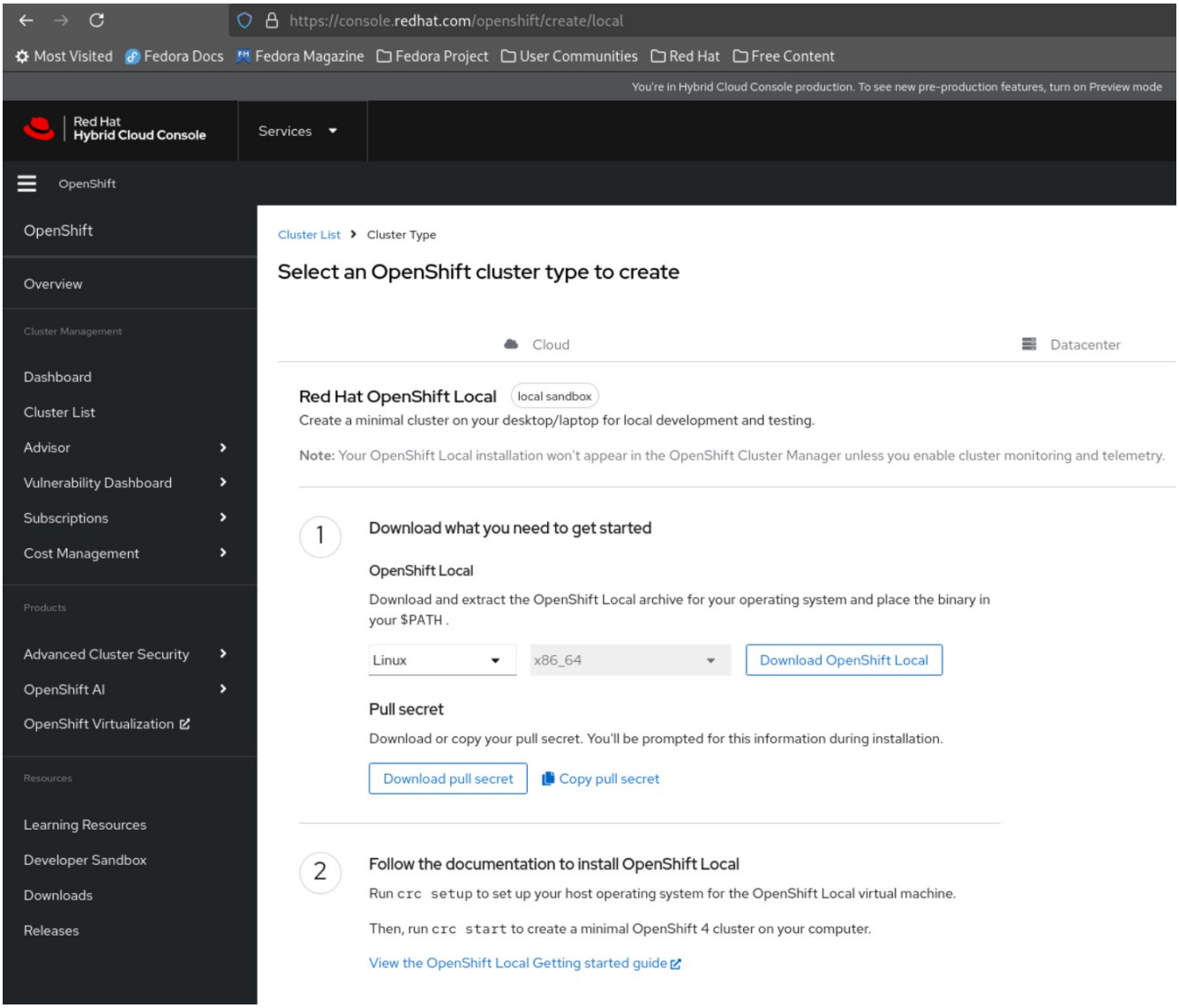
OpenShift Local Installation on CentOS Stream-9

