PEM Upgrade and Migration

Version 8.0

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0 PEM Upgrade and Migration

This guide provides detailed information about upgrading the Postgres Enterprise Manager (PEM) Components:

- Upgrading a PEM Installation - This section provides information about upgrading your PEM Server, PEM Agent and SQL Profiler from one major version to another (i.e. from 6.0 to 7.14).
- Upgrading the Backend Database - This section provides detailed information about upgrading the backend database, while maintaining the same version of the PEM Server.
- Moving a PEM Server –This section provides detailed information about moving the PEM Server from one host to another host.
- Troubleshooting –This section provides detailed information about troubleshooting the errors that you may encounter during PEM upgrade.

This document uses the term `Postgres` to mean either the PostgreSQL or the Advanced Server database.

1 Upgrading a PEM Installation

The process of upgrading a PEM installation is platform-specific. You can update a PEM Agent or Server on a Windows host by using the PEM graphical installer available for Windows. Prior to PEM 7.8 release, PEM Agent or Server could be installed on Linux either by using the graphical installer or by using the RPMs. From PEM version 7.8 onwards, PEM graphical installers for Linux are discontinued. To update a PEM Agent or Server on a Linux host from any lower version to PEM 7.9 or higher versions, you must use native packages.

Links to PEM and SQL Profiler installers and RPMs are available at the EDB website.

1.1 Upgrading a PEM Installation on Windows Host

To upgrade PEM component software on Windows hosts, simply invoke a newer version of the PEM component installers in the following order:

1. Invoke the PEM agent installer on each monitored node `except` the PEM Server host.
2. Invoke the PEM Server installer; this installer will upgrade `both` the PEM Server and the PEM Agent that resides on the PEM Server host.

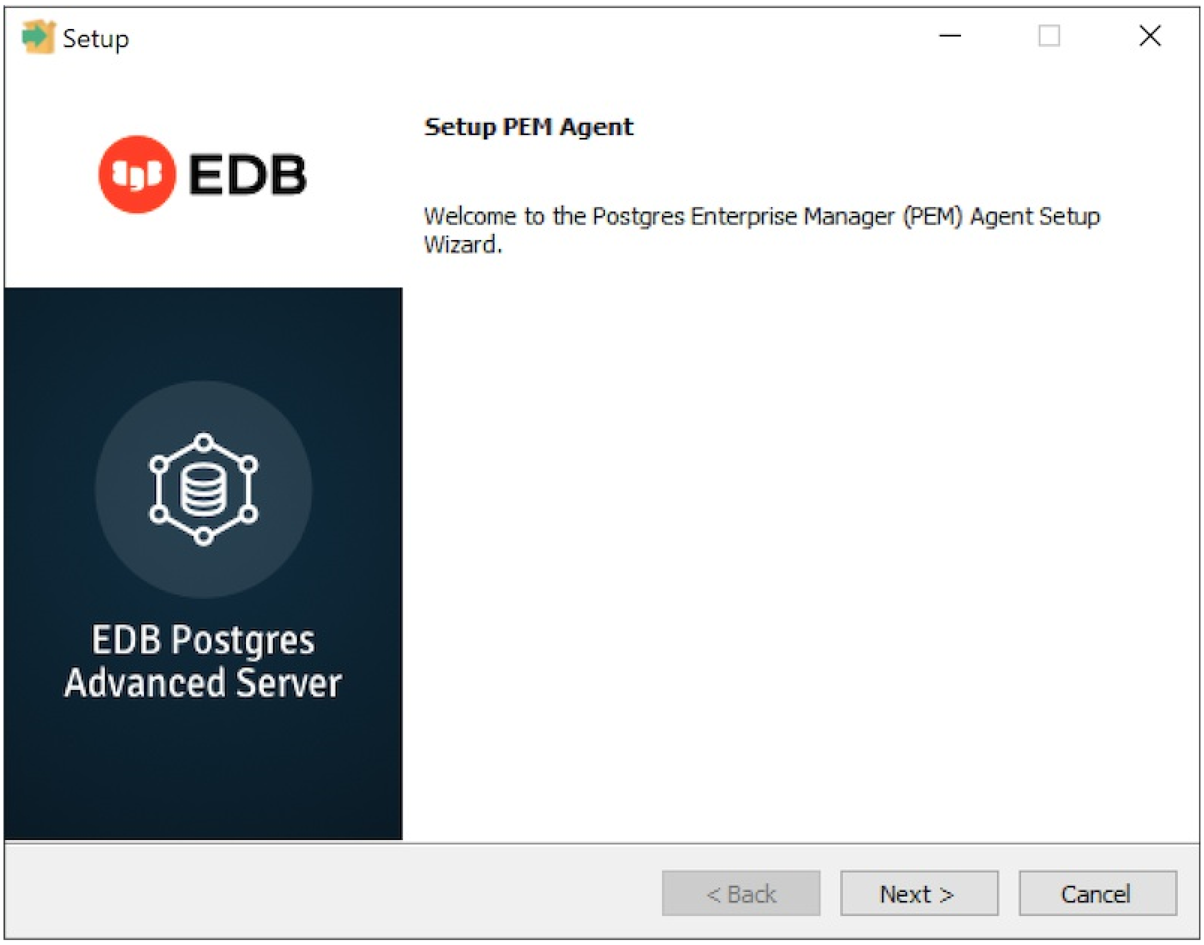
During an installation, the component installer will automatically detect an existing installation, and perform an upgrade. After upgrading the PEM Agent and Server, you can upgrade SQL Profiler if required; this step is platform-specific.

The following sections will walk you through the upgrade process on a Windows host, step-by-step.

Upgrading a PEM Agent on a Windows Host

To upgrade a system that is currently monitored by a PEM agent to a more-recent PEM agent, simply download and invoke a newer version of the PEM Agent installer on the system that the agent is monitoring.

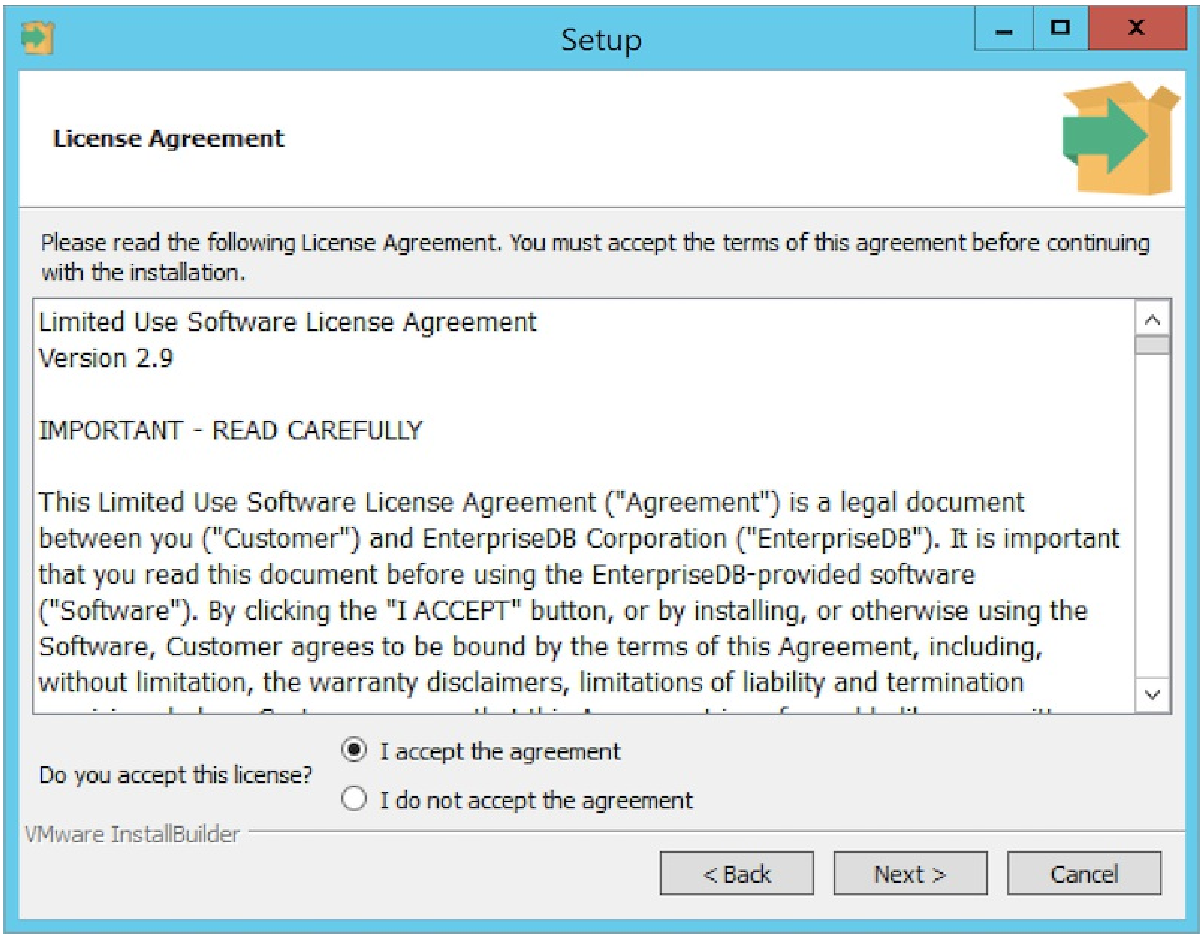
You can invoke the installer by right-clicking on the downloaded installer's icon, and selecting `Run as Administrator`. The `PEM Agent Setup Wizard` opens, welcoming you.


Setup

Setup PEM Agent

Welcome to the Postgres Enterprise Manager (PEM) Agent Setup Wizard.

Read and accept the `License Agreement` before clicking `Next` to continue.



Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.

Limited Use Software License Agreement
Version 2.9

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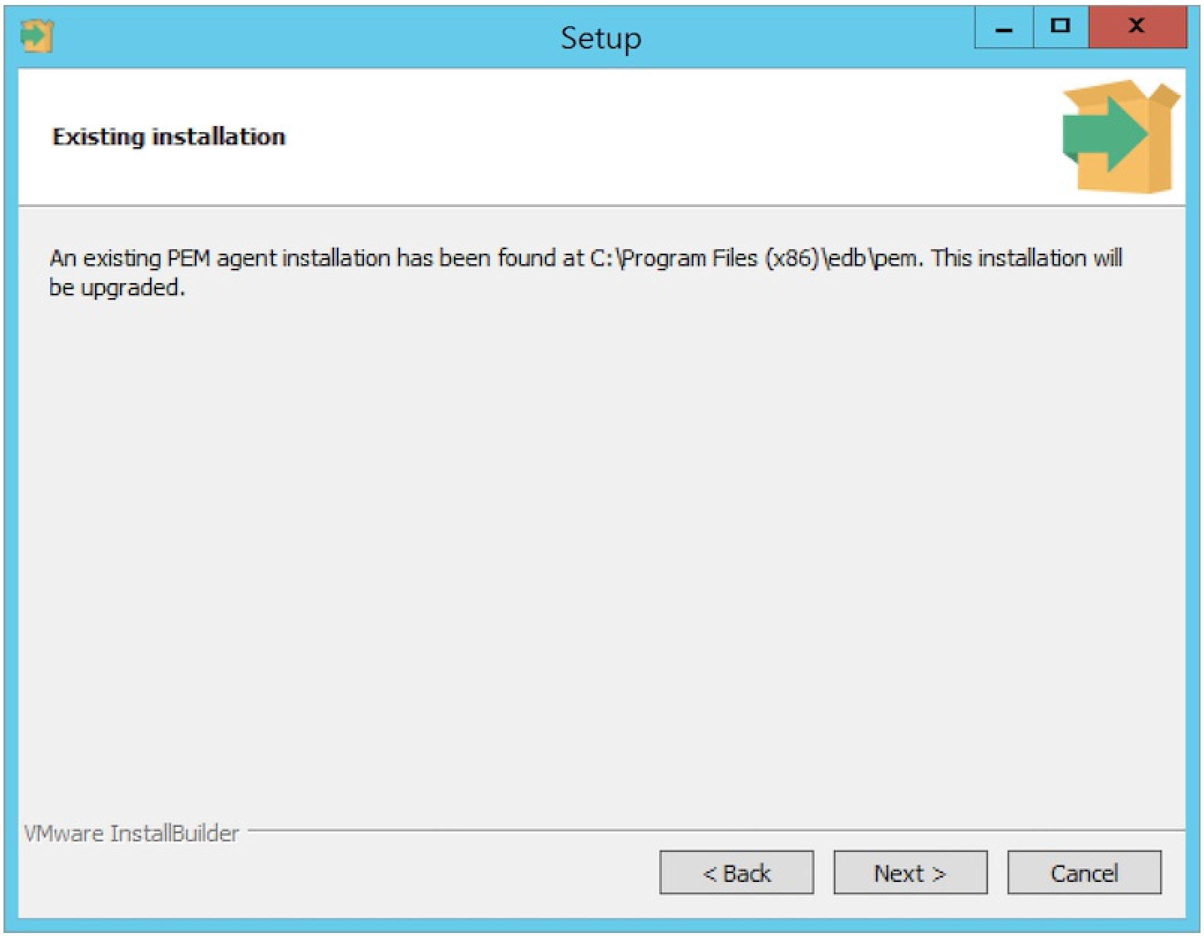
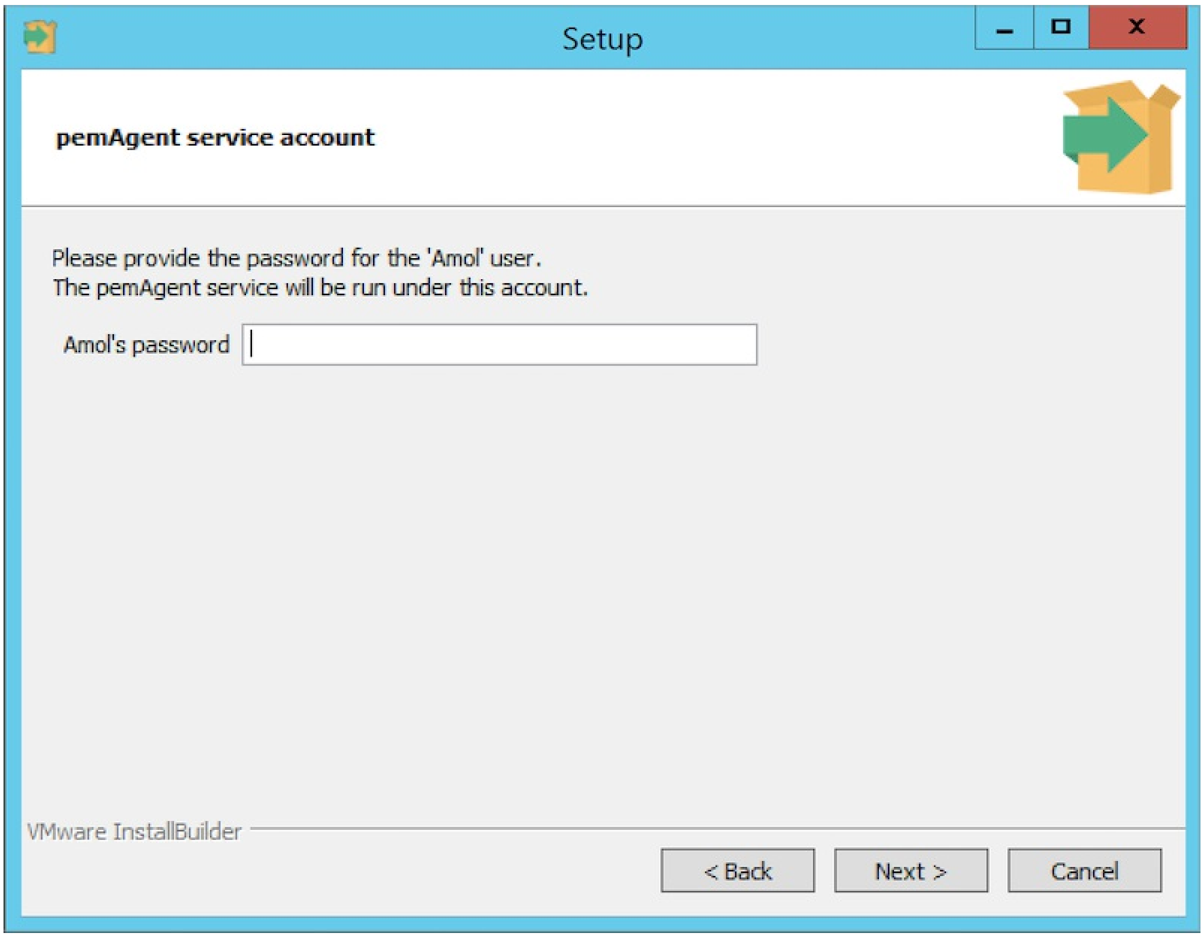
Do you accept this license? [✓ I accept the agreement] I do not accept the agreement

The setup wizard will automatically detect an existing agent, and upgrade the installed version. Click `Next` to continue.



An existing PEM agent installation has been found at C:\Program Files (x86)\edb\pem. This installation will be upgraded.

The `pemAgent service account` dialog may prompt you for the password of the account under which the PEM Agent service runs.



Setup

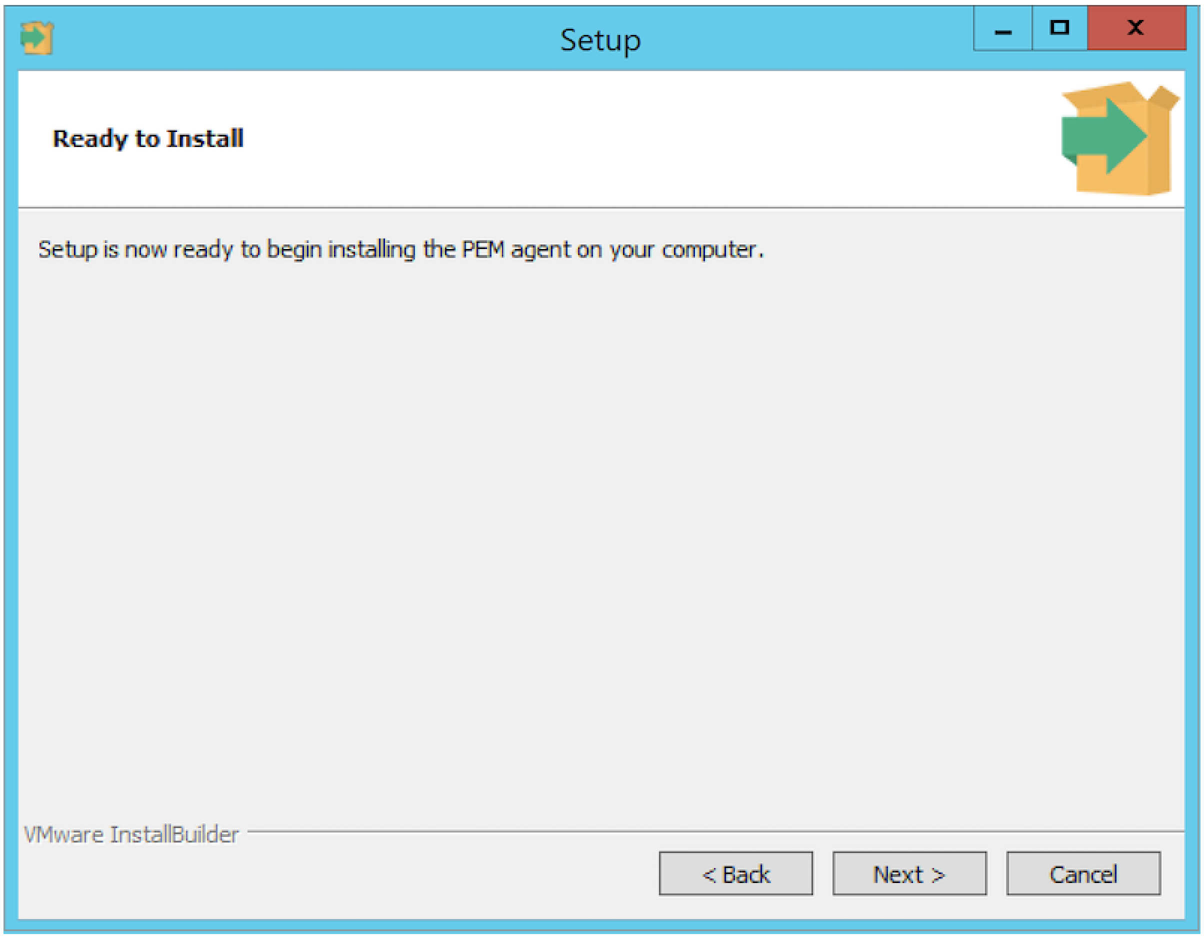
pemAgent service account

Please provide the password for the 'Amol' user.
The pemAgent service will be run under this account.

