

## **JOBSHEET 12**

### **Monitoring SQL Server with Alerts and Notifications**



Oleh:

MI - 2B

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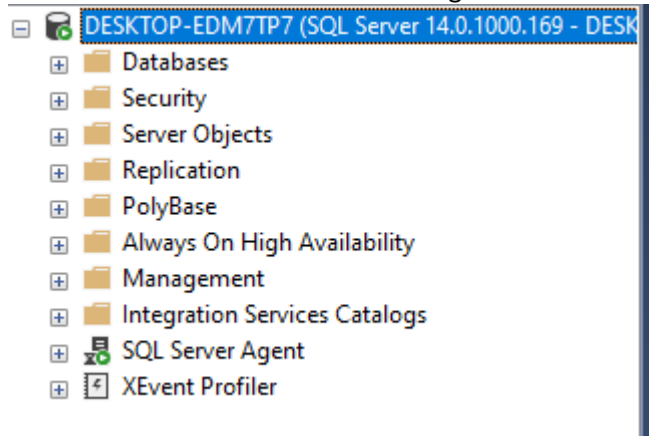
**Politeknik Negeri Malang**

**2019/2020**

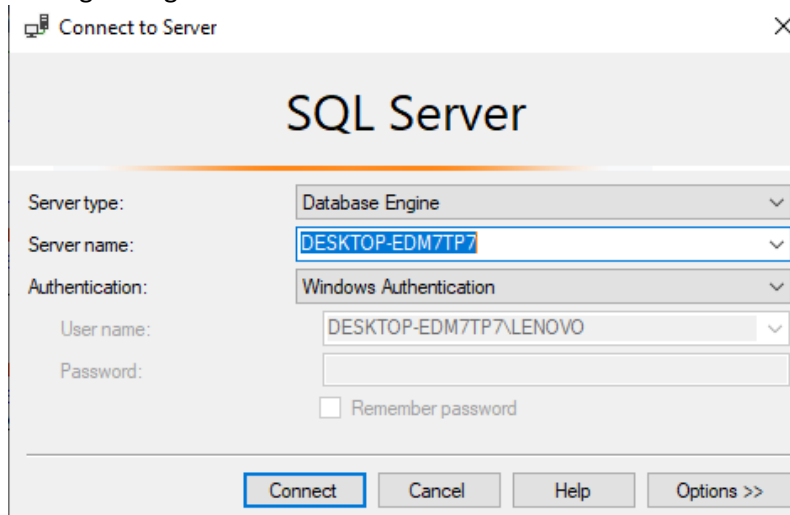
# Laporan Praktikum Jobsheet Minggu 12

## 1.2.1 Langkah-langkah Percobaan

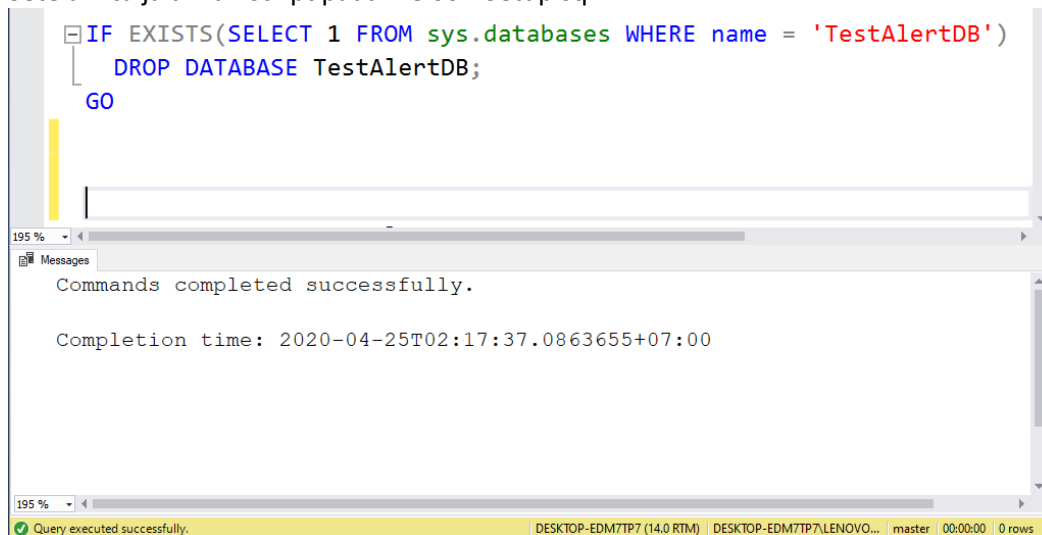
1. Pastikan SQL Server dan SQL Server Agent Sudah aktif



2. Buka SQL Server Management Studio dan melakukan Connect to Server sesuai Authentication masing-masing.



3. Setelah itu jalankan script pada file 00 – Setup.sql.



```
CREATE DATABASE TestAlertDB ON PRIMARY
(
    NAME = N'TestAlertDB',
    FILENAME = N'D:\MKTG\TestAlertDB.mdf',
    SIZE = 10240KB , FILEGROWTH = 1024KB
)
LOG ON
(
    NAME = N'TestAlertDB_log',
    FILENAME = N'D:\MKTG\TestAlertDB_log.ldf',
    SIZE = 20480KB , FILEGROWTH = 0
);
GO
```

110 %

Messages

Commands completed successfully.

Completion time: 2020-04-25T02:19:26.8929963+07:00

110 %

Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | master | 00:00:01 | 0 rows

```
ALTER DATABASE TestAlertDB SET RECOVERY FULL;
GO
```

100 %

Messages

Commands completed successfully.

Completion time: 2020-04-25T02:19:59.8669786+07:00

100 %

Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | master | 00:00:00 | 0 rows

```
BACKUP DATABASE TestAlertDB
TO DISK = 'D:\MKTG\TestAlertDB_full.bak'
WITH INIT;
GO
```

100 %

Messages

Processed 304 pages for database 'TestAlertDB', file 'TestAlertDB' on file 1.  
Processed 3 pages for database 'TestAlertDB', file 'TestAlertDB\_log' on file 1.  
BACKUP DATABASE successfully processed 307 pages in 0.499 seconds (4.806 MB/sec).

Completion time: 2020-04-25T02:20:34.7508923+07:00

100 %

Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | master | 00:00:01 | 0 rows

```
USE msdb;
GO

IF EXISTS(SELECT 1 FROM dbo.sysjobs WHERE name = N'Backup Log TestAlertDB')
    EXEC dbo.sp_delete_job @job_name = N'Backup Log TestAlertDB';
GO

DECLARE @jobId BINARY(16);

EXEC msdb.dbo.sp_add_job @job_name=N'Backup Log TestAlertDB',
    @enabled=1,
    @notify_level_eventlog=0,
    @notify_level_email=2,
    @notify_level_netsend=2,
    @notify_level_page=2,
    @delete_level=0,
    @category_name=N'[Uncategorized (Local)]',
    @owner_login_name=N'DESKTOP-EDM7TP7\LENOVO', @job_id = @jobId OUTPUT;
GO
```

100 %

Messages

Commands completed successfully.

