LAB01: Lab environment deployment

Student Lab Manual

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Exercise 1: Get familiar with your workshop environment

Objective

This lab will guide you through the necessary steps to set up your Azure environment.

Estimated Time to Complete This Lab

15 minutes

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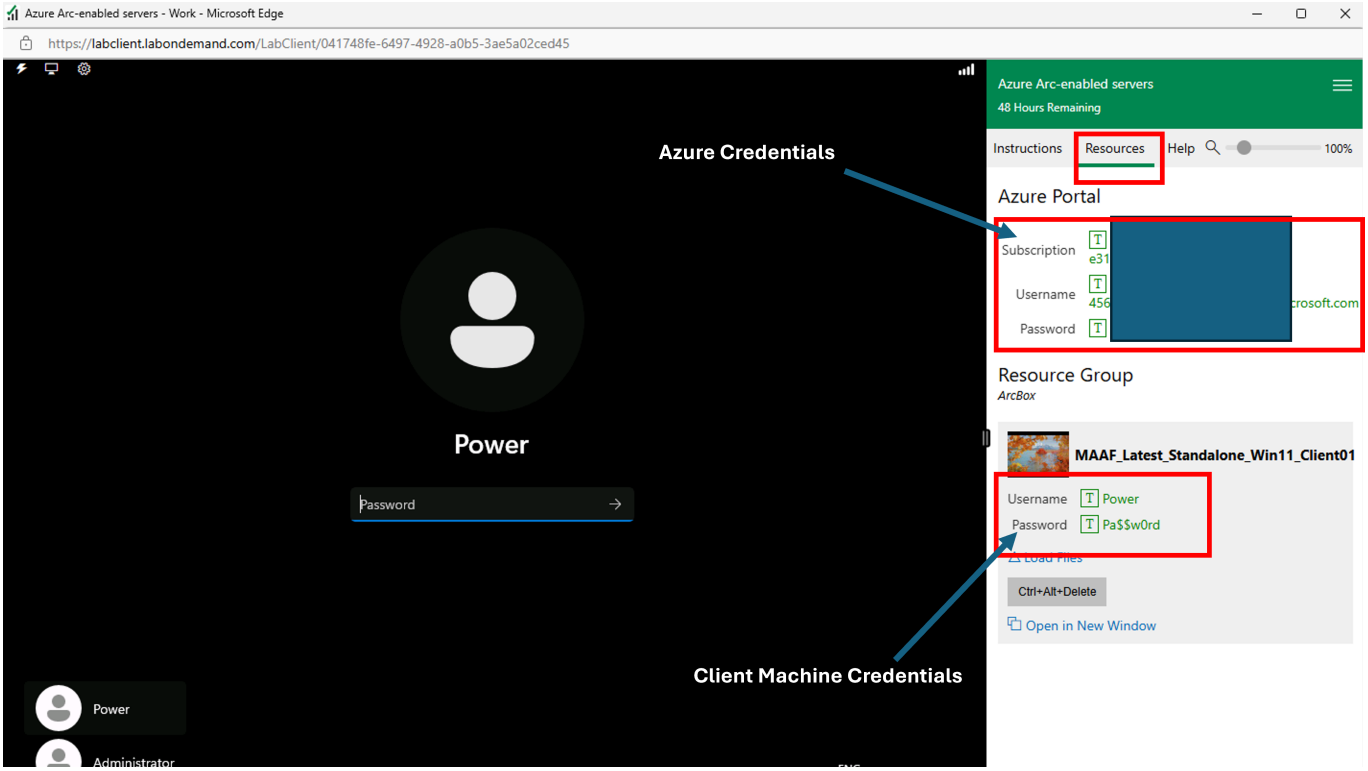
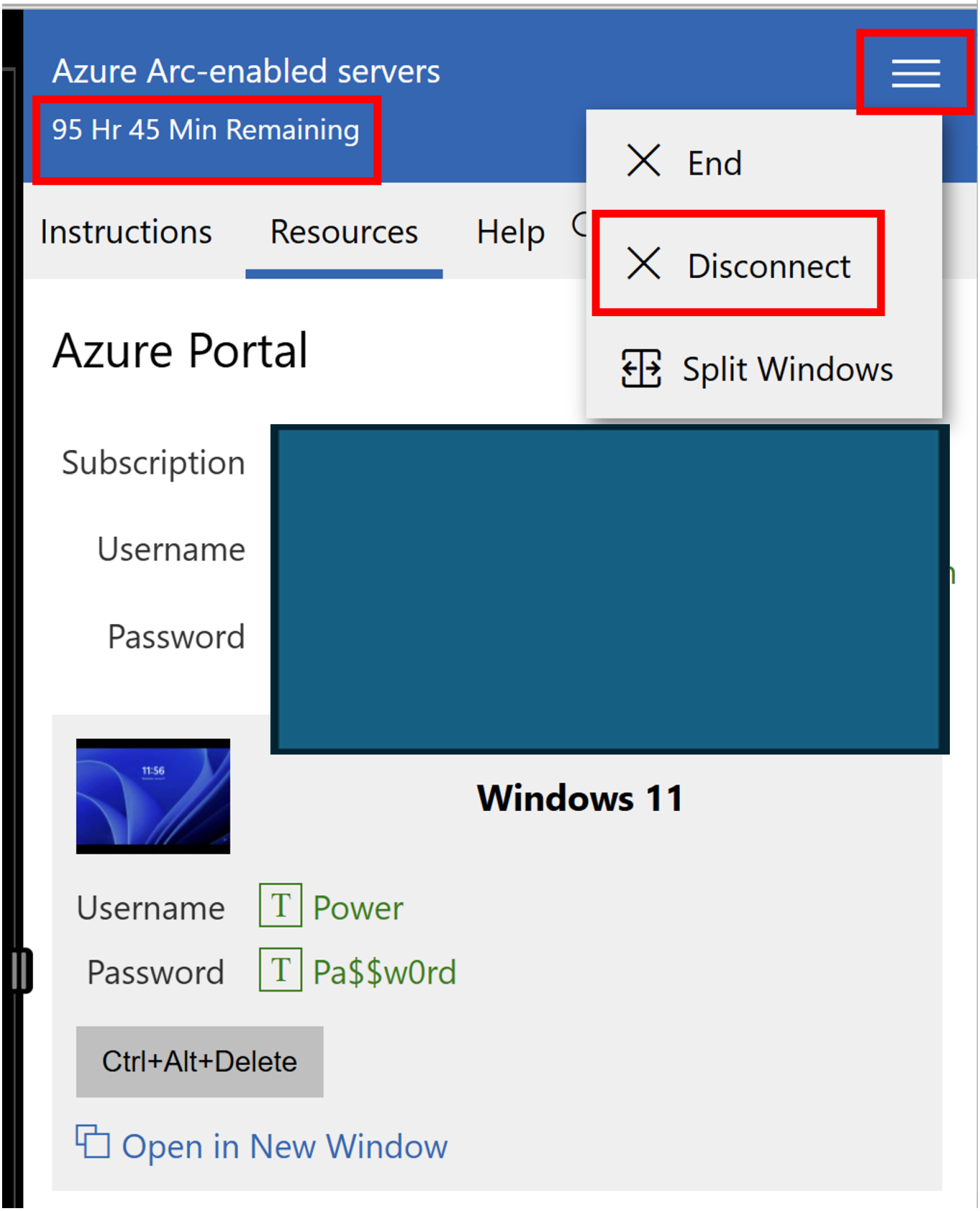
Task 1: View your workshop credentials and log into the workshop machine

This lab is based on a Windows Client machine provisioned for you in the learning platform. At the top of this Instructions window, there is a menu bar with three items: **Instructions**, **Resources** and **Help** as well as a Zoom function. On the *Resources* tab you should see both the local lab machine credentials and also the Azure credentials.



> [!Important] Do not use the **END** option as it will destroy your Azure resources and end your lab. Use the **Disconnect** option when you want to take a break from the lab. Your lab timer shows how long you have left before your lab is terminated.



