# MSC-LIMS™ *Insights*

The source for news and tips of interest to users of MSC-LIMS,
an affordable laboratory information management system for small labs.

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## Welcome

Welcome to **MSC-LIMS *Insights***.

This newsletter will help current MSC-LIMS users get the most out of their software, and will complement the product literature and demo that prospective users can find on our web site at www.msc-lims.com.

Join our mailing list for more information. Sign up at www.msc-lims.com/lims/maillist.html.

This newsletter is for and about MSC-LIMS users. We welcome your comments, and your suggestions for topics you would like to see addressed in upcoming issues. Please send your thoughts to newsletter@msc-lims.com.

## Using the Record Navigation Search Field

The record navigation search field is a little known but very useful feature in MSC-LIMS. Adjacent to the record navigation controls and highlighted in the screen excerpt below, use the Search field to find any data in the current screen.


The record navigation search field is particularly handy on any screen showing multiple records. Following are a few examples that demonstrate the utility of the search field.

Say you have hundreds of defined locations in your system and you need to quickly find all tank locations. Simply open the Locations setup screen and enter "tank" in the search field. The first record with "tank" in any screen field will be selected. With the cursor still in the search field press the Enter key to find the next record. Once the last record with "tank" is found the Enter key no longer has any affect. To resume the search from the top, select the first record then use the Enter key within the search field again.

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## In this Issue

## From the Developer

If you have been using MSC-LIMS for some time you are well aware that the data in your LIMS database has become a tremendously valuable asset. In addition to producing certificates of analysis, regulatory data, and other analytical reports, you also use the LIMS database to view trends, track workload, and answer customer questions about their samples. Data mined from your LIMS database can also answer questions such as:

How much testing did we do for XYZ Company last year?
How much testing did we send to our contract labs this year?
What is the average turnaround time for soil samples?
What was our technician work load last quarter?
How does our lab's business fluctuate by season?

Existing system reports, user-defined reports, and external queries using the MSC-LIMS Data Query Excel workbook (available in the File Library on our web site) are among the tools available to answer such questions. If you know that the data exists in your database to draw conclusions or generate useful information, chances are there is an easy way to gather and present that data. Take a look at the ReadMe worksheet in MSC-LIMS Data Query.xls for more examples.

Given how important the data in your MSC-LIMS database is to your business, be sure to periodically review your database backup procedures. Search for "backup" in the MSC-LIMS Insights archives for useful information. Remember, the MSC-LIMS software and login accounts can always be recreated in the event of a disaster. But your LIMS data can only be restored with a viable backup.

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## How to Move LimsData to a New Folder

Whether you have an MSC-LIMS multi-user installation or a single-user installation, there may come a time when your LimsData database must be moved to a new location. For example, with a single-user installation you may decide to move the database from your local hard drive to a server folder to take advantage of the server's automatic overnight backups. In a multi-user installation, you may need to move the database to a new server when an older server is retired. Whatever the reason for the change, simply follow these steps to move LimsData:

1. Determine the name (normally, LimsData4.mdb) and location of your LimsData database file. You can find the file listed at the lower left of the MSC-LIMS main menu. Alternatively, check the LimsData option on the System Info tab of the System Configuration screen for the file's name and location.

2. Copy your existing LimsData4.mdb and LimsUser4.mdw files from the current folder to the new location. If a Setup folder with the MSC-LIMS software installation files exists in the folder where your LimsData database currently resides, copy the Setup folder to the new location as well.

3. Move or rename your existing LimsData4.mdb and LimsUser4.mdw files to prevent their further use.

4. On each LIMS workstation, uninstall the MSC-LIMS software. Note that your Workstation Configuration screen settings, user login accounts, and your LimsData database remain intact after uninstalling MSC-LIMS. There is no need to uninstall the Microsoft Access 2010 Runtime. Now run application Setup.exe in the Setup folder to re-install MSC-LIMS and be sure to select the new

