

# Backup using T-SQL:

## 1.Setting up the Recovery Model as Full or Simple:

--backup using T-SQL  
--step 1  
--setting the recovery Model  
--current recovery model  
SELECT name, recovery\_model\_desc  
FROM sys.databases  
WHERE name = 'temp\_database';  
  
--changing the recovery model to simple  
ALTER DATABASE temp\_database SET RECOVERY SIMPLE;  
  
--changing the recovery model to full  
ALTER DATABASE temp\_database SET RECOVERY FULL;

116 %  
Results Messages  

	name	recovery_model_desc
1	temp_database	FULL

## 2. Full Backup – DATA AND LOGS WERE ALSO BACKED UP

--full backup  
BACKUP DATABASE temp\_database  
TO DISK = 'C:\Users\Public\DB\_Backups\temp\_database\_Full.bak'  
WITH INIT, COMPRESSION, STATS = 10;

116 %  
Messages  
18 percent processed.  
36 percent processed.  
54 percent processed.  
72 percent processed.  
91 percent processed.  
100 percent processed.  
Processed 712 pages for database 'temp\_database', file 'temp\_db\_Data' on file 1.  
Processed 1 pages for database 'temp\_database', file 'temp\_db\_Log' on file 1.  
BACKUP DATABASE successfully processed 713 pages in 0.130 seconds (42.799 MB/sec).  
  
Completion time: 2025-02-28T13:22:18.8454956+05:30

### 3.DIFFERENTIAL BACKUP – Backup only the CHANGES compared to the LAST FULL BACKUP

```
--made changes in the database
insert into temp
select * from temp ;

create table test_2(test int);

--differntial backup
BACKUP DATABASE temp_database
TO DISK = 'C:\Users\Public\DB_Backups\temp_database_differential.bak'
WITH DIFFERENTIAL, COMPRESSION, STATS = 10;
```

116 %

Messages

10 percent processed.  
20 percent processed.  
30 percent processed.  
45 percent processed.  
52 percent processed.  
72 percent processed.  
92 percent processed.  
100 percent processed.  
Processed 328 pages for database 'temp\_database', file 'temp\_db\_Data' on file 1.  
Processed 1 pages for database 'temp\_database', file 'temp\_db\_Log' on file 1.  
BACKUP DATABASE WITH DIFFERENTIAL successfully processed 329 pages in 0.067 seconds (38.268 MB/sec).

Completion time: 2025-02-28T14:23:21.3085454+05:30

### 4.T-Log Backup – Backup only logs for less storage

```
insert into test_2 values(1);
insert into test_2 values(2);
insert into test_2 values(3);

--T-LOG BACKUP
BACKUP LOG temp_database
TO DISK = 'C:\Users\Public\DB_Backups\temp_database_log.lrn'
WITH COMPRESSION, STATS = 10;
```

116 %

Messages

20 percent processed.  
39 percent processed.  
58 percent processed.  
78 percent processed.  
97 percent processed.  
100 percent processed.  
Processed 665 pages for database 'temp\_database', file 'temp\_db\_Log' on file 1.  
BACKUP LOG successfully processed 665 pages in 0.062 seconds (83.771 MB/sec).

Completion time: 2025-02-28T14:31:16.1169624+05:30

# Dropping the database and then restoring with backups.

## 1.Restoring FULL Backup with Norecovery – still backups needs to be done

```
--drop the database
use master;
drop database temp_database;

--restore database
RESTORE DATABASE temp_database
FROM DISK = 'C:\Users\Public\DB_Backups\temp_database_Full.bak'
WITH REPLACE,NORECOVERY, STATS = 10;
```

116 %

Messages

18 percent processed.  
36 percent processed.  
54 percent processed.  
72 percent processed.  
90 percent processed.  
100 percent processed.  
Processed 720 pages for database 'temp\_database', file 'temp\_db\_Data' on file 1.  
Processed 1 pages for database 'temp\_database', file 'temp\_db\_Log' on file 1.  
RESTORE DATABASE successfully processed 721 pages in 0.042 seconds (133.963 MB/sec).  
  
Completion time: 2025-02-28T15:01:06.7752893+05:30

## 2.Restoring the Differential Backups with norecovery

```
--differential backup
RESTORE DATABASE temp_database
FROM DISK = 'C:\Users\Public\DB_Backups\temp_database_differential.bak'
WITH NORECOVERY, STATS = 10;

--restore t-log backup
RESTORE LOG temp_database
FROM DISK = 'C:\Users\Public\DB_Backups\temp_database_log.lrn'
WITH RECOVERY, STATS = 10;
```

116 %

Messages

20 percent processed.  
39 percent processed.  
58 percent processed.  
78 percent processed.  
97 percent processed.  
100 percent processed.  
Processed 0 pages for database 'temp\_database', file 'temp\_db\_Data' on file 1.  
Processed 665 pages for database 'temp\_database', file 'temp\_db\_Log' on file 1.  
RESTORE LOG successfully processed 665 pages in 0.056 seconds (92.747 MB/sec).  
  