Login with Red hat account and download “OpenShift Local” , “Pull secret” at this url

https://console.redhat.com/openshift/create/local



https://developers.redhat.com/products/openshift-local/overview?source=sso

Lab Environment

HostOS:
KVM/QEMU (Standard PC (Q35 + ICH9, 2009) pc-q35-8.2) Fedora 41 hosted on HP Laptop
IP: 192.168.124.1

Guest OS:
CentOS Stream 9 x86_64 with minimal installation
Memory: 16000 MiB
Storage: 45 GiB
IP Address: 192.168.124.95
Operation User: admin

Prerequisites:

#Copy the downloaded file to the VM that OpenShift local will be installed with **non-root** user

#Create user for crc installation (it is better the user has sudo privilege) if there is no normal user in the VM.

#Disable IPV6 before installation Openshift Local on CentOS Stream 9 under "/etc/NetworkManager/system-connections/ "

dnf update -y

dnf install libvirt* NetworkManager -y

systemctl status libvirtd

systemctl start libvirtd

systemctl enable dbus

systemctl start dbus

systemctl enable systemd-user-sessions.service

systemctl start systemd-user-sessions.service

systemctl start NetworkManager

systemctl enable NetworkManager

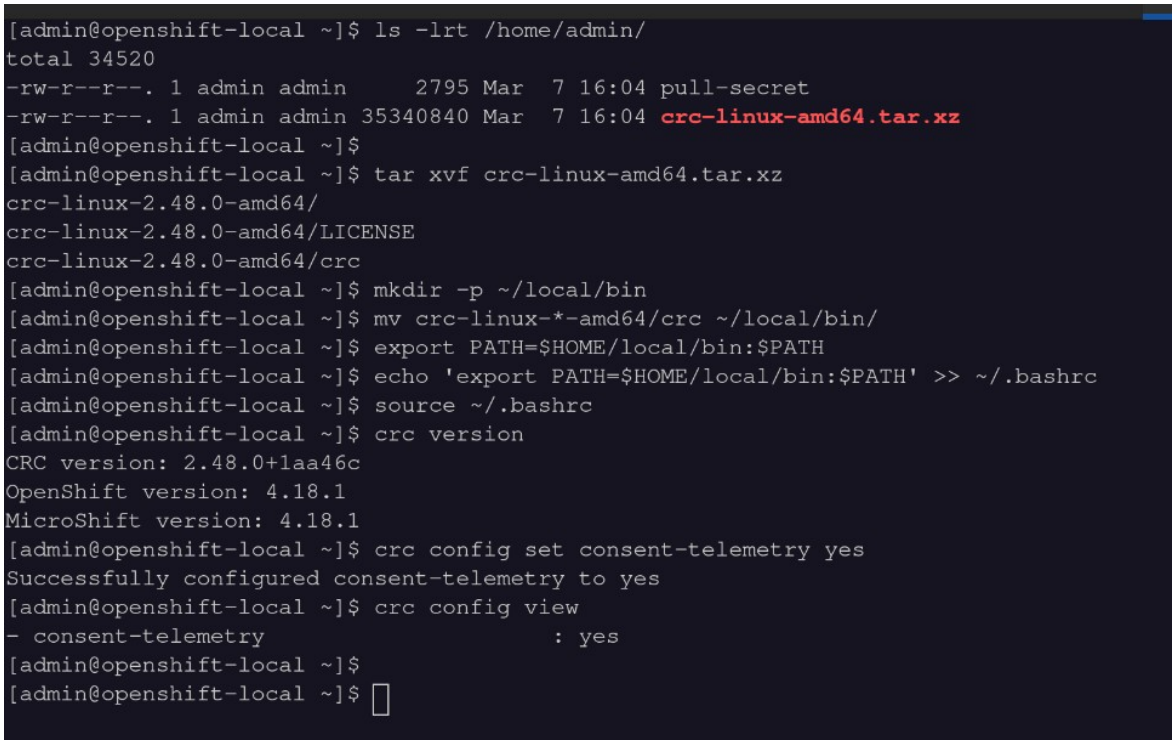
Start Installation https://www.redhat.com/en/blog/install-openshift-local