[!Important] Notice that on this tab, and throughout the instructions for this lab, you will find **squares with a capital T inside the square**. **This option can be used to have the lab type text for you**. If your cursor is in the password box of the login screen, and if you click on the square box with the T in it, the lab will type the password for you. This typing can be used throughout the lab and the text will appear wherever your cursor is located. **However, please note that this might not work for copying into Azure CloudShell and you will need to use Copy and Paste with the mouse right-click.**

Now log into the client machine and start with the first task of this lab. Have fun!

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Exercise 2 - Lab pre-requisites

Objective

This exercise will walk you through preparing your local development environment to deploy the lab environment using the ArcBox sandbox.

Estimated Time to Complete This Lab

15 minutes

Explanation

ArcBox is a solution that deploys a complete sandbox environment with Windows and Linux machines simulating an on-premises environment. One of the Windows machines will be running a SQL Server. You will Arc-enable those machines and explore the different capabilities provided through Azure Arc. You will deploy ArcBox using the Azure Portal.

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Task 1: Prepare the local development environment for lab deployment and log into Azure

> [!important]**Important:** Make sure that you carry out the steps in the Windows machine provided by the lab environment and not your local PC.

1. [] Make sure that you have the x64 version of Azure CLI version 2.66.0 or above. Start PowerShell as administrator and run the following command:

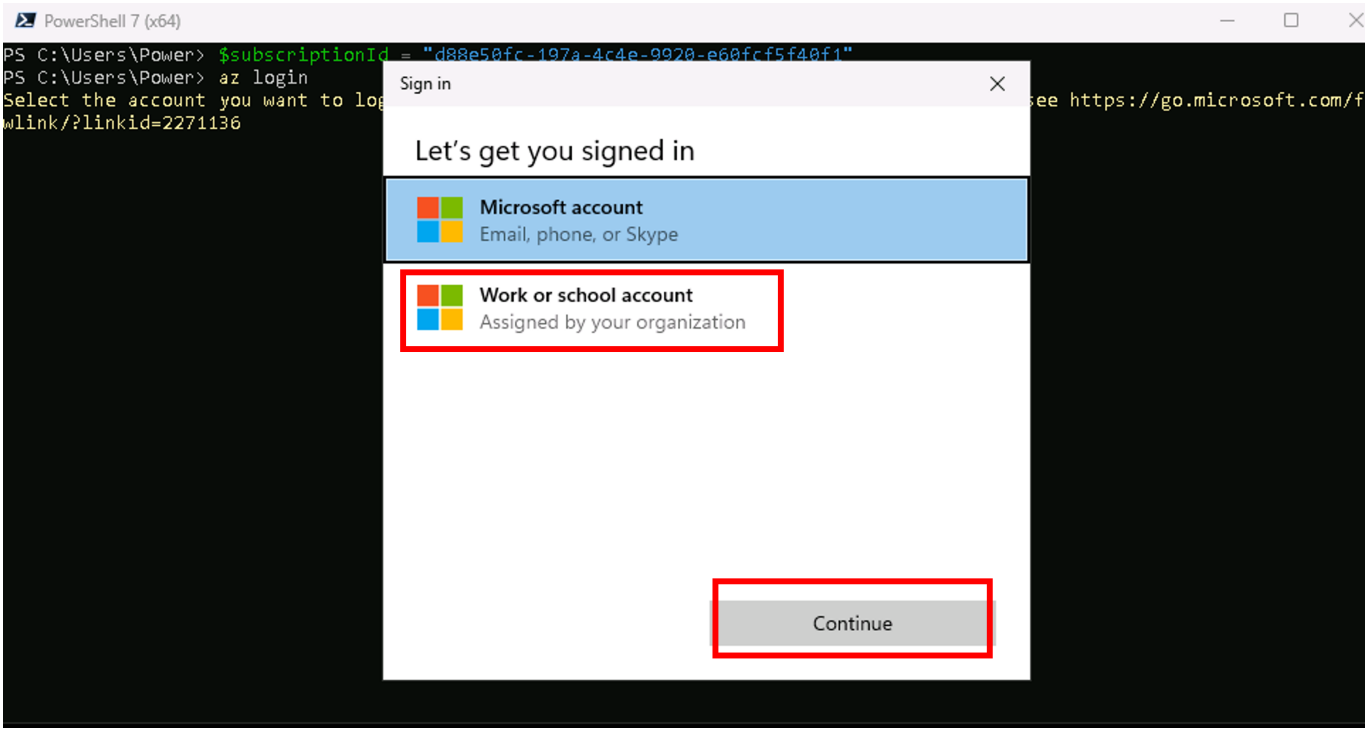
```
az --version
```

The output should confirm that you have the Azure CLI installed. If not then you can install it using the following command.

```
$ProgressPreference = 'SilentlyContinue'; Invoke-WebRequest -Uri
https://aka.ms/installazurecliwindows -OutFile .\AzureCLI.msi; Start-Process
msiexec.exe -Wait -ArgumentList '/I AzureCLI.msi /quiet'; Remove-Item
.\AzureCLI.msi
```

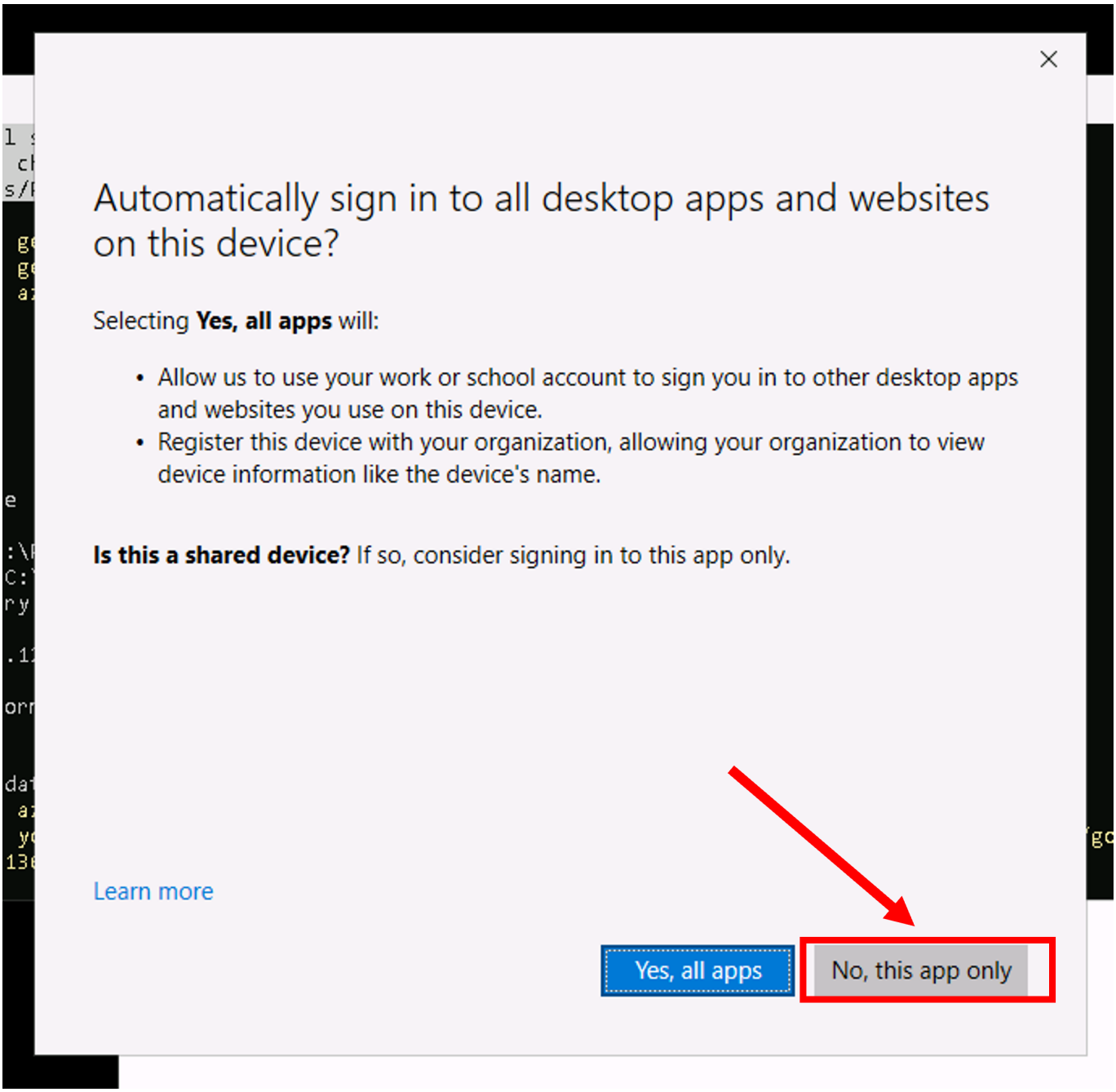
2. [] Login to AZ CLI using the `az login` command. If you are prompted to choose an account type then select *Work or school account*.

```
az login
```



