How to Analyze Model Dependency with Matrix?

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Overview of This Tutorial

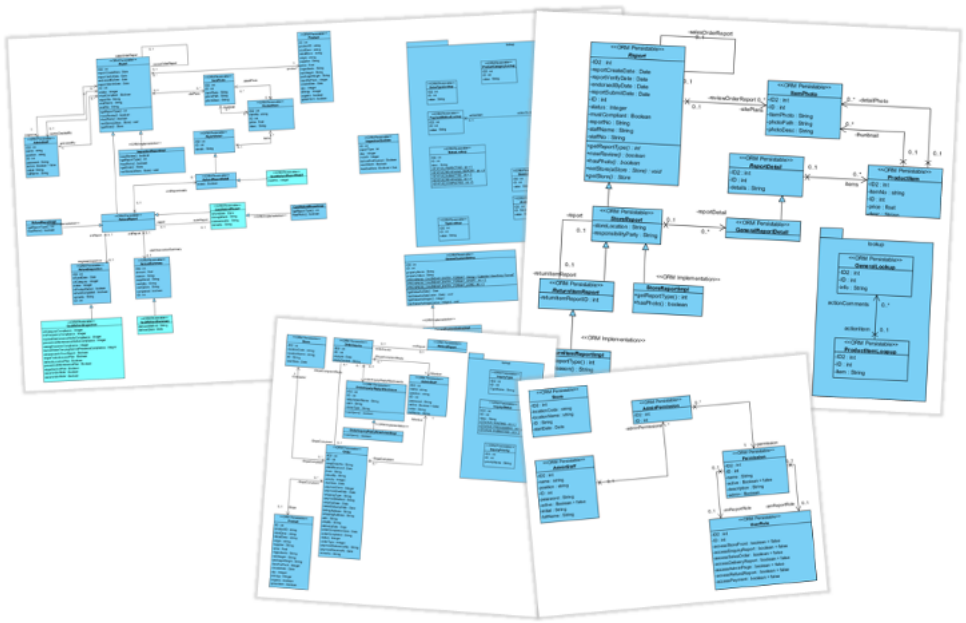
In this tutorial, you will learn how to use a Matrix Diagram to find the relationships between classes in a complicated project.

To complete this tutorial, you must have Visual Paradigm installed. You also need basic knowledge of UML modeling with Visual Paradigm.

Creating a Matrix Diagram

1. Download Department-Store.vpp. You can also find this file at the bottom of this tutorial, under the **Resources** section.

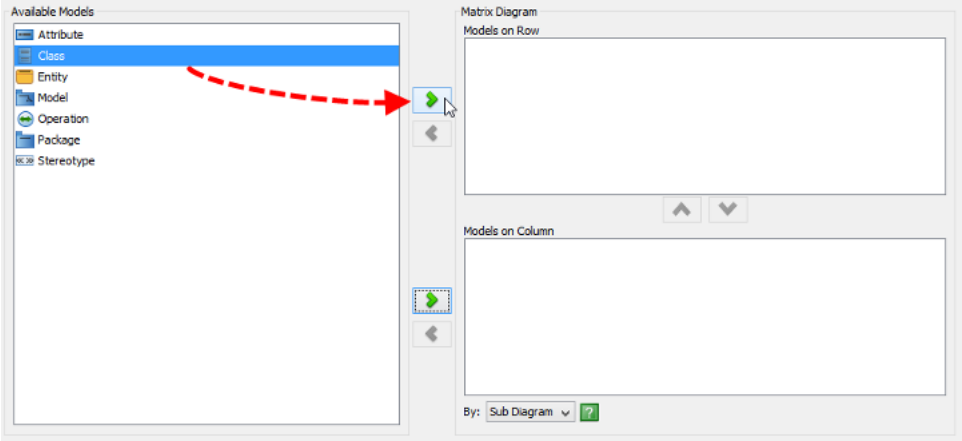
2. Open the downloaded project file in Visual Paradigm. You can find the following Class Diagrams in the project:



