

Smart on FHIR Server

LINUX

1. 準備一台Linux環境的電腦(或虛擬機)

```
ubuntu@vm1704854465831-4317628-iaas: ~  
D:\工作\twcc>ssh -i .\kpmopatalsppt.pem ubuntu@103.124.72.82  
The authenticity of host '103.124.72.82 (103.124.72.82)' can't be established.  
ECDSA key fingerprint is SHA256:+5waM1/rBsY+uZxE4P7WauDeLPOWHQprQJiuXDmsJrE.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? y  
Please type 'yes', 'no' or the fingerprint: yes  
Warning: Permanently added '103.124.72.82' (ECDSA) to the list of known hosts.  
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-91-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/advantage  
  
System information as of Wed Jan 10 02:47:35 PM CST 2024  
  
System load:  0.0          Processes:      97  
Usage of /:   3.3% of 93.73GB  Users logged in: 0  
Memory usage: 1%          IPv4 address for ens3: 192.168.211.18  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
ubuntu@vm1704854465831-4317628-iaas:~$
```

2-1. 連線至Linux電腦(或虛擬機)

2. 安裝SmartonFHIR Server

```
ubuntu@vm1704954932033-4320973-iaas: ~  
Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
Last login: Thu Jan 11 14:59:00 2024 from 120.97.100.11  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
ubuntu@vm1704954932033-4320973-iaas:~$ sudo snap install docker  
Download snap "core22" (1033) from channel "stable"
```

2-1. 輸入 `sudo snap install docker`

```
ubuntu@vm1704954932033-4320973-iaas: ~  
IPv4 address for docker0: 172.17.0.1  
IPv4 address for ens3: 192.168.211.23  
  
* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s  
just raised the bar for easy, resilient and secure K8s cluster deployment.  
  
https://ubuntu.com/engage/secure-kubernetes-at-the-edge  
  
Expanded Security Maintenance for Applications is not enabled.  
8 updates can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
*** System restart required ***  
Last login: Fri Jan 12 10:32:11 2024 from 120.97.100.9  
ubuntu@vm1704954932033-4320973-iaas:~$ git clone https://github.com/smart-on-fhir/smart-dev-sandbox.git  
Cloning into 'smart-dev-sandbox'...  
Resolving deltas: 100% (556/556), done.  
ubuntu@vm1704954932033-4320973-iaas:~$ ls  
hapi-fhir-jpaserver-starter  persistence.json  smart-dev-sandbox  
ubuntu@vm1704954932033-4320973-iaas:~$
```

2-2. 輸入 `git clone https://github.com/smart-on-fhir/smart-dev-sandbox.git` (剛剛的網址) 並且可以輸入 `ls` 確認是否有下載成功