Completion time: 2020-04-25T02:23:41.6287829+07:00

100 %

Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | msdb | 00:00:00 | 0 rows

```
EXEC msdb.dbo.sp_add_jobstep @job_name=N'Backup Log TestAlertDB',
    @step_name=N'Log Backup TestAlertDB',
    @step_id=1,
    @cmdexec_success_code=0,
    @on_success_action=1,
    @on_fail_action=2,
    @retry_attempts=0,
    @retry_interval=0,
    @os_run_priority=0, @subsystem=N'TSQL',
    @command=N'BACKUP LOG TestAlertDB TO DISK = ''F:\MKTG\TestAlertDB_tran.bak'' WITH NOINIT;',
    @database_name=N'master',
    @flags=0;
GO

EXEC msdb.dbo.sp_update_job @job_name=N'Backup Log TestAlertDB',
    @enabled=1,
    @start_step_id=1,
    @notify_level_eventlog=0,
    @notify_level_email=2,
    @notify_level_netsend=2,
    @notify_level_page=2,
    @delete_level=0,
    @description=N'',
    @category_name=N'[Uncategorized (Local)]',
    @owner_login_name=N'DESKTOP-EDM7TP7\LENOVO',
    @notify_email_operator_name=N'',
    @notify_netsend_operator_name=N'',
    @notify_page_operator_name=N'';
GO
```

100 %

Messages

Commands completed successfully.

Completion time: 2020-04-25T02:23:56.6544774+07:00

100 %

Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | msdb | 00:00:00 | 0 rows

```
BEGIN TRANSACTION
DECLARE @ReturnCode INT
SELECT @ReturnCode = 0
IF NOT EXISTS (SELECT name FROM msdb.dbo.syscategories WHERE name=N'[Uncategorized (Local)]' AND category_class=1)
BEGIN
EXEC @ReturnCode = msdb.dbo.sp_add_category @class=N'JOB', @type=N'LOCAL', @name=N'[Uncategorized (Local)]'
IF (@@ERROR <> 0 OR @ReturnCode <> 0) GOTO QuitWithRollback

END

DECLARE @jobId BINARY(16)
EXEC @ReturnCode = msdb.dbo.sp_add_job
    @job_name=N'Job That Succeeds',
    @enabled=1,
    @notify_level_eventlog=0,
    @notify_level_email=0,
    @notify_level_netsend=0,
    @notify_level_page=0

100 %
```

Messages

Commands completed successfully.

Completion time: 2020-04-25T02:34:26.1952357+07:00

100 %

Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | msdb | 00:00:01 | 0 rows

```
IF EXISTS(SELECT 1 FROM dbo.sysjobs WHERE name = N'Job That Fails')
EXEC dbo.sp_delete_job @job_name = N'Job That Fails';
GO

BEGIN TRANSACTION
DECLARE @ReturnCode INT
SELECT @ReturnCode = 0
IF NOT EXISTS (SELECT name FROM msdb.dbo.syscategories WHERE name=N'[Uncategorized (Local)]' AND category_class=1)
BEGIN
EXEC @ReturnCode = msdb.dbo.sp_add_category @class=N'JOB', @type=N'LOCAL', @name=N'[Uncategorized (Local)]'
IF (@@ERROR <> 0 OR @ReturnCode <> 0) GOTO QuitWithRollback

END

DECLARE @jobId BINARY(16)
EXEC @ReturnCode = msdb.dbo.sp_add_job
    @job_name=N'Job That Fails',
    @enabled=1,
    @notify_level_eventlog=0,
    @notify_level_email=0,
    @notify_level_netsend=0,
    @notify_level_page=0

100 %
```

Messages

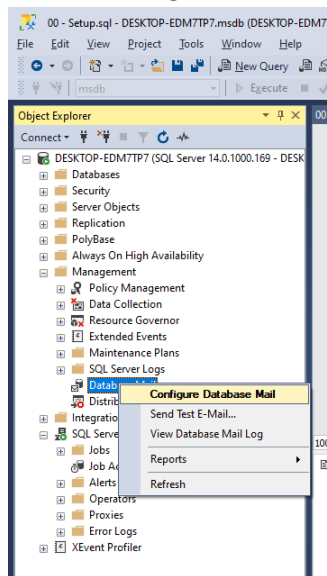
Commands completed successfully.

Completion time: 2020-04-25T02:36:35.4998107+07:00

100 %

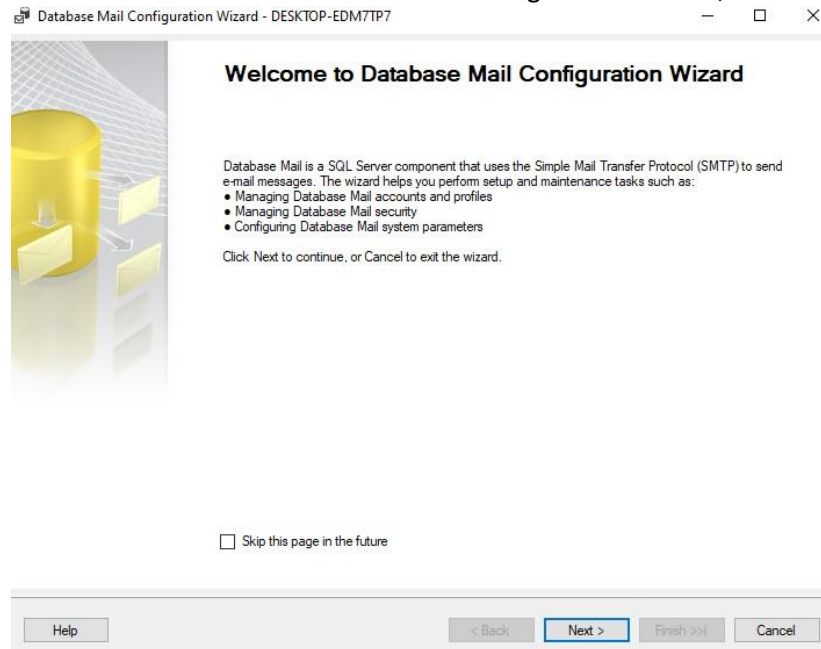
Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | msdb | 00:00:01 | 0 rows

4. Setelah itu lakukan konfigurasi Database Mail menggunakan wizard dengan tahapan :
- a. Pada Object Explorer, expand Prosaware server,
  - b. Expand Management, klik kanan Database Mail, dan
  - c. Klik Configure Database Mail

