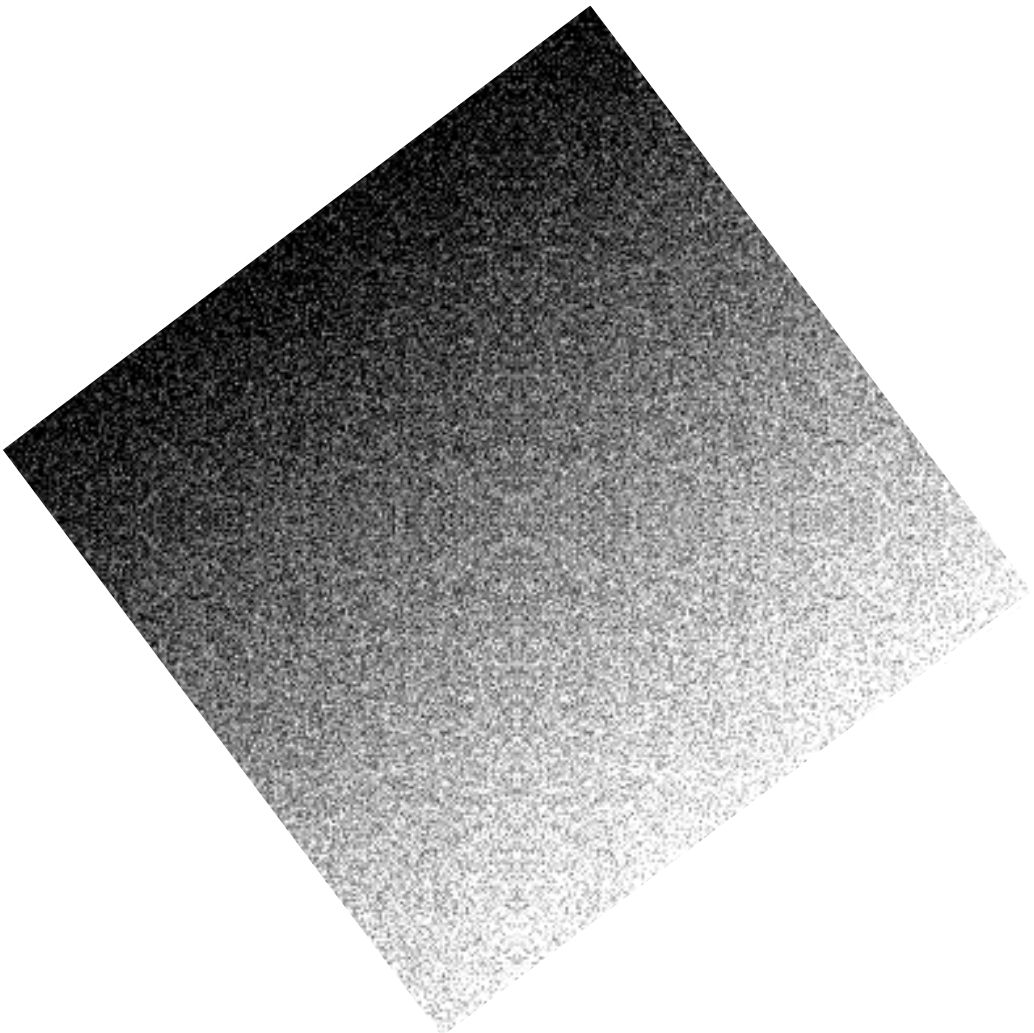
Intelligent Decision Server

IBM

Browser User's Guide

Version 1



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Note

Before using this information and the product it supports, be sure to read the general information under “Notices” on page v.

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This edition applies to Version 1 of Intelligent Decision Server, 5639–IDS, and to any subsequent releases until otherwise indicated in new editions or technical newsletters. Make sure you are using the correct edition for the level of the product.

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About This Book

This book describes the components, features, and functions of the Browser tool, which retrieves, organizes, and displays data from a specific database category. The book provides instructions for building browsers that can be used by others to retrieve data or to set data constraints for another IDS tool to use.

Who Should Read This Book

This book is intended for two audiences:

Those who need to use Browser icons that have already been set up (configured and defined) to retrieve data from a database. It is assumed that these users have some experience using IDS tools, or have access to the IDS publication *Working with the Intelligent Decision Server*.

This audience can find most or all of the information it needs in Chapter 1, “What Is Browser?” on page 1 and Chapter 2, “Using a Browser Icon” on page 3.

Those who need to configure and define Browser icons. It is assumed that these users have a working knowledge of:

- The IDS desktop environment
- The database to which the Browser icon is to have access

This audience can find most or all of the information it needs in Chapter 1, “What Is Browser?” on page 1, Chapter 3, “Configuring and Defining a Browser Icon” on page 20, and the Appendix A, “More on Joining Tables” on page 44.

To build a more complex browser and take full advantage of the Browser tool's capabilities, you also need to know how to use Structured Query Language (SQL). However, you can build a simple browser without using SQL, and some help with simple SQL statements is available in this guide.

We'd Like Your Comments

Your feedback is important to us in providing you with the most accurate and high-quality information. If you have any comments about this book or any other IDS documentation, please visit our Website at:

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Chapter 1. What Is Browser?

The Browser tool was created for people who need a way to quickly and easily browse through items in a database category. This tool is designed to let users examine different tables and columns, and set up relationships and criteria that then can be transferred into other IDS tools to carry out more detailed processes such as queries and reports.

The Browser tool retrieves, organizes, and displays columns of data from specified tables in a database category. Browser lets you select items from a database by constraining columns, and then displays only the items that meet the criteria you specify.

A browser can be used for various purposes, for example:

- As a stand-alone tool that quickly displays dimension data from a database (either a large part of the list or a small set of selected items)
- As an interface tool with which to set constraints on database items, view the result, and transfer the desired constraints into other IDS tools

The Browser Icon

Your database administrator might configure or define Browser icons and make them readily available for your use. These preconfigured icons are generally available in a public file drawer.

You can also copy a new Browser icon to your desktop from the *Blank Icons file drawer and configure it to correspond to a specific database category yourself. If you cannot find a blank Browser icon, ask your system administrator for assistance.

Preconfigured Browser icons typically have a name that describes their subject matter. Blank icons are simply named Browser until you rename them.

The Browser Windows

The Browser tool operates mainly in three windows:

- The Main Browser window
- The Browser Controls window
- The Category window

Each window is described in Table 1 on page 2.

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Table 1. Browser windows

Name	Description
Main Browser window	This window shows data from the database category and lets you constrain selections, making the displayed data more specific. The name you have assigned the icon appears in the window header, or, if you have not renamed it, the name Browser appears.
Category window	This window displays all the tables and joins in the database category to which the Browser icon is configured. The name in the window header is the name of the database category.
Browser Controls window	You use this window as a set-up or work area when building a Browser icon. The tables you copy into this window from the category window are displayed in the main Browser window when you request data from the database.

Related Tools

Several other IDS tools also can retrieve, organize, and display data from a database. The Browser tool is designed to be a quick, high-level interface with your database, but not to supply detailed on-line reports. If you wish to display or print not only dimension data from your database, but fact data as well, you should consider using the Query tool or the Reporter tool. You can find a more detailed discussion of the Browser tool's treatment of facts and dimensions in “Avoiding Problems with Long Columns” on page 39, and you can find details on the Query and Reporter tools in *Query User's Guide* and *Reporter User's Guide*.

Chapter 2. Using a Browser Icon

This chapter explains how you can use a Browser icon that has already been configured (set up to retrieve data from a specific database) and defined (set up to display certain data in a certain way). First, you will see how a typical main Browser window looks when you first open it. Then, you will learn ways to adjust and enhance the tool so that you can browse the data you want from a database category. These sections follow:

"When You Open a Browser"

"Constraining Data in a Browser" on page 4

"Adding Tables and Columns to a Browser" on page 11

"Should You Use Get New Data or Apply?" on page 14

"Copying Browser Data to Other Tools" on page 15

"Canceling Changes in a Browser" on page 19

"Stopping Data Retrieval" on page 19

When You Open a Browser

A Browser icon must have been configured and defined before you open it for the first time. If not, it appears like this:

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If the Browser Has Not Yet Been Configured

If the browser has not yet been configured as explained in Chapter 3, “Configuring and Defining a Browser Icon” on page 20, and you click on the **Show Controls** button, no other windows appear, and the system responds in the message bar at the bottom:

Cannot find the Database Server Name. -- Open the Options window and select Other Data.

The icon must be configured before it can be defined or used.

If the Browser Has Not Yet Been Defined

If the Browser icon has been configured but not defined, and you click on the **Show Controls** button, Browser Controls window and the category window open. The browser must be defined before data can appear in the main Browser window. Detailed instructions for defining browsers start on “Choosing Data from the Category Window” on page 25.

If the Browser Has Been Configured and Defined

When you open a Browser icon that has been both configured and defined, it looks like the one shown in Figure 1.

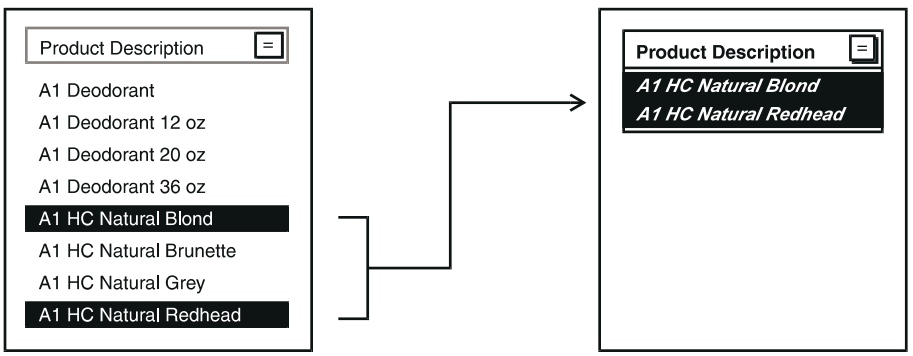


Figure 1. Main Browser window of a Browser icon that has already been configured and defined

To narrow down the browser display to the data you want, you might need to do one of the following:

Constrain data, either by using the current operator or by selecting a new operator

Add a table or a column

Delete a table or a column

Constraining Data in a Browser

Constraining data lets you specify the type and range of data that is displayed in a Browser window. For example, suppose your Browser icon lists all of your company's products, their brand descriptions, and their product identification numbers. You wish to know the ID number of a particular product that belongs to the A1 Deodorant brand, but you cannot remember the product's packaging size.

When you constrain data in a column, any remaining columns in the main Browser window are affected. In this case, you constrain the Brand Description column to *A1 Deodorant*, so that only data associated with deodorants is displayed in the main Browser window. You can now review the list of deodorant sizes until you find the one you want. If the product ID for that deodorant size is not apparent, you can constrain the Product Description column to the particular size of deodorant, so that only the product ID for that size appears in the Product ID column.

Constraining data changes the information displayed in the main Browser window only temporarily. You can easily reset any constraint and display other specific information.

There are three methods for constraining data in the main Browser window. The first two methods default to the current operator, and the third method allows you to select an operator. You constrain data by:

Double-clicking on an item in a column, described in "Setting Constraints with the Current Operator"

Selecting one or more items and then selecting the column heading, described in "Constraining to More Than One Item at a Time" on page 6

Selecting an item or items in a column and then selecting an operator from the **Constraint Operator** button menu, described in "Setting Constraints by Selecting an Operator" on page 8

There is a fourth method for constraining data, but usually it is done by the person who defines the browser. If, while using a particular browser, you find that you always apply the same constraint, you might want to *hard code* the constraint into the browser. This is done using the browser controls, and the procedure is explained in "Constraining a Column in the Table Options Window" on page 40.

Setting Constraints with the Current Operator

The current constraint operator for a column appears in the small square on the right side of the column heading.

To constrain a column using the current constraint operator:

1. Select a data value in a column. For example, to constrain the Product Description column to A1 Deodorant 20 oz, select the *A1 Deodorant 20 oz* value in the Product Description column.
2. Select the item again, or select the column heading (Product Description). The column collapses to display only the selected item, as shown in Figure 2 on page 6.

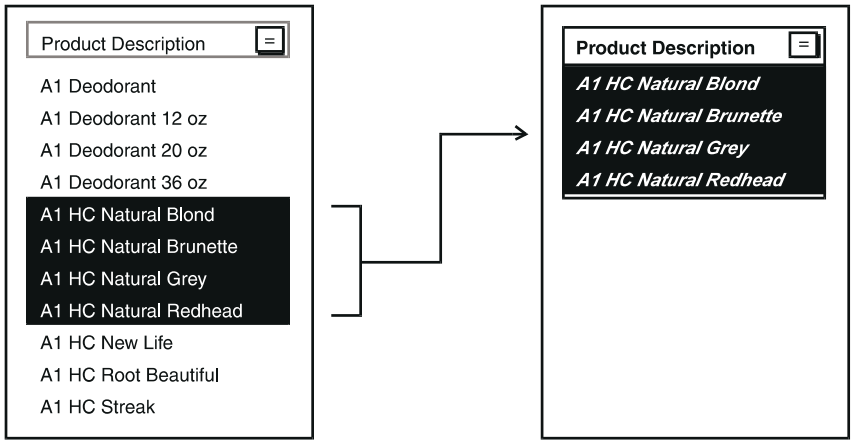


Figure 2. A column constrained to one item

When you constrain a column to an item:

The border around the constrained column becomes a bold line, indicating that the column has been constrained to the displayed data value.

All the text inside the border is displayed in bold.

The constrained element is displayed in bold and italic.

When you double-click on a data value in a column, the other columns collapse to display only values that satisfy the constraint, that is, values matching the item you selected. (In the example in Figure 2, those are the brand description and the product ID that belong to A1 Deodorant in the 20-ounce size.) You can easily manipulate large columns by constraining them to produce fewer matches.

To display all the column data again:

1. Select the constrained data value or the column heading.

Constraining to More Than One Item at a Time

You can constrain a column to two items at the same time, or to a range of items.

Two Separate Items

To constrain the list to two column items that might be separated by other items in the list:

1. Select the first item you want.
2. Move the pointer to your second choice.
3. Click the right mouse button.
4. Click on the column heading.

Figure 3 on page 7 shows (left) two separate items that have been selected and (right) the constrained list.

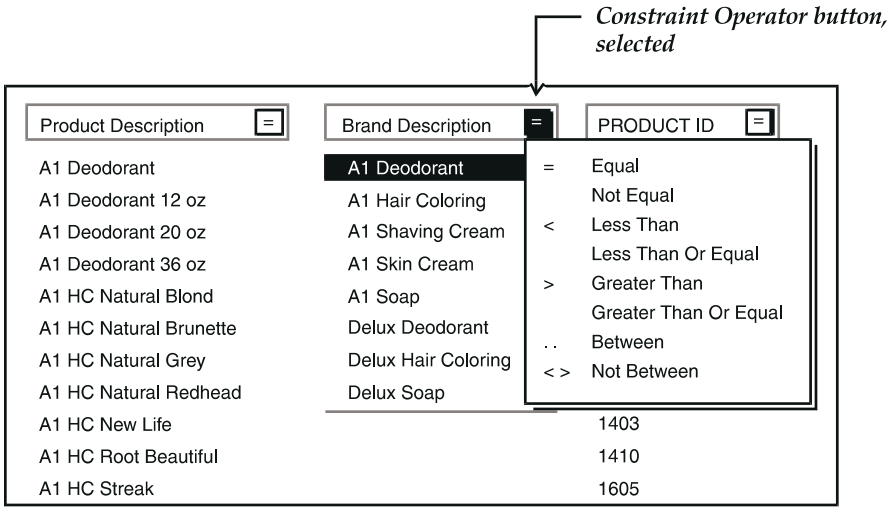


Figure 3. A column constrained to two separate items

A Range of Items

To constrain the list to a range of items, that is, to several column items that are together in the list:

1. Select the first item you want.
2. Point to your second choice.
3. Press and hold the right mouse button while moving through the list to your last choice.
4. Release the right mouse button.
5. Click on the column heading.