> [!hint] **You can use Notepad or Visual Studio Code for the rest of the commands to be able to edit the needed parameters in an easier way than the PowerShell console**

3. [] If you are prompted to *Autmoatically sign in to all desktop apps and websites on this device* select ***No, this app only***



Task 1 has been completed

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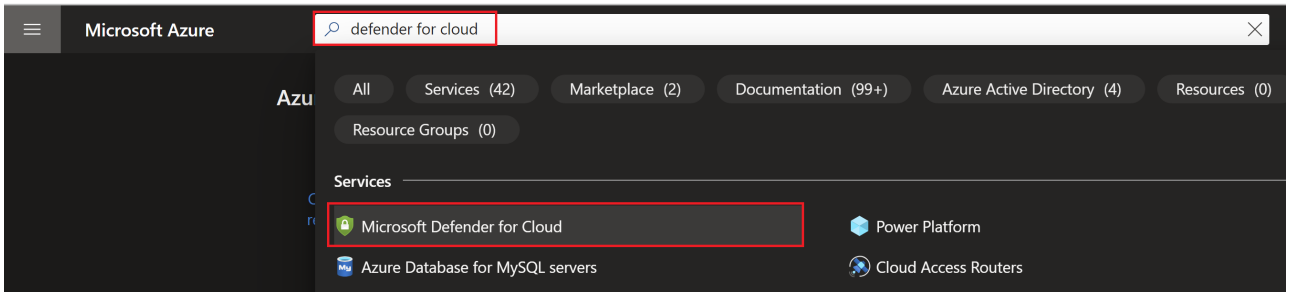
Task 2: Enable Defender for Servers on your subscription

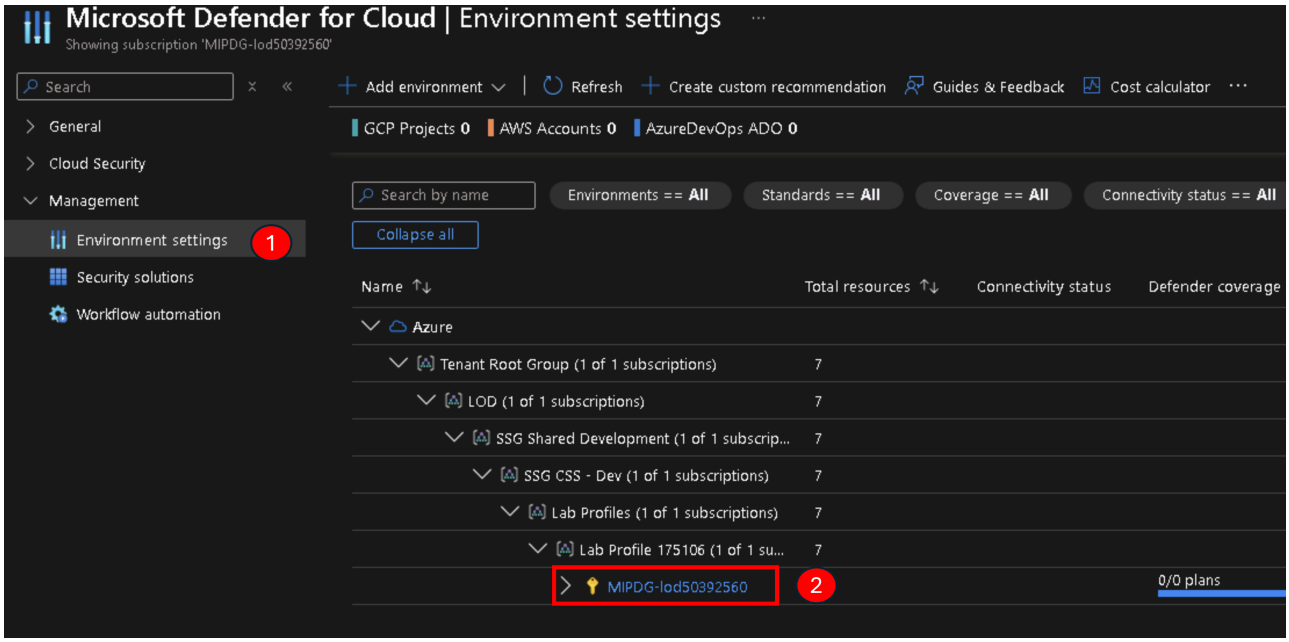
1. [] Open the EDGE browser and navigate to the Azure portal then log into Azure with lab provided credentials from the **Resources** tab

```
https://portal.azure.com
```

2. [] From the Azure home page, search for defender and select Microsoft Defender for Cloud.

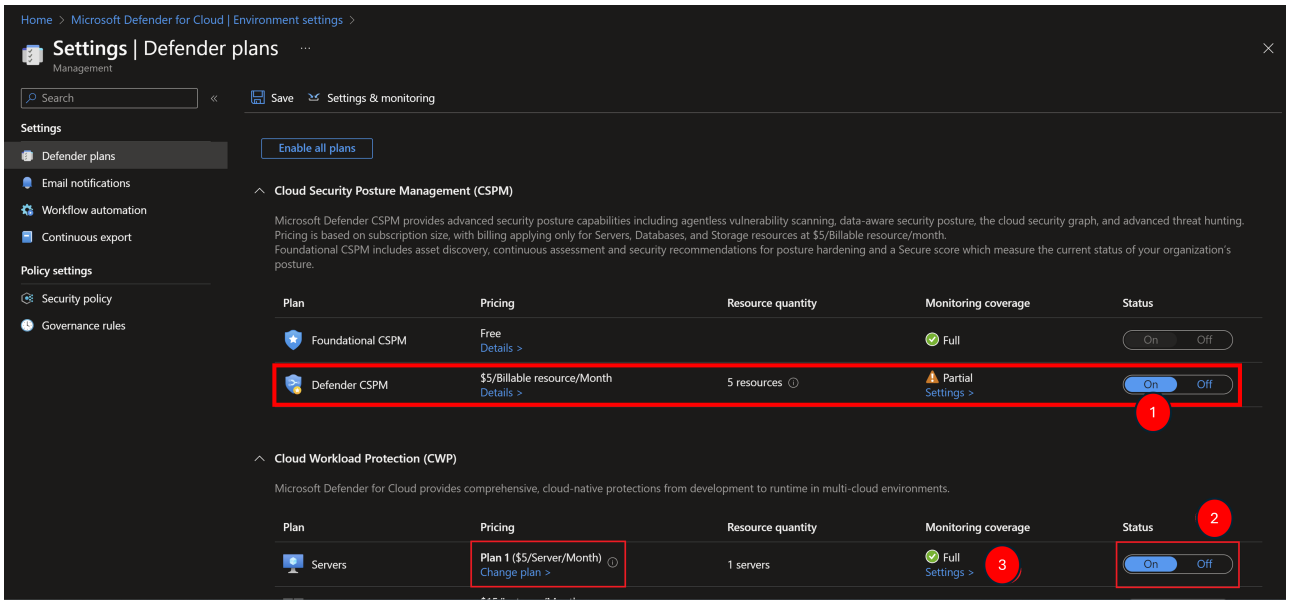


3. [] If you already have Defender plans setup at your subscription level, you may find that Defender is already turned on for your Arc-enabled servers. However, if Defender is not enabled, select *Environment settings* from the Management section on the left blade.



