SCD Types SQL Server Solutions

Screenshot 1: Database Creation

Screenshot 2: Sample Data Inserted

Figure 3 – Initial sample records inserted into the DimCustomer table for testing SCD operations.

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                                                                                                                                                                                                            -- Step 3: Insert Sample Data
                                                                                                                                                                                                □INSERT INTO DimCustomer (CustomerID, Name, City, PreviousCity, EffectiveDate, ExpiryDate, IsCurrent)
                                                                                                                                                                                                     VALUES
                                                                                                                                                                                                       (101, 'Alice', 'Delhi', NULL, GETDATE(), NULL, 1),
                                                                                                                                                                                                    (102, 'Bob', 'Mumbai', NULL, GETDATE(), NULL, 1),
(103, 'Sob', 'Gujrat', NULL, GETDATE(), NULL, 1),
(104, 'Mage', 'Goa', NULL, GETDATE(), NULL, 1),
(105, 'Allen', 'Kerala', NULL, GETDATE(), NULL, 1),
(106, 'Sam', 'Pune', NULL, GETDATE(), NULL, 1);
                State 
                                                                                                                                                                                                     -- Step 4: Create SCD Type 0 Procedure
                                                                                                                                                                                             □CREATE PROCEDURE SCD_Type0_Update
                                                                                                                                                                                                                            @CustomerID INT,
                                                                                                                                                                                                                             @NewCity NVARCHAR(100)
                                   Keys

Keys

Constraints

Triggers

Indexes

    ⊞ dbo.DimCustomer_History

    ⊞ dbo.DimCustomer_Histo
    ⊞    □ Dropped Ledger Tables
    □ Views
    □ External Resources
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAPTOP-8TPEDHGT (16.0 RTM) LAPTOP-8TPEDHGT\nikgu ... SCD 00:00:00 | 0 rows
```

Screenshot 4: Stored Procedure Created (e.g. SCD Type 0, 1, 2, 4, 4, 6)

```
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                                  BEGIN
                                        PRINT 'SCD Type 0: No changes allowed.';
                                   END;
                                    -- Step 5: Create SCD Type 1 Procedure
                                  □ CREATE PROCEDURE SCD_Type1_Update
                                    @CustomerID INT,
                                        @NewCity NVARCHAR(100)
                                  BEGIN
                                        UPDATE DimCustomer
                                        SET City = @NewCity
                                        WHERE CustomerID = @CustomerID;
                                   END;
                                      Step 6: Create SCD Type 2 Procedure
                                 Commands completed successfully.
                                 Completion time: 2025-07-05T23:20:51.3543890+05:30
                                                                                                       LAPTOP-8TPEDHGT (16.0 RTM) | LAPTOP-8TPEDHGT\nikgu ... | SCD | 00:00:00 | 0 rows
```

```
□CREATE PROCEDURE SCD_Type2_Update
                                                 @CustomerID INT,
                                                 @NewCity NVARCHAR(100)
                                           AS
                                          ⊨BEGIN
                                                 DECLARE @Now DATETIME = GETDATE();
                                                  UPDATE DimCustomer
                                                 SET ExpiryDate = @Now, IsCurrent = 0
                                                WHERE CustomerID = @CustomerID AND IsCurrent = 1;
                                                 INSERT INTO DimCustomer (CustomerID, Name, City, PreviousCity, EffectiveDate, ExpiryDate, IsCurrent)
                                                 SELECT CustomerID, Name, @NewCity, NULL, @Now, NULL, 1
                                                 FROM DimCustomer
                                                 WHERE CustomerID = @CustomerID
                                                ORDER BY ExpiryDate DESC;
                                           END;
    ☐ IsCurrent (bit, null)

☐ Keys
☐ ☐ Keys
☐ Constraints
☐ Triggers
☐ Indexes
☐ Indexes
☐ Dropped Ledger Tables
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                                                                                                                             LADTOR-STREDHIGT (16.0 RTM) | LADTOR-STREDHIGT\mikmy | SCD | 0000000 | 0.
```

