EDB PgBouncer

Version 1

1   EDB PgBouncer

EDB PgBouncer is a lightweight connection pooling utility for Postgres and EDB Postgres Advanced Server installations that is based on the open-source PgBouncer project.

When a client application connects to a Postgres server, it negotiates a connection, which takes time. PgBouncer saves time by maintaining a pool of preestablished connections to the server. Instead of connecting directly to the server, the client connects to PgBouncer, minimizing the connection negotiation time by using a previously established connection made available to the client in the PgBouncer pool.

EnterpriseDB enhancements for the PgBouncer project are available via RPM Packages, deb packages, or a graphical installer that you can download with StackBuilder Plus. The enhancements allow EDB PgBouncer to service clients that are using EDB connectors that require compatible out parameter handling.

For more information about PgBouncer, including reference and usage information, see the PgBouncer project site.

2   Release notes

The EDB PgBouncer documentation describes the latest version of EDB PgBouncer 1, including minor releases and patches. The release notes provide information on what was new in each release. For new functionality introduced in a minor or patch release, the content also indicates the release that introduced the feature.

Version	Release date	Upstream merges
1.22.1.0	16 Apr 2024	Upstream 1.22.1.0
1.22.0.0	29 Feb 2024	Upstream 1.22.0.0
1.21.0.0	16 Oct 2023	Upstream 1.21.0.0
1.20.0.0	09 Aug 2023	Upstream 1.20.0.0
1.19.0.0	07 Jun 2023	Upstream 1.19.0.0
1.18.0.0	14 Feb 2023	Upstream 1.18.0.0
1.17.0.0	04 Aug 2022	Upstream 1.17.0.0
1.16.1.0	11 Dec 2021	Upstream 1.16.1.0
1.16.0.1	10 Jun 2021	Upstream 1.16.0.1

2.1   EDB PgBouncer 1.22.1.0 release notes

Released: 16 Apr 2024

EDB PgBouncer 1.22.1.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.22.1.0. See the community Release Notes for details.

2.2   EDB PgBouncer 1.22.0.0 release notes

Released: 29 Feb 2024

EDB PgBouncer 1.22.0.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.22.0.0. See the community Release Notes for details.

2.3 EDB PgBouncer 1.21.0.0 release notes

Released: 16 October 2023

EDB PgBouncer 1.21.0.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.21.0.0. See the community Release Notes for details.

2.4 EDB PgBouncer 1.20.0.0 release notes

Released: 09 August 2023

EDB PgBouncer 1.20.0.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.20.0.0. See the community Release Notes for details.

2.5 EDB PgBouncer 1.19.0.0 release notes

Released: 07 Jun 2023

EDB PgBouncer 1.19.0.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.19.0.0. See the community Release Notes for details.

2.6 EDB PgBouncer 1.18.0.0 release notes

Released: 14 Feb 2023

EDB PgBouncer 1.18.0.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.18.0.0. See the community Release Notes for details.
Enhancement	Support for EDB Postgres Advanced Server 15.

2.7 EDB PgBouncer 1.17.0.0 release notes

Released: 04 Aug 2022

EDB PgBouncer 1.17.0.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.17.0.0. See the community Release Notes for details.

2.8 EDB PgBouncer 1.16.0.0 release notes

Released: 11 Dec 2021

EDB PgBouncer 1.16.1.0 includes the following upstream merge and security fix:

Type	Description
Upstream merge	Merged with community PgBouncer 1.16.1.0. See the community Release Notes for details.
Security fix	Make PgBouncer acting as a server reject extraneous data after an SSL or GSS encryption handshake. A man-in-the-middle with the ability to inject data into the TCP connection could stuff some cleartext data into the start of a supposedly encryption-protected database session. This could be abused to send faked SQL commands to the server, although that would only work if PgBouncer did not demand any authentication data. However, a PgBouncer setup relying on SSL certificate authentication might well not do so.

