**Cert’s team Dallas Lab:**

**Pre-requisites:**

1. **Update proxy for ipv6 from squid.conf**

[root@jumphost2 pureipv6]# vim /etc/squid/squid.conf

**Add IPv6 subnet to squid.conf**

[root@jumphost2 pureipv6]# ip -6 r

::1 dev lo proto kernel metric 256 pref medium

fd0e:4a71:f905:a000::/64 dev ran-bmc proto kernel metric 400 pref medium

fd0e:4a71:f905:a050::/64 dev ran-cnfdf05 proto kernel metric 402 pref medium

**fd0e:4a71:f905:a060::/64** dev ran-cnfdf06 proto kernel metric 404 pref medium

fd0e:4a71:f905:a070::/64 dev ran-cnfdf07 proto kernel metric 401 pref medium

fd0e:4a71:f905:a090::/64 dev ran-cnfdf09 proto kernel metric 403 pref medium

acl **localnet** src **fd0e:4a71:f905:a060::/64**

**Restart squid service:**

systemctl restart squid.service

1. **Update /etc/hosts and dnsmasq.conf for DNS**

**- Update /etc/hosts**

[root@jumphost2 pureipv6]# vim /etc/hosts

**#cnfdf06**

192.168.206.10 cnfdf06.ran.dfwt5g.lab

192.168.206.10 api.cnfdf06.ran.dfwt5g.lab

192.168.206.10 api-int.cnfdf06.ran.dfwt5g.lab

192.168.206.10 apps.cnfdf06.ran.dfwt5g.lab

fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab

fd0e:4a71:f905:a060::20 api.cnfdf06.ran.dfwt5g.lab

fd0e:4a71:f905:a060::20 api-int.cnfdf06.ran.dfwt5g.lab

**fd0e:4a71:f905:a060::20 apps.cnfdf06.ran.dfwt5g.lab**

fd0e:4a71:f905:a060::20 \*.apps.cnfdf06.ran.dfwt5g.lab

**- Update dnsmasq.conf**

vim /etc/dnsmasq.conf

listen-address=127.0.0.1,192.168.205.9,192.168.206.9,192.168.207.9,192.168.209.9,192.168.207.9,fd0e:4a71:f905:a060::9

**Restart dnsmasq service:**

systemctl restart dnsmasq.service

**- Update dnsmasq custom file workers.conf on /etc/dnsmasq.d/**

[root@jumphost2 pureipv6]# vim /etc/dnsmasq.d/workers.conf

#cnfdf06 DHCP range

#address=/apps.cnfdf06.ran.dfwt5g.lab/192.168.206.10

address=/apps.cnfdf06.ran.dfwt5g.lab/fd0e:4a71:f905:a060::20

dhcp-range=cnfdf06,192.168.206.10,192.168.206.250,12h

dhcp-option=cnfdf06,option:netmask,255.255.255.0

dhcp-option=cnfdf06,option:router,192.168.206.1

dhcp-option=cnfdf06,option:dns-server,192.168.206.9

dhcp-option=cnfdf06,option:ntp-server,192.168.206.9

dhcp-host=0c:42:a1:bc:68:1c,192.168.206.10

**Restart dnsmasq service:**

systemctl restart dnsmasq.service

1. **Add firewall-cmd for dns port as tcp also so dig can be used to check**

firewall-cmd --zone=public --add-port=53/tcp --permanent

firewall-cmd --reload

[root@jumphost2 pureipv6]# firewall-cmd --list-all

public (active)

target: default

icmp-block-inversion: no

interfaces: eno1 ran-bmc ran-cnfdf05 ran-cnfdf06 ran-cnfdf07 ran-cnfdf09

sources:

services: cockpit dhcpv6-client ssh vnc-server

ports: 3128/tcp 8080/tcp 443/tcp 53/udp 80/tcp 6443/tcp 53/tcp

1. Checking squid proxy and dns ports for IPv6

| [root@jumphost2 pureipv6]# netstat -6anpW|egrep ':53|:3128'  tcp6 0 0 fd0e:4a71:f905:a060::9:53 :::\* LISTEN 189256/dnsmasq  tcp6 0 0 :::3128 :::\* LISTEN 139550/(squid-1)  [core@cnfdf06 ~]$ curl -v -ks http://[fd0e:4a71:f905:a060::9]:3128  [core@cnfdf06 ~]$ curl -v -w %{http\_code} http://[fd0e:4a71:f905:a060::9]:53  \* Rebuilt URL to: http://[fd0e:4a71:f905:a060::9]:53/  \* Trying fd0e:4a71:f905:a060::9...  \* TCP\_NODELAY set  \* Connected to fd0e:4a71:f905:a060::9 (fd0e:4a71:f905:a060::9) port 53 (#0)  > GET / HTTP/1.1  > Host: [fd0e:4a71:f905:a060::9]:53  > User-Agent: curl/7.61.1  > Accept: \*/\* |
| --- |

