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Sub: CS

Practical – 7[Batch-71]

Securing a Docker Image Before Deployment to Production John, a developer, is working on a web application called *SecureApp* that his team plans to deploy to a Kubernetes cluster in IBM Cloud. Before deployment, John wants to ensure the Docker image for *SecureApp* is secure and free from vulnerabilities. He decides to use IBM Cloud Container Registry and Vulnerability Advisor to scan the image for security issues and make the necessary corrections.

Step-1: create a docker image and run it

```
PS D:\SEM-7\CS\PR7> docker build -t pr7_007 .
[+] Building 91.3s (11/11) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 507B                               0.0s
=> [internal] load .dockerignore                                  0.1s
=> => transferring context: 2B                                     0.0s
=> [internal] load metadata for docker.io/library/node:18-alpine  3.5s
=> [auth] library/node:pull token for registry-1.docker.io        0.0s
=> [1/5] FROM docker.io/library/node:18-alpine@sha256:02376a266c84acbf45bd19440e08e48b1c8b98037417334046029ab585de03e2 82.5s
=> => resolve docker.io/library/node:18-alpine@sha256:02376a266c84acbf45bd19440e08e48b1c8b98037417334046029ab585de03e2 0.0s
=> => sha256:ea8e360a721d870337fe899c70ea7def62f2a72cf1b6f7beb8a3ccaac8b6049c 1.72kB / 1.72kB 0.0s
=> => sha256:f48cc58268524517dc484f884b142fad1411e8b9ed35341342d877d5ae9396a2 6.36kB / 6.36kB 0.0s
=> => sha256:43c4264eed91be63b206e17d93e75256a6097070ce643c5e8f0379998b44f170 3.62MB / 3.62MB 17.1s
=> => sha256:3696426c5aa28a9e9d46b6194f46c030c7dce77770db1f30e95e2317a1f97c0a 39.84MB / 39.84MB 80.5s
Ln 14, Col 17 Spaces: 4 UTF-8 CRLF
```

Step-2: login into IBM Cloud account

```
File Edit Selection View Go Run ... PR7
EXPLORER
  PR7
    public
      index.html
      JS server.js
      # style.css
      Dockerfile
Dockerfile > ...
1 # Use the official Node.js base image
2 FROM node:18-alpine
3
4 # Set the working directory inside the container
5 WORKDIR /usr/src/app
6
7 # Copy package.json and package-lock.json if present
8 COPY package*.json ./
9
10 # Install dependencies (only express is required here)
11 RUN npm install express
12
13 # Copy all files to the working directory
14 COPY ./public ./
15
16 # Expose the port on which the app will run
17 EXPOSE 3000
18
19 # Start the server
20 CMD ["node", "server.js"]
21
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS
powershell
Plug-in 'container-registry 1.3.11' is now available (you have 1.3.10).
Use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe plugin update container-registry' to upgrade the plug-in.
Use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe config --check-version=false' to disable update check.

FAILED
You are not logged in to IBM Cloud.
Log in by running the 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe login' command.
Ln 14, Col 17 Spaces: 4 UTF-8 CRLF Dockerfile
```

```
You are not logged in to IBM Cloud.
Log in by running the 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe login' command.

PS D:\SEM-7\CS\PR7> ibmcloud login -a https://cloud.ibm.com -u passcode -p 09b2M7gORF
API endpoint: https://cloud.ibm.com
Authenticating...
OK

Targeted account IBM India Pvt Ltd, C/o Software (9553f5f7184ddb922a056f240cf78ef6) <-> 2716063

Select a region (or press enter to skip):
1. au-syd
2. in-che
3. jp-osa
4. jp-tok

9. us-south
10. us-east
11. br-sao
Enter a number> 1
Targeted region au-syd

API endpoint: https://cloud.ibm.com
Region: au-syd
User: kshitijpgupta21@gnu.ac.in
Account: IBM India Pvt Ltd, C/o Software (9553f5f7184ddb922a056f240cf78ef6) <-> 2716063
Resource group: No resource group targeted, use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe target -g RESOURCE_GROUP'

New version 2.28.0 is available.
Change logs: https://github.com/IBM-Cloud/ibm-cloud-cli-release/releases/tag/v2.28.0
TIP: use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe config --check-version=false' to disable update check.
```

