

Databases Laboratory Work Nr 2

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Title:

CREAREA SI INTRETINEREA BAZEI DE DATE

Prerequisites:

Computer ,SQL book

Objectives:

To create, modify and arrange databases

Tasks:

1. Creați o baza de date plasată fizic în mapa MyDocuments\Data, fixând o creștere a fișierului primar a bazei de 16MB cu limita de creștere de 128 MB și a logului de 64 MB cu limita de creștere de 1024 MB. Pentru fișierele secundare să se definească un Filegroup nou implicit, setând creșterea fișierelor secundare de 64 MB cu limita de 1024 MB.

2. Creați o baza de date, unde fișierul log să fie fizic plasat în mapa MyDocuments\Log, numele fișierului log în mediul sistemului de operare trebuie să se deosebească de cel logic definit în schema fizică. Este important ca baza de date creată să fie compatibilă cu sistemul MS SQL Server 2017 și ea să fie accesibilă numai unui singur utilizator într-un moment de timp.

3. Creați planul de întreținere a bazei de date, construită în sarcina 1. Spațiul neutilizat de fișierele bazei de date trebuie să se elibereze atunci când el atinge mărimea 2000Mb. Spațiul eliberat trebuie să fie returnat sistemului de operare. Această operațiune trebuie să ruleze în fiecare vineri, la ora 00:00. Raportul executării planului de întreținere trebuie salvat în dosarul MyDocuments\SQL_event_logs. Inițializați executarea planului. După executare, verificați rezultatele în fișierul log.

4. Creați planul de întreținere a bazei de date, construit în exercitiul 2. Numele planului va fi: „Reconstruire index”. În cadrul acestui plan, sistemul trebuie să realizeze reconstruirea indecșilor numai asupra tabelor de bază (exclusiv viziunilor) din toate schemele care există în baza de date în cauză. Spațiul liber pe pagina trebuie să fie 10%. Sortarea indecșilor trebuie să se realizeze în tempdb. După reconstruire, trebuie să urmeze colectarea statisticilor complete despre indecșii reconstruiți. Al treilea pas al planului trebuie să constituie sarcina de curățare a istoriei despre operațiile de Backup-Restore ce au avut loc pe SQL Server. Trebuie să se afișeze istoricul care este mai vechi de 6 săptămâni. Acest plan trebuie să fie executat în fiecare prima duminică a lunii. Creați dosarul MyDocuments\SQL_reports. Raportul de executare a planului trebuie să fie adăugat în acest fișier. Procesul de mentenanță - să fie logat în mod extended. Inițializați executarea planului. După executare, verificați rezultatele în fișierul log generat

Implementation:

Task 1.

Creating a new database **task_1** with size limits as defined in task!

New Database

Select a page: General, Options, Filegroups

Script Help

Database name: task_1

Owner: <default>

☒ Use full-text indexing

Database files:

Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize
task_1	ROWS...	PRIMARY	16	By 64 MB, Limited to 128 MB
task_1_log	LOG	Not Applicable	64	By 64 MB, Limited to 1024 ...

Add Remove

OK Cancel

And now we create a filegroup for this DB

New Database

Select a page: General, Options, Filegroups

Script Help

Rows

Name	Files	Read-Only	Default	Autogrow All Files
PRIMARY	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task_1	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Add Filegroup Remove

FILESTREAM

Name	FILESTREAM Files	Read-Only	Default
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Add Filegroup Remove

MEMORY OPTIMIZED DATA

Name	FILESTREAM Files
------	------------------

Add Filegroup Remove

OK Cancel

Task 2.

