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**LABWORKS LIMS v7.2**

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**CRGEN Guide**

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**LABWORKS CRGEN Guide**

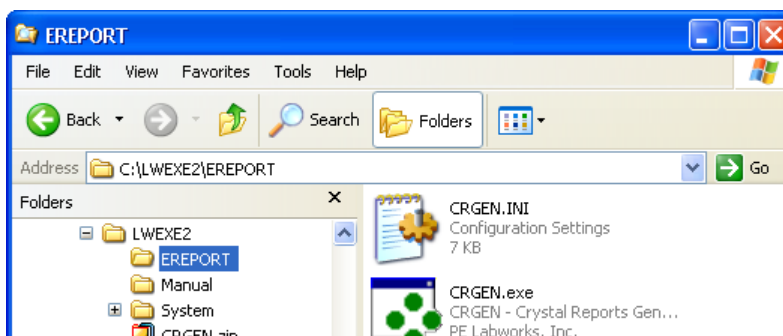
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## 1) Using the LABWORKS CRGEN Utility

The CRGEN program is a Crystal report generation utility to automate data reporting or exchange. It can be used to auto-print data into many different PC formats (Excel, Word, PDF, HTML etc.) and send the printout to a specific printer, email, or fax addresses. It can also allow this printing or data transfer automation outside of LABWORKS altogether.

Setup Process - To utilize the program, it must be setup as either an icon in Windows, a button on the LABWORKS desktop, or scheduled as an event in Process Scheduler (with a location code of "PROGRAM") or the Windows Scheduler as an event. You place the filename and full path of either the report to print or the INI file (if you want to do anything besides print to a window) as the program's command-line parameter. Usually a folder is created inside the LABWORKS EXE path to place a copy of the CRGEN.EXE and its corresponding INI file.

1. **Create a folder (for example, EREPORT in our example) in the EXE path and copy the CRGEN.EXE and CRGEN.INI into it**



2. **Use notepad to open and edit the CRGEN.INI (see next section on how to configure it)**
3. **Now schedule this CRGEN in the Windows Scheduler or Process Scheduler as follows (note: replace "C:\LWEXE2" with your real EXE path)...**

C:\LWEXE2\EREPORT\CRGEN.EXE C:\LWEXE2\EREPORT\CRGEN.INI

**Note: Use a scheduler to fire this off at specific designated intervals for extraction of data for the report to any format (PDF, Word, Excel, HTML etc.) and even email all without user intervention if desired.**

## 2) Using the CRGEN .INI file

The CRGEN.INI file is used to process a single or group of reports in many different ways. Some examples of what you can do by configuration of the INI are:

1. Configure the INI to print to a specific format (PDF, Word DOC, RTF, XML, XLS, Lotus WRK, HTML etc.) all without having these apps loaded on your machine
2. Configure the INI to use a specific cross-reference search routine from LABWORKS before printing or exporting
3. Configure the INI to fire off an email to a user or group of users
4. Configure the INI to fire off a single or group of direct-connect reports (if the switch for #2 is not used)
5. Configure the INI to print a large "batch" report (many pages of a report), then segregate the pages down to individual reports to fire off to various email accounts (works well when printing a batch of customer reports that all go to different email or fax addresses)

Below are the settings within this file...

The highlighted values have some example data in it that will be explained below.

The comment lines begin with single quotes.

[CRGEN]

\* The REPORT\_PATH (if doing a possible group of reports at once)...

**REPORT\_PATH =**

\* The REPORT\_FILE Setting (if printing only a single report at once)...

**REPORT\_FILE = C:\LWDATA\CRYSTAL\CR\_STANDARD.RPT**

\* The EXPORT\_UDL is used to connect ONLY to an EXPORTED DATA source, and is ONLY NEEDED if

' USE\_RFOR=Y

'USE\_RFOR = Y

'EXPORT\_UDL = File Name=c:\lwdata\CRGEN.UDL

**USE\_RFOR =**

**EXPORT\_UDL =**

' \* The DATABASE Setting...

\* DAO/RDO ACCESS...

