



Signup

Login

日立がマテリアルズ・インフォマティクスで実現するDX

[詳しくはこちら](#)

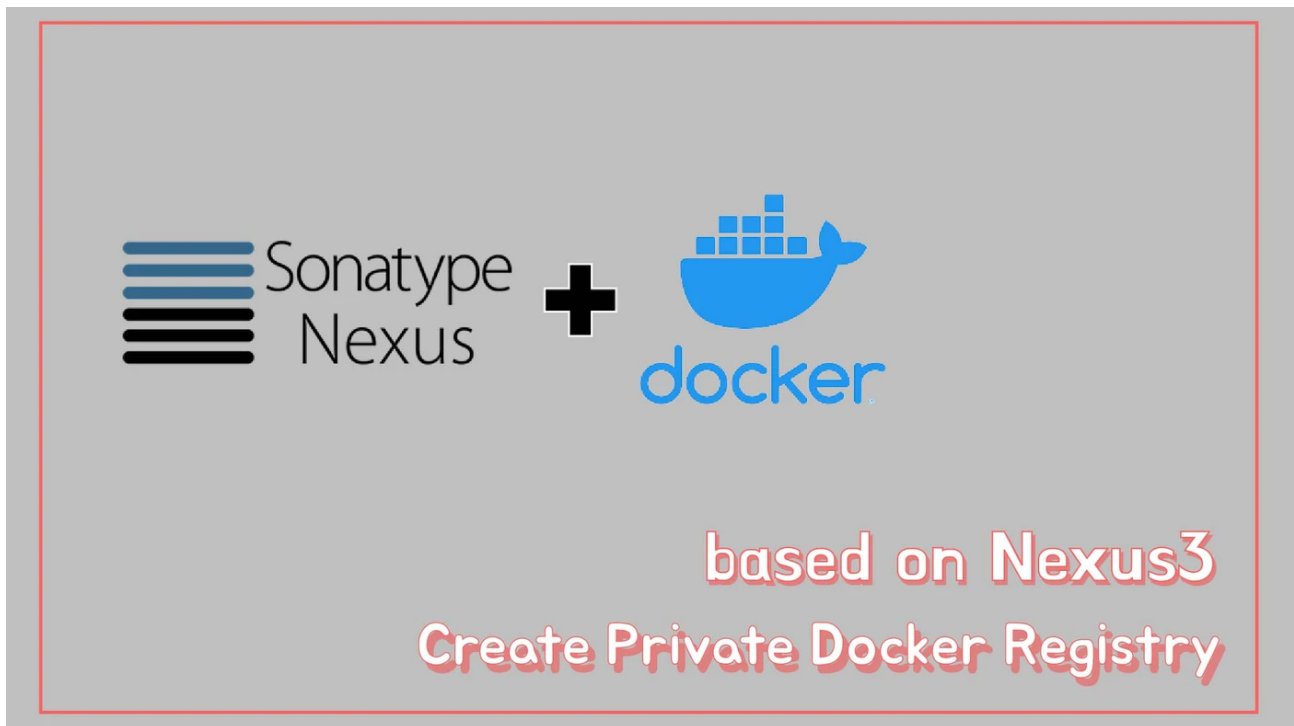
⚠ More than 1 year has passed since last update.



@leechungkyu updated at 2020-02-07

Create Private Docker Registry (base on Nexus3)

🔖 Docker, Registry, Nexus, docker-registry, Sonatype



I will share how to create an Private Docker Registry with Nexus3.x.



1



1

...

Demo Environment

- Ubuntu 18.04
- Docker version 18.09.1
 - Docker requires at least > v1.8
- Nexus 3.20.1

Install Nexus3 and create Private Docker Registry

Nexus ip is 182.252.133.70.

```
$ ssh root@182.252.133.70
```

1) Create Host <-> Nexus container permanent volume

```
$ mkdir /nexus-data
```

2) Create Nexus container

```
$ docker run --name nexus -d -p 5000:5000 -p 8081:8081 -v /nexus-data:/nexus-data -
```

