Quick Guide

Compatible with J1 Versions 2019.3 and higher InfoMaker Version 12.5





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This Quick Guide contains the basic level information needed to understand and start using InfoMaker. This is also a companion guide for each of three InfoMaker eLODs available on <u>learn.jenzabar.com</u>.

# What is InfoMaker?

InfoMaker is an easy-to-use reporting tool that interfaces with Jenzabar J1, and can be used to create stand-alone queries, formatted reports, and forms. You can use InfoMaker's convenient graphic interface or complex SQL syntax to gather your data and create or customize reports. This document covers the basic functions of this resource.

The *InfoMaker* tool utilizes a graphical environment to create SQL statements for creating reports, queries, and forms.



All your work in InfoMaker is done using the object editors. For example, when you are working with reports, a *Report* object editor will be available; when working with libraries, a *Library* object editor is available; etc.

The object editors are displayed within the **PowerBar** as a button on the toolbar. In the screen capture below, more than one editor is shown and depending on your location in InfoMaker, the inactive editors appear grey, while active editors appear in color.

🛜 apreport.pbl - ODB [J1 Desktop] - Appeon I	nfoMaker	
File Edit View Insert Format Design	Rows Tools Window Help	
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Depending on the object editor that has been selected, different options are available on the toolbar.



# **Relational Databases**

This section provides an overview of relational databases and the client/server environment while identifying the role that InfoMaker plays in this environment.

#### Understanding the Environments

Software as a service (or SaaS) delivers applications over the Internet. Instead of installing and maintaining software locally, you access it via the Internet.

Within the Software as a Service (SaaS) environment, two components work together:



What are the advantages of a SaaS environment?

Accessibility: Easy access to systems from any networked device with internet access.

**Adaptability:** Easier ways of managing privileges, monitoring data use, and ensuring all users see the same information at the same time.

Maintainability: Updates applied consistently without impacting your IT department.



Within the client/server environment, three components work together:



What are the advantages of a client/server environment?

**Flexibility:** The Server may be one of many different types and run different operating systems. Users do not need to know the specifics and client machines can also consist of different types. **Adaptability:** Any of the machines involved may be changed or upgraded as needed – if they can still interact with each other, the changes are transparent.

**Affordability:** Client machines, which perform most of the processing and formatting of reports, provide a more cost-effective platform for this type of processing.

#### **Database Security**

While J1 contains its own security, InfoMaker does not possess any security and depends on the database to manage permissions.

The login and password used to access J1 may allow you to run a report, but this same login and password used in InfoMaker may not grant you access to the tables needed to customize or change the report. In this case, contact your system administrator to request permissions on the database level.



#### When you log into Jenzabar One...

Server verification recognizes the credentials. Database access is granted using an alias with permissions.



#### When you log into InfoMaker...

- 1. Database verification recognizes the credentials.
- 2. Database security, configured using Enterprise Manager or another DBMS tool, controls access and permissions.

#### What is a Relational Database?

A database is a collection of organized information that is stored together. For example, your address book or telephone book can be considered a database that stores several components of information such as:

- First Name
- Last Name
- Birth Date
- Street Address (Home)
- City (Home)
- State (Home)
- Zip (Home)
- Phone (Home)
- Street Address (Work)
- City (Work)
- State (Work)
- Zip (Work)
- Phone (Work)



In a *relational* database, the information is not stored as one unit, but rather separated into smaller units as information that is related – in tables or files. Looking at the list above, you might be able to separate this information into three groups: information about the name, information about the address, and personal data. However, when we separate the information, we will need some component that is common to everything so that we can somehow connect information that relates to one person. In this case, we can use an ID number as illustrated below.



The collection of these three tables is an example of a *relational database*. You may access any individual piece of information from more than one table at any time.



Each table must possess at least one column, which may be blank (NULL) but may have zero or more rows (an empty table).



#### Name Information

	column	column	column	column	column
	ID Number	Last Name	First Name	Preferred Name	Title
row	5643	Smith	Steven	Steve	Purchasing Manager

Each table must also contain one or more columns where the value(s) taken together will uniquely identify each row in the table. These columns become the *primary key* or *alternate key*. The primary key of the table above is the ID number – therefore, if more than one person named Steve Smith exists in your database, the ID will uniquely identify each one.



A primary key(s) must consist of characteristics that cannot be duplicated in any other row.

#### Address Information

	column	column	column	column	column	column
	ID Number	Address Code	Street Address	City	State	Zip
row	5643	*LHP	1234 Main Street	Baltimore	MD	16789
row	5643	PWRK	900 Oak Avenue	Minneapolis	MN	52243

Notice that the Address Information table contains more than one row for the same person; therefore, the primary key will need to be a combination of both the ID Number and the Address Code to identify each address for Steve Smith.

As you begin to create queries and reports, you will become aware of the importance of primary and foreign keys.



Tables in a database are related to each other with keys or common columns through a relationship identified by a join.



Name		
id_num (PK)	Π.	Address
name_type		id_num (FK)
name_format		addr_cde
last_name		addr_sts
first_name		addr_type



Always create joins on common information.

Since all data is separated and stored in tables, the relational database makes it easier to access and use information from multiple offices. For example:

The Admissions office may need information from tables such as the Name, Address, and Biograph.

The Registration office may need information from tables such as the Name, Address, Biograph, and Student.

The relational database makes it possible for all departments to get what they need from the same tables. Using the name and address tables as examples, you can see the name table uses the ID Number as the primary key – this means that no two rows within this table can be the same.

Since the ID Number also exists in the address table as a foreign key, these tables can be joined by the ID number.

For example, Steve Smith's name will be pulled from the name table and his address will be pulled from the address table by using the same ID number. This information can then be displayed on a report.





#### Exercise

- 1. Where is security for InfoMaker managed?
- 2. Define Database, Table, Column, and Row:

3. What should you look for when you join tables together?

4. True or False. If you can see the information/data in Jenzabar One, then you can access that information/data for a report.



#### Set Up InfoMaker

Once InfoMaker and J1 are installed, run the **InfoMaker Configuration Tool** to set up the Shared InfoMaker Profiles using the database profiles defined during the installation process. These profiles are available to any person using the machine. Information about the location of the shared profiles is stored in your registry (HKEY\_CURRENT\_USER). You can also create your own personal profiles.

The InfoMaker Configuration Tool changes several Query Governor, Design mode, and Design layout settings and makes InfoMaker easier to use within J1. Other changes made by this tool:

- Trimmed trailing spaces.
- Lowercase table and column names.
- No quotes in the Select statement.
- Object edges and a ruler will be displayed in the Design mode of reports.
- Simplified layouts will be displayed in Design mode.



To set up InfoMaker, you must log in and exit out of the InfoMaker application at least once.

#### **Starting InfoMaker**

There are several few ways to start InfoMaker. If Jenzabar One is open, choose **InfoMaker** from the GO menu. It can also be accessed by choosing InfoMaker from your computer's Start menu or using a Desktop shortcut.

When InfoMaker is not able to locate a current library, you will receive a prompt asking you to create a default library.

- If you select *OK*, a library will be created using a default name.
- If you select *No*, you may browse to a library that you would like to select.
- 1. From J1 Desktop, access the Go menu and select **IM Config Tool**.



The InfoMaker Configuration Tool for J1 2019 (whichever version of J1 you are using) window appears.



2. Choose the **Optional** tab and click the **Create Shared Profiles** button at the bottom of the window. There should now be a profile in the box above the button that looks like this:

C:\Users\%YourUserName%\AppData\Local\Appeon\InfoMaker

Lini File Location:	C:\Users\MRUnru	h\AppData\Local\	Appeon\InfoMaker 19.0\im.ini	
_Profiles.ini Location	C:\Users\MRUnru	h\AppData\Local\	Appeon\InfoMaker 19.0\IM_P	rofiles.ir
Recommended O	ptional			
Copy Individual Pro	files			
Individual database addition to or instead	profiles may be copied d of shared profiles.	d to your personal Ir	foMaker configuration in	
Click '>'to copy a s	pecific profile or '>>'t	o copy all the availa	able profiles.	
Shared Profiles:		InfoN	laker Profiles:	
J1 Demo J1 Desktop J1 Sandbox		>	Delet	e
Create Shared Profi Shared database ( C:\Users\MRUnru	les profiles exist in: ih∖AppData∖Local∖Ap	peon\InfoMaker	Create Shared Pro	files

If you get a message asking if you want to create them, click **Yes**.

Confirm that you have Shared Profiles. Depending on whether your school is a hosted site by Jenzabar or whether your school hosts on their own site, these Profiles may be named a bit differently, but you should see a Production Profile and either a Training or Play Profile. It could also look like TmsEPLY and TmsEPRD.

- 3. Choose the **Recommended** tab and click **Apply All Settings**. All options but 'Remove Settings' should be grayed out and the Database Profile section should show a path to the IM\_Profiles.ini file.
- 4. Close the application.
- 5. Repeat these steps for each individual user on the machine they will be using a locally maintained server or each individual if connecting remotely. It is important that they have logged into InfoMaker at least once but that it is not open when running the Configuration Tool.
- 6. You can now log back into InfoMaker.



