Databases Laboratory Work Nr 2
Title: Crearea şi intreţinerea bazei de date
Prerequisites: SQL Server Management Studio
Objectives: Successful creation and configuration of an SQL Server

Tasks:

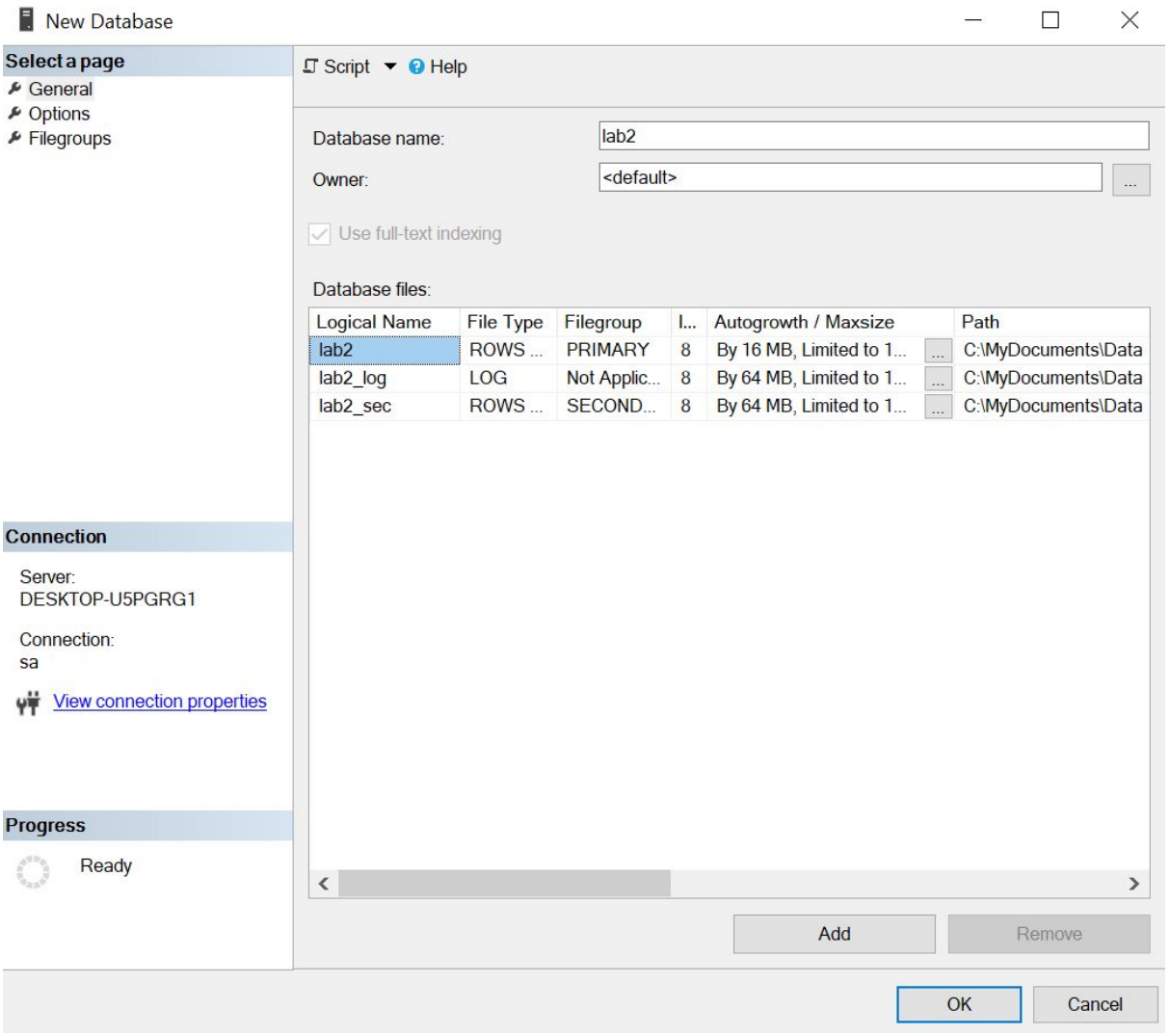
1. Create a database that is physically located in the MyDocuments\Data folder, setting a file growth of 16 MB for the primary file, with the growth limit of 128 MB, and a growth of 64 MB with the maximal growth of 1024 MB for the log file. For secondary files, define a new default Filegroup, setting a growth of 64 MB with the limit of 1024 MB for these files.

2. Create a database, where the log file is physically located in the MyDocuments\Log folder. The name of the log file in the operating system environment must differ from the logically defined name in the physical scheme. The database must be compatible with the MS SQL Server 2017 system and it should be accessible to only one user at a time.

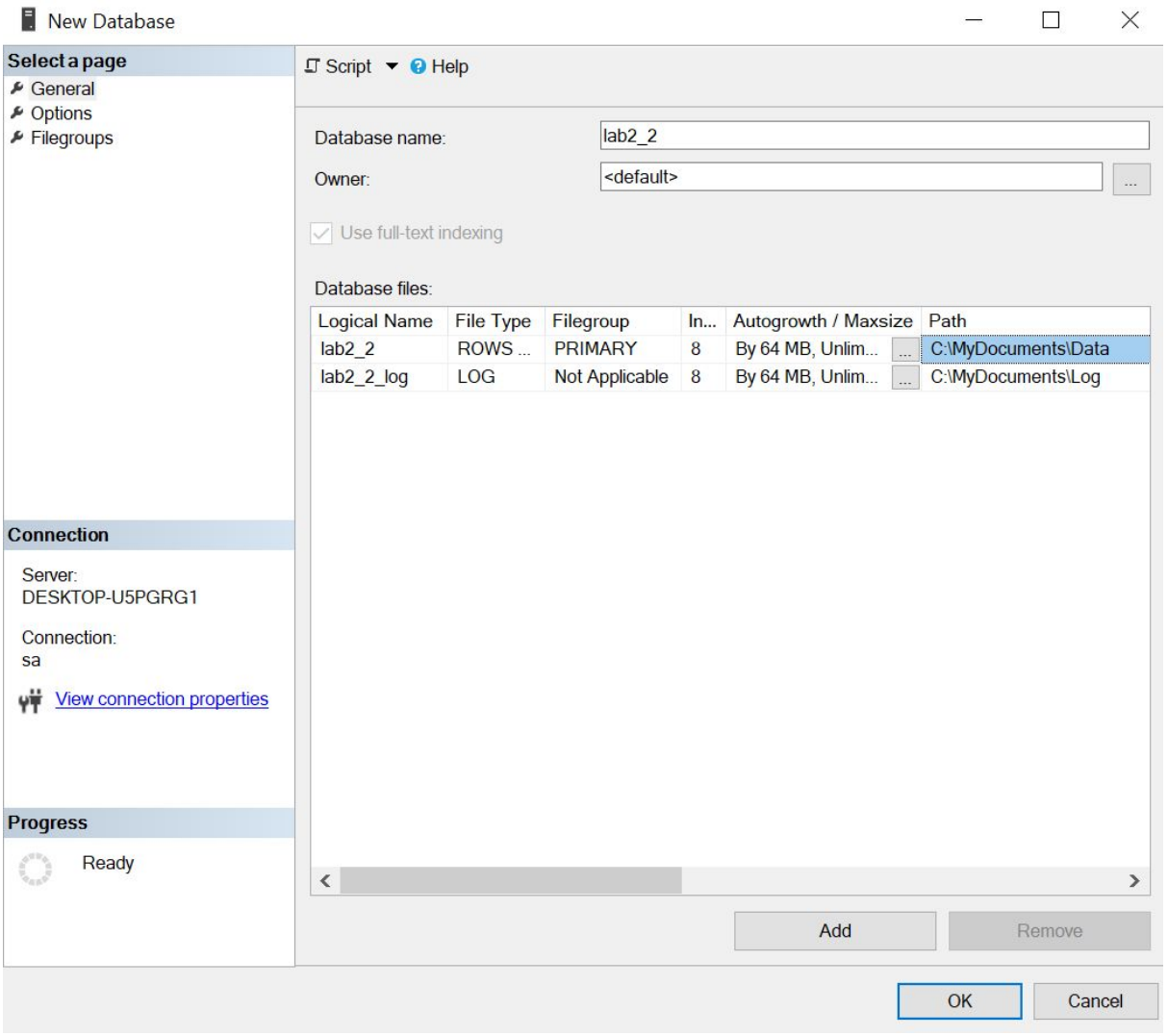
3. Create a maintenance plan for the database created for the first task. The unused files space must be freed when it reaches 2000 Mb. This space must be returned to the operating system. The task should be executed every Friday, at 12 A.M. The maintenance plan's execution report must be saved in the MyDocuments\SQL_event_logs folder. Initialize the plan. After the execution, check the results in the log file.

