



## ***Linux Ubuntu 26.04 Manual Pages on command 'pg\_restore.1'***

***\$ man pg\_restore.1***

PG\_RESTORE(1)                      PostgreSQL 18.4 Documentation                      PG\_RESTORE(1)

### NAME

pg\_restore - restore a PostgreSQL database from an archive file created by pg\_dump

### SYNOPSIS

pg\_restore [connection-option...] [option...] [filename]

### DESCRIPTION

pg\_restore is a utility for restoring a PostgreSQL database from an archive created by pg\_dump(1) in one of the non-plain-text formats. It will issue the commands necessary to reconstruct the database to the state it was in at the time it was saved. The archive files also allow pg\_restore to be selective about what is restored, or even to reorder the items prior to being restored. The archive files are designed to be portable across architectures. pg\_restore can operate in two modes. If a database name is specified, pg\_restore connects to that database and restores archive contents directly into the database. Otherwise, a script containing the SQL commands necessary to rebuild the database is created and written to a file or standard output. This script output is equivalent to the plain text output format of pg\_dump. Some of the options controlling the output are therefore analogous to pg\_dump options. Obviously, pg\_restore cannot restore information that is not present in the archive file. For instance, if the archive was made using the ?dump data as INSERT commands? option, pg\_restore will not be able to load the data using COPY statements.

### Warning

Restoring a dump causes the destination to execute arbitrary code of the source superusers' choice. Partial dumps and partial restores do not limit that. If the source

superusers are not trusted, the dumped SQL statements must be inspected before restoring. Non-plain-text dumps can be inspected by using `pg_restore`'s `--file` option. Note that the client running the dump and restore need not trust the source or destination superusers.

## OPTIONS

`pg_restore` accepts the following command line arguments.

`filename`

Specifies the location of the archive file (or directory, for a directory-format archive) to be restored. If not specified, the standard input is used.

`-a`

`--data-only`

Restore only the data, not the schema (data definitions) or statistics. Table data, large objects, and sequence values are restored, if present in the archive.

This option is similar to, but for historical reasons not identical to, specifying

`--section=data`.

`-c`

`--clean`

Before restoring database objects, issue commands to DROP all the objects that will be restored. This option is useful for overwriting an existing database. If any of the objects do not exist in the destination database, ignorable error messages will be reported, unless `--if-exists` is also specified.

`-C`

`--create`

Create the database before restoring into it. If `--clean` is also specified, drop and recreate the target database before connecting to it.

With `--create`, `pg_restore` also restores the database's comment if any, and any configuration variable settings that are specific to this database, that is, any ALTER DATABASE ... SET ... and ALTER ROLE ... IN DATABASE ... SET ... commands that mention this database. Access privileges for the database itself are also restored, unless `--no-acl` is specified.

When this option is used, the database named with `-d` is used only to issue the initial DROP DATABASE and CREATE DATABASE commands. All data is restored into the database name that appears in the archive.

-d dbname

--dbname=dbname

Connect to database dbname and restore directly into the database. The dbname can be a connection string. If so, connection string parameters will override any conflicting command line options.

-e

--exit-on-error

Exit if an error is encountered while sending SQL commands to the database. The default is to continue and to display a count of errors at the end of the restoration.

-f filename

--file=filename

Specify output file for generated script, or for the listing when used with -l. Use - for stdout.

-F format

--format=format

Specify format of the archive. It is not necessary to specify the format, since pg\_restore will determine the format automatically. If specified, it can be one of the following:

c

custom

The archive is in the custom format of pg\_dump.

d

directory

The archive is a directory archive.

t

tar

The archive is a tar archive.

-I index

--index=index

Restore definition of named index only. Multiple indexes may be specified with multiple -I switches.

-j number-of-jobs

--jobs=number-of-jobs

Run the most time-consuming steps of `pg_restore` ? those that load data, create indexes, or create constraints ? concurrently, using up to number-of-jobs concurrent sessions.