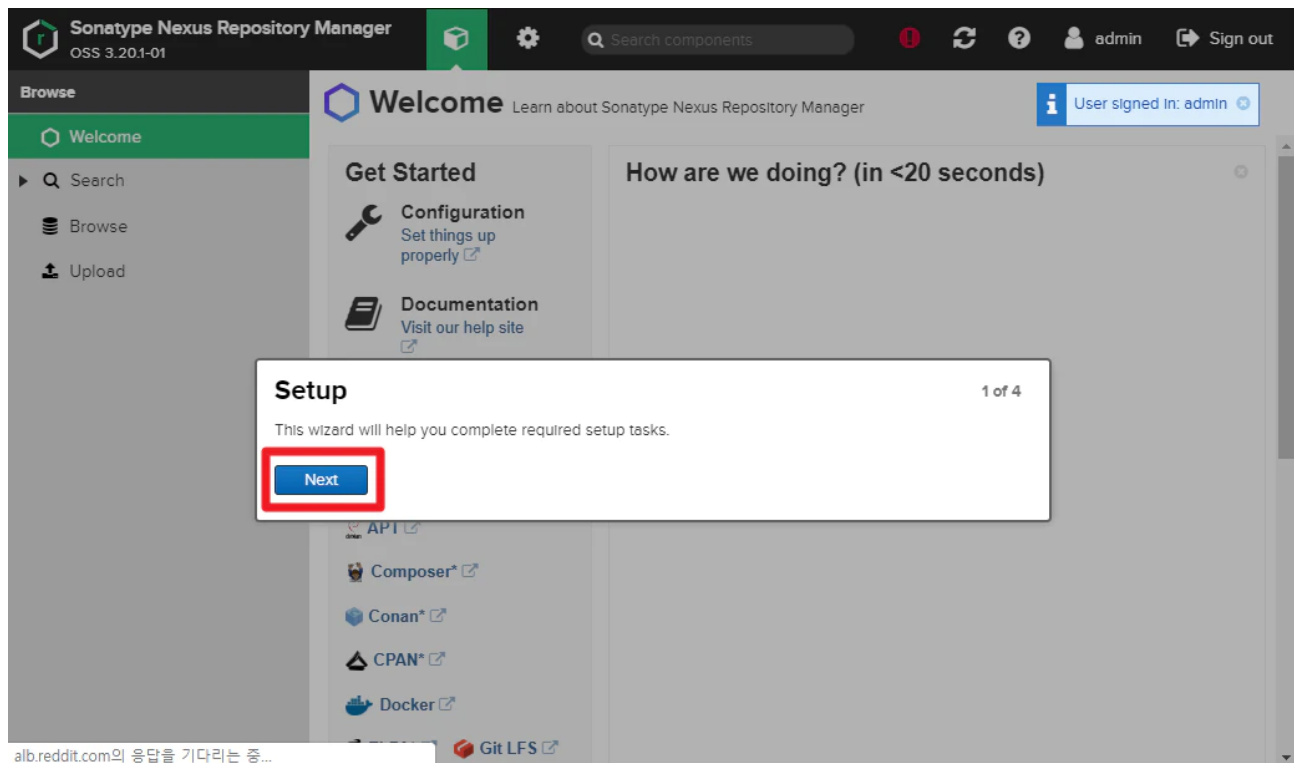
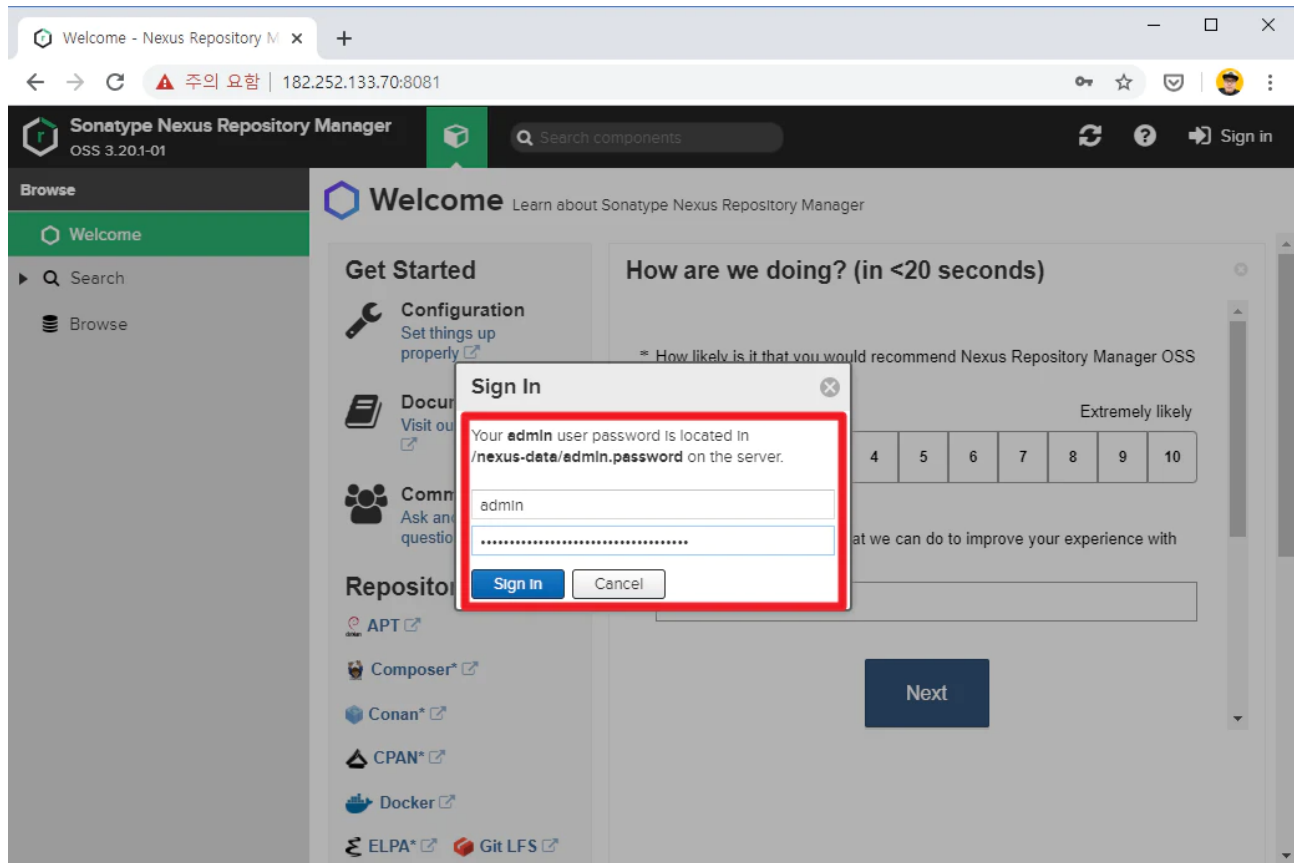
3) Connect to Nexus web <http://182.252.133.70:8081>

First time, login admin account is required.

