



OpenShift Container Platform 4.4 on Azure with Microsoft Windows Server 2019/1809 Nodes

Developer Preview

Pre-requisites

The document is tested against a Fedora release 31 Linux host for running all the Linux commands.

Please note that a command preceded by `>` is to be run in a PowerShell window on a Windows instance, and a command preceded by `$` is to be run on a Linux console (localhost).

Installation of prerequisite packages

Python3 and pip are required to follow this guide. To check if python3 is installed on the system, run the following command:

```
$ python3 --version
```

To install python3, run the following command:

```
$ sudo dnf install python3
```

To check if pip is installed on the system, run the following command:

```
$ python3 -m pip --version  
pip 19.0.3 from /usr/lib/python3.7/site-packages/pip (python 3.7)
```

To install pip refer [pip installation](#)

Install jq library to parse json files:

```
$ sudo dnf install jq
```

Install git to clone github repository:

```
$ sudo dnf install git
```



Bring up the OpenShift cluster with ovn-kubernetes

Download the dev-preview 4.4.0-rc.3 [OpenShift Installer and Client](#) and [pull secret for AWS](#).

Note: Download both the openshift-install and openshift-client.

Unzip the files with the following commands: (Reference commands given below)

```
$ tar -xzvf openshift-install-linux-<version>.tar.gz
$ tar -xzvf openshift-client-linux-<version>.tar.gz
```

After extracting openshift client, move the **oc** and **kubectl** binaries to `/usr/local/bin`

```
$ sudo mv {kubectl,oc} /usr/local/bin
```

Configure Azure CLI

See [Install the Azure CLI](#)

Credentials setup

The installer (and the cluster credentials provider) needs a Service Principal for Azure API access.

You should only need to do this once unless you have some specific reason to regenerate your Service Principal.

Option 1: Use the wizard

First, create a service principal (replacing `--name` with your own in the format `$user-$purpose` or `$team-$purpose`, whichever is more appropriate):

```
$ az ad sp create-for-rbac --role Owner --name winc-installer
Changing "winc-installer" to a valid URI of "http://winc-installer", which is the
required format used for service principal names
Retrying role assignment creation: 1/36
Retrying role assignment creation: 2/36
Retrying role assignment creation: 3/36
{
  "appId": "e564ac9e-bd46-4c5a-1234-03724a82c3f2",
  "displayName": "winc-installer",
  "name": "http://winc-installer",
  "password": "111-11-1111",
  "tenant": "6047c7e9-b2ad-488d-a54e-dc3f6be6a7ee"
}
```

When you run the installer wizard, if the credentials file doesn't exist, you'll be prompted to enter an account and SP info and the credentials file will be generated.



Option 2: Generate the credentials file manually

First, create a service principal (replacing `--name` with your own):

Replace `--name` with your own.

```
$ az ad sp create-for-rbac --role Owner --name $service-principal-name \ | jq --arg
sub_id "$(az account show | jq -r '.id')" \
  '{subscriptionId:$sub_id,clientId:.appId,
clientSecret:.password,tenantId:.tenantId}' \
  > ~/.azure/osServicePrincipal.json
```

Create the install-config

```
$ ./openshift-install create install-config --dir=<cluster_directory>
> SSH Public Key <path-to-your-rsa>/id_rsa.pub
> Platform <i.e. aws>
> Region <region close by i.e. us-east-1>
> Base Domain <Your Domain>
> Cluster Name <cluster_name>
> Pull Secret <content of pull-secrets>
```

[Official documentation](#) should be consulted for credentials and other cloud provider related instructions.

The previous step will result in an `install-config.yaml` in your current directory. Edit the `install-config.yaml` to switch `networkType` from `OpenShiftSDN` to `OVNKubernetes` inside the cluster directory:

```
$ sed -i 's/OpenShiftSDN/OVNKubernetes/g' install-config.yaml
```

Create manifests

We want to enable hybrid networking on the cluster. For that we need to create the manifests:

```
$ ./openshift-install create manifests --dir=<cluster_directory>
```

Above step will create a `manifests` and `openshift` folder in your `<cluster_directory>`