1. **Dig checking**

| [root@jumphost2 pureipv6]# dig -x fd0e:4a71:f905:a060::9 cnfdf06.ran.dfwt5g.lab any  ; <<>> DiG 9.11.26-RedHat-9.11.26-4.el8\_4 <<>> -x fd0e:4a71:f905:a060::9 cnfdf06.ran.dfwt5g.lab any  ;; global options: +cmd  ;; Got answer:  ;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 59997  ;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 1  ;; OPT PSEUDOSECTION:  ; EDNS: version: 0, flags:; udp: 4096  ;; QUESTION SECTION:  ;9.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.6.0.a.5.0.9.f.1.7.a.4.e.0.d.f.ip6.arpa. IN PTR  ;; Query time: 0 msec  ;; SERVER: 192.168.205.9#53(192.168.205.9)  ;; WHEN: Fri Jan 14 18:54:55 CST 2022  ;; MSG SIZE rcvd: 101  ;; Got answer:  ;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 23564  ;; flags: qr aa rd ra; **QUERY: 1, ANSWER: 2**, AUTHORITY: 0, ADDITIONAL: 1  ;; OPT PSEUDOSECTION:  ; EDNS: version: 0, flags:; udp: 4096  ;; QUESTION SECTION:  ;cnfdf06.ran.dfwt5g.lab. IN ANY  ;; ANSWER SECTION:  cnfdf06.ran.dfwt5g.lab. 0 IN A 192.168.206.10  cnfdf06.ran.dfwt5g.lab. 0 IN AAAA fd0e:4a71:f905:a060::20  ;; Query time: 0 msec  ;; SERVER: 192.168.205.9#53(192.168.205.9)  ;; WHEN: Fri Jan 14 18:54:55 CST 2022  ;; MSG SIZE rcvd: 95 |
| --- |

Or

| [root@jumphost2 pureipv6]# dig AAAA cnfdf06.ran.dfwt5g.lab  ; <<>> DiG 9.11.26-RedHat-9.11.26-4.el8\_4 <<>> AAAA cnfdf06.ran.dfwt5g.lab  ;; global options: +cmd  ;; Got answer:  ;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 52661  ;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1  ;; OPT PSEUDOSECTION:  ; EDNS: version: 0, flags:; udp: 4096  ;; QUESTION SECTION:  ;cnfdf06.ran.dfwt5g.lab. IN AAAA  ;; ANSWER SECTION:  cnfdf06.ran.dfwt5g.lab. 0 IN AAAA fd0e:4a71:f905:a060::20  ;; Query time: 0 msec  ;; SERVER: 192.168.205.9#53(192.168.205.9)  ;; WHEN: Fri Jan 14 18:59:36 CST 2022  ;; MSG SIZE rcvd: 79 |
| --- |

**Deploy a SNO using OpenShift Installer (Manual) PureIPv6**

**Note:** these steps are the same one from integration who support E///

Our team created a set of scripts that should help with the installation of SNO following a manual approach. Scripts were tested on Fedora34/RHEL 8.4.

Note: Below steps and the scripts used are not supported in any way by Red Hat. We're not actively testing these steps for every release so things may break. We may not update these steps/scripts in the future. The only supported way of deploying SNO clusters is either using AI SaaS or RHACM.