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	Title Bar
apreport.pbl - ODB [J1 Desktop] - Appeon In	foMaker
File Tools Window Help	Menu Options
[ 🖓 🗁 🏦   💀 🛋   🗄 🌰 😭 🕒 🕞	
PowerBar	
Ready	

7. Then the main window appears, notice that the Title Bar displays the name of the current library. Use the Menu to choose options specific to each object editor.





#### **Exploring the PowerBar**



The PowerBar is the main area you work with while in InfoMaker. It displays buttons for your objects and lets you choose to create new objects, libraries, and open existing objects. Each button on the PowerBar has its own purpose:



**New** button creates new libraries, reports, queries, forms, and pipelines as well as to access the database painter.



We recommend you always use the **New** button to create any new object.



**Open** button opens an existing object.





**Select Library** button chooses or create sa library. This option displays a list of the most recently used libraries.

**Library List** button specifies the search paths, such as the Style or Query path. The InfoMaker Configuration tool puts two libraries in the style path. These libraries are used when customizing Jenzabar One reports or when creating InfoMaker forms.



**To-Do List** button tracks your tasks for each library. If you define links, you can quickly go to the desired location.



**DB Profile** button chooses and connects to a particular database.

**Database** button displays the names of tables, views, and entities to which you have access.





#### Choosing a Database

1. Click on the *Database Profile* 🛅 button from the PowerBar.

Each Database Profile contains the following information depending on the type of Database Management System (DBMS) used:

- the UserID and password needed to access the database
- the name of the ODBC datasource or the name of the database and where it is stored

This information is needed for InfoMaker to connect to and use a database. You can edit a personal profile that has already been established, add a new database profile, or delete a profile that you no longer use. You may not change the Shared Profiles, which are stored in a read-only file, but you do have the ability to make a personal copy of the profiles.



The ODBC database connection needs to be configured before a profile can be added – contact your system administrator.

- 2. When the **Database Profiles** window appears, click on the database profile name and then click on the *Connect* button.
- 3. Connect with 'Use Trusted Connection' box or login password depending on how your school is configured.
- 4. Click on the plus + sign to expand ODB ODBC if no profiles appear.





The title bar shows the database connection.





#### Working with Libraries

Within the InfoMaker application, the files that you open are referred to as libraries. Each PowerBuilder Library is identified by a .pbl extension and contains reports, queries, and forms. Therefore, if you need to locate a specific report, you need to know the name of library (.pbl) where the report is stored.



It is critical that you are always aware of the library in which you are working.

To view a list of your .pbl files:

- 1. Click on the *Library* <sup>th</sup> button from the PowerBar.
- 2. Browse to where Jenzabar libraries are located. For hosted schools this will be:

D:\XXX\Jenzabar\Additional reports\

3. Click on a .pbl file on the left and a list of objects that exist within the file will be displayed on the right side of the window.

Select Library	
New Browse Recent	
Addition	al Reports
∎ AV ⊨	
	ccounts Payable
	A arinquiry.pbl
B	idding ixed Assets
	jeneral Ledger
<u>N</u> ame:	
	OK Cancel

From this point, you can choose the library where you want to work.

- 5. Right-click on the .pbl.
- 6. Choose the *Set as working library* option.

- 4. You can also use the *File, Select Library* (*Browse tab*) menu option.
- TIP: This option will only display the actual .pbl files and you will not be able to see the objects that exist within each one.







The title bar will always display the name of your current library.





If you attempt to open a report or query from a library that has not been set as your working library, you will receive a message that the report or query is not in your current library list. Therefore, if you receive this message, simply identify the file as your working library and you will then be able to access any object within it.

You will notice the different graphical icons used in your tree view to distinguish a report from a



For training purposes, we suggest you preface a report with the letter 'r' and a query with the letter 'q'. This allows you to quickly view all the objects within your .pbl and locate exactly what you need since they are organized by name. Also, use an underscore rather than a space between words.

#### **Creating Folders and Libraries**

You can easily create a new folder in which libraries can be created or copied from other folders.

- 1. Determine the location for your new folder.
- 2. Right-click on the directory location.
- 3. Select the *New Folder* option.



4. Enter the name of the folder.



Now you're ready to create a new library – you have two options:

5. Click the *Select Library* button from the PowerBar and then click on the **New** tab.



-- or –

Click the *New* dutton from the PowerBar, then click on the **Library** tab.

- 6. Click *OK.*
- 7. Click on the ellipsis (...) and browse to the location where the .pbl should be saved. Name the library and click OK Save.
- 8. Click Finish.



Remember to identify this as your working library.

#### **Using Select Library**

As mentioned earlier, you can create a new library by clicking on the *Select Library* button from the PowerBar and clicking on the **New** tab; however, after clicking the *Select Library* button, you'll notice three tabs: **New**, **Browse**, and **Recent**.



When you click on the **Browse** tab, you can look through folders to locate a specific library. When you click on the **Recent** tab, a list of paths that were recently used will be displayed.



#### Exploring the Library Painter



The *Library* painter displays buttons that are available when a library has been opened. Each button on the Library painter has its own specific purpose:



**Select All** button chooses all objects in a library. This button is only activated in the View List – it is not activated in the Tree List option.

ø	Edit button let you edit an existing object.
	<b>Copy</b> , <b>Move</b> , and <b>Delete</b> buttons copy and move reports, queries, and forms between different libraries. You can also copy library objects from one .pbl to another by dragging and dropping in the Tree List view.
0	<b>Regenerate</b> button is available with compiled objects. This may be used occasionally with the forms created with the Jenzabar J1 formstyles.
	<b>Properties</b> shows the properties of a .pbl or library object. You can also edit or add comments to a .pbl or library object by using the Properties option.
8	<b>Display Most Recent Object</b> button show the last object that was used even it if is not in the current library.
×	<b>Close</b> button exits the Library Painter.



#### Exercise

1. Where does the name of the current library appear within the main window?

- 2. What icon button should you click to create a new object?
- 3. What icon button on the PowerBar displays the names of the pbls and the objects within?

- 4. Where do you select the database you are going to use for retrieving report and query data?
- 5. What are two important actions to perform each time you access InfoMaker?



# Simple Reports

InfoMaker provides several options to create a variety of reports.

#### Viewing a Report

- 1. Click on the *Library* button from the PowerBar.
- 2. Select the **arinquiry.pbl**.

Remember to right-click on the .pbl and choose the *Set as working library* option.



3. Double-click on the **ar\_inquiry** report that is displayed in the right panel.

#### Using the Report Painter

Once you have opened the report, the Report painter will become available and provide views related to the report on which you are working. The screen capture below demonstrates the report (using the default layout) in the Report painter.





If you make several changes to the layout of the Report Painter and want to return to the original view, simply go to View, Layouts, Default.



1

Title Bar

You can always see the name of the database and library in which you are working.

You can hide or move any of the toolbars to provide a larger working space by going to **Tools**  $\rightarrow$  **Toolbars** and selecting a move option or using the **Hide** button.

Toolbars		×
Select Toolbar:	Move	Close
PowerBar 1 PainterBar 1 PainterBar 2	Left     O     Top	Help
PainterBar3 StyleBar	<ul> <li>Right</li> <li>Bottom</li> <li>Floating</li> </ul>	Hide Customize
Show Text	Show PowerTips	New
Font Name:	Font Size:	
Small Fonts	▼ 6 ▼	

2	Report Window	The name of your report or query is displayed in this sub-window. If you have more than one report open, you know which one you are working with.	
3	Design Panel	You can design the layout and appearance of the report using the Design View. For most presentation styles, the <b>Design</b> panel is separated into sections referred to as <i>bands</i> , which are used to separate the sections of your report so you can determine where the information will be displayed.	
		Changes are immediately displayed in both the Preview and Properties panels.	
4	Preview Panel	The report, as it will appear at runtime, will be displayed here.	
5	Properties Panel	Displays properties for the currently selected control(s) in the report, for the currently selected band in the report, or for the report itself and you can view and change the property values.	
6	Export/I mport Template Panel	A default template for exporting and importing data into XML format is available – you can also define your own custom templates.	
7	Column Specificati on, Data, and Control List Panel	Click on the appropriate tab to view all the controls that are used in the report, the data that was used to populate the report, and a list of the columns in the data source. From the Column Specifications view, you can identify a column that needs to be included in a prompt to retrieve data. Use the drag and drop feature to add a column to the report on the Design view.	



#### Layouts

When a report is opened, the window displays several panels, as illustrated in the screen capture above, which shows the default layout for the InfoMaker Report Painter.

The bottom right of the window, in default layout, will display a panel with three tabs: **Column Specification**, **Data**, and **Control List**.

The **Column Specification** tab allows you to view the types of columns that have been selected.

For example, notice that the first\_name column is a 15-character value. This is useful when defining format masks.

Right-click on the **Data** tab and select the *Retrieve* option to see the actual data as it is retrieved from the server in an unformatted grid.

The **Control List** tab displays a list of all objects in the report.