Configuring OVNKubernetes on a Hybrid cluster

Inside the `cluster_directory`, create a copy of `manifests/cluster-network-02-config.yml` as `manifests/cluster-network-03-config.yml`.



```
$ cp manifests/cluster-network-02-config.yml manifests/cluster-network-03-config.yml
```

Edit `manifests/cluster-network-03-config.yml` as shown below:

1. Modify the `api version` to `operator.openshift.io/v1`

```
$ sed -i 's/config.openshift.io/v1/operator.openshift.io/v1/g'
manifests/cluster-network-03-config.yml
```

2. Add the following to the ``spec:`` section of `manifests/cluster-network-03-config.yml`

```
spec:
  defaultNetwork:
    type: OVNKubernetes
    ovnKubernetesConfig:
      hybridOverlayConfig:
        hybridClusterNetwork:
          - cidr: 10.132.0.0/14
            hostPrefix: 23
```

Here is an example `manifests/cluster-network-03-config.yml`:

```
apiVersion: operator.openshift.io/v1
kind: Network
metadata:
  creationTimestamp: null
  name: cluster
spec:
  clusterNetwork:
    - cidr: 10.128.0.0/14
      hostPrefix: 23
  externalIP:
    policy: {}
  networkType: OVNKubernetes
  serviceNetwork:
    - 172.30.0.0/16
  defaultNetwork:
    type: OVNKubernetes
    ovnKubernetesConfig:
      hybridOverlayConfig:
        hybridClusterNetwork:
          - cidr: 10.132.0.0/14
            hostPrefix: 23
status: {}
```

The highlighted portion above is the required modification for the file.

NOTE: the `hybridClusterNetwork` CIDR cannot overlap `clusterNetwork` CIDR



Disable Azure Rate Limiting

On bringing up the cluster with network type OVNKubernetes, you might encounter an error related to [Rate Limiting on Azure API](#) calls.

```
Error updating load balancer with new hosts map[sumehta-winc8-2tk76-master-0:{}
sumehta-winc8-2tk76-master-1:{} sumehta-winc8-2tk76-master-2:{}
sumehta-winc8-2tk76-worker-centralus1-mmjkr:{}
sumehta-winc8-2tk76-worker-centralus2-qptsj:{}
sumehta-winc8-2tk76-worker-centralus3-pq5sk:{} winnode:{}]:
ensure(openshift-ingress/router-default):
backendPoolID(/subscriptions/52432811-04323-4342f-92309-ff3452333f0/resourceGroups/s
umehta-winc8-2tk76-rg/providers/Microsoft.Network/loadBalancers/sumehta-winc8-2tk76/
backendAddressPools/sumehta-winc8-2tk76) - failed to ensure host in pool: "azure -
cloud provider rate limited(read) for operation:NicGet"
```

As a temporary workaround, you can modify the cloud provider manifests to disable rate limiting on Azure API calls.

In manifests/cloud-provider-config.yaml change the following parameters to disable rate limiting.

```
"cloudProviderRateLimit": false,
"cloudProviderRateLimitQPS": 0,
"cloudProviderRateLimitBucket": 0,
"cloudProviderRateLimitQPSWrite": 0,
"cloudProviderRateLimitBucketWrite": 0
```

Here is an example of manifests/cloud-provider-config.yaml with the changes highlighted in red below:

```
apiVersion: v1
data:
  config: {"cloud": "AzurePublicCloud","tenantId":
"63544359-b35345d-4353453d-353453e-d534435345534e",
  "aadClientId":
  "",
  "aadClientSecret": "",
  "aadClientCertPath": "",
  "aadClientCertPassword":
  "",
  "useManagedIdentityExtension": true,
  "userAssignedIdentityID":
  "",
  "subscriptionId": "5f343433-04fa-1234-4567-ffd8a354533f0",
  "resourceGroup":
    "pmahajan-az-44bwz-rg",
  "location": "centralus",
```



```
"vnetName": "pmahajan-az-44bwz-vnet",
"vnetResourceGroup":
  "pmahajan-az-44bwz-rg",
"subnetName": "pmahajan-az-44bwz-worker-subnet",
"securityGroupName":
  "pmahajan-az-44bwz-node-nsg",
"routeTableName": "pmahajan-az-44bwz-node-routetable",
"primaryAvailabilitySetName":
  "",
"vmType": "",
"primaryScaleSetName": "",
"cloudProviderBackoff":
  true,
"cloudProviderBackoffRetries": 0,
"cloudProviderBackoffExponent":
  0,
"cloudProviderBackoffDuration": 6,
"cloudProviderBackoffJitter":
  0,
"cloudProviderRateLimit": false,
"cloudProviderRateLimitQPS": 0,
"cloudProviderRateLimitBucket":
  0,
"cloudProviderRateLimitQPSWrite": 0,
"cloudProviderRateLimitBucketWrite":
  0,
"useInstanceMetadata": true,
"loadBalancerSku": "standard",
"excludeMasterFromStandardLB":
  null,
"disableOutboundSNAT": null,
"maximumLoadBalancerRuleCount": 0
}
"
kind: ConfigMap
metadata:
  creationTimestamp: null
  name: cloud-provider-config
  namespace: openshift-config
```

