Microsoft Azure Developer: Implement laaS Solutions

PROVISIONING AND CONFIGURING AZURE VIRTUAL MACHINES



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Course Overview



Provisioning and Configuring Azure Virtual Machines

Creating and Running Containers in Azure

Course Coverage for Certification Objectives



Implement laas Solutions

Provision VMs

Configure VMs for remote access

Create ARM templates

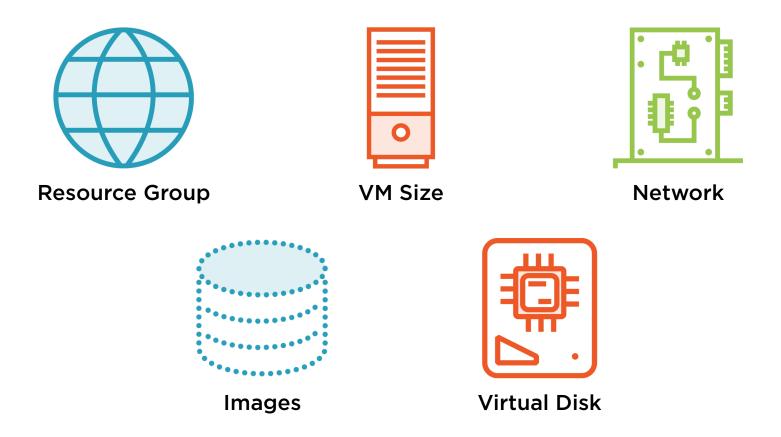
Create container images for solutions by using Docker

Publish an image to the Azure Container Registry

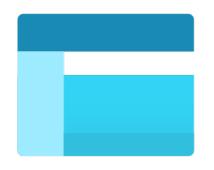
Run containers by using Azure Container Instances

https://docs.microsoft.com/en-us/learn/certifications/azure-developer

Virtual Machine Components

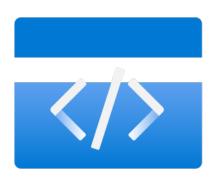


Methods to Create an Azure Virtual Machine







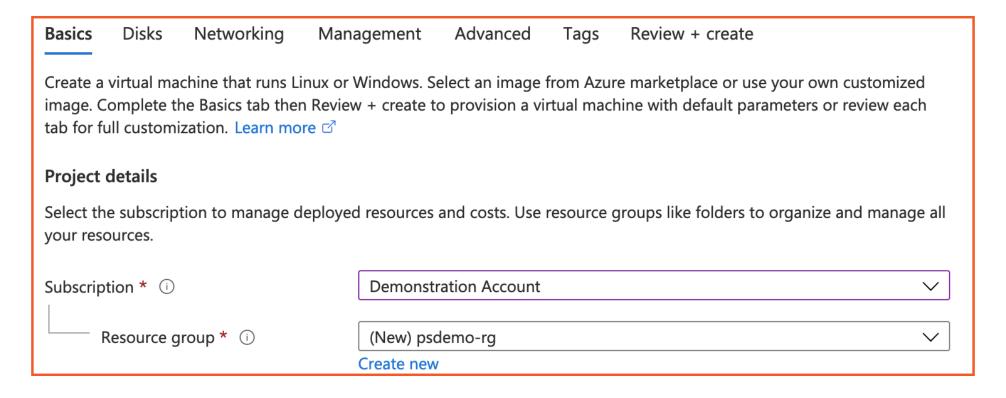


Azure Portal

Azure CLI

Azure PowerShell (Az Module)

Azure ARM Templates



Instance details		
Virtual machine name * ①	psdemo-win-portal	~
Region * ①	(US) West US	~
Availability options (i)	No infrastructure redundancy required	<u> </u>
Image * ①	Windows Server 2016 Datacenter - Gen1 Browse all public and private images	<u> </u>
Azure Spot instance ①		
Size * (i)	Standard_D2s_v3 - 2 vcpus, 8 GiB memory (\$85.41/month) Select size	~

