

# Fundamentos de Bases de Datos.

## Restauración Base de Datos.

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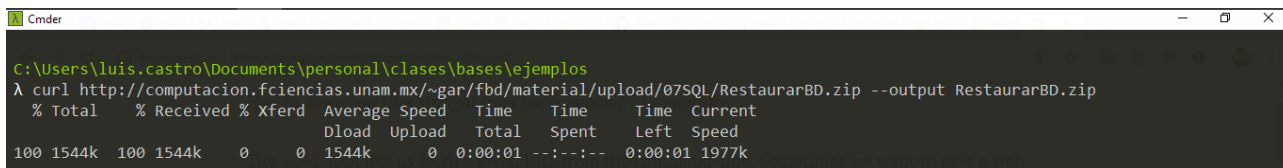
Se dan a conocer instrucciones para restaurar una base de datos a partir de un archivo .bak.

### 1. Instrucciones

Los pasos que a continuación se listan ilustran la restauración de una base de datos en SQL Server a partir de un archivo .bak.

1. Descargar la base de datos de la página del curso.

```
curl http://computacion.fciencias.unam.mx/~gar/fbd/material/upload/07SQL/RestaurarBD.zip  
--output RestaurarBD.zip
```



```
C:\Users\luis.castro\Documents\personal\clases\bases\ejemplos  
λ curl http://computacion.fciencias.unam.mx/~gar/fbd/material/upload/07SQL/RestaurarBD.zip --output RestaurarBD.zip  
% Total % Received % Xferd Average Speed Time Time Time Current  
Dload Upload Total Spent Left Speed  
100 1544k 100 1544k 0 0 1544k 0 0:00:01 --:--:-- 0:00:01 1977k
```

2. Copiar archivo .bak al contenedor.

```
--Extraer archivos  
unzip RestaurarBD.zip  
--Buscar container id para copiar archivo dentro del contenedor  
docker ps  
--Copiar mibanquito.bak dentro del contenedor en la carpeta /backups  
docker cp mibanquito.bak 30c12f587019:/backups  
--Entrar al contenedor  
docker exec -it 30c12f587019 /bin/bash  
--Validar que el archivo se copió correctamente.  
ls -l backups/ | grep mibanquito --color
```

```
C:\Users\luis.castro\Documents\personal\clases\bases\ejemplos
λ unzip RestaurarBD.zip
Archive: RestaurarBD.zip
  inflating: mibanquito.bak
  inflating: Implementar_BD_SQLServer.pdf

C:\Users\luis.castro\Documents\personal\clases\bases\ejemplos
λ docker ps
CONTAINER ID        IMAGE                                     COMMAND                  CREATED
STATUS            PORTS                    NAMES
30c12f587019       mcr.microsoft.com/mssql/server:2017-latest  "/opt/mssql/bin/sqls..." 7 weeks ago
Up About an hour   0.0.0.0:1433->1433/tcp   fbd20201

C:\Users\luis.castro\Documents\personal\clases\bases\ejemplos
λ docker cp mibanquito.bak 30c12f587019:/backups

C:\Users\luis.castro\Documents\personal\clases\bases\ejemplos
λ docker exec -it 30c12f587019 /bin/bash
root@30c12f587019:/# ls -l backups/ | grep mibankito --color
root@30c12f587019:/# ls -l backups/ | grep mibanquito --color
-rwxr-xr-x 1 root root 6515200 Oct 10 2018 mibanquito.bak
root@30c12f587019:/#
```

3. Obtener una lista de los archivos de la base de datos y logs contenidos en el archivo bak.

```
--Con la bandera -Q se realiza una consulta dentro de la instancia de SQL SERVER.
--FROM DISK debe contener la direccion del archivo bak
/opt/mssql-tools/bin/sqlcmd -S localhost -U SA -P "P4ssw0rd."
-Q "RESTORE FILELISTONLY FROM DISK = '/backups/mibanquito.bak'"
```

Se puede observar en consola el resultado de una consulta con diversas columnas. Para la migración solamente nos interesa conocer el valor de las columnas LogicalName y PhysicalName.

Mas información de la instrucción RESTORE FILELISTONLY: <https://docs.microsoft.com/en-us/sql/t-sql/statements/restore-statements-filelistonly-transact-sql?view=sql-server-2017>



```

root@30c12f587019:/# /opt/mssql-tools/bin/sqlcmd -S localhost -U SA -P "P4ssw0rd." -Q "RESTORE FILELISTONLY FROM DISK = '/backups/mibanquito.bak'" | g
rep MiBanquito --color
MiBanquito
osoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\DATA\MiBanquito.mdf
D PRIMARY
7340032 35184372080640 1
422528 0 512 1 NULL 0 6642E37F-3537-4C9A-B9AF-8A55EAA3B573 48000000001600066 887C0F60-7B4A-4BBC-9EDE-47D954763595 0 6
1 NULL

MiBanquito_log
osoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\DATA\MiBanquito_log.ldf
L NULL
2097152 2199023255552 2
0 0 512 0 NULL 0 6F1A88E9-B7F3-428D-9AAC-80BC74029254 0 00000000-0000-0000-0000-000000000000 0
1 NULL

root@30c12f587019:/#

