

B vw giwra ngvwa

```
dataset > dataset.py > ...
1  #Kelompok 9
2  #Dataset Generation
3
4
5  import pandas as pd
6  import numpy as np
7  from faker import Faker
8  import random
9
10 fake = Faker()
11
12 # 1. GENERATE DIM_WAKTU
13 date_range = pd.date_range(start="2023-01-01", end="2025-12-31")
14 dim_waktu = pd.DataFrame({
15     "WaktuKey": range(1, len(date_range)+1),
16     "Tanggal": date_range,
17     "Bulan": date_range.month,
18     "Tahun": date_range.year,
19     "Hari": date_range.day_name()
20 })
21
22 # 2. GENERATE DIM_LOKASI (3 FAKULTAS + SERVER)
23 fakultas = ["FS", "FTI", "FTIK"]
24
25 # misal tiap fakultas punya satu server utama
26 server_list = ["FS-SRV01", "FTI-SRV01", "FTIK-SRV01"]
27
28 dim_lokasi = pd.DataFrame({
29     "LokasiKey": range(1, len(fakultas)+1),
30     "Fakultas": fakultas,
31     "Server": server_list
32 })
33
34 # 3. GENERATE DIM_JENIS_SERANGAN
35 jenis_serangan = [
36     "DDoS", "SQL Injection", "Phishing", "Malware",
37     "Brute Force", "Ransomware"
38 ]
39
```

Fact_Incident.csv

	ID_Incident	WaktuKey	LokasiKey	JenisSeranganKey	TimResponKey	DurasiRespon	JumlahDataTerenam	StatusPenanganan
1	1,519	3,5	9,352	2696	selesai			
2	2,136	1,1	14,357	2821	selesai			
3	3,334	2,6	19,10	5615	pending			
4	4,381	1,1	2,55	1490	selesai			
5	5,999	3,1	20,13	6615	selesai			
6	6,101	3,6	2,329	827	selesai			
7	7,553	3,6	12,248	3823	pending			
8	8,490	3,5	8,39	9795	selesai			
9	9,648	1,2	7,140	4099	selesai			
10	10,878	2,6	16,395	9206	pending			
11	11,513	3,4	8,328	5339	selesai			
12	12,688	1,1	1,465	368	pending			
13	13,928	2,4	4,47	160	selesai			
14	14,1052	2,4	18,473	7633	selesai			
15	15,772	1,5	12,423	7986	selesai			
16	16,595	3,6	14,107	3322	selesai			
17	17,713	2,3	2,132	6399	selesai			
18	18,505	3,2	19,459	4344	selesai			
19	19,347	1,5	10,66	3708	selesai			
20	20,499	2,3	2,381	3765	selesai			
21	21,488	1,4	9,266	7998	selesai			
22	22,11	2,3	16,273	6863	selesai			
23	23,86	1,2	4,94	3551	selesai			
24	24,335	3,4	1,475	9553	selesai			
25	25,936	3,1	10,491	9858	selesai			
26	26,1024	2,1	15,492	247	pending			
27	27,96	2,2	5,357	2145	selesai			
28	28,185	3,1	13,24	3411	selesai			
29	29,398	3,5	5,132	7345	selesai			
30	30,475	3,4	4,459	7786	selesai			
31	31,623	1,5	14,19	9782	pending			
32	32,883	3,2	17,290	9982	selesai			
33	33,877	1,3	13,33	2547	selesai			
34	34,563	2,4	7,182	3229	selesai			
35	35,855	2,1	20,399	5043	selesai			
36	36,788	1,4	11,467	6702	selesai			
37	37,592	3,4	16,360	2436	selesai			
38	38,476	3,2	8,450	4022	selesai			

Dim_Waktu.csv

	WaktuKey,Tanggal,Bulan,Tahun,Hari
1	1,2023-01-01,1,2023,Sunday
2	2,2023-01-02,1,2023,Monday
3	3,2023-01-03,1,2023,Tuesday
4	4,2023-01-04,1,2023,Wednesday
5	5,2023-01-05,1,2023,Thursday
6	6,2023-01-06,1,2023,Friday
7	7,2023-01-07,1,2023,Saturday
8	8,2023-01-08,1,2023,Sunday
9	9,2023-01-09,1,2023,Monday
10	10,2023-01-10,1,2023,Tuesday
11	11,2023-01-11,1,2023,Wednesday
12	12,2023-01-12,1,2023,Thursday
13	13,2023-01-13,1,2023,Friday
14	14,2023-01-14,1,2023,Saturday
15	15,2023-01-15,1,2023,Sunday
16	16,2023-01-16,1,2023,Monday
17	17,2023-01-17,1,2023,Tuesday
18	18,2023-01-18,1,2023,Wednesday
19	19,2023-01-19,1,2023,Thursday
20	20,2023-01-20,1,2023,Friday
21	21,2023-01-21,1,2023,Saturday
22	22,2023-01-22,1,2023,Sunday
23	23,2023-01-23,1,2023,Monday
24	24,2023-01-24,1,2023,Tuesday
25	25,2023-01-25,1,2023,Wednesday
26	26,2023-01-26,1,2023,Thursday
27	27,2023-01-27,1,2023,Friday
28	28,2023-01-28,1,2023,Saturday
29	29,2023-01-29,1,2023,Sunday
30	30,2023-01-30,1,2023,Monday
31	31,2023-01-31,1,2023,Tuesday
32	32,2023-02-01,2,2023,Wednesday
33	33,2023-02-02,2,2023,Thursday
34	34,2023-02-03,2,2023,Friday
35	35,2023-02-04,2,2023,Saturday
36	36,2023-02-05,2,2023,Sunday
37	37,2023-02-06,2,2023,Monday
38	38,2023-02-07,2,2023,Tuesday

Dim_Lokasi.csv

	LokasiKey	Fakultas	Server
1	1	FS	FS-SRV01
2	2	FTI	FTI-SRV01
3	3	FTIK	FTIK-SRV01
4			
5			

Dim_Jenis_Serangan.csv

	JenisSeranganKey	NamaSerangan	Deskripsi
1	1	DDoS	Listen one next measure oil pattern produce either.
2	2	SQL Injection	Remain week develop music certainly.
3	3	Phishing	College turn society number.
4	4	Malware	Wife trip area increase hand development write others.
5	5	Brute Force	Material theory agency race off upon performance company.
6	6	Ransomware	Those between indeed child.
7			
8			

