


# Navigating Table Relationships

Only in DbVisualizer Pro

 This feature is only available in the DbVisualizer Pro edition.

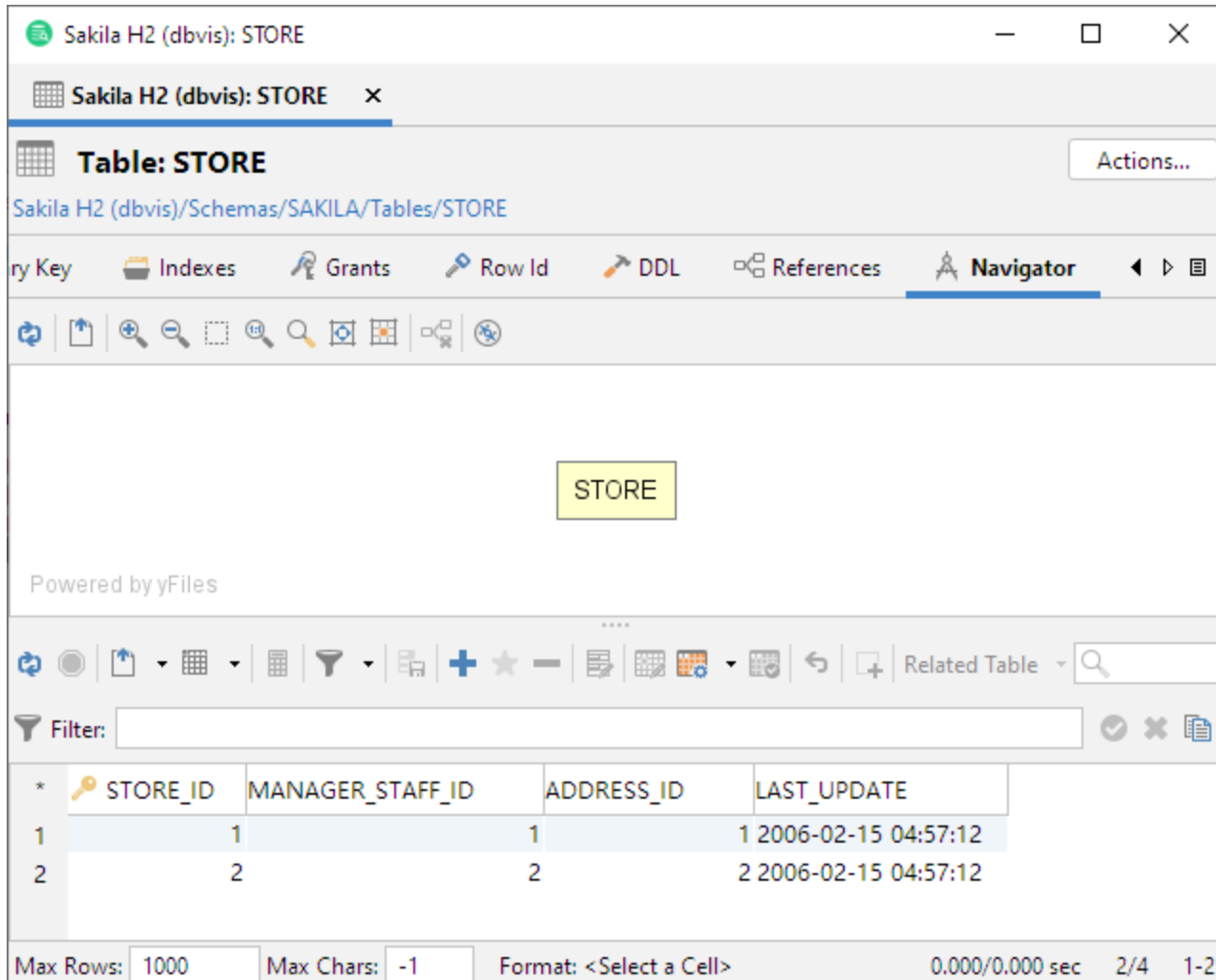
A powerful way to study database data is to navigate between the tables in a schema by following table relationships declared by Primary and Foreign Keys. DbVisualizer includes a **Navigator** feature for this purpose, visualizing the relationships graphically while making the data for each navigation case easily accessible in a data grid.

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## Opening the Navigator

To launch the **Navigator**:

1. Locate the table you want to start the navigation from in the **Databases** tab tree,
2. Double-click the table node to open its **Object View** tab,
3. Select the **Navigator** sub tab.



The screenshot shows the DbVisualizer interface for the Sakila H2 (dbvis) database. The main window is titled 'Sakila H2 (dbvis): STORE'. The 'Table: STORE' tab is active, showing the path 'Sakila H2 (dbvis)/Schemas/SAKILA/Tables/STORE'. The 'Navigator' sub-tab is selected, displaying a graphical view of the 'STORE' table. Below the graphical view is a data grid with the following columns: STORE\_ID, MANAGER\_STAFF\_ID, ADDRESS\_ID, and LAST\_UPDATE. The data grid contains two rows of data:

	STORE_ID	MANAGER_STAFF_ID	ADDRESS_ID	LAST_UPDATE
1	1	1	1	2006-02-15 04:57:12
2	2	2	2	2006-02-15 04:57:12

The interface also includes a 'Filter' field, a 'Related Table' dropdown, and a status bar at the bottom showing 'Max Rows: 1000', 'Max Chars: -1', 'Format: <Select a Cell>', '0.000/0.000 sec', '2/4', and '1-2'.