1. Download the required scripts from the url below:

https://people.redhat.com/bzhai/sno-manual-helper-20211112.tar.gz

2. Extract the tar into a folder in a Linux box with podman installed .

3. Your folder should look like this:

| $> ls -1  00\_extract\_tools\_from\_release.sh  01\_get\_rhcos\_iso.sh  02\_generate\_workloadpartitioning\_config.sh  03\_generate\_inplacedns\_config.sh  04\_generate\_deploy\_iso.sh  05\_monitor\_deployment.sh  assets  bin  build  temp  temp |
| --- |

4. Copy your pull secret (in json format) into this folder ( you can get yours from this url <https://console.redhat.com/openshift/install/pull-secret> ). The name of the pull secret is expected to be **pull\_secret.json**:

| $> cat ./pull\_secret.json  {"auths":{<ommited\_output>}} |
| --- |

5. Edit the install-config.yaml under assets to fit your environment needs, you need to modify configs between <>, if you don’t need a proxy, delete all lines about the proxy setup in the file.

**Note**: if your labs not needed the proxy, then remove the proxy: part

| apiVersion: v1  baseDomain: 'ran.dfwt5g.lab'  compute:  - name: **worker**  replicas: 0  controlPlane:  name: **master**  replicas: 1  metadata:  name: 'cnfdf06'  networking:  networkType: OVNKubernetes  **machineNetwork**:  - cidr: fd0e:4a71:f905:a060::/64  **clusterNetwork**:  - cidr: fd01::/48  hostPrefix: 64  **serviceNetwork**:  - fd02::/112  proxy:  httpProxy: 'http://[fd0e:4a71:f905:a060::9]:3128'  httpsProxy: 'http://[fd0e:4a71:f905:a060::9]:3128'  **noProxy**: 'fd0e:4a71:f905:a060::20/64,oauth-openshift.apps.cnfdf06.ran.dfwt5g.lab,console-openshift-console.apps.cnfdf06.ran.dfwt5g.lab'  platform:  **none**: {}  bootstrapInPlace:  InstallationDisk: /dev/sda  **pullSecret**: '<omitted>'  **sshKey**: '<omitted>' |
| --- |

6. Get the oc client and extract the openshift-install from the latest stable 4.9.z release, at the time of writing the doc it is 4.9.12:

**Note**: Below script requires *jq* utility to be installed on the system.

| $> ./00\_extract\_tools\_from\_release.sh  You are going to install OpenShift 4.9.12  <omitted> |
| --- |

**Note**: You can also choose to install any 4.8 or 4.9 version under the [link](https://mirror.openshift.com/pub/openshift-v4/x86_64/clients/ocp/), for example ‘stable-4.8’, ‘4.8.12’, ‘4.9.4’, ‘latest’ etc. when executing the script. By default if you don’t specify the version in the command, it will install the latest [stable-4.9](https://mirror.openshift.com/pub/openshift-v4/x86_64/clients/ocp/stable-4.9/), Following is an example to install 4.9.10:

| $> ./00\_extract\_tools\_from\_release.sh 4.9.10  You are going to install OpenShift 4.9.10  <omitted> |
| --- |

7. If the previous script was okay, you should have the two binaries under the bin folder:

| $> ls -1 bin/  oc  openshift-install |
| --- |

8. Get RHCOS live ISO:

| $> ./01\_get\_rhcos\_iso.sh |
| --- |

9. If the previous script was okay, you should have the RHCOS live iso (around 988M) under the temp folder:

| $> ls -l temp/  oc-client.tar.gz  **rhcos-live.iso** |
| --- |

10. Run 02\_generate\_workloadpartitioning\_config.sh script to configure the reserved CPUs for the workload partitioning, for example

| **CPUSET**="0-3,16-19"  $> ./02\_generate\_workloadpartitioning\_config.sh ${**CPUSET**} |
| --- |

11. If the previous script was okay, you should have a workload partitioning MachineConfig under the assets folder:

| $> ls -1 assets/  99\_workload\_partitioning.yaml  install-config.yaml |
| --- |

12. Run **03\_generate\_inplacedns\_config.sh** script to set the in-placed DNS resolution, use the IP that will be assigned to the SNO node as the parameter, either via DHCP or statically, for example:

| $> ./03\_generate\_inplacedns\_config.sh fd0e:4a71:f905:a060::20 |
| --- |

13. If the previous script was okay, you should have an inplace dns MachineConfig under the assets folder:

| $> ls -1 assets/  99\_workload\_partitioning.yaml  Install-config.yaml  10\_inplace\_dns.yaml |
| --- |

