

# Create a Windows Virtual Machine Image in Azure

## Description

When architecting solutions in the cloud that leverage compute, it is very common to need to rapidly deploy Windows or Linux servers, which fit a specific purpose.

VM images allow you to have a Windows or Linux server, which is pre-configured with applications, software, security, and more. We can then speed up (and automate) the deployment of VMs, which are built from these images and are ready for use.

Within this lab, you'll gain experience creating a custom VM image from a Windows virtual machine.

## 1- Log In to the Azure Portal

- 1- On the lab instructions page, click Open Azure Portal.
- 2- On the Azure Portal sign-in page, enter the username you were provided by the trainer.
- 3- Click Next.
- 4- Enter the password you were provided on the lab instructions page.
- 5- Click Sign in.

## 2- Create a Virtual Machine

- 1- On the Azure Portal home page, click Create a Resource.
- 2- Select Windows Server Datacenter 2016
- 3- In the Basics tab, configure the following settings:
  - Resource group: (Select the pre-provisioned group from the dropdown.)
  - Location: Leave the region the same as your Resource Group's region.
  - Virtual machine name: (Give the virtual machine a unique name.)
  - Image: Windows Server 2016 Datacenter Gen1
  - Size: Standard DS1\_v2
  - Username: gta-admin
  - Password: Admin123456!
  - Confirm password: Admin123456!
- 4- Click Next : Disks >.
- 5- In the Disks tab, configure the following settings:
  - OS disk type: Premium SSD

## Create a virtual machine ...

### Instance details

Virtual machine name * ⓘ	<input type="text" value="gta-vm"/> ✓
Region * ⓘ	<input type="text" value="(US) West US"/> ▼
Availability options ⓘ	<input type="text" value="No infrastructure redundancy required"/> ▼
Image * ⓘ	<input type="text" value="Windows Server 2016 Datacenter - Gen1"/> ▼ <a href="#">See all images</a>
Azure Spot instance ⓘ	<input type="checkbox"/>
Size * ⓘ	<input type="text" value="Standard_DS1_v2 - 1 vcpu, 3.5 GiB memory (\$91.98/month)"/> ▼ <a href="#">See all sizes</a>

### Administrator account

Username * ⓘ	<input type="text" value="gta-admin"/> ✓
Password * ⓘ	<input type="password" value="••••••••"/> ✓
Confirm password * ⓘ	<input type="password" value="••••••••"/> ✓

6- Click Next : Networking >.

- If for some reason port 3389 is not automatically filled in, for "Public Inbound Ports" select "Allow selected ports" and then for "Selected Inbound Ports" use the drop to choose "RDP 3389"

7- Click Next : Management >.

8- Click Next : Advanced >.

9- Click Next : Tags >.

10- Click Next : Review + create >.

## Create a virtual machine ...

✓ Validation passed

### PRODUCT DETAILS

Standard DS1 v2

by Microsoft

[Terms of use](#) | [Privacy policy](#)

Subscription credits apply ⓘ

**0.1260 USD/hr**

[Pricing for other VM sizes](#)

### TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

⚠ **You have set RDP port(s) open to the internet.** This is only recommended for testing. If you want to change this setting, go back to Basics tab.

### Basics

Subscription	P1-Real Hands-On Labs
Resource group	1-586d94d3-playground-sandbox
Virtual machine name	gta-vm
Region	West US
Availability options	No infrastructure redundancy required