cd /home/admin/

ls -lrt /home/admin/

```
tar xvf crc-linux-amd64.tar.xz

ls -lrt crc-linux-2.16.0-amd64/

mkdir -p ~/local/bin

mv crc-linux-*-amd64/crc ~/local/bin/

export PATH=$HOME/local/bin:$PATH

echo 'export PATH=$HOME/local/bin:$PATH' >> ~/.bashrc

source ~/.bashrc

#Check crc version
crc version

crc config set consent-telemetry yes
```

crc config view



#Openshift local installation start

crc config set network-mode system

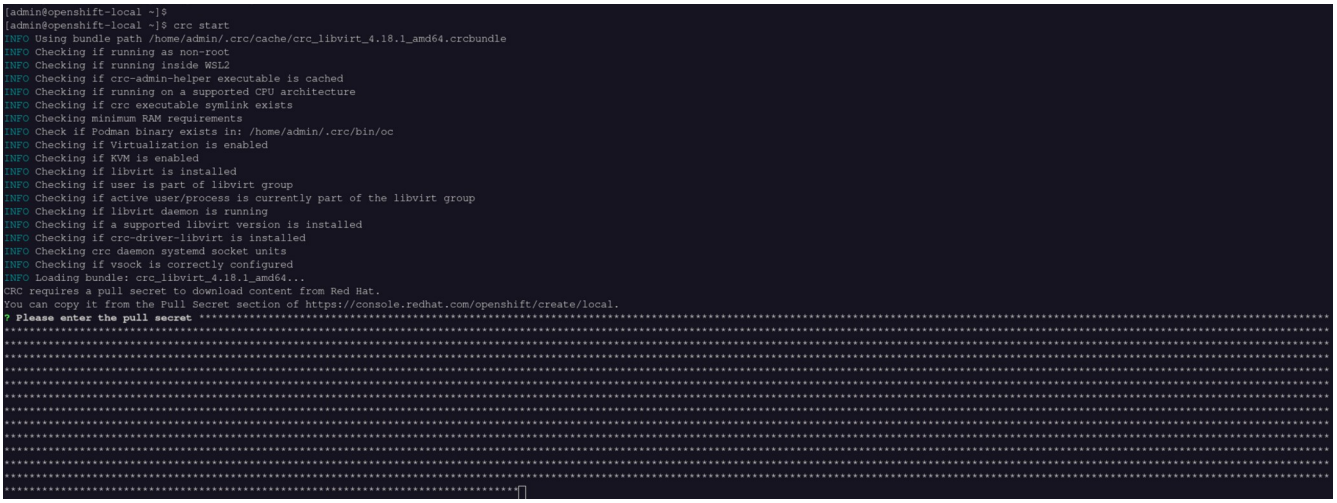
```
[admin@openshift-local ~]$ crc config set network-mode system
Network mode changed. Please run `crc cleanup` and `crc setup`.
[admin@openshift-local ~]$ crc cleanup
INFO Removing vsock configuration
INFO Using root access: Removing udev rule in /etc/udev/rules.d/99-crc-vsock.rules
INFO Using root access: Removing vsock module autoload file /etc/modules-load.d/vhost_vsock.conf
INFO Removing 'crc' network from libvirt
INFO Removing /etc/NetworkManager/dnsmasq.d/crc.conf file
INFO Removing /etc/NetworkManager/conf.d/crc-nm-dnsmasq.conf file
INFO Removing crc daemon systemd socket units
INFO Removing crc daemon systemd service
INFO Removing crc's virtual machine
INFO Removing crc libvirt storage pool
INFO Removing CRC manpages
INFO Removing CRC Specific entries from user's known_hosts file
INFO Removing hosts file records added by CRC
INFO Removing pull secret from the keyring
INFO Removing older logs
Cleanup finished
```