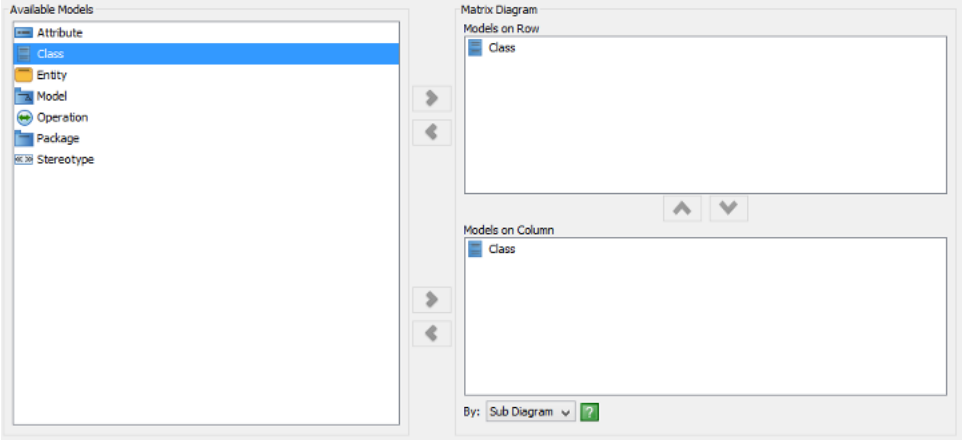
   The diagrams contain many classes, some of which are visualized in multiple diagrams, and with complex relationships between them. With a project like this, it's not easy to tell the relationships of any given class. To do this, you can make use of a Matrix Diagram.

3. To create a Matrix Diagram, select **Modeling > Impact Analysis > Matrix** from the application toolbar.

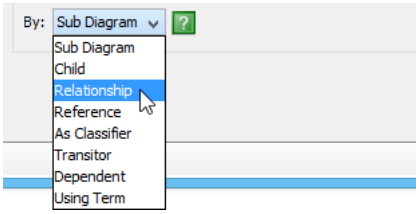
4. To form a matrix, you need to choose the items to list on the rows and columns. In this tutorial, we want to show the relationships among classes. Therefore, we need to list classes on both rows and columns. In the list of available modes, select **Class** and click **>** to add it to **Models on Row**.



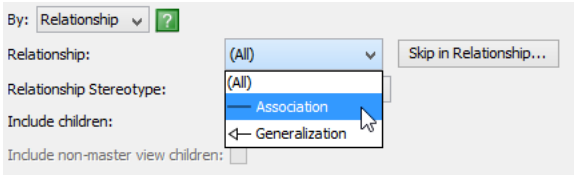
5. Similarly, select **Class** and click **>** to add it to **Models on Column**.



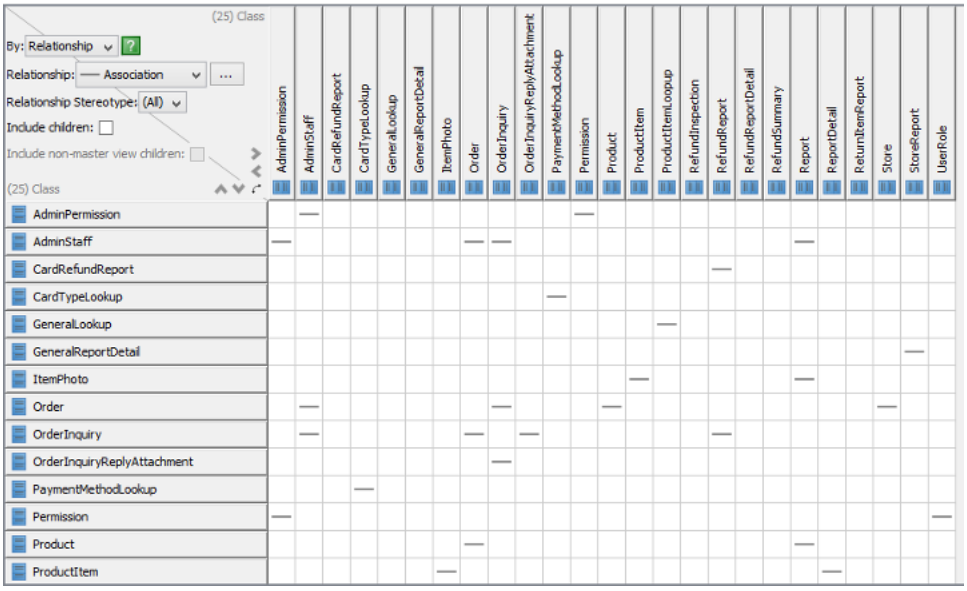
6. Select **Relationship** from the drop-down menu of **By**. This means that a matrix will be formed by analyzing the relationships among classes.