Create

< Previous

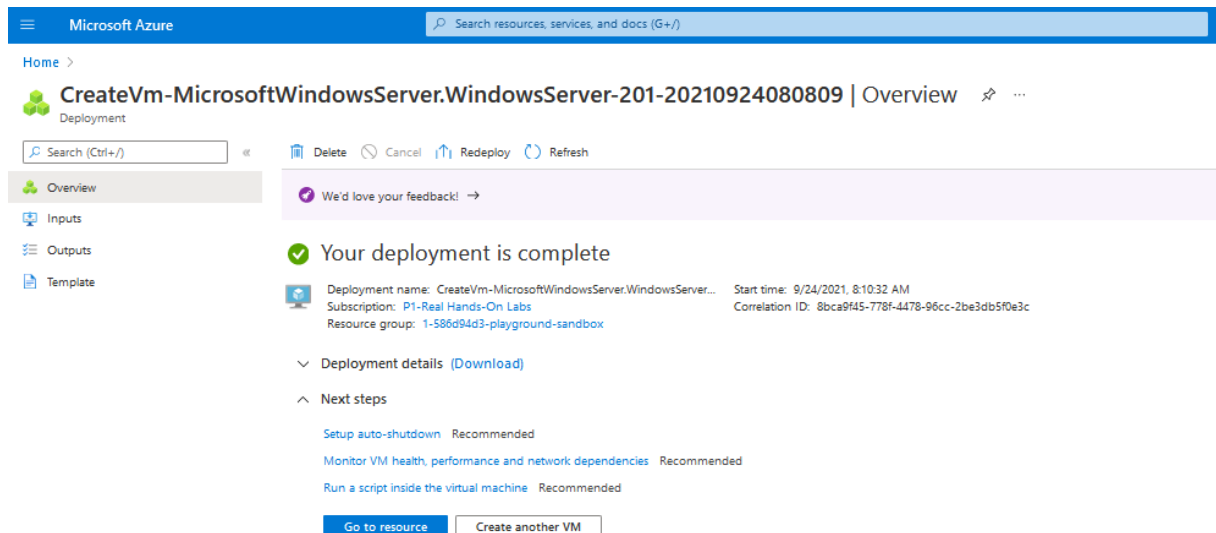
Next >

[Download a template for automation](#)

11- Click Create.

12- Click the notifications icon at the top of the screen to monitor the deployment.

13- Wait a few minutes for the status to change to Your deployment is complete.



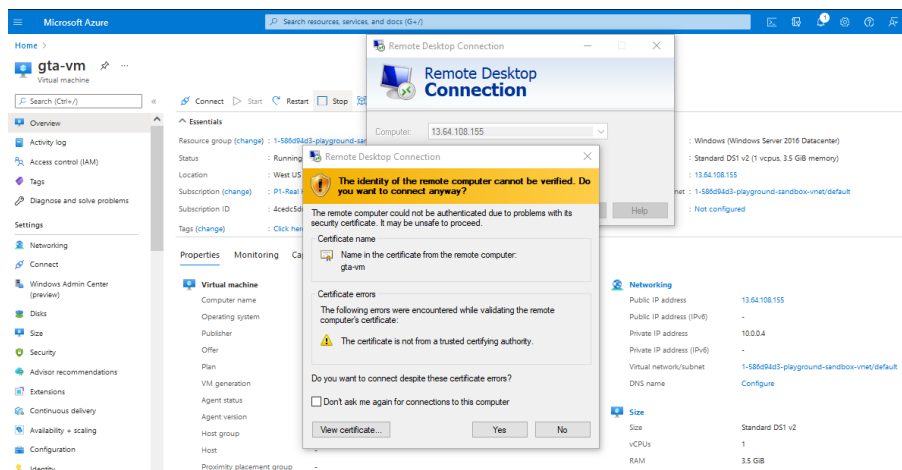
### 3- Connect to the Virtual Machine

- 1- Click All resources in the left sidebar.
- 2- Click the name of our virtual machine to open it.
- 3- Click Connect at the top of the page.
- 4- Click Download RDP File. Note: You have to wait a few minutes before you will be able to connect even if the VM shows as ready.

Execute the RDP file either from the folder it was downloaded to, or your browser if it allows it Quick Note: If you are on a Mac, make sure you are using the latest remote desktop tool which can be found at this URL.

<https://apps.apple.com/app/microsoft-remote-desktop/id1295203466?mt=12>

- 5- In the Enter your credentials menu, enter the following:
  - User name: gta-admin
  - Password: Admin123456!
- 6- Click OK.
- 7- Click Yes.
- 8- Wait a few minutes for the virtual machine connection to be established.

