CHAPTER 7: DEFINING TABLE RELATIONSHIPS

Training Objectives

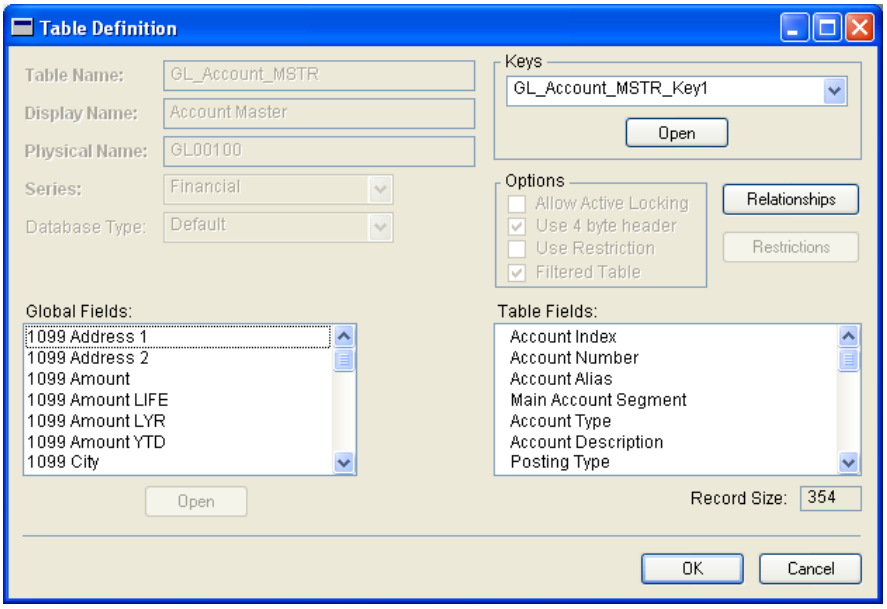
Actively participating during this chapter helps you learn:

- Relationship link types
- Table Relationship requirements
- How to define new table relationships

Introduction

Defining a table relationship allows you to use two tables on the same report when the relationship between the tables has not been previously defined. Tables must have a defined relationship to use them on the same report. (Most table relationships in Microsoft Dynamics™ GP are already defined.) After establishing a relationship within two tables, you can link the two tables.

The Table Definition window is used to create new table relationships. Open a table from the Tables window which is accessed by selecting Tables from the Report Writer main window to access the Table Definition window.

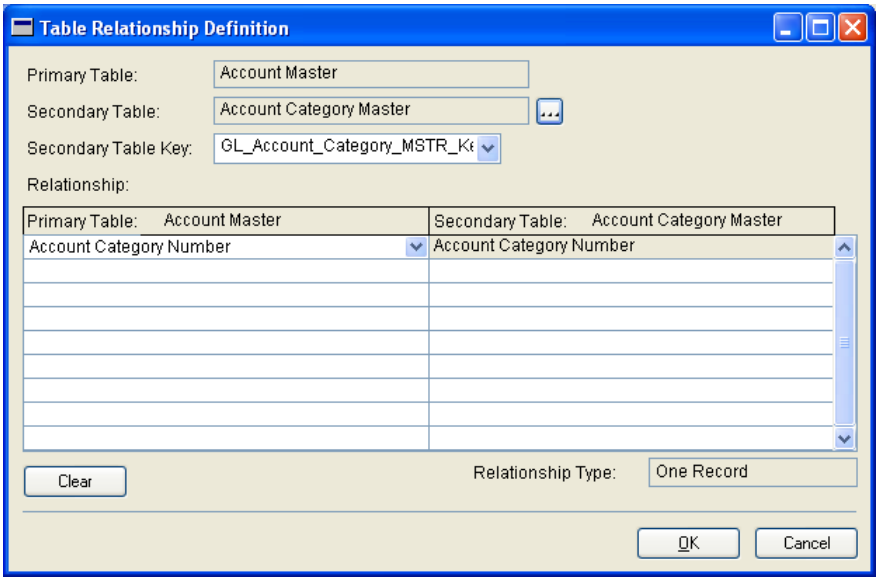


This chapter focuses on the process of creating these new table relationships and the concepts that need to be followed to create a valid link that you can use on your reports.

Table Relationship Components

When defining a relationship between two tables, you indicate that there are common fields between the two tables. By specifying which fields are in common, the information from both tables can be combined into a complete record.

For example, general information about account categories is stored in the Account Category Master table, while specific information about the accounts that are in each category is stored in the Account Master table. To print the correct detail information from the Account Master table along with the account category information from the Account Category Master table, a relationship must exist between the two tables.



This relationship between the primary table, Account Master, and the secondary table, Account Category Master, was defined using the **Account Category Number** field that is present in both tables. This field composes the Account Category Master table's first key.

When defining a table relationship the secondary table is related to the primary table in the relationship. For example, you might want to define a table relationship that relates the Security Restrictions table to the User-Company Access table. After defining the table relationship, you can link the Security Restrictions table to the User-Company Access table to use them on the same report. Table relationships are only one-way. For this reason, a table relationship in which the secondary table can be linked to the primary table does not allow you, on a different report, to link the primary table to the secondary one. The requirements for defining table relationships are described later in this chapter.