Click on an object name and it will be selected in **Design** panel with the **Properties** panel activated.

	Name	Туре	Prompt	DB Name	-			
1	subsid_master_id_num	long		subsid_master.id_num	Ξ			
2	name_master_first_name	char(15)		name_master.first_name				
3	name_master_last_name	char(30)		name_master.last_name				
4	subsid_master_subsid_cde	char(2)		subsid_master.subsid_cde				
5	subsid_master_subsid_type_cde	char(2)		subsid_master.subsid_type_cde				
▼								

Data - ar_inquiry subsid_master_id_numname_master_first_name_name_		Delete Row Delete All Rows	□× master_
		Retrieve	
		Sharobata	
Column Specification - ar inquiry Data - ar inquiry	ontrol L	ist - ar inquiry	Þ

🚱 Control List - ar_inquiry		
Control Name	Tag	
III name_master_first_name	Specifies the first name for the ID	
name_master_last_name	Specifies the Last name for the ID	
A t_1		
subsid_master_id_num	A unique identification number a	
A t_2		
At 3		<b>T</b>
Column Specification - ar inquir	νλData - ar inquiryλControl List - ar inqui	irv /

In addition to the default InfoMaker layout, Jenzabar provides several simplified layouts that you can use. Go to *View*  $\rightarrow$  *Layouts* and you will be able to see the various types that are available.

view	Insert Format D	esign i	Rows	Tools	Windo	W	Help				
	Design										
	Control List		a) [	×	:   <b>D</b> +		• • •	ø •	ŝ	%	
	Column Specifications				. 101				-	1.0	
	Data			6	1 10		11.			10	
	Export/Import Templa	te 🕨			v 10	Y		. 1	<u>_</u>		
	Preview		21			41				i	
	Preview Properties		DDLE		L.I.I.I E	41 LAS	ST_N	L AME	<u>.</u>	i	ليتنا
_	Properties Layouts	•	L.I.3L. DDLE	NAM	lt E t)	41 LAS	st_n	L Ame	1 <sup>5</sup>	i	ليتنا
	Properties Layouts	•	DDLE	_NAM (Defaul Design)	l E t) Preview	(Jenz	ST_N	L Ame	1. 1. <del>5</del>	i	
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	Preview Properties Layouts first_name	• rr	DDLE	<b>NAM</b> (Defaul Design/ Design/ Design/	L. L. L. E t) 'Preview 'Preview	(Jena /Prop	ST_N cabar) erties erties	I AME (Jenz Tabs	abar (Jen:	il ) zabar	)



Select the Design/Preview/Properties (Jenzabar) one.



You can return to the default layout by selecting View, Layouts, Default at any time. Panes can also be resized using the splitter bars to make the panels larger or smaller.

While the layout panels are docked on the painter window by default, you may find it easier to float one or more panels. This can be done by right-clicking on a view title bar and choosing the *Float* option. You can now move the view to any location on your screen. To return the view on the painter window, right-click on the title bar and choose the *Dock* option.

#### Bands

You will notice several *bands* in an InfoMaker report when using the Report Painter **Design** panel. These bands represent different sections of the report and will display the data that is identified for each section.

ar_inquiry * - Report					
Design - ar_inquiry					
ا∜یاییاییاییا <sup>®</sup> یاییاییاییا <sup>®</sup> یاییاییاییا Student Accoun	t Printout	<u>.</u>			 ^
 subsid ma trim( name master first name ) + Subsidiary Account: subs Subsidiary Type Code: subs 'Activity from ' + Begin_Date + 'through ' + End_Da	History Begir Period Begir Statemen Posteo Curren	n Balance: n Balance: t Balance: d Balance: t Balance: t Balance:	subsid master subsid_master subsid_master subsid_master subsid_master		
Date Amount Description	Folio	Status	Receipt #	Receipt Code	
Headert					
1: Header group month †					
trans_hist_trans_hist_trans_desc	trans_hist_fol t	rans_hist_s	ub_trans_hist_r	trans_his	
Detail†					
1: Trailer group month †					
Summary†					
Footer1					
					-
•					- P

The screen capture above shows four bands: **Header**, **Detail**, **Summary**, and **Footer**. Each band displays a  $\uparrow$  arrow after its name pointing to the text or data that will appear in each band.



Information is displayed above the band.

You can place any information in a band including text, drawing controls, graphs, and computed fields.

**Header** bands contain header information that is displayed at the top of every page within the report. Depending on the presentation style, the contents of the header band will vary. You can also specify additional information (such as a date) to be included in the header of the report.



**Detail** bands contain data from the database or other data source. Like the header, the presentation style will determine the contents of the detail band.

**Summary** bands display summary information relative to the data such as totals and counts. Information will display on the last page of the report.

Footer bands display at the bottom of every page such as page number and page count.

As you work with these bands, you may find it necessary to expand the view to see the contents within each band. You can easily re-size the bands by positioning your pointer on the bar until a double-arrow 1 appears. Drag the bar up or down to shrink or enlarge the band.

#### **Report Options**

From the menu, choose **Design/Options**. These options are initially determined by the InfoMaker Configuration tool. Settings based on user preference may be selected for working with reports. Use the Generation tab to make universal changes to each report style type.



Changing the background color can make it easier to see your object and the borders. To change the background of an individual report, click in the open space of your report and access the Properties pane, Background tab. Use the Brush Mode/Color to select a different background color and click **OK**. This changes the background color in the InfoMaker environment, but not the report background. To change the background on all future reports of a specific style, access the Report Options window, Generation tab. Background Color options let you select a new background color.

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General	Generation	Prefixes	
Alignn	nent Grid		
⊡ ≦r	nap to Grid	<u>X</u> : 8	
Sł	now <u>G</u> rid	<u>Y</u> : 8	
⊠sł	now <u>Ruler</u>		
Ret	ieve on Previe	ew	

port Op	otions		
General	Generation	Prefixes	
Present	ation Style:	tabular	~
Backgro	ound Color:	Button Face	~
Text			
Color	: [	Window Text	~
Borde	er	None	~
Colum	nns		
Color	: [	Window Text	~
Borde	er (	None	$\sim$
			_
OK		Cancel Apply	Help



#### Creating a Report

Before you begin to create your report, you will need to verify that your connection to the appropriate database has been established and that you are working within the correct library and object. It is critical that the necessary connections are identified so that the proper results are achieved.





Although you do not need to check the database and choose the .pbl every time you create a new object, these steps are mentioned within the context of initially creating a report.

- 1. Click on the *Database Profile* button from the Power Bar.
- 2. When the **Database Profiles** window appears, click on the database profile name and then click on the **Connect** button.
- 3. Select the **Use Trusted Connection** checkbox or login password depending on how your school is configured.
- 4. Click on the plus + sign to expand ODB ODBC if no profiles appear.
- 5. If you go back into the Database profile, you will see a green checkmark which identifies the database you are connected to.



- 6. Click on the *Library* <sup>11</sup> button.
- 7. Choose the correct library in which you would like to create the report.



8. Right-click on the library name and choose the **Set as working library** option.

The name of your working library will appear at the top of the InfoMaker window as illustrated in the screen capture to the right.





Remember to complete these steps every time you go into InfoMaker.

Now you are ready to begin. By performing the five major steps provided in the diagram below, you will be able to display and summarize data depending on the type of report you would like to produce.





- 1. Click the *New* 📫 button from the Library Painter.
- 2. Click on the **Object** tab.
- 3. Choose a presentation style for your report.

In this example, choose *Tabular*.

New				×
Library Object	Database Tool			
Form	Composite	Crosstab	Freeform	Graph
Grid	Group	Label	N-Up	OLE 2.0
AB RichText	Tabular	TreeView		
			C	K Cancel

Several different styles are available and determine the final appearance of your report.

	<b>Composite</b> combines multiple reports in the same object. This is useful if you want to print more than one report on a page.
III	<b>Crosstab</b> displays summary information based on multiple columns (such as students by major, gifts by year, etc.).
Î	<b>Form</b> provides a window into the database and is used to view, update, and add information to the database.
<u> </u>	<b>Freeform</b> presents data with columns appearing down the page and labels next to each column – the default layout can be reorganized by moving the columns and text.
	<b>Graph</b> displays information graphically.
	<b>Grid</b> presents data in a row and column format with grid lines separating the rows and columns – these grid lines create a rigid structure of cells, and you can both reorder and resize columns at runtime.
	<b>Group</b> provides an easy way to create grouped reports where the rows are divided into groups, each of which can have statistics calculated for it – this style generates a tabular report that has grouping properties defined.
==	<b>Label</b> presents data as labels used for mailing labels, business cards, name tags, index cards, file folder labels, etc.
	<b>N-Up</b> presents two or more rows of data next to each other – like the label style, you can display information from several rows in the database across the page – this style is very useful with periodic data; that is, each period repeats in a row
	<b>OLE 2.0</b> allows you to link or embed an OLE object within a report.



**Rich Text** allows you to combine input fields that represent database columns with formatted text.



ΤΞ

**Tabular** presents data with columns appearing across the page and headers above each column – the default layout can be reorganized by moving the columns and text.