```

4. Realizar la restauración de la base de datos en del archivo bak.

```

--Con la bandera -Q se realiza una consulta dentro de la instancia de SQL SERVER.
--DATABASE debe contener la base de datos a restaurar.
--FROM DISK debe contener la direccion del archivo bak
--MOVE debe contener el LogicalName
--TO debecontener el PhysicalName
--Se deben tomar en cuenta todos los valores obtenidos en el paso anterior
/opt/mssql-tools/bin/sqlcmd -S localhost -U SA -P "P4ssw0rd."
-Q "RESTORE DATABASE MiBanquito FROM DISK = '/backups/mibanquito.bak'
WITH MOVE 'MiBanquito' TO '/fbd/fundamentos/MiBanquito.mdf',
MOVE 'MiBanquito_log' TO '/fbd/fundamentos/MiBanquito_log.mdf';"

```

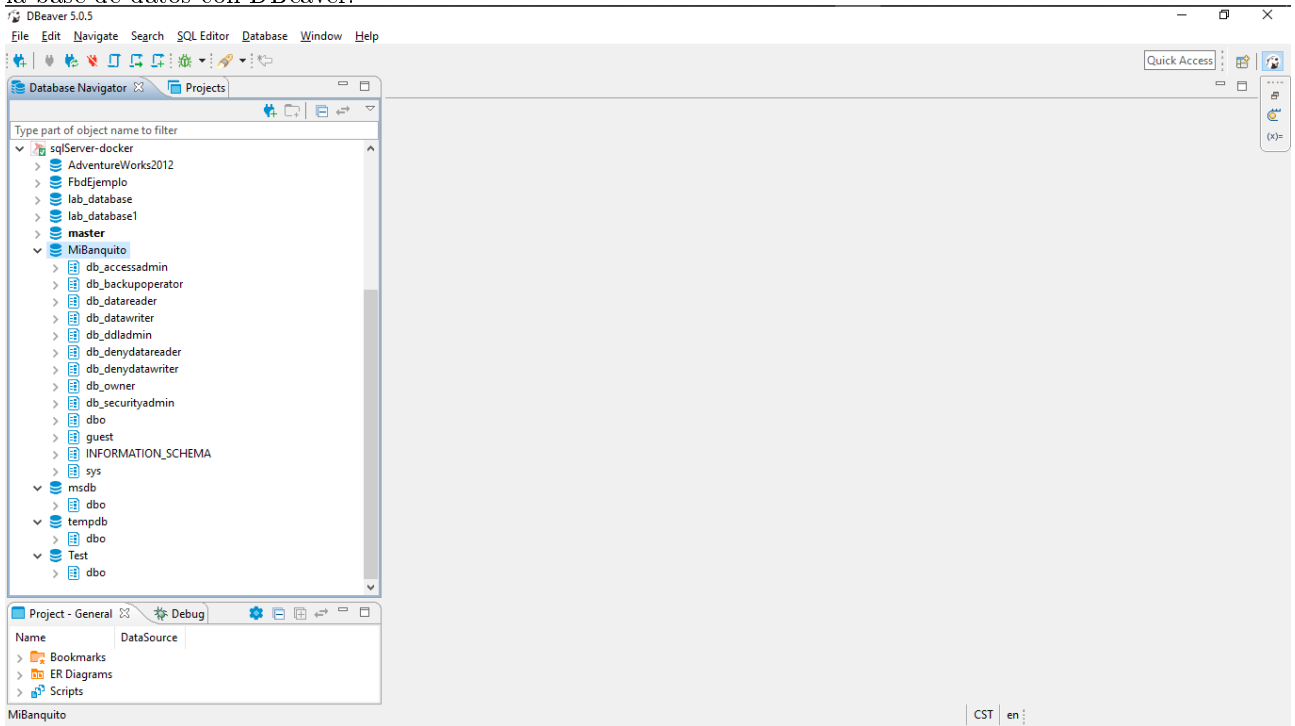
Una vez ejecutado el comando se comenzará a restaurar la base de datos como se muestra en la siguientes imagenes:

```
Cmdr
root@30c12f587019:/# /opt/mssql-tools/bin/sqlcmd -S localhost -U SA -P "P4ssw0rd." -Q "RESTORE DATABASE MiBanquito FROM DISK = '/backups/mibanquito.bak' WITH MOVE 'MiBanquito' TO '/fbd/fundamentos/MiBanquito.mdf', MOVE 'MiBanquito_log' TO '/fbd/fundamentos/MiBanquito_log.mdf';"
Processed 784 pages for database 'MiBanquito', file 'MiBanquito' on file 1.
Processed 2 pages for database 'MiBanquito', file 'MiBanquito_log' on file 1.
Converting database 'MiBanquito' from version 706 to the current version 869.
Database 'MiBanquito' running the upgrade step from version 706 to version 770.
Database 'MiBanquito' running the upgrade step from version 770 to version 771.
Database 'MiBanquito' running the upgrade step from version 771 to version 772.
Database 'MiBanquito' running the upgrade step from version 772 to version 773.
Database 'MiBanquito' running the upgrade step from version 773 to version 774.
Database 'MiBanquito' running the upgrade step from version 774 to version 775.
Database 'MiBanquito' running the upgrade step from version 775 to version 776.
Database 'MiBanquito' running the upgrade step from version 776 to version 777.
Database 'MiBanquito' running the upgrade step from version 777 to version 778.
Database 'MiBanquito' running the upgrade step from version 778 to version 779.
Database 'MiBanquito' running the upgrade step from version 779 to version 780.
Database 'MiBanquito' running the upgrade step from version 780 to version 781.
Database 'MiBanquito' running the upgrade step from version 781 to version 782.
Database 'MiBanquito' running the upgrade step from version 782 to version 801.
Database 'MiBanquito' running the upgrade step from version 801 to version 802.
Database 'MiBanquito' running the upgrade step from version 802 to version 803.
Database 'MiBanquito' running the upgrade step from version 803 to version 804.
Database 'MiBanquito' running the upgrade step from version 804 to version 805.
Database 'MiBanquito' running the upgrade step from version 805 to version 806.
Database 'MiBanquito' running the upgrade step from version 806 to version 807.
Database 'MiBanquito' running the upgrade step from version 807 to version 808.
Database 'MiBanquito' running the upgrade step from version 808 to version 809.
Database 'MiBanquito' running the upgrade step from version 809 to version 810.
Database 'MiBanquito' running the upgrade step from version 810 to version 811.
Database 'MiBanquito' running the upgrade step from version 811 to version 812.
Database 'MiBanquito' running the upgrade step from version 812 to version 813.
docker.exe
```

