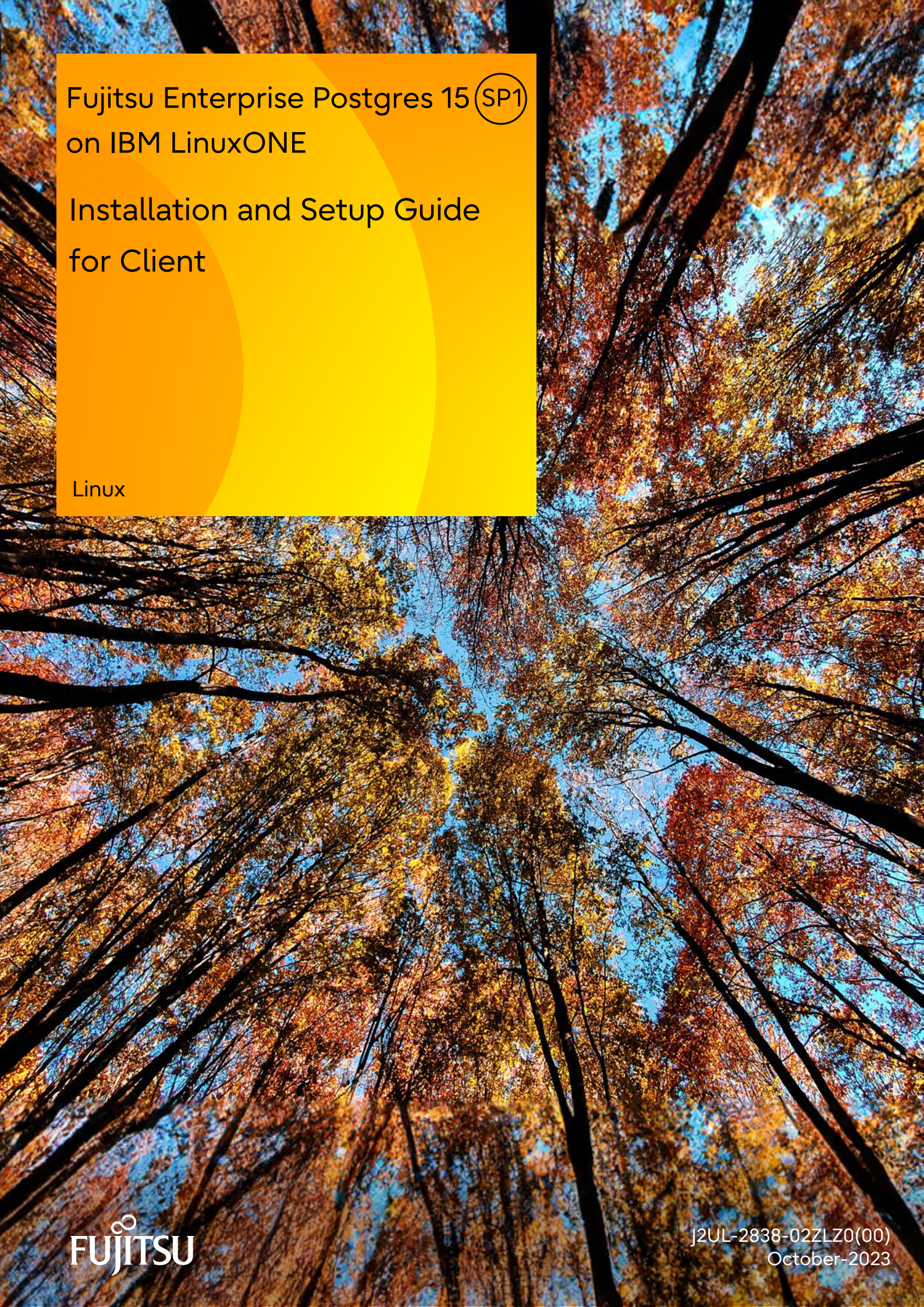
Fujitsu Enterprise Postgres 15 SP1 on IBM LinuxONE

Installation and Setup Guide for Client

Linux



FUJITSU

J2UL-2838-02ZLZ0(00)
October-2023

Preface

Purpose of this document

This document describes how to install, uninstall and set up the "Fujitsu Enterprise Postgres client feature".

Intended readers

This document is intended for those who install and operate Fujitsu Enterprise Postgres.

Readers of this document are assumed to have general knowledge of:

- PostgreSQL
- SQL
- Linux

Structure of this document

This document is structured as follows:

Chapter 1 Overview of Installation

Describes the features that can be installed, and provides an overview of installation methods

Chapter 2 Installation and Uninstallation of the Linux Client

Describes how to install the Fujitsu Enterprise Postgres client feature (Linux client)

Chapter 3 Setup

Describes the setup procedures to be performed after installation completes

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Issue date and version

```
Edition 2.0: October 2023
Edition 1.0: April 2023
```

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Chapter 1 Overview of Installation

This chapter provides an overview of Fujitsu Enterprise Postgres installation.