   Figure 4 on page 8 shows a selected range (on the left) and the constrained list (on the right).

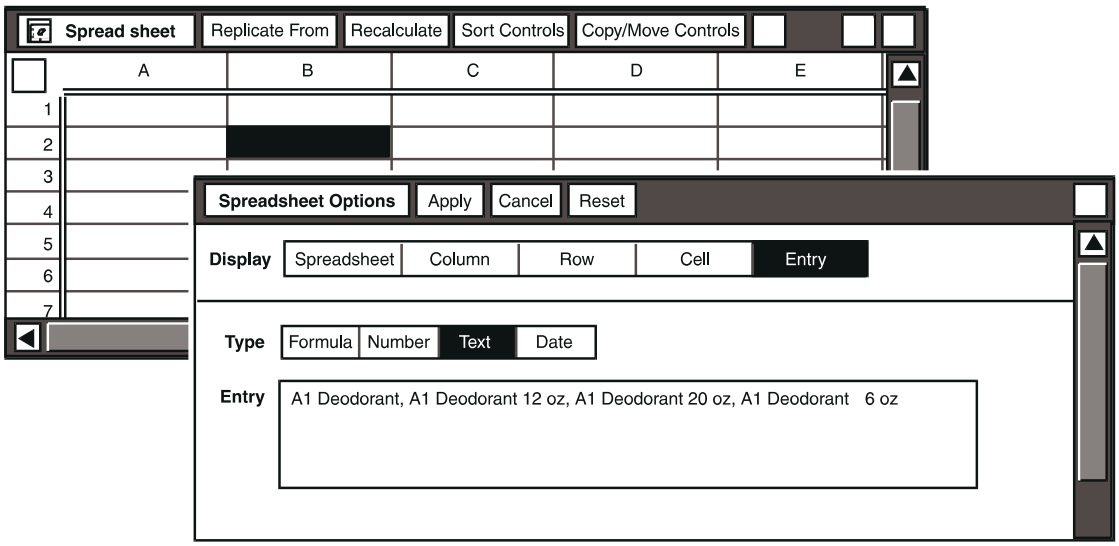


Figure 4. A column constrained to a range of items

Another way to select a range of items is to use the **Between** or **Not Between** operator, as explained in the following section.

Setting Constraints by Selecting an Operator

To constrain a column by using an operator:

1. Select an item in a column.
2. Select the **Constraint Operator** button in the column heading. The **Constraint Operator** button menu appears, as shown in Figure 5 on page 9.

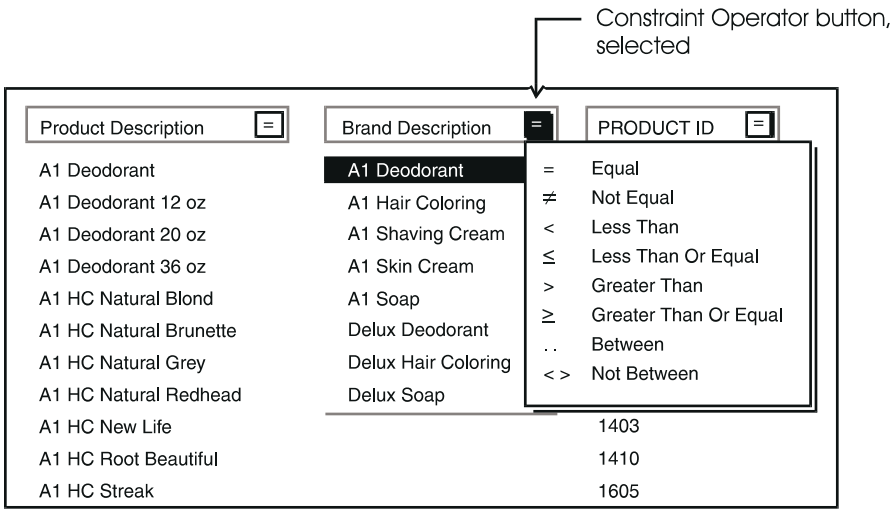


Figure 5. Constraint Operator button menu

3. Select an operator in the **Constraint Operator** button menu. Now the operator you selected is displayed in the **Constraint Operator** button, and the column is constrained to your selection.

You can change a constraint without first redisplaying all data in a column.

For example, suppose you want to know the product ID numbers of all the products that are not included in the brand description *A1 Deodorant*. To display the numbers, you select that item, select the **Constraint Operator** button for that column, and then select **Not Equal** in the button menu.

The main Browser window now appears as shown in Figure 6 on page 10. Note the sign in the Brand Description column's **Constraint Operator** button.

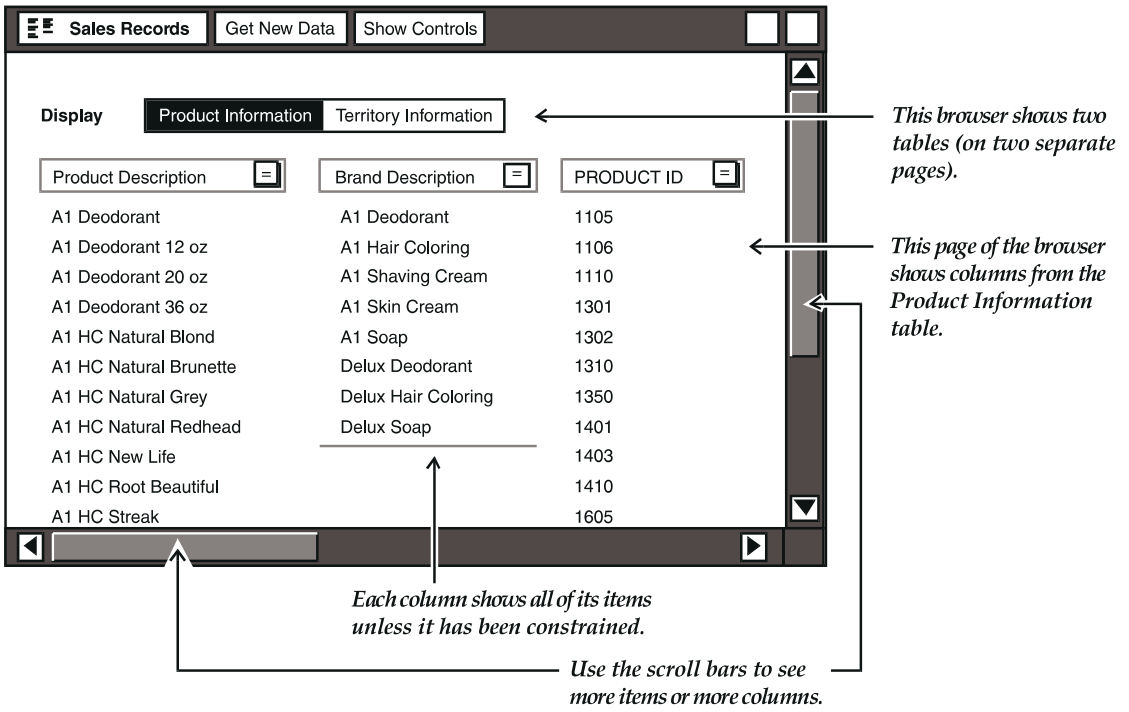


Figure 6. A column constrained by an operator

If you select a **Constraint Operator** button and the button menu shows only two choices, it means the sorting order of that column has been defined to follow the sorting order of another column. More information about column sorting can be found in "Ordering Column Contents" on page 30.

In Figure 6, you see that:

The Brand Description column displays only the item you selected.

The Product Description column displays all items except the product descriptions corresponding to the brand description *A1 Deodorant*.

The PRODUCT ID column displays product numbers for all items that are still displayed in the Product Description column.

Selecting an operator gives you a wide range of choices for constraining data. You can further refine your data by constraining the rest of the columns.

Some operators allow you to select more than one column item:

For the equal to and not equal to operators, you can select two or more values.

For . . and < >, you select two column items. For the remaining operators you select only one column item.

All of the operators work on columns of all data types. For example, if you go to the Product Description column and select the < operator and the item *A1 HC Total*, Browser displays all the items that come before *A1 HC Total* in the column.

The Browser tool displays values inclusively. Two examples follow to help explain this feature.

If you select this:	Browser displays this:
The operator **. . Between** and two column items	Values for the two column items you selected, plus values for all items that lie between them
The operator < > **Not Between** and two column items	Values for all column items except the two you selected and those that lie between them

Adding Tables and Columns to a Browser

You can change or increase the amount or type of data in an existing browser by adding new tables and columns in the Browser Controls window.

This section provides the basic steps for adding tables and columns. If you need more details, see:

"Choosing Data from the Category Window" on page 25

"Specifying Column Options" on page 28

"Creating Column Groups (Joining Tables)" on page 33

To add new tables and columns:

1. Select **Show Controls** in the main Browser window header. The Browser Controls window appears.
2. Select Browser Controls window header. The category window appears as shown in Figure 7 on page 12. In this example, the Sales Records browser is browsing the Sales Tracking category of the database.

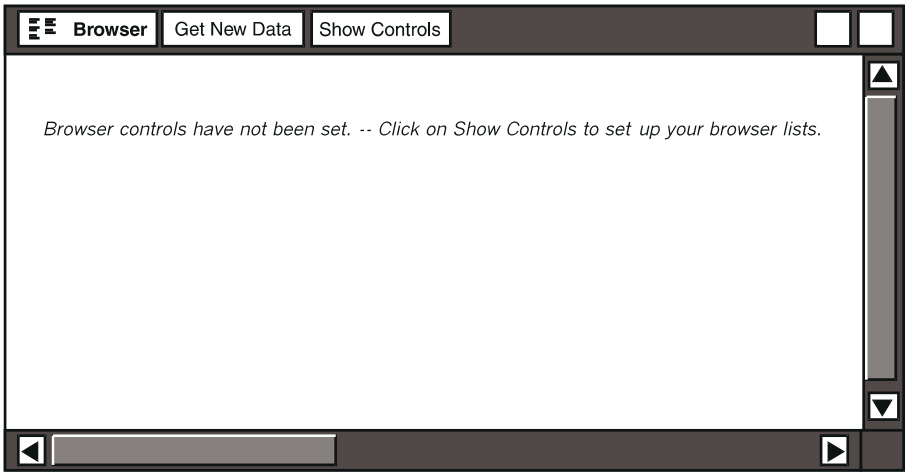
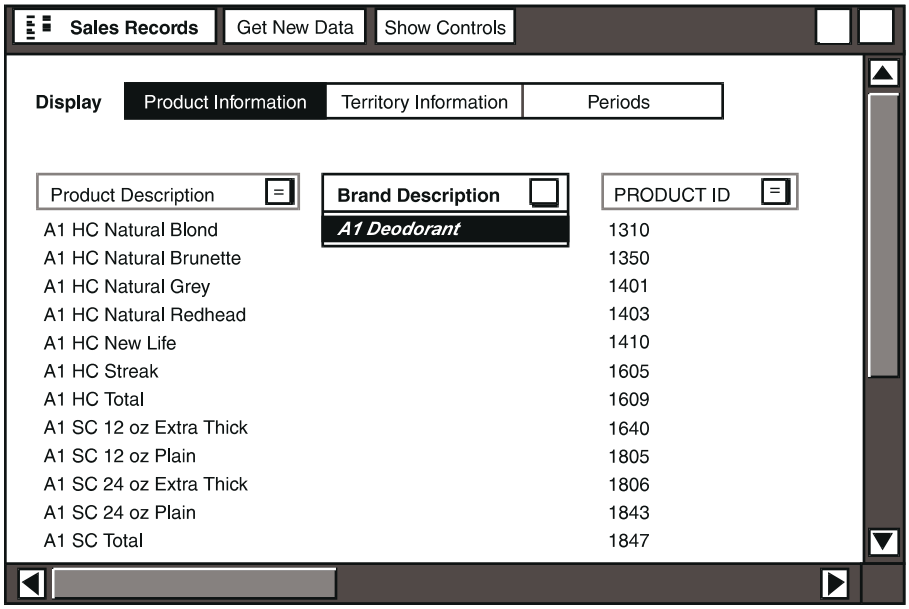


Figure 7. Category window of Sales Tracking category

3. Select the tables or columns in the category window that contain the information you want to add to your Browser icon.

   For example, suppose that in the Product Information page of your current main Browser window, only the Product Description and Brand Description columns appear, and you want to add the PRODUCT ID column. To do this, you must add the PRODUCT ID column to the Browser Controls window. Begin by going to the category window and selecting the PRODUCT ID column from the Product Information table.

4. Copy the PRODUCT ID column into the Product Information table in the Browser Controls window. In this case, the Product Information table appears as follows:

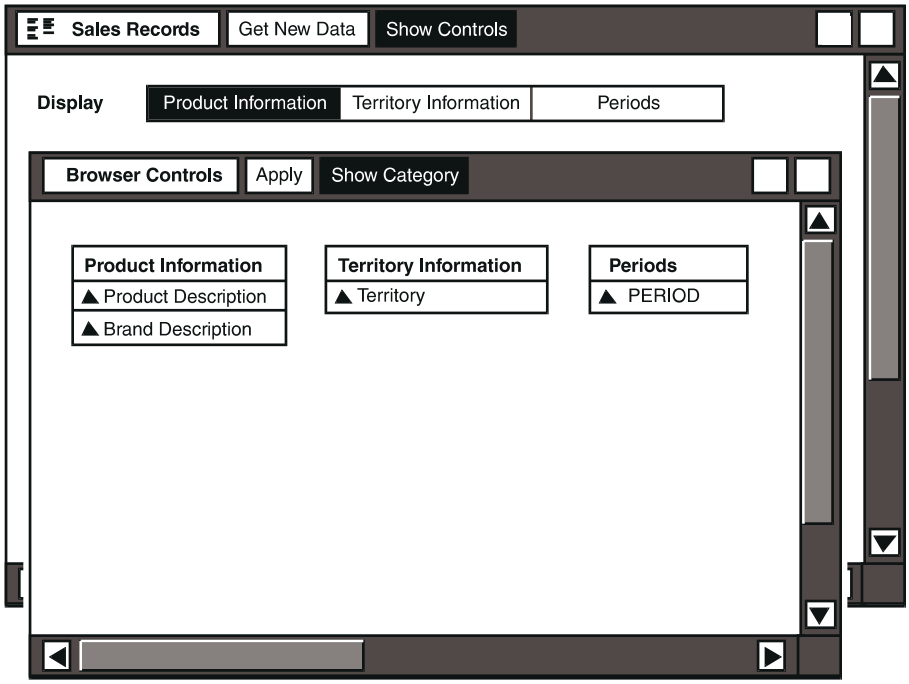


You can copy the new column to any position in the table. Its position in the Browser Controls window decides its position in the main Browser window.

Whenever you modify the contents of the Browser Controls window in any way, the existing data in the main Browser window disappears and is replaced with a message instructing you to get new data.

Before you retrieve new data, you should set any column options that are necessary. (For example, you might want a column to be hidden, or to be sorted in the same order as another column, or to show items as a particular data type.) Brief instructions follow; if you need details, please see the section “Specifying Column Options” on page 28.

5. Select the new column you have added in the Browser Controls window.
6. Open the Column Options window and specify how the information for that column should be displayed. Close the Column Options window and the Column Options window, select the column and either use the pop-up function pad (press both mouse buttons at the same time) or press the Options key on your keyboard.
7. Click on **Get New Data** in the main Browser window header. The new data is added to your browser. In this example, the main Browser window now appears as follows:



Whenever the database is updated, you should click on **Get New Data** in the main Browser window header to ensure that your Browser icon contains the latest information from the database. Depending upon the size of your Browser icon, updating can take several minutes. Your database administrator can tell you how often the database is updated.

