

MERGE

Ejemplo práctico usando MERGE para sincronizar dos tablas, Insert, Update y Delete en un solo query.

En un escenario típico de manejo de datos, es probable que tengamos que realizar cualquiera de las tres acciones (Insert, Update o Delete) sobre una tabla con los datos en otra.

Este ejemplo va a tomar como ejemplo un caso de Usuarios y Usuarios Actualizados, y como resultado nos va a dejar las dos tablas sincronizadas, tabla origen y tabla fuente. En un caso normal esto se tendría que hacer los 3 queries por separado, lo que significa varias consultas y un select para verificar si el dato existe, otro para insertar otro para modificar y otro para borrar. Con MERGE, SQL Server nos permite hacer todo esto en una sola consulta, lo que es mucho más eficiente y utiliza muchísimo menos recursos en el servidor, más aun cuando las tablas son muy grandes.

La sintaxis de MERGE

```
1.  MERGE <table_destino> [AS TARGET]
2.  USING <table_origen> [AS SOURCE]
3.    ON <condicion_compara_llaves>
4.  [WHEN MATCHED THEN
5.    <accion cuando coinciden> ]
6.  [WHEN NOT MATCHED [BY TARGET] THEN
7.    <accion cuando no coinciden por destino> ]
8.  [WHEN NOT MATCHED BY SOURCE THEN
9.    <accion cuando no coinciden por origen> ];
```

```
--MERGE INTO <target table> AS TGT
--USING <SOURCE TABLE> AS SRC
-- ON <merge predicate>
--WHEN MATCHED [AND <predicate>] -- two clauses allowed:
-- THEN <action> -- one with UPDATE one with DELETE
--WHEN NOT MATCHED [BY TARGET] [AND <predicate>] -- one clause allowed:
-- THEN INSERT... -- if indicated, action must be INSERT
--WHEN NOT MATCHED BY SOURCE [AND <predicate>] -- two clauses allowed:
-- THEN <action>; -- one with UPDATE one with DELETE
```

Ejemplo 1

Results		Messages	
	StudentID	StudentName	StudentStatus
1	1	Axel Romero	1
2	2	Sofía Mora	1
3	3	Rogelio Rojas	0
4	4	Mariana Rosas	1
5	5	Roman Zavaleta	1

	StudentID	StudentName	StudentStatus
1	1	Axel Romero Rendón	1
2	2	Sofía Mora Ríos	0
3	6	Mario Gonzalez Pae	1
4	7	Alberto García Mor...	1

StudentsC1

StudentsC2

```
MERGE StudentsC1 AS [target]
USING
(
    SELECT
        [s].[StudentID],
        [s].[StudentName],
        [s].[StudentStatus]
    FROM
        StudentsC2 AS [s]
) AS [source]
ON
(
    [source].[StudentID] = [target].[StudentID]
)
-- For updates
WHEN MATCHED THEN
    UPDATE
        SET
            [target].[StudentName] = [source].[StudentName],
            [target].[StudentStatus] = [source].[StudentStatus]
-- For Inserts
WHEN NOT MATCHED THEN
    INSERT
        (
            [StudentID], [StudentName], [StudentStatus]
        )
    VALUES
        (
            [source].[StudentID], [source].[StudentName],
            [source].[StudentStatus]
        );
```

```
SELECT * FROM StudentsC1
SELECT * FROM StudentsC2
```

Valores que se **actualizaron**

	StudentID	StudentName	StudentStatus
1	1	Axel Romero Rendón	1
2	2	Sofía Mora Ríos	0
3	3	Rogelio Rojas	0
4	4	Mariana Rosas	1
5	5	Roman Zavaleta	1
6	6	Mario Gonzalez Pae	1
7	7	Alberto García Morales	1

	StudentID	StudentName	StudentStatus
1	1	Axel Romero Rendón	1
2	2	Sofía Mora Ríos	0
3	6	Mario Gonzalez Pae	1
4	7	Alberto García Morales	1

StudentsC1

Valores que se **insertaron**

StudentsC2

La tabla StudentsC1 es la tabla “target” y la tabla StudentsC2 es la tabla “fuente”. La tabla StudentsC1 es la tabla que se va a actualizar y se le van a insertar aquellos datos que se encuentran en la tabla StudentsC2.

Ejemplo 2

USE AdventureWorks2019

```
SELECT * FROM [Purchasing].[Vendor]
```

	BusinessEntityID	AccountNumber	Name	CreditRating	PreferredVendorStatus	ActiveFlag	PurchasingWebServiceURL	ModifiedDate
1	1492	AUSTRALI0001	Australia Bike Retailer	1	1	1	NULL	2011-12-23 00:00:00.000
2	1494	ALLENSON0001	Allenson Cycles	2	1	1	NULL	2011-04-25 00:00:00.000
3	1496	ADVANCED0001	Advanced Bicycles	1	1	1	NULL	2011-04-25 00:00:00.000
4	1498	TRIKES0001	Trikes, Inc.	2	1	1	NULL	2012-02-03 00:00:00.000
5	1500	MORGANB0001	Morgan Bike Accessories	1	1	1	NULL	2012-02-02 00:00:00.000
6	1502	CYCLING0001	Cycling Master	1	1	1	NULL	2011-12-24 00:00:00.000
7	1504	CHICAGO0002	Chicago Rent-All	2	1	1	NULL	2011-12-24 00:00:00.000
8	1506	GREENWOO0001	Greenwood Athletic Company	1	1	1	NULL	2012-01-25 00:00:00.000
9	1508	COMPETE0001	Compete Enterprises, Inc	1	1	1	NULL	2011-12-24 00:00:00.000
10	1510	INTERNAT0001	International	1	1	1	NULL	2012-01-25 00:00:00.000
11	1512	LIGHTSP0001	Light Speed	1	1	1	NULL	2011-12-23 00:00:00.000
12	1514	TRAINING0001	Training Systems	1	1	1	NULL	2012-02-03 00:00:00.000
13	1516	GARDNER0001	Gardner Touring Cycles	1	0	0	NULL	2012-01-25 00:00:00.000
14	1518	INTERNAT0004	International Trek Center	1	1	1	NULL	2011-12-24 00:00:00.000
15	1520	G&KB0001	G & K Bicycle Corp.	1	1	1	NULL	2011-12-24 00:00:00.000
16	1522	FIRSTNA0001	First National Sport Co.	1	1	1	NULL	2012-01-25 00:00:00.000

```
SELECT MAX([BusinessEntityID]) FROM [Purchasing].[Vendor]
```