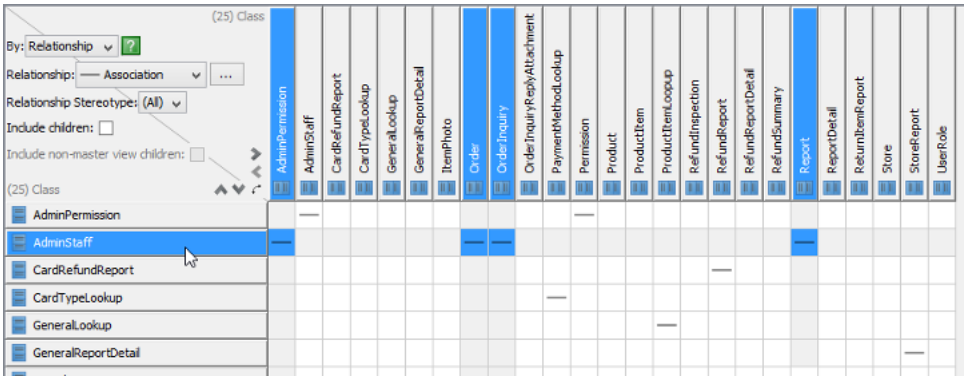
7. Let's say we want to specifically view the associations among classes. Beside the drop-down menu of **Relationship**, select **Association**.



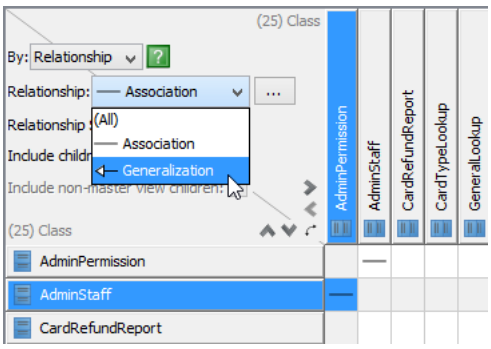
8. Click **OK** to form a matrix. Here is the matrix formed:



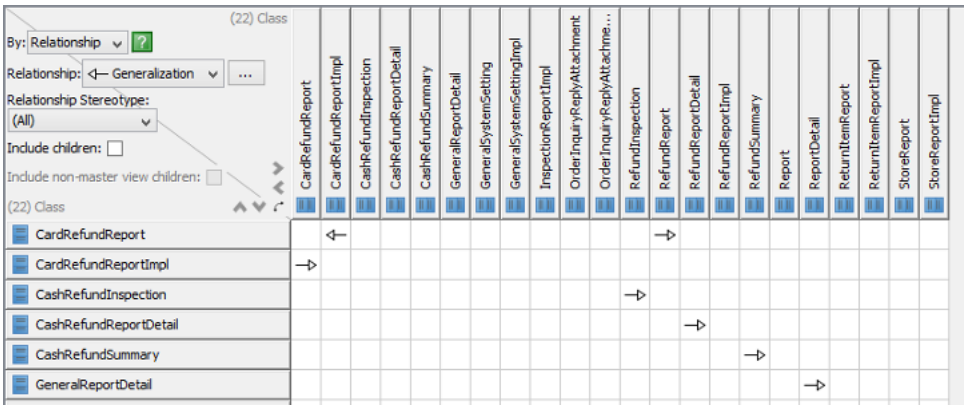
9. Let's say we want to check the associations of the class *AdminStaff*. Click on the *AdminStaff* row or column. You should see the cells highlighted accordingly, indicating the classes to which *AdminStaff* is connected.