2.9 EDB PgBouncer 1.16.0.1 release notes

Released: 10 Jun 2021

New features, enhancements, bug fixes, and other changes in EDB PgBouncer 1.16.0.1 include the following:

Type	Description

Type	Description
Upstream merge	Merged with community PgBouncer 1.16.0.1. See the community Release Notes for details.
Feature	Support hot reloading of TLS settings. When the configuration file is reloaded, updated TLS settings are automatically enforced.
Feature	Add support for abstract Unix-domain sockets. Prefix a Unix-domain socket path with `@` to use a socket in the abstract namespace.
Feature	The maximum length of passwords and user names have been increased to 996 and 128, respectively. Various cloud services require this.
Feature	The minimum pool size can now be set per database, similar to the regular pool size and the reserve pool size.
Feature	The number of pending query cancellations is shown in SHOW POOLS.
Bug fix	Configuration parsing now has tighter error handling in many places. Previously, it might have logged an error and proceeded. Those configuration errors would now result in startup failures.
Bug fix	Query cancel handling has been fixed. Under some circumstances, cancel requests would seemingly get stuck for a long time.
Bug fix	Mixed use of md5 and scram via hba has been fixed.
Bug fix	The "FIXME: query end, but query_start == 0" messages have been fixed. The cause of these messages is now known.
Bug fix	Fix reloading of default_pool_size, min_pool_size, and res_pool_size. Previously when these properties were reloaded, it didn't work.

3   Supported platforms

The EDB PgBouncer is supported on the same platforms as EDB Postgres Advanced Server. To determine the platform support for the EDB PgBouncer, you can either refer to the platform support for EDB Postgres Advanced Server on the Platform Compatibility page on the EDB website or refer to Installing EDB pgBouncer.

Supported database versions

This table lists the latest EDB PgBouncer versions and their supported corresponding EDB Postgres Advanced Server (EPAS) versions.

EDB PgBouncer	EPAS 16	EPAS 15	EPAS 14	EPAS 13	EPAS 12
1.22	Y	Y	Y	Y	Y
1.21	Y	Y	Y	Y	Y
1.20	Y	Y	Y	Y	Y
1.19	Y	Y	Y	Y	Y
1.18	Y	Y	Y	Y	Y
1.17	N	N	Y	Y	Y
1.16	N	N	Y	Y	Y
1.15	N	N	N	Y	Y
1.14	N	N	N	Y	Y
1.13	N	N	N	N	Y
1.12	N	N	N	N	Y
1.9	N	N	N	N	N
1.7	N	N	N	N	N

The documented and supported functionality of each version of EDB PgBouncer is the same. The information in this documentation applies to all

supported versions of EDB PgBouncer.

4   Installing EDB pgBouncer

Select a link to access the applicable installation instructions:

Linux x86-64 (amd64)

Red Hat Enterprise Linux (RHEL) and derivatives

- RHEL 9, RHEL 8, RHEL 7

- Oracle Linux (OL) 9, Oracle Linux (OL) 8, Oracle Linux (OL) 7

- Rocky Linux 9, Rocky Linux 8

- AlmaLinux 9, AlmaLinux 8

- CentOS 7

SUSE Linux Enterprise (SLES)

- SLES 15, SLES 12

Debian and derivatives

- Ubuntu 22.04, Ubuntu 20.04

- Debian 11, Debian 10

Linux IBM Power (ppc64le)

Red Hat Enterprise Linux (RHEL) and derivatives

- RHEL 9, RHEL 8

SUSE Linux Enterprise (SLES)

- SLES 15, SLES 12

Windows

- Windows Server 2019

4.1   Installing EDB pgBouncer on Linux x86 (amd64)

Operating system-specific install instructions are described in the corresponding documentation:

Red Hat Enterprise Linux (RHEL) and derivatives

- RHEL 9

- RHEL 8

- RHEL 7

- Oracle Linux (OL) 9

- Oracle Linux (OL) 8

- Oracle Linux (OL) 7

- Rocky Linux 9

- Rocky Linux 8

- AlmaLinux 9

- AlmaLinux 8

- CentOS 7

SUSE Linux Enterprise (SLES)

- SLES 15

- SLES 12

Debian and derivatives

- Ubuntu 22.04

- Ubuntu 20.04

- Debian 11

- Debian 10

4.1.1   Installing EDB pgBouncer on RHEL 9 or OL 9 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - Installing EDB Postgres Advanced Server

    - Installing PostgreSQL

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    dnf repolist | grep enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to EDB repositories.

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

    ```
    sudo dnf -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-9.noarch.rpm
    ```

Install the package

```
sudo dnf -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118` .

4.1.2   Installing EDB pgBouncer on RHEL 8 or OL 8 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - Installing EDB Postgres Advanced Server

    - Installing PostgreSQL

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    dnf repolist | grep enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to EDB repositories.

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

    ```
    sudo dnf -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
    ```

Install the package

```
sudo dnf -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.1.3   Installing EDB pgBouncer on AlmaLinux 9 or Rocky Linux 9 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - [Installing EDB Postgres Advanced Server](#)

    - [Installing PostgreSQL](#)

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    dnf repolist | grep enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to [EDB repositories](#).

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

    ```
    sudo dnf -y install epel-release
    ```

- Enable additional repositories to resolve dependencies:

    ```
    sudo dnf config-manager --set-enabled crb
    ```

Install the package

```
sudo dnf -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118` .

4.1.4   Installing EDB pgBouncer on AlmaLinux 8 or Rocky Linux 8 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - [Installing EDB Postgres Advanced Server](#)

    - [Installing PostgreSQL](#)

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    dnf repolist | grep enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to [EDB repositories](#).

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

    ```
    sudo dnf -y install epel-release
    ```

- Enable additional repositories to resolve dependencies:

    ```
    sudo dnf config-manager --set-enabled powertools
    ```

Install the package

```
sudo dnf -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118` .

4.1.5   Installing EDB pgBouncer on RHEL 7 or OL 7 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - [Installing EDB Postgres Advanced Server](#)

    - [Installing PostgreSQL](#)

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    dnf repolist | grep enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to [EDB repositories](#).

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

    ```
    sudo yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
    ```

- Enable additional repositories to resolve dependencies:

    ```
    subscription-manager repos --enable "rhel-*-optional-rpms" --enable "rhel-*-extras-rpms"  --enable "rhel-ha-for-rhel-*-server-rpms"
    ```

Install the package

```
sudo yum -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118` .

4.1.6   Installing EDB pgBouncer on CentOS 7 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - Installing EDB Postgres Advanced Server

    - Installing PostgreSQL

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    dnf repolist | grep enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to EDB repositories.

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

    ```
    sudo yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
    ```

Install the package

```
sudo yum -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.1.7   Installing EDB pgBouncer on SLES 15 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - [Installing EDB Postgres Advanced Server](#)

    - [Installing PostgreSQL](#)

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    zypper lr -E | grep enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to [EDB repositories](#).

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

- Activate the required SUSE module:

    ```
    sudo SUSEConnect -p PackageHub/15.4/x86_64
    ```

- Refresh the metadata:

    ```
    sudo zypper refresh
    ```

Install the package

```
sudo zypper -n install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.1.8   Installing EDB pgBouncer on SLES 12 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

  - [Installing EDB Postgres Advanced Server](#)

  - [Installing PostgreSQL](#)

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

  ```
  zypper lr -E | grep enterprisedb
  ```

  If no output is generated, the repository isn't installed.

  To set up the EDB repository:

  1. Go to [EDB repositories](#).

  2. Select the button that provides access to the EDB repository.

  3. Select the platform and software that you want to download.

  4. Follow the instructions for setting up the EDB repository.

- Activate the required SUSE module:

  ```
  sudo SUSEConnect -p PackageHub/12.5/x86_64
  sudo SUSEConnect -p sle-sdk/12.5/x86_64
  ```

- Refresh the metadata:

  ```
  sudo zypper refresh
  ```

Install the package

```
sudo zypper -n install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118` .