14. If DHCP is being used, you can skip this step. If you want the node to have static IP you need to provide a valid nmconnection file named static\_ip and a file with a proper hostname named static\_hostname inside the assets folder. Use the docs as reference for creating the nmconnection file. Example:

| $> cat <<EOF > assets/static\_hostname  cnfdf06.ran.dfwt5g.lab  EOF |
| --- |

| $> cat <<EOF > assets/static\_ip  id=eno1  interface-name=eno1  type=ethernet  permissions=  autoconnect=true  autoconnect-priority=1  [ethernet]  mac-address-blacklist=  [**ipv6**]  addr-gen-mode=eui64  address1=fd0e:4a71:f905:a060::20/64  dhcp-duid=ll  dhcp-iaid=mac  dns=fd0e:4a71:f905:a060::9  dns-priority=40  dns-search=  method=manual  route1=::/0,fd0e:4a71:f905:a060::1  route1\_options=table=254  EOF |
| --- |

15. Generate the required ignition configs and embed those into the rhcos iso we downloaded earlier:

| $> ./04\_generate\_deploy\_iso.sh |
| --- |

16. If the previous script was okay, you should have an iso (around 983M) under the build folder:

| $> ls -1 build/  sno-rhcos-live.iso |
| --- |

17. **Boot the bare-metal node using the iso (sno-rhcos-live.iso)** generated in the previous steps using virtual-media or any other mechanism you have at your disposal.

18. You can follow the deployment using the monitor deployment script (it requires proper DNS records in-place):

| $> ./05\_monitor\_deployment.sh  ./bin/openshift-install wait-for install-complete --dir ocp/ |
| --- |

Or ssh to the node via ssh:

| ssh -i /root/.ssh/id\_rsa core@fd0e:4a71:f905:a060::20  sudo -i  journalctl -f |
| --- |

