

# 使用PostgreSQL安裝和升級Cisco IoT Field Network Director

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## 簡介

本文檔介紹如何在VMware ESXi上安裝Cisco IoT FND PostgreSQL OVA並從FND 5.0.0版升級到更高版本。

## 必要條件

VMware ESXi 7.x或更高版本

Cisco IoT Field Network Director(FND)PostgreSQL開放虛擬裝置(OVA)版本5.0.0或更高版本

VM要求：

記憶體：24 GB

vCPU:4

磁碟：最少450 GB

## 採用元件

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

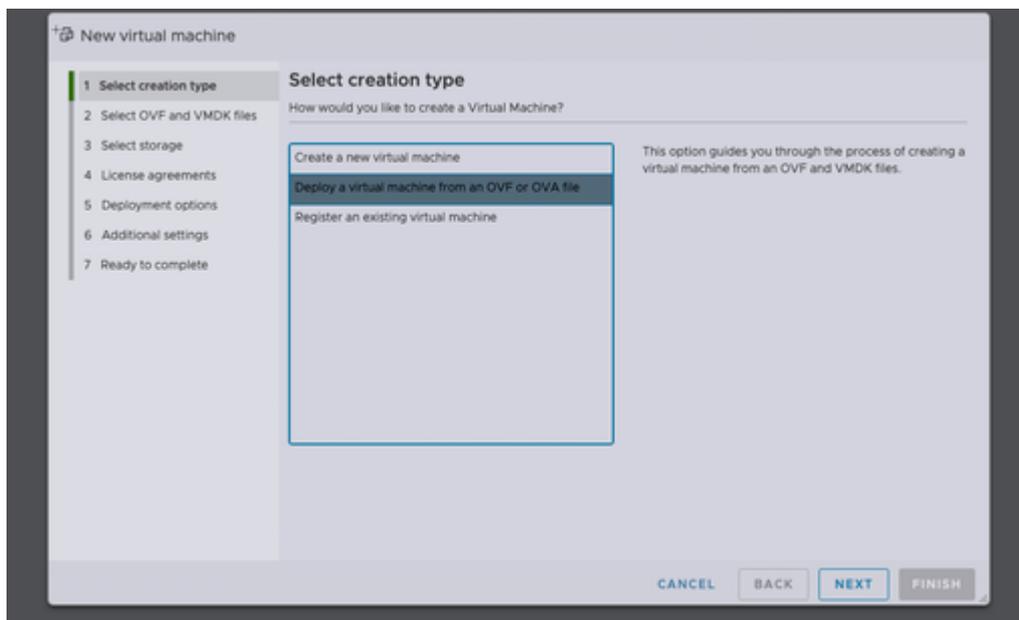
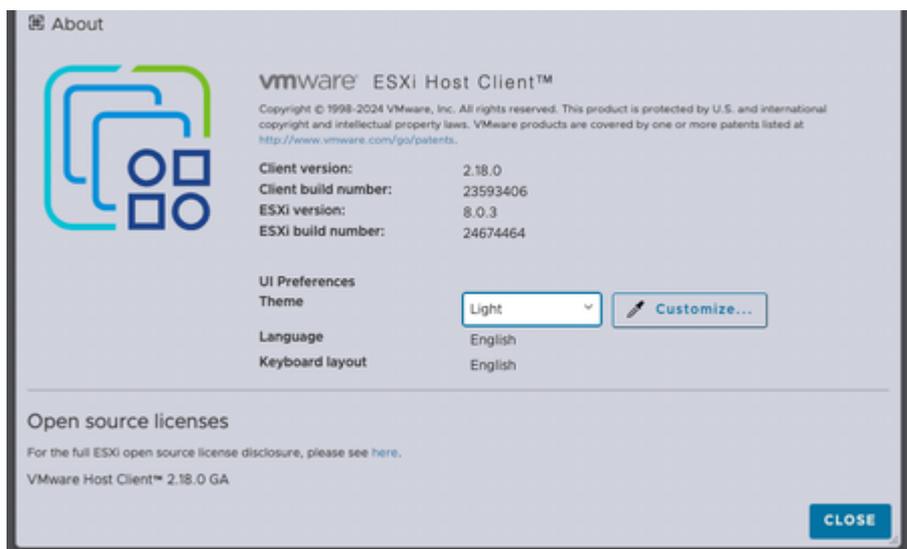
# 部署Cisco IoT FND PostgreSQL OVA

