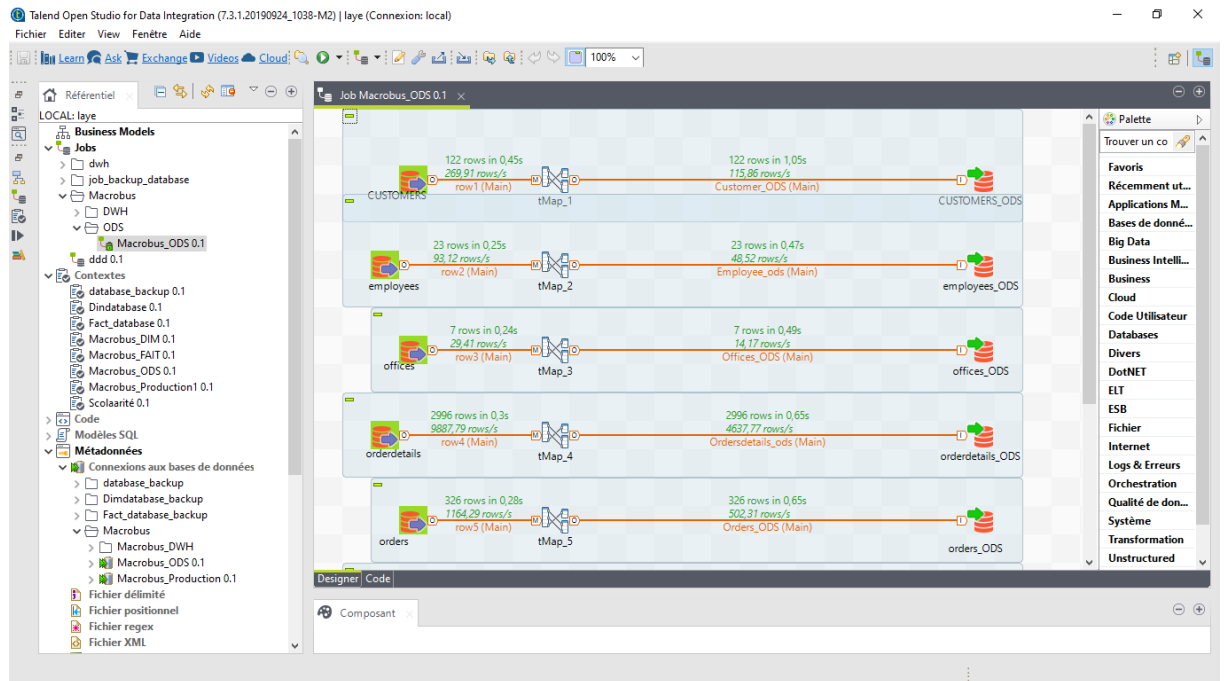
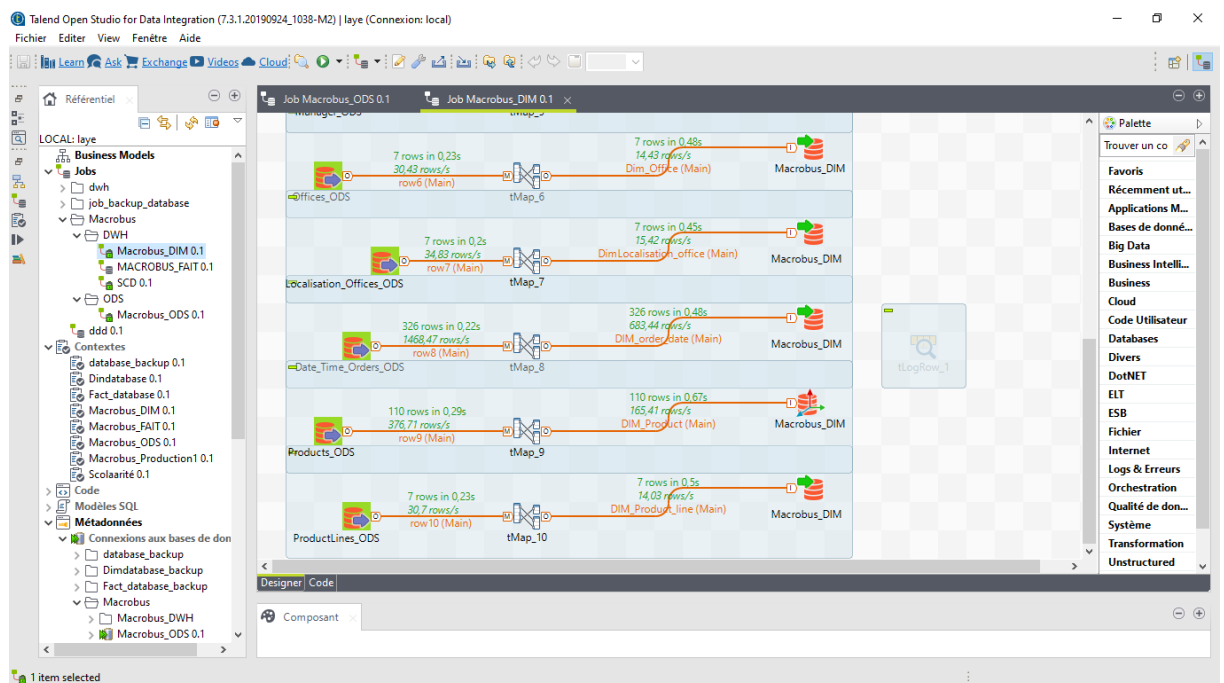