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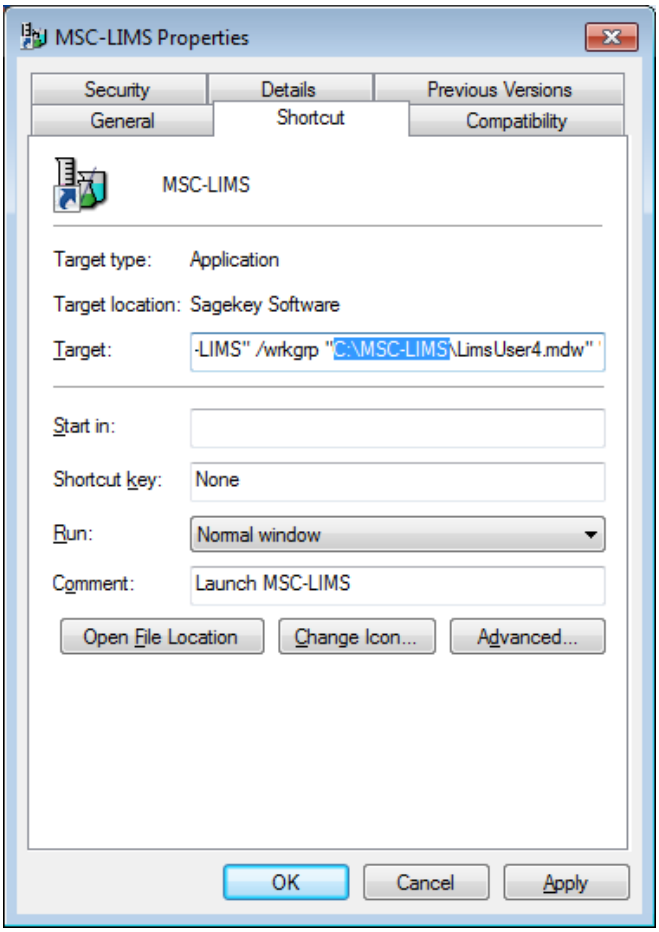
location for LimsData in the "Select the location for the MSC-LIMS database" screen.

5. Start MSC-LIMS on each workstation. Following the warning that LimsData could not be found in its previous location select your LimsData4.mdb file in its new location.

Although not a permanent solution, as an alternative to step 4 above, you can edit the location of file LimsUser4.mdw in the Target property of the MSC-LIMS shortcuts. However, please note that the shortcuts will be restored to their original state if you run Setup.exe again to update or repair your installation. For this reason we recommend uninstalling then re-installing MSC-LIMS and selecting the new LimsData location as described in step 4 above.

To edit the shortcut, right-click the MSC-LIMS shortcut on your Windows desktop and choose Properties from the popup menu. Find file LimsUser4.mdb in the shortcut's Target property then replace the file's current location with its new location. Repeat the edit for the MSC-LIMS and Version Update shortcuts on the All Program's MSC-LIMS menu.




## Creating Electronic Data Deliverables from a Report Template

MSC-LIMS includes two example electronic data deliverable (EDD) templates that you can copy and modify to create your own templates to supply electronic data. You will find the example EDD templates in folder C:\MSC-LIMS\Examples\Excel Export Templates on any LIMS workstation. The EDD example templates create data files with any sample characteristics, such as sample ID, location, and collected date, and the results of one or more analytes all on a single row. However, when you need to create electronic data with the results for each analyte on a separate row, you can easily modify an example report template to get the job done.

For example, let's assume you have a customer who wants their sample results delivered electronically with the following data compiled on each row:

Sample ID, Location, Collected Date, Analyte, Result, Units, Date, Method

The Final Report Example.xlt template displays the results for each analyte on a separate row one sample after another so it is a good template to modify. Below we will modify this template to create your EDD template.

Begin by making a copy of file Final Report Example.xlt and rename the new file My EDD.xlt. Copy the new file to your designated Excel export templates folder (see the Workstation Configuration screen for your folder) then right-click the new template file and choose Open.

