

Lab 3 Deploy a VM using Cloud Shell

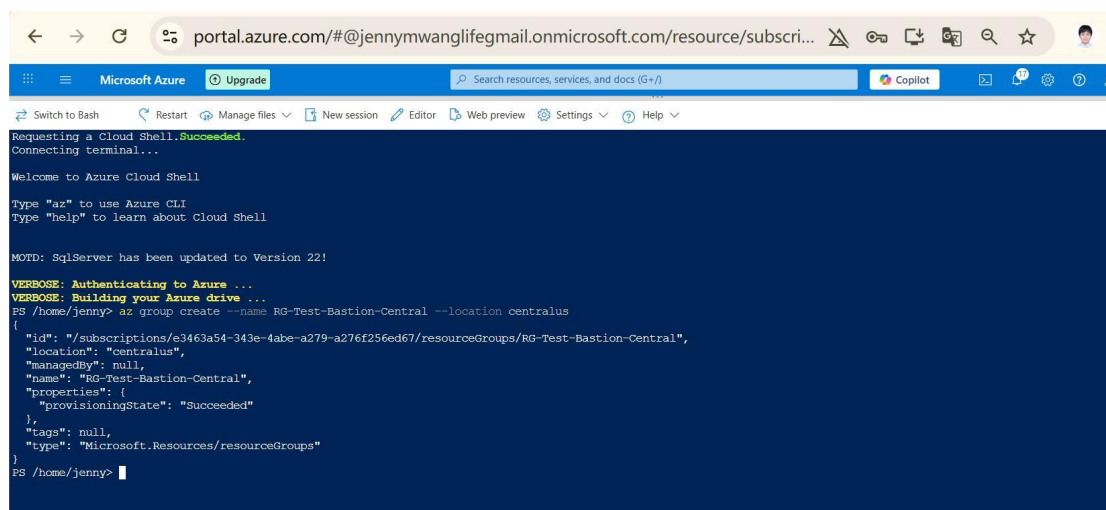
Methods: Learn to deploy a Windows VM in Azure using Cloud Shell and securely access it via Bastion.

Purpose: Use Cloud Shell to create a resource group, deploy a VM, configure Bastion, and test connectivity.

Tools: Azure Cloud Shell, Azure Portal.

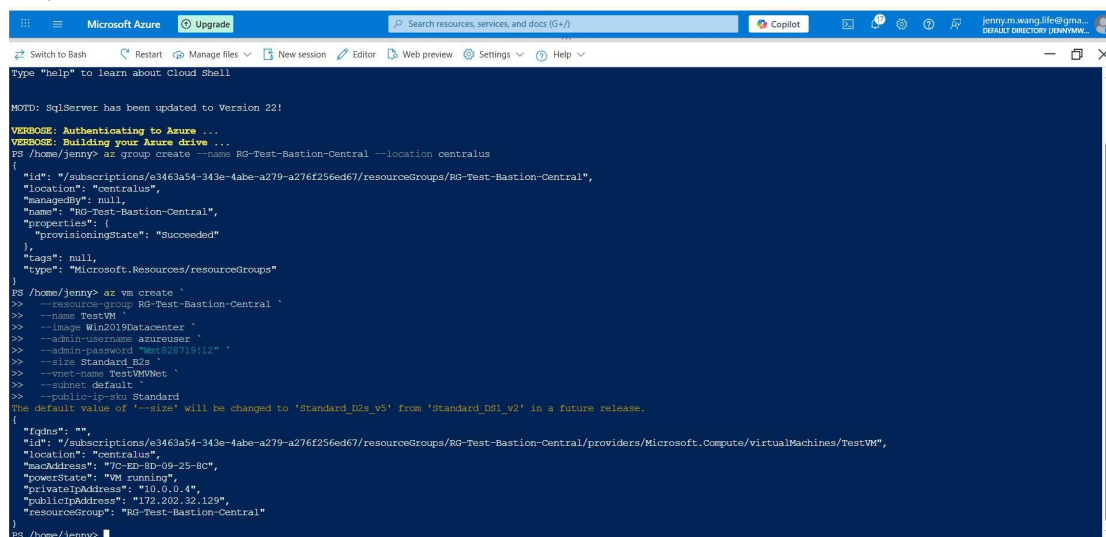
Skills Covered: Deploying VMs, managing resource groups, configuring Bastion, and testing network connectivity.