Should You Use Get New Data or Apply?

There is no difference between the data you retrieve by clicking on **Get New Data** in the main Browser window or on Browser Controls window. These two buttons are placed in both windows for your convenience in different situations.

When you open a browser that has already been defined, the data you see is any data that was retrieved the last time the browser was open. New data is not automatically retrieved when you open a browser; you must click on the **Get New Data** button.

You do not have to make any changes in the Browser Controls window before clicking on **Get New Data**.

When the Browser Controls window is open, you can get new data either by clicking on **Apply** in that window or by clicking on **Get New Data** in the main Browser window. An even more convenient way to get new data, if you are finished making your changes, is to close the Browser Controls window.

Copying Browser Data to Other Tools

If you are also working with the IDS Query, Reporter, Text, Envelope, or Spreadsheet tools, you do not have to spend time recreating work you have done in a Browser icon. Instead, you can copy data from the main Browser window into other tool windows on your desktop. For example:

You can set up and narrow your reporting criteria in a Browser icon, and then copy the column data into the constraint window of a Query icon or a Reporter icon, thereby setting up your report or query.

You can copy Browser column data into a Text or Envelope window, or into a Spreadsheet cell.

Instructions for those kinds of processes follow.

Copying Data to a Reporter or Query Icon

If you want to use data from your Browser icon to constrain an options window in a Reporter or Query icon, have both the Browser icon and the destination icon open on your desktop, and follow these steps:

1. Select the column data that you want to transfer. For example, you could select several items from a column in the main Browser window, as shown in Figure 8 on page 16.

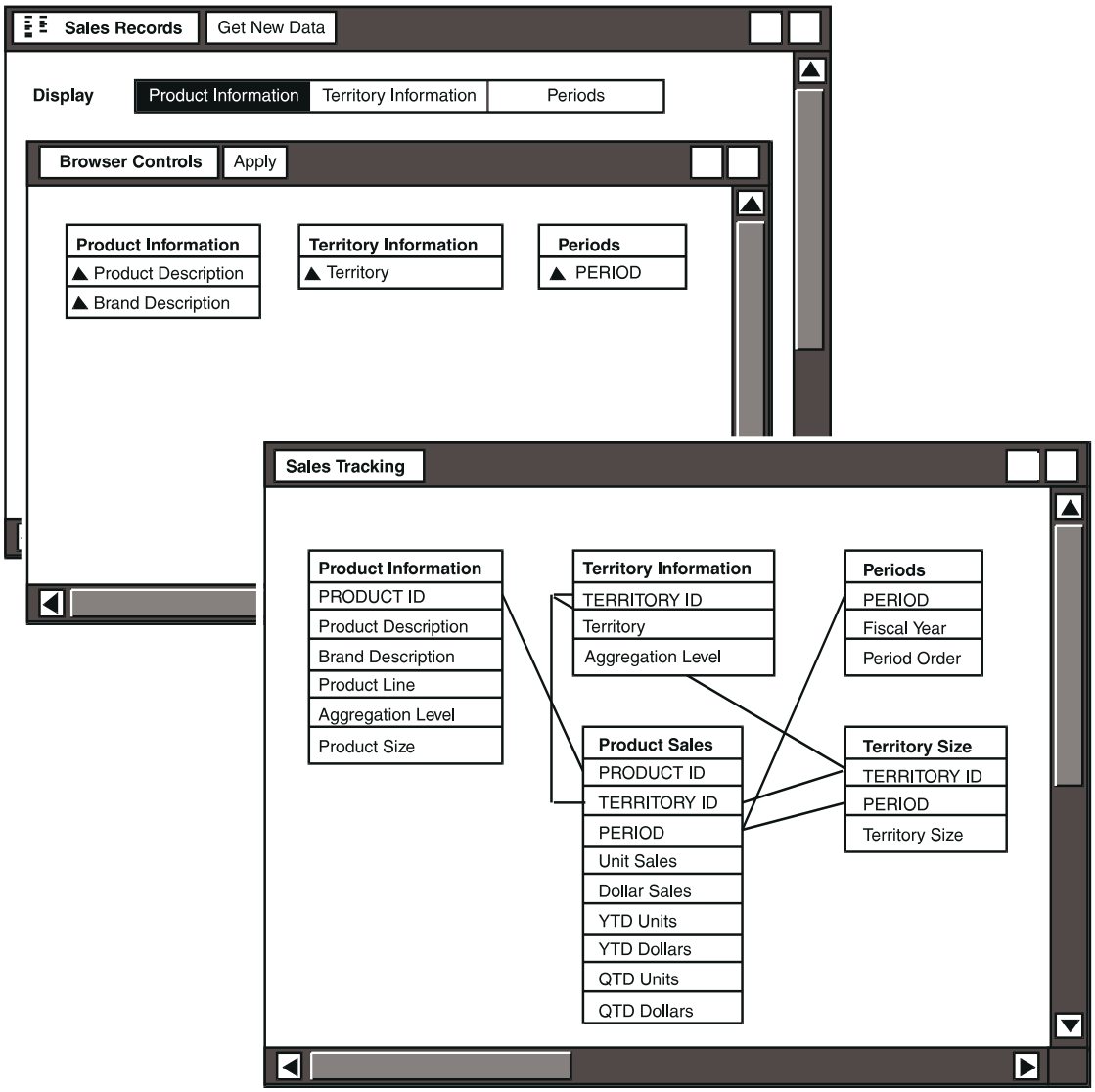


Figure 8. Column items selected for transfer

2. Copy the data inside the blank constraint field in the options window of the destination icon.

   For example, if you copy the data from this example into a Reporter icon, you use the **Value** field of the Heading Options window. The data appears as shown in Figure 9 on page 17.

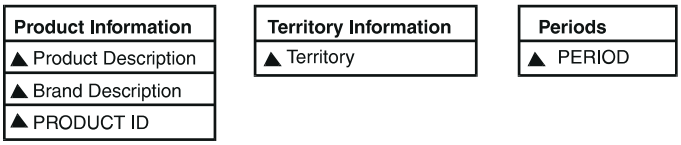


Figure 9. Data copied into the Constraint page of a Reporter's Heading Options window

The data is displayed as a single line of text in the **Value** field. List separators (commas and spaces) are automatically inserted between items.

If you copy more than one group of items into the same Reporter or Query field, you must manually insert a comma and a space between groups of items.

In the IDS publications *Reporter User's Guide* and *Query User's Guide* you can find more information about using those tools.

Copying Data to a Text or Envelope Icon

If you want to copy Browser data to a Text or Envelope icon, have both the Browser icon and the other icon open on your desktop, and do as follows:

1. Select the column data from the main Browser window.
2. Copy the data inside the Envelope window.

   If you copy the data from the current example into a Text icon, the Text window appears as shown in Figure 10.

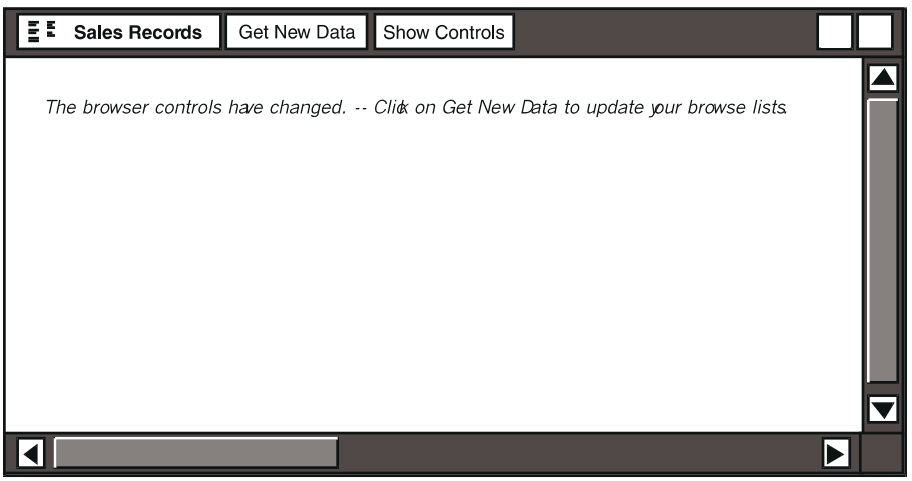


Figure 10. Data copied from a browser to a Text window

The data is displayed as a single line of text in the Text window. Browser automatically inserts list separators.

For more information on using the Text tool, see *Text User's Guide*. For details on using the Envelope tool, see *Working with the Intelligent Decision Server*.

Copying Data to a Spreadsheet Icon

To copy Browser column data to a Spreadsheet icon, you must have both the Browser icon and the spreadsheet open on your desktop. Then do as follows:

1. Select the spreadsheet cell into which you want to copy an item from a column. Open the Spreadsheet Options window. It appears as shown in Figure 11.
2. Select the column data from the main Browser window.
3. Copy the data inside the **Entry** field of the Spreadsheet Options window. If you copy the data from the current example, the **Entry** field appears as shown in Figure 11.
4. Select the appropriate data type for your entry. In this example, the data copied in from the Browser is several column items that are automatically separated by commas and spaces, and the data type is text.

   You can also copy into the Spreadsheet's **Entry** field:

   A single date, and select **Date** in the **Type** field

   A single number, and select **Number** in the **Type** field

   Any appropriate column data, and use it to construct a valid formula

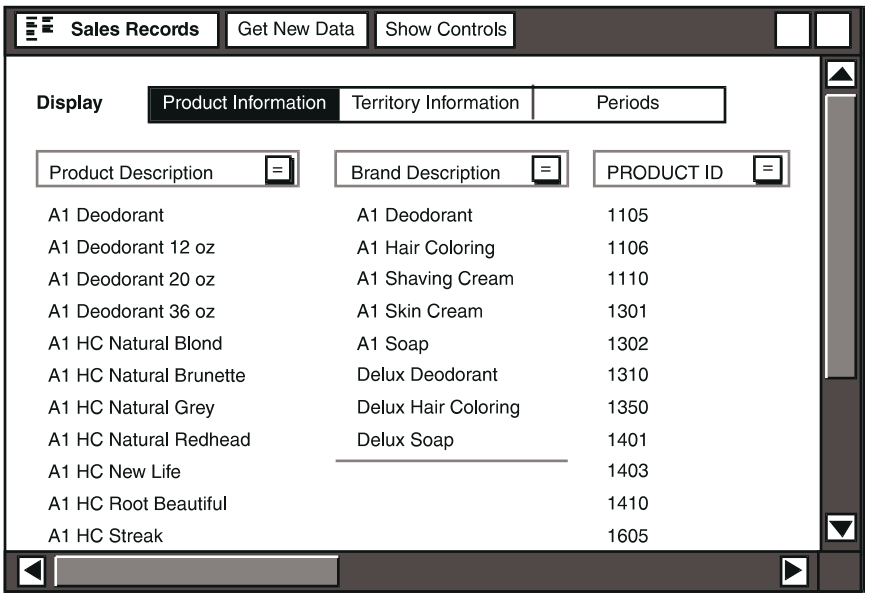


Figure 11. Selected Spreadsheet cell and Spreadsheet Options window

See the *Spreadsheet User's Guide* for details on using the Spreadsheet tool.

Canceling Changes in a Browser

You can cancel any changes you have made in the main Browser window and in the Browser Controls window. To do this, pull down the Special button menu of the main Browser window header and click on **Cancel Changes**.

The Browser tool automatically cancels all changes that you made while the icon was open on your desktop, and the icon closes.

The Column Options window has a different purpose. For details, see Chapter 3, “Configuring and Defining a Browser Icon” on page 20.

Stopping Data Retrieval

If you decide that you want to make more changes in a Browser icon after you have started retrieving data, or if for some reason you do not want to retrieve new data after the process has started, you can stop the data-retrieval process by pressing the Stop key. Sometimes, also, the system stops data retrieval automatically.

For details on handling any of these cases, see “Stopping Data Retrieval” on page 41.

Chapter 3. Configuring and Defining a Browser Icon

Before a Browser icon can be used, it must be configured to a specific database category, and then defined in relation to specific tables and columns in the database. If you are responsible for setting up browsers for others or yourself to use, this chapter is for you. If you want to know how to use a browser that has already been set up for you, please see Chapter 2, “Using a Browser Icon” on page 3.

The first part of this chapter describes the configuration process:

“Naming and Configuring a Browser Icon”

“Securing Your Icon” on page 24

“Features of the Main Browser Window” on page 24

The second part of the chapter shows you how to define the Browser icon so that it can retrieve the data you want in the right order and format. The following topics are covered:

“Choosing Data from the Category Window” on page 25

“Specifying Column Options” on page 28

“Creating Column Groups (Joining Tables)” on page 33

“Constraining a Column in the Table Options Window” on page 40

“Displaying Column Data in the Main Browser Window” on page 40

“Stopping Data Retrieval” on page 41

Naming and Configuring a Browser Icon

Use the Icon Options window to name and configure Browser icons, and to specify the database from which you want data.

You name a Browser icon the same way you name any other icon. Follow these steps:

1. Select the Browser icon.
2. Open the Icon Options window. The **Display** field near the top of the window offers a choice of two pages: Name and Size or Other Data. The Name and Size page is displayed by default.
3. Unless you want your browser to retain the existing name, delete the text in the **Name** field and enter a new name.

To configure the Browser icon for database access:

1. Select the Icon Options window. The Other Data page appears as shown in Figure 12 on page 21.
2. To configure the icon, type values in the fields that are shown in Figure 12 on page 21 and defined in Table 2 on page 21. The database you are using might be

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sensitive to the use of uppercase and lowercase characters, so enter your data accordingly.

Entering information into these fields configures a Browser icon to a specific category in a physical database on a specific database service.

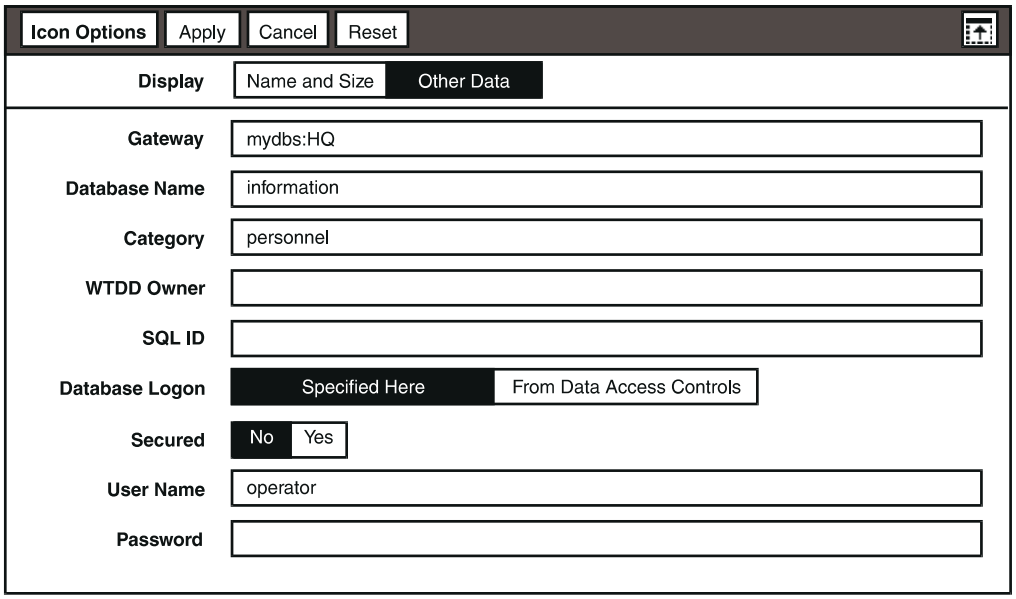


Figure 12. Other Data page of the Icon Options window

When you have finished typing in the fields, close the window.