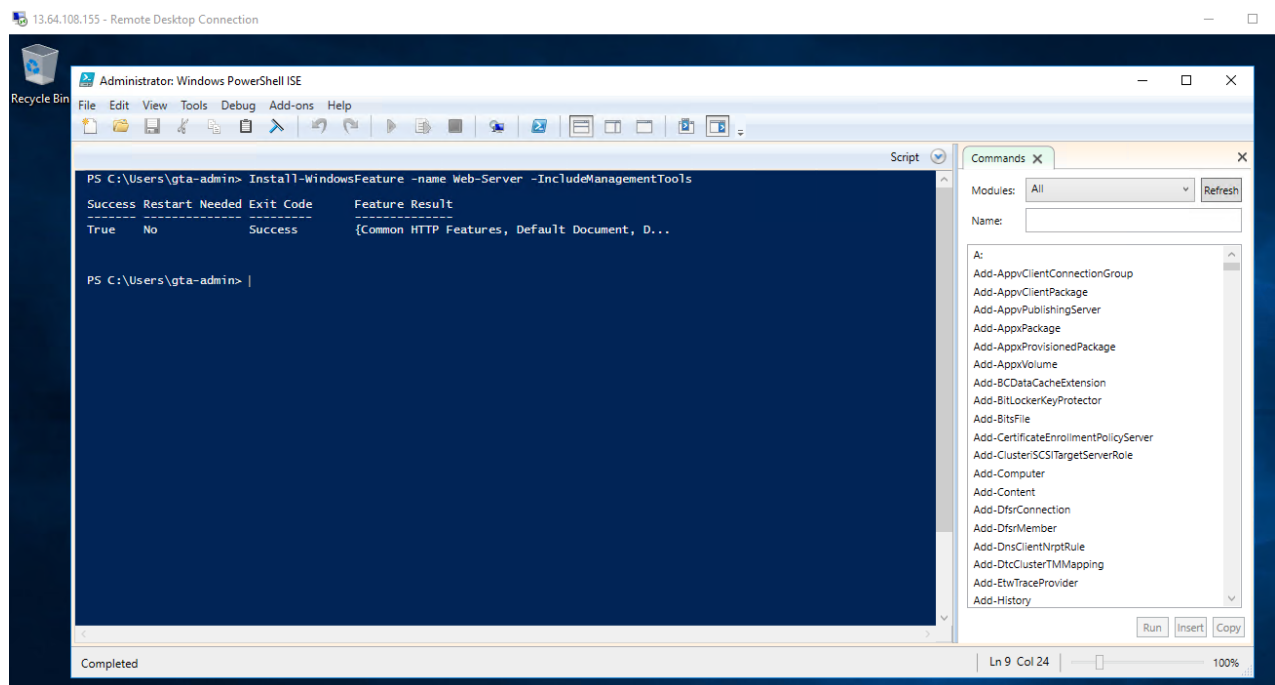


#### 4- Turn Off the Virtual Machine (Optional)

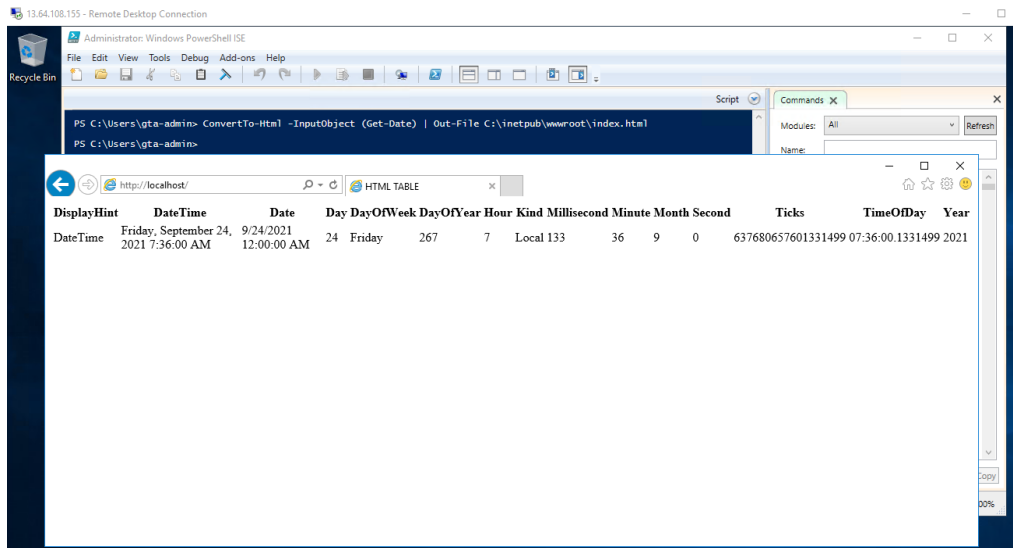
- 1- Go back to the Azure Portal in your browser.
- 2- In the virtual machine menu, click Stop.
- 3- Click OK.
- 4- Wait a few moments, and refresh the menu until the status changes to Stopped (deallocated).