1.1 Exemple de réalisation avec l'outil Talend efficace et simple pour historisé

1.2 Job des tables temporaire



1.3 Job des tables de dimension



1.4 Essayons d'historiser la table de dimension Product en utilisant les SCD de 0 à 3

• Configuration de l'historisation sous Talend

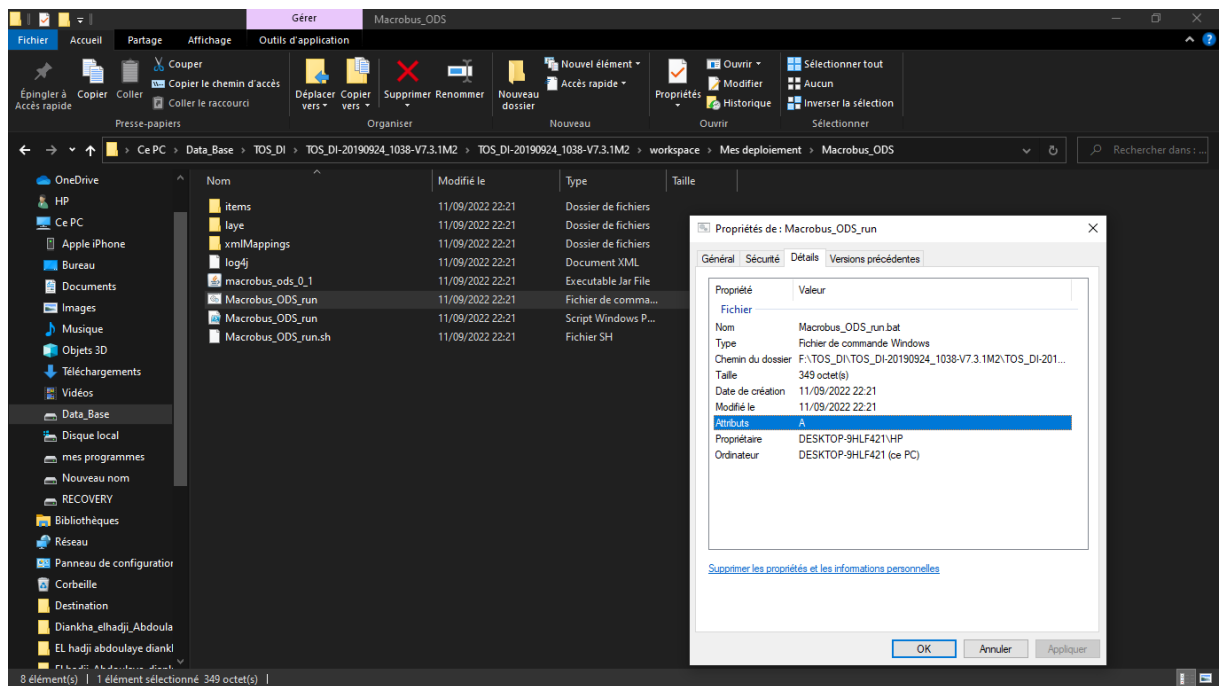
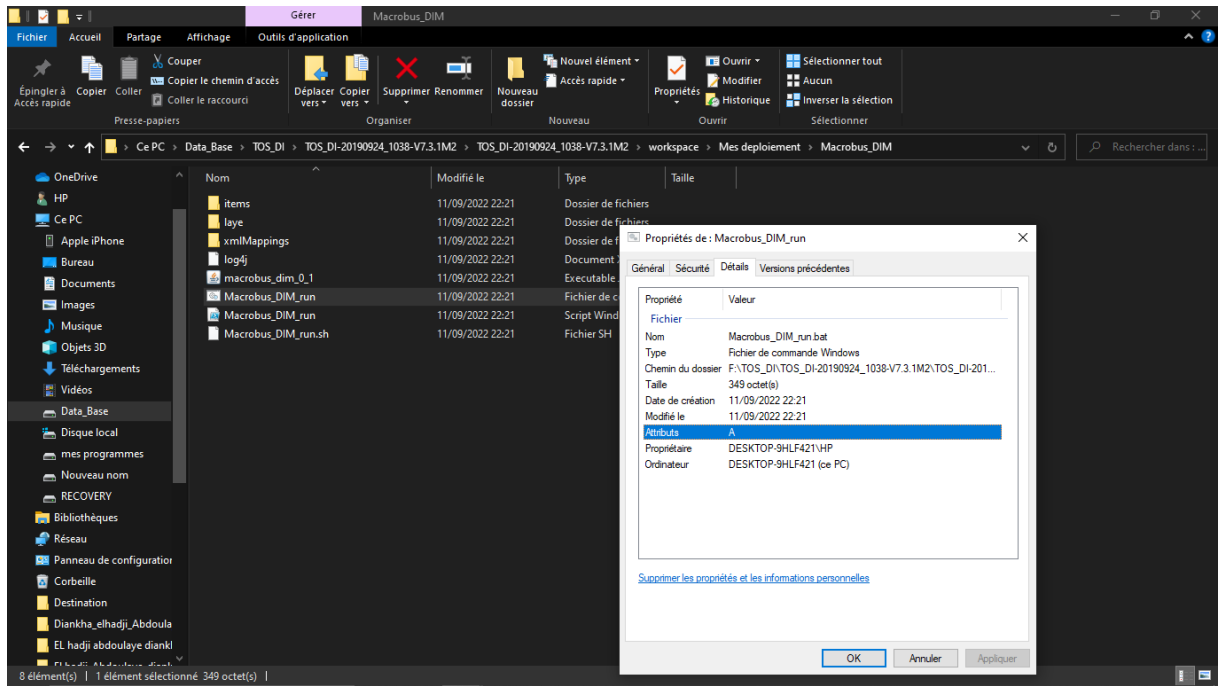
The screenshot shows the Talend Open Studio interface. On the left, the 'Designer' tab displays a data flow diagram with components like 'Localisation_Offices_ODS', 'Date_Time_Orders_ODS', 'Products_ODS', and 'tMap_7', 'tMap_8', 'tMap_9'. Below the diagram, the 'Composant' tab shows the configuration for 'Macrobus_DIM(tDBSCD_1)(Microsoft SQL Server)'. The 'Paramètres simples' section includes 'Fournisseur JDBC' (JTDS open source), 'Serveur' (context.Macrobus_DIM_Server), 'Base de données' (context.Macrobus_DIM_Database), 'Utilisateur' (context.Macrobus_DIM_Login), and 'Table' ('DIM_PRODUCT'). The 'Editeur SCD' button is visible. On the right, the 'Éditeur du composant SCD' dialog is open, showing the 'Clés source' (productCode) and 'Clé de substitution' (name: Keyproduct, creation: Auto increment). The 'Champs de type 0' section lists 'buyPrice' and 'MSRP'. The 'Champs de type 1' section lists 'productScale'. The 'Champs de type 2' section lists 'quantityInStock'. The 'Versioning' section shows a table with columns: type, name, creation, input field, complement. The 'Champs de type 3' section lists 'current value' and 'previous value' for 'productLine' and 'productLinePrec'.

1.5 Vérification des résultat obtenue sur sql server après SCD0 de la colonne buyprice , SCD1 de la colonne ProductScale, SCD2 de la colonne QuantityStock, SCD3 de la colonne productline

- D'abord je déploie mes jobs pour que à chaque modification d'une colonne je puisse les exécuter facilement dans le répertoire choisit pour mieux faire l'historisation

The screenshot shows the 'Construire le Job' dialog in Talend Open Studio. The 'Vers le fichier archive' field is set to 'V7.3.1M2\TOS_DI-20190924_1038-V7.3.1M2\workspace\Mes deploiement\Macrobus_DIM_0.1.zip'. The 'Job Version' is '0.1'. The 'Type de construction' is 'Job standalone'. The 'Options' section includes 'Interpréteur de commande' (Tout), 'Scripts de contexte' (PREPROD), and 'Eléments' (checked). The 'Finishing' section is empty. The 'Finish' button is visible. On the right, the 'Palette' shows a list of components and a 'Default' section with a table of values.

Nom	Valeur
Macrobus_Product...	dbo
Macrobus_Product...	1433
Macrobus_Product...	****
Macrobus_Product...	127.0.0
Macrobus_Product...	MACR
Macrobus_Product...	sa
Macrobus_ODS_Port	1433



2 Résultat du SCDO SUR sql server sur la colone buyPrice

En production dans la table Product j'ai 110 lignes

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_1678	1969 Harley Davidson Ultimate Chopper	Mercedes	1:10	Min Lin Diecast	This replica features working kickstand, front suspe...	7935	41	
S10_1949	1952 Alpine Renault 1300	Classic Cars	1:10	Classic Metal Creations	Turnable front wheels; steering function; detailed int...	7305	91	
S10_2016	1996 Moto Guzzi 1100	Motorcycles	1:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle bags...	6625	61	
S10_4698	2003 Harley-Davidson Eagle Drag Bike	Motorcycles	1:10	Red Start Diecast	Model features, official Harley Davidson logos and I...	5582	9	
S10_4757	1972 Alfa Romeo GTA	Classic Cars	1:10	Motor City Art Classics	Features include: Turnable front wheels; steering fu...	3252	81	
S10_4962	1962 Lancia Delta 16V	Classic Cars	1:10	Second Gear Diecast	Features include: Turnable front wheels; steering fu...	6791	11	
S12_1099	1968 Ford Mustang	Classic Cars	1:12	Autoart Studio Design	Hood, doors and trunk all open to reveal highly deta...	68	91	
S12_1108	2001 Ferrari Enzo	Classic Cars	1:12	Second Gear Diecast	Turnable front wheels; steering function; detailed int...	3619	91	
S12_1666	1958 Setra Bus	Trucks and Buses	1:12	Welly Diecast Productions	Model features 30 windows, skylights & glare resista...	1579	7	
S12_2823	2002 Suzuki XREO	Motorcycles	1:12	Unimax Art Galleries	Official logos and insignias, saddle bags located on ...	9997	61	
S12_3148	1969 Corvair Monza	Classic Cars	1:18	Welly Diecast Productions	1:18 scale die-cast about 10" long doors open, hoo...	6906	81	

