

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

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

Dim_Waktu.csv

	WaktuKey	Tanggal	Bulan	Tahun	Hari
1					
2	1,2023-01-01,1,2023,Sunday				
3	2,2023-01-02,1,2023,Monday				
4	3,2023-01-03,1,2023,Tuesday				
5	4,2023-01-04,1,2023,Wednesday				
6	5,2023-01-05,1,2023,Thursday				
7	6,2023-01-06,1,2023,Friday				
8	7,2023-01-07,1,2023,Saturday				
9	8,2023-01-08,1,2023,Sunday				
10	9,2023-01-09,1,2023,Monday				
11	10,2023-01-10,1,2023,Tuesday				
12	11,2023-01-11,1,2023,Wednesday				
13	12,2023-01-12,1,2023,Thursday				
14	13,2023-01-13,1,2023,Friday				
15	14,2023-01-14,1,2023,Saturday				
16	15,2023-01-15,1,2023,Sunday				
17	16,2023-01-16,1,2023,Monday				
18	17,2023-01-17,1,2023,Tuesday				
19	18,2023-01-18,1,2023,Wednesday				
20	19,2023-01-19,1,2023,Thursday				
21	20,2023-01-20,1,2023,Friday				
22	21,2023-01-21,1,2023,Saturday				
23	22,2023-01-22,1,2023,Sunday				
24	23,2023-01-23,1,2023,Monday				
25	24,2023-01-24,1,2023,Tuesday				
26	25,2023-01-25,1,2023,Wednesday				
27	26,2023-01-26,1,2023,Thursday				
28	27,2023-01-27,1,2023,Friday				
29	28,2023-01-28,1,2023,Saturday				
30	29,2023-01-29,1,2023,Sunday				
31	30,2023-01-30,1,2023,Monday				
32	31,2023-01-31,1,2023,Tuesday				
33	32,2023-02-01,2,2023,Wednesday				
34	33,2023-02-02,2,2023,Thursday				
35	34,2023-02-03,2,2023,Friday				
36	35,2023-02-04,2,2023,Saturday				
37	36,2023-02-05,2,2023,Sunday				
38	37,2023-02-06,2,2023,Monday				
39	38,2023-02-07,2,2023,Tuesday				

Dim_Lokasi.csv

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

Dim_Jenis_Serangan.csv

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

Dim_Tim_Respon.csv

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

```
sql > 1. database setup.sql > ...
    ⌂ 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 > ...
    ⌂ 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)* -> X SQLQuery1.sql ...IR\fadil (66)*

```
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'C:\DW\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'C:\DW\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
```

100 % ✓ No issues found

Messages

```
Commands completed successfully.

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

```
SQLQuery2.sql...R\fadil (53)*  X 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', 'ETTU'))
```

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 ...R\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
```

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Messages

Commands completed successfully.

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

```
SQLQuery2.sql...R\fadil (53)* + x SQLQuery1.sql ...R\fadil (66)*
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
49
```

100% 39 0 ↑ ↓ ⏪ ⏩ Messages
Commands completed successfully.
Completion time: 2025-11-22T01:53:14.9760476+07:00

