

# Milesight DeviceHub Installation Guide



## Preface

This guide teaches you how to install Milesight on-premises DeviceHub platform.

## Readers

This guide is intended for the following users:

- Distributors
- Network Planners
- On-site technical support and maintenance personnel
- Network administrators responsible for network configuration and maintenance

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## **Revision History**

Date	Doc Version	Description
Jan. 15, 2024	V 3.0	DeviceHub V2 Initial version
July 15 2024	V 3 1	Add upgrade and service port customization
5 diy 13, 2024	¥ 0.1	steps



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# Introduction

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Milesight DeviceHub provides a high-efficency, low maintenance On-Premises solution to allow easily deployment of Milesight IoT devices across multiple locations, reducing complexity and increasing productivity. This guide will describe how to install DeviceHub program.



(\*Milesight routers and gateways compatibility are under development.)

## System Requirements

#### Hardware

It is suggested to use a server that fits the following requirements: For 500 devices and 2000 LoRaWAN end devices

- CPU: 4 Cores, 3.2 GHz
- RAM: 8 GB
- Disk: 512 GB
- Bandwidth: ≥100MBps

For 1000 devices and 2000 LoRaWAN end devices

- CPU: 8 Cores, 3.2 GHz
- RAM: 16 GB
- Disk: 1 TB
- Bandwidth: ≥100MBps

Note: the RAM should be more than 4GB, otherwise the DeviceHub will not work well.

#### Software

- Operating System: Ubuntu Server 22.04
- Recommended Browser: Chrome

# **Operation Guide**

## Requirements

- Ubuntu Server
- DeviceHub Installation Package: downloaded from Milesight Website
- WinSCP

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• Putty (or other SSH tool)

## Installation

**Note:** Take "Devicehubv2\_ubuntu22.04-1.0.1.tar.gz" as an example in providing the the commands below, please use the commands according to real installation package name.

1. Download the DeviceHub and install package in your computer.

Devicehubv2\_ubuntu22.04-1.0.1.tar.gz

2. Open WinSCP and set up a session between WinSCP and server.

New Site	Session <u>Fi</u> le protocol:	>
<b>_</b> r	SFTP ~	Po <u>r</u> t number:
	192.168.45.40	22 💌
	root	
	<u>S</u> ave  ▼	A <u>d</u> vanced  ▼
Tools ▼ Manage	▼ Login ▼	Close Help

3. Select the DeviceHub installation package and click "Upload", select the server path and click "OK" to upload.



4. Log in the server via Putty or other SSH tools.

-Session	Basic options for your PuT	TY session
Logging Terminal Keyboard Bell Features	Specify the destination you want to con Host Name (or IP address) 192.168.22.114	nect to Port 22
Appearance Behaviour Translation Selection Colours Connection	Load, save or delete a stored session Saved Sessions	
– Data – Proxy – Telnet – Rlogin ⊕ SSH – Ssrial		Sa <u>v</u> e Delete
	Close window on exit.	on clean exit

5. Ensure the network tool is installed in the server. You can type *ifconfig* to double check. If not found, execute *apt install net-tools* to install it.

root@yuxy	:/etc/net	plan# ifco	nfig			
Command '	ifconfig'	not found	, but	can be	installed	with:
apt insta	ill net—too	ols				
root@yuxy	:/etc/net;	plan#				

6. Navigate to the path including DeviceHub installation package to unzip it: tar -zxvf Devicehubv2\_ubuntu22.04-1.0.1.tar.gz





#### 7. Navigate to the DeviceHub folder, execute the deploy script:

cd Devicehubv2\_ubuntu22.04-1.0.1 ./deploy.sh

Select option 7 to install docker. If the server has already installed docker, skip this step. After installing, the following message will show.



#### 8. Execute the deploy script again, select option 1 to install DeviceHub.



The DeviceHub will list all used service ports and provide the options to use default ports or customize the service port as required. After change, the DeviceHub will check if the service ports are occupied; if not, it will continue installing.