Dim_Tim_Respons.csv

	TimResponKey	Petugas	Jabatan	Unit
1	1	Tina Pope	Koordinator	PUSDATIN
2	2	Cory Juarez MD	Staff	PUSDATIN
3	3	Jamie Ortega	Supervisor	PUSDATIN
4	4	Kenneth Smith MD	Koordinator	Network Security
5	5	Roger Coleman	Koordinator	Network Security
6	6	David Ross	Koordinator	Incident Response
7	7	Lori Reynolds	Staff	Network Security
8	8	Miss Alexis Terrell	Staff	Network Security
9	9	Nicholas Roman	Staff	Incident Response
10	10	Alexandra Pennington	Koordinator	Incident Response
11	11	Stephanie Hayes	Supervisor	Incident Response
12	12	Ellen Hickman	Koordinator	Incident Response
13	13	Tammy Cunningham	Supervisor	Incident Response
14	14	Jenna Chambers	Koordinator	Incident Response
15	15	Douglas Kelly	Koordinator	Network Security
16	16	Don Murray	Koordinator	Network Security
17	17	Michelle Beard	Staff	Network Security
18	18	Jeremy Li	Supervisor	Network Security
19	19	Reginald Baxter	Staff	Incident Response
20	20	Christine Brown	Koordinator	Incident Response
21				
22				

```
sql > 1. database setup.sql > ...
      Ø Connect to MSSQL | ▷ Run on active connection | ≡ Select block
1  -- Kelompok 9
2  -- Create Database
3  CREATE DATABASE DM_KeamananSiber_DW
4  ON PRIMARY
5  (
6  NAME = N'DM_KeamananSiber_DW_Data',
7  FILENAME = N'D:\Data\DM_KeamananSiber_DW_Data.mdf',
8  SIZE = 1GB,
9  MAXSIZE = UNLIMITED ,
10 FILEGROWTH = 256MB
11 )
12 LOG ON
13 (
14 NAME = N'DM_KeamananSiber_DW_Log',
15 FILENAME = N'E:\Logs\DM_KeamananSiber_DW_Log.ldf',
16 SIZE = 256MB,
17 MAXSIZE = 2GB,
18 FILEGROWTH = 64MB
19 );
20 GO
21
22 USE DM_KeamananSiber_DW;
23 GO
24 |
```

```

sql > 2. Dimensi.sql > ...
    ◊ Connect to MSSQL | ▶ Run on active connection | ≡ Select block
1  -- Kelompok 9
2  -- Dimension Tables for DM_KeamananSiber_DW
3
4
5  -- Dimension Table: Dim_Waktu
6  CREATE TABLE dbo.Dim_Waktu (
7      WaktuKey INT PRIMARY KEY NOT NULL ,
8      Tanggal DATE NOT NULL ,
9      Bulan INT NOT NULL ,
10     Tahun INT NOT NULL ,
11     Hari VARCHAR(20) NOT NULL ,
12
13     -- SCD Type 2 attributes
14     EffectiveDate DATE NOT NULL DEFAULT GETDATE(),
15     ExpiryDate DATE NULL,
16     IsCurrent BIT NOT NULL DEFAULT 1,
17
18     -- Metadata
19     CreatedDate DATETIME DEFAULT GETDATE(),
20     ModifiedDate DATETIME DEFAULT GETDATE(),
21
22     CONSTRAINT CK_DimWaktu_Bulan CHECK (Bulan BETWEEN 1 AND 12),
23     CONSTRAINT CK_DimWaktu_Tahun CHECK (Tahun BETWEEN 2023 AND 2025),
24     CONSTRAINT CK_DimWaktu_Hari CHECK (Hari IN (
25         'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday', 'Sunday'
26     ))
27 );
28 GO
29
30 -- Dimension Table: Dim_Lokasi
31 CREATE TABLE dbo.Dim_Lokasi (
32     LokasiKey INT IDENTITY(1,1) PRIMARY KEY NOT NULL ,
33     Fakultas VARCHAR(50) NOT NULL ,
34     Server VARCHAR(50) NOT NULL ,
35
36     -- SCD Type 2
37     EffectiveDate DATE NOT NULL DEFAULT GETDATE(),
38     ExpiryDate DATE NULL,

```

```

sql > 3. fakta.sql > ...
    Ø Connect to MSSQL | ▶ Run on active connection | ≡ Select block
1  -- Kelompok 9
2  -- Fact Tables for DM_KeamananSiber_DW
3
4  -- Fact Table: Fact_Incident
5  CREATE TABLE dbo.Fact_Incident (
6      ID_Incident INT PRIMARY KEY NOT NULL ,
7
8      -- Foreign Keys
9      WaktuKey INT NOT NULL ,
10     LokasiKey INT NOT NULL ,
11     JenisSeranganKey INT NOT NULL ,
12     TimResponKey INT NOT NULL ,
13
14     -- Measures
15     DurasiRespon INT NOT NULL ,
16     JumlahDataTerenam INT NOT NULL ,
17
18     StatusPenanganan VARCHAR(20) NOT NULL ,
19
20     -- Metadata
21     CreatedDate DATETIME DEFAULT GETDATE(),
22     ModifiedDate DATETIME DEFAULT GETDATE(),
23
24     CONSTRAINT CK_FactIncident_Status CHECK (StatusPenanganan IN ('selesai','pending')) ,
25
26     -- FK relationships
27     CONSTRAINT FK_Fact_Waktu FOREIGN KEY (WaktuKey)
28     REFERENCES dbo.Dim_Waktu(WaktuKey),
29
30     CONSTRAINT FK_Fact_Lokasi FOREIGN KEY (LokasiKey)
31     REFERENCES dbo.Dim_Lokasi(LokasiKey),
32
33     CONSTRAINT FK_Fact_Serangan FOREIGN KEY (JenisSeranganKey)
34     REFERENCES dbo.Dim_JenisSerangan(JenisSeranganKey),
35
36     CONSTRAINT FK_Fact_Tim FOREIGN KEY (TimResponKey)
37     REFERENCES dbo.Dim_TimRespon(TimResponKey)
38 );

```

```

sql > 4. Index.sql > ...
    ? Connect to MSSQL | ▶ Run on active connection | ≡ Select block
1  -- Kelompok 9
2  -- Indexes for Fact Tables in DM_KeamananSiber_DW
3
4  IF EXISTS (SELECT * FROM sys.objects WHERE object_id = OBJECT_ID('dbo.Fact_Incident') AND type = 'U')
5  | ALTER TABLE dbo.Fact_Incident DROP CONSTRAINT IF EXISTS PK__Fact_Inc__0464F6649A2C1A04;
6  GO
7
8
9  IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'CIX_Fact_Incident_WaktuKey' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
10 | DROP INDEX CIX_Fact_Incident_WaktuKey ON dbo.Fact_Incident;
11 GO
12
13 -- Rebuild clustered index dengan partitioning (optional)
14 CREATE CLUSTERED INDEX CIX_Fact_Incident_WaktuKey
15 ON dbo.Fact_Incident (WaktuKey , ID_Incident);
16 GO
17
18
19 IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'IX_Fact_Incident_Waktu' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
20 | DROP INDEX IX_Fact_Incident_Waktu ON dbo.Fact_Incident;
21 GO
22 CREATE NONCLUSTERED INDEX IX_Fact_Incident_Waktu
23 ON dbo.Fact_Incident (WaktuKey)
24 INCLUDE (DurasiRespon , JumlahDataTerenam , StatusPenanganan);
25 GO
26
27 IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'IX_Fact_Incident_Lokasi' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
28 | DROP INDEX IX_Fact_Incident_Lokasi ON dbo.Fact_Incident;
29 GO
30 CREATE NONCLUSTERED INDEX IX_Fact_Incident_Lokasi
31 ON dbo.Fact_Incident (LokasiKey)
32 INCLUDE (DurasiRespon , JumlahDataTerenam , StatusPenanganan);
33 GO
34
35 IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'IX_Fact_Incident_Serangan' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
36 | DROP INDEX IX_Fact_Incident_Serangan ON dbo.Fact_Incident;
37 GO
38 CREATE NONCLUSTERED INDEX IX_Fact_Incident_Serangan

```


sql > 5. partition.sql > ...

☐ Connect to MSSQL | ▶ Run on active connection | ≡ Select block

```
1  -- Kelompok 9
2  -- Partitioning Setup for Fact Tables in DM_KeamananSiber_DW
3  -- Create Partition Function (by Calendar Year)
4  CREATE PARTITION FUNCTION PF_Waktu (INT)
5  AS RANGE RIGHT FOR VALUES
6  (
7      20230101, -- 2023
8      20240101, -- 2024
9      20250101  -- 2025
10 );
11 GO
12
13 -- Create Partition Scheme
14 CREATE PARTITION SCHEME PS_Waktu
15 AS PARTITION PF_Waktu
16 ALL TO ([PRIMARY]);
17 GO
18
19 -- Create Partitioned Fact Table
20 CREATE TABLE dbo.Fact_Incident_Partitioned (
21     ID_Incident INT PRIMARY KEY NOT NULL,
22
23     -- Foreign keys
24     WaktuKey INT NOT NULL,
25     LokasiKey INT NOT NULL,
26     JenisSeranganKey INT NOT NULL,
27     TimResponKey INT NOT NULL,
28
29     -- Measures
30     DurasiRespon INT NOT NULL,
31     JumlahDataTerenam INT NOT NULL,
32     StatusPenanganan VARCHAR(20) NOT NULL,
33
34     -- Metadata
35     CreatedDate DATETIME DEFAULT GETDATE(),
36     ModifiedDate DATETIME DEFAULT GETDATE(),
37
38     CONSTRAINT CK_FactIncidentPartition_Status CHECK (
```

```
sql > 6. Staging.sql > ...
  Connect to MSSQL | Run on active connection | Select block
1  -- Kelompok 9
2  -- Staging Tables for DM_KeamananSiber_DW
3
4  -- Staging Schema
5  CREATE SCHEMA stg;
6  GO
7
8  -- Staging Table for Dim_Waktu
9  CREATE TABLE stg.Dim_Waktu (
10     WaktuKey INT,
11     Tanggal DATE,
12     Bulan INT,
13     Tahun INT,
14     Hari VARCHAR(20),
15     LoadDate DATETIME DEFAULT GETDATE()
16 );
17 GO
18
19 -- Staging Table for Dim_Lokasi
20 CREATE TABLE stg.Dim_Lokasi (
21     LokasiKey INT,
22     Fakultas VARCHAR(50),
23     Server VARCHAR(50),
24     LoadDate DATETIME DEFAULT GETDATE()
25 );
26 GO
27
28 -- Staging Table for Dim_JenisSerangan
29 CREATE TABLE stg.Dim_JenisSerangan (
30     JenisSeranganKey INT,
31     NamaSerangan VARCHAR(100),
32     Deskripsi VARCHAR(255),
33     LoadDate DATETIME DEFAULT GETDATE()
34 );
35 GO
36
37 -- Staging Table for Dim_TimRespon
38 CREATE TABLE stg.Dim_TimRespon (
```

