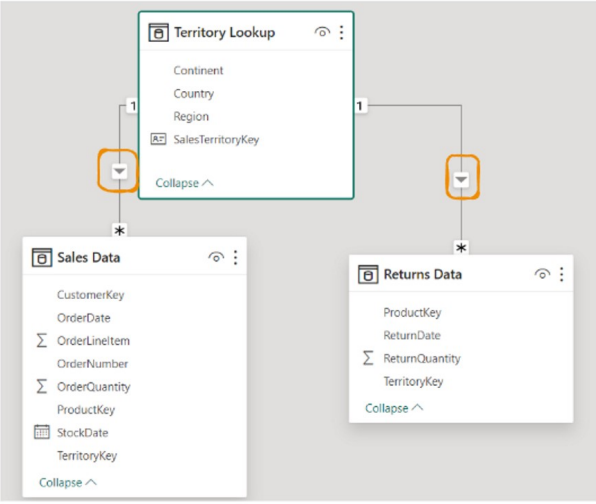
Data Modelling -3

10 September 2024 19:09

Data Modelling - 3

FILTER CONTEXT & FLOW



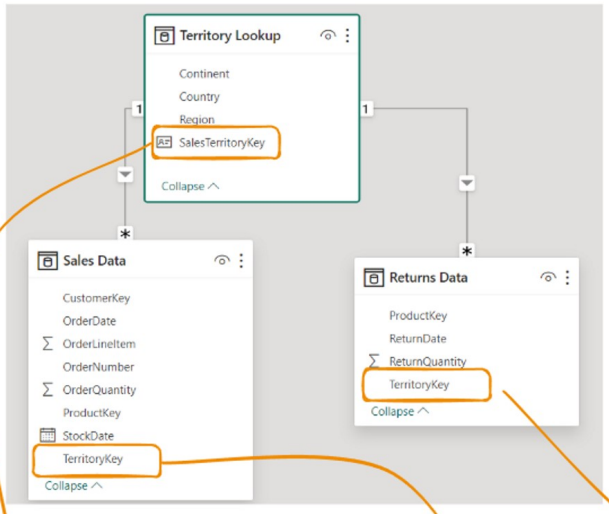
Here we have two data tables (Sales Data and Returns Data), connected to Territory Lookup

The arrows show the filter direction, and point from the one (1) side of the relationship to the many (*) side

- When you filter a table, that filter context is passed to any related "downstream" tables, following the arrow's direction

- Filter context CANNOT flow "upstream"

PRO TIP: Arrange lookup tables above fact tables in your model as a visual reminder that filters always flow downstream



In this model, the only way to filter both Sales and Returns data by Territory is to use the Territory Key from the lookup table, which is upstream and related to both fact tables.

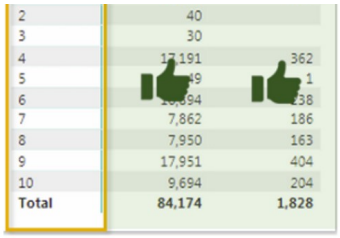
- Filtering using Territory Key from the Sales table yields incorrect Returns values, since the filter context can't flow to any other table

- Filtering using Territory Key from the Returns table yields incorrect Sales values, and is limited to territories that exist in the returns table

TerritoryKey	OrderQuantity	ReturnQuantity
1	12,513	270
2	40	
3	30	
4	17,191	362
5	49	1

TerritoryKey	OrderQuantity	ReturnQuantity
1	12,513	1,828
2	40	1,828
3	30	1,828
4	17,191	1,828
5	49	28

TerritoryKey	OrderQuantity	ReturnQuantity
1	84,174	270
4	84,174	362
5	84,174	1
6	174	238
7	4,174	186
8	84,174	163

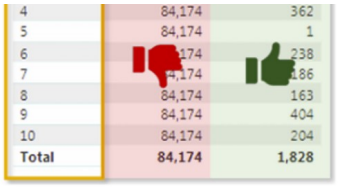


2	40	
3	30	
4	17,191	362
5	49	1
6	694	238
7	7,862	186
8	7,950	163
9	17,951	404
10	9,694	204
Total	**84,174**	**1,828**

