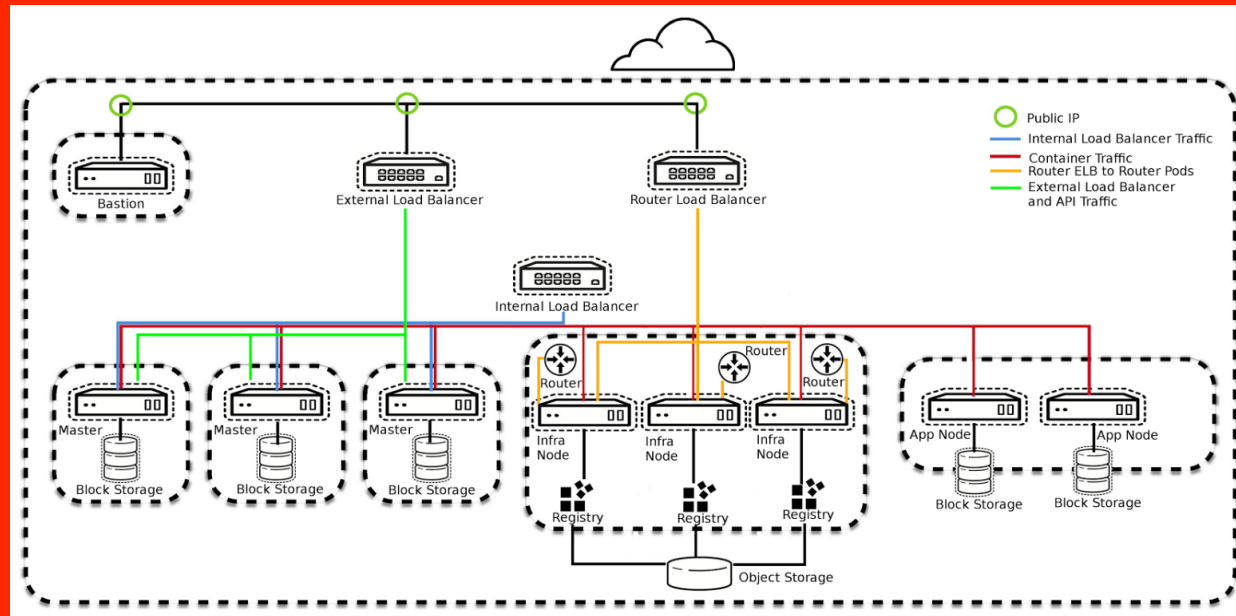


HowTo: Bare Metal OpenShift Windows and Linux



Glenn West, Principle Engineer
How-To

Overview

- Nodes Needed
- Windows Requirements and Preparation
- OVN Setup
- Windows Setup

Where To Find It

- OVN and Windows Setup
 - <https://github.com/glennswest/hybrid>

Usage – 2 ways to use

- Use the hybrid-openshift-contrib
 - Provides the auto creation of a complete cluster and all the related infrasturure.
 - 3 Masters, 3 Infra, 1 or more compute nodes, and 1 or more windows nodes
 - Requires OpenShift Subscriptions/Rhel and/or Employee Subscription
 - Requires a Azure Subscription
- Hybrid Scripts (Covered in this doc)
 - Self provision bare metal or Any cloud provider, provide a ansible host file, and use the ansible OVN and Windows scripts. Assume you have a bastion host.

Hosts Needed

- All machines running RHEL 7.4 or later
- A Bastion Host (Small machine / VM – Min 2 cores and 8G Memory)
- Qty 3 Infra Nodes (Small Machine / VM – Min 4 cores and 12G)
- Qty 3 Master Nodes (Small Machine / VM – Min 4 cores and 12G)
- Qty 1 or more Compute Nodes (Min 4 cores and 12G)
- Qty 1 Windows Nodes (Min 4 cores and 12 Gig)

Subscriptions

- Scripts are tested with 3.9 GA Openshift – Subscription Required
- RHEL Subscription is Required
- Windows License is required, and must be able to update image

