**Use Case UC-007**

Version 1.20

**Revision History**

| Date | Author | Description of change |
| --- | --- | --- |
| 10/26/2023 | Yuan H, Alan A | Created the draft |
| 10/29/2023 | Yuan, Dominic,Alan | Finished the Use Case and put it into review |
| 11/03/2023 | Yuan, Dominic | Revised the document with respect to the comments. |
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**Use Case:** Restoring the backup of the database

**Id**: UC- 007

**Description**

In the event of the database being corrupted or in an unusable state, the database administrator restores the database with a backup version in a timely manner in order to ensure consistency.

**Level:** Sub Function

**Primary Actor**  
Database administrator

**Supporting Actors**

Database administrator (Performed backup)

**Stakeholders and Interests**

Data analyst - Interested in keeping the consistency and integrity of the database so that no data would be lost and damaged under critical situations.

Database admin - Responsible for maintenance and interested in keeping the database functioning at all times.

Business Owner - Requires that the system remains functional at all times in order to maintain profits or reputation.

**Pre-Conditions**

1. Database Admin (DA) must log into the DBMS.
2. A backup version of the database must be available to the DA.
3. DA disconnects the current working database from end users.

**Post Conditions**

Success end condition

1. Database Admin (DA) restores the database from the database backup.
2. DA runs tests on the database to ensure the issue(s) were fixed.
3. DA documents the results and issues into a log file for later use.

Failure end condition:

1. Database Admin attempts to restore the system from backup.
   1. Database backup fails
      1. Restore from a stable version of the database with lost data. May be out of date by a long time frame.
   2. Database backup insertion fails
      1. Partial data loss. minor issue.
   3. Database backup and/or data insertion file backup are no longer functional.
      1. Restore the system from a stable version of the database
      2. Heavy loss of data and the worst-case scenario.

Minimal Guarantee

1. The system will be restored from a stable backup. However, the backup database may not be up to date.
2. A tracking work log will be created for the team to examine issues.

**Trigger**

1. Feedback from data analysts indicating error in the data set, or unavailability to access requested data from the database that should normally be available.
2. Database server crash and error log/notification sent to the DA’s.
3. The database is non-functional after a system upgrade.

**Main Success Scenario**

1. The database admin (DA) received the request from the data analyst to perform a database backup restoration.
2. The DA alerts the stakeholders and gets permission to disconnect the service temporarily.
3. The DA pulls the most recent backup files and imports them through the DBMS.
4. The DA restarts the service after the restoration.
5. The DA runs a data health check and receives no error output.
6. The DA generates the work log for the team to track activities.

**Extensions**

1a. Database Admin (DA) tests the system after the update and it fails.

1. Database admin either restores previous versions of the database or succeeds in attempting to update the database and run the tests.

3a. DA retrieves a corrupt or faulty data insertion which leads to the need for a backup.

1. DA restores the system without the corrupted insertion.

**Frequency:**

The action of restoring the backup is not on a timely basis, this will occur only for special needs such as the system being non-responsive, the system update, or the data being damaged.

**Assumptions**

1. The system is non-responsive for data analysts to retrieve data from the service
2. The data is damaged for read-write operations.
3. The system can not connect to the current database after a system update.

**Special Requirements**

**Security**

1. Access IONOS through the web portal with valid credentials.
2. Access phpMyAdmin with admin credentials

**Performance**

1. Must have available on-call database administrators at all working hours to get the database up and running as quickly as possible, and to diagnose if the problem is bigger than the latest insertion.

**Change Logs**

1. Changes to the database must be logged in regards to what backup(s) were used and when, with any losses of data recorded, and the reason for the backups being needed.

**Issues**

1. How long will it take to restore the backup?
2. How long will the service be down?
3. How long will it take to get permission to shut down the service?
4. How recent is the most recent backup, and will some data be missing?