

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.

Issue No. 27

February 2017


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. 

How Large is your Database?

Excluding user login account names and passwords, your LimsData database is the repository for all data entered in MSC-LIMS. Each time you add new data to the LIMS, LimsData will increase in size. In standalone installations the size of LimsData is not normally a concern. However, in multi-user client/server installations where LimsData resides on a server and the MSC-LIMS software runs on each client workstation, the size of LimsData may affect system performance.

While there are many hardware and software factors that may affect multi-user system performance, large LimsData databases can contribute to slower performance. Most users will not notice any performance degradation until the LimsData database exceeds 200 MB in size. Take a look at the size of your LimsData database for comparison.

If you suspect LimsData's size may be affecting performance, you should first compact the database (see "Compact your Database Regularly" in this issue). To see how your network infrastructure is affecting performance, run and time several lengthy queries, reports, or Excel exports with LimsData on your server and repeat with a local copy (see "Troubleshoot Network Problems with a Local LimsData" in this issue). If there is a significant performance improvement when testing with a local copy of LimsData, consider using MSC-LIMS archiving to move your oldest samples to an archive database to reduce the size of your LimsData database. 

In this Issue

Welcome	1
How Large is your Database?	1
From the Developer	2
Troubleshoot Network Problems with a Local LimsData	2
Create a Tabular Report with an EDD Template	3
MSC-LIMS and SQL Server	5
Compact your Database Regularly	5
Notes from Technical Support	6
Adding or Deleting an Analysis from all Batch Samples	6
One-Time Customers	6
For Customers Only	7
File Library	7
Contact Us	7

From the Developer

For over twenty years users have successfully employed their MSC-LIMS systems with its native Microsoft Access back end database. However, given Microsoft's changes to the Access file format in recent years, notably the absence of user-level security, continued long term use of an Access database is no longer practical.

Therefore, I am pleased to announce that a SQL Server version of MSC-LIMS is now in the works. Although this significant upgrade for MSC-LIMS may be two years away, MSC-LIMS version 5.0 will use a SQL Server back end database in place of the Access MDB file used in all prior versions. See "MSC-LIMS and SQL Server" in this issue for more information.

As always, please let us know if you have any comments, questions, or concerns about MSC-LIMS or our long term plans. We always welcome your thoughts.



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Troubleshoot Network Problems with a Local LimsData

Occasionally, we receive technical support calls and emails from MSC-LIMS multi-user installations with various error messages or performance issues that suggest a problem with the user's network infrastructure. For example, "Not responding" may appear in the MSC-LIMS title bar or a "System resource exceeded" error may occur while running a query. Other errors that may occur suggest the LimsData database is randomly inaccessible. In a multi-user MSC-LIMS installation, these and other errors can occur if there are problems with the server where the LimsData database resides or with the connection between the LIMS workstation and the server.

If you suspect network issues may be the cause of slow query performance or other errors you can perform a simple test with a local copy of LimsData to determine whether the network is the culprit. Follow these steps at a LIMS workstation that exhibited the problem:

1. Determine the location of your LimsData database. You can find the name and location of LimsData listed at the bottom left of the MSC-LIMS main menu and on the System Info tab of the System Configuration screen on the Admin menu.

2. Exit the LIMS on all workstations then copy your LimsData database file from the server folder to folder C:\MSC-LIMS.
3. In folder C:\MSC-LIMS right-click the LimsData database file, choose Properties, enable the Read-only attribute then click OK. This will prevent any inadvertent data entry in the local LimsData database.
4. Start MSC-LIMS, use File | Open LIMS Database, select your LimsData file in folder C:\MSC-LIMS then click Open.
5. With the attached local LimsData database, repeat the query or other tasks that caused the performance problem or error.

If the problem no longer appears in step 5, you have isolated the issue to your network infrastructure and you should contact your IT support folks and demonstrate that the problem is network related. When you are finished testing, remember to use File | Open LIMS Database and select your server LimsData database. 