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

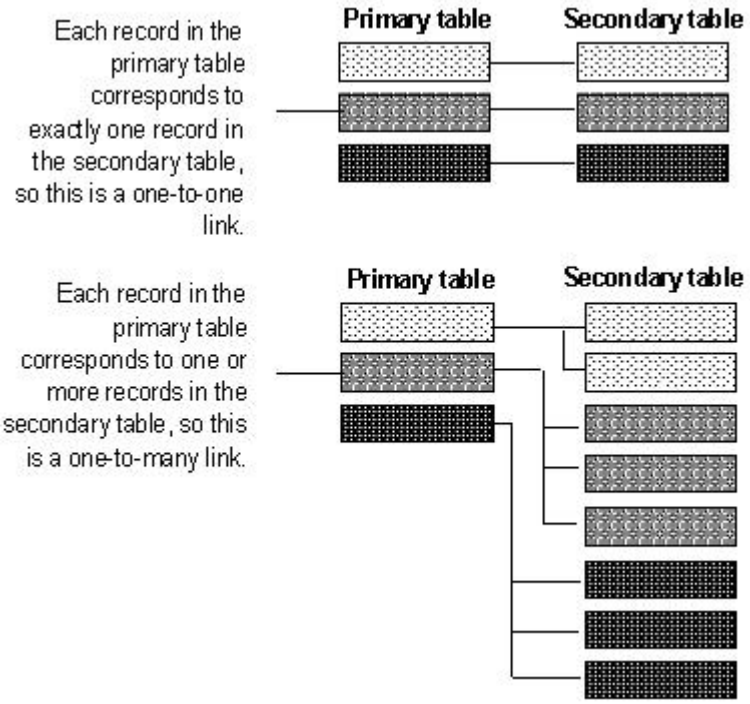
Table Relationship Requirements

Define a table relationship between any two tables if most or all of the fields in one of the secondary table's keys are present in the primary table. The key is the field or group of fields used to sort information in the secondary table and to which all the information in the table is related.

Many of the steps taken in this procedure depend upon whether the relationship between the two tables is a one-to-one or one-to-many. A one-to-one relationship means that for every record in the primary table, there can be no more than one corresponding record in the secondary table. A one-to-many relationship means that for every record in the primary table, there can be more than one record in the secondary table.

For example, an invoice header table that contains only the name or number of each invoice and an invoice line item table that contains the items on each invoice would have a one-to-many relationship.

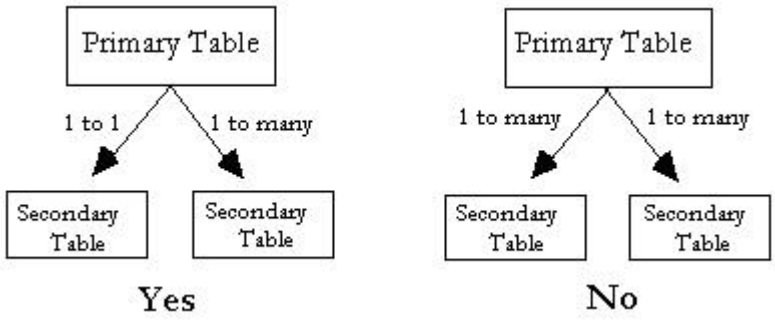
The following graphics illustrate one-to-one and one-to-many table relationships.



If the relationship between the primary table and the secondary table is one-to-one, all of the fields in the secondary table's key must be present in the primary table. If it is a one-to-many relationship, only some of the fields must be present in the primary table.

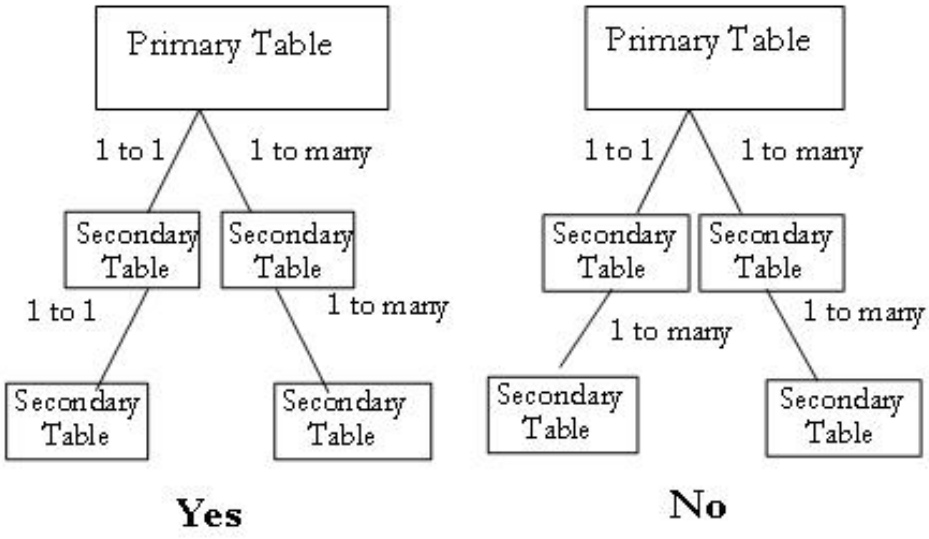
Two General Rules for Deciding which Order to Link Tables Together:

Two one-to-many links cannot reside on two different sides of a table relationship tree structure.