Amol's password

If prompted, provide the password, and click `Next` to continue.

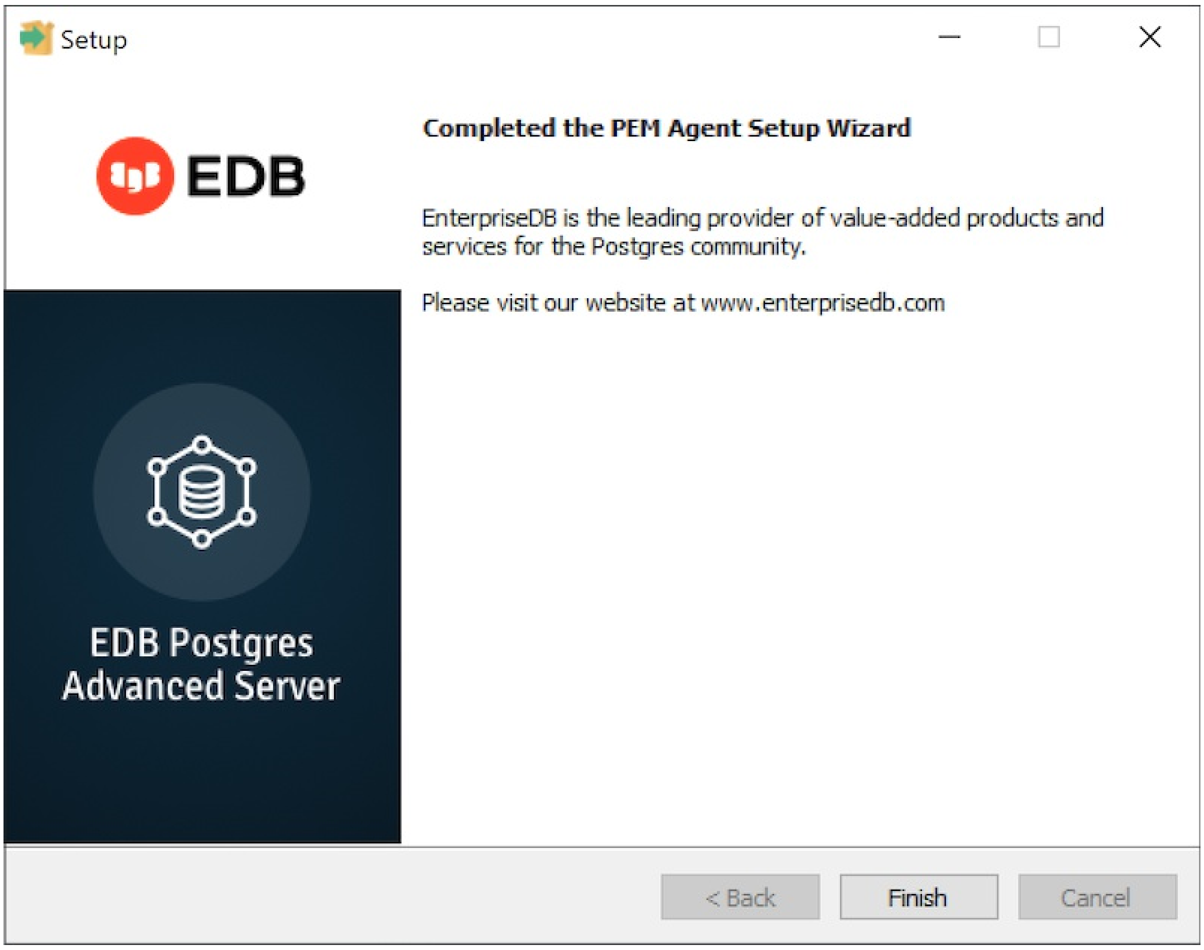
When the `Ready to Install` dialog informs you that the installation is about to begin, click `Next` to continue. It will upgrade your PEM Agent to the latest version.



Setup is now ready to begin installing the PEM agent on your computer.

The setup wizard displays progress bars to inform you of each component that is being installed.

The `PEM Agent Setup Wizard` will inform you when the installation completes. Click `Finish` to exit the wizard and close the window.



Completed the PEM Agent Setup Wizard

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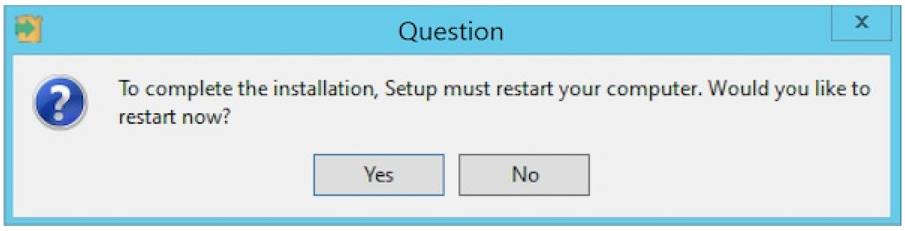
After the installation completes, a window pops-up to restart the machine. Click `Yes` to restart the machine and the PEM Agent.

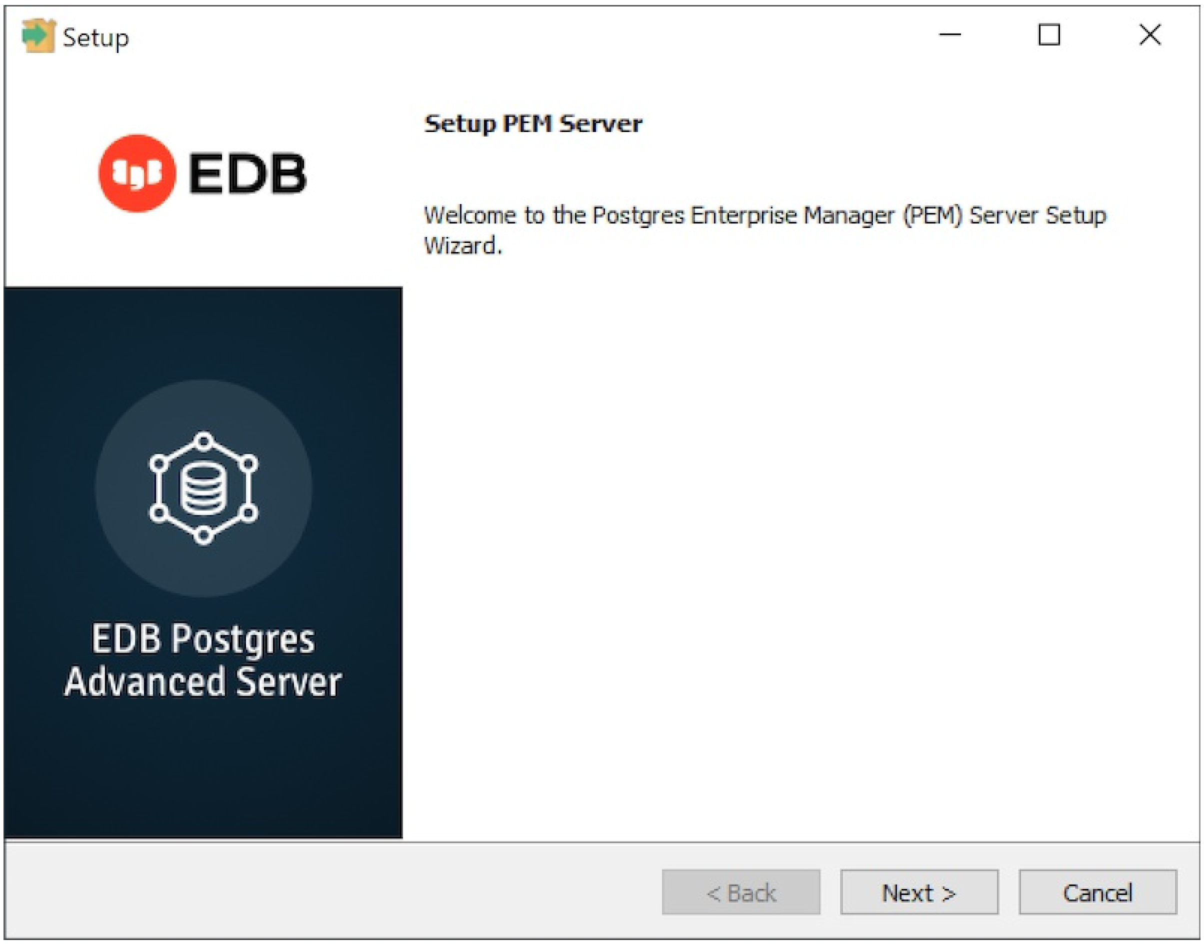


To complete the installation, Setup must restart your computer. Would you like to restart now?

Upgrading the PEM Server on a Windows Host

The PEM Server installer facilitates upgrading directly between major versions of the PEM Server; you can upgrade directly from version 5.0 to version 7.16 without first upgrading to version 6.0.

You can invoke the installer by right-clicking on the downloaded installer's icon, and selecting `Run as Administrator`.

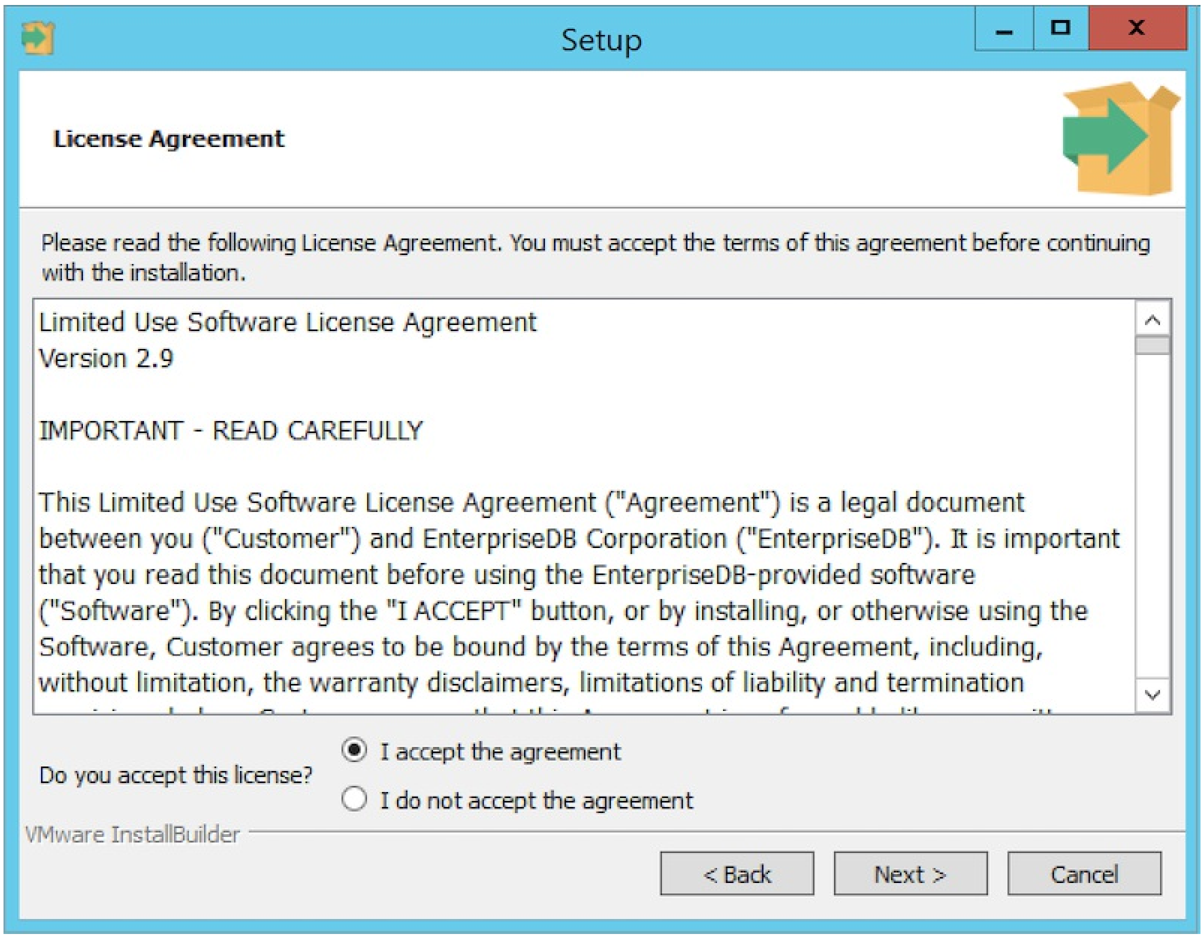


Setup PEM Server

Welcome to the Postgres Enterprise Manager (PEM) Server Setup Wizard.

The `PEM Server Setup Wizard` welcomes you, as shown in the image. Click `Next` to continue to the `License Agreement`.

The `PEM Server setup wizard` will prompt you to accept the `License Agreement`. After reviewing the license agreement, check the radio button next to `I accept the agreement`, and click `Next` to continue to the `Existing installation dialog`.



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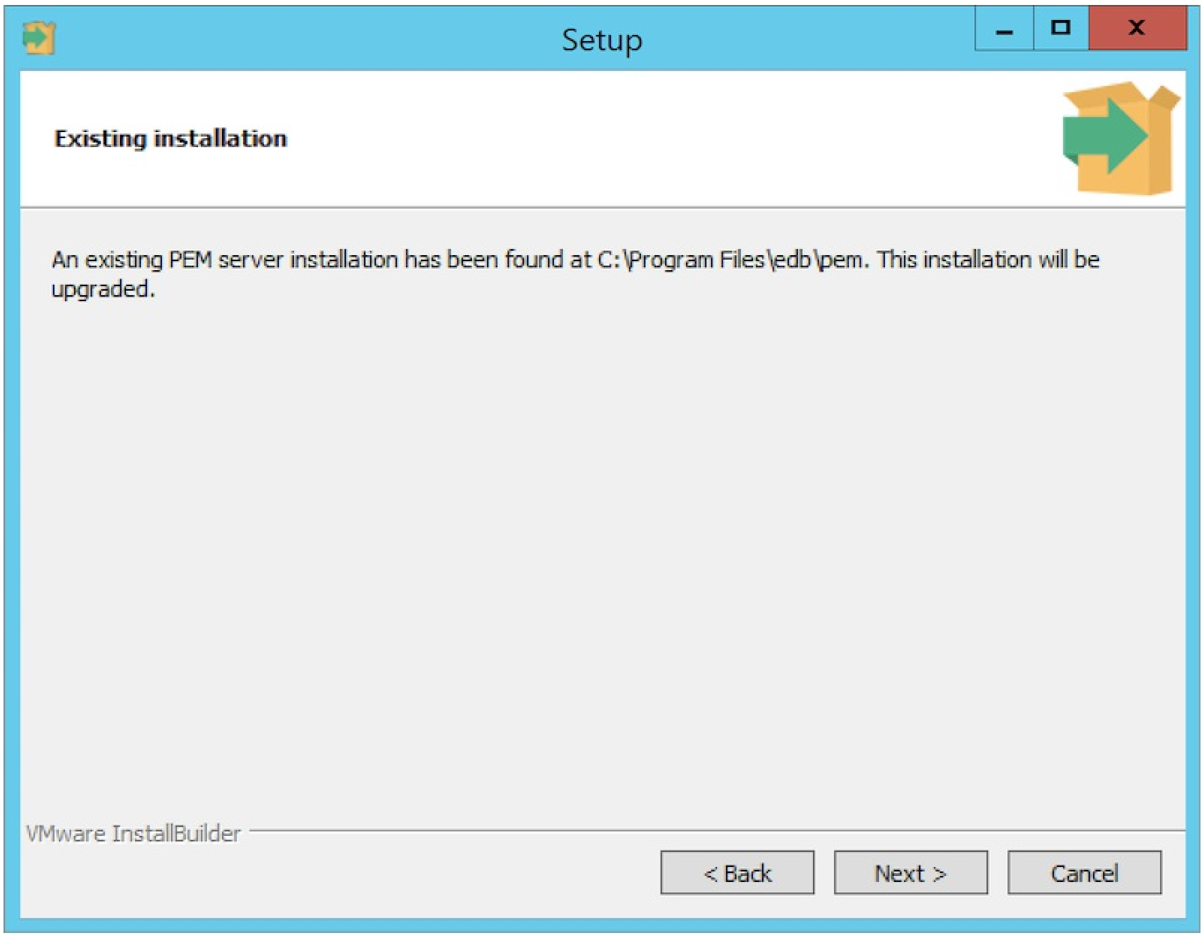
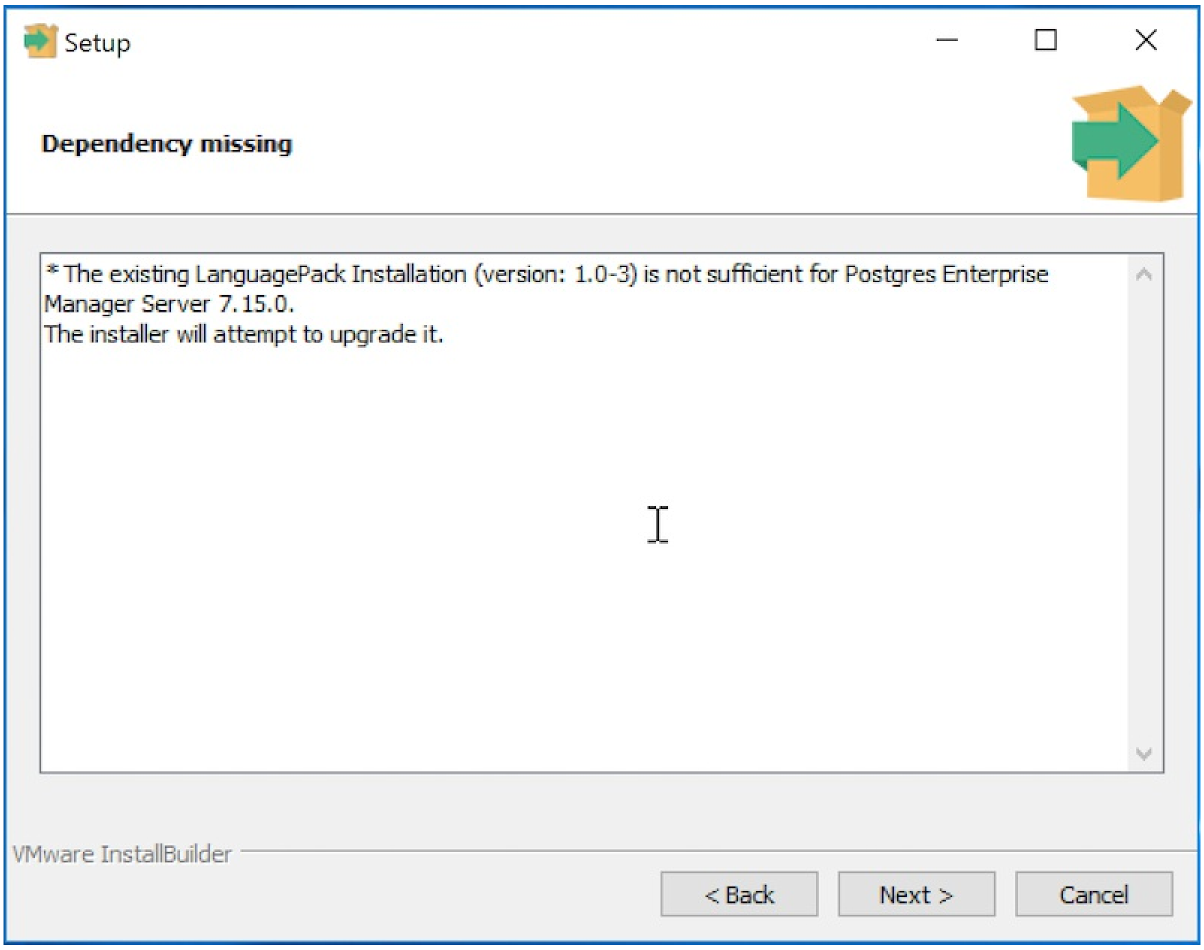
Do you accept this license? [✓ I accept the agreement] I do not accept the agreement

The wizard will check the PEM Server host for an existing PEM Server installation; if the wizard locates an installation, it will perform an upgrade. Click `Next` to continue.