4. Create a maintenance plan for the database built in the second step. Name the plan "Index Rebuilding". In this plan, the system must perform the reconstruction of the indexes of the schemes in the main tables from this database (excluding views). The free space on the page must be 10%. The sorting of the indexes must be performed within the tempdb file. After the reconstruction, complete statistics about the reconstructed indexes must be collected. The third task of the maintenance plan is to clear the Backup-Restore history performed on the SQL Server older than 6 weeks. The plan must be executed on every first Sunday of the month. Create the MyDocuments\SQL_reports file and store the execution report in it. The maintenance process should be carried out in the extended log mode. After execution, check the results in the generated file from the log folder.

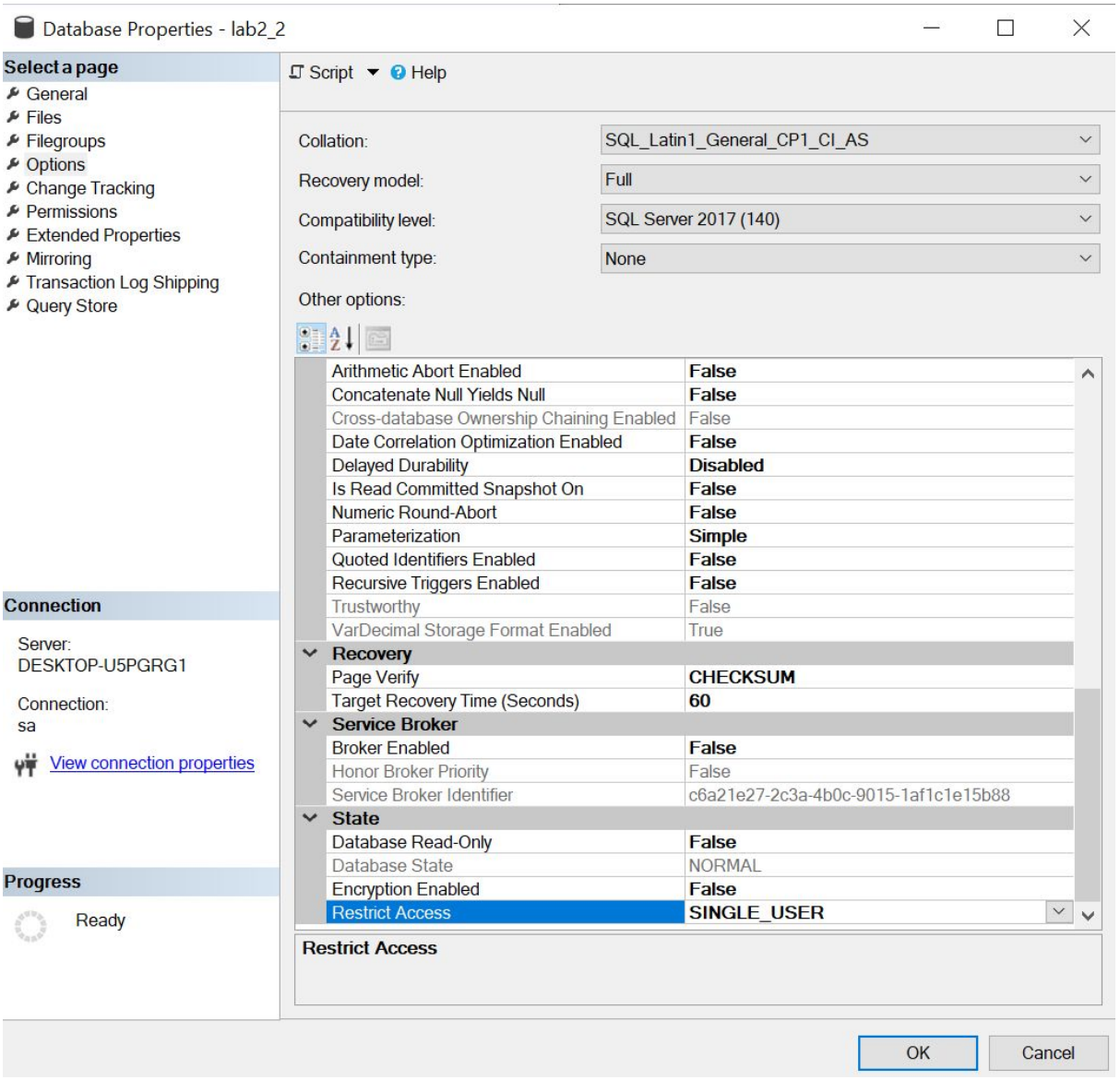
task 1

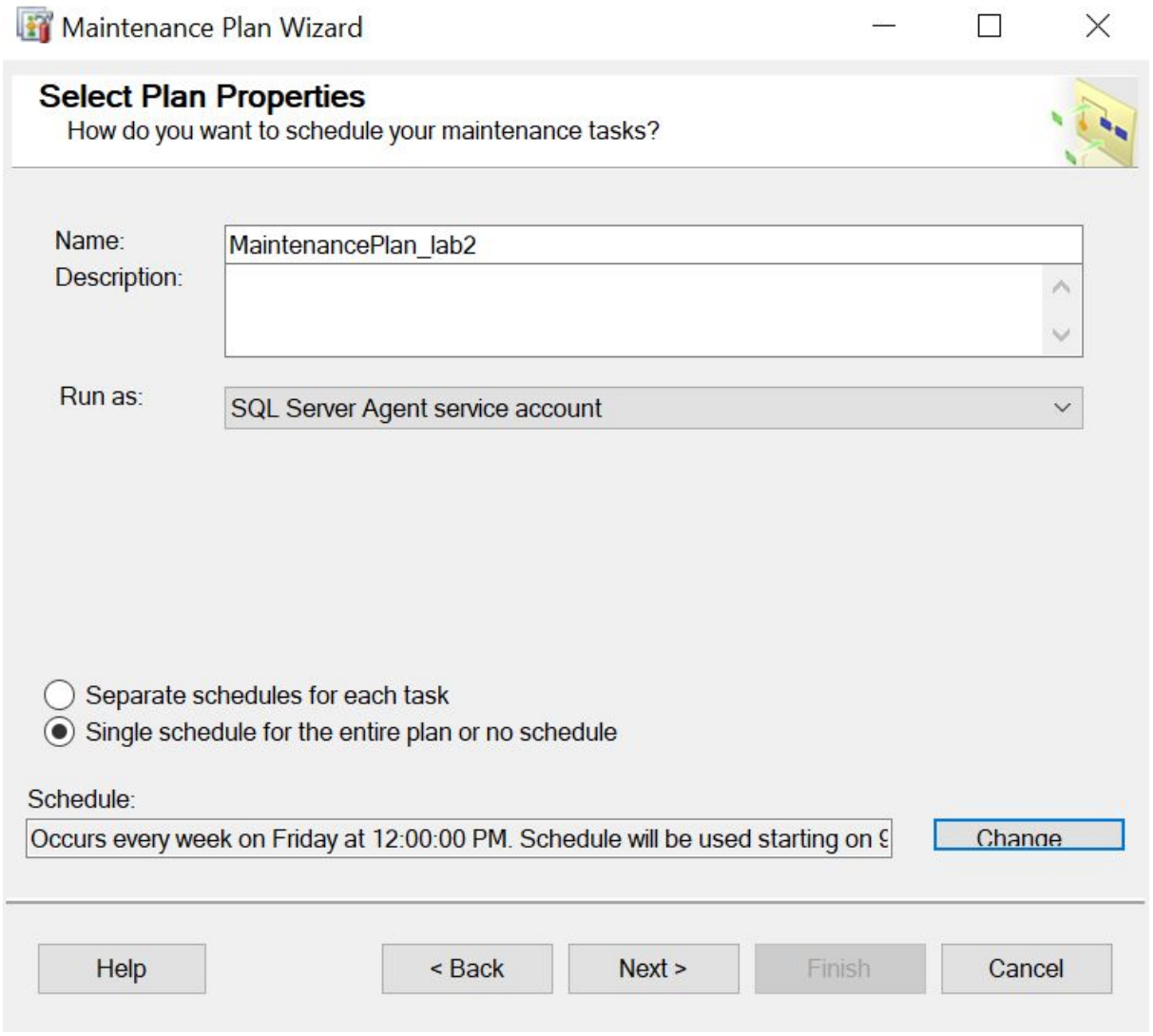

New Database
Select a page
General
Options
Filegroups
Script
Help
Database name:
lab2
Owner:
<default>
Use full-text indexing
Database files:
Logical Name
File Type
Filegroup
I...
Autogrowth / Maxsize
Path
lab2
ROWS ...
PRIMARY
8
By 16 MB, Limited to 1...
C:\MyDocuments\Data
lab2_log
LOG
Not Applic...
8
By 64 MB, Limited to 1...
C:\MyDocuments\Data
lab2_sec
ROWS ...
SECOND...
8
By 64 MB, Limited to 1...
C:\MyDocuments\Data
Connection
Server:
DESKTOP-U5PGRG1
Connection:
sa
View connection properties
Progress
Ready
Add
Remove
OK
Cancel