4.1.9   Installing EDB pgBouncer on Ubuntu 22.04 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - [Installing EDB Postgres Advanced Server](#)

    - [Installing PostgreSQL](#)

- Set up the EDB repository.

    Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

    To determine if your repository exists, enter this command:

    ```
    apt-cache search enterprisedb
    ```

    If no output is generated, the repository isn't installed.

    To set up the EDB repository:

    1. Go to [EDB repositories](#).

    2. Select the button that provides access to the EDB repository.

    3. Select the platform and software that you want to download.

    4. Follow the instructions for setting up the EDB repository.

Install the package

```
sudo apt-get -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118` .

4.1.10 Installing EDB pgBouncer on Ubuntu 20.04 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - [Installing EDB Postgres Advanced Server](#)

- Installing PostgreSQL

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

  ```
  apt-cache search enterprisedb
  ```

  If no output is generated, the repository isn't installed.

  To set up the EDB repository:

  1. Go to EDB repositories.

  2. Select the button that provides access to the EDB repository.

  3. Select the platform and software that you want to download.

  4. Follow the instructions for setting up the EDB repository.

Install the package

```
sudo apt-get -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.1.11   Installing EDB pgBouncer on Debian 11 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

  - Installing EDB Postgres Advanced Server

  - Installing PostgreSQL

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

```
apt-cache search enterprisedb
```

If no output is generated, the repository isn't installed.

To set up the EDB repository:

1. Go to EDB repositories.

2. Select the button that provides access to the EDB repository.

3. Select the platform and software that you want to download.

4. Follow the instructions for setting up the EDB repository.

Install the package

```
sudo apt-get -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.1.12   Installing EDB pgBouncer on Debian 10 x86_64

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

  - Installing EDB Postgres Advanced Server

  - Installing PostgreSQL

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

  ```
  apt-cache search enterprisedb
  ```

  If no output is generated, the repository isn't installed.

  To set up the EDB repository:

  1. Go to EDB repositories.

2. Select the button that provides access to the EDB repository.

3. Select the platform and software that you want to download.

4. Follow the instructions for setting up the EDB repository.

Install the package

```
sudo apt-get -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.2   Installing EDB pgBouncer on Linux IBM Power (ppc64le)

Operating system-specific install instructions are described in the corresponding documentation:

Red Hat Enterprise Linux (RHEL)

- RHEL 9

- RHEL 8

SUSE Linux Enterprise (SLES)

- SLES 15

- SLES 12

4.2.1   Installing EDB pgBouncer on RHEL 9 ppc64le

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

    - Installing EDB Postgres Advanced Server

    - Installing PostgreSQL

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

  ```
  dnf repolist | grep enterprisedb
  ```

  If no output is generated, the repository isn't installed.

  To set up the EDB repository:

  1. Go to EDB repositories.

  2. Select the button that provides access to the EDB repository.

  3. Select the platform and software that you want to download.

  4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

  ```
  sudo dnf -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-9.noarch.rpm
  ```

- Refresh the cache:

  ```
  sudo dnf makecache
  ```

Install the package

```
sudo dnf -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.2.2   Installing EDB pgBouncer on RHEL 8 ppc64le

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

  - Installing EDB Postgres Advanced Server

  - Installing PostgreSQL

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

  ```
  dnf repolist | grep enterprisedb
  ```

  If no output is generated, the repository isn't installed.

  To set up the EDB repository:

  1. Go to EDB repositories.

  2. Select the button that provides access to the EDB repository.

  3. Select the platform and software that you want to download.

  4. Follow the instructions for setting up the EDB repository.

- Install the EPEL repository:

  ```
  sudo dnf -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
  ```

- Refresh the cache:

  ```
  sudo dnf makecache
  ```

Install the package

```
sudo dnf -y install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.2.3   Installing EDB pgBouncer on SLES 15 ppc64le

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

  - Installing EDB Postgres Advanced Server

  - Installing PostgreSQL

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

  ```
  zypper lr -E | grep enterprisedb
  ```

  If no output is generated, the repository isn't installed.