Step 1 – Create a Resource Group



```
portal.azure.com/#@jennymwanglifemail.onmicrosoft.com/resource/subscri...
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Switch to Bash Restart Manage files New session Editor Web preview Settings Help
Requesting a Cloud Shell.Succeeded.
Connecting terminal...
Welcome to Azure Cloud Shell
Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell
MOTD: SqlServer has been updated to Version 22!
VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/jenny> az group create --name RG-Test-Bastion-Central --location centralus
{
  "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central",
  "location": "centralus",
  "managedBy": null,
  "name": "RG-Test-Bastion-Central",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
PS /home/jenny>
```

Step 2 – Create a Windows VM



```
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Switch to Bash Restart Manage files New session Editor Web preview Settings Help
Type "help" to learn about Cloud Shell
MOTD: SqlServer has been updated to Version 22!
VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/jenny> az group create --name RG-Test-Bastion-Central --location centralus
{
  "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central",
  "location": "centralus",
  "managedBy": null,
  "name": "RG-Test-Bastion-Central",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
PS /home/jenny> az vm create \
>> --resource-group RG-Test-Bastion-Central \
>> --name TestVM \
>> --image Win2019Datacenter \
>> --admin-username azureuser \
>> --admin-password "P@ssw0rd!2345" \
>> --size Standard_B2s \
>> --vnet-name TestVMVNet \
>> --subnet default \
>> --public-ip-sku Standard
The default value of '--size' will be changed to 'Standard_B2s_v5' from 'Standard_D2s_v2' in a future release.
{
  "flags": "",
  "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Compute/virtualMachines/TestVM",
  "location": "centralus",
  "macAddress": "7C-BD-0D-09-25-8C",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.4",
  "publicIpAddress": "172.202.32.129",
  "resourceGroup": "RG-Test-Bastion-Central"
}
PS /home/jenny>
```

Step 3 – Set up Bastion for secure RDP access

Create a subnet for Bastion:

```
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The default value of '--size' will be changed to 'Standard_B2s_v5' from 'Standard_B2s_v2' in a future release.

{
  "tags": {},
  "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Compute/virtualMachines/TestVM",
  "location": "centralus",
  "macAddress": "7c:20:80-09-25-8c",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.4",
  "publicIpAddress": "172.202.32.129",
  "resourceGroup": "RG-Test-Bastion-Central"
}

PS /home/jenny> az vm show `
> --resource-group RG-Test-Bastion-Central `
> --name TestVM `
> --query "networkProfile.networkInterfaces[0].id" `
> --no tsv
/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/networkInterfaces/TestVMNIC
PS /home/jenny> az network nic show `
> --resource-group RG-Test-Bastion-Central `
> --name TestVMNIC `
> --query "ipConfigurations[0].subnet.id" `
> --no tsv
/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/virtualNetworks/TestVMVNet/subnets/default
PS /home/jenny> az network vnet subnets create `
> --resource-group RG-Test-Bastion-Central `
> --vnet-name TestVMVNet `
> --name AzureBastionSubnet `
> --address-prefix 10.0.1.0/27
{
  "addressPrefix": "10.0.1.0/27",
  "delegations": [],
  "etag": "W/\"60a3e649-7e51-4b55-bbe8-9a125ca8e442\"",
  "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/virtualNetworks/TestVMVNet/subnets/AzureBastionSubnet",
  "name": "AzureBastionSubnet",
  "privateEndpointNetworkPolicies": "Disabled",
  "privateLinkServiceNetworkPolicies": "Enabled",
  "provisioningState": "Succeeded",
  "resourceGroup": "RG-Test-Bastion-Central",
  "type": "Microsoft.Network/virtualNetworks/subnets"
}
PS /home/jenny>
```