'DATABASE = C:\LWUSER\DAILYLOG.MDB

\* ODBC...

'DATABASE = ["P2SODBC.DLL", "LABWORKS", "", "lms", "LABWORKS"]

\* ADO...

'DATABASE = File Name=c:\lwdata2\ETS.UDL

**DATABASE =**

'ONLY IF EXPORTING : Use the XREF setting to point to a Cross-Reference search routine name

' to pull samples automatically for a specific report (then leave the DATABASE blank above)

'Note that if exporting is used, and no data is found, the process will end. Use NODATA\_WARNING to display a message

' when no data is found for the day...

**XREF = MYXREF**

**NODATA\_WARNING=Y**

'IF EXPORTING : The REPORTINGFIELD is the exported FLATDATA field name (example: US05)

' that will further segregate the exported data by firing off a new report for each occurrence of this field!

' For example, if you are scheduling a report to pull all samples for a specific location code (LCOD) that

' returns a batch of 100 samples, but you would like a separate report or export fired off for

' each of the 100 samples. By setting this field to SIDN, the report will fire off and export 100 times

' (100 different reports) instead of doing one big export print for all 100 samples in 1 report.

\*\*\* NOTE: This field MUST be part of what you're exporting in your CEF file!

'REPORTINGFIELD = SIDN

**REPORTINGFIELD =**

'IF EXPORTING : You can ARCHIVE your printed reports in a database for later retrieval

'ARCHIVEUDL = File Name=C:\LABWORKS\ARCHIVE\archive.udl

'ARCHIVESQL = SELECT \* FROM tblArchive

**ARCHIVEUDL =**

**ARCHIVESQL =**

'AUTO-REPORT Settings : These will auto-replace the export string with an email address...

' \*\* NOTE: The REPORTTYPEFIELD can be "PRINT", "POSTAL", "EMAIL", or "FAX

' \*\* NOTE: If these 3 fields are in the ARCHIVESQL table above (if archiving is used), they will automatically become stored as well (even if they are in the Mail List table MLTDATA)

' \*\* NOTE: If you are using SMTP Mail and data exporting (an XREF routine) and you want ALL samples emailed, then leave the REPORTTYPEFIELD blank. The system will assume all records are to

' be emailed based on your export string below.