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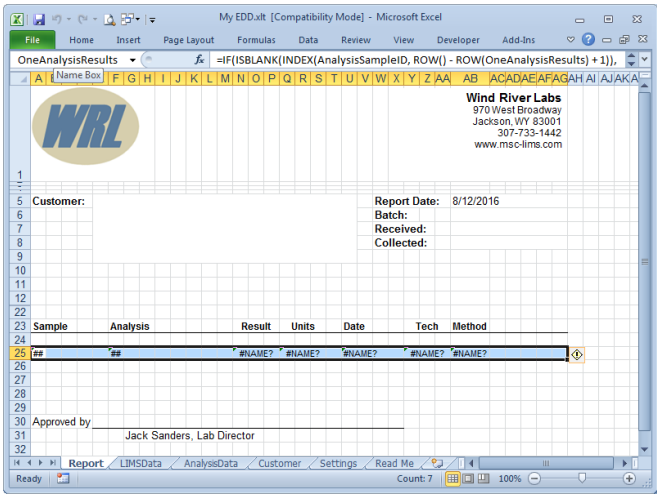
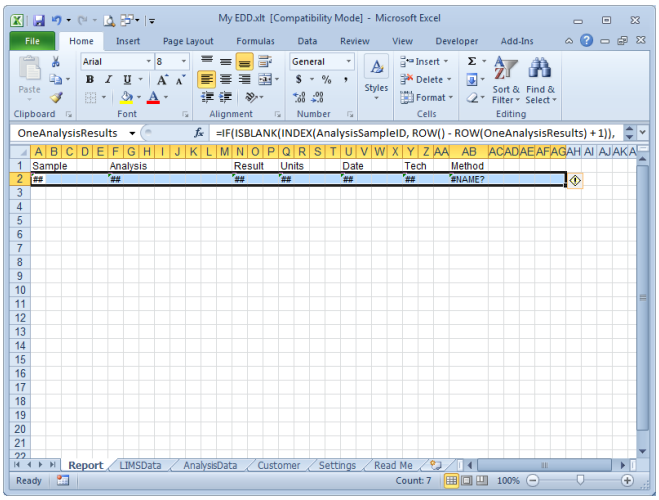
Like most MSC-LIMS example templates, this template's macro uses lookup formulas and named ranges to populate the Report worksheet with exported LIMS data. Select the OneAnalysisResults named range from the Name box to "see" the cells that comprise the named range. This template's macro inserts new rows below and copies the OneAnalysisResults named range once for each sample analysis on the report. For example, if you export three samples each with five analytes, the template's macro will insert 14 rows below and copy OneAnalysisResults 14 times resulting in a report with 15 rows of data. The screen below shows the OneAnalysisResults named range in the unmodified template.




Since the OneAnalysisResults named range must exist for the macro to work correctly, be sure not to delete its row. Delete all rows above the OneAnalysisResults named range except the row with column labels then delete all rows with data below the OneAnalysisResults named range. Delete the logo image, remove all formatting from the label row and unmerge any merged cells. Select the OneAnalysisResults named range to verify it is still present and your template should look like the screen below.




Next, adjust your column widths. The original report template uses narrow column widths to allow more flexibility in positioning data in the report's header rows. Increase the width of all columns on the Report worksheet.

Disable the Remove Infrastructure option on the Settings worksheet then save the template. Export a Sample Summary report to the template and you will see all the data available on the LIMSData and AnalysisData worksheets. The existing formulas in the OneAnalysisResults named range (our row 2 in the screen above) retrieve data from the AnalysisData worksheet, which is populated by the template's macro using data exported from the LIMS and by querying the LIMS for additional data. However, the AnalysisData sheet does not include the sample's characteristics (e.g. project, location, sample type, etc.) so we cannot simply copy and modify one of the existing formulas to list Location and Collected Date.

Since each sample characteristic field is available on the LIMSData worksheet, we can use the sample ID in column A to look up any sample characteristic. And since our template's macro creates named ranges for all the data on the LIMSData worksheet using the row one field names, we can use the LIMS field name in our formula. Close the test workbook and open your new template again.

Using the sample ID in cell A2, the formula `=MATCH(A2, SampleID, 0)` will find the row number where an exact match for the sample ID is found in the LIMSData worksheet's SampleID named range.