Completion time: 2025-02-28T15:17:20.6245544+05:30

## 3.T-log Backup

```
--differential backup
RESTORE DATABASE temp_database
FROM DISK = 'C:\Users\Public\DB_Backups\temp_database_differential.bak'
WITH NORECOVERY, STATS = 10;

--restore t-log backup
RESTORE LOG temp_database
FROM DISK = 'C:\Users\Public\DB_Backups\temp_database_log.lrn'
WITH RECOVERY, STATS = 10;
```

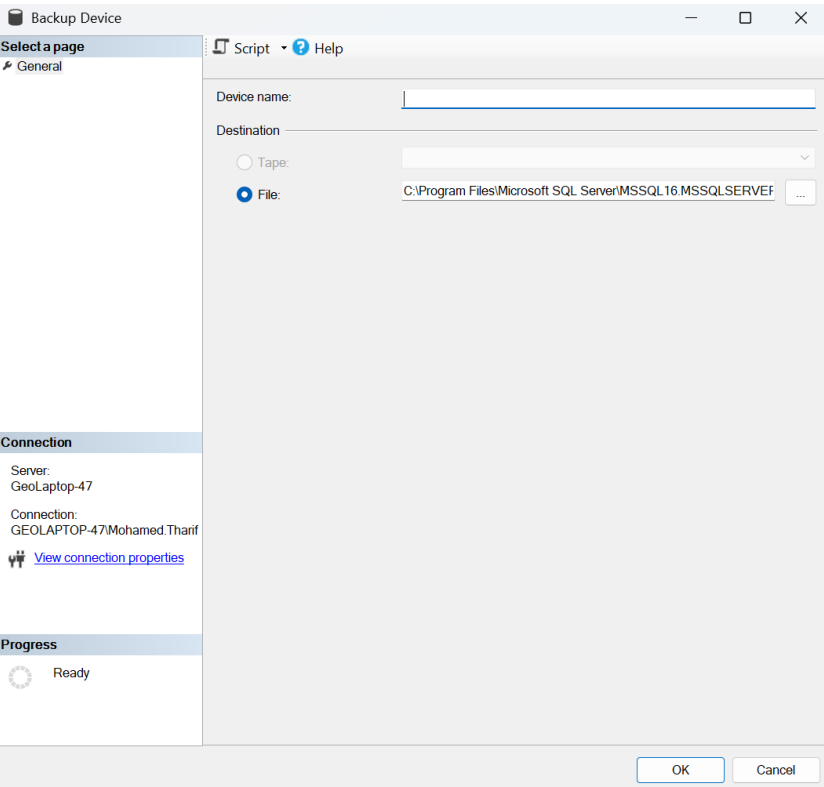
116 %

Messages

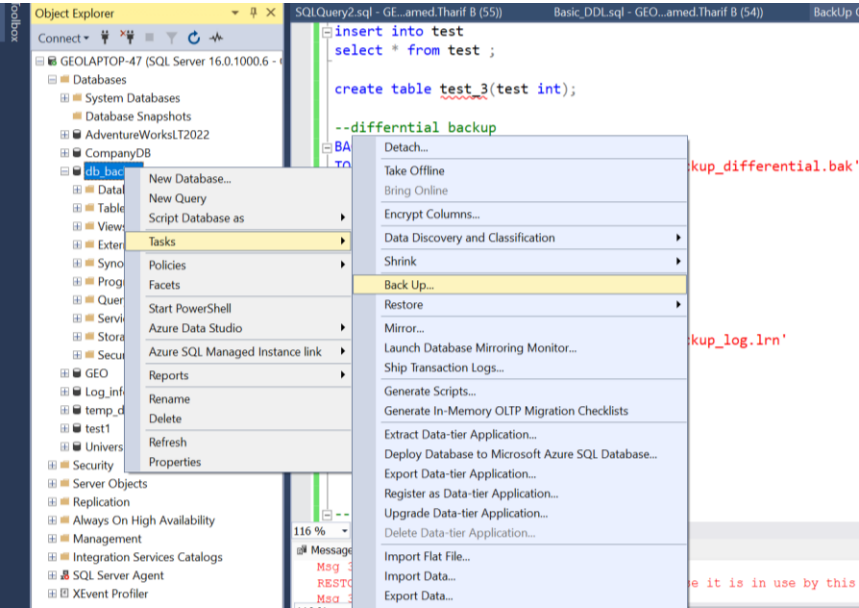
20 percent processed.  
39 percent processed.  
58 percent processed.  
78 percent processed.  
97 percent processed.  
100 percent processed.  
Processed 0 pages for database 'temp\_database', file 'temp\_db\_Data' on file 1.  
Processed 665 pages for database 'temp\_database', file 'temp\_db\_Log' on file 1.  
RESTORE LOG successfully processed 665 pages in 0.056 seconds (92.747 MB/sec).  
  
Completion time: 2025-02-28T15:17:20.6245544+05:30

# Backup using GUI

Backup Location-if we have multiple locations, we specify that location.

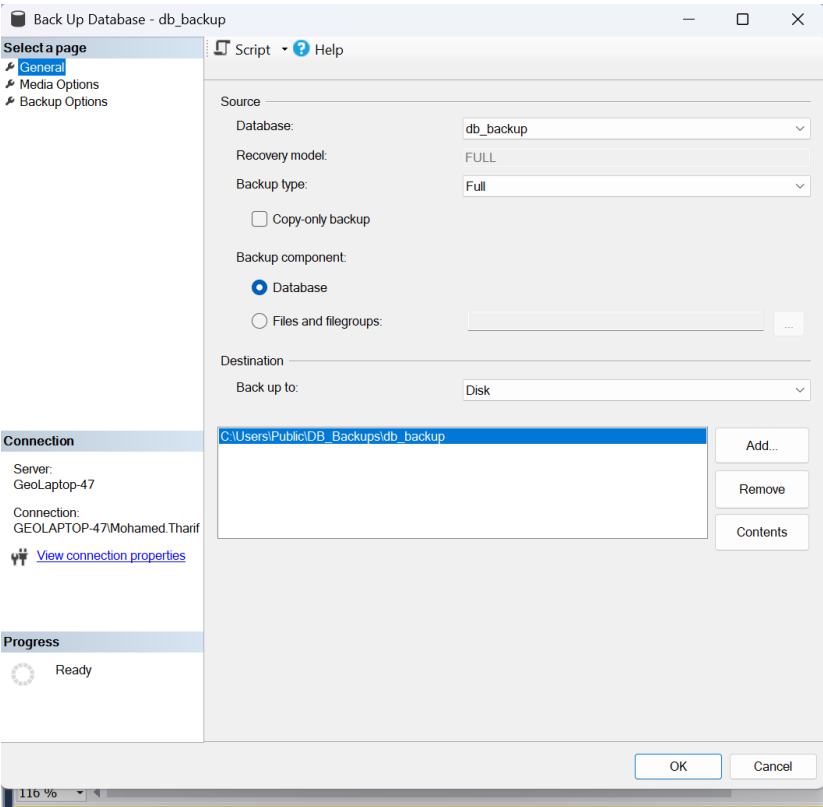


1.choose a database on Object Explorer, right click on database then chose tasks,on then select Backups

