Containerd Installation

Record of Release

Version No.	Created By	Date
1.0	Talpa Sai Tummalapenta	29th Dec, 2022

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1 Installation of Containerd

1.1 Download / Copy the Binaries required into the server

Latest Release at the time of Creation of this document:

https://github.com/containerd/nerdctl/releases/download/v1.1.0/nerdctl-full-1.1.0-linux-amd64.tar.gz

```
[root@HABI-DJG containerd]#
[root@HABI-DJG containerd]# wget https://github.com/containerd/nerdctl/releases/download/v1.1.0/nerdctl-full-1.1.0-linux-amd64.tar.gz
--2022-12-29 13:59:33--  https://github.com/containerd/nerdctl/releases/download/v1.1.0/nerdctl-full-1.1.0-linux-amd64.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)|20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/318476701/03a454b6-4bb3-46f8-98e6-2b2e29eaeab5?X-Amz-Algorithm=AWS4-HMAC-SHA256&X
-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20221229%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20221229T083221Z&X-Amz-Expires=300&X-Amz-Signature=0eff99ce62631109023d2175c4
c91ce5e9096d6c3cb5d593d798b2bb1f9d45ac&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=318476701&response-content-disposition=attachment%3B%20filename%3Dnerdctl-fu
ll-1.1.0-linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2022-12-29 13:59:34--  https://objects.githubusercontent.com/github-production-release-asset-2e65be/318476701/03a454b6-4bb3-46f8-98e6-2b2e29eaeab5?X-Amz-Algorithm=AWS
4-HMAC-SHA256&X-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20221229%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20221229T083221Z&X-Amz-Expires=300&X-Amz-Signature=0eff99ce626
31109023d2175c4c91ce5e9096d6c3cb5d593d798b2bb1f9d45ac&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=318476701&response-content-disposition=attachment%3B%20filena
me%3Dnerdctl-full-1.1.0-linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.111.133, 185.199.108.133, 185.199.109.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.111.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 235161071 (224M) [application/octet-stream]
Saving to: 'nerdctl-full-1.1.0-linux-amd64.tar.gz'

nerdctl-full-1.1.0-linux-amd64.tar.gz    100%[================================================================================>] 224.27M  11.4MB/s    in 22s
```

1.2 Extract the binary to /usr/local

Command: *tar Cxzvvf /usr/local nerdctl-full-1.0.0-linux-amd64.tar.gz*

```
[root@HABI-DJG containerd]# ls
nerdctl-full-1.1.0-linux-amd64.tar.gz
[root@HABI-DJG containerd]# tar Cxzvvf /usr/local nerdctl-full-1.1.0-linux-amd64.tar.gz
drwxr-xr-x 0/0               0 2022-12-12 06:56 bin/
-rwxr-xr-x 0/0        25485993 2015-10-21 05:30 bin/buildctl
-rwxr-xr-x 0/0        23724032 2022-09-05 15:22 bin/buildg
-rwxr-xr-x 0/0        39552521 2015-10-21 05:30 bin/buildkitd
-rwxr-xr-x 0/0         3602712 2022-12-12 06:51 bin/bypass4netns
-rwxr-xr-x 0/0         5111808 2022-12-12 06:51 bin/bypass4netnsd
-rwxr-xr-x 0/0        55100344 2022-12-12 06:53 bin/containerd
-rwxr-xr-x 0/0        10219520 2022-11-09 13:26 bin/containerd-fuse-overlayfs-grpc
-rwxr-xr-x 0/0           21563 2022-12-12 06:51 bin/containerd-rootless-setuptool.sh
-rwxr-xr-x 0/0            7032 2022-12-12 06:51 bin/containerd-rootless.sh
-rwxr-xr-x 0/0         9768960 2022-12-12 06:53 bin/containerd-shim-runc-v2
-rwxr-xr-x 0/0        60561376 2022-11-11 18:52 bin/containerd-stargz-grpc
-rwxr-xr-x 0/0        20333008 2022-12-12 06:56 bin/ctd-decoder
-rwxr-xr-x 0/0        28135832 2022-12-12 06:52 bin/ctr
-rwxr-xr-x 0/0        29082227 2022-12-12 06:56 bin/ctr-enc
-rwxr-xr-x 0/0        30609440 2022-11-11 18:53 bin/ctr-remote
-rwxr-xr-x 0/0         1783392 2022-12-12 06:56 bin/fuse-overlayfs
-rwxr-xr-x 0/0        80964832 2022-11-22 20:03 bin/ipfs
```

1.3 Enable containerd service

Command: *systemctl enable --now containerd*

```
[root@HABI-DJG containerd]#
[root@HABI-DJG containerd]#
[root@HABI-DJG containerd]# systemctl enable --now containerd
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /usr/local/lib/systemd/system/containerd.service.
[root@HABI-DJG containerd]#
```

