


Arktos deployment with Mizar CNI on GCE

Instance size: - e2-standard-8

OS: Ubuntu 18.04 LTS 64-bit

Filter Enter property name or value

Status	Name ↑	Zone	Creation time	Machine type	Internal IP	External IP	Connect
	network-test	us-central1-a	Sep 29, 2021, 2:34:58 PM UTC+05:30	e2-standard-8	10.128.0.15 (nic0)	35.192.137.181	SSH ▾

Step-1 Check the kernel version & update the kernel

```
uname -a
```

```
wget https://raw.githubusercontent.com/CentaurusInfra/mizar/dev-next/kernelupdate.sh
```

```
sudo bash kernelupdate.sh
```

Output

```
Passphrase for key "ubuntu":
  • MobaXterm Professional v21.0 •
  (SSH client, X server and network tools)

  • SSH session to ubuntu@35.192.137.181
  • Direct SSH : ✓
  • SSH compression : ✓
  • SSH-browser : ✓
  • X11-forwarding : ✓ (remote display is forwarded through SSH)
  • For more info, ctrl+click on help or visit our website.

Welcome to Ubuntu 18.04.6 LTS (GNU/Linux 5.4.0-1053-gcp x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Wed Sep 29 09:11:46 UTC 2021

System load: 0.0          Processes: 155
Usage of /:  3.4% of 48.29GB   Users logged in: 0
Memory usage: 0%             IP address for ens4: 10.128.0.15
Swap usage: 0%

0 updates can be applied immediately.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

/usr/bin/xauth: file /home/ubuntu/.Xauthority does not exist
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@network-test:~$
ubuntu@network-test:~$ uname -a
Linux network-test 5.4.0-1053-gcp #57~18.04.1-Ubuntu SMP Sun Sep 12 22:52:33 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
ubuntu@network-test:~$ wget https://raw.githubusercontent.com/CentaurusInfra/mizar/dev-next/kernelupdate.sh
--2021-09-29 09:12:24-- https://raw.githubusercontent.com/CentaurusInfra/mizar/dev-next/kernelupdate.sh
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.111.133, 185.199.108.133, 185.199.109.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.111.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 791 [text/plain]
Saving to: 'kernelupdate.sh'

kernelupdate.sh                               100%[=====]

2021-09-29 09:12:24 (45.9 MB/s) - 'kernelupdate.sh' saved [791/791]

ubuntu@network-test:~$ sudo bash kernelupdate.sh
--2021-09-29 09:12:25-- https://mizar.s3.amazonaws.com/linux-5.6-rc2/linux-headers-5.6.0-rc2-1_amd64.deb
```

```

linux-libc-dev_5.6.0-rc2-1_amd64.deb 100%[=====]
2021-09-29 09:12:40 (4.65 MB/s) - './linux-5.6-rc2/linux-libc-dev_5.6.0-rc2-1_amd64.deb' saved [1082248/1082248]

Continue kernel update (y/n)?y
Updating kernel
Selecting previously unselected package linux-headers-5.6.0-rc2.
(Reading database ... 65612 files and directories currently installed.)
Preparing to unpack .../linux-headers-5.6.0-rc2_5.6.0-rc2-1_amd64.deb ...
Unpacking linux-headers-5.6.0-rc2 (5.6.0-rc2-1) ...
Selecting previously unselected package linux-image-5.6.0-rc2-dbg.
Preparing to unpack .../linux-image-5.6.0-rc2-dbg_5.6.0-rc2-1_amd64.deb ...
Unpacking linux-image-5.6.0-rc2-dbg (5.6.0-rc2-1) ...
Selecting previously unselected package linux-image-5.6.0-rc2.
Preparing to unpack .../linux-image-5.6.0-rc2_5.6.0-rc2-1_amd64.deb ...
Unpacking linux-image-5.6.0-rc2 (5.6.0-rc2-1) ...
Selecting previously unselected package linux-libc-dev:amd64.
Preparing to unpack .../linux-libc-dev_5.6.0-rc2-1_amd64.deb ...
Unpacking linux-libc-dev:amd64 (5.6.0-rc2-1) ...
Setting up linux-headers-5.6.0-rc2 (5.6.0-rc2-1) ...
Setting up linux-image-5.6.0-rc2-dbg (5.6.0-rc2-1) ...
Setting up linux-image-5.6.0-rc2 (5.6.0-rc2-1) ...
update-initramfs: Generating /boot/initrd.img-5.6.0-rc2
Sourcing file /etc/default/grub
Sourcing file /etc/default/grub.d/50-cloudimg-settings.cfg
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-5.6.0-rc2
Found initrd image: /boot/initrd.img-5.6.0-rc2
Found linux image: /boot/vmlinuz-5.4.0-1053-gcp
Found initrd image: /boot/initrd.img-5.4.0-1053-gcp
Adding boot menu entry for EFI firmware configuration
done
Setting up linux-libc-dev:amd64 (5.6.0-rc2-1) ...
Reboot host (y/n)?y
Rebooting