Step-3: create a container Registry

Now onwards we just performing the given step provided by Container registry

hello - Google Search

Container Registry - IBM Cloud

Build a Docker Container Image

Experiment 7

ChatGPT

cloud.ibm.com/containers/registry/catalog

IBM Cloud

Search resources and products...

Catalog

Manage

2716063 - IBM India Pvt Ltd, C/o S...

?

View all /

Container Registry

Estimate costs

Get started

Author
IBM

Compliance
EU Supported

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[API Docs](#)
[Docs](#)
[Terms](#)

Summary

Manage Docker container images in a fully managed private registry. Push private images into this registry to run them in IBM Cloud Kubernetes Service and other runtime environments. Images are checked for security issues, so that you can make informed decisions about your deployments.

Features

Highly available and scalable private registry
Set up your own image namespace in a multi-tenant, highly available, scalable private registry that is hosted and managed by IBM. Securely store your private Docker images and share them with users in your IBM Cloud account.

Image security compliance with Vulnerability Advisor
Benefit from the automatic scanning of images in your namespaces. Review suggestions, which are specific to your operating system, to fix potential vulnerabilities and protect your containers from being compromised.

Quota limits for storage and pull traffic
Benefit from free storage and pull traffic to your private images until you reach the limit for your free quota. Set custom quota limits for the amount of storage and pull traffic per month so that you avoid exceeding your preferred payment level.

Pricing plans

Plan	Features	Pricing

hello - Google Search

IBM Cloud Container Registry -

Build a Docker Container Image

Experiment 7

ChatGPT

cloud.ibm.com/containers/registry/start

IBM Cloud

Search resources and products...

Catalog

Manage

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Container Registry

Overview

Quick start

Namespaces

Repositories

Images

Trash

Settings

Global

Welcome!

Let's get started by installing the needed CLIs, setting up your first private registry namespace, and pushing your first image.

Install, Set Up, and Log In

1. [Install the IBM Cloud CLI.](#)

2. [Install the Docker CLI.](#)

3. Install the Container Registry plug-in.

ibmcloud plugin install container-registry -r 'IBM Cloud'

4. Log in to your IBM Cloud account.

ibmcloud login -a https://cloud.ibm.com

If you have a federated ID, use ibmcloud login --sso to log in to the IBM Cloud CLI.

5. Ensure that you're targeting the correct IBM Cloud Container Registry region.

ibmcloud cr region-set global

6. Choose a name for your first namespace, and create that namespace. Use this namespace for the rest of the Quick Start.

ibmcloud cr namespace-add <my_namespace>

Type here to search

30°C

10:55

26-09-2024

hello - Google Search

IBM Cloud Container Registry -

Build a Docker Container Image

Experiment 7

ChatGPT

cloud.ibm.com/containers/registry/start

IBM Cloud

Search resources and products...

Catalog

Manage

2716063 - IBM India Pvt Ltd, C/o S...

Container Registry

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Welcome!

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Install, Set Up, and Log In

1. [Install the IBM Cloud CLI.](#)

2. [Install the Docker CLI.](#)

3. Install the Container Registry plug-in.

ibmcloud plugin install container-registry -r 'IBM Cloud'

4. Log in to your IBM Cloud account.

ibmcloud login -a https://cloud.ibm.com

If you have a federated ID, use ibmcloud login --sso to log in to the IBM Cloud CLI.

