

(Landscape Architecture Firm Name)

Billing Database Front End

Application Description Document

April 24, 2002

Contents

Background and Overview

Functional Description

Appendix 1 – Recommended Operating Procedures

Appendix 2 – Tax Rate Change Procedure

Appendix 3 – Database Description

Background and Overview

Background

(Landscape architecture firm name) is currently using two custom-designed Microsoft Access databases to prepare monthly Xerox Copier and HP Plotter billing reports.

Users previously required a familiarity with Microsoft Access to prepare reports. A new “push-button” front end makes the database applications easier to use.

Overview

The new billing database front end uses a push-button design, allowing users easily to perform the tasks listed in Table 1.

Each of the two databases is identical in design, except for: the background window color, labels on the main window, and labels on the internal reports.

Data is now entered directly into Access. The step of importing the data from Excel has been eliminated.

The calculations are not year-specific. To create a new set of databases for 2003, make a copy of each database and start entering data for the next year.

Table 1. Billing Database Front End Tasks

Enter data for each month	Calculate the billing information for each month	Add to and/ or modify the job list
Change the price per square foot, based on paper type	Preview and print the billing reports	Prepare and print the year-end report

Functional Description

Overview

Opening the database automatically opens the main window, which has four sections: *Enter Data*, *Prepare Reports*, *Print/Preview Reports*, and *Year End Report*. All typical billing functions are accessed from this window. These functions are:

Entering data

Preparing reports

Printing monthly reports

Printing year end reports

Two other administrative functions are also accessed from this window: updating the job list (**Job Listing**) and changing the pricing for different paper types (**Change Prices**). These functions are described in more detail in subsequent sections.

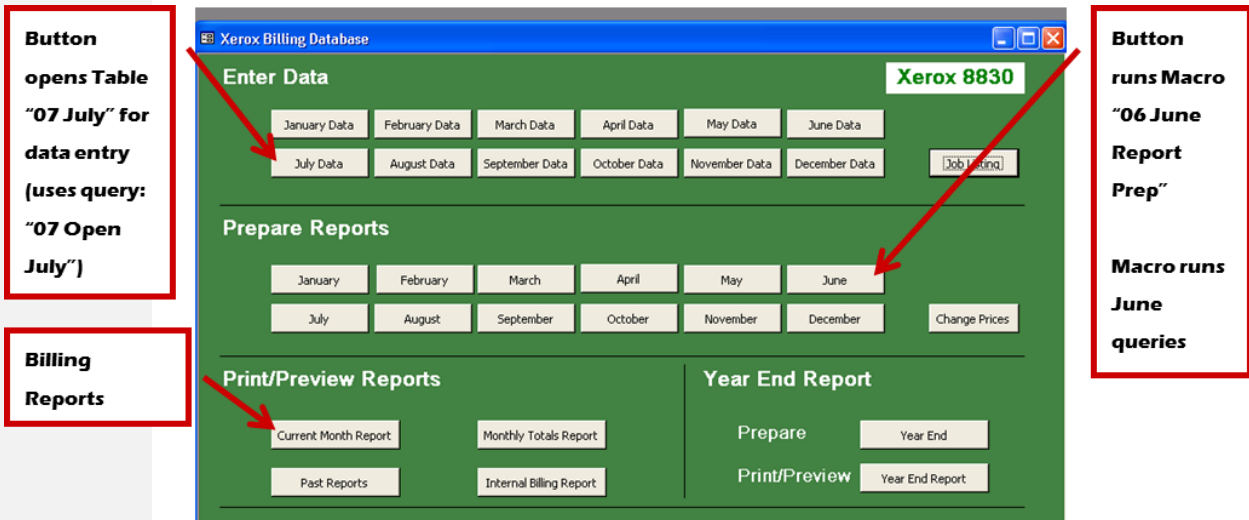


Figure 1. Main Window

Entering Data

The *Enter Data* section contains one button for each month. Clicking each button opens the data entry table for that month. This is the raw data, entered from the hand-written logs.

Also in this section is the button labeled **Job Listing**. Clicking this button opens the job list table. *The table opens in reverse order, showing the newest jobs first.* Add new jobs by scrolling down to the bottom of the window *or* by clicking the asterisk at the bottom of the window. (See Figure 2.)

