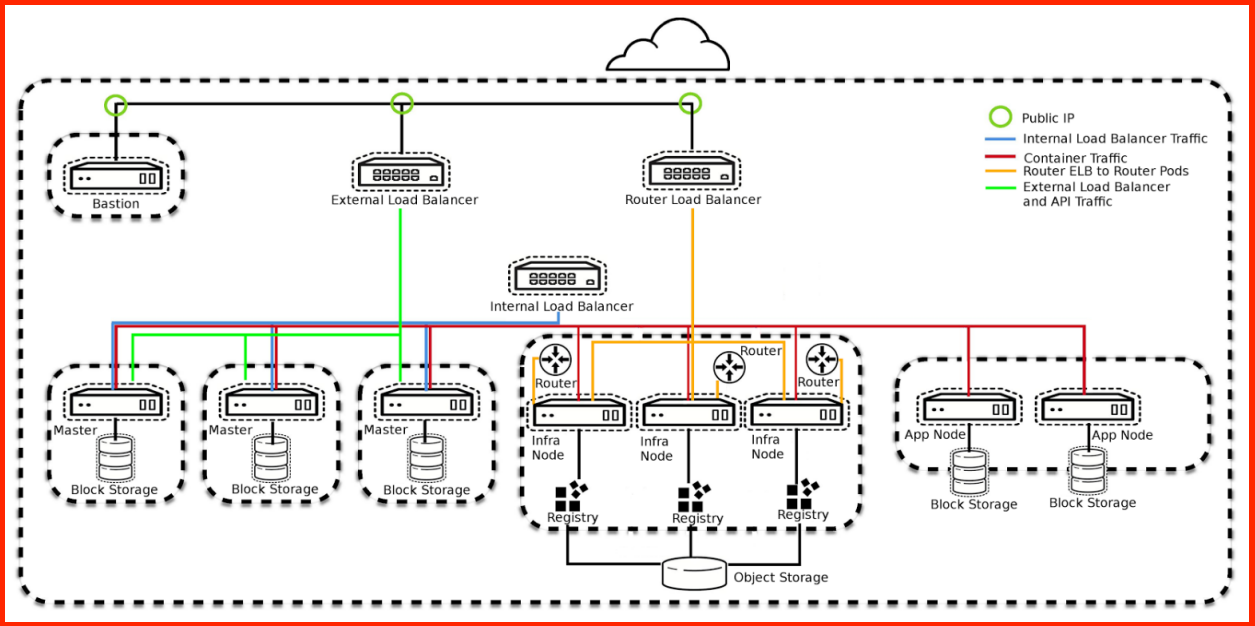
HowTo: Bare Metal OpenShift Windows and Linux



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How-To – July 6, 2018

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 1 Infra Nodes (Small Machine / VM – Min 4 cores and 12G)
- Qty 1 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