Table 2 describes the fields in the Icon Options window. Note that several of these fields either are optional or might not apply to a particular installation. Your system administrator can tell you which fields are used in your installation.

Table 2 (Page 1 of 3). Browser Icon Options window fields

Field	Type of input	**Required** / **Optional**
Gateway	The name of the database gateway to which you want your Browser icon to have access. If the service is on a different realm from the one you are on, immediately follow the gateway name with a colon and then the realm name. For example: mydbs:HQ	Required

Table 2 (Page 2 of 3). Browser Icon Options window fields

Field	Type of input	Required / Optional
Database Name	The name of the database that contains the category needed for this Browser icon. If your server stores more than one physical database, you must identify the database to which you want access. It is unnecessary to supply a database name if only one physical database exists, or if you want access to a default database. To connect to a DB2 database, type the name of the DB2 subsystem you are using. To connect to a SQL/DS database, type the name of the virtual machine running SQL/DS. To connect to a AS/400 database, it is not necessary to specify anything in this field, because the AS/400 is a single-database system. To connect to a supported remote IBM database using Distributed Relational Database Architecture (DRDA), immediately follow the local database name with a period and then the name of the server through which the connection is being made. For example: DSN.TD1 To connect to a remote SYBASE or Red Brick database, immediately follow the SQL Server name with a vertical bar and then the name of the database you want to access. For example: SYBSERVER2|SYBPROD. To connect to a remote ORACLE database, specify the full database name or its alias. For the full database name, specify the standard single-character prefix used for the remote connection (such as **T** for TCP/IP), followed by a colon, the name of the target host followed by another colon, and finally the system ID (SID) of the target ORACLE database. For example: T:host1:DBS If you have questions about the database name, consult your database administrator.	Required
Category	Either the print name or the internal name of the database category needed for this Browser icon. The name you specify here appears in the window header of the category window.	Required
WTDD Owner	The name of the owner of the WTDD tables for the Browser icon (if the icon is configured for access to a database that supports qualified table names). This field makes it unnecessary to drop and re-create synonyms whenever you want access to a different WTDD within the same database.	Might not apply in your installation

Table 2 (Page 3 of 3). Browser Icon Options window fields

Field	Type of input	**Required** / **Optional**
SQL ID	The table qualifier name (if you are using DB2). The ID entered in the **SQL ID** field overrides the default table qualifier name, which is the name entered in the **User Name** field. If you have questions about the table qualifier name, consult your database administrator.	Might not apply in your installation
Database Logon	Where the user ID and password are to be specified. Select **Specified Here** if you want access to be based on what you type in the **User Name** and **Password** fields of this window. Select **From Data Access Controls** if you want to have the Browser icon read the information from the desktop Data Access Controls window. Consult your database administrator if you have questions about security.	Default value is **Specified Here**. Changing it is optional.
Secured	Whether this Browser icon is to be secured against unauthorized use, and made accessible by only one user ID. Select **Yes** if you want the icon's **User Name** field to be set to the user ID of the desktop on which the icon resides. This is an irreversible operation. Before you select **Yes**, please see “Securing Your Icon” on page 24 for very important information.	Default value is **No**. Changing it is optional and irreversible.
User Name	A user ID that the database can identify as valid. This might or might not be the same as your desktop user ID, depending on how your database security is set up. When the Browser icon connects to the RDBMS, this is the user ID sent to the RDBMS. If you are using the DB2 for OS/2 DRDA gateway to connect to a DRDA server, and your DB2 for OS/2 user ID is different from your DRDA server user ID, you must specify both user IDs separated by a period. For example: DB2 for OS/2_userid.DRDAID	Required
Password	The database user's password. This password might or might not be the same as your desktop password, depending on how your database security is set up. For security reasons, the password is displayed as a row of asterisks (****) when you type it in, and as a blank field thereafter. Type your password carefully; if you make an error, it can be difficult to find out what you have typed and to correct it. If you are using the DB2 for OS/2 DRDA gateway to connect to a DRDA server, and your DB2 for OS/2 password is different from your DRDA server password, you must specify both passwords separated by a period. For example: DB2 for OS/2_password.DRDA_password	Required

Securing Your Icon

Suppose you have created a Browser icon and you want to prevent unauthorized users from opening it on their own desktops. You can use the **Secured** field to restrict access to the icon, so that only users with specified database privileges can open and use it.

When you secure a Browser icon, the user ID of the desktop where the icon resides becomes the **User Name**. When a secured icon is mailed, the User Name changes to the user ID of the recipient. The icon cannot be opened or used by the recipient unless his or her desktop name has the appropriate privileges for the database.

You cannot change the **User Name** field of a secured icon. You cannot “unsecure” a secured icon, either.

If you receive a secured icon from another user and the database does not recognize your user ID, you will not be able to open the icon.

Attention: Securing an icon is an irreversible operation. Before you secure an icon that you plan to distribute to other users, check with your database administrator to make sure that the other users' desktop names are authorized to use the database you have specified.

The preferred way to secure a Browser icon is to configure it to read the user ID and password setting from the desktop's Data Access Controls window. This window is accessible from the IDS Special button in the lower right corner of your developer's desktop. See *Working with the Intelligent Decision Server* for details on how to use Data Access Controls, or consult your system administrator.

Features of the Main Browser Window

When you first open a new Browser icon, the main Browser window appears.

A message appears in the Browser window informing you that the icon is currently empty of data, and asking you to click on the **Show Controls** button. See “Choosing Data from the Category Window” on page 25 for information about using that button.

The buttons in the Browser window header are described in Table 3.

Table 3. Main Browser window header buttons

Button Name	Function
Get New Data	Lets you retrieve data corresponding to the tables and columns specified in this Browser icon.
Show Controls	Opens the Browser Controls window, where you specify which database tables and columns you want to display in the main Browser window.
Special (indicated by an asterisk)	Displays a menu offering an option which cancels any changes you have made in your Browser icon since you last closed it.

This Special button is not the same as the button in the lower right corner of your developer's desktop.

The **Get New Data** and **Show Controls** buttons are described in the sections that follow. See Chapter 2, “Using a Browser Icon” on page 3 for more information about the Special button in the Browser window header.

Choosing Data from the Category Window

To define a Browser icon, you must first select tables from the database. (The particular database with which you are working was specified when the icon was configured. For details on Browser configuration, see “Naming and Configuring a Browser Icon” on page 20.)

To select tables:

1. Open a Browser icon. The main Browser window opens.

   If this Browser icon has been defined before, and you are now opening it to view or modify the contents, only the main Browser window opens. In this case, you need to perform step 2.

   If this Browser icon is being opened for the first time, the two windows described in the following two steps (the category window and the Browser Controls window) now open automatically, and you do not have to do steps 2 or 3.

2. Select **Show Controls** in the main Browser window header. The Browser Controls window appears.
3. Select Browser Controls window. The category window appears. There are now three windows open on your desktop, as shown in Figure 13 on page 26.

   The category window name is named for the database category specified when the icon was initially configured. In this example, the category window name is Sales Tracking.

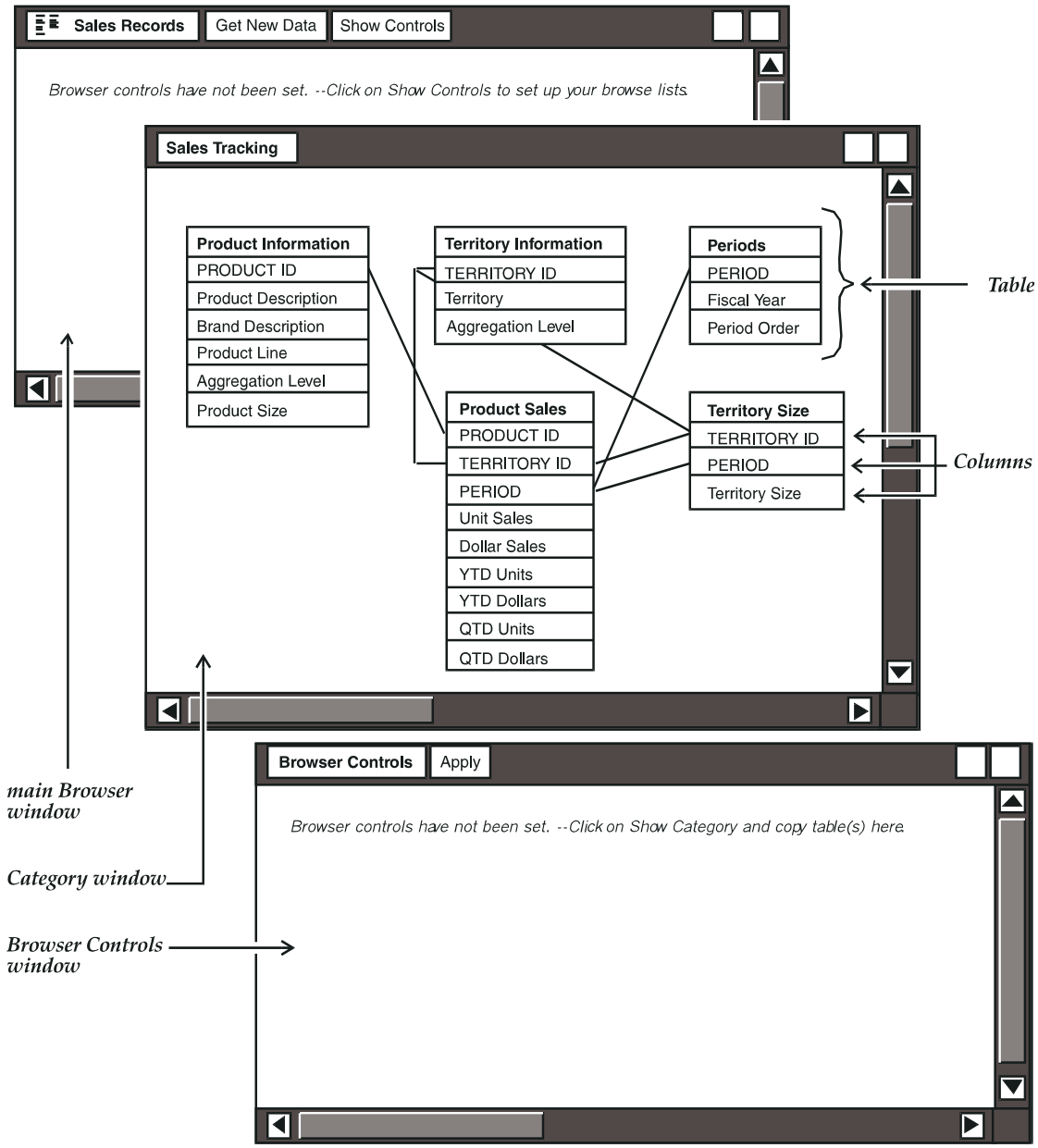


Figure 13. Main Browser window, category window, and Browser Controls window

This example shows a new Browser icon that has been configured but not defined (the Browser Controls window has not been set up yet). Therefore, the category window and the Browser Controls window appear automatically when you open the main Browser window, and the main Browser window contains no data.

4. From the category window, select the tables that contain data you want to include in your browser. For example, suppose you want to define a browser that displays data about products sold, specific territories, and specific periods. In this example, first select the Product Information table.
5. Copy the table into the Browser Controls window.
6. Repeat steps 4 and 5 to copy other tables into the Browser Controls window. In this case, copy the Browser Controls window. Be careful which tables you copy. A finished browser displays a row or data element for each value in each column of the table you select. For a quicker response, you might want to avoid tables with very long columns in them, especially columns containing facts or measures (for example, the Unit Sales column from the Product Sales table shown in Figure 13 on page 26). You can find more information on this subject under the sections "Modifying Column Length" on page 29 and "Avoiding Problems with Long Columns" on page 39.
7. Close the category window. The Browser Controls window opens.
8. Delete the columns you do not want to include in your Browser icon. Suppose you want to keep only Product Description and Brand Description in the Product Information table of the current example. From each table, select and delete the columns you do not want. The Browser Controls window then opens.

   You can move columns within a table if you want to rearrange the order in which the data is displayed.

From this point on, you can display your columns in the main Browser window any time you like. None of the steps that follow are necessary before you can see your browser. However, if you want to fine-tune the data that Browser retrieves for you, you can choose to do one or more of the following:

If You Want to Do This:	See This Section in This Chapter:
Streamline retrieval by identifying long columns	"Modifying Column Length" on page 29
Sort two or more columns in the same order	"Ordering Column Contents" on page 30
Use a column invisibly in your browser	"Hiding a Column" on page 32
Identify a column's data as integers, real numbers, characters, or dates	"Specifying a Data Type" on page 32
Show columns from two different tables in the same main Browser window	"General Procedure for Joining Tables" on page 36
Join tables without columns in common; or show columns from three or more tables in the same main Browser window	"Joining More Than Two Tables" on page 38
Narrow the focus of your Browser query to certain data	"Constraining a Column in the Table Options Window" on page 40

Specifying Column Options

After you have copied a table into the Browser Controls window, you can specify how the data for each column in that table is to be displayed.

To define column options:

1. Select a column in a table in the Browser Controls window. For example, select Product Description.
2. Open the Column Options window, shown in Figure 14.

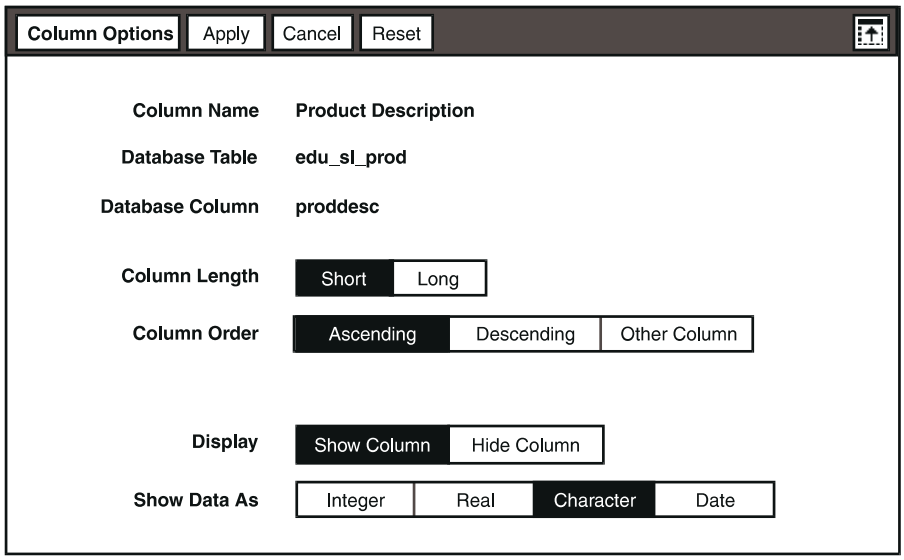


Figure 14. Column Options window

3. Select a choice for each field that appears in the Column Options window. All of the fields are described in detail in the following sections:

   "Modifying Column Length" on page 29 (using the **Column Length** field)

   "Ordering Column Contents" on page 30 (using the **Column Order** field)

   "Hiding a Column" on page 32 (using the **Display** field)

   "Specifying a Data Type" on page 32 (using the **Show Data As** field)
4. Click on **Apply** in the window header, or close the window to apply the options.
5. Repeat these steps for each column in your Browser Controls window.

If you want to cancel a change you have made after clicking on Column Options window, click on the **Cancel** button. If you want to return to the previous settings, click on **Reset**.