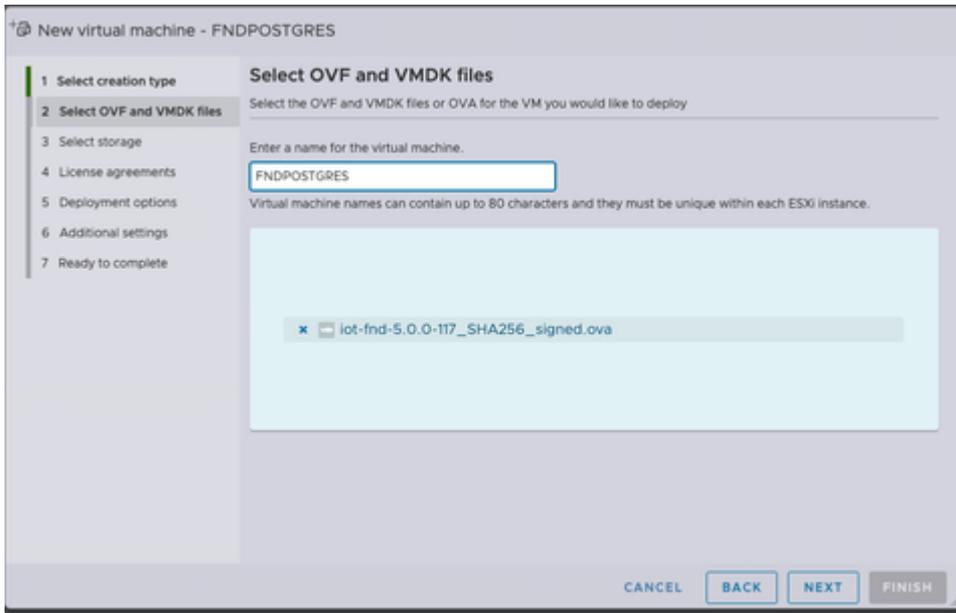
以下是使用運行VMware ESXi 7.x或8.0版本的開放式虛擬裝置(OVA)軟體安裝Cisco IoT FND版本5.x.x或更高版本的准則。

## 第1步：從思科軟體下載下載OVA

從思科軟體頁面下載OVA檔案 — [按一下此處](#)