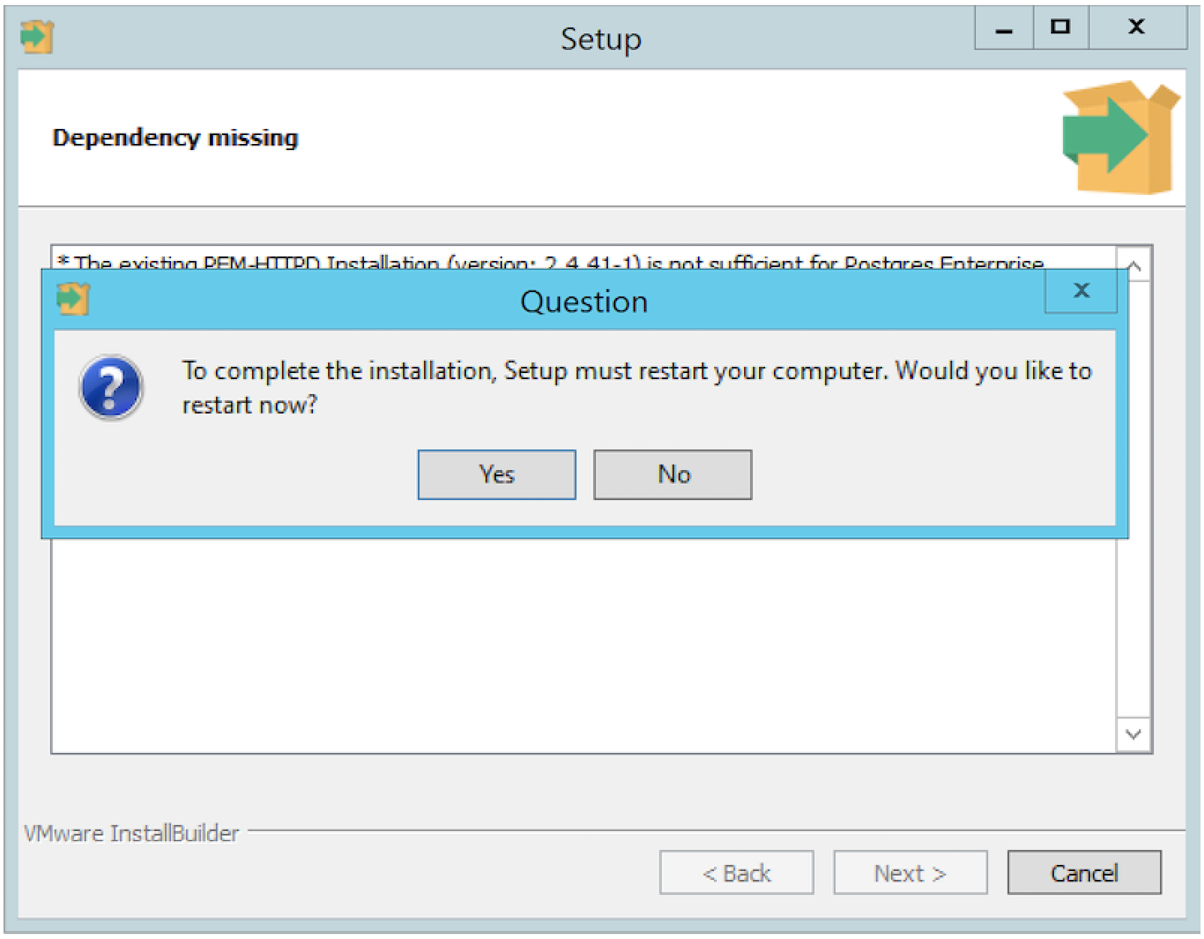
An existing PEM server installation has been found at C:\Program Files\edb\pem. This installation will be upgraded.

Before upgrading the PEM Server, the wizard will confirm that the requirements of the new PEM Server are present. If any supporting components are missing, or are a version that will not support the new PEM installation, the PEM installation wizard will inform you that it must upgrade the dependencies, and will invoke the required installers.



```
* The existing LanguagePack Installation (version: 1.0-3) is not sufficient for Postgres Enterprise
Manager Server 7.15.0.
The installer will attempt to upgrade it.
```

When the installation wizards complete the dependency upgrades, then a window pops-up asking whether you want to restart the machine or not.



* The existing PEM-HTTPD Installation (version: 2.4.41-1) is not sufficient for Postgres Enterprise

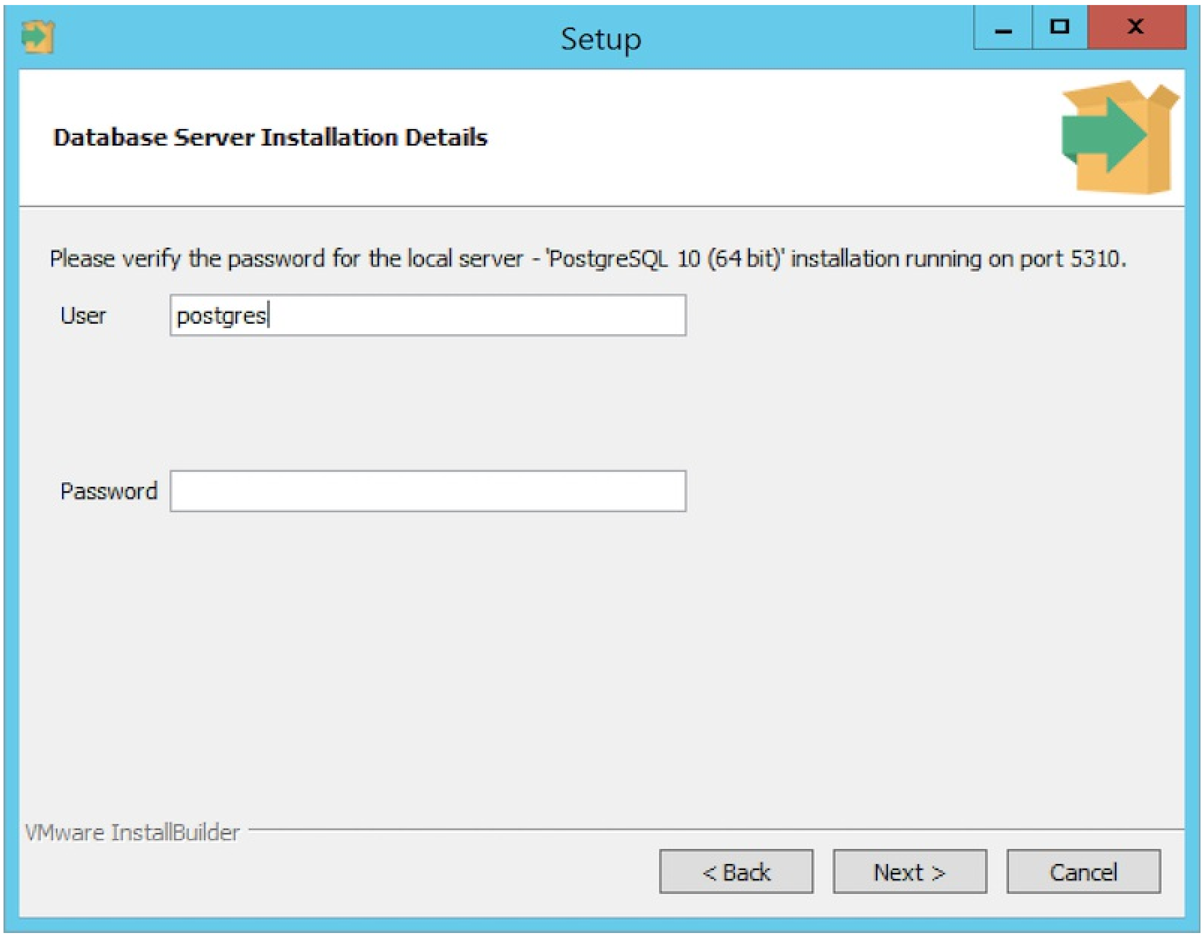
To complete the installation, Setup must restart your computer. Would you like to restart now?

Click on `No` to continue the upgrade process.

The wizard then opens the `Database Server Installation Details` dialog, prompting you for connection credentials for the database superuser of the PEM backend database. Provide:

- The name of the database superuser in the `User` field.
- The password associated with the database superuser in the `Password` field.

Click `Next` to continue.



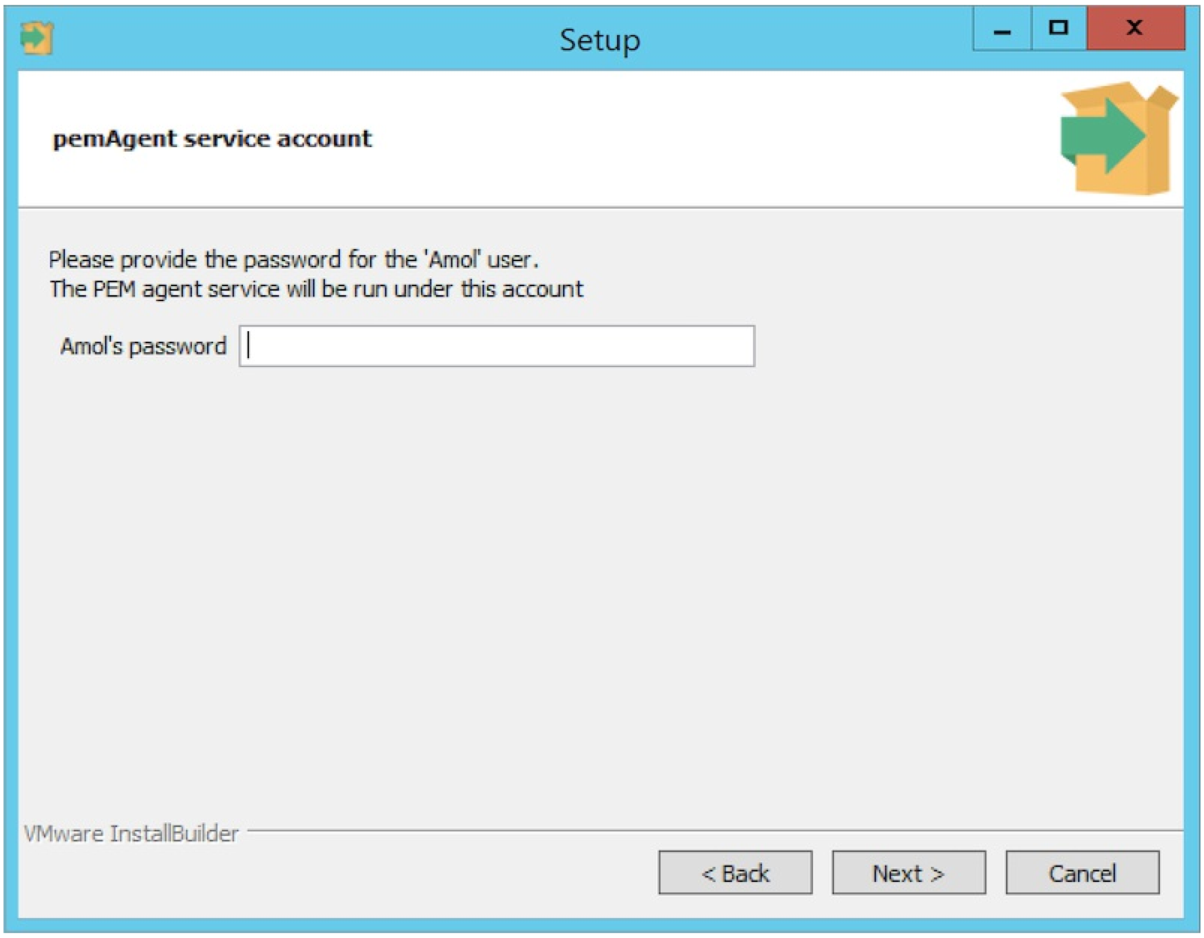
Database Server Installation Details

Please verify the password for the local server - 'PostgreSQL 10 (64 bit)' installation running on port 5310.

User postgres

Password

The `pemAgent service account` dialog may prompt you for the password of the account under which the PEM agent service runs.

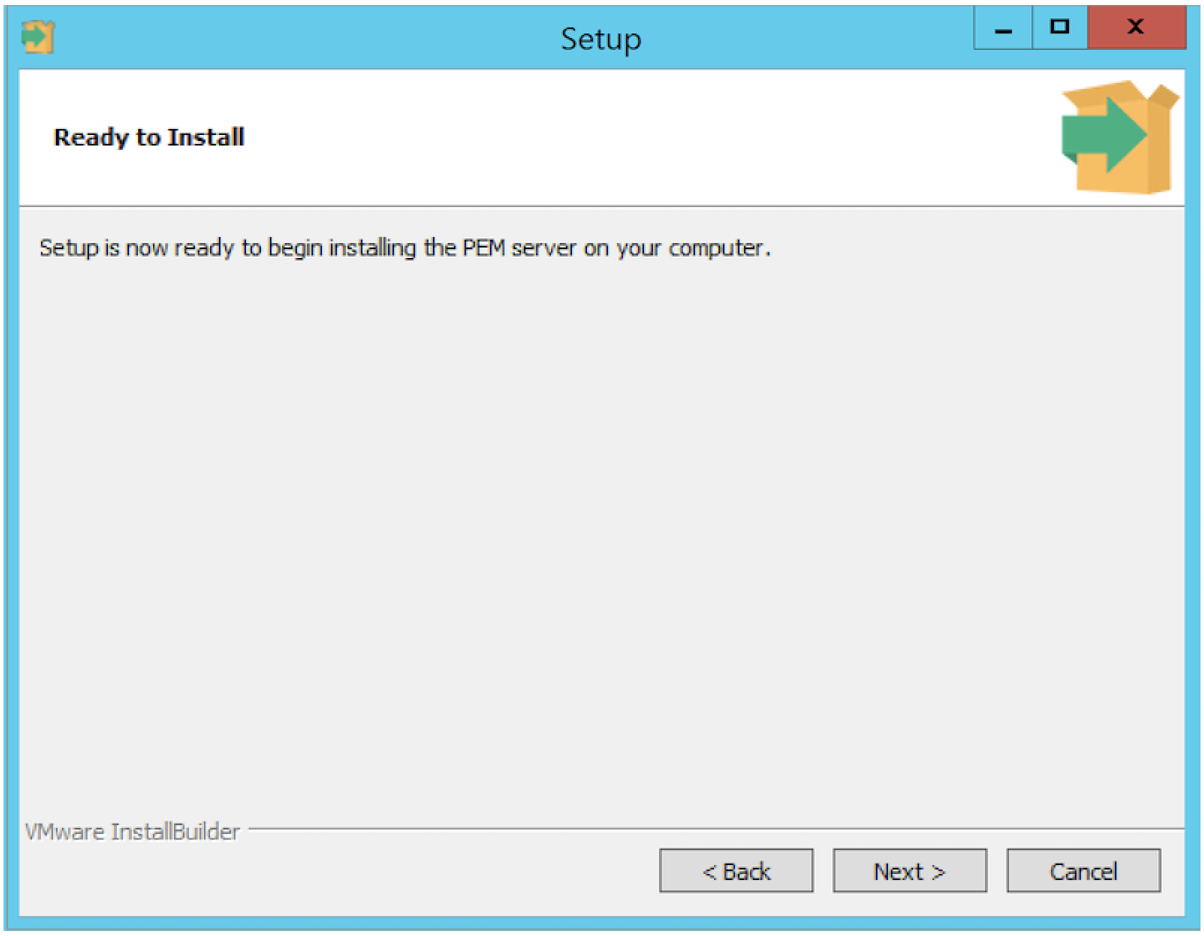


pemAgent service account

Please provide the password for the 'Amol' user.
The PEM agent service will be run under this account

Amol's password

If prompted, provide the password, and click `Next` to continue.

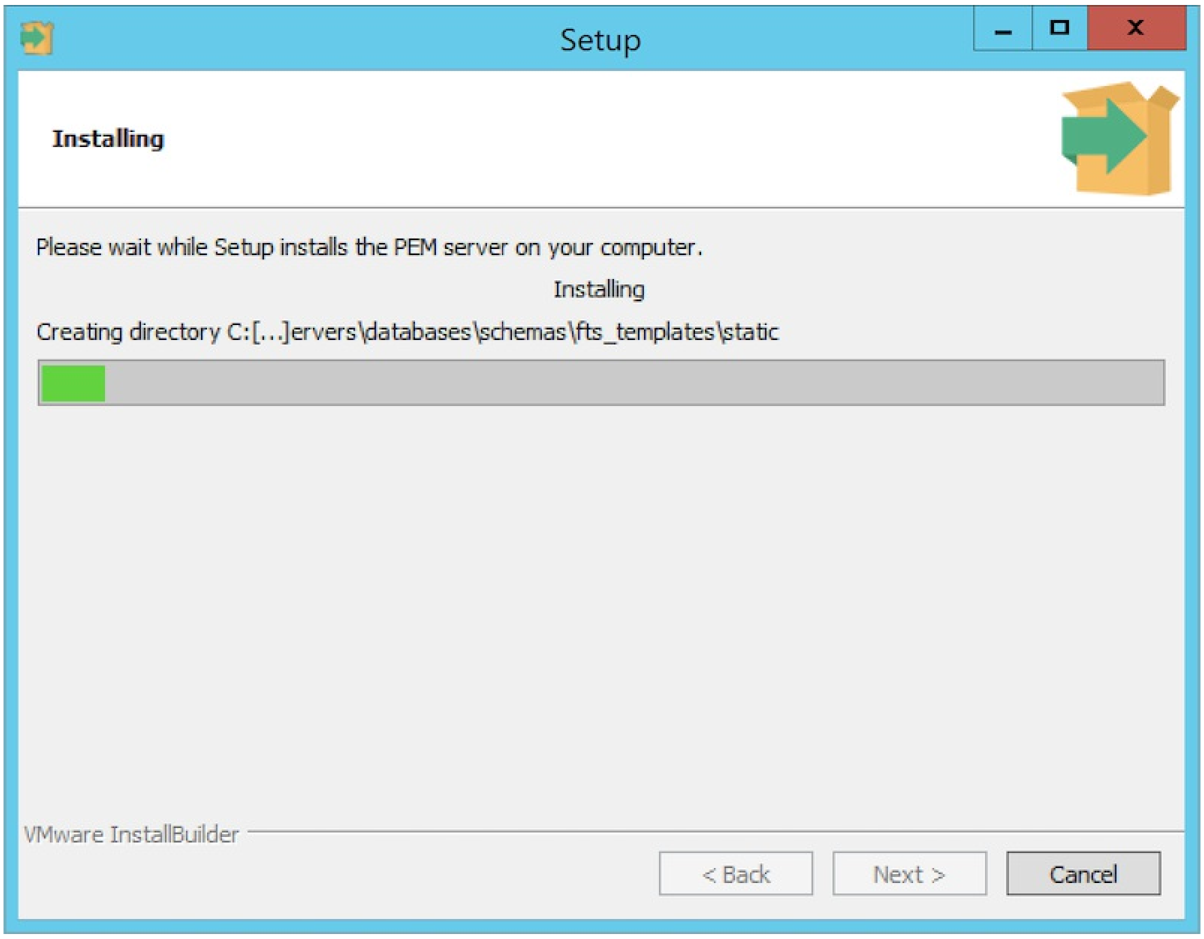

Setup

Ready to Install

Setup is now ready to begin installing the PEM server on your computer.