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With a sample's LIMSData worksheet row number we can retrieve the data in the same row for any other field on the LIMSData worksheet with the formula `=INDEX(field_name, row_number)`. Using the MATCH function within the INDEX function, add the following formula to cell B2 to list the sample's location:

```
=INDEX(Location.Name, MATCH(A2, SampleID, 0))
```

Add the following formula to cell C2 to list the sample's collected date:

```
=INDEX(CollectedDate, MATCH(A2, SampleID, 0))
```

The simple formulas above work well for required sample fields like location and collected date. However, when used with optional fields like received date, customer sample ID and description, this formula will list a zero if the sample field is blank. To suppress zeros for blank fields use the IF and ISBLANK functions:

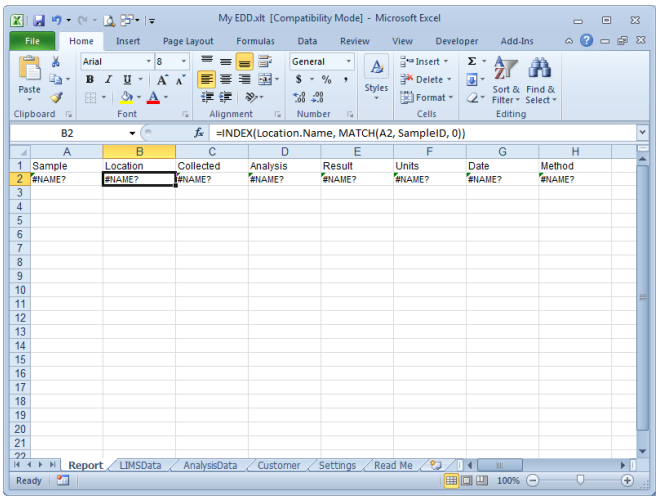
```
=IF(ISBLANK(expression), "", expression)
```

With this function if the result of "expression" is blank an empty string is displayed, otherwise the result of the expression is listed. Replacing "expression" in the above formula with our original formula (without the equal sign) results in the following formula you can use with any LIMS sample characteristic field:

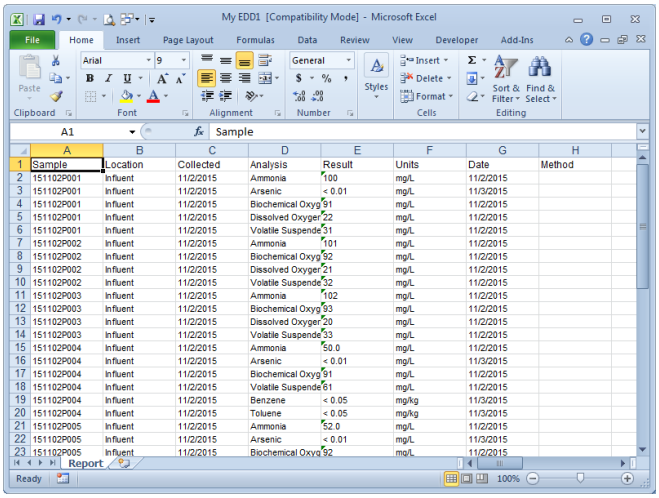
```
=IF(ISBLANK(INDEX(Location.Name, MATCH($A2,
SampleID, 0))), "",INDEX(Location.Name,
MATCH($A2, SampleID, 0)))
```

Simply replace the two occurrences of "Location.Name" with any valid LIMS field name from row one of the LIMSData worksheet to list data for the field. Also, note the absolute cell address $A2 in the above formula which will preserve the sample ID column letter if you copy the formula to another column.

Now add column labels in cells B1 and C1. Finish the template by moving the existing column labels and formulas for analysis, result, units, analysis date, and method to columns D though H, delete the unused label and formula for technician, then set a date format for columns C and G. The screen below shows our finished template.




Re-enable the Remove Infrastructure option on the Settings worksheet then close and save your template. Query and export a Sample Summary report to your new template and you will have a workbook of electronic data to deliver to your client. Save the resulting workbook as an Excel file or as a CSV file.




Modify one of the existing example EDD templates or create your own from an existing report template and give your customers electronic data in the format they need.

When you need to create electronic data with the results for each analyte on a separate row, you can easily modify an example report template to get that job done as well.