Windows Version

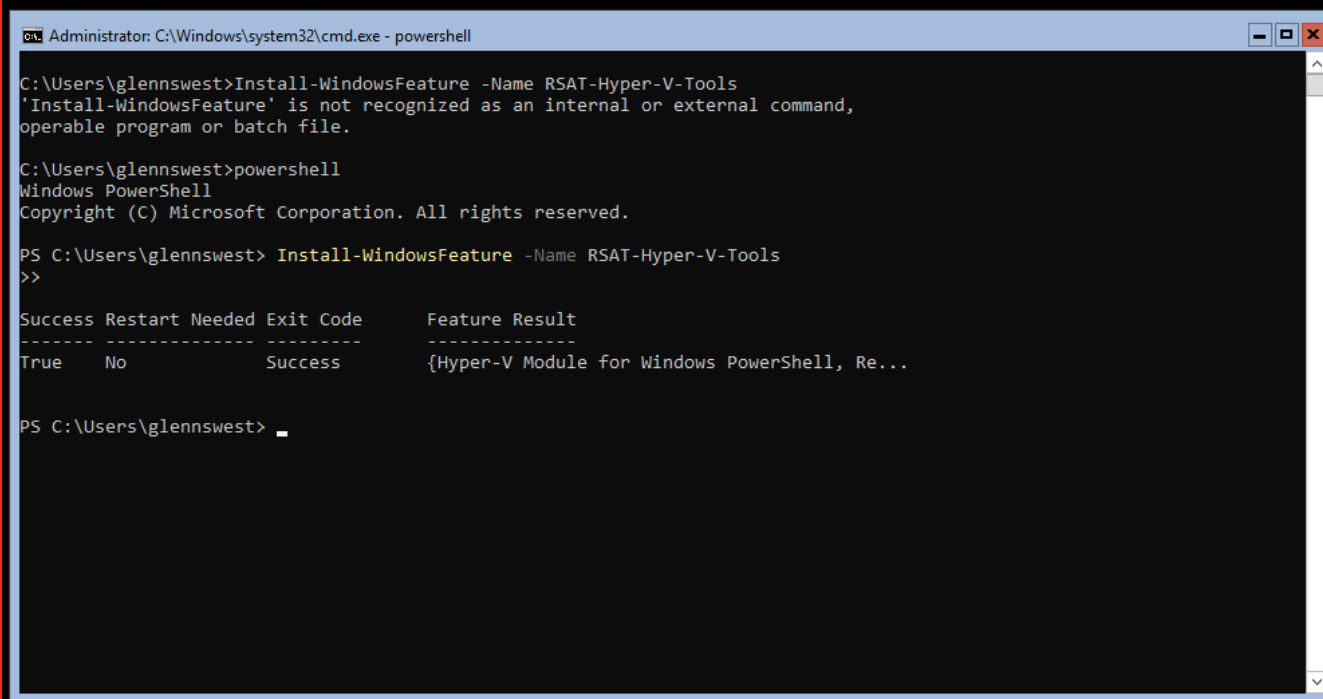
- Windows Datacenter Core 1709 with Containers
 - Disk size must be 120Gig or Greater (Must expand partition to full size)
- Must be updated to latest patches.
- Initial Node Setup is required.

Windows Nodes Preparation – Ansible Setup

- Login to Each node via RDP or Console
- Download <https://github.com/glennswest/hybrid/winansible.ps1>
- Execute as administrator
- This must be run on each node to used for openshift