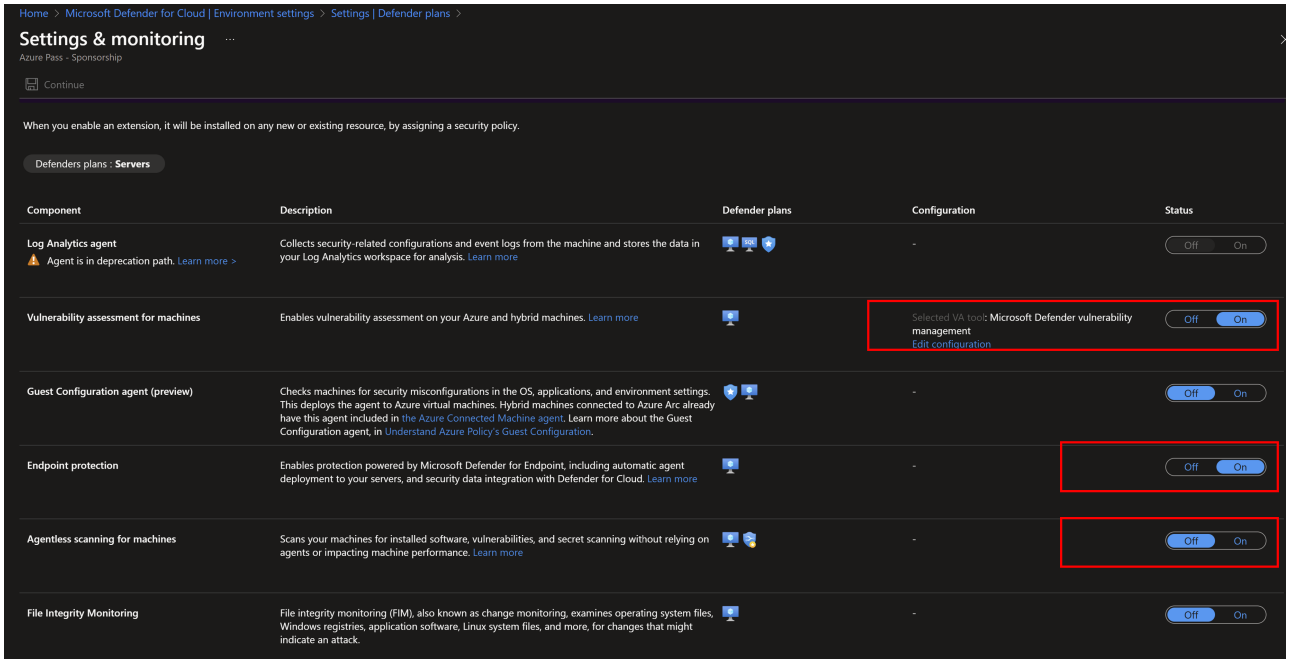
4. [] Expand the Tenant Root Group, and then select **your subscription**.

5. [] Ensure that Defender CSPM is set to ON. Then enable the plan for servers, you can select either *Plan 1* or *Plan 2* for this exercise.

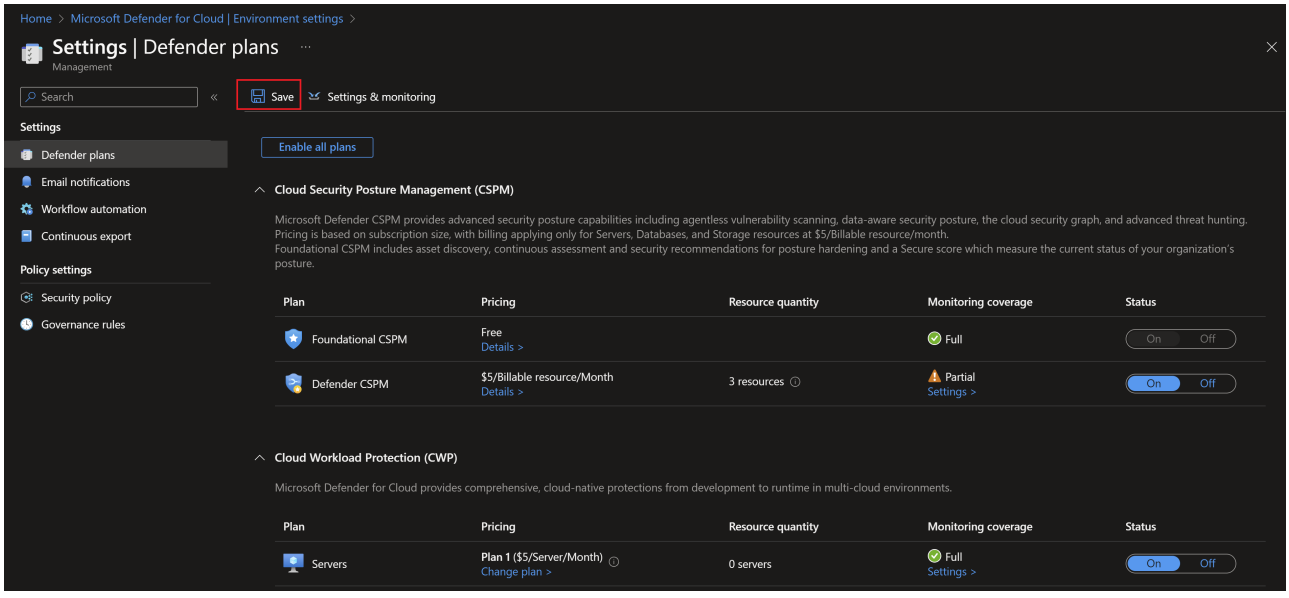


6. [] Click on the settings option in the *Monitoring coverage* for the Servers plan, and set the following capabilities as indicated:

- Vulnerability assessment for machines - **ON**.
- Endpoint protection - **ON**.
- Agentless Scanning for machines - **OFF**.



7. [] Click *Continue* then Click *Save*.



Task 2 has been completed

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Exercise 3 - ArcBox deployment

Objective

In this exercise you will deploy the lab using the ArcBox solution which will deploy all the needed Azure resources to your subscription to be able to execute all the upcoming exercises.

Estimated Time to Complete This Lab

45 minutes

Explanation

ArcBox is a solution that deploys a complete sandbox environment with Windows and Linux machines simulating an on-premises environment. One of the Windows machines will be running a SQL Server. You will Arc-enable those machines and explore the different capabilities provided through Azure Arc. You will deploy ArcBox using the Azure Portal.