One-to-many links can be daisy chained together on the same side of the table relationship tree structure as long as no more than five one-to-many links have been established. There is a maximum of 15 table links that can be made for an individual report.

One-to-many links cannot be located on two different sides of the table relation tree structure as was mentioned in the first general rule stated above and as illustrated below.



Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

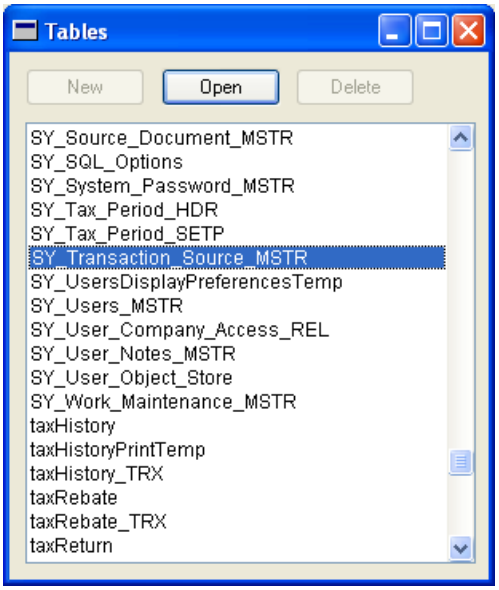
Defining Table Relationships Checklist

- ❑ 1. Select the primary table.
- ❑ 2. Select the product that contains the secondary table (optional).
- ❑ 3. Select the secondary table in the table relationship.
- ❑ 4. Select a key from the secondary table.
- ❑ 5. Select fields from the primary table to form the relationship definition.
- ❑ 6. Save the relationship definition.

Selecting a Primary Table

The table selected in this step is the primary table in the table relationship and the one you link the secondary table to. Use the following steps to select the table.

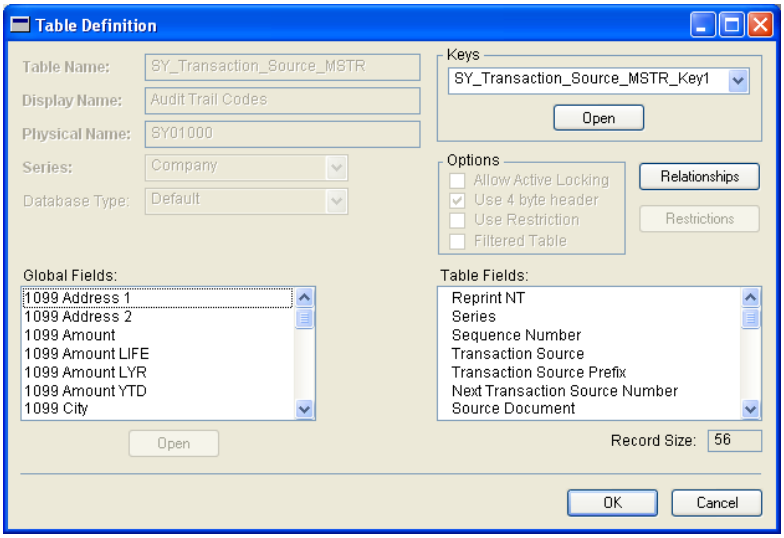
1. Select the **Tables** button from the Report Writer main menu to open the Tables window.



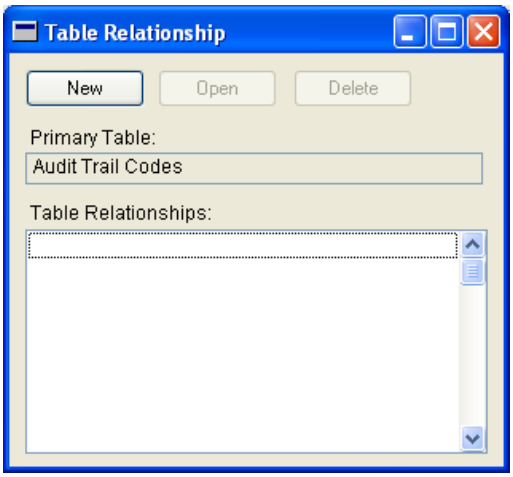
The Tables window displays the numerous data tables available in the Microsoft Dynamics GP application.

2. In the Tables window, select the table to use as the primary table, and click **Open** to open the Table Definition window.

   This window provides some of the same information about a table as the Table Descriptions window. View the keys for the file by selecting a key and clicking the **Open** button. Also, a list of the table fields is displayed in a scrolling window.



