

BUILDING-CONTAINERIZED-APACHE-WEB-SERVER

1. What is Docker for Hackers? (Short)

- Docker = lightweight containers
- Isolated environment for attacking/testing
- No risk to host OS
- Quick to spin up lab environments

2. Pulling Debian Image and Running Container

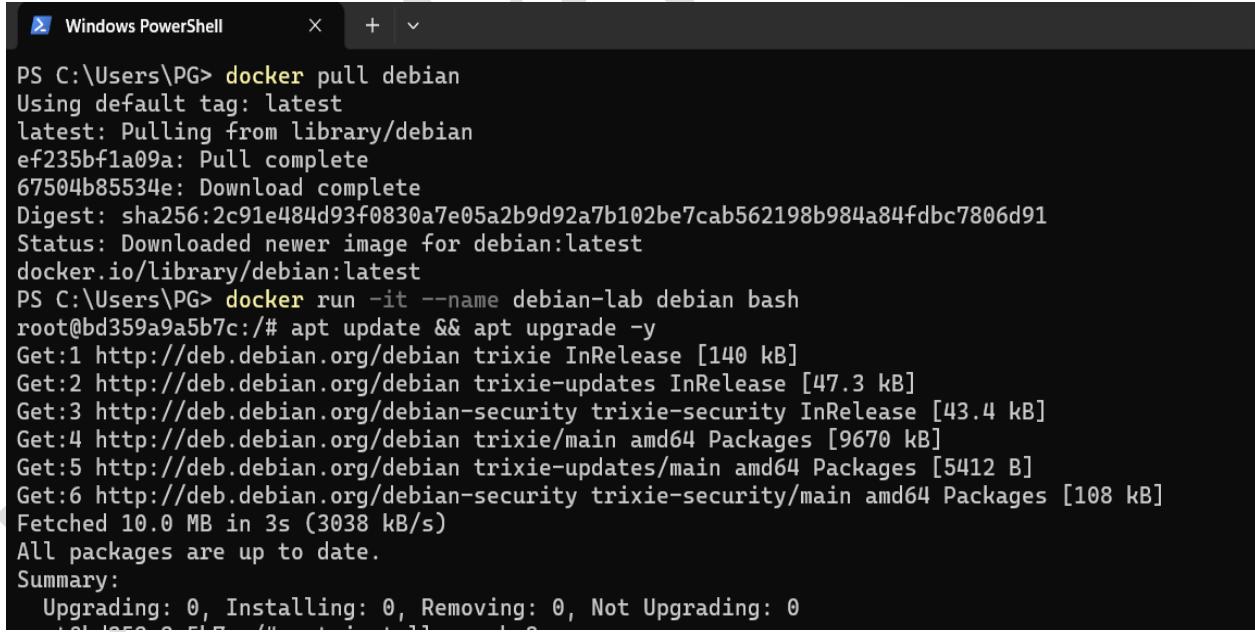
- Command:

```
1. docker pull debian
2. docker run -it --name debian-lab debian bash
```

- Update system:

```
apt update && apt upgrade -y
```

- Screenshot :



A screenshot of a Windows PowerShell window titled "Windows PowerShell". The command "docker pull debian" is run, which uses the default tag "latest". It shows the image being pulled from the library, with the digest sha256:2c91e484d93f0830a7e05a2b9d92a7b102be7cab562198b984a84fdb7806d91. The status message indicates a newer image was downloaded for "debian:latest". The command "docker.io/library/debian:latest" is also shown. Next, "docker run -it --name debian-lab debian bash" is run, creating a container named "debian-lab" based on the "debian" image. Inside the container, the command "root@bd359a9a5b7c:/# apt update && apt upgrade -y" is executed. The output shows the package manager fetching packages from deb.debian.org and upgrading them. The summary at the end shows "Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0".

```
PS C:\Users\PG> docker pull debian
Using default tag: latest
latest: Pulling from library/debian
ef235bf1a09a: Pull complete
67504b85534e: Download complete
Digest: sha256:2c91e484d93f0830a7e05a2b9d92a7b102be7cab562198b984a84fdb7806d91
Status: Downloaded newer image for debian:latest
docker.io/library/debian:latest
PS C:\Users\PG> docker run -it --name debian-lab debian bash
root@bd359a9a5b7c:/# apt update && apt upgrade -y
Get:1 http://deb.debian.org/debian trixie InRelease [140 kB]
Get:2 http://deb.debian.org/debian trixie-updates InRelease [47.3 kB]
Get:3 http://deb.debian.org/debian-security trixie-security InRelease [43.4 kB]
Get:4 http://deb.debian.org/debian trixie/main amd64 Packages [9670 kB]
Get:5 http://deb.debian.org/debian trixie-updates/main amd64 Packages [5412 B]
Get:6 http://deb.debian.org/debian-security/trixie-security/main amd64 Packages [108 kB]
Fetched 10.0 MB in 3s (3038 kB/s)
All packages are up to date.
Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0
```