Filtering by Territory Lookup[Territory Key]

2	40	1,828
3	30	1,828
4	17,191	1,828
5	49	828
6	694	828
7	7,862	1,828
8	7,950	1,828
9	17,951	1,828
10	9,694	1,828
Total	**84,174**	**1,828**

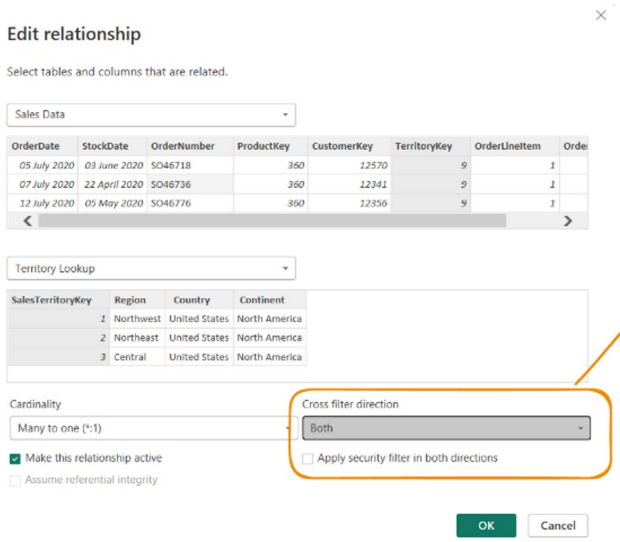
Filtering by Sales Data[Territory Key]

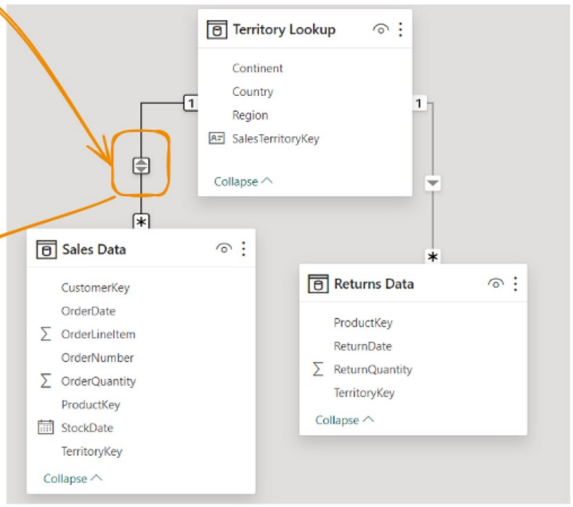


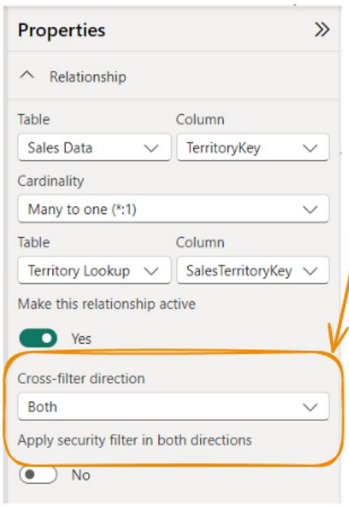
4	84,174	362
5	84,174	1
6	84,174	238
7	84,174	186
8	84,174	163
9	84,174	404
10	84,174	204
Total	**84,174**	**1,828**

Filtering by Returns Data[Territory Key]