**Final Output:**

| [root@jumphost2 pureipv6]# ./bin/openshift-install wait-for install-complete --dir ocp/  INFO Waiting up to 40m0s for the cluster at https://api.cnfdf06.ran.dfwt5g.lab:6443 to initialize...  INFO Waiting up to 10m0s for the openshift-console route to be created...  INFO Install complete!  INFO To access the cluster as the system:admin user when using 'oc', run 'export KUBECONFIG=/root/cnfdf06/E/pureipv6/ocp/auth/kubeconfig'  INFO Access the OpenShift web-console here: https://console-openshift-console.apps.cnfdf06.ran.dfwt5g.lab  INFO Login to the console with user: "kubeadmin", and password: "2Sqob-pygRo-SxoEJ-To86F"  INFO Time elapsed: 0s  [root@jumphost2 pureipv6]# oc get co  NAME VERSION AVAILABLE PROGRESSING DEGRADED SINCE MESSAGE  authentication 4.9.12 True False False 109m  baremetal 4.9.12 True False False 114m  cloud-controller-manager 4.9.12 True False False 114m  cloud-credential 4.9.12 True False False 117m  cluster-autoscaler 4.9.12 True False False 114m  config-operator 4.9.12 True False False 118m  console 4.9.12 True False False 108m  csi-snapshot-controller 4.9.12 True False False 117m  dns 4.9.12 True False False 113m  etcd 4.9.12 True False False 113m  image-registry 4.9.12 True False False 109m  ingress 4.9.12 True False False 110m  insights 4.9.12 True False False 114m  kube-apiserver 4.9.12 True False False 110m  kube-controller-manager 4.9.12 True False False 112m  kube-scheduler 4.9.12 True False False 111m  kube-storage-version-migrator 4.9.12 True False False 118m  machine-api 4.9.12 True False False 114m  machine-approver 4.9.12 True False False 114m  machine-config 4.9.12 True False False 113m  marketplace 4.9.12 True False False 117m  monitoring 4.9.12 True False False 107m  network 4.9.12 True False False 118m  node-tuning 4.9.12 True False False 114m  openshift-apiserver 4.9.12 True False False 108m  openshift-controller-manager 4.9.12 True False False 110m  openshift-samples 4.9.12 True False False 109m  operator-lifecycle-manager 4.9.12 True False False 114m  operator-lifecycle-manager-catalog 4.9.12 True False False 114m  operator-lifecycle-manager-packageserver 4.9.12 True False False 113m  service-ca 4.9.12 True False False 118m  storage 4.9.12 True False False 114m    [root@jumphost2 pureipv6]# oc get no -o wide  NAME STATUS ROLES AGE VERSION INTERNAL-IP EXTERNAL-IP OS-IMAGE KERNEL-VERSION CONTAINER-RUNTIME  cnfdf06.ran.dfwt5g.lab Ready master,worker 101m v1.22.3+e790d7f fd0e:4a71:f905:a060::20 <none> Red Hat Enterprise Linux CoreOS 49.84.202112162103-0 (Ootpa) 4.18.0-305.30.1.el8\_4.x86\_64 cri-o://1.22.1-10.rhaos4.9.gitf1d2c6e.el8  [root@jumphost2 pureipv6]# oc get clusterversion  NAME VERSION AVAILABLE PROGRESSING SINCE STATUS  version 4.9.12 True False 108m Cluster version is 4.9.12  [root@jumphost2 pureipv6]# oc get po -A -o wide  NAMESPACE NAME READY STATUS RESTARTS AGE IP NODE NOMINATED NODE READINESS GATES  openshift-apiserver-operator openshift-apiserver-operator-cfd8c69cd-jf8cj 1/1 Running 1 (97m ago) 101m fd01:0:0:1::12 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-apiserver apiserver-f99dffb69-km8rm 2/2 Running 0 94m fd01:0:0:1::40 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-authentication-operator authentication-operator-b8bcfcdcc-ljhrs 1/1 Running 1 (97m ago) 101m fd01:0:0:1::7 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-authentication oauth-openshift-75c9c9b85c-qcxhk 1/1 Running 0 90m fd01:0:0:1::50 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cloud-controller-manager-operator cluster-cloud-controller-manager-operator-78d4b7d8d9-kg6zm 2/2 Running 0 95m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cloud-credential-operator cloud-credential-operator-c8c66666b-sq5nx 2/2 Running 0 101m fd01:0:0:1::6 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-machine-approver machine-approver-756485579d-rrhzv 2/2 Running 0 95m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-node-tuning-operator cluster-node-tuning-operator-5fff856d6f-gdzmj 1/1 Running 0 95m fd01:0:0:1::27 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-node-tuning-operator tuned-qjm7g 1/1 Running 0 95m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-samples-operator cluster-samples-operator-66fb7645d7-4tsg4 2/2 Running 0 95m fd01:0:0:1::2c cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-storage-operator cluster-storage-operator-7b8cb7d94b-cnx54 1/1 Running 1 95m fd01:0:0:1::31 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-storage-operator csi-snapshot-controller-6d88bcc5b8-x7bzj 1/1 Running 0 99m fd01:0:0:1::19 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-storage-operator csi-snapshot-controller-operator-5954f9bbcb-fpsvx 1/1 Running 0 101m fd01:0:0:1::c cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-storage-operator csi-snapshot-webhook-6ff79c6b-ng49j 1/1 Running 0 99m fd01:0:0:1::16 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-cluster-version cluster-version-operator-5b8c47f655-sqwtj 1/1 Running 0 101m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-config-operator openshift-config-operator-5698755869-xsnwv 1/1 Running 2 (96m ago) 101m fd01:0:0:1::e cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-console-operator console-operator-7f86b54b5c-989tn 1/1 Running 0 91m fd01:0:0:1::46 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-console console-76db4d56ff-9qn96 1/1 Running 0 91m fd01:0:0:1::4d cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-console downloads-567f47b8f9-gc65l 1/1 Running 0 91m fd01:0:0:1::48 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-controller-manager-operator openshift-controller-manager-operator-954695869-86gbm 1/1 Running 1 (97m ago) 101m fd01:0:0:1::a cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-controller-manager controller-manager-pjz47 1/1 Running 0 91m fd01:0:0:1::45 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-dns-operator dns-operator-8dc97995f-k72jl 2/2 Running 0 101m fd01:0:0:1::11 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-dns dns-default-54jcn 2/2 Running 0 98m fd01:0:0:1::1c cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-dns node-resolver-wprtn 1/1 Running 0 98m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-etcd-operator etcd-operator-6f9c4c75bb-ptrg7 1/1 Running 1 (97m ago) 101m fd01:0:0:1::9 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-etcd