'REPORTTYPEFIELD = FLATDATA.RAD1

'EMAILADDRESSFIELD = FLATDATA.RAD2

'FAXADDRESSFIELD = FLATDATA.RAD3

**REPORTTYPEFIELD =**

**EMAILADDRESSFIELD =**

**FAXADDRESSFIELD =**

' \* The SEL\_FORMULA Setting...

```
' Crystal reports formatted record selection formula in BRACKETS,
' OR, it is a SQL statement if using ADO, or leave it BLANK if you are
' sending the command line parameter to it or simply not using it!
'SEL_FORMULA = {SAMPLE.LOGBATCH} = '125000'
'SEL_FORMULA = SELECT * FROM SAMPLE WHERE LOGBATCH = '125000'
'SEL_FORMULA = SELECT * FROM SAMPLE WHERE LOGBATCH = '10171004'
SEL_FORMULA =
```

```
' * If using NETsatisfAXtion, this is the ORDER directory...
' ORDER_DIR = Q:\ORDERS\
ORDER_DIR =
```

```
' * The PRINTER_NAME Setting...
' The DEVICE NAME of the printer - network drives must have paths too,
' for example: PRINTER_NAME = \\NT_SERVER\HP LaserJet 2100
' To print to the PDF WRITER...
' for example: PRINTER_NAME = Acrobat PDFWriter
PRINTER_NAME =
```

```
' * The PRINT_SWITCH Setting...
' 1 = Open a print preview window with the printed report for viewing (DEFAULT)
' 0 = Send print directly to printer
PRINT_SWITCH = 1
```

```
' * The WINDOWS_STATE Setting...
' 2 = Forces the print preview window to stay MAXIMIZED
' Anything Else = Produces a standard window for print preview (DEFAULT)
WINDOWS_STATE = 1
```

```
' * The EXPORT_DATA Setting...
' If this is valued, the program will automatically dump the contents of the report
' to an exported filename of some type without telling the user.
' ** NOTE: format is [FILENAME, EXPORTFORMAT, EXPORTTYPE, APPSTART,
' ETOADDRESS, ECCADDRESS, ESUBJECT, EMSG]
' ** NOTE: if AppStart = 1, then it will launch the app after exporting to it.
' FILENAME = the FULL path and filename of the new export file
```

```
' FILENAME = the FULL path and filename of the new export file, for example, "c:\newdoc.rtf" without quotes
' ** Note: You can have the system automatically create folders and filenames on the fly with
' date or time stamps by replacing text in the FILENAME string with one of the following:
```

```
'
' %MM% Replaces with month
' %DD% Replaces with day
' %YY% or %YYYY% Replaces with year (2 or 4 digit)
' %MMDDYY% or %MMDDYYYY% Replaces with full date
' %HH% Replaces with hour
' %NN% Replaces with minute
' %SS% Replaces with second
' %HHNN% Replaces with hour and minute
' %NNSS% Replaces with minute and second
' %HHNNSS% Replaces with hour, minute, and second
' %RT% Replaces with the REPORTTYPEFIELD value (EMAIL, PRINT, FAX, etc.)
```

```
' For example, if every time you exported the report to PDF, you wanted a root folder
' in F:\LABWORKS with the YEAR, then a sub-folder with the month, then a filename
' encoded with the day and time, you could do the following for FILENAME...
```

```
F:\LABWORKS\Y%YYYY%\M%MM%\MyReport_%DD%_%HHNN%.PDF
```

```
If this example above is used for 11/04/03 at midnight to print/export a report, you'd
get the following...
```

```
F:\LABWORKS\Y2003\M11\MyReport_04_1200.PDF'
```

```
' EXPORTFORMAT = The format NUMBER to export (what type of file).
'
'   The following are some popular formats...
'   Data Interchange (crEFTDataInterchange)                2
'   Record Style (crEFTRecordStyle)                        3
'   ASCII Text Comma-Separated Values (crEFTCommaSeparatedValues) 5
'   ASCII Text Character-Separated Values (crEFTCharSeparatedValues) 7
'   ASCII Plain text (crEFTText)                            8
'   ACSII tab-separated Values (crEFTTabSeparatedValues)   6
'   ASCII tab-separated Text (crEFTTabSeparatedText)       9
'   ASCII Paginated Text (crEFTPaginatedText)             10
'   Word for Windows DOC Format (crEFTWordForWindows)      14
'   Word DOC Format-Portable (crEFTPortableDocFormat)     31
'   Word RTF Rich Text Format (crEFTExactRichText)         35
'   ODBC (crEFTODBC)                                      23
'   LOTUS Workbook WKS 1-2-3 Format (crEFTLotus123WKS)     11
'   EXCEL XLS Tabular Format (crEFTExcel70Tabular)         28
'   EXCEL Workbook XLS 8.0 Format (crEFTExcel80)           29
'   EXCEL Workbook XLS 8.0 Tabular Format (crEFTExcel80Tabular) 30
'   HTML 4.0 Format (crEFTHTML40)                          32
'   HTML 3.2 Format (crEFTHTML32Standard)                  24
'   Report Definition TTX Format (crEFTReportDefinition)   34
'   XML Format (crEFTXML)                                   36
'   Adobe Acrobat PDF Format                                31
'
' EXPORTTYPE = The export destination. The following are the available destinations...
'   Export to no Destination                                0
'   Export to a Disk File                                  1
'   Export to Microsoft's Mail API (MAPI)                 2
'   Export to Microsoft's Mail VIM                       3
'   Export to a Microsoft Exchange folder                 4
'   Export to the Application associated with the Export Format 5
'   Export to Lotus Domino                                6
'
' APPSTART = Enter 1 to launch the application after exporting (or email without prompting)
'
' The following are optional MAIL settings...
'
' ETOADDRESS      = The full TO email address list (only used if emailing and APPSTART=1)
' ECCADDRESS      = The full CC email address list (only used if emailing and APPSTART=1)
' ESUBJECT        = The subject for the email (only used if emailing and APPSTART=1)
' EMSG            = The message body for the email (only used if emailing and APPSTART=1)
'
' Some working examples...
' EXPORT_DATA = [P:\LWUSER\EXPORT.PDF, 31, 2, 1, , , ETS LABORATORIES REPORT, The following attachment
is your report]
' EXPORT_DATA = [C:\USER\EXPORT.PDF, 31, 2, 1, , , ETS LABORATORIES REPORT, The following attachment is
your report]
' EXPORT_DATA = [P:\LWUSER\EXPORT.pdf, 31, 1, 1]
' EXPORT_DATA = [c:\newdoc.rtf, 35, 1, 1, , , ]
' EXPORT_DATA = [c:\newdoc.TXT, 5, 1, 1]
' EXPORT_DATA = [c:\EXPORT.TXT, 5, 1, 1]
' EXPORT_DATA = [c:\newdoc.wks, 11, 2, 1, jkrawls@lycos.com, , Your File, This is a PDF file email export test]
' EXPORT_DATA = [c:\newdoc.DOC, 14, 1, 1]
' EXPORT_DATA = [c:\newdoc.XLS, 29, 1, 1]
' EXPORT_DATA = [c:\newdoc.XML, 36, 1, 1]
' EXPORT_DATA = [c:\newdoc.XML, 36, 2, 1, jkrawls@lycos.com, , Your File, This is an XML file email export test]
EXPORT_DATA = [C:\EXPORT.pdf, 31, 1, 1]

' To use SMTP MAIL instead of Crystal MAPI emailing, enter "Y" for the USE_SMTP switch below...
' It will use the information above with SMTP instead of Crystal...
' Note that you can enter the server name (if needed) in the EMAIL section of the LABWORKS.INI file. This is
' the same information that is used for emailing of an Exception Report.
```

```
'USE SMTP = Y
'SMTP_SENDEREMAIL = lmsilva@labworks.com
USE SMTP =
SMTP_SENDEREMAIL =
```

```
[EndCRGEN]
```