```
SQLQuery2.sql...R\fadil (53)* -> SQLQuery1.sql ...IR\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
45
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100 % 4 0 ↑ ↓
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
```

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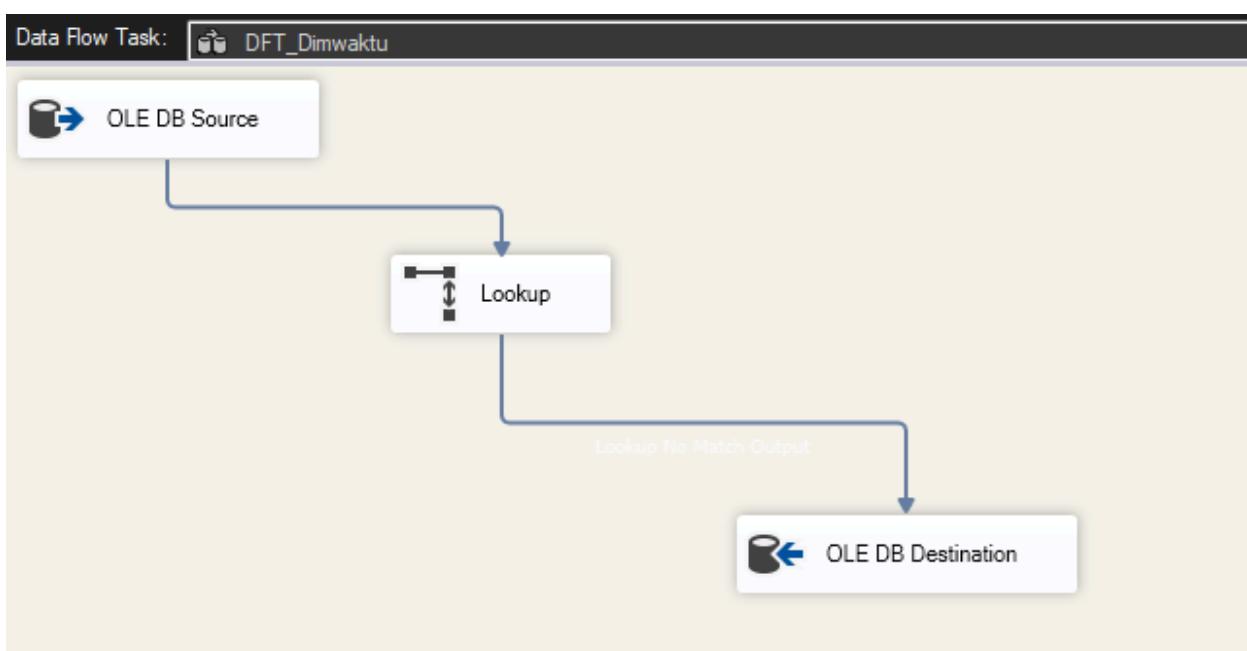
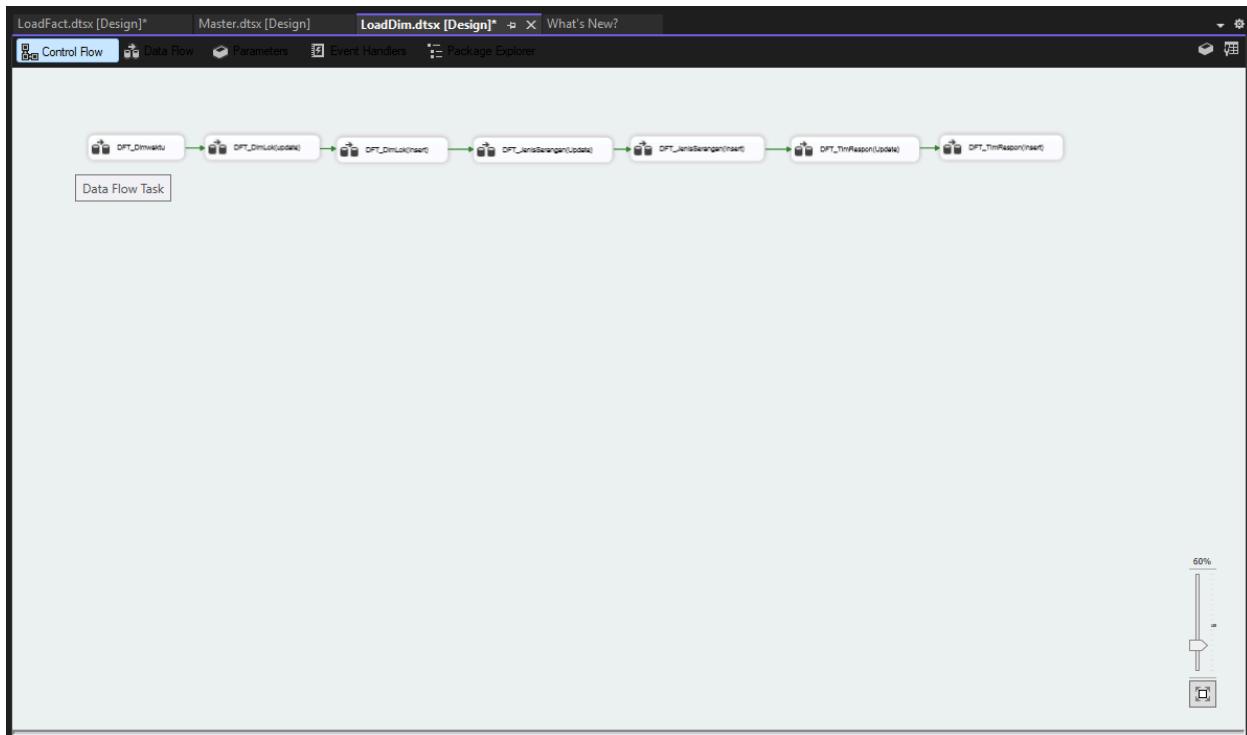
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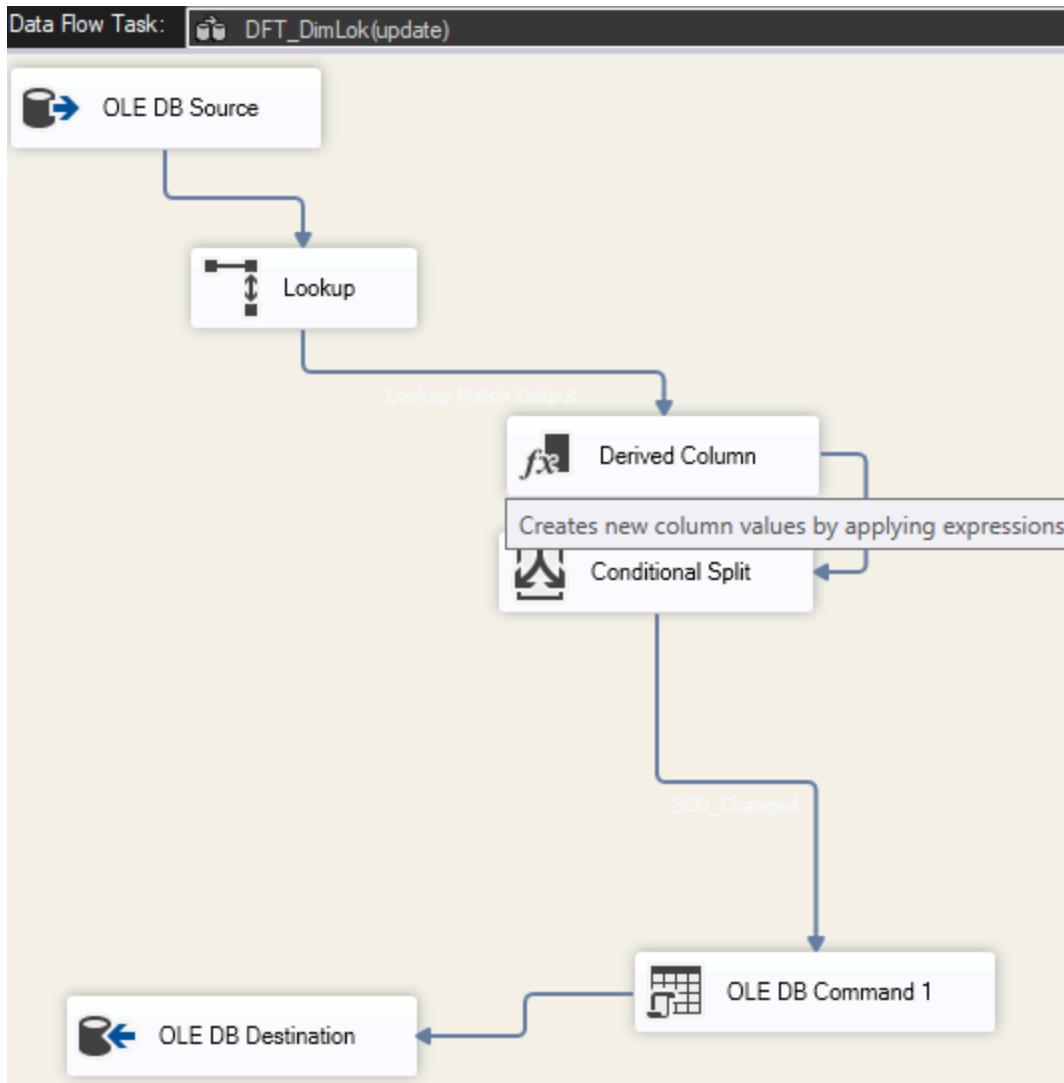
