

使用PostgreSQL安装和升级思科IoT现场网络导向器

目录

[简介](#)

[先决条件](#)

[使用的组件](#)

[部署思科物联网基础PostgreSQL OVA](#)

[第1步：从思科软件下载下载OVA](#)

[步骤 2：登录VMware vSphere客户端以在ESXi服务器上部署OVA。](#)

[步骤 3：使用凭证登录](#)

[步骤 4：网络配置](#)

[将Cisco IoT FND从5.0版升级到5.1版](#)

[步骤 1：下载升级软件包](#)

[第2步：执行升级前检查](#)

[步骤 3：将升级RPM复制到/opt目录。](#)

[步骤 4：运行Upgrade命令](#)

简介

本文档介绍如何在VMware ESXi上安装Cisco IoT FND PostgreSQL OVA并从FND 5.0.0版升级到更高版本。

先决条件

VMware ESXi 7.x或更高版本

Cisco IoT Field Network Director(FND)PostgreSQL开放式虚拟设备(OVA)5.0.0版或更高版本

VM要求：

内存：24 GB

vCPU:4

磁盘：最少450 GB

使用的组件

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

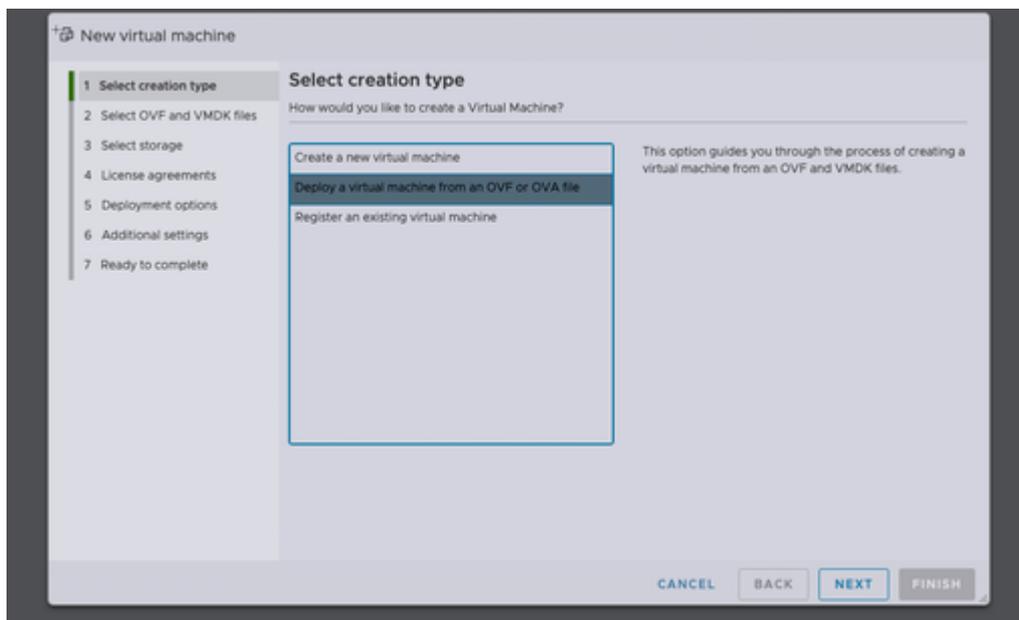
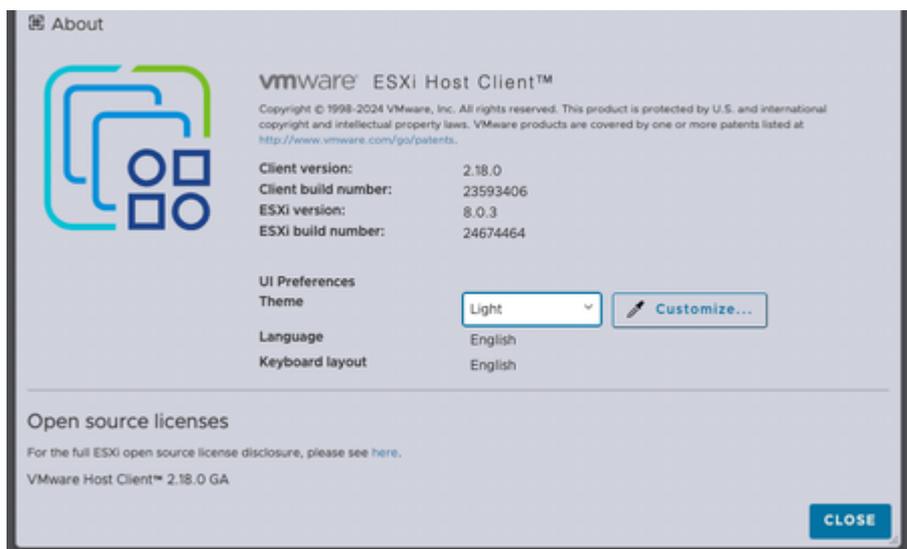
部署思科物联网基础PostgreSQL OVA