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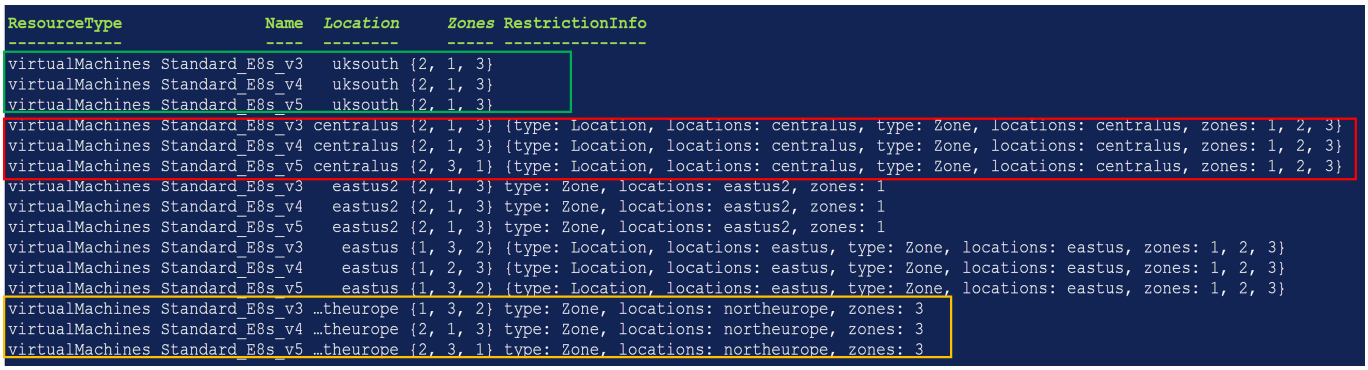
Task 1: Deploy ArcBox using the Azure Portal

1. [] The specific setup of ArcBox used in this workshop can be deployed in any region that supports the Azure virtual machine SKU required (Standard_E8s_v5, v4 or v3). Occasionally, there might be restrictions on specific subscriptions that can prevent the deployment of a specific SKU even if it is available in a region. To check if there are any restrictions on your subscription you can run the following PowerShell command in **Azure Cloud Shell**. You can change the list of locations in the script if necessary by adding or removing regions. But **do not change the list of VM Skus**. If you prefer to run the command from the lab machine then make sure you login in PowerShell first using *Connect-AzAccount* command.

```
$locations = "uksouth", "northeurope", "eastus", "eastus2", "centralus"
#Do not change the VMSkus below
$VmSkus = "Standard_E8s_v5", "Standard_E8s_v4", "Standard_E8s_v3"
$locations | ForEach-Object -ThrottleLimit 10 -Parallel {
    Get-AzComputeResourceSku -Location $_  | Where-Object {$_.ResourceType -eq
"virtualMachines" -and $_.name -in $using:VmSkus}
}
```

The output will show if there are restrictions in any of the listed regions or in specific zones in the region (for a multi-zone region). Choose a region and VM Sku combination that has no restrictions to deploy the lab VM. For example, in the following diagram we can see that *uksouth* is a very good candidate to deploy the lab. On the other hand *centralus* is not because of the full restrictions. The *northeurope* region has restrictions only in zone 3 so it should allow you to deploy.



```
ResourceType                 Name  Location     Zones RestrictionInfo
------------                 ----  --------     ----- ---------------
virtualMachines Standard_E8s_v3   uksouth {2, 1, 3}
virtualMachines Standard_E8s_v4   uksouth {2, 1, 3}
virtualMachines Standard_E8s_v5   uksouth {2, 1, 3}
virtualMachines Standard_E8s_v3 centralus {2, 1, 3} {type: Location, locations: centralus, type: Zone, locations: centralus, zones: 1, 2, 3}
virtualMachines Standard_E8s_v4 centralus {2, 1, 3} {type: Location, locations: centralus, type: Zone, locations: centralus, zones: 1, 2, 3}
virtualMachines Standard_E8s_v5 centralus {2, 3, 1} {type: Location, locations: centralus, type: Zone, locations: centralus, zones: 1, 2, 3}
virtualMachines Standard_E8s_v3   eastus2 {2, 1, 3} type: Zone, locations: eastus2, zones: 1
virtualMachines Standard_E8s_v4   eastus2 {2, 1, 3} type: Zone, locations: eastus2, zones: 1
virtualMachines Standard_E8s_v5   eastus2 {2, 1, 3} type: Zone, locations: eastus2, zones: 1
virtualMachines Standard_E8s_v3    eastus {1, 3, 2} {type: Location, locations: eastus, type: Zone, locations: eastus, zones: 1, 2, 3}
virtualMachines Standard_E8s_v4    eastus {1, 2, 3} {type: Location, locations: eastus, type: Zone, locations: eastus, zones: 1, 2, 3}
virtualMachines Standard_E8s_v5    eastus {1, 3, 2} {type: Location, locations: eastus, type: Zone, locations: eastus, zones: 1, 2, 3}
virtualMachines Standard_E8s_v3 …theurope {1, 3, 2} type: Zone, locations: northeurope, zones: 3
virtualMachines Standard_E8s_v4 …theurope {2, 1, 3} type: Zone, locations: northeurope, zones: 3
virtualMachines Standard_E8s_v5 …theurope {2, 3, 1} type: Zone, locations: northeurope, zones: 3
```

> [!alert] **Make sure that you have selected a region with no restrictions on the required virtual machine sku (as explained above). Failure to do so might cause your deployment to fail. You will need to enter the name of the selected region and VM SKU in the deployment template in the next step.**

2. [] Open the Microsoft Edge browser and paste the following URL.

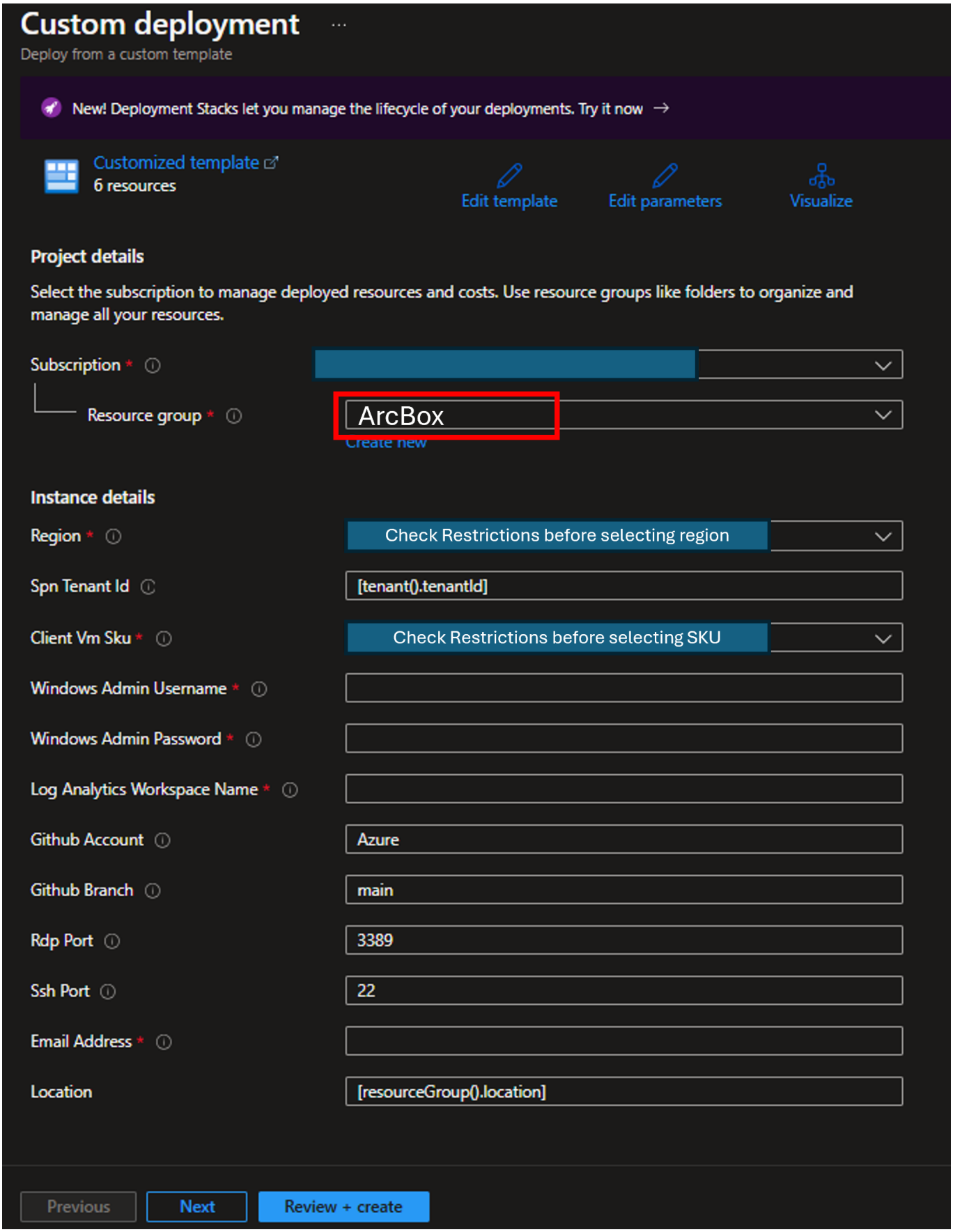
++++https://portal.azure.com/#create/Microsoft.Template/uri/https%3A%2F%2Fraw.githubusercontent.com%2FAzure%2Farc_jumpstart_levelup%2Fmain%2Fazure_arc_servers_jumpstart%2FARM%2Fazuredeploy.json++++