The **Navigator** tab has two parts: a graphical view and a data grid. Initially, the graphical view shows just the selected start table, and the data grid shows the data for the start table.

The data grid is of the same type as you encounter in other parts of DbVisualizer, such as in the [Data tab](#), but extended with a **Related Table** list and a **Tag** button.

## Navigating Relationships

Data navigation in DbVisualizer means following table relationships declared by Primary and Foreign Keys, using a unique key value. In the example schema shown in the screen shots in this section, there is a table named `STORE` with a primary key named `STORE_ID`. Another table named `CUSTOMER` has a foreign key constraint, declaring that values in its `STORE_ID` column refer to primary key values in the column with the same name in the `STORE` table.

The screenshot shows a data grid for the `STORE` table with the following data:

	STORE_ID	MANAGER_STAFF_ID	ADDRESS_ID	LAST_UPDATED
1	1		1	1 2006-02-15 04:37:12
2	2		2	2 2006-02-15 04:37:12

The 'Related Table' dropdown menu is open, showing the following options:

- STORE (ADDRESS\_ID) -> ADDRESS (ADDRESS\_ID)
- STORE (MANAGER\_STAFF\_ID) -> STAFF (STAFF\_ID)
- STORE (STORE\_ID) <- CUSTOMER (STORE\_ID)
- STORE (STORE\_ID) <- INVENTORY (STORE\_ID)
- STORE (STORE\_ID) <- STAFF (STORE\_ID)

If you use `STORE` as your start table, you can easily navigate to the `CUSTOMER` table for different `STORE_ID` values. In the data grid, select one or more columns in the row that holds the `STORE_ID` you want to use for navigation. In the figure above, the store where `STORE_ID = 1` is selected.

Next, bring up the **Related Table** list. It lists all tables the `STORE` table is related to through Primary and Foreign Keys, with the key columns within parenthesis. A forward arrow (`->`) between the table names means that the `STORE` table has a foreign key relation to the named table. A backward arrow (`<-`) means that the named table has a foreign key relation to the `STORE` table.

The screenshot shows a navigation diagram illustrating the relationship between the `STORE` and `CUSTOMER` tables:

```

    graph LR
      STORE[STORE] -- STORE_ID = 1 --> CUSTOMER[CUSTOMER]
      style CUSTOMER stroke-dasharray: 5 5
  
```

The diagram shows a box for `STORE` with an arrow pointing to a box for `CUSTOMER`. The arrow is labeled `STORE_ID = 1`. The `CUSTOMER` box has a key icon and `STORE_ID 1` below it.

Below the diagram is a data grid for the `CUSTOMER` table with the following data:

	CUSTOMER_ID	STORE_ID	FIRST_NAME	LAST_NAME	EMAIL
1		1	1 MARY	SMITH	MARY.SMITH@sakilacustomer.org
2		2	1 PATRICIA	JOHNSON	PATRICIA.JOHNSON@sakilacustomer.org
3		3	1 LINDA	WILLIAMS	LINDA.WILLIAMS@sakilacustomer.org
4		5	1 ELIZABETH	BROWN	ELIZABETH.BROWN@sakilacustomer.org
5		7	1 MARIA	MILLER	MARIA.MILLER@sakilacustomer.org
6		10	1 DOROTHY	TAYLOR	DOROTHY.TAYLOR@sakilacustomer.org
7		12	1 NANCY	THOMAS	NANCY.THOMAS@sakilacustomer.org

When you select "STORE(STORE\_ID) <- CUSTOMER(CUSTOMER\_ID)" in the **Related Table** list, a node is added to the graph for the CUSTOMER table, with an arrow from the STORE table node to show the navigation direction. We call this a navigation case.

The CUSTOMER node contains the key columns (just one in this example) and their values.

The arrow between the nodes is labeled with the key column name. In addition, the arrow label also shows the name and value of the column that you selected in the STORE table when you created this navigation case, i.e., the STORE\_ID column. If you select multiple columns when you create a navigation case, all non-key column names and values are included in the arrow label. This can make it easier to see at a glance what a navigation case represents.

The grid is also updated when you create a navigation case, to show all rows in the table you navigated to that has a key value corresponding to the selected key value in the table you navigated from. In this case, it shows all rows in the CUSTOMER table with STORE\_ID equal to 1.

You can edit the grid values, but be aware that if you change the value of a key in the grid for a navigation case, the row will disappear from the grid since the grid only shows rows with keys matching the navigation case key value.

