Setup Nexus Private hosted docker registry

```
===== ===== ===== ===== ===== ===
Install docker on host machine
===== ===== ===== ===== ===== =====

root@dockerhost:~# apt install  docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bridge-utils containerd git git-man liberror-perl pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools btrfs-progs cgroupfs-mount | cgroup-lite debootstrap docker-doc rinse zfs-
fuse | zfsutils git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb
  git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  bridge-utils containerd docker.io git git-man liberror-perl pigz runc ubuntu-fan
0 upgraded, 9 newly installed, 0 to remove and 63 not upgraded.
Need to get 79.3 MB of archives.
After this operation, 304 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

Get:1 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 pigz amd64 2.6-1 [63.6 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 bridge-utils amd64 1.7-1ubuntu3 [34.4 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 runc amd64 1.1.12-0ubuntu2~22.04.1 [8,405 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 containerd amd64 1.7.12-0ubuntu2~22.04.1 [37.8 MB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 docker.io amd64 24.0.7-0ubuntu2~22.04.1 [28.8 MB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 liberror-perl all 0.17029-1 [26.5 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 git-man all 1:2.34.1-1ubuntu1.11 [955 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 git amd64 1:2.34.1-1ubuntu1.11 [3,165 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 ubuntu-fan all 0.12.16 [35.2 kB]

```
Fetched 79.3 MB in 27s (2,984 kB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 244093 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.6-1_amd64.deb ...
--------- Snip -------------
containerd.service → /lib/systemd/system/containerd.service.
Setting up ubuntu-fan (0.12.16) ...
```

Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service →
/lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (24.0.7-0ubuntu2~22.04.1) ...
Adding group `docker' (GID 138) ...
Done.
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service →
/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket →
/lib/systemd/system/docker.socket.
Setting up git (1:2.34.1-1ubuntu1.11) ...
Processing triggers for man-db (2.10.2-1) ...

root@dockerhost:~#

anuj@dockerhost:~$ docker pull flask
Using default tag: latest
permission denied while trying to connect to the Docker daemon socket at
unix:///var/run/docker.sock: Post
"http://%2Fvar%2Frun%2Fdocker.sock/v1.24/images/create?fromImage=flask&tag=latest": dial unix
/var/run/docker.sock: connect: permission denied
anuj@dockerhost:~$
anuj@dockerhost:~$
anuj@dockerhost:~$
anuj@dockerhost:~$

anuj@dockerhost:~$
anuj@dockerhost:~$ sudo usermod -aG docker anuj
anuj@dockerhost:~$
anuj@dockerhost:~$
anuj@dockerhost:~$ docker pull hello-world
Using default tag: latest
permission denied while trying to connect to the Docker daemon socket at
unix:///var/run/docker.sock: Post
"http://%2Fvar%2Frun%2Fdocker.sock/v1.24/images/create?fromImage=flask&tag=latest": dial unix
/var/run/docker.sock: connect: permission denied
anuj@dockerhost:~$
anuj@dockerhost:~$
anuj@dockerhost:~$ newgrp docker <--------- this is to flush the permission to the new user that is
added to group
anuj@dockerhost:~$
anuj@dockerhost:~$ docker pull hello-world   <====== lets try to see user is able to execute docker
commands

```
Using default tag: latest
latest: Pulling from library/hello-world
c1ec31eb5944: Pull complete
Digest: sha256:d1b0b5888fbb59111dbf2b3ed698489c41046cb9d6d61743e37ef8d9f3dda06f
Status: Downloaded newer image for hello-world:latest
docker.io/library/hello-world:latest
anuj@dockerhost:~$
anuj@dockerhost:~$ docker images
REPOSITORY    TAG      IMAGE ID       CREATED        SIZE
hello-world   latest   d2c94e258dcb   13 months ago   13.3kB
anuj@dockerhost:~$
anuj@dockerhost:~$




anuj@dockerhost:~$ sudo docker run -d -p 8081:8081 -p 5000:5000 sonatype/nexus3

anuj@dockerhost:~$ docker ps
CONTAINER ID   IMAGE           COMMAND              CREATED       STATUS       PORTS
NAMES
988e46494c82   sonatype/nexus3   "/opt/sonatype/nexus…"   10 hours ago   Up 8 minutes
0.0.0.0:5000->5000/tcp, :::5000->5000/tcp, 0.0.0.0:8081->8081/tcp, :::8081->8081/tcp
funny_khorana
anuj@dockerhost:~$


anuj@dockerhost:~$ docker logs -f 988e46494c82


----- Snip ----

e
2024-06-17 19:25:08,024+0000 INFO  [jetty-main-1] *SYSTEM
com.softwarementors.extjs.djn.servlet.DirectJNgineServlet - Servlet GLOBAL configuration:
registryConfiguratorClass=
2024-06-17 19:25:08,053+0000 INFO  [jetty-main-1] *SYSTEM
com.softwarementors.extjs.djn.jscodegen.CodeFileGenerator - Creating source files for APIs...