Install RSAT Feature

- Type: powershell
- Type: Install-WindowsFeature -Name RSAT-Hyper-V-Tools



```
C:\Users\glennswest>Install-WindowsFeature -Name RSAT-Hyper-V-Tools
'Install-WindowsFeature' is not recognized as an internal or external command,
operable program or batch file.

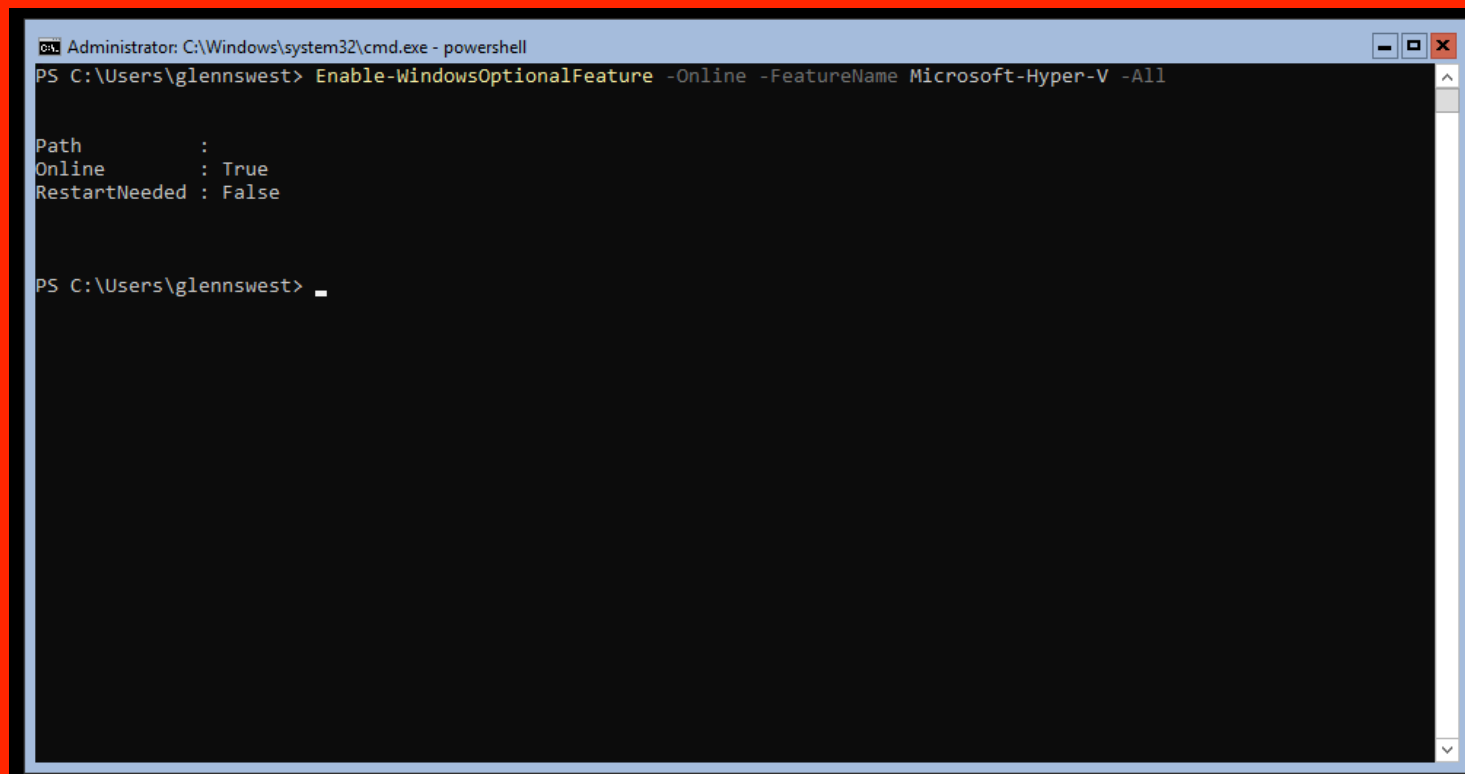
C:\Users\glennswest>powershell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\glennswest> Install-WindowsFeature -Name RSAT-Hyper-V-Tools
>>

Success Restart Needed Exit Code      Feature Result
-----
True     No                Success      {Hyper-V Module for Windows PowerShell, Re...
```