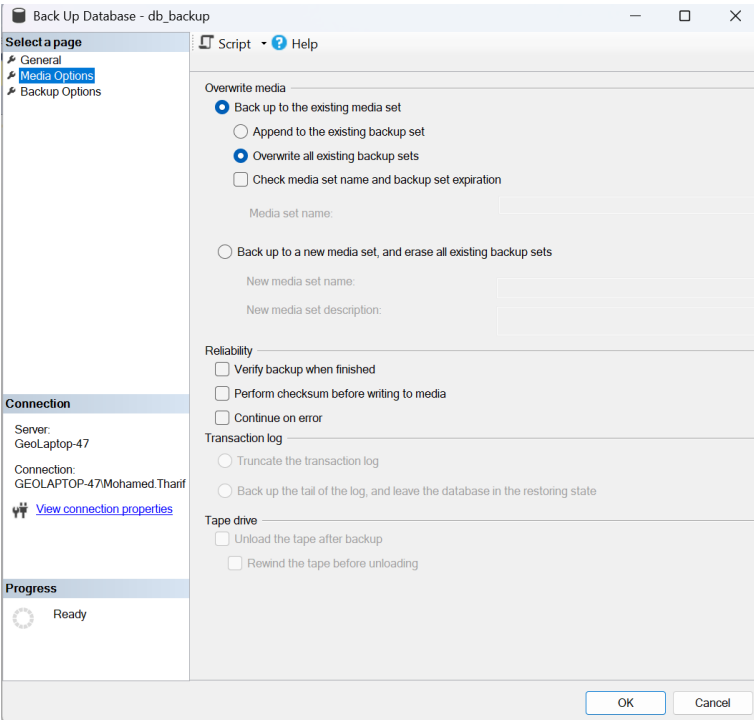


2.Choose Full Backup

2.Select Full which stores data as well as log



3.Choose Overwrite all existing Backups



Back Up Database - db\_backup

Select a page

- General
- Media Options
- Backup Options

Script Help

Backup set

Name: db\_backup-Full Database Backup

Description:

Backup set will expire:

☒ After: 1 days

☐ On: 28-02-2025

Compression

Set backup compression: Compress backup

Encryption

☐ Encrypt backup

Algorithm: AES 128

Certificate or Asymmetric key:

Encryption is available only when Back up to a new media set is selected in Media Options.

OK Cancel

4. Set compression backup for compressing the size of Database.

5. Press Ok will process the backup.

Backup type: Full

☐ Copy-only backup

Backup component:

☒ Database

Microsoft SQL Server Management Studio

The backup of database 'db\_backup' completed successfully.