2024-06-17 19:25:08,200+0000 INFO  [quartz-10-thread-1] *SYSTEM
org.sonatype.nexus.quartz.internal.task.QuartzTaskInfo - Task 'Metric aggregation'
[content.usage.aggregation] state change RUNNING -> WAITING (OK)
2024-06-17 19:25:08,466+0000 INFO  [jetty-main-1] *SYSTEM
org.sonatype.nexus.siesta.SiestaServlet - JAX-RS RuntimeDelegate:
org.sonatype.nexus.siesta.internal.resteasy.SisuResteasyProviderFactory@63131256
2024-06-17 19:25:08,562+0000 INFO  [jetty-main-1] *SYSTEM
org.jboss.resteasy.plugins.validation.i18n - RESTEASY008550: Unable to find CDI supporting
ValidatorFactory. Using default ValidatorFactory
```

2024-06-17 19:25:11,249+0000 INFO [jetty-main-1] *SYSTEM org.sonatype.nexus.siesta.SiestaServlet - Initialized
2024-06-17 19:25:11,256+0000 INFO [jetty-main-1] *SYSTEM org.sonatype.nexus.repository.httpbridge.internal.ViewServlet - Initialized
2024-06-17 19:25:11,341+0000 INFO [jetty-main-1] *SYSTEM org.eclipse.jetty.server.handler.ContextHandler - Started o.e.j.w.WebAppContext@4435ef83{Sonatype Nexus,/,null,AVAILABLE}
2024-06-17 19:25:11,485+0000 INFO [jetty-main-1] *SYSTEM org.eclipse.jetty.server.AbstractConnector - Started ServerConnector@2d3b3ce1{HTTP/1.1, (http/1.1)}{0.0.0.0:8081}
2024-06-17 19:25:11,486+0000 INFO [jetty-main-1] *SYSTEM org.eclipse.jetty.server.Server - Started @89480ms
2024-06-17 19:25:11,491+0000 INFO [jetty-main-1] *SYSTEM org.sonatype.nexus.bootstrap.jetty.JettyServer -
----

Started Sonatype Nexus OSS 3.69.0-02

Welcome
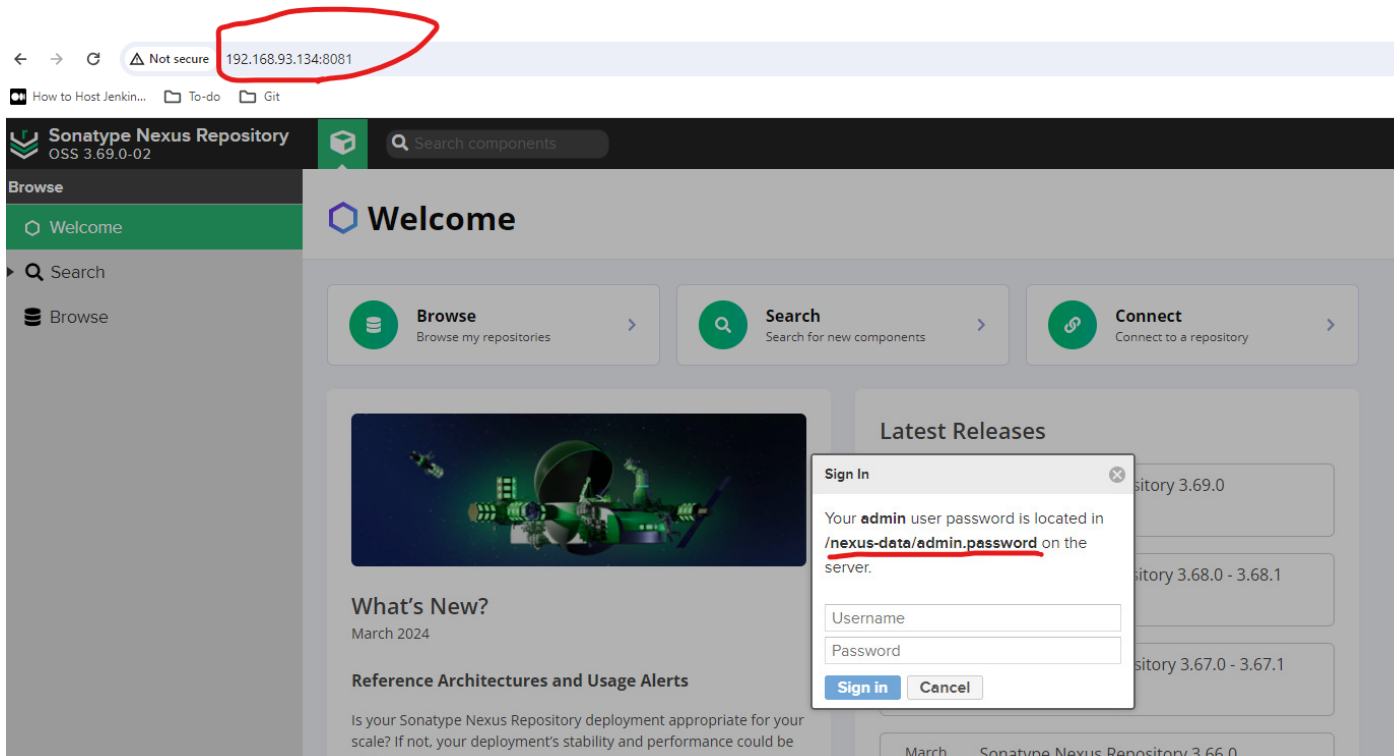
	Browse			Search			Connect
🗄	**Browse** Browse my repositories	❯	🔍	**Search** Search for new components	❯	🔗	**Connect** Connect to a repository

Latest Releases

Sign In   ⊗

Your **admin** user password is located in
/nexus-data/admin.password on the
server.

sitory 3.69.0

| admin |

| •••••••••••••••••••••••••••••••• |