The `Ready to Install` dialog will inform you that the setup wizard is ready to perform the installation. Click `Next` to start the installation.

During the installation, progress bars will keep you informed of the progress of the update.

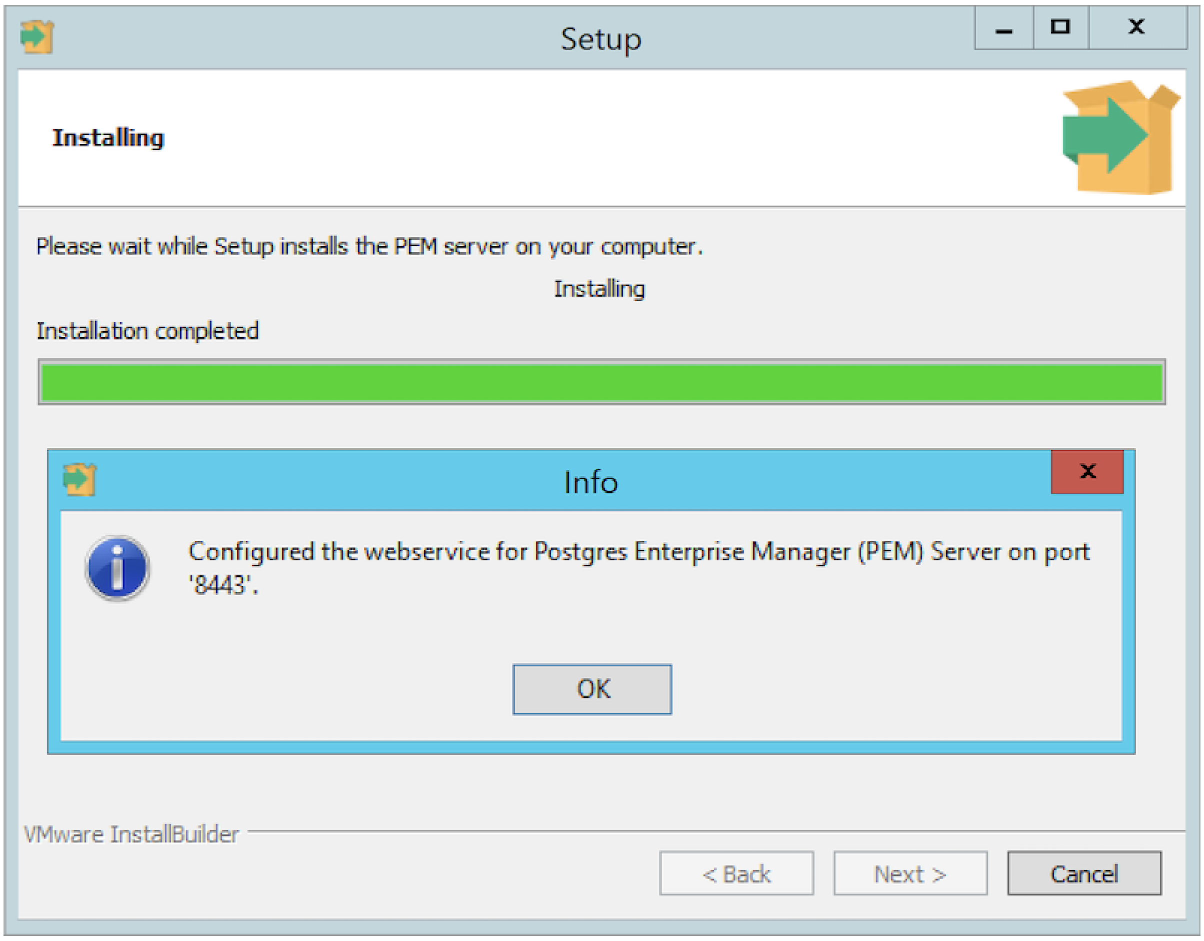


Please wait while Setup installs the PEM server on your computer.

Installing

Creating directory C:[...]ervers\databases\schemas\fts_templates\static

After upgrading the PEM Server (and the agent that resides on the same host as the PEM server) and configuring the web service, the PEM setup wizard notifies you of the port on which the service is listening. Use this port number when connecting to the PEM Server with the PEM client.



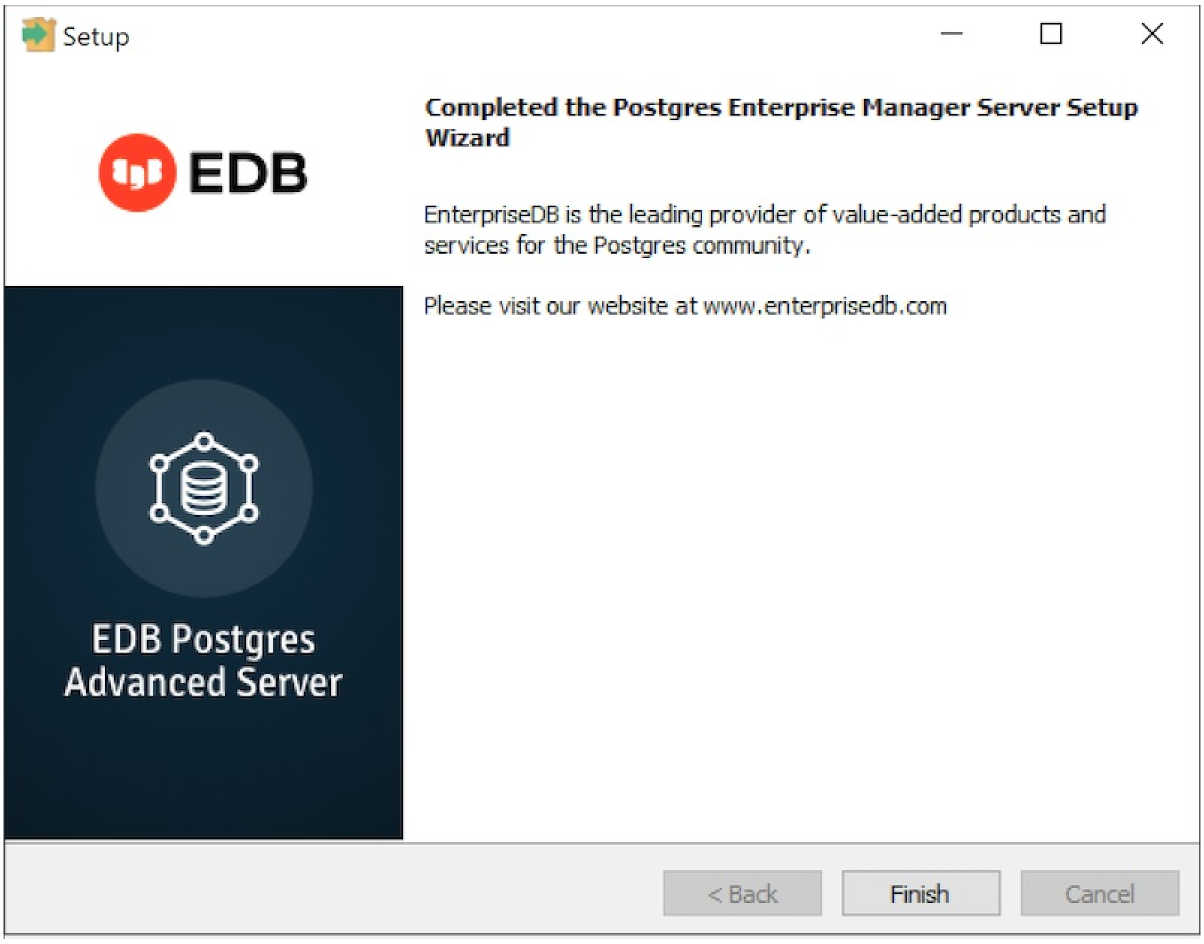
Please wait while Setup installs the PEM server on your computer.

Installing

Installation completed

Configured the webservice for Postgres Enterprise Manager (PEM) Server on port '8443'.

Click `OK` to close the `Info` popup. The PEM server setup wizard informs you that the installation is complete.



Completed the Postgres Enterprise Manager Server Setup Wizard

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If the window pops-up asking to restart the machine, then click on `Yes` to restart the machine and hence the `httpd` service.

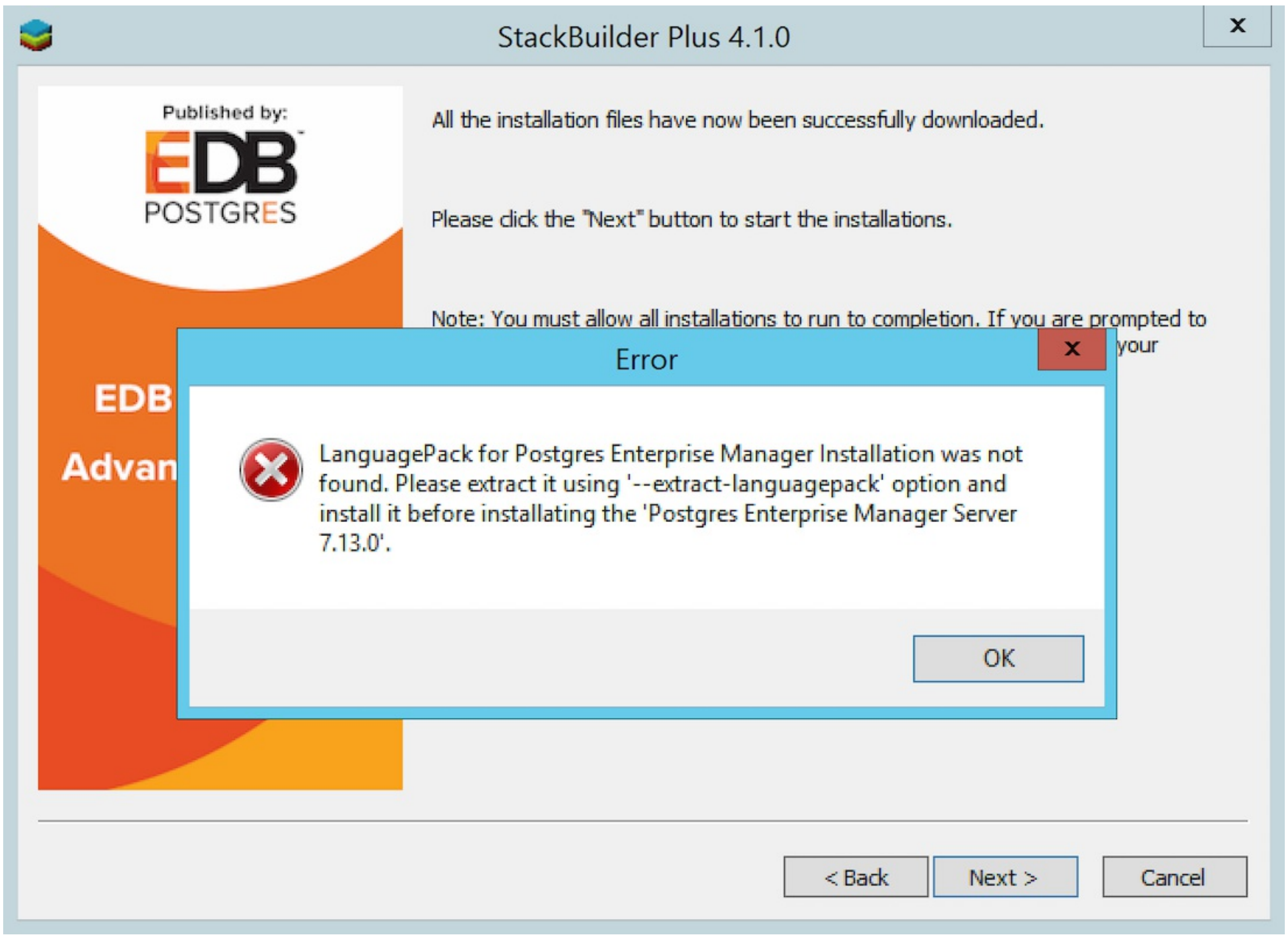
If you have installed the PEM backend database server and PEM-HTTPD on different hosts, then you must run the PEM Server installer twice – once on each host. Extract the language pack installer, and install it on the host of PEM-HTTPD before invoking the PEM installer. Include the following keywords when invoking the installer to extract the language pack:

```
--extract-languagepack <path>
```

Where `<path>` specifies an existing path for extracting the language pack installer.

!!! Note By default EDB Language Pack is installed in `C:\edb\languagepack\v1`.

If you are upgrading the PEM Server via StackBuilder Plus then you might face the error shown below; after displaying the error, PEM will say that installation is completed. Please note that the installation is not done and you will need to do the installation by invoking the installer file from the location where it is downloaded.


StackBuilder Plus 4.1.0

All the installation files have now been successfully downloaded.

Please click the "Next" button to start the installations.

Note: You must allow all installations to run to completion. If you are prompted to
your

Error

LanguagePack for Postgres Enterprise Manager Installation was not found. Please extract it using '--extract-languagepack' option and install it before installing the 'Postgres Enterprise Manager Server 7.13.0'.

After upgrading the PEM Server, you may wish to upgrade the backend database to a more recent version; for information about upgrading the backend database, see Upgrading the Backend Postgres Database.

Upgrading SQL Profiler on a Windows Host

If you are using SQL Profiler on a Windows host, Windows will lock any files that have been executed or loaded into memory. To release any locked files, you must stop the Postgres server before performing an upgrade.

On Windows, you can use the `Services` dialog to control the service. To open the `Services` dialog, navigate through the `Control Panel` to the `System and Security menu`. Select `Administrative Tools`, and then double-click the `Services` icon. When the `Services` dialog opens, highlight the service name in the list, and use the option provided on the dialog to `Stop` the service.

After stopping the Postgres Server:

1. Delete the existing SQL Profiler query set on each node by invoking the `uninstall-sql-profiler.sql` script. By default, on a Windows host the script resides in the `share\contrib` directory under your Advanced Server or PostgreSQL installation.

   You can use the following server-specific commands.

   For PostgreSQL:

   ```
   psql -f C:\Program Files\PostgreSQL\
   <x>\share\contrib\uninstall-sql-profiler.sql -d
   postgres -U postgres
   ```

   Where, `x` is the version of PostgreSQL and `-d` specifies the name of the maintenance database.

   For Advanced Server:

   ```
   psql -f C:\Program
   Files\edb\as<x>\share\contrib\uninstall-sql-
   profiler.sql -d edb -U enterprisedb
   ```

   Where `x` is the version of Advanced Server and `-d` specifies the name of the maintenance database.

2. Invoke the new SQL Profiler installer on each node you wish to profile; run the installer as `Administrator`.

   For PostgreSQL:

   ```
   sqlprofiler-pg-<x>-<y>-windows-x64.exe
   ```

Where, `x` is the version of the PostgreSQL and `y` is the version of SQL Profiler. For example: `sqlprofiler-pg-12-7.14.0-1-windows-x64.exe`.

For Advanced Server:

```
sqlprofiler-edb-as<x>-<y>-windows-x64.exe
```

Where `x` is the version of Advanced Server and `y` is the version of SQL Profiler. For example: `sqlprofiler-edb-as12-7.14.0-1-windows-x64.exe`.

The SQL Profiler installer will detect the existing `SQL Profiler` installation and upgrade it with the latest version of SQL Profiler.

3. Run the `sql-profiler.sql` script file in the maintenance database.

   For PostgreSQL:

   ```
   psql -f C:\Program Files\PostgreSQL\
   <x>\share\contrib\sql-profiler.sql -d postgres -U
   postgres
   ```

   Where `x` is the version of PostgreSQL and `-d` specifies the name of the maintenance database.

   For Advanced Server:

   ```
   psql -f C:\Program Files\edb\as<x>\share\contrib\sql-
   profiler.sql -d edb -U enterprisedb
   ```

   Where, `x` is the version of Advanced Server and `-d` specifies the name of the maintenance database.

4. Then, restart the Postgres Server to resume profiling the node from a PEM client.

After updating the PEM components, you are ready to update the backend database.

1.2 Upgrading a PEM Native Package Installation on a Linux Host

To upgrade PEM component software on Linux hosts, simply install a newer version of the PEM component native packages in the following order:

1. Invoke the PEM agent native package installer on each monitored node `except` the PEM server host.
2. Invoke the PEM server native package installer; it will upgrade `both` the PEM server and the PEM agent that resides on the PEM server host.

During an installation, the component installation will automatically detect an existing installation, and perform an upgrade. After upgrading the PEM agent and server, you can upgrade SQL Profiler if required; this step is platform-specific.

!!! Note If you have already configured or are planning to configure any shell/batch script run by a Linux agent that is upgraded from any lower version to 7.11 or later version, the user for the `batch_script_user` parameter must be specified in the `agent.cfg` file. It is strongly recommended that a non-root user is used to run the scripts. Using the root user may result in compromising the data security and operating system security. However, if you want to restore the `pemagent` to its original settings using a root user to run the scripts, then the `batch_script_user` parameter value must be set to `root`.

The following sections will walk you through the upgrade process on a Linux host, step-by-step.

Prerequisites to Upgrade a PEM Installation on Linux Host

PEM is dependent on third-party components from the vendor repository, including the python3, libboost, openssl, snmp++, libcurl, etc. To ensure these components are up to date, you should update your operating system using following platform-specific commands. Minimum version require for openssl is 1.0.2k. If you are using a version of PostgreSQL or Advanced Server older than version 10, before the upgrade you must install the `libs` package for version 10 or above on the system where the PEM server is installed. Use the following platform-specific commands to install the `libs` version 10 or above on your host:

Prerequisites to Upgrade a PEM Installation on a CentOS or RHEL Host

To upgrade packages on a CentOS or RHEL 7.x host

```
yum upgrade
```

To upgrade packages on a CentOS or RHEL 8.x host

```
dnf upgrade
```

To upgrade Advanced Server libs:

```
yum install edb-as<X>-server-libs
```

To upgrade PostgreSQL libs:

```
yum install postgresql<X>-libs
```

Where `<X>` is the PostgreSQL or Advanced Server version whose `libs` package you want to install.

Prerequisites to Upgrade a PEM Installation on a Debian or Ubuntu Host

To upgrade packages on a Debian or Ubuntu host

```
apt-get update
```

To upgrade Advanced Server libs:

```
apt-get install edb-as<X>-server-libs
```

To upgrade PostgreSQL libs:

```
apt-get install postgresql<X>-libs
```

Where `<X>` is the PostgreSQL or Advanced Server version whose `libs` package you want to install.

Prerequisites to Upgrade a PEM Installation on a SLES Host

To upgrade packages on a SLES host

```
zypper update
```

To upgrade Advanced Server libs:

```
zypper install edb-as<x>-server-libs
```

To upgrade PostgreSQL libs:

```
zypper install postgresql<x>-libs
```

Where `<X>` is the PostgreSQL or Advanced Server version whose `libs` package you want to install.

Upgrading a PEM Agent Native Package Installation

You can use native packages to upgrade existing PEM Agents that were initially installed using native packages. The upgrade process does not update the PEM agent configuration file. After installing the new agent, you must manually copy the configuration file of the existing agent to the new installation location.

Upgrading the PEM Agent on a CentOS or RHEL Host

For CentOS or RHEL 7.x or 8.x:

To upgrade a PEM agent, use the following command:

```
yum upgrade edb-pem-agent
```

For CentOS or RHEL 8.x, you can also use the following command:

```
dnf upgrade edb-pem-agent
```

Upgrading a PEM Agent on a Debian or Ubuntu Host

To upgrade a PEM Agent, use the following command:

```
apt-get upgrade edb-pem-agent
```

Upgrading a PEM Agent on a SLES Host

To upgrade a PEM Agent, use the following command:

```
zypper update edb-pem-agent
```

Upgrading a PEM Server Native Package Installation

If you initially used native packages to install your PEM server, you can use native packages to upgrade your PEM server. The commands to upgrade are platform-specific; please refer to your platform's section below.