If the default values for a particular column serve your needs, you do not have to select anything in the Column Options window. However, it is always a good idea to check the data type assigned to a column (the **Show Data As** field).

Modifying Column Length

The size of a column determines how much workstation memory is used. In the Column Options window, you can specify whether the column you are specifying is long or short.

A long column has many unique rows or elements. ("Long" in this case does not necessarily imply large strings.) A short column has fewer rows or elements.

Generally, the number of rows in a long column exceeds 100, but if the rows take up more than the average space, a column of less than 100 rows can be considered long. The issue is whether the complete contents of the column can fit into workstation memory.

When you select **Short** in the **Column Length** field, you are telling IDS that you know the column is short enough that the entire contents of the column can fit into workstation memory. Selecting **Short** instructs IDS to display the column's contents in the main Browser window.

If you want Browser to attempt to retrieve all the data in a column regardless of its length, you can specify the column as **Short**. If your workstation has enough memory, the query finishes successfully and all the data is displayed. If there is too much data to fit into your workstation's memory, you get a message like the one shown in Table 5 on page 41.

When you select **Long** in the **Column Length** field, you are telling IDS that the column is or might be too long to fit entirely into workstation memory. In this case, IDS does not store the column's contents in memory, and displays them in the main Browser window only if the number of data values is less than 100, which is Browser's column-length threshold. If the column contains more than 100 values, the message Too many values is displayed in the column.

If you select **Long**, you can still ensure that the contents of the column are retrieved and displayed in the main Browser window by doing one or both of the following:

Set constraints that restrict the amount of data Browser retrieves from that column. For details, see "Constraining a Column in the Table Options Window" on page 40.

Select **Yes** in the **Apply threshold to Long columns** field in the Table Options window. For details, see Step 4 on page 37.

When you select **Long**, the **Other Column** choice is deleted from the **Column Order** field.

In the Browser Controls window the column name appears in italics, indicating that **Long** has been selected in the **Column Length** field.

Typically, you begin by selecting **Short** in the **Column Length** field. (**Short** is the default value, and it allows Browser to retrieve data without applying its column-length threshold.) If you later discover that some columns are using too much memory, or if you experience performance problems, you can specify the columns with the most unique data items as **Long**. Also remember that the width of a column can affect the amount of memory used. For example, a column that is 250 characters wide requires a lot of memory, and slows down performance both while defining the browser and during later use.

If you have specified individual columns as **Long**, and then you decide that you want Browser to try to retrieve all the data in all your columns, you can override the **Long** specification as follows:

1. Select the whole table in the Browser Controls window.
2. Open the Table Options window.
3. In the **Apply threshold to Long columns** field, select **No**.

By doing this, you are telling the Browser tool to apply the long-column threshold to any columns that have been specified as **Long**."

The **Apply threshold to Long columns** field is discussed in more detail in Step 4 on page 37.

Ordering Column Contents

Columns can be displayed in the main Browser window three different orders. You can choose to:

Sort columns in ascending order

Sort columns in descending order

Sort one column according to corresponding data in another column.

When you select a column in the Browser Controls window and open the options window, you see three choices listed in the Column Options window.

Select **Ascending** if you want numbered columns to list beginning with the lowest value. When you select **Ascending**, an upward-pointing arrow appears next to the column name in the Browser Controls window.

Select **Descending** if you want numbered columns to list beginning with the highest value. When you select **Descending**, a downward-pointing arrow appears next to the column name in the Browser Controls window.

Select **Other Column** if you want the selected column to be sorted by another column.

When you select **Other Column**, a new field named **Order By Column** appears below the **Column Order** field.

This new field is where you specify the other column in whose order you want your selected column to be sorted. In the **Order By Column** field, type or copy a

column name from the Browser Controls window. Always try to specify a short column in this field; otherwise, it might take a long time to define your browser.

After you have specified Column Options window, a blank space appears to the left of the column name in the Browser Controls window, instead of the arrow.

Ordering a Column by a Column from Another Table

A column can be ordered only by another column from the same table, or by a column from another table that has been joined to the first column's table.

As an example, use the tables you set up in “Ordering Column Contents” on page 30. You have copied the Territory column from the Territory Information table into the Product Information table; and, in the first page of your main Browser window, you want the Product Description column to be ordered by the Territory column. To do this, you must first create a join between the Product Information table and the Territory Information table, as explained in “Creating Column Groups (Joining Tables)” on page 33. After you have joined the two tables, do the following:

1. In the Browser Controls window, select the Column Options window.
2. Type or copy Territory into the **Order By Column** field.

Unique and Duplicate Values

If a column is sorted in **Ascending** or **Descending** order, Browser displays only unique values in that column. If a column is sorted by another column, it can contain duplicate values. This is illustrated in Figure 15.

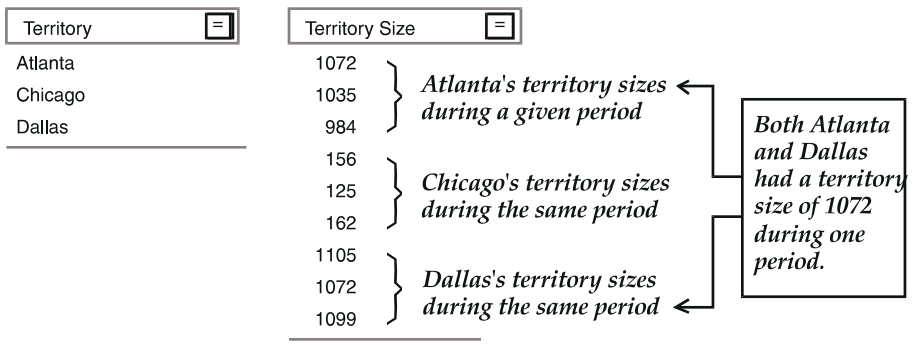


Figure 15. One column sorted by another and displaying duplicate values

Because the values in the Territory Size column are sorted by the Territory column, each territory's sizes are displayed for a specified period. In this particular case, Atlanta and Dallas happened to be of the same size during that period; therefore, you see the number 1072 twice in the Territory Size column.

If, instead, the Territory Size column were sorted in ascending or descending order without regard to another column, you would not see any duplicate values.

Hiding a Column

You can display or hide columns in the main Browser window with the Column Options window.

Select **Show Column** when you want a column to appear in the main Browser window.

Select **Hide Column** when you do not want a column to appear in the main Browser window.

Normally, if you do not want a column to appear in the window, you delete it from the table in the Browser Controls window. However, you might need to keep such a column in the table, even though you do not want to see it. For example, you might want to hide a column that controls the sorting order of another column, as described in "Ordering Column Contents" on page 30.

If memory usage is a concern, it is better to delete unnecessary columns than to hide them.

Specifying a Data Type

You can decide how the Browser tool interprets data in a column: You specify that the data be interpreted as integers, real numbers, characters, or dates. These choices appear in the Column Options window.

Integer

If you want a column interpreted numerically, select **Integer** in the **Show Data As** field.

Real

If you want numeric data in a column to appear with a specified degree of precision, select **Real** in the **Show Data As** field. When you select **Real**, the **Precision** field appears, as shown in Figure 16.

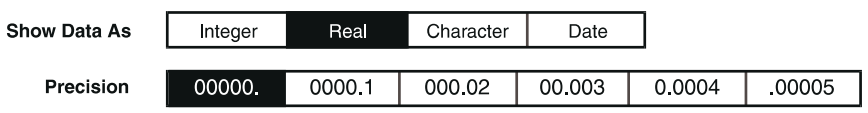


Figure 16. Choosing Real brings up the Precision field

The **Precision** field lets you specify the number of decimal places you want to display after the decimal point in a number. Numbers greater than five round up, and numbers equal to or less than five round down.

Because the Browser tool performs no calculations, there is no default setting for the **Precision** field. When you first open the Column Options window, the selected choice reflects the current precision assigned this column. Or, if you are changing the data type from **Integer** or **Date** to **Real**, the choice that first appears selected is .

Table 4 on page 33 describes the result of each choice in the **Precision** field. The number 2.37519 is used as an example here.

Table 4. Numeric precision for column data

Places desired	Select	Displays 2.37519 as
0	00000	2
1	0000.1	2.4
2	000.02	2.37
3	00.003	2.375
4	0.0004	2.3752
5	.00005	2.37519

Character

If the data in a column is text, or if you want the data to appear in alphabetic order, select **Character** in the **Show Data As** field.

Date

For a column containing dates, select **Date** in the **Show Data As** field. When you select **Date**, a new field named **Date Resolution** appears, as shown in Figure 17.

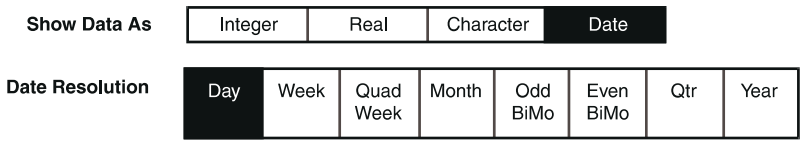


Figure 17. Choosing Date brings up the Date Resolution field

The **Date Resolution** field lets you display a date as a day, week, four-week period (*Quad Week*), month, even or odd bimonthly date, quarter, or year. For example, select **Month** if you want column data to be displayed by month.

Creating Column Groups (Joining Tables)

In your finished main Browser window, using the techniques described up to this point, you can display up to 15 tables. However, if you want to be able to constrain columns so that their data is interrelated, you must either use only columns from one table, or use another technique: joining tables to create *column groups*.

Unjoined Tables

Figure 18 on page 34 shows an example of unjoined tables.

Columns from one table have been copied into the first page (Product Information) of the browser.

Columns from two different tables (Territory Size and Territory Information) have been copied into the second page (Territory Information) of the browser. However, even though they appear on the same page of the main Browser window, there is no relationship between data from the different tables.

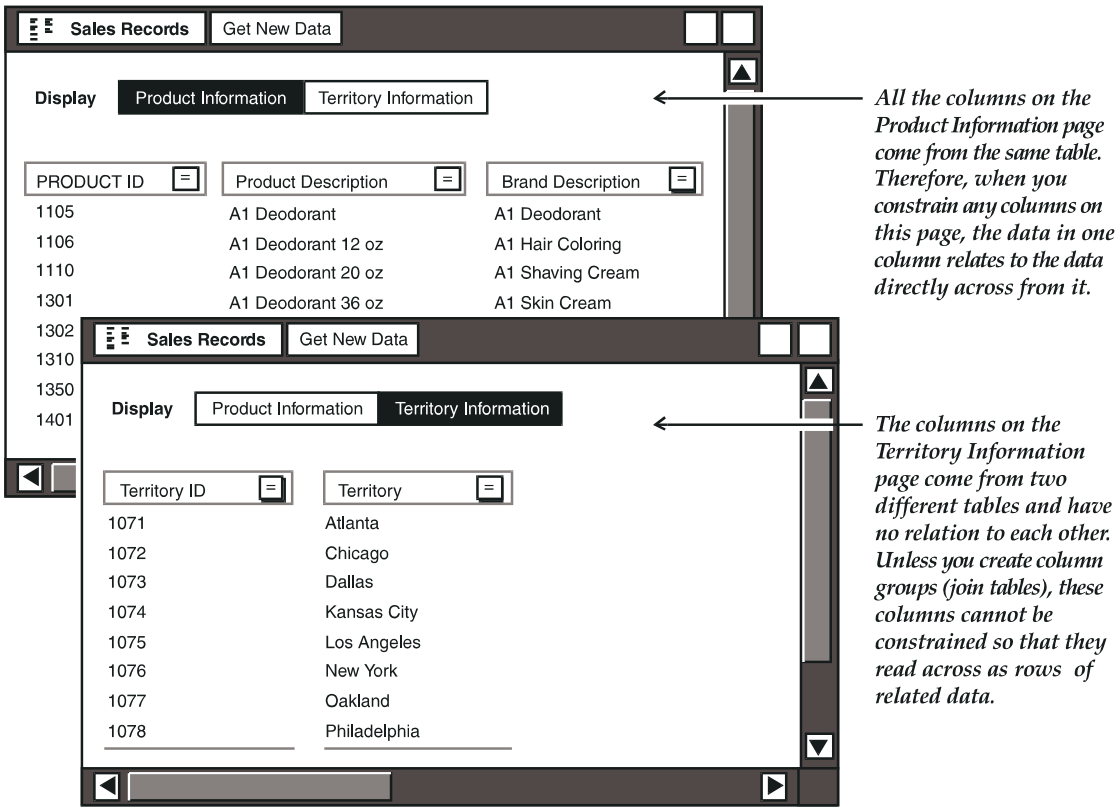


Figure 18. Two pages of a single main Browser window, displaying unjoined tables

If you want to do the following, you must join tables:

To have two columns from different tables appearing in the same browser window and sorted in the same order

To constrain columns from different tables in relation to one another

(The only indication in the Browser Controls window that column groups have been joined is the relationship between data from constrained columns.)

Joined Tables

Suppose you wish to display a column from the Territory Information table and a column from the Territory Size table in a single page of your finished browser, and you wish to be able to constrain columns of either table to show related data. By joining those two tables in the Browser Controls window, you can create a browser like the one shown in Figure 19 on page 35.

Figure 19. One page of a main Browser window, displaying joined tables

The category window from which the tables in Figure 19 came appears as shown in Figure 20 on page 36.

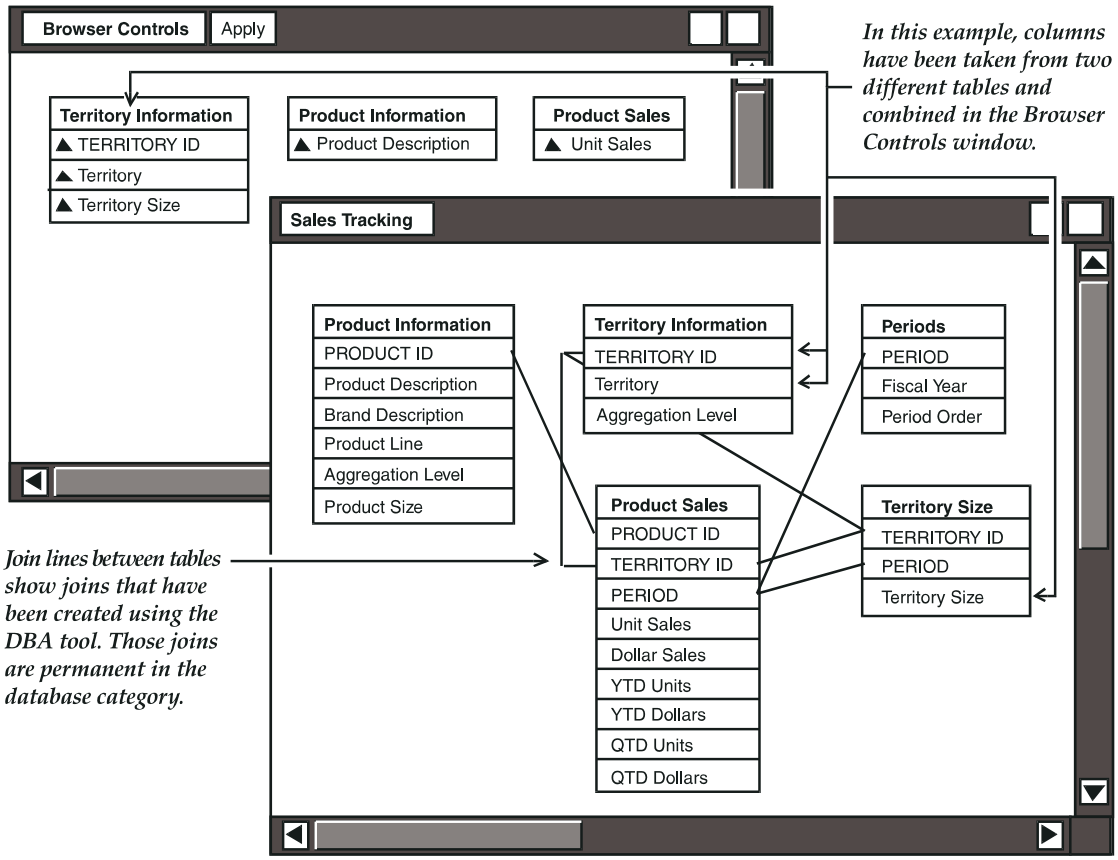


Figure 20. Browser Controls window and category window for the example main Browser window

To see all the tables in a particular database, look at the category window. Lines between tables indicate joins that have been created using the DBA tool. Those joins have already been put in place by your system administrator or database administrator. To create the kind of browser that can display columns from more than one table on one page, you must create further joins, using Structured Query Language (SQL) in the Table Options window, as explained in the next section.