  To set up the EDB repository:

  1. Go to EDB repositories.

  2. Select the button that provides access to the EDB repository.

  3. Select the platform and software that you want to download.

  4. Follow the instructions for setting up the EDB repository.

- Activate the required SUSE module:

  ```
  sudo SUSEConnect -p PackageHub/15.4/ppc64le
  ```

- Refresh the metadata:

  ```
  sudo zypper refresh
  ```

Install the package

```
sudo zypper -n install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.2.4   Installing EDB pgBouncer on SLES 12 ppc64le

Prerequisites

Before you begin the installation process:

- Install Postgres on the same host. See:

  - Installing EDB Postgres Advanced Server

  - Installing PostgreSQL

- Set up the EDB repository.

  Setting up the repository is a one-time task. If you have already set up your repository, you don't need to perform this step.

  To determine if your repository exists, enter this command:

  ```
  zypper lr -E | grep enterprisedb
  ```

  If no output is generated, the repository isn't installed.

  To set up the EDB repository:

  1. Go to EDB repositories.

  2. Select the button that provides access to the EDB repository.

  3. Select the platform and software that you want to download.

  4. Follow the instructions for setting up the EDB repository.

- Activate the required SUSE module:

  ```
  sudo SUSEConnect -p PackageHub/12.5/ppc64le
  sudo SUSEConnect -p sle-sdk/12.5/ppc64le
  ```

- Refresh the metadata:

  ```
  sudo zypper refresh
  ```

Install the package

```
sudo zypper -n install edb-pgbouncer<xx>
```

Where `<xx>` is the version of EDB PgBouncer you are installing. For example, if you are installing version 1.18, the package name would be `edb-pgbouncer118`.

4.3   Installing EDB PgBouncer on a Windows host

EDB provides a graphical interactive installer for Windows. You can access it two ways:

- Download the graphical installer from the Downloads page, and invoke the installer directly. See Installing directly.

- Use Stack Builder (with PostgreSQL) or StackBuilder Plus (with EDB Postgres Advanced Server) to download the EDB installer package and invoke the graphical installer. See Using Stack Builder or StackBuilder Plus.

Installing directly

After downloading the graphical installer, to start the installation wizard, assume sufficient privileges (superuser or administrator) and double-click the installer icon. If prompted, provide a password.

In some versions of Windows, to invoke the installer with administrator privileges, you need to right-click the installer icon and select **Run as Administrator** from the context menu.

Proceed to Using the graphical installer.

Using Stack Builder or StackBuilder Plus

If you're using PostgreSQL, you can invoke the graphical installer with Stack Builder. SeeUsing Stack Builder.

If you're using EDB Postgres Advanced Server, you can invoke the graphical installer with StackBuilder Plus. SeeUsing StackBuilder Plus.

1. In Stack Builder or StackBuilder Plus, follow the prompts until you get to the module selection page.

   On the Welcome page, select the target server installation from the list of available servers. If your network requires you to use a proxy server to access the internet, select **Proxy servers** and specify a server. Select **Next**.

2. Expand the **Add-ons, tools and utilities** node and select **pgBouncer**.

3. Proceed to Using the graphical installer.

Using the graphical installer

1. Select the installation language and select **OK**.

2. On the Setup pgBouncer page, select **Next**.

3. Browse to a directory where you want to install pgBouncer, or leave the directory set to the default location. Select **Next**.

4. On the EDB Postgres Advanced Server Installation Details page, provide connection information for the Advanced Server host and select **Next**.

   - **Host** identifies the system where Advanced Server resides.

   - **User Name** provides the name of the role that EDB PgBouncer uses for connections to the host server. If you are connecting to EDB Postgres Advanced Server, the default administrative user is *enterprisedb*. If you are connecting to PostgreSQL, the default administrative name is *postgres*.

   - **Password** is the password of the role that connects to the host server.

   - **Port** identifies the listener port that Advanced Server or PostgreSQL monitors for client connections.

5. Specify the listening port that PgBouncer monitors for connections and select **Next**.

6. On the Ready to Install page, select **Next**.

An information box shows the installation progress of the selected components.

7. When the installation is complete, select **Finish**.

4.4   Uninstalling

You can uninstall EDB PgBouncer.

Uninstalling EDB PgBouncer on a RHEL/Rocky Linux/AlmaLinux host

To uninstall EDB PgBouncer on a CentOS host, assume the identity of the root user and invoke the command.

On RHEL/CentOS 7:

```
yum -y erase edb-pgbouncer<xx>
```

On RHEL/Rocky Linux/AlmaLinux 8:

```
dnf -y erase edb-pgbouncer<xx>
```

Where `<xx>` is the EDB PgBouncer version you want to uninstall.

Uninstalling EDB PgBouncer on a Debian or Ubuntu host

To uninstall EDB PgBouncer on a Debian or Ubuntu host:

```
apt-get remove edb-pgbouncer<xx>
```

Where `<xx>` is the version you want to uninstall.

Uninstalling EDB PgBouncer on an SLES 12 host

To uninstall PgBouncer on an SLES 12 host, assume the identity of the root user and invoke:

```
zypper remove edb-pgbouncer<xx>
```

Where `<xx>` is the version you want to uninstall.

For example, to uninstall EDB PgBouncer 1.16:

```
zypper remove edb-pgbouncer116
```

Uninstalling EDB PgBouncer on a Windows host

1. The EDB PgBouncer graphical installer creates an uninstaller in the installation directory. Navigate into the installation directory and assume superuser privileges. Open the uninstaller and select **Yes** to begin uninstalling EDB PgBouncer.

   The uninstallation process begins.

2. Select **OK** when the uninstallation completes.

5   Upgrading

You can upgrade to a patch release with a simple in place upgrade. A minor release upgrade, such as upgrading from 1.15 to 1.16, requires additional steps.

Upgrading a minor release

To upgrade to a new minor release:

1. Install the new version of EDB PgBouncer. For instructions, see Installing.

2. If you have any custom configurations in the `edb-pgbouncer.ini` and `userlist.txt` files for the previously installed version, copy them from the versions of those files where the customization were made and paste them to the corresponding files for the release you just installed.

3. Stop the previous version.

4. Start and enable the new version.

5. Test the new version to make sure it's running.

6. After successfully deploying the new version, remove the previous version with the following command:

   ```
   <package-manager> remove edb-pgbouncer<xx>
   ```

   Where:

   - `<package-manager>` is the package manager used with your operating system:

Package manager	Operating system
dnf	RHEL 8 or later and derivatives
yum	RHEL 7 and derivatives, CentOS 7
zypper	SLES
apt-get	Debian and derivatives

   - `<xx>` is the previous version.

6   Configuring and usage

Configure EDB PgBouncer before you use it.

Configuring EDB PgBouncer

When the EDB PgBouncer service is running, any Postgres client connecting to the EDB PgBouncer listener port specified in the configuration file uses connection pooling. EDB PgBouncer connection and configuration information is stored in the `.ini` file.

On RedHat/Centos, Debian, and SLES 12 SP5, the `.ini` file is located in the following directory:

```
/etc/edb/pgbouncer<x.x>/
```

<x.x> is the EDB PgBouncer version.

On Windows, the `.ini` file is located in the following directory:

```
C:\Program Files\edb\pgbouncer<x.x>\share\
```

<x.x> is the EDB PgBouncer version.

The EDB PgBouncer configuration file is divided into two sections: `[databases]` and `[pgbouncer]`.

The `[databases]` section of the configuration file contains a list of databases and the associated connection information. The configuration file includes an entry for the installation of EDB Postgres Advanced Server that installed EDB PgBouncer:

```
edb = host=127.0.0.1 port=5444
```

For PostgreSQL Server, you need to enter PostgreSQL server details, such as those shown in the following example.