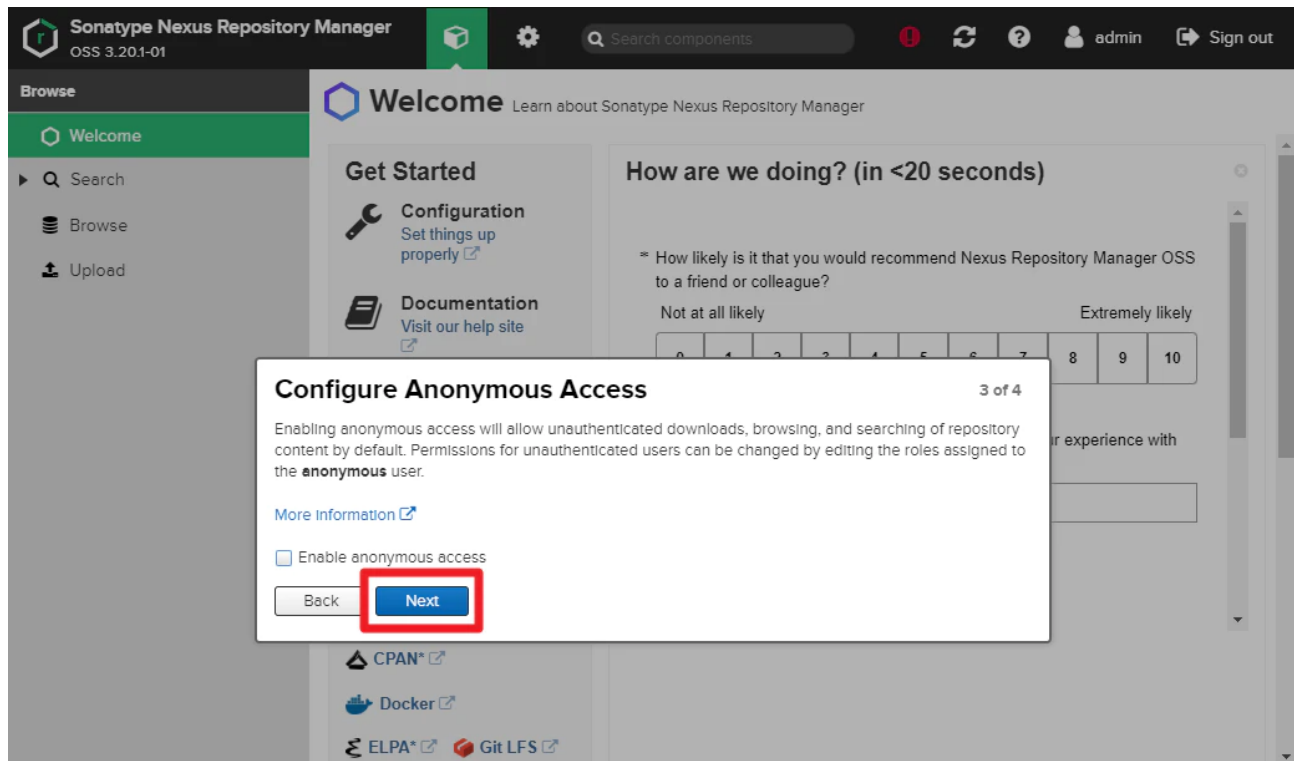
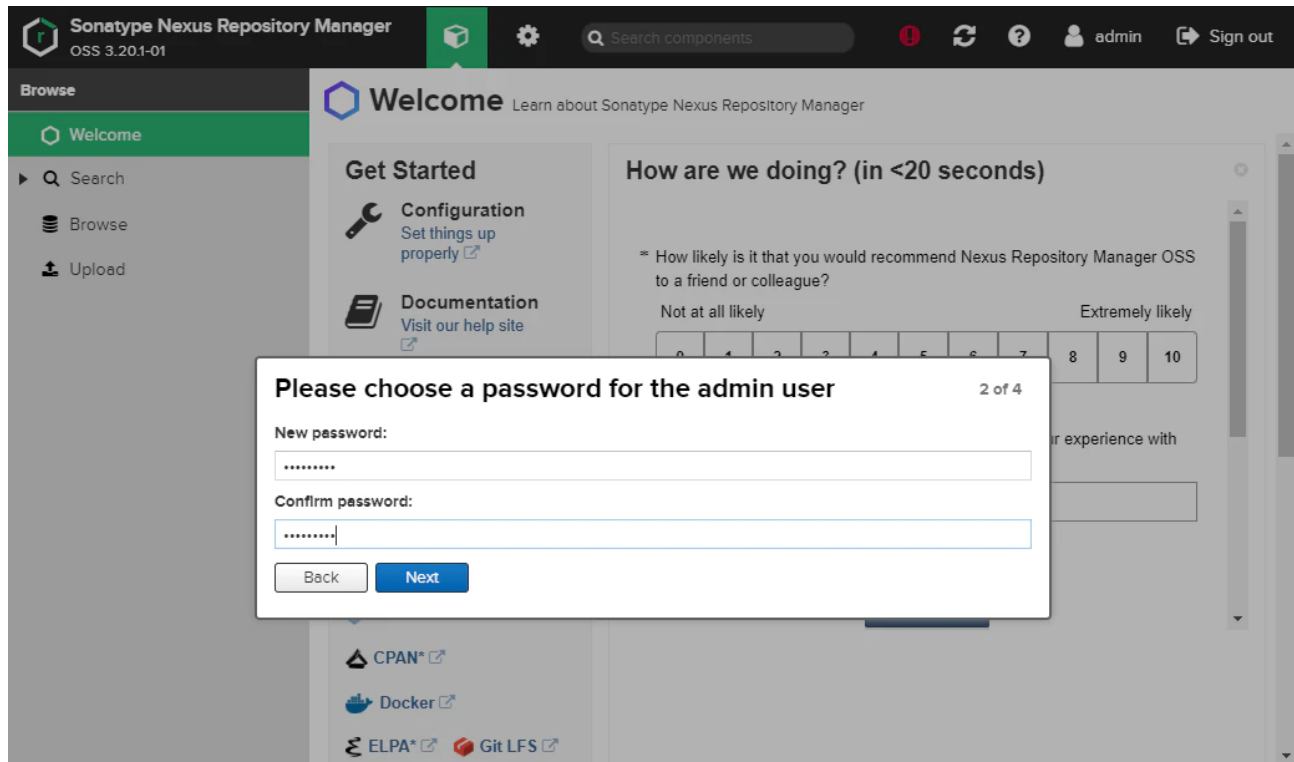
admin password find `/nexus-data/admin.password`