You can continue to create more navigation cases from any node in the graph. For instance, if the schema contains a table with job history information for employees, you can navigate to the rental history for an employee from the CUSTOMER node. Or, you can select the STORE node in the graph to navigate to the CUSTOMER table for a different store. Just click on the STORE node, select another row in the data grid and then the same **Related Table** list entry.

The screenshot shows a database tool interface for the 'Table: STORE' in the 'Sakila H2 (dbvis)/Schemas/SAKILA/Tables/STORE' schema. The interface includes a toolbar with options like 'Row Count', 'Primary Key', 'Indexes', 'Grants', 'Row Id', 'DDL', 'References', and 'Navigator'. Below the toolbar is a graph showing a 'STORE' node connected to two 'CUSTOMER' nodes. The top arrow is labeled 'STORE\_ID = 2' and points to a 'CUSTOMER' node with 'STORE\_ID 2'. The bottom arrow is labeled 'STORE\_ID = 1' and points to a 'CUSTOMER' node with 'STORE\_ID 1'. Below the graph is a data grid showing the contents of the CUSTOMER table filtered by STORE\_ID = 1. The grid has columns for CUSTOMER\_ID, STORE\_ID, FIRST\_NAME, LAST\_NAME, and EMAIL. The data rows are as follows:

* CUSTOMER_ID	STORE_ID	FIRST_NAME	LAST_NAME	EMAIL
1	4	2 BARBARA	JONES	BARBARA.JONES@sakilacustomer.org
2	6	2 JENNIFER	DAVIS	JENNIFER.DAVIS@sakilacustomer.org
3	8	2 SUSAN	WILSON	SUSAN.WILSON@sakilacustomer.org
4	9	2 MARGARET	MOORE	MARGARET.MOORE@sakilacustomer.org
5	11	2 LISA	ANDERSON	LISA.ANDERSON@sakilacustomer.org
6	13	2 KAREN	JACKSON	KAREN.JACKSON@sakilacustomer.org
7	14	2 BETTY	WHITE	BETTY.WHITE@sakilacustomer.org

The bottom of the interface shows a status bar with 'Max Rows: 1000', 'Max Chars: -1', 'Format: <Select a Cell>', '0.001/0.002 sec', '273/9', and '1-8'.

If you want to create multiple navigation cases from one table to another using the same relationship, you can select columns in multiple rows in the first table. When you make a selection in the **Related Table** list, one navigation case per row is created.

Every time you select a node in the graph, the data grid is updated to show the corresponding data. The grid settings for one node are independent of the settings for another node. For instance, if you define a filter for one node, the filter is only associated with the grid for that node.

## Adding Context Information to the Graph

The navigation node always shows the key columns and their values, but sometimes you may want to add other columns to the node to better describe what it represents. This is called tagging the node.

There are two ways to do so: drag and drop cells from the grid to any node, or use the **Tag** button in the grid toolbar to tag the currently selected node with the currently selected cells in the grid.

To drag and drop cells to a node, select one or more cells in the grid. With the left mouse button pressed and the mouse positioned over one of the selected cells, drag the cells over a node in the graph and release the mouse button. The cells are added to the node.

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Related Table

Filter:

* ID	CUSTOMER_ID	STORE_ID	FIRST_NAME	LAST_NAME	EMAIL
1	4	2	BARBARA	JONES	BARBARA.JONES@sakilacustomer.org
2	6	2	JENNIFER	DAVIS	JENNIFER.DAVIS@sakilacustomer.org
3	8	2	SUSAN	WILSON	SUSAN.WILSON@sakilacustomer.org
4	9	2	MARGARET	MOORE	MARGARET.MOORE@sakilacustomer.org
5	11	2	LISA	ANDERSON	LISA.ANDERSON@sakilacustomer.org
6	13	2	KAREN	JACKSON	KAREN.JACKSON@sakilacustomer.org
7	14	2	BETTY	WHITE	BETTY.WHITE@sakilacustomer.org

Max Rows: 1000    Max Chars: -1    Format: <Select a Cell>    0.001/0.002 sec    273/9    1-7

## Arranging the Graph

As you add navigation cases, you may find that you need to move nodes around, remove some nodes, zoom and move around in the graph, etc.

You can rearrange the layout of the graph by selecting a node and, with the left mouse button pressed, drag it around. The arrow and its label move with the node.

The toolbar for the graph offers a number of tools to help you with other tasks.

## Exporting and Printing the Graph

You can also export the graph to an image file or print it. Use the corresponding toolbar buttons to do this

When you print the graph, you are prompted for information about what to print (the Graph or the View, i.e., just the portion visible in the display area) and how many rows and columns to split the printing over (one page is used for each row/column).

## Opening the Navigator from the Data tab

Sometimes, you may realize that you want to analyze the relationships for a table when you are working with it in the **Data** tab. If you have configured the **Data** tab to show only filtered data, sorted in a specific way, etc. opening the **Navigator** tab and making all the same configurations there may be a bit of a hassle. A more convenient way is to just pick **Show in Navigator** in the right-click menu in the **Data** tab. It opens the table in the **Navigator** tab with all the same configurations as you made in the **Data** tab.