3. Click **Relationships** to open the Table Relationship window.

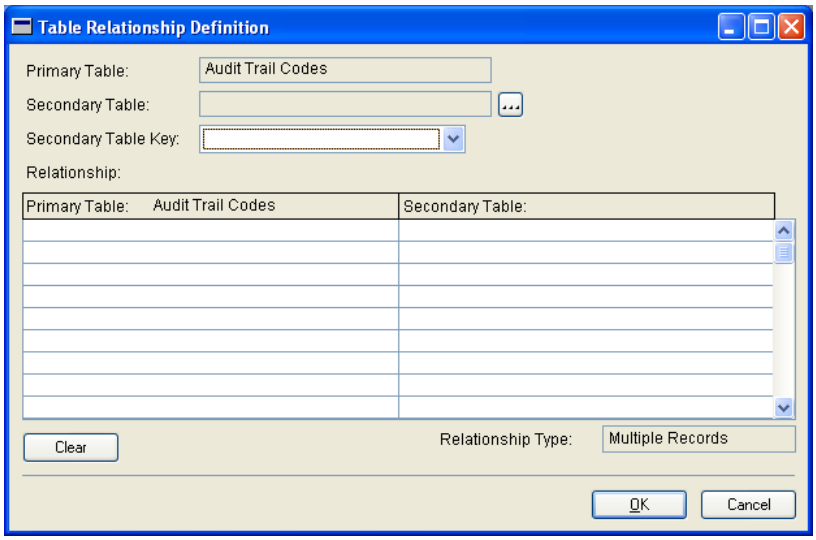


The Table Relationship window displays existing table relationships and allows you to define new relationships. Table relationships provide information about how records in different tables are related, typically through fields that are common to both.

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

For instance, a complete record of an invoice can be printed on a report because a relationship is defined between the table containing the invoice number and the table containing the invoice line items with detailed information about the line items.

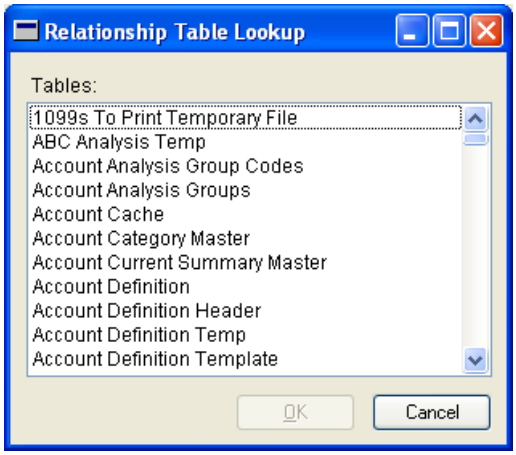
4. Click **New** to open the Table Relationship Definition window.



5. The Primary Table name automatically appears.

Selecting a Secondary Table in the Table Relationship

1. Select the Secondary Table lookup button to open the Relationship Table Lookup window, which displays a list of all the tables in Microsoft Dynamics GP or in the product selected.



HINT: *If using integrating products with Microsoft Dynamics GP and you selected an integrating product from the Product list when you switched to Report Writer, select either that product or Microsoft Dynamics GP.*

2. Select the table to use as the secondary table in the table relationship and click **OK**. That table's menu appears at the top of the Secondary Table portion of the Relationship scrolling window (in the Table Relationship Definition window).

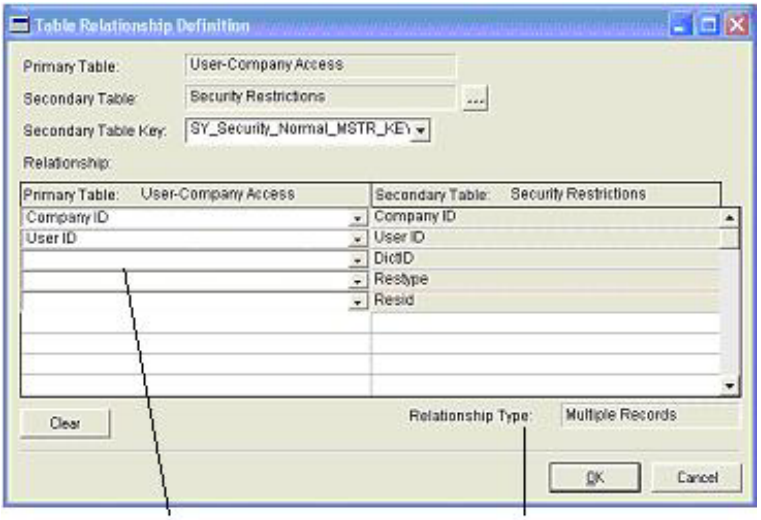
Selecting a Secondary Table Key

Select a key containing the field or fields that you want this table relationship to be based upon from the Secondary Table Key drop-down list. After the key is selected, each of its key segments is listed in the Secondary Table portion of the Relationship scrolling window.

HINT: *If you are defining a one-to-many relationship, selecting a key that places records from the secondary table in the desired order optimizes performance.*

Selecting Related Fields

For at least the first of the secondary table's key segments, select a related field from the corresponding drop-down list in the Primary Table portion of the Relationships scrolling window. The drop-down list contains only fields from the primary table that are of the same data type as the corresponding key segment in the secondary table. In most cases, you should use as many of the primary table's fields that correspond to the secondary table's key as possible.



Select the fields from the primary table that correspond to the secondary table's key from this list.

The type of table relationship is displayed here.

If the key contains multiple segments, you need not select a corresponding **Primary Table** field for each key segment. However, the key segments you select corresponding fields for must be consecutive key segments.

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

For example, if a key has four segments, you could select corresponding fields for the first two segments, but not for the first and third segments. If the secondary table's key upon which this relationship is based allows duplicates, the relationship is one-to-many, and Multiple Records appear in the **Relationship Type** field.

If the secondary table's key does not allow duplicates, and a corresponding field is selected for each key segment, the relationship type is one-to-one, and One Record appears in the **Relationship Type** field. If you select a corresponding field for only some of the key segments, the relationship type is one-to-many, and Multiple Records appear in the **Relationship Type** field.