**Tree View** creates reports that display hierarchical data in a tree view – rows are divided into groups that can be expanded and collapsed by using the + or – icons when the report is run, thereby displaying the connection between parent and child data.

Tabular Report Generator

- 4. Choose your data source in this example, we will choose *SQL Select*.
- 5. Click *Next.*



20

If you are working on a report that will retrieve a large amount of data, you may want to uncheck

the **Retrieve on Preview** checkbox – you can click on the Retrieve button from the toolbar in Design mode of the Report Painter.

CD -				
SA	Stored Procedure			
	Retrieve or	n Preview		

Which data source would you like to use?

? ×

There are several options available:

**Quick Select** selects data from a single table or tables that are related through foreign keys. You only need to select columns, define selection criteria, and sort.

**SQL Select** provides additional control over your statement or if your data is taken from tables that are not connected through a key.

**Query** can be used when the data has been defined as a query.

**External Use** is used when the data exists in a text file (TXT) or other source file.

**Stored Procedure** is used when the data has been defined by a stored procedure that is stored in the database.



Select lables			×
name_master_udf name_phones name_spouse_family_v name_type_master name_dtype_table nameaddressmaster nameaddressmaster nameaddressmaster_udf		^	Open New Cancel Help
namemasterpersonorgpartyview namephonemaster_udf navappuserpagehistory navappuserpagepin <	>	~	

- 6. Select the tables that will be used in your SQL Select. In this example, we will use the *namemaster* table.
- 7. Click *Open.*

All the columns stored in the namemaster table are listed. You can now choose the individual data columns that will appear within your report.

8.	Choose the	Table Layout					
	following columns	Selection List: <	> id_num name_format	first_name	middle_name	last_name	preferred_name
	in this specific	1		1			
	order:	namemaster	Type ^				
	id_num	id num last name first name	int varchar(60) varchar(30)				
	name_format	middle_name	varchar(30) char(3)				
	first-name	joint_prefix suffix title	char(3) char(3) char(30)				
	middle_name	name_format name_sts	char(1) char(1)				
	last_name	name_type party_type	char(1) char(1) char(20)				
	preferred_name	preferred_name	char(30)				
		name_private	char(1) V				
				1			

When you are in the select window, there are additional pieces of information you can display about the data stored in that table:

- Right-click in the open space and select **Show**, **Datatypes**. This adds a column to your table that shows the type and size of the data.
- Right-click in the open space and select **Show**, **Labels**. This shows the full English column name instead of the abbreviated column name.
- Right-click in the open space and select **Show**, **Comments**. This shows how the column is used in the database, which can help in deciding if that is the correct information to add to your report.
- To remove any of these, right-click and select **Show** and deselect the appropriate checkbox.



Select - CIN-SERVJIDB.ODBC/TmsEDmo.dbo	E Pod Deather Gal			
Selection List: < > Teamenaster Type Label appid int Appication ID id id_num int ID Number: last_name varchar(30) Frest Name: midde_name varchar(30) Frest Name: prefix char(30) Prefix: joint_prefix char(3) Joint Prefix: suffix char(3) Joint Prefix: title char(30) Title:	Name Master Application ID for internal use only by NH ID Number Specifies the last name for the ID or the Specifies the first name for the ID or the Specifies the middle name for the ID or Specifies the prefix to be used with the nam Specifies the title to be used with the nam	Idemate. first part of a business name. econd part of a business name. least part of a business name. used with the name. essing the person and spouse. e such as Jr. e.	Select To Arrange Show	ables Tables I Datatypes I Labels V Comments
<	Column	Operator		Value



If you inadvertently select an incorrect column or choose one in the incorrect sequential order, you can simply click the column again to de-select it. If you open more than one table and need to close one, right click on the title and select close.

The Table Layout window will allow you to graphically view your query.



Use the toolbox on the bottom of the window to identify sort orders, define criteria for retrieving data (**Where** tab), define data groups, set criteria for retrieving groups (**Having** tab), define computed columns, and view the syntax of the SQL Select statement.

9. Select the **Preview** button to view the data.



ID Number	Name Format	First Name	Middle Name	Last Name	Preferred Name
509948	в			A & E Automotive	
1252		Brandy		Aardsma	
186		Ro <mark>b</mark> ert		Abat	
401344		Janet	D	Ackerman	Jan
264		Cole		Adams	
401343		Donna	E	Adams	
214		Mary	K.	Allen	Mary
123		Gilbert	Jose	Alvarez	Gil
99	В			American High School	
401841		Gina		Amores	Gina
1063644	В			Amp Incorporated	
170		Ganeshbabu		Ananthu	
401341		Kimberly	E	Anders	
153		Allen	J.	Anderson	
141		David	G	Anderson	Dave
172		Mary	Pat	Anderson	
78675		Nathan		Anderson	Nathan

- a. Close the SQL Preview.
- b. Before proceeding, consider the data set being retrieved from the database. In this case, we want only personal names from the database.
- c. Click on the **Where** tab.
- d. Choose where name\_format is empty or null. In the **Column** box locate namemaster.name\_format, and in the **Operator** column find IS, in the **Value** section type the word "null".
- 10. Select the *Return* button from the toolbar to go to the Design/Preview mode of your report.
- 11. Review the format options used for the report and make necessary changes, then click *Next*.
- 12. Click Finish.
- 13. Click on the id\_num column in the Detail band.

You are selecting the actual data that appears in the report.

14. Click on the right-justify option on the Style bar and notice how the data has been formatted in the report preview.



15. Click on the name\_format column in the Detail band, hold down the Ctrl key, and click on the Name Format header.

You are selecting the actual data that appears in the report as well as the column header.

- 16. Delete your selection since we no longer need the name format information to appear in the report.
- 17. Grab the Header bar and pull it down notice that your report preview now shows additional space between the header column and the actual data.



18. Select all the name headers and click on the left-justify option on the Style bar. Everything in the Header band appears at the top of each page (as column headings) and everything in the Detail band appears as the data in the report.

Untitled) * - Report  Design - (untitled)   ID Number Name Format   Header1   id_num	First Name	Middle Name	Last Name Last_name Make chang directly to the in the Header	preferred_name preferred_name text band	Name
ID Number Name Format	t First Name	Middle Name	Last Name	Preferred	I Name
1 F	Billy	Alger	Steadman	AI	
3	Maria	Danielle	Steadman		Banart
	Nicholas	David	Steadman	Nick	Report
4	- Holloldo				
4 5	Junior Barnes	F.	Bundini	Junior	Preview

Your formatted report should resemble the following:

The following formatting tips can be used for designing your reports.

To select report objects	1. 2. 3.	Control + arrow keys. Control + mouse click. Lasso (it is important to start a lasso in blank space and then click and drag. You do not need to surround the objects being
	4.	selected, just touch them). Control + A to select all objects. This is helpful to find objects hidden behind bands or beyond margins.
To move report objects	1. 2.	Click and drag. Click and arrow keys.
To resize report objects	3. 4.	Click and drag edges. Click + Shift key + arrow keys.



When your report name displays an asterisk in the title bar, this is an indication that you report has been modified but the changes have not been saved.

- 19. To not lose the work, the report needs to be save. Click the **Save** button on the toolbar.
- 20. Enter **r\_names** as the report name. For organizational purposes, Jenzabar recommends prefacing your reports with the letter 'r' and queries with the letter 'q'. It is also recommended that you use underscores rather than spaces to separate words in the report name.



Save Report		×
Reports:		
		OK
r_nr_addr_priority_address	^	Cancel
r_nr_addr_priority_address_tmc r_nr_extra_title_tmc		Help
r_nr_id_cbe_achieved_by_stud_page r_nr_id_ptr_advisors		
r_nr_id_ptr_career_summary	~	
Comments:		
		^
		$\sim$
Library:		
C:\Program Files (x86)\Jenzabar\J1 2021 C:\Program Files (x86)\Jenzabar\J1 2021	1 (Deskto 1 (Deskto	op \Programs \] op \Programs \]
c. users (in an any el eport, por		

#### 21. Click **OK.**



Congratulations! You just created an InfoMaker report!

#### **Multiple Columns**

You can also create multiple columns from a report.

> Prope	rties - DataWindow	<u>_</u>
Pointer	Print Specifications	HTML Ta
0.250		
Bottom I	Margin	
0.250		
Paper O	rientation	
Default	(0)	~
Paper Si	ze	
Default	(0)	~
Paper So	ource	
Default	(0)	~
Can I	Use Default Printer	
Prom	pt Before Printing	
Displ.	ay Buttons - Print Pres	view
Displ	ay Buttons - Print	
Clip 1	Text	
Over	ride Print Job	
🔽 Colla	te Copies	
Print	Preview Shows Outlin	e
Newspa	per Columns Across	
2		\$
Newspa	per Columns Width 🗸	
4	5N	

1. Ensure all repeated objects fall within the first 4 inches of the report width.

If the ruler is not displayed, select **Design -> Options** and select **Show Ruler**.