Create the Bastion host:

```
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{
  "name": "AzureBastionSubnet",
  "privateEndpointNetworkPolicies": "Disabled",
  "privateLinkServiceNetworkPolicies": "Enabled",
  "provisioningState": "Succeeded",
  "resourceGroup": "RG-Test-Bastion-Central",
  "type": "Microsoft.Network/virtualNetworks/subnets"
}
PS /home/jenny> az network public-ip create `
> --resource-group RG-Test-Bastion-Central `
> --name BastionPublicIP `
> --sku Standard
(Coming breaking change) In the coming release, the default behavior will be changed as follows when sku is Standard and zone is not provided: For zonal regions, you will get a zone-redundant IP indicated by zones:["1","2","3"]; For non-zonal regions, you will get a non zone-redundant IP indicated by zones:null.
{
  "publicIp": {
    "disableSettings": {
      "protectionMode": "VirtualNetworkInherited"
    },
    "etag": "W/\"87967b7f-55ce-4a47-9eb9-af18d5ab6315\"",
    "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/publicIPAddresses/BastionPublicIP",
    "idleTimeoutInMinutes": 4,
    "ipAddress": "52.173.207.243",
    "ipTags": [],
    "location": "centralus",
    "name": "BastionPublicIP",
    "provisioningState": "Succeeded",
    "publicIpAddressVersion": "IPv4",
    "publicIPAllocationMethod": "Static",
    "resourceGroup": "RG-Test-Bastion-Central",
    "resourceGuid": "bb4b394c-1483-4866-9f3c-57445243ce2f",
    "sku": {
      "name": "Standard",
      "tier": "Regional"
    },
    "type": "Microsoft.Network/publicIPAddresses"
  }
}
PS /home/jenny>
PS /home/jenny> az network bastion create `
> --name BastionHost `
> --resource-group RG-Test-Bastion-Central `
```

It takes some time:

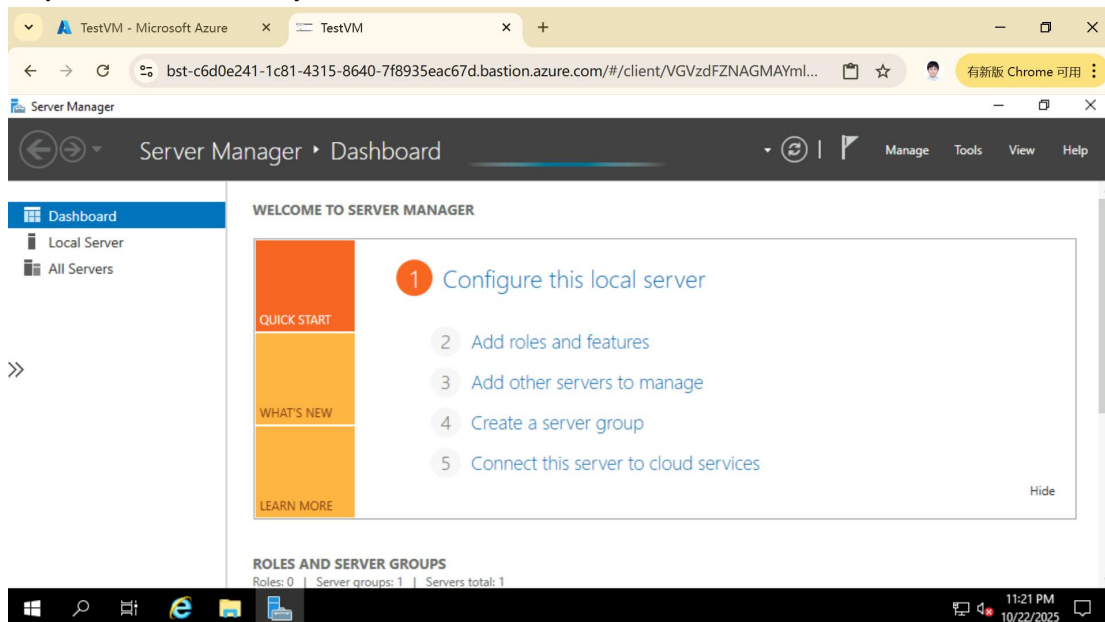
```
Read more about the command in reference docs
PS /home/jenny> az network bastion create `
> --name BastionHost `
> --resource-group RG-Test-Bastion-Central `
> --vnet-name TestVMVNet `
> --public-ip-address BastionPublicIP `
> --location centralus
Running ..
```

```
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DEFAULT DIRECTORY (JENNYVM)

Switch to Bash Restart Manage files New session Editor Web preview Settings Help

{"dnsName": "bst-c6d0e241-1c81-4315-8640-7f8935eac67d.bastion.azure.com",
  "enableFileCopy": false,
  "enableIpConnect": false,
  "enablePortForwarding": false,
  "enableSessionRecording": false,
  "enableShareableLink": false,
  "enableTunneling": false,
  "etag": "W/\"9fdfe0d8-2948-45e7-b155-1ef64e8a40\"",
  "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/bastionHosts/BastionHost",
  "ipConfigurations": [
    {
      "etag": "W/\"9fdfe0d8-2948-45e7-b155-1ef64e8a40\"",
      "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/bastionHosts/BastionHost/bastionHostIpConfigurations/bastion_ip_config",
      "name": "bastion_ip_config",
      "privateIpAllocationMethod": "Dynamic",
      "provisioningState": "Succeeded",
      "publicIpAddress": {
        "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/publicIPAddresses/BastionPublicIP",
        "resourceGroup": "RG-Test-Bastion-Central"
      },
      "resourceGroup": "RG-Test-Bastion-Central",
      "subnet": {
        "id": "/subscriptions/e3463a54-343e-4abe-a279-a276f256ed67/resourceGroups/RG-Test-Bastion-Central/providers/Microsoft.Network/virtualNetworks/TestVMVNet/subnets/AzureBastionSubnet",
        "resourceGroup": "RG-Test-Bastion-Central"
      },
      "type": "Microsoft.Network/bastionHosts/bastionHostIpConfigurations"
    }
  ],
  "location": "centralus",
  "name": "BastionHost",
  "provisioningState": "Succeeded",
  "resourceGroup": "RG-Test-Bastion-Central",
  "scaleUnits": 2,
  "sku": {
    "name": "Standard"
  },
  "tags": {},
  "type": "Microsoft.Network/bastionHosts"
}
PS /home/jenny>
```

Step 4 – Connect to my VM via Bastion



Step 5 – Test Connectivity from the VM

```
Administrator: Windows PowerShell
Windows PowerShell
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PS C:\Users\azureuser> Test-NetConnection www.microsoft.com

ComputerName           : www.microsoft.com
RemoteAddress           : 23.11.198.101
InterfaceAlias           : Ethernet
SourceAddress           : 10.0.0.4
PingSucceeded           : True
PingReplyDetails (RTT)  : 26 ms

PS C:\Users\azureuser> ping www.microsoft.com

Pinging e13678.dscb.akamaiedge.net [23.11.198.101] with 32 bytes of data:
Reply from 23.11.198.101: bytes=32 time=25ms TTL=48
Reply from 23.11.198.101: bytes=32 time=25ms TTL=48
Reply from 23.11.198.101: bytes=32 time=25ms TTL=48
Reply from 23.11.198.101: bytes=32 time=25ms TTL=48

Ping statistics for 23.11.198.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 25ms, Maximum = 25ms, Average = 25ms
PS C:\Users\azureuser>
```

My VM is running correctly and the network setup is working.