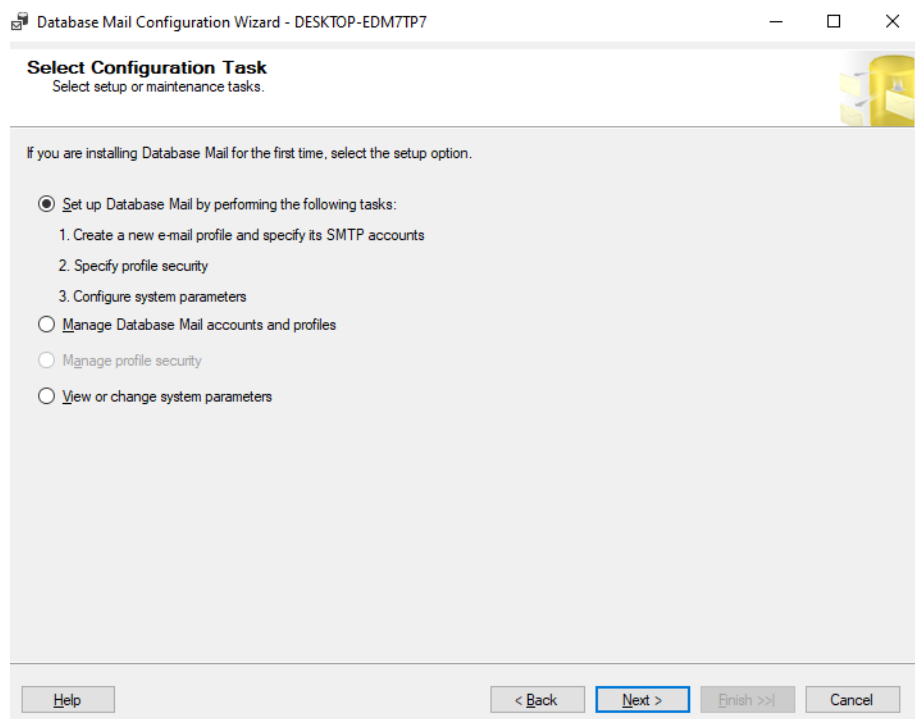


5. Mulai membuat Konfigurasi Database Mail menggunakan wizard dengan tahapan:

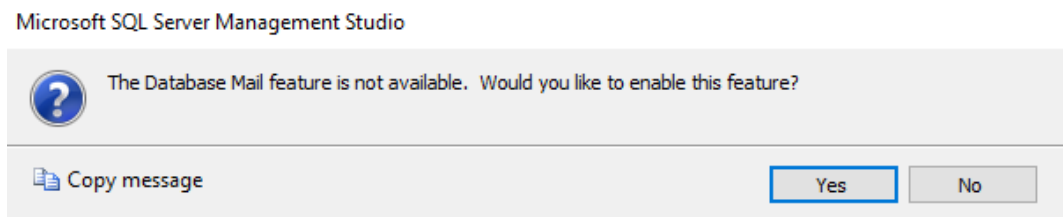
a. Pada window Welcome to Database Mail Configuration Wizard, Klik Next.



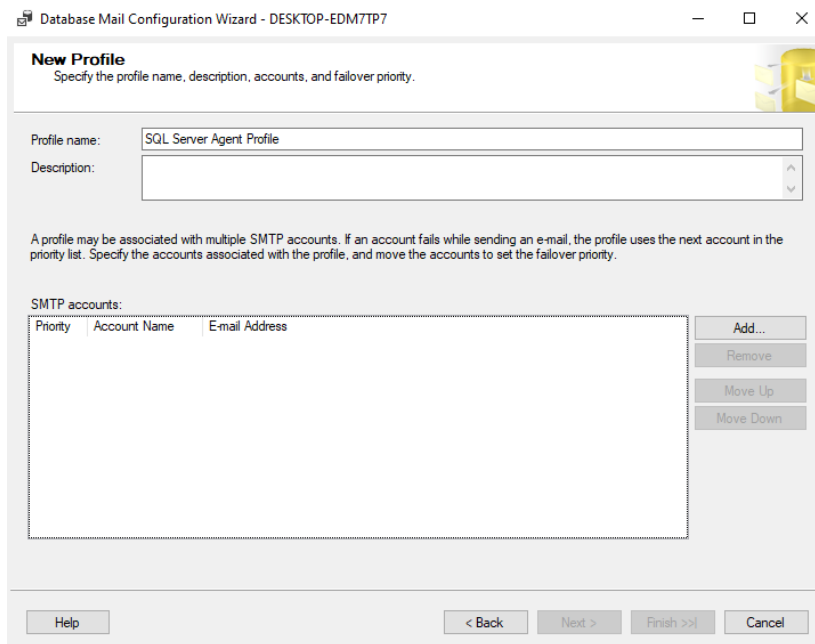
b. Pada window Select Configuration Task window, klik Next.



- c. Pada window Microsoft SQL Server Management Studio, klik Yes.



- d. Pada New Profile window, pada Profile name textbox type "SQL Server Agent Profile", dan klik add.

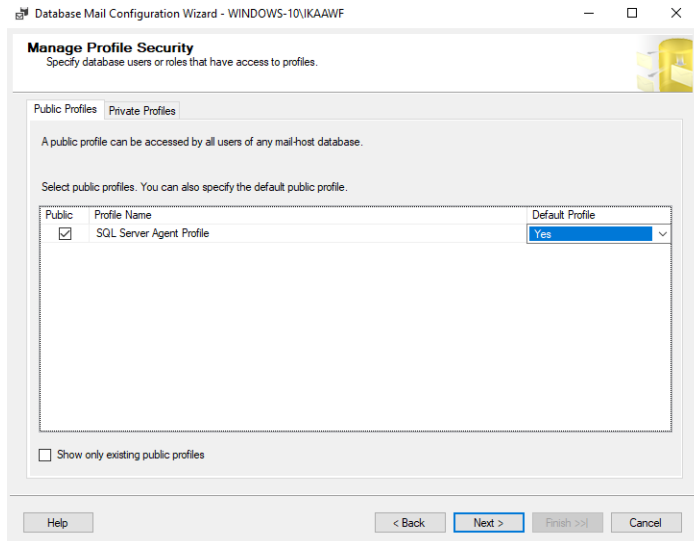


- e. Pada Database Mail Account window, pada Account name, type "AdventureWorksAdministrator".
- f. Pada E-mail address type "[xxx@gmail.com](mailto:xxx@gmail.com)".
- g. Pada display name type "Administrator (AdventureWorks)".
- h. Pada Reply e-mail type "[xxx@gmail.com](mailto:xxx@gmail.com)".
- i. Pada Server name textbox type "smtp.gmail.com", and click OK.
- j. Ketik port number 587
- k. Isikan Basic authentication sesuai dengan email gmail masing-masing





- I. Pada New Profile window, click Next
6. Lakukan konfigurasi Profil security menggunakan wizard dengan tahapan :
- a. Klik pada Public Profiles tab, check box pada kolom Public dan rubah nilai default kolom Profil menjadi Yes



- b. Klik pada tab Private Profiles , dari User name dropdown list,
- c. Klik use ADVENTUREWORKS\pwservice , klik checkbox pada kolom Access, pastikan default profile di set yes dan klik Next

Database Mail Configuration Wizard - DESKTOP-EDM7TP7

### Manage Profile Security

Specify database users or roles that have access to profiles.

Public Profiles Private Profiles

A public profile can be accessed by all users of any mail-host database.

Select public profiles. You can also specify the default public profile.

Public	Profile Name	Default Profile
<input checked="" type="checkbox"/>	SQL Server Agent Profile	Yes

☐ Show only existing public profiles

Help < Back Next > Finish >> Cancel

7. Lakukan pengecekan atau perubahan size (jika diperlukan)

a. Pastikan ketersediaan parameters sistem, maximum file size, dll

Database Mail Configuration Wizard - DESKTOP-EDM7TP7

### Configure System Parameters

View or change Database Mail system parameters.

System parameters:

Parameter	Value
Account Retry Attempts	1
Account Retry Delay (seconds)	60
Maximum File Size (Bytes)	1000000
Prohibited Attachment File Extensions	exe,dll,vbs,js
Database Mail Executable Minimum Lifetime (seconds)	600
Logging Level	Extended

Number of retry attempts for a mail server to send e-mail.

Reset All

Help < Back Next > Finish >> Cancel

b. Kemudian klik Next.

c. Untuk menyelesaikan proses pada wizard klik Finish, kemudian klik Close pada window Configuring

**Complete the Wizard**

Verify the actions the wizard is about to perform, and then click Finish to execute these actions on the server.



Click Finish to perform these actions:

**New Accounts**

- Create new account 'AdventureWorksAdministrator' for SMTP server 'smtp.gmail'

**New Profiles**

- Create New profile 'SQL Server Agent Profile'

**Adding Accounts Profiles**

- Add account 'AdventureWorksAdministrator' to profile 'SQL Server Agent Profile' with priority '1'

**Manage Profile Security**

- Set 'SQL Server Agent Profile' as public profile
- Set default profile for 'guest' to 'SQL Server Agent Profile'

[Help](#)

&lt; Back

Next &gt;

**Finish**

Cancel

**Configuring...**

Click Stop to interrupt the operation.