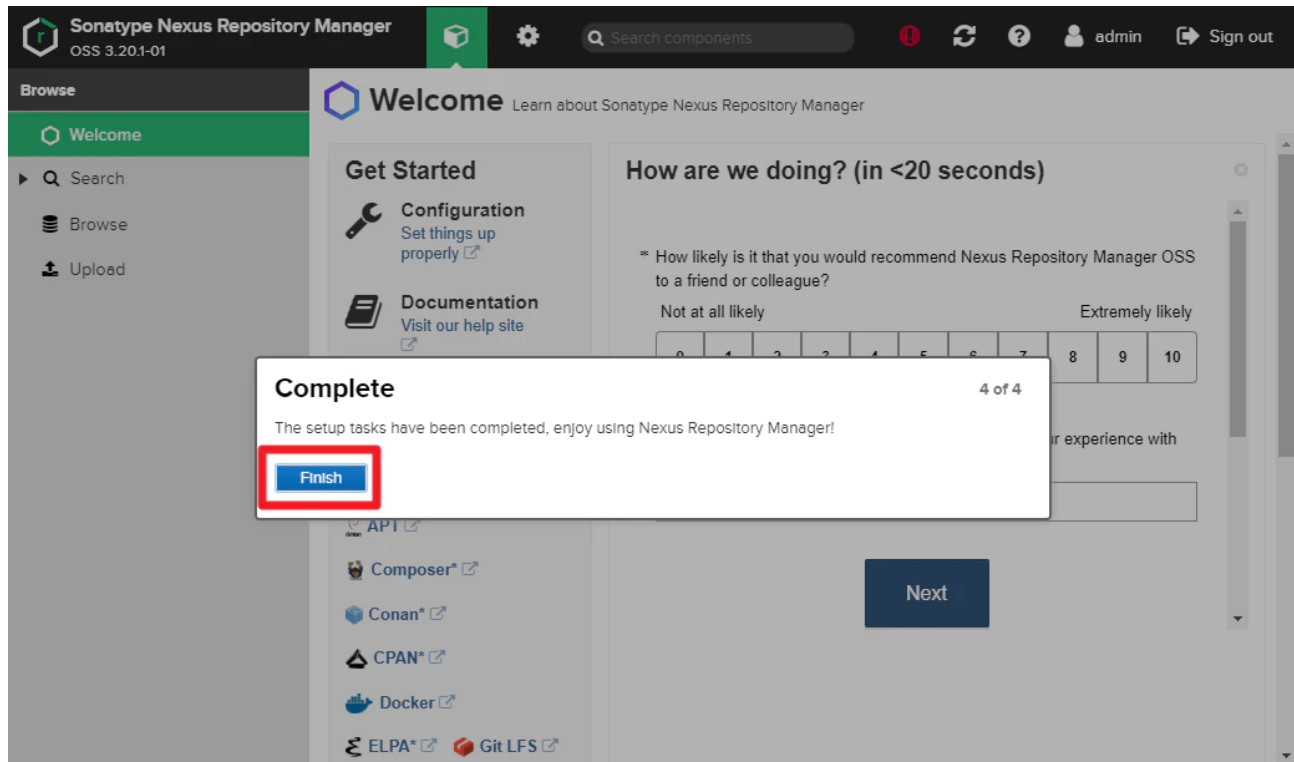
```
$ cat /nexus-data/admin.password
```

```
6f471aea-1d52-4e4b-9988-1714e9bf849d # admin's password
```



Enter a new admin password.