2. 安裝SmartonFHIR Server

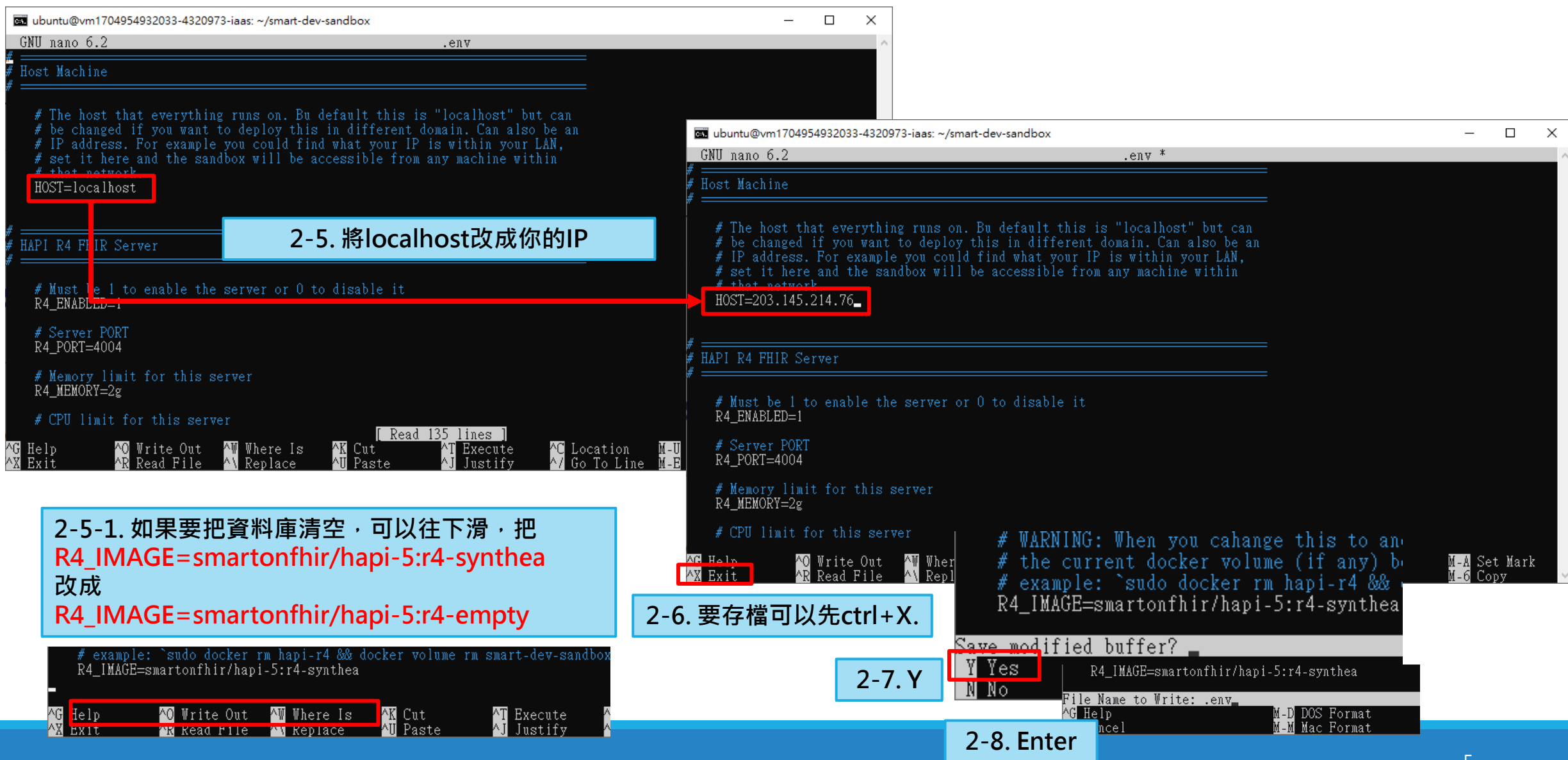
```
ubuntu@vm1704954932033-4320973-iaas:~$ git clone https://github.com/smart-on-fhir/smart-dev-sandbox.git
Cloning into 'smart-dev-sandbox'...
remote: Enumerating objects: 1058, done.
remote: Counting objects: 100% (146/146), done.
remote: Compressing objects: 100% (80/80), done.
remote: Total 1058 (delta 80), reused 115 (delta 63), pack-reused 912
Receiving objects: 100% (1058/1058), 150.36 MiB | 24.24 MiB/s, done.
Resolving deltas: 100% (556/556), done.
ubuntu@vm1704954932033-4320973-iaas:~$ ls
hapi-fhir-jpaserver-starter  persistence.json  smart-dev-sandbox
ubuntu@vm1704954932033-4320973-iaas:~$ cd smart-dev-sandbox
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$
```

2-3. 輸入`cd smart-dev-sandbox` 進入剛剛下載的資料夾中

```
ubuntu@vm1704954932033-4320973-iaas:~$ cd smart-dev-sandbox
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ ls
docker-compose.yml  LICENSE  patient-browser  README.md  screenshot.png  www
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ nano .env
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ nano .env
```

2-4. 輸入`nano .env` 修改設定

2. 安裝SmartonFHIR Server



2. 安裝SmartonFHIR Server

```
ubuntu@vm1704954932033-4320973-iaas: ~/smart-dev-sandbox$ nano docker-compose.yml
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ nano docker-compose.yml
```