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Here are the ports used by Devicehub V2:
DH SYS REDIS PORT: 6379: used as redis port
ENV MQTT FORT: 1883: used as mqtt port
DH SYS SISH PORT: 2222: used as sish port
DH SYS HTTP PORT: 80: used as http port
DH SYS MYSQL PORT: 3306: used as mysql port
DH SYS HTTPS PORT: 443: used as https port
ENV MQTTS FORT: 8883: used as mqtts port
DH SYS SISH API PORT: 18084: used as sish api port
DH SYS EMQX PORT: 18083: used as emqx dashboard port
DH SYS POSTGERSQL PORT: 5432: used as postgresql port
Do you want to use default ports or custom ports?(1. reset to default 2. use custom 3. keep current)

After installing, the following message will appear.

d89441783ad5: Loading Layer [====================================	10.75kB/10.75kB
d7276986b5a2: Loading layer [====================================	4.151MB/4.151MB
59982b672e23: Loading layer [====================================	60.16MB/60.16MB
4878d82c6612: Loading layer [====================================	1.536kB/1.536kB
5f70bf18a086: Loading layer [====================================	1.024kB/1.024kB
a165421a97e2: Loading layer [====================================	4.096kB/4.096kB
Loaded image: redis:7.2.1	
63290f9c9e52: Loading layer [====================================	84.03MB/84.03MB
781f046ab200: Loading layer [====================================	5.12kB/5.12kB
d6f8893d981d: Loading layer [====================================	159.1MB/159.1MB
cac5acac741b: Loading layer [====================================	9.216kB/9.216kB
47ee15af792b: Loading layer [====================================	4.153MB/4.153MB
5f70bf18a086: Loading layer [====================================	1.024kB/1.024kB
5412cbb18fa0: Loading layer [====================================	159.5MB/159.5MB
Loaded image: emqx/emqx:5.1.6	
(+) Running \$/8	
Network devicehubv2_default Created	
Container emgx Started	
Container mysql Started	
Container postgres Started	
Container redis Started	
Container devicehub Started	
Container lns Started	
Container nginx Started	
All containers are running.	
wait for initialization of devicehub 0 s	
wait for initialization of devicehub 5 s	
wait for initialization of devicehub 10 s	
wait for initialization of devicehub 15 s	
wait for initialization of devicehub 20 s	
wait for initialization of devicehub 25 s	
wait for initialization of devicehub 30 s	
wait for initialization of devicehub 35 s	
wait for initialization of dovicehub 40 s	
ievicehub start successfully	
Devicehubv2 is installed to /var/lib/devicehubv2, you can delete currenct director	v now.

Users can also use command below to check if the DeviceHub is installed well.

REPOSITORY	TAG	TMAGE TD	CREATED	STZE
lns	1.0.1	479e8d398daa	5 days ago	189MB
devicehub	1.0.1	1b748edab2a1	5 days ago	412MB
mysql	8.0	96bc8cf3633b	2 months ago	582MB
nginx	1.25.2-alpine3.18	661daf9bcac8	2 months ago	42.6MB
redis	7.2.1	5b0542ad1e77	3 months ago	138MB
emqx/emqx	5.1.6	369cf6d7ddb0	4 months ago	399MB
postgres	9.6.8	7df8faa6c830	5 years ago	234MB

 9. After installing, log in the DeviceHub with IP address <u>http://xx.xx.xx.xx</u>. The default login info: Username: admin Password: password

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## Upgrade

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**Note:** Take "Devicehubv2\_ubuntu22.04-1.0.2.tar.gz" as an upgrade example in providing the commands below, please use the commands according to the real installation package name.

1. Download the new version of DeviceHub and install the package on your computer.

Devicehubv2\_ubuntu22.04-1.0.1.tar.gz

2. Open WinSCP and set up a session between WinSCP and server.

F	Host name: 192. 168. 45. 40 User name:	Port number:
	 192.168.45.40 User name:	Password:
	User name:	Password:
	reat	
	TUOL	•••••
	Save 🔽	Advanced

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3. Select the DeviceHub new version installation package and click "Upload", select the server path and click "OK" to upload.