In new database we rename standard log name to **log** and put in predefined path

New Database

Select a page: General, Options, Filegroups

Script Help

Database name: Task_2

Owner: sa

☒ Use full-text indexing

Database files:

	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize	Path
Task_2	ROWS...	PRIMARY	8	By 64 MB, Unlimited	C:\
log	LOG	Not Applicable	8	By 64 MB, Unlimited	C:\

Ready

Add Remove

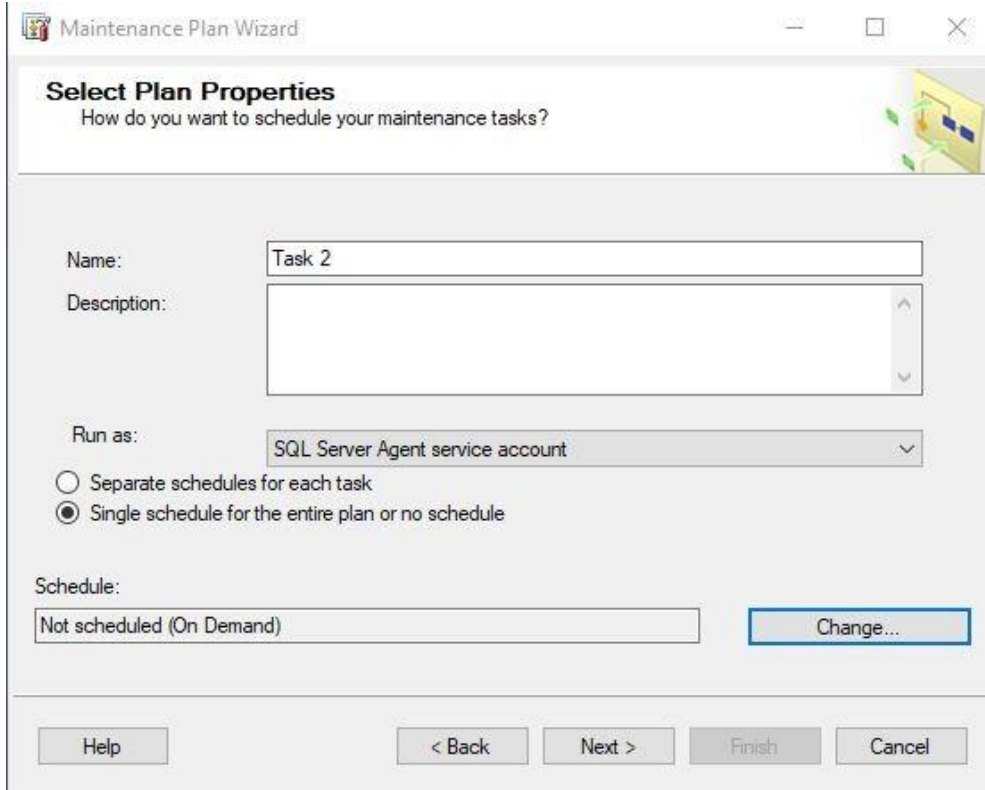
OK Cancel

Database files:

	Path
Task_2	C:\MyDocuments\Data
log	C:\MyDocuments\Logs

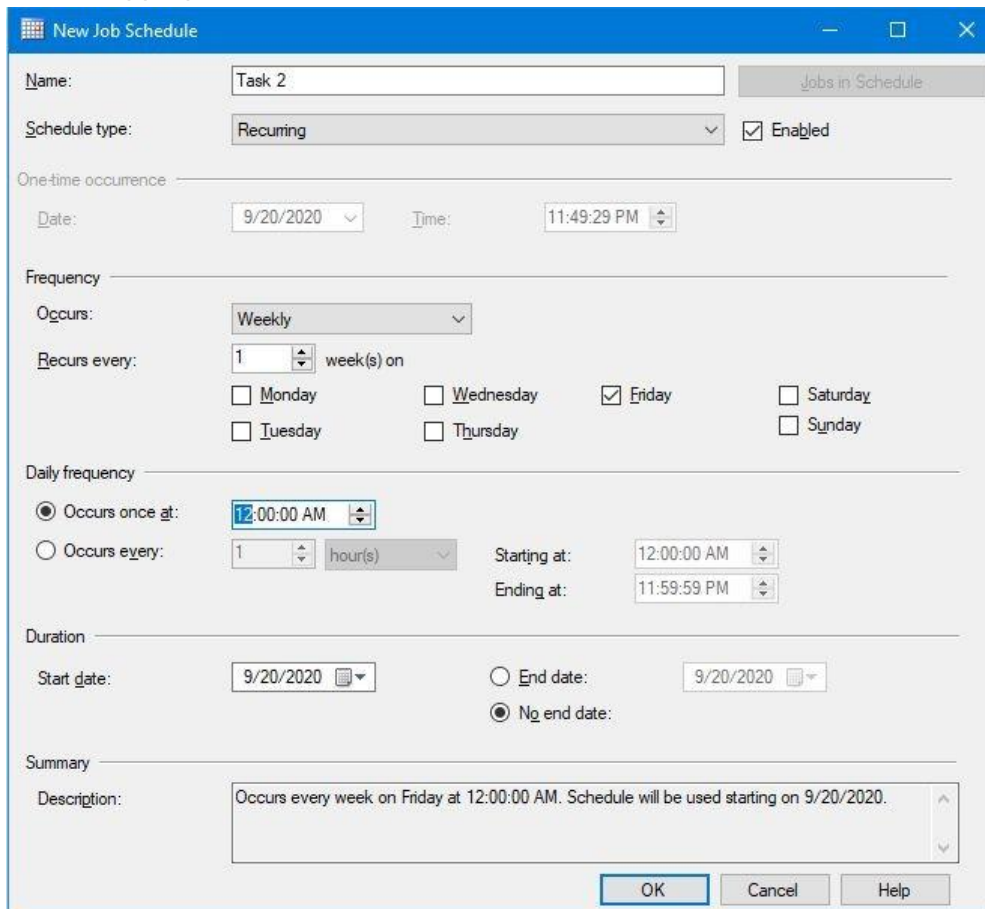
Task 3

By using maintenance plan wizard I create new maintenance plan



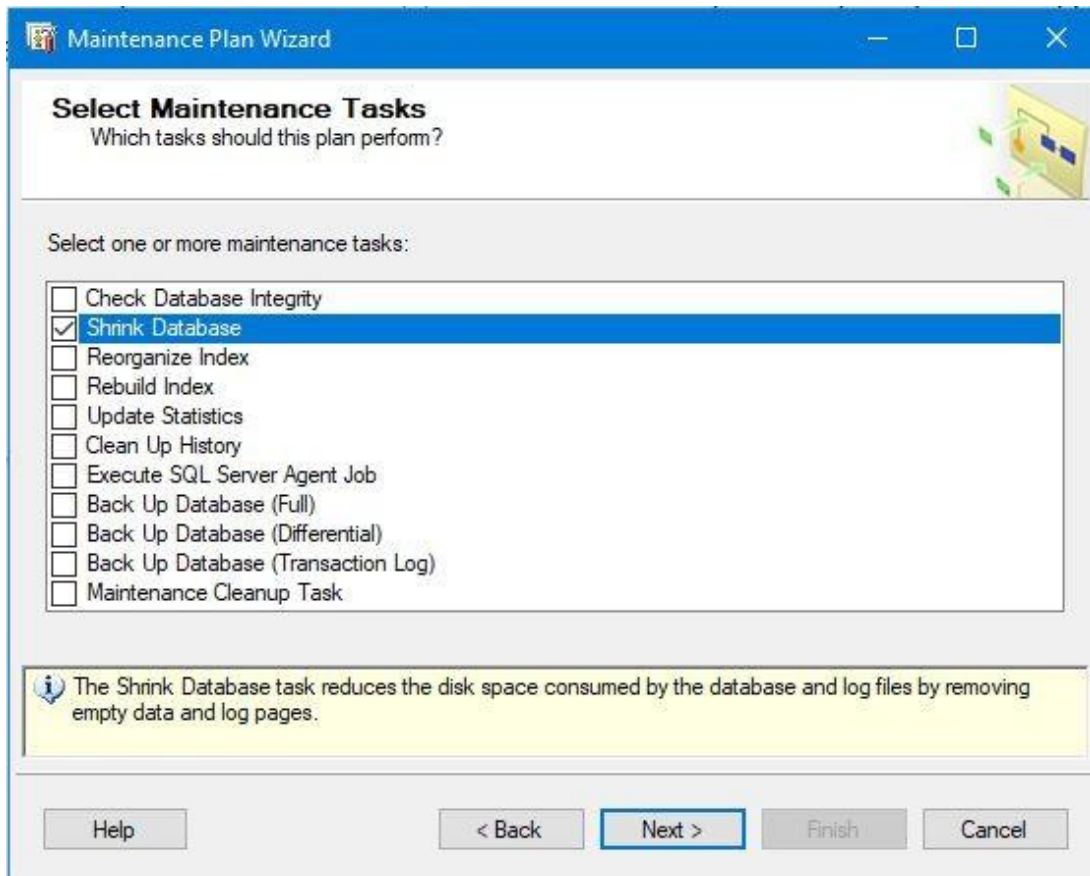
The screenshot shows the 'Maintenance Plan Wizard' window, specifically the 'Select Plan Properties' step. The title bar reads 'Maintenance Plan Wizard'. The main heading is 'Select Plan Properties' with the subtitle 'How do you want to schedule your maintenance tasks?'. The 'Name' field contains 'Task 2'. The 'Description' field is empty. The 'Run as' dropdown is set to 'SQL Server Agent service account'. There are two radio buttons: 'Separate schedules for each task' (unselected) and 'Single schedule for the entire plan or no schedule' (selected). The 'Schedule' dropdown is set to 'Not scheduled (On Demand)', with a 'Change...' button to its right. At the bottom, there are buttons for 'Help', '< Back', 'Next >', 'Finish', and 'Cancel'.