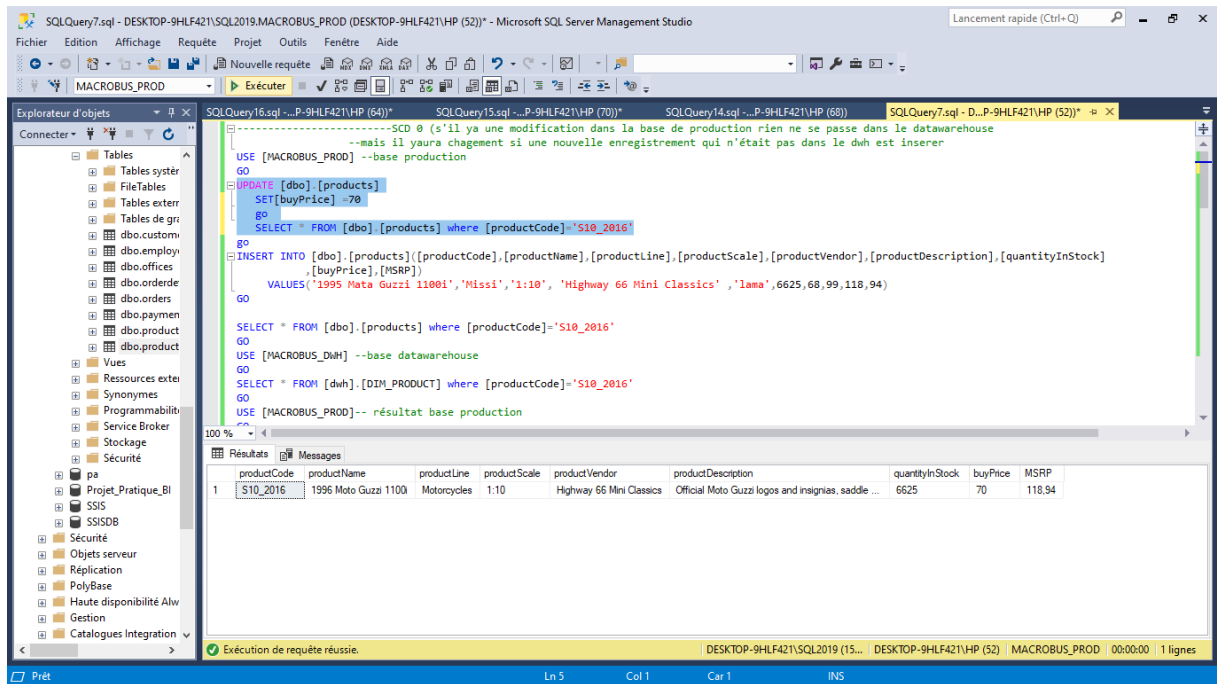
2.1 Sélectionnons la ligne ciblée pour réaliser le SCDO sur la colone buyPrice

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_2016	1996 Moto Guzzi 1100	Motorcycles	1:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94

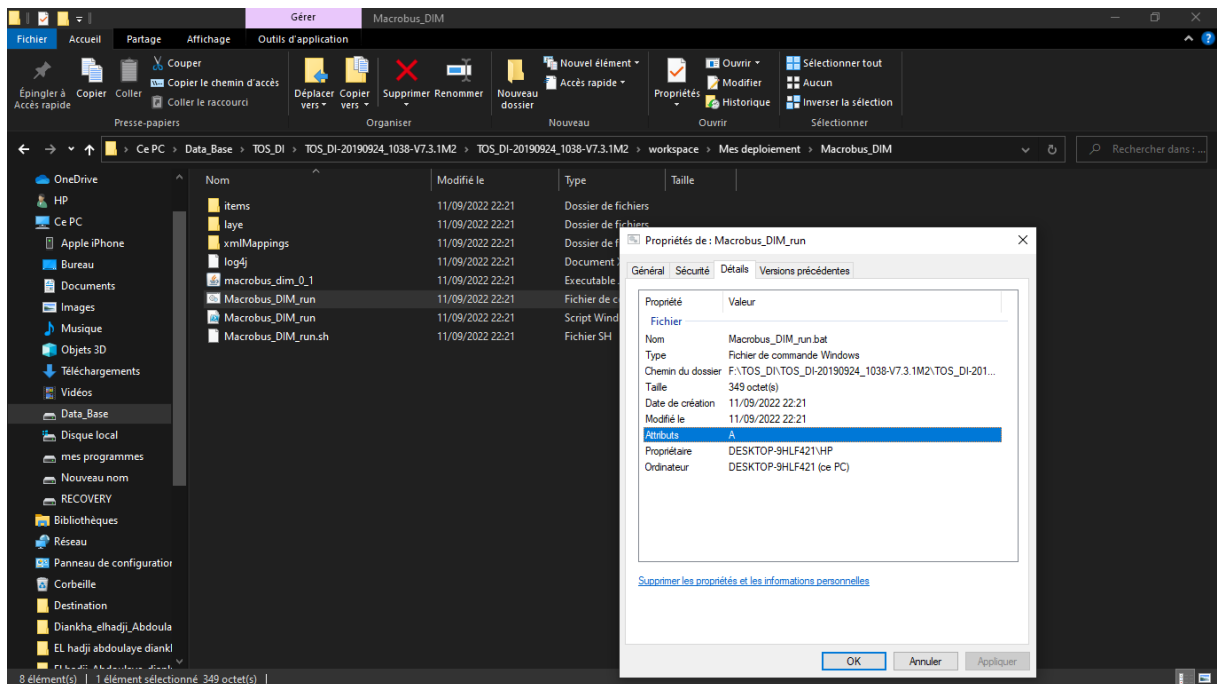
NB : Nous remarquons que buyprice est égale à 68.99.

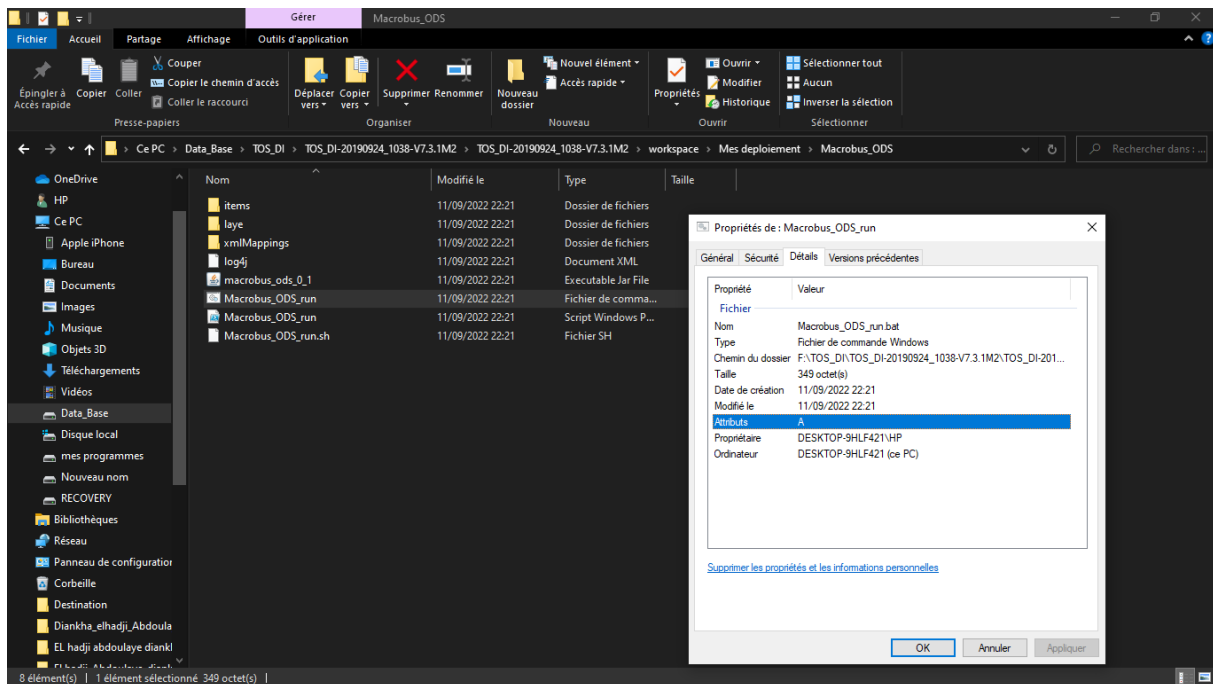
2.2 Procédé de l'historisation

D'abord je fais un Update :



2.3 J'exécute mes jobs ci-dessous déployé dans mon pc





Ci-dessous je remarque que dans ma base de production buyPrice=70 et que dans la table dimproduct la valeur reste inchangée égale à 68.99 .