```

Kernel updated successfully.

Step-2 Clone the Arktos repository and install the required dependencies:

```

git clone https://github.com/Click2Cloud-Centaurus/arktos.git
~/go/src/k8s.io/arktos -b default-cni-mizar

```

```

sudo bash $HOME/go/src/k8s.io/arktos/hack/setup-dev-node.sh

```

Output

```

Last login: Wed Sep 29 09:11:47 2021 from 114.143.207.106
ubuntu@network-test:~$ git clone https://github.com/Click2Cloud-Centaurus/arktos.git ~/go/src/k8s.io/arktos -b default-cni-mizar
Cloning into '/home/ubuntu/go/src/k8s.io/arktos'...
remote: Enumerating objects: 104467, done.
remote: Counting objects: 100% (1130/1130), done.
remote: Compressing objects: 100% (683/683), done.
remote: Total 104467 (delta 564), reused 635 (delta 431), pack-reused 103337
Receiving objects: 100% (104467/104467), 333.11 MiB | 32.58 MiB/s, done.
Resolving deltas: 100% (63151/63151), done.
Checking out files: 100% (20762/20762), done.
ubuntu@network-test:~$ sudo bash $HOME/go/src/k8s.io/arktos/hack/setup-dev-node.sh
The script is to help install prerequisites of Arktos development environment
on a fresh Linux installation.
It's been tested on Ubuntu 16.04 LTS and 18.04 LTS.
Update apt.
Hit:1 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic InRelease
Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:3 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:4 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic/universe amd64 Packages [8570 kB]
Get:5 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:6 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic/universe Translation-en [4941 kB]

```

```

echo export PATH=$PATH:/usr/local/go/bin\ >> ~/.profile
echo cd $HOME/go/src/k8s.io/arktos >> ~/.profile
source ~/.profile

```

```

Done.
Please run and add 'export PATH=$PATH:/usr/local/go/bin' into your shell profile.
You can proceed to run arktos-up.sh if you want to launch a single-node cluster.
ubuntu@network-test:~$ echo export PATH=$PATH:/usr/local/go/bin \>> ~/.profile
ubuntu@network-test:~$ echo cd \${HOME}/go/src/k8s.io/arktos \>> ~/.profile
ubuntu@network-test:~$ source ~/.profile
ubuntu@network-test:~/go/src/k8s.io/arktos$ CNIPLUGIN=mizar ./hack/arktos-up.sh

