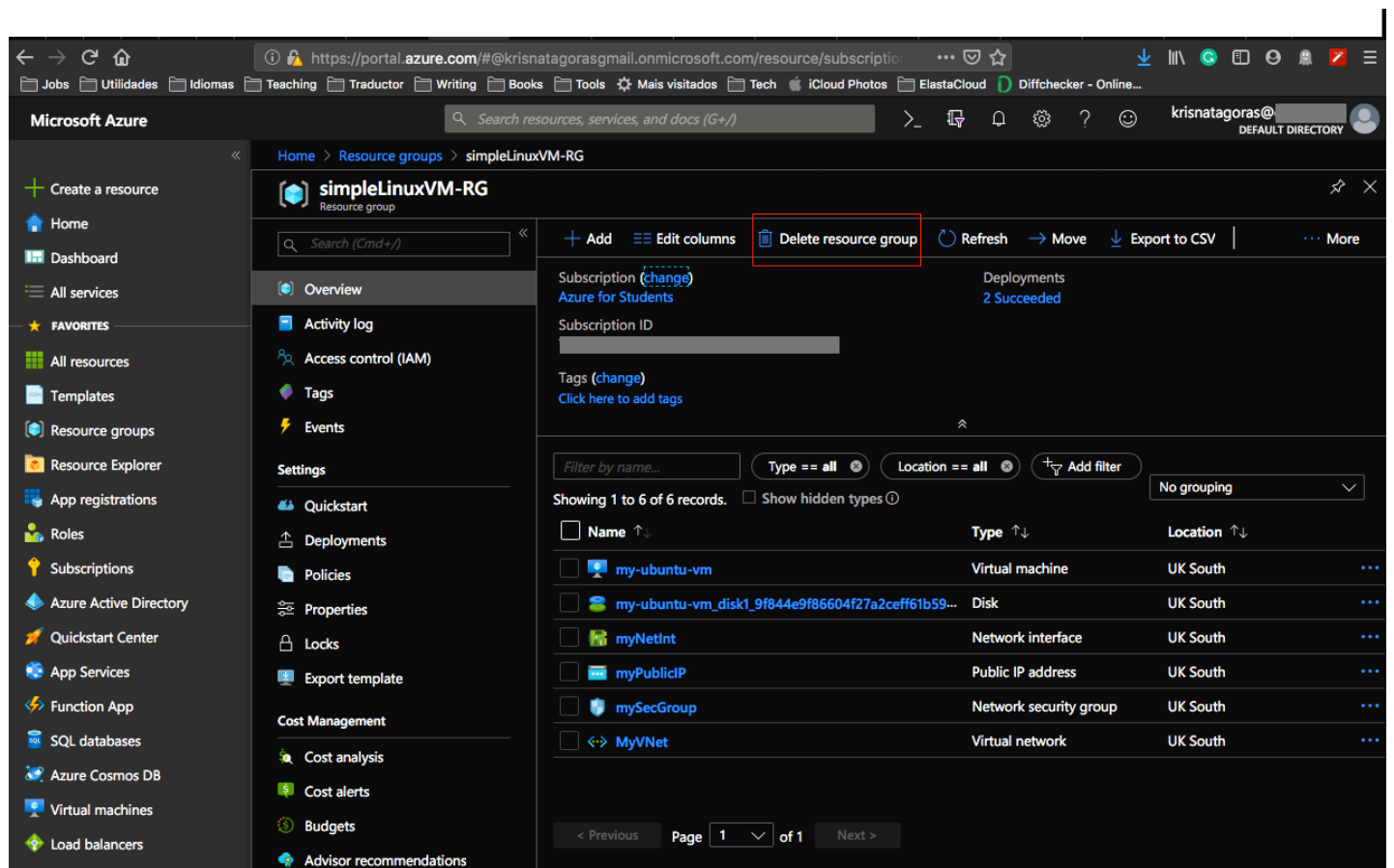


Important disclaimer: Azure charge you for the resources you are using, and you don't want to finish all your credits at once, right? So, for not running out of credit, don't forget to stop the VM at the portal or even delete the Resource Group you create to avoid any unnecessary charges.

How to shutdown your resources:

Using the portal:

On the portal, open your Resource Group, if you will not use the service or VM anymore, you can just click on the [Delete] Button.



You can also just stop the service or Virtual Machine in case you gonna need the resource. Open the resource and click on Stop.

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Azure logo, a search bar, and the user's profile. The left sidebar contains a list of services and resources. The main content area displays the details for a virtual machine named 'my-ubuntu-vm'.

my-ubuntu-vm
Virtual machine

Search (Cmd+/)

Connect Start Restart **Stop** Capture Delete Refresh

Resource group [\(change\)](#)
[simpleLinuxVM-RG](#)

Status: Running

Location: UK South

Subscription [\(change\)](#)
[Azure for Students](#)

Subscription ID: [REDACTED]

Computer name: my-ubuntu-vm

Operating system: Linux (ubuntu 18.04)

Size: Standard D2s v3 (2 vcpus, 8 GiB memory)

Ephemeral OS disk: N/A

Public IP address: [40.120.58.212](#)

Private IP address: 10.0.0.4

Virtual network/subnet: [MyVNet/mySubnet](#)

DNS name: [Configure](#)

Tags [\(change\)](#)
[Click here to add tags](#)

Show data for last: 1 hour 6 hours 12 hours 1 day 7 days 30 days

CPU (average) Network (total)

Just refresh your screen and you are good to go.