Sign in   Cancel

sitory 3.68.0 - 3.

What's New?
March 2024

sitory 3.67.0 - 3

Reference Architectures and Usage Alerts

Is your Sonatype Nexus Repository deployment appropriate for your

---

Setup

This wizard will help you complete required setup tasks.

Next

Please choose a password for the admin user

New password:

    ··········

Confirm password:

    ··········

Back   Next

Configure Anonymous Access

Enable anonymous access means that by default, users can search, browse and download components from repositories without credentials. Please **consider the security implications for your organization.**

Disable anonymous access should be chosen with care, as it **will require credentials for all** users and/or build tools.

More information

◉ Enable anonymous access
◯ Disable anonymous access

Back   Next

Complete

The setup tasks have been completed, enjoy using Nexus Repository Manager!

Finish

To create own private repository First click on Browse and then settings

Select Docker hosted, so that we can use it to store the custom images.

Repositories / Se

Recipe ↑
bower (hosted)
bower (proxy)
cocoapods (proxy)
conan (proxy)
conda (proxy)
docker (group)
docker (hosted)
docker (proxy)
gitlfs (hosted)
go (group)
go (proxy)
helm (hosted)
helm (proxy)
maven2 (group)
maven2 (hosted)
maven2 (proxy)

Repositories / 🗄 Select Recipe / 🗄 Create Repository: docker (hosted)

Name:
A unique identifier for this repository

> my-docker-private

Online: ☑ If checked, the repository accepts incoming requests

Repository Connectors

Connectors allow Docker clients to connect directly to hosted registries, but are not always required. Consult our documentation for which connector is appropriate for your use case. For information on scaling the repositories see our scaling documentation.