BI-DIRECTIONAL FILTERS



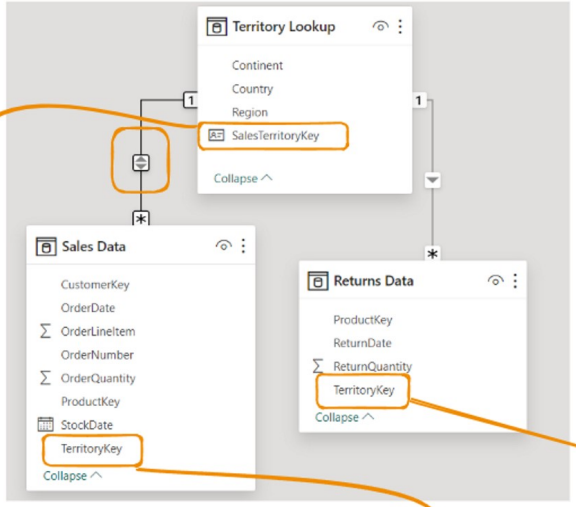




Updating the cross-filter direction from Single to Both allows filter context to flow in either direction

- In this example, filters applied to the Sales table can pass up to the Territory Lookup table, then down to Returns

table can pass up to the Territory Lookup table, then down to Returns



With two-way cross-filtering enabled between Sales and Territory, we now see correct values using Territory Key from either table

- Filter context can now pass up to the Territory Lookup table, then downstream to Returns

- However, we still see incorrect values when filtering using Territory Key from the Returns table, since the filter context is isolated to that single table

TerritoryKey	OrderQuantity	ReturnQuantity
1	12,513	270
2	40	
3	30	
4	17,191	362
5	49	1
6	894	238
7	7,862	186
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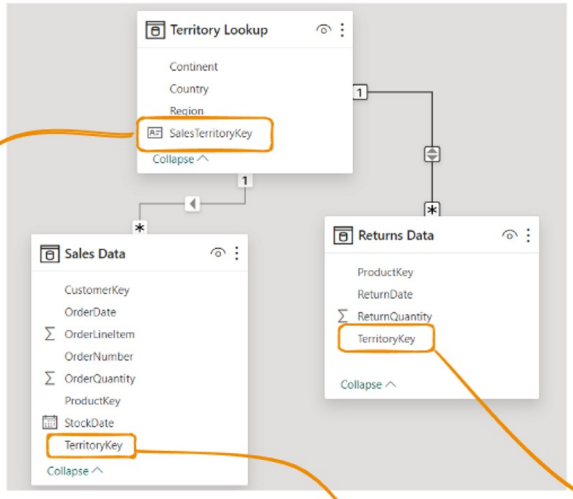
Filtering by Returns Data[Territory Key]



In this case, we've enabled two-way cross-filtering between the Returns and Territory tables

- As expected, we now see incorrect values when filtering using Territory Key from the Sales table, since the filter context is isolated to that single table

- While the values appear to be correct when filtering using Territory Key from the Returns table, we're missing sales data from any territories that didn't appear in the returns table (specifically Territories 2 & 3)

TerritoryKey	OrderQuantity	ReturnQuantity
1	12,513	270

TerritoryKey	OrderQuantity	ReturnQuantity
1	12,513	1,828

TerritoryKey	OrderQuantity	ReturnQuantity
1	12,513	270

Territories 2 & 3 don't exist

TerritoryKey	OrderQuantity	ReturnQuantity
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2	40	
3	30	
4	17,191	362
5	49	1
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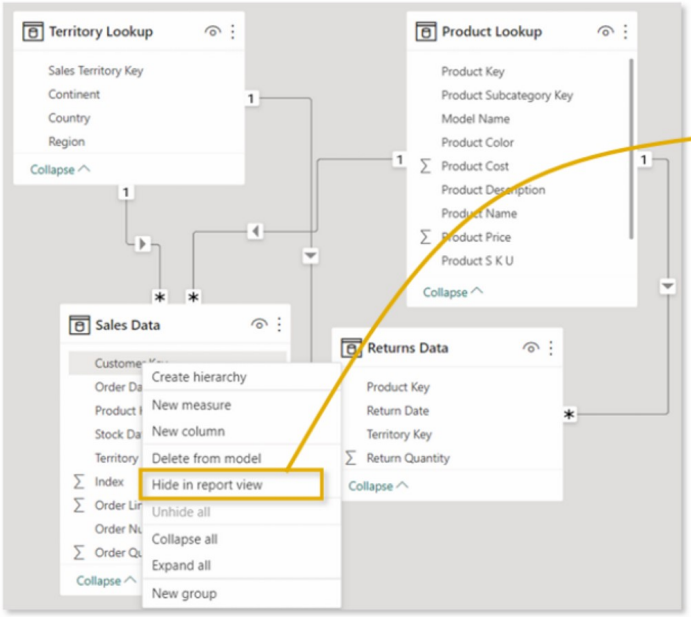
Filtering by Returns Data[Territory Key]