If you wish to upgrade a PEM server that is installed on a machine in an isolated network, you need to create a PEM repository on that machine before you upgrade the PEM server. For more information about creating a PEM repository on an isolated network, see Creating a PEM Repository on an Isolated Network.

Upgrading a PEM Server on a CentOS or RHEL Host

To use an RPM package to upgrade an existing RPM installation you must:

You can use the `yum` package manager to upgrade the installed version of the PEM server on CentOS or RHEL 7.x or 8.x:

```
yum upgrade edb-pem
```

You can also use the `dnf` command on CentOS or RHEL 8.x:

```
dnf upgrade edb-pem
```

!!! Note If you are doing a fresh installation of the PEM Server on CentOS or RHEL 7.x host, the installer will install the edb-python3-mod_wsgi package along with the installation as the package is a requirement of the operating system. If you are *upgrading* the PEM Server on CentOS or RHEL 7.x host, the mod_wsgi package will be replaced by the edb-python3-mod_wsgi package to meet the requirements of the operating system.

After upgrading the PEM Server using `yum` or `dnf`, you must configure the PEM Server. For more detailed information see Configuring the PEM Server on Linux Platforms.

Upgrading the PEM Server on a Debian or Ubuntu Host

You can use the `apt-get` package manager to upgrade the installed version of the PEM Server on supported versions of Debian or Ubuntu:

```
apt-get upgrade edb-pem
```

After upgrading the PEM Server with `apt-get`, you need to configure the PEM Server. For more detailed information see Configuring the PEM Server on Linux Platforms.

Upgrading the PEM Server on a SLES Host

You can use the `zypper` package manager to upgrade the installed version of the PEM Server on supported versions of SLES Host:

```
zypper update edb-pem
```

After upgrading the PEM Server using `zypper`, you need to configure the PEM Server. For more detailed information see Configuring the PEM Server on Linux platforms.

Upgrading a SQL Profiler Native Package Installation

To upgrade a SQL Profiler installation that resides on a Linux host:

1. Delete the existing SQL Profiler query set on each node by invoking the `uninstall-sql-profiler.sql` script. By default, on a Linux host the script resides in the `share/contrib` directory under your Advanced Server or PostgreSQL installation.

   You can use the following server-specific command:

   For PostgreSQL:

```
/usr/pgsql-<x>/bin/psql -f /usr/pgsql-
<x>/share/contrib/uninstall-sql-profiler.sql -d
postgres -U postgres
```

Where, `x` is the version of PostgreSQL and `-d` specifies the name of the maintenance database.

For Advanced Server:

```
/usr/edb/as<x>/bin/psql -f
/usr/edb/as<x>/share/contrib/uninstall-sql-
profiler.sql -d edb -U enterprisedb
```

Where, `x` is the version of Advanced Server and `-d` specifies the name of the maintenance database.

2. Invoke the new SQL Profiler installer on each node you wish to profile.

   For PostgreSQL:

   ```
   yum upgrade postgresql<x>-sqlprofiler
   ```

   Where, `x` is the version of the PostgreSQL.

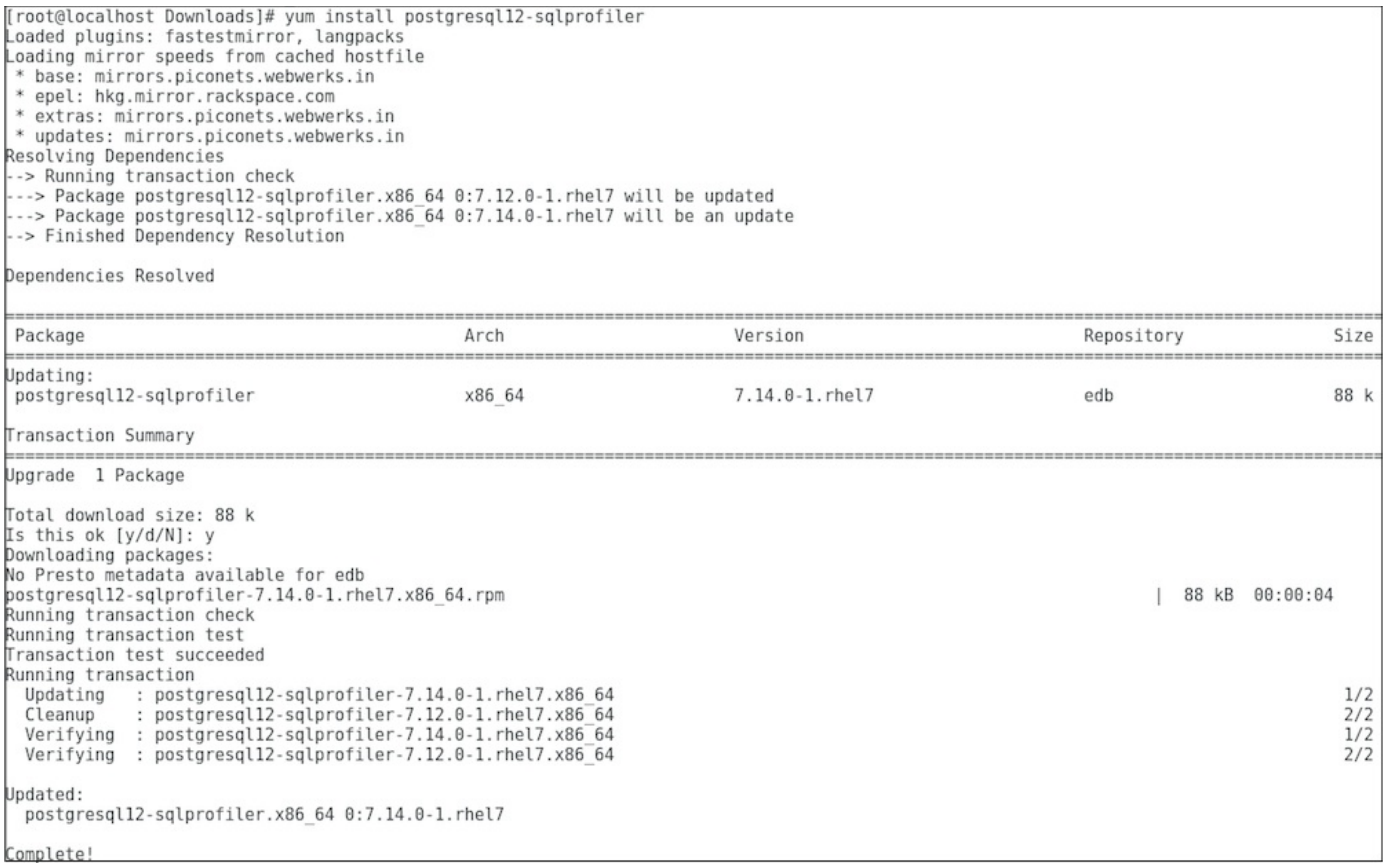
   For Advanced Server:

   ```
   yum upgrade edb-as<x>-server-sqlprofiler
   ```

   Where `x` is the version of Advanced Server.

The installer will detect the existing `SQL Profiler` installation and upgrade with the latest version of SQL Profiler.

Please see the following example of upgrading SQL Profiler for PostgreSQL:



```
[root@localhost Downloads]# yum install postgresql12-sqlprofiler
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: mirrors.piconets.webwerks.in
 * epel: hkg.mirror.rackspace.com
 * extras: mirrors.piconets.webwerks.in
 * updates: mirrors.piconets.webwerks.in
Resolving Dependencies
--> Running transaction check
---> Package postgresql12-sqlprofiler.x86_64 0:7.12.0-1.rhel7 will be updated
---> Package postgresql12-sqlprofiler.x86_64 0:7.14.0-1.rhel7 will be an update
--> Finished Dependency Resolution

Dependencies Resolved

==============================================================================================================================
 Package                              Arch                      Version                       Repository                Size
==============================================================================================================================
Updating:
 postgresql12-sqlprofiler             x86_64                    7.14.0-1.rhel7                edb                       88 k

Transaction Summary
==============================================================================================================================
Upgrade  1 Package

Total download size: 88 k
Is this ok [y/d/N]: y
Downloading packages:
No Presto metadata available for edb
postgresql12-sqlprofiler-7.14.0-1.rhel7.x86_64.rpm                                                  |  88 kB  00:00:04
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Updating   : postgresql12-sqlprofiler-7.14.0-1.rhel7.x86_64                                                          1/2
  Cleanup    : postgresql12-sqlprofiler-7.12.0-1.rhel7.x86_64                                                          2/2
  Verifying  : postgresql12-sqlprofiler-7.14.0-1.rhel7.x86_64                                                          1/2
  Verifying  : postgresql12-sqlprofiler-7.12.0-1.rhel7.x86_64                                                          2/2

Updated:
  postgresql12-sqlprofiler.x86_64 0:7.14.0-1.rhel7

Complete!
```

3. Then, run the `sql-profiler.sql` script file in the maintenance database.

   For PostgreSQL:

   ```
   /usr/pgsql-<x>/bin/psql -f /usr/pgsql-<x>/share/contrib/sql-profiler.sql -d postgres -U postgres
   ```

   Where, `x` is the version of PostgreSQL and `-d` specifies the name of the maintenance database.

   For Advanced Server:

   ```
   /usr/edb/as<x>/bin/psql -f /usr/edb/as<x>/share/contrib/sql-profiler.sql -d edb -U enterprisedb
   ```

   Where, `x` is the version of Advanced Server and `-d` specifies the name of the maintenance database.

4. Restart the PostgreSQL/Advanced Server to resume profiling the node from the PEM Client.

After updating the PEM components, you are ready to update the backend database.

1.3 Creating a PEM Repository on an Isolated Network

You can create a local repository to act as a host for the PEM RPM packages if the server on which you wish to upgrade PEM cannot directly access the EDB repository. Please note that this is a high-level overview of the steps required; you may need to modify the process for your individual network. To create and use a local repository, you must:

1. Use the following commands on a system with Internet access to download the dependencies for PEM:

   ```
   yum install yum-plugin-downloadonly

   mkdir /<pem_dir>

   yum install --downloadonly --downloaddir=/<pem_dir>/
   edb-pem

   mkdir /<epel_dir>

   yum install --downloadonly --downloaddir=/<epel_dir>/
   epel-release*
   ```

   Where `<pem_dir>` and `<epel_dir>` are the local directories that you create for downloading the RPMs.

2. Copy the directories `/<pem_dir>` and `/<epel_dir>` to the machine that is in the isolated network.

3. Create the repositories:

   ```
   createrepo /<pem_dir>

   createrepo /<epel_dir>
   ```

4. Create a repository configuration file called `/etc/yum.repos.d/pem.repo` with connection information that specifies:

   ```
   [pemrepo]
   name=PEM Repository
   baseurl=file:///pem7/
   enabled=1
   gpgcheck=0
   ```

5. Create a repository configuration file called `/etc/yum.repos.d/epel.repo` with connection information that specifies:

   ```
   [epelrepo]
   name=epel Repository
   baseurl=file:///pem7/
   enabled=1
   gpgcheck=0
   ```

6. After specifying the location and connection information for your local repository, you can use yum commands to install or upgrade PEM server:

   To install PEM server:

   ```
   yum install edb-pem
   ```

   To upgrade PEM server:

```
yum upgrade edb-pem
```

For more information about creating a local yum repository, visit:
https://wiki.centos.org/HowTos/CreateLocalRepos

1.4 Upgrading a Graphical PEM Installation on a Linux Host

To upgrade PEM component software on Linux hosts, simply install a newer version of the PEM component native packages in the following order:

1. Invoke the PEM Agent native package installation on each monitored node `except` the PEM server host.
2. Invoke the PEM server native package installation; it will upgrade `both` the PEM server and the PEM Agent that resides on the PEM server host.

During an installation, the component installation will automatically detect an existing installation, and perform an upgrade. After upgrading the PEM Agent and server, you can upgrade SQL Profiler if required; this step is platform-specific.

The following section walks you through the process of upgrading a PEM installation that was performed via a graphical installer on a Linux host.

Prerequisites to Upgrade a PEM Installation on a Linux Host

If you are using a version of Postgres or Advanced Server released older than version 10, before the upgrade you must install the `libs` package for version 10 or above on the system where the PEM server is installed.

For Advanced Server:

```
yum install edb-as<X>-server-libs
```

For PostgreSQL:

```
yum install postgresql<X>-libs
```

Where `<X>` is the Postgres or Advanced Server version whose libs package you want to install.

Upgrading a PEM Agent (Graphical Installation) on a CentOS or RHEL Host

The default installation location for the PEM Agent when installed by the graphical installer is `/opt/edb/pem`. In the example that follows, substitute your server installation location for `<PEM_installation_path>`.

1. Use the version specific command to stop the `pemagent` service.

   On a CentOS or RHEL 7.x Or 8.x host:

   ```
   systemctl stop pemagent
   ```

2. Install the supporting `epel-release` package on the host by running any one of the following commands:

   ```
   yum install epel-release
   ```

   ```
   yum -y install
   https://dl.fedoraproject.org/pub/epel/epel-release-
   latest-<X>.noarch.rpm
   ```

   Where `X` is the OS version.

   !!! Note You may need to enable the `[extras]` repository definition in the `CentOS-Base.repo` file (located in `/etc/yum.repos.d`).

```
If you are a Red Hat Network user,

-   You must also enable the `rhel-<x>-server-
optional-rpms` repository to use EPEL packages, where
*x* specifies the version of RHEL on the host. You
can make the repository accessible by enabling the
`RHEL optional subchannel` for `RHN-Classic`. If you
have a certificate-based subscription, then you must
also enable `rhel-<x>-server-eus-optional-rpms`
repository to use EPEL packages or please see the
`Red Hat Subscription Management Guide` for the
required repository.
-   You must also enable the `rhel-<x>-server-extras-
rpms` repository, where `x` specifies the version of
the RHEL on the host.
```

3. Install and configure the `edb.repo` file:

   a. You must also have credentials that allow access to the EDB repository. To request credentials, visit:

   EDB Repository Access Steps.

   b. Create a repository configuration file; assume superuser privileges, and invoke the following command:

   ```
   yum -y install https://yum.enterprisedb.com/edb-repo-
   rpms/edb-repo-latest.noarch.rpm
   ```

   The repository configuration file is named `edb.repo`. The file resides in `/etc/yum.repos.d`.

   c. After creating the `edb.repo` file, to ensure that the value of the enabled parameter is `1`, and the `USERNAME` and `PASSWORD` placeholders in the `baseurl` specification are replaced with the name and password of a registered EDB user, run the following command:

   ```
   sed -i "s@<username>:<password>@USERNAME:PASSWORD@"
   ```

```
/etc/yum.repos.d/edb.repo
```

If you want to install PEM Agent on a machine that is in isolated network, you must first create PEM repository on that machine. For more information about creating PEM repository on an isolated network, see Creating a PEM repository in an Isolated Network.

4. The `yum makecache` command downloads the metadata for the currently enabled repositories; when the command completes, check the available packages to confirm that the list includes the latest PEM Agent:

   On a CentOS or RHEL 7.x or 8.x:

   ```
   yum makecache

   yum list edb-pem-agent
   ```

   On a CentOS or RHEL 8.x:

   ```
   dnf makecache

   dnf list edb-pem-agent
   ```

5. Install the PEM Agent RPM; when the installation completes, you can use the `yum info` command to confirm installation information for the PEM Agent:

   On a CentOS or RHEL 7.x or 8.x:

   ```
   yum install edb-pem-agent

   yum info edb-pem-agent
   ```

   On a CentOS or RHEL 8.x:

   ```
   dnf install edb-pem-agent
   ```

6. After installation, copy the PEM Agent configuration file (`agent.cfg`) from

the previous location to the location required by the RPM installer:

```
cp /PEM_installation_path/agent/etc/agent.cfg
/usr/edb/pem/agent/etc/agent.cfg
```

!!! Note The Package Mangement and Stremaing Replication features are deprecated from PEM 7.16 version. Please remove these parameters from agent.cfg file while copying the file if existing - allow_package_management and allow_streaming_replication, to avoid any warning messages in the worker log file after PEM Agent service restart.

a. Open the agent configuration file located at:

```
/usr/edb/pem/agent/etc/agent.cfg
```

Then set the value of the `ca_file` parameter:

```
ca_file=/usr/libexec/libcurl-pem/share/certs/ca-
bundle.crt
```

b. Take a backup of the service file and agent certificates:

On CentOS or RHEL 7.x or 8.x, use the following command to back up the service file:

```
cp /usr/lib/systemd/system/pemagent.service
/usr/lib/systemd/system/pemagent.service_bkp
```

Then, copy the agent certificates; in the following commands, `<agent_id>` should specify the agent identifier (for example, agent2 or agent3):

```
mv /root/.pem/<agent_id>.key
/root/.pem/<agent_id>.key.bkp

mv /root/.pem/<agent_id>.crt
/root/.pem/<agent_id>.crt.bkp
```

c. Uninstall the PEM agent using bitrock uninstaller:

```
/PEM_installation_path/agent/uninstall-pemagent
```

d. Use version specific commands to restore the service file backup and agent certificates to original location. For example:

On a RHEL or CentOS 7.x or 8.x host:

```
cp /usr/lib/systemd/system/pemagent.service_bkp
/usr/lib/systemd/system/pemagent.service
```

Then, move the agent certificate files; in the following commands, `<agent_id>` should specify the agent identifier (for example, agent2 or agent3):

```
mv /root/.pem/<agent_id>.key.bkp
/root/.pem/<agent_id>.key

mv /root/.pem/<agent_id>.crt.bkp
/root/.pem/<agent_id>.crt
```

7. Enable the `pemagent` service, and start `pemagent` and `httpd`.

   On a RHEL or CentOS 7.x or 8.x host, use the commands:

```
systemctl enable pemagent

systemctl start pemagent
```

At this point, the PEM agent should be up and running; you can use the PEM web interface to check the agent version and status.

Upgrading a PEM Server that was Installed with a Graphical Installer

The default installation location for the PEM server when installed by the graphical installer is `/opt/edb/pem`. In the example that follows, substitute your server installation location for `<PEM_installation_path>`.

Upgrading a PEM Server that was Installed with a Graphical Installer on a CentOS or RHEL Host

1. Logout from PEM.

2. Stop the PEMHTTPD service on PEM server. In case PEM server and web server are on two different systems, run the command on the web server:

   On a CentOS or RHEL 7.x Or 8.x host:

   ```
   systemctl stop PEMHTTPD
   systemctl stop pemagent
   ```

3. Install the supporting `epel-release` package on the host by running any one of the following commands:

   ```
   yum install epel-release
   ```

   ```
   yum -y install
   https://dl.fedoraproject.org/pub/epel/epel-release-
   latest-<X>.noarch.rpm
   ```

   Where `<X>` is the OS version.

   !!! Note You may need to enable the `[extras]` repository definition in the `CentOS-Base.repo` file (located in `/etc/yum.repos.d`).

   If you are a Red Hat Network user,

   - You must also enable the `rhel-<x>-server-optional-rpms` repository to use EPEL packages, where *x* specifies the version of RHEL on the host. You can make the repository accessible by enabling the

`RHEL optional subchannel` for `RHN-Classic`. If you have a certificate-based subscription, then you must also enable `rhel-<x>-server-eus-optional-rpms` repository to use EPEL packages or please see the `Red Hat Subscription Management Guide` for the required repository.
  - You must also enable the `rhel-<x>-server-extras-rpms` repository, where `x` specifies the version of the RHEL on the host.