5. Ensure that you're targeting the correct IBM Cloud Container Registry region.

ibmcloud cr region-set us-south

Type here to search

30°C

10:55

26-09-2024

- Install the Container Registry plug-in. [ibmcloud plugin install container-registry -r 'IBM Cloud']

```

File Edit Selection View Go Run ... PR7
EXPLORER
  PR7
    public
      index.html
      JS server.js
      # style.css
    Dockerfile
  Dockerfile > ...
    10 # Install dependencies (only express as required here)
    11 RUN npm install express
    12
    13 # Copy all files to the working directory
    14 COPY ./public ./
    15
    16 # Expose the port on which the app will run
    17 EXPOSE 3000
    18
    19 # Start the server
    20 CMD ["node", "server.js"]
    21

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS
See 'docker run --help'.
PS D:\SEM-7\CS\PR7> docker_set_trust = 1
docker_set_trust : The term 'docker_set_trust' is not recognized as the name of a cmdlet, function, script file, or operable
program. Check the spelling of the name, or if a path was included, verify that the path is correct and try again.
At line:1 char:1
+ docker_set_trust = 1
+ ~~~~~
+ CategoryInfo          : ObjectNotFound: (docker_set_trust:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

PS D:\SEM-7\CS\PR7> ibmcloud plugin install container-registry -r 'IBM Cloud'
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.3.11' found in repository 'IBM Cloud'
Plug-in 'container-registry[cr] 1.3.10' was already installed. Do you want to update it with 'container-registry[cr] 1.3.11' or not? [y/N] >
N
Plug-in installation was canceled.
PS D:\SEM-7\CS\PR7>
  
```

Ensure that you're targeting the correct IBM Cloud Container Registry region also add the name space into cr
ibmcloud cr region-set global and **ibmcloud cr namespace-add pr7_007**(name of your)

```

OK
PS D:\SEM-7\CS\PR7> ibmcloud target -g default
Targeted resource group default

API endpoint: https://cloud.ibm.com
Region: au-syd
User: kshitijpgupta21@gnu.ac.in
Account: IBM India Pvt ltd, C/o Software (9553f5f7184ddb922a056f240cf78ef6) <-> 2716063
Resource group: default
PS D:\SEM-7\CS\PR7> ibmcloud cr namespace-add pr7_007
Adding namespace 'pr7_007' in resource group 'default' for account IBM India Pvt ltd, C/o Software in registry us.icr.io...

Successfully added namespace 'pr7_007'

OK
  
```

Log your local Docker daemon into the IBM Cloud Container Registry and tag your Choose a repository.
 tag by which you can identify the image. Use the same repository and tag for the rest of this Quick Start.
 Push the image. [**docker push icr.io/<my_namespace>/<my_repository>:<my_tag>**]

ibmcloud cr login

docker tag hello-world icr.io/<my_namespace>/<my_repository>:<my_tag>













```







Successfully added namespace 'pr7_007'








OK
PS D:\SEM-7\CS\PR7> ibmcloud cr login
Logging 'docker' in to 'us.icr.io'...
Logged in to 'us.icr.io'.