And set appropriate schedule



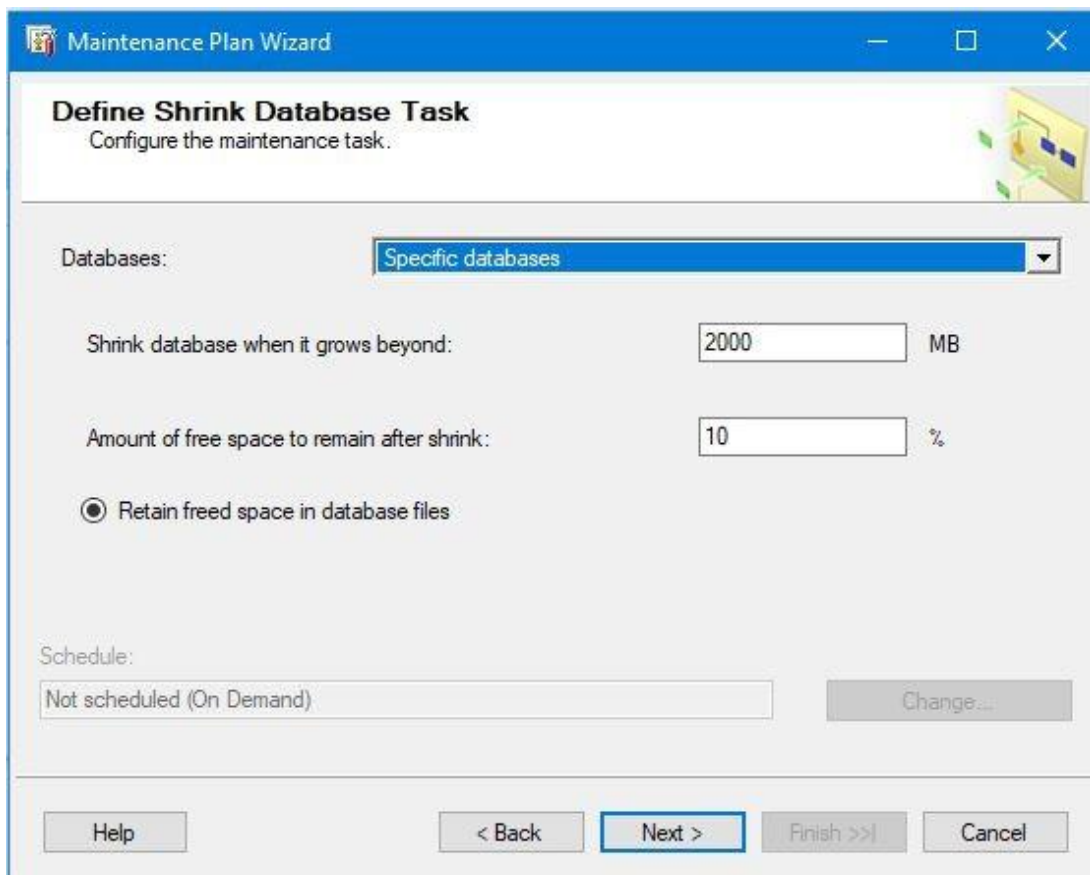
The screenshot shows the 'New Job Schedule' dialog box. The title bar reads 'New Job Schedule'. The 'Name' field contains 'Task 2'. The 'Schedule type' dropdown is set to 'Recurring', and the 'Enabled' checkbox is checked. The 'One-time occurrence' section is collapsed. The 'Frequency' section is expanded, showing 'Occurs' set to 'Weekly', 'Recurs every' set to '1' week(s) on, and days of the week: Monday (unchecked), Tuesday (unchecked), Wednesday (unchecked), Thursday (unchecked), Friday (checked), Saturday (unchecked), and Sunday (unchecked). The 'Daily frequency' section is collapsed. The 'Duration' section is expanded, showing 'Start date' as 9/20/2020, 'End date' as 9/20/2020, and 'No end date' selected. The 'Summary' section is expanded, showing a description: 'Occurs every week on Friday at 12:00:00 AM. Schedule will be used starting on 9/20/2020.' At the bottom, there are buttons for 'OK', 'Cancel', and 'Help'.