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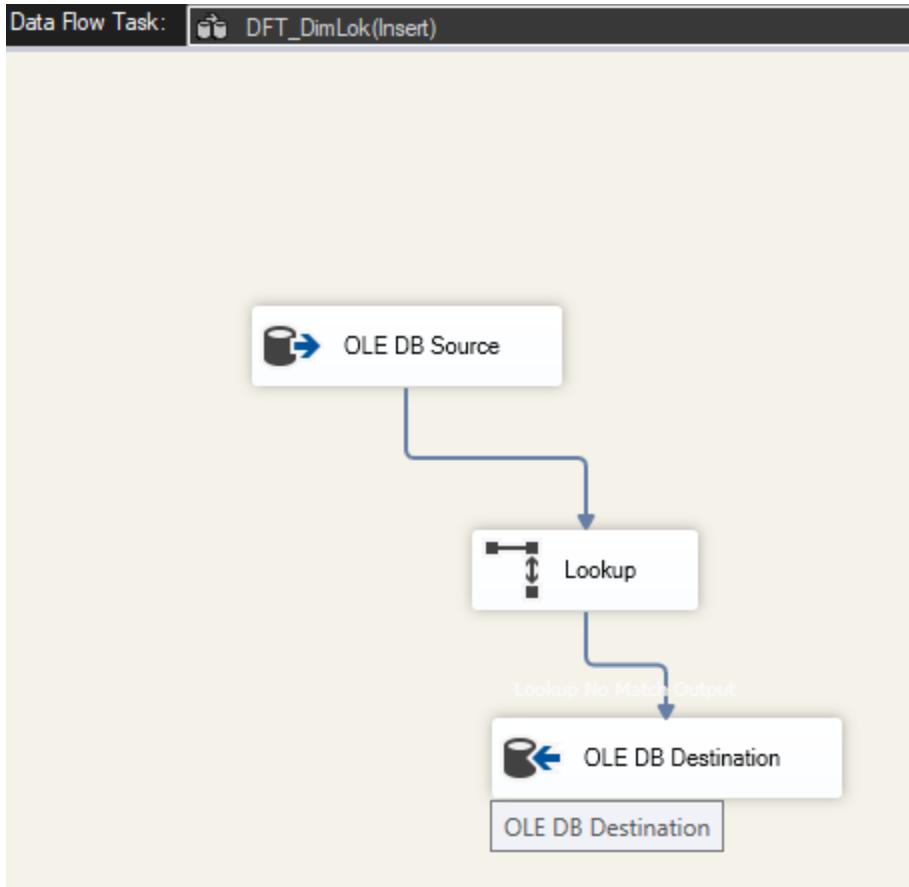
Messages

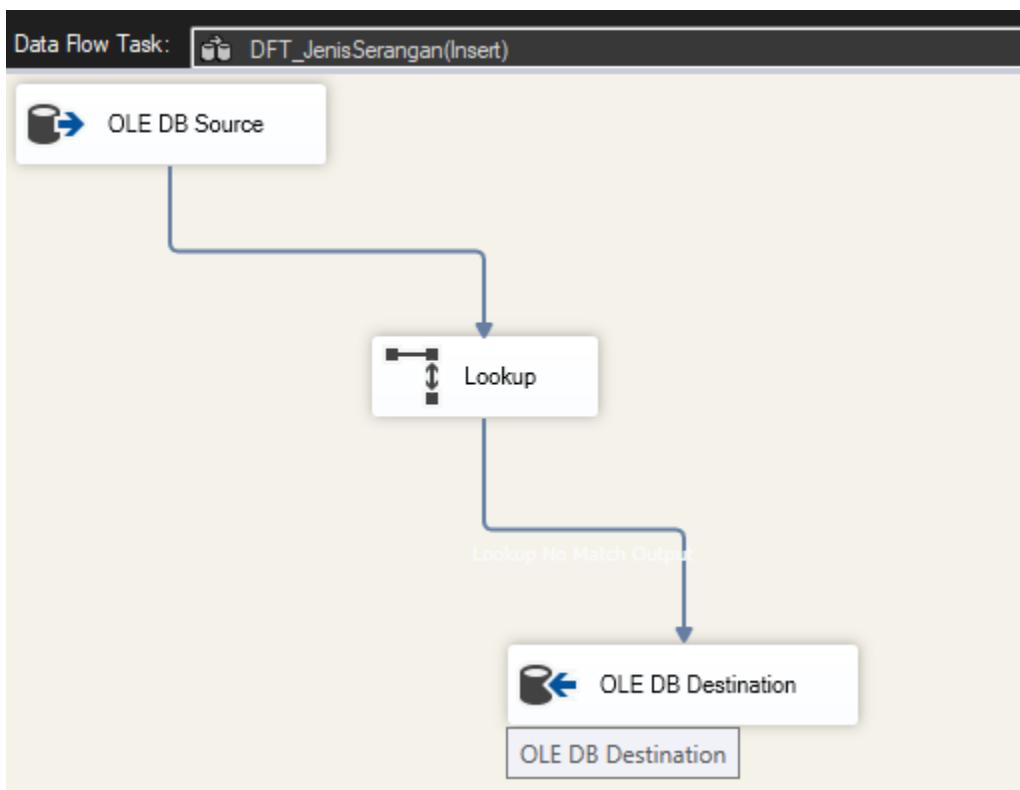
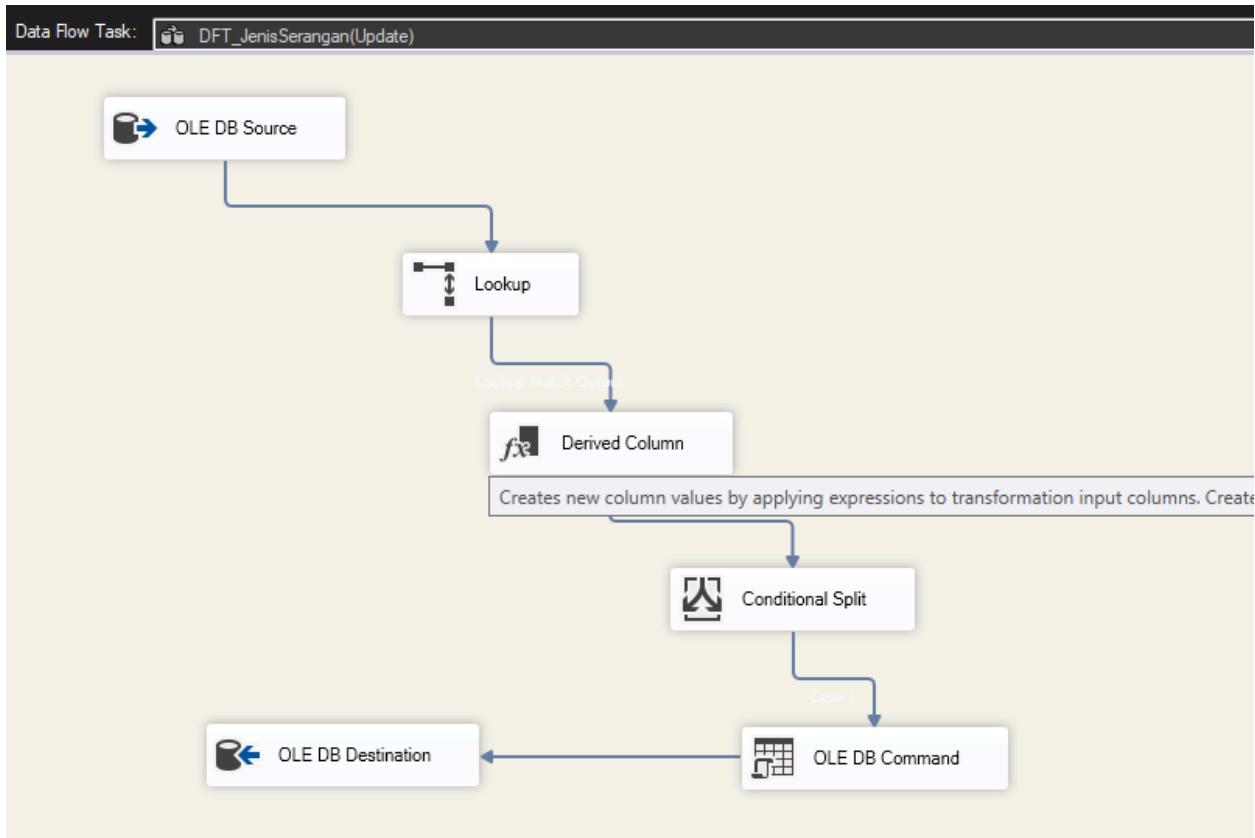