Base de datos restaurada exitosamente.

```
Cmdr
Database 'MiBanquito' running the upgrade step from version 841 to version 842.
Database 'MiBanquito' running the upgrade step from version 842 to version 843.
Database 'MiBanquito' running the upgrade step from version 843 to version 844.
Database 'MiBanquito' running the upgrade step from version 844 to version 845.
Database 'MiBanquito' running the upgrade step from version 845 to version 846.
Database 'MiBanquito' running the upgrade step from version 846 to version 847.
Database 'MiBanquito' running the upgrade step from version 847 to version 848.
Database 'MiBanquito' running the upgrade step from version 848 to version 849.
Database 'MiBanquito' running the upgrade step from version 849 to version 850.
Database 'MiBanquito' running the upgrade step from version 850 to version 851.
Database 'MiBanquito' running the upgrade step from version 851 to version 852.
Database 'MiBanquito' running the upgrade step from version 852 to version 853.
Database 'MiBanquito' running the upgrade step from version 853 to version 854.
Database 'MiBanquito' running the upgrade step from version 854 to version 855.
Database 'MiBanquito' running the upgrade step from version 855 to version 856.
Database 'MiBanquito' running the upgrade step from version 856 to version 857.
Database 'MiBanquito' running the upgrade step from version 857 to version 858.
Database 'MiBanquito' running the upgrade step from version 858 to version 859.
Database 'MiBanquito' running the upgrade step from version 859 to version 860.
Database 'MiBanquito' running the upgrade step from version 860 to version 861.
Database 'MiBanquito' running the upgrade step from version 861 to version 862.
Database 'MiBanquito' running the upgrade step from version 862 to version 863.
Database 'MiBanquito' running the upgrade step from version 863 to version 864.
Database 'MiBanquito' running the upgrade step from version 864 to version 865.
Database 'MiBanquito' running the upgrade step from version 865 to version 866.
Database 'MiBanquito' running the upgrade step from version 866 to version 867.
Database 'MiBanquito' running the upgrade step from version 867 to version 868.
Database 'MiBanquito' running the upgrade step from version 868 to version 869.
RESTORE DATABASE successfully processed 786 pages in 0.096 seconds (63.888 MB/sec).
root@30c12f587019:/# |
docker.exe
```

5. Verificamos que la base de datos se encuentre correctamente en SQL Server. Para ello realizamos la conexión a la base de datos con DBeaver.



Las anteriores instrucciones ilustraron la restauración haciendo uso de Docker. No obstante, notese que Docker solamente es el contenedor de una instancia de SQL Server, pero se está haciendo uso de Transact-SQL para la restauración, por lo que se puede realizar el mismo procedimiento dentro de Windows, solo hay que tener en cuenta que las rutas son diferentes dependiendo del sistema operativo.