## Using the Record Navigation Search Field

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As another example, say a sample with dozens of analytes is open in the Results by Analyte screen. Use the search field adjacent to the analysis record selectors to quickly find a record. Search for a record with data in any of the analysis fields including analyte name, result type, result value, reported result, and technician.

The record navigation search field also works with MSC-LIMS' Add/Edit forms. Simply place the form in edit mode and click the View All option to enable searches for all records. For example, to find all analyses with three significant figure rounding, open the Analyses setup screen, click the Edit Data button and the View all button then enter "3 sig" in the search field to find the first, then press Enter to find the next. Note that a search in an Add/Edit form works across all fields on each tab of the form.

Experiment with the record navigation search field and you are sure to find your own uses for this handy feature.

# Notes from Technical Support

## Find Projects with a Specific Analyte

A user submitted this request:

*I would like to be able to generate reports that can tell me what projects have a specific analysis or projects that have an analysis with specifications within a certain range.*

Use the Analyses report on the Setup menu. In the 'Select Analyses to Print' setup screen, select a specific analyte, enable the 'Group by Project and Requirement' option then click Preview. That will show you all projects and requirements that have the analyte. To find specifications within a certain range, export the report's data to the generic MSC-LIMS Export Template where you can sort the data by individual specification field.

## Delete or Inactivate a Customer

A user asked:

*Is it possible to delete a customer out of LIMS? I see you can make them inactive.*

You can use Edit | Delete Record on most setup screens to delete a record including a customer. However, if you receive a message that "The record cannot be deleted because table ... includes related records" then the record can't be deleted because of the 'referential integrity' rules defined in the LimsData database.

For example, you cannot delete a customer if you have logged at least one sample for the customer. Deleting the customer would create an 'orphan' sample record. That is the purpose of the Inactive field on most setup screens. Inactivate the customer to prevent further use. You can still query samples for inactive items but you cannot log new samples for inactive records since they won't appear in the pick list.

## Query Unapproved Samples

A user recently asked:

*There must be a way to set up a query to search for samples where the only incomplete analyte is "Approved." (All the other analytes are complete.) How can I do this?*

First, select your "Approved" analyte on the Data Entry tab of the System Configuration screen. Now you can use the Unapproved option on the Additional tab of the query controls to query samples where the only incomplete analyte is the "Approved" analyte. Note that the "Approval analyte" pick list on the System Configuration screen shows only analytes requiring Admin privileges for results entry so make sure you've enabled that option on the Analyses setup screen.

If you do not want to require Admin privileges for approval, temporarily enable the "Admin privileges

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required for results entry" option for your approval analyte, select the analyte on the System Configuration screen, then disable the Admin privileges option. See "Sample Approval" in chapter four of the MSC-LIMS User's Guide for more information.

### Query Multiple Sample Batches

A user recently wrote:

*Is there a faster/easier way to query all the samples for [multiple batches]? First I tried to enter a SQL to select 2 sample batches:*

*(Sample.Batch = 50) AND (Sample.Batch = 51)*

*But it wouldn't work. Maybe my syntax is wrong.*

While the SQL expression above is syntactically correct, it is logically incorrect so the query did not find any samples. The expression attempts to find all samples where the sample's batch number is both 50 and 51. Since a sample can only have one batch number the query fails to find any samples. Simply changing "AND" in the expression to "OR" solves the problem by finding all samples where the sample's batch number is either 50 or 51.

However, for an easier method to query multiple sample batches, simply enter an expression directly in the Batch field on the Additional tab of the query controls. For example, to query samples with consecutive batch numbers use:

Between 50 and 51

To query samples for any number of batches, enter a comma-separated list of batch numbers with this expression:

In (50, 51, 55)

To view examples of other batch querying options, hover the mouse over the Batch field on the Additional tab of the query controls.

## For Customers Only

This section of *MSC-LIMS Insights* is devoted to current users of MSC-LIMS. Here we briefly introduce only the most recent additions to MSC-LIMS.com Customers Only pages. Use your login name and password to log on to the Customers Only section of our website.

### File Library

Excel Export Templates.zip
This zip file contains all example Excel export templates currently installed by MSC LIMS version 4.1. See each template's Read Me sheet for details.

## Contact Us

### Questions, comments, suggestions? Reach us at:

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