Install HyperV

- Type: `Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All`



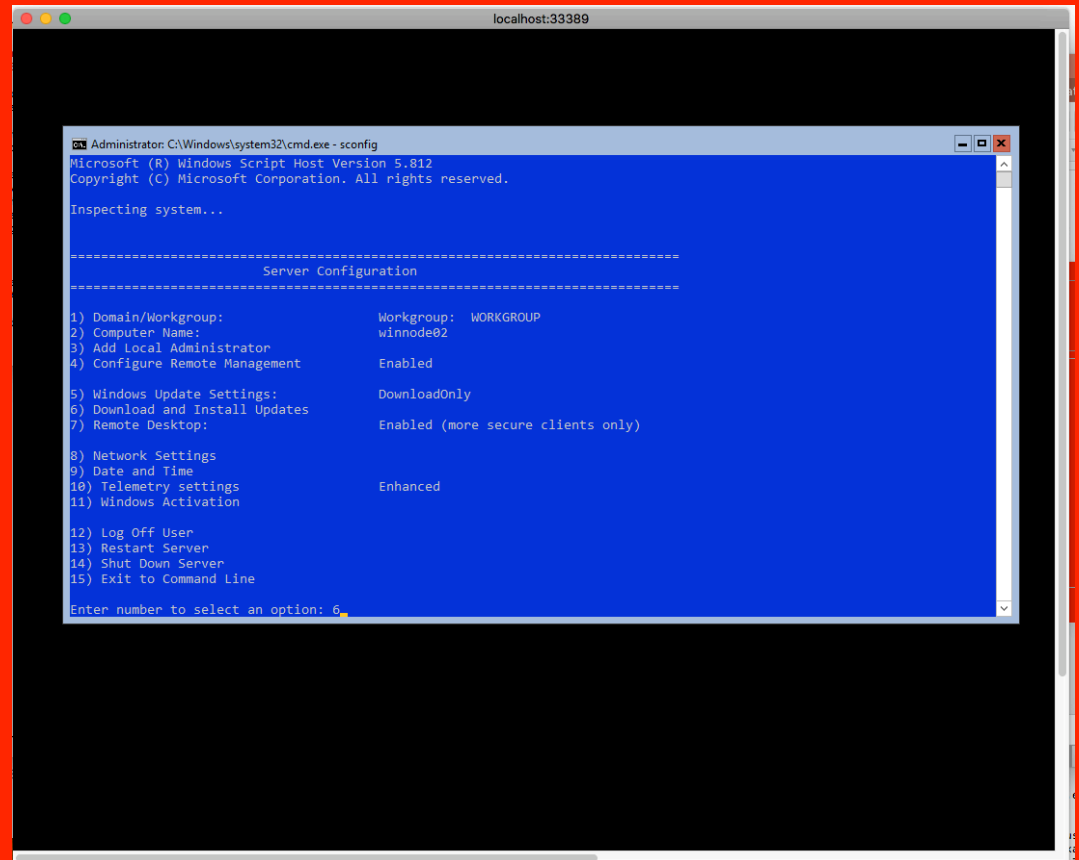
```
Administrator: C:\Windows\system32\cmd.exe - powershell
PS C:\Users\glennswest> Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All

Path      :
Online    : True
RestartNeeded : False

PS C:\Users\glennswest> _
```