Administrator account	
Username * ①	
Password * (i)	
Confirm password * (i)	

Inbound port rules		
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.		
Public inbound ports * (i)	None Allow selected ports	
Select inbound ports *	RDP (3389)	
	HTTP (80)	
	HTTPS (443)	
	SSH (22)	
	✓ RDP (3389)	

Demo

Creating a Virtual Machine in the Azure Portal Accessing a VM Remotely

Creating VMs Programmatically



Add consistency to your deployments and VM creation



Any production system should be implemented using automation



Construct similar down-level environments, such as DEV/TEST

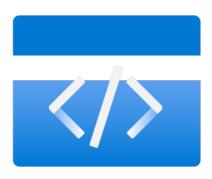
Tools for Creating a VM Programmatically







Azure PowerShell (Az Module)



ARM Templates

Creating a VM Programmatically

Create a Resource Group

Create the Virtual Machine

Ensure Remote Access
Port is Open

Retrieve the Public IP address

Provisioning Microsoft Azure Virtual Machines

Creating a VM with Azure CLI

```
az group create \
    --name "psdemo-rg" \
    --location "centralus"
az vm create \
                                          az vm create \
    --resource-group "psdemo-rg" \
                                              --resource-group "psdemo-rg" \
                                              --name "psdemo-linux-cli" \
    --name "psdemo-win-cli" \
    --image "win2019datacenter" \
                                              --image "UbuntuLTS" \
    --admin-username "demoadmin" \
                                              --admin-username "demoadmin" \
    --admin-password "password123$%^&*"
                                              --authentication-type "ssh" \
                                              --ssh-key-value ~/.ssh/id_rsa.pub
```

https://docs.microsoft.com/en-us/cli/azure/vm#az_vm_create

Enabling Remote Access with Azure CLI

```
az vm open-port \
    --resource-group "psdemo-rg" \
    --name "psdemo-win-cli" \
    --port "3389" --port "22"

az vm open-port \
    --resource-group "psdemo-rg" \
    --port "22"

az vm list-ip-addresses \
    --resource-group "psdemo-rg" \
    --name "psdemo-linux-cli"
```

Demo

Creating a VM with Azure CLI Enable remote access using Azure CLI

Creating a VM with Azure PowerShell

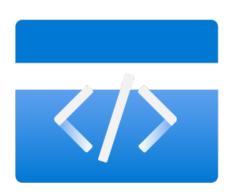
```
Susername = 'demoadmin'
$password = ConvertTo-SecureString 'password123$%^&*' -AsPlainText -Force
$WindowsCred = New-Object System.Management.Automation.PSCredential ($username, $password)
New-AzVM
    -ResourceGroupName 'psdemo-rg' `
    -Name 'psdemo-win-az' `
    -Image 'Win2019Datacenter' `
    -Credential $WindowsCred
    -OpenPorts 3389
Get-AzPublicIpAddress
    -ResourceGroupName 'psdemo-rg'
    -Name 'psdemo-win-az' | Select-Object IpAddress
```

https://docs.microsoft.com/en-us/azure/virtual-machines/linux/quick-create-powershell

Demo

Creating a VM with Azure PowerShell

ARM Templates



JSON file that defines your resources

Building block for automation

Templates are submitted to ARM for provisioning

Export a ARM Template in Azure Portal

Write your own

Deploy from the Quickstart template library

ARM Template Format

```
{
    "$schema": "https://schema.management.azure.com/schemas/2019-04-01/.
    deploymentTemplate.json#",
    "contentVersion": "",
    "apiProfile": "",
    "parameters": { },
    "variables": { },
    "functions": [ ],
    "resources": [ ],
    "outputs": { }
}
```

https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/template-functions

Demo

Creating and examining an ARM template

Up Next:

Creating and Running Containers in Azure