task 2

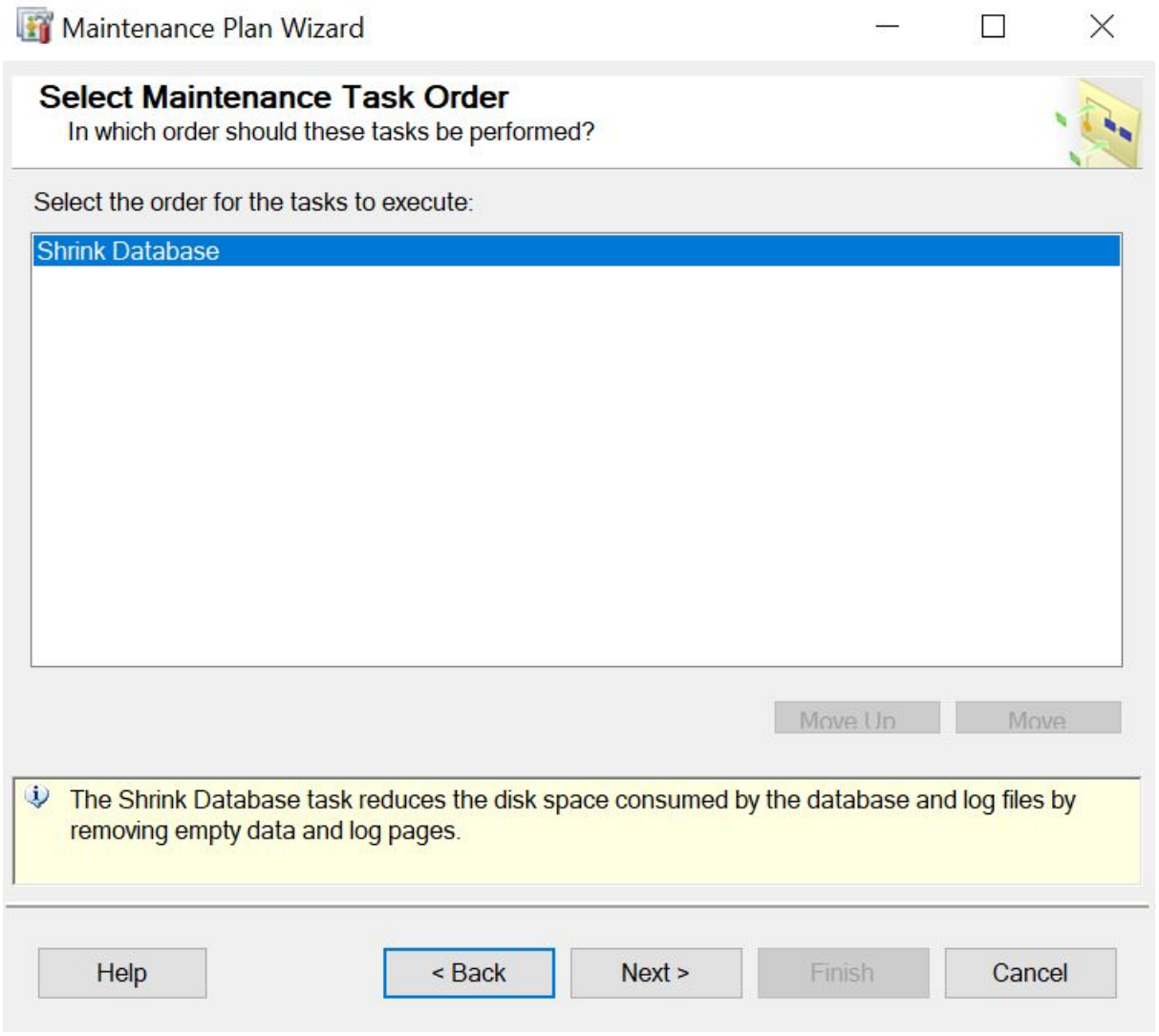

New Database
Select a page
General
Options
Filegroups
Script
Help
Database name:
lab2_2
Owner:
<default>
Use full-text indexing
Database files:
Logical Name
File Type
Filegroup
In...
Autogrowth / Maxsize
Path
lab2_2
ROWS ...
PRIMARY
8
By 64 MB, Unlim...
C:\MyDocuments\Data
lab2_2_log
LOG
Not Applicable
8
By 64 MB, Unlim...
C:\MyDocuments\Log
Add
Remove
Connection
Server:
DESKTOP-U5PGRG1
Connection:
sa
View connection properties
Progress
Ready
OK
Cancel