This option can dramatically reduce the time to restore a large database to a server running on a multiprocessor machine. This option is ignored when emitting a script rather than connecting directly to a database server.

Each job is one process or one thread, depending on the operating system, and uses a separate connection to the server.

The optimal value for this option depends on the hardware setup of the server, of the client, and of the network. Factors include the number of CPU cores and the disk setup. A good place to start is the number of CPU cores on the server, but values larger than that can also lead to faster restore times in many cases. Of course, values that are too high will lead to decreased performance because of thrashing.

Only the custom and directory archive formats are supported with this option. The input must be a regular file or directory (not, for example, a pipe or standard input). Also, multiple jobs cannot be used together with the option `--single-transaction`.

`-l`

`--list`

List the table of contents of the archive. The output of this operation can be used as input to the `-L` option. Note that if filtering switches such as `-n` or `-t` are used with `-l`, they will restrict the items listed.

`-L list-file`

`--use-list=list-file`

Restore only those archive elements that are listed in `list-file`, and restore them in the order they appear in the file. Note that if filtering switches such as `-n` or `-t` are used with `-L`, they will further restrict the items restored.

`list-file` is normally created by editing the output of a previous `-l` operation. Lines can be moved or removed, and can also be commented out by placing a semicolon (;) at the start of the line. See below for examples.

`-n schema`

`--schema=schema`

Restore only objects that are in the named schema. Multiple schemas may be specified with multiple `-n` switches. This can be combined with the `-t` option to restore just a specific table.

-N schema

--exclude-schema=schema

Do not restore objects that are in the named schema. Multiple schemas to be excluded may be specified with multiple -N switches.

When both -n and -N are given for the same schema name, the -N switch wins and the schema is excluded.

-O

--no-owner

Do not output commands to set ownership of objects to match the original database. By default, pg\_restore issues ALTER OWNER or SET SESSION AUTHORIZATION statements to set ownership of created schema elements. These statements will fail unless the initial connection to the database is made by a superuser (or the same user that owns all of the objects in the script). With -O, any user name can be used for the initial connection, and this user will own all the created objects.

-P function-name(argtype [, ...])

--function=function-name(argtype [, ...])

Restore the named function only. Be careful to spell the function name and arguments exactly as they appear in the dump file's table of contents. Multiple functions may be specified with multiple -P switches.

-R

--no-reconnect

This option is obsolete but still accepted for backwards compatibility.

-s

--schema-only

Restore only the schema (data definitions), not data, to the extent that schema entries are present in the archive.

This option cannot be used with --data-only or --statistics-only. It is similar to, but for historical reasons not identical to, specifying --section=pre-data --section=post-data --no-statistics.

(Do not confuse this with the --schema option, which uses the word ?schema? in a different meaning.)

-S username

--superuser=username

Specify the superuser user name to use when disabling triggers. This is relevant only if --disable-triggers is used.

-t table

--table=table

Restore definition and/or data of only the named table. For this purpose, ?table? includes views, materialized views, sequences, and foreign tables. Multiple tables can be selected by writing multiple -t switches. This option can be combined with the -n option to specify table(s) in a particular schema.

Note

When -t is specified, pg\_restore makes no attempt to restore any other database objects that the selected table(s) might depend upon. Therefore, there is no guarantee that a specific-table restore into a clean database will succeed.

Note

This flag does not behave identically to the -t flag of pg\_dump. There is not currently any provision for wild-card matching in pg\_restore, nor can you include a schema name within its -t. And, while pg\_dump's -t flag will also dump subsidiary objects (such as indexes) of the selected table(s), pg\_restore's -t flag does not include such subsidiary objects.

Note

In versions prior to PostgreSQL 9.6, this flag matched only tables, not any other type of relation.

-T trigger

--trigger=trigger

Restore named trigger only. Multiple triggers may be specified with multiple -T switches.

-v

--verbose

Specifies verbose mode. This will cause pg\_restore to output detailed object comments and start/stop times to the output file, and progress messages to standard error.