SQLQuery2.sql...R\fadil (53))* SQLQuery1.sql ...IR\fadil (66))*

123456789101112131415161718192021222324

✓

-- Kelompok 9
-- Create Database
CREATE DATABASE DM_KeamananSiber_DW
ON PRIMARY
(
NAME = N'DM_KeamananSiber_DW_Data',
FILENAME = N'C:\Dw\DM_KeamananSiber_DW_Data.mdf',
SIZE = 1GB,
MAXSIZE = UNLIMITED ,
FILEGROWTH = 256MB
)
LOG ON
(
NAME = N'DM_KeamananSiber_DW_Log',
FILENAME = N'C:\Dw\DM_KeamananSiber_DW_Log.ldf',
SIZE = 256MB,
MAXSIZE = 2GB,
FILEGROWTH = 64MB
);
GO

USE DM_KeamananSiber_DW;
GO

100 %

✓ No issues found

Messages

Commands completed successfully.

Completion time: 2025-11-22T01:37:48.5198006+07:00

```
SQLQuery2.sql...R\fadil (53))* SQLQuery1.sql...R\fadil (66))*
1  -- Kelompok 9
2  -- Dimension Tables for DM_KeamananSiber_DW
3
4
5  -- Dimension Table: Dim_Waktu
6  CREATE TABLE dbo.Dim_Waktu (
7      WaktuKey INT PRIMARY KEY NOT NULL ,
8      Tanggal DATE NOT NULL ,
9      Bulan INT NOT NULL ,
10     Tahun INT NOT NULL ,
11     Hari VARCHAR(20) NOT NULL ,
12
13     -- SCD Type 2 attributes
14     EffectiveDate DATE NOT NULL DEFAULT GETDATE(),
15     ExpiryDate DATE NULL,
16     IsCurrent BIT NOT NULL DEFAULT 1,
17
18     -- Metadata
19     CreatedDate DATETIME DEFAULT GETDATE(),
20     ModifiedDate DATETIME DEFAULT GETDATE(),
21
22     CONSTRAINT CK_DimWaktu_Bulan CHECK (Bulan BETWEEN 1 AND 12),
23     CONSTRAINT CK_DimWaktu_Tahun CHECK (Tahun BETWEEN 2023 AND 2025),
24     CONSTRAINT CK_DimWaktu_Hari CHECK (Hari IN (
25         'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday', 'Sunday'
26     ))
27 );
28 GO
29
30 -- Dimension Table: Dim_Lokasi
31 CREATE TABLE dbo.Dim_Lokasi (
32     LokasiKey INT IDENTITY(1,1) PRIMARY KEY NOT NULL ,
33     Fakultas VARCHAR(50) NOT NULL ,
34     Server VARCHAR(50) NOT NULL ,
35
36     -- SCD Type 2
37     EffectiveDate DATE NOT NULL DEFAULT GETDATE(),
38     ExpiryDate DATE NULL,
39     IsCurrent BIT NOT NULL DEFAULT 1,
40
41     -- Metadata
42     CreatedDate DATETIME DEFAULT GETDATE(),
43     ModifiedDate DATETIME DEFAULT GETDATE(),
44
45     CONSTRAINT CK_DimLokasi_Fakultas CHECK (Fakultas IN ('ESI', 'ETTI', 'ETTV'))

```

100 % No issues found

Messages

Commands completed successfully.

Completion time: 2025-11-22T01:40:00.7757834+07:00

```
SQLQuery2.sql...R\fadil (53))* X SQLQuery1.sql ...IR\fadil (66))*
1      -- Kelompok 9
2      -- Fact Tables for DM_KeamananSiber_DW
3
4      -- Fact Table: Fact_Incident
5      CREATE TABLE dbo.Fact_Incident (
6          ID_Incident INT PRIMARY KEY NOT NULL ,
7
8          -- Foreign Keys
9          WaktuKey INT NOT NULL ,
10         LokasiKey INT NOT NULL ,
11         JenisSeranganKey INT NOT NULL ,
12         TimResponKey INT NOT NULL ,
13
14         -- Measures
15         DurasiRespon INT NOT NULL ,
16         JumlahDataTerenam INT NOT NULL ,
17
18         StatusPenanganan VARCHAR(20) NOT NULL ,
19
20         -- Metadata
21         CreatedDate DATETIME DEFAULT GETDATE(),
22         ModifiedDate DATETIME DEFAULT GETDATE(),
23
24         CONSTRAINT CK_FactIncident_Status CHECK (StatusPenanganan IN ('selesai','pending')) ,
25
26         -- FK relationships
27         CONSTRAINT FK_Fact_Waktu FOREIGN KEY (WaktuKey)
28             REFERENCES dbo.Dim_Waktu(WaktuKey),
29
30         CONSTRAINT FK_Fact_Lokasi FOREIGN KEY (LokasiKey)
31             REFERENCES dbo.Dim_Lokasi(LokasiKey),
32
33         CONSTRAINT FK_Fact_Serangan FOREIGN KEY (JenisSeranganKey)
34             REFERENCES dbo.Dim_JenisSerangan(JenisSeranganKey),
35
36         CONSTRAINT FK_Fact_Tim FOREIGN KEY (TimResponKey)
37             REFERENCES dbo.Dim_TimRespon(TimResponKey)
38     );
39     GO
40
```

100 % 4 0

Messages

Commands completed successfully.

