**Quickstart: Configure Linux virtual machines in Azure using Ansible**

Using a declarative language, Ansible allows you to automate the creation, configuration, and deployment of Azure resources via Ansible *playbooks*. This article presents a sample Ansible playbook for configuring Linux virtual machines. The [complete Ansible playbook](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/ansible-create-vm#complete-sample-ansible-playbook) is listed at the end of this article.

**Prerequisites**

* **Azure subscription**: If you don't have an Azure subscription, create a [free account](https://azure.microsoft.com/free/?ref=microsoft.com&utm_source=microsoft.com&utm_medium=docs&utm_campaign=visualstudio) before you begin.
* **Install Ansible**: Do one of the following options:
  + [Install](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/ansible-install-configure#install-ansible-on-an-azure-linux-virtual-machine) and [configure](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/ansible-install-configure#create-azure-credentials) Ansible on a Linux virtual machine
  + [Configure Azure Cloud Shell](https://docs.microsoft.com/en-us/azure/cloud-shell/quickstart)

**Create a resource group**

Ansible needs a resource group in which your resources are deployed. The following sample Ansible playbook section creates a resource group named myResourceGroup in the eastus location:

YAMLCopy

- name: Create resource group

azure\_rm\_resourcegroup:

name: myResourceGroup

location: eastus

**Create a virtual network**

When you create an Azure virtual machine, you must create a [virtual network](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-overview) or use an existing virtual network. You also need to decide how your virtual machines are intended to be accessed on the virtual network. The following sample Ansible playbook section creates a virtual network named myVnet in the 10.0.0.0/16 address space:

YAMLCopy

- name: Create virtual network

azure\_rm\_virtualnetwork:

resource\_group: myResourceGroup

name: myVnet

address\_prefixes: "10.0.0.0/16"

All Azure resources deployed into a virtual network are deployed into a [subnet](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-manage-subnet) within a virtual network.

The following sample Ansible playbook section creates a subnet named mySubnet in the myVnet virtual network:

YAMLCopy

- name: Add subnet

azure\_rm\_subnet:

resource\_group: myResourceGroup

name: mySubnet

address\_prefix: "10.0.1.0/24"

virtual\_network: myVnet

**Create a public IP address**

[Public IP addresses](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-ip-addresses-overview-arm) allow Internet resources to communicate inbound to Azure resources. Public IP addresses also enable Azure resources to communicate outbound to public-facing Azure services. In both scenarios, an IP address assigned to the resource being accessed. The address is dedicated to the resource until you unassign it. If a public IP address isn't assigned to a resource, the resource can still communicate outbound to the Internet. The connection is made by Azure dynamically assigning an available IP address. The dynamically assigned address isn't dedicated to the resource.

The following sample Ansible playbook section creates a public IP address named myPublicIP:

YAMLCopy

- name: Create public IP address

azure\_rm\_publicipaddress:

resource\_group: myResourceGroup

allocation\_method: Static

name: myPublicIP

**Create a network security group**

[Network security groups](https://docs.microsoft.com/en-us/azure/virtual-network/security-overview) filter network traffic between Azure resources in a virtual network. Security Rules are defined that govern inbound and outbound traffic to and from Azure resources. For more information about Azure resources and network security groups, see [Virtual network integration for Azure services](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-for-azure-services)

The following playbook creates a network security group named myNetworkSecurityGroup. The network security group includes a rule that allows SSH traffic on TCP port 22.

YAMLCopy

- name: Create Network Security Group that allows SSH

azure\_rm\_securitygroup:

resource\_group: myResourceGroup

name: myNetworkSecurityGroup

rules:

- name: SSH

protocol: Tcp

destination\_port\_range: 22

access: Allow

priority: 1001

direction: Inbound

**Create a virtual network interface card**

A virtual network interface card connects your virtual machine to a given virtual network, public IP address, and network security group.

The following section in a sample Ansible playbook section creates a virtual network interface card named myNIC connected to the virtual networking resources you've created:

YAMLCopy

- name: Create virtual network interface card

azure\_rm\_networkinterface:

resource\_group: myResourceGroup

name: myNIC

virtual\_network: myVnet

subnet: mySubnet

public\_ip\_name: myPublicIP

security\_group: myNetworkSecurityGroup

**Create a virtual machine**

The final step is to create a virtual machine that uses all the resources you've created in the previous sections of this article.

The sample Ansible playbook section presented in this section creates a virtual machine named myVM and attaches the virtual network interface card named myNIC. Replace the <your-key-data> placeholder with your own complete public key data.

