**MitziCom**





Engagement Journal

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# **Purpose**

The purpose of this Engagement Journal is to document the step to properly configure and install Red Hat Openshift for a 30-40 hour proof-of-concept (POC) using Red Hat OpenShift Container Platform. The purpose of the POC is to determine the feasibility of using Red Hat OpenShift Container Platform as a target for internal and client workloads.

# **Prerequisites**

## Provisioned Environment Hosts

* Bastion host:   
  bastion.$GUID.example.opentlc.com, bastion.$GUID.internal
* Load balancer:   
  loadbalancer.$GUID.example.opentlc.com, loadbalancer1.$GUID.internal
* 3 OpenShift master nodes:   
  master{1,2,3}.$GUID.internal
* 3 etcd:   
  master{1,2,3}.$GUID.internal
* 2 OpenShift infrastructure nodes:   
  infranode{1,2}.$GUID.example.opentlc.com, infranode{1,2}.$GUID.internal
* 3 OpenShift worker nodes:  
  node{1,2,3}.$GUID.internal
* NFS servers:  
  support1.$GUID.internal

# **Getting files and installing OpenShift:**

1. Login into Bastion host
2. Login to installation user: sudo -i
3. Change to the repository directory: cd /usr/share/ansible/
4. Download files from GitHub:   
   git clone <https://github.com/Bo1337/ocp_advanced_deployment_homework.git>
5. Change to the repository directory: cd /usr/share/ansible/advanced\_deployment\_homework/
6. Install OpenShift and output the install to a log file at /var/logs/install.log: ansible-playbook /usr/share/ansible/advanced\_deployment\_homework/homework.yaml

# **Explanation of the files:**

Base Directory:

Hosts - The hosts file is Ansible’s inventory file for the playbook used to install OpenShift Container Platform. The inventory file describes the configuration for your OpenShift Container Platform cluster. You must replace the default contents of the file with your desired configuration. To update /etc/ansible/hosts, please refer to the Inventory file documentation for more information.   
<https://docs.openshift.com/container-platform/3.11/install/configuring_inventory_file.html>

homework.yaml - This is the ansible playbook that will call other ansible playbooks used for installing and configuring OC Cluster, Jenkins, etc.  
cleanup.yml – This playbook will run uninstall of OpenShift and then cleans all traces.

## Scripts Directory:

cicd.sh – This script is used to install the Continuous Integration/Continuous Deployment  
The projects are created, policies are added to the projects, install the Jenkins-Persistent app, and then start the pipeline

create\_pvs.sh – This script creates 200 persistent volumes on the NFS server at */svr/nfs/user-vols/* and sets proper permissions

generate\_inventory.sh – This script copies the generified host file to */etc/ansible/hosts*, updates the GUID variable in .bashrc, updates GUD variable in the hosts file, and pushes the file to all the servers.

nodejs\_mongo\_app.sh – This script is used to perform a smoke-test on the system after OpenShift installs by creating a smoke-test project, creating a nodejs-mongo-persistent app, and validating whether the smoke test passed or failed. If the smoke test fails, it returns a failed return code to the installation yaml.

pvs\_10Gsize.sh – This script will set up 25 of the persistent volumes to be 10gb in size

pvs\_5Gsize.sh - This script will set up 25 of the persistent volumes to be 5gb in size

## Yaml Directory:

cicd-template.yaml – This template is used to configure the continuous integration/continuous deployment projects, setup the pipeline, define the build configuration, and configure the ConfigMap,

cleanup.yaml – This yaml is used to uninstall OpenShift from the system and clean of residual files

homework.yaml – This is the main yaml used to install OpenShift on the system. It does the following:

* Propagates the GUID in .bashrc on all servers
* Verifies the installation of docker
* Verifies NFS shared volume
* Installs the packages and set authentication method
* Calls generate\_inventory.sh to setup the hosts file
* Calls pre-requisites yaml to verify the code before deploying
* Installs OpenShift 3.11.16
* Copies the .kube directory to bastion
* Calls the script to create the Persistent Volumes
* Restarts the NFS servers
* Calls the scripts to run the smoke-test
* Sets up the Jenkins pipeline
* Sets up the project defaults to include limits ranges
* Restarts the masters API and Controllers
* Creates the projects and users
* Add labels to users and projects
* Assigns users to groups and groups to projects for multitenancy
* Removes the self-provisioner role from the users

project-request.yaml – This yaml is used to set the default templates for all projects to include Network policies, Limit ranges, and Role bindings