步驟 2:登入到VMware vSphere客戶端，在ESXi伺服器上部署OVA。





選擇資料儲存後，選擇調配型別並啟用自動開機選項。這可確保在部署過程完成後立即開啟虛擬機器電源。按「Next」（下一步）。

## 備註

### 密集調配

- 預先預留磁碟空間。
- Cisco IoT FND OVA在ESXi伺服器上需要600 GB的可用磁碟空間。

### 精簡資源調配

- 磁碟空間按需增長。
- 初始磁碟使用量約為50 GB，根據部署規模而增加。

在按一下「完成」之前檢視選擇。



## 步驟 3:使用憑證登入

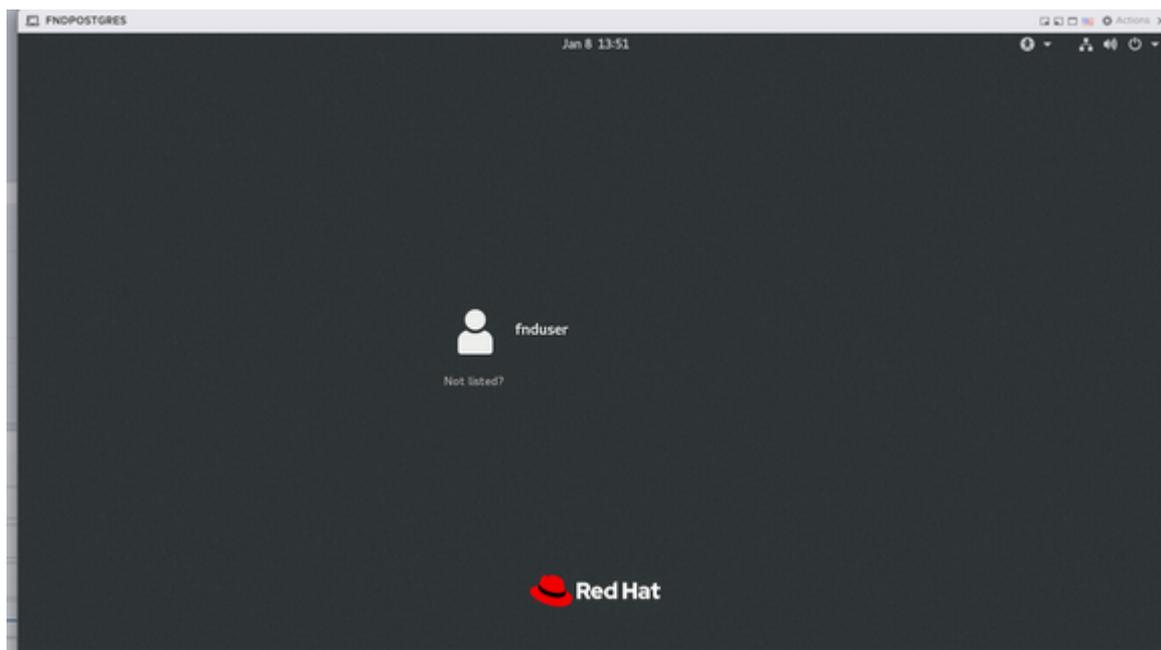
在OVA部署完成且出現Linux啟動螢幕後，使用以下預設憑據：

## SSH訪問

- 使用者名稱: fnduser
- 密碼 : C!sco123

## GUI訪問

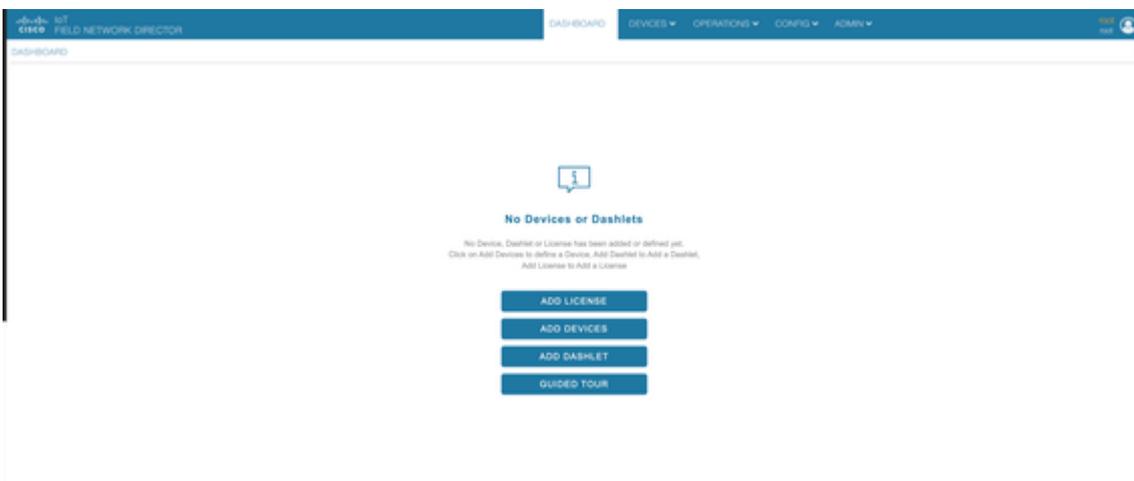
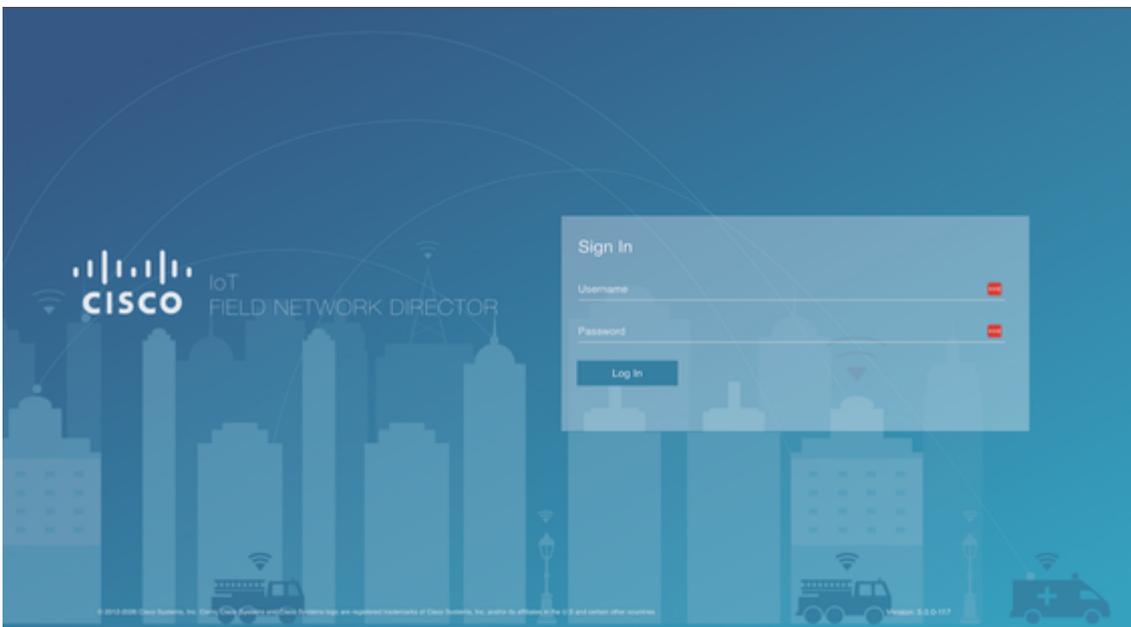
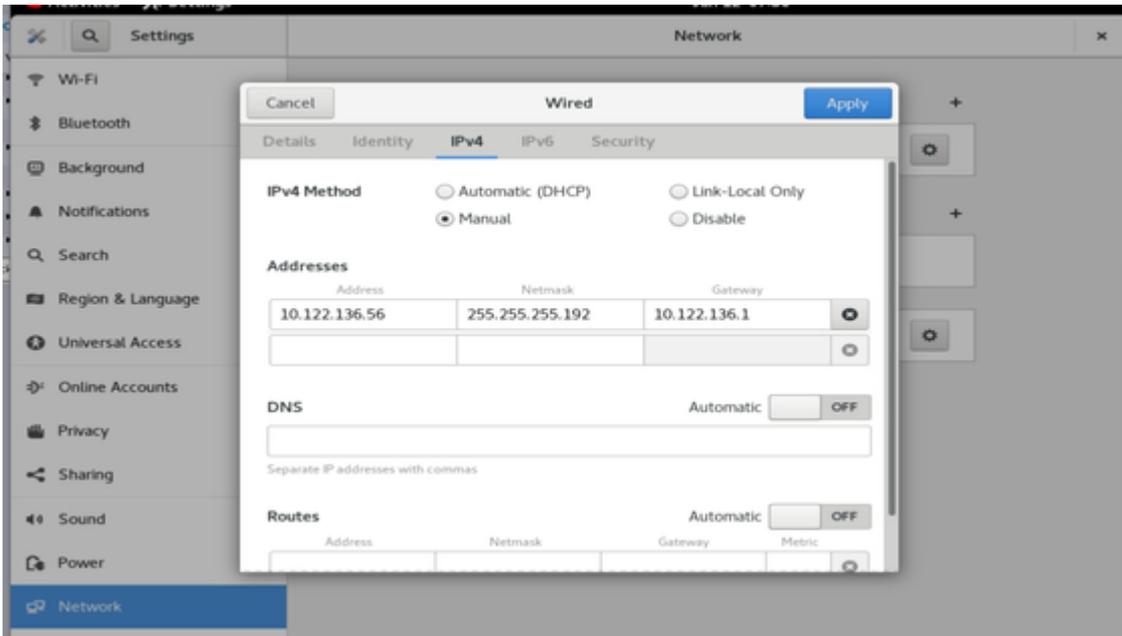
- 使用者名稱: 根
- 密碼 : root123