etcd-cnfdf06.ran.dfwt5g.lab 4/4 Running 0 96m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-etcd installer-2-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 98m fd01:0:0:1::1f cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-image-registry cluster-image-registry-operator-5f47cc4ff5-ld7fg 1/1 Running 0 95m fd01:0:0:1::28 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-image-registry node-ca-s94bq 1/1 Running 0 90m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-ingress-canary ingress-canary-sjc7p 1/1 Running 0 91m fd01:0:0:1::47 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-ingress-operator ingress-operator-5d6f5fb596-zhbdz 2/2 Running 7 (92m ago) 95m fd01:0:0:1::30 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-ingress router-default-c4c5ddc64-ps6bp 1/1 Running 0 91m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-insights insights-operator-6454db5555-srbgh 1/1 Running 1 95m fd01:0:0:1::32 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver-operator kube-apiserver-operator-66467c769b-mhxmn 1/1 Running 0 95m fd01:0:0:1::2f cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver installer-2-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 94m fd01:0:0:1::39 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver installer-3-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 93m fd01:0:0:1::3e cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver installer-4-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 93m fd01:0:0:1::41 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver installer-5-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m fd01:0:0:1::4e cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver installer-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 89m fd01:0:0:1::53 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver kube-apiserver-cnfdf06.ran.dfwt5g.lab 5/5 Running 0 89m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-apiserver revision-pruner-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 89m fd01:0:0:1::55 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager-operator kube-controller-manager-operator-7658d774b5-prxnl 1/1 Running 1 (97m ago) 101m fd01:0:0:1::5 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager installer-3-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 93m fd01:0:0:1::3f cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager installer-4-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 93m fd01:0:0:1::43 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager installer-5-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 91m fd01:0:0:1::4c cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager installer-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m fd01:0:0:1::51 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager installer-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 88m fd01:0:0:1::57 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager kube-controller-manager-cnfdf06.ran.dfwt5g.lab 4/4 Running 0 88m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager revision-pruner-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m fd01:0:0:1::52 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-controller-manager revision-pruner-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 88m fd01:0:0:1::56 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler-operator openshift-kube-scheduler-operator-5dd449d898-5bl8w 1/1 Running 1 (97m ago) 101m fd01:0:0:1::13 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler installer-3-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 94m fd01:0:0:1::3b cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler installer-4-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 94m fd01:0:0:1::3d cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler installer-5-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 93m fd01:0:0:1::42 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler installer-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 91m fd01:0:0:1::49 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler installer-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m fd01:0:0:1::4f cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler openshift-kube-scheduler-cnfdf06.ran.dfwt5g.lab 3/3 Running 0 90m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-scheduler revision-pruner-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 89m fd01:0:0:1::54 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-storage-version-migrator-operator kube-storage-version-migrator-operator-bb95b5db9-xhc7v 1/1 Running 1 (97m ago) 101m fd01:0:0:1::d cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-kube-storage-version-migrator migrator-9c4f4c5d9-dmzdr 1/1 Running 0 99m fd01:0:0:1::17 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-machine-api cluster-autoscaler-operator-745d696cd7-9s9vv 2/2 Running 1 95m fd01:0:0:1::2b cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-machine-api cluster-baremetal-operator-649844f896-76vbw 2/2 Running 2 (95m ago) 95m fd01:0:0:1::26 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-machine-api machine-api-operator-78b4684b94-9fzcw 2/2 Running 0 95m fd01:0:0:1::2e cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-machine-config-operator machine-config-controller-7594bcbcc5-lffx4 1/1 Running 1 (97m ago) 98m fd01:0:0:1::1d cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-machine-config-operator machine-config-daemon-d5624 2/2 Running 0 99m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-machine-config-operator machine-config-operator-6967d84bf-lhqt8 1/1 Running 1 (96m ago) 101m fd01:0:0:1::b cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-machine-config-operator machine-config-server-lt89t 1/1 Running 0 98m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-marketplace certified-operators-zflln 1/1 Running 0 95m fd01:0:0:1::36 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-marketplace community-operators-fs796 1/1 Running 0 95m fd01:0:0:1::35 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-marketplace marketplace-operator-859f5f58f7-8g9m6 1/1 Running 2 (97m ago) 101m fd01:0:0:1::14 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-marketplace redhat-marketplace-gtlcg 1/1 Running 0 95m fd01:0:0:1::37 