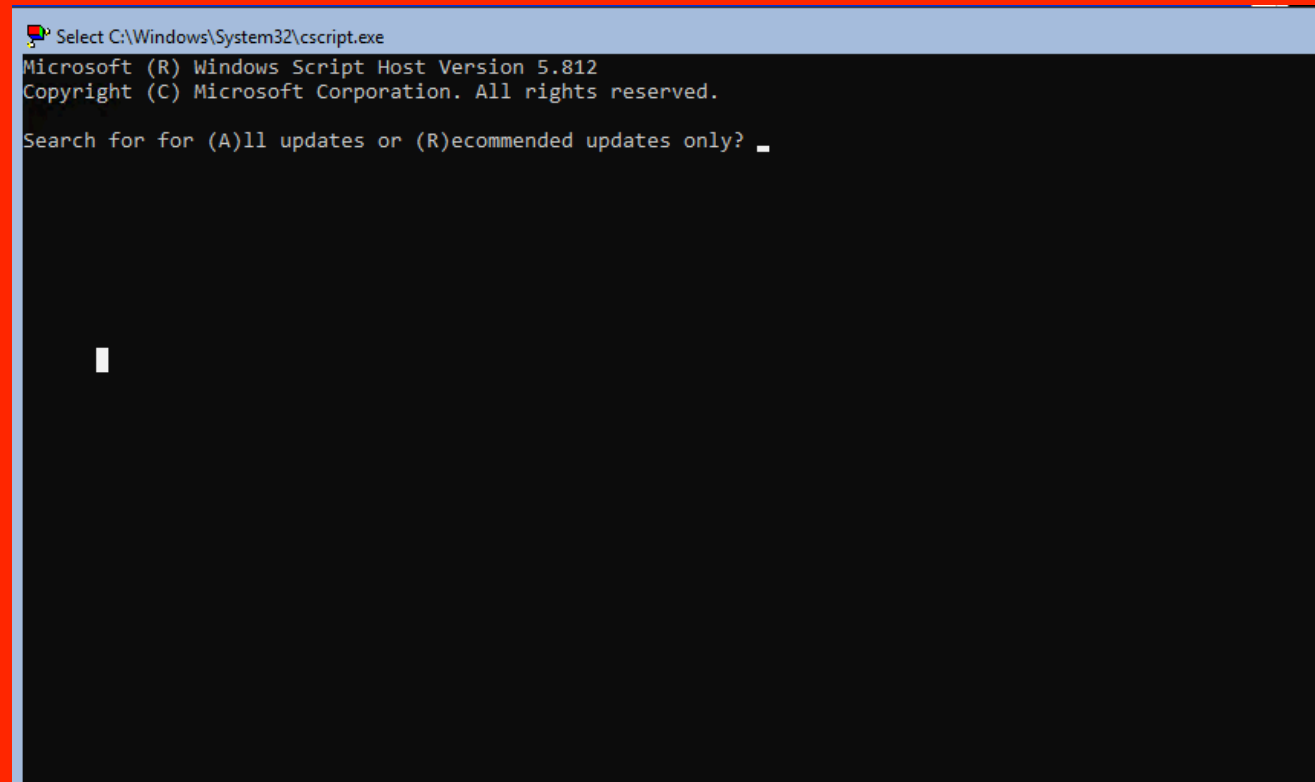
Update the Windows Machine

- Run sconfig
- Type: 6



Windows Update

- Type: A
- After update, reboot the windowsnode



The screenshot shows a Windows Script Host window titled "Select C:\Windows\System32\cscript.exe". The window contains the following text: "Microsoft (R) Windows Script Host Version 5.812", "Copyright (C) Microsoft Corporation. All rights reserved.", and "Search for for (A)ll updates or (R)ecommended updates only? _". A cursor is visible on the line "Search for for (A)ll updates or (R)ecommended updates only? _".

Next Step: On bastion host

- Login to the bastion host
- As Root:
 - `yum -y install git`
 - `git clone https://github.com/glennswest/hybrid`
 - `yum install -y ansible`
 - `cd hybrid`

Prepare on bastion to use ansible for Windows

- Uses Ansible on Windows
- Must have a windows group in ansible inventory
- If using script separately, must do some setup before:

```
echo "Setup for windows nodes"
yum -y install --enablerepo="epel" python-devel krb5-devel krb5-libs krb5-workstation python-kerberos python-setuptools
yum -y install --enablerepo="epel" python-pip
pip install "pywinrm>=0.2.2"
pip install pywinrm[kerberos]
yum install -y python-dns
```