Copy message

OK

Server: GeoLaptop-47

Connection: GEOLAPTOP-47\Mohamed.Tharif

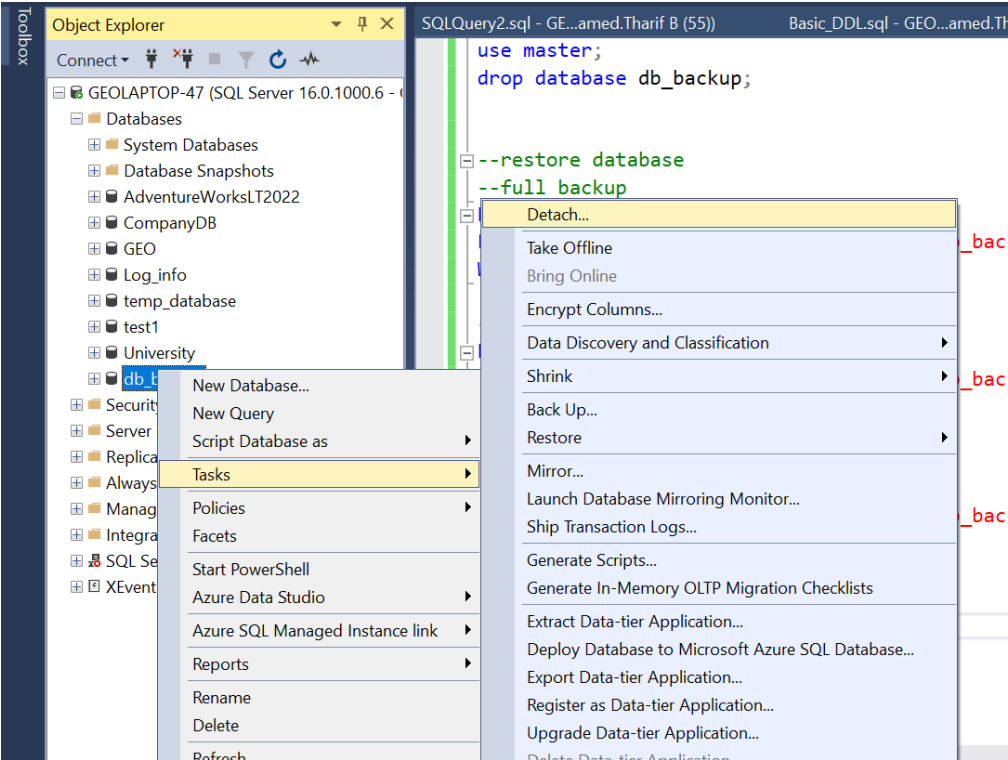
View connection properties

Remove

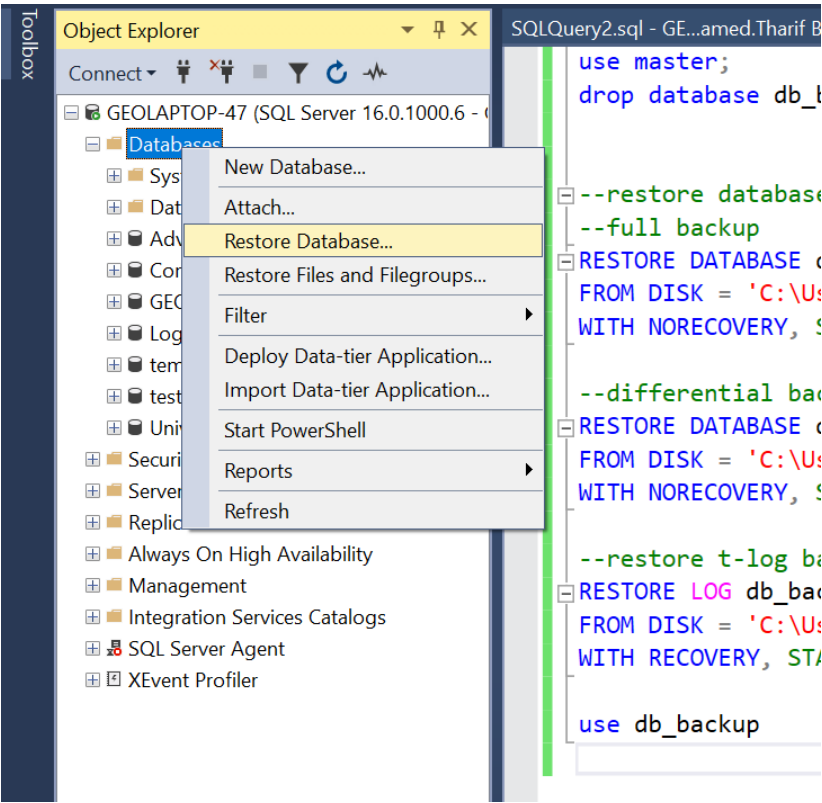
Contents

# Restoring the Database

## 1. Detach the Database

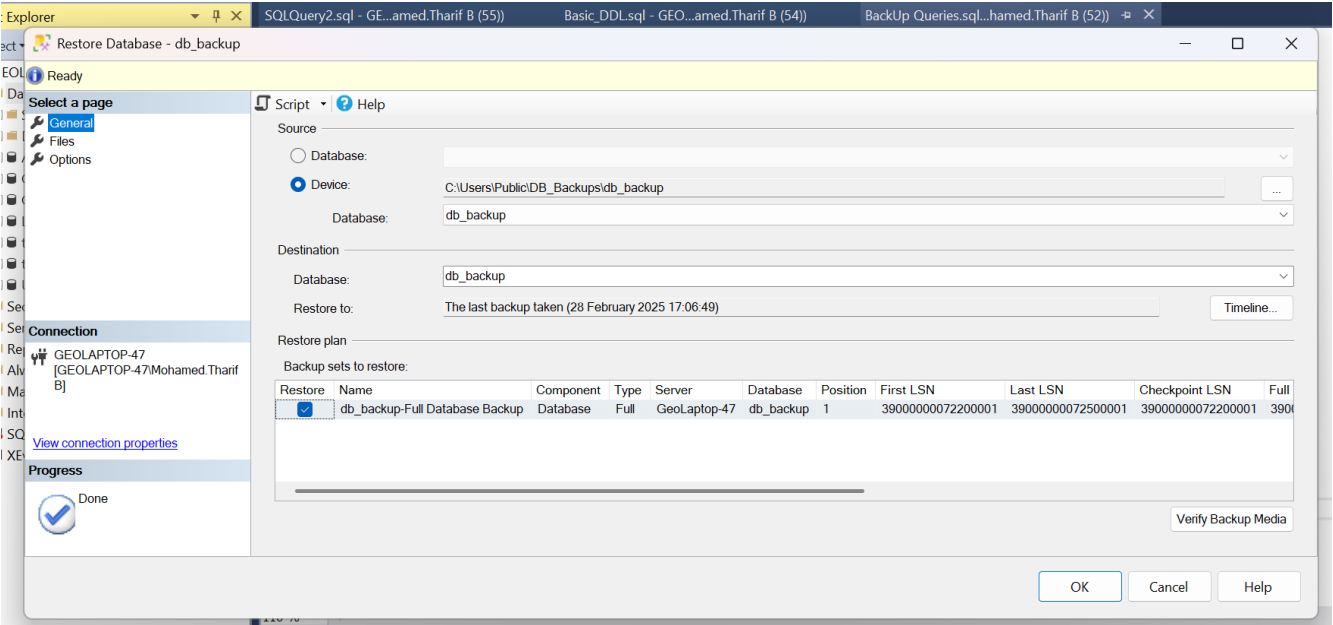