**Success**

4	Total	0	Error
4	Success	0	Warning

Details:

Action	Status	Message
✓ Create new account 'AdventureWorksAdministrator' for SMTP s...	Success	
✓ Create New profile 'SQL Server Agent Profile'	Success	
✓ Add account 'AdventureWorksAdministrator' to profile 'SQL Ser...	Success	
✓ Set default profile for 'guest' to 'SQL Server Agent Profile'	Success	

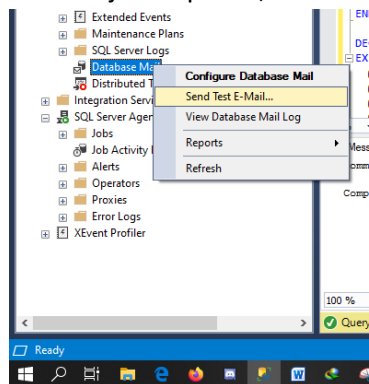
Stop

Report ▼

**Close**

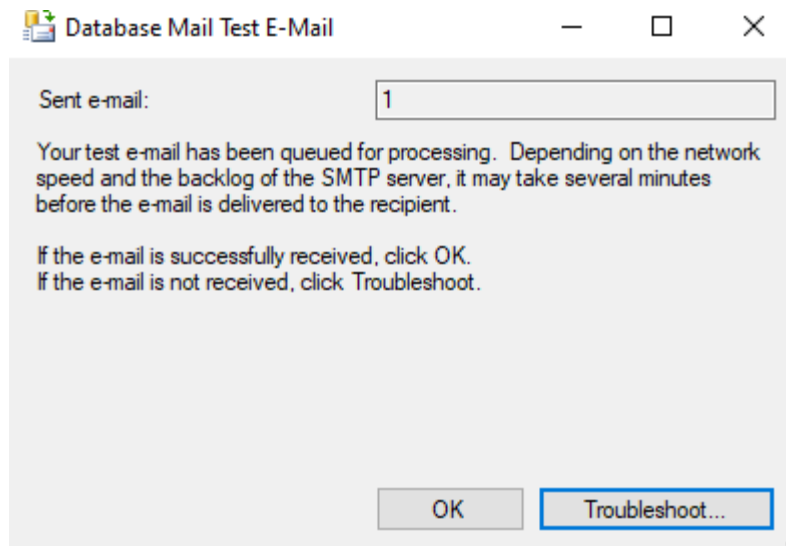
8. Lakukan uji coba kirim email dari SQL Server:

a. Pada Object Explorer, klik kanan Database Mail dan klik Send Test E-Mail.



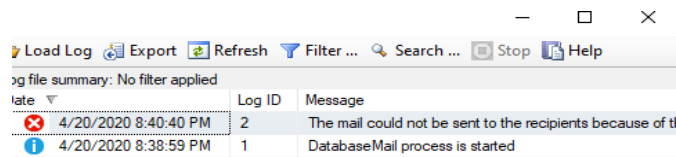
b. Pada Send Test E-Mail textbox ketikkan "xxxx@gmail.com" (email tujuan) dan klik Send Test EMail.

c. Pada Database Mail Test E-Mail window, Perhatikan deskripsi yang keluar kemudian klik OK



9. Lakukan pengecekan mail event log:

- a. Informasi Error akan tampil pada mail event log. Jika kita tidak memiliki SMTP server maka error tersebut dapat diabaikan



	Log ID	Message
4/20/2020 8:38:59 PM	1	DatabaseMail process is started
4/20/2020 8:40:40 PM	2	The mail could not be sent to the recipients because of tl

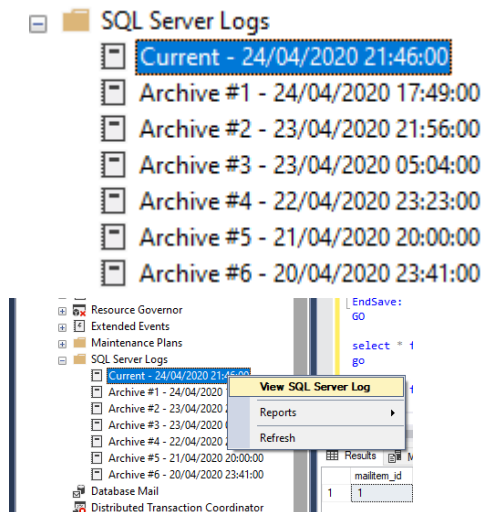
- b. Lakukan query berikut untuk mengetahui hasilnya :

10. Lakukan Query database mail outgoing mail log untuk mengetahui alamat pengiriman email yang pernah dilakukan dengan kode berikut :

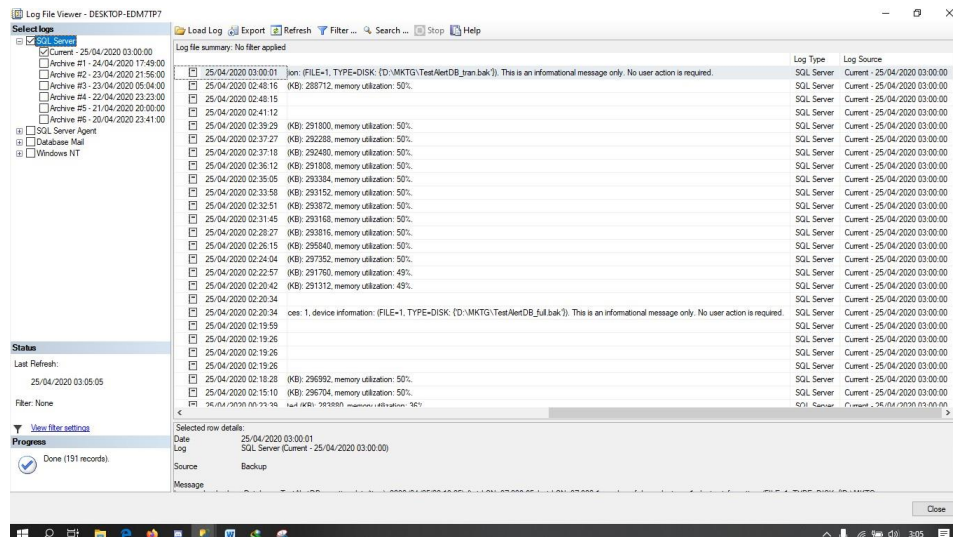
### 1.3.1 Langkah-langkah Percobaan

1. Coba untuk melihat SQL Server log file saat ini (current) menggunakan wizard dengan tahapan berikut :

- Pada Object Explorer, expand server Proseware
- Expand Management
- Expand SQL Server Logs