To change the primary table field you have selected, select a different field from the drop-down list. To deselect fields and not replace them with different selections click **Clear**. If you are not sure which fields to use, consult the following tables.

HINT: *Clicking* ***Clear*** *removes all primary table field selections.*

One to One Relationships

Key Allows Duplicates	Number of Fields in Key	Fields to use in Relationship Definition
No	1	The field in the key
No	2 or more	All of the fields in the key
Yes	1	The field in the key
Yes	2 or more	All of the fields in the key

One to Many Relationship

Key Allows Duplicates	Number of Fields in Key	Key Fields to use in the Relationship Definition
No	1	The field in the key
No	2	The first field in the key
No	3	The first field in the key or the first and second fields in the key or all three
Yes	1	The field in the key
Yes	2	The first field in the key or the first and second field in the key
Yes	3	The first field in the key, the first and second fields in the key, or the first, second and third fields in the key

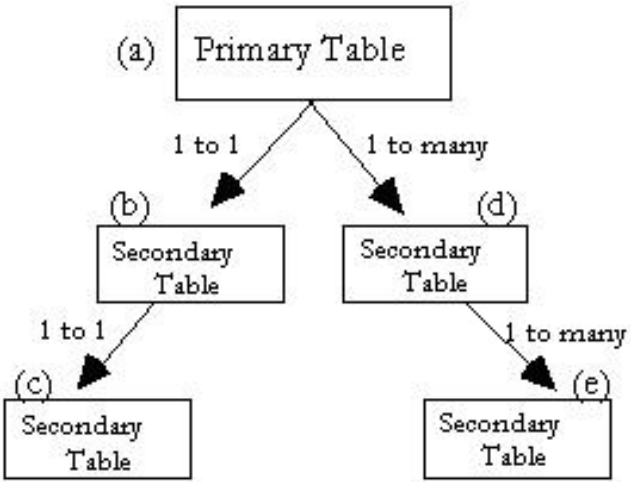
Saving a Relationship Definition

Click **OK** in the Table Relationship Definition window to save the table relationship. The name of the secondary table now appears in the Table Relationship window. Close it and click **OK** in the Table Definition window, and then close the Tables window.

Positioning Fields on the Report

The position that the fields should reside on within the report is based on the tree structure setup from the Report Table Relationships window. The last one-to-many linked table should have its fields placed in the body section of the report.

Any additional one-to-one linked tables at the same level could be placed there as well. Other tables that are connected by one-to-many links and are located above the last one-to-many linked table should have their fields positioned in an additional header.



In the previous example, the table linked as (e) has its fields located in the body section of the report. The table linked as (d) has its fields located in additional header #2, and (a), (b), and (c) tables has their fields located in additional header #1.

A field located in table (c) can be placed in the body section of the report. However, it normally results in an unacceptable report because the field lists the same value multiple times.

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

Lab 7.1 – Define and Use a New Table Relationship

Company: Fabrikam, Inc.

Background Information: In a previous lesson, you created both a primary and a secondary copy of the Blank Invoice Form. In this exercise, you create a table relationship that is used with the primary copy of the Blank Invoice Form. The goals of this exercise are to learn how to create a table relationship and to learn how to use the newly created table relationship in a report.

Scenario: You have learned that important information is being entered in the Item Level Notes window for Invoices. This information is important to customers as well so you decide to include the notes on your Invoices. Since the notes do not reside in a table that is currently linked to the Invoice, you need to create a relationship between the Item Master table and the Record Notes Master table. The Record Notes Master table then needs to be linked to the Blank Invoice Form so that notes attached to inventory items can be printed on the report.

Challenge Yourself!

Creating the Relationship

1. In Report Writer, open the Tables window. Select the primary table, which for this exercise is the Item Master, and open the Table Definition window.
   - Which of the three table names (display, technical, or physical) is used in the Tables window?
   - In which window can you find all three of these names together in one place?
   - How do you access this window?
   - Is this window available in Microsoft Dynamics GP only, Report Writer only, or both Microsoft Dynamics GP and Report Writer?

Your use of this content is subject to your current services agreement

2. Verify that the Record Notes Master table is not currently related to the Item Master table.
   - Is it possible to delete a relationship that was created as part of the original Microsoft Dynamics GP?

3. Create the relationship between the Item Master and the Record Notes Master.

NOTE: *Keep in mind that when creating valid relationships, it is not the field names that have to be exact; it is the contents of the fields. For example: the* ***Originating Master Name*** *field in the Year-to-Date Transaction Open table corresponds to the* ***Vendor Name*** *field in Payables Management and the* ***Customer Name*** *field in Receivables Management.*