4. Install and configure edb.repo file:

   a. You must also have credentials that allow access to the EDB repository. To request credentials, visit:

   EDB Repository Access Steps.

   b. Create a repository configuration file; assume superuser privileges, and invoke the following command:

   ```
   yum -y install https://yum.enterprisedb.com/edb-repo-rpms/edb-repo-latest.noarch.rpm
   ```

   The repository configuration file is named `edb.repo`. The file resides in `/etc/yum.repos.d`.

   c. After creating the `edb.repo` file, to ensure that the value of the enabled parameter is `1`, and the `username` and `password` placeholders in the `baseurl` specification are replaced with the name and password of a registered EDB user, run the following command:.

   ```
   sed -i "s@<username>:<password>@USERNAME:PASSWORD@" /etc/yum.repos.d/edb.repo
   ```

   If you want to install PEM Agent on a machine that is in isolated network, you must first create PEM repository on that machine. For more information about creating PEM repository on an isolated network, see Creating a PEM repository in an Isolated Network.

5. The `yum makecache` command downloads the metadata for the currently

enabled repositories; when the command completes, check the available packages to confirm that the list includes the latest PEM Server:

On a CentOS or RHEL 7.x or 8.x:

```
yum makecache

yum list edb-pem
```

On a CentOS or RHEL 8.x:

```
dnf makecache

dnf list edb-pem
```

6. Install the PEM Server RPM; when the installation completes, you can use the `yum info` command to confirm installation information for the PEM Server:

   On a CentOS or RHEL 7.x or 8.x:

   ```
   yum install edb-pem

   yum info edb-pem
   ```

   On a CentOS or RHEL 8.x:

   ```
   dnf install edb-pem
   ```

7. After installation, copy the `agent.cfg` file from the current location (the location required by the graphical installer) to the location required by the RPM package:

   ```
   cp /<PEM_installation_path>/agent/etc/agent.cfg
   /usr/edb/pem/agent/etc/agent.cfg
   ```

8. Open the agent configuration file located at:

```
/usr/edb/pem/agent/etc/agent.cfg
```

Then, set the value of the `ca_file` parameter:

```
ca_file=/usr/libexec/libcurl-pem/share/certs/ca-
bundle.crt
```

9. Copy the `pem.db` file (and other required files) to the RPM installation location and change the file ownership. In case PEM server and web server are on two different systems, run the below commands on the web server:

   ```
   cp -r
   /<PEM_installation_path>/server/share/pemhome/.pem/*
   /var/lib/pemhome/.pem/

   chown -R pem:pem /var/lib/pemhome/.pem/
   ```

10. Change the home directory in the `passwd` file from the location identified by the graphical installer to the RPM location. In case PEM server and web server are on two different systems, run the commands on PEM server as well as web server:

    ```
    usermod -m -d /var/lib/pemhome pem

    cat /etc/passwd | grep pem
    ```

11. Take a backup of the PEM service file and agent certificates:

    ```
    cp /usr/lib/systemd/system/pemagent.service
    /usr/lib/systemd/system/pemagent.service_bkp

    mv /root/.pem/agent1.key /root/.pem/agent1.key.bkp

    mv /root/.pem/agent1.crt /root/.pem/agent1.crt.bkp
    ```

12. Uninstall the PEM server using the graphical uninstaller from PEM server and web server machines:

```
/<PEM_installation_path> /server/uninstall-pemserver
```

13. Restore the service file backup and agent certificates to original location on PEM server.

    ```
    cp /usr/lib/systemd/system/pemagent.service_bkp
    /usr/lib/systemd/system/pemagent.service

    mv /root/.pem/agent1.crt.bkp /root/.pem/agent1.crt

    mv /root/.pem/agent1.key.bkp /root/.pem/agent1.key
    ```

14. Install the sslutils through RPM or Installer (In case of Windows, you may want to stop the database server before installation as installer may not be able to overwrite the file otherwise it would require system restart)

    Restart the database server (Restarting the database server is required as shared object of the extension has been upgraded)

    Refer section Install sslutils

    Use "ALTER EXTENSION" statement to upgrade the version

    ```
    ALTER EXTENSION sslutils UPDATE [ TO new_version ]
    ```

15. Execute the PEM RPM configuration script on PEM server and web server; when prompted, provide the backend database details: the script should run without generating errors:

    ```
    /usr/edb/pem/bin/configure-pem-server.sh
    ```

16. Enable the `pemagent` service on PEM server and web server. Start the `pemagent` and `httpd` services on the web server.

    On a CentOS or RHEL 7.x Or 8.x host:

    ```
    systemctl enable pemagent
    ```

```
systemctl start pemagent

systemctl start httpd
```

17. Launch the PEM web interface. Check the server and agent to confirm the PEM version, server status, and schema version. At this point, everything should be up and running.

18. You can now uninstall the PEMHTTD service from your web server, as it is no longer in use.

    ```
    /opt/edb/pem/httpd/uninstall-pemhttpd
    ```

Upgrading a SQL Profiler Installation with a Graphical Installer

SQL Profiler graphical installers are available for PostgreSQL and Advanced Server versions prior to 11.x (i.e. 10.x, 9.6).

To upgrade a SQL Profiler installation on a Linux host:

1. Delete the existing SQL Profiler query set on each node by invoking the `uninstall-sql-profiler.sql` script. By default, if you are using PostgreSQL on a Linux host that was installed with a graphical installer, the script resides in the `share/postgresql/contrib` directory under the PostgreSQL installation; for Advanced Server, the script resides in the `share/contrib` directory under the Advanced Server installation. You can use the following server-specific commands.

   For PostgreSQL:

   ```
   /opt/PostgreSQL/<x>/bin/psql -f
   /opt/PostgreSQL/<x>/share/postgresql/contrib/uninstall
   -sql-profiler.sql -d postgres -U postgres
   ```

   Where, `x` is the version of PostgreSQL and `-d` specifies the name of the maintenance database.

For Advanced Server:

```
/opt/edb/as<x>/bin/psql -f
/opt/edb/as<x>/share/contrib/uninstall-sql-
profiler.sql -d edb -U enterprisedb
```

Where, `x` is the version of Advanced Server and `-d` specifies the name of the maintenance database.

2. Then, invoke the new SQL Profiler installer on each node you wish to profile. Run the installer as Administrator:

   For a PostgreSQL host:

   ```
   sqlprofiler-pg-<x>-<y>-linux.exe
   ```

   Where `x` is the version of the PostgreSQL and `y` is the version of SQL Profiler. For example: `sqlprofiler-pg-12-7.14.0-1-linux.exe`.

   For Advanced Server:

   ```
   sqlprofiler-edb-as<x>-<y>-linux.exe
   ```

   Where `x` is the version of Advanced Server and `y` is the version of SQL Profiler. For example: `sqlprofiler-edb-as12-7.14.0-1-linux.exe`.

   The SQL Profiler installer will detect the existing `SQL Profiler` installation and upgrade it with the latest version of SQL Profiler.

3. Run the `sql-profiler.sql` script file in the maintenance database.

   For PostgreSQL:

   ```
   /opt/PostgreSQL/<x>/bin/psql -f
   /opt/PostgreSQL/<x>/share/postgresql/contrib/sql-
   profiler.sql -d postgres -U postgres
   ```

Where, `x` is the version of PostgreSQL and `-d` specifies the name of the maintenance database.

For Advanced Server:

```
/opt/edb/as<x>/bin/psql -f
/opt/edb/as<x>/share/contrib/sql-profiler.sql -d edb
-U enterprisedb
```

Where, `x` is the version of Advanced Server and `-d` specifies the name of the maintenance database.

4. Restart the PostgreSQL/Advanced Server to resume profiling the node from the PEM Client.

After updating the PEM components, you are ready to update the backend database.

1.5 Configuring a PEM Server on a Linux Host

After upgrading the PEM Server you can use the following command to configure the PEM Server:

```
/usr/edb/pem/bin/configure-pem-server.sh
```

When invoking the configuration script, you can include command line options to specify configuration properties; the script will prompt you for values that you omit on the command line. The accepted options are:

Option	Description
`-acp`	Defines PEM Agent certificate path. The default is /root/.pem.

Option	Description
`-ci`	CIDR formatted network address range that Agents will connect to the server from, to be added to the server's pg_hba.conf file. For example, 192.168.1.0/24. The default is 0.0.0.0/0.
`-dbi`	The directory for the database server installation. For example, /usr/edb/as11 for Advanced Server or /usr/pgsql-11 for PostgreSQL.
`-ds`	The unit file name of the PEM database server. For Advanced Server, the default file name is edb-as-11; for PostgreSQL, it is postgresql-11.
`-ho`	The host address of the PEM database server.
`-p`	The port number of the PEM database server.
`-ps`	The service name of the pemagent; the default value is pemagent.
`-sp`	The superuser password of the PEM database server. This value is required.
`-su`	The superuser name of the PEM database server.
`-t`	The installation type: Specify 1 if the configuration is for web services and backend database, 2 if you are configuring web services, or 3 if you are configuring the backend database. If you specify 3, please note that the database must reside on the local host.
`-un`	To unregister the PEM server.
`-h`	Displays help.

If you do not provide configuration properties on the command line, you will be prompted for values by the script. To view script-related help, use the command:

```
/usr/edb/pem/bin/configure-pem-server.sh --help
```

After executing the PEM server configuration file, use your version-specific service control command to restart the `httpd` service.

For detailed information about using an RPM package to install or configure the PEM server or PEM Agent, please see the PEM Linux Installation Guide.

2 Upgrading the PEM Backend Postgres Database

If you are updating both PEM components and the PEM backend database, you should perform PEM component updates (the server and Agent) before updating the backend database. For more information about updating PEM component software, see Upgrading a PEM Installation.

!!! Note From PEM 8.0 onwards, the PostgreSQL or EPAS version 11 or higher are only supported as backend database server. Hence if your backend database server is lower than version 11 then first you need to upgrade your backend database server and then upgrade the PEM components.

The update process described in this section uses the `pg_upgrade` utility to migrate from one version of the backend server to a more recent version. `pg_upgrade` facilitates migration between any supported version of Postgres, and any subsequent release of Postgres that is supported on the same platform.

!!! Note If the source PEM Server is lower than the 7.16 version, then you need to replace the following functions before you run `pg_upgrade`:

~~~
- The `abstime`, `reltime`, and `tinterval` datatypes are deprecated from Postgres version 12 or later, hence to replace those dataypes  with `timestamptz` data type use below command:

```text
DO
$$
DECLARE
    rec record;
    cnt integer;
BEGIN
    -- Check for the deprecated type in our user info probe
~~~

~~~
    SELECT count(*) INTO cnt
    FROM pem.probe_column
    WHERE sql_data_type = ‘abstime’ AND internal_name =
‘valuntil’;
        IF cnt = 0 THEN
            RETURN;
        END IF;
    ALTER TABLE pemdata.user_info
        ALTER COLUMN valuntil SET DATA TYPE
timestamptz;
    ALTER TABLE pemhistory.user_info
        ALTER COLUMN valuntil SET DATA TYPE
timestamptz;
    -- Now update the pem.probe_column itself
    UPDATE pem.probe_column
    SET sql_data_type = ‘timestamptz’
    WHERE sql_data_type = ‘abstime’ AND internal_name =
‘valuntil’;
END;
$$ LANGUAGE ‘plpgsql’;
```


- Replace the below function to avoid any alert errors:

```text
CREATE OR REPLACE FUNCTION
pem.check_alert_params_array_size(
template_id pem.alert_template.id%type, params text[]
)
RETURNS bool AS $FUNC$
DECLARE
    res bool := TRUE;
BEGIN
    /*
    * During restoring the pem database, it does not
maintain the order while
    * inserting data in the table, and uses the sort
table based on the
~~~

```
    * names.
    * Hence - we need to check the foreign key
constraint is present before
    * validating these values.
    */
    IF EXISTS(
        SELECT 1 FROM
information_schema.table_constraints
        WHERE constraint_name='alert_template_id_fkey'
AND
        table_name='alert' AND table_schema='pem'
    ) THEN
  /*
   * Need to use the IS TRUE construct outside the main
query, because
   * otherwise if there's no template by that ID then
the query would return
   * 0 rows and the result of the function would be
undefined and CHECK
   * constraint would succeed.
   * Probably this is being over-cautious, because
pem.alert.template_id
   * references pem.alert_template.id. But the SQL
standard (probably) does
   * not define the order in which the CHECK or the
FOREIGN KEY constraints
   * should be validated; in case CHECK is validated
first, we want it to
   * fail.
   */
EXECUTE $SQL$
    SELECT (
        SELECT
pem.check_array_size_equal(t.param_names, $2)
        FROM pem.alert_template AS t
        WHERE id = $1
    ) IS TRUE
  $SQL$ INTO res USING template_id, params;
```

~~~
END IF;
 RETURN res;
END
$FUNC$ LANGUAGE 'plpgsql';
```
~~~

`pg_upgrade` supports a transfer of data between servers of the same type. For example, you can use `pg_upgrade` to move data from a PostgreSQL 9.6 backend database to a PostgreSQL 11 backend database, but not to an Advanced Server 11 backend database. If you wish to migrate to a different type of backend database (i.e from a PostgreSQL server to Advanced Server), see Moving the Postgres Enterprise Manager Server.

You can find more information about using pg_upgrade at:

http://www.postgresql.org/docs/current/static/pgupgrade.html

1. Download and invoke the updated installer; installers for PostgreSQL and Advanced Server are available through the EDB website:

   https://www.enterprisedb.com/software-downloads-postgres

   After downloading the installer for the server version to which you will be upgrading, invoke the installer on the host of the PEM server. Follow the onscreen instructions of the installation wizard to configure and install the Postgres server.

   You can optionally use a custom-built PostgreSQL server as a host of the PEM backend database. Note that if you are upgrading from a PostgreSQL backend database listening on port `5432`, the new server must be configured to listen on a different port.

2. Configure SSL utilities on the new server. The new backend database must be running the same version of `sslutils` that the current backend database is running; you can download the SSL Utils package that is used in EDB installers at:

   https://www.enterprisedb.com/downloads/modified-gpl-source-code

You are *not* required to manually add the `sslutils` extension when using the Advanced Server as the new backend database. The process of configuring `sslutils` is platform-specific.

On Linux

- On an Advanced Server backend database, the sslutils extension is installed by default.

- If you are using a PostgreSQL as PEM backend database, ensure you have access to the PostgreSQL community repository, and use the command:

  ```
  yum install sslutils_<X>
  ```

  Where `<X>` is the server version.

- If you are using a EDB one-click installer of PostgreSQL as PEM backend database

  ```
   yum install gcc openssl-devel
  ```

  Set the value of PATH so it can locate the pg_config program

  ```
   export PATH=$PATH:/opt/postgres_inst_dir/<X>/bin/
  ```

  Move into the sslutils folder, and enter

  ```
   make USE_PGXS=1
  make USE_PGXS=1 install
  ```

  Use psql to create the sslutils extension

  ```
   CREATE EXTENSION sslutils
  ```

  Please note that Debian 10 and Ubuntu 20 has increased the requirements to accept the certificates due to security reason. If a user wants to install the PEM Agent on any of the machines, they must upgrade `ssltuils` to 1.3 where 4096 bit RSA key and sha256 signature algorithm support has added.If the user does not upgrade `sslutils` to 1.3, then PEM Agent may fail to connect to the PEM backend database server, and it might log the error `ca md too weak`.

On Windows

- `sslutils` must be compiled on the new backend database with the same compiler that was used to compile `sslutils` on the original backend database. If you are moving to a Postgres database that was installed using a PostgreSQL one-click installer (from EDB) or an Advanced Server installer, use Visual Studio to build `sslutils`. If you are upgrading to PostgreSQL 9.6 or later, use Visual Studio 2010.

  For detailed information about building a specific version of Postgres on Windows, please consult the core documentation for that version. Core documentation is available at the PostgreSQL project website at:

  https://www.postgresql.org/docs/current/install-windows.html

- While specific details of the process will vary by platform and compiler, the basic steps on each platform are the same. The example that follows demonstrates compiling OpenSSL support for PostgreSQL on a 32-bit Windows system.

  Before compiling the OpenSSL extension, you must locate and install OpenSSL for your version of Windows. Before invoking the OpenSSL installer you may be required to download and install a pre-requisite redistributable (such as `vcredist_x86.exe`).

  After installing OpenSSL, download and unpack the `sslutils` utility package available at:

  https://www.enterprisedb.com/downloads/modified-gpl-source-code

- Copy the unpacked `sslutils` folder to the Postgres installation directory (i.e. `C:\ProgramFiles\PostgreSQL\<x.x>`)

- Open the Visual Studio command line, and navigate into the `sslutils` directory. Use the following commands to build `sslutils`:

```
SET USE_PGXS=1

SET GETTEXTPATH=\ <path_to_gettext>

SET OPENSSLPATH=\ <path_to_openssl>

SET PGPATH=\ <path_to_pg_installation_dir>

SET ARCH=x86

msbuild sslutils.proj /p:Configuration=Release
```

Where:

- `path_to_gettext` specifies the location of the `GETTEXT` library and header files.
- `path_to_openssl` specifies the location of the openssl library and header files.
- `path_to_pg_installation_dir` specifies the location of the Postgres installation.
- For example, the following set of commands builds OpenSSL support into the PostgreSQL 11 server:

```
SET USE_PGXS=1

SET OPENSSLPATH=C:\OpenSSL-Win32

SET GETTEXTPATH="C:\Program Files\PostgreSQL\11"

SET PGPATH="C:\Program Files\PostgreSQL\11"

SET ARCH=x86

msbuild sslutils.proj /p:Configuration=Release
```

- When the build completes, the `sslutils` directory will contain the following files:

  `sslutils--1.3.sql`

  `sslutils--unpackaged--1.3.sql`

  `sslutils--pemagent.sql.in`

  `sslutils.dll`

- Copy the compiled sslutils files to the appropriate directory for your installation; for example:

  ```
  COPY sslutils*.sql "%PGPATH%\share\extension\"

  COPY sslutils.dll "%PGPATH%\lib\"

  COPY sslutils.control "%PGPATH%\share\extension\"
  ```

3. Stop the services of both the old backend database and the new backend database.

   On RHEL or CentOS 7.x or 8.x, open a command line and assume the identity of a superuser. Enter the command:

   ```
   systemctl <service_name> stop
   ```

   Where `<service_name>` specifies the name of the Postgres service.

   On Windows, you can use the `Services` dialog to control the service. To open the `Services` dialog, navigate through the `Control Panel` to the `System and Security` menu. Select `Administrative Tools`, and then double-click the `Services` icon. When the `Services` dialog opens, highlight the service name in the list, and use the option provided on the dialog to stop the service.

4. Use the `pg_upgrade` utility to perform an in-place transfer of existing data

between the old backend database and the new backend database. If your server is configured to enforce `md5` authentication, you may need to add an entry to the `.pgpass` file that specifies the connection properties (and password) for the database superuser, or modify the `pg_hba.conf` file to allow trust connections before invoking `pg_upgrade`. For more information about creating an entry in the `.pgpass` file, please see the PostgreSQL core documentation, available at:

http://www.postgresql.org/docs/current/static/libpq-pgpass.html

During the upgrade process, pg_upgrade will write a series of log files. The cluster owner must invoke `pg_upgrade` from a directory in which they have write privileges. If the upgrade completes successfully, `pg_upgrade` will remove the log files when the upgrade completes. To instruct `pg_upgrade` to not delete the upgrade log files, include the `--retain` keyword when invoking `pg_upgrade`.

To invoke `pg_upgrade`, assume the identity of the cluster owner, navigate into a directory in which the cluster owner has write privileges, and execute the command:

```
<path_to_pg_upgrade> pg_upgrade

-d <old_data_dir_path>

-D <new_data_dir_path>

-b <old_bin_dir_path> -B <new_bin_dir_path>

-p <old_port> -P <new_port>

-u <user_name>
```

Where:

- `path_to_pg_upgrade` specifies the location of the pg_upgrade utility. By default, pg_upgrade is installed in the `bin` directory under your Postgres directory.