Commands completed successfully.

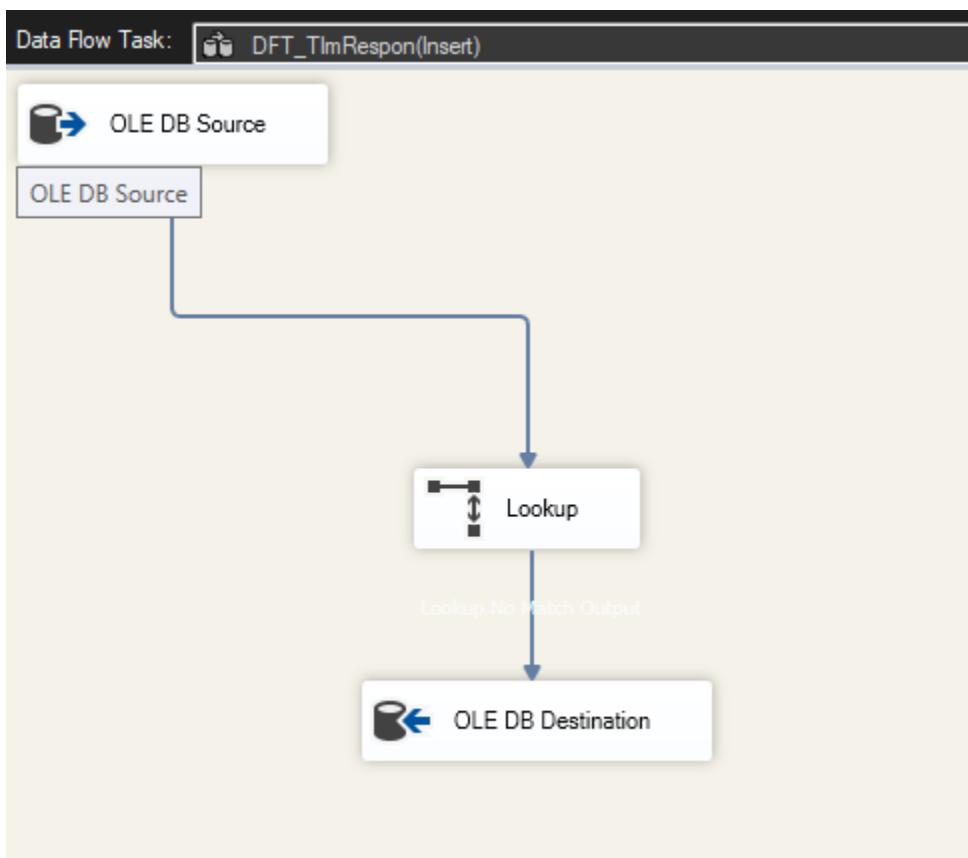
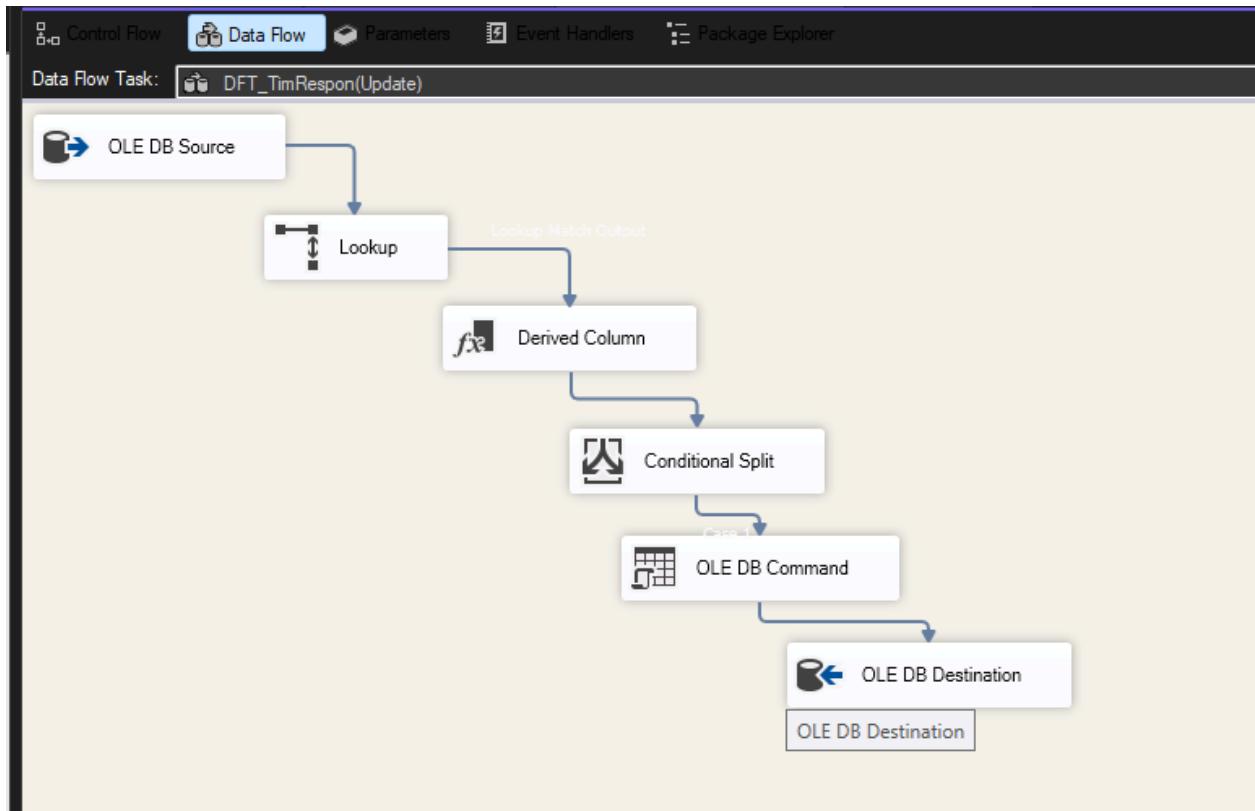
Completion time: 2025-11-22T01:56:27.6884092+07:00

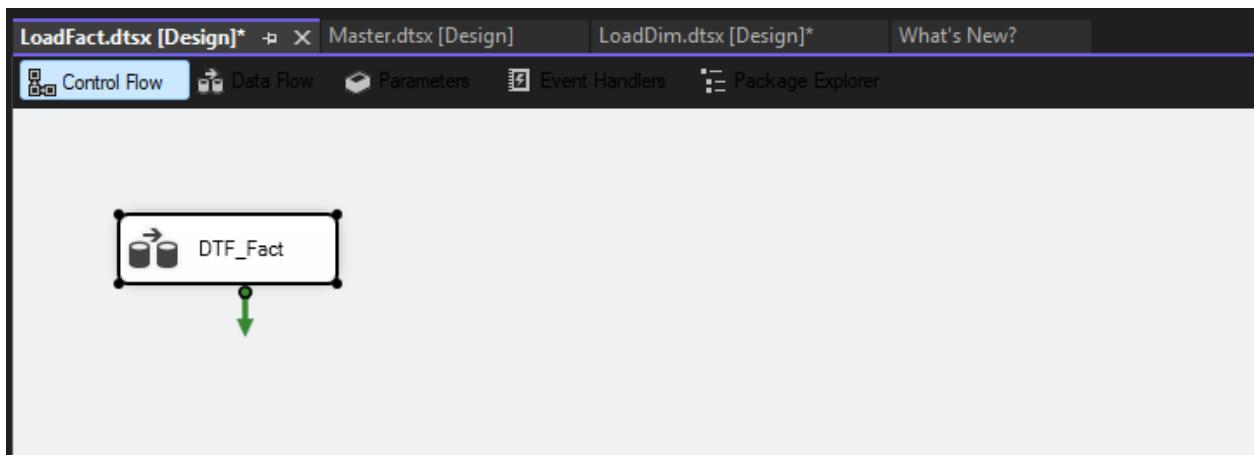


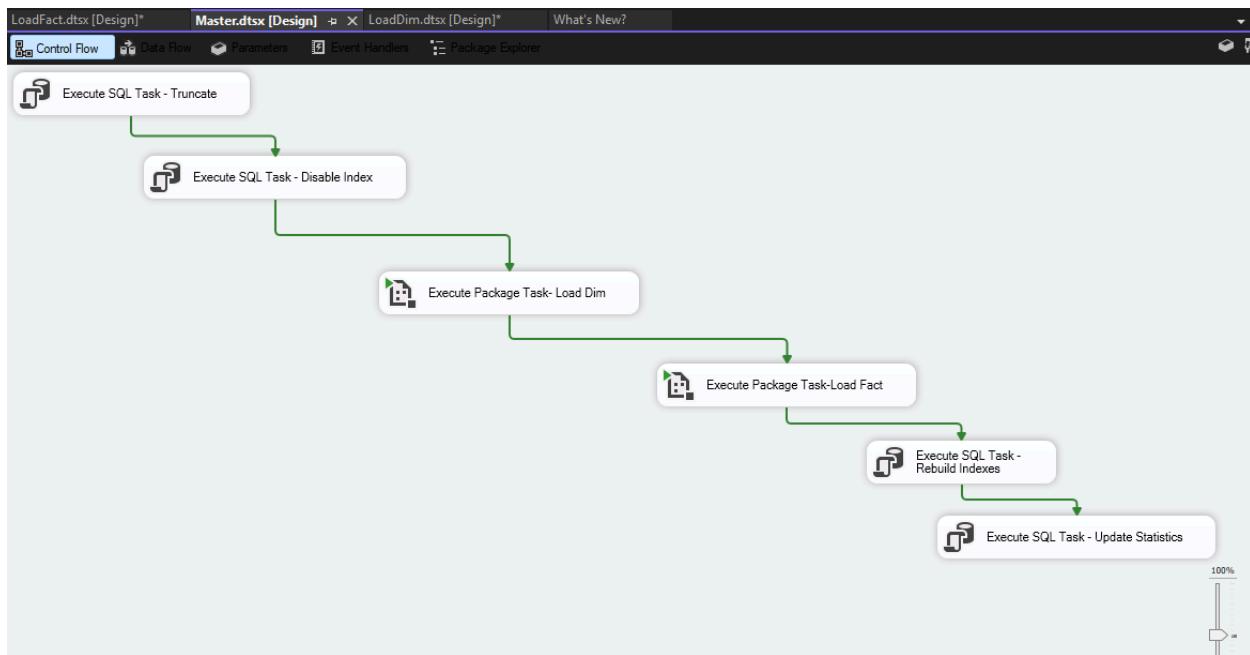