- 2. Right-click on the report background and select **Properties**.
- 3. On the **General** tab, set the **Units** to **1/1000 inch**.
- 4. Access the **Print Specifications** tab.
- 5. Set the **Newspaper Columns** to **2**.
- 6. Set the **Newspaper Column Width** to **4**.



To choose to not repeat print titles and other objects in multiple columns:

1. Select the objects you don't want to repeat.

General	Pointer	HTML	Position	Fi
Name				
preferre	ed_name_	t		
Tag				
HideS	naked			
Visible				
Da dana			-	

You can also click on each object separately, click on the General tab of the Properties pane, and select the **HideSnaked** checkbox.

#### Data Source

As you are viewing a report in the **Design** panel, you can modify the query that was used to create the report.

The screen capture below shows a view of the **r\_names** report.

1	File	Edit	View	Inse	ert I	Format	Desi	gn	Rows	То	ols	Window	Help			
****		E	) 		<b>1</b>		Tell			DB	Bred	Database	0+			
11 111			) }	\$	\$	A		*	[]		l D	••••••••••••••••••••••••••••••••••••	a Z	T	Ξ	×
111	Save	e Pri	m I	U nda	Reda	Text		Cut	Capy		Passie	Delete	Sart	Filter	Data	Clase
111111	G Retrie	nve Insrt P	law De	ele R.,	IK First	<b>K</b> Priar	) Ne	<b>&gt;</b> sxt	<b>&gt; </b> Last	[					<sup>T</sup> Aria	1
	<b>_</b> r_	names	- Rep	ort												
	-	ID Nun	nber	1		أستنب	2 1		Last	Nar	ne	ىبلىتىلى	4	uluut		ىلىنىلىنى ا
	-ic	leadert _num		last_	name	9									first	name
	D	etail †														
	S	ummary	t													
	F	ooter†								_	_					

By clicking on the *Data Source* button from the Report Painter (or choosing  $Design \rightarrow Data$  *Source* from the menu), the SQL Select Painter will be displayed.



A graphical display of the table(s) quickly allows you to see the columns used in the query. You can add more tables and columns as well as modify criteria in Graphics mode.



1. To view the SQL data source in Syntax mode, select *Design* → *Convert To Syntax* from the menu.

It is possible to make changes to the syntax, but this is only necessary when reports have complex Select statements and, depending on the changes that are made, you may not be able to return to Graphics mode.

- 2. Choose *Design* → *Convert to Graphics.*
- 3. Click the *Return* button to go back to your Design painter.

Select - CIN-SERVJ1DB.ODBC.TmsEDmo.dbo
SELECT namemaster.id_num,
namemaster.last_name,
namemaster.first_name,
namemaster.middle_name
FROM namemaster
WHERE ((namemaster.name_format <> 'B' OR
namemaster.name_format is null ))



# **Simple Queries**

Using InfoMaker, you can create a query and immediately produce a report or save the query and re-use it as a data source any time you would like to retrieve the same information.

#### What is a Query?

A *query* is a request for data from the database. Each time we create a report and select tables, columns, and define criteria, we are building a SQL Select statement. That statement can then be saved as a query, which can be used as the data source for more than one report.

You can also define a query without immediately creating a report – this gives you the opportunity to be sure that you will retrieve the exact data you need. This is good practice especially when using a complicated select statement.

A query can be used as the data source for reports – you can use the **Design** panel to sort, group, and/or format the data – or only to export the data. If you have sets of data commonly used for reports, you can build queries and use them as the data source for a variety of reports. Save the queries in a shared library so that others can use them as well.

#### Exploring the Query Governor

As you begin working with more complex queries, you will want to utilize additional options that are made available through the Query Governor.

Customize	×
Select palette PainterBar O Custom Selected palette:	OK Cancel
PPanel New Open Preview Sel Lib Lib List To-Do List Library DB Prof Database QueryGov + Options Edit VTile HTile Layer Cascade Arrange Search Help Exit	Reset Clear Help
Current toolbar:	



The *Query Governor* <sup>SS</sup> button is not displayed in the PowerBar when InfoMaker is installed; therefore, you will need to add the button and select the appropriate options.

- 1. On the InfoMaker menu, select *Tools*  $\rightarrow$  *Toolbars*  $\rightarrow$  click *Customize*.
- 2. Click and drag the Query Governor 🧏 button to your current toolbar.

Query Governor		<b>X</b>
Data Selection Options           □ Specify maximum number of tables in a join           ☑ Allow cross products           ☑ Allow outer joins           ☑ Allow SELECT DISTINCT statements		OK Cancel Help
■ Data Retrieval Options           Image: Specify maximum number of rows retrieved           Image: Specify maximum time for a retrieval	1000 🔶 00:00:00 💠	

After the *Query Governor* <sup>68</sup> button is displayed on the PowerBar, click on it to set your data selection and data retrieval options.



If you have already used the InfoMaker Configuration Tool, some of the options may already be selected.

For more information about each option, see the following list.



#### Specify maximum number of tables in a join

- Provides some control on the size of the select statement. By choosing a number, a message will be displayed when the number of tables is exceeded.
- •When specifying a maximum, the data selection is limited; increasing the maximum means fewer restrictions on data selection and longer retrieval times.

#### Allow cross products

- •When cross products are allowed, you can have tables not joined by the join operator. One row is retrieved for each combination of rows in the table. Therefore, if Table A has 3 rows and Table B has 4 rows, a cross product of A and B (A times B) will produce 12 rows unless you specify WHERE criteria.
- •Since cross products are used in some J1 reports with a selection criteria that limits the rows retrieved from one table to a single row, you will need to set this option if you wish to customize those reports in other words, if you want to modify any reports and are delivered with the J1 product, you will need to check this option.

#### Allow outer joins

- •When outer joins are allowed, all rows in a table are retrieved whether or not a matching row exists in another table.
- •For example, if a name exists in Table A, and Table A is connected with Table B with an outer join, the name will still be retrieved.

### Allow SELECT DISTINCT statements

• If seemingly duplicate data displays because the columns that make the rows different are not included in the query, this option will only display the information once – also, the Distinct option will be enabled in SQL Select mode.



#### Specify maximum number of rows retrieved

•With no maximum set, all rows are retrieved. This option can be used to specify a number to provide shorter retrieval times and view the format of a report without actually having to retrieve all of the rows.

•Remember to remove this number before the final report is created.

### Specify maximum time for a retrieval

•With no maximum set, retrieval time is not limited. Specifying a maximum time will limit retrieval time. You can use this for testing purposes – view the amount of time in hours, minutes, and seconds.

#### Creating a Query

As you create your query, three main components must be considered so that the query can be successful.



The steps that follow will be used to create an alphabetical listing of personal names in the database – like the report that was created earlier.

2	<b>4</b>
Ouer	Query

- 1. Click the *New* 📫 button on the PowerBar.
- 2. Click on the **Database** tab.
- 3. Choose *Query*.
- 4. Click **OK.**



Select Tables		×
address_master_invalid addresscodedef	^	Open
addressmaster addressmaster_udf adjustment adjustmentcategory adjustmentcategoryv		New Cancel
adjustmentsecv adjustmentstatus adjustmentstatusv adjustmenttype adjustmenttypev		нер
adjustmentv <	>	
Show system tables		

5. Select the tables that will be used in your query. In this example, we will use the *addressmaster* table.

6. Click **Open**.

All columns stored in the Address Master table will be listed.

7. Choose the following columns in this order:

addr\_line\_1 addr\_line\_2 addr\_line\_3 city state postalcode

Notice that the Selection List bar will display the column names in the order in which they have been selected – this order determines the way the data is displayed in the query.





You can change the order of the Selection List by clicking on a column and dragging it to a different position.





Before going any further in

creating this query, you will want to consider the data set that is being retrieved from the database.

In this case, you do not want to create a query that lists all the addresses from your database. Instead, we will create a WHERE clause that only displays addresses from the state of Virginia.



10. Click on the **Where** tab – you can define the criteria for retrieving data.

Select the column that defines the criteria – in this case, the State column. The operator would be equal to a specific value so choose the equal operator. Right-click on the Value box and choose the *Value* option.

a list of values specific to the State column in the database will be displayed – in this case, choose VA for Virginia and click Paste.





Review your Where clause to ensure it provides you with exactly what you need. In the example above, we are asking the query to retrieve only those rows that have a value equal to VA for Virginia.



When entering your criteria values, add single quotes around strings. Number values do not need the quotes.

Operator	Definition	Example
=	Is equal to	ID number = 104
>	Is greater than	Zip > '11211'<
<	Is less than	GPA < 2.00
<>	Is not equal to	State format <> 'VA'



Operator	Definition	Example
>=	Is greater than or equal to	Zip >='11211'
<=	Is less than or equal to	Salary <= 50000
NOT=	Is not equal to	State NOTE = 'VA'
LIKE	Match the text pattern	Last name like 'C%' (This will retrieve all last names that start with the letter C.)
IN	Is in this set of values	Zip IN ('11211', '11212', '11222')
IS	Is equal to	Name format IS null
IS NOT	Is not equal to	Name format IS NOT null
BETWEEN AND	Is within the range of values (including the end values)	Zip BETWEEN '11211'AND '111222'
NOT LIKE	Does not match the pattern	Last name NOT LIKE 'C%' (This will retrieve all last names that do not start with the letter C.)
NOT IN	Is not in this set of values	Zip NOT IN ('11211','11212', '11222')
NOTE BETWEEN AND	Is outside this range of values (not even the end values	Zip NOTE BETWEEN '11211' AND '11222'

#### 11. Click on the *Preview*

button from the toolbar to see the results of your query using the criteria that has been identified.