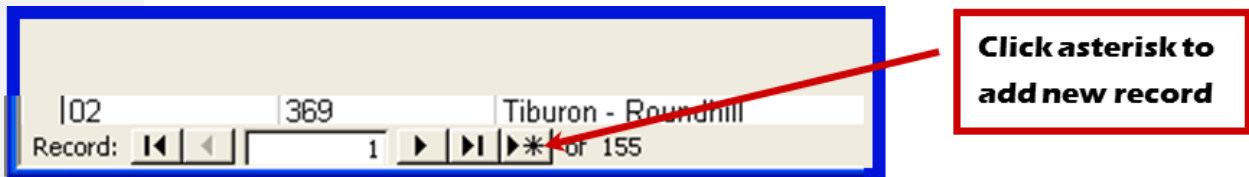


Figure 2. Adding Records

Preparing Reports

The *Prepare Reports* section also has one button for each month. Clicking each button runs the calculations (macros) for the month. A message displays when the calculations are finished. Clicking one of the report buttons (and preparing a report) adds a record to the **Monthly Totals** table. This record contains the month, the total number of jobs that were run that month, the total number and total square footage of copies made, and the date and time the report was prepared. Use the *Prepare Reports* section on the main window to open this report. (The **Monthly Totals Report** shows when a report is prepared more than once and also if the total copies or total square footage has changed.)

When paper type (vellum/bond/Mylar) prices change, click the **Change Prices** button. Enter the correct data and close the table.

CAUTION: Once prices have been changed, *accidentally pressing the button for a previous month loses the historical data* and recalculates billing using the new prices.

Previewing and Printing Reports

The *Print/Preview Reports* section of the main window has four buttons. (See Table 2.)

The **Past Reports** button opens a new window that allows previewing of any of the monthly reports. (See Figure 2, below.) To print an open report, choose *File/Print* from the main Access menu and continue as with any other MS Office document.

The other three buttons open the **Current Month Report**, the **Monthly Totals Report** and the **Internal Billing Report**.

Table 2. Print/Preview Reports Buttons

Current Month Report	Monthly Totals Report
Past Reports	Monthly Billing Report

The **Current Month Report** is an addendum to client invoices and prints a single page per client. A separate page for all non-billable work (job number 00-000) and a summary page showing the total number of copies made (and the total square footage) for the month is also included as part of the **Current Month Report**.

The **Monthly Totals Report** prints the total billing for the month and also includes the date and time the report was prepared.

The **Internal Billing Report** provides the same information as the **Current Month Report** but in a condensed format.

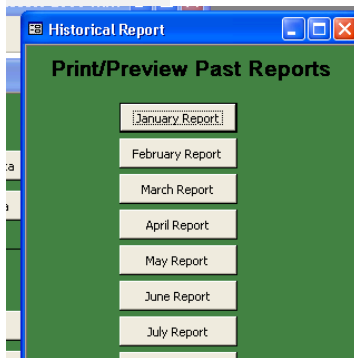


Figure 3. Previewing Past Reports

Preparing the Year End Report

The *Year End Report* section has one button to prepare the report (**Year End**) and a second button to print or preview the report (**Year End Report**). The **Year End** button generates a summary of the amount billed during the year. Included are the *total pre-tax*, *total tax*, and *total billed amount* for all billable jobs for the year. Year-end processing may be run as many times as necessary. Clicking the **Year End** button *clears the table* and recalculates summary data for each month.

Appendix 1

Recommended Operating Procedures

Monthly Operating Procedure

1. Enter data for the month.
2. Print the raw data* and compare it to the hand-written log. Correct any errors.
*Print raw data by opening the data entry table, and then using standard File/Print commands.
3. Print the **Current Month Report** and the **Monthly Totals Report**.
4. Carefully review the **Current Month Report** (the billing report that goes to clients). If necessary, correct errors in the raw data and re-run the report.

Table 3. Troubleshooting the Current Month Report

Problem	How to fix it
Paper type is "Other"	An "x" has not been entered in the appropriate paper type column
Job name is blank	Job number is incorrect
	Job needs to be added using the Job Listing button

5. Compare the *total square feet* and *total copies made* on the **Current Month Report** to the latest **Monthly Totals Report** for the same month. Correct any errors.
6. Print the **Internal Billing Report** and keep it on file for future reference.
7. *Burn a copy of the entire database onto CD every month.* If the active database becomes corrupted, the latest copy can be used to recover and only the last month will have to be re-entered. Keep the CD(s) in the Xerox/Plotter Billing Database file.

Yearly Operating Procedure

1. Prepare and print the **Year End Report** for both the Xerox Printer and the Plotter.
2. Make a final backup copy of each database.
3. Copy the Xerox and Plotter databases to new files. Name the database files to indicate the year. For example: "Xerox Billing Database – 2003.mdb." If not using the *fresh* copy (i.e., one with no data entered in the data entry tables), delete all of the records from each of the 12 data entry tables before proceeding.
4. Verify the billing rates and tax rate are correct *in each of the monthly queries* and update, as required.
5. Enter new data. (See Monthly Operating Procedure.)