Completion time: 2025-11-22T01:40:40.2623460+07:00

```

1  -- Kelompok 9
2  -- Indexes for Fact Tables in DM_KeamananSiber_DW
3
4  IF EXISTS (SELECT * FROM sys.objects WHERE object_id = OBJECT_ID('dbo.Fact_Incident') AND type = 'U')
5      ALTER TABLE dbo.Fact_Incident DROP CONSTRAINT IF EXISTS PK_Fact_Inc_0464F6649A2C1A04;
6  GO
7
8
9  IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'CIX_Fact_Incident_WaktuKey' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
10     DROP INDEX CIX_Fact_Incident_WaktuKey ON dbo.Fact_Incident;
11  GO
12
13  -- Rebuild clustered index dengan partitioning (optional)
14  CREATE CLUSTERED INDEX CIX_Fact_Incident_WaktuKey
15  ON dbo.Fact_Incident (WaktuKey , ID_Incident);
16  GO
17
18
19  IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'IX_Fact_Incident_Waktu' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
20     DROP INDEX IX_Fact_Incident_Waktu ON dbo.Fact_Incident;
21  GO
22
23  CREATE NONCLUSTERED INDEX IX_Fact_Incident_Waktu
24  ON dbo.Fact_Incident (WaktuKey)
25  INCLUDE (DurasiRespon , JumlahDataTerenam , StatusPenanganan);
26  GO
27
28  IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'IX_Fact_Incident_Lokasi' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
29     DROP INDEX IX_Fact_Incident_Lokasi ON dbo.Fact_Incident;
30  GO
31
32  CREATE NONCLUSTERED INDEX IX_Fact_Incident_Lokasi
33  ON dbo.Fact_Incident (LokasiKey)
34  INCLUDE (DurasiRespon , JumlahDataTerenam , StatusPenanganan);
35  GO
36
37  IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'IX_Fact_Incident_Serangan' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
38     DROP INDEX IX_Fact_Incident_Serangan ON dbo.Fact_Incident;
39  GO
40
41  CREATE NONCLUSTERED INDEX IX_Fact_Incident_Serangan
42  ON dbo.Fact_Incident (JenisSeranganKey)
43  INCLUDE (DurasiRespon , JumlahDataTerenam , StatusPenanganan);
44  GO
45
46  IF EXISTS (SELECT * FROM sys.indexes WHERE name = 'IX_Fact_Incident_Tim' AND object_id = OBJECT_ID('dbo.Fact_Incident'))
47     DROP INDEX IX_Fact_Incident_Tim ON dbo.Fact_Incident;
48  GO

```

100% 39 0

Messages

Commands completed successfully.

Completion time: 2025-11-22T01:53:14.9760476+07:00

SQLQuery2.sql...R\Fadil (53))* SQLQuery1.sql...R\Fadil (66))*

```
1  -- Kelompok 9
2  -- Partitioning Setup for Fact Tables in DM_KeamananSiber_DW
3
4  IF EXISTS (SELECT * FROM sys.partition_schemes WHERE name = 'PS_Waktu')
5      DROP PARTITION SCHEME PS_Waktu;
6  GO
7
8  IF EXISTS (SELECT * FROM sys.partition_functions WHERE name = 'PF_Waktu')
9      DROP PARTITION FUNCTION PF_Waktu;
10 GO
11
12 -- Create Partition Function (by Calendar Year)
13 CREATE PARTITION FUNCTION PF_Waktu (INT)
14 AS RANGE RIGHT FOR VALUES
15 (
16     20230101, -- 2023
17     20240101, -- 2024
18     20250101 -- 2025
19 );
20 GO
21
22 -- Create Partition Scheme
23 CREATE PARTITION SCHEME PS_Waktu
24 AS PARTITION PF_Waktu
25 ALL TO ([PRIMARY]);
26 GO
27
28
29 -- Create Partitioned Fact Table (tanpa PRIMARY KEY inline)
30 CREATE TABLE dbo.Fact_Incident_Partitioned (
31     -- Hapus PRIMARY KEY di sini, akan dibuat terpisah sebagai Non-Clustered
32     ID_Incident INT NOT NULL,
33
34     -- Foreign keys
35     WaktuKey INT NOT NULL, -- Kolom Partisi
36     LokasiKey INT NOT NULL,
37     JenisSeranganKey INT NOT NULL,
38     TimResponKey INT NOT NULL,
39
40     -- Measures
41     DurasiRespon INT NOT NULL,
42     JumlahDataTerenam INT NOT NULL,
43     StatusPenanganan VARCHAR(20) NOT NULL,
44
```

100 %

Messages

Partition scheme 'PS_Waktu' has been created successfully. 'PRIMARY' is marked as the next used filegroup in partition scheme 'PS_Waktu'.

Completion time: 2025-11-22T01:55:42.5122674+07:00

SQLQuery2.sql...R\fadil (53))* X SQLQuery1.sql ...R\fadil (66))*

```
1  -- Kelompok 9
2  -- Staging Tables for DM_KeamananSiber_DW
3
4  -- Staging Schema
5  CREATE SCHEMA stg;
6  GO
7
8  -- Staging Table for Dim_Waktu
9  CREATE TABLE stg.Dim_Waktu (
10     WaktuKey INT,
11     Tanggal DATE,
12     Bulan INT,
13     Tahun INT,
14     Hari VARCHAR(20),
15     LoadDate DATETIME DEFAULT GETDATE()
16 );
17 GO
18
19 -- Staging Table for Dim_Lokasi
20 CREATE TABLE stg.Dim_Lokasi (
21     LokasiKey INT,
22     Fakultas VARCHAR(50),
23     Server VARCHAR(50),
24     LoadDate DATETIME DEFAULT GETDATE()
25 );
26 GO
27
28 -- Staging Table for Dim_JenisSerangan
29 CREATE TABLE stg.Dim_JenisSerangan (
30     JenisSeranganKey INT,
31     NamaSerangan VARCHAR(100),
32     Deskripsi VARCHAR(255),
33     LoadDate DATETIME DEFAULT GETDATE()
34 );
35 GO
36
37 -- Staging Table for Dim_TimRespon
38 CREATE TABLE stg.Dim_TimRespon (
39     TimResponKey INT,
40     Petugas VARCHAR(150),
41     Jabatan VARCHAR(50),
42     Unit VARCHAR(50),
43     LoadDate DATETIME DEFAULT GETDATE()
44 );
45 GO
```

100 %



4



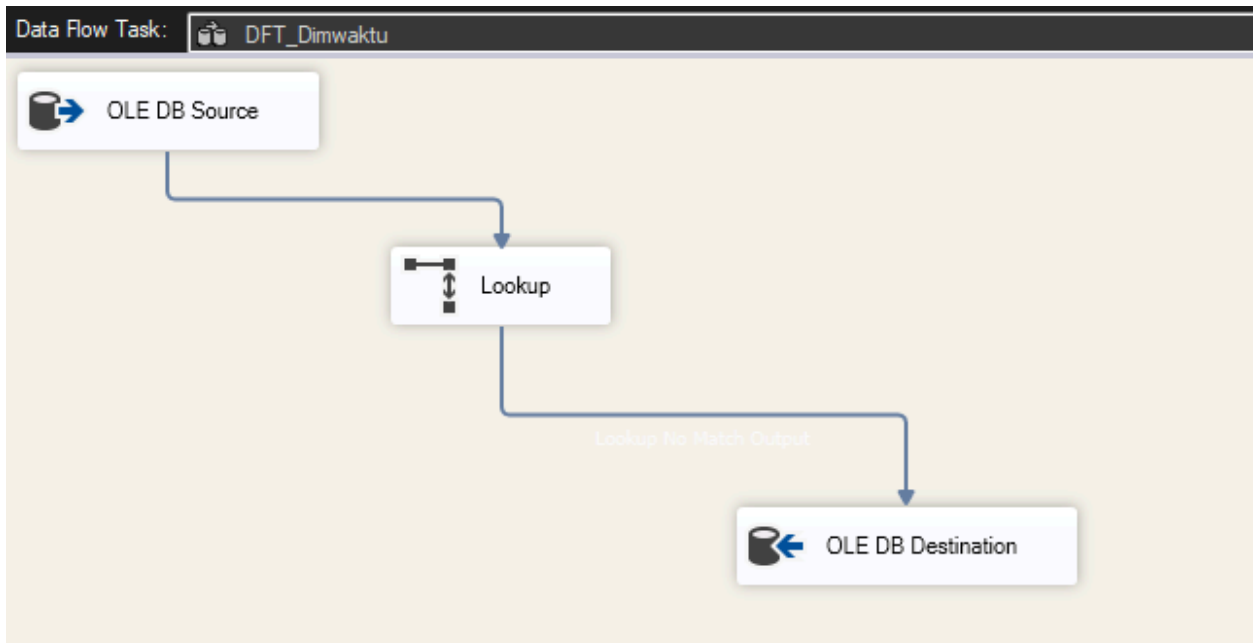
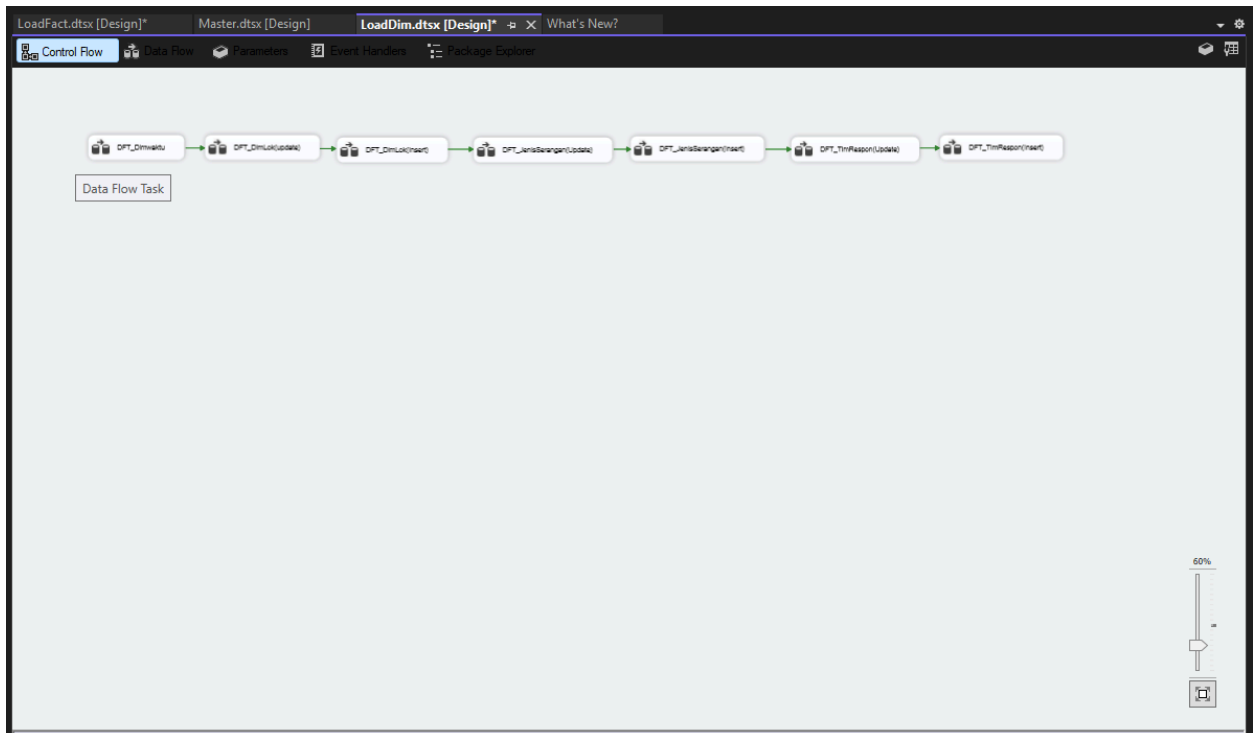
0