Repeating the option causes additional debug-level messages to appear on standard error.

-V

--version

Print the pg\_restore version and exit.

-x

--no-privileges

--no-acl

Prevent restoration of access privileges (grant/revoke commands).

-1

--single-transaction

Execute the restore as a single transaction (that is, wrap the emitted commands in BEGIN/COMMIT). This ensures that either all the commands complete successfully, or no changes are applied. This option implies --exit-on-error.

--disable-triggers

This option is relevant only when performing a restore without schema. It instructs pg\_restore to execute commands to temporarily disable triggers on the target tables while the data is restored. Use this if you have referential integrity checks or other triggers on the tables that you do not want to invoke during data restore.

Presently, the commands emitted for --disable-triggers must be done as superuser. So you should also specify a superuser name with -S or, preferably, run pg\_restore as a PostgreSQL superuser.

--enable-row-security

This option is relevant only when restoring the contents of a table which has row security. By default, pg\_restore will set row\_security to off, to ensure that all data is restored in to the table. If the user does not have sufficient privileges to bypass row security, then an error is thrown. This parameter instructs pg\_restore to set row\_security to on instead, allowing the user to attempt to restore the contents of the table with row security enabled. This might still fail if the user does not have the right to insert the rows from the dump into the table.

Note that this option currently also requires the dump be in INSERT format, as COPY FROM does not support row security.

--filter=filename

Specify a filename from which to read patterns for objects excluded or included from restore. The patterns are interpreted according to the same rules as -n/--schema for including objects in schemas, -N/--exclude-schema for excluding objects in schemas, -P/--function for restoring named functions, -I/--index for restoring named indexes, -t/--table for restoring named tables or -T/--trigger for restoring triggers. To read

from STDIN, use - as the filename. The --filter option can be specified in conjunction with the above listed options for including or excluding objects, and can also be specified more than once for multiple filter files.

The file lists one database pattern per row, with the following format:

```
{ include | exclude } { function | index | schema | table | trigger } PATTERN
```

The first keyword specifies whether the objects matched by the pattern are to be included or excluded. The second keyword specifies the type of object to be filtered using the pattern:

- ? function: functions, works like the -P/--function option. This keyword can only be used with the include keyword.
- ? index: indexes, works like the -I/--indexes option. This keyword can only be used with the include keyword.
- ? schema: schemas, works like the -n/--schema and -N/--exclude-schema options.
- ? table: tables, works like the -t/--table option. This keyword can only be used with the include keyword.
- ? trigger: triggers, works like the -T/--trigger option. This keyword can only be used with the include keyword.

Lines starting with # are considered comments and ignored. Comments can be placed after an object pattern row as well. Blank lines are also ignored. See Patterns for how to perform quoting in patterns.

#### --if-exists

Use DROP ... IF EXISTS commands to drop objects in --clean mode. This suppresses ?does not exist? errors that might otherwise be reported. This option is not valid unless --clean is also specified.

#### --no-comments

Do not output commands to restore comments, even if the archive contains them.

#### --no-data

Do not output commands to restore data, even if the archive contains them.

#### --no-data-for-failed-tables

By default, table data is restored even if the creation command for the table failed (e.g., because it already exists). With this option, data for such a table is skipped.

This behavior is useful if the target database already contains the desired table contents. For example, auxiliary tables for PostgreSQL extensions such as PostGIS might

already be loaded in the target database; specifying this option prevents duplicate or obsolete data from being loaded into them.

This option is effective only when restoring directly into a database, not when producing SQL script output.

#### `--no-policies`

Do not output commands to restore row security policies, even if the archive contains them.

#### `--no-publications`

Do not output commands to restore publications, even if the archive contains them.

#### `--no-schema`

Do not output commands to restore schema (data definitions), even if the archive contains them.

#### `--no-security-labels`

Do not output commands to restore security labels, even if the archive contains them.

#### `--no-statistics`

Do not output commands to restore statistics, even if the archive contains them.