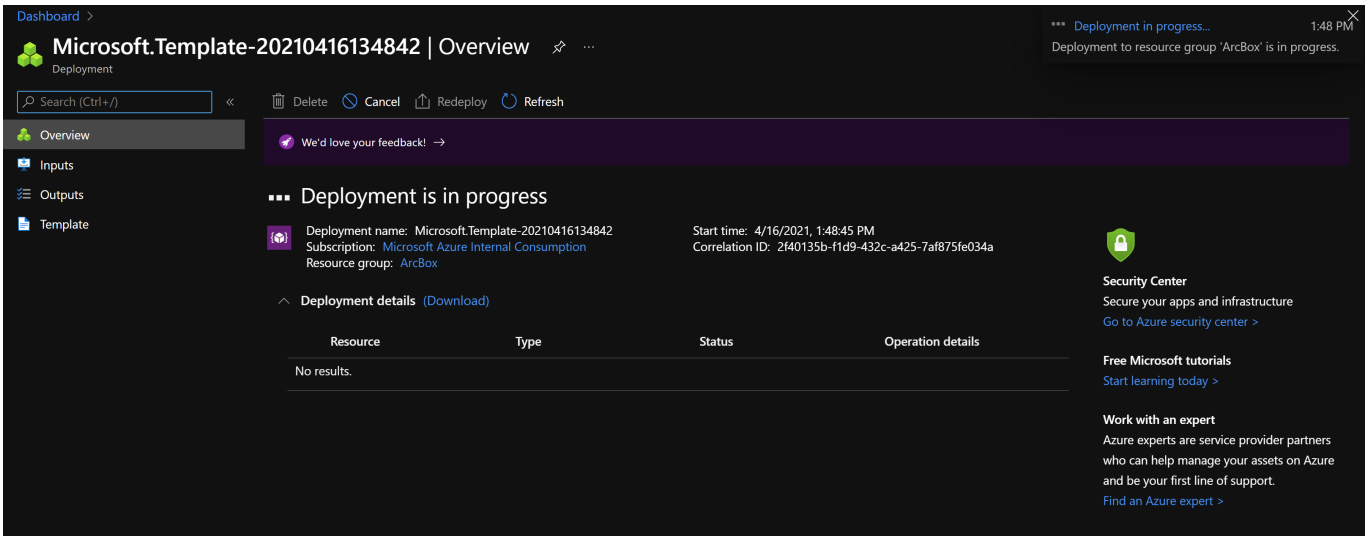
3. [] Enter values for the the template parameters then click *Review + create*.

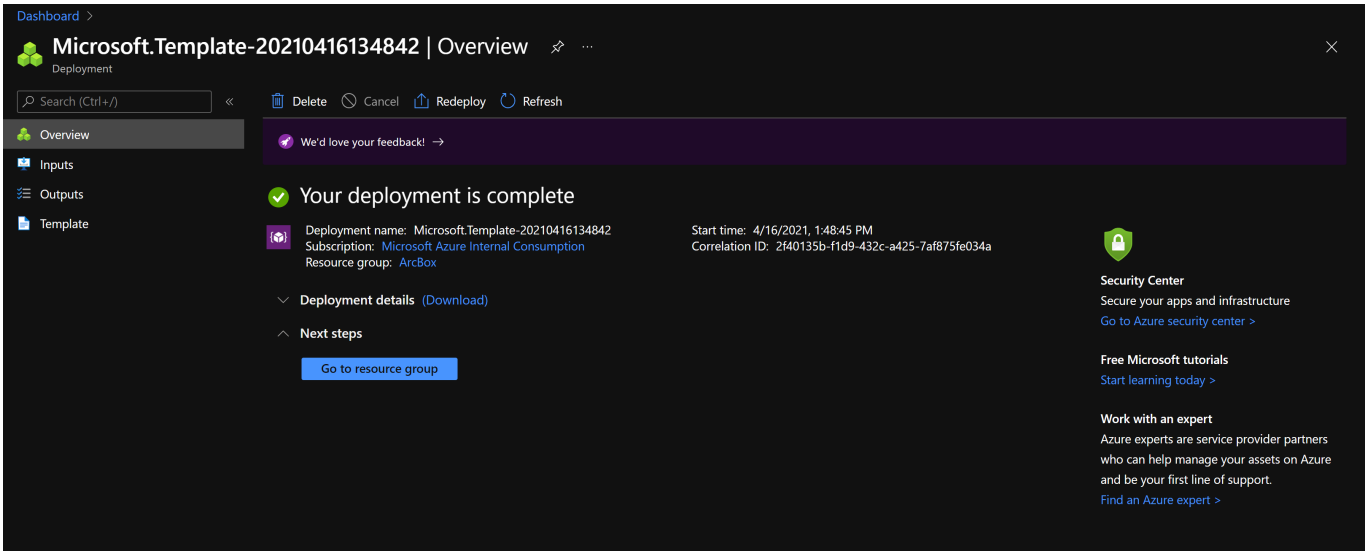
> [!alert] **The only acceptable resource group name is *ArcBox*. If you choose any other name then your deployment will fail**.

> [!hint] Make sure to note the Windows admin username and password as you will use them in later exercises. In order to avoid using a username and password combination that does not meet the complexity requirements which would lead to the failure of the deployment, we recommend using the username **arcdemo** and the password **Arcboxlabs@12345**.

> [!hint] Review the complexity requirements for the Windows virtual machine's password


Custom deployment
Deploy from a custom template
New! Deployment Stacks let you manage the lifecycle of your deployments. Try it now →
Customized template
6 resources
Edit template
Edit parameters
Visualize
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Resource group *
ArcBox
Create new
Instance details
Region *
Check Restrictions before selecting region
Spn Tenant Id
[tenant().tenantId]
Client Vm Sku *
Check Restrictions before selecting SKU
Windows Admin Username *
Windows Admin Password *
Log Analytics Workspace Name *
Github Account
Azure
Github Branch
main
Rdp Port
3389
Ssh Port
22
Email Address *
Location
[resourceGroup().location]
Previous
Next
Review + create





> [!hint] The deployment takes around 20 minutes to complete.

> [!hint] If you see any failure in the deployment, please check that you have selected a region with no restrictions on the virtual machine sku and consult your workshop instructor. In some cases a transient issue might cause a deployment error. The best action in these cases is to redeploy the template. **Make sure that you delete the whole resource group (not only the resources inside it) and once the deletion is completed you can redeploy the template**.