- Kemudian klik kanan Current, dan klik View SQL Server Log
- Pada Log File Viewer - Proseware window, review beberapa log file yang masuk
- Pastikan untuk scroll window ke kanan untuk melihat kolom apa saja yang tersedia



g. Kemudian Close window tersebut

2. Tunjukkan lokasi log file dengan tahapan berikut:

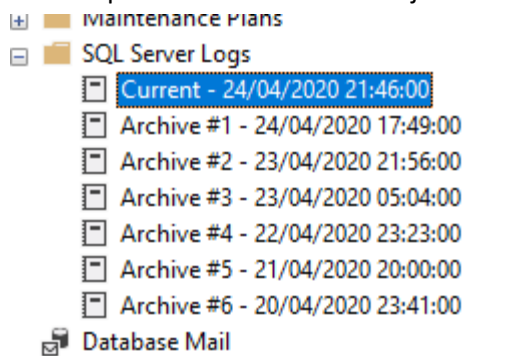
- a. Pada Windows Explorer. (Uji coba ini dilakukan sebagai antisipasi ketika SQL Server tidak bisa berjalan, maka kita harus mengetahui lokasi file log yang tersedia (meskipun hal ini jarang terjadi)
- b. Cari folder yang sudah di set pada uji coba awal dengan file 00 –Setup.sql

his PC > Local Disk (D:) > MKTG

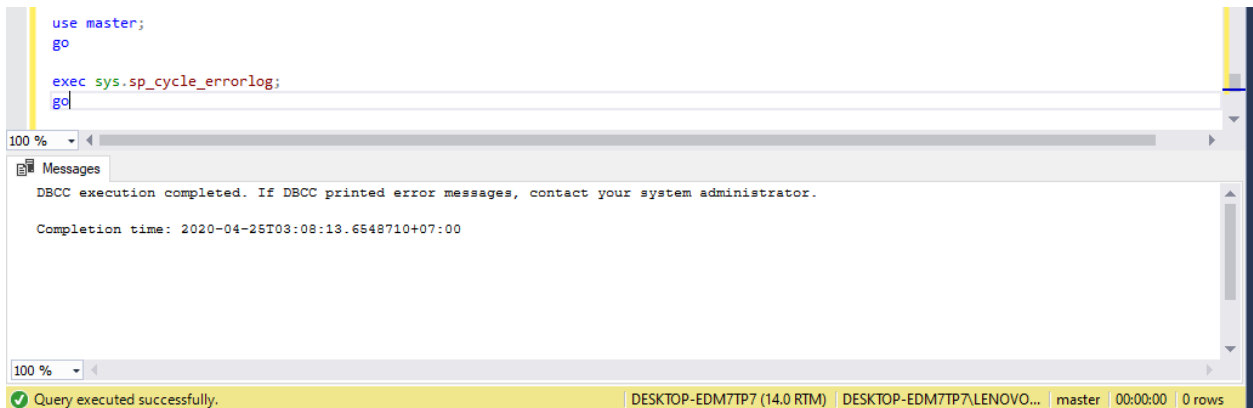
Name	Date modified	Type	Size
Kuis	27/02/2020 11:33	File folder	
AdventureWorks2017	23/04/2020 21:56	SQL Server Databa...	270.336 KB
kuissmbd.bak	26/02/2020 19:59	BAK File	512 KB
LogTest	23/04/2020 21:56	SQL Server Databa...	10.240 KB
LogTest_Full.bak	20/02/2020 8:50	BAK File	3.184 KB
LogTest_log	23/04/2020 21:56	SQL Server Databa...	22.144 KB
LogTest_tr.bak	20/02/2020 8:57	BACK File	20.964 KB
RateTracking	23/04/2020 5:04	SQL Server Databa...	20.480 KB
RateTracking	23/04/2020 5:04	SQL Server Databa...	10.240 KB
Research	23/04/2020 21:56	SQL Server Databa...	8.192 KB
Research_log	23/04/2020 21:56	SQL Server Databa...	1.024 KB
TestAlertDB	25/04/2020 2:19	SQL Server Databa...	10.240 KB
TestAlertDB_full.bak	25/04/2020 2:20	BAK File	432 KB
TestAlertDB_log	25/04/2020 2:19	SQL Server Databa...	20.480 KB
TestAlertDB_tran.bak	25/04/2020 3:00	BAK File	32 KB

c. Dimanakah path anda menyimpan file log?Tunjukkan!

3. Current Database Engine log file disebut juga dengan ERRORLOG. Ternyata selain current terdapat 6 file archive pada folder tersebut. Tunjukkan dimana letak keenam file tersebut?

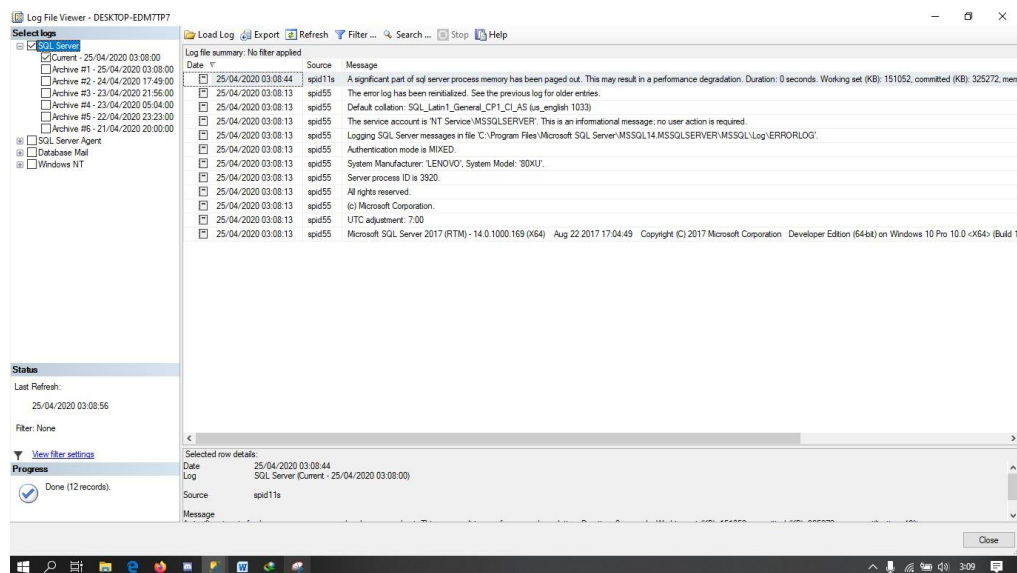






4. Query executed successfully.
5. Kemudian buka kembali current log file di SQL Server Management Studio. Pastikan log file tersebut sudah diinisialisasi ada detik terakhir perubahan sesuai percobaan 4 dengan tahapan sebagai berikut :