#### `--no-subscriptions`

Do not output commands to restore subscriptions, even if the archive contains them.

#### `--no-table-access-method`

Do not output commands to select table access methods. With this option, all objects will be created with whichever table access method is the default during restore.

#### `--no-tablespaces`

Do not output commands to select tablespaces. With this option, all objects will be created in whichever tablespace is the default during restore.

#### `--restrict-key=restrict_key`

Use the provided string as the `psql \restrict key` in the dump output. This can only be specified for SQL script output, i.e., when the `--file` option is used. If no restrict key is specified, `pg_restore` will generate a random one as needed. Keys may contain only alphanumeric characters.

This option is primarily intended for testing purposes and other scenarios that require repeatable output (e.g., comparing dump files). It is not recommended for general use, as a malicious server with advance knowledge of the key may be able to inject arbitrary code that will be executed on the machine that runs `psql` with the dump output.

`--section=sectionname`

Only restore the named section. The section name can be pre-data, data, or post-data.

This option can be specified more than once to select multiple sections. The default is to restore all sections.

The data section contains actual table data as well as large-object definitions.

Post-data items consist of definitions of indexes, triggers, rules and constraints other than validated check constraints. Pre-data items consist of all other data definition items.

`--statistics`

Output commands to restore statistics, if the archive contains them. This is the default.

`--statistics-only`

Restore only the statistics, not schema (data definitions) or data.

`--strict-names`

Require that each schema (`-n/--schema`) and table (`-t/--table`) qualifier match at least one schema/table in the file to be restored.

`--transaction-size=N`

Execute the restore as a series of transactions, each processing up to N database objects. This option implies `--exit-on-error`.

`--transaction-size` offers an intermediate choice between the default behavior (one transaction per SQL command) and `-1/--single-transaction` (one transaction for all restored objects). While `--single-transaction` has the least overhead, it may be impractical for large databases because the transaction will take a lock on each restored object, possibly exhausting the server's lock table space. Using `--transaction-size` with a size of a few thousand objects offers nearly the same performance benefits while capping the amount of lock table space needed.

`--use-set-session-authorization`

Output SQL-standard SET SESSION AUTHORIZATION commands instead of ALTER OWNER commands to determine object ownership. This makes the dump more standards-compatible, but depending on the history of the objects in the dump, might not restore properly.

`-?`

`--help`

Show help about `pg_restore` command line arguments, and exit.

pg\_restore also accepts the following command line arguments for connection parameters:

-h host

--host=host

Specifies the host name of the machine on which the server is running. If the value begins with a slash, it is used as the directory for the Unix domain socket. The default is taken from the PGHOST environment variable, if set, else a Unix domain socket connection is attempted.

-p port

--port=port

Specifies the TCP port or local Unix domain socket file extension on which the server is listening for connections. Defaults to the PGPORT environment variable, if set, or a compiled-in default.

-U username

--username=username

User name to connect as.

-w

--no-password

Never issue a password prompt. If the server requires password authentication and a password is not available by other means such as a .pgpass file, the connection attempt will fail. This option can be useful in batch jobs and scripts where no user is present to enter a password.

-W

--password

Force pg\_restore to prompt for a password before connecting to a database.

This option is never essential, since pg\_restore will automatically prompt for a password if the server demands password authentication. However, pg\_restore will waste a connection attempt finding out that the server wants a password. In some cases it is worth typing -W to avoid the extra connection attempt.

--role=rolename

Specifies a role name to be used to perform the restore. This option causes pg\_restore to issue a SET ROLE rolename command after connecting to the database. It is useful when the authenticated user (specified by -U) lacks privileges needed by pg\_restore, but can switch to a role with the required rights. Some installations have a policy against

logging in directly as a superuser, and use of this option allows restores to be performed without violating the policy.

## ENVIRONMENT

PGHOST

PGOPTIONS

PGPORT

PGUSER

Default connection parameters

PG\_COLOR

Specifies whether to use color in diagnostic messages. Possible values are always, auto and never.