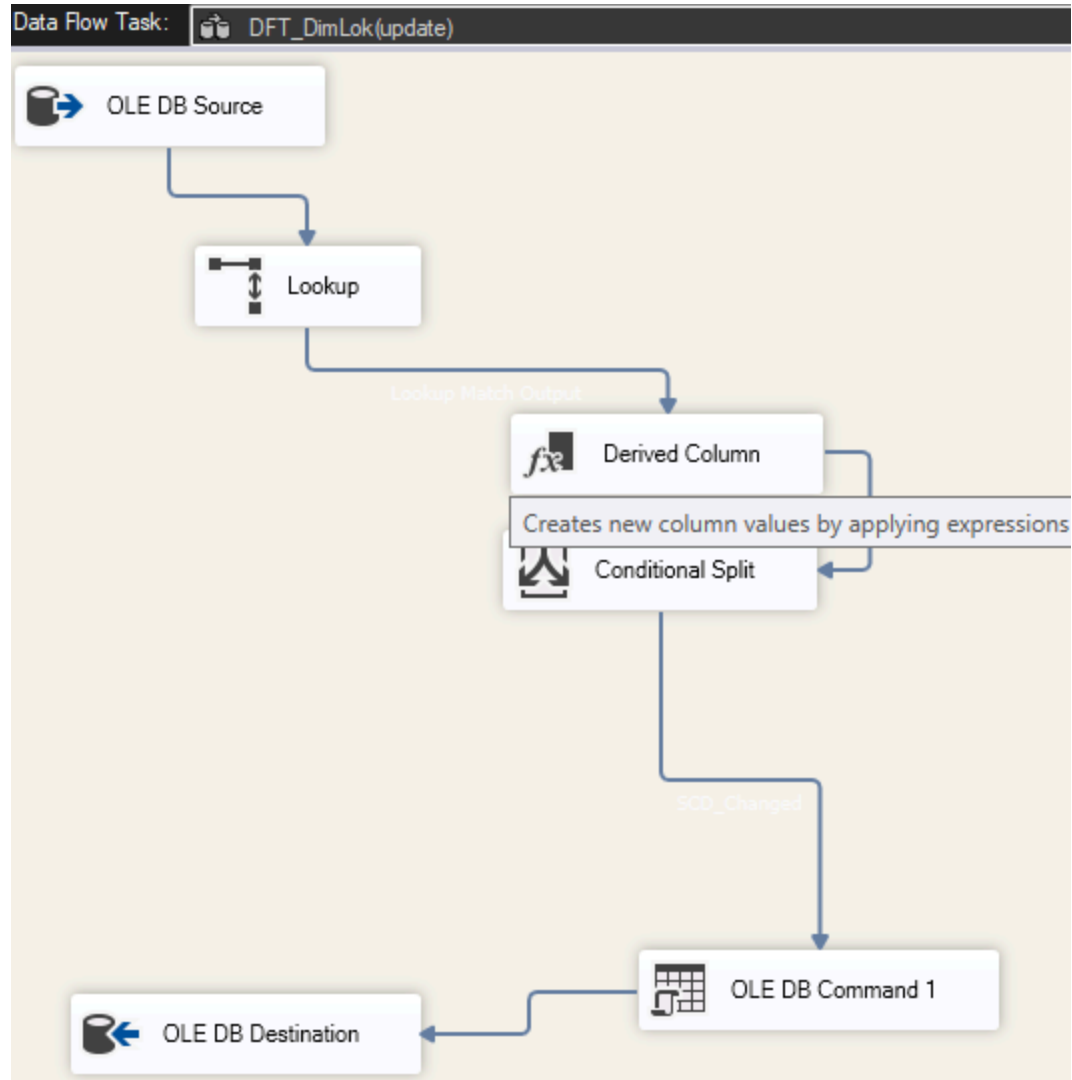


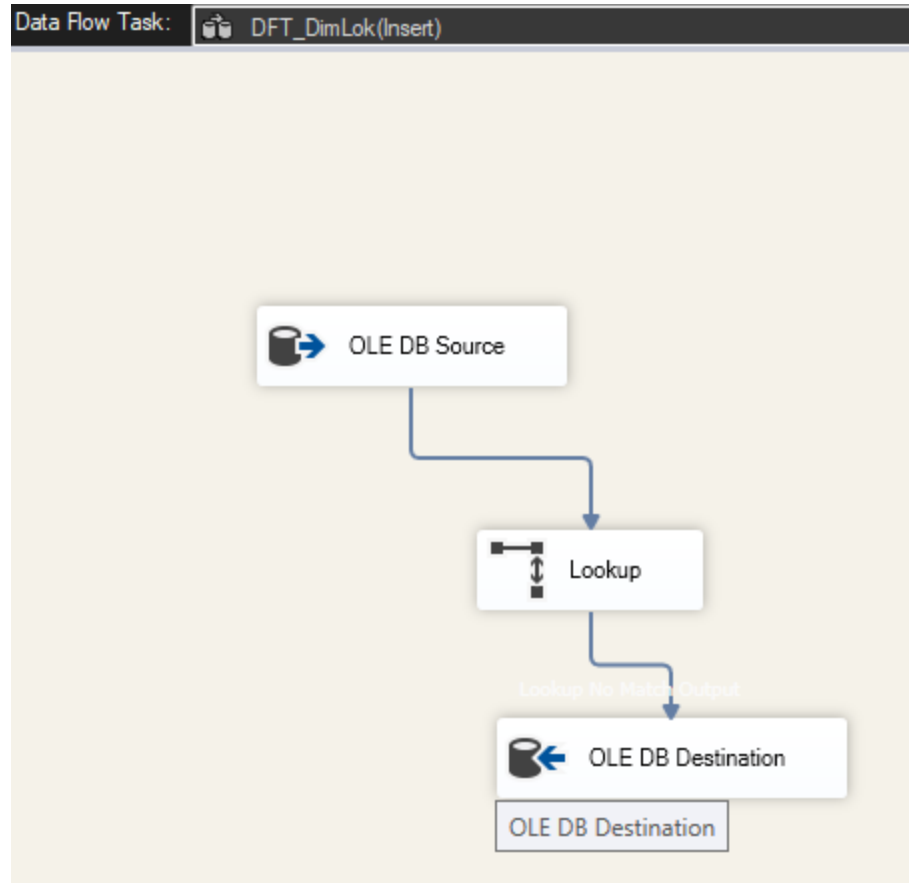
Messages