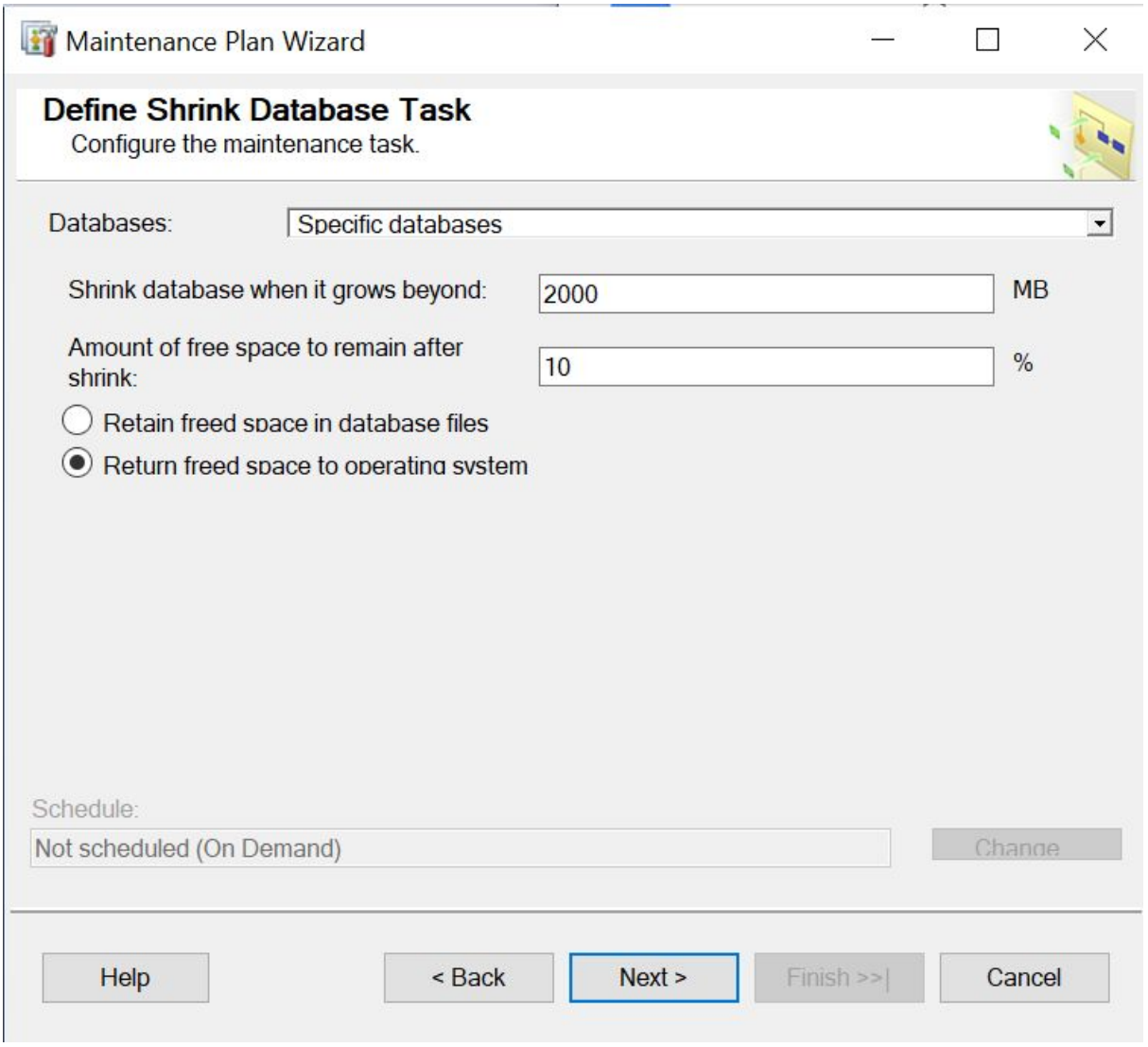
task 3

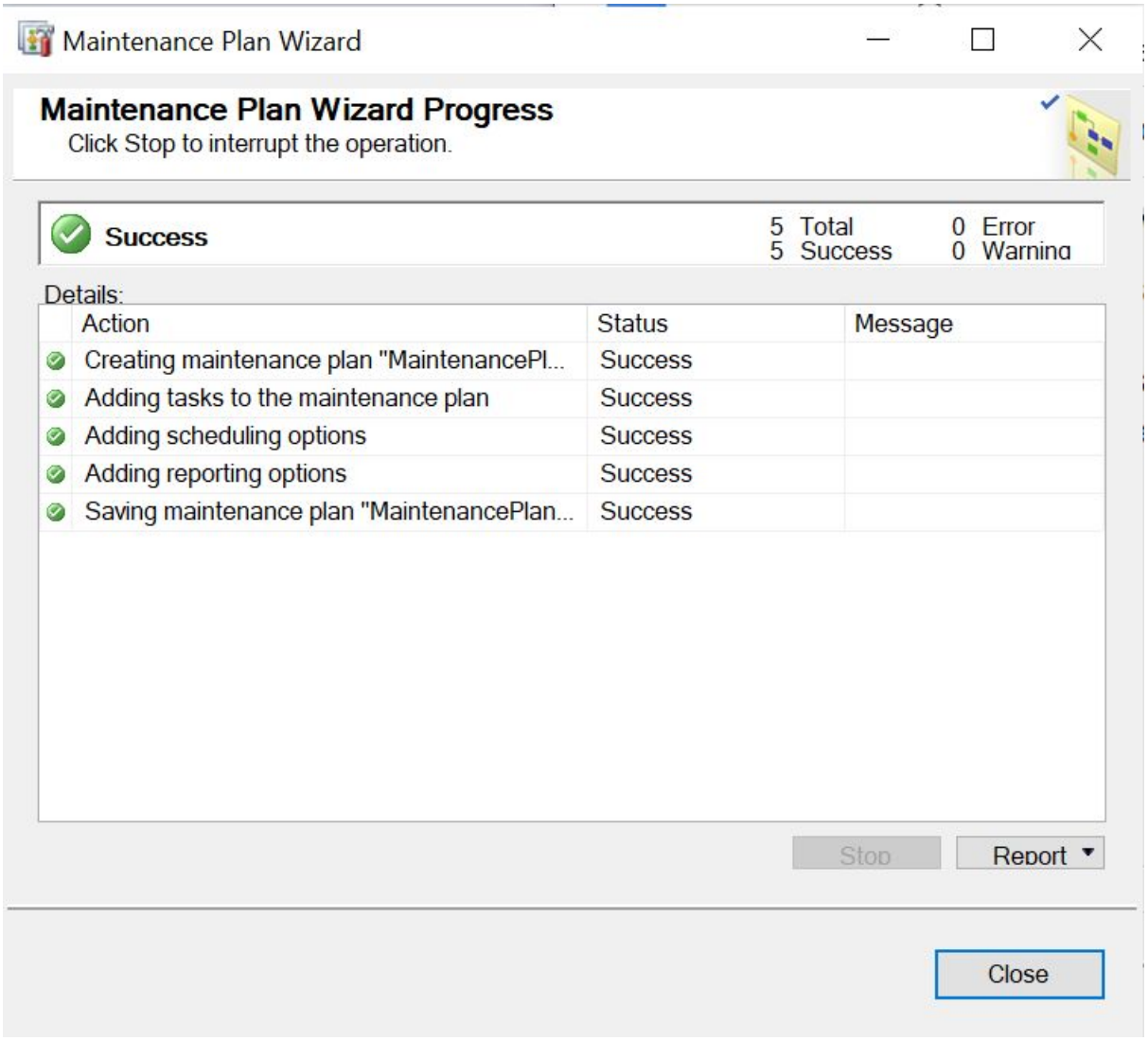

Database Properties - lab2_2
Select a page
General
Files
Filegroups
Options
Change Tracking
Permissions
Extended Properties
Mirroring
Transaction Log Shipping
Query Store
Script
Help
Collation: SQL_Latin1_General_CP1_CI_AS
Recovery model: Full
Compatibility level: SQL Server 2017 (140)
Containment type: None
Other options:
Arithmetic Abort Enabled False
Concatenate Null Yields Null False
Cross-database Ownership Chaining Enabled False
Date Correlation Optimization Enabled False
Delayed Durability Disabled
Is Read Committed Snapshot On False
Numeric Round-Abort False
Parameterization Simple
Quoted Identifiers Enabled False
Recursive Triggers Enabled False
Trustworthy False
VarDecimal Storage Format Enabled True
Recovery
Page Verify CHECKSUM
Target Recovery Time (Seconds) 60
Service Broker
Broker Enabled False
Honor Broker Priority False
Service Broker Identifier c6a21e27-2c3a-4b0c-9015-1af1c1e15b88
State
Database Read-Only False
Database State NORMAL
Encryption Enabled False
Restrict Access SINGLE_USER
Restrict Access
Connection
Server:
DESKTOP-U5PGRG1
Connection:
sa
View connection properties
Progress
Ready
OK
Cancel


Maintenance Plan Wizard
Select Plan Properties
How do you want to schedule your maintenance tasks?
Name:
MaintenancePlan_lab2
Description:
Run as:
SQL Server Agent service account
Separate schedules for each task
Single schedule for the entire plan or no schedule
Schedule:
Occurs every week on Friday at 12:00:00 PM. Schedule will be used starting on 9
Change
Help
< Back
Next >
Finish
Cancel