Your report should resemble the image on the right:

🕼 ppb125.	pbl - ODB [EX 4.6]	- InfoMaker				×
	Uesign Rows					
SQL P	review					×
ID Num	ber Address Co	de Address Line 1	City	State	e Zip	-
3	BCHK	213 Main St.	Herndon	VA	38384	
6	*LHP	100 Roudabush Ln	Churchville	VA	24421	
7	*LHP	4575 Maple Lane	Harrisonburg	VA	22154-1235	
10	*LHP	7 Poplar Lane	Hopewell	VA	24158-8888	
11	*LHP	5 Powhatan Dr.	Pocahontas City	VA	21541	
13	*LHP	201 East Drive	Craigsville	VA	21540	
14	*LHP	1038 Jones Dr.	Roanoke	VA	20458	
17	*LHP	200 Altice Ln	Hardy	VA	24101-4354	
20	*LHP	205 Middlebrook Dr	Middletown	VA	21547	
20	PLCL	Wilson Hall, Room 3098	Harrisonburg	VA	22802	
J						<b>T</b>
Ready		Row	vs 4 to 14 of 1105			.4

12. Click the *Close* × button from the toolbar after reviewing the results and return to the **Table Layout** window.

You can make any changes that may be necessary after viewing the results of your query such as using a different sort, excluding other types of data, etc.



Save Query
Queries:
q_address_va
1. Enter query name
2. Enter a description of the query
This query will retrieve all addresses from Virginia and will sort the list by ID number
Library:
C:\Program Files (x86)\Sybase 12\InfoMaker 12.5\ppb125.pbl 3. Verify library
it.

#### 13. Click Save.

When an asterisk (\*) appears in the title bar, this indicates that you have not yet saved the new or modified query.

14. Save this query (**q\_address\_va**) and click *OK*. Remember – for organizational purposes, we recommend that you preface your reports with the letter 'r' and your queries with the letter 'q'.



#### Creating a Report from a Query

The benefit of creating queries is that you can use them at any time to re-create a report. Using the query we just created, we will produce a report using the query as our data source. Once the query has been incorporated into the report, each will become its own entity – therefore, you can modify either the query or the report without changing the other.



Before you begin to create the report, make sure that you have identified your working library.

- 1. Click the *New* 🛱 button from the PowerBar.
- 2. Click the **Object** tab.



- 3. Select a *Freeform* presentation style for this report.
- 4. Click *OK.*



- Click on the *Query* data source.
- 6. Click *Next*.





Wrap Height: 0.5

inches

Save as default

< Back Next > Cancel

Ready to Create Freeform Report 2 3 A Freeform Report with the following characteristics will be created or generated. Click Finish when you are ready. Property Value Data Source Select PBSELECT( VERSION(400) TABLE(NAME = "dbo Wrap Height (inches) Background Color Window Background Window Text Text Color Column Color Window Text Text Border NoBorder Column Borde ( Generate To-Do List < Back Finish Cancel

7. Click on the ellipsis and locate the query that we created earlier called **q\_address\_va**.

8. Click *OK.* 

9. Click Next.



Notice that the Retrieve on Preview checkbox has been selected – therefore, your data will be displayed as soon as the

report is available for previewing purposes.

- 10. Select your color and border options.
- 11. Click Next.

If you would like to use the same color and border format for all reports, click the *Save as default* checkbox.

Review the report selections that have been made and, if any changes are necessary, click the *Back* button to make the necessary changes.

12. Click Finish.

Since the *Retrieve on Preview* checkbox was selected earlier, your data will be retrieved and displayed in InfoMaker. To preview the data that has been retrieved, view the **Preview** panel.



lic	Edit View Insert Format Design Rows Tools Window He
	· : : : : : : : : : : : : : : : : : : :
-	Tahoma
	(Untitled) * - Report
9	Design - (untitled)
Hei	dert
+	ddress Code: addr_
A	ddress Line 1: addr_line_1
	City city
	ony. City
	State: sta
	ZIP Code: zip
ł	an
ø	Preview - (untitled)
	ID Number: 1
	Address Code: *LHP
	Address Line 1: 1401 Brookhaven Dr
	City: Harrisonburg
	State: VA
	ZIP Code: 22801-3584

As mentioned earlier, you can now change either the report or the query without affecting the other.

For example, you may want to modify your Select statement for a different set of results. In this case, we want to change the report to only display addresses with a specific address code.

- 13. Click on the *Data Source* 🔲 button from the PowerBar.
- 14. Click the **Where** tab.

Select the city column from the Address Master table. Use the = (equal to) operator. Right-click on the Value column and select *'Harrisonburg'* from your available options. Your window should resemble the screen capture on the right.

Table Layout				
election List: <	> addr_line	1 addr_line_2 addr_line_3 city state postalcode		
addressmaster appid addr line 1 addr line 2 addr line 3 dty state postalcode zip5 zip4	Type int varchar(60) varchar(60) varchar(60) varchar(60) varchar(20) char(2) varchar(20) char(5) char(4)	* *		
		Column	Operator	
ddressmaster.state			=	'VA'
delegence at a site of			-	Harrisonhuro'

- 15. Click on the *Return* button to return to the Design/Preview mode.
- 16. Click the *Retrieve* 🖷 button to refresh your data and to display the results of your modified query.
- 17. Click *Save.* Your modified query will now be saved with the report.



Changing the Select statement of a report created from a query data source does not affect the query and changing the original query will not affect the report.



# **Joining Tables**

This section will explain the process for joining data from more than one table to create a report.

#### What is a Join?

The database contains many tables with rows and columns. A table can have a relationship with another table. For example, the Name Master table contains an id number column and the Biograph Master table also contains an id number column. Therefore, when working with both tables, the relationship is identified by an equal join of these two tables on the id number column.

A join is the connection between tables using columns that have common data.





InfoMaker will automatically join columns by their key relationship, if it exists or because columns have the same name; however, recommended practice is to always delete the InfoMaker join and create your own to ensure they are correct.

The InfoMaker tool will automatically join tables if a primary/foreign key relationship exists between them. In addition, if no keys exist, InfoMaker will attempt to join tables based on common column names and types. While this theory is acceptable, you will gain a better understanding of joining tables by performing this task yourself rather than accepting the InfoMaker defaults.

Depending on the join that has been created, the data will be retrieved and displayed in your report or query. You may also choose to include row from one table even when a corresponding row does not exist in a second table – this is referred to as an outer join.





While an inner join is the most common type of join operation, there are four types of joins you can use. Below, you can compare the four types of joins to see how they would affect the results from tables A and B as shown in the previous graphic.

#### Inner Join

- •An inner join will return rows only if they satisfy the join conditions.
- •An inner join has been created between *Table A* and *Table B*. Therefore, if matching
- information exists in both tables, a new resulting row will be created and the combined data from both tables will be included in the result.
- A query will compare each row of **Table A** with each row of **Table B** and, ONLY when a match is found, the rows will be included in the result set.

### Outer Join

- •Create an outer join if you want to preserve all of the rows in one table and identify nulls for the other table when it does not meet the join condition.
- •When creating an outer join, you will want to first select the column within the table that will most likely include the information you need.
- •A full outer join does not require each record in the two joined tables to match – therefore, all rows from both tables will be returned as long as they meet the conditions in the SQL Select statement.

### Left Outer Join

- A left outer join will preserve every row in the 'left' table that meets the join criteria and will return nulls for the other table when the conditions are not met.
- •All records from the 'left' table (using this example, that would be **Table A**) would be included in the result even if the join condition does not find any matching record in the 'right' table (**Table B**).

### Right Outer Join

- •A right outer join will preserve every row in the 'right' table that meets the join criteria and will return nulls from the other table when the conditions are not met.
- All records from the 'right' table (using this example, that would be **Table B**) would be included in the result even if the join condition does not find any matching record in the 'left' table (**Table A**).



#### Using the Join Tool

Each time you create a join, you will begin by activating or turning on the Join tool. Then, everything you select afterwards will be included within the join. When you have identified the columns, you can close or turn off the Join tool. You will use four main steps to create a join:



#### Working with a Multiple Table Report

1. Click the *New* 🛱 button from the PowerBar.

Saturbarra Taral			
Composite	Crosstab	Freeform	Graph
Group	Label	N-Up	OLE 2.0
Tabular	TreeView		
	Composite Composite Group	Aatabase Tool Composite Crosstab Composite Label Crosstab Composite Crosstab	Aatabase Tool Composite Crosstab Freeform Group Label N-Up TreeView

- 2. Click the **Object** tab.
- 3. Select a *Tabular* presentation style for this report.
- 4. Click **OK.**



- 5. Click on the *SQL Select* data source.
- 6. Click Next.