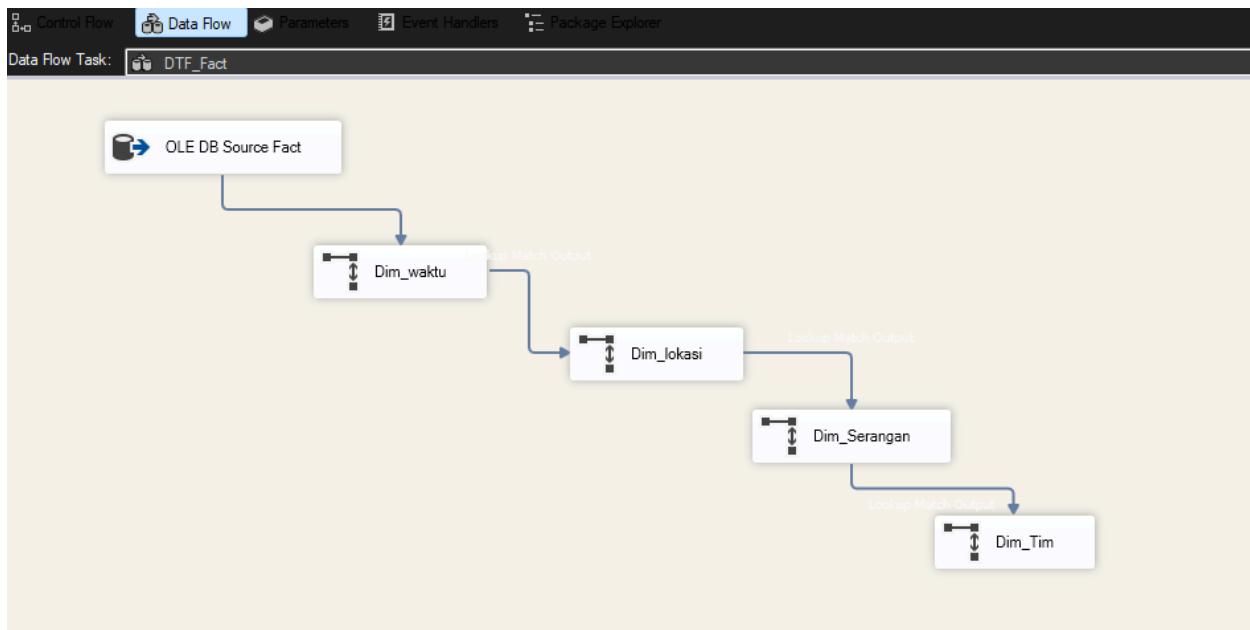












```

MSDAXQuery1....ot connected SQLQuery1.sql...R\fadil (70)* ✎ ×
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   ====

```

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	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 connected SQLQuery1.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
20     END;
21     GO
22
23 -- Prosedur: Load Dim_Lokasi, Dim_JenisSerangan, Dim_TimRespon (Asumsi sudah dibuat)
24 -- ... (Prosedur SCD Type 2 lainnya diabaikan di sini)
25
26
```

Messages

Commands completed successfully.

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