NOTE: In summary, you'll only need to worry about these CRGEN.INI values below (with the unbolded example text). These settings are the most crucial :

**REPORT\_PATH =**

**REPORT\_FILE =** C:\LWDATA\CRYSTAL\CR\_STANDARD.RPT

**XREF =** MYXREF

**DATABASE =**

**PRINTER\_NAME =**

**PRINT\_SWITCH =** 1

**WINDOWS\_STATE =** 1

**EXPORT\_DATA =** [C:\EXPORT.pdf, 31, 1, 1]

You could place these values in a text file, name it CRGEN.INI, copy it into the same folder as the CRGEN.EXE, and setup an icon with the command-line parameter that points to. For example, in our example above, we could schedule an event in the Scheduler that ran the following every day at noon :

C:\LWEXE2\EREPORT\CRGEN.EXE **C:\LWEXE2\EREPORT\CRGEN.INI**

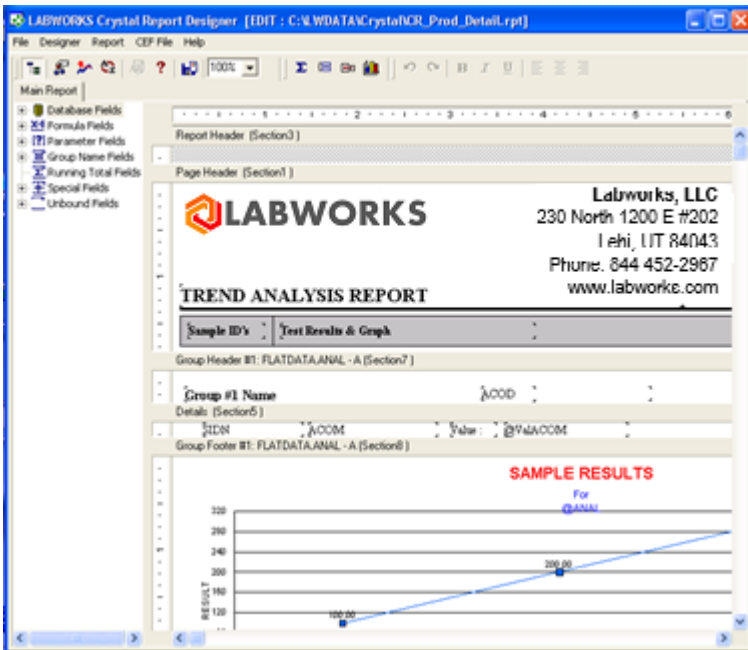
Notice the command-line parameter is bolded. Below are how each of the crucial CRGEN.INI settings are used...