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-marketplace redhat-operators-hchrx 1/1 Running 0 95m fd01:0:0:1::34 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring alertmanager-main-0 5/5 Running 0 88m fd01:0:0:1::58 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring cluster-monitoring-operator-6fb455df46-9qg4w 2/2 Running 3 (98m ago) 101m fd01:0:0:1::f cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring grafana-74cd78b7cd-7692g 2/2 Running 0 88m fd01:0:0:1::59 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring kube-state-metrics-5ffb7c9c8d-lg45t 3/3 Running 0 98m fd01:0:0:1::21 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring node-exporter-z4pj2 2/2 Running 0 98m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring openshift-state-metrics-5d5cd87886-xv2zs 3/3 Running 0 98m fd01:0:0:1::24 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring prometheus-adapter-644d4468c5-7w6mx 1/1 Running 0 94m fd01:0:0:1::3a cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring prometheus-k8s-0 7/7 Running 0 88m fd01:0:0:1::5b cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring prometheus-operator-f7d85b656-2j4cc 2/2 Running 1 (98m ago) 99m fd01:0:0:1::15 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring telemeter-client-7df65cd574-s72mf 3/3 Running 0 98m fd01:0:0:1::23 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-monitoring thanos-querier-5bc5d4796-bn9fp 5/5 Running 0 88m fd01:0:0:1::5a cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-multus multus-additional-cni-plugins-4dkss 1/1 Running 0 100m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-multus multus-admission-controller-fb2pm 2/2 Running 0 99m fd01:0:0:1::10 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-multus multus-hxrq8 1/1 Running 0 100m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-multus network-metrics-daemon-4cmhj 2/2 Running 0 100m fd01:0:0:1::4 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-network-diagnostics network-check-source-79778c7b-v758x 1/1 Running 0 100m fd01:0:0:1::22 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-network-diagnostics network-check-target-rmlrf 1/1 Running 0 100m fd01:0:0:1::3 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-network-operator network-operator-6cfd68dcb9-2rk6w 1/1 Running 0 101m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-oauth-apiserver apiserver-f84cdc679-2lw94 1/1 Running 0 94m fd01:0:0:1::44 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-operator-lifecycle-manager catalog-operator-78f4c5bf89-4q8pn 1/1 Running 0 95m fd01:0:0:1::2a cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-operator-lifecycle-manager collect-profiles-27370155--1-g2rh8 0/1 Completed 0 43m fd01:0:0:1::70 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-operator-lifecycle-manager collect-profiles-27370170--1-k7w7m 0/1 Completed 0 28m fd01:0:0:1::76 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-operator-lifecycle-manager collect-profiles-27370185--1-2q9pz 0/1 Completed 0 13m fd01:0:0:1::7c cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-operator-lifecycle-manager olm-operator-5c446c6c7b-sm6wd 1/1 Running 0 95m fd01:0:0:1::29 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-operator-lifecycle-manager package-server-manager-7d6d99f64c-c5szc 1/1 Running 0 95m fd01:0:0:1::2d cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-operator-lifecycle-manager packageserver-d84f876cf-lvd28 1/1 Running 0 95m fd01:0:0:1::38 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-ovn-kubernetes ovnkube-master-lvcvc 6/6 Running 0 100m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-ovn-kubernetes ovnkube-node-g62vm 4/4 Running 1 (99m ago) 100m fd0e:4a71:f905:a060::20 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-service-ca-operator service-ca-operator-5cc7c85cdd-qkcx6 1/1 Running 1 (97m ago) 101m fd01:0:0:1::8 cnfdf06.ran.dfwt5g.lab <none> <none>  openshift-service-ca service-ca-69d4cd64c7-gp6jc 1/1 Running 0 99m fd01:0:0:1::1a cnfdf06.ran.dfwt5g.lab <none> <none>  [root@jumphost2 pureipv6]# oc get po -A|grep -v Runn  NAMESPACE NAME READY STATUS RESTARTS AGE  openshift-etcd installer-2-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 99m  openshift-kube-apiserver installer-2-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 96m  openshift-kube-apiserver installer-3-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 95m  openshift-kube-apiserver installer-4-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 94m  openshift-kube-apiserver installer-5-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 92m  openshift-kube-apiserver installer-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 91m  openshift-kube-apiserver revision-pruner-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m  openshift-kube-controller-manager installer-3-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 95m  openshift-kube-controller-manager installer-4-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 94m  openshift-kube-controller-manager installer-5-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 92m  openshift-kube-controller-manager installer-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 91m  openshift-kube-controller-manager installer-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m  openshift-kube-controller-manager revision-pruner-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 91m  openshift-kube-controller-manager revision-pruner-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m  openshift-kube-scheduler installer-3-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 95m  openshift-kube-scheduler installer-4-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 95m  openshift-kube-scheduler installer-5-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 94m  openshift-kube-scheduler installer-6-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 92m  openshift-kube-scheduler installer-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 92m  openshift-kube-scheduler revision-pruner-7-cnfdf06.ran.dfwt5g.lab 0/1 Completed 0 90m  openshift-operator-lifecycle-manager collect-profiles-27370155--1-g2rh8 0/1 Completed 0 44m  openshift-operator-lifecycle-manager collect-profiles-27370170--1-k7w7m 0/1 Completed 0 29m  openshift-operator-lifecycle-manager collect-profiles-27370185--1-2q9pz 0/1 Completed 0 14m |
| --- |