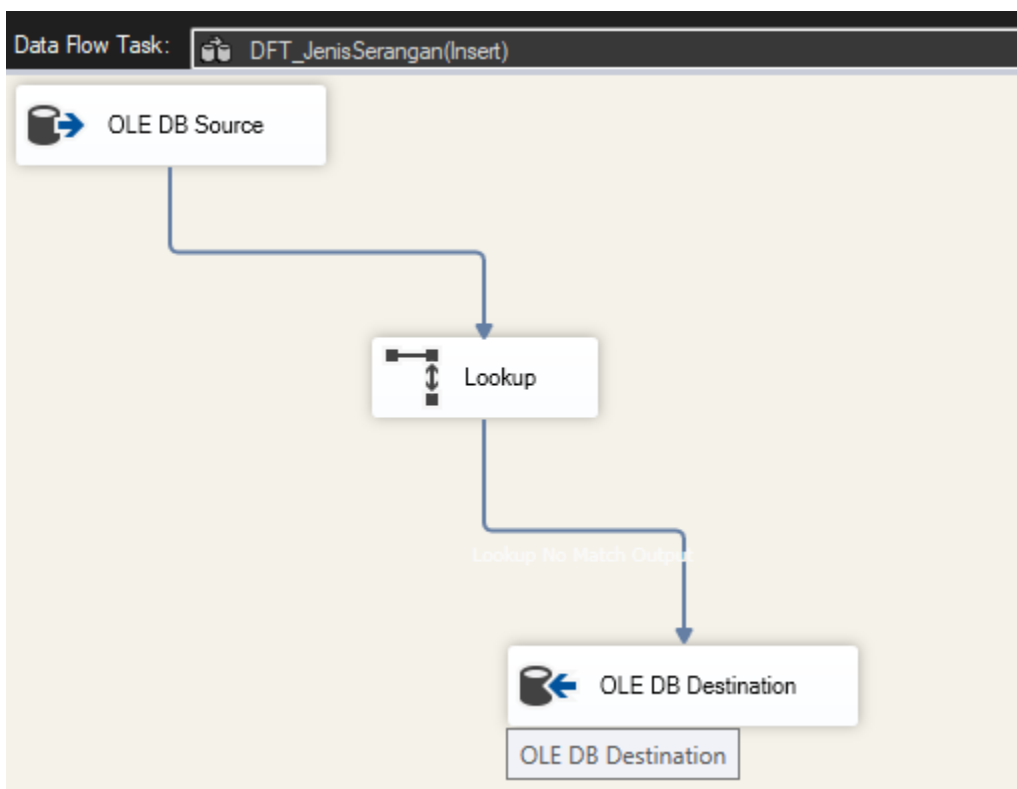
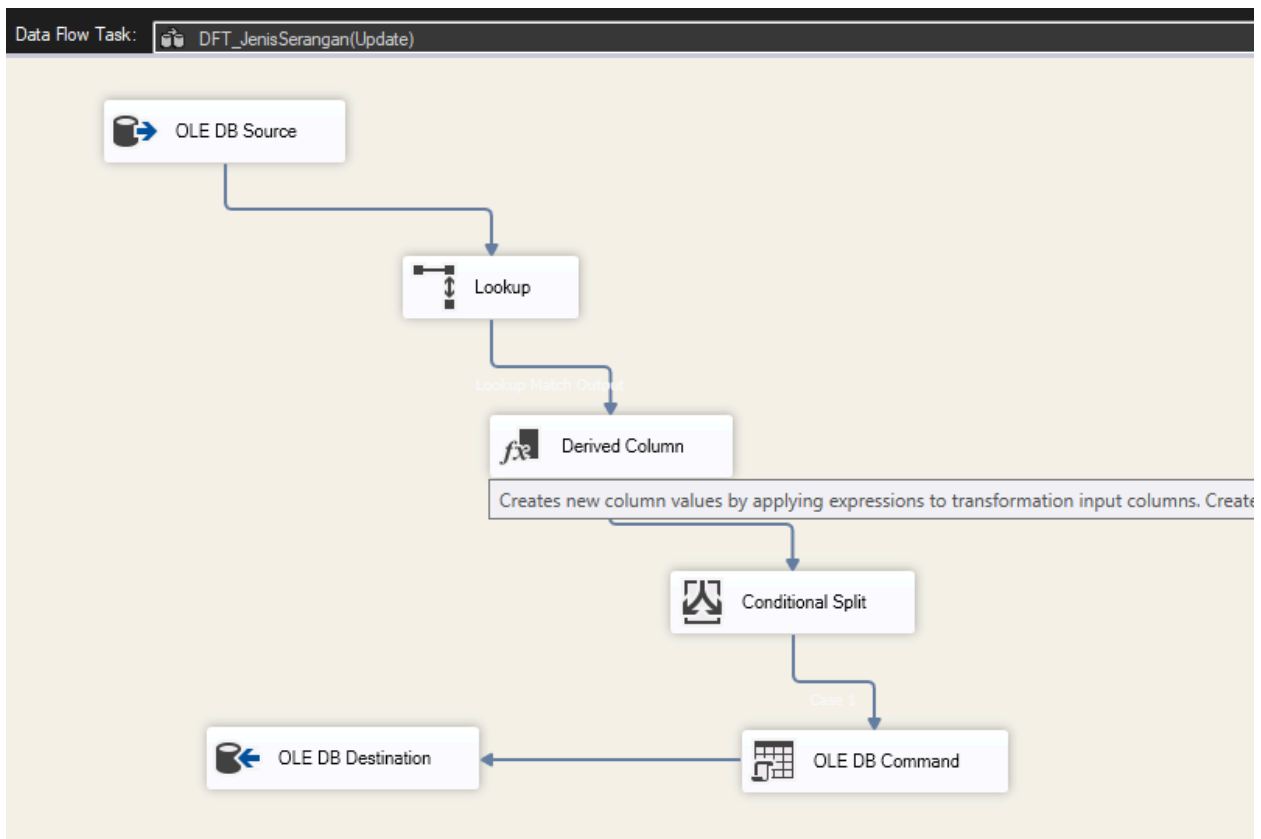
Commands completed successfully.