Create the cluster

Execute the following command to create the cluster and wait for it come up:

```
$ ./openshift-install create cluster --dir=<cluster_directory>
```

Export the kubeconfig so that oc can communicate with the cluster:

```
$ export KUBECONFIG=$(pwd)/<cluster_directory>/auth/kubeconfig
```



Make sure you can interact with the cluster:

```
$ oc get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
pmahajan-az-44bwz-master-0	Ready	master	14h	v1.17.1
pmahajan-az-44bwz-master-1	Ready	master	14h	v1.17.1
pmahajan-az-44bwz-master-2	Ready	master	14h	v1.17.1
pmahajan-az-44bwz-worker-centralus1-bc8mr	Ready	worker	13h	v1.17.1
pmahajan-az-44bwz-worker-centralus2-xwr2h	Ready	worker	13h	v1.17.1
pmahajan-az-44bwz-worker-centralus3-mprvk	Ready	worker	13h	v1.17.1

Verify Hybrid networking

The network.operator cluster CR spec should look like the example below:

```
$ oc get network.operator cluster -o yaml
```

```
...
spec:
  clusterNetwork:
  - cidr: 10.128.0.0/14
    hostPrefix: 23
  defaultNetwork:
    ovnKubernetesConfig:
      hybridOverlayConfig:
        hybridClusterNetwork:
        - cidr: 10.132.0.0/14
          hostPrefix: 23
        type: OVNKubernetes
    serviceNetwork:
    - 172.30.0.0/16
  status: {}
...
```



Bring up the Windows node

Launch a *Windows 2019 Server Datacenter with Containers* instance and add it to the cluster.

Windows Node Installer

Windows Node Installer (WNI) is a tool that can automate the process of launching a Windows instance and prepare it for bootstrapping. For more details, please refer to the [README](#).

Download WNI v4.4.3-alpha on your Linux host and ensure you can execute it:

```
$ wget
https://github.com/openshift/windows-machine-config-bootstrapper/releases/download/v
4.4.3-alpha/wni
$ chmod +x wni
```

Azure stores the credentials as a JSON file at `~/.azure/osServicePrincipal.json` by default. `dir` is an optional argument. The directory path provided should exist on the system. Default is the current directory.

The following command will create the instance in your Azure account and will store credentials for logging into the instance in the directory path:

```
$ ./wni azure create --kubeconfig <path to OpenShift cluster>/auth/kubeconfig
--credentials ~/.azure/osServicePrincipal.json --image-id
MicrosoftWindowsServer:WindowsServer:2019-Datacenter-with-Containers:latest
--instance-type Standard_D2s_v3 --dir <directory>
```

The output of this command will give the private and public IP required for creating the host file in the [Setup Ansible connection](#) step.

You can now [setup Ansible](#) before moving on to the next steps.

If the Windows node cannot be brought up due to some reason using the automated Windows Node Installer (WNI) tool, the Windows node can also be brought up manually using the steps outlined in the [Appendix](#) section.



Setup Ansible connection

Now we can use Ansible to configure the windows host. On the Linux host, install ansible and pywinrm, as well as selinux-python bindings:

Note: This step assumes that python3 is installed on the system. Ansible will not work without python.