a. Pada Object Explorer, klik kanan current log

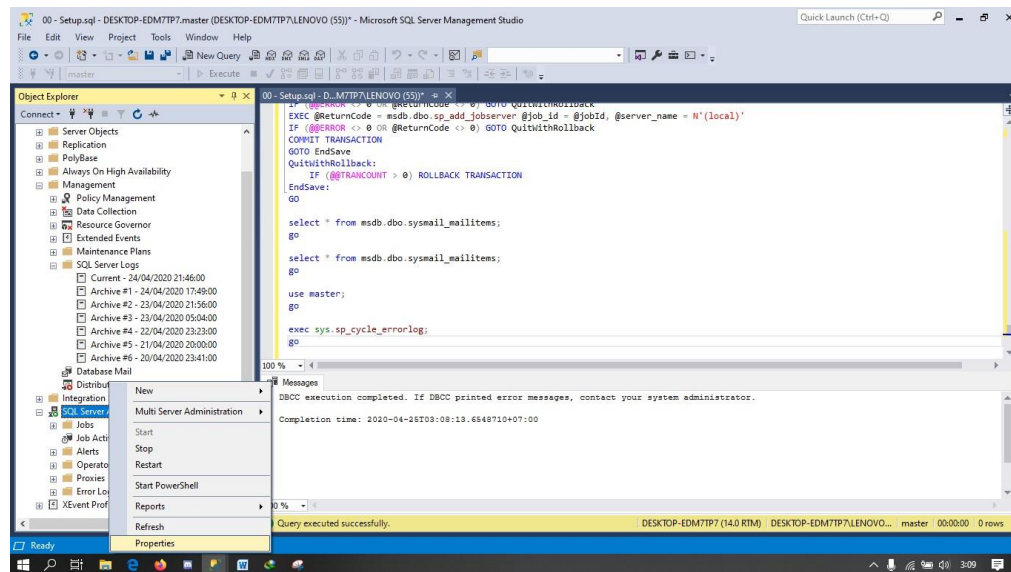


- b. Klik View SQL Server Log.
- c. Lihat konten isi log tersebut dan klik Close

### 1.4.1 Langkah-langkah Percobaan

1. Aktifkan SQL Server Agent Mail Profile dengan tahapan sebagai berikut:

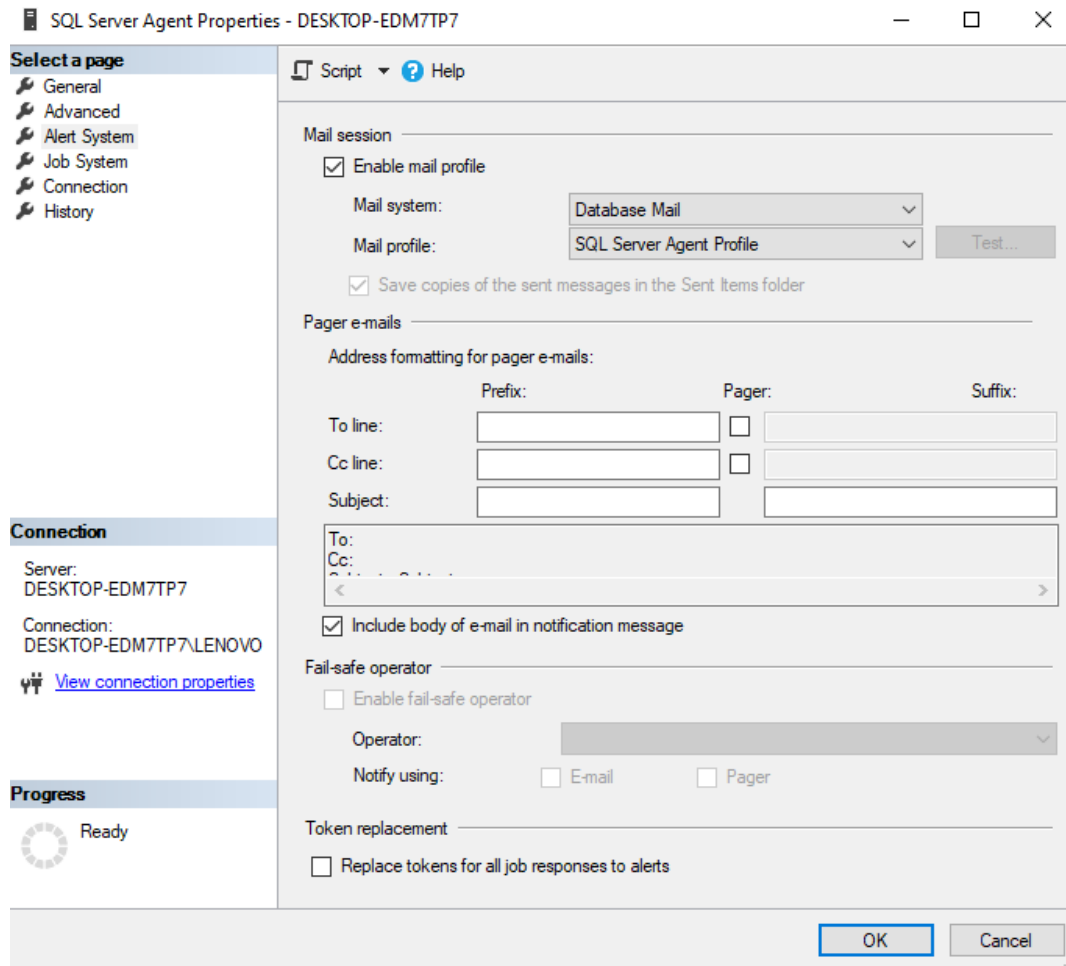
a. Pada Object Explorer, expand the Proseware server



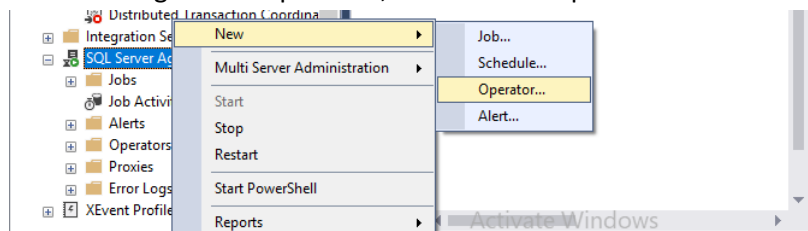
b. Klik kanan SQL Server Agent dan klik Properties.

c. Pada the SQL Server Agent Properties - Proseware window, pada pane Select a page, klik Alert System.

d. Pada opsi Mail session, check Enable mail profile.

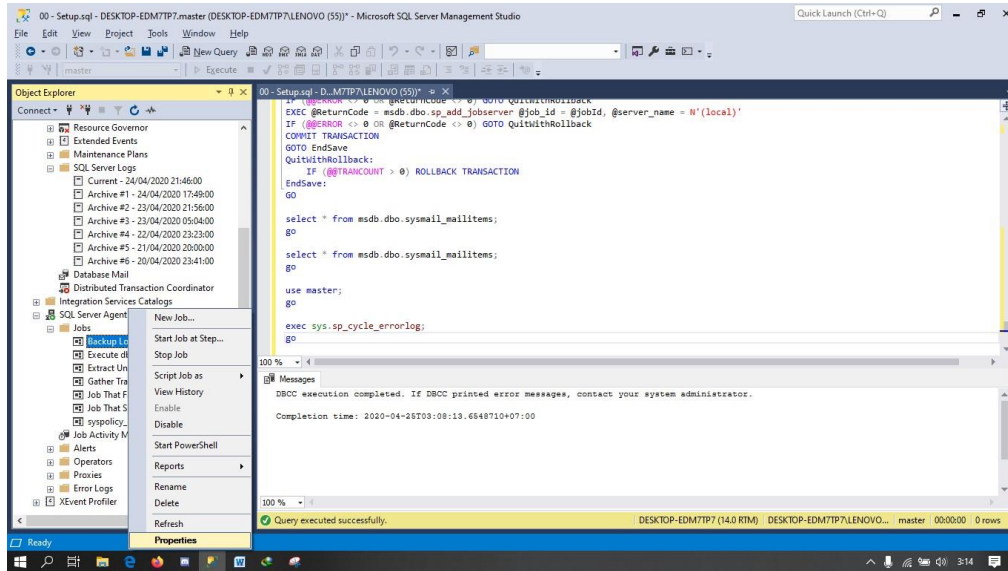


- e. Dari drop down Mail profile drop down, pilih SQL Server Agent Profile f. Klik OK
2. Buatlah operator baru dengan langkah-langkah berikut :
  - a. Pada Object Explorer, expand SQL Server Agent
  - b. Klik kanan right-click Operators, dan klik New Operator