Results		Messages
	(No column name)	
1	1698	

Ambas "AccountNumber" poseen distinto ID, pero se repiten en la tabla Purchasing.Vendor. Los otros 4 registros de esta tabla no existen en la tabla Purchasing.Vendor.

```
SELECT * FROM Purchasing.Vendor_Temp
```

Results

Messages

	BusinessEntityID	AccountNumber	Name	CreditRating	PreferredVendorStatus	ActiveFlag
1	1699	ADVANCED0001	Advanced Bicycles	5	1	0
2	1700	MORGANB0001	Morgan Bike Accessories	5	1	0
3	1701	MBMEX001	Mundo Binario México	1	1	1
4	1702	MBCOL001	Mundo Binario Colombia	1	1	1
5	1703	MBARG001	Mundo Binario Argentina	1	1	1
6	1704	MBPER001	Mundo Binario Perú	1	1	1

```

MERGE [Purchasing].[Vendor] AS [target]
USING
(
    SELECT
        [vt].[BusinessEntityID],
        [vt].[AccountNumber],
        [vt].[Name],
        [vt].[CreditRating],
        [vt].[PreferredVendorStatus],
        [vt].[ActiveFlag]
    FROM
        Purchasing.Vendor_Temp AS [vt]
) AS [source]
ON
(
    [source].[AccountNumber] = [target].[AccountNumber]
)
-- For updates
WHEN MATCHED THEN
    UPDATE
        SET
            [target].[Name] = [source].[Name],
            [target].[CreditRating] = [source].[CreditRating],
            [target].[PreferredVendorStatus] = [source].[PreferredVendorStatus],
            [target].[ActiveFlag] = [source].[ActiveFlag],
            [target].[ModifiedDate] = GETDATE()

```

```

-- For Inserts
WHEN NOT MATCHED THEN
    INSERT
    (
        [BusinessEntityID],
        [AccountNumber],
        [Name],
        [CreditRating],
        [PreferredVendorStatus],
        [ActiveFlag],
        [PurchasingWebServiceURL],
        [ModifiedDate]
    )
    VALUES
    (
        [source].[BusinessEntityID],
        [source].[AccountNumber],
        [source].[Name],
        [source].[CreditRating],
        [source].[PreferredVendorStatus],
        [source].[ActiveFlag],
        NULL,
        GETDATE()
    );

SELECT * FROM [Purchasing].[Vendor]

```

Results		Messages						
	BusinessEntityID	AccountNumber	Name	CreditRating	PreferredVendorStatus	ActiveFlag	PurchasingWebServiceURL	ModifiedDate
1	1492	AUSTRALI0001	Australia Bike Retailer	1	1	1	NULL	2011-12-23 00:00:00.000
2	1494	ALLENSON0001	Allenson Cycles	2	1	1	NULL	2011-04-25 00:00:00.000
3	1496	ADVANCED0001	Advanced Bicycles	5	1	0	NULL	2022-09-13 21:11:25.410
4	1498	TRIKES0001	Trikes, Inc.	2	1	1	NULL	2012-02-03 00:00:00.000
5	1500	MORGANB0001	Morgan Bike Accessories	5	1	0	NULL	2022-09-13 21:11:25.410
6	1502	CYCLING0001	Cycling Master	1	1	1	NULL	2011-12-24 00:00:00.000
7	1504	CHICAGO0002	Chicago Rent-All	2	1	1	NULL	2011-12-24 00:00:00.000
8	1506	CHICAGO0001	Chicago City Saddles	1	1	1	NULL	2011-12-24 00:00:00.000
9	1508	CHICAGO0001	Chicago City Saddles	1	1	1	NULL	2011-12-24 00:00:00.000
100	1690	BLOOMING0001	Bloomington Multisport	1	1	1	NULL	2011-12-23 00:00:00.000
101	1692	CARLSON0001	Carlson Specialties	2	1	1	NULL	2011-12-24 00:00:00.000
102	1694	COMPETE0002	Compete, Inc.	1	1	1	NULL	2011-12-24 00:00:00.000
103	1696	CHICAGO0001	Chicago City Saddles	1	1	1	NULL	2011-12-24 00:00:00.000
104	1698	BUSINESS0001	Business Equipment Center	2	1	1	NULL	2011-12-23 00:00:00.000
105	1701	MBMEX001	Mundo Binario México	1	1	1	NULL	2022-09-13 21:11:25.410
106	1702	MBCOL001	Mundo Binario Colombia	1	1	1	NULL	2022-09-13 21:11:25.410
107	1703	MBARG001	Mundo Binario Argentina	1	1	1	NULL	2022-09-13 21:11:25.410
108	1704	MBPER001	Mundo Binario Perú	1	1	1	NULL	2022-09-13 21:11:25.410