```
$ sudo dnf install python3-libselinux
$ pip install ansible==2.9 pywinrm selinux --user
```

Create a hosts file with the following information:

```
[win]

<public_ip> ansible_password=<password> private_ip=<private_ip>

[win:vars]
ansible_user=<username>
cluster_address=<cluster_address>
ansible_connection=winrm
ansible_ssh_port=5986
ansible_winrm_server_cert_validation=ignore
```

<cluster_address> is the cluster endpoint. It is the combination of your cluster name and the base domain for your cluster.

```
$ oc cluster-info | head -n1 | sed 's/.*\\//api.//g' | sed 's/:.*/g'
```

In Azure, <public_ip> is the public ip address of the Windows instance and can be found under <Windows node name>-ip (look at the screenshot below)

Please provide the IPv4 public ip here as <public_ip>

<input type="checkbox"/> winnode625	Network interface	Central US
<input type="checkbox"/> WinNode-ip	Public IP address	Central US

<username> and <password> are the login credentials for Windows instance. Note the username listed here must have administrative privileges. <private_ip> is the private IP of the node and can be found in the output of the Windows node creation using the automated [WNI](#) tool.



Here is an example hosts file:

```
[win]
40.69.185.26 ansible_password='mypassword' private_ip=10.0.32.7

[win:vars]
ansible_user=core
cluster_address=winc-cluster.winc.azure.devcluster.openshift.com
ansible_connection=winrm
ansible_ssh_port=5986
ansible_winrm_server_cert_validation=ignore
```

Test if Ansible is able to communicate with the Windows instance with the following command:

```
$ ansible win -i <name_of_the_hosts_file> -m win_ping -v
```

Note: If you do not want to provide the password in the hosts file, you can provide the same as an extra-variable to any ansible command. For example, the above command could be executed as:

```
$ ansible win -i <name_of_the_hosts_file> -m win_ping -v --extra-vars
"ansible_password=<password>"
```

Bootstrap the windows node

On a Linux host, run the Ansible Playbook that transfers the necessary files onto the Windows instance and bootstraps it so that it can join the cluster as a worker node.

Note: Playbook assumes you have jq installed. Your active RDP connection might be disrupted during the execution of the playbook.

Clone the github repository to download ansible playbook and all the required dependencies.

```
$ git clone https://github.com/openshift/windows-machine-config-bootstrapper.git
$ git fetch && git checkout release-4.4
```

Run the ansible playbook to bootstrap the windows worker node. Make sure you have at least 6GB of free space in /tmp directory.

```
$ ansible-playbook -i <path_to_hosts_file>
windows-machine-config-bootstrapper/tools/ansible/tasks/wsuo/main.yaml -v
```

```
$ oc get nodes -l kubernetes.io/os=windows
```



You can now see the Windows instance has joined the cluster

NAME	STATUS	ROLES	AGE	VERSION
winworker-obm7a	Ready	worker	2m11s	v1.17.1

API rate limit exceeded error when running WSU

WSU playbook uses GitHub API to fetch releases for WMCB. You might encounter an API rate limit exceeded error while running WSU playbook in TASK [Get release]. The issue occurs due to GitHub rate-limiting unauthenticated requests at 60 requests per hour. As a workaround, wait for the rate-limit to reset (at most 1 hour) before running the playbook again.



Test Windows workload

We can now create a pod that can be deployed on a Windows instance. We used an example [WebServer](#) deployment to create a pod:

Note: Given the size of Windows images, it is recommended to pull the Docker image mcr.microsoft.com/windows/servercore:ltsc2019 on the instance first, before creating the pods.

On Windows instance, run the following command in a PowerShell window:

```
> docker pull mcr.microsoft.com/windows/servercore:ltsc2019
```

Note: Refer [RDP section](#) to set up and RDP into your windows node

On the Linux host, deploy the pods:

```
$ oc create -f
https://gist.github.com/suhanime/683ee7b5a2f55c11e3a26a4223170582/raw/d89
3db98944bf615fccfe73e6e4fb19549a362a5/WinWebServer.yaml -n default
```

Once the deployment has been created, we can check the status of the pods:

```
$ oc get pods -n default
```

NAME	READY	STATUS	RESTARTS	AGE
win-webserver-6f5bdc5b95-x65tq	1/1	Running	0	14m

We have created a service of [LoadBalancer](#) type:

```
$ oc get service win-webserver -n default
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
win-webserver	LoadBalancer	172.30.0.31	20.185.74.192	80:31412/TCP	17m

```
$ curl 20.185.74.192:80
<html><body><H1>Windows Container Web Server</H1><p>IP 10.132.1.2 callerCount 4
</body></html>
```

Deploying in a namespace other than default

In order to deploy into a different namespace SCC must be disabled in that namespace. This should never be used in production, and any namespace that this has been done to should not be used to run Linux pods.