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. The 'SQLQuery7.sql' window is active, displaying a SQL query. The query is an INSERT statement into the 'products' table. The results table shows the inserted data, including productCode, productName, productLine, productScale, productVendor, productDescription, quantityInStock, buyPrice, and MSRP.

```

GO
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO
INSERT INTO [dbo].[products]([productCode],[productName],[productLine],[productScale],[productVendor],[productDescription],[quantityInStock],[buyPrice],[MSRP])
VALUES('1995 Moto Guzzi 1100i','Missi','1:10', 'Highway 66 Mini Classics', 'lama', 6625, 68, 99, 118, 94)
GO
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO
USE [MACROBUS_DWH] --base datawarehouse
GO
SELECT * FROM [dwh].[DIM_PRODUCT] where [productCode]='S10_2016'
GO
USE [MACROBUS_PROD] -- résultat base production
SELECT * FROM [dbo].[products]
GO
-----SCD 1
USE [MACROBUS_PROD]

```

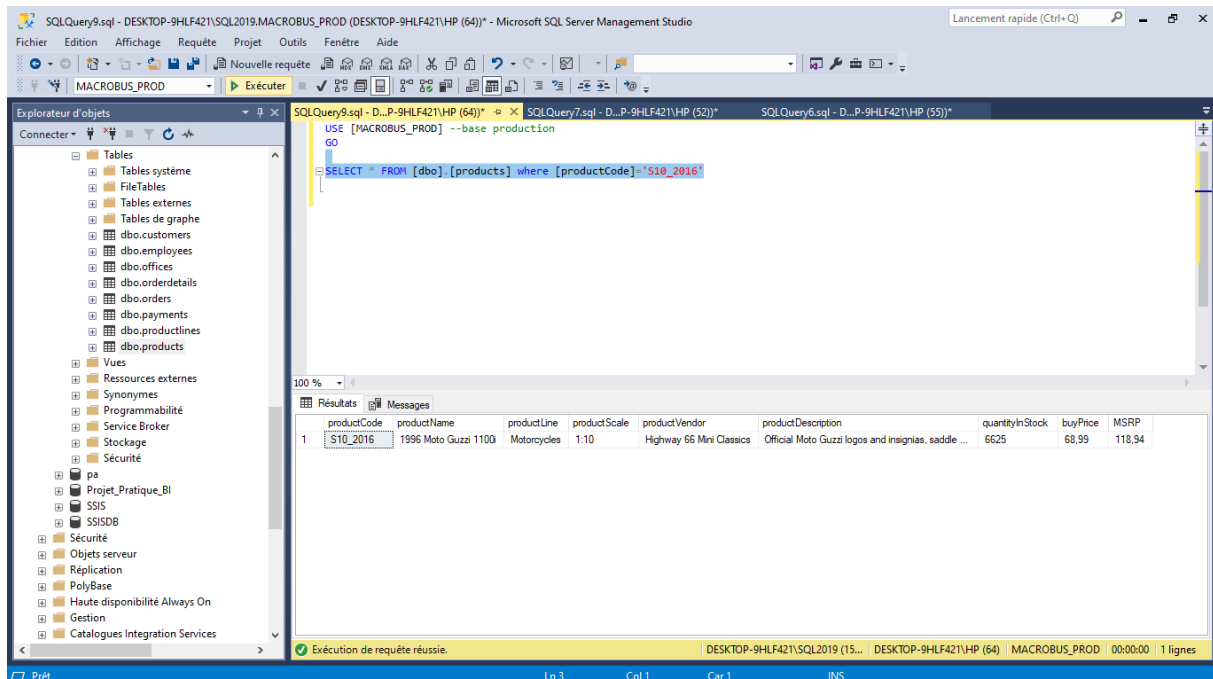
productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_2016	1996 Moto Guzzi 1100i	Motorcycles	1:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	70	118.94

iCode	productName	productLine	productLinePrec	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP	Status	Startdate
016	1996 Moto Guzzi 1100i	Motorcycles	NULL	1:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94	NULL	NULL
016	1996 Moto Guzzi 1100i	Motorcycles	NULL	1:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94	NULL	2022-09-09

Exécution de requête réussie. DESKTOP-9HLF421\SQL2019 (15... DESKTOP-9HLF421\HP (52) MACROBUS_DWH 00:00:00 3 lignes

3 Résultat du SCD1 sous SQL server sur la colone productScale

3.1 Sélectionnons la ligne ciblé pour réaliser le SCD1 sur la colone productScale



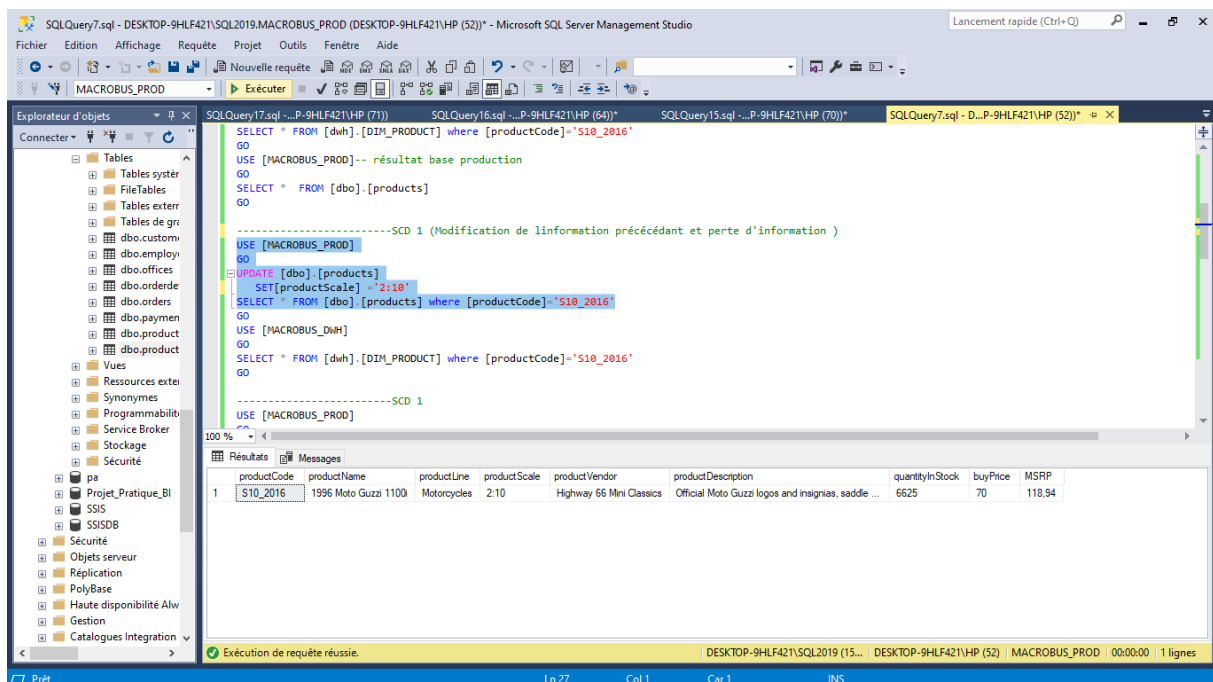
The screenshot shows the Microsoft SQL Server Management Studio interface. The left pane displays the 'Explorateur d'objets' (Object Explorer) with the 'Tables' folder expanded. The right pane shows the 'Résultats' (Results) tab with a single row of data. The query executed is: `USE [MACROBUS_PROD] --base production
GO
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'`

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_2016	1996 Moto Guzzi 1100	Motorcycles	1.10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94

NB : Nous remarquons que productScale est égale à 1.10.