```
WHERE CustomerID = @CustomerID
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                                                                                                                                                                   ORDER BY ExpiryDate DESC;
  ■ Databases
■ Databases
■ Databases
■ Database Snapshots
■ AdventureWorks2019
■ FIRST
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□ SCD
                                                                                                                                                 GO
                                                                                                                                                   -- Step 7: Create SCD Type 3 Procedure
           □CREATE PROCEDURE SCD_Type3_Update
                                                                                                                                                                @CustomerID INT,
@NewCity NVARCHAR(100)
                                                                                                                                           BEGIN
                                                                                                                                                                  UPDATE DimCustomer
                                                                                                                                                                  SET PreviousCity = City,
                                                                                                                                                                                City = @NewCity
                                                                                                                                                                  WHERE CustomerID = @CustomerID;
                                                                                                                                             END;
                                                                                                                                                 GO
                                                                                                                                           THE COLUMN THE A DESIGNATION OF THE COLUMN T
                                                                                                                                         lessages
Commands completed successfully.
                                                                                                                                       Completion time: 2025-07-05T23:22:53.5200937+05:30
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                                                                                                                                                 v<mark>1.sql·L…PEDHGT\nikgu(70))* → ×</mark>
-- Step 8: Create SCD Type 4 Procedure
    #EDHGT (SQL Server 1

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## System Databases

## Ozabases Snapshots

## AdventureWorks2019

## RRST

## AdventureWorks2019

## RRST

## AdventureWorks2019

## File Tables

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                                                                                                                                              CREATE PROCEDURE SCD_Type4_Update
                                                                                                                                                                    @CustomerID INT.
                                                                                                                                                                    @NewCity NVARCHAR(100)
                                                                                                                                             BEGIN
                                                                                                                                                                  INSERT INTO DimCustomer_History (CustomerID, Name, City, ChangeDate)
                                                                                                                                                                     SELECT CustomerID, Name, City, GETDATE()
                                                                                                                                                                    FROM DimCustomer
                                                                                                                                                                WHERE CustomerID = @CustomerID;
                                                                                                                                                                  UPDATE DimCustomer
                                                                                                                                                                  SET City = @NewCity
                                                                                                                                                                    WHERE CustomerID = @CustomerID;
                                                                                                                                                END:
                          ■ IsCurrent (

■ Keys

■ Constraints

■ Triggers

■ Indexes

■ Statistics

■ dbo.DimCustom
                                                                                                                                                   -- Step 9: Create SCD Type 6 Procedure
                         Completion time: 2025-07-05T23:22:53.5200937+05:30
                                                                                                                                                -- Step 9: Create SCD Type 6 Procedure
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System Databases

Database Snapshots

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Database Diagrams

Tables

SCD

Database Diagrams

Tables

SCD

Database Diagrams

Columns

Location Columns

Electrical Tables

Columns

Columns

Name (nvarchar(100), null)

Columns

Columns

Name (nvarchar(100), null)

Expir)-Date (daterime, null)

Expir-Date (daterime, null)
 Connect ▼ 🍟 ■ 🍸 💍 👭
                                                                                                                                             CREATE PROCEDURE SCD_Type6_Update
                                                                                                                                                                   @CustomerID INT,
@NewCity NVARCHAR(100)
                                                                                                                                           BEGIN
                                                                                                                                                                DECLARE @Now DATETIME = GETDATE();
                                                                                                                                                                  UPDATE DimCustomer
                                                                                                                                                                 SET ExpiryDate = @Now, IsCurrent = 0
WHERE CustomerID = @CustomerID AND IsCurrent = 1;
                                                                                                                                                                   INSERT INTO DimCustomer (CustomerID, Name, City, PreviousCity, EffectiveDate, ExpiryDate, IsCurrent)
                                                                                                                                                                    SELECT CustomerID, Name, @NewCity, City, @Now, NULL, 1
                                                                                                                                                                    FROM DimCustomer
                                                                                                                                                                    WHERE CustomerID = @CustomerID
                                                                                                                                                                    ORDER BY ExpiryDate DESC;
                          END;
                                                                                                                              gM Messages
Commands completed successfully.
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Screenshot 5: Procedure Execution

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                                        -- Type 0
                                       EXEC SCD_Type0_Update @CustomerID = 101, @NewCity = 'Agra';
                                       EXEC SCD_Type1_Update @CustomerID = 101, @NewCity = 'Agra';
                                       EXEC SCD_Type2_Update @CustomerID = 102, @NewCity = 'Pune';
                                       EXEC SCD_Type3_Update @CustomerID = 101, @NewCity = 'Lucknow';
                                        -- Type 4
                                       EXEC SCD_Type4_Update @CustomerID = 102, @NewCity = 'Kolkata';
                                        -- Type 6
                                       EXEC SCD_Type6_Update @CustomerID = 101, @NewCity = 'Chennai';
      ■ IsCurrent (t

■ Keys

■ Constraints

■ Triggers

■ Indexes

■ Statistics

■ dbo.DimCustom
                                     (2 rows affected)
       ■ Dropped Ledger Tables
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Screenshot 6: Final Data View

Figure 6 – Final state of DimCustomer and DimCustomer_History tables after executing all procedures.