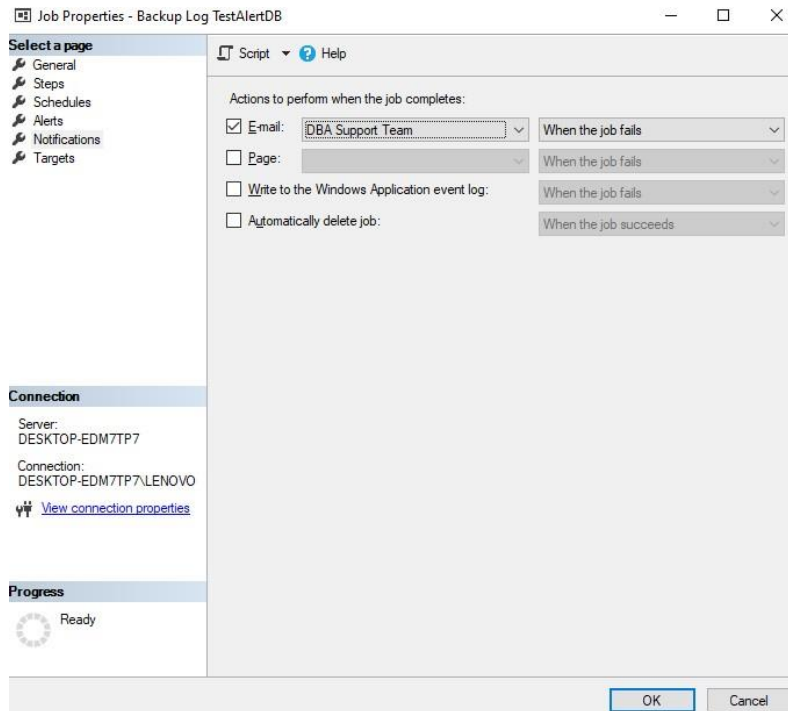


- c. Pada window New Operator, pada textbox Name ketikkan , type "DBA Support Team".
- d. Pada email name textbox ketikkan "[xxx@gmail.com](mailto:xxx@gmail.com)"

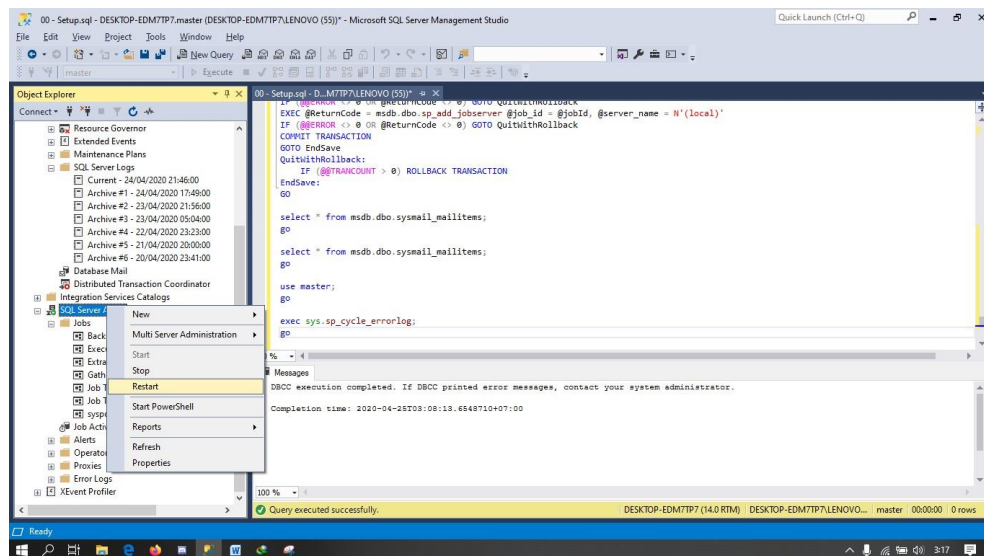
- e. Dan klik OK
3. Konfigurasi job Backup Log TestAlertDB dengan cara berikut:
  - a. Pada Object Explorer, SQL Server Agent, expand Jobs
  - b. Klik kanan Backup Log TestAlertDB, dan klik Properties



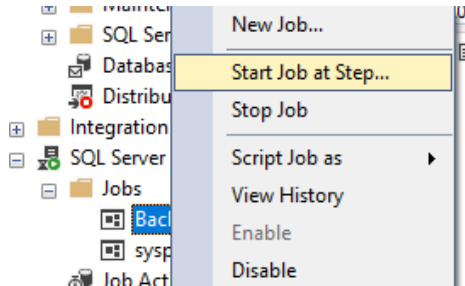
- c. Pada Select a page pane, klik Notifications.
- d. Pada baris E-mail, check checkbox
- e. Pilih DBA Support Team dari email drop down dari list Actions drop down



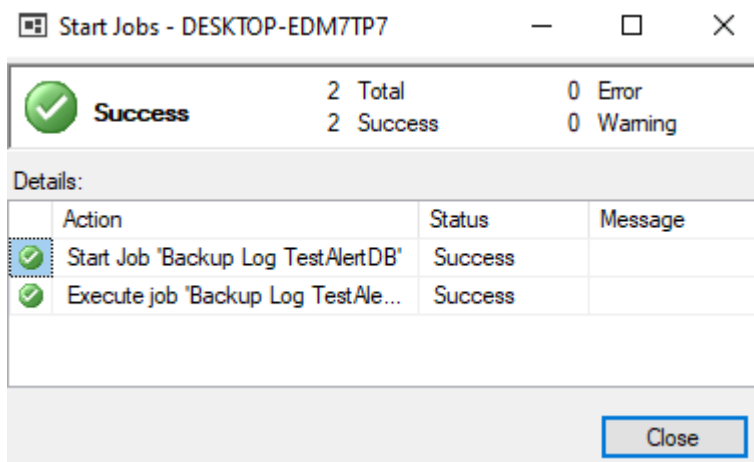
- f. Kemudian klik OK ketika job sudah komplit
- g. Kemudian lakukan restart SQL Server agent dengan cara klik kanan pada object explorer SQL Server Agent dan klik restart. Setelah itu akan muncul window Microsoft SQL Server Management Studio, klik Yes



4. Jalankan job secara manual dengan langkah berikut :
- a. Pada Object Explorer, expand Jobs
  - b. Klik kanan Backup Log TestAlertDB, dan klik Start Job at Step