3.2 Procédé de l'historisation

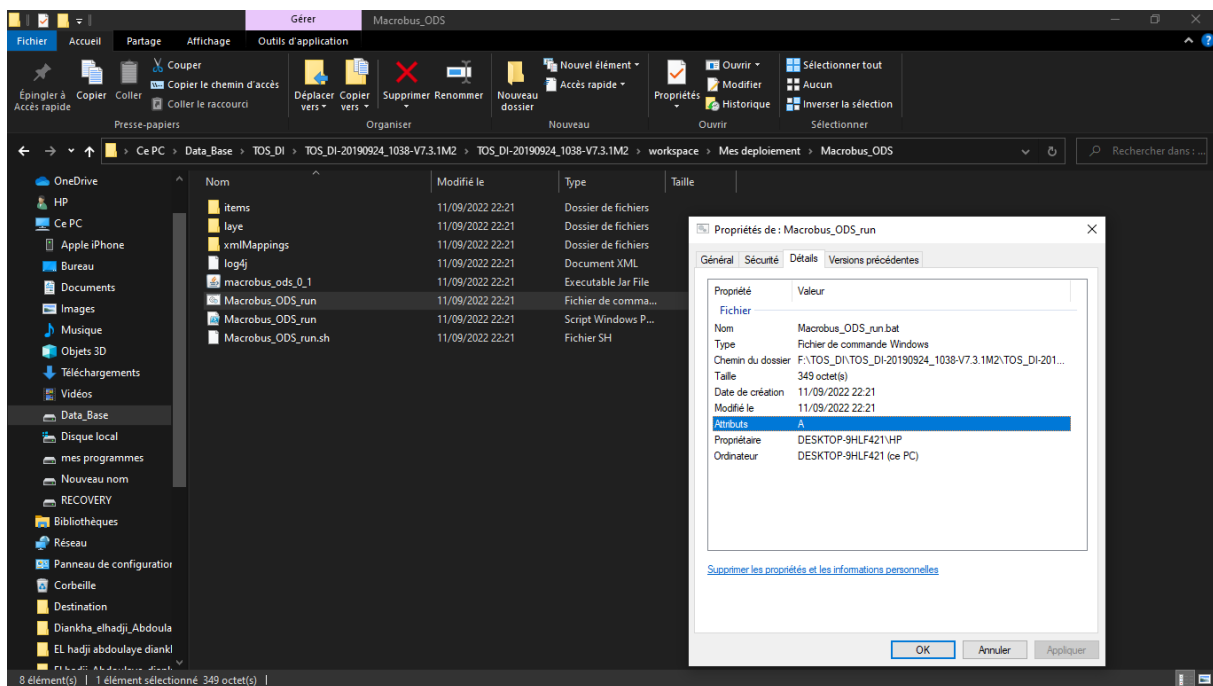
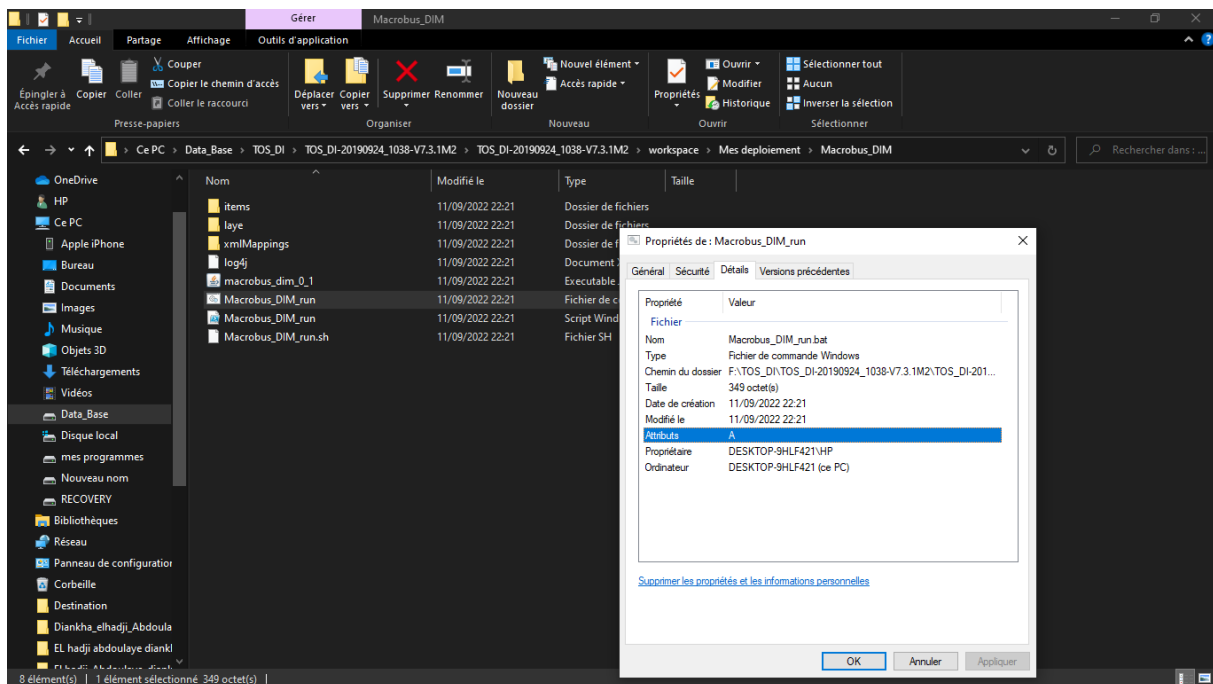
D'abord je fais un Update :



The screenshot shows the Microsoft SQL Server Management Studio interface. The left pane displays the 'Explorateur d'objets' (Object Explorer) with the 'Tables' folder expanded. The right pane shows the 'Résultats' (Results) tab with a single row of data. The query executed is: `SELECT * FROM [dwh].[DIM_PRODUCT] where [productCode]='S10_2016'
GO
USE [MACROBUS_PROD] -- résultat base production
GO
SELECT * FROM [dbo].[products]
GO
-----SCD 1 (Modification de l'information précédant et perte d'information)
USE [MACROBUS_PROD]
GO
UPDATE [dbo].[products]
SET [productScale] = '2.10'
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO
USE [MACROBUS_PROD]
GO
SELECT * FROM [dwh].[DIM_PRODUCT] where [productCode]='S10_2016'
GO
-----SCD 1
USE [MACROBUS_PROD]`

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_2016	1996 Moto Guzzi 1100	Motorcycles	2.10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	70	118.94

3.3 J'exécute mes jobs ci-dessous déployé dans mon pc



Ci-dessous je remarque que dans ma base de production productScale =2:10 et que dans la table dimproduct productScale =2:10 donc change de valeur.

SQLQuery17.sql - D:\SQL2019\MACROBUS_PROD (DESKTOP-9HLF421\HP (52)) - Microsoft SQL Server Management Studio

```

USE [MACROBUS_PROD]
GO
UPDATE [dbo].[products]
SET [productScale] = '2:10'
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO
USE [MACROBUS_PROD]
GO
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO

```

Keyproduct	productCode	productName	productLine	productLinePrec	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
3	S10_2016	1996 Moto Guzzi 1100	Motorcycles	NULL	2:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94
113	S10_2016	1996 Moto Guzzi 1100	Motorcycles	NULL	2:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94