Task 1 has been completed

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Task 2: Connecting to the ArcBox Client virtual machine

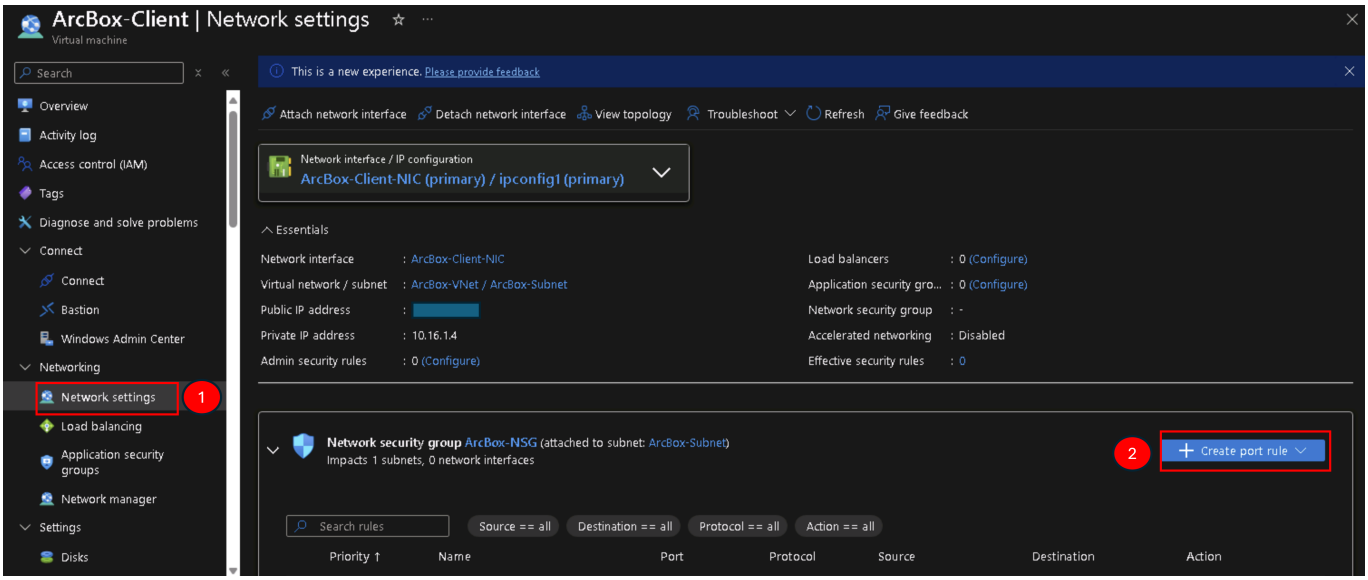
Various options are available to connect to *ArcBox-Client* VM on Azure. However, for this lab you will use the direct RDP method - available after configuring access to port 3389 on the *ArcBox-NSG* Network Security Group.

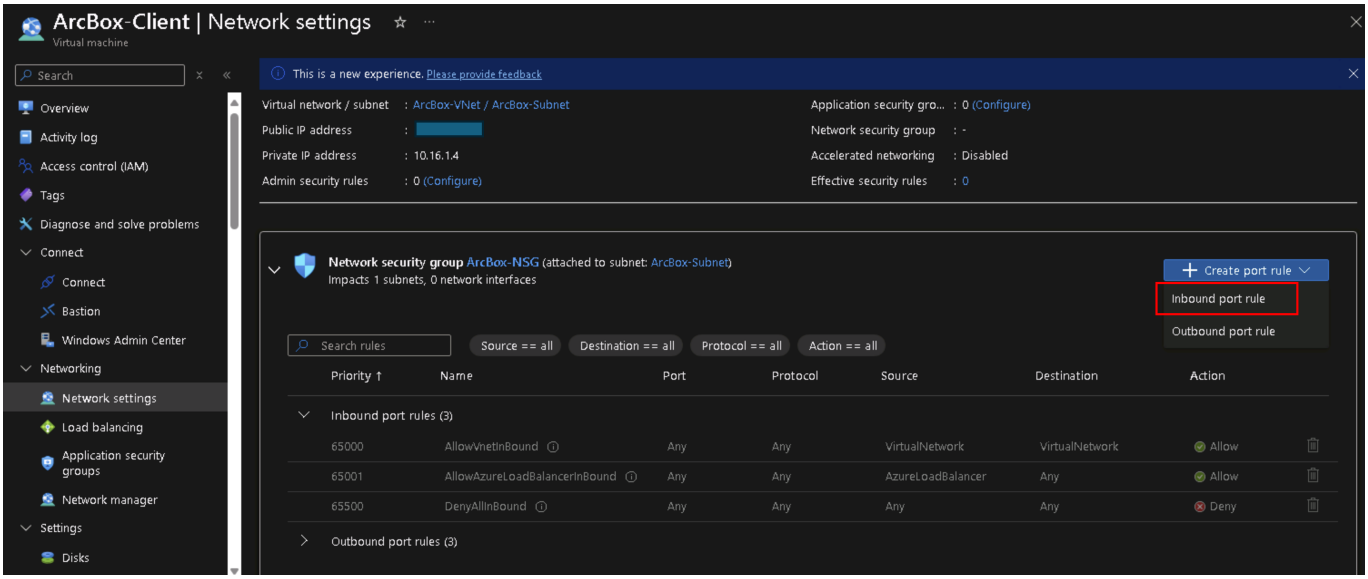
> [!alert] **Once you have logged on to the *ArcBox-Client* VM you might see some Powershell scripts in the the process of being executed. DO NOT close any windows or stop any scripts. The set-up automation will close the completed windows automatically**

Connecting directly with RDP

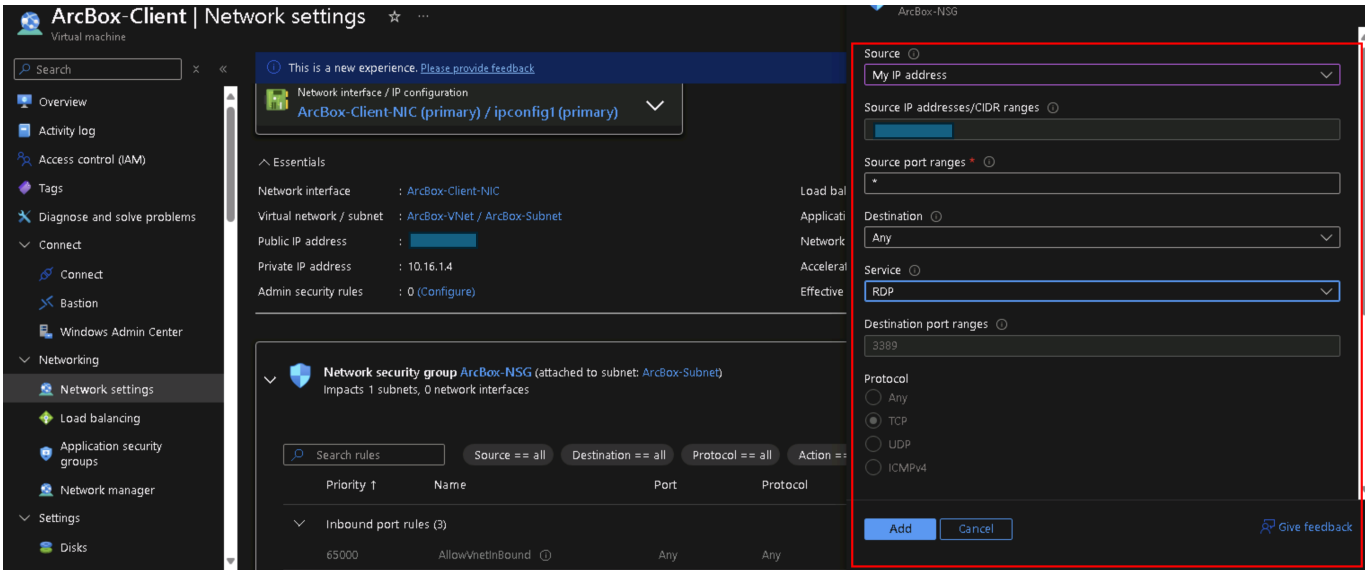
By design, ArcBox does not open port 3389 on the network security group. Therefore, you must create an NSG rule to allow inbound 3389.

1. [] Open the *Network settings* for the *ArcBox-Client* machine in the Azure portal and click *Create port rule* to add a new inbound rule.