To skip SCC for a namespace, the label `openshift.io/run-level = 1` should be applied to the namespace. This will apply to both Linux and windows pods, and thus Linux pods should not be deployed into this namespace.

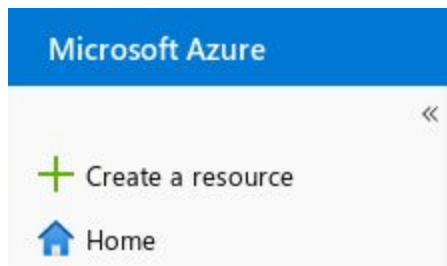
For example, to create a new project and apply the label:

```
$ oc new-project <project_name>
$ oc label namespace <project_name> "openshift.io/run-level=1"
```

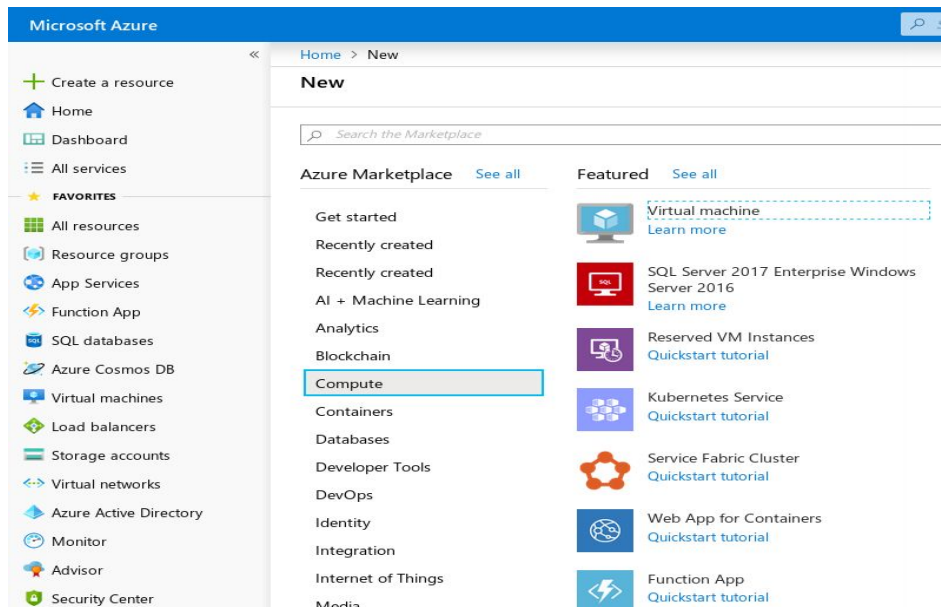
Appendix

Bring up the Windows node using the Azure portal

Login into the [Azure portal](#). Navigate to the resource group related to your cluster, to see the masters and workers running. Select **Create a resource** on the top left:



Select **Virtual Machine** under Compute:



STEP 1: Provide your cluster's resource group and its region as the **Resource Group** and **Region** (We want to ensure the instance is created in the same region and is a part of the OpenShift cluster). The image should be **Windows Server 2019 Datacenter with Containers** and the size should be **Standard_D2s_v3**:

Note: The image might not be populated in the drop down automatically.

Basics Disks Networking Management Advanced Tags Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image.
Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization.