## 2. Select Database and choose restore database

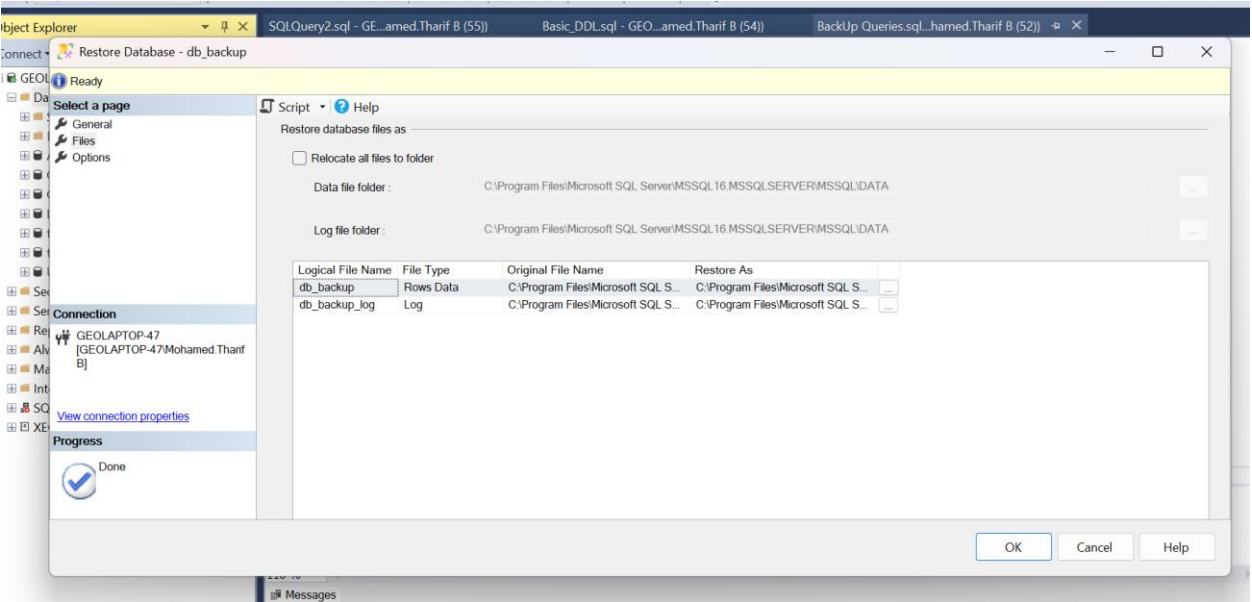




3.Select the Device and choose Location of the backup file

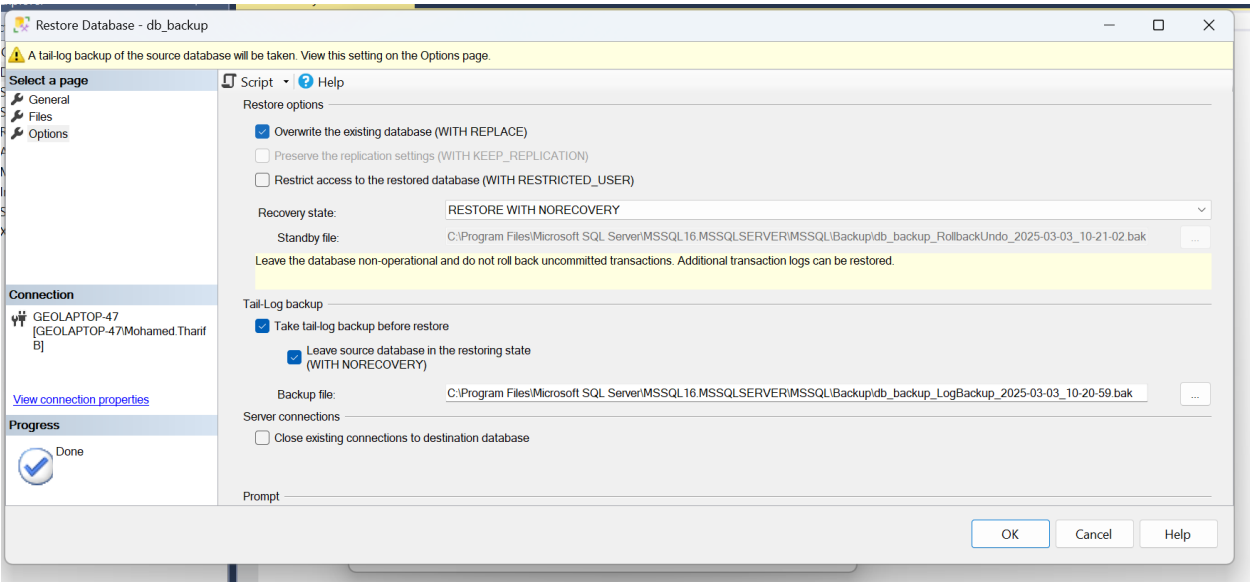


4. Choose files and check both data and log were present



5.choose options and select RESTORE WITH NORECOVERY for restoring other backups too.