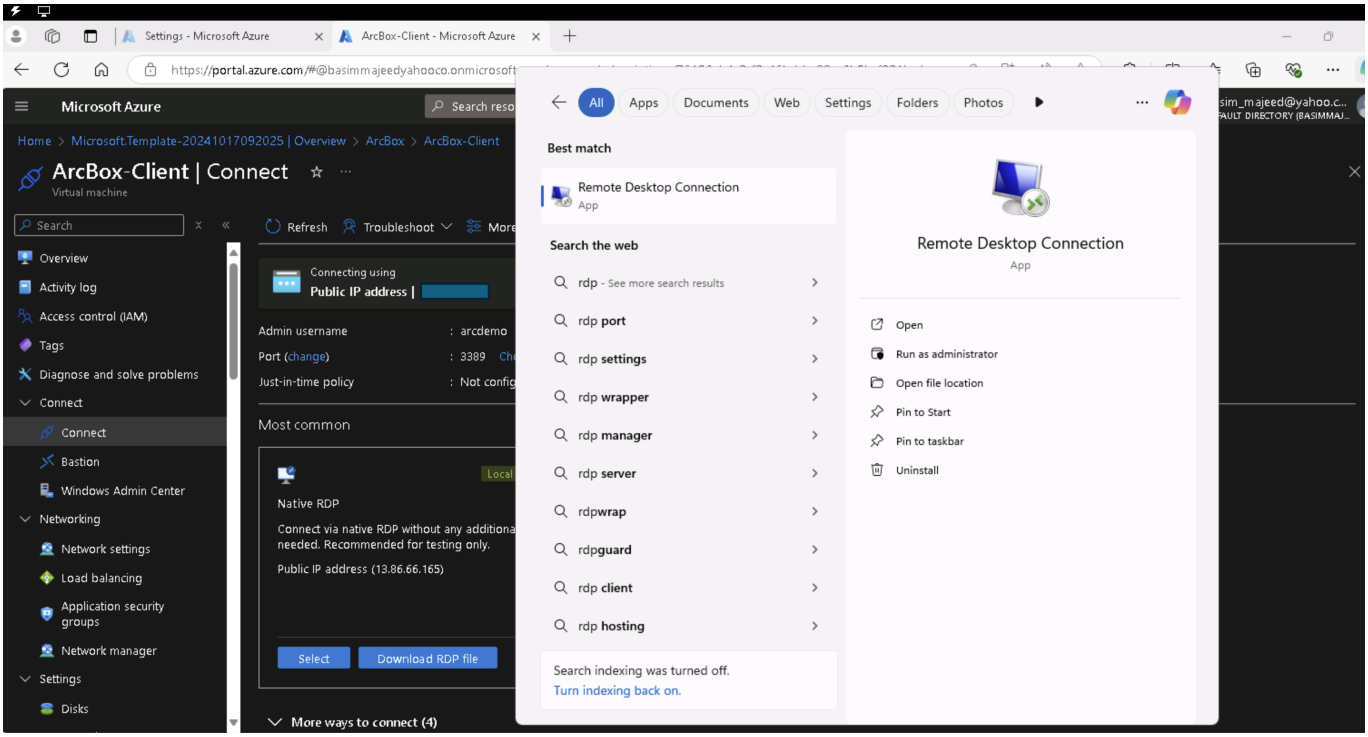




2. [] Specify the IP address that you will be connecting from (or use *My IP address*) and select RDP as the service. If you need to retrieve your public IP address (not required if you use the *My IP address* setting) then you can do so by accessing https://icanhazip.com or https://whatismyip.com.



3. [] Now you can run the Remote Desktop Connection App and connect to the *ArcBox-Client* machine using the user name and password that you have set on the deployment template.



Task 2 has been completed

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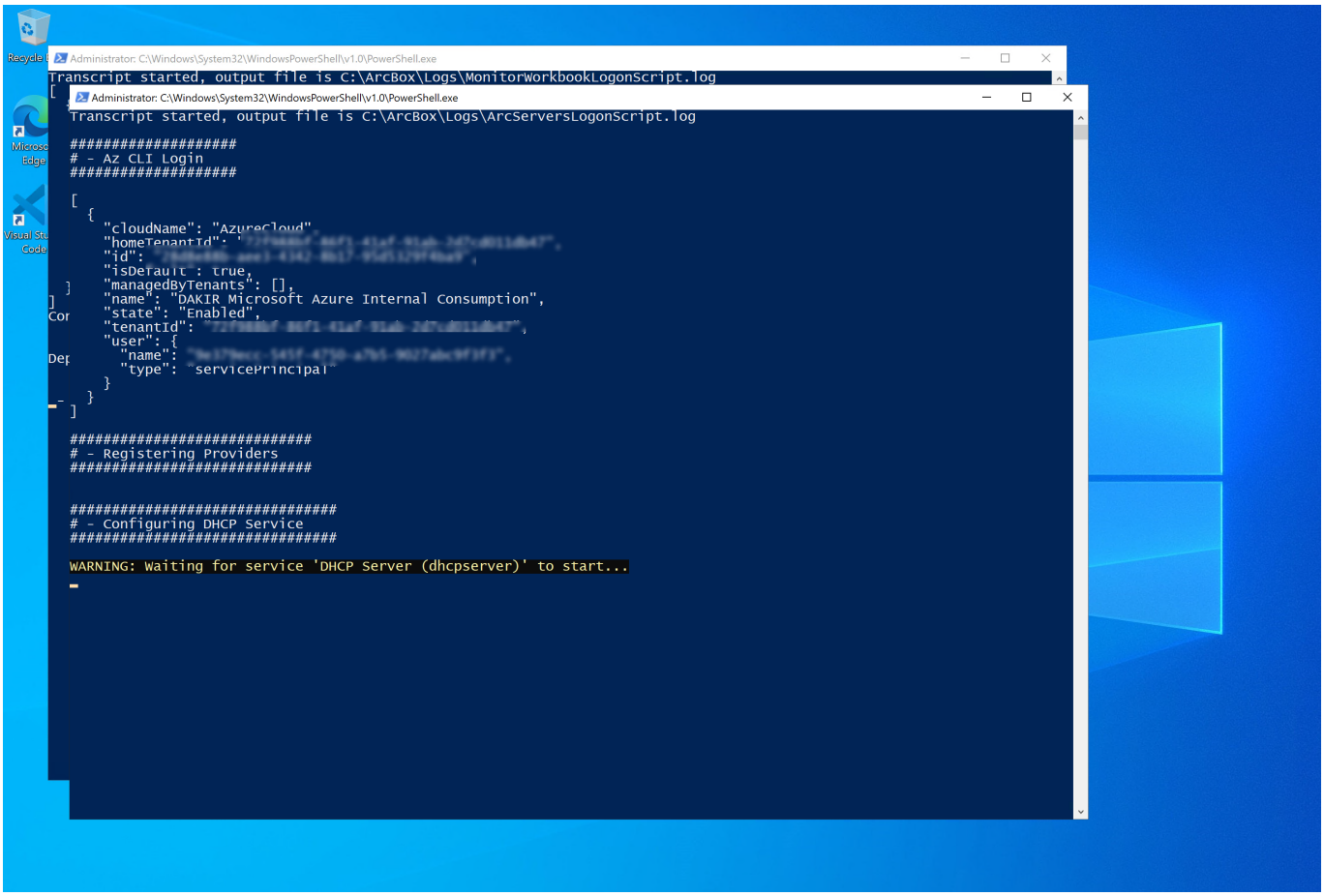
Task 3: Post-deployment automation

1. [] Once you log into the *ArcBox-Client* VM, multiple automated scripts might be open and running. These scripts usually take 10-20 minutes to finish (**Do not close any windows and do not stop any running scripts!**), and once completed, the script windows will close automatically. At this point, the deployment is complete.



2. [] Deployment is complete when you see the following screen background! Let's begin exploring the features of Azure Arc-enabled servers with the other labs in this workshop.

Task 3 has been completed

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Congratulations, you have completed all tasks in this lab

Click **Next** for the next lab or **Go back to the main table of content**