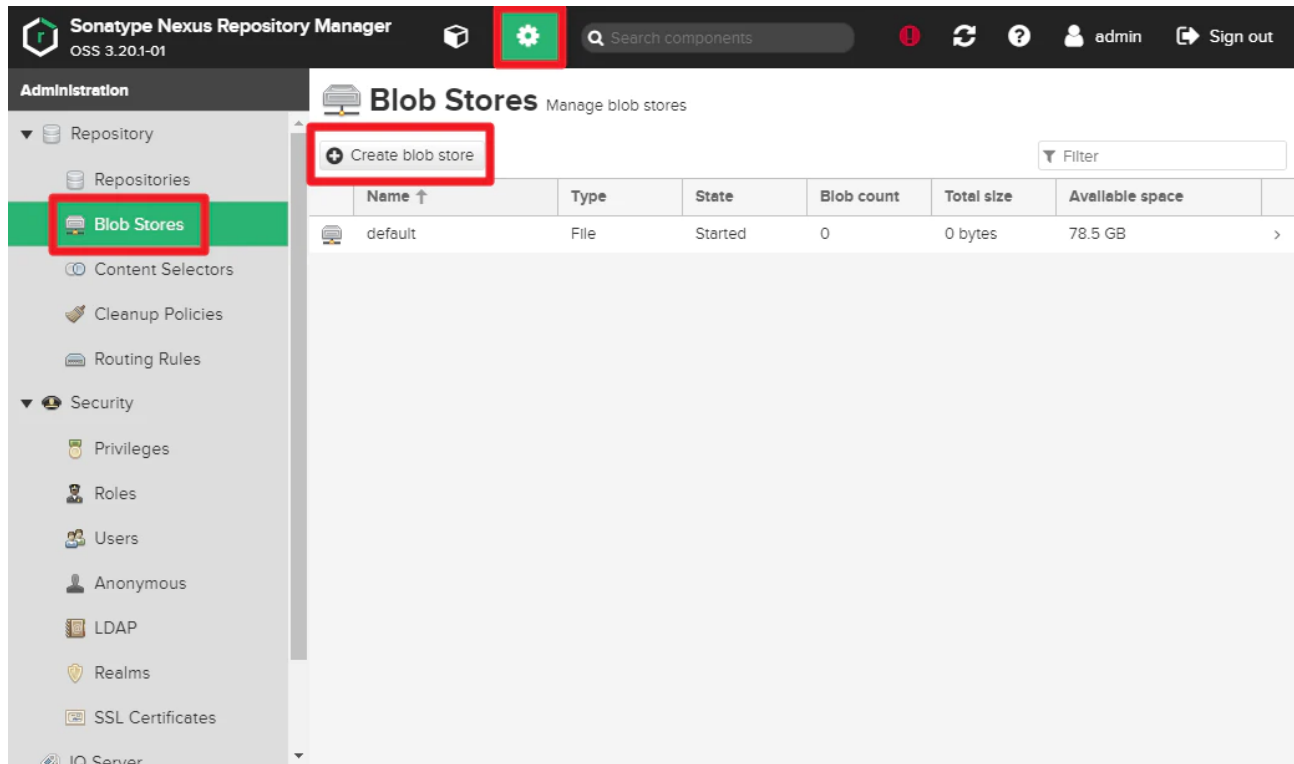




4) Create docker-hosted and docker-proxy Blob on Nexus

Gear > Repository > Blob Stores > Create blob store

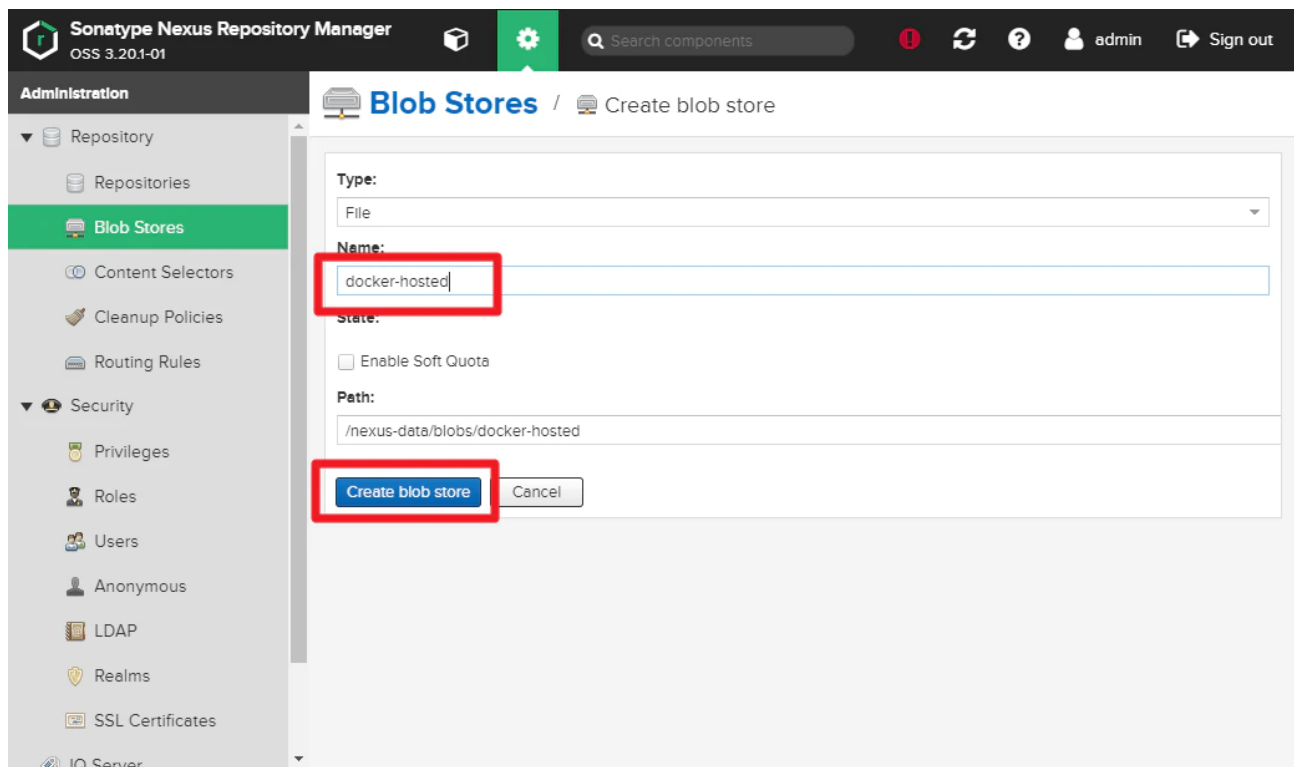
You need to create docker-hosted and docker-hub .



The screenshot shows the Sonatype Nexus Repository Manager Administration interface. The left sidebar contains the 'Administration' menu with 'Blob Stores' highlighted. The main content area is titled 'Blob Stores' and includes a 'Create blob store' button. Below this is a table listing existing blob stores.

Name ↑	Type	State	Blob count	Total size	Available space
default	File	Started	0	0 bytes	78.5 GB

Name : docker-hosted



The screenshot shows the 'Create blob store' form in the Sonatype Nexus Repository Manager. The form fields are as follows:

- Type:** File
- Name:** docker-hosted
- State:** ☐ Enable Soft Quota
- Path:** /nexus-data/blobs/docker-hosted

The 'Create blob store' button is highlighted.

Name : docker-hub

The screenshot shows the Sonatype Nexus Repository Manager interface. The left sidebar contains the 'Administration' menu with options like Repository, Repositories, Blob Stores, Content Selectors, Cleanup Policies, Routing Rules, Security, Privileges, Roles, Users, Anonymous, LDAP, Realms, and SSL Certificates. The main panel is titled 'Blob Stores / Create blob store'. It contains a form with the following fields: 'Type' (set to 'File'), 'Name' (set to 'docker-hub'), 'State' (with an 'Enable Soft Quota' checkbox), and 'Path' (set to '/nexus-data/blobs/docker-hub'). The 'Create blob store' button is highlighted with a red box.

5) Create docker-hosted and docker-proxy Repository on Nexus

Gear > Repository > Repositories > Create repository

You need to create docker-hosted and docker-hub .

The screenshot shows the Sonatype Nexus Repository Manager interface. In the left sidebar, under 'Administration', the 'Repositories' option is selected. The main panel displays the 'Repositories' page with a table of existing repositories. A red box highlights the 'Create repository' button at the top of the table.



Name	Type	Format	Status	URL	Health check	IQ Policy Viola...
maven...	proxy	maven2	Online ...	copy	Analyze	
maven...	group	maven2	Online	copy		
maven...	hosted	maven2	Online	copy		
maven...	hosted	maven2	Online	copy		
nuget...	group	nuget	Online	copy		
nuget...	hosted	nuget	Online	copy		
nuget...	proxy	nuget	Online ...	copy	Analyze	



Select docker (hosted)

- Name : docker -hosted
- Check HTTP and input 5000
- Check Enable Docker V1 API
- Select Blob store docker-hosted

The screenshot shows the Sonatype Nexus Repository Manager OSS 3.20.1-01 interface. The top navigation bar includes the Sonatype logo, version information, a search bar, and user controls. The left sidebar is under the 'Administration' section, with 'Repositories' highlighted. The main content area, titled 'Repositories / Select Recipe', lists various repository recipes. The 'docker (hosted)' recipe is highlighted with a red rectangular box.