4 Résultat du SCD2 sous sql server sur la colonne quantityInStock

4.1 Sélectionnons la ligne ciblé pour réaliser le SCD2 sur la colonne quantityInStock

SQLQuery9.sql - D:\SQL2019\MACROBUS_PROD (DESKTOP-9HLF421\HP (64)) - Microsoft SQL Server Management Studio

```

USE [MACROBUS_PROD]
GO
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO

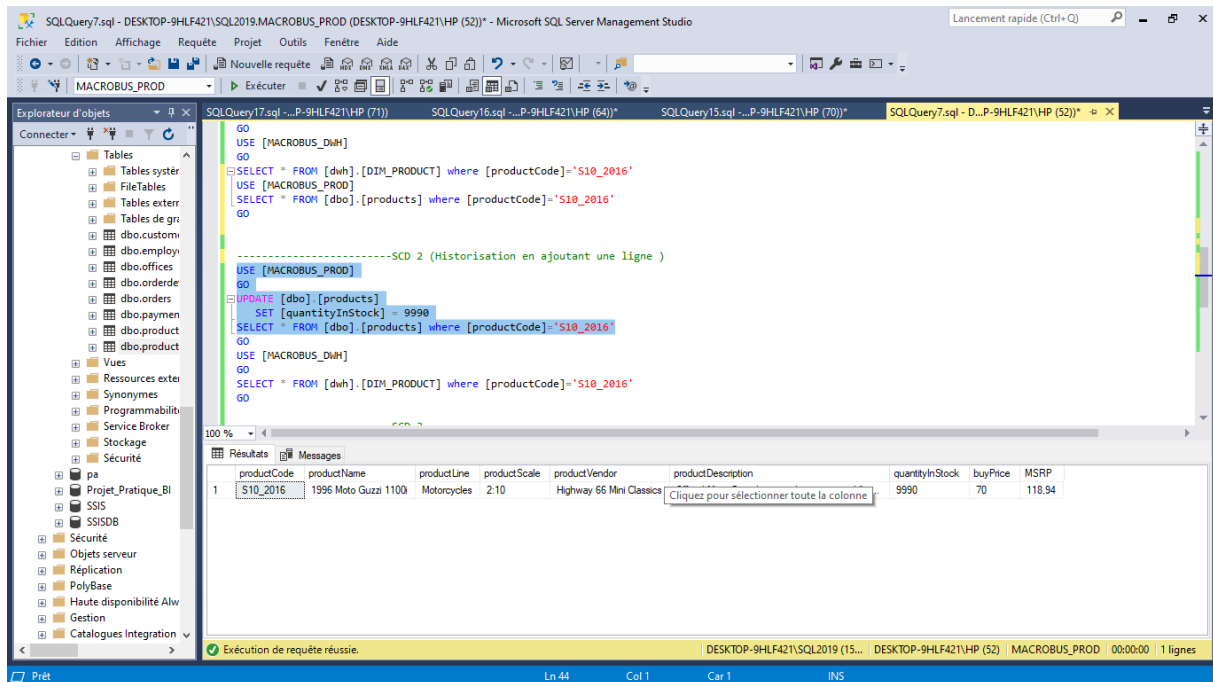
```

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_2016	1996 Moto Guzzi 1100	Motorcycles	1:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94

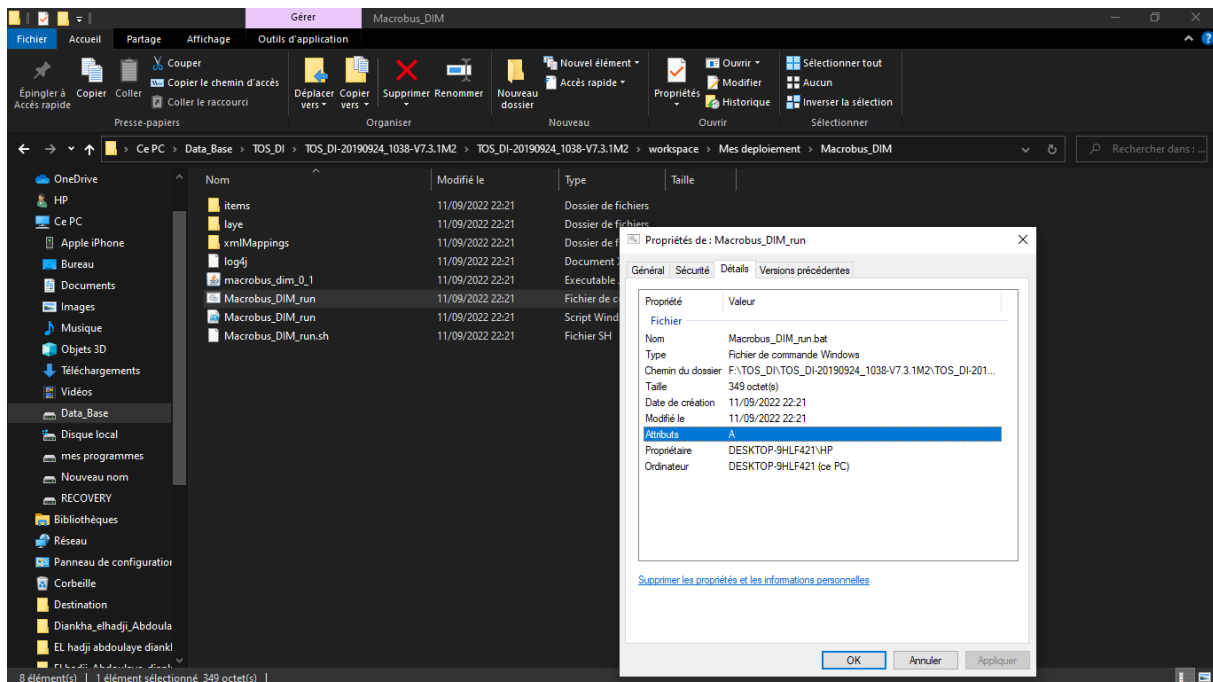
NB : Nous remarquons que quantityInStock est égale à 6625.

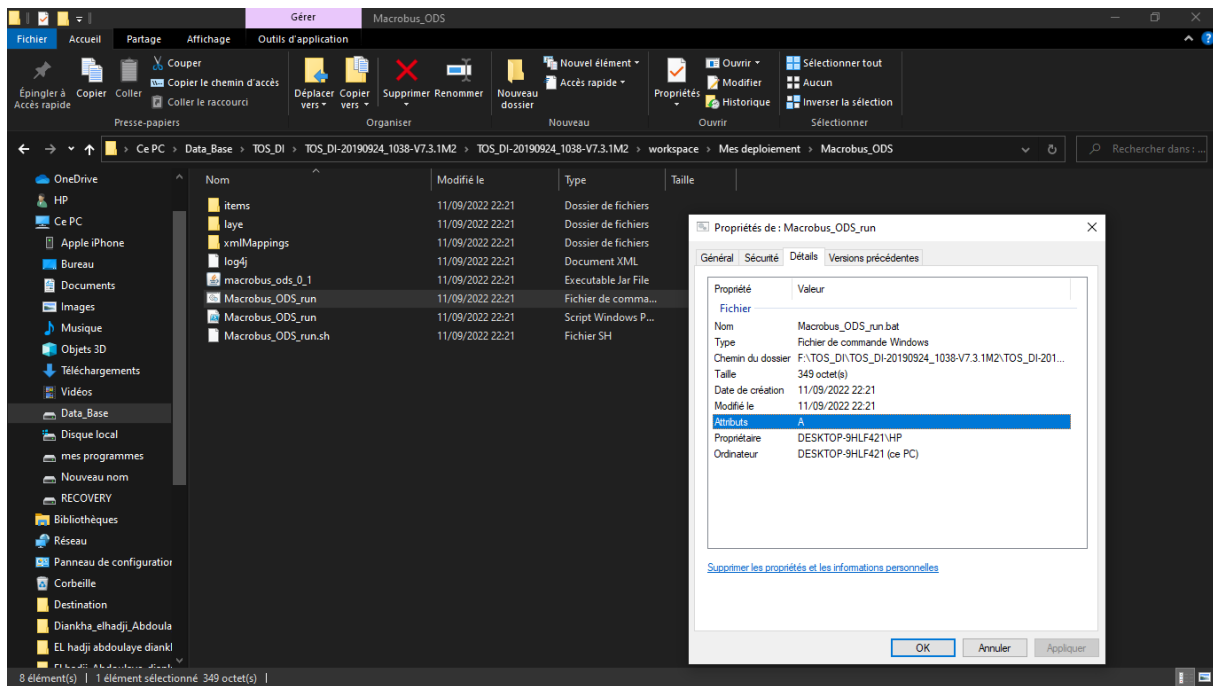
4.2 Procédé de l'historisation

D'abord je fais un Update :



4.3 J'exécute mes jobs ci-dessous déployé dans mon pc





Remarque : Ci-dessous je remarque que dans ma base de production quantityInStock = 9990 et que dans la table dimproduct une nouvelle ligne s'ajoute avec quantityInStock = 9990 mais l'ancien valeur reste historisé 6625.