```
postgres = host=127.0.0.1 port=5432
```

You can specify more database connection information in the configuration file in the form of `keyword=value` pairs. You can include the parameters shown in the table.

Parameter	Description
`host`	The IP address of the host
`port`	The port on which the host is listening
`dbname`	The (optional) database name
`user`	A user name (if different from the information specified by the connecting client)
`password`	A password (if different from the information specified by the connecting client)

The following example shows the syntax allowed in the `[databases]` section of the configuration file:

```
[databases]
```

```
edb = host=127.0.0.1
port=5444
postgres = host=127.0.0.1
port=5432
acctg = host=192.168.10.101 port=5432 user=bob
password=XXXXX
```

Include the `dbname` parameter to map the connection name to an alternative database name. For example:

```
hr = host=127.0.0.1 port=5445 dbname=humanresources
```

When the client provides authentication information, that information is used to connect to EDB PgBouncer. EDB PgBouncer then uses the information specified in the EDB PgBouncer configuration file to connect to the database server. The user information provided in the configuration file must match a role defined in the Postgres database cluster.

> **Note**
>
> If you don't specify user details in `pgbouncer.ini`, the user name and password are authenticated by the database server and EDB PgBouncer. As such, include the user name and password in the `userlist.txt` file and the database cluster.

The `[pgbouncer]` section of the configuration file contains configuration details specific to EDB PgBouncer:

Parameter	Description
`admin_users`	A comma-delimited list of users that are allowed to access the Admin console (for management and monitoring purposes). By default, EDB PgBouncer is installed with `admin_users = enterprisedb`. For the PostgreSQL server, set this value as `admin_users = postgres`.
`auth_file`	The path to the authentication file that contains user name and passwords of clients that can connect to EDB PgBouncer. The authentication file (`userlist.txt`) is located in `/etc/edb/pgbouncer<x.x>/`, and contains *username/password* pairs that specify the identities that clients can use to access EDB PgBouncer. In the authentication file, specify the user name and password in double quotes. To make changes to the identities that can access EDB PgBouncer, you can edit the existing authentication file or specify an alternative authentication file with the `auth_file` parameter.
`auth_type`	The authentication method used by EDB PgBouncer. Can be: `md5`, `crypt`, `plain`, `trust`, or `any`. The default value is `md5`.
`auth_dbname`	The option to specify the database name. The query mentioned by auth_query runs against this database.
`default_pool_size`	The amount of user connections that are allowed to access the server. The default is 20 active connections.
`ignore_startup_parameters`	A comma-delimited list of application startup packets for EDB PgBouncer to ignore. The default is application_name.
`listen_addr`	The IP address on which EDB PgBouncer listens for client connections. If omitted, only Unix socket connections are allowed. The client must also reside on the same host as EDB PgBouncer and can't specify a host IP address when connecting to EDB PgBouncer.
`listen_port`	The port that EDB PgBouncer monitors for client connections. By default, EDB PgBouncer listens on port 6432.
`logfile`	The path to the EDB PgBouncer log file.
`max_client_conn`	The maximum number of connections allowed. The default is 100.
`pidfile`	The path to the process ID file.

Parameter	Description
`pool_mode`	The value of `pool_mode` specifies when the server connection can be made available to the connection pool. Can be `session`, `transaction`, or `statement`. The default value is `session`.
`server_reset_query`	The default is `DISCARD ALL`, which instructs EDB PgBouncer to clean any changes made to a database session.
`stats_users`	A comma-delimited list of users who are allowed to connect and run read-only queries. The default is `stats_users = enterprisedb`. For the PostgreSQL server, set this value as `stats_users = postgres`.
`cancel_wait_timeout`	The time after which PgBouncer gives up on forwarding a cancel request. The default is 10 seconds.

The following example shows the syntax allowed in the `[pgbouncer]` section of the configuration file for EDB PgBouncer 1.16 for EDB Postgres Advanced Server:

```
[pgbouncer]
logfile = /var/log/edb/pgbouncer1.16/edb-pgbouncer-
1.16.log
pidfile = /var/run/edb/pgbouncer1.16/edb-pgbouncer-
1.16.pid
listen_addr =
*
listen_port = 6432
auth_type =
md5
auth_file = /etc/edb/pgbouncer-
1.16/userlist.txt
admin_users = enterprisedb
stats_users = enterprisedb
pool_mode = session
server_reset_query = DISCARD
ALL
ignore_startup_parameters =
application_name
max_client_conn = 100
default_pool_size = 20
```

For more information about the settings used in the `pgbouncer.ini` file, see pgbouncer.ini.

After editing the EDB PgBouncer configuration file for your environment, restart the EDB PgBouncer service to make the changes take effect. For CentOS, Rocky Linux, AlmaLinux, RHEL, SUSE, and Windows platforms, the EDB PgBouncer service name is `edb-pgbouncer-1.16`. For Deb packages, the EDB PgBouncer service name is `edb-pgbouncer116`. Use platform-specific commands to stop, start, or restart the service as needed.

Using the EDB PgBouncer Admin console

The Admin console allows you to retrieve statistical information about EDB PgBouncer activity and to control the EDB PgBouncer process. You can use the edb-psql client to access the EDB PgBouncer Admin console by connecting to the `pgbouncer` database.

The following example connects to the pgbouncer database with the edb-psql client on a Linux system. EDB PgBouncer is listening on port 6432 with a user name of enterprisedb:

Enter following command after navigating to the bin directory under your EDB Postgres Advanced Server installation. That the required connection information varies according to the connecting client, platform, and authentication information required by the server.

```
$ ./edb-psql -p 6432 -U enterprisedb pgbouncer
```

For PostgreSQL server, the command is:

```
$ ./edb-psql -p 6432 -h /tmp -U postgres  pgbouncer
```

After connecting to the pgbouncer database, you can use the `SHOW CLIENTS` command to retrieve client-related information:

```
# SHOW CLIENTS;
```

The `SHOW CLIENTS` command returns:

```
__OUTPUT__
--[ RECORD 1]-+------------------
-
   type         |
C
   user         |
enterprisedb
   database     |
pgbouncer
   state        |
active
   addr         |
unix
   port         |
6432
   local_addr   |
unix
   local_port   |
6432
   connect_time | 2010-05-25
05:26:20
   request_time | 2010-05-25
05:39:46
   ptr          |
0x8655d20
   link
|
```

You can use other variations of the `SHOW` command to retrieve information about EDB PgBouncer:

```
SHOW STATS
SHOW SERVERS
SHOW POOLS
SHOW LISTS
SHOW USERS
SHOW DATABASES
SHOW FDS
SHOW CONFIG  SHOW STATE
```

You can use the following commands to control the EDB PgBouncer process. For more information about using PgBouncer, see the PgBouncer project site.

```
PAUSE
```

Use the `PAUSE` command to disconnect all servers after waiting for current queries to complete.

```
SUSPEND
```

Use the `SUSPEND` command to flush the socket buffers and suspend the EDB PgBouncer process.

`RESUME`

Use the `RESUME` command to resume work after a `PAUSE` or `SUSPEND` command.

`SHUTDOWN`

Use the `SHUTDOWN` command to stop the EDB PgBouncer process and exit.

`RELOAD`

Use the `RELOAD` command to reload the EDB PgBouncer configuration files.