Recipe ↑	
apt (hosted)	>
apt (proxy)	>
bower (group)	>
bower (hosted)	>
bower (proxy)	>
cocoapods (proxy)	>
conda (proxy)	>
docker (group)	>
docker (hosted)	>
docker (proxy)	>
gitifs (hosted)	>
go (group)	>
go (proxy)	>
maven2 (group)	>
maven2 (hosted)	>
maven2 (proxy)	>
npm (group)	>
npm (hosted)	>
npm (proxy)	>

 **Repositories** /  docker-hosted

 Delete repository  Rebuild Index

Settings

Name: docker-hosted

Format: docker

Type: hosted

URL: http://182.252.133.70:8081/repository/docker-hosted/

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:

docker-hosted

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


Cleanup



Cleanup Policies:

Components that match any of the Applied policies will be deleted

Available

Applied

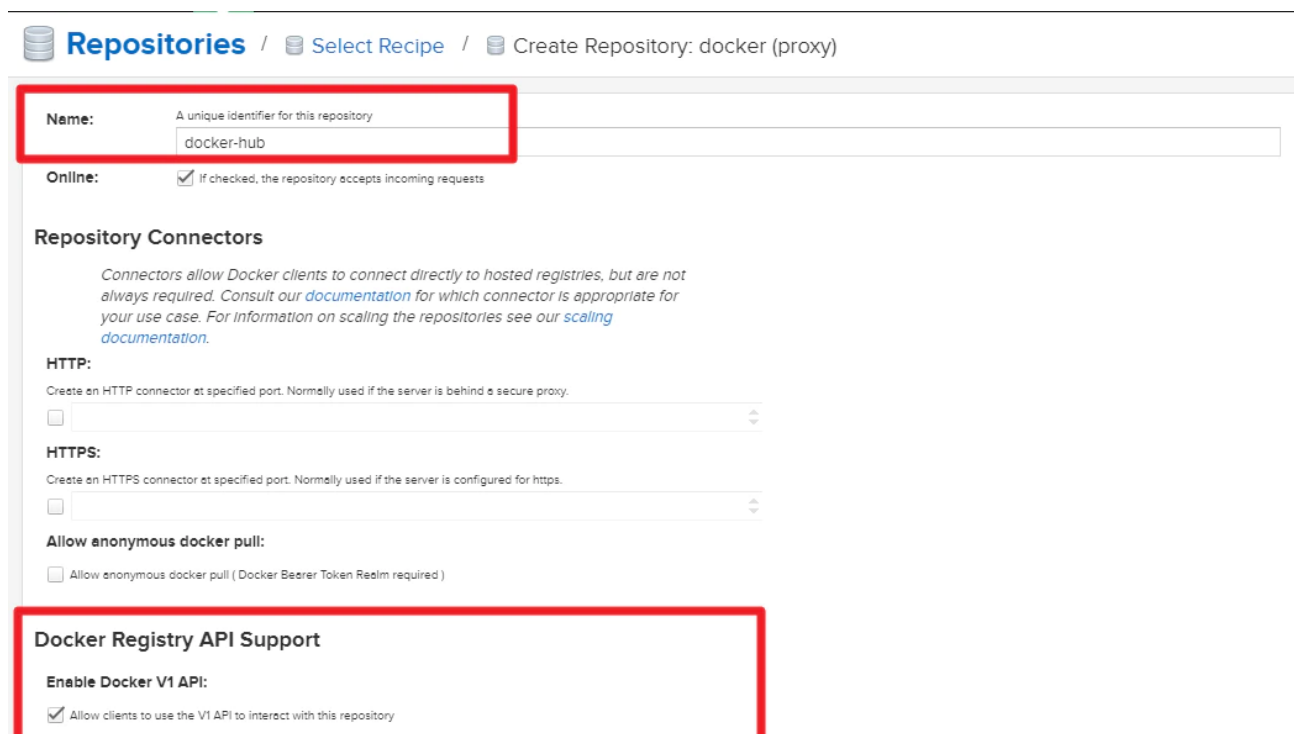
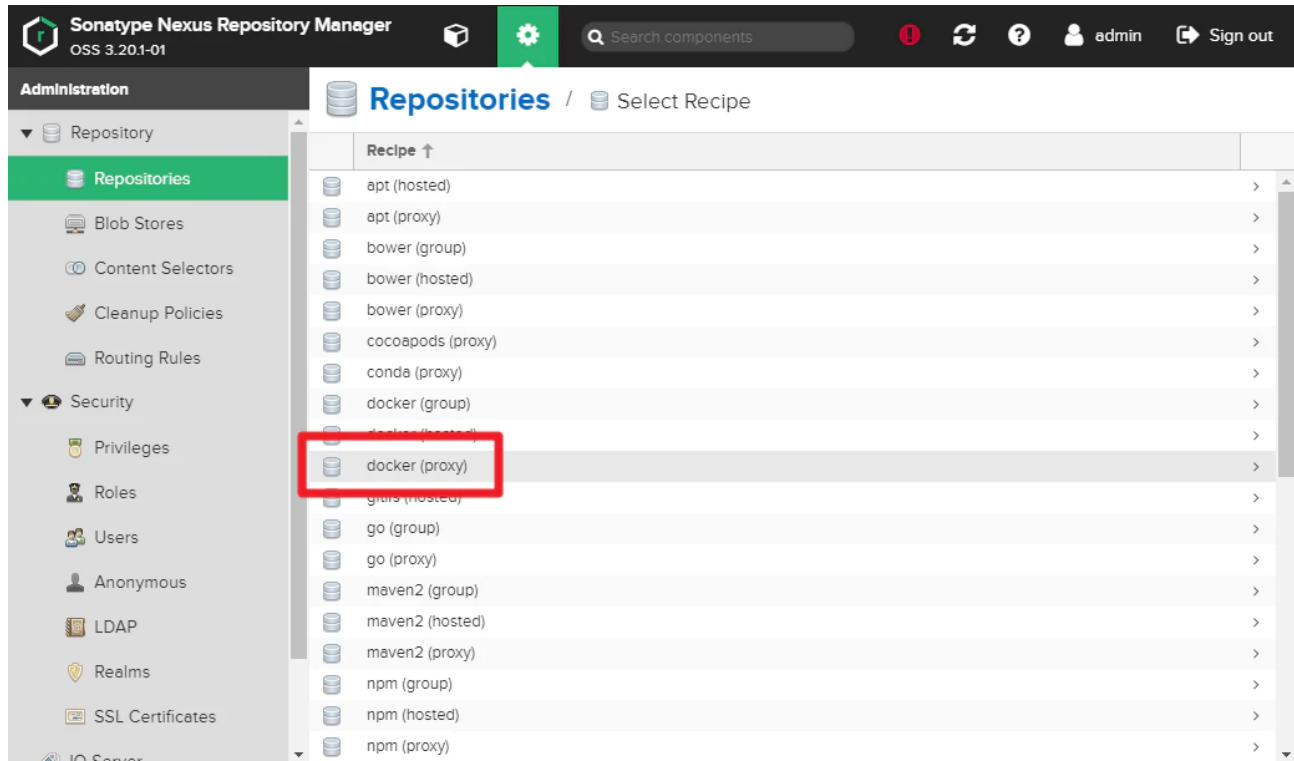
 Filter