1.1 Features that can be Installed

Fujitsu Enterprise Postgres provides features to enable access to the database from a variety of platforms and languages, as the connection environment for the client and the database server.

The Fujitsu Enterprise Postgres client package must be installed on the client system to use these features.

The following list shows the features provided by client packages.

- JDBC
- ODBC
- C language (libpq)
- Embedded SQL (ECPG) in C language
- Connection Manager
- High speed data load
- Pgpool-II

1.2 Installation Types

The following installation types are available for Fujitsu Enterprise Postgres:

- New installation
- Reinstallation
- Multi-version installation

1.2.1 New Installation

In initial installation, the Fujitsu Enterprise Postgres client feature is installed for the first time.

1.2.2 Reinstallation

Perform reinstallation to repair installed program files that have become unusable for any reason.

1.2.3 Multi-Version Installation

Perform multi-version installation to install different versions to the installed program files separately.

1.3 Uninstallation

Uninstallation removes the system files of the installed Fujitsu Enterprise Postgres client feature.

Chapter 2 Installation and Uninstallation of the Linux Client

This chapter explains how to install and uninstall the Linux client.

2.1 Operating Environment

This section describes the operating environment required to use the Linux client.

2.1.1 Required Operating System

The following operating systems is required to use the Linux client. Check and use minor version, which is certified and currently supported by Red Hat or SUSE for the target IBM z / Linux One hardware.

- RHEL8.2 or later minor version
- RHEL9 or later minor version
- SLES 15 SP3 or later minor version

Information

- The following packages are required for operations on RHEL8.

Package name	Remarks
bzip2-libs	Required when using pgBackRest.
glibc	-
libgcc	-
libmemcached	Required when using Pgpool-II.
libstdc++	-
libtool-ltdl	-
libzstd	-
lz4-libs	Required when using pgBackRest.
ncurses-libs	-
nss-softokn-freebl	-
unixODBC	Required when using ODBC drivers.
xz-libs	-
zlib	-

- The following packages are required for operations on RHEL9.

Package name	Remarks
bzip2-libs	Required when using pgBackRest.
glibc	-
libgcc	-
libmemcached	Required if Pgpool-II is used.
libstdc++	-
libtool-ltdl	-
libzstd	-

Package name	Remarks
lz4-libs	Required when using pgBackRest.
ncurses-libs	-
nss-softokn-freebl	-
unixODBC	Required if you are using an ODBC driver.
xz-libs	-
zlib	-

- The following packages are required for operations on SLES 15.

Package name	Remarks
libbz2-1	Required when using pgBackRest.
glibc	-
libgcc	-
libmemcached	Required when using Pgpool-II.
libstdc++	-
libtool-ltdl	-
libzstd1	-
liblz4-1	Required when using pgBackRest.
ncurses-libs	-
nss-softokn-freebl	-
unixODBC	Required when using ODBC drivers.
xz-libs	-
zlib	-

2.1.2 Related Software

The following table lists the software required to use the Linux client.

Table 2.1 Related software

No.	Software name	Version
1	C compiler (*1)	-
2	JDK or JRE (*2)	Java SE 8 or later

*1: Only operations using the C compiler provided with the operating system are guaranteed.

*2: OpenJDK and IBM Java are supported.

The following table lists servers that can be connected to the Linux client.

Table 2.2 Connectable servers

OS	Software name
Linux	FUJITSU Software Enterprise Postgres Advanced Edition 11 or later , up to 15 SP1

Note

Connecting this client to a server product of a different version depends on compatibility with PostgreSQL on which the server product is based, so some features may not be available.

2.1.3 Excluded Software

There are no exclusive products.

2.1.4 Required Patches

There are no required patches.

2.1.5 Hardware Environment

The following hardware is required to use the Linux client.

Memory

At least 160 MB of memory is required.

Mandatory hardware

None.

2.1.6 Disk Space Required for Installation

The following table lists the disk space requirements of the corresponding directories for new installation of the Linux client. If necessary, increase the size of the file system.

Table 2.3 Disk space required for installation

Directory	Required disk space Unit: MB
/etc	1
Installation destination of the client	140

2.1.7 Supported System Environment

This section describes the supported system environment.

TCP/IP protocol

Fujitsu Enterprise Postgres supports version 4 and 6 (IPv4 and IPv6) of TCP/IP protocols.

Note

Do not use link-local addresses if TCP/IP protocol version 6 addresses are used.