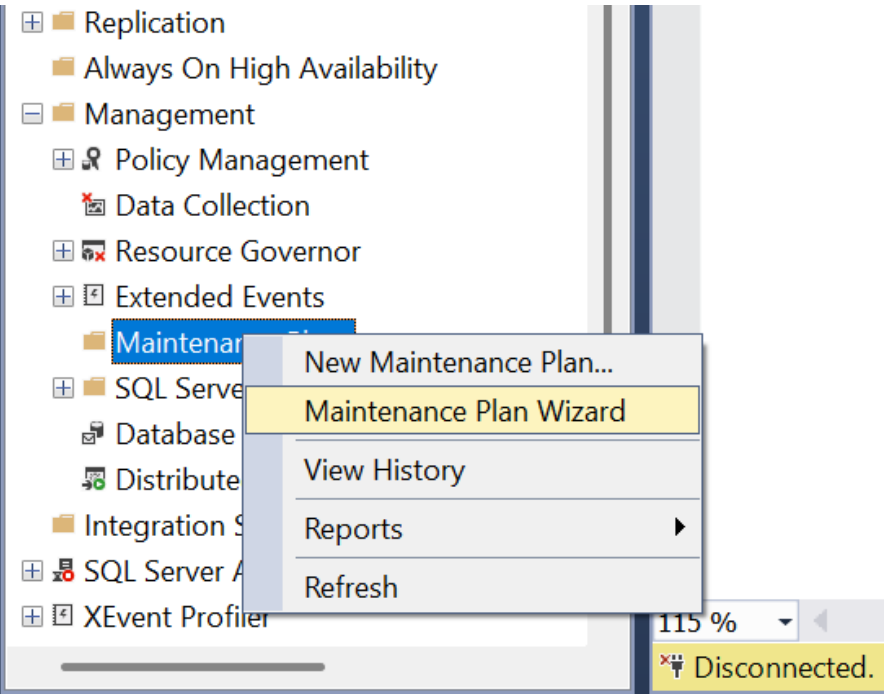
RESTORE WITH NORECOVERY –Makes the database in Recovering State rather than bringing online for use.



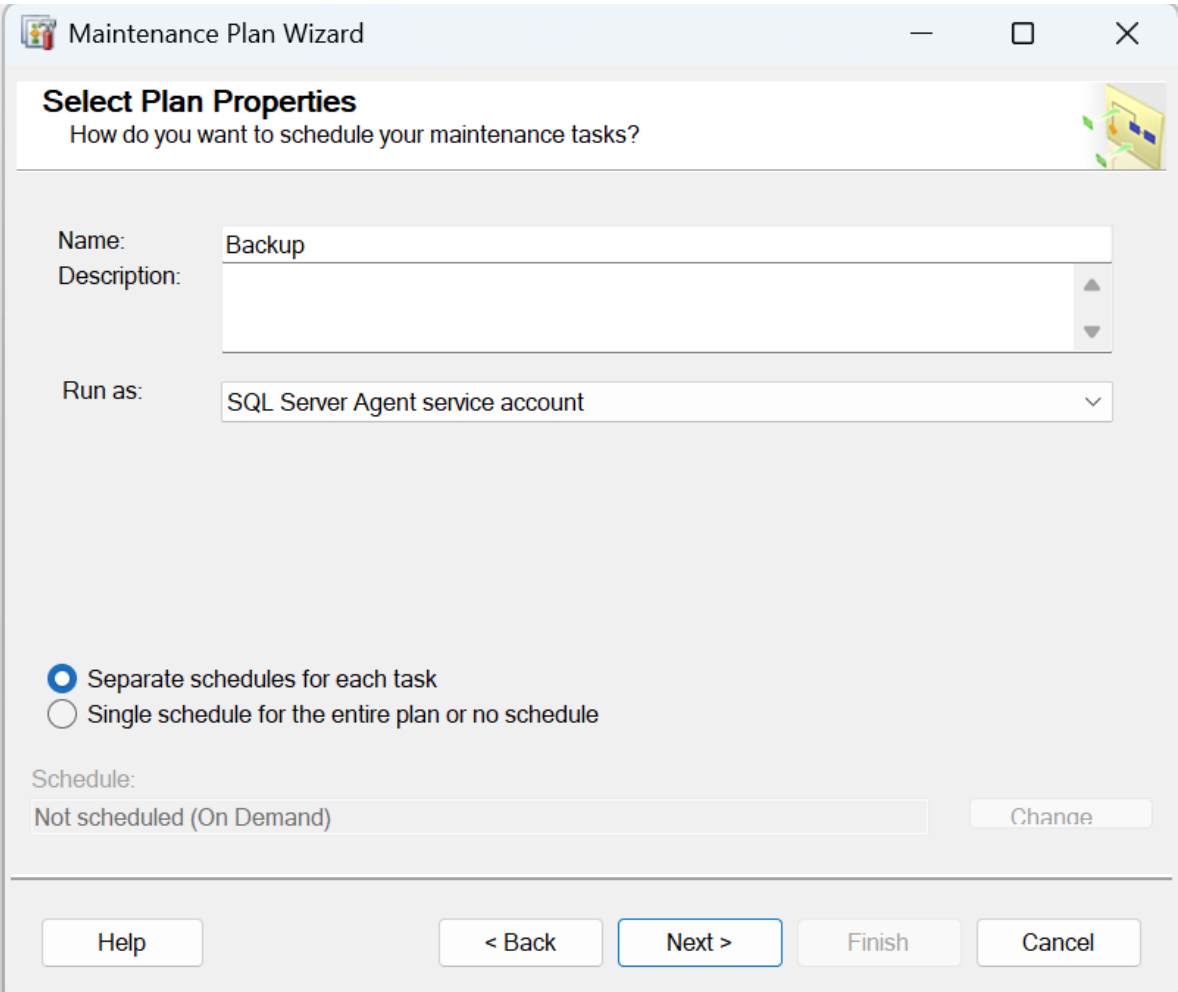
- 6.If differential or T-Log backups are present, then again Repeat the 1-4 steps
- 7.Choose Differential Backup and select the recovery state as RESTORE WITH NORECOVERY.
- 8.if T-log backup present, then again repeat step 1-4, but select the Recovery state as RESTORE WITH RECOVERY.
- 9. RESTORE WITH RECOVERY will bring the database to online from the recovering state.