HTTP:

Create an HTTP connector at specified port. Normally used if the server is behind a secure proxy.

☑ 5000

HTTPS:

Create an HTTPS connector at specified port. Normally used if the server is configured for https.

☐

Allow anonymous docker pull:

☑ Allow anonymous docker pull (Docker Bearer Token Realm required)

Docker Registry API Support

Enable Docker V1 API:

☐ Allow clients to use the V1 API to interact with this repository

Storage

Blob store:

Blob store used to store repository contents

> default

Strict Content Type Validation:

☑ Validate that all content uploaded to this repository is of a MIME type appropriate for the repository format

Hosted

Deployment policy:

Controls if deployments of and updates to artifacts are allowed

Allow redeploy

Proprietary Components:

☐ Components in this repository count as proprietary for namespace conflict attacks (

Cleanup

Cleanup Policies:

Components that match any of the Applied policies will be deleted

Available

▼ Filter

Create repository   Cancel

Sonatype Nexus Repository
OSS 3.69.0-02

🔍 Search components

Administration

▼ 🗄 Repository

🗄 **Repositories**

🗄 Blob Stores

🚪 Proprietary Repositories

📚 Content Selectors

🧹 Cleanup Policies

⇌ Routing Rules

▼ ⚠ Security

🗄 **Repositories** Manage repositories

⊕ **Create repository**

Name ↑
🗄 maven-central
📁 maven-public
🗄 maven-releases
🗄 maven-snapshots
🗄 my-docker-private
📁 nuget-group
🗄 nuget-hosted
🗄 nuget.org-proxy
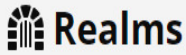
Realms

Manage the active security realms and their order

Repository
- Repositories
- Blob Stores
- Proprietary Repositories
- Content Selectors
- Cleanup Policies
- Routing Rules

Security
- Privileges
- Roles
- Users
- Anonymous Access
- LDAP
- **Realms** 1
- SSL Certificates

IQ Server

Active Realms

Available

Filter

⊕ Transfer All

- ⊕ Conan Bearer Token Realm
- ⊕ Default Role Realm
- ⊕ Docker Bearer Token Realm 2
- ⊕ LDAP Realm
- ⊕ npm Bearer Token Realm
- ⊕ NuGet API-Key Realm
- ⊕ Rut Auth Realm

Active

Filter

⊗ Remove All

- ⊗ Local Authenticating R... ↑ ↓

Active Realms

Available

🔽 Filter

➕ Transfer All

➕ Conan Bearer Token Realm

➕ Default Role Realm

➕ LDAP Realm

➕ npm Bearer Token Realm

➕ NuGet API-Key Realm

➕ Rut Auth Realm

Active

🔽 Filter

✖ Remove All

✖ Local Authenticating R... ↑ ↓

✖ Docker Bearer Token ... ↑ ↓

Administration

- ▼ 🗄 Repository
  - 🗄 Repositories
  - 🗄 Blob Stores
  - 🗄 Proprietary Repositories
  - 🗄 Content Selectors
  - 🖌 Cleanup Policies
  - 🚦 Routing Rules
- ▼ 🔒 Security
  - 🔖 Privileges
  - 🧑 Roles
  - 🧑 Users
  - 👤 Anonymous Access
  - 🔲 LDAP
  - 🏛 **Realms**
  - 📋 SSL Certificates
- 🛡 IQ Server
- ▶ 🆘 Support
- ▶ ⚙ System

Active Realms

Available

🔽 Filter

➕ Transfer All

➕ Conan Bearer Token Realm

➕ Default Role Realm

➕ LDAP Realm

➕ npm Bearer Token Realm