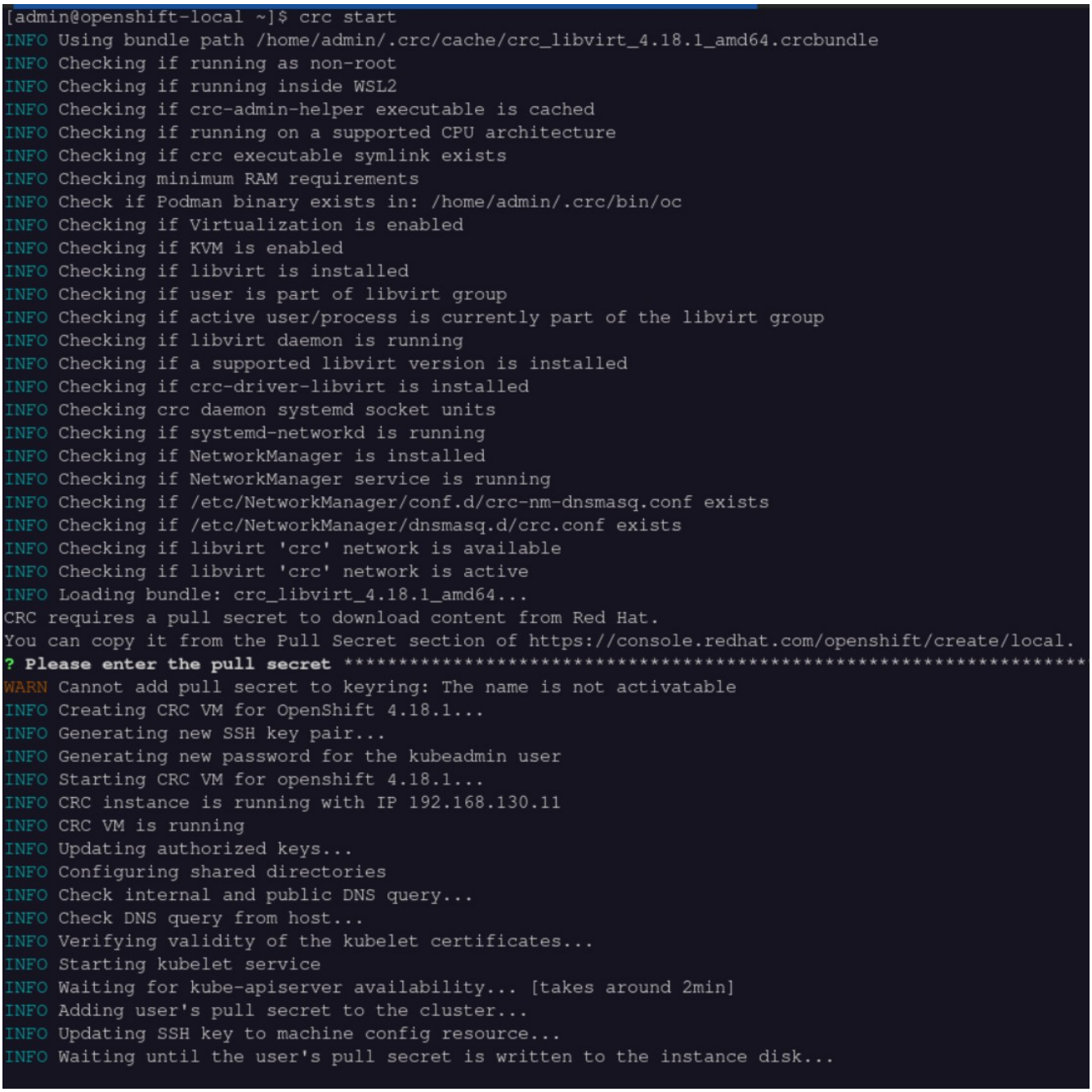
crc setup (this may take about 2 hours)

```
[admin@openshift-local ~]$
[admin@openshift-local ~]$ crc setup
INFO Using bundle path /home/admin/.crc/cache/crc_libvirt_4.18.1_amd64.crcbundle
INFO Checking if running as non-root
INFO Checking if running inside WSL2
INFO Checking if crc-admin-helper executable is cached
INFO Checking if running on a supported CPU architecture
INFO Checking if crc executable symlink exists
INFO Creating symlink for crc executable
INFO Checking minimum RAM requirements
INFO Check if Podman binary exists in: /home/admin/.crc/bin/oc
INFO Checking if Virtualization is enabled
INFO Checking if KVM is enabled
INFO Checking if libvirt is installed
INFO Checking if user is part of libvirt group
INFO Checking if active user/process is currently part of the libvirt group
INFO Checking if libvirt daemon is running
INFO Checking if a supported libvirt version is installed
INFO Checking if crc-driver-libvirt is installed
INFO Checking crc daemon systemd service
INFO Setting up crc daemon systemd service
INFO Checking crc daemon systemd socket units
INFO Setting up crc daemon systemd socket units
INFO Checking if vsock is correctly configured
INFO Setting up vsock support
INFO Using root access: Setting CAP_NET_BIND_SERVICE capability for /home/admin/local/bin/crc executable
INFO Using root access: Creating udev rule for /dev/vsock
INFO Using root access: Changing permissions for /etc/udev/rules.d/99-crc-vsock.rules to 644
INFO Using root access: Reloading udev rules database
INFO Using root access: Loading vhost_vsock kernel module
INFO Using root access: Creating file /etc/modules-load.d/vhost_vsock.conf
INFO Using root access: Changing permissions for /etc/modules-load.d/vhost_vsock.conf to 644
INFO Checking if CRC bundle is extracted in '$HOME/.crc'
INFO Checking if /home/admin/.crc/cache/crc_libvirt_4.18.1_amd64.crcbundle exists
INFO Getting bundle for the CRC executable
INFO Downloading bundle: /home/admin/.crc/cache/crc_libvirt_4.18.1_amd64.crcbundle...
5.69 GiB / 5.69 GiB [-----------------------------------------------------------------------------------------------------------------------------------------] 100.00% 1.32 MiB/s
INFO Uncompressing /home/admin/.crc/cache/crc_libvirt_4.18.1_amd64.crcbundle
crc.qcow2:  20.11 GiB / 20.11 GiB [-----------------------------------------------------------------------------------------------------------------------------------------] 100.00%
oc:  176.49 MiB / 176.49 MiB [-----------------------------------------------------------------------------------------------------------------------------------------] 100.00%
Your system is correctly setup for using CRC. Use 'crc start' to start the instance
[admin@openshift-local ~]$
```