2-9. nano docker-compose.yml 修改檔案

2-10. 往下滑找到這裡，把\刪除

```
GNU nano 6.2 docker-compose.yml
fhir-viewer: # -----
  container_name: fhir-viewer
  image: smartonfhir/fhir-viewer
  scale: $FHIR_VIEWER_ENABLED
  ports:
    - "${FHIR_VIEWER_PORT}:80"

patient-browser: # -----
  container_name: patient-browser
  image: smartonfhir/patient-browser:latest
  volumes:
    - ./patient-browser:/usr/share/nginx/html/config
  environment:
    HOST      : "${HOST}"
    FHIR_VIEWER_PORT : "${FHIR_VIEWER_PORT}"
    R2_PORT   : "${R2_PORT}"
    R3_PORT   : "${R3_PORT}"
    R4_PORT   : "${R4_PORT}"
  ports:
    - $PATIENT_BROWSER_PORT:80
  command: ["sh", "-c", "
    envsubst < /usr/share/nginx/html/config/r2.tpl > /usr/share/nginx/html/config/r2-local.json5 &&
    envsubst < /usr/share/nginx/html/config/r3.tpl > /usr/share/nginx/html/config/r3-local.json5 &&
    envsubst < /usr/share/nginx/html/config/r4.tpl > /usr/share/nginx/html/config/r4-local.json5 &&
    nginx -g 'daemon off;'"
  scale: $PATIENT_BROWSER_ENABLED
```

```
> \usr/share/nginx/html/config/r2-local.json5 &&
> \usr/share/nginx/html/config/r3-local.json5 &&
> \usr/share/nginx/html/config/r4-local.json5 &&
```

3-4320973-iaas: ~/smart-dev-sandbox

docker-compose.yml *

```
-----
r-viewer
fhir-viewer
_ENABLED
PORT):80"

patient-browser
patient-browser:latest
er:/usr/share/nginx/html/config
```

```
"${HOST}"
"${FHIR_VIEWER_PORT}"
R2_PORT : "${R2_PORT}"
R3_PORT : "${R3_PORT}"
R4_PORT : "${R4_PORT}"
```

```
ports:
  - $PATIENT_BROWSER_PORT:80
command: ["sh", "-c", "
  envsubst < /usr/share/nginx/html/config/r2.tpl > /usr/share/nginx/html/config/r2-local.json5 &&
  envsubst < /usr/share/nginx/html/config/r3.tpl > /usr/share/nginx/html/config/r3-local.json5 &&
  envsubst < /usr/share/nginx/html/config/r4.tpl > /usr/share/nginx/html/config/r4-local.json5 &&
  nginx -g 'daemon off;'"
scale: $PATIENT_BROWSER_ENABLED
```

```
> /usr/share/nginx/html/config/r2-local.json5 &&
> /usr/share/nginx/html/config/r3-local.json5 &&
> /usr/share/nginx/html/config/r4-local.json5 &&
```

2. 安裝SmartonFHIR Server

```
ubuntu@vm1704954932033-4320973-iaas: ~/smart-dev-sandbox
GNU nano 6.2 docker-compose.yml *
envsubst < /usr/share/nginx/html/config/r3.tpl > /usr/share/nginx/html/config/r3-local.json5 &&
envsubst < /usr/share/nginx/html/config/r4.tpl > /usr/share/nginx/html/config/r4-local.json5 &&
nginx -g 'daemon off;']
scale: $PATIENT_BROWSER_ENABLED

index: # -----
container_name: home-page
image: nginx:alpine
volumes:
- ./www:/usr/share/nginx/html
ports:
- $CONTROL_PANEL_PORT:80
environment:
HOST: "${HOST}"
R2_PORT: "${R2_PORT}"
R4_PORT: "${R4_PORT}"
R3_PORT: "${R3_PORT}"
R4_PORT: "${R4_PORT}"
PATIENT_BROWSER_PORT: "${PATIENT_BROWSER_PORT}"
FHIR_VIEWER_PORT: "${FHIR_VIEWER_PORT}"
LAUNCHER_PORT: "${LAUNCHER_PORT}"
R2_ENABLED: "${R2_ENABLED}"
R3_ENABLED: "${R3_ENABLED}"
R4_ENABLED: "${R4_ENABLED}"
PATIENT_BROWSER_ENABLED: "${PATIENT_BROWSER_ENABLED}"
FHIR_VIEWER_ENABLED: "${FHIR_VIEWER_ENABLED}"

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^/_ Go To Line M-E Redo
```