And we set Shrink database



The screenshot shows the 'Select Maintenance Tasks' step of the Maintenance Plan Wizard. The title bar reads 'Maintenance Plan Wizard'. The main heading is 'Select Maintenance Tasks' with the subtitle 'Which tasks should this plan perform?'. Below this, it says 'Select one or more maintenance tasks:'. A list of tasks is provided with checkboxes: 'Check Database Integrity', 'Shrink Database' (checked), '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)', and 'Maintenance Cleanup Task'. A yellow information box at the bottom states: 'The Shrink Database task reduces the disk space consumed by the database and log files by removing empty data and log pages.' Navigation buttons at the bottom include 'Help', '< Back', 'Next >', 'Finish', and 'Cancel'.

Shrink will trigger if database size will grow over 2GB



The screenshot shows the 'Define Shrink Database Task' step of the Maintenance Plan Wizard. The title bar reads 'Maintenance Plan Wizard'. The main heading is 'Define Shrink Database Task' with the subtitle 'Configure the maintenance task.'. Below this, it says 'Databases:' followed by a dropdown menu set to 'Specific databases'. Two configuration fields are present: 'Shrink database when it grows beyond:' with a value of '2000' and unit 'MB', and 'Amount of free space to remain after shrink:' with a value of '10' and unit '%'. A radio button is selected for 'Retain freed space in database files'. At the bottom, the 'Schedule:' section shows 'Not scheduled (On Demand)' with a 'Change...' button. Navigation buttons at the bottom include 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

Almost

The screenshot shows the 'Maintenance Plan Wizard' window with the 'Select Report Options' step selected. The window title is 'Maintenance Plan Wizard'. The subtitle is 'Select options for saving or distributing a report of the maintenance plan actions.' There are two checkboxes: 'Write a report to a text file' (checked) and 'E-mail report' (unchecked). The 'Folder location' for the text file is 'C:\MyDocuments\SQL_event_logs'. The 'To:' field for the email report is empty. At the bottom, there are buttons for 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

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:\MyDocuments\SQL_event_logs

☐ E-mail report
To:

Help < Back Next > Finish >> Cancel

Now we execute our plan and after this - check logs

The screenshot shows the 'Execute Maintenance Plan' window. The title is 'Execute Maintenance Plan'. The 'Status:' section shows a green checkmark and the word 'Success'. Below this, a table shows the execution results: 1 Total, 0 Error, 0 Warning, and 1 Success. The 'Details:' section shows a table with columns 'Action', 'Status', and 'Message'. The first row shows 'Execute maintenance plan. Task 2' with a status of 'Success'. At the bottom, there are buttons for 'Close' and 'Report'.