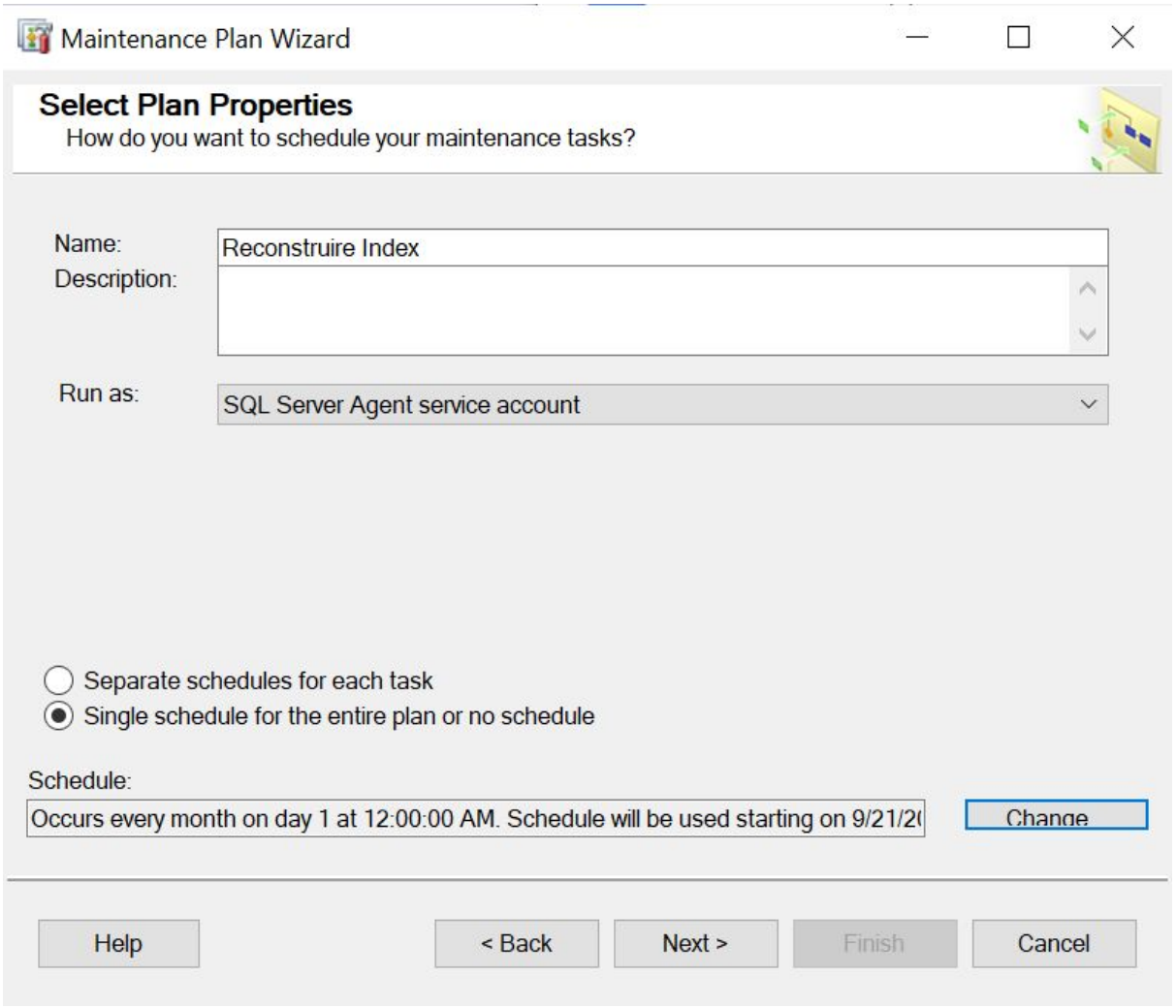
task 4

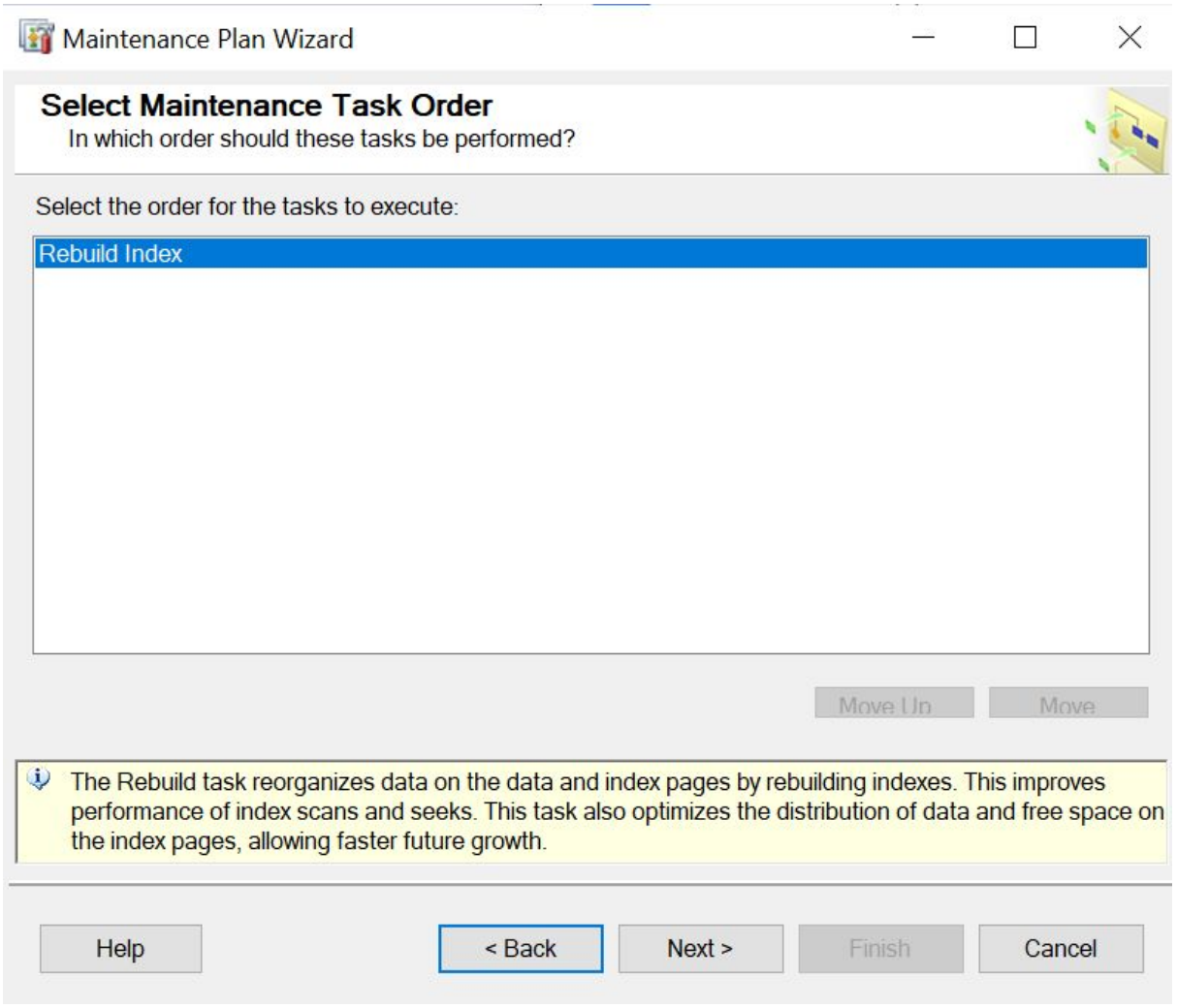

Maintenance Plan Wizard
Select Maintenance Task Order
In which order should these tasks be performed?
Select the order for the tasks to execute:
Shrink Database
Move Up
Move
The Shrink Database task reduces the disk space consumed by the database and log files by removing empty data and log pages.
Help
< Back
Next >
Finish
Cancel