  - `old_data_dir_path` specifies the complete path to the data directory of the old backend database.
  - `new_data_dir_path` specifies the complete path to the data directory of the new backend database.
  - `old_bin_dir_path` specifies the complete path to the bin directory of the old backend database.
  - `new_bin_dir_path` specifies the complete path to the bin directory of the old backend database.
  - `old_port` specifies the port on which the old server is listening.
  - `new_port` specifies the port on which the new server is listening.
  - `user_name` specifies the name of the cluster owner.

For example, the following command:

```
C:\>"C:\Program
Files\PostgreSQL\11\bin\pg_upgrade.exe"

-d "C:\Program Files\PostgreSQL\9.6\data"

-D "C:\Program Files\PostgreSQL\11\data"

-b "C:\Program Files\PostgreSQL\9.6\bin"

-B "C:\Program Files\PostgreSQL\11\bin"

-p 5432 -P 5433

-U postgres
```

Instructs `pg_upgrade` to migrate the PEM database from PostgreSQL 9.6 to PostgreSQL 11 on a Windows system (if the backend databases are installed in their default locations).

Once invoked, `pg_upgrade` will perform consistency checks before moving the data to the new backend database. When the upgrade is finished, `pg_upgrade` will notify you that the upgrade is complete.

For detailed information about using `pg_upgrade` options, or troubleshooting the upgrade process, please see:

http://www.postgresql.org/docs/current/static/pgupgrade.html

5. Copy the following certificate files from the `data` directory of the old backend database to the `data` directory of the new backend database:

   `ca_certificate.crt`

   `ca_key.key`

   `root.crt`

   `root.crl`

   `server.key`

   `server.crt`

   Once in place on the target server, the files should have the (platform-specific) permissions described below:

   Permissions and Ownership on Linux

File Name	Owner	Permissions
ca_certificate.crt	postgres	-rw-------
ca_key.key	postgres	-rw-------
root.crt	postgres	-rw-------
root.crl	postgres	-rw-------
server.key	postgres	-rw-------
server.crt	postgres	-rw-r--r--

   On Linux, the certificate files must be owned by `postgres`. You can use the following command at the command line to modify the ownership of the files:

```
chown postgres <file_name>
```

Where `file_name` specifies the name of the certificate file.

The `server.crt` file may only be modified by the owner of the file, but may be read by any user. You can use the following command to set the file permissions for the `server.crt` file:

```
chmod 644 server.crt
```

The other certificate files may only be modified or read by the owner of the file. You can use the following command to set the file permissions:

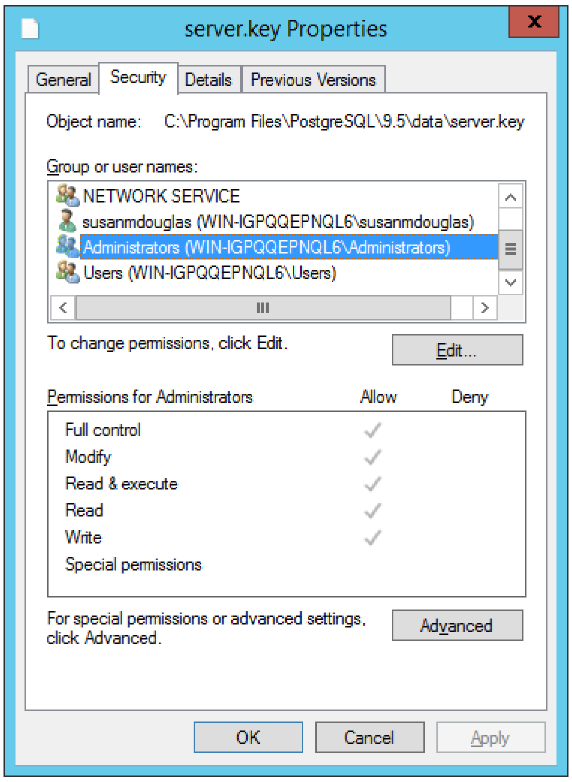
```
chmod 600 <file_name>
```

Where `file_name` specifies the name of the file.

Permissions and Ownership on Windows

On Windows, the certificate files moved from the source host must be owned by the service account that performed the PEM server and backend database installation on the target host. If you invoked the PEM server and Postgres installer using the `Run as Administrator` option (selected from the context menu of the installer), the owner of the certificate files will be `Administrators`.

To review and modify file permissions on Windows, right-click on the file name, and select `Properties`.


server.key Properties

General | Security | Details | Previous Versions

Object name: C:\Program Files\PostgreSQL\9.5\data\server.key

Group or user names:
- NETWORK SERVICE
- susanmdouglas (WIN-IGPQQEPNQL6\susanmdouglas)
- Administrators (WIN-IGPQQEPNQL6\Administrators)
- Users (WIN-IGPQQEPNQL6\Users)

To change permissions, click Edit.

Permissions for Administrators	Allow	Deny
Full control	✓	
Modify	✓	
Read & execute	✓	
Read	✓	
Write	✓	
Special permissions		

For special permissions or advanced settings, click Advanced.

** The Security tab **

Navigate to the `Security` tab and highlight a `Group or user name` to view the assigned permissions. Select `Edit` or `Advanced` to access dialogs that allow you to modify the permissions associated with the selected user.

6. The `postgresql.conf` file contains parameter settings that specify server behavior. You will need to modify the `postgresql.conf` file on the new server to match the configuration specified in the `postgresql.conf` file of the old server.

   By default, the `postgresql.conf` file is located:

   - For Postgres version lower than 10 on Linux, in `/opt/PostgreSQL/<X>/data`
   - For Postgres version 10 or higher when installed with graphical installers on Linux, in `/opt/PostgreSQL/<X>/data`
   - For Postgres version 10 or higher when installed with an RPM on Linux, in `/usr/pgsql/<X>/data`
   - For any Postgres version on Windows, in `C:\Program Files\PostgreSQL\<X>\data`

   Where, `<X>` is the version of Postgres on your system.

Use your choice of editor to update the `postgresql.conf` file of the new server. Modify the following parameters:

- The `port` parameter to listen on the port monitored by your original backend database (typically, `5432`).
- The `ssl` parameter should be set to `on`.

You must also ensure that the following parameters are enabled. If the parameters are commented out, remove the pound sign from in front of each `postgresql.conf` file entry:

- `ssl_cert_file = 'server.crt' # (change requires restart)`
- `ssl_key_file = 'server.key' # (change requires restart)`
- `ssl_ca_file = 'root.crt' # (change requires restart)`
- `ssl_crl_file = 'root.crl'`

Your installation may have other parameter settings that require modification to ensure that the new backend database behaves in a manner comparable to the old backend database. Review the `postgresql.conf` files carefully to ensure that the configuration of the new server matches the configuration of the old server.

7. The `pg_hba.conf` file contains parameter settings that specify how the server will enforce host-based authentication. When you install the PEM server, the installer modifies the `pg_hba.conf` file, adding entries to the top of the file:

```
# Adding entries for PEM Agens and admins to connect to PEM server
```

```
hostssl pem +pem_user 192.168.2.0/24 md5
```

```
hostssl pem +pem_agent 192.168.2.0/24 cert
```

```
# Adding entries (localhost) for PEM Agens and admins
```

`to connect to PEM server`

`hostssl pem +pem_user 127.0.0.1/32 md5`

`hostssl postgres +pem_user 127.0.0.1/32 md5`

`hostssl pem +pem_user 127.0.0.1/32 md5`

`hostssl pem +pem_agent 127.0.0.1/32 cert`

By default, the `pg_hba.conf` file is located at the following location:

- For Postgres version lower than 10 on Linux, in `/opt/PostgreSQL/<X>/data`
- For Postgres version 10 or higher when installed with graphical installers on Linux, in `/Opt/PostgreSQL/<X>/data`
- For Postgres version 10 or higher when installed with RPMs on Linux, in `/var/lib/pgsql/<X>/data`
- For Advanced Server version 10 or higher when installed with RPMs on Linux, in `/var/lib/edb/as<X>/data`
- For any Postgres version on Windows, in `C:\Program Files\PostgreSQL\<X>\data`

Where, `<X>` is the version of Postgres on your system.

Using your editor of choice, copy the entries from the `pg_hba.conf` file of the old server to the `pg_hba.conf` file for the new server.

8. Restart the service of the new backend database.

   On RHEL or CentOS 7.x or 8.x, open a command line and assume the identity of a superuser. Enter the command:

```
systemctl stop <service_name>
```

   Where `service_name` is the name of the backend database server.

   If you are using Windows, you can use the `Services` dialog to control the service. To open the `Services` dialog, navigate through the `Control Panel` to the `System and Security` menu. Select `Administrative Tools`, and then double-click the `Services` icon. When the `Services` dialog opens, highlight the service name in the list, and use the option provided on the dialog to start the service.

---

3 Moving the Postgres Enterprise Manager Server

The steps in this section describe how to move a PEM server from one host machine to a new host machine. The PEM server on the new host (the target) must be installed with the same version of the PEM server installer as the original host (the source). Please note that if you do not use the same installer version, you may encounter a schema-mismatch error.

The backend database of the target server (either PostgreSQL or Advanced Server) may be of the same type and version, or a different type and version than the backend database of the source PEM server. A PEM server that resides on a PostgreSQL host can be migrated to an Advanced Server host, or vice versa.

Before starting the server migration, you should ensure that the firewalls between the source host, the target host, and the host of any PEM Agent will allow connections between the services.

1. Prepare the Target Host

   Invoke the installer for the PEM server on the target host. Please note that you must use the same version of the PEM server installer that you used when installing the source PEM server.

   The backend database of the target server may be a different version or type than the backend database of the source. If the new PEM server does *not* reside on the same type of backend database as the original server, you must ensure that the same version of the `sslutils` extension is installed on the new server host. The version of `sslutils` that is distributed with the PEM installers is freely available for download from the EDB website at:

https://www.enterprisedb.com/downloads/modified-gpl-source-code

For information about installing the PEM server or the `sslutils` extension, please refer to the `PEM Installation Guides`, available at:

https://www.enterprisedb.com/docs/p/edb-postgres-enterprise-manager

2. Drop Existing Schemas from the New PEM Server

   The migration process re-creates the `pem`, `pemdata`, and `pemhistory` schemas from the source PEM server on the target PEM server. In preparation for the move, use the `psql` client to delete these schemas from the `pem` database on the target host. You can open the `psql` client at the command line, or by selecting `SQL Shell (psql)` from the `Postgres Enterprise Manager` menu.

   When the `psql` client opens, connect to the `pem` backend database as the database superuser. After connecting to the `pem` database on the target host, use the following commands to drop the schemas:

   ```
   DROP SCHEMA pem CASCADE;

   DROP SCHEMA pemdata CASCADE;

   DROP SCHEMA pemhistory CASCADE;
   ```

   When dropping the schemas, you must include the `CASCADE` keyword, instructing the server to delete all dependent objects. When executing the command, the `psql` client displays a list of the dependent objects; the client confirms each the schema is removed by displaying `DROP SCHEMA`.

3. Prepare the PEM Agents on the New PEM Server

   Before moving the PEM server, you must identify the number of Agents that are monitored by the source PEM server, and create identities for that number of Agents (less one) on the target server. To discover the total number of `PEM` Agents monitored by the PEM server, connect to the pem database on the source host with the `psql` client, and query the `pem.agent` table.

```
SELECT id FROM pem.agent WHERE active = true;
```

You must manually create the number of Agents that reside on the original PEM server, less one; the PEM server installer has already created one Agent on the target host. For example, if the source server contains three Agents, you must manually create two additional Agents. Open a `psql` session with the `pem` database on the target server, and create the required Agents. Use the command:

```
CREATE USER agent<X>;
```

Where `<X>` specifies an Agent number. Remember, `agent1` is created on the target host by the PEM Server installer.

Then, use the `GRANT` command to assign each Agent that resides on the target PEM Server `pem_agent` permissions:

```
GRANT pem_agent TO agent<X>;
```

Where `<X>` specifies an agent number.

4. Generate a Backup Script of the Source PEM Server

   You can use the `pg_dump` utility to generate a script that contains the commands required to recreate the `pem` database on the target host. By default, `pg_dump` is installed in the `bin` directory under your Postgres installation. To invoke `pg_dump`, open a command line, navigate to the `bin` directory, and enter:

   ```
   pg_dump -U <user_name> <db_name> > <file_name>
   ```

   Where:

- `<user_name>` specifies the name of the database superuser for the PEM backend database.

- `<db_name>` specifies the name of the PEM backend database.

- `<file_name>` specifies the name of the script generated by pg_dump.

  When prompted, provide the password associated with the user specified.

  The command shown instructs `pg_dump` to generate a script that (when executed) will re-create the `pem` database. The script will be named `backup.sql`, and will be created in the `tmp` directory. `pg_dump` is connecting to the server using the credentials of the user, `postgres`.

  Note that invoking the `pg_dump` utility will not interrupt current database users.

!!! Note If the source PEM Server is lower than the 7.16 version, then you need to replace the following functions before you run `pg_dump` to take backup:

~~~
  - The ``abstime``, ``reltime``, and ``tinterval``
datatypes are deprecated from Postgres version 12 or
later, hence to replace those dataypes  with
``timestamptz`` data type use below command:

  ```text
  DO
  $$
  DECLARE
      rec record;
      cnt integer;
  BEGIN
      -- Check for the deprecated type in our user info
probe
      SELECT count(*) INTO cnt
      FROM pem.probe_column
      WHERE sql_data_type = ‘abstime’ AND internal_name
~~~

```
= ‘valuntil’;
        IF cnt = 0 THEN
          RETURN;
        END IF;
      ALTER TABLE pemdata.user_info
        ALTER COLUMN valuntil SET DATA TYPE
timestamptz;
      ALTER TABLE pemhistory.user_info
        ALTER COLUMN valuntil SET DATA TYPE
timestamptz;
      -- Now update the pem.probe_column itself
      UPDATE pem.probe_column
      SET sql_data_type = ‘timestamptz’
      WHERE sql_data_type = ‘abstime’ AND internal_name
= ‘valuntil’;
  END;
  $$ LANGUAGE ‘plpgsql’;
  ```

  - Replace the below function to avoid any alert
errors:

  ```text
  CREATE OR REPLACE FUNCTION
pem.check_alert_params_array_size(
  template_id pem.alert_template.id%type, params text[]
  )
  RETURNS bool AS $FUNC$
  DECLARE
    res bool := TRUE;
  BEGIN
    /*
     * During restoring the pem database, it does not
maintain the order while
     * inserting data in the table, and uses the sort
table based on the
     * names.
     * Hence - we need to check the foreign key
```

```
constraint is present before
     * validating these values.
     */
   IF EXISTS(
    SELECT 1 FROM information_schema.table_constraints
    WHERE constraint_name='alert_template_id_fkey' AND
    table_name='alert' AND table_schema='pem'
   ) THEN
    /*
     * Need to use the IS TRUE construct outside the
main query, because
     * otherwise if there's no template by that ID then
the query would return
     * 0 rows and the result of the function would be
undefined and CHECK
     * constraint would succeed.
     * Probably this is being over-cautious, because
pem.alert.template_id
     * references pem.alert_template.id. But the SQL
standard (probably) does
     * not define the order in which the CHECK or the
FOREIGN KEY constraints
     * should be validated; in case CHECK is validated
first, we want it to
     * fail.
     */
  EXECUTE $SQL$
      SELECT (
          SELECT
pem.check_array_size_equal(t.param_names, $2)
          FROM pem.alert_template AS t
          WHERE id = $1
      ) IS TRUE
    $SQL$ INTO res USING template_id, params;
  END IF;
   RETURN res;
  END
  $FUNC$ LANGUAGE 'plpgsql';
```

```
```
```

5. Move the Backup to the Target Host

   Move the script generated by the `pg_dump` utility to the target host of the PEM server.

6. Restore the Backup on the Target Host

   Open a command line on the target host and navigate into the `bin` directory (under the Postgres backend database installation directory). Start `psql`, executing the script generated by the `pg_dump` utility:

   ```
   psql -U <user_name> -d pem -f <file_name>
   ```

   Where:

   - `<user_name>` specifies the name of the database superuser. The user specified must have connection privileges for the backend database.
   - `<file_name>` specifies the complete path to the backup script generated by pg_dump.

   When prompted, provide the password associated with the database superuser.

   The example shown uses the `psql` client to invoke a script named `backup.sql` to recreate the `pem` database. The script is invoked using the privileges associated with the database superuser, `postgres`.

7. Stop the Database Server on the Target Host

   To stop the PEM Server on CentOS or RHEL 7.x or 8.x, use the command:

   ```
   systemctl stop <service_name>
   ```

   Where, `<service_name>` specifies the name of the backend database server. For a PostgreSQL backend database, the service name is `postgresql-<x>`, and for an Advanced Server backend database, the
   ```

service name is `edb-as-<X>`, where `<X>` specifies the version number.

If you are using Windows, you can use the `Services` dialog to control the service. To open the `Services` dialog, navigate through the `Control Panel` to the `System and Security` menu. Select `Administrative Tools`, and then double-click the `Services` icon. When the `Services` dialog opens, highlight the service name in the list, and use the option provided on the dialog to Stop the service.

8. Copy the Certificate Files to the Target Host

   You must replace the certificate files that are created when the target host is installed with the certificate files of the source host. Copy the following files from the source PEM server to the target PEM server:

   - `ca_certificate.crt`
   - `ca_key.key`
   - `root.crt`
   - `root.crl`
   - `server.key`
   - `server.crt`

   Copy the files to the `data` directory under the Postgres installation that provides the backend database for the target cluster.

   On Linux, the files reside in:

   ```
   /var/lib/pgsql/<X>/data/
   ```

   On Windows, the files reside in:

   ```
   C:\Program Files\PostgreSQL\<X>\data
   ```

   Where:

   `<X>` specifies the version of PostgresSQL on your system.

   The files will already exist on the target cluster; delete the existing files before performing the copy, or overwrite the existing files with the files from the source server. Once in place on the target server, the files should have the (platform-specific) permissions described in the sections that follow.

Permissions and Ownership on Linux

File Name	Owner	Permissions
ca_certificate.crt	postgres	-rw-------
ca_key.key	postgres	-rw-------
root.crt	postgres	-rw-------
root.crl	postgres	-rw-------
server.key	postgres	-rw-------
server.crt	postgres	-rw-r--r--

On Linux, the certificate files must be owned by postgres. You can use the following command at the command line to modify the ownership of the files:

```
chown postgres <file_name>
```

Where `file_name` specifies the name of the certificate file.

The server.crt file may only be modified by the owner of the file, but may be read by any user. You can use the following command to set the file permissions for the server.crt file:

```
chmod 644 server.crt
```

The other certificate files may only be modified or read by the owner of the file. You can use the following command to set the file permissions:

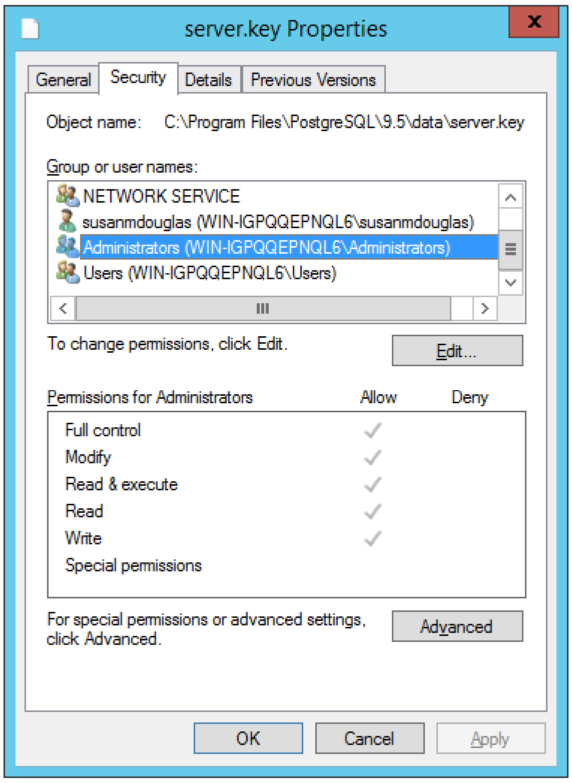
```
chmod 600 <file_name>
```

Where `file_name` specifies the name of the file.

Permissions and Ownership on Windows

On Windows, the certificate files moved from the source host must be owned by the service account that performed the PEM server and backend database installation on the target host. If you invoked the PEM server and Postgres installer using the `Run as Administrator` option (selected from the context menu of the installer), the owner of the certificate files will be `Administrators`.

To review and modify file permissions on Windows, right-click on the file name, and select `Properties`.


server.key Properties

General | Security | Details | Previous Versions

Object name: C:\Program Files\PostgreSQL\9.5\data\server.key

Group or user names:
- NETWORK SERVICE
- susanmdouglas (WIN-IGPQQEPNQL6\susanmdouglas)
- Administrators (WIN-IGPQQEPNQL6\Administrators)
- Users (WIN-IGPQQEPNQL6\Users)

To change permissions, click Edit.

Permissions for Administrators	Allow	Deny
Full control	✓	
Modify	✓	
Read & execute	✓	
Read	✓	
Write	✓	
Special permissions		

For special permissions or advanced settings, click Advanced.

** The Permissions tab **

Navigate to the `Security` tab and highlight a `Group or user name` to view the assigned permissions. Select `Edit` or `Advanced` to access dialogs that allow you to modify the permissions associated with the selected user.

9. Move the PEM Agent Certificate Files to the PEM Server Host

   You must move the certificate files used by the PEM Agent of the source PEM server to the target host. This step is platform-specific.

   On Linux

   Copy the `agent1.key` and `agent1.crt` files from the source host to the target host. By default, on Linux, the files are installed in `/root/.pem`; copy the files to the same directory on the target host.

File ownership and permissions of the files must be set to:

File Name	Owner	Permissions
agent1.key	root	-rw-------
agent1.crt	root	-rw-r--r--

If necessary, navigate to `/root/.pem`, and use the following commands to modify the permissions and ownership of the `agent1.key` file:

```
chmod 600 agent1.key

chown root agent1.key
```

Use the following commands to modify the permissions and ownership of the `agent1.crt` file:

```
chmod 644 agent1.crt

chown root agent1.crt
```

On Windows

Copy the `agent1.key` and `agent1.crt` files from the source host to the target host. On Windows, the files are located in:

```
C:\Users\<user_name>\AppData\Roaming\pem
```

Where `user_name` is the name of the user that invoked the PEM installer.

The ownership and permissions associated with the certificate files on the target machine should match the ownership and permissions of the certificate files on the source machine. If you invoked the PEM server and Postgres installer using the `Run as Administrator` option (selected from the context menu of the installer), the owner of the Agent certificate files will be `Administrators`.

To review and modify file permissions on Windows, right-click on the file name, and select `Properties`. Navigate to the `Security` tab and highlight a `Group or user name` to view the assigned permissions. Select `Edit` or `Advanced` to access dialogs that allow you to modify the permissions associated with the selected user.

10. Update the `pg_hba.conf` Files on the Target Host

    Modify the `pg_hba.conf` file on the target host to allow connections from each PEM Agent. By default, the `pg_hba.conf` file is located in the data directory under your Postgres installation.

11. Start the Server on the Target Host

    After modifying the `pg_hba.conf` file, you must restart the server for the changes to take effect.

    To restart the database server on Linux, use the command:

    ```
    /etc/init.d/<service_name> start
    ```

    Where `service_name` is the name of the backend database server.

    If you are using Windows, you can use the `Services` dialog to control the service. To open the `Services` dialog, navigate through the `Control Panel` to the `System and Security` menu. Select `Administrative Tools`, and then double-click the `Services` icon. When the `Services` dialog opens, highlight the service name in the list, and use the option provided on the dialog to Start the service.

12. Connecting Monitored Agents to the New PEM Server Host

    To instruct existing PEM Agents to connect to the new PEM server host, you must:

    - Ensure that the PEM Agent host can connect to the new PEM server host.
    - Modify the registry (on each Windows host with a PEM Agent) or the

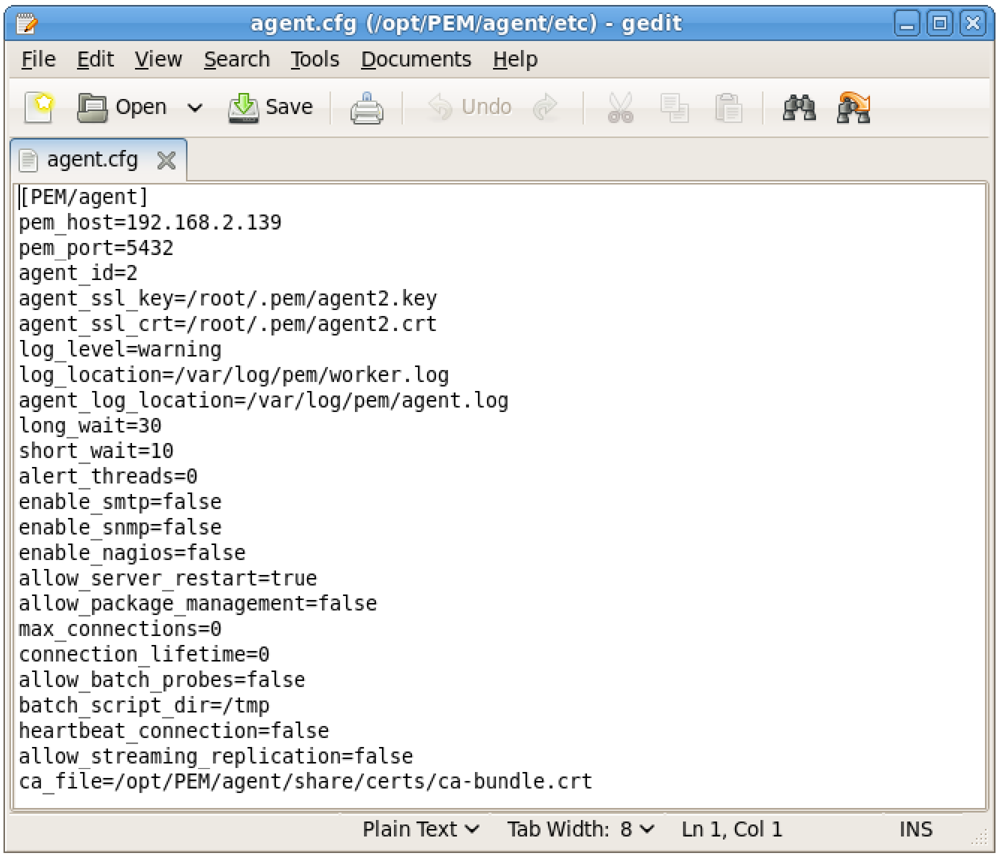
Agent configuration files (on each Linux host with a PEM Agent), specifying the IP address and port of the new PEM server.
- Restart the PEM Agent's service. These steps are platform-specific:
  - On Linux
  - On Windows

If the PEM Agent Resides on Linux

Use your choice of editor to modify the `agent.cfg` file, specifying the new IP address and port number of the PEM server in the `pem_host` and `pem_port` parameters.

By default, the `agent.cfg` file is located in:

```
/usr/edb/pem/agent/etc/agent.cfg
```


agent.cfg (/opt/PEM/agent/etc) - gedit
File Edit View Search Tools Documents Help
Open
Save
Undo
agent.cfg
Plain Text
Tab Width: 8
Ln 1, Col 1
INS

```
[PEM/agent]
pem_host=192.168.2.139
pem_port=5432
agent_id=2
agent_ssl_key=/root/.pem/agent2.key
agent_ssl_crt=/root/.pem/agent2.crt
log_level=warning
log_location=/var/log/pem/worker.log
agent_log_location=/var/log/pem/agent.log
long_wait=30
short_wait=10
alert_threads=0
enable_smtp=false
enable_snmp=false
enable_nagios=false
allow_server_restart=true
allow_package_management=false
max_connections=0
connection_lifetime=0
allow_batch_probes=false
batch_script_dir=/tmp
heartbeat_connection=false
allow_streaming_replication=false
ca_file=/opt/PEM/agent/share/certs/ca-bundle.crt
```

After modifying the `agent.cfg` file, you must restart the PEM Agent service; you can use the `pemagent` service script on the Linux command line to restart the service:

```
/etc/init.d/pemagent restart
```

If the PEM Agent Resides on Windows

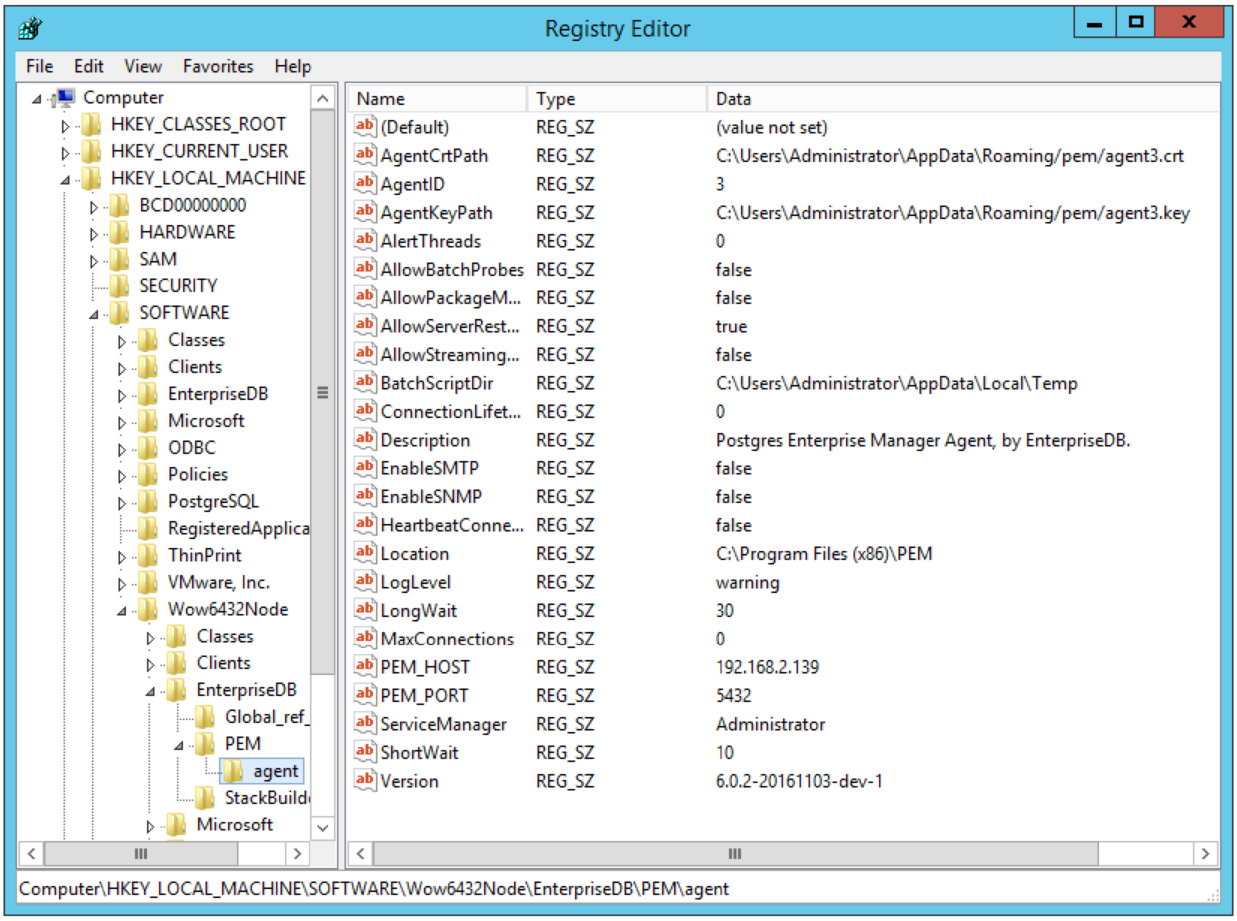
Before modifying the Windows registry on the monitored node, confirm that the firewall on the host of the PEM Agent will allow connections to the PEM server. After confirming that the PEM Agent host can connect to the PEM server host, you can use the Windows `Registry Editor` to review and edit the `PEM_HOST` and `PEM_PORT` entries to ensure that they correctly identify the host and port used by the PEM server. To open the `Registry Editor`, enter `regedit` in the Windows `Run` dialog or in the Windows start menu search box. Navigate through the registry tree control to view or modify registry entries.

On 64-bit Windows, the PEM Agent registry entries are located:

`HKEY_LOCAL_MACHINE SOFTWARE wow6432Mode EnterpriseDB PEM Agent`

On 32-bit Windows, the PEM Agent registry entries are located:

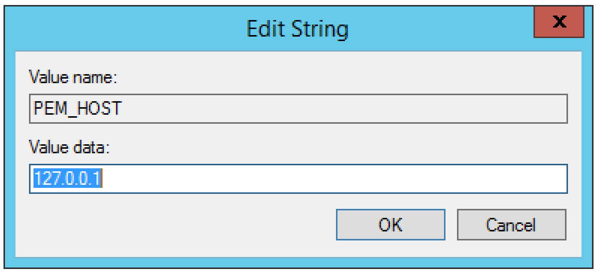
`HKEY_LOCAL_MACHINE SOFTWARE EnterpriseDB PEM Agent`



Name	Type	Data
(Default)	REG_SZ	(value not set)
AgentCrtPath	REG_SZ	C:\Users\Administrator\AppData\Roaming/pem/agent3.crt
AgentID	REG_SZ	3
AgentKeyPath	REG_SZ	C:\Users\Administrator\AppData\Roaming/pem/agent3.key
AlertThreads	REG_SZ	0
AllowBatchProbes	REG_SZ	false
AllowPackageM...	REG_SZ	false
AllowServerRest...	REG_SZ	true
AllowStreaming...	REG_SZ	false
BatchScriptDir	REG_SZ	C:\Users\Administrator\AppData\Local\Temp
ConnectionLifet...	REG_SZ	0
Description	REG_SZ	Postgres Enterprise Manager Agent, by EnterpriseDB.
EnableSMTP	REG_SZ	false
EnableSNMP	REG_SZ	false
HeartbeatConne...	REG_SZ	false
Location	REG_SZ	C:\Program Files (x86)\PEM
LogLevel	REG_SZ	warning
LongWait	REG_SZ	30
MaxConnections	REG_SZ	0
PEM_HOST	REG_SZ	192.168.2.139
PEM_PORT	REG_SZ	5432
ServiceManager	REG_SZ	Administrator
ShortWait	REG_SZ	10
Version	REG_SZ	6.0.2-20161103-dev-1

Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\EnterpriseDB\PEM\agent

The `PEM_HOST` and `PEM_PORT` entries must specify the address and port number of the new PEM server on the target host. To modify a registry entry, right click on the entry `Name`, and select `Modify` from the context menu to open the `Edit String` dialog.

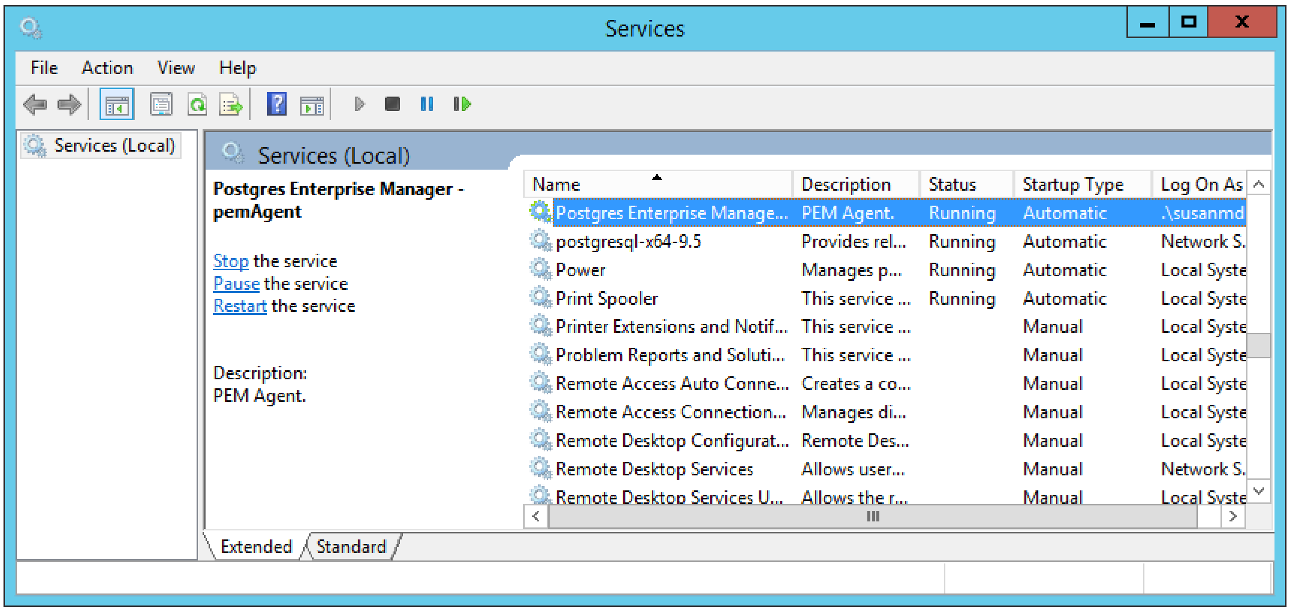


Value name: PEM_HOST

Value data: 127.0.0.1

Use the `Edit String` dialog to make any changes to the value of the entry. When you're finished, click `OK` to save your changes, or `Cancel` to exit without saving.

After modifying the registry, you must restart the PEM Agent's service; you can use the `Services` dialog (accessed through the Windows `Control Panel`) to restart the `Postgres Enterprise Manager - pemagent` service .



Postgres Enterprise Manager - pemAgent

Stop the service
Pause the service
Restart the service

Description:
PEM Agent.

Name	Description	Status	Startup Type	Log On As
Postgres Enterprise Manage...	PEM Agent.	Running	Automatic	.\susanmd
postgresql-x64-9.5	Provides rel...	Running	Automatic	Network S.
Power	Manages p...	Running	Automatic	Local Syste
Print Spooler	This service ...	Running	Automatic	Local Syste
Printer Extensions and Notif...	This service ...		Manual	Local Syste
Problem Reports and Soluti...	This service ...		Manual	Local Syste
Remote Access Auto Conne...	Creates a co...		Manual	Local Syste
Remote Access Connection...	Manages di...		Manual	Local Syste
Remote Desktop Configurat...	Remote Des...		Manual	Local Syste
Remote Desktop Services	Allows user...		Manual	Network S.
Remote Desktop Services U...	Allows the r...		Manual	Local Syste

**

Restarting the PEM Agent service **

After moving the server, change the connection properties in any installed PEM clients to connect to the new host of the PEM server, Agents, and monitored servers.

4 Troubleshooting

Reconfiguring the PEM Server

In some situations you may need to uninstall the PEM server, install it again, and then reconfigure the server. Use the following commands in the given sequence:

1. Use the following command to remove the PEM server configuration and uninstall:

   ```
   /usr/edb/pem/bin/configure-pem-server.sh -un
   ```

2. Use the following command to remove the PEM packages:

   ```
   yum erase edb-pem-server
   ```

3. Use the following command to drop the `pem` database:

   ```
   DROP DATABASE pem
   ```

4. Move the certificates from `/root/.pem/` to another location:

   ```
   mv /root/.pem/* <new_location>
   ```

5. Move the `agent.cfg` file from `/usr/edb/pem/agent/etc/agent.cfg` to another location:

   ```
   mv /usr/edb/pem/agent/etc/agent.cfg <new_location>
   ```

6. Then, use the following command to configure the PEM server again:

   ```
   /usr/edb/pem/bin/configure-pem-server.sh
   ```