Running the presetup

```
glennswest@bastion: ~/hybrid — ssh - bash — 113x52
[glennswest@bastion hybrid]$ ansible-playbook presetup_windows.yml
[DEPRECATION WARNING]: Instead of sudo/sudo_user, use become/become_user and make sure become_method is 'sudo'
(default). This feature will be removed in version 2.6. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [127.0.0.1] *****

TASK [debug] *****
ok: [127.0.0.1] => {
  "msg": "User is glennswest"
}

TASK [Enable Pip] *****
changed: [127.0.0.1]

TASK [Install PIP and Related] *****
[WARNING]: Consider using yum module rather than running yum
changed: [127.0.0.1]

TASK [disable epel] *****
changed: [127.0.0.1]

TASK [Install PIP and Related] *****
changed: [127.0.0.1]

TASK [Install pywinrm] *****
changed: [127.0.0.1]

TASK [Install pywinrm keberos] *****
changed: [127.0.0.1]

PLAY [windows] *****

TASK [Remove Old Bin if it exists] *****
ok: [winnode01]
ok: [winnode02]

TASK [Create Bin Directory] *****
changed: [winnode02]
changed: [winnode01]

TASK [Set Bin Path] *****
changed: [winnode02]
changed: [winnode01]

TASK [Set Path] *****
changed: [winnode02]
changed: [winnode01]

TASK [Install Package Manager] *****
changed: [winnode01]
```

```
glennswest@bastion: ~/hybrid — ssh - bash — 113x52
changed: [winnode01]

TASK [Install Package Manager] *****
changed: [winnode01]
changed: [winnode02]

TASK [Install 7zip] *****
changed: [winnode01]
changed: [winnode02]

TASK [Install Vim] *****
changed: [winnode01]
changed: [winnode02]

TASK [Install git] *****
changed: [winnode02]
changed: [winnode01]

TASK [Install wget] *****
changed: [winnode01]
changed: [winnode02]

TASK [Enable Hyper-V] *****
changed: [winnode02]
changed: [winnode01]

TASK [Pull openvswitch] *****
changed: [winnode02]
changed: [winnode01]

TASK [Install open vswitch] *****
changed: [winnode01]
changed: [winnode02]

TASK [Turn off Advfireall profiles] *****
changed: [winnode02]
changed: [winnode01]

TASK [Start ovs service] *****
changed: [winnode02]
changed: [winnode01]

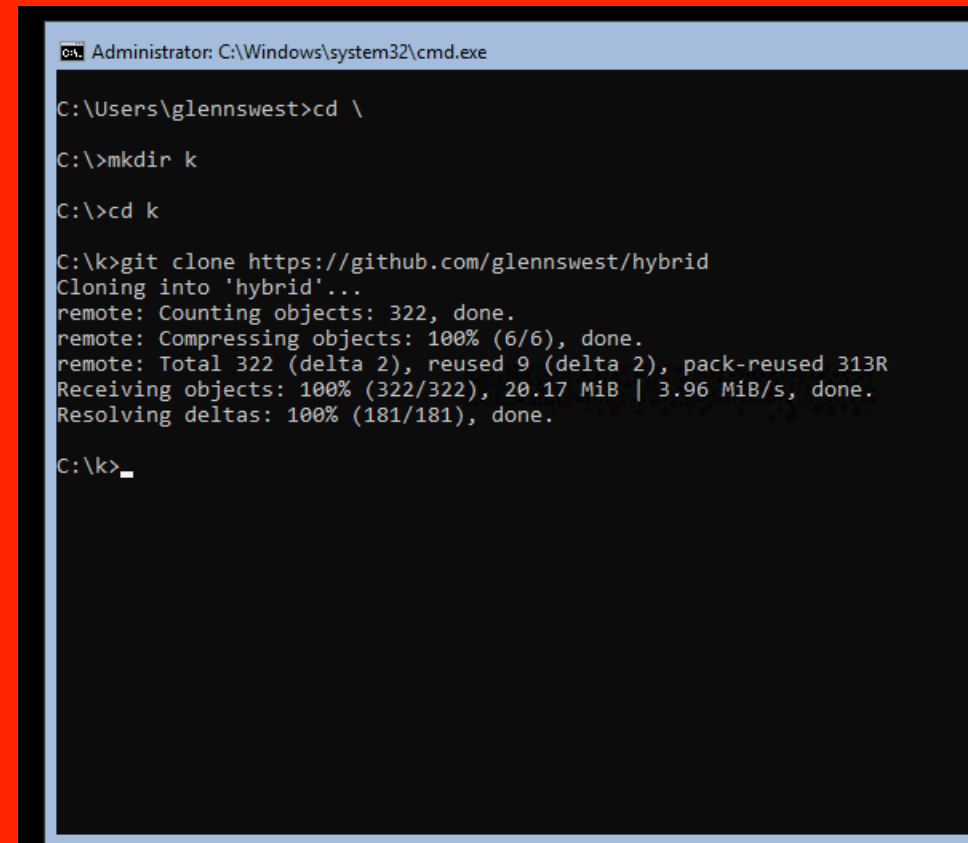
TASK [Set up path for ovn] *****
changed: [winnode01]
changed: [winnode02]

PLAY RECAP *****
127.0.0.1      : ok=7    changed=6    unreachable=0    failed=0
winnode01     : ok=15   changed=14   unreachable=0    failed=0
winnode02     : ok=15   changed=14   unreachable=0    failed=0

[glennswest@bastion hybrid]$
```