Territories 2 & 3 don't exist in the Returns table, so they aren't included in the filter context that passes to Territory Lookup and Sales

HIDING FIELDS



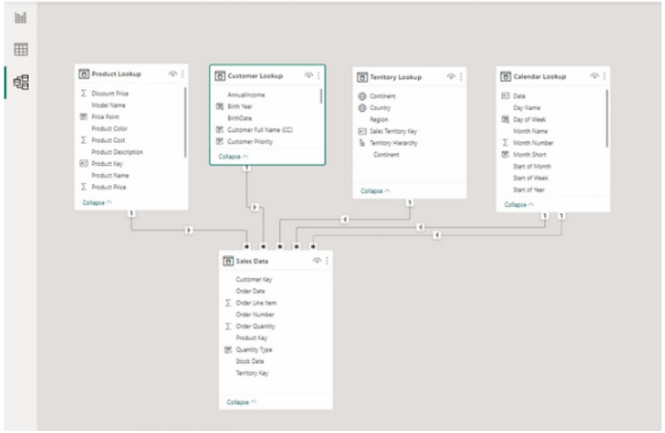
Hide in Report View makes fields inaccessible from the Report tab, but still available in Data and Model views

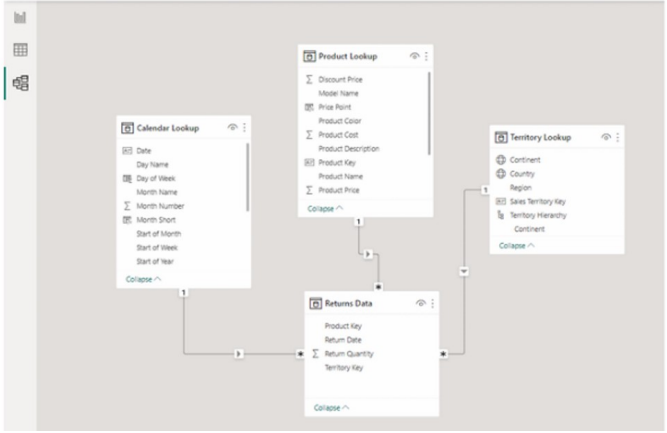
- This can be controlled by right-clicking a field in the Data or Model view, or by selecting "Is hidden" in the Properties pane

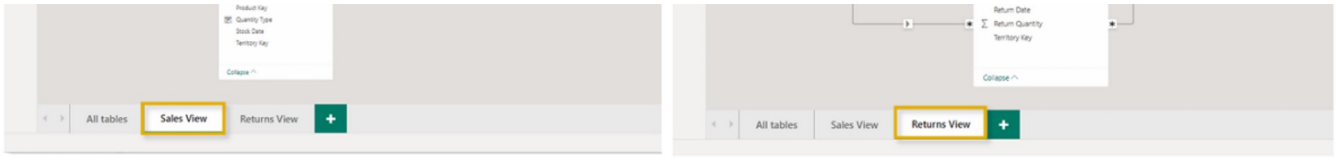
- This is commonly used to prevent users from filtering using invalid fields, reduce clutter, or to hide irrelevant metrics from view

PRO TIP: Hide the foreign keys in fact tables to force users to filter using primary keys in dimension tables