#select and copy “pull-secret” entry then paste in installation terminal

#crc start and paste “pull-secret” then ENTER to continue





INFO CRC instance is running with IP **192.168.130.11**

```
INFO Changing the password for the kubeadmin user
INFO Updating cluster ID...
INFO Updating root CA cert to admin-kubeconfig-client-ca configmap...
INFO Starting openshift instance... [waiting for the cluster to stabilize]
INFO 2 operators are progressing: authentication, console
INFO 2 operators are progressing: authentication, console
INFO 2 operators are progressing: authentication, console
INFO Operator authentication is progressing
INFO All operators are available. Ensuring stability...
INFO Operators are stable (2/3)...
INFO Operators are stable (3/3)...
INFO Adding crc-admin and crc-developer contexts to kubeconfig...
Started the OpenShift cluster.

The server is accessible via web console at:
  https://console-openshift-console.apps-crc.testing

Log in as administrator:
  Username: kubeadmin
  Password: jL5ou-pRq7U-DqH7V-K43Iq

Log in as user:
  Username: developer
  Password: developer

Use the 'oc' command line interface:
  $ eval $(crc oc-env)
  $ oc login -u developer https://api.crc.testing:6443
[admin@openshift-local ~]$
[admin@openshift-local ~]$
```

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https://console-openshift-console.apps-crc.testing