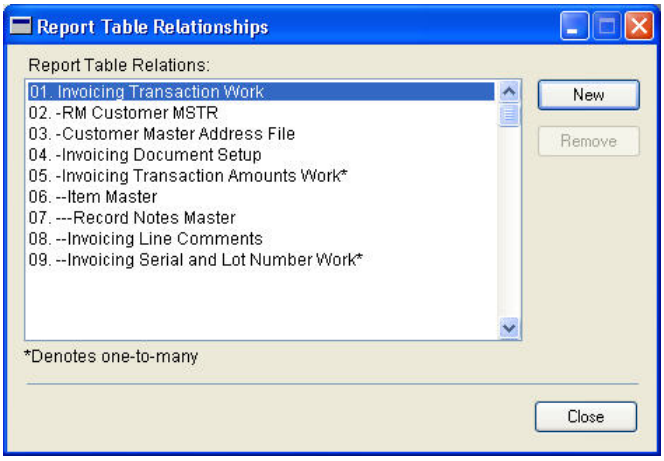
   - Is this relationship one-to-one or one-to-many?
   - What is a one-to-one relationship?
   - What is a one-to-many relationship?
   - What are the advantages of creating a one-to-one relationship?
   - What do the fields listed in the Primary Table drop-down list have in common with the corresponding key segment (field) in the Secondary Table portion of the Relationship scrolling window?

4. Verify that the secondary table now exists in the Table Relationships list on the Table Relationship window.
   - Can you delete a relationship you created yourself?

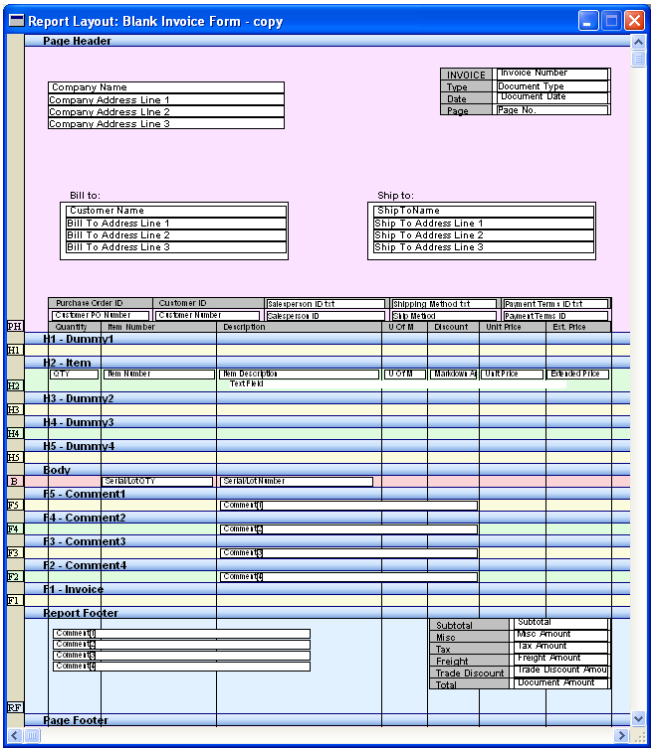
Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

Linking the Record Notes Master Table to the Report

1. In Report Writer, open the modified Blank Invoice Form.
2. Open the Report Table Relationships window and link the Record Notes Master table to the report.

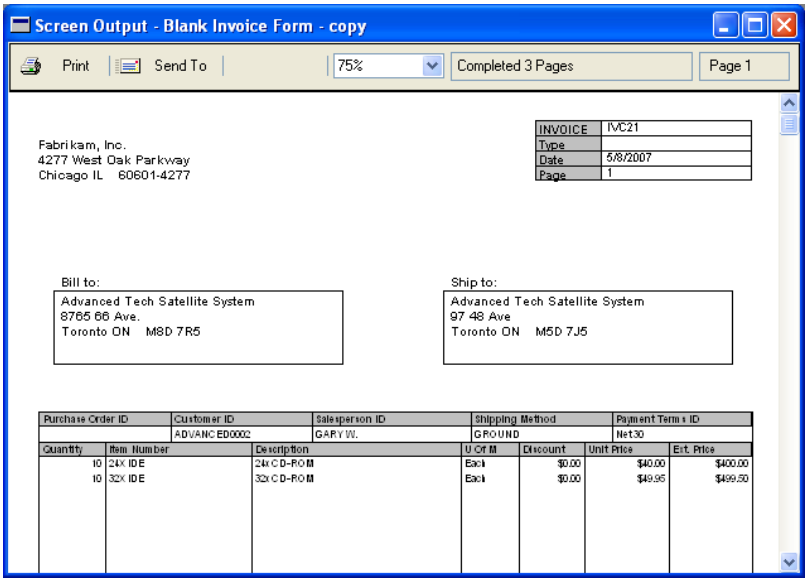


3. Open the Report Layout window.
4. Add the Text Field to the layout from the Record Notes Master table, and place it below the **Item Description** field in H2. See below:



Printing the Report

1. Select an existing Microsoft Dynamics GP invoice, and attach a note to one of the items.
2. Print the invoice sending the output to the screen. The report should look similar to the following:



3. Verify that the item note you added printed on the invoice below the Item Description.

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

Lab 7.1 – Define and Use a New Table Relationship

Company: Fabrikam, Inc.

Background Information: In a previous lesson, you created both a primary and a secondary copy of the Blank Invoice Form. In this exercise, you create a table relationship that you use with the primary copy of the Blank Invoice Form. The goals of this exercise are to learn how to create a table relationship and to learn how to use the newly created table relationship in a report.

Scenario: You have learned that important information is being entered in the Item Level Notes window for Invoices. This information is important to customers as well so you decide to include the notes on your Invoices. Since the notes do not reside in a table that is currently linked to the Invoice, you need to create a relationship between the Item Master table and the Record Notes Master table. The Record Notes Master table then needs to be linked to the Blank Invoice Form so that notes attached to inventory items can be printed on the report.