If you need more information about using SQL, see the: *SQL Entry User's Guide*.

General Procedure for Joining Tables

The general procedure for joining tables is as follows. (Note that this process creates joins only for the browser with which you are working.)

1. Have in the Browser Controls window a copy of a table from the category window. This table is the one that will appear in the finished main Browser window and will be named in the title bar. In the following steps, it is referred to as the receiving

table. (When you add columns in the following steps, the columns show up in this table).

2. Copy a column from another table in the category window into the receiving table in the Browser Controls window. Make sure that the table receiving the column and the table contributing the column have at least one column in common, that is, the receiving and contributing tables are joined in the category window.

   All you have to copy into the Browser Controls window is a column from the contributing table; you do not have to copy the whole contributing table.

   The column the two tables have in common does not have to be the same column that you are copying into the table in the Browser Controls window.

   If the receiving table and the contributing table have no columns in common, you still might be able to join them and group columns from them. For the basic procedure, see “Joining More Than Two Tables” on page 38; for details, see Appendix A, “More on Joining Tables” on page 44.

3. Select the receiving table in the Table Options window, which is shown in Figure 22 on page 47.

4. In the **Apply threshold to Long columns** field, select either **Yes** (the default value) or **No**. This choice specifies whether the Browser tool automatically applies its column-length threshold during the retrieval process. (If your browser contains no columns that have been specified as **Long**, it does not matter which choice you select. For information on specifying a column as **Long** or **Short**, see “Modifying Column Length” on page 29.)

   When **Yes** is selected, Browser applies the threshold (100 or fewer rows) to all columns that have been specified as **Long**. That is, if Browser finds a column that has been specified as **Long** and that has over 100 rows, the tool does not try to retrieve that column's data, but displays the message Too many values. (If a column has been specified as **Long**, but has 100 rows or fewer, it falls under the threshold and all its data is retrieved, unless the workstation runs out of memory.)

   Browser does not apply the threshold to any column that has been specified as **Short**, and tries to retrieve all that column's rows.

   Selecting **Yes** makes retrieval quicker if there are very long columns in your query, but you might not get all the data you want.

   When **No** is selected, Browser does not apply the threshold; it retrieves in full, or tries to retrieve, every column you have specified. If any of your columns have over 100 rows, the retrieval time can be very long. Depending on your workstation's memory capacity, other limits in your system, and contention for system resources in your installation, such a lengthy process can cause a problem: You or your user might have to wait too long for a response, or the workstation might time out or run out of memory.

   On the other hand, if capacity and response time are not issues in your system, it might be preferable to have **No** selected so that every row of data is retrieved.

In most situations, it is better to select **Yes** in the **Apply threshold to Long column** field.

5. In the **(Other)** field, using SQL, write a where statement that associates the receiving table with one or more tables. Note two requirements:

   Each where statement must begin with the keyword where.

   In a where statement for this purpose, you must supply the internal name of each column that you are using to associate the contributing table with the receiving table.

   The internal name of a table or column might not be obvious at first. If you need help in identifying an internal name, see Appendix A, "More on Joining Tables" on page 44.

6. Close the Table Options window.
7. Deselect the primary table in the Browser Controls window and do one of the following to bring up the finished main Browser window:

   Click on the Browser Controls window header, and then close the Browser Controls window.

   Close the Browser Controls window.

   Click on the **Get New Data** button in the main Browser window header.

Joining More Than Two Tables

Suppose you want your finished browser to display, on a single page, columns from two tables that have not been joined in the category window. This means you must group columns from a receiving table and a contributing table that have no columns in common.

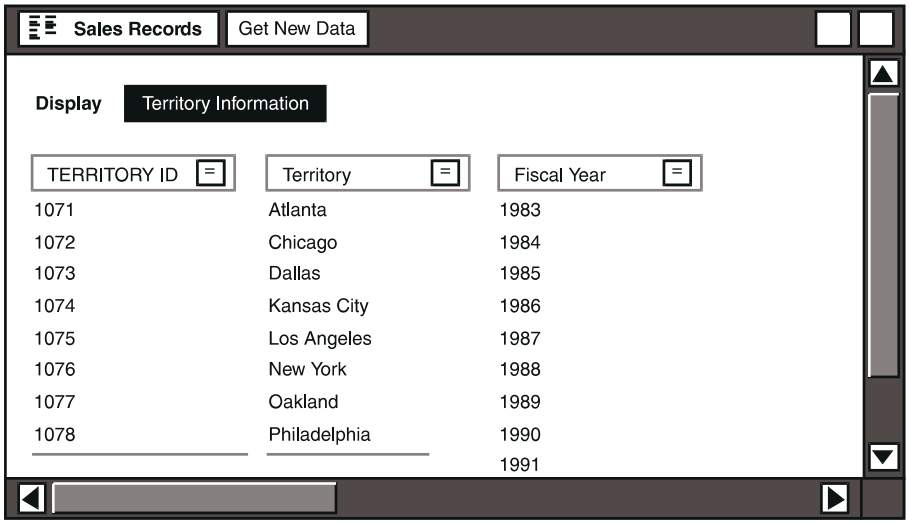
The basic steps in this process are as follows:

1. Find a third column from a table that has columns common to the other two.
2. Create joins between all three columns, using a where statement that follows this model:

   where T1.columnA = T2.columnA and T2.columnB = T3.columnB

For details, see Appendix A, "More on Joining Tables" on page 44.

To display your finished main Browser window, click on **Apply**, close the Browser Controls window, or click on **Get New Data** in the main Browser window. Your finished main Browser window should now resemble the one in the following illustration.



If you simply want to display three or more columns from different tables in the same main Browser window, you must join the tables using this procedure.

Avoiding Problems with Long Columns

The Browser tool is designed to give the user a quick view of the kind of data that appears in dimension tables rather than fact tables. The two types of table have the following characteristics:

Dimension tables have columns that describe attributes of a fact or data item. Dimensions can also be thought of as entities, or properties of entities, represented in a database. Some dimension columns contain descriptive labels for items, such as products, brands, and market locations; others furnish the scope for viewing facts, such as periods of time.

Fact tables have columns that contain recorded data measures of the entities listed in a database. Facts typically are the numbers, such as unit price, sales volume, or unit sales, that make up the body of a detailed report.

Browser is an excellent tool for reviewing the relationships between dimensions and subsets of dimensions, such as:

Brand Description Product Line Product Description Product Size

If you want to view actual sales figures for a product in a particular quarter, you might want to consider using another IDS tool that is designed to display fact data as well as dimension data. The ideal tool for retrieving fact data from a database and viewing it on line is Query or Reporter; the best tool for printing such data is Reporter or Layout. (For details on those tools, see: *Query User's Guide*, *Reporter User's Guide*, and *Layout User's Guide*. For more information about logical database structure, see *Administering Databases with IDS*.)

However, you can save time by setting up constraints in a Browser icon, viewing and adjusting those constraints, and then copying the constraints to another IDS tool. In Chapter 2, you will find detailed instructions for constraining columns and using those constraints elsewhere in IDS.

The Browser tool can display fact columns, but it is designed primarily to provide a quick look into the database. Fact columns are generally quite long, and if Browser encounters a very long column, retrieval can take more time than you or the user can afford to wait, or the workstation can "time out. This is because each table that is represented in any way in the Browser Controls window (whether copied into the window, or only included in the **where** statement) is scanned completely, including all of its columns. It is, therefore, recommended that you copy into the Browser Controls window only dimension tables, that is, tables with no fact columns.

Constraining a Column in the Table Options Window

If you wish to constrain a single column, you can either wait and constrain it in the finished browser, as explained in Chapter 2, "Using a Browser Icon" on page 3, or you can use the Table Options window and type the constraint into the **(Other)** field. For example:

```
where branddesc = A1 Soap'
```

This statement automatically limits the Brand Description column to displaying entries for *A1 Soap*.

To undo a constraint that you have set in the Table Options window, you must return to the Table Options window and rewrite or delete the `where` statement.

Displaying Column Data in the Main Browser Window

Now that you have selected the database tables and columns for your Browser icon and have set options on the columns, you can display the column data in the main Browser window.

Before displaying column data, you should have both the Browser Controls window and the main Browser window open on your desktop.

To display column data in the main Browser window:

1. Click on **Apply** in the window header of the Browser Controls window. The Browser tool retrieves information from the database. If the database tables are large, the retrieval process can take several minutes. After data is retrieved, the main Browser window appears as shown in Figure 16 on page 32.

   The main Browser window displays database information for columns according to the options you selected in the Column Options window. The **Display** field appears at the top of the window and contains a choice for each of the tables you copied into the Browser Controls window.

2. Select a choice in the **Display** field.

For example, when you select **Territory Information**, the main Browser window opens.

3. Close the Browser Controls window. You can reopen the Browser Controls window at any time by selecting **Show Controls** in the main Browser window header.

   Your Browser icon is now ready to use. For information on adding, changing, and constraining data, see Chapter 2, “Using a Browser Icon” on page 3.

Stopping Data Retrieval

If you decide that you want to make more changes in a Browser icon, or for some reason you do not want to retrieve new data after the process has started, you can stop the data-retrieval process. Or, sometimes, the system stops data retrieval automatically. Both are described next.

When You Stop Data Retrieval

To manually stop data retrieval at any time, press the Stop key on your keyboard. The data retrieval process comes to a halt and you see the cursor return to its arrow shape.

When IDS Stops Data Retrieval

Sometimes the Browser tool automatically stops data retrieval. The three most common reasons are as shown in the following table, along with the messages that appear on your workstation.

Table 5. Reasons for IDS to stop data retrieval, and respective IDS messages

Problem	IDS Message
The amount of data you are attempting to retrieve does not fit in the memory available on your workstation.	Because of a low memory condition, the workstation has simulated a Stop key. -- Increase your available memory and/or contact your system administrator.
The database gateway to which your browser is configured is unavailable.	The database request failed. -- Try again later or inform your system administrator.
The database service to which your browser is configured is unavailable.	Cannot reach database server. -- Try again later, check address, or inform your database administrator.

In any of these three cases, when data retrieval automatically stops, the Important Message window appears.

If you receive one of these messages, click on OK again to close the Important Message window.

If the Database Gateway Service or Database Service Is Unavailable

If your browser is configured to either a database gateway service or a database service that is unavailable, you can, as the message suggests, do one of the following:

Try your retrieval request when the database gateway service or database service is available.

Check to see that you have the correct address in the browser's Icon Options window.

Contact the appropriate person in your installation (probably the system administrator for a database service, or the database administrator for a database gateway service).

Even while a service is unavailable, you can open and use your browser if it already contains data. The data you last retrieved is still displayed, and you can constrain columns as you like. (However, if you try to use the **Show Controls** or **Get New Data** buttons, you get a message saying that Browser cannot reach the service.)

If There Is Not Enough Memory

If IDS informs you that not enough memory is available to retrieve the data you wanted, you can reduce either the amount of data in your request or the amount of memory required by other processes running on your workstation. Try one or more of the following:

Close any windows that you do not need to have open on your desktop during the retrieval process.

Look at the tables in your browser. Are any of them fact tables (do any of them contain fact columns)?

Select a table in the Browser Controls window and open the Table Options window. In the **Apply threshold to Long column** field, is **No** selected? Select **Yes** instead.

Look at the columns in your browser; are any of them long? If you suspect so, open the Browser Controls window. Select a column, open the Column Options window, and select **Long** instead of **Short**.

If none of these remedies works for you, and you are sure that you are not asking Browser to retrieve too much data, contact your system administrator.

See “Modifying Column Length” on page 29 and “Avoiding Problems with Long Columns” on page 39 for more information.

Other Messages

If the data retrieval process stops and you see a message other than the ones mentioned in this section, see *Messages and Codes*.

Truncated or “Lost” Messages

Occasionally you might see a message that appears to have been truncated or shortened. Or, you might want to review a message after you closed the Important Message

window. In either case, you can open the Message Log window and read the full text of all messages sent recently to your desktop.

To open the Message Log window, click on the **Message Log** button on the right side of the message bar. The **Message Log** button looks like this:

In some cases, you might find that a message is truncated even in the Message Log window. If so, consult your system administrator.

Appendix A. More on Joining Tables

Basic instructions for defining a browser are in Chapter 3, “Configuring and Defining a Browser Icon” on page 20. This appendix provides some details that you might find useful when defining a browser:

“Why Should You Join Tables?”

“How to Find the Internal Name of a Table or Column” on page 45

“Joining More Than Two Tables” on page 49

Why Should You Join Tables?

You can define a browser by copying one or more tables from the category window into the Browser Controls window, and deleting from each copy of a table the columns you do not want in your browser. The resulting main Browser window shows each copied table on its own page of the window.

However, a simple browser might not always satisfy your needs or the needs of your user. Sometimes you might want to define a browser that lets you see columns from two or more tables in one page of the main window. To do that, you must join the tables in the Browser Controls window. (This is also called grouping columns.) Figure 21 on page 45 shows an example of a browser that includes both joined and unjoined tables.

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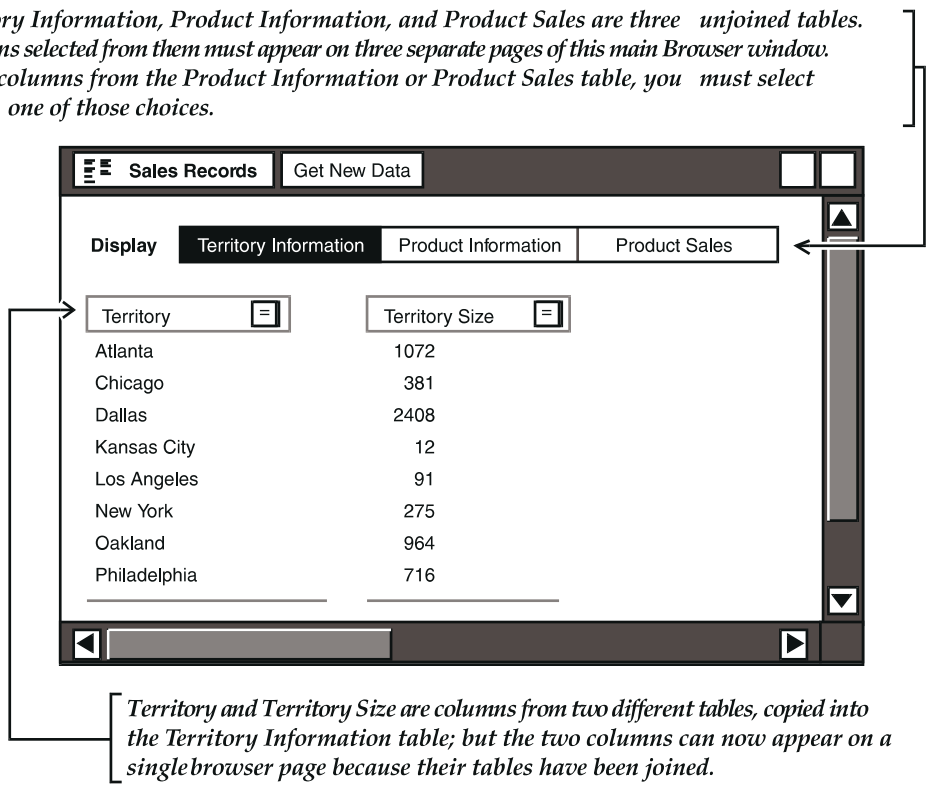


Figure 21. First page of a main Browser window, displaying joined tables

"Creating Column Groups (Joining Tables)" on page 33 gives you fully illustrated instructions for joining tables. To create a join between two tables, you must use SQL in a where statement that uses the tables' internal names. However, a table's internal name might not be obvious at first. The way to find it is explained in the next section.