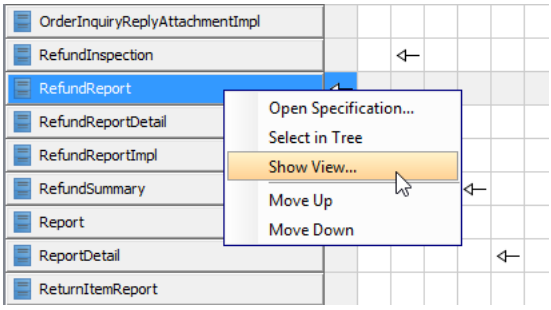
10. Let's say you want to check the generalization relationships among classes now. At the top left corner of the matrix, change **Association** to **Generalization** from the drop-down menu of **Relationship**.



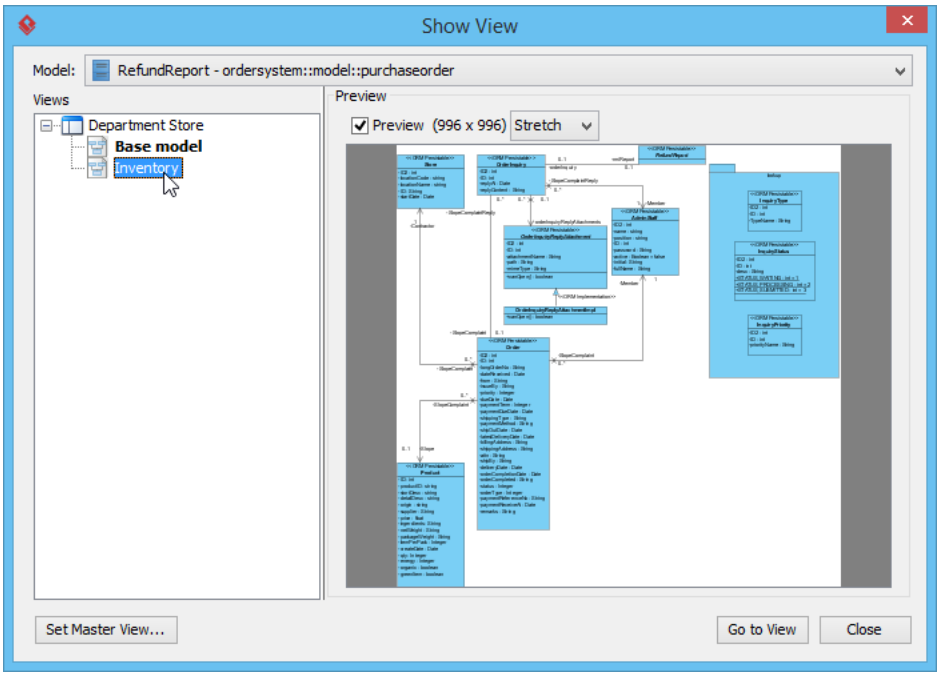
The matrix is updated to present the generalization relationships among classes.



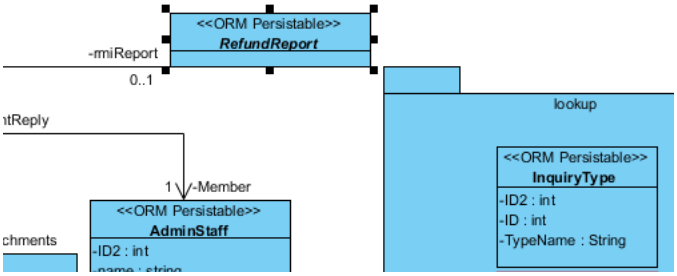
11. You can open the diagram in which a chosen class is being visualized. Let's try. Right-click on the *RefundReport* class and select **Show View...** from the popup menu.



12. In the **Show View** window, select *Inventory* from the list of diagrams and then click on **Go to View** at the bottom right corner.



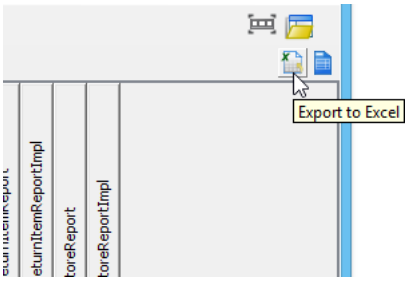
This opens the Inventory diagram with the *RefundReport* class selected.