On the Windows Machine

- Create a c:\k directory
- Retrieve the hybrid repo
 - cd \
 - mkdir k
 - cd k
 - git clone <https://github.com/glennswest/hybrid>



```
Administrator: C:\Windows\system32\cmd.exe

C:\Users\glennswest>cd \

C:\>mkdir k


C:\>cd k

C:\k>git clone https://github.com/glennswest/hybrid
Cloning into 'hybrid'...
remote: Counting objects: 322, done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 322 (delta 2), reused 9 (delta 2), pack-reused 313R
Receiving objects: 100% (322/322), 20.17 MiB | 3.96 MiB/s, done.
Resolving deltas: 100% (181/181), done.

C:\k>_
```


Setup the docker network

- `cd \k\hybrid\bin`
- `docker-create.ps1`
- NOTE: The connection to rdp may be lost for a short while.

 Administrator: C:\Windows\system32\cmd.exe - powershell

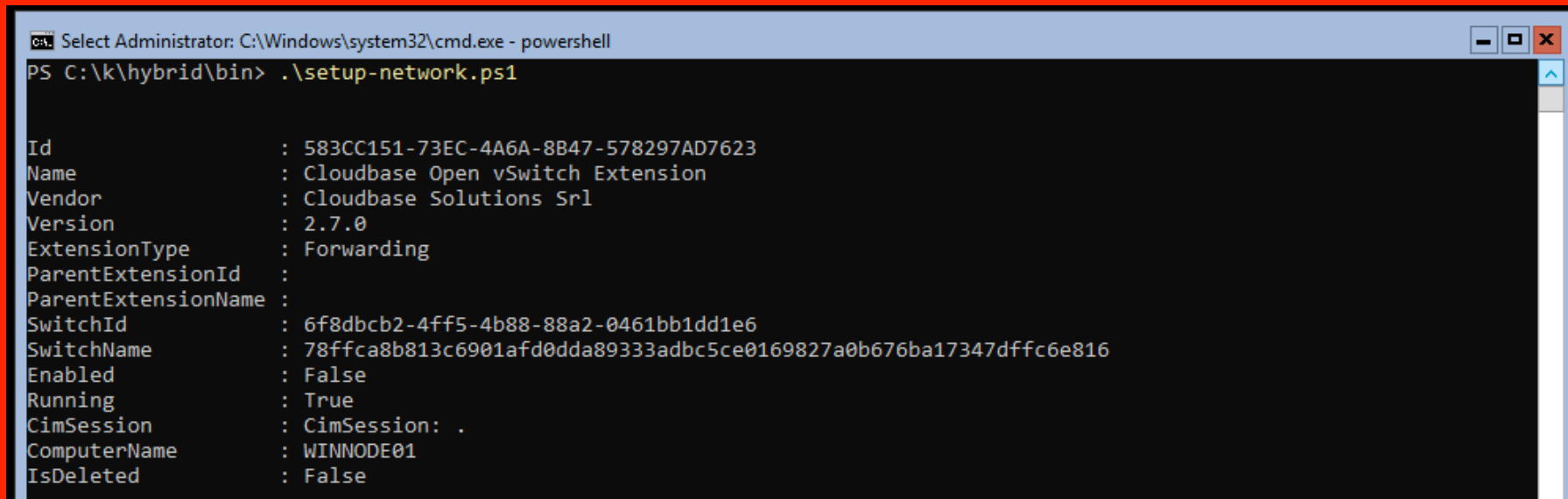
```
PS C:\k\hybrid\bin> .\docker-create.ps1
```

```
78ffca8b813c6901afd0dda89333adbc5ce0169827a0b676ba17347dffc6e816
```

```
PS C:\k\hybrid\bin> _
```