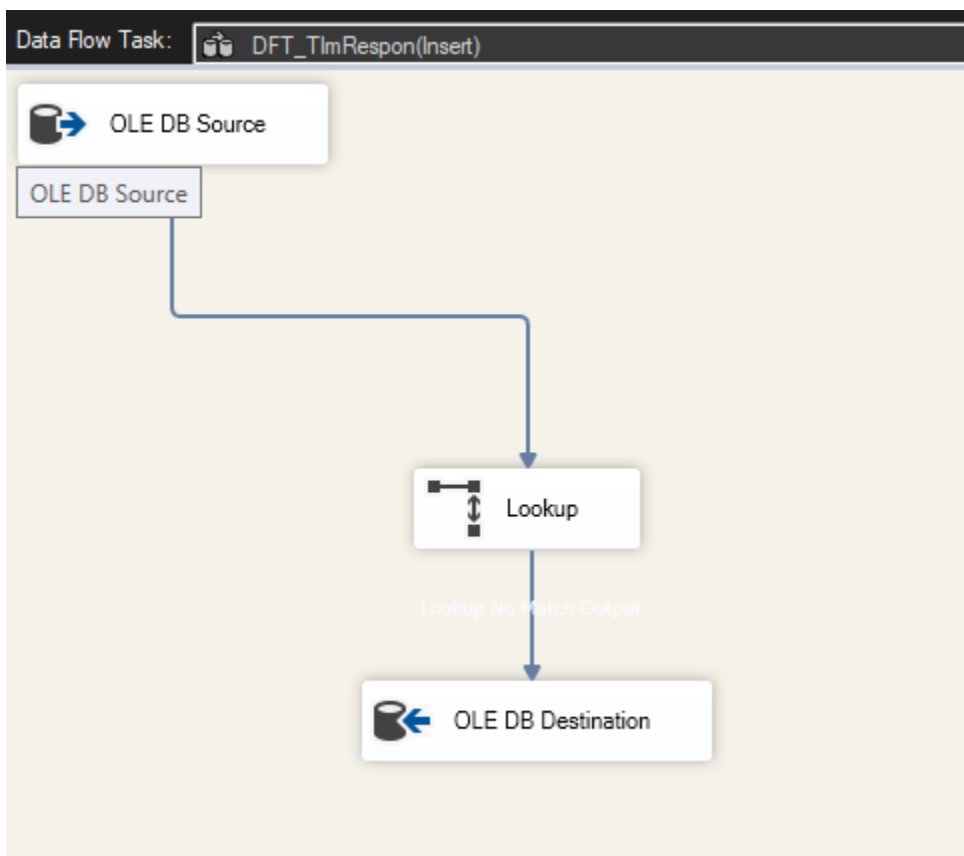
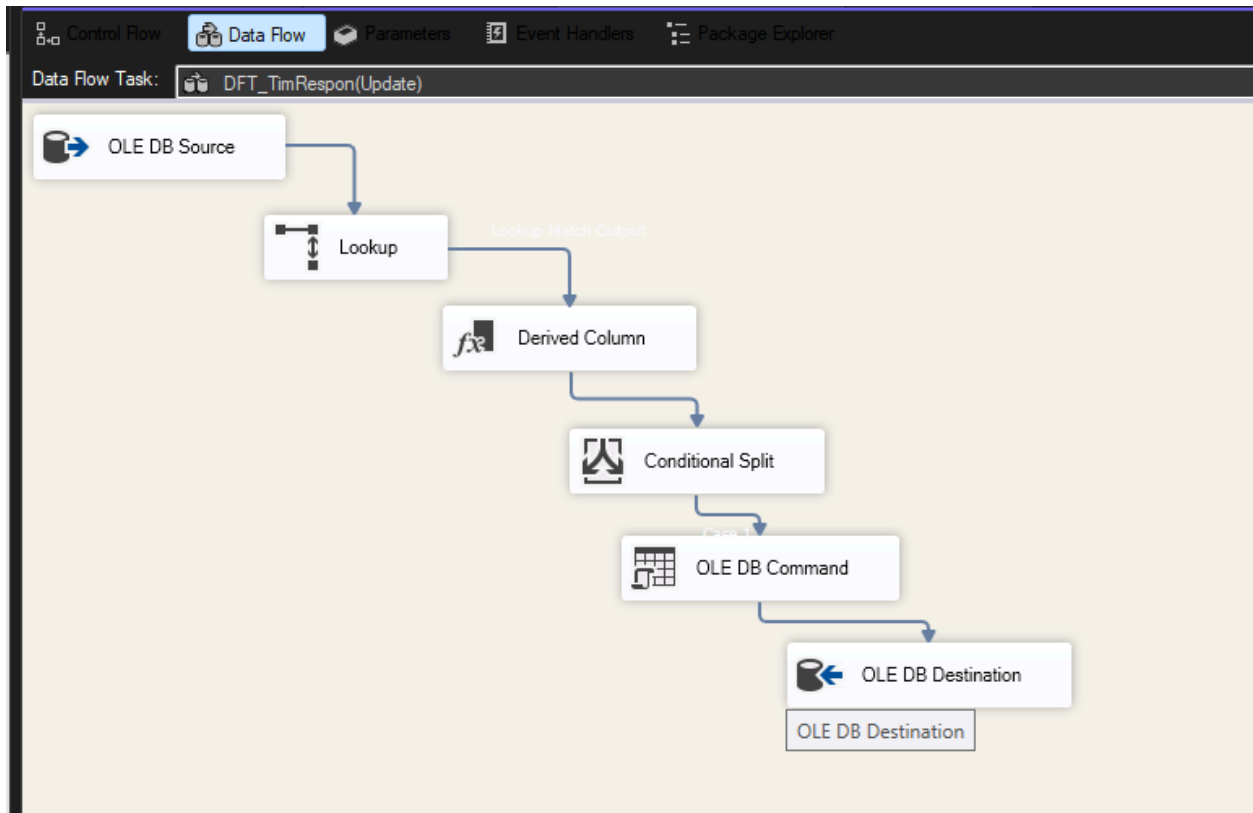
Completion time: 2025-11-22T01:56:27.6884092+07:00