➕ NuGet API-Key Realm

➕ Rut Auth Realm

6 items available

Active

🔽 Filter

❌ Remove All

❌ Local Authenticating R...   ↑ ↓

❌ Docker Bearer Token ...   ↑ ↓

2 items transferred

create following file to allow client to user http for login to the sonar registry which is running as http on port 5000 in container

anuj@dockerhost:~$ vi /etc/docker/daemon.json
{ "insecure-registries":["192.168.93.134:5000"] }

anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$ sudo systemctl restart docker
[sudo] password for anuj:
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$ docker start beae4aa87077
beae4aa87077
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$ docker ps
CONTAINER ID   IMAGE   COMMAND   CREATED   STATUS   PORTS
NAMES
beae4aa87077   sonatype/nexus3   "/opt/sonatype/nexus…"   12 hours ago   Up 6 seconds
0.0.0.0:5000->5000/tcp, :::5000->5000/tcp, 0.0.0.0:8081->8081/tcp, :::8081->8081/tcp
stupefied_noyce
anuj@dockerhost:/etc/docker$

anuj@dockerhost:/etc/docker$
anuj@dockerhost:/etc/docker$ docker logs beae4aa87077 | tail -10
2024-06-18 06:58:51,116+0000 INFO [jetty-main-1] *SYSTEM
org.eclipse.jetty.server.handler.ContextHandler - Started
o.e.j.w.WebAppContext@785b1240{Sonatype Nexus,/,null,AVAILABLE}
2024-06-18 06:58:51,349+0000 INFO [jetty-main-1] *SYSTEM
org.eclipse.jetty.server.AbstractConnector - Started ServerConnector@78e86b7{HTTP/1.1,
(http/1.1)}{0.0.0.0:8081}
2024-06-18 06:58:51,350+0000 INFO [jetty-main-1] *SYSTEM org.eclipse.jetty.server.Server -
Started @144123ms

2024-06-18 06:58:51,352+0000 INFO [jetty-main-1] *SYSTEM
org.sonatype.nexus.bootstrap.jetty.JettyServer -

Started Sonatype Nexus OSS 3.69.0-02

----

anuj@dockerhost:~$ docker login 192.168.93.134:5000
Username: admin
Password:
WARNING! Your password will be stored unencrypted in /home/anuj/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
Login Succeeded

===== ===== ===== ===== ===== ===== ===== ===== ===== =====
Now lets try to push the image to the private registry
===== ===== ===== ===== ===== ===== ===== ===== ===== =====

anuj@ansible:~$ docker tag hello-world 192.168.93.134:5000/hello-world.v1
anuj@ansible:~$
anuj@ansible:~$ docker images
REPOSITORY   TAG   IMAGE ID   CREATED   SIZE
ubuntu   latest   35a88802559d 11 days ago   78.1MB
sonatype/nexus3   latest   a5dc276ca9e6 2 weeks ago   567MB
192.168.93.134:5000/hello-world.v1 latest   d2c94e258dcb 13 months ago 13.3kB
hello-world   latest   d2c94e258dcb 13 months ago 13.3kB
anuj@ansible:~$
anuj@ansible:~$ docker push 192.168.93.134:5000/hello-world.v1
Using default tag: latest
The push refers to repository [192.168.93.134:5000/hello-world.v1]
ac28800ec8bb: Pushed
latest: digest: sha256:d37ada95d47ad12224c205a938129df7a3e52345828b4fa27b03a98825d1e2e7
size: 524

Now lets see this image should be available in private repository.