OK
PS D:\SEM-7\CS\PR7> docker tag pr7_007 us.icr.io/pr7_007/pr7_kshitij
PS D:\SEM-7\CS\PR7> docker push
PS D:\SEM-7\CS\PR7> docker push us.icr.io/pr7_007/pr7_kshitij
Using default tag: latest
The push refers to repository [us.icr.io/pr7_007/pr7_kshitij]
7240cff5ec8e: Pushed
92b73bd20502: Pushed
5f70bf18a086: Pushed
43c8b4bea42a: Pushed
  
```

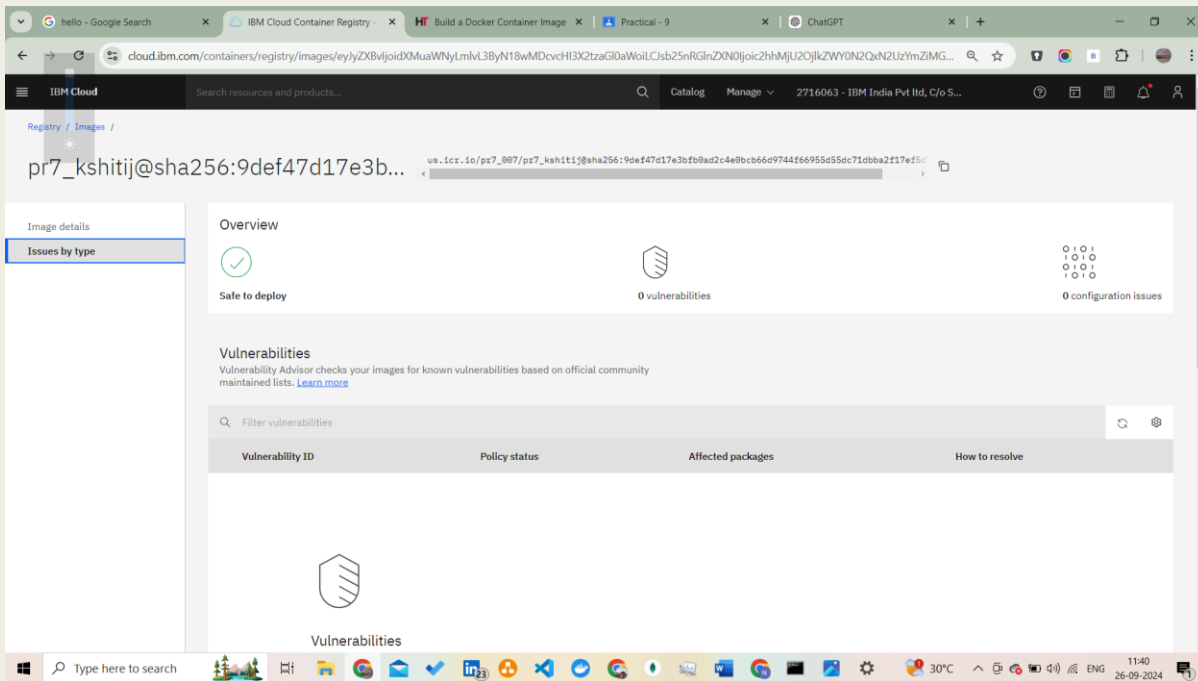
Check Your Repository and you NameSpace

View by: Digest		Search				Create	+
<input type="checkbox"/>	Repository@digest	Tags	Manifest type	Created	Size	Security status	
<input type="checkbox"/>	 pr7_007/pr7_kshitij@sha256:9def47d17e3b...	latest 	Docker	1 hour ago	47 MB	--	:
<input type="checkbox"/>	 dhruvinamespaceus/flask-docker@sha256:559513173c5e...	2.0 	Docker	1 hour ago	385 MB	--	:
<input type="checkbox"/>	 yagna_ns/ibmimageyagna@sha256:2d1953327c9f...	latest 	Docker	1 hour ago	47 MB	--	:
<input type="checkbox"/>	 bhavesh-namespace-us/bhavesh-18alpline1@sha256:2ae15b7f0678...	1 	Docker	2 hours ago	47 MB	--	:
<input type="checkbox"/>	 yashlani-nmspc/yslnewimage@sha256:25b731cde788...	2.0 	Docker	2 hours ago	47 MB	--	:
<input type="checkbox"/>	 thevivek/vivek@sha256:28b850b44a3a...	latest 	Docker	21 days ago	32 MB	--	:

Search				Create	+
<input type="checkbox"/>	Name	Image count	Namespace	Last updated	
▼ <input type="checkbox"/>	 pr7_kshitij us.icri.io/pr7_007/pr7_kshitij	1	pr7_007	1 hour ago	:
▼ <input type="checkbox"/>	 flask-docker us.icri.io/dhruvinamespaceus/flask-docker	1	dhruvinamespaceus	1 hour ago	:
▼ <input type="checkbox"/>	 ibmimageyagna us.icri.io/yagna_ns/ibmimageyagna	1	yagna_ns	1 hour ago	:
▼ <input type="checkbox"/>	 bhavesh-18alpline1 us.icri.io/bhavesh-namespace-us/bhavesh-18alpline1	1	bhavesh-namespace-us	2 hours ago	:
▼ <input type="checkbox"/>	 yslnewimage us.icri.io/yashlani-nmspc/yslnewimage	1	yashlani-nmspc	2 hours ago	:
▼ <input type="checkbox"/>	 vivek us.icri.io/thevivek/vivek	1	thevivek	21 days ago	:

Resource group: Filter...		Search				Create	+
<input type="checkbox"/>	Name	Resource group	Repository count	Image count	Retention policy		
▼ <input type="checkbox"/>	 pr7_007	default	1	1	Retain all images		:
▼ <input type="checkbox"/>	 thevivek	default	1	1	Retain all images		:
▼ <input type="checkbox"/>	 dhruvinamespaceus	default	1	1	Retain all images		:
▼ <input type="checkbox"/>	 yagna_ns	default	1	1	Retain all images		:
▼ <input type="checkbox"/>	 yashlani-nmspc	default	1	1	Retain all images		:
▼ <input type="checkbox"/>	 bhavesh-namespace-us	default	1	1	Retain all images		:
<input type="checkbox"/>	 testobject	Ganpat-2021-Sem6-rg	0	0	Retain all images		:

There are zero Vulnerability in my image.



To check vulnerabilities using CLI [ibmcloud cr va us.icr.io/<namespace>/<image-name>]