## Maintenance Plans

- 1.Choose maintenance plans under Extended Events



2.Create a name for the Maintenance plan and select separate schdules for each task




3.Select Full, Differential and Transaction Log

Maintenance Plan Wizard

**Select Maintenance Tasks**  
Which tasks should this plan perform?

Select one or more maintenance tasks:

- ☐ Check Database Integrity
- ☐ Shrink Database
- ☐ Reorganize Index
- ☐ Rebuild Index
- ☐ Update Statistics
- ☐ Clean Up History
- ☐ Execute SQL Server Agent Job
- ☒ Back Up Database (Full)
- ☒ Back Up Database (Differential)
- ☒ Back Up Database (Transaction Log)
- ☐ Maintenance Cleanup Task

 The Back Up Database (Transaction Log) task allows you to specify the source databases, destination files or tapes, and overwrite options for a transaction log backup.

Help < Back Next > Finish Cancel

4.Arrange the order of the workflow


Maintenance Plan Wizard

**Select Maintenance Task Order**  
In which order should these tasks be performed?

Select the order for the tasks to execute:

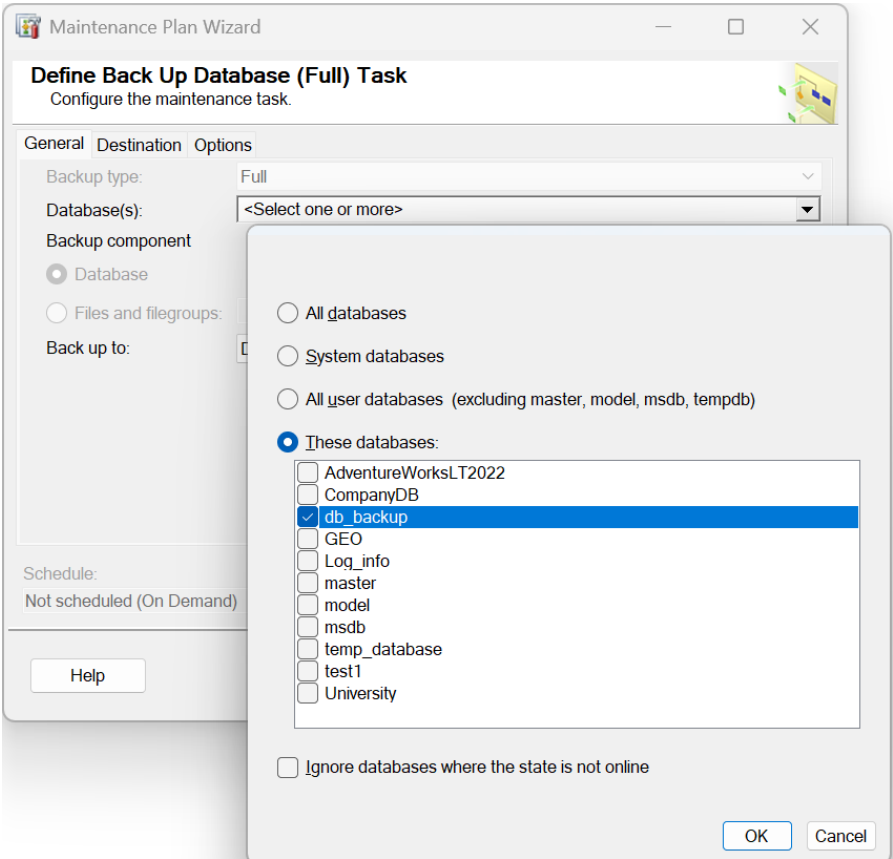
- Back Up Database (Full)
- Back Up Database (Differential)
- Back Up Database (Transaction Log)

Move Up Move

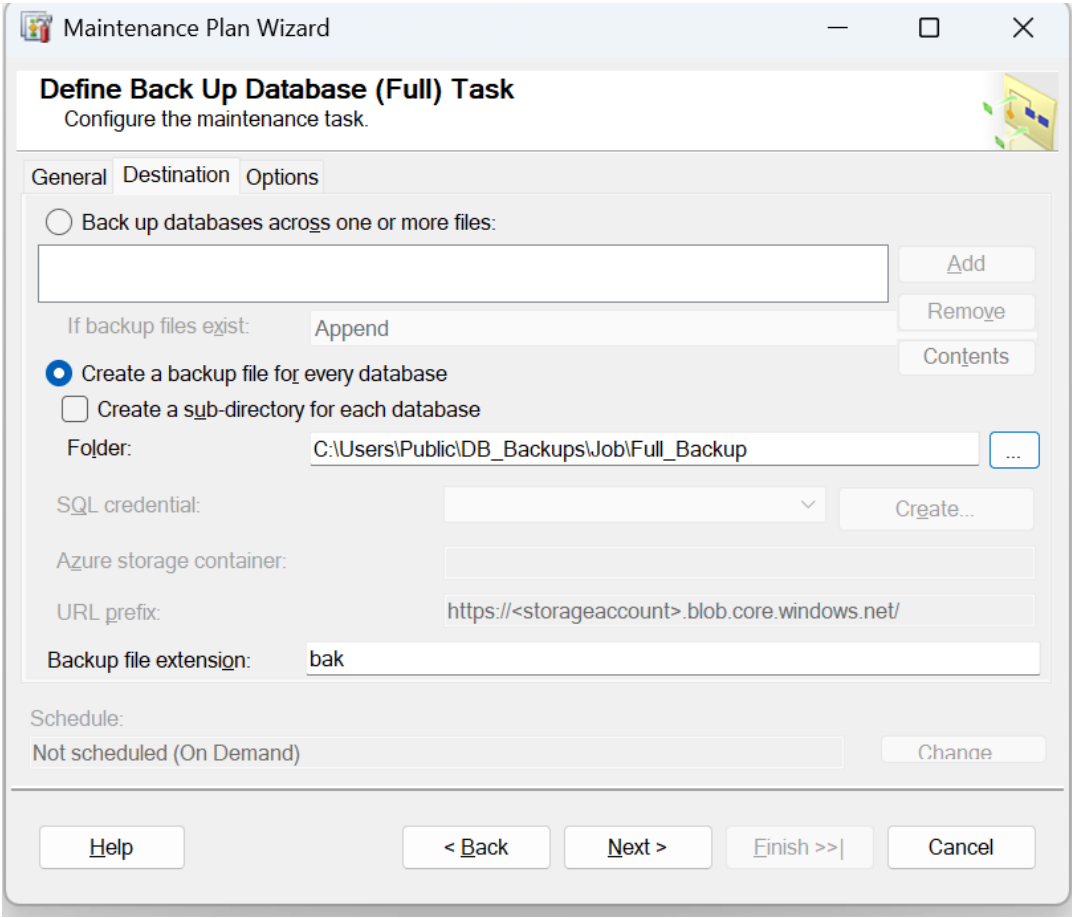
 The Back Up Database (Full) task allows you to specify the source databases, destination files or tapes, and overwrite options for a full backup.