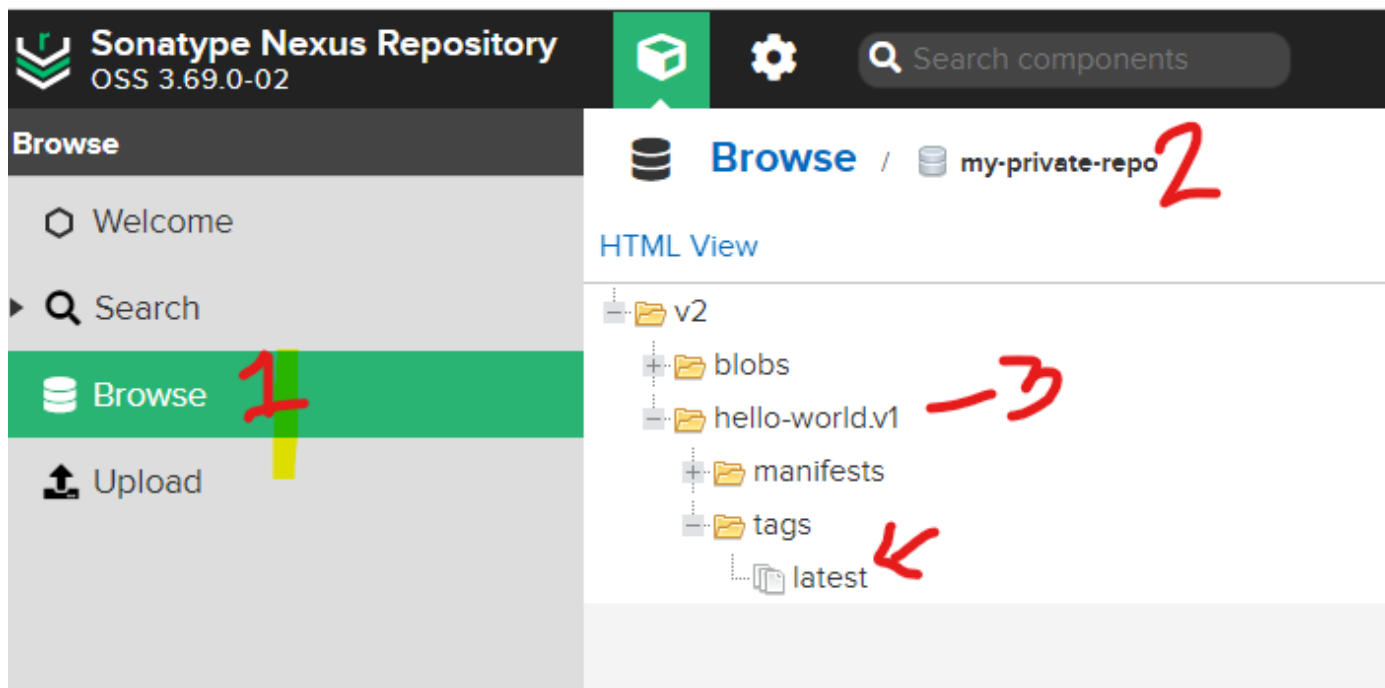
- **Above screenshot showing image is available in repository**
- **Now lets try to tag and push the ubuntu image to private repository**

```
anuj@dockerhost:~$ docker images
REPOSITORY      TAG      IMAGE ID      CREATED       SIZE
ubuntu          latest   35a88802559d  11 days ago   78.1MB
sonatype/nexus3 latest   a5dc276ca9e6  2 weeks ago   567MB
hello-world     latest   d2c94e258dcb  13 months ago 13.3kB
anuj@dockerhost:~$
anuj@dockerhost:~$
anuj@dockerhost:~$
anuj@dockerhost:~$
anuj@dockerhost:~$ docker tag ubuntu 192.168.93.134:5000/ubuntu.v1
anuj@dockerhost:~$
anuj@dockerhost:~$ docker images
REPOSITORY                    TAG      IMAGE ID      CREATED       SIZE
ubuntu                        latest   35a88802559d  11 days ago   78.1MB
192.168.93.134:5000/ubuntu.v1 latest   35a88802559d  11 days ago    78.1MB
sonatype/nexus3               latest   a5dc276ca9e6  2 weeks ago    567MB
hello-world                   latest   d2c94e258dcb  13 months ago  13.3kB
anuj@dockerhost:~$
anuj@dockerhost:~$ docker push 192.168.93.134:5000/ubuntu.v1
```

Using default tag: latest
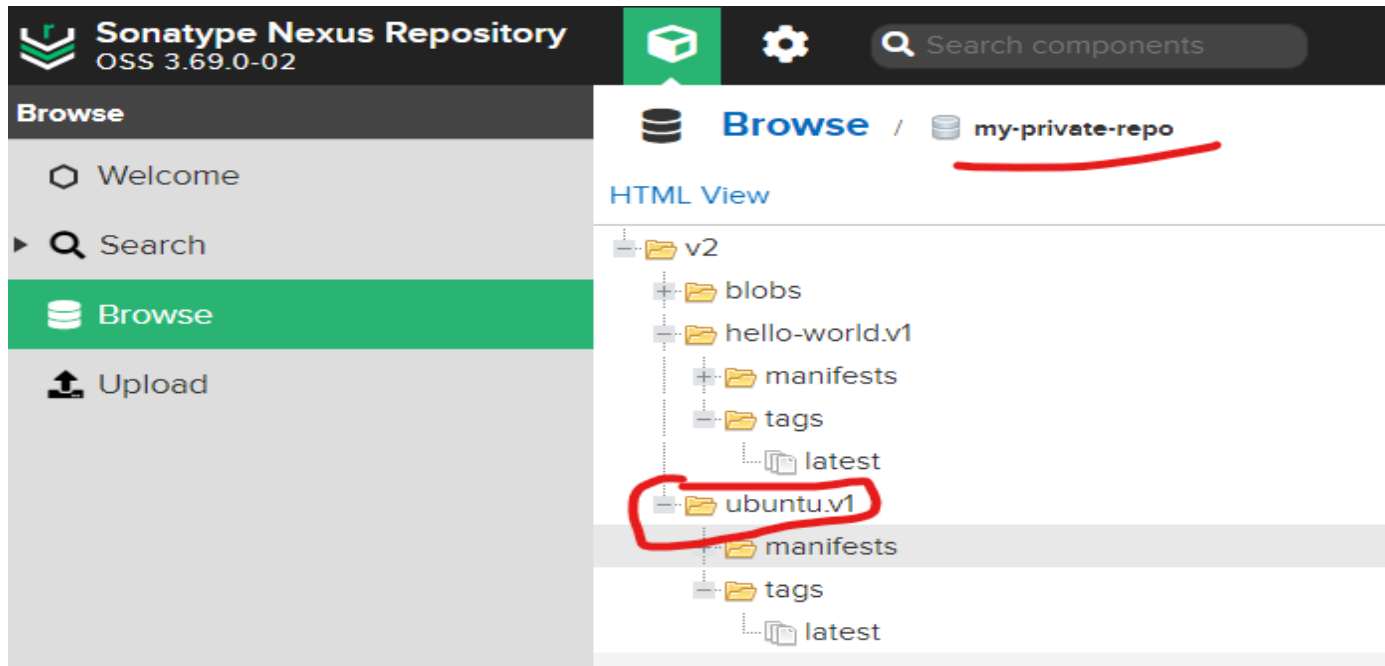The push refers to repository [192.168.93.134:5000/ubuntu.v1]
a30a5965a4f7: Pushed
latest: digest: sha256:19bc204df71f4086020b609089ebf49b332c2e373ec31e3512644b8ad9615001