MODEL LAYOUTS



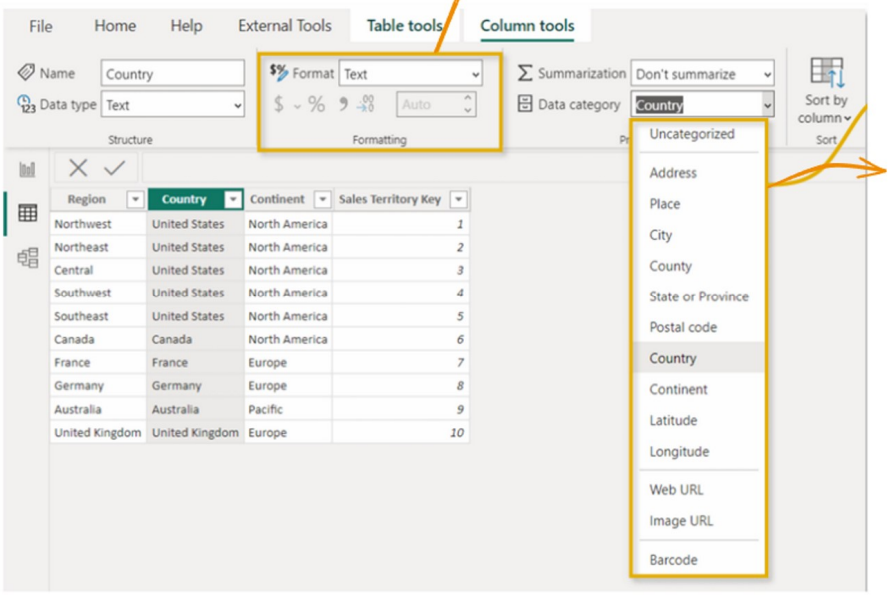




--> Model layouts allow you to create custom views to show specific portions of large, complex models

- Here we've created a Sales View displaying only tables related to sales, and a Returns View displaying only tables related to returns (Note: this doesn't actually create duplicate tables)

Customize data formats from the Column tools menu in the Data view or the Properties pane in the Model view



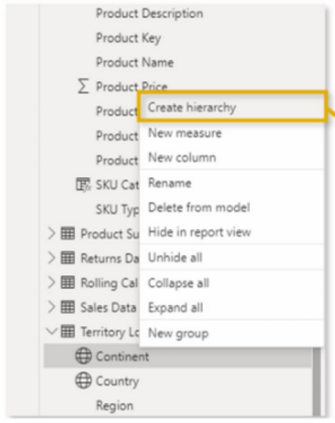
HIERARCHIES

Hierarchies are groups of columns that reflect multiple levels of granularity

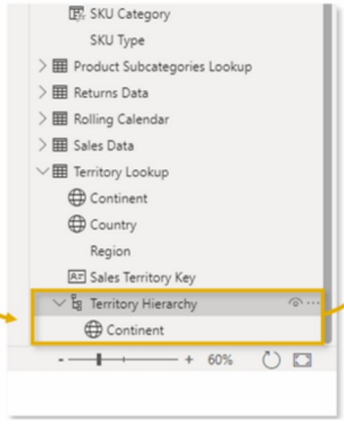
- For example, a Geography hierarchy might include Country

- For example, a Geography hierarchy might include Country, State and City fields

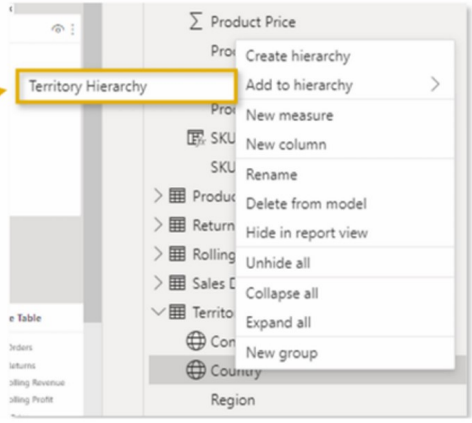
- Hierarchies are treated as a single item in tables and reports, allowing users to "drill up" and "drill down" through each level



In the Data pane, right-click a field and select Create hierarchy



This hierarchy contains "Continent", and is named "Territory Hierarchy"



Right-click another field (like "Country") and select Add to Hierarchy (or drag it in!)