SQLQuery7.sql - DESKTOP-9HLF421\SQL2019.MACROBUS_PROD (DESKTOP-9HLF421\HP (52)) - Microsoft SQL Server Management Studio

Explorateur d'objets: Tables, Vues, Ressources exte, Synonymes, Programmabilit, Service Broker, Stockage, Sécurité, pa, Projet_Pratique_BI, SSISDB, SSIS, Sécurité, Objets serveur, Réplication, PolyBase, Haute disponibilité Alw, Gestion, Catalogues Integration

SQLQuery7.sql - D...P-9HLF421\HP (52) *

```

SELECT * FROM [dwh].[DIM_PRODUCT] where [productCode]='S10_2016'
USE [MACROBUS_PROD]
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO

-----SCD 2 (Historisation en ajoutant une nouvelle ligne en même temps historise l'ancien )
USE [MACROBUS_PROD]
GO
UPDATE [dbo].[products]
SET [quantityInStock] = 9990
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO
USE [MACROBUS_PROD]
GO
SELECT * FROM [dwh].[DIM_PRODUCT] where [productCode]='S10_2016'
USE [MACROBUS_PROD]
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO

```

100 %

Keyproduct	productCode	productName	productLine	productLinePrec	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
1	3	S10_2016	1996 Moto Guzzi 1100	Motorcycles	NULL	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94
2	113	S10_2016	1996 Moto Guzzi 1100	Motorcycles	NULL	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94
3	1004	S10_2016	1996 Moto Guzzi 1100	Motorcycles	NULL	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	9990	70	118.94

productCode productName productLine productScale productVendor productDescription quantityInStock buyPrice MSRP

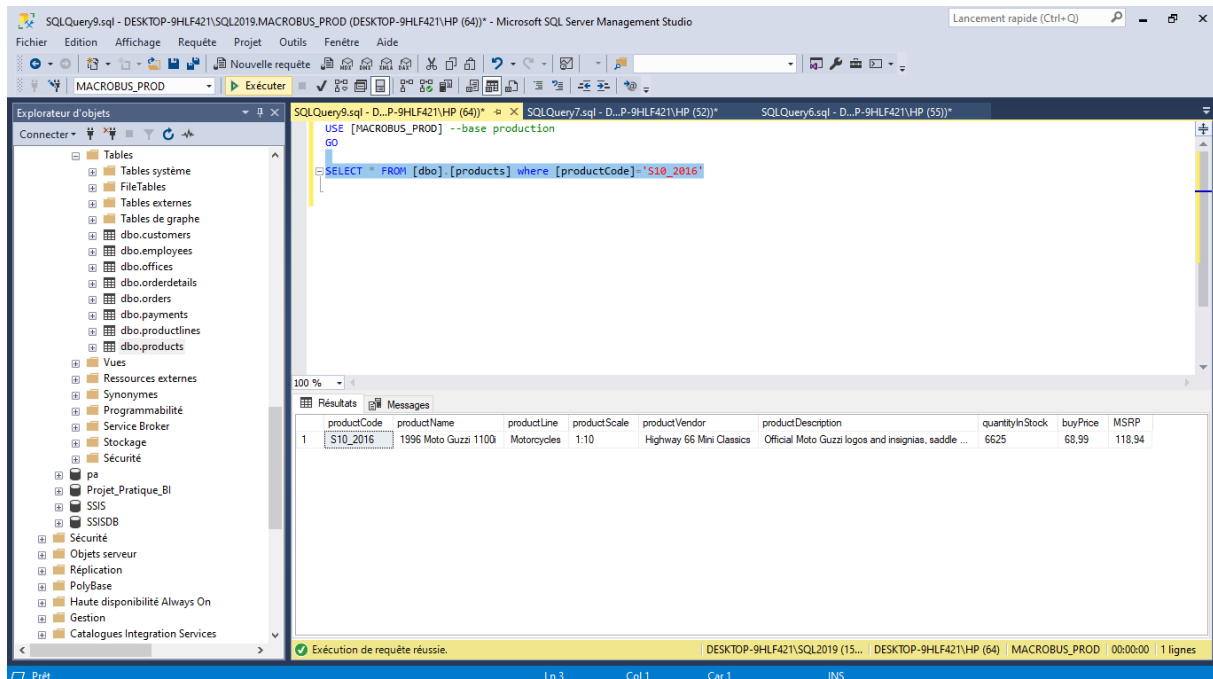
1 S10_2016 1996 Moto Guzzi 1100 Motorcycles 2-10 Highway 66 Mini Classics Official Moto Guzzi logos and insignias, saddle ... 9990 70 118.94

✓ Exécution de requête réussie. DESKTOP-9HLF421\SQL2019 (15... DESKTOP-9HLF421\HP (52) | MACROBUS_PROD 00:00:00 | 4 lignes

Éléments enregistrés Ln 50 Col 1 Car 1 INS

5 Résultat du SCD3 sous sql server sur la colonne productLine

5.1 Sélectionnons la ligne ciblé pour réaliser le SCD3 sur la colonne productLine



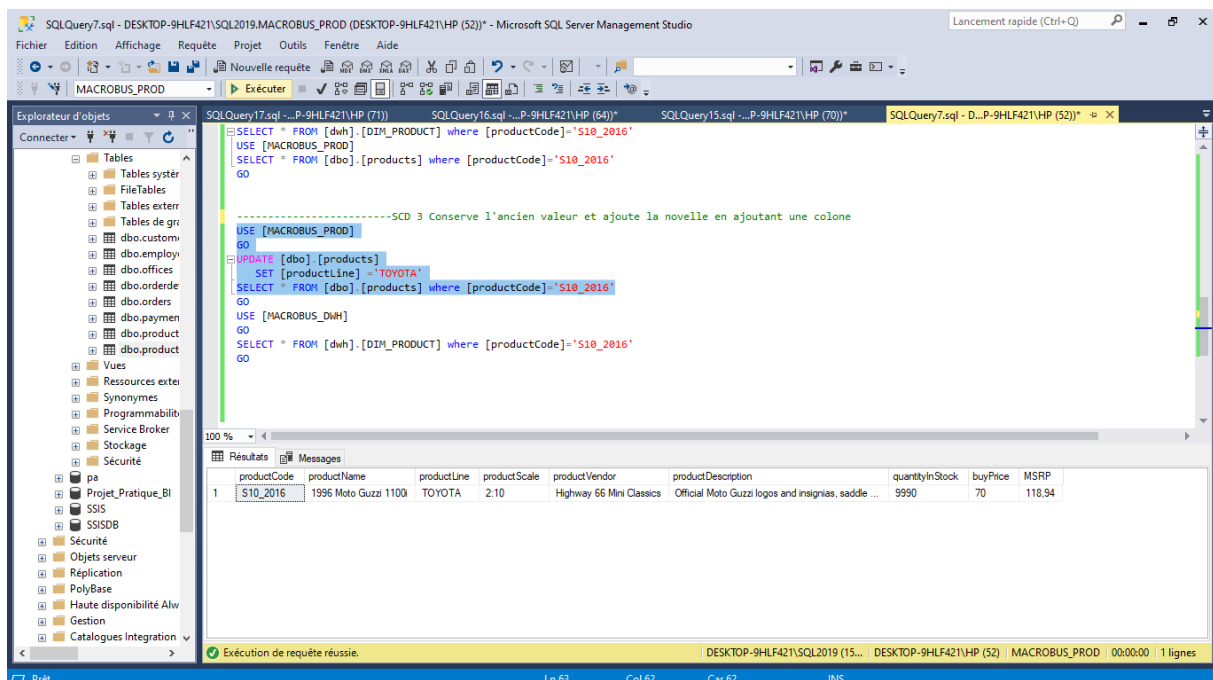
The screenshot shows the Microsoft SQL Server Management Studio interface. The left pane displays the 'Explorateur d'objets' (Object Explorer) with the 'Tables' folder expanded, showing various system and user tables. The right pane shows the 'Résultats' (Results) tab with a table of query results. The query executed is: `USE [MACROBUS_PROD] --base production
GO
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'`. The results table has the following data:

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_2016	1996 Moto Guzzi 1100	Motorcycles	1:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94

NB : Nous remarquons que productLine est égale à Motorcycles.