1. **REPORT\_PATH** – Value this only if you want the system to print more than 1 report in the same folder
2. **REPORT\_FILE** – Value this when printing only 1 report each time this program is executed.
3. **XREF** – Value this with the name of the LABWORKS Cross Reference search routine to build the exported data. If you value this, you do not need to enter a DATABASE= value.
4. **DATABASE** – Value this only if the report is DIRECT-CONNECT (does not use exported data but has tables that link directly to the LABWORKS core database)
5. **PRINTER\_NAME** – Value this only if you want the report to be forced to use a specific report
6. **PRINT\_SWITCH** – Value this only if you want all reports going right to the printer and not displaying on the screen
7. **WINDOWS\_STATE** – Value this with a 2 to maximize the print preview window. Enter a 1 to keep the standard window.
8. **EXPORT\_DATA** – Value this to define to Crystal how to export the data (in what format and whether or not to EMAIL the report).

In the default values in the example above, the CR\_STANDARD report is fired off after a MYXREF cross reference search is done and data is exported, then a PDF file of the report is created and displayed to the screen. To fire off this report as a PDF email attachment, simply take the comment off the line above and change the email address or group. Then, you simply schedule this event to do auto-reporting!

### 3) Report Designer with CRGEN

**Note:** The CR\_STANDARD.RPT is a Crystal report. Any report you use must first be created using the LABWORKS Report Designer shown below...



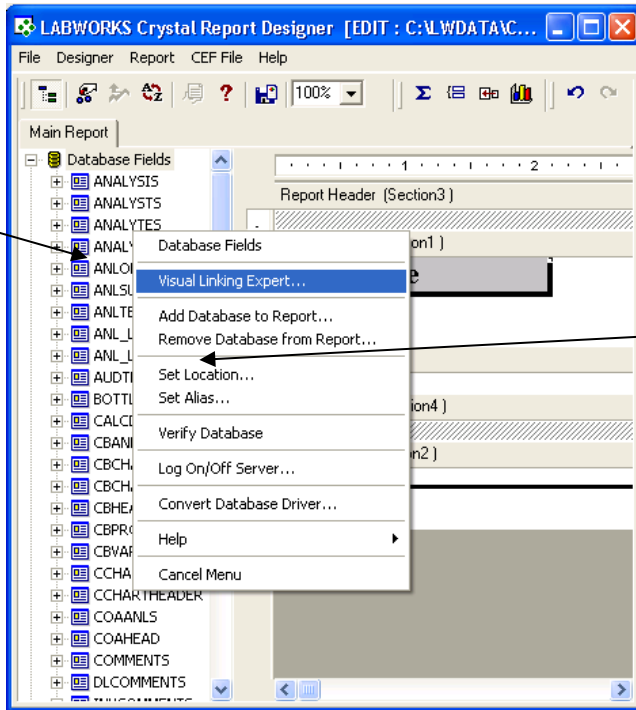
#### REPORT DESIGNER : Right-Clicking

In this report editor, nearly everything has a right-click menu. To change properties, attributes, or settings of nearly anything on a report, just right-click.

For example, right-click anywhere under the **Database Fields** to do a wide-range of database fine-tuning such as table linking or adding a new database or table (only useful in Direct Connect mode).