This utility, like most other PostgreSQL utilities, also uses the environment variables supported by libpq (see Section 32.15). However, it does not read PGDATABASE when a database name is not supplied.

## DIAGNOSTICS

When a direct database connection is specified using the -d option, pg\_restore internally executes SQL statements. If you have problems running pg\_restore, make sure you are able to select information from the database using, for example, psql(1). Also, any default connection settings and environment variables used by the libpq front-end library will apply.

## NOTES

If your installation has any local additions to the template1 database, be careful to load the output of pg\_restore into a truly empty database; otherwise you are likely to get errors due to duplicate definitions of the added objects. To make an empty database without any local additions, copy from template0 not template1, for example:

```
CREATE DATABASE foo WITH TEMPLATE template0;
```

The limitations of pg\_restore are detailed below.

- ? When restoring data to a pre-existing table and the option --disable-triggers is used, pg\_restore emits commands to disable triggers on user tables before inserting the data, then emits commands to re-enable them after the data has been inserted. If the restore is stopped in the middle, the system catalogs might be left in the wrong state.
- ? pg\_restore cannot restore large objects selectively; for instance, only those for a specific table. If an archive contains large objects, then all large objects will be

restored, or none of them if they are excluded via -L, -t, or other options.

See also the `pg_dump(1)` documentation for details on limitations of `pg_dump`.

By default, `pg_restore` will restore optimizer statistics if included in the dump file. If

not all statistics were restored, it may be useful to run `ANALYZE` on each restored table so

the optimizer has useful statistics; see Section 24.1.3 and Section 24.1.6 for more

information.

## EXAMPLES

Assume we have dumped a database called `mydb` into a custom-format dump file:

```
$ pg_dump -Fc mydb > db.dump
```

To drop the database and recreate it from the dump:

```
$ dropdb mydb
```

```
$ pg_restore -C -d postgres db.dump
```

The database named in the `-d` switch can be any database existing in the cluster; `pg_restore`

only uses it to issue the `CREATE DATABASE` command for `mydb`. With `-C`, data is always restored

into the database name that appears in the dump file.

To restore the dump into a new database called `newdb`:

```
$ createdb -T template0 newdb
```

```
$ pg_restore -d newdb db.dump
```

Notice we don't use `-C`, and instead connect directly to the database to be restored into.

Also note that we clone the new database from `template0` not `template1`, to ensure it is

initially empty.

To reorder database items, it is first necessary to dump the table of contents of the

archive:

```
$ pg_restore -l db.dump > db.list
```

The listing file consists of a header and one line for each item, e.g.:

```
;  
; Archive created at Mon Sep 14 13:55:39 2009  
;  
; dbname: DBDEMOS  
;  
; TOC Entries: 81  
;  
; Compression: 9  
;  
; Dump Version: 1.10-0  
;  
; Format: CUSTOM  
;  
; Integer: 4 bytes
```

```

; Offset: 8 bytes

; Dumped from database version: 8.3.5

; Dumped by pg_dump version: 8.3.8

;

;

; Selected TOC Entries:

;

3; 2615 2200 SCHEMA - public pasha

1861; 0 0 COMMENT - SCHEMA public pasha

1862; 0 0 ACL - public pasha

317; 1247 17715 TYPE public composite pasha

319; 1247 25899 DOMAIN public domain0 pasha

```

Semicolons start a comment, and the numbers at the start of lines refer to the internal archive ID assigned to each item.

Lines in the file can be commented out, deleted, and reordered. For example:

```

10; 145433 TABLE map_resolutions postgres

;2; 145344 TABLE species postgres

;4; 145359 TABLE nt_header postgres

6; 145402 TABLE species_records postgres

;8; 145416 TABLE ss_old postgres

```

could be used as input to `pg_restore` and would only restore items 10 and 6, in that order:

```
$ pg_restore -L db.list db.dump
```

SEE ALSO

`pg_dump(1)`, `pg_dumpall(1)`, `psql(1)`

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PG\_RESTORE(1)