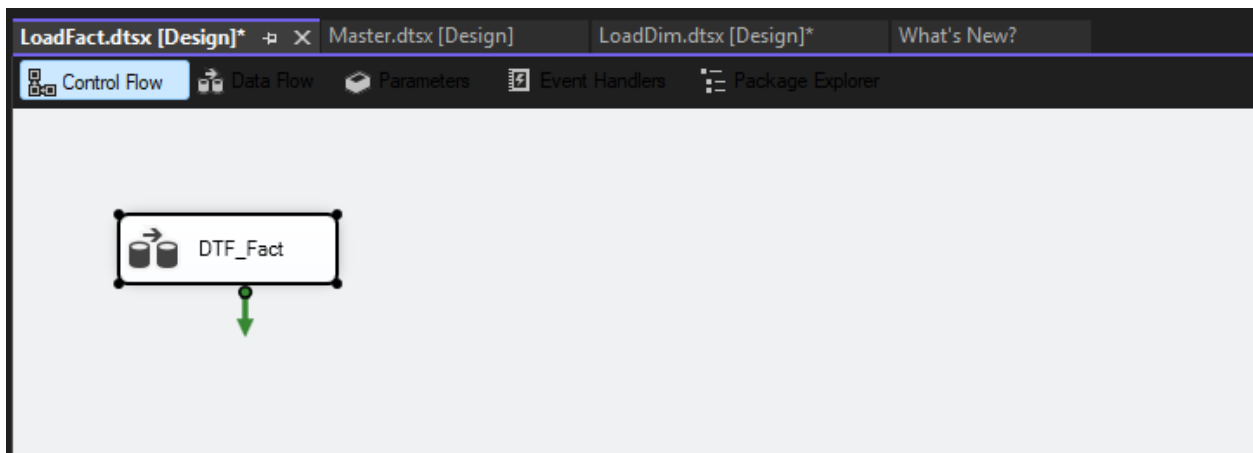


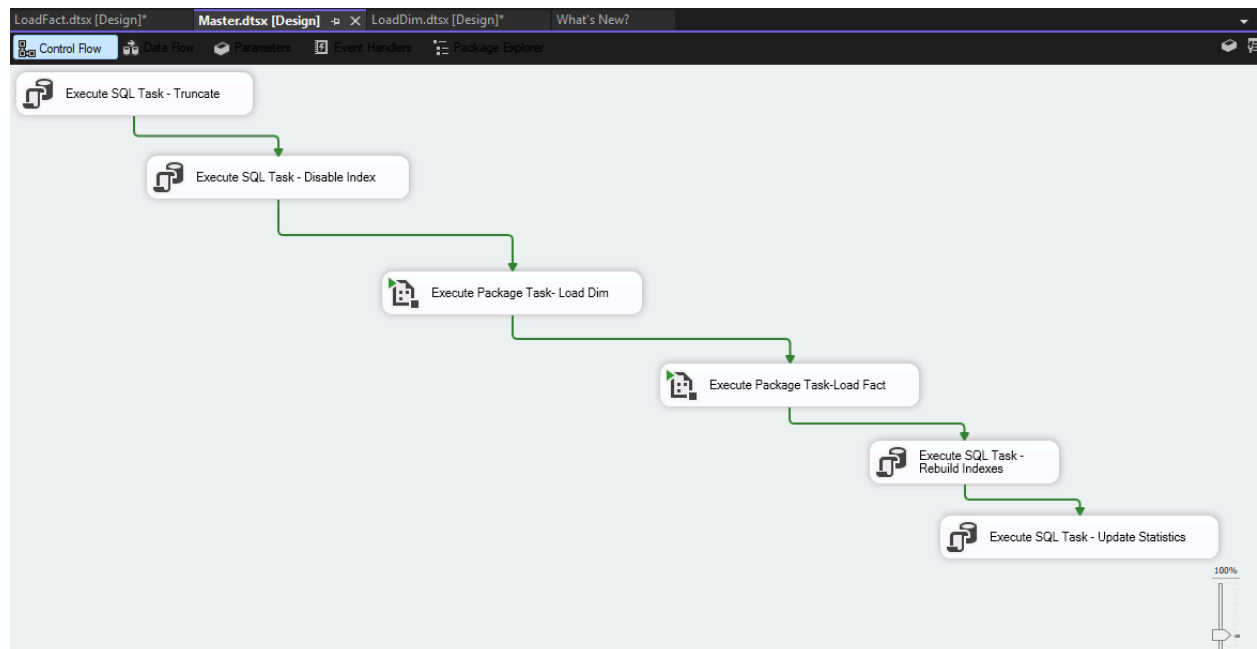
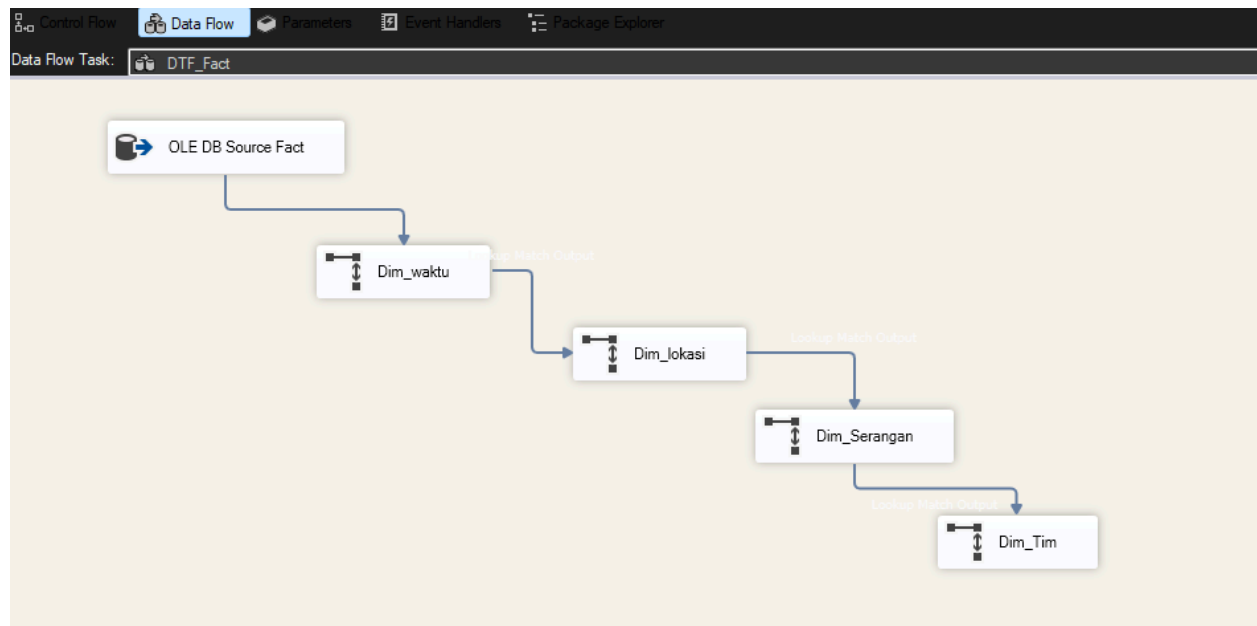












```
MSDAXQuery1....ot connected  SQLQuery1.sql...R\fadil (70))* X
1  -- Pastikan Anda menjalankan script ini dengan koneksi ke database DM_KeamananSiber_DW
2
3  -- =====
4  -- Check 1: Completeness - NULL values (Cek Dimensi & Fact)
5  -- =====
6  SELECT
7      'Dim_Lokasi' AS TableName,
8      COUNT(*) AS TotalRows,
9      SUM(CASE WHEN LokasiKey IS NULL THEN 1 ELSE 0 END) AS NullLokasiKey,
10     SUM(CASE WHEN Fakultas IS NULL THEN 1 ELSE 0 END) AS NullFakultas,
11     SUM(CASE WHEN Server IS NULL THEN 1 ELSE 0 END) AS NullServer
12 FROM dbo.Dim_Lokasi
13 UNION ALL
14 SELECT
15     'Fact_Incident' AS TableName,
16     COUNT(*) AS TotalRows,
17     SUM(CASE WHEN ID_Incident IS NULL THEN 1 ELSE 0 END) AS NullIDIncident,
18     SUM(CASE WHEN DurasiRespon IS NULL THEN 1 ELSE 0 END) AS NullDurasi,
19     SUM(CASE WHEN StatusPenanganan IS NULL THEN 1 ELSE 0 END) AS NullStatus
20 FROM dbo.Fact_Incident;
21
22 ---
23
24 -- =====
25 -- Check 2: Consistency - Referential Integrity (Orphan Records)
26 -- =====
```

100 % 1 0

	TableName	TotalRows	NullLokasiKey	NullFakultas	NullServer
1	Dim_Lokasi	0	NULL	NULL	NULL
2	Fact_Incident	0	NULL	NULL	NULL

	OrphanKey	OrphanRecords
1	TimResponKey	0
2	LokasiKey	0

	TableName	InvalidDurasiRespon	InvalidStatusDomain
1	Fact_Incident	NULL	NULL

	ID_Incident	DuplicateCount
--	-------------	----------------

	DataSource	RecordCount
1	Staging	0
2	Warehouse	0

MSDAXQuery1....ot connectedSQLQuery1.sql...R\fadil (70))*

```
1 SET ANSI_NULLS ON
2 GO
3 SET QUOTED_IDENTIFIER ON
4 GO
5
6 -- 1. PROSEDUR LOAD DIMENSI (DIMENSIONS LOAD PROCEDURES)
7 -- (Dihilangkan untuk fokus pada perbaikan Fact Load)
8
9 -- Prosedur: Load Dim_Waktu (Type 1 Load / Pre-Loaded)
10 CREATE OR ALTER PROCEDURE dbo.usp_Load_Dim_Waktu
11 AS
12 BEGIN
13     SET NOCOUNT ON;
14
15     INSERT INTO dbo.Dim_Waktu (WaktuKey, Tanggal, Bulan, Tahun, Hari)
16     SELECT s.WaktuKey, s.Tanggal, s.Bulan, s.Tahun, s.Hari
17     FROM stg.Dim_Waktu s
18     WHERE NOT EXISTS (SELECT 1 FROM dbo.Dim_Waktu dw WHERE dw.WaktuKey = s.WaktuKey);
19 END;
20 GO
21
22 -- Prosedur: Load Dim_Lokasi, Dim_JenisSerangan, Dim_TimRespon (Asumsi sudah dibuat)
23 -- ... (Prosedur SCD Type 2 lainnya diabaikan di sini)
24 GO
25
26 -- =====
```

100 % 3 0

Messages

Commands completed successfully.

Completion time: 2025-11-24T22:51:31.6754542+07:00