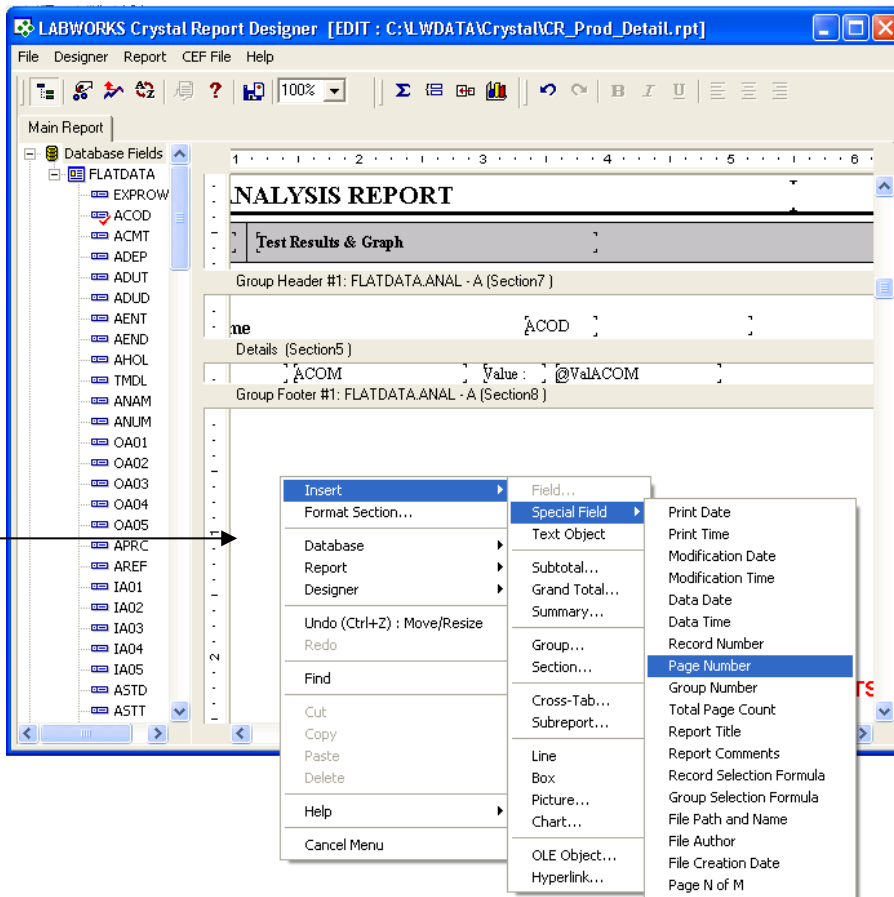
**NOTE:** You **MUST** configure your data source and build necessary record selection queries **INSIDE** your report if using Direct-Connect.





The Right-Click

The Right-Click database menu : Set Location is where



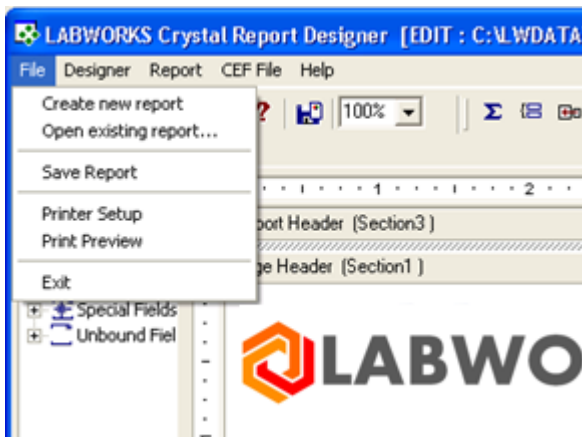
The Right-Click general menu gives you a wide

## Report Designer Basics:

### File Menu

The file menu gives you the following options.