#### 5- Configure a Web Server

- 1- Click Start, Windows PowerShell, then Windows PowerShell.
- 2- Type the command: **Install-WindowsFeature -name Web-Server -IncludeManagementTools**

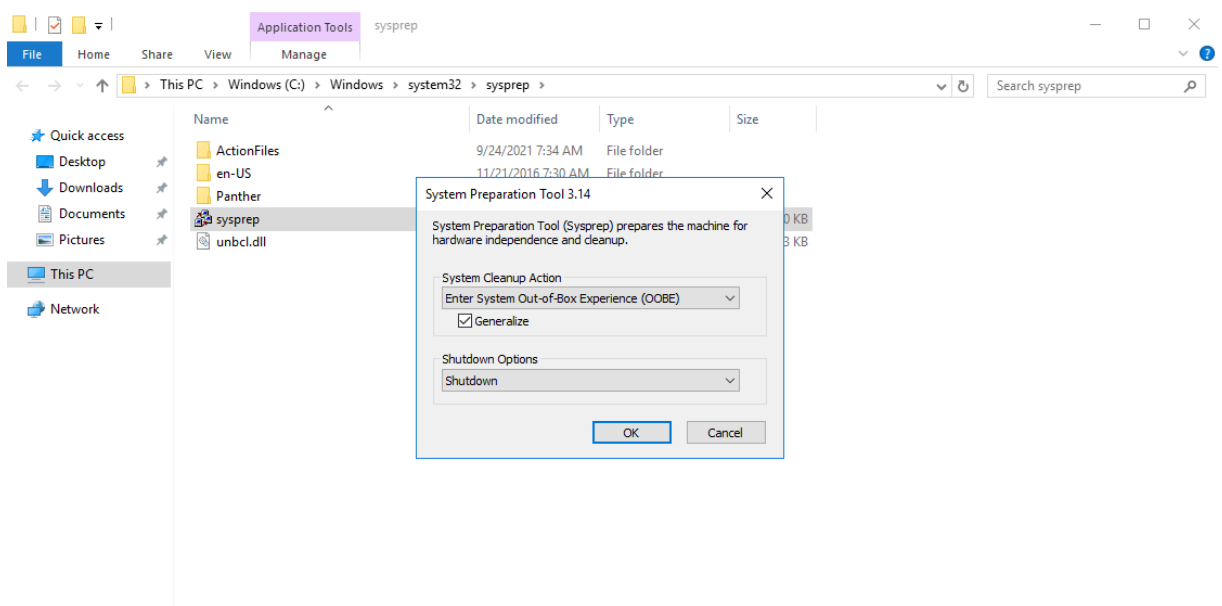


- 3- Create a Basic HTML Page: Click Start, Windows PowerShell, then Windows PowerShell.
- 4- Type the command: **ConvertTo-Html -InputObject (Get-Date) | Out-File C:\inetpub\wwwroot\index.html**
- 5- You can test that the webserver is working by opening <http://localhost> in Internet Explorer. It should display the test HTML page you just created (date-time).  
Remain connected to the server by RDP for the next task