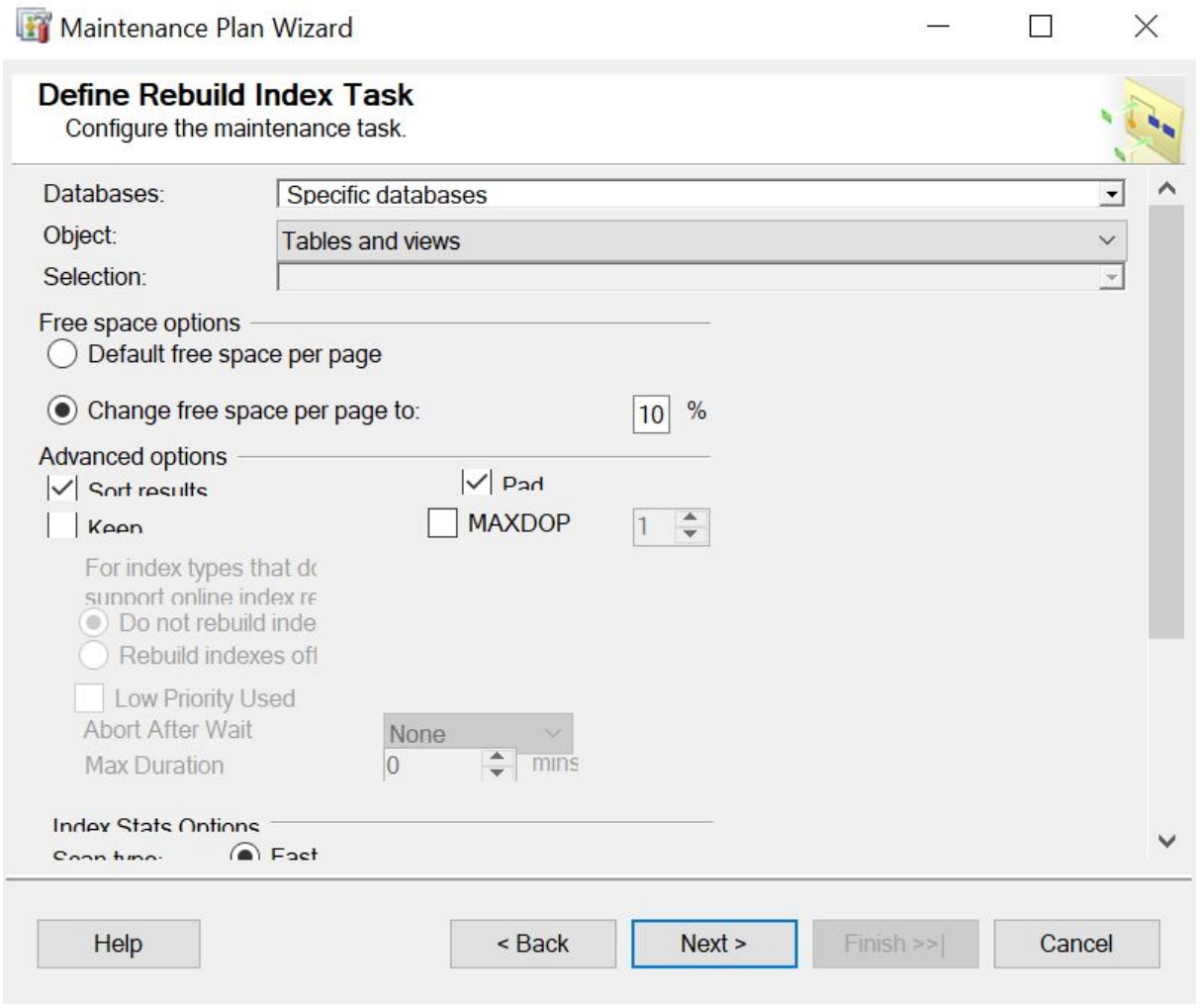

Maintenance Plan Wizard
Define Shrink Database Task
Configure the maintenance task.
Databases:
Specific databases
Shrink database when it grows beyond:
2000
MB
Amount of free space to remain after shrink:
10
%
Retain freed space in database files
Return freed space to operating system
Schedule:
Not scheduled (On Demand)
Change
Help
< Back
Next >
Finish >>|
Cancel