Need a Little Help?

Creating the Relationship

1. Launch Report Writer.
2. Open the Tables window. Select the primary table, which for this exercise is IV_Item_MSTR and open the Table Definition window.
   - Which of the three table names (display, technical, or physical) is used in the Tables window?
   - In which window can you find all three of these names together in one place?
   - How do you access this window?
   - Is this window available in Microsoft Dynamics GP only, Report Writer only, or both Microsoft Dynamics GP and Report Writer?

Your use of this content is subject to your current services agreement

3. Open the Table Relationship window. Verify that the Record Notes Master table is not currently related to the Item Master table.

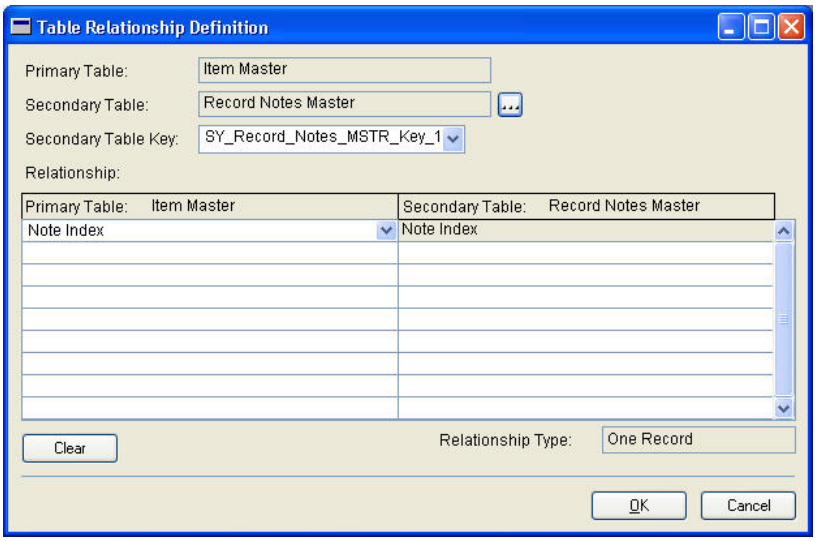
   – Is it possible to delete a relationship that was created as part of the original Microsoft Dynamics GP?

4. Open the Table Relationship Definition window. Make the following entries. Refer to the illustration that is given for guidance.

   Secondary Table: Record Notes Master

   Secondary Table Key: SY_Record_Notes_MSTR_Key_1

   Match the **Note Index** field in the Record Notes Master table with the **Note Index** field in the Item Master table.



NOTE: *Keep in mind that when creating valid relationships, it is not the field names that have to be exact; it is the contents of the fields. For example: the* ***Originating Master Name*** *field in the Year-to-Date Transaction Open table corresponds to the* ***Vendor Name*** *field in Payables Management and the* ***Customer Name*** *field in Receivables Management.*

   – Is this relationship one-to-one or one-to-many?

   – What is a one-to-one relationship?

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

– What is a one-to-many relationship?

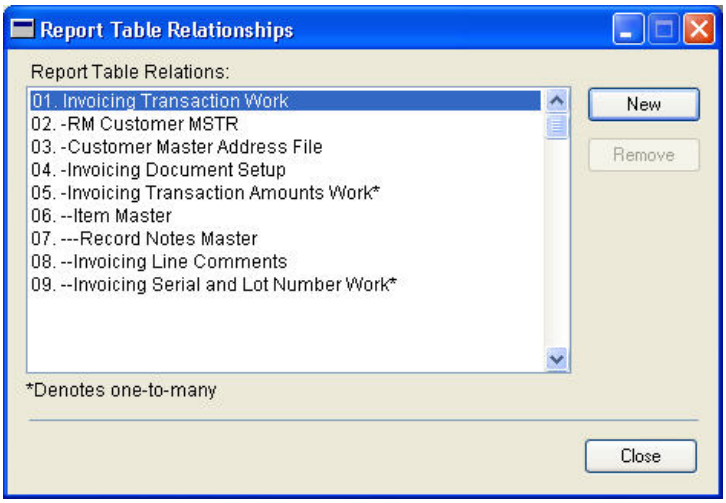
– What are the advantages of creating a one-to-one relationship?

– What do the fields listed in the Primary Table drop-down list have in common with the corresponding key segment (field) in the Secondary Table portion of the Relationship scrolling window?