- c. Pada Start Jobs - Proseware window, klik Close

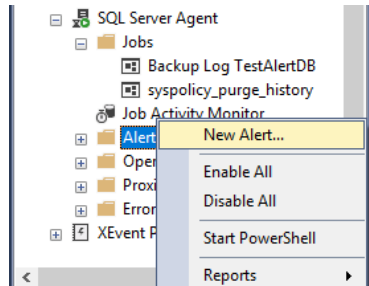


5. Setelah itu cek apakah email sudah terkirim dengan kode berikut:

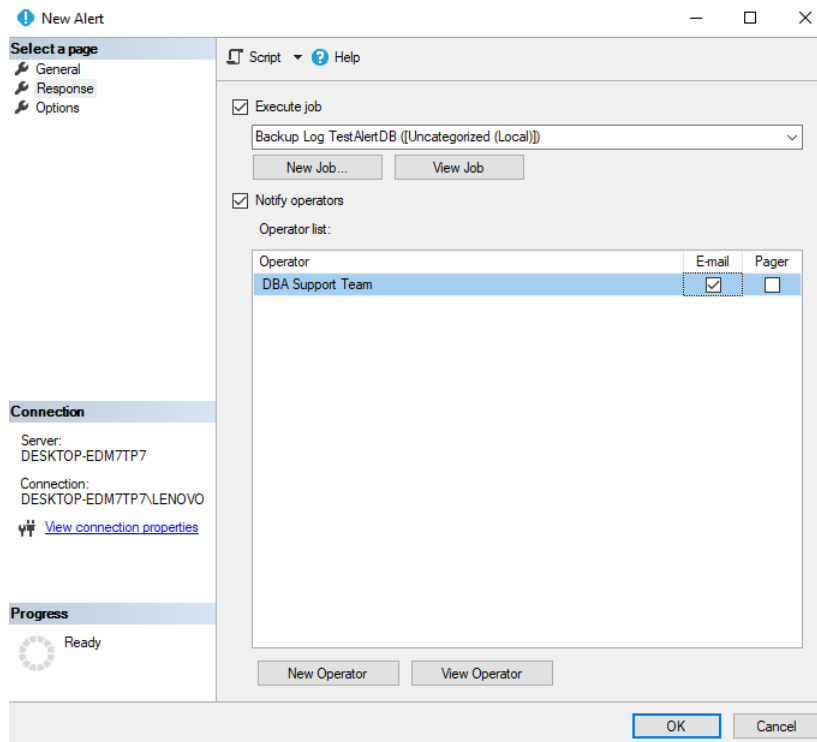
## 1.4.2 Langkah-langkah Percobaan

1. Buat alert baru untuk Transaction Log full pada TestAlertDB dengan cara berikut :

- Pada Object Explorer, expand the Proseware server
- Expand SQL Server Agent, klik kanan Alerts dan klik NewAlert



- Pada window New Alert, pada textbox Name, ketik "Transaction Log File TestAlertDB Full"
- Daridrop down list Typr, pilih "SQL Server eventalert"
- Pada drop down list Database name ,pilih TestAlertDB
- Klik opsi Error number and masukkan nilai 9002



2. Lakukan konfigurasi respon dengan langkah-langkah di bawah ini :

- Pada page pane Select, klik Response
- Check checkbox untuk mengeksekusi job dan dari dropdown list pilih Backup Log TestAlertDB
- Check the checkbox untuk memberitahukan Operators
- Pada baris DBA Support Team, check the E-mail box

**New Alert**

Select a page: General, Response, Options

Script Help

Name: Transaction Log File TestAlertDB Full ☒ Enable

Type: SQL Server event alert

Event alert definition

Database name: TestAlertDB

Alerts will be raised based on:

☒ Error number: 9002

☐ Severity: 001 - Miscellaneous System Information

☐ Raise alert when message contains:

Message text:

Server: DESKTOP-EDM7TP7

Connection: DESKTOP-EDM7TP7\LENOVO

[View connection properties](#)

Progress: Ready

OK Cancel

e. Klik OK

- Eksekusi batch (kumpulan data) untuk mengisi transaction log dengan cara mengeksekusi kode di bawah ini :

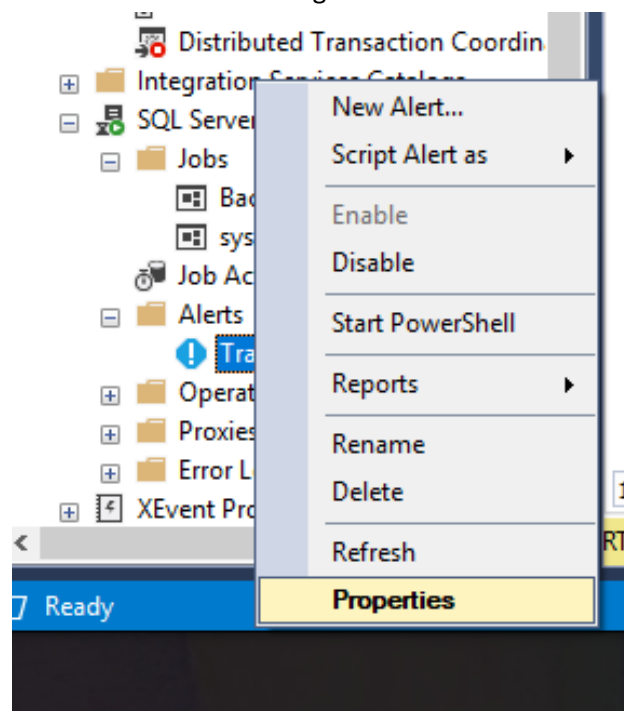
```
USE TestAlertDB;
GO

create table testtable
(id int identity(1,1) Primary key,
col1 char(2000) );
go

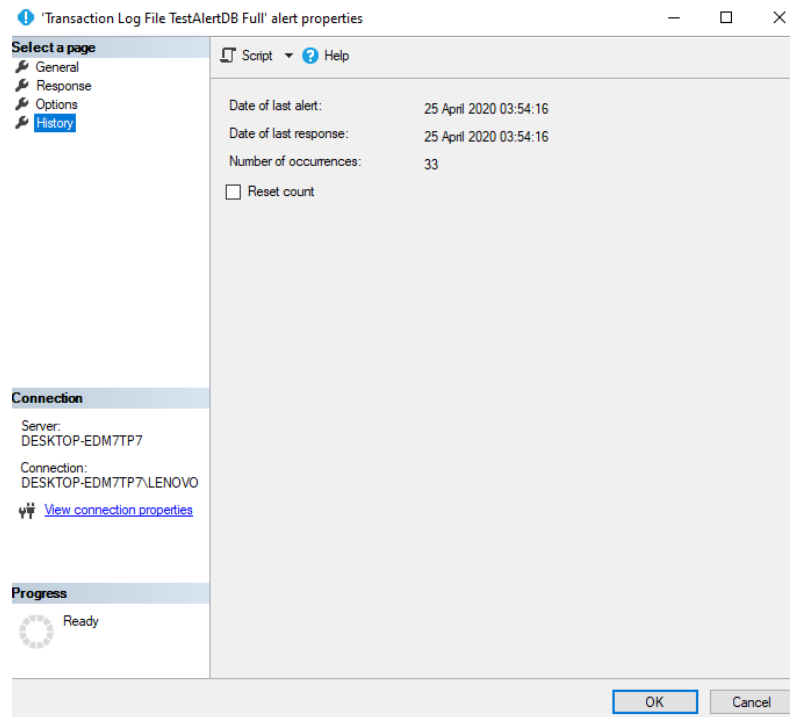
set nocount on;
while 1=1
begin insert into testtable (col1) values ('Test data!');
end;
go
```



4. Kemudian lihat histiry dari alert dengan cara :
- a. Pada Object Explorer, expand Alerts
  - b. Klik kanan Transaction Log File TestAlertDB Full alert, dan klik Properties



- c. Pada page pane Select, klik historyIn the Select a page pane, click History.
- d. Pastikan detail informasi sudah terlihat jelas



- e. Kemudian klik cancel

5. Kemudian pastikan pula apakah email sudah terkirim dengan kode di bawah ini:

```
select * from msdb.dbo.sysmail_mailitems;
go
```

	mailitem_id	profile_id	recipients	copy_recipients	blind_copy_recipients	subject	from_address	reply_to	body
1	1	1	andri@gmail.com	NULL	NULL	Database Mail Test	NULL	NULL	This is a test e-mail sent from
2	2	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
3	3	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
4	4	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
5	5	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
6	6	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
7	7	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
8	8	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
9	9	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
10	10	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
11	11	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
12	12	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
13	13	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
14	14	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
15	15	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5
16	16	1	andri@gmail.com	NULL	NULL	SQL Server Alert System: Transaction Log File T...	NULL	NULL	DATE/TIME: 4/25/2020 3:5

Query executed successfully. | DESKTOP-EDM7TP7 (14.0 RTM) | DESKTOP-EDM7TP7\LENOVO... | TestAlertDB | 00:00:00 | 34 rows