2.1.8 Versions of Open-Source Software Used as the Base for Fujitsu Enterprise Postgres Drivers

The following table lists the versions of open-source software used as the base for the various Fujitsu Enterprise Postgres drivers.

Driver	Open-source software version
JDBC	pgjdbc 42.5.0

Driver	Open-source software version
ODBC	psqlodbc 13.02.0000
libpq	PostgreSQL 15.4

2.2 Installation

This section explains how to install the Linux client.

2.2.1 Pre-installation Tasks

Check the system environment for the following before the Linux client is installed.

Check the disk capacity

Check if sufficient free disk space is available for installing the Linux client.

Refer to "Table 2.3 Disk space required for installation" for information on disk space requirements.

If sufficient free disk space is unavailable, reconfigure disk partitions.

Executable Users

Installation and uninstallation is performed by superuser.

On the system, run the following command to become superuser.

```
$ su -
Password:******
```

2.2.2 Run Installation

The installation procedure is described below.

Note

The following characters can be used as input values:

Alphanumeric characters, hyphens, commas and forward slashes

1. Stop applications and programs

If the installation method is the following, all applications and programs that use the product must be stopped:

- Reinstallation

Before starting the installation, stop the following:

- Applications that use the product
- Connection Manager
- pgBadger
- Pgpool-II

2. Mount the DVD drive

Insert the client program DVD into the DVD drive, and then execute the following command:

Example

```
# mount -t iso9660 -r -o loop /dev/dvd /media/dvd
```

Here /dev/dvd is the device name for the DVD drive (which may vary depending on your environment), and /media/dvd is the mount point (which may need to be created before calling the command).

Note

If the DVD was mounted automatically using the automatic mount daemon (autofs), "noexec" is set as the mount option, so the installer may fail to start. In this case, use the mount command to remount the DVD correctly, and then run the installation. Note that the mount options of a mounted DVD can be checked by executing the mount command without any arguments.

3. Run the installation

Install the following packages (rpm) with the rpm command.

Feature Name	Operating System	Package (Path)
Client	RHEL8	CLIENT64/Linux/packages/r80s390x/FJSVfsep-CL-*.rpm
	RHEL9	CLIENT64/Linux/packages/r90s390x/FJSVfsep-CL-*.rpm
	SLES 15	CLIENT64/Linux/packages/SUSE15s390x/FJSVfsep-CL-*.rpm
Pgpool-II	RHEL8	PGPOOL2/Linux/packages/r80s390x/FJSVfsep-POOL2-*.rpm
	RHEL9	PGPOOL2/Linux/packages/r90s390x/FJSVfsep-POOL2-*.rpm
	SLES 15	PGPOOL2/Linux/packages/SUSE15s390x/FJSVfsep-POOL2-*.rpm

*is the version, OS, etc.

Example

In the following example, /media/dvd is the name of the mount point where the DVD is mounted.

Below is an example of new installation on RHEL9.

```
# cd /media/dvd/CLIENT64/Linux/packages/r90s390x
# rpm -ivh FJSVfsep-CL-15-1500-0.el9.s390x.rpm
```

Below is an example of new installation on SLES 15.

```
# cd /media/dvd/CLIENT64/Linux/packages/SUSE15s390x
# rpm -ivh FJSVfsep-CL-15-1500-0.s15.s390x.rpm
```

Below is an example of reinstallation on RHEL9.

```
# cd /media/dvd/CLIENT64/Linux/packages/90s390x
# rpm -ivh --replacepkgs FJSVfsep-CL-15-1500-0.el9.s390x.rpm
```

Below is an example of reinstallation on SLES 15.

```
# cd /media/dvd/CLIENT64/Linux/packages/SUSE15s390x
# rpm -ivh --replacepkgs FJSVfsep-CL-15-1500-0.s15.s390x.rpm
```

Note

If you perform reinstallation, and an installation prefix (in the --prefix option of the rpm command) was used for the new installation, you must use the same prefix.

2.3 Uninstallation

This section describes the procedure for uninstalling the Linux client.

Note

- Before uninstalling the product, close the product program and all applications that are using it.

2.3.1 Run Uninstallation

The uninstallation procedure is described below.

1. Stop applications and programs

Before starting the uninstallation, stop the following:

- Applications that use the product
- Connection Manager
- pgBadger
- Pgpool-II

2. Verifying Installation Features

Verify that the feature to be removed is installed by executing the following command.

Feature Name	Package Name
Client	FJSVfsep-CL-<*x*>

* Where *x* is a number indicating the version.

Example

```
# rpm -qi FJSVfsep-CL-15
```

3. Run the uninstallation

Run the following command.

Example

```
# rpm -e FJSVfsep-CL-15
```

The installation directory may remain after uninstallation. If it is not required, delete it.