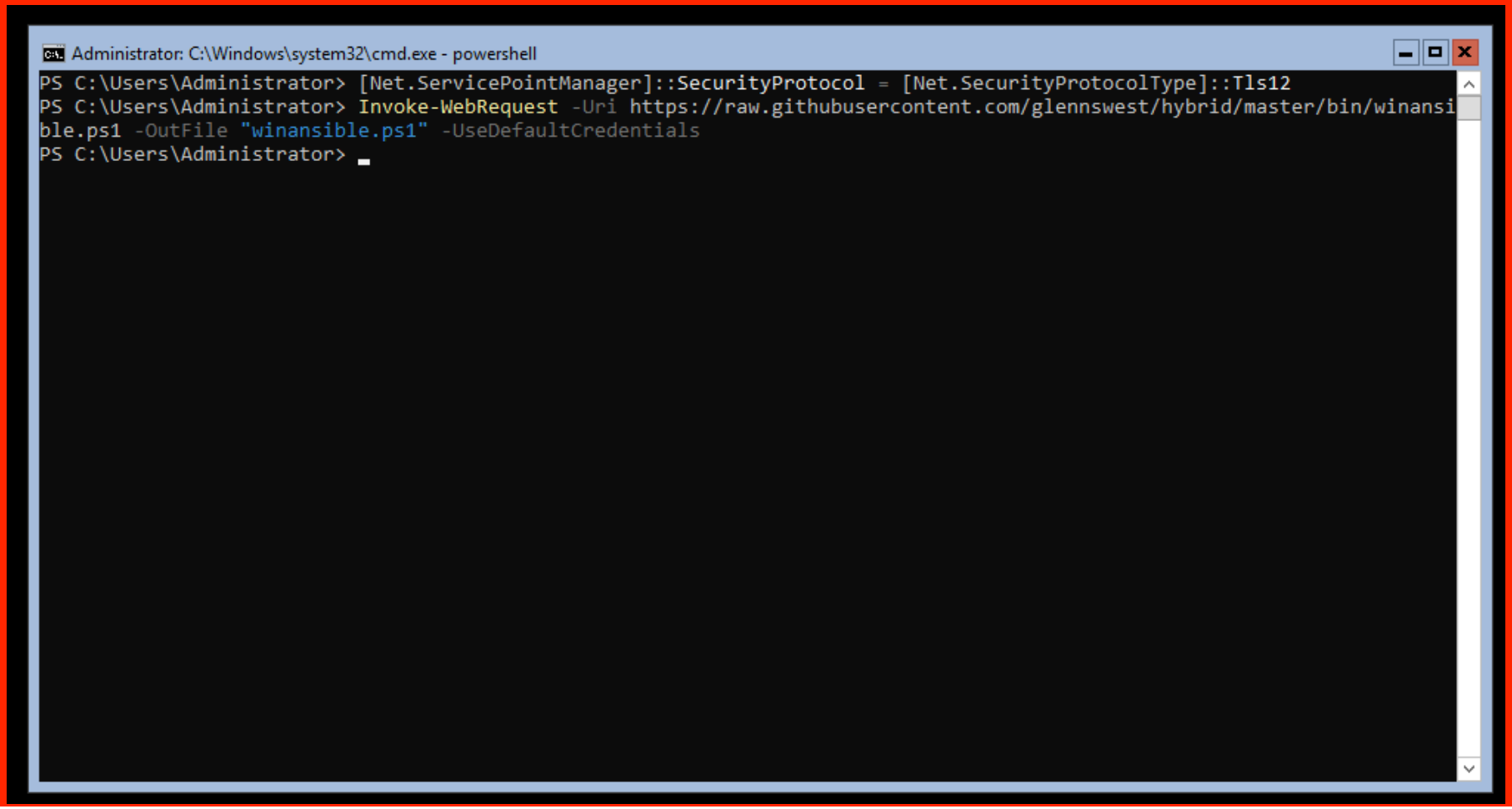
- Windows Datacenter Core 1709 with Containers
  - Disk size must be 120Gig or Greater (Must expand partition to full size)
- Must be updated to latest patches.
- Initial Node Setup is required.

Windows Nodes Preparation – Ansible Setup

- Login to Each node via RDP or Console
- Do the following commands as Administrator

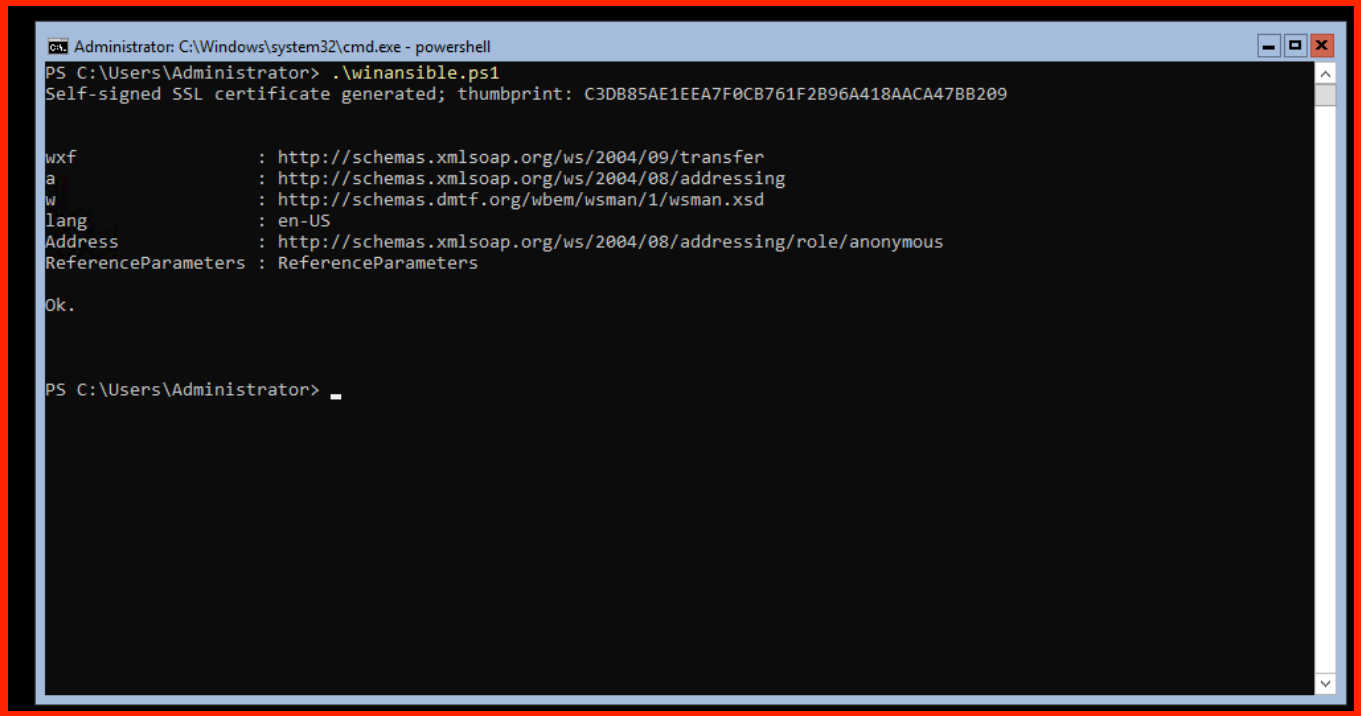
```
powershell
[Net.ServicePointManager]::SecurityProtocol = [Net.SecurityProtocolType]::Tls12
Invoke-WebRequest -Uri https://raw.githubusercontent.com/glennswest/hybrid/master/bin/winansible.ps1 -
OutFile "winansible.ps1" -UseDefaultCredentials
```