🕳 D: Data 🔹 📲 👻 🕎 👻 🖛 🔹 🔿	- 🖬 🖬 🏠 🎜 🐾			🚬 youny 🔹 🚰 • 😨 • 🗇 • 🗟 🖾 🏠 🤔	🔯 Find Files 💁			
🎲 Upload 🔹 📝 Edit 🔹 🗙 🛃 🕞 Properties  😭	New - 🛨 🗕 🗹			👔 🔐 Download 🔹 📝 Edit 🔹 🗶 🚮 🕼 Properties  😭 New •	+ - V			
D:\DeviceHub\				/home/youny/				
Nume devicehub, back 2024-01-22 11-44-50.tar.gz devicehubv2, ubuntu22.04-1.0.1.tar.gz Devicehubv2, ubuntu22.04-1.0.2.tar.gz	Size Type Parent directory 17,443 KB WinRaR 田園文体 866,763 WinRaR 田園文体 915,485 WinRaR 田園文体	Changed 2024/1/22 20:22:58 2024/1/22 19:44:56 2024/1/20 11:41:14 2024/6/28 14:15:39		Name evicehubv2_ubuntu22.04-1.0.1 cociesat direicehub bask_2024-01-22_11-44-50.tar.gz direicehub 2_ubuntu22.04-1.0.1.tar.gz hargrooth trust Ins.key	Size 1 KB 17,443 KB 866,763 2 KB 1 KB	Changed 2023/12/26 21:58:20 2024/2/20 12:04:06 2024/3/18 19:37:04 2024/1/2 19:44:56 2024/1/20 11:41:14 2024/1/23 15:15:29 2024/1/23 20:31:38	Rights rvxr-xr-x rvx-rvx-r-x rvy-rvy-r rvy-rvy-r rvy-rvy-r rvy-rvy-r	Owner root youny youny youny youny youny youny
			Upload Upload file 'Devicehubv2_ubu Upload file 'Devicehubv2_ubu Transfer settings Transfer type: Binary Transfer in Background (add to t Transfer settings	? X ntu22.04-1.0.2.tar.gd to remote directory:				

4. Log in the server via Putty or other SSH tools.

E Session	Basic options for your Pu	TTY session
Logging Terminal Keyboard Bell Features Window	Specify the destination you want to co Host <u>Name</u> (or IP address) 192.168.22.114 Connection type:	Port 22
- Appearance - Behaviour - Translation - Selection - Colours	Load, save or delete a stored session Saved Sessions	(● <u>S</u> SH () Segial n
<ul> <li>Connection</li> <li>Data</li> </ul>	Default Settings	Load
– Proxy – Telnet		Sa <u>v</u> e
Rlogin ⊞-SSH Serial		<u>D</u> elete
	Close window on exit.	ly on clean exit

5. Navigate to the path including DeviceHub installation package to unzip it:

tar -zxvf Devicehubv2\_ubuntu22.04-1.0.2.tar.gz



6. Navigate to the DeviceHub folder, execute the deploy script:

cd Devicehubv2\_ubuntu22.04-1.0.2 ./deploy.sh

Select option 2 to upgrade DeviceHub.



youny@youny:~\$ cd Devicehubv2_ubuntu22.04-1.0.2-a	a4/
youny@youny:~/Devicehubv2_ubuntu22.04-1.0.2-a4\$	/deploy.sh
[sudo] password for youny:	
Using IP address: 192.168.45.80	
choice:	
1. install	
2. upgrade	
3. export log	
4. backup	
5. restore	
6. uninstall	
7. install docker	
8. uninstall docker	
9. restart container	
10. reload container	
<pre>ll. uninstall_docker_images</pre>	
12. modify ports and restart	
q. exit	
please input your choice: 2	

**Note:** When upgrading version 1.0.1 to 1.0.2, it is necessary to type "no" to continue the upgrade or type "yes" to change the HTTP and HTTPS port of DeviceHub. The default HTTP port is 80 and default HTTPS port is 443.

oaded image: devicehub-sish:1.0.1	
lave you ever change the server address port in the setting/network-setting web	b page?
if yes, you may need to change the https port and http port? (yes/no)	

After installing, the following message will appear.



## Uninstallation

1. Navigate to the DeviceHub folder, execute the deploy script:

cd /var/lib/devicehubv2/ ./deploy.sh Select option 6 to uninstall the DeviceHub. After uninstalling, the following message will appear.