3. Port Mapping, Installing Apache, Starting Service

- Install Apache:

```
apt install apache2 -y
service apache2 start
```

- Explain -p 8080:80 port mapping

- Screenshot :

```
Windows PowerShell

root@bd359a9a5b7c:/# apt install apache2 -y
Installing:
 apache2

Installing dependencies:
 adduser           libgpm2          libertmp1
 apache2-bin       libgssapi-krb5-2   libsasl2-2
 apache2-data      libidn2-0        libsasl2-modules
 apache2-utils     libjansson4    libsasl2-modules-db
 ca-certificates   libk5crypto3    libssh2-1t64
 krb5-locales      libkeyutils1    libtasn1-6
 libapr1t64        libkrb5-3      libunistring5
 libaprutil1-dbd-sqlite3 libkrb5support0 libxml2
 libaprutil1-ldap  libldap-common  linux-sysctl-defaults
 libaprutil1t64   libldap2        media-types
 libbrotli1       liblua5.4-0     netbase
 libcom-err2       libncursesw6   openssl
 libcurl4t64      libnhttp2-14   perl
 libexpat1         libnhttp3-9    perl-modules-5.40
 libffi8           libp11-kit0    procps
 libgdbm-compat4t64 libperl5.40   psmisc
 libgdbm6t64      libproc2-0    publicsuffix
 libgnutls30t64   libpsl5t64    ssl-cert

Suggested packages:
 liblocale-gettext-perl  krb5-user
 cron                  sensible-utils
 quota                 libsasl2-modules-gssapi-mit
 apache2-doc            | libsasl2-modules-gssapi-heimdal
 apache2-suexec-pristine | libsasl2-modules-ldap
 | apache2-suexec-custom | libsasl2-modules-otp
 ufw                   libsasl2-modules-sql
 www-browser            perl-doc
 gdbm-l10n              libterm-readline-gnu-perl
 gnutls-bin             | libterm-readline-perl-perl
 gpm                   make
 krb5-doc               libtap-harness-archive-perl

Summary:
 Upgrading: 0, Installing: 55, Removing: 0, Not Upgrading: 0
 Download size: 19.4 MB
 Space needed: 86.1 MB / 1024 GB available
```

```
Windows PowerShell

PS C:\Users\PG> docker run -it -p 8080:80 --name debian-web debian bash
root@a3d4ad461c26:/# apt update
apt install apache2 -y
service apache2 start
Get:1 http://deb.debian.org/debian trixie InRelease [140 kB]
Get:2 http://deb.debian.org/debian trixie-updates InRelease [47.3 kB]
Get:3 http://deb.debian.org/debian-security trixie-security InRelease [43.4 kB]
Get:4 http://deb.debian.org/debian trixie/main amd64 Packages [9670 kB]
Get:5 http://deb.debian.org/debian trixie-updates/main amd64 Packages [5412 B]
Get:6 http://deb.debian.org/debian-security trixie-security/main amd64 Packages [108 kB]
Fetched 10.0 MB in 4s (2552 kB/s)
All packages are up to date.
Installing:
 apache2

Installing dependencies:
 adduser           libgpm2          libertmp1
 apache2-bin       libgssapi-krb5-2   libsasl2-2
 apache2-data      libidn2-0        libsasl2-modules
 apache2-utils     libjansson4    libsasl2-modules-db
 ca-certificates   libk5crypto3    libssh2-1t64
 krb5-locales      libkeyutils1    libtasn1-6
 libapr1t64        libkrb5-3      libunistring5
 libaprutil1-dbd-sqlite3 libkrb5support0 libxml2
 libaprutil1-ldap  libldap-common  linux-sysctl-defaults
 libaprutil1t64   libldap2        media-types
 libbrotli1       liblua5.4-0     netbase
 libcom-err2       libncursesw6   openssl
 libcurl4t64      libnhttp2-14   perl
 libexpat1         libnhttp3-9    perl-modules-5.40
 libffi8           libp11-kit0    procps
 libgdbm-compat4t64 libperl5.40   psmisc
 libgdbm6t64      libproc2-0    publicsuffix
 libgnutls30t64   libpsl5t64    ssl-cert

Suggested packages:
 liblocale-gettext-perl  krb5-user
 cron                  sensible-utils
 quota                 libsasl2-modules-gssapi-mit
 apache2-doc            | libsasl2-modules-gssapi-heimdal
 apache2-suexec-pristine | libsasl2-modules-ldap
 | apache2-suexec-custom | libsasl2-modules-otp
 ufw                   libsasl2-modules-sql
 www-browser            perl-doc
```

4. Accessing via Browser & Fixing ServerName Warning

- Open: `http://localhost:8080`
- ServerName warning:

```
echo "ServerName localhost" >> /etc/apache2/apache2.conf  
service apache2 restart
```

- Screenshot :