## 6- Generalize the Windows Server, Perform Sysprep

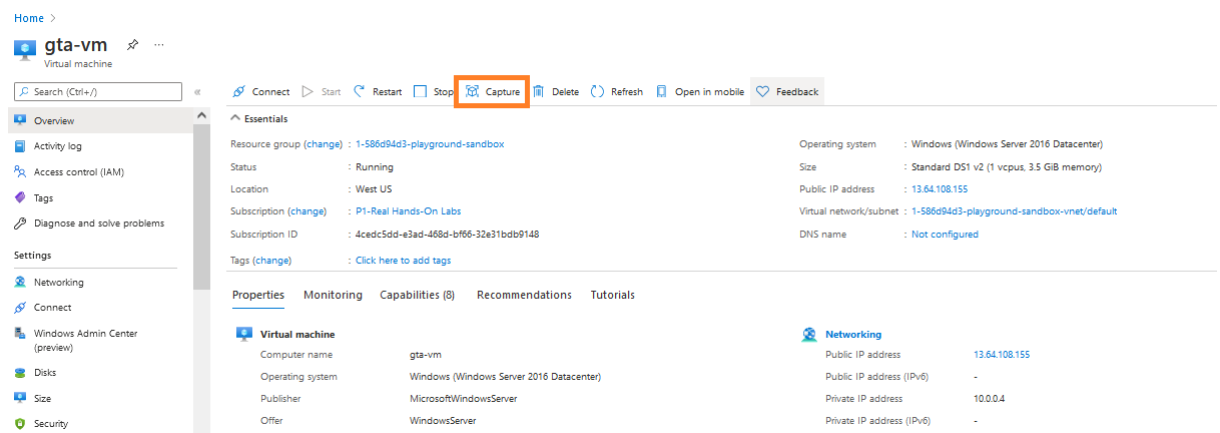
- 1- Right-click the start menu.
- 2- Click on Run.
- 3- Type the following: **%WINDIR%\system32\sysprep.**
- 4- Click OK to open the folder.
- 5- Double-click on the **sysprep.exe** file.
- 6- Use the following settings:
  - System Cleanup Action: Enter System Out-of-Box Experience (OOBE)
  - Generalize: tick the tickbox
  - Shutdown Options: Shutdown
- NOTE: When you click OK, the computer will generalize and then shutdown
- 7- Click OK.



Note: The above task can be completed in with the following command-line option if preferred: `%WINDIR%\system32\sysprep\sysprep.exe /generalize /shutdown /oobe.`

## 7- Convert VM1 to an Image

- 1- Navigate to the Virtual Machines services page.
- 2- Open the existing VM called vm1.
- 3- Check that the Status is showing as stopped.
- 4- Use the RDP file with your preferred RDP client.
- 5- Click on the Capture option in the command menu, and use the following settings:



- Name: **vmimage1**
  - Resource group: leave the default selected
  - Automatically delete this virtual machine: **no**
  - Type the virtual machine name: **vm1**
- 6- Click on Create.

Home > gta-vm >

## Create an image

Resource group \* 1-586d94d3-playground-sandbox [Create new](#)

Instance details

Region (US) West US

Share image to Shared image gallery ☐ Yes, share it to a gallery as an image version.  
☒ No, capture only a managed image.

Automatically delete this virtual machine after creating the image ☐

Zone resiliency ☐

**i** No availability zones are available in this location. [Click here to learn more.](#)

**i** Before creating an image, use "generalize" to prepare the Windows guest OS on the virtual machine. If you create an image from a virtual machine that hasn't been generalized, any virtual machines created from that image won't start. [Learn more](#)

Name \* vm1 ✓

[Review + create](#) [< Previous](#) [Next : Tags >](#)

Note: You will no longer be able to start vm1 after completing this step.

## 8- Create a VM from the Image

- 1- Navigate to the Images services page.
- 2- Click on vmimage1, which we just created.

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

Home > Images >

### Images

Linux Academy Production Lab Deploy

[+ Create](#) [Manage view](#) [...](#)

Filter for any field...

Name ↑

vm1

**vm1** Image

[Search \(Ctrl+J\)](#) [+ Create VM](#) [Delete](#)

**Overview**

[Activity log](#)

[Access control \(IAM\)](#)

[Tags](#)

**Settings**

[Properties](#)

[Locks](#)

**Automation**

[Tasks \(preview\)](#)

[Export template](#)

**Help**

[New Support Request](#)

**NAME**  
vm1

**SOURCE VIRTUAL MACHINE**  
gta-vm

**OS DISK**

Operating system	Source blob URI
Windows	

**DATA DISKS**  
This image doesn't contain any data disks.

**RESOURCE GROUP**  
[1-586d94d3-playground-sandbox](#)

**LOCATION**  
West US

- 3- Click on the + Create VM option in the command menu, and use the following settings:



[Home](#) > [Images](#) > [vm1](#) >

## Create a virtual machine ...

customization. [Learn more](#)

### Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *	<input type="text" value="P1-Real Hands-On Labs"/>
Resource group *	<input type="text" value="1-586d94d3-playground-sandbox"/>

[Create new](#)

### Instance details

Virtual machine name *	<input type="text" value="vm2"/>
Region	<input type="text" value="(US) West US"/>
Availability options	<input type="text" value="No infrastructure redundancy required"/>
Image *	<input type="text" value="vm1 - Gen1"/>
Azure Spot instance	<input type="checkbox"/>
Size *	<input type="text" value="Standard_B2s - 2 vcpus, 4 GiB memory (\$42.05/month)"/>