Save Discard

Select docker (proxy)

- Name : docker -hub
- Check Enable Docker V1 API
- Input `https://registry-1.docker.io` in Remote storage
- Select Use Docker Hub



Proxy

Remote storage:

Location of the remote repository being proxied, e.g. <https://registry-1.docker.io>

Use the Nexus truststore:

☐ Use certificates stored in the Nexus truststore to connect to external systems [View certificate](#)

Docker Index:

☐ Use proxy registry (specified above)

☒ Use Docker Hub

☐ Custom Index

Location of Docker index:

Use the Nexus truststore:

☐ Use certificates stored in the Nexus truststore to connect to external systems [View certificate](#)

Foreign Layer Caching:

☐ Allow Nexus Repository Manager to download and cache foreign layers

Blocked:

☐ Block outbound connections on the repository

Auto blocking enabled:

☒ Auto-block outbound connections on the repository if remote peer is detected as unreachable/unresponsive

Maximum component age:

How long (in minutes) to cache artifacts before rechecking the remote repository. Release repositories should use -1.

Maximum metadata age:

How long (in minutes) to cache metadata before rechecking the remote repository.

Storage

Blob store:

Blob store used to store repository contents

Strict Content Type Validation:

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

Routing Rule

Choose a rule to restrict some requests from being served by this repository

Negative Cache

Not found cache enabled:

☒ Cache responses for content not present in the proxied repository

Not found cache TTL:

How long to cache the fact that a file was not found in the repository (in minutes)

Cleanup

Cleanup Policies:

Components that match any of the Applied policies will be deleted

Available

Filter

Applied

HTTP☐ Authentication☐ HTTP request settings

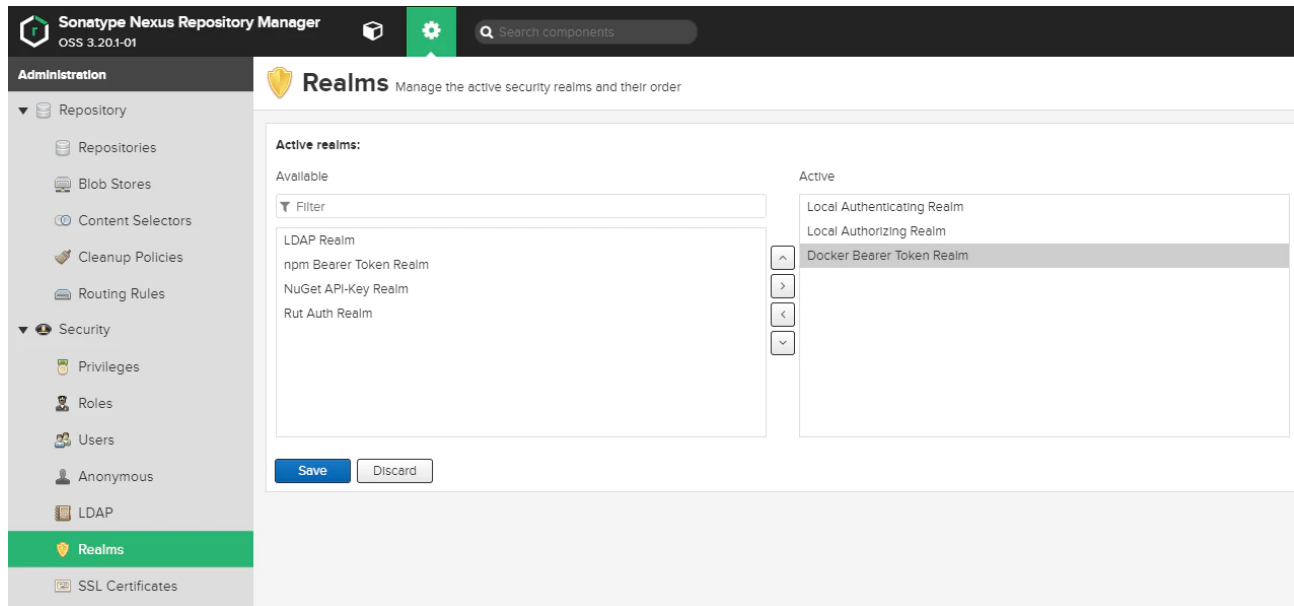
Create repository

Cancel

6) Set Realms on Nexus

Gear > Realms > Move Docker Bearer Token Realm to active > Save

The screenshot shows the Sonatype Nexus Repository Manager interface. The top navigation bar includes the Sonatype logo, version 'OSS 3.20.1-01', a gear icon for settings, and a search bar. The left sidebar is labeled 'Administration' and contains a tree view with categories: Repository (Repositories, Blob Stores, Content Selectors, Cleanup Policies, Routing Rules), Security (Privileges, Roles, Users, Anonymous, LDAP), and Realms (highlighted in green). The main content area is titled 'Realms' with the subtitle 'Manage the active security realms and their order'. It features two columns: 'Available' and 'Active'. The 'Available' column has a filter box and lists several realms, with 'Docker Bearer Token Realm' highlighted by a red box. The 'Active' column lists 'Local Authenticating Realm' and 'Local Authorizing Realm'. A red box highlights the right arrow button between the columns, with a yellow tooltip that says 'Add to Selected'. At the bottom of the 'Available' list are 'Save' and 'Discard' buttons.