Execute Maintenance Plan

Status:

Success

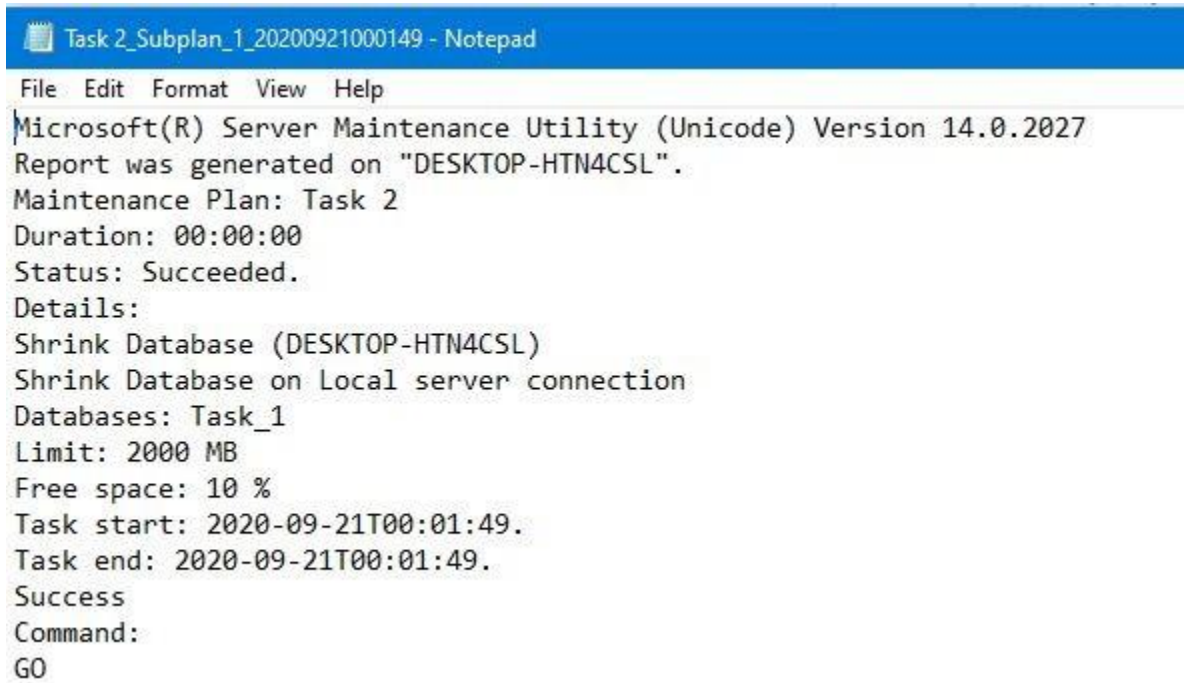
1	Total	0	Error
1	Success	0	Warning

Details:

Action	Status	Message
Execute maintenance plan. Task 2	Success	

Close Report

Great! It works



```
Task 2_Subplan_1_20200921000149 - Notepad
File Edit Format View Help
Microsoft(R) Server Maintenance Utility (Unicode) Version 14.0.2027
Report was generated on "DESKTOP-HTN4CSL".
Maintenance Plan: Task 2
Duration: 00:00:00
Status: Succeeded.
Details:
Shrink Database (DESKTOP-HTN4CSL)
Shrink Database on Local server connection
Databases: Task_1
Limit: 2000 MB
Free space: 10 %
Task start: 2020-09-21T00:01:49.
Task end: 2020-09-21T00:01:49.
Success
Command:
GO
```

Task 4

We create maintenance plan called Reconstructure index.

Name	Reconstruire index		
Description			
Subplan	Description	Schedule	Run as
Subplan_1		Occurs every month on day 7 at 12:...	SQL Server Agent service account

This maintenance plan will do 3 operations: Rebuild indexes and left 10% free space, update statistics (only index statistics) and clean up history (only backup history) every 6 weeks



This plan will trigger every 7 (first Sunday) of a month

Job Schedule Properties - Reconstruire index.Subplan_1

Name: Jobs in Schedule

Schedule type: ☒ Enabled

One-time occurrence

Date: Time:

Frequency

Occurs:

☒ Day of every month(s)

☐ The of every month(s)

Daily frequency

☒ Occurs once at:

☐ Occurs every: hour(s) Starting at: Ending at:

Duration

Start date: ☐ End date: ☒ No end date:

Summary

Description:

Conclusion:

I am able to create my own databases and to create maintenance planes for it