Untagged	: postgres:9.6.8
Deleted:	sha256:7df8faa6c830fc39b3bce792dab3a2426b6e987fa75785b649b712ca68b53f82
Deleted:	sha256:9b1b43c0b005e04de5faca213c22c49e96962c8d357cc89626e13d3f34df2a8f
Deleted:	sha256:9bed08874e903a5da29fb00c7781f6f6dc54cff9fbd3a9b32aff9231e23669db
Deleted:	sha256:f61ed5778d1ab3fd7c510a5406d07426296eda815a5d288b1af8e01d5e8f7b91
Deleted:	sha256:c5b2e891049c7c3d23b484ff0481681262d0ae56c269687ab335673d75518f9c
Deleted:	sha256:03adbfb497f41b236905c103b4874e771c5aed7729cf478c889feaffe23a52ec
Deleted:	sha256:72bbbb43a8a99eeb01d779ec63199c6f7387795eee931a305f8f49c10c23cb27
Deleted:	sha256:0d7aab5e593df8fe2082c690f8193c43fecc44f89178d8853098ee73a6009b35
Deleted:	sha256:c42dd1ff7d415fbf50c84640388a90fdf5c4a7b1a7cde7cd34d91968e3ebdb73
Deleted:	sha256:176c6fd9ed3db015036a8acf5bcbe159ff6d4aaa18a12ab69d70d35ebc99c401
Deleted:	sha256:3bdcb7aea4a6a355769b54352a7368ec43d1693495bdb11c17b40af875591b9d
Deleted:	sha256:12bc7f2daa19b36bb8701e1bb99c4c6592d8e2c19c59583f2f618054dba68aeb
Deleted:	sha256:97145ad59e826dc7a9bee0dde677ef47aa3a07e7e770657b6fea823792975edf
Deleted.	sba256.d626a8ad97a1f9c1f2c4db3814751ada64f60aed927764a3f994fcd88363b659
All Devi	cehubv2 docker images has been removed, do you want to uninstall docker too? (yes or no)

Type "yes" to continue uninstalling docker or "no" to complete the devicehub uninstallation.

no uninstall devicehub v2 successfully!

Users can also use below command to check if the DeviceHub is removed.

root@youny:/home/youny/Devicehubv2\_ubuntu22.04-1.0.1# sudo docker image 1s REPOSITORY TAG IMAGE ID CREATED SIZE

## **Backup and Restore**

When transferring the DeviceHub program from one server to another, please refer below steps to backup the data from old server and restore it to the new server.

1. Navigate to the DeviceHub folder of old server, execute the deploy script:

cd /var/lib/devicehubv2/

./deploy.sh

Select option 4 to backup the data. After backing up, the following message will appear.



2. Export the backup data file from old server via WinSCP or other tool:

	New •					
D:\DeviceHub\			/home/youny/Devicehubv2_ubuntu22.04-1.0.1/			
Name devicehub_log_2024-01-22_11-37-31.tar.gz Devicehubv2_ubuntu22.04-1.0.1.tar.gz	Size Type Parent directo 1,910 KB WinRAR 压缩2 862,071 WinRAR 压缩2	Changed y 2024/1/22 19:47:18 /# 2024/1/22 19:37:32 /# 2023/12/21 10:58:17	Name	Size Changed 2024/1/18 14:52:24 2023/12/21 10:56:26 2023/12/21 10:56:26	Rights rwxr-x rwxrwxr-x rwxrwxr-x	Ow you you you
		Download Download file 'devicehub_bac D3(DeviceHub)*** Transfer settings Transfer type: Binary	? × k_2024-01-22_11-44-50.tar.gr' to local directory: ✓ Bgowse	2023/12/21 10:56:27 2023/12/21 10:56:27 2023/12/21 10:56:27 2024/1/22 19:37:31 138,895 2023/12/21 10:56:48 236,725 2023/12/21 10:56:48 44,421 148 2023/12/21 10:56:48	TWXTWXT-X TWXTWXT-X TWXTWXT-X TWXTWXTWX TW TW	you you you roo you you you
		Transfer in background (add to tr     Transfer settings     ▼     Do not show this dialog box again	OK Cancel Help	583,530         2023/12/21 10:56:37           189,388         2023/12/21 10:56:27           3 KB         2023/12/21 10:56:27           397,287         2023/12/21 10:56:55           5 KB         2023/12/21 10:56:55           5 KB         2023/12/21 10:56:56           1,910 KB         2024/1/22 19:37:32           17,443 KB         2024/1/22 19:34:456	rw rw-rw-r rw-rw-r rw-rw-r rw-r rw-r	you you you you you roo roo
			devicehub_1.0.1.tar	409,440 2023/12/21 10:56:28 22 KB 2023/12/21 10:56:26	rw rwxrwxr-x	you you