Appendix 2 Tax Rate Change Procedure

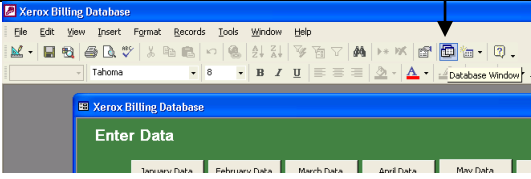
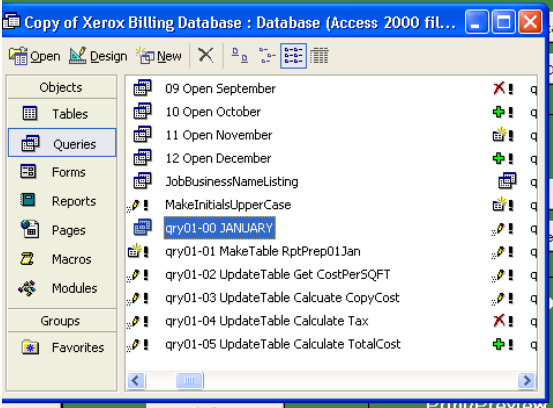
The tax rate is hard-coded into queries for each of the 12 months. Depending on the time of year, there are as many as 24 queries to change (12 for each database).

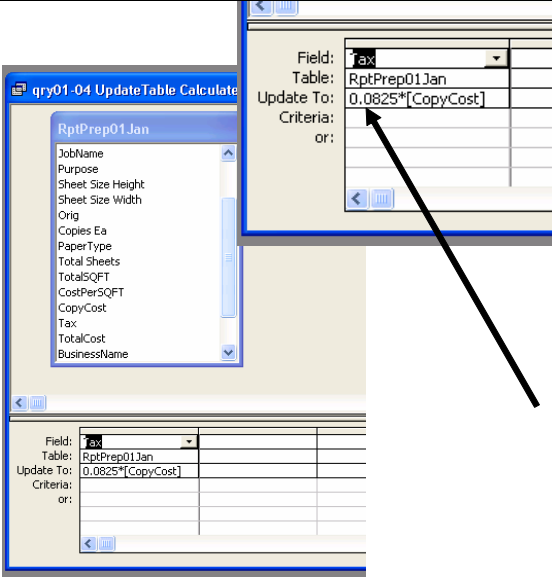
NOTE: *If the tax rate changes during the year, be sure that all tax rate queries in the **next year's** billing database are updated before preparing reports.*

Changing the Tax Rate

To change the tax rate in a query, perform the following steps:

Table 4. Steps to Change the Tax Rate

Steps	Comments/Screens
<p>1. MAKE A BACKUP COPY OF THE DATABASE!</p>	
<p>2. Open the database window</p>	
<p>3. Select the Queries tab</p> <p>4. Look for the report calculation queries. They all start with “qry.” They are numbered to indicate the month. (For example, all queries that start with qry01 are for January.)</p> <p>5. Select the tax calculation query. The January query is called: qry01-04 UpdateTable Calculate Tax</p>	

Steps	Comments/Screens
<p>6. Click the “Design” Icon on the Database Window toolbar. This opens the query in “Design” mode.</p>	
<p>7. Change the tax rate. <i>Only change the number; do not change anything else.</i></p> <p>8. In the example shown, the query is using the calculation:</p> <p style="padding-left: 40px;">$0.0825 * [\text{CopyCost}]$ <i>(this means the copy cost is multiplied by a tax rate of 8.25%)</i></p> <p>9. Close the query window. Save the query when prompted.</p>	
<p>10. Repeat this step for each month the tax rate changes <i>(and in both databases).</i></p>	
<p>11. Thoroughly test the revised calculations before using the database.</p>	

Appendix 3 Database Description

Tables

The tables used in the Access database are described below.