When the **Retrieve on Preview** checkbox is selected, your data will be displayed as soon as the report is available for previewing purposes.

Select Tables		×
name_phones name_spouse_family_v name_type_master name_type_table nameaddressmaster nameaddressmaster_udf namemaster	^	Open New Cancel Help
namephonemaster namephonemaster_udf navappuserpagehistory navappuserpagepin navblock	×	
Show system tables		

- 7. Select the *namemaster* and *addr\_all\_legal\_addrs* tables.
- 8. Click Open.

You will see the two tables with a join that was automatically created between them by InfoMaker.

9. Click the *Join* box.





10. Highlight the box in the first line where the namemaster and addr\_all\_legal\_addrs tables are joined and click the *Delete* button.

namemaster appid id_rum last_name first_name middle_name prefix joint_prefix suffix title	Type int varchar(60) varchar(30) char(3) char(3) char(3) char(3)	*	addr_ail_legal_ac appid id_num addr_cde addr_cts cass_sts dte_confirmed update_source addr_type start_dte	idrs Type int varchar(4) char(1) varchar(1) datetime char(1) char(1) datetime	Join Join rows in namemaster and addr_all_legal_addrs where:  I namemaster.appid = addr_all_legal_addrs.appid namemaster.appid = addr_all_legal_addrs.appid and rows from namemaster that have no addr_all_legal_addrs.appid and rows from addr_all_legal_addrs.that have no namemaster amemaster.appid < addr_all_legal_addrs.appid namemaster.appid > addr_all_legal_addrs.appid	^	Ok Can Dele Hel
					<= namemaster.appid <= addr_all_legal_addrs.appid >= namemaster.appid >= addr_all_legal_addrs.appid <> namemaster.appid <> addr_all_legal_addrs.appid	~	

tion List: < >				
namemaster	Type	addr_all_legal_ad	drs Type	
appid id_num last_name first_name middle_name prefix joint_prefix suffix title	int int varchar(60) varchar(30) char(3) char(3) char(3) char(30)	appid id_num addr_cde addr_sts cass_sts dte_confirmed update_source addr_type start_dte	int int varchar(4) char(1) varchar(1) datetime char(1) char(1) datetime	

Notice how the Join box no longer appears on the Table Layout view. Now that the InfoMaker-generated join has been removed, we can create our own.

11. Click the *Join* H button.

- 12. Click on *id\_num* from the namemaster.
- 13. Now click on *id\_num* from the addr\_all\_legal\_addrs.
- 14. Click the *Join* button to complete this join.

election List: < >						_
namemaster	Туре	^		addr_all_legal_ad	drs Type	
appid id_num last_name first_name middle_name prefix joint_prefix suffix title	int varchar(60) varchar(30) varchar(30) char(3) char(3) char(3) char(3)		[=]	appid addr_cde addr_cde addr_sts cass_sts dte_confirmed update_source addr_type start_dte	int varchar(4) char(1) varchar(1) datetime char(1) char(1) datetime	



#### Creating an Outer Join

Now that we have selected the proper options from the Query Governor, let's define a query and join tables together. We want to create an equal join between the namemaster and addr\_all\_legal\_addrs tables (there must be a row in each table) as well as an outer join between namemaster and biograph\_master (print all names whether or not there is a corresponding row in the biograph\_master) tables.

- 1. Click the *New* G button from the PowerBar.
- 2. Click the **Database** tab.
- 3. Select Query.

New				x
Libra	ary Object	Database Tool		
		S	Le Le	
Dat	abase Painter	Query	Data Pipeline	
			OK Cancel	

audit	*	Open
auth_wrk_type		New
avail_form_type_map_table		MEM.
packup_devices		Cancel
packup_pt_pr_tee_def		
penefits ctl hist		Help
pid_dtl		
bid_dtl_vendor		
pid_header		
piograph master	÷	
nou apolinaster privacy view		

- 4. Select the *addr\_all\_legal\_addrs, biograph\_master,* and *namemaster* tables.
- 5. Once all three tables are selected, click **Open.**

Since you have selected three tables, InfoMaker will automatically create joins between the tables in the order in which they have been selected.

The join will be identified by a small box with an equal sign (=) and red lines between the tables will be displayed.

lection List: < >				
namemaster appid id_num last_name first_name middle_name prefix joint_prefix suffix	Type int int varchar(60) varchar(30) varchar(30) char(3) char(3)	addr_all_legal_ad appid id_num addr_cde addr_sts cass_sts dte_confirmed update_source addr_type	ddrs Type int int varchar(4) char(1) varchar(1) datetime char(1) char(1)	





Always delete or verify the joins that InfoMaker creates.

			addr all legal ad	drs Type			
namemaster	Туре	<u>^</u>	appid	int	Join		
appid id_num last_name first_name	int int varchar(60) varchar(30)		id_num addr_cde addr_sts	int varchar(4) char(1)	Join rows in namemaster and addr_all_legal_addrs where:		OK
middle_name	varchar(30)		dte_confirmed	datetime	= namemaster.appid = addr_all_legal_addrs.appid	^	Cano
joint_prefix suffix	char(3) char(3)		update_source addr_type	char(1) char(1)	<ul> <li>namemaster.appid = addr_all_legal_addrs.appid and rows from namemaster that have no addr_all_legal_addrs</li> </ul>		Dele
title	char(30)	~	start_ute	uateune	<ul> <li>namemaster.appid = addr_all_legal_addrs.appid and rows from addr_all_legal_addrs that have no namemaster</li> </ul>		Hel
					< namemaster.appid < addr_all_legal_addrs.appid		
					> namemaster.appid > addr_all_legal_addrs.appid		
					<= namemaster.appid <= addr_all_legal_addrs.appid		
					>= namemaster.appid >= addr_all_legal_addrs.appid		
					<> namemaster.appid <> addr_all_legal_addrs.appid	~	

- 6. Click directly on the small box that connects the tables when the **Join** window appears, highlight the equal join and click the **Delete** button.
- 7. Perform this same step for all equal joins.

Your tables will be displayed with no joins.

election List: < >					
namemaster	Туре		addr_all_legal_ad	drs Type	_
appid id_num last_name first_name middle_name prefix joint_prefix suffix title	int varchar(60) varchar(30) varchar(30) char(3) char(3) char(3) char(3)	ž	appid id_num addr_cde addr_sts cass_sts dte_confirmed update_source addr_type start_dte	int varchar(4) char(1) varchar(1) datetime char(1) char(1) datetime	~

We can now make our own joins. You can move the tables around on the screen to accommodate your own preference – for example, it may be easier to see your joins by broadening the space between each table and placing them at different levels.

8. Click the *Join* H button from the toolbar.



Once the button has been clicked, everything you select will be joined.





Always start your join with the table that is most likely to contain the data you need – in this case, the NameMaster table will most likely contain id numbers so we'll start with the NameMaster.

- 9. Since you want to join the NameMaster to the addr\_all\_legal\_addrs, click on *id\_num* from the NameMaster.
- 10. Now click on *id\_num* from the addr\_all\_legal\_addrs and immediately click on the *Join* button again to end this join.



You can create more than one join without clicking the Join button on and off each time; however, the purpose for documenting this method is to allow you to become more comfortable performing these joins. Once you are comfortable with the process, you can click the Join button once to turn the feature on, select all your joins, and then click again to turn the feature off.



You will now see the join that has been created between these two tables.

We now want to create another join between the NameMaster and the Biograph\_Master. As done previously, start the join with the table that is most likely to contain the data you need – in this case, the NameMaster table will most likely contain id numbers so we'll start with the NameMaster.

- 11. Click the **Join** button from the toolbar to start another join.
- 12. Since you want to join the NameMaster to the Biograph\_Master, click on *id\_num* from the NameMaster even though it is already highlighted from the previous join.
- 13. Now click on *id\_num* from the Biograph\_Master and immediately click on the **Join** button again to end this join.



Preview the results as an equal join prior to changing to an outer join. This will allow you to compare the row counts and identify the difference between the two sets of results to your students.



In this case, you will want to display all rows in the NameMaster table with an ID number even if a corresponding row does not exist in the Biograph\_Master table. This is referred to as an outer join.

14. Click on the Join box connecting the NameMaster with the Biograph\_Master and the **Join** dialog box will be displayed.

Joir	1		$\times$
Joi	n rows in namemaster and biograph_master where:		OK
=	namemaster.id_num = biograph_master.id_num	^	Cancel
=	namemaster.id_num = biograph_master.id_num and rows from namemaster that have no biograph_master		Delete
=	namemaster.id_num = biograph_master.id_num and rows from biograph_master that have no namemaster		Help
<	namemaster.id_num < biograph_master.id_num		
>	namemaster.id_num > biograph_master.id_num		
<	= namemaster.id_num <= biograph_master.id_num		
>	= namemaster.id_num >= biograph_master.id_num		
<	>namemaster.id_num <> biograph_master.id_num	¥	

15. Select the statement that corresponds with your join.

16. Click OK.

You will now see a small circle facing towards the NameMaster – this indicates an outer join and, according to the position of the circle, indicates that all rows from the NameMaster will be displayed even if a corresponding row does not exist in the Biograph\_Master. Notice the different pointer that is displayed once the **Join** button has been activated.