[See all sizes](#)

- Basics:
  - Subscription: leave as-is
  - Resource group: leave as-is
  - Virtual machine name: vm2
  - Region: leave as-is
  - Availability options: none
  - Image: leave as-is
  - Size: B2s
  - Administrator account: use the provided lab credentials
  - Public inbound ports: none
  - License Type: Windows Server
  - Would you like to use an existing Windows Server license?: No
- 4- Click on Next: Disks.
- Disks: Leave as-is
- 5- Click on Next: Networking
- Networking
  - Virtual network: vnet1
  - Subnet: subnet1
  - Public IP: leave as-is
  - NIC network security group: None
  - Click on Review + create.
  - Click on Create.

Note: We have network security already associated with vnet1. This will allow RDP access to vm2.

[Home](#) > [Images](#) > [vm1](#) >

## Create a virtual machine ...

✓ Validation passed

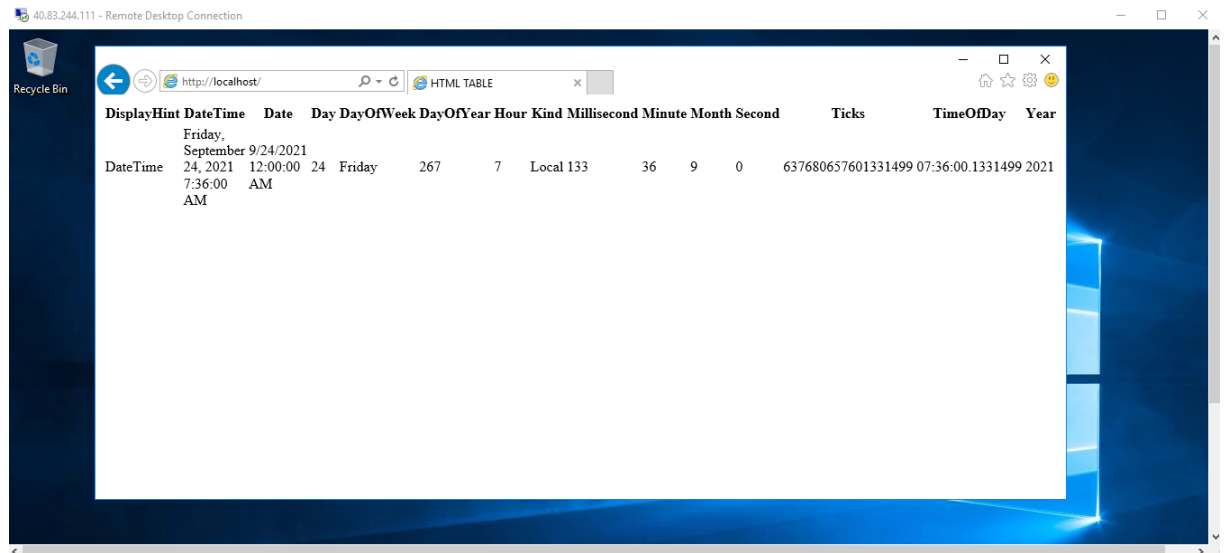
[Basics](#) [Disks](#) [Networking](#) [Management](#) [Advanced](#) [Tags](#) [Review + create](#)

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vm1	Standard B2s
Image	2 vcpus, 4 GiB memory
<b>Basics</b>	
Subscription	P1-Real Hands-On Labs
Resource group	1-586d94d3-playground-sandbox
Virtual machine name	vm2
Region	West US
Availability options	No infrastructure redundancy required
Image	vm1 - Gen1
Size	Standard B2s (2 vcpus, 4 GiB memory)
Username	gta-admin
Public inbound ports	RDP
Azure Spot	No

### 9- Test the VM

- 1- Connect to the VM using the steps followed earlier. Ensure you use the new public IP address for vm2.
- 2- Once connected, you can verify the VM is created from the image by performing the following test: - Test: Open <http://localhost> in Internet Explorer Result: You should see the page we created earlier.



- 3- The above test validates that your new server has (a) IIS configuration from vm1, and (b) the index.html file you generated on vm1.