```
C:\Users\Kshitij>ibmcloud cr va us.icr.io/pr7_007/pr7_kshitij@sha256:9def47d17e3bfb0ad2c4e0bcb66d9744f66955d5dc71dbba2f17ef5d13db159
Checking security issues for 'us.icr.io/pr7_007/pr7_kshitij@sha256:9def47d17e3bfb0ad2c4e0bcb66d9744f66955d5dc71dbba2f17ef5d13db159'...
Image 'us.icr.io/pr7_007/pr7_kshitij@sha256:9def47d17e3bfb0ad2c4e0bcb66d9744f66955d5dc71dbba2f17ef5d13db159' was last scanned on Thu Sep 26 05:09:29 UTC 2024
The scan results show that NO ISSUES were found for the image.
OK
```

Set The region using CLI [ibmcloud cr region-set au-syd] and login [ibmcloud cr login]

```
C:\Users\Kshitij>ibmcloud cr region-set au-syd
The region is set to 'ap-south', the registry is 'au.icr.io'.
OK
```

```
C:\Users\Kshitij>ibmcloud cr login
Logging 'docker' in to 'au.icr.io'...
Logged in to 'au.icr.io'.
OK
```

To perform the task I use the DK image and perform the task like issue finding

To check vulnerabilities using CLI [ibmcloud cr va us.icr.io/<nmspc-name>/<image-name>]

```
C:\Users\Kshitij>ibmcloud cr va us.icr.io/dhyey-deployment/dhyey-k-img@sha256:3980b3fc3b745cf8f082c70dbc596e03db4ec0f07fb9a8c232ac46595501a1c5
Checking security issues for 'au.icr.io/dhyey-deployment/dhyey-k-img@sha256:3980b3fc3b745cf8f082c70dbc596e03db4ec0f07fb9a8c232ac46595501a1c5'...

Image 'au.icr.io/dhyey-deployment/dhyey-k-img@sha256:3980b3fc3b745cf8f082c70dbc596e03db4ec0f07fb9a8c232ac46595501a1c5' was last scanned on Thu Sep 26 03:44:23 UTC 2024
The scan results show that 19 ISSUES were found for the image.