Example:


Administrator: C:\Windows\system32\cmd.exe - powershell
PS C:\Users\Administrator> [Net.ServicePointManager]::SecurityProtocol = [Net.SecurityProtocolType]::Tls12
PS C:\Users\Administrator> Invoke-WebRequest -Uri https://raw.githubusercontent.com/glennswest/hybrid/master/bin/winansible.ps1 -OutFile "winansible.ps1" -UseDefaultCredentials
PS C:\Users\Administrator>

Run the winansible script

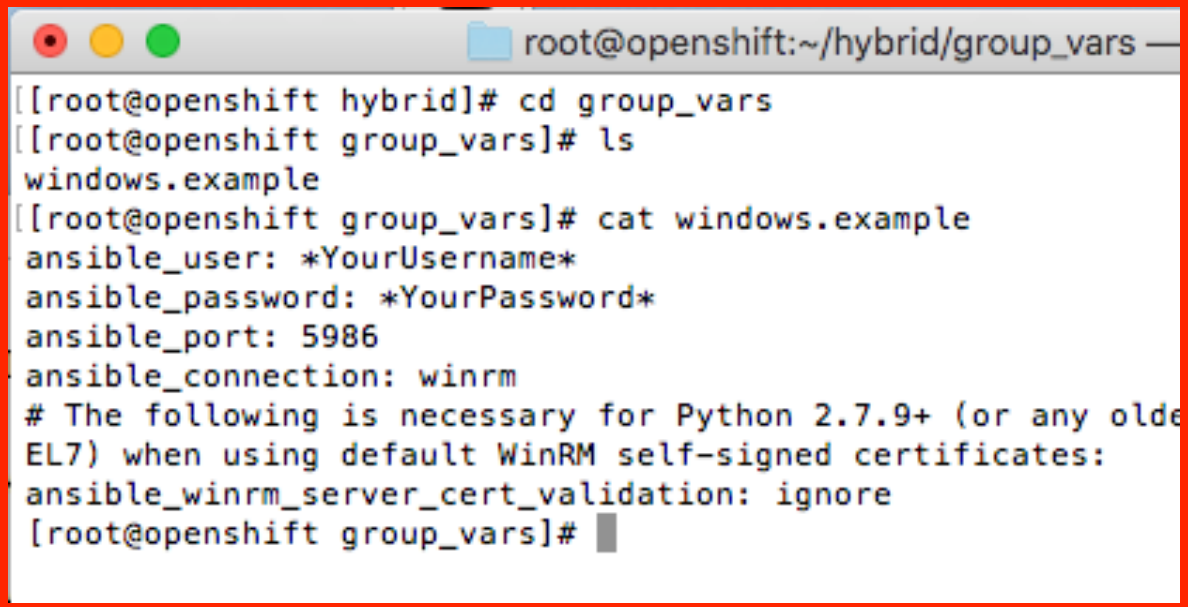
- To enable ansible to manage the windows node:



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
  - cp group_vars/windows.example to group_vars/windows
  - vi groupvars/windows
  - Set you username and password for windows nodes

Group Vars


root@openshift:~/hybrid/group_vars
[root@openshift hybrid]# cd group_vars
[root@openshift group_vars]# ls
windows.example
[root@openshift group_vars]# cat windows.example
ansible_user: *YourUsername*
ansible_password: *YourPassword*
ansible_port: 5986
ansible_connection: winrm
The following is necessary for Python 2.7.9+ (or any olde
EL7) when using default WinRM self-signed certificates:
ansible_winrm_server_cert_validation: ignore
[root@openshift group_vars]#