- 3. Install DeviceHub program to the new server according to <u>DeviceHub Installation</u>.
- 4. Import the backup data file to the new server via WinSCP or other tool:

= D: Data • <sup>20</sup> • <b>▼</b> • <b>◆</b> • <b>●</b> • <b>≥</b>			■youny ▼ 🖉 ▼ 🗑 ▼ 🖛 ▼ → ▼ 🛅 🖓 🖓 Ki	ind Files		
Do.DeviceHub/ Name deviceHub_back_2024-01-22_11-44-50.tar.gz deviceHub_log_2024-01-22_11-37-31.tar.gz deviceHub/2_ubuntu22.04-1.0.1.tar.gz	Size Type Parent directory 17,443 KB WinRAR 任殖文件 1,910 KB WinRAR 任殖文件 866,763 WinRAR 任殖文件	Changed 2024/1/22 19:52:35 2024/1/22 19:44:56 2024/1/22 19:44:56 2024/1/22 19:37:32 2024/1/20 11:41:14 ead Upload file 'devcehub: back_20 Upload file 'devcehub: back_20 Transfer settings Transfer in background (add to tra Transfer in background (add to tra Transfer in background (add to tra	/home/yoursy/       Name       Devicehubv2_ubuntu22.04-1.0.1       Inskey       Devicehubv2_ubuntu22.04-1.0.1.tar.gz       ? X       024-01-22_11-44-50.tar.g2 to remote directory:	Size         Changed         Rights         Ow           2023/12/26 21:58:20         rwxr-xr-x         rox         rox           2024/122 15:438         rwxrwxr-x         yo           118         2024/1/121 15:52:20         rw-rw-r-yo           866,763         2024/1/21 11:41:14         rw-rw-r-yo		
		) <u>P</u> o not show this dialog box again				

5. Navigate to the DeviceHub folder of new server, execute the deploy script:

cd /var/lib/devicehubv2/ ./deploy.sh

Select option 5 to restore the data, type the path of backup data file, then click **Enter** to restore the data.

iot@iot:/var/lib/devicehubv2\$ .	/deploy.sh					
[sudo] password for iot:						
choice:						
1. install						
2. upgrade						
<ol><li>export log</li></ol>						
4. backup						
5. restore						
6. uninstall						
<ol><li>install docker</li></ol>						
8. uninstall docker						
9. restart container						
10. reload container						
a. exit						
please input your choice: 5						
Please note that the current op	eration will erase existing	data.				
Please make a backup beforehand	!					
Please input the path of backup						
(input factory to do factory re	set)					
/home/iot/devicehub back 2023-1	2-21 19-49-46.tar.gz					
+1 Running 8/8						
Container nginx	Removed					
🗸 Container lns	Removed					
🖌 Container devicehub	Removed					
🕜 Container mysgl	Removed					
🗸 Container redis	Removed					
🖌 Container emgx						
Container postgres	Removed					
Network devicehubv2_default						
[+] Running 8/8						
Network devicehubv2_default	Creat					
🗸 Container redis 🦳	Started					
🖌 Container emqx	Started					
🖌 Container mysgl	Started					
🕜 Container postgres	Started					
🖌 Container lns	Started					
🕜 Container devicehub	Started					
🕜 Container nginx	Started					
[+] Restarting 1/1						
Container lns Started						
All containers are running.						
devicehub start successfully						

## Export Log

DeviceHub program supports exporting logs for troubleshooting.

1. Navigate to the DeviceHub folder of old server, execute the deploy script:

cd /var/lib/devicehubv2/ ./deploy.sh

Select option 3 to export the log files. After exporting, the following message will appear.