7) Set docker command http enabled (v1)

Create file `/etc/docker/daemon.json`

✓ If the file does not exist, you must create it.

```
$ cat /etc/docker/daemon.json
```

```
{
    "insecure-registries" : ["182.252.133.70:5000"]
}
```

Restart docker daemon

```
$ service docker restart
```

Restart Nexus container

```
$ docker restart nexus
```

Push image from external client to Private Docker Registry

Client ip is 182.252.133.71.

```
$ ssh root@182.252.133.71
```

1) Set docker command http enabled (v1)

Create file `/etc/docker/daemon.json`

✓ If the file does not exist, you must create it.

💣 All clients **must** be setting.

```
$ cat /etc/docker/daemon.json
```

```
{  
    "insecure-registries" : ["182.252.133.70:5000"]  
}
```

Restart docker daemon

```
$ service docker restart
```

2) Login Private Docker Registry


```
$ docker login 182.252.133.70:5000
```

```
Username: admin
```

```
Password:
```

```
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
```

```
Configure a credential helper to remove this warning. See
```

```
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
```

```
Login Succeeded
```

3) docker pull and push Private Docker Registry

docker pull busybox image (from https://hub.docker.com/_/busybox)

```
$ docker pull busybox # docker pull from hub.docker.com
```

```
bdbbaa22dec6: Pull complete
```

```
Digest: sha256:6915be4043561d64e0ab0f8f098dc2ac48e077fe23f488ac24b665166898115a
```

```
Status: Downloaded newer image for busybox:latest
```

```
docker.io/library/busybox:latest
```

Check busybox image

```
$ docker images -a
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
busybox	latest	6d5fcfe5ff17	5 weeks ago	1.2

tag

```
$ docker tag 6d5fcfe5ff17 182.252.133.70:5000/busybox:v20200205
```

push Private Docker Registry

```
$ docker push 182.252.133.70:5000/busybox:v20200205
```

The push refers to repository [182.252.133.70:5000/busybox]

195be5f8be1d: Pushed

v20200205: digest: sha256:edafc0a0fb057813850d1ba44014914ca02d671ae247107ca70c94db6

Check image in Private Docker Registry

1) Connect to Nexus web <http://182.252.133.70:8081>

Browse > docker-hosted

The screenshot shows the Sonatype Nexus Repository Manager web interface. The browser address bar displays the URL `182.252.133.70:8081/#browse/browse`. The page header includes the Sonatype logo, version `OSS 3.20.1-01`, a search bar, and user information for 'admin'. The left sidebar contains navigation links: 'Welcome', 'Search', 'Browse' (highlighted with a red box), and 'Upload'. The main content area is titled 'Browse' and displays a table of repositories. The 'docker-hosted' repository is highlighted with a red box. The table columns are Name, Type, Format, Status, URL, and Health check.

Name ↑	Type	Format	Status	URL	Health check
docker-hosted	hosted	docker	Online	copy	Health check
docker-hub	proxy	docker	Online - Ready to Conn...	copy	Analyze
maven-central	proxy	maven2	Online - Ready to Conn...	copy	Analyze
maven-public	group	maven2	Online	copy	Health check
maven-releases	hosted	maven2	Online	copy	Health check
maven-snapshots	hosted	maven2	Online	copy	Health check
nuget-group	group	nuget	Online	copy	Health check
nuget-hosted	hosted	nuget	Online	copy	Health check
nuget.org-proxy	proxy	nuget	Online - Ready to Conn...	copy	Analyze

tag

The screenshot shows the Sonatype Nexus Repository Manager interface. On the left, the 'Browse' menu is active. The main area displays a tree view of the 'v2' repository, with the 'v20200205' tag highlighted. The right sidebar shows the 'Summary' of the selected asset, which is a Docker manifest for 'v2/busybox/manifests/v20200205'. The 'Uploader's IP Address' is highlighted as 182.252.133.71.

Summary	
Repository	docker-hosted
Format	docker
Component Name	busybox
Component Version	v20200205
Path	v2/busybox/manifests/v20200205
Content type	application/vnd.docker.distribution.manifest.v2+json
File size	527 bytes
Blob created	Wed Feb 05 2020 23:07:50 GMT+0900 (한국 표준시)
Blob updated	Wed Feb 05 2020 23:07:50 GMT+0900 (한국 표준시)
Last downloaded	has not been downloaded
Locally cached	true
Blob reference	docker-hosted@DD4EED05-AC1C703C-F1C0FDBE-81A26E94-F72984D2-f3b7d834-cc64-40ab-868e-4061d08c12b1
Containing repo	docker-hosted
Uploader	admin
Uploader's IP Address	182.252.133.71

Pull in Private Docker Registry

```
$ docker pull 182.252.133.70:5000/busybox:v20200205
bdbbaa22dec6: Pull complete
Digest: sha256:edafc0a0fb057813850d1ba44014914ca02d671ae247107ca70c94db686e7de6
Status: Downloaded newer image for 182.252.133.70:5000/busybox:v20200205
182.252.133.70:5000/busybox:v20200205
```

```
$ docker images -a
```

REPOSITORY	TAG	IMAGE ID	CREATED
182.252.133.70:5000/busybox	v20200205	6d5fcfe5ff17	5 weeks ago

More to do

443 port, need adding SSL

SSL should be applied.

After that, creating file `/etc/docker/daemon.json` can be omitted.

💡 I'll write this next posting.



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