

SCD Types

- Create the stored procedure for SCD type 0, SCD type 1, SCD type 2, SCD type 3, SCD type 4, SCD type 6

SCD Type 0

```
CREATE PROCEDURE sp_scd_type_0
AS
BEGIN
    -- Only insert new records
    INSERT INTO Dim_Customer (CustomerID, CustomerName, City, Country)
    SELECT s.CustomerID, s.CustomerName, s.City, s.Country
    FROM Source_Dim s
    LEFT JOIN Dim_Customer d ON s.CustomerID = d.CustomerID
    WHERE d.CustomerID IS NULL;
END
```

SCD Type 1

```
CREATE PROCEDURE sp_scd_type_1
AS
BEGIN
    MERGE Dim_Customer AS target
    USING Source_Dim AS source
    ON target.CustomerID = source.CustomerID
    WHEN MATCHED AND (
        target.CustomerName <> source.CustomerName OR
        target.City <> source.City OR
        target.Country <> source.Country
    )
    THEN UPDATE SET
        target.CustomerName = source.CustomerName,
        target.City = source.City,
        target.Country = source.Country
    WHEN NOT MATCHED BY TARGET
    THEN INSERT (CustomerID, CustomerName, City, Country)
        VALUES (source.CustomerID, source.CustomerName, source.City,
            source.Country);
END
```

SCD Type 2

```
CREATE PROCEDURE sp_scd_type_2
```

```

AS
BEGIN
    DECLARE @CurrentDate DATETIME = GETDATE();

    -- Expire old records
    UPDATE d
    SET EndDate = @CurrentDate, IsCurrent = 0
    FROM Dim_Customer d
    JOIN Source_Dim s ON d.CustomerID = s.CustomerID
    WHERE d.IsCurrent = 1 AND (
        d.CustomerName <> s.CustomerName OR
        d.City <> s.City OR
        d.Country <> s.Country
    );

    -- Insert new current records
    INSERT INTO Dim_Customer (CustomerID, CustomerName, City, Country,
    StartDate, EndDate, IsCurrent)
    SELECT s.CustomerID, s.CustomerName, s.City, s.Country, @CurrentDate,
    NULL, 1
    FROM Source_Dim s
    LEFT JOIN Dim_Customer d ON s.CustomerID = d.CustomerID AND d.IsCurrent
    = 1
    WHERE d.CustomerID IS NULL OR (
        d.CustomerName <> s.CustomerName OR
        d.City <> s.City OR
        d.Country <> s.Country
    );
END

```

SCD Type 3

```

CREATE PROCEDURE sp_scd_type_3
AS
BEGIN
    -- Update existing records
    UPDATE d
    SET
        d.PreviousCity = d.City,
        d.City = s.City
    FROM Dim_Customer d
    JOIN Source_Dim s ON d.CustomerID = s.CustomerID
    WHERE d.City <> s.City;

```

```

-- Insert new records
INSERT INTO Dim_Customer (CustomerID, CustomerName, City, PreviousCity,
Country)
SELECT s.CustomerID, s.CustomerName, s.City, NULL, s.Country
FROM Source_Dim s
LEFT JOIN Dim_Customer d ON s.CustomerID = d.CustomerID
WHERE d.CustomerID IS NULL;
END

```

SCD Type 4

```

CREATE PROCEDURE sp_scd_type_4
AS
BEGIN
    -- Move current record to history if changed
    INSERT INTO Dim_Customer_History (CustomerID, CustomerName, City,
Country, ArchivedDate)
    SELECT d.CustomerID, d.CustomerName, d.City, d.Country, GETDATE()
    FROM Dim_Customer d
    JOIN Source_Dim s ON d.CustomerID = s.CustomerID
    WHERE d.CustomerName <> s.CustomerName OR d.City <> s.City OR
d.Country <> s.Country;

    -- Update main dimension
    MERGE Dim_Customer AS target
    USING Source_Dim AS source
    ON target.CustomerID = source.CustomerID
    WHEN MATCHED THEN UPDATE SET
        target.CustomerName = source.CustomerName,
        target.City = source.City,
        target.Country = source.Country
    WHEN NOT MATCHED BY TARGET
    THEN INSERT (CustomerID, CustomerName, City, Country)
        VALUES (source.CustomerID, source.CustomerName, source.City,
source.Country);
END

```

SCD Type 6

```

CREATE PROCEDURE sp_scd_type_6
AS
BEGIN
    DECLARE @CurrentDate DATETIME = GETDATE();

```

```

-- Expire old records and keep prior values
UPDATE d
SET EndDate = @CurrentDate,
    IsCurrent = 0
FROM Dim_Customer d
JOIN Source_Dim s ON d.CustomerID = s.CustomerID
WHERE d.IsCurrent = 1 AND (
    d.CustomerName <> s.CustomerName OR
    d.City <> s.City OR
    d.Country <> s.Country
);

-- Insert new version with new values, preserve previous City
INSERT INTO Dim_Customer (CustomerID, CustomerName, City, PreviousCity,
Country, StartDate, EndDate, IsCurrent)
    SELECT s.CustomerID, s.CustomerName, s.City, d.City, s.Country,
@CurrentDate, NULL, 1
FROM Source_Dim s
JOIN Dim_Customer d ON s.CustomerID = d.CustomerID
WHERE d.IsCurrent = 1 AND (
    d.CustomerName <> s.CustomerName OR
    d.City <> s.City OR
    d.Country <> s.Country
);

-- Insert new customers
INSERT INTO Dim_Customer (CustomerID, CustomerName, City, PreviousCity,
Country, StartDate, EndDate, IsCurrent)
    SELECT s.CustomerID, s.CustomerName, s.City, NULL, s.Country,
@CurrentDate, NULL, 1
FROM Source_Dim s
LEFT JOIN Dim_Customer d ON s.CustomerID = d.CustomerID
WHERE d.CustomerID IS NULL;
END

```