#### 2. Export the log files via WinSCP or other tool:

Did offerer and the second sec							
D:\DeviceHub\			/var/lib/devicenubv2/	~	<u></u>		
Name	Size Type	Changed	Name		Size Changed	Rights	Ow
<b>1</b>	Parent	Download	? ×		2024/1/22 20:01:26	rwxr-xr-x	roo
Devicehubv2_ubuntu22.04-1.0.1	文件夹	Download file 'devicehub log 2024-01-22 1	2-21-16.tar.gz' to local directory:		2024/1/22 20:01:26	rwxr-xr-x	roo
devicehub_back_2024-01-22_11-44-50.tar.gz	17,443 KB WinRAF	D:\DeviceHub\*.*	Browse		2024/1/22 20:01:26	FWXF-XF-X	100
Uevicehubv2_ubuntu22.04-1.0.1.tar.gz	866,763 WinRAF				2024/1/22 20:01:26	rwxr-xr-x	roo
		Transfer type: Binary			2024/1/22 20:02:38	rwxr-xr-x	roo
		contact (per site)			2024/1/22 20:01:26	FWXF-XF-X	100
					2024/1/22 20:01:26	rwxr-xr-x	roo
		Transfer in background (add to transfer queue)			2024/1/22 20:02:38	rwxr-xr-x	roo
		Transfer settings	OK Cancel <u>H</u> elp		4 KB 2024/1/22 20:01:26	rwxr-xr-x	roo
					5 KB 2024/1/22 20:01:26	rw-rr	roo
		Upo not show this dialog box again		0.log	0 KB 2024/1/22 20:02:40	<b>FWXFWXFWX</b>	roo
			devicehub_system_env		1 KB 2024/1/22 20:01:27	rw-rr	roo
			devicehub_log_2024-01-22_12-21-	16.tar.gz	20 KB 2024/1/22 20:21:16	rw-rr	roo
			deploy.sh		26 KB 2024/1/22 20:01:26	rwxr-xr-x	roo

## Services and Ports

In order to ensure secured communication, here are some ports for the services.

## **Default Service Port**

Please ensure that these ports are not occupied by other services. These ports can also be changed if the original ports are used for other softwares and services. Besides that, please ensure that the external used service ports are not blocked by firewall for normal connections.

Port	Protocol	External Use	Description
80 TCP		Yes	HTTP Service
			(DeviceHub and Device Web Remote Access)
442	тор	Vaa	HTTPS Service
443	ICP	res	(DeviceHub and Device Web Remote Access)
1883	TCP	Yes	MQTT Service (Device Connection)

8883	TCP	Yes	MQTTS Service (Device Connection)
2222	TCP	Yes	SSH Remote Access Service
50000-50100	TCP	Yes	Modbus RTU Data Transmission Service
6379	TCP	No	Redis service
3306	TCP	No	MySQL service
5432	TCP	No	PostgreSQL service
18083	TCP	No	EMQX Dashboard
18084	TCP	No	SSH Remote Access API Service

### Service Port Customization

When default services ports are occupied by other services, please refer to the below steps to customiz service ports of DeviceHub.

1. Navigate to the DeviceHub folder of old server, execute the deploy script:

cd /var/lib/devicehubv2/ ./deploy.sh

Select option 12 to change the port.



2. The DeviceHub will stop and list all the used ports. Type "2" to customize the service port:



Select the port option and type the port number as required.



3. Type "11" to complete the modification. The DeviceHub will check if the customized ports are occupied; if not, it will start running.

1. DH SYS REDIS PORT:6379: 1	used as redis port					
2. ENV MQTT PORT:1883: used	as mqtt port					
3. DH SYS SISH PORT:2222: us	sed as sish port					
4. DH SYS HTTP PORT:80: used as http port						
5. DH SYS MYSOL PORT: 3306: 1	used as mysgl port					
6. DH SYS HTTPS PORT: 443: us	sed as https port					
7. ENV MOTTS PORT:8883: used	l as motts port					
8. DH SYS SISH API PORT: 1808	34: used as sish api port					
9. DH SYS EMOX PORT: 18083: 1	used as emox dashboard port					
10. DH SYS POSTGERSOL PORT:	5432: used as postgresgl port					
11. End modification						
Please enter the index of the	ne port you want to modify: 11					
Charling if the provised parts						
Checking II the required ports	for the soltware are being occupied					
inere is not required ports are	being occupied					
[+] NUMBER 1/1						
Container devicenub-sish St	arted					
[+] Rouning 8/8						
Network devicehubv2_default	Created					
Container emqx	Started					
💊 Container mysql	Started					
💊 Container postgres	Started					
💊 Container redis	Started					
💊 Container lns	Started					
💊 Container devicehub	Healthy					
Container openresty	Started					

-END-