Log in as administrator:
Username: kubeadmin
Password: jL5ou-pRq7U-DqH7V-K43Iq

Log in as user:
Username: developer
Password: developer

Use the 'oc' command line interface:
$ eval $(crc oc-env)
$ oc login -u developer https://api.crc.testing:6443

```
[admin@openshift-local ~]$ crc ip
192.168.130.11
[admin@openshift-local ~]$ crc status
CRC VM:          Running
OpenShift:       Running (v4.18.1)
Disk Usage:      21.29GB of 32.68GB (Inside the CRC VM)
Cache Usage:     27.93GB
Cache Directory: /home/admin/.crc/cache
[admin@openshift-local ~]$
```

```
[admin@openshift-local ~]$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp1s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 52:54:00:ca:d9:55 brd ff:ff:ff:ff:ff:ff
    inet 192.168.124.95/24 brd 192.168.124.255 scope global dynamic noprefixroute enp1s0
       valid_lft 3290sec preferred_lft 3290sec
3: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000
    link/ether 52:54:00:9a:48:64 brd ff:ff:ff:ff:ff:ff
    inet 192.168.122.1/24 brd 192.168.122.255 scope global noprefixroute virbr0
       valid_lft forever preferred_lft forever
4: crc: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 52:54:00:fd:be:d0 brd ff:ff:ff:ff:ff:ff
    inet 192.168.130.1/24 brd 192.168.130.255 scope global crc
       valid_lft forever preferred_lft forever
5: vnet0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue master crc state UNKNOWN group default qlen 1000
    link/ether fe:fd:fc:07:21:82 brd ff:ff:ff:ff:ff:ff
    inet6 fe80::fcfd:fcff:fe07:2182/64 scope link
       valid_lft forever preferred_lft forever
[admin@openshift-local ~]$
```

HostOS IP = 192.168.124.1 [cannot access to the Openshift Console URL from this external IP]
VM ip = 192.168.124.95 [external IP]
crc ip = 192.168.130.11 [console-openshift-console.apps-crc.testing Openshift console url resolving]

In this case, we will need to login with GUI to VM and then we can access URL in browser.
But VM was installed minimal without GUI. So, HAProxy can help to access this url from external IP.

##

Configure HAProxy after crc installation finishing in OpenShift local VM, the idea is to access from external HOST to VM's openshift console url

sudo dnf install -y haproxy

sudo cp -p /etc/haproxy/haproxy.cfg /etc/haproxy/haproxy.cfg_origin

sudo tee /etc/haproxy/haproxy.cfg &>/dev/null <EOF
```
global
    log /dev/log local0

defaults
    balance roundrobin
    log global
    maxconn 100
    mode tcp
    timeout connect 5s
    timeout client 500s
    timeout server 500s

listen app
    bind 0.0.0.0:80
    server crcvm 192.168.130.11:80 check

listen apps_ssl
    bind 0.0.0.0:443
    server crcvm 192.168.130.11:443 check

listen api
    bind 0.0.0.0:6443
    server crcvm 192.168.130.11:6443 check
```
EOF

Note:
It can be verified by typing in terminal " **crc ip** "
If selinux enable and firewall service is running, please do this below actions.

```
sudo firewall-cmd --add-port=80/tcp --permanent
sudo firewall-cmd --add-port=6443/tcp --permanent
sudo firewall-cmd --add-port=443/tcp –permanent
sudo firewall-cmd --reload
sudo semanage port -a -t http_port_t -p tcp 6443
sudo systemctl enable haproxy && sudo systemctl start haproxy
sudo systemctl restart haproxy
```

In the OpenShift Local machine(CentOS Stream 9) /etc/hosts entry, if there is no auto update in the **/etc/hosts** entries, please add this:

Added by CRC
192.168.130.11 api.crc.testing canary-openshift-ingress-canary.apps-crc.testing console-openshift-console.apps-crc.testing default-route-openshift-image-registry.apps-crc.testing downloads-openshift-console.apps-crc.testing host.crc.testing oauth-openshift.apps-crc.testing
End of CRC section