Ingress operator went to degrade after 1-2hrs:

ingress 4.9.12 True False True 94m The "default" ingress controller reports Degraded=True: DegradedConditions: One or more other status conditions indicate a degraded state: CanaryChecksSucceeding=False (CanaryChecksRepetitiveFailures: Canary route checks for the default ingress controller are failing)

ingress 4.9.12 True False True 94m The "default" ingress controller reports Degraded=True: DegradedConditions: One or more other status conditions indicate a degraded state: CanaryChecksSucceeding=False (CanaryChecksRepetitiveFailures: Canary route checks for the default ingress controller are failing)

| [root@jumphost2 pureipv6]# oc get route -A|grep ingr  openshift-ingress-canary canary canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab ingress-canary 8080 edge/Redirect None  [root@jumphost2 pureipv6]# dig AAAA canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab any  ;; Warning, extra type option  ; <<>> DiG 9.11.26-RedHat-9.11.26-4.el8\_4 <<>> AAAA canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab any  ;; global options: +cmd  ;; Got answer:  ;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 44141  ;; flags: qr aa rd ra ad; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0  ;; QUESTION SECTION:  ;canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab. IN ANY  ;; ANSWER SECTION:  canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab. 0 IN A 192.168.206.10  ;; Query time: 0 msec  ;; SERVER: 192.168.205.9#53(192.168.205.9)  ;; WHEN: Fri Jan 14 20:02:11 CST 2022  ;; MSG SIZE rcvd: 93 |
| --- |

<https://bugzilla.redhat.com/show_bug.cgi?id=1918324>

**Note**: dnsmasq for ipv6 can not be used \*.app.clustername.base\_domain

**Solution while writing this doc:**

[root@jumphost2 pureipv6]# vim /etc/dnsmasq.d/workers.conf

#cnfdf06 DHCP range

#address=/apps.cnfdf06.ran.dfwt5g.lab/192.168.206.10

address=/apps.cnfdf06.ran.dfwt5g.lab/fd0e:4a71:f905:a060::20

dhcp-range=cnfdf06,192.168.206.10,192.168.206.250,12h

dhcp-option=cnfdf06,option:netmask,255.255.255.0

dhcp-option=cnfdf06,option:router,192.168.206.1

dhcp-option=cnfdf06,option:dns-server,192.168.206.9

dhcp-option=cnfdf06,option:ntp-server,192.168.206.9

dhcp-host=0c:42:a1:bc:68:1c,192.168.206.10

**Restart dnsmasq service:**

systemctl restart dnsmasq.service

| [root@jumphost2 pureipv6]# dig AAAA canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab any  ;; Warning, extra type option  ; <<>> DiG 9.11.26-RedHat-9.11.26-4.el8\_4 <<>> AAAA canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab any  ;; global options: +cmd  ;; Got answer:  ;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 22108  ;; flags: qr aa rd ra ad; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0  ;; QUESTION SECTION:  ;canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab. IN ANY  ;; ANSWER SECTION:  canary-openshift-ingress-canary.apps.cnfdf06.ran.dfwt5g.lab. 0 IN AAAA fd0e:4a71:f905:a060::20  ;; Query time: 0 msec  ;; SERVER: 192.168.205.9#53(192.168.205.9)  ;; WHEN: Fri Jan 14 20:14:26 CST 2022  ;; MSG SIZE rcvd: 105 |
| --- |