5.2 Procédé de l'historisation

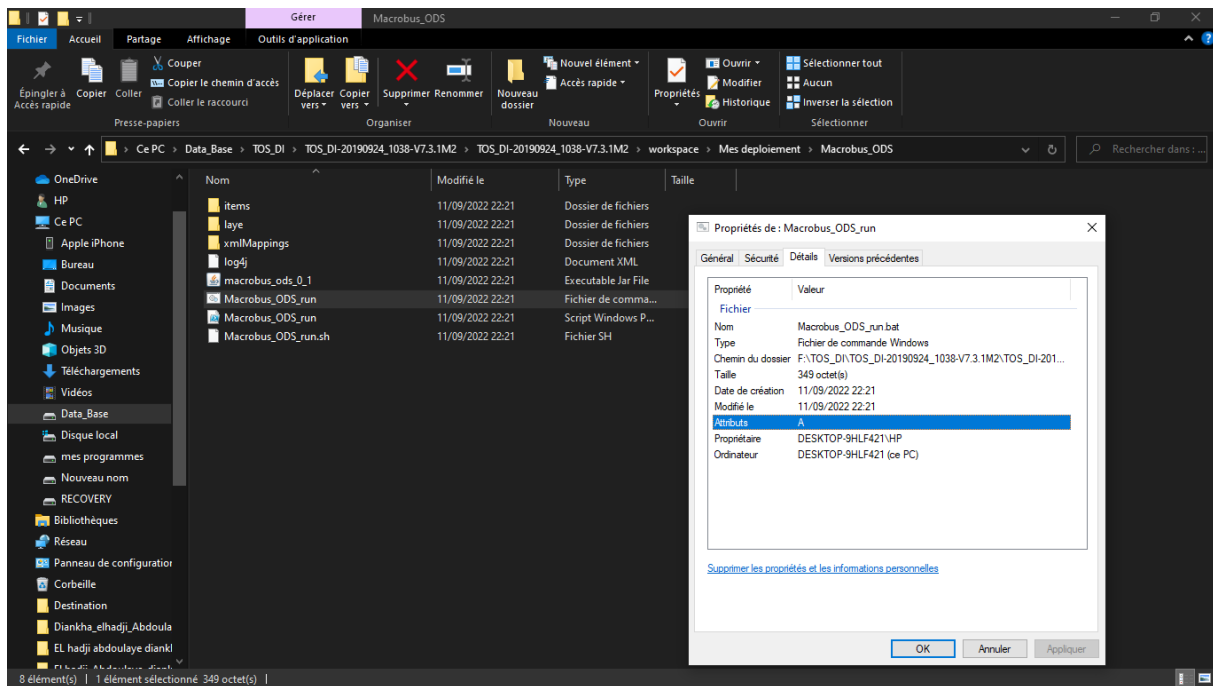
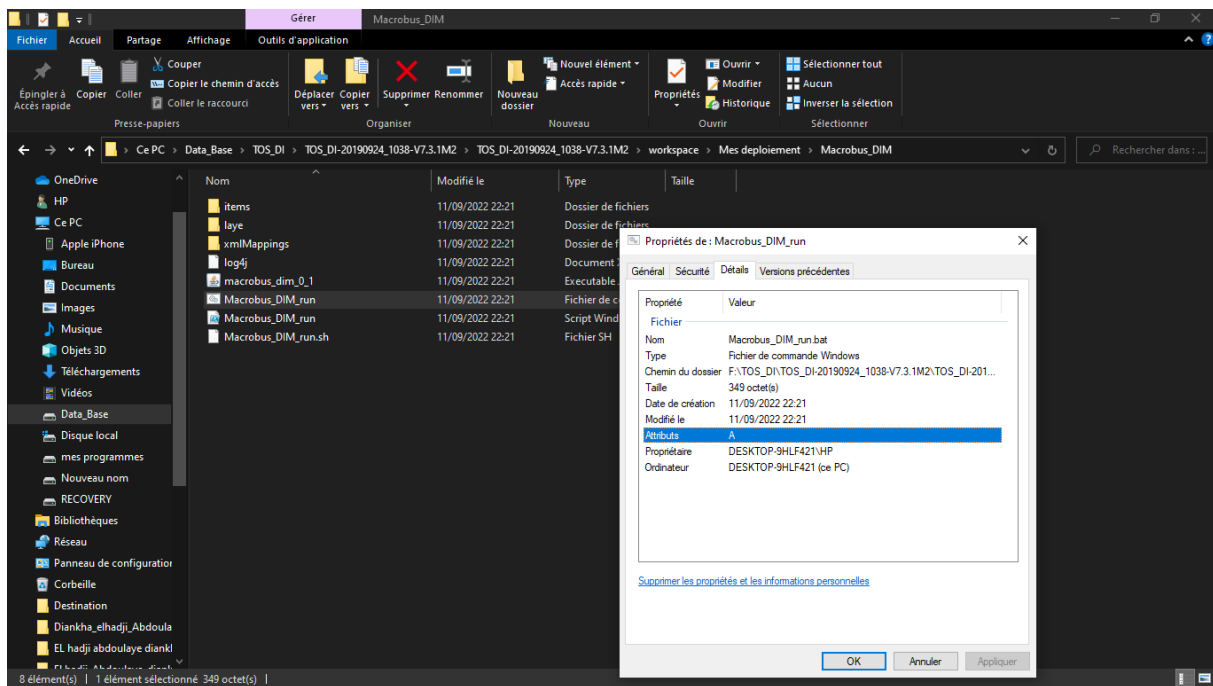
D'abord je fais un Update :



The screenshot shows the Microsoft SQL Server Management Studio interface. The left pane displays the 'Explorateur d'objets' (Object Explorer) with the 'Tables' folder expanded. The right pane shows the 'Résultats' (Results) tab with a table of query results. The query executed is: `USE [MACROBUS_PROD]
GO
UPDATE [dbo].[products]
SET [productLine] = 'TOYOTA'
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO
USE [MACROBUS_PROD]
GO
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'`. The results table has the following data:

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S10_2016	1996 Moto Guzzi 1100	TOYOTA	2:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	9990	70	118.94

5.3 J'exécute mes jobs ci-dessous déployé dans mon pc



Remarque : Ci-dessous je remarque que dans ma base de production productLine = 'toyota' et que dans la table dimproduct une nouvelle colonne s'ajoute avec productLine = 'toyota' mais l'ancien valeur reste historisé avec productLinePrec = 'Motorcycle'

-----SCD 3 Conserve l'ancien valeur et ajoute la nouvelle en ajoutant une colonne

```

USE [MACROBUS_PROD]
GO
UPDATE [dbo].[products]
SET [productLine] = 'TOYOTA'
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO
USE [MACROBUS_DWH]
GO
SELECT * FROM [dwh].[DIM_PRODUCT] where [productCode]='S10_2016'
GO
USE [MACROBUS_PROD]
SELECT * FROM [dbo].[products] where [productCode]='S10_2016'
GO

```

	Keyproduct	productCode	productName	productLine	productLinePrec	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
1	3	S10_2016	1996 Moto Guzzi 1100	Motorcycles	NULL	2:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94
2	113	S10_2016	1996 Moto Guzzi 1100	Motorcycles	NULL	2:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	6625	68.99	118.94
3	1004	S10_2016	1996 Moto Guzzi 1100	TOYOTA	Motorcycles	2:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	9990	70	118.94

	productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
1	S10_2016	1996 Moto Guzzi 1100	TOYOTA	2:10	Highway 66 Mini Classics	Official Moto Guzzi logos and insignias, saddle ...	9990	70	118.94

✓ Exécution de requête réussie. DESKTOP-9HLF421\SQL2019 (15... DESKTOP-9HLF421\HP (52) | MACROBUS_PROD | 00:00:00 | 4 lignes