Fujitsu Enterprise Postgres

High-speed Backup / Recovery

Data is the currency of the digital economy and the lifeblood of business, and as such you need to ensure that it is properly protected. Fujitsu Enterprise Postgres provides you the tools to implement a flexible and efficient backup/recovery plan that attends to your specific environment.

About Fujitsu Enterprise Postgres
Founded on PostgreSQL, the world's most advanced open source relational database system, Fujitsu Enterprise Postgres extends base PostgreSQL functionality with a number of enhanced enterprise features. High-speed Backup/Recovery is one of those features.

Be prepared and quick to act in case of data loss
Many factors can put your data at risk, and as a result your business opportunities and reputation: human errors, hardware failures, cyberattacks, and natural disasters are just a few examples. You need to be prepared by implementing a robust backup/recovery plan to ensure that your business is back up and running with minimal revenue and data loss should one of these problems occur.
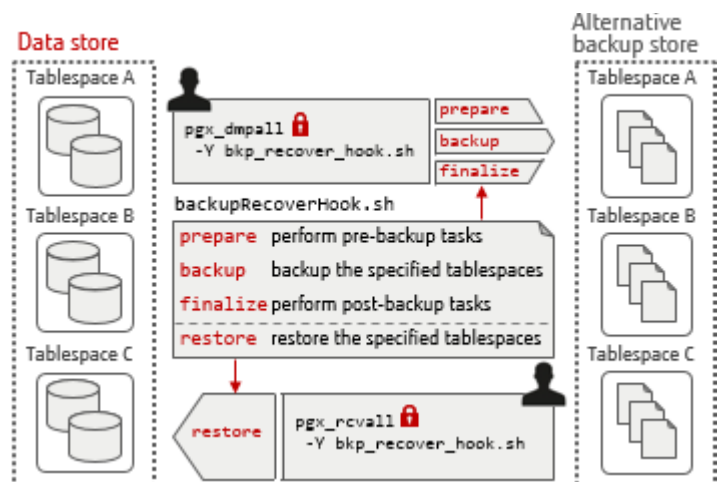
About Fujitsu's High-speed Backup/Recovery
Fujitsu Enterprise Postgres extends the PostgresSQL backup/recovery utilities by allowing you to automate these tasks via scripts, where you can use the copy technology of your choice.

Leveraging your storage device high-speed copy feature
It is possible to integrate with your storage device's high-speed copy technology, replacing the conventional file-level process and allowing TB-scale operations. In tests conducted at Fujitsu, backup on an ETERNUS disk using QuickOPC and AdvancedCopy Manager Replication was nine times faster than using the traditional method.

Encryption
Files backed up by Fujitsu Enterprise Postgres are encrypted, and are automatically protected from data leakage even if the backup medium is lost or somehow accessed. In contrast, files output by the equivalent PostgreSQL commands pg_dump and pg_dumpall are not encrypted, and need to be encrypted using OpenSSL commands or other means before being saved.

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Using High-speed Backup/Recovery

By using Fujitsu Enterprise Postgres backup and restore commands, you can customize the ensuing behavior by calling your own hook scripts, therefore simplifying and standardizing your backup and recovery operations enterprise-wide.

Writing your own hook script / customizing backup/recovery

As shown above, Fujitsu Enterprise Postgres backup command pgx_dmpall can be called specifying a hook script - the command will then invoke the script 3 times: first using the `prepare` mode, then the `backup` mode, and finally `finalize`. As for the recovery command pgx_rcvall, it invokes the script using the `restore` mode.

Putting the pieces together

The script must define the tasks to be performed in each of the modes. In our example, we allow the user to specify the tablespaces to be backed up and recovered, and we alternate the backup location in order to further protect from data loss in case the backup fails for some reason.

The restore mode will use data backed up to the location of the last successful backup to restore to the specified tablespaces.

Command call and target backup

By default, pgx_dmpall backs up all tablespaces, but in our example we will specify which tablespaces to back up. For this, we will specify the list using the -P option of the command, as follows:

```
pgx_dmpall -Y bkp_recover_hook.sh
           -P tablespace_bkp.list
```

The command call above will hand over to `bkp_recover_hook.sh` the actual task of backing up the tablespaces specified in `tablespace_bkp.list`.

Let's assume that we need to back up the tablespaces A, B, and C - `tablespace_bkp.lst` will need to be defined as follows:

```
tablespace A
tablespace B
tablespace C
```

Preparing for backup

The preparation stage of the command will read the list of tablespaces, and write the name, location, and target archive file of each one to a temporary file to be used by later modes.

```
...
case $1 in
  prepare)
    # For each specified tablespace:
    #   1. Obtain tablespace location
    #   2. Append tablespace name, location, and
    #      target backup file name to temp file
  ...
```

Backing up

Following preparation, the `backup` mode will be invoked, which will then perform backup using the information saved to the temporary file.

```
...
case $1 in
  backup)
    # For each line in temp file:
    #   Back the tablespace from the location read
    #   from temp file to the target backup file
    #   read from temp file
  ...
```

Finalizing backup

Finally remove the tablespace backup files and the temporary file - this is the last mode invoked by the backup command

```
...
case $1 in
  finalize)
    # Copy temp file to backup information file
    # Delete tablespace backup files and temp file
  ...
```

The command cycles the backup directories, so that recovery can still be performed after a backup failure occurs.

Restoring tablespaces

To restore the saved tablespaces, execute the command below:

```
pgx_rcvall -Y bkp_recover_hook.sh
```

The script will be defined like so:

```
...
case $1 in
  restore)
    # For each line in backup information file
    #   1. Read tablespace name, location, and
    #      backup file name
    #   2. Delete all from tablespace location
    #   3. Restore files in tablespace location
    #      from backup file
  ...
```

Conclusion

Our high-speed backup/recovery utility gives you the power and flexibility to implement the most suitable backup/recovery plan for your circumstances, giving you the peace of mind of knowing that your data is safely copied in a timely manner and can be equally recovered in a timely fashion should a failure occur.

Contact us

If you have any questions about High-speed Backup/Recovery or how to implement it, please contact our support team.

About Fujitsu

Fujitsu is the 5th largest IT service provider in the world, offering a full range of technology products, solutions and services. Over 126,000 Fujitsu employees support customers in over 100 countries.