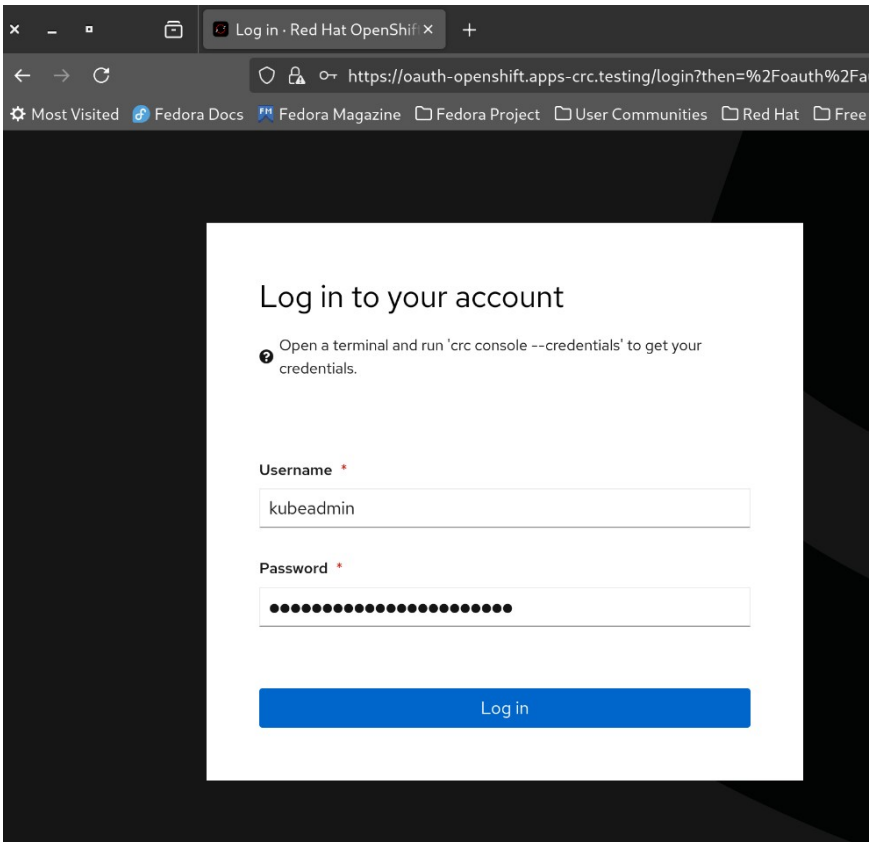
##

In the client machine /etc/hosts entry, please add this below

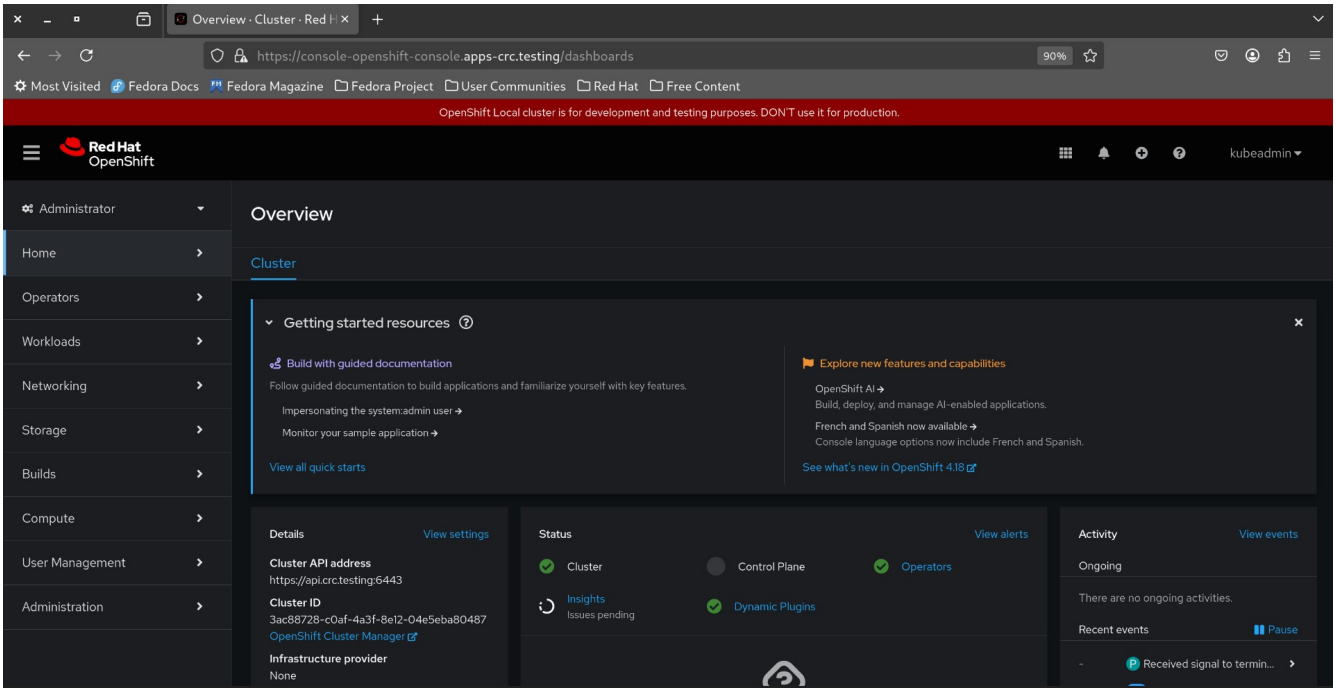
192.168.124.95 api.crc.testing canary-openshift-ingress-canary.apps-crc.testing console-openshift-console.apps-crc.testing default-route-openshift-image-registry.apps-crc.testing downloads-openshift-console.apps-crc.testing host.crc.testing oauth-openshift.apps-crc.testing