Chapter 3 Setup

This chapter describes the setup procedures to be performed after installation completes.

3.1 Configuring Environment Variables

Configure the following environment variables when using client commands.

PATH environment variable

Add "*installationDirectory*/bin".

MANPATH environment variable

Add "*installationDirectory*/share/man".

PGLOCALEDIR environment variable

Add "*installationDirectory*/share/locale".

Examples of environment variable configurations are shown below.

Example

Note that "<*x*>" indicates the product version.

```
$ PATH=/opt/fsepv<x>client64/bin:$PATH ; export PATH
$ MANPATH=/opt/fsepv<x>client64/share/man:$MANPATH ; export MANPATH
$ PGLOCALEDIR=/opt/fsepv<x>client64/share/locale ; export PGLOCALEDIR
```

3.2 Setting Up and Removing OSS

This section explains how to set up OSS supported by Fujitsu Enterprise Postgres.

If you want to use OSS supported by Fujitsu Enterprise Postgres, follow the setup procedure.

If you decide not to use the OSS supported by Fujitsu Enterprise Postgres, follow the removing procedure.

Information

In this section, the applicable database that enables the features of each OSS is described as "postgres".

Refer to "OSS Supported by Fujitsu Enterprise Postgres" in the General Description for information on OSS other than those described below.

3.2.1 pgBackRest

3.2.1.1 Setting Up pgBackRest

1. The use of pgBackRest determines how pgBackRest material is deployed.

   To use the pgbackrest command on the same host as the Fujitsu Enterprise Postgres server, use the pgBackRest that ships with the server. However, if you want to connect to and use a version of the Fujitsu Enterprise Postgres server for which pgBackRest is not available, use pgBackRest, which ships with the client. See also Notes.
   To use the pgbackrest command on a different host than the Fujitsu Enterprise Postgres server, use the pgBackRest that is shipped with the client.

2. Set the environment variable PATH for pgBackRest.

   The pgBackRest material is stored under /opt/fsepv<x>server64/OSS/pgbackrest on the Fujitsu Enterprise Postgres server, and under /opt/fsepv<x>client64/OSS/pgbackrest on the client.
   Set the environment variable PATH to the storage location/bin of the pgBackRest material to be used.

   Example of using pgBackRest material stored on the server:

   ```
   $ PATH=/opt/fsepv<x>server64/OSS/pgbackrest/bin:$PATH ; export PATH
   ```

   Example of using pgBackRest material stored on the client:

   ```
   $ PATH=/opt/fsepv<x>client64/OSS/pgbackrest/bin:$PATH ; export PATH
   ```

3. Perform pgBackRest setup.

   Refer to " User Guides " in the pgBackRest website (https://pgbackrest.org/) for details.

Note

- This feature is not available for instances created with WebAdmin. It is available only for operation using server commands.
- If you are using pgBackRest, you cannot use the commands pg_rman, pgx_dmpall, or pgx_rcvall.
- If you are connecting to an Fujitsu Enterprise Postgres 13 or 14 server and want to use pgBackRest, use pgBackRest, which is shipped with the Fujitsu Enterprise Postgres Client 15.
- If you specify the installation directory/lib for Fujitsu Enterprise Postgres 13 or 14 in the LD_LIBRARY_PATH environment variable, pgBackRest will reference the Fujitsu Enterprise Postgres 13 or 14 libraries, not the ones it should reference. Therefore, remove the path to the Fujitsu Enterprise Postgres 13 or 14 installation directory/lib from the environment variable LD_LIBRARY_PATH before running the pgbackrest command. In addition to executing the pgbackrest command directly, you should also take action on the pgbackrest command specified in the archive_command in postgresql.conf.

  Example of specifying the LD_LIBRARY_PATH environment variable for archive_command in postgresql.conf

  If /opt/fsepv13server64/lib:/data/lib is specified in LD_LIBRARY_PATH

  ```
  archive_command = 'LD_LIBRARY_PATH=/data/lib pgbackrest --config=/backrest/pgbackrest.conf --
  stanza=app archive-push %p'
  ```

3.2.1.2 Removing pgBackRest

1. Sets parameters in the postgresql.conf file.

   Reverses the information specified during setup

2. Restart Fujitsu Enterprise Postgres.
3. If it was set to perform periodic backups, unset it.

3.2.1.3 Servers to which pgBackRest can connect

The following table lists server that pgBackRest can connected to.

Table 3.1 Connectable server

OS	Product name
Linux	- FUJITSU Software Enterprise Postgres Advanced Edition 13 or later ,up to 15 SP1 - FUJITSU Software Enterprise Postgres Standard Edition 13 or later ,up to 15 SP1

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