Help < Back Next > Finish Cancel

5.Choose the Database also we can choose multiple databases at the same time.



6. Select Destination and change the backup location



7. Select Compress Backup for reducing the storage size

Maintenance Plan Wizard

Define Back Up Database (Full) Task

Configure the maintenance task.

General

Destination

Options

Set backup compression:

Compress backup

☐ Backup set will expire:

☒ After

14

days

☐ On

17-03-2025

☐ Copy-only backup

☐ Perform checksum

☐ Verify backup integrity

☐ Continue on error

☐ Backup encryption

Algorithm: AES 128

Certificate or Asymmetric key:

☐ For availability databases, ignore replica priority for backup and backup on primary settings

☐ Block size

65536

bytes

☐ Max transfer size

65536

bytes

Schedule:

Not scheduled (On Demand)

Change

Help

< Back

Next >

Finish >>|

Cancel

8.Schedule the Job so that repeats every day.

Full back up scheduled every day at 9.00.

New Job Schedule

Name:

Backup.Back Up Database (Full)

Jobs in Schedule

Schedule type:

Recurring

☒ Enabled

One-time occurrence

Date: 03-03-2025

Time: 11:08:32

Frequency

Occurs: Daily

Recurs every: 1 day(s)

Daily frequency

☒ Occurs once at: 00:09:00

☐ Occurs every: 1 hour(s)

Starting at: 00:00:00

Ending at: 23:59:59

Duration

Start date: 03-03-2025

☐ End date: 03-03-2025

☒ No end date:

Summary

Description: Occurs every day at 00:09:00. Schedule will be used starting on 03-03-2025.

OK

Cancel

Help

9.Repeat the Same steps from 4 to 6 for the Differential Back up.

Differential backup schedule every 4 hours a day.

New Job Schedule

Name:

Backup.Back Up Database (Differential)

Jobs in Schedule

Schedule type:

Recurring

☒ Enabled

One-time occurrence

Date:

03-03-2025

Time:

11:10:11

Frequency

Occurs:

Daily

Recurs every:

1

day(s)

Daily frequency

☐ Occurs once at:

00:00:00

☒ Occurs every:

4

hour(s)

Starting at:

00:00:00

Ending at:

23:59:59

Duration

Start date:

03-03-2025

☐ End date:

03-03-2025

☒ No end date:

Summary

Description:

Occurs every day every 4 hour(s) between 00:00:00 and 23:59:59. Schedule will be used starting on 03-03-2025.

OK

Cancel

Help

10.Similarly repeat the steps 4 to 6 for T-Log back up

T-Log backup occurs every hour of a day

New Job Schedule

Name:

Backup.Back Up Database (Transaction Log)

Jobs in Schedule

Schedule type:

Recurring

☒ Enabled

One-time occurrence

Date:

03-03-2025

Time:

11:11:43

Frequency

Occurs:

Daily

Recurs every:

1

day(s)

Daily frequency

☐ Occurs once at:

00:00:00

☒ Occurs every:

1

hour(s)

Starting at:

00:00:00

Ending at:

23:59:59

Duration

Start date:

03-03-2025

☐ End date:

03-03-2025

☒ No end date:

Summary

Description:

Occurs every day every 1 hour(s) between 00:00:00 and 23:59:59. Schedule will be used starting on 03-03-2025.

OK

Cancel

Help

11.Choose the location for the report file about the backup informantion

Maintenance Plan Wizard

Select Report Options

Select options for saving or distributing a report of the maintenance plan actions.

☒ Write a report to a text file

Folder location: C:\Users\Public\DB\_Backups\Job

☐ E-mail report

To:

There are no operators defined on the system.

Help

< Back

Next >

Finish >>|

Cancel

12.Overall workflow of the plan will shown, used for cross verify the schedule

Maintenance Plan Wizard

Complete the Wizard

Verify the choices made in the wizard, and then click Finish.

Click Finish to perform the following actions:

Maintenance Plan Wizard

Create Maintenance Plan 'Backup'

Define Back Up Database (Full) Task

Define Back Up Database (Differential) Task

Define Back Up Database (Transaction Log) Task

Selected reporting options

Report will be generated in folder: C:\Users\Public\DB\_Backups\Job

Help

< Back

Next >

Finish

Cancel



13.Successfull Execution will show or else Failed

Maintenance Plan Wizard

Maintenance Plan Wizard Progress

Click Stop to interrupt the operation.

Success

5 Total0 Error5 Success0 Warning

Details:

Action	Status	Message
Creating maintenance plan "Backup"	Success	
Adding tasks to the maintenance plan	Success	
Adding scheduling options	Success	
Adding reporting options	Success	
Saving maintenance plan "Backup"	Success	

Stop

Report

Close

Moves to the last wizard