## 步驟 4: 網路設定

完成網路配置步驟：

1. 分配靜態IP地址或確保DHCP伺服器可用於分配IP地址。
2. 在主機VM上配置有效且可訪問的DNS伺服器。
3. 完成IP配置後，重新啟動網路服務。



將Cisco IoT FND從5.0版升級到5.1版

## 步驟 1: 下載升級軟體包

從思科軟體下載頁面下載升級套件 — [單擊此處](#)

檔名：CISCO-IOTFND-VPI-K9-UPGRADE-SCRIPTS-5.1.0-155.zip

## 第2步：執行升級前檢查

繼續升級之前，請驗證Cisco IoT FND服務的運行狀況和運行狀態。

```
[1]* Stopped ./fnd-container.sh
[root@iot-fnd scripts]# ./fnd-container.sh status
fnd-container is running, pid=2341
*** WARNING : deprecated key derivation used.
Using -iter or -pbkdf2 would be better.
CONTAINER ID   NAME          CPU %          MEM USAGE / LIMIT   MEM %           NET I/O
BLOCK I/O     PIDS
94f5cac26afa   fnd-container  2.04%         1.822GiB / 23.27GiB  7.83%          21.4MB / 14.4MB
1.2GB / 713kB  645
[root@iot-fnd scripts]# ./fnd-container.sh status
fnd-container is running, pid=2341
*** WARNING : deprecated key derivation used.
Using -iter or -pbkdf2 would be better.
CONTAINER ID   NAME          CPU %          MEM USAGE / LIMIT   MEM %           NET I/O
BLOCK I/O     PIDS
94f5cac26afa   fnd-container  3.35%         1.822GiB / 23.27GiB  7.83%          21.4MB / 14.4MB
1.2GB / 713kB  645
[root@iot-fnd scripts]#
```

```
[root@iot-fnd opt]#
[root@iot-fnd opt]#
[root@iot-fnd opt]# hostnamectl
Static hostname: iot-fnd
Icon name: computer-vm
Chassis: vm
Machine ID: 211ae1b5f1c74a66ace71dad225e6fffb
Boot ID: 3f5d038fd7044a9c9a4a5db2e080ed81
Virtualization: vmware
Operating System: Red Hat Enterprise Linux 8.10 (Ootpa)
CPE OS Name: cpe:/o:redhat:enterprise_linux:8::baseos
Kernel: Linux 4.18.0-553.8.1.el8_10.x86_64
Architecture: x86-64
[root@iot-fnd opt]#
```

```
[root@iot-fnd data]# rpm -qa | grep -i postgres
postgresql12-contrib-12.12-1PGDG.rhel8.x86_64
postgresql12-libs-12.12-1PGDG.rhel8.x86_64
postgresql12-server-12.12-1PGDG.rhel8.x86_64
postgresql12-12.12-1PGDG.rhel8.x86_64
cgms-postgres-5.0.0-117.x86_64
[root@iot-fnd data]#
```

## 步驟 3: 將升級RPM複製到/opt目錄。

```
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys usr var
[root@iot-fnd /]# cd /opt/
[root@iot-fnd opt]# ls
cgms-influx cgms-postgres containerd fnd fogd monitor scripts upgrade-ova-5.1.0-155.rpm
[root@iot-fnd opt]#
```

## 步驟 4: 執行升級指令

範例：

rpm -Uvh upgrade-ova—<版本>-<內部版本號>.rpm

[root@iot-fnd opt]# rpm -Uvh upgrade-ova-5.1.0-155.rpm

warning: upgrade-ova-5.1.0-155.rpm: Header V4 RSA/SHA256 Signature, key ID a5a10227: NOKEY

Verifying... ##### [100%]

Preparing... ##### [100%]

Updating / installing...