2-11. 多一行R4_PORT : "\${R4_PORT}" 把它整行刪除

```
ubuntu@vm1704954932033-4320973-iaas: ~/smart-dev-sandbox
GNU nano 6.2 docker-compose.yml *
envsubst < /usr/share/nginx/html/config/r3.tpl > /usr/share/nginx/html/config/r3-local.json5 &&
envsubst < /usr/share/nginx/html/config/r4.tpl > /usr/share/nginx/html/config/r4-local.json5 &&
nginx -g 'daemon off;']
scale: $PATIENT_BROWSER_ENABLED

index: # -----
container_name: home-page
image: nginx:alpine
volumes:
- ./www:/usr/share/nginx/html
ports:
- $CONTROL_PANEL_PORT:80
environment:
HOST: "${HOST}"
R2_PORT: "${R2_PORT}"
R3_PORT: "${R3_PORT}"
R4_PORT: "${R4_PORT}"
PATIENT_BROWSER_PORT: "${PATIENT_BROWSER_PORT}"
FHIR_VIEWER_PORT: "${FHIR_VIEWER_PORT}"
LAUNCHER_PORT: "${LAUNCHER_PORT}"
R2_ENABLED: "${R2_ENABLED}"
R3_ENABLED: "${R3_ENABLED}"
R4_ENABLED: "${R4_ENABLED}"
PATIENT_BROWSER_ENABLED: "${PATIENT_BROWSER_ENABLED}"
FHIR_VIEWER_ENABLED: "${FHIR_VIEWER_ENABLED}"
LAUNCHER_ENABLED: "${LAUNCHER_ENABLED}"

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo  M-A Set Mark
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^/_ Go To Line M-E Redo  M-6 Copy
```

2-12. 儲存方法如步驟2-6.至2-8.

2. 安裝SmartonFHIR Server

```
ubuntu@vm1704954932033-4320973-iaas: ~/smart-dev-sandbox
just raised the bar for easy, resilient and secure K8s cluster deployment.

https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

8 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Tue Jan 16 15:11:50 2024 from 120.97.100.9
ubuntu@vm1704954932033-4320973-iaas:~$ nano docker-compose.yml
ubuntu@vm1704954932033-4320973-iaas:~$ ls
hapi-fhir-jpaserver-starter  persistence.json  smart-dev-sandbox
ubuntu@vm1704954932033-4320973-iaas:~$ cd
.cache/                  .local/          .ssh/
hapi-fhir-jpaserver-starter/ smart-dev-sandbox/
ubuntu@vm1704954932033-4320973-iaas:~$ cd smart-dev-sandbox/
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ ls
docker-compose.yml  LICENSE  patient-browser  README.md  screenshot.png  www
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ nano docker-compose.yml
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ LS
LS: command not found
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ ls
docker-compose.yml  LICENSE  patient-browser  README.md  screenshot.png  www
ubuntu@vm1704954932033-4320973-iaas:~/smart-dev-sandbox$ sudo docker-compose up -d
```

```
ubuntu@vm1704954932033-4320973-iaas: ~/smart-dev-sandbox
[+] Running 19/25          OB/OB      Pulling      8.7s
[+] Running 18/25          453.9kB/45.34MB Pulling      8.8s
[+] Running 18/25          16.99MB/45.34MB Pulling      8.9s
* r2 13 layers [a]         28MB/45.34MB Pulling      9.0s
* r3 1 layers [ ]         OB/OB      Pulling      9.0s
* r4 1 layers [ ]         OB/OB      Pulling      9.0s
* fhir-viewer 2 layers [ ] OB/OB      Pulling      9.0s
✓ patient-browser 3 layers [###] OB/OB      Pulled      4.9s
! index 8 layers [ ]       OB/OB      Pulling      8.9s
! index 8 layers [ ]       OB/OB      Pulling      9.0s
! smart-launcher 15 layers [##.#####] 786.4kB/4.34MB Pulling 9.0s
```

2-13. `sudo docker-compose up -d` 開始執行伺服器

3. 檢查是否安裝成功

可以去瀏覽器查看是否架設成功
<http://203.145.214.76:4000/>