##

Then try to access web console from Client:
https://console-openshift-console.apps-crc.testing



Now OpenShift Console URL can be accessible via external Host through HAProxy service
Login successful via WEB URL



To check credentials
crc console --credentials

```
[admin@openshift-local ~]$ crc console --credentials
To login as a regular user, run 'oc login -u developer -p developer https://api.crc.testing:6443'.
To login as an admin, run 'oc login -u kubeadmin -p jL5ou-pRq7U-DqH7V-K43Iq https://api.crc.testing:6443'
[admin@openshift-local ~]$
```

If the error with " **-bash: oc: command not found** "

cp ~/.crc/cache/crc_libvirt_4.18.1_amd64/oc ~/local/bin/

```
[admin@openshift-local ~]$ oc
-bash: oc: command not found
[admin@openshift-local ~]$
[admin@openshift-local ~]$ ls -lrt ~/.crc/cache/crc_libvirt_4.18.1_amd64/oc
-rwxr-xr-x. 1 admin admin 185062488 Mar  7 21:13 /home/admin/.crc/cache/crc_libvirt_4.18.1_amd64/oc
[admin@openshift-local ~]$
[admin@openshift-local ~]$ cp ~/.crc/cache/crc_libvirt_4.18.1_amd64/oc ~/local/bin/
[admin@openshift-local ~]$
[admin@openshift-local ~]$ oc get pods
No resources found in default namespace.
[admin@openshift-local ~]$ oc --version
error: unknown flag: --version
See 'oc --help' for usage.
[admin@openshift-local ~]$ oc version
Client Version: 4.18.1
Kustomize Version: v5.4.2
Server Version: 4.18.1
Kubernetes Version: v1.31.5
```

Login successful with “oc” command

```
[admin@openshift-local ~]$ oc login -u kubeadmin -p jL5ou-pRq7U-DqH7V-K43Iq https://api.crc.testing:6443
Login successful.

You have access to 65 projects, the list has been suppressed. You can list all projects with 'oc projects'

Using project "default".
[admin@openshift-local ~]$
[admin@openshift-local ~]$
```

```
[admin@openshift-local ~]$ oc login -u developer -p developer https://api.crc.testing:6443
Login successful.

You don't have any projects. You can try to create a new project, by running

    oc new-project <projectname>

[admin@openshift-local ~]$
```

Useful urls:

https://www.redhat.com/en/blog/install-openshift-local
https://docs.openshift.com/container-platform/4.17/cli_reference/openshift_cli/getting-started-cli.html
https://akos.ma/blog/openshift-local-crc-from-another-machine/