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 * ⓘ
[Create new](#)

Instance details

Virtual machine name * ⓘ ✓

Region * ⓘ

Availability options ⓘ

Image * ⓘ
[Browse all public and private images](#)



Administrator account

Username * ⓘ	<input type="text" value="core"/>	✓
Password * ⓘ	<input type="password" value="••••••••••"/>	✓
Confirm password * ⓘ	<input type="password" value="••••••~•••••"/>	✓

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 * ⓘ	<input checked="" type="radio"/> None <input type="radio"/> Allow selected ports
Select inbound ports	<input type="text" value="Select one or more ports"/>

i All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

STEP 2: In the Networking tab, ensure the Virtual Network points to the same Virtual Network that your cluster is part of, and the subnet points to the **worker subnet** of the cluster. We also want a public ip to be created, so that we can RDP into the instance:

Basics	Disks	Networking	Management	Advanced	Tags	Review + create
<p>Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. Learn more</p> <h3>Network interface</h3> <p>When creating a virtual machine, a network interface will be created for you.</p>						
Virtual network * ⓘ	<input type="text" value="pmahajan-az-msj6n-vnet"/> Create new					
Subnet * ⓘ	<input type="text" value="pmahajan-az-msj6n-worker-subnet (10.0.32.0/19)"/> Manage subnet configuration					
Public IP ⓘ	<input type="text" value="(new) winnode-ip"/> Create new					
NIC network security group ⓘ	<input checked="" type="radio"/> None <input type="radio"/> Basic <input type="radio"/> Advanced					
<p>i The selected subnet 'pmahajan-az-msj6n-worker-subnet (10.0.32.0/19)' is already associated to a network security group 'pmahajan-az-msj6n-node-</p>						



In the Load balancing section, enable the load balancer of type **Azure load balancer** and place the virtual machine behind the same load balancer as other worker nodes, i.e. a load balancer which is neither the `internal-lb` nor the `public-lb` as highlighted in the image below:

You might see 3 different load balancers similar to the ones shown in the image. Select the load balancer which corresponds to the name of your cluster. In the image below, **pmahajan-az-msj6n** is the load balancer that needs to be picked up for this example workflow.

pmahajan-az-msj6n

resource group: pmahajan-az-msj6n-rg

pmahajan-az-msj6n-internal-lb

resource group: pmahajan-az-msj6n-rg

pmahajan-az-msj6n-public-lb

resource group: pmahajan-az-msj6n-rg

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Place this virtual machine behind an existing load balancing solution? ☒ Yes ☐ No

Load balancing settings

- **Application Gateway** is an HTTP/HTTPS web traffic load balancer with URL-based routing, SSL termination, session persistence, and web application firewall. [Learn more about Application Gateway](#)
- **Azure Load Balancer** supports all TCP/UDP network traffic, port-forwarding, and outbound flows. [Learn more about Azure Load Balancer](#)

Load balancing options * ⓘ

Azure load balancer

Select a load balancer * ⓘ

pmahajan-az-msj6n

Select a backend pool * ⓘ

pmahajan-az-msj6n

[Create new](#)

STEP 3: Under the **Tags** section, pick the tag of your cluster and set the value to owned:



STEP 4: Review and create the instance:

Create a virtual machine

✓ Validation passed

Basics

Subscription	OpenShift Team Windows Container
Resource group	pmahajan-az-msj6n-rg
Virtual machine name	winnode
Region	Central US
Availability options	No infrastructure redundancy required
Username	core
Already have a Windows license?	No
Azure Spot	No

Disks

OS disk type	Premium SSD
Use managed disks	Yes
Use ephemeral OS disk	No

Networking

Virtual network	pmahajan-az-msj6n-vnet
Subnet	pmahajan-az-msj6n-worker-subnet (10.0.32.0/19)
Public IP	(new) winnode-ip
NIC network security group	None
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	Yes
Load balancing options	LoadBalancer
Select a load balancer	pmahajan-az-msj6n
Select a backend pool	pmahajan-az-msj6n

The portal will tell you once the instance is ready:



Deployment

CreateVm-MicrosoftWindowsServer.WindowsServer-201-20200326164114 | Overview

Search (Ctrl+ /)

Delete Cancel Redeploy Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsS...