1:upgrade-ova-5.1.0-155 ##### [100%]

Deleting /var/lib/docker/volumes/fogd\_data/\_data/dist/appmgr/extensions/fnd/dependencies...

Deletion complete.

Started installer in background. Please check ~/rpm.log in few minutes for details.

[root@iot-fnd opt]#

Mon Jan 12 13:38:02 EST 2026 Background installer started

Mon Jan 12 13:38:02 EST 2026 Please wait until the 'RPM installation completed' message is logged

Mon Jan 12 13:38:02 EST 2026 Upgrading cgms-postgres-5.1.0-155.x86\_64.rpm

Verifying... #####

Preparing... #####

Updating / installing...

cgms-postgres-5.1.0-155 #####

Cleaning up / removing...

cgms-postgres-5.0.0-117 #####

Mon Jan 12 13:38:22 EST 2026 Upgrading cgms-influx-5.1.0-155.x86\_64.rpm

Verifying... #####

Preparing... #####

Updating / installing...

cgms-influx-5.1.0-155 #####

Cleaning up / removing...

cgms-influx-5.0.0-117 #####

Mon Jan 12 13:38:28 EST 2026 monit-5.33.0-1.e17 already installed on non-RHEL 9 system

Mon Jan 12 13:38:36 EST 2026 Stopping PostgreSQL services

Mon Jan 12 13:39:37 EST 2026 Upgrading Postgresql 16.7

Mon Jan 12 13:39:38 EST 2026 Using RHEL 8.x Installing PostgreSQL 16.7 libraries

warning: postgresql16-libs-16.7-1PGDG.rhel8.x86\_64.rpm: Header V4 RSA/SHA256 Signature, key ID 08b40d20

Verifying... #####

Preparing... #####

Updating / installing...

postgresql16-libs-16.7-1PGDG.rhel8 #####

postgresql16-16.7-1PGDG.rhel8 #####

postgresql16-server-16.7-1PGDG.rhel8 #####

postgresql16-contrib-16.7-1PGDG.rhel8 #####

Mon Jan 12 13:39:42 EST 2026 Migrating DB data to Postgresql 16.7

Initializing database ... OK

Created symlink /etc/systemd/system/multi-user.target.wants/postgresql-16.service → /usr/lib/systemd/systemd/systemd

Performing Consistency Checks

-----

Checking cluster versions ok

Checking database user is the install user ok

Checking database connection settings ok

Checking for prepared transactions ok

Checking for system-defined composite types in user tables ok

Checking for reg\* data types in user tables ok

Checking for contrib/isn with bigint-passing mismatch ok

Checking for incompatible "aclitem" data type in user tables ok

Checking for user-defined encoding conversions ok

Checking for user-defined postfix operators ok

Checking for incompatible polymorphic functions ok

Creating dump of global objects ok

Creating dump of database schemas ok

Checking for presence of required libraries	ok
Checking database user is the install user	ok
Checking for prepared transactions	ok
Checking for new cluster tablespace directories	ok

If `pg_upgrade` fails after this point, you must re-initdb the new cluster before continuing.

#### Performing Upgrade

-----

Setting locale and encoding for new cluster	ok
Analyzing all rows in the new cluster	ok
Freezing all rows in the new cluster	ok
Deleting files from new <code>pg_xact</code>	ok
Copying old <code>pg_xact</code> to new server	ok
Setting oldest XID for new cluster	ok
Setting next transaction ID and epoch for new cluster	ok
Deleting files from new <code>pg_multixact/offsets</code>	ok
Copying old <code>pg_multixact/offsets</code> to new server	ok
Deleting files from new <code>pg_multixact/members</code>	ok
Copying old <code>pg_multixact/members</code> to new server	ok
Setting next multixact ID and offset for new cluster	ok
Resetting WAL archives	ok
Setting frozenxid and minmxid counters in new cluster	ok
Restoring global objects in the new cluster	ok
Restoring database schemas in the new cluster	ok
Copying user relation files	ok
Setting next OID for new cluster	ok
Sync data directory to disk	ok
Creating script to delete old cluster	ok
Checking for extension updates	ok

Upgrade Complete

-----

Optimizer statistics are not transferred by pg\_upgrade.