```

Step-3 Start Arktos cluster

CNIPLUGIN=mizar ./hack/arktos-up.sh

Output

Failed - error cannot import package ...

```

Stopping Apparmor service
make: Entering directory '/home/ubuntu/go/src/k8s.io/arktos'
make[1]: Entering directory '/home/ubuntu/go/src/k8s.io/arktos'
+++ [0929 09:27:45] Building go targets for linux/amd64:
./vendor/k8s.io/code-generator/cmd/deepcopy-gen
+++ [0929 09:27:45] Building go targets for linux/amd64:
./vendor/k8s.io/code-generator/cmd/default-gen
+++ [0929 09:27:45] Building go targets for linux/amd64:
./vendor/k8s.io/code-generator/cmd/conversion-gen
+++ [0929 09:27:45] Building go targets for linux/amd64:
./vendor/k8s.io/kube-openapi/cmd/openapi-gen
+++ [0929 09:27:49] Building go targets for linux/amd64:
./vendor/github.com/go-bindata/go-bindata/go-bindata
F0929 09:27:58.245152 17028 defaulter.go:292] cannot import package ../../../../vendor/k8s.io/api/authorization/v1beta1
Makefile.generated_files:249: recipe for target 'gen_defaulter' failed
make[1]: *** [gen_defaulter] Error 1
make[1]: *** Waiting for unfinished jobs....
make[1]: Leaving directory '/home/ubuntu/go/src/k8s.io/arktos'
Makefile:560: recipe for target 'generated_files' failed
make: *** [generated_files] Error 2
make: Leaving directory '/home/ubuntu/go/src/k8s.io/arktos'
!!! Error in ./hack/arktos-up.sh:138
Error in ./hack/arktos-up.sh:138: 'make -j4 -C "${KUBE_ROOT}" WHAT="cmd/kubectl cmd/hyperkube cmd/kube-apiserver cmd/kube-controller-manager cmd/workload-controller-manager cm
belet cmd/kube-proxy cmd/kube-scheduler cmd/arktos-network-controller"' exited with status 2
Call stack:
1: ./hack/arktos-up.sh:138 main(...)
Exiting with status 1
ubuntu@network-test:~/go/src/k8s.io/arktos$ CNIPLUGIN=mizar ./hack/arktos-up.sh
DBG: Flannel CNI plugin will be installed AFTER cluster is up
DBG: effective feature gates AllAlpha=false,WorkloadInfoDefaulting=true,QPSDoubleGCController=true,QPSDoubleRSCController=true,MandatoryArktosNetwork=true
DBG: effective disabling admission plugins
DBG: effective default network template file is /home/ubuntu/go/src/k8s.io/arktos/hack/testdata/default-flat-network.tmpl
DBG: kubelet arg RESOLV_CONF is /run/systemd/resolve/resolve.conf
WARNING: The kubelet is configured to not fail even if swap is enabled; production deployments should disable swap.

```

Re-run same script without any changes.

CNIPLUGIN=mizar ./hack/arktos-up.sh

Deployment Successfully done.

Output

```

Arkto Setup done.
*****
Setup Kata Containers components ...
* Install Kata components
kata-containers 2.2.1 from Kata Containers (katacontainers-) installed
* Checking Kata compatibility
No newer release available time="2021-09-29T09:45:57Z" level=error msg="CPU property not found" arch=amd64 description="Virtualization support" name=vmx pid=4734 source=runtime
type=flag time="2021-09-29T09:45:57Z" level=error msg="Module is not loaded and it can not be inserted. Please consider running with sudo or as root" arch=amd64 module=kvm name=
kata-runtime pid=4734 source=runtime time="2021-09-29T09:45:57Z" level=error msg="kernel property not found" arch=amd64 description="Kernel-based Virtual Machine" name=kvm pid=4
734 source=runtime type=module time="2021-09-29T09:45:57Z" level=error msg="Module is not loaded and it can not be inserted. Please consider running with sudo or as root" arch=a
md64 module=vhost name=kata-runtime pid=4734 source=runtime time="2021-09-29T09:45:57Z" level=error msg="kernel property not found" arch=amd64 description="Host kernel accelerat
or for virtio" name=vhost pid=4734 source=runtime type=module time="2021-09-29T09:45:57Z" level=error msg="Module is not loaded and it can not be inserted. Please consider runni
ng with sudo or as root" arch=amd64 module=vhost_net name=kata-runtime pid=4734 source=runtime time="2021-09-29T09:45:57Z" level=error msg="kernel property not found" arch=amd64
description="Host kernel accelerator for virtio network" name=vhost_net pid=4734 source=runtime type=module time="2021-09-29T09:45:57Z" level=error msg="Module is not loaded and
it can not be inserted. Please consider running with sudo or as root" arch=amd64 module=vsock name=kata-runtime pid=4734 source=runtime time="2021-09-29T09:45:57Z" level
=error msg="kernel property not found" arch=amd64 description="Host Support for Linux VM Sockets" name=vhost_vsock pid=4734 source=runtime type=module time="2021-09-29T09:45:57Z
" level=error msg="Module is not loaded and it can not be inserted. Please consider running with sudo or as root" arch=amd64 module=kvm_intel name=kata-runtime pid=4734 source=r
untime time="2021-09-29T09:45:57Z" level=error msg="kernel property not found" arch=amd64 description="Intel KVM" name=kvm_intel pid=4734 source=runtime type=module time="2021-0
9-29T09:45:57Z" level=error msg="ERROR: System is not capable of running Kata Containers" arch=amd64 name=kata-runtime pid=4734 source=runtime ERROR: System is not capable of ru
ning Kata Containers
Aborted. Current system does not support Kata Containers.
Kata Setup done.
*****
Local Kubernetes cluster is running. Press Ctrl-C to shut it down.

Logs:
  /tmp/kube-apiserver0.log
  /tmp/kube-controller-manager.log

  /tmp/kube-proxy.log
  /tmp/kube-scheduler.log
  /tmp/kubelet.log

To start using your cluster, you can open up another terminal/tab and run:
  export KUBECONFIG=/var/run/kubernetes/admin.kubeconfig
Or
  export KUBECONFIG=/var/run/kubernetes/admin(N=0,1,...).kubeconfig
  cluster/kubectl.sh

Alternatively, you can write to the default kubeconfig:
  export KUBERNETES_PROVIDER=local
  cluster/kubectl.sh config set-cluster local --server=https://network-test:6443 --certificate-authority=/var/run/kubernetes/server-ca.crt
  cluster/kubectl.sh config set-credentials myself --client-key=/var/run/kubernetes/client-admin.key --client-certificate=/var/run/kubernetes/client-admin.crt
  cluster/kubectl.sh config set-context local --cluster=local --user=myself
  cluster/kubectl.sh config use-context local
  cluster/kubectl.sh