Subscription: OpenShift Team Windows Container

Resource group: pmahajan-az-msj6n-rg

Start time: 3/26/2020, 5:15:10 PM

Correlation ID: 2ef02095-48bf-4346-867d-dcc9009348bd

Deployment details (Download)

Next steps

Setup auto-shutdown Recommended

Monitor VM health, performance and network dependencies Recommended

Run a script inside the virtual machine Recommended

Go to resource

Now we need to set the security groups that will allow us to RDP to the node. Under your resource group, find the Network Security Group for the **<cluster name>-node-nsg** (This is the worker network security group)

<input type="checkbox"/>	pmahajan-az-msj6n-controlplane-nsg	Network security group	Central US
<input checked="" type="checkbox"/>	pmahajan-az-msj6n-node-nsg	Network security group	Central US
<input type="checkbox"/>	pmahajan-az.winc.azure.devcluster.openshift.com	Private DNS zone	global

STEP 5: Select the **Inbound security rules** on the left panel:

Settings

Inbound security rules

Outbound security rules



Add the following rules that will allow us to RDP into the instance, remotely manage with Ansible, and open up the communication from within the cluster. The **Source IP** for RDP and WinRM is the public ip address of your machine followed by **/32**.

You can get your public ip address by running the following command:

```
$ curl ifconfig.co
```

Security rule to allow access through RDP:

Source * ⓘ

IP Addresses

Source IP addresses/CIDR ranges * ⓘ

144.121.20.163/32

Source port ranges * ⓘ

*

Destination * ⓘ

Any

Destination port ranges * ⓘ

3389

Protocol *

Any TCP UDP ICMP

Action *

Allow Deny

Priority * ⓘ

511

Name *

RDP



Security rule for WinRM:

Source * ⓘ

IP Addresses ✓

Source IP addresses/CIDR ranges * ⓘ

144.121.20.163/32 ✓

Source port ranges * ⓘ

*

Destination * ⓘ

Any ✓

Destination port ranges * ⓘ

5986 ✓

Protocol *

Any TCP UDP ICMP

Action *

Allow Deny

Priority * ⓘ

521

Name *

WinRMHTTPS ✓

Security rule to open up communication within the cluster:



Source * ⓘ
IP Addresses ✓

Source IP addresses/CIDR ranges * ⓘ
10.0.0.0/16 ✓

Source port ranges * ⓘ
*

Destination * ⓘ
Any ✓

Destination port ranges * ⓘ
0-65535 ✓

Protocol *
Any TCP UDP ICMP

Action *
Allow Deny

Priority * ⓘ
531

Name *
All_traffic ✓

The final rules should look like the following:

Priority	Name	Port	Protocol	Source	Destination	Action	
500	a9527ca8529d04412bd1f3ef...	80	TCP	Internet	52.141.216.100	✓ Allow	...
501	a9527ca8529d04412bd1f3ef...	443	TCP	Internet	52.141.216.100	✓ Allow	...
511	RDP	3389	TCP	144.121.20.163...	Any	✓ Allow	...
521	WinRMHTTPS	5986	TCP	144.121.20.163...	Any	✓ Allow	...
531	All_traffic	0-65535	Any	10.0.0.0/16	Any	✓ Allow	...
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	✓ Allow	...
65001	AllowAzureLoadBalancerInBou...	Any	Any	AzureLoadBala...	Any	✓ Allow	...
65500	DenyAllInBound	Any	Any	Any	Any	✗ Deny	...

STEP 6: Note the private IP of your windows worker node. This is required for creating the host file in the [Setup Ansible Connection](#) step.



Microsoft Azure

Search resources, services, and docs (G+)

mankulka-05-r95tg-worker-centralus3-9wp2s > mankulka-05-r95tg-vnet > mankulka-05-r95tg-winworker--m9Dex-nic

mankulka-05-r95tg-winworker--m9Dex-nic

Network interface

Search (Ctrl+/)

Move Delete Refresh

Overview

Activity log

Access control (IAM)

Tags

Settings

IP configurations

Resource group (change) : mankulka-05-r95tg-rg

Location : Central US

Subscription (change) : OpenShift Team Windows Container

Subscription ID : 5f675811-04fa-483f-9709-ffd8a9da03f0

Tags (change) : Click here to add tags

Private IP address : 100.32.7

Virtual network/subnet : mankulka-05-r95tg-vnet/mankulka-05-r95tg-worker-subnet

Public IP address : 104.43.244.72 (mankulka-05-r95tg-winworker--m9Dex-ip)

Network security group : mankulka-05-r95tg-node-nsg

Attached to : winworker-m9Dex

Now you can [setup Ansible](#)

RDP Setup

Install a RDP tool:

For Fedora, we used freerdp.

```
$ sudo dnf install freerdp
```

You can see the **Public IP** by looking at the **<Name of Windows instance>-ip** under your resource group. The user sets up the password while creating the virtual machine. There is no way to recover this once the machine is created. You can reset the password through **Azure Portal > Virtual Machine > Settings > Reset Password**.