Once you start the new server, consider running:

```
/usr/pgsql-16/bin/vacuumdb --all --analyze-in-stages
```

Running this script will delete the old cluster's data files:

```
./delete_old_cluster.sh
```

Starting new PostgreSQL server...

waiting for server to start.... done

server started

Setting password encryption method to 'scram-sha-256'...

ALTER ROLE

ALTER ROLE

Stopping new PostgreSQL server...

waiting for server to shut down.... done

server stopped

Upgrade and password config completed.

Mon Jan 12 13:40:05 EST 2026 Data migration completed

Removed /etc/systemd/system/multi-user.target.wants/postgresql-12.service.

Reinitializing monit daemon

Mon Jan 12 13:40:53 EST 2026 Deleting postgres 12

Updating Subscription Management repositories.

Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manager to register.

Dependencies resolved.

=====

Package	Arch	Version	Repository	Size
---------	------	---------	------------	------

=====  
Removing:

postgresql12	x86_64	12.12-1PGDG.rhel8	@@commandline	8.6 M
postgresql12-contrib	x86_64	12.12-1PGDG.rhel8	@@commandline	2.3 M
postgresql12-libs	x86_64	12.12-1PGDG.rhel8	@@commandline	1.5 M
postgresql12-server	x86_64	12.12-1PGDG.rhel8	@@commandline	21 M

Transaction Summary  
=====

Remove 4 Packages

Freed space: 33 M

Running transaction check

Transaction check succeeded.

Running transaction test

Transaction test succeeded.

Running transaction

Preparing	:		1/1
Running scriptlet:	postgresql12-contrib-12.12-1PGDG.rhel8.x86_64		1/1
Erasing	: postgresql12-contrib-12.12-1PGDG.rhel8.x86_64		1/4
Running scriptlet:	postgresql12-server-12.12-1PGDG.rhel8.x86_64		2/4
Erasing	: postgresql12-server-12.12-1PGDG.rhel8.x86_64		2/4
Running scriptlet:	postgresql12-server-12.12-1PGDG.rhel8.x86_64		2/4
Erasing	: postgresql12-12.12-1PGDG.rhel8.x86_64		3/4
Running scriptlet:	postgresql12-12.12-1PGDG.rhel8.x86_64		3/4
Erasing	: postgresql12-libs-12.12-1PGDG.rhel8.x86_64		4/4
Running scriptlet:	postgresql12-libs-12.12-1PGDG.rhel8.x86_64		4/4
Verifying	: postgresql12-12.12-1PGDG.rhel8.x86_64		1/4
Verifying	: postgresql12-contrib-12.12-1PGDG.rhel8.x86_64		2/4
Verifying	: postgresql12-libs-12.12-1PGDG.rhel8.x86_64		3/4
Verifying	: postgresql12-server-12.12-1PGDG.rhel8.x86_64		4/4

Installed products updated.

Removed:

postgresql12-12.12-1PGDG.rhel8.x86\_64

postgresql12-contrib-12.12-1PGDG.rhel8.x86\_64

postgresql12-libs-12.12-1PGDG.rhel8.x86\_64

postgresql12-server-12.12-1PGDG.rhel8.x86\_64

Complete!

Mon Jan 12 13:41:00 EST 2026 Using PostgreSQL version 16 for configuration path.

setting idle\_in\_transaction\_session\_timeout to 3h

set idle\_in\_transaction\_session\_timeout to 3h

Mon Jan 12 13:41:01 EST 2026 Already running influxdb 1.8.3

Mon Jan 12 13:41:04 EST 2026 Already running docker-ce 19.03.15

Mon Jan 12 13:41:04 EST 2026 Restarting services

Mon Jan 12 13:41:34 EST 2026 RPM installation completed

Cisco IoT FND on OVA upgrade is complete.

## 關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。