Table 5. Table Descriptions

Table Name	Description
01 January through 12 December	Data entry tables.
BillingsForEntireYear	Holds all report calculations for the entire year. This is the data that is summarized when creating the Year End Report .
CurrentProjects	Opens when the Job Listing button is clicked. This list of projects is used to create the billing reports. If a job is not listed in this table, or the number is incorrect, a blank appears on the Current Month Report .
CurrentMonthReportData	Created each time a report is prepared, <i>overwriting the previous data</i> . This table is used to create the invoice attachments (Current Month Report).
GraphicServicesCosts	Holds the pricing information for the different paper types (i.e., vellum, bond, Mylar). This table opens when the Change Prices button is clicked.
Monthly Totals	Holds summary information generated each time a report is prepared.
RptPrep01Jan through RptPrep12Dec	Created when the monthly reports are prepared. These tables are used to create the Year End Report and to print historical reports (Past Reports).
_BACKUP 01 January Report Data through _BACKUP 12 December Report Data	Automatically created when the monthly reports are prepared.

Queries

All of the billing report calculation queries for January start with **qry01**. February queries start with **qry02**, and so on for the rest of the months. All of the **-00** queries are placeholders that make it easier to locate the January queries in the query list. Each month's queries are identical, except for changing the month. The queries are described below.

Table 6. Monthly and Admin Query Descriptions

Query Name	Description
00 Open Current Projects	Opens the referenced table and is used when the Job Listing button on the main form is clicked.
00 Open GraphicServicesCosts	Opens the referenced table and is used when the Change Prices button on the main form is clicked.
01 Open January through 12 Open December	Opens the respective data tables.
Job Business Name Listing	Combines the job year and job number fields from the Current Project table.
MakeInitialsUpperCase	Changes all initials in the CurrentMonthReportData table to upper case.
Job Business Name Listing	Combines the job year and job number fields from the Current Project table.
qry01-01 MakeTable RptPrep01Jan	Creates the report preparation table (RptPrep01Jan) for January. It links to the JobBusinessNameListing query to get the job name based on the job number entered in the data entry table for each record.
qry01-02 UpdateTable Get CostPerSQFT	Uses the GraphicServicesCosts table and calculates the appropriate cost per square foot, based on paper type.
qry01-03 UpdateTable Calculate CopyCost	Calculates the copy cost (cost per square foot times total square feet) for each job.
qry01-04 UpdateTable Calculate Tax	Calculates the tax.

Query Name	Description
qry01-05 UpdateTable Calculate TotalCost	Adds the copy cost to the tax to get the total cost.
qry01-08 ClearTable CurrentMonthReportData	Clears table CurrentMonthReportData of all prior month's information.
qry01-10 Append Jan Data to CurrentMonthReportData	Copies the January data from the RptPrep01Jan table to the CurrentMonthReportData table so it can be used to print the current month's billing reports.
qry01-15 Make Backup Copy of Data	Makes a backup table of the January data (_BACKUP...)
qry01-20 Append Records to MonthlyTotals	Appends summary data to the MonthlyTotals table along with a date/time stamp.

Table 7. Year End Query Descriptions

Query Name	Description
qry99-00 ClearTable BillingsForEntireYear	Clears the table of last year's data, ready to calculate for the current year.
qry99-01 Append Jan Data to BillingsForEntireYear through qry99-12 Append Dec Data to BillingsForEntireYear	Add all of the records for each month to the BillingsForEntireYear table.
qry99-20 MakeTable YearEndReportData	Summarizes the data for the entire year.

Forms

The forms are described below.

Table 8. Database Form Descriptions

Form Name	Description
Billing Database Front End.	This is the main form containing all the major functions of the database. It automatically opens when the Xerox Billing or Plotter Billing Databases are opened.
Historical Reports	This form contains a button for each month of the year and allows users to preview and print monthly billing reports from previous months.

Reports

The reports are described below.

Table 9. Database Report Descriptions

Report Name	Description
<i>01 January Report through 12 December Report</i> (AKA monthly billing reports)	These reports are in the same format as <i>CurrentMonthReport</i> . Prepare these reports first, or <i>CurrentMonthReport</i> will show an error (#ERROR).
<i>CurrentMonthReport</i>	This is the main billing report. The monthly billing reports must be prepared first.
<i>InternalBillingReportCurrentMonth</i>	A compact version of <i>CurrentMonthReport</i> opened when clicking the Internal Billing Report button on the main window.
<i>MonthlyTotalsReport</i>	Shows a summary of each month, each time the monthly report is prepared (along with a date/ time stamp).
<i>YearEndReport</i>	The summary of billed dollars (pretax, tax, and total) for the entire year.

Macros

The macros are described below.

Table 10. Macro Descriptions

Macro Name	Description
01 January Report Prep through 12 December Report Prep	These macros run all of the report calculation queries. The buttons in the <i>Prepare Reports</i> section of the main window run these macros.
99 Prepare YearEndReport	This macro runs all of the year-end report queries when the Year End Report button is clicked.

Prepared by: Gale Naylor