size: 529
anuj@dockerhost:~$
anuj@dockerhost:~$

Now lets try to run container from the image available in private repository

anuj@dockerhost:~$ docker run -d 192.168.93.134:5000/ubuntu.v1 sleep 60
Unable to find image '192.168.93.134:5000/ubuntu.v1:latest' locally
latest: Pulling from ubuntu.v1
Digest: sha256:19bc204df71f4086020b609089ebf49b332c2e373ec31e3512644b8ad9615001
Status: Downloaded newer image for 192.168.93.134:5000/ubuntu.v1:latest
4bf9b6c01032c1f4905921faadfa8f910be5924a97c80705b1265da92f9e7615
anuj@dockerhost:~$
anuj@dockerhost:~$ docker ps
CONTAINER ID   IMAGE   COMMAND   CREATED   STATUS   PORTS
NAMES
4bf9b6c01032   192.168.93.134:5000/ubuntu.v1   "sleep 60"   5 seconds ago   Up 4 seconds
objective_pike
988e46494c82   sonatype/nexus3   "/opt/sonatype/nexus…"   11 hours ago   Up About an
hour   0.0.0.0:5000->5000/tcp, :::5000->5000/tcp, 0.0.0.0:8081->8081/tcp, :::8081->8081/tcp
funny_khorana

```
anuj@dockerhost:~$ docker exec -it 4bf9b6c01032 /bin/bash
root@4bf9b6c01032:/#
root@4bf9b6c01032:/#
root@4bf9b6c01032:/# uname -a
Linux 4bf9b6c01032 6.5.0-35-generic #35~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue May  7
09:00:52 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
root@4bf9b6c01032:/#
root@4bf9b6c01032:/# exit
exit
anuj@dockerhost:~$
```