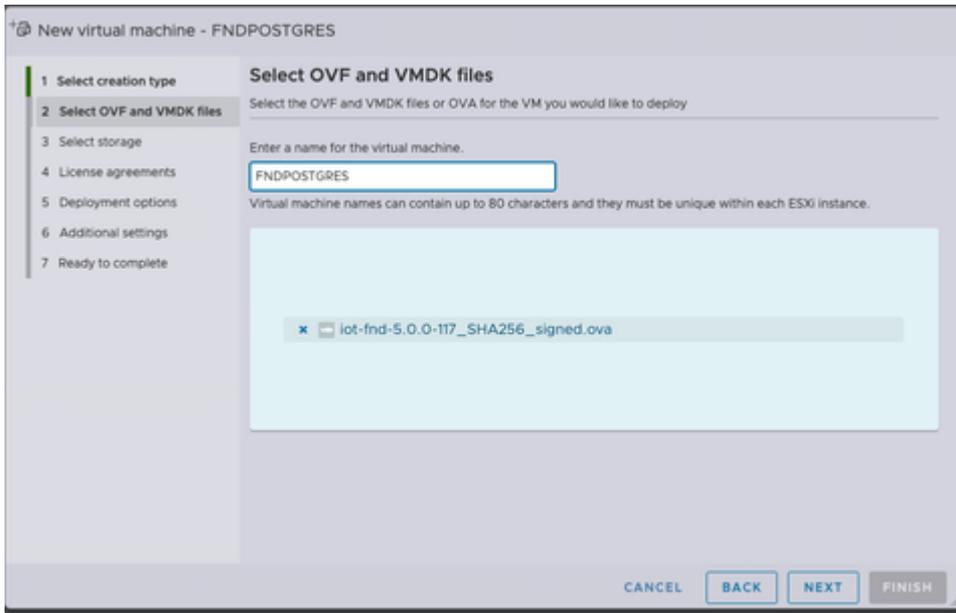
下面是安装Cisco IoT FND版本5.x.x或更高版本以及运行VMware ESXi 7.x或8.0版本的开放式虚拟设备(OVA)软件的指南。

第1步：从思科软件下载OVA

从cisco软件页面下载OVA文件 — 单[击此处](#)