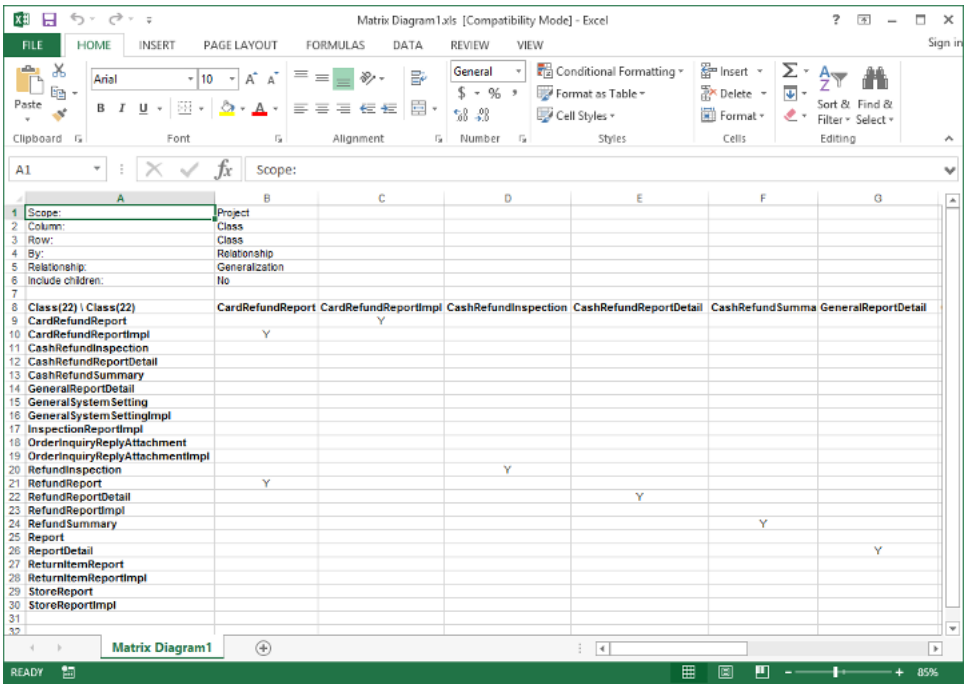
Exporting a Matrix Diagram to Excel

You can also export a Matrix Diagram to an Excel file. To export a matrix:

1. Click on the **Export to Excel** button at the top right of the matrix.



2. Enter the filename in the file chooser and confirm. The result should look like this:



	A	B	C	D	E	F	G
1	Scope:	Project					
2	Column:	Class					
3	Row:	Class					
4	By:	Relationship					
5	Relationship:	Generalization					
6	Include children:	No					
7							
8	Class(22) \ Class(22)	CardRefundReport	CardRefundReportImpl	CashRefundInspection	CashRefundReportDetail	CashRefundSumma	GeneralReportDetail
9	CardRefundReport		Y				
10	CardRefundReportImpl	Y					
11	CashRefundInspection						
12	CashRefundReportDetail						
13	CashRefundSummary						
14	GeneralReportDetail						
15	GeneralSystemSetting						
16	GeneralSystemSettingImpl						
17	InspectionReportImpl						
18	OrderInquiryReplyAttachment						
19	OrderInquiryReplyAttachmentImpl						
20	RefundInspection			Y			
21	RefundReport	Y					
22	RefundReportDetail				Y		
23	RefundReportImpl						
24	RefundSummary					Y	
25	Report						
26	ReportDetail						Y
27	ReturnItemReport						
28	ReturnItemReportImpl						
29	StoreReport						
30	StoreReportImpl						
31							

Resources

1. Department-Store.vpp

Related Links

- Visual Paradigm's Impact Analysis features

Visual Paradigm

Visual Paradigm home page
(https://www.visual-paradigm.com/)

Visual Paradigm tutorials
(https://www.visual-paradigm.com/tutorials/)