1.4 Check continerd Status

Command: *systemctl status containerd*

```
[root@HABI-DJG containerd]# systemctl status containerd
● containerd.service - containerd container runtime
   Loaded: loaded (/usr/local/lib/systemd/system/containerd.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2022-12-29 14:03:37 IST; 43s ago
     Docs: https://containerd.io
  Process: 51771 ExecStartPre=/sbin/modprobe overlay (code=exited, status=0/SUCCESS)
 Main PID: 51772 (containerd)
    Tasks: 7
   Memory: 15.5M
   CGroup: /system.slice/containerd.service
           └─51772 /usr/local/bin/containerd

Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666325603+05:30" level=info msg="loading plugin \"io.containerd.grpc.v1.snapshots\"..." type=io.c
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666341237+05:30" level=info msg="loading plugin \"io.containerd.grpc.v1.tasks\"..." type=io.conta
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666355863+05:30" level=info msg="loading plugin \"io.containerd.grpc.v1.version\"..." type=io.con
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666369747+05:30" level=info msg="loading plugin \"io.containerd.tracing.processor.v1.otlp\"..." t
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666389973+05:30" level=info msg="skip loading plugin \"io.containerd.tracing.processor.v1.otlp\".
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666402908+05:30" level=info msg="loading plugin \"io.containerd.internal.v1.tracing\"..." type=io
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666435351+05:30" level=error msg="failed to initialize a tracing processor \"otlp\"" error="no Op
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666726711+05:30" level=info msg=serving... address=/run/containerd/containerd.sock.ttrpc
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666770934+05:30" level=info msg=serving... address=/run/containerd/containerd.sock
Dec 29 14:03:37 HABI-DJG containerd[51772]: time="2022-12-29T14:03:37.666821209+05:30" level=info msg="containerd successfully booted in 0.139803s"
lines 1-21/21 (END)
```

1.5 Change the data directory location of containerd

Command: *vim /etc/containerd/config.toml*

```
[root@HABI-DJG data]#
[root@HABI-DJG data]#
[root@HABI-DJG data]#
[root@HABI-DJG data]# vim /etc/containerd/config.toml
```

Change the location to desired location as per below Image and save the file

```
disabled_plugins = ["cri"]

root = "/app_data/containerd/data"
#state = "/run/containerd"
#subreaper = true
#oom_score = 0

#[grpc]
#  address = "/run/containerd/containerd.sock"
#  uid = 0
#  gid = 0

#[debug]
#  address = "/run/containerd/debug.sock"
#  uid = 0
#  gid = 0
#  level = "info"
```

1.6 Restart containerd Service

Command: *systemctl restart containerd*

```
[root@HABI-DJG data]#
[root@HABI-DJG data]#
[root@HABI-DJG data]#
[root@HABI-DJG data]# systemctl restart containerd
[root@HABI-DJG data]#
```

1.7 Check containerd Status

Command: *systemctl status containerd*

```
[root@HABI-DJG data]# systemctl status containerd
● containerd.service - containerd container runtime
   Loaded: loaded (/usr/local/lib/systemd/system/containerd.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2022-12-29 14:32:58 IST; 1min 10s ago
     Docs: https://containerd.io
  Process: 52416 ExecStartPre=/sbin/modprobe overlay (code=exited, status=0/SUCCESS)
 Main PID: 52417 (containerd)
    Tasks: 7
   Memory: 17.7M
   CGroup: /system.slice/containerd.service
           └─52417 /usr/local/bin/containerd

Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202171756+05:30" level=info msg="loading plugin \"io.containerd.grpc.v1.tasks\"..." type=io.conta
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202193199+05:30" level=info msg="loading plugin \"io.containerd.grpc.v1.version\"..." type=io.con
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202209653+05:30" level=info msg="loading plugin \"io.containerd.tracing.processor.v1.otlp\"..." ty
Dec 29 14:32:58 HABI-DJG systemd[1]: Started containerd container runtime.
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202228554+05:30" level=info msg="skip loading plugin \"io.containerd.tracing.processor.v1.otlp\".
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202242728+05:30" level=info msg="loading plugin \"io.containerd.internal.v1.tracing\"..." type=io
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202266482+05:30" level=error msg="failed to initialize a tracing processor \"otlp\"" error="no Op
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202526934+05:30" level=info msg="serving... address=/run/containerd/containerd.sock.ttrpc
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202568465+05:30" level=info msg="serving... address=/run/containerd/containerd.sock
Dec 29 14:32:58 HABI-DJG containerd[52417]: time="2022-12-29T14:32:58.202614801+05:30" level=info msg="containerd successfully booted in 0.166744s"
lines 1-21/21 (END)
```

1.8 Example Commands

Command: *nerdctl Images*
Command: *nerdctl pull hello-world*

Note: You can start using docker commands as-Is, just replace "docker" with "nerdctl"

```
[root@HABI-DJG containerd]# nerdctl images
REPOSITORY    TAG    IMAGE ID    CREATED    PLATFORM    SIZE    BLOB SIZE
[root@HABI-DJG containerd]#
[root@HABI-DJG containerd]# nerdctl pull hello-world
docker.io/library/hello-world:latest:                                resolved       |++++++++++++++++++++++++++++++++++|
index-sha256:c77be1d3a47d0caf71a82dd893ee61ce01f32fc758031a6ec4cf1389248bb833:       done           |++++++++++++++++++++++++++++++++++|
manifest-sha256:f54a58bc1aac5ea1a25d796ae155dc228b3f0e11d046ae276b39c4bf2f13d8c4:     done           |++++++++++++++++++++++++++++++++++|
config-sha256:feb5d9fea6a5e9606aa995e879d862b825965ba48de054caab5ef356dc6b3412:       done           |++++++++++++++++++++++++++++++++++|
layer-sha256:2db29710123e3e53a794f2694094b9b4338aa9ee5c40b930cb8063a1be392c54:        done           |++++++++++++++++++++++++++++++++++|
elapsed: 5.5 s                                                       total:  5.4 Ki (1008.0 B/s)
[root@HABI-DJG containerd]# nerdctl images
REPOSITORY    TAG    IMAGE ID       CREATED          PLATFORM      SIZE       BLOB SIZE
hello-world   latest c77be1d3a47d   26 seconds ago   linux/amd64   16.0 KiB   6.9 KiB
[root@HABI-DJG containerd]#
```