For more information about using SQL, see the *SQL Entry User's Guide*.

How to Find the Internal Name of a Table or Column

To join the two tables Territory and Territory Size so that the main Browser window can appear as shown in Figure 21, you type the following SQL statement in the Table Options window:

```
where T1.terrnum = T2.terrnum
```

In the where statement, you must supply the internal name of each column that you are using to associate the contributing table with the receiving table. In the example just cited, terrnum is the internal name of the column TERRITORY ID, which is common to both the contributing and receiving tables.

Figure 22 on page 47 shows the three windows that appear when you copy tables or columns from the category window into the Browser Controls window, select the copied table, and open the Table Options window to write a where statement.

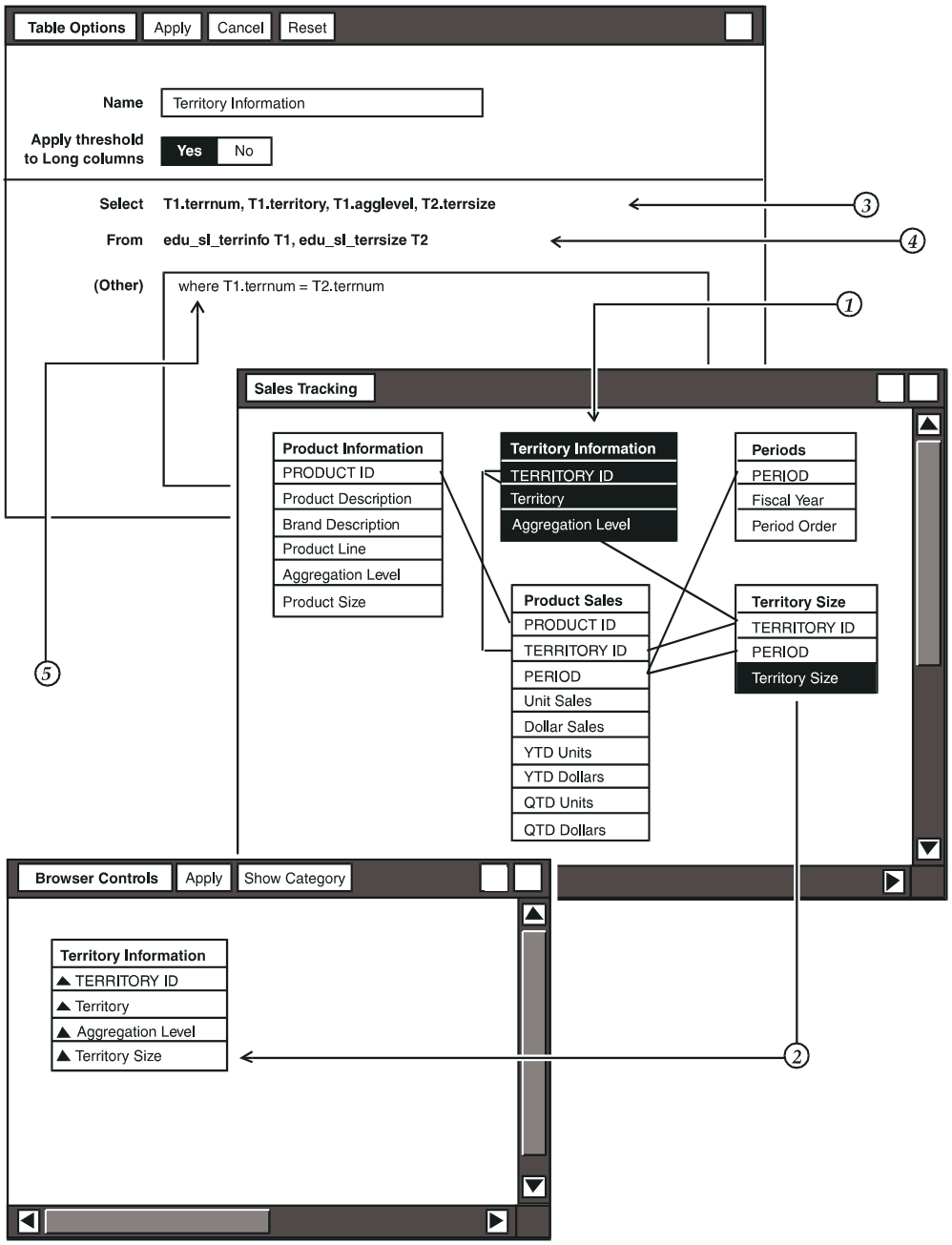


Figure 22. How to find the internal name of a table

The circled numbers and arrows in Figure 22 correspond to the following items:

1. In the example in Figure 22, the Territory Information table has been copied as the primary table into the Browser Controls window.
2. A copy of the Territory Size column has been added to the Territory Information table.
3. When the Territory Information table is selected and the Table Options window is opened, it appears as shown at the top of Figure 22 on page 47. In the **Select** field you see the internal name of each column in the table:

Column name as shown in Browser Controls window	Internal column name as shown in Table Options window, Select field
TERRITORY ID	T1.terrnum
Territory	T1.territory
Aggregation Level	T1.agglevel
Territory Size	T2.terrsize

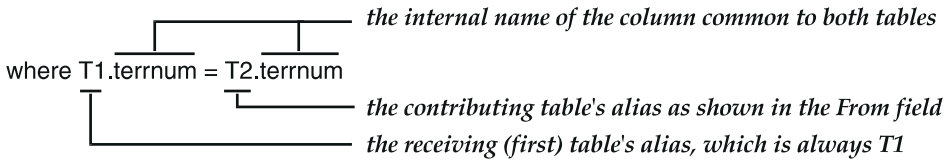
The column copied from the Territory Size table is identified as T2.terrsize, that is, the terrsize column from Table 2.

In the Table Options window, you see the internal name of each table represented in the Browser Controls window:

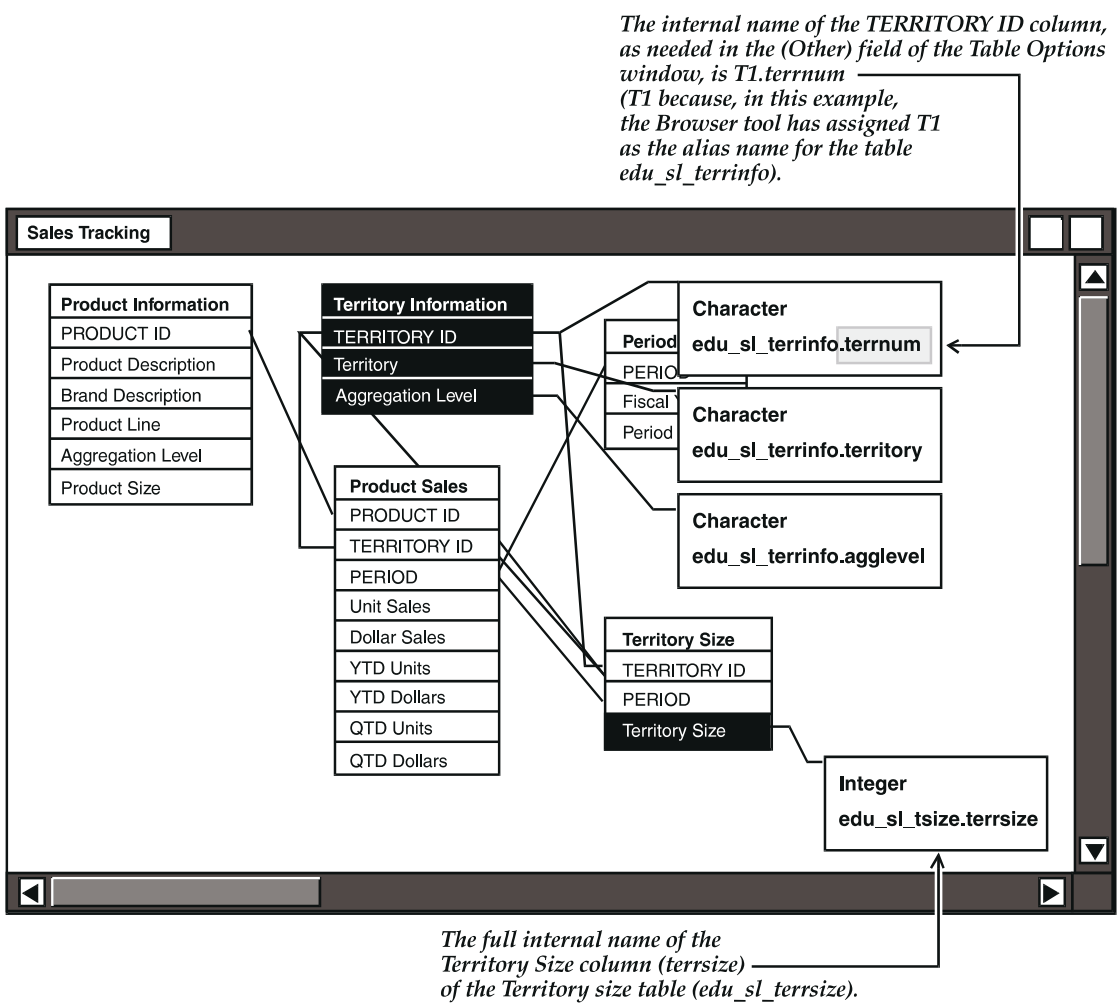
Table name as shown in category window	Internal table name as shown in Table Options window, From field
Territory Information	edu_sl_terrinfo T1
Territory Size	edu_sl_terrsize T2

The identifier T2 (for Table 2) automatically appears as an alias of the Territory Size table.

The where statement, which you write in the **(Other)** field using SQL and the tables' internal names, ties the two tables together by means of their common column, TERRITORY ID. In Table 1 (Territory Information, the primary table in the Browser Controls window), that column is T1.terrnum and in Table 2 (Territory Size) it is T2.terrnum.



If the internal name of a table or a column is not apparent from the Table Options window, go to the category window and select the table or column twice. Its internal name appears as shown in the following illustration.



To return the category window to its original appearance, select the table or column again.

Joining More Than Two Tables

You might need to join more than two tables if you are trying to accomplish either of these goals:

Goal	The basic procedure
One page of your finished browser displays columns from two tables that have not been joined in the category window (columns from a receiving table and a contributing table that have no columns in common).	Find a third table that does have columns common to the other two, and create joins between all three.

Goal	The basic procedure
One page of your finished browser displays columns from three or more tables.	Form a continuous join between the three tables (as shown in Step 5 on page 50, following).

The following detailed procedure continues with the same table and column examples that are used in Figure 22 on page 47.

1. Suppose that your primary table in the Browser Controls window is Territory Information, and that you have deleted the Aggregation Level column. Into the Territory Information table you have already copied the Fiscal Year column from the Periods table. Look at the category window and notice the following:

   The Territory Information table and the Periods table have no columns in common.

   There is, however, one table that has a column in common with each of those other two tables: the Territory Size table.

2. Copy any column from the Territory Size table (for example, you can use the Territory Size column) into the Territory Information table in the Browser Controls window.
3. In the Browser Controls window, select the Territory Information table and open the Table Options window.
4. In the **Select** field, notice the internal names of the columns from the three tables:

   T1.terrnum, T1.territory, T2.fiscyear, T3.terrsize

   From this list, you deduce that Table 1 is Territory Information, Table 2 is Periods (the second whose column you copied into the Browser Controls window), and Table 3 is Territory Size (the third from which you copied a column).

5. In the **(Other)** field, write the where statement as follows, and close the Table Options window.

   where T1.terrnum = T3.terrnum and T2.period = T3.period

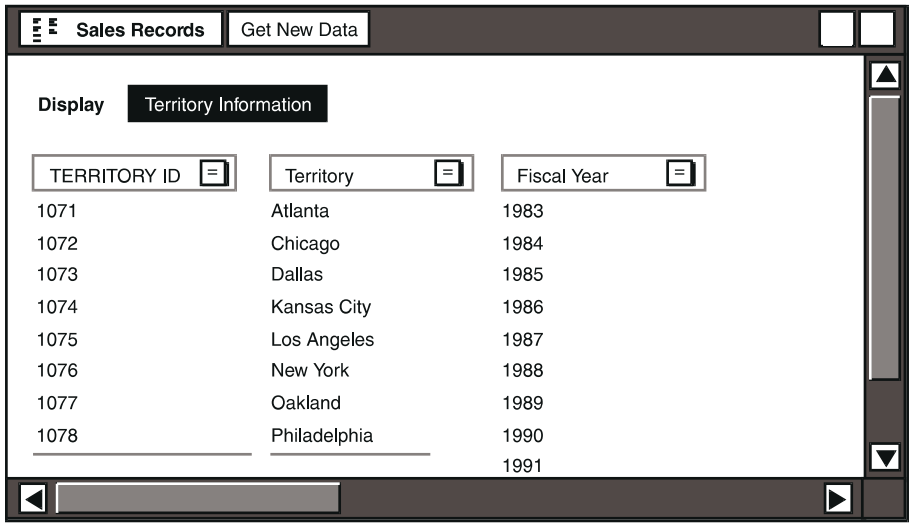
   You have now formed a continuous connection between all three tables.

If you are using the Territory Size table only to connect the other two, and do not want any of its columns represented in your finished main Browser window, you must do two more steps:

Select the column that you copied in from the Territory Size table, and open the Column Options window.

In the **Display** field, select **Hide Column**, and close the Column Options window.

To display your finished main Browser window, click on **Apply**, close the Browser Controls window, or, if this browser has been used before, click on **Get New Data** in the main Browser window. Your finished main Browser window should now resemble the one in the following illustration.



Long Columns

Regardless of whether you are joining tables in a complex browser or retrieving columns from just one table in a simple browser, you might need to know about the effect that displaying a long column can have on a Browser's response time.

Depending on conditions in your own data-processing environment, retrieving columns from fact tables, which often are very long, can slow response considerably. You might wish to consult your system administrator if a particular browser retrieves data slowly. More details are given in the section “Avoiding Problems with Long Columns” on page 39.

Glossary

access privileges. A set of permissions assigned by an icon's owner to control who can view or change the icon.

Apply. Put into effect. A window header button that puts into effect any changes that you have specified in an options or controls window.

bimonth. A two-month period.

***Blank Icons file drawer**. A file drawer icon that contains one of each icon that an IDS user is likely to need. An asterisk at the beginning of a file drawer name indicates the file drawer is a standard system file drawer distributed on the software installation media. See also file drawer.

browser. Any configured, defined Browser icon.

Browser. The IDS tool that lets you create browsers to display unique values of specified columns in one or more database tables. Also, the window in which you view a completed browser, and in which you constrain and manipulate data you have retrieved. See also main Browser window.

Browser Controls window. The window into which you copy database tables and columns, and define your browser.

button. An object, in a window or window header, that contains graphics or text and is used to open other windows, open a menu, perform an action, or set a condition.