Vulnerable Packages Found
=====

Vulnerability ID   Policy Status   Affected Packages   How to Resolve
CVE-2023-3817     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-6237     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-42366    Active         ssl_client, busybox-binsh and busybox   Upgrade 3 packages. Re-run command with --extended to view.
CVE-2024-5535     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2024-4603     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2024-6119     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2024-4741     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-3446     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-42364    Active         ssl_client, busybox-binsh and busybox   Upgrade 3 packages. Re-run command with --extended to view.
CVE-2024-0727     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-1255     Active         libssl3 and libcrypto3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-42365    Active         ssl_client, busybox-binsh and busybox   Upgrade 3 packages. Re-run command with --extended to view.
CVE-2024-2511     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-6129     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-5363     Active         libssl3 and libcrypto3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-2650     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-2975     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-5678     Active         libcrypto3 and libssl3   Upgrade 2 packages. Re-run command with --extended to view.
CVE-2023-42363    Active         ssl_client, busybox-binsh and busybox   Upgrade 3 packages. Re-run command with --extended to view.

To see the details about the fixes for these packages, run the command again with the '--extended' flag.
```

To see the vulnerability in detail use - --extended

```
C:\Users\Kshitij>ibmcloud cr va us.icr.io/dhyey-deployment/dhyey-k-img@sha256:3980b3fc3b745cf8f082c70dbc596e03db4ec0f07fb9a8c232ac46595501a1c5 --extended
Checking security issues for 'au.icr.io/dhyey-deployment/dhyey-k-img@sha256:3980b3fc3b745cf8f082c70dbc596e03db4ec0f07fb9a8c232ac46595501a1c5'...

Image 'au.icr.io/dhyey-deployment/dhyey-k-img@sha256:3980b3fc3b745cf8f082c70dbc596e03db4ec0f07fb9a8c232ac46595501a1c5' was last scanned on Thu Sep 26 03:44:23 UTC 2024
The scan results show that 19 ISSUES were found for the image.

Vulnerable Packages Found
=====

CVE-2023-3817

Policy Status
Active

Summary

Vendor Security Notice IDs   Official Notice
ALPINE-CVE-2023-3817         https://www.cve.org/CVERecord?id=CVE-2023-3817

Affected Packages   Policy Status   How to Resolve   Security Notice
libcrypto3          Active         Upgrade libcrypto3 to >= 3.0.10-r0   ALPINE-CVE-2023-3817
libssl3             Active         Upgrade libssl3 to >= 3.0.10-r0     ALPINE-CVE-2023-3817

CVE-2023-6237

Policy Status
Active

Summary

Vendor Security Notice IDs   Official Notice
ALPINE-CVE-2023-6237         https://www.cve.org/CVERecord?id=CVE-2023-6237

Affected Packages   Policy Status   How to Resolve   Security Notice
libcrypto3          Active         Upgrade libcrypto3 to >= 3.0.12-r3   ALPINE-CVE-2023-6237
libssl3             Active         Upgrade libssl3 to >= 3.0.12-r3     ALPINE-CVE-2023-6237