步骤 2：登录VMware vSphere客户端以在ESXi服务器上部署OVA。





选择数据存储后，选择调配类型并启用自动加电选项。这可确保在部署过程完成后立即启动虚拟机。单击 Next。

备注

密集调配

- 预先预留磁盘空间。
- 对于Cisco IoT FND OVA，ESXi服务器上需要600 GB的可用磁盘空间。

精简调配

- 磁盘空间按需增加。
- 初始磁盘使用率约为50 GB，根据部署规模而增加。

在单击“完成”之前查看选择。



步骤 3：使用凭证登录

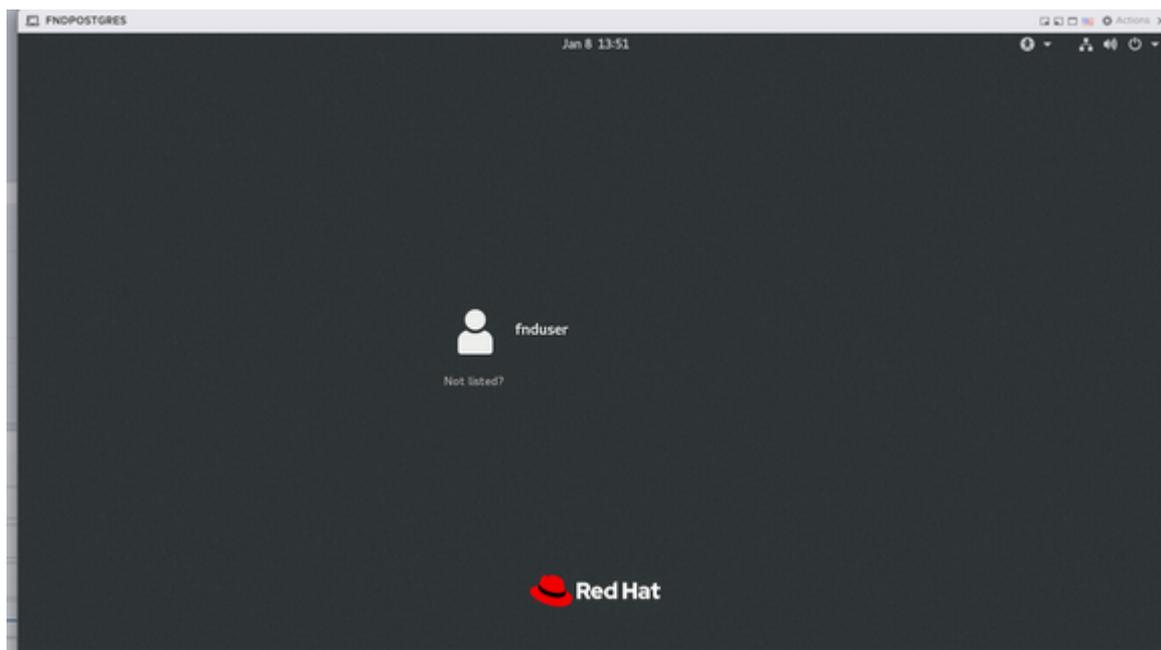
在OVA部署完成并出现Linux启动屏幕后，请使用以下默认凭证：

SSH访问

- username : fnduser
- 密码 : C!sco123

GUI访问

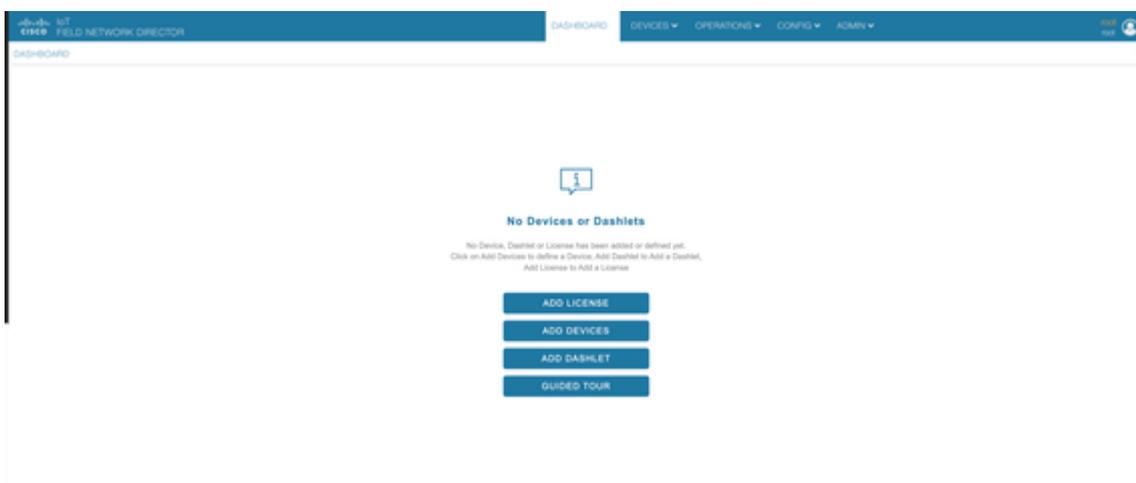
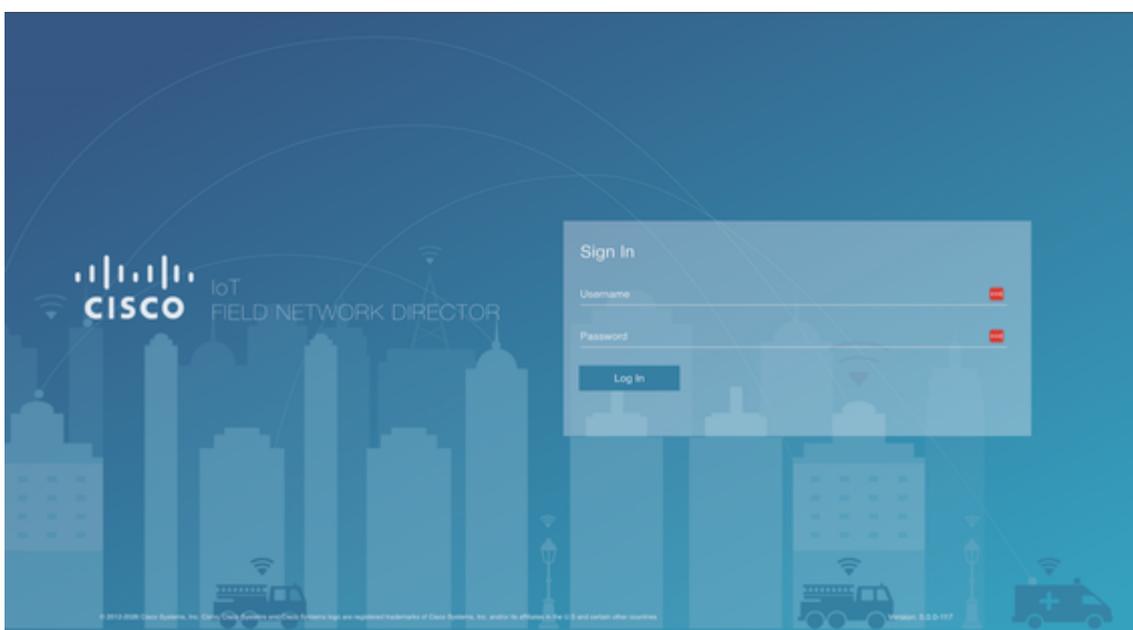
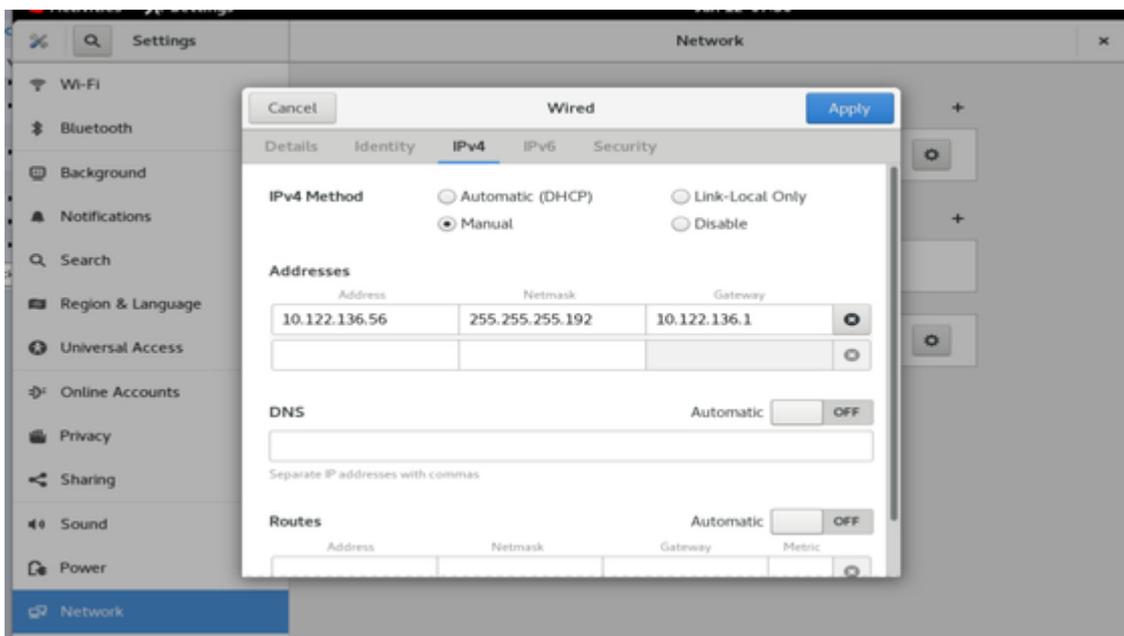
- username : 根
- 密码 : root123



步骤 4 : 网络配置

完成网络配置步骤 :

1. 分配静态IP地址或确保DHCP服务器可用于分配IP地址。
2. 在主机VM上配置有效且可访问的DNS服务器。
3. 完成IP配置后，重新启动网络服务。



将Cisco IoT FND从5.0版升级到5.1版

步骤 1：下载升级软件包

从思科软件下载页面下载升级软件包 — [点击此处](#)

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

第2步：执行升级前检查

在继续升级之前，请验证Cisco IoT FND服务的运行状况和运行状态。

```
[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
CONTAINER ID        NAME               CPU %               MEM USAGE / LIMIT   MEM %               NET I/O
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
CONTAINER ID        NAME               CPU %               MEM USAGE / LIMIT   MEM %               NET I/O
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]#
```

步骤 3：将升级RPM复制到/opt目录。

```
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]#
```

步骤 4：运行Upgrade命令

示例：

rpm -Uvh upgrade-ova—<release>-<build number>.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/postgresql-16.service

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.

关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

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