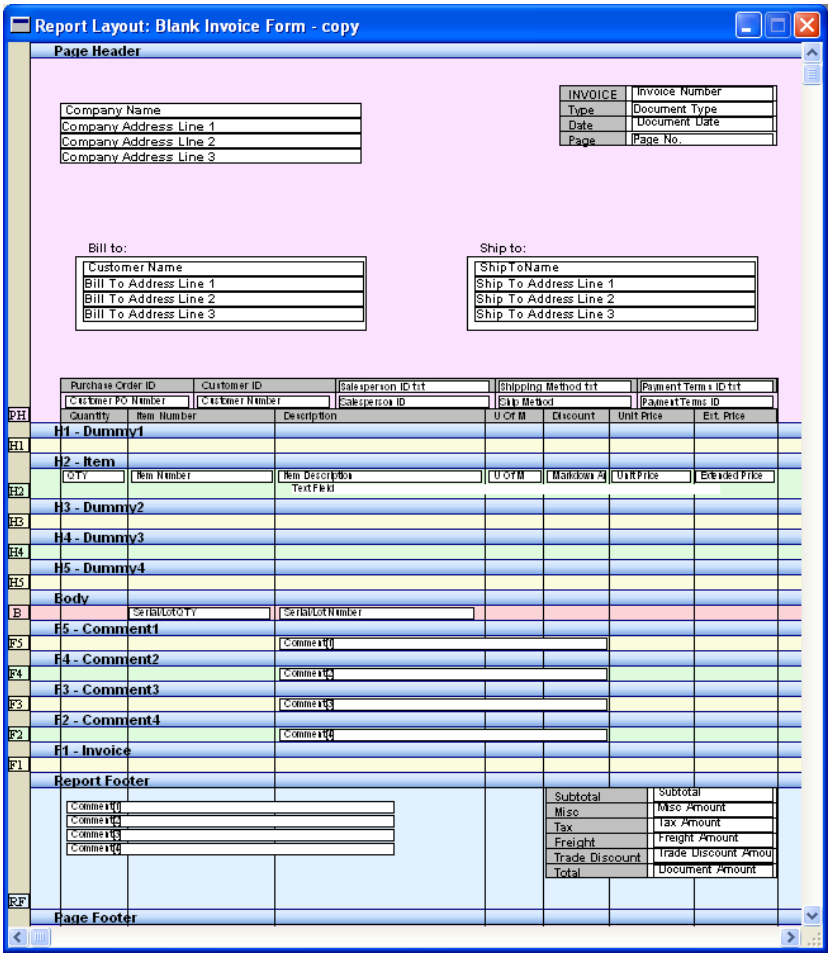
5. Save the new relationship.
6. Verify that the secondary table now exists in the Table Relationships list on the Table Relationship window.
7. Close the Table Relationship window, the Table Definition window, and the Tables window. You are now ready to use the new relationship in a report.

Linking the Record Notes Master Table to the Report

1. Open the Report Writer window where all original and modified reports are listed.
2. Open the Blank Invoice Form from the list of Modified Reports.
3. Open the Report Table Relationships window.
4. Link the Record Notes Master table to the Item Master table. Verify that the Record Notes Master table has been linked to the report. Refer to the following illustration for guidance:



5. Save the selections and return to the Report Definition window.
6. Click the **Layout** button to open the Report Layout window.
7. Increase the size of H2 by one line. Add the Text Field onto the layout from the Record Notes Master table, and place it below the **Item Number** field in H2. Resize the field as shown:



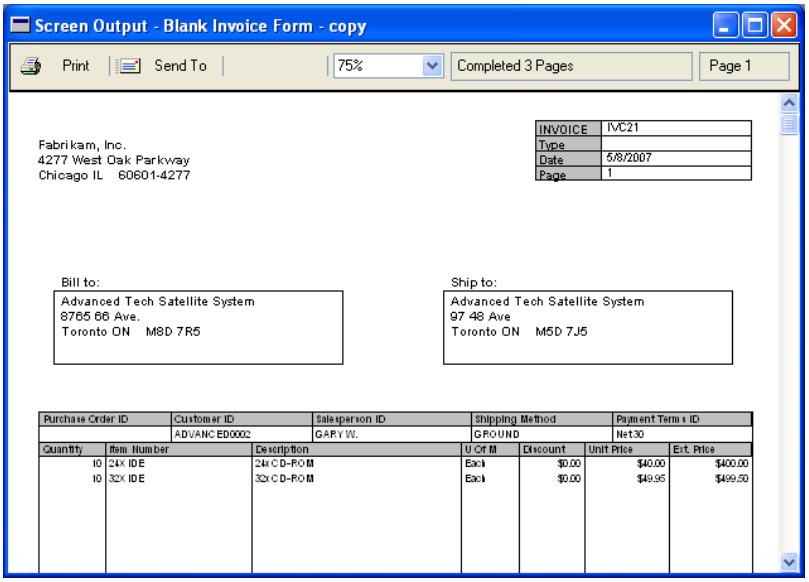
Printing the Report

1. Save your changes to the Report Layout. Switch to the Microsoft Dynamics GP, and open the Invoice Entry window.
2. Select one of the existing documents.
3. Add a note to one of the items.

***HINT**: Use the **Note** button next to the Item Number prompt to enter and attach some text into the Note window.*

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

4. Select the Blank Paper Document Format from the **Options** menu.
5. Print the invoice sending the output to the screen. The report should look similar to the following:



Conclusion

Defining Table Relationships

Some key points to remember from this chapter include:

- Table relationships can be defined if tables have a key in common
- One-to-one and One-to-many relationships can be created in the Table Relationships Definition window
- Consecutive keys must be all linked to create a one-to-one relationship
- Table relationships that are user-defined can be deleted from the report at any time; pre-defined relationships cannot be removed

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

_____

_____

_____

_____

2.

_____

_____

_____

_____

3.

_____

_____

_____

_____

Microsoft Official Training Materials for Microsoft Dynamics ™
Your use of this content is subject to your current services agreement