Prepare on bastion to use ansible for Windows

- Uses Ansible on Windows
- Must have a windows group in ansible inventory
- There is a example ansible file
- 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
```

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
  - Example:
    - https://github.com/glennswest/hybrid/blob/master/examples/ansible.hosts.multi

Openshift Required Host Names

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

Next Step (After OpenShift Install)

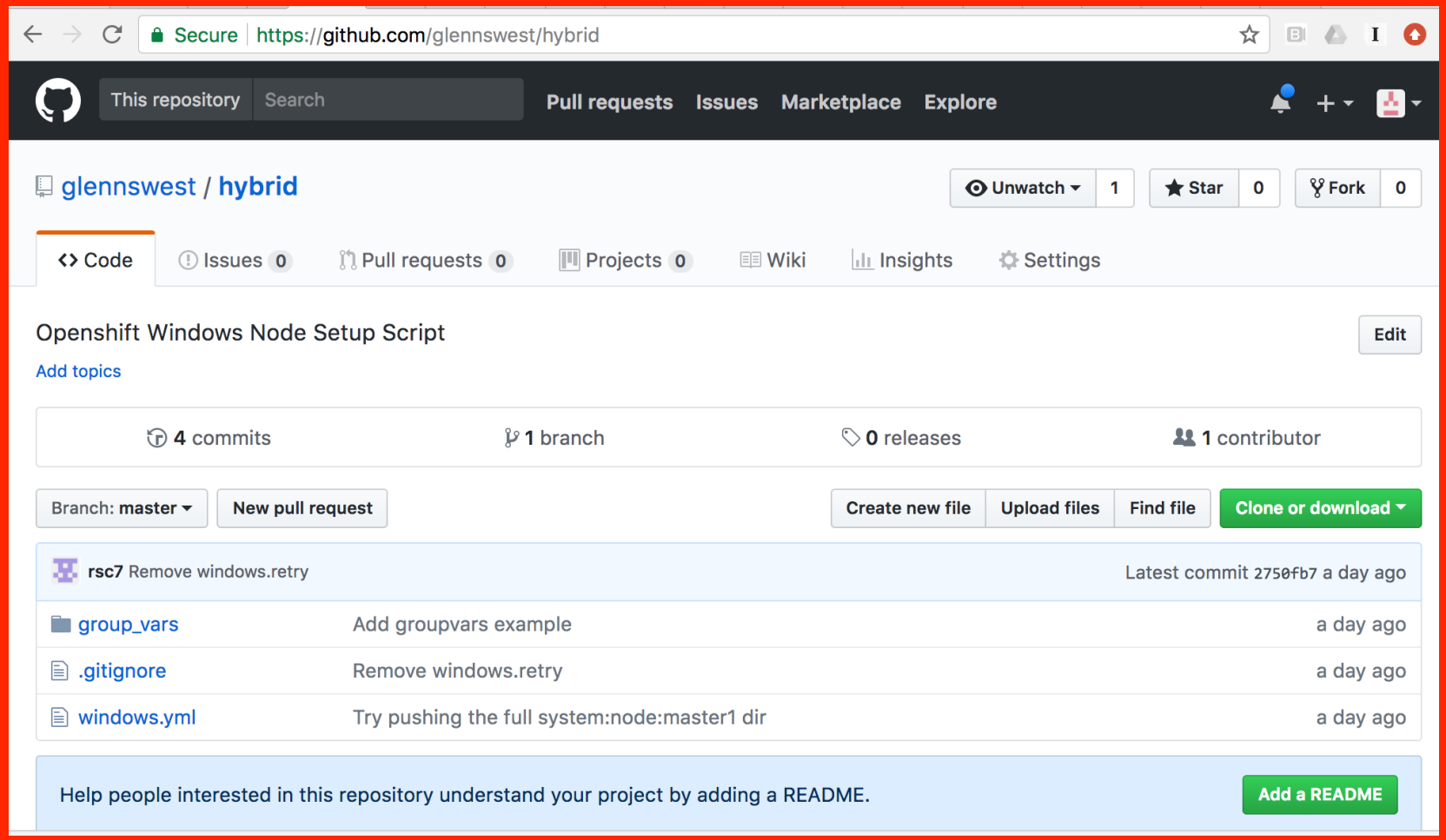
- Run:
  - As root: ansible-playbook ovn_presetup.yml
  - As root: ansible-playbook ovn_postsetup.yml
  - As root: windows.yml

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



Current Issues

- Need to check the ovn_kubernets_node on each linux node, and restart if having access issues
- For windows containers, deploy_configs do not work, must use deployment
- Docker Builds do not work within openshift, must build and push containers online
- Windows Containers must be marked as privileged.

Updates – June 29, 2018

- All windows scripts have been merged togeather.
- Windows docker setup, disk expansion, and ovn network setup are all done headless and automatically as part of the windows.yml