YAMLCopy

- name: Create VM

azure\_rm\_virtualmachine:

resource\_group: myResourceGroup

name: myVM

vm\_size: Standard\_DS1\_v2

admin\_username: azureuser

ssh\_password\_enabled: false

ssh\_public\_keys:

- path: /home/azureuser/.ssh/authorized\_keys

key\_data: <your-key-data>

network\_interfaces: myNIC

image:

offer: CentOS

publisher: OpenLogic

sku: '7.5'

version: latest

**Complete sample Ansible playbook**

This section lists the entire sample Ansible playbook that you've built up over the course of this article.

YAMLCopy

- name: Create Azure VM

hosts: localhost

connection: local

tasks:

- name: Create resource group

azure\_rm\_resourcegroup:

name: myResourceGroup

location: eastus

- name: Create virtual network

azure\_rm\_virtualnetwork:

resource\_group: myResourceGroup

name: myVnet

address\_prefixes: "10.0.0.0/16"

- name: Add subnet

azure\_rm\_subnet:

resource\_group: myResourceGroup

name: mySubnet

address\_prefix: "10.0.1.0/24"

virtual\_network: myVnet

- name: Create public IP address

azure\_rm\_publicipaddress:

resource\_group: myResourceGroup

allocation\_method: Static

name: myPublicIP

register: output\_ip\_address

- name: Dump public IP for VM which will be created

debug:

msg: "The public IP is {{ output\_ip\_address.state.ip\_address }}."

- name: Create Network Security Group that allows SSH

azure\_rm\_securitygroup:

resource\_group: myResourceGroup

name: myNetworkSecurityGroup

rules:

- name: SSH

protocol: Tcp

destination\_port\_range: 22

access: Allow

priority: 1001

direction: Inbound

- name: Create virtual network interface card

azure\_rm\_networkinterface:

resource\_group: myResourceGroup

name: myNIC

virtual\_network: myVnet

subnet: mySubnet

public\_ip\_name: myPublicIP

security\_group: myNetworkSecurityGroup

- name: Create VM

azure\_rm\_virtualmachine:

resource\_group: myResourceGroup

name: myVM

vm\_size: Standard\_DS1\_v2

admin\_username: azureuser

ssh\_password\_enabled: false

ssh\_public\_keys:

- path: /home/azureuser/.ssh/authorized\_keys

key\_data: <your-key-data>

network\_interfaces: myNIC

image:

offer: CentOS

publisher: OpenLogic

sku: '7.5'

version: latest

**Run the sample Ansible playbook**

This section walks you through running the sample Ansible playbook presented in this article.

1. Sign in to the [Azure portal](https://go.microsoft.com/fwlink/p/?LinkID=525040).
2. Open [Cloud Shell](https://docs.microsoft.com/en-us/azure/cloud-shell/overview).
3. Create a file (to contain your playbook) named azure\_create\_complete\_vm.yml, and open it in the VI editor, as follows:

Azure CLICopyTry It

vi azure\_create\_complete\_vm.yml

1. Enter insert mode by selecting the **I** key.
2. Paste the [complete sample Ansible playbook](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/ansible-create-vm#complete-sample-ansible-playbook) into the editor.
3. Exit insert mode by selecting the **Esc** key.
4. Save the file and exit the vi editor by entering the following command:

bashCopy

:wq

1. Run the sample Ansible playbook.

bashCopy

ansible-playbook azure\_create\_complete\_vm.yml

1. The output looks similar to the following where you can see that a virtual machine has been successfully created:

bashCopy

PLAY [Create Azure VM] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

TASK [Gathering Facts] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ok: [localhost]

TASK [Create resource group] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

changed: [localhost]

TASK [Create virtual network] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

changed: [localhost]

TASK [Add subnet] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

changed: [localhost]

TASK [Create public IP address] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

changed: [localhost]

TASK [Dump public IP for VM which will be created] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ok: [localhost] => {

"msg": "The public IP is <ip-address>."

}

TASK [Create Network Security Group that allows SSH] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

changed: [localhost]

TASK [Create virtual network interface card] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

changed: [localhost]

TASK [Create VM] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

changed: [localhost]

PLAY RECAP \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

localhost : ok=8 changed=7 unreachable=0 failed=0

1. The SSH command is used to access your Linux VM. Replace the <ip-address> placeholder with the IP address from the previous step.

bashCopy

ssh azureuser@<ip-address>