```

the professional edition here: <https://mobaxterm.mobatek.net>

Step-4 Check Cluster health

Open new terminal for same instance and run following commands:

Check node, Pods, Vpc, Subnet, dividers & , bouncers , Net status

```
./cluster/kubectl.sh get nodes
```

```
./cluster/kubectl.sh get pods -Ao wide
```

```
./cluster/kubectl.sh get vpc -Ao wide
```

```
./cluster/kubectl.sh get subnet -Ao wide
```

```
./cluster/kubectl.sh get dividers -Ao wide
```

```
./cluster/kubectl.sh get bouncers -Ao wide
```

```
./cluster/kubectl.sh get net -Ao wide
```

```

ubuntu@network-test:~/go/src/k8s.io/arktos$ ./cluster/kubectrl.sh get nodes
NAME      STATUS    ROLES    AGE     VERSION
network-test Ready    <none>    10m     v0.0.0
ubuntu@network-test:~/go/src/k8s.io/arktos$ ./cluster/kubectrl.sh get pods -Ao wide
NAMESPACE NAME      READY STATUS    RESTARTS AGE    IP           NODE      NOMINATED NODE READINESS GATE
S
default   mizar-daemon-fxv5r 1/1    Running 0        10m    10.128.0.15  network-test <none>         <none>
default   mizar-operator-6985d77546-m7zzf 1/1    Running 1        10m    10.128.0.15  network-test <none>         <none>
kube-system coredns-default-695bfd8bc6-4xdr2 0/1    ContainerCreating 0        10m    <none>       network-test <none>         <none>
kube-system kube-dns-7f4bf79dc-jwq95 0/3    ContainerCreating 0        10m    <none>       network-test <none>         <none>
kube-system virtlet-ksxn8 0/3    Init:0/1 0        105s    10.128.0.15  network-test <none>         <none>
ubuntu@network-test:~/go/src/k8s.io/arktos$ ./cluster/kubectrl.sh get vpc -Ao wide
NAMESPACE NAME    IP      PREFIX VNI    DIVIDERS STATUS  CREATETIME          PROVISIONDELAY
default   vpc0    20.0.0.0 8      1      1      Init    2021-09-29T09:39:33.043612
ubuntu@network-test:~/go/src/k8s.io/arktos$ ./cluster/kubectrl.sh get subnet -Ao wide
NAMESPACE NAME    IP      PREFIX VNI    VPC    STATUS  BOUNCERS  CREATETIME          PROVISIONDELAY
default   net0    20.0.0.0 0      1      vpc0    Init    1          2021-09-29T09:39:33.228250
ubuntu@network-test:~/go/src/k8s.io/arktos$ ./cluster/kubectrl.sh get dividers -Ao wide
No resources found.
ubuntu@network-test:~/go/src/k8s.io/arktos$ ./cluster/kubectrl.sh get bouncers -Ao wide
No resources found.
ubuntu@network-test:~/go/src/k8s.io/arktos$ ./cluster/kubectrl.sh get net -Ao wide
NAME      TYPE    VPC    PHASE    DNS
default   mizar   system-default-network Ready    10.0.0.161
ubuntu@network-test:~/go/src/k8s.io/arktos$

```