	Public IP address	Central US
Resource group (change) : sumehta-cluster9-pm4xx-rg	SKU : Basic	
Location : Central US	IP address : 104.43.195.115	
Subscription (change) : OpenShift Team Windows Container	DNS name : -	
Subscription ID : 5f675811-04fa-483f-9709-ffd8a9da03f0	Associated to : winnode16	
	Virtual machine : winnode	

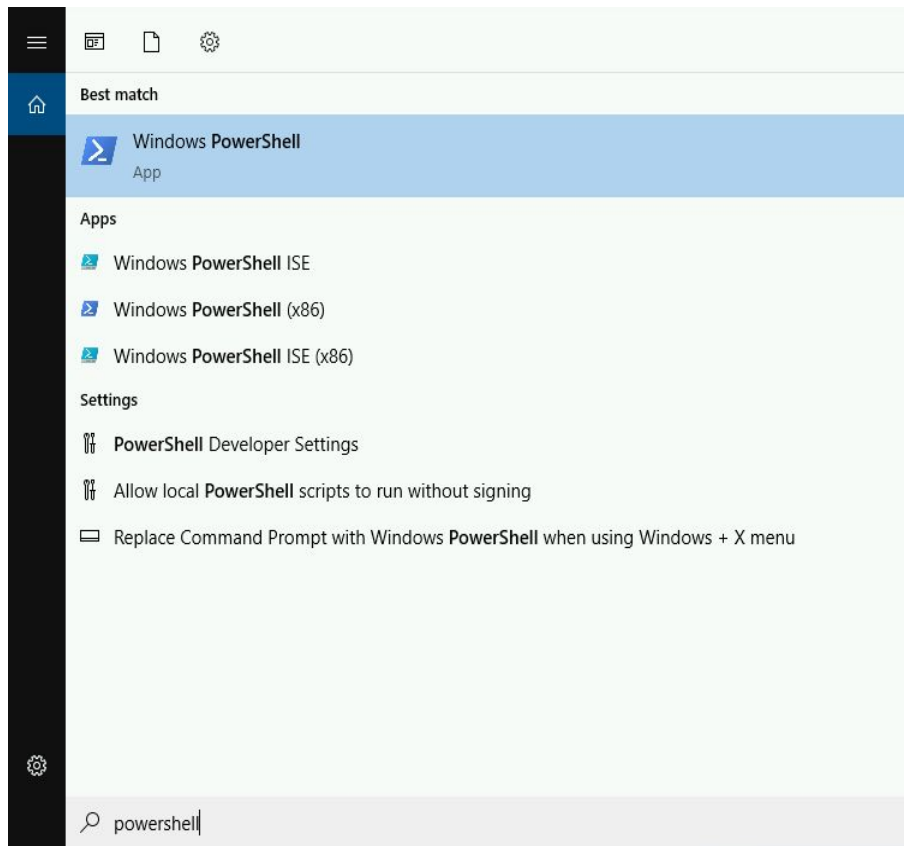
```
$ xfreerdp /u:<username of Windows instance> /v:<Public IP of Windows instance> /p:'<password>' /f
```

You can now see a Windows screen come up.

Setup on Windows instance

Enable WinRM

Bring up PowerShell and execute the following commands:



```
> $url =  
"https://raw.githubusercontent.com/ansible/ansible/devel/examples/scripts/ConfigureRemotingForAnsible.ps1"  
$file = "$env:temp\ConfigureRemotingForAnsible.ps1"  
(New-Object -TypeName System.Net.WebClient).DownloadFile($url, $file)  
powershell.exe -ExecutionPolicy ByPass -File $file
```

Enable Console logs

Open TCP port 10250 in the Windows Firewall so that logs can be viewed in console and using `oc logs`. On your Windows instance, execute the following in a PowerShell window:

```
> New-NetFirewallRule -DisplayName "Enable console logs" -Direction Inbound -Action Allow -Protocol TCP -LocalPort 10250 -EdgeTraversalPolicy Allow
```