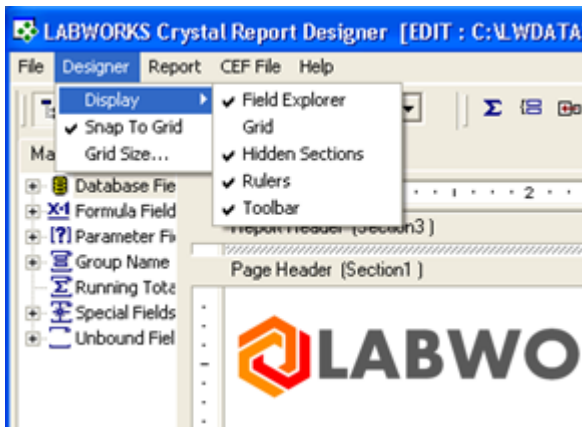
- **Create new report** – disregards the current report and opens a new blank one (Direct Connect only)
- **Open existing report** – disregards the current report and opens another
- **Save Report** - saves this report in one of the previous 2 versions (to support old systems) or currently installed version (if applicable) of Crystal Reports
- **Printer Setup** – Windows setup dialog box for your installed printers
- **Print Preview** – used to test your report (will run your report based on your exported test data pool or currently selected database)
- **Exit** – closes the LABWORKS Crystal Report Designer



### Designer Menu

The Designer menu gives you the following options.

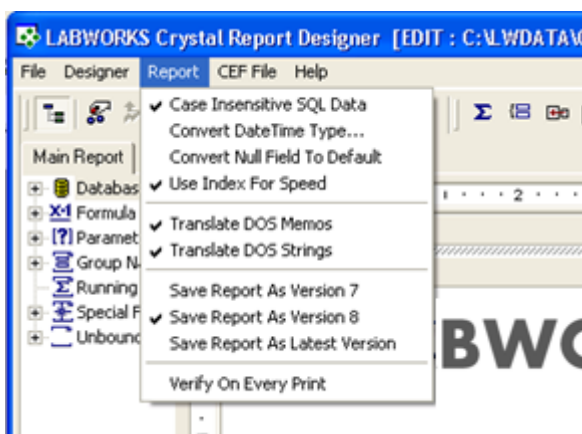
- **Display** – a sub-menu of various setting preferences (enables or disables specific screen features of the designer)
- **Snap To Grid** – will force all report fields to fit within a screen grid to facilitate object alignment (with this option checked it is easier to line up objects dropped into the report)
- **Grid Size** – allows you to set the length of the report grid cells in the report (smaller lengths make it MORE difficult to line up objects)



**Report Menu**

The Report menu has the following options.

- **Case Insensitive SQL Data** – data coming from a server-based source (Direct Connect only) will not look at case when this is checked (this is useful when using a record selection formula where case DOES matter)
- **Convert DateTime Type** – this function gives you the option to process incoming dates as string values or format them specific to a Date or Time standard
- **Convert Null Field to Default** – when checked, the system will treat nulls as blank spaces (otherwise their value is actually NULL)
- **Use Index For Speed** – this function will improve report rendering by creating an additional index in memory
- **Translate DOS Memos / Strings** – automatically translates old DOS text abbreviations for you at report creation
- **Save Report As ...** - this function allows the user to set what version of Crystal Reports the opened report is saved as (versions 7 & 8 are the latest versions that support new data reporting technology shipped in LABWORKS, the “latest version” option saves the version that is the latest version currently installed on your machine)
- **Verify On Every Print** – verifies that the database is current (and does a refresh if it is not) each time the report is printed (slows down performance at run time)



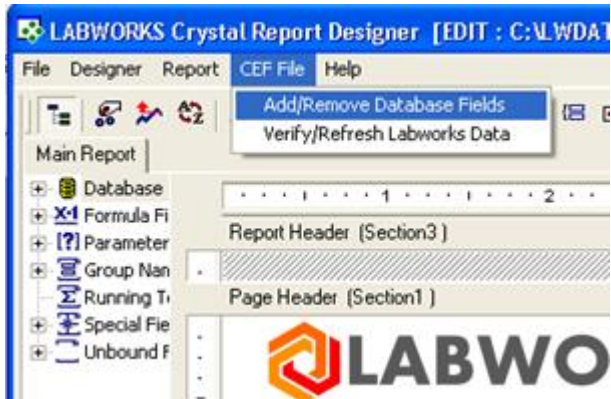
**CEF File Menu (Only for EXPORT reports)**

The CEF File menu is available for only export file reports (NOT direct connect) and has the following options.