Create the full SDN Network

- `.\setup-network.ps1`



```
PS C:\k\hybrid\bin> .\setup-network.ps1

Id                : 583CC151-73EC-4A6A-8B47-578297AD7623
Name              : Cloudbase Open vSwitch Extension
Vendor           : Cloudbase Solutions Srl
Version          : 2.7.0
ExtensionType     : Forwarding
ParentExtensionId : 
ParentExtensionName : 
SwitchId         : 6f8dbcb2-4ff5-4b88-88a2-0461bb1dd1e6
SwitchName       : 78ffca8b813c6901afd0dda89333adbc5ce0169827a0b676ba17347dffc6e816
Enabled          : False
Running          : True
CimSession       : CimSession: .
ComputerName     : WINNODE01
IsDeleted        : False
```

Install OpenShift

- Connect to your bastion host
- Use the OpenShift Advanced Installer and do a new install
- Important variables in the host file:
 - `oreg_url=registry.access.redhat.com/openshift3/ose-${component}:${version}`
 - `openshift_use_openshift_sdn=false`
 - `os_sdn_network_plugin_name=cni`
 - `deployment_type=openshift-enterprise`

Openshift Required Host Names

- Masters
 - master1
 - master2
 - Master3
- Infranodes
 - Infranode1
 - Infranode2
 - Infranode3
- Compute
 - node01
- Windows
 - winnode01
 - winnode02

Next Step (After OpenShift Install)

- Run:
 - As root: `ansible-playbook ovn_presetup.yml`
 - As root: `ansible-playbook ovn_postsetup.yml`
 - As root: `windows.yml`

Setting up Windows group_vars

- Must create a group_vars to setup windows nodes
- The following is done automatically in bastion.sh in the ARM template

```
echo "Setup group_vars for windows machines"
mkdir /home/${AUSERNAME}/group_vars
cat <<EOF > /home/${AUSERNAME}/group_vars/windows
ansible_user: ${AUSERNAME}
ansible_password: ${PASSWORD}
ansible_port: 5986
ansible_connection: winrm
# The following is necessary for Python 2.7.9+ (or any older Python that has backported SSLContext, eg, Python 2.7.5 on RHEL7) when using default WinRM self-signed
ansible_winrm_server_cert_validation: ignore
EOF
```

Hybrid Script – Windows Node Setup

The screenshot shows a web browser displaying the GitHub repository page for 'glennswest / hybrid'. The browser's address bar shows the URL 'https://github.com/glennswest/hybrid'. The repository page has a dark header with the GitHub logo, a search bar, and navigation links for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below the header, the repository name 'glennswest / hybrid' is displayed, along with buttons for 'Unwatch' (1), 'Star' (0), and 'Fork' (0). A secondary navigation bar includes tabs for 'Code', 'Issues' (0), 'Pull requests' (0), 'Projects' (0), 'Wiki', 'Insights', and 'Settings'. The main content area shows the repository title 'Openshift Windows Node Setup Script' with an 'Edit' button. Below the title, statistics are listed: '4 commits', '1 branch', '0 releases', and '1 contributor'. A row of buttons includes 'Branch: master', 'New pull request', 'Create new file', 'Upload files', 'Find file', and a green 'Clone or download' button. A list of files and folders is shown, including 'rsc7 Remove windows.retry' (with the latest commit '2750fb7' from 'a day ago'), 'group_vars' (with the description 'Add groupvars example'), '.gitignore' (with the description 'Remove windows.retry'), and 'windows.yml' (with the description 'Try pushing the full system:node:master1 dir'). At the bottom, a light blue banner encourages adding a README, with a green 'Add a README' button.

← → ↻ Secure | https://github.com/glennswest/hybrid

GitHub This repository Search Pull requests Issues Marketplace Explore

glennswest / hybrid Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Openshift Windows Node Setup Script Edit

Add topics

4 commits 1 branch 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find file Clone or download

rsc7 Remove windows.retry Latest commit 2750fb7 a day ago

group_vars	Add groupvars example	a day ago
.gitignore	Remove windows.retry	a day ago
windows.yml	Try pushing the full system:node:master1 dir	a day ago

Help people interested in this repository understand your project by adding a README. Add a README