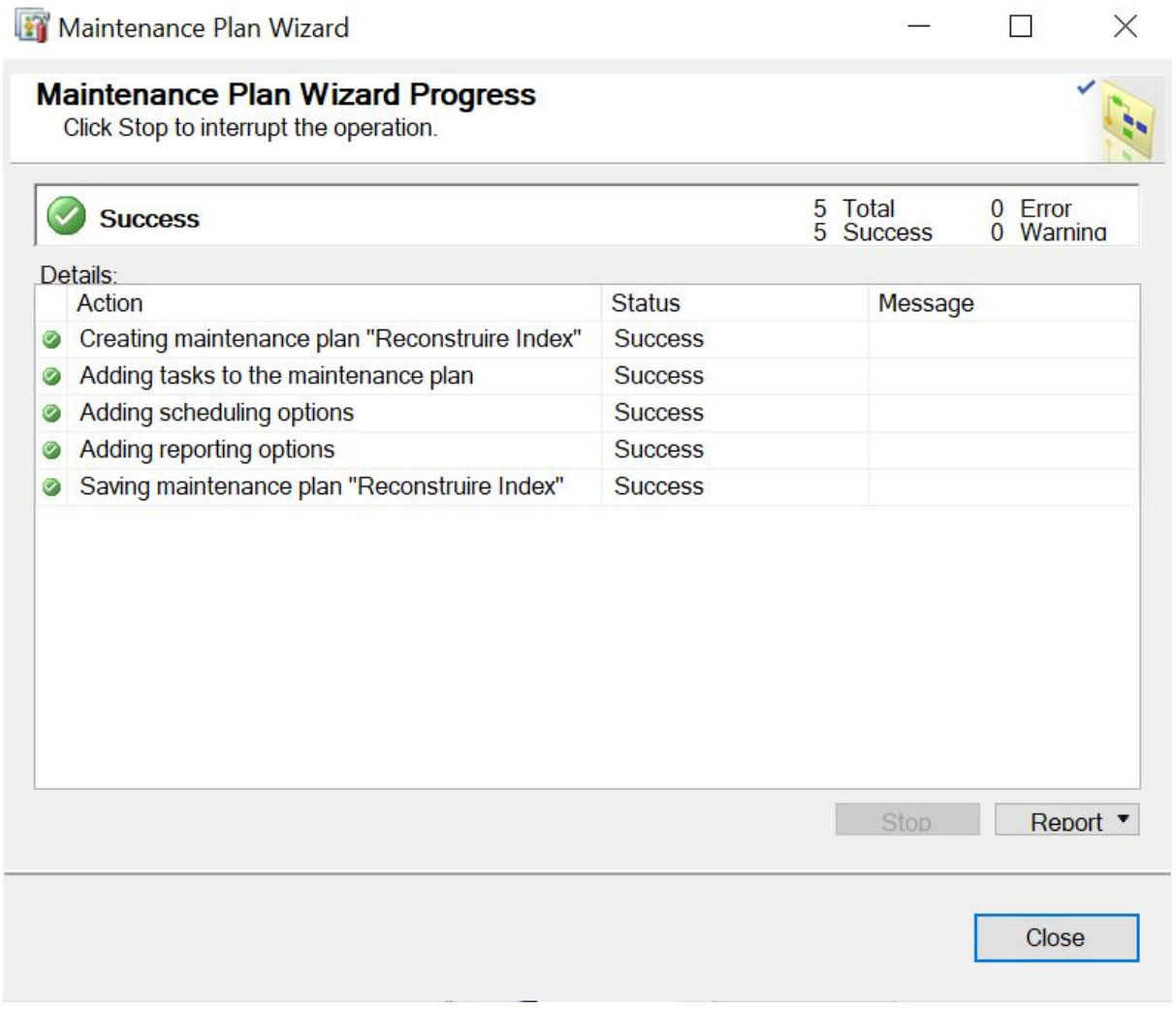

Maintenance Plan Wizard
Maintenance Plan Wizard Progress
Click Stop to interrupt the operation.
Success
5 Total
5 Success
0 Error
0 Warning
Details:
Action
Status
Message
Creating maintenance plan "MaintenancePl...
Success
Adding tasks to the maintenance plan
Success
Adding scheduling options
Success
Adding reporting options
Success
Saving maintenance plan "MaintenancePlan...
Success
Stop
Report
Close

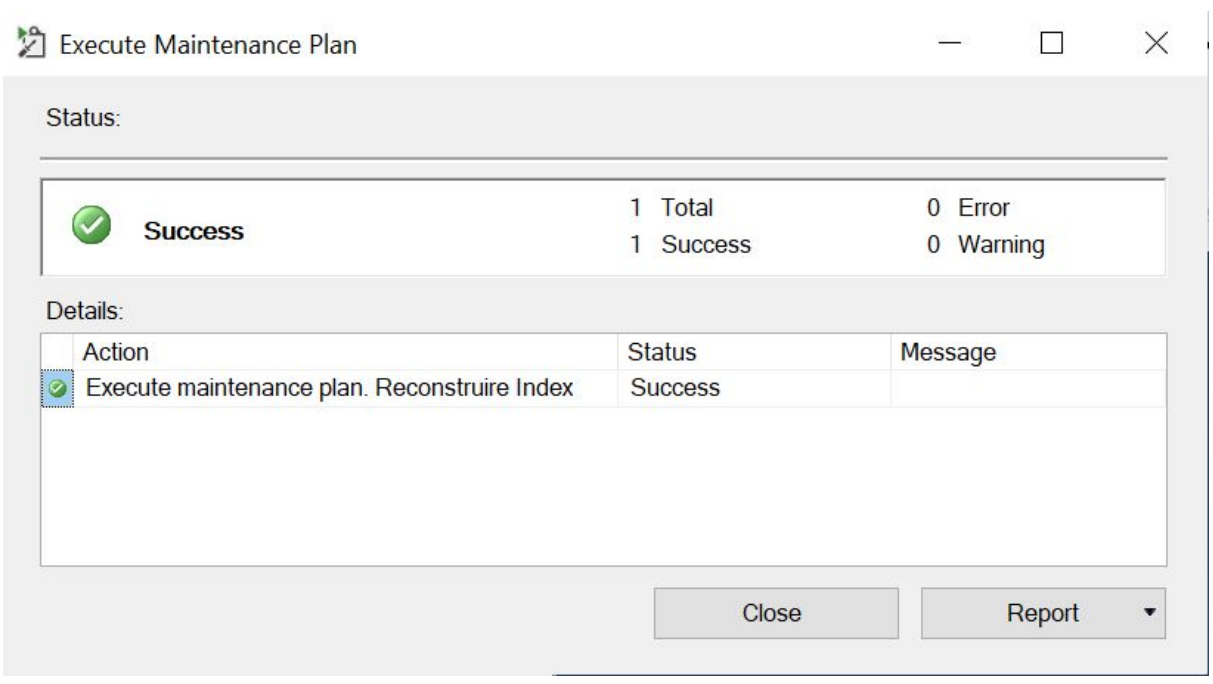
Task 4


Maintenance Plan Wizard
Select Plan Properties
How do you want to schedule your maintenance tasks?
Name:
Reconstruire Index
Description:
Run as:
SQL Server Agent service account
Separate schedules for each task
Single schedule for the entire plan or no schedule
Schedule:
Occurs every month on day 1 at 12:00:00 AM. Schedule will be used starting on 9/21/2(
Change
Help
< Back
Next >
Finish
Cancel


Maintenance Plan Wizard
Select Maintenance Task Order
In which order should these tasks be performed?
Select the order for the tasks to execute:
Rebuild Index
Move Up
Move
The Rebuild task reorganizes data on the data and index pages by rebuilding indexes. This improves performance of index scans and seeks. This task also optimizes the distribution of data and free space on the index pages, allowing faster future growth.
Help
< Back
Next >
Finish
Cancel


Maintenance Plan Wizard
Define Rebuild Index Task
Configure the maintenance task.
Databases:
Specific databases
Object:
Tables and views
Selection:
Free space options
Default free space per page
Change free space per page to:
10
%
Advanced options
Sort results
Pad
Keep
MAXDOP
1
For index types that dc
support online index re
Do not rebuild inde
Rebuild indexes off
Low Priority Used
Abort After Wait
None
Max Duration
0
mins
Index Stats Options
Scan type:
Fast
Help
< Back
Next >
Finish >>|
Cancel


Maintenance Plan Wizard
Maintenance Plan Wizard Progress
Click Stop to interrupt the operation.
Success
5 Total
5 Success
0 Error
0 Warning
Details:
Action
Status
Message
Creating maintenance plan "Reconstruire Index"
Success
Adding tasks to the maintenance plan
Success
Adding scheduling options
Success
Adding reporting options
Success
Saving maintenance plan "Reconstruire Index"
Success
Stop
Report
Close


Execute Maintenance Plan
Status:
Success
1 Total
1 Success
0 Error
0 Warning
Details:
Action
Status
Message
Execute maintenance plan. Reconstruire Index
Success
Close
Report

```
Microsoft(R) Server Maintenance Utility (Unicode) Version 14.0.2027
Report was generated on "DESKTOP-U5PGRG1".
Maintenance Plan: Reconstruire Index
Duration: 00:00:00
Status: Succeeded.
Details:
Rebuild Index (DESKTOP-U5PGRG1)
Rebuild index on Local server connection
Databases: lab2_2
Object: Tables and views
10% of free space
Task start: 2020-09-21T21:23:29.
Task end: 2020-09-21T21:23:29.
Success
Command:
GO
```

Conclusion: In this laboratory work we have learned how to automatize some managing database functions. The Maintenance Plan Wizard is the tool, that gives us ability to plan a lot of useful action, such as Shrink Database, Reorganize Index, Rebuilt Index, Clean up History and etc.