- **Add/Remove Database Fields** – This function will launch the CEF editor screen again (see step #7 under **New / Edit Report : Using Exported Data**) and allow you to add or remove database fields to the currently opened report. After adding or remove fields, the CEF file is saved and the export MDB database file is recreated. The report will then refresh itself to reflect the new fields in the top left **Database** dropdown menu.

- **Verify/Refresh Labworks Data** – This function will refresh the database in case changes were made prior to reopening this report. Once this is done, the list of database fields under the top left **Database** menu will reflect the new changes.

**NOTE:** You can refresh the database at any time to reflect new changes whether the report uses direct connect or exported data. You do this by **RIGHT-CLICKING** on the top left **Database** menu and selecting **Verify Database**.

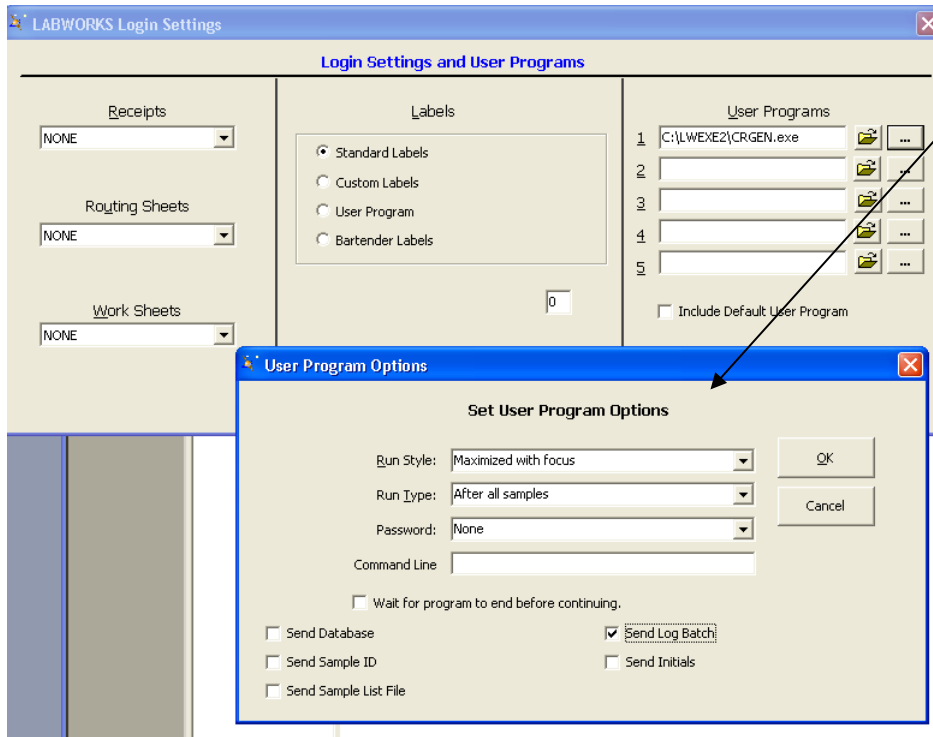


### Help Menu

Finally, the Help menu will give you information about the version of Labworks you're running as well as any error log viewing if problems occur.

#### 4) Using CRGEN as a POST-LOGIN Program

In order to setup CRGEN as a post-login user program, you first enter either multi-component or single-component login and enter the “Configure Login Settings” option under the “Config” menu.



Use the yellow open button next to the first available user program spot to search for the CRGEN.EXE program. It should be in the EXE path.

Use the ellipse button (“...”) to designate the user program options. Note that only the **Send Log Batch** option should be checked! Any other options could cause problems. Follow the screen shot above exactly and click OK to save the settings.

Finally, your CRGEN.INI file that defines report information (as described earlier in this document) should be in the **same folder** as the CRGEN.EXE program. You can open this INI file to designate the report to fire off at login, designate to export it to another format, email it, etc., etc. There are a number of options you can do with the report once it is rendered, and this is all defined within the INI file.