CVE-2023-42366

Policy Status
Active

Summary
```

```
C:\Users\Kshitij>docker images
REPOSITORY                                TAG                                IMAGE ID                                CREATED                                SIZE
pr7_007                                  latest                             07c3ad3d1e05                           33 minutes ago                        135MB
us.icr.io/pr7_007/pr7_kshitij            latest                             07c3ad3d1e05                           33 minutes ago                        135MB
car_rental                               latest                             1e90e93384e7                           About an hour ago                     1.13GB
us.icr.io/kshitijname/new_img_007        1.0                               83d79dec086f                           3 weeks ago                           95.9MB
img1_007                                  1.0                               83d79dec086f                           3 weeks ago                           95.9MB
postgres                                  latest                             d66dc4bd84c0                           7 months ago                          431MB
car                                        latest                             3451ec0204d6                           10 months ago                        1.13GB
<none>                                    <none>                             08ff98d671f2                           10 months ago                        1.13GB
kshitijgupta505/pr_14.test               latest                             8c243906c869                           11 months ago                        122MB
kshitijgupta505/kshitijgupta505          <none>                             8d2702bdf08a                           11 months ago                        64.5MB
hubproxy.docker.internal:5555/docker/desktop-kubernetes   kubernetes-v1.27.2-cni-v1.2.0-critools-v1.27.0-cri-dockerd-v0.3.2-1-debian c763812a4530                           15 months ago                        418MB
registry.k8s.io/kube-apiserver            v1.27.2                           c5b13e4f7806                           16 months ago                        121MB
registry.k8s.io/kube-controller-manager   v1.27.2                           ac2b7465ebba                           16 months ago                        112MB
registry.k8s.io/kube-scheduler            v1.27.2                           89e70da428d2                           16 months ago                        58.4MB
registry.k8s.io/kube-proxy                v1.27.2                           08aa590768f46                           16 months ago                        71.1MB
docker/desktop-vpnkit-controller          dc331cb22850be8cd97c84a9cfecaf44a1afb6e v1.27.2                               556098075b3d                           16 months ago                        36.2MB
registry.k8s.io/coredns/coredns           v1.10.1                             ead0a4a53df8                           19 months ago                        53.6MB
registry.k8s.io/etcd                      3.5.7-0                             86b6af7dd652                           20 months ago                        296MB
registry.k8s.io/pause                     3.9                                  e6f181688397                           23 months ago                        744kB
docker/desktop-storage-provisioner         v2.0                                99f89471f470                           3 years ago                           41.9MB
```

To check vulnerability using docker scout

Command [docker scout recommendations us.icr.io/<nmspc-name>/<image-name>]

You can also run other command like

docker scout recommendations local://<localimagename> [local view]

```
C:\Users\Kshitij>docker scout recommendations us.icr.io/pr7_007/pr7_kshitij
! New version 1.14.0 available (installed version is 1.0.7) at https://github.com/docker/scout-cli
v SBOM of image already cached, 279 packages indexed

Recommended fixes for image us.icr.io/pr7_007/pr7_kshitij:latest

Base image is node:18-alpine

Name      | 18-alpine
Digest    | sha256:ea8e360a721d870337fe899c70ea7def62f2a72cf1b6f7beb8a3ccaac8b6049c
Vulnerabilities | 0C 0H 0M 0L
Pushed    | 2 months ago
Size      | 45 MB
Packages  | 219
Flavor    | alpine
OS        | 3.20
Runtime   | 18

The base image is also available under the supported tag(s) 18-alpine3.20 , 18.20-alpine , 18.20-alpine3.20 , 18.20.4-alpine , 18.20.4-alpine3.20 , hydrogen-alpine , hydrogen-alpine3.20 . If you want to display recommendations specifically for a different tag, please re-run the command using the --tag flag.
```

```
Refresh base image
Rebuild the image using a newer base image version. Updating this may result in breaking changes.

v This image version is up to date.

Change base image
The list displays new recommended tags in descending order, where the top results are rated as most suitable.
```

Tag	Details	Pushed	Vulnerabilities
22-alpine Major runtime version update Also known as: <ul style="list-style-type: none">alpinealpine3.2022.9.0-alpine22.9.0-alpine3.2022.9-alpine22.9-alpine3.20current-alpinecurrent-alpine3.2022-alpine3.20	Benefits: <ul style="list-style-type: none">Same OS detectedImage contains 6 fewer packagesMajor runtime version updateTag was pushed more recentlyImage has similar sizeImage has same number of vulnerabilities Image details: <ul style="list-style-type: none">Size: 54 MBFlavor: alpineOS: 3.20Runtime: 22	1 week ago	0C 0H 0M 0L
20-alpine Major runtime version update Also known as: <ul style="list-style-type: none">20.17.0-alpine20.17.0-alpine3.2020.17-alpine20.17-alpine3.20lts-alpineiron-alpinelts-alpine3.20iron-alpine3.2020-alpine3.20	Benefits: <ul style="list-style-type: none">Same OS detectedImage contains 5 fewer packagesMajor runtime version updateTag was pushed more recentlyImage has similar sizeImage has same number of vulnerabilities Image details: <ul style="list-style-type: none">Size: 47 MBFlavor: alpineOS: 3.20Runtime: 20.17.0	1 month ago	0C 0H 0M 0L