Cancel Changes. A window header button or a choice in a Special menu that closes the icon without saving the changes that you have made since you opened the icon.

category. The highest-level division of a logical database. A category contains tables, and tables contain columns and rows. Logical joins between tables are defined at the category level.

category window. The window that displays a specific category of database table for which a Browser icon is configured. See also category, Show Category.

Character. In the Display As field of the Column Options window, the choice that causes Browser to display selections as strings of alphanumeric characters.

choice. Graphics or text that can be selected in a field or menu.

column. A vertical field in a table or spreadsheet. Columns can be identified by letters or text strings at the top of the display area. See also row, table.

column groups. Associated groupings of columns that can be constrained in conjunction with one another. Column groups are created by joining tables. See also join.

Column Options window. The window in which you can set options that apply to specific column data in the Browser Controls window.

Column Order. In the Column Options window (Browser Controls), a field where you can specify whether a column in the browser is sorted in ascending order, in descending order, or according to the order of another column. See also Order By.

configure. To prepare a Browser icon (or any IDS data-access icon) to retrieve data from a specific database, by specifying the database gateway, database category, and other data in the Icon Options window. See also define, Icon Options.

constraint. A limitation on the range or values of data retrieved from the database, entered to reduce the amount of data that is returned to the workstation. For example, you can constrain data based on territory and period so that only data relevant to New York during June, 1994 is retrieved.

Constraint Operator button. In the main Browser window, the button in a column heading that opens a menu from which you can select an operator to constrain column data. See also operator.

controls window. A window that displays settings that you can view or modify. Usually, to open a controls window you click on a button (often named Show Controls) or select a choice from a menu.

Data Access Controls. The window that displays a list of databases to which the user's desktop has access (each entry includes the service name, database name, and user ID). This window enables an authorized user to add or modify an entry and change his or her mainframe password.

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database administrator (DBA). The person who issues administrative instructions to a database service. The DBA defines the data tables used by data access tools, monitors database performance, and assigns user access.

Date. In the Display As field of the Column Options window, the choice that causes Browser to display selected date data in date format.

date resolution. The way in which the interval between dates is interpreted. For example, if the date resolution is Week, the interval between dates is 7 days, but if the date resolution is QuadWeek, the interval is 28 days (4 weeks). IDS date resolutions include Day, Week, QuadWeek, Month, EvenBiMonth, OddBiMonth, Quarter, and Year.

DBA. See database administrator.

decimal precision. The number of digits past the decimal that are used to express the fractional part of a number. More digits result in greater precision. For example, 3.14159265 is more precise (that is, more exact) than 3.14.

default value. A value that is assumed when no value has been specified.

define. To prepare a configured Browser icon to retrieve and display desired data, by specifying tables and columns from a database category, by setting up relationships between tables and columns, and by applying constraints. See also configure.

desktop. The screen space occupied by IDS.

destination icon. An icon that receives information from other icons.

dimension. Data (such as periods of time, products, and locations) defining the context of facts. Dimensions typically make up the column or row headings in a report. Contrast with fact.

Envelope. A IDS tool used to create electronic-mail messages and to mail messages and icons to other users.

even bimonth. A two-month period ending in an even-numbered month; for example, January and February. Contrast with odd bimonth.

fact. Data consisting of measures such as unit price or volume. Facts typically make up the returned data in a report (the body of the report). Contrast with dimension.

field. (1) A specified area used for a particular class of data. (2) In a window, an identifiable area where you can enter information (field), select a choice (field of choices), or view information.

file drawer. A container, created or renamed by the system administrator, that can be shared among desktops. A file drawer typically contains folders. See also folder.

folder. An organizing container that resides on a single desktop and is used to store icons and other folders. Folders are represented on the IDS desktop by the Folder icon, on which a file folder is depicted. See also file drawer.

function keys. A set of workstation keyboard keys, labeled F1, F2, F3, and so on, located across the top or at the left side of the keyboard. In IDS, function keys are used to perform tasks such as deleting an object or opening a help window.

Gateway. In the Icon Options window, a field where you type the name of the database gateway that the desktop or tool needs to access.

gateway service. A software process that translates protocols and access methods between two dissimilar systems, such as between a non-IDS database and the IDS Browser tool.

Get New Data. The button in the main Browser window that causes Browser to gain access to the database and retrieve data that matches the constraints set within the icon.

Help button. The button on the right side of the message bar that opens a menu of IDS online help topics.

Help key. The IDS function key that opens a menu of online help topics.

Icon Options. A window in which you can reset configuration values or view configuration information about a Browser icon. See also configure.

Important Message. A window that displays a message that requires an acknowledgment from the user. An important message can be generated by a tool or service, or by the system administrator.

input. Data that is entered into a computer for processing. Contrast with output.

integer. A whole number, that is, a number that does not contain a decimal place, such as 5, 60, or 912. Contrast with real number.

Integer. In the Display As field (Column Options window), the choice that causes Browser to display selections as integers (whole numbers).

internal name. In the IDS environment, the name by which a database item is stored in the Workstation Tools Data Dictionary (WTDD). Each database category, table, and column has an internal name based on naming conventions required by the database system. To make these names more useful to users, each internal name has a corresponding external name, called a print name, that the IDS tool user sees on the screen. For example, a table with the internal name DBA_EMP might be known to the user as the Employee table. Contrast with print name. See also Workstation Tools Data Dictionary.

join. To associate tables containing columns of identical information in relational databases. Also, the process or fact of joining tables, which is also referred to as creating column groups. In the category window, a join is represented as a line between columns in tables.

key. A button on the keyboard. In IDS publications and online information, the name of a keyboard key is enclosed in brackets; for example, Enter refers to the Enter key. See also function keys.

list separator. A character, such as a comma, used to break a text string into separate items.

logical database. A database representation that includes print names for tables and columns, and that groups the tables into useful categories. The logical database also contains definitions for default joins between tables. The Workstation Tools Data Dictionary (WTDD) stores the description of the logical database, the mapping of print names to internal names in the physical database, and other logical attributes, such as the type and length of data. See also join, physical database, print name, Workstation Tools Data Dictionary.

Long. The choice in the Column Length field in which you identify a column as one that can have more than the Browser tool's column-length threshold of 100 rows. If you select **Long**, Browser automatically applies its threshold limit, and if the column does have more than 100 rows, only the column heading is displayed with the message Too Many Values.

main Browser window. The window in which you can view a completed browser, and constrain and manipulate retrieved data. See also Browser.

menu. A list of available choices that you open by pressing the left mouse button while the pointer is on certain buttons.

message bar. The rectangular area along the bottom of the desktop, where advisory or error messages are displayed.

Message Log. A window that stores and displays messages sent to the message bar. You can open this window to read the full text of a lengthy message, to read a previous message, or to copy messages to a text document.

Message Log button. The button on the right side of the message bar that opens a window in which you can view desktop messages.

Minimize button. The window header button that reduces the size of a window so that only the window header is displayed on the desktop. Contrast with Restore button.

monitor. A workstation component that includes the computer display (screen).

Month. The choice in the Date Resolution field (Column Options window) specifying that the date be resolved to the month.

More button. The window header button that opens a menu of other window header buttons that cannot be displayed for space reasons.

mouse. A pointing device with buttons that you manipulate to perform operations on the computer screen. You slide the mouse on a flat surface to control the position of the pointer. See also pointer, trackball.

Move. A function key used to transfer selected objects, such as icons or text, from one location to another.

network. A set of workstations, servers, and other devices connected together for the interchange of information. See also local area network. See also realm.

New Icons file drawer. A file drawer that contains the *Public File Drawers file drawer and the *Blank Icons file drawer.

Not Between. A constraint operator that lets you select all values that are not contained within the identified range.

Not =. A constraint operator that lets you select all values that are not equal to the specified value.

odd bimonth. A two-month period ending in an odd-numbered month; for example, December and January. Contrast with even bimonth.

OK. (Desktop) The button in an Important Message window that closes the window.

open. To perform an action that causes a window or menu to appear on the desktop. For example, you open a tool window by double-clicking on an icon.

Operating System/2. See OS/2.

operator. A symbol or word that you select or enter along with one or more values to define the amount, range, or characteristics of data. For example:=, +, -, >, not=, and (between). See also data-entry operator.

Options. A function key used to open an options window or, if an options window is already open, to close it.

options window. Any window that you can open by using the Options key or the options function on the pop-up function pad. Options windows let you view and modify the properties of the selected object.

Order By. In the Column Options window (Browser Controls), a field where you can specify whether a column in the browser is sorted according to the order of another column. See also Column Order.

OS/2. Operating System/2. A single-user, multitasking, IBM operating system that runs on microcomputers with an Intel 80286 or later microprocessor.

Other Data. The choice in the Display field of the Icon Options window that displays settings for configuring a Browser icon to a specific database.

output. The result of computer processing. Contrast with input.

page. (1) In a window, an alternate view that provides a different set of options for setting controls and defining the behavior of an icon. (2) In a window, the amount of information that can be displayed at one time.

password. A unique string of characters known to a computer system and to a user, who must specify the character string to gain access to a desktop, gateway, database, system, or service within a system. See also user ID.

Password. The field in some windows in which you type the appropriate sequence of characters to gain access to a desktop, database, service, or system.

PC. See personal computer.

PC application. An OS/2, DOS, or Windows computer program. The terms application and program are often used interchangeably.

personal computer (PC). A microcomputer designed primarily for use by a single user.

physical database. The physical set of stored data tables that underlies a logical database. See also logical database.

pointer. The symbol displayed on the computer screen that you move by moving the mouse or other pointing device. Usually, the pointer looks like an arrow, but it assumes other shapes depending on the operation taking place. For example, the stopwatch pointer indicates that a process is in progress.

pop-up function pad. An image that appears on the desktop when you press both mouse buttons at the same time and that is used to delete, move, or copy icons, or to open or close an options window.

Precision. A field in the Column Options window where you specify the decimal places for real numbers. See also real number.

print name. The name of a database item (such as a column or table) that is used in IDS windows instead of the more cryptic name by which the data item is identified in the database. Print names are identified in the Workstation Tools Data Dictionary (WTDD) and are converted during data retrieval to internal names that can be understood by the database. Contrast with internal name. See also Workstation Tools Data Dictionary, logical database.

quadweek. Exactly four weeks, starting on a Sunday. Also spelled quad week.

query. A request for data from a database, based on specified conditions.

Query. A IDS tool used to retrieve data from a database, based on specified conditions.

realm. In IDS networks, a collection of IDS resources that are maintained as a logical group (that is, a group that is determined not by physical boundaries, but rather by virtue of being associated with one another). A realm must contain at least a primary file service and a directory service. Other components such as workstations, Internetwork Routing Service, and Data Access Services can be added to form a functional IDS local area network (LAN). See also network.

real number. A number with a decimal point, such as 2.1 or .003. Contrast with integer.

Restore button. The window header button that expands a minimized window to its full size. Contrast with Minimize button.

Reporter. A IDS tool used to retrieve data from a database, analyze it, and format it into a report that can be printed.

row. (1) The horizontal component of a table. A row contains exactly one value for each column of the table. (2) A record, or single instance, in a database table. See also column.

scroll. To move the image in a window up, down, left, or right to view information that is not otherwise visible within the boundaries of the window.

scroll bar. A bar, at the bottom or right edge of a window, that shows that more information is available or can be added that is not currently displayed in the window. The components of a scroll bar can be used to bring different information into view. See also scroll box, scroll button.

scroll box. The part of a scroll bar that indicates the position and proportion of information currently visible in a window relative to the total amount of information available. You can drag the scroll box to a different location in the scroll bar to bring different information into view.

scroll button. The part of a scroll bar that contains an arrow. Clicking on a scroll button causes the window to scroll up, down, left, or right.

secure. To restrict access to.

Secured. The field in the Icon Options window in which you select whether or not to prevent unauthorized users from opening the icon.

select. To identify one or more objects on the computer screen so that they can be operated on. You select icons and choices in fields by clicking on them. See also click.

selection. Something on the desktop that has been selected. Selections are highlighted. See also highlighted.

server. The computer on which a service runs.

service. A software process that provides facilities to other parts of IDS, such as a file service, a mail service, a mail gateway service, and a data access service.

Short. The choice in the Column Length field specifying that the length of the column, that is, the number of rows it contains, is under the Browser tool's column-length threshold of 100 rows. If you select Short, Browser does not automatically apply its threshold limit, and attempts to display all retrieved values for the column. If the column actually is over the limit, your workstation can run out of memory and the query can stop; or the retrieval process can take a very long time.

Show Category. The window header button or the choice in the Special menu that opens the category window displaying the database tables for which the icon is configured. See also category window.

Show Controls. A button in the main Browser window header that opens the Browser Controls window.

Size. A function key used to open an icon or to change the size of a window. This key has additional functions in data access tools.

Special button. A button in some window headers and on the far-right side of the message bar.

Specified Here. The choice in the Database Logon field of the Icon Options window specifying that the user ID and password are to be determined in the Icon Options window rather than in the desktop Data Access Controls window.

Spreadsheet. A IDS tool used to perform calculations and analyses, schedule projects, and perform iteration in embedded capsules.

SQL. Structured Query Language, a command language for use with relational databases. The language consists of statements to insert, update, delete, query, and protect data. IDS tools use SQL to communicate with database servers.

SQL Entry. A IDS tool used to run Structured Query Language (SQL) programs.

Stop. A function key used to stop an operation in progress, such as retrieving data from a database.

string. A sequence of characters.

Structured Query Language. See SQL.

system administrator. In IDS, the person who is responsible for maintaining and configuring IDS, including its workstations, servers, and network.

table. In a database, a single file, consisting of data organized in columns and rows.

table name. The title or label for a database table.

Table Options window. The window in which you set options that apply to specific table data in the Browser Controls window.

Text. A tool used to write and format text documents, format the results of data access tools, and receive data and images from other tools and PC applications.

title block. A window header button that contains the icon graphic and the window title. You can click on the title block to close the window.

tool. An IDS workstation program, such as Browser, Spreadsheet, Text, Reporter, or Query. Every tool is represented by an icon.

trackball. A pointing device with buttons that can be userd instead of a mouse to perform operations on the computer screen. A trackball is a stationary unit containing a ball that the user rotates to control the position of the pointer. See also mouse, pointer.

user ID. A name used to gain access to a desktop, system, gateway, or database service. See also password.

window. A rectangle that displays a window header and display area, the contents of which vary depending on the type of window. For example, a tool window displays a view of the tool and the data associated with it.

workstation. A computer at which you can use IDS to perform work. Depending upon the model, workstation components include the monitor, keyboard, mouse, and system unit, which might house a disk drive.

workstation keyboard. The physical keyboard, which is an input device used to interact with IDS.

Workstation Tools Data Dictionary (WTDD). A logical data dictionary that standardizes the IDS workstation view of data across many relational database management systems. The WTDD stores the print names of database items, defines how the items are to be displayed, and includes other logical attributes of data. The WTDD is implemented as a set of standard relational tables that can be managed through the DBA tool. See also print name.

WTDD. See Workstation Tools Data Dictionary.

WTDD Owner. The field in the Icon Options window in which you specify the name of the owner of the WTDD catalog.

IDS Publications

This section lists IDS publications, including order numbers. To order copies of the books listed here, or to get more information about a book, see your IBM representative.

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Getting Started with the Intelligent Decision Server (SC26-8892)

Working with the Intelligent Decision Server (SC26-8893)

Installation, Configuration, and Administration Publications

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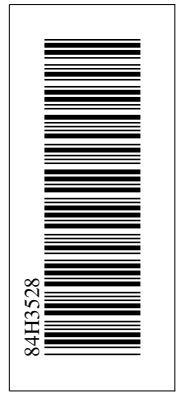
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