17. Click on the **Syntax** tab to view the Select statement.



ection List:					
amemaster ppid i_num ist_name rst_name iddle_name refix pint_prefix uffix tte	Type int varchar(60) varchar(30) varchar(30) char(3) char(3) char(3) char(30)	^ _	0=	biograph_master id_num ssn_private ssn bar_cde_id last_update birth_dte deceased death_dte gender	Type  int char(1) numeric(10,0) varchar(14) datetime datetime char(1) datetime char(1) v
			addr_all_legal_addrs Ty appid int id_num int addr_cde va addr_sts ch cass_sts ch dte_confirmed da update_source ch addr_type ch start_dte da	char(4) r(1) r(1) retime r(1) r(1) retime r(1)	

Notice that the definition of the equal join is indicated in the **WHERE** section of the statement and the definition of the outer join is indicated in the **FROM** section of the statement.

Also notice that the **SELECT <not specified>** indicates that although you have joined the three tables, you have not yet selected the columns from each table that will appear in the query. This process will be performed in the next steps.

18. Select the following columns in the following order:

NameMaster	Address_All_Legal_Addrs	Biograph_Master
$\checkmark$	$\checkmark$	$\checkmark$
id_num	addr_line_1	id_num
last_name	addr_line_2	gender
first_name	addr_line_3	birth_dte
	city	
	state	
	zip	
	phone	



Notice that the syntax changes after every selection. Once all the columns are selected, you will see that all the columns appear in the selection list and in the syntax as displayed below:

Table Layout election List: <	> id_num last_nar	me first_nam	e middle_name gender	
namemaster appid id num last name first name middle_name prefix joint_prefix suffix title	Type int varchar(60) varchar(30) varchar(30) char(3) char(3) char(3) char(30)	^ >= ~	biograph_master id_num ssn_private ssn bar_cde_id last_update birth_dte deceased death_dte gender	Type  int char(1) numeric(10,0) varchar(14) datetime datetime char(1) datetime char(1) varchar(1) varchar(1) varchar(1) varchar(1) varchar(1) varchar(1)
SELECT namemaster.ic namemaster.last_ namemaster.first_ namemaster.middl biograph_master.c FROM namemaster LE	gender FT OUTER JOIN biogra	ntax identifie n each table name, then aph_master Ol	s the data selected displayed by table column name. N namemaster.id_num = biogra	ph_master.id_num

Since you only want to retrieve the current addresses for these names, you need to identify the criteria.

19. Click the **Where** tab.

Use the drop down on Column and select *biograph\_master.deceased.* Use the drop down on Operator and select *=* Right-click on Value, select the Columns option, and choose '*N*'.

Column	Operator	
biograph_master.deceased	=	'N'

20. Click the **Sort** tab and drag the *namemaster.id\_num* to the right as illustrated below:

Drag and drop columns in the order in which you want		
namemaster.appid	∧ namemaster.last_name	Ascending
namemaster.id_num	namemaster.first_name	Ascending
namemaster.last_name		
namemaster.first_name		
namemaster.middle_name		
namemaster.prefix		
namemaster.joint_prefix		
namemaster.suffix		
namemaster.title		
namemaster.name_format		
namemaster.name_sts		
namemaster.name_type		
Sort (Where ) Group ) Having ) Compute ) Syntax /		



- 21. Click the **Preview** 🖾 button to view your results.
- 22. Save the query as **q\_name\_addr\_bio.**

#### **Incomplete Joins**

An incomplete join occurs when only one side of a join is selected. They are typically caused by ending or turning off the join before the second column is selected. You will get the following error message when an incomplete join has happened.



If you believe that this may have occurred, you can click on the **Syntax** tab while in SQL Select mode and review the joins that are shown in the WHERE portion of the statement.

🚱 Table Layout		
Selection List: 🔹 🕨 id_nu	m	
address_master id_num addr_cde addr_sts cass_sts dte_confirmed update_source addr_type start_dte end_dte	biograph_master id_num ssm_private ssm bar_cde_id last_update birth_dte deceased death_dte gender	×
SELECT name_master.id_num FROM address_master, biograph_master, name_master WHERE ( name_master.id_num =	null )	F.
≺ \Sort \Where \Group \Having \Con	pute Syntax	F

Review the join shown in the WHERE portion of the statement and notice and = *null* statement. This indicates that you have an incomplete join.

To delete the incomplete join, use the same process when creating a join. Click on the Join tool, click on a column other than the one that displays a null statement, and click on the Join tool again. This completes the join so it can be deleted. You can also recreate the join, if needed.





If you are creating a report and move from SQL Select to Design mode with an unresolved incomplete join, your report will be lost – therefore, when you receive an error due to an incomplete join, take the time to fix the problem.

#### Locating Tables and Columns

You can locate the name of the table and column by using the microhelp within the J1 application. However, if you do not know which module is associated with specific data, you can also search through all the J1 tables and columns.

Options for locating tables and columns:

Option 1: Microhelp in Desktop:





Option 2: Online help:

Contents Index 🔍 Search	- Search -				
J1 Desktop Online Help	ADDRESSMAST				
Accounts Payable     Admissions     Advising     Budget	Column List				
Business Office     Common     Descharment	Name	Code	Туре	P	м
Development     Francial Aid     Fixed Assets     General Ledger     Human Resources     Payroll     Dersonnel     Purchasing     Registration	Appid	AppID	INT	Yes	sYes
	Ar Line 1	ADDR_LINE_1	VARCHAR(60)	No	No
	Addr Line 2	ADDR_LINE_2	VARCHAR(60)	No	No
Security & Permissions     Student Life     Tables & Columns	Addr Line 3	ADDR_LINE_3	VARCHAR(60)	No	No
Welcome to Tables and Colum	City	СІТҮ	VARCHAR(60)	No	No
+ AP + AR + AV	State	STATE	CHAR(2)	No	No
	PostalCode	PostalCode	VARCHAR(20)	No	No
CM CM CM Table List	Zip5	ZIP5	CHAR(5)	No	No
ACA_4980H_TRANS_RELI	Zip4	ZIP4	CHAR(4)	No	No
ACA_MEDIA_WRK	Country	COUNTRY	CHAR(3)	No	No
ACTIVE_LICENSES	Countrydefinitionappid	CountryDefinitionAppID	INT	No	No
AD_ACTIVITY_SOURCE_S: AdditionalContactLabel	County	COUNTY	CHAR(5)	No	No
AdditionalContacts	Locality	LOCALITY	CHAR(4)	No	> No
ADDRESS_MISTORY	Fips 5 1 Post Cde	FIPS_5_1_POST_CDE	CHAR(2)	No	No
Image: Second state     ✓	Postnet Barcde Zip	POSTNET_BARCDE_ZIP	INT	No	No



To access the online help:

- Within any J1 module, go to *Help* → *Help Topics.*
- 2. Click on the *Tables and Columns* book to expand its contents.
- 3. Click on a module.
- 4. Locate a specific table and click on it to display full details in the right panel of the **Online Help** screen as illustrated below:



$\leftrightarrow$ $\rightarrow$ C $\triangle$ $\stackrel{\circ}{}$ jenzabar	rhelp.jenzab 🖻	🛧 🔶 🐼 🗉	* 🗉		:		
Contents 🛓 Index 🔍 Search	- Search -		9				
×			<b></b>				
CM	Column List	Column List					
ACTION_TYPE_DEF	Name	Code	Туре	ΡM			
Image: AD_ACTIVITY_GRADE_LVL         Image: AD_ACTIVITY_LEVEL_SIT	Appid	AppID	INT	YesYes	s		
Image: AD_ACTIVITY_SOURCE_SI         Image: AdditionalContactLabel	Addr Line 1	ADDR_LINE_1	VARCHAR(60)	No No			
AdditionalContacts	Addr Line 2	ADDR_LINE_2	VARCHAR(60)	No No			
ADDRESS_MASTER_INVAL         AddressCodeDef	Addr Line 3	ADDR_LINE_3	VARCHAR(60)	No No			
AddressMaster  AddressMaster_UDF  ADMISSION_BASIS_SIT	City	СІТҮ	VARCHAR(60)	No No			
	State	STATE	CHAR(2)	No No	•		



# You can also search for a specific table or column in the online help by...

- 1. Clicking on the *Search* button.
- 2. Entering the name of a table or column.
- 3. Click *Enter.*

As you can see, there are many ways to locate the name of a table and column within the J1 application.

This information is critical to successfully create an InfoMaker report that will provide you with the data you need.



Option 3: Creating a query to view the data.

Option 4: Using the Data Dictionary located in Additional Reports/CM/Reports/EX Data Dictionary/EX.data dicationary.pbl/ ex\_ss\_columns\_info.