Create a Tabular Report with an EDD Template

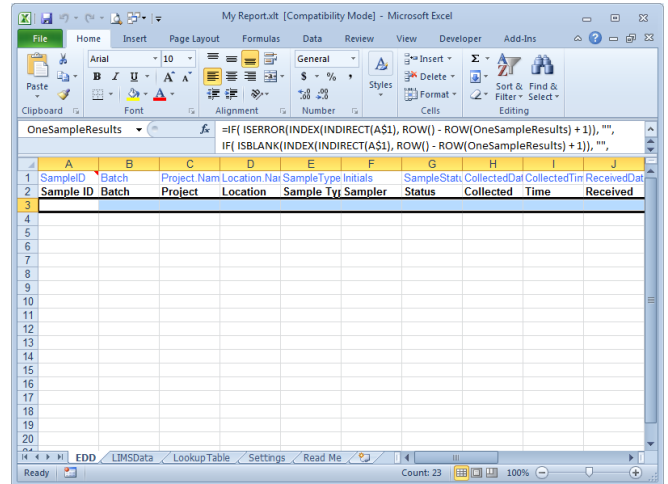
In "Create Electronic Data Deliverables from a Report Template" in [MSC-LIMS Insights Issue 26](#) we saw how to create electronic data by modifying an example Excel report template. Similarly, we can create a report from an electronic data deliverables (EDD) template.

Each of the example Excel multiple-sample final report templates installed with MSC-LIMS is a generic template which lists all the analytes for each sample exported to the template. If you need a multiple-sample report with only specific analytes and sample characteristics, with one sample per report row, you can use the Define Report option on the Samples menu to create a simple user-defined report (UDR). However, if you want complete control of the report's appearance, create the report from an EDD template.

For example, let's assume you need a simple tabular report with one sample per row listing a few specific analytes along with each sample's Sample ID, Location, and Collected Date. Begin by making a copy of file EDD Example - Specific Analytes.xlt located in folder C:\MSC-LIMS\Examples\Excel Export Templates and rename the new file My Report.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.

Like most MSC-LIMS example templates, this template's macro uses lookup formulas and named ranges to populate the EDD worksheet with exported LIMS data. Select the OneSampleResults named range from the Name box to "see" the cells that comprise the named range. This template's macro copies the OneSampleResults named range to rows below, one row for each sample exported to the template.

The formulas in the OneSampleResults named range retrieve sample characteristics and results for specific analytes using the LIMS field names and analyte names in row 1, so row 1 must remain intact but we will hide it later.



Most sample characteristic fields are included in the EDD template. Since we only need Sample ID, Location, and Collected Date for our report, delete all the remaining columns through the Conclusions column leaving the three example analyte columns.

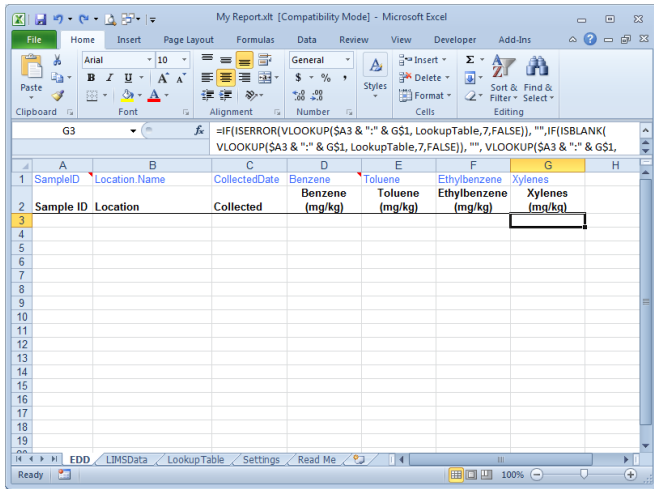
Beginning in column D, enter your exact LIMS analyte name in row 1 cells, an appropriate column label in row 2 and copy the formula from cell D3 to the row 3 cell for each analyte column. Note that analysis result columns do not have to follow sample characteristic columns. However, the row 3 formulas for sample characteristics and analysis results differ so make sure you copy the correct formula to your columns. See the row 1 cell comments for additional information.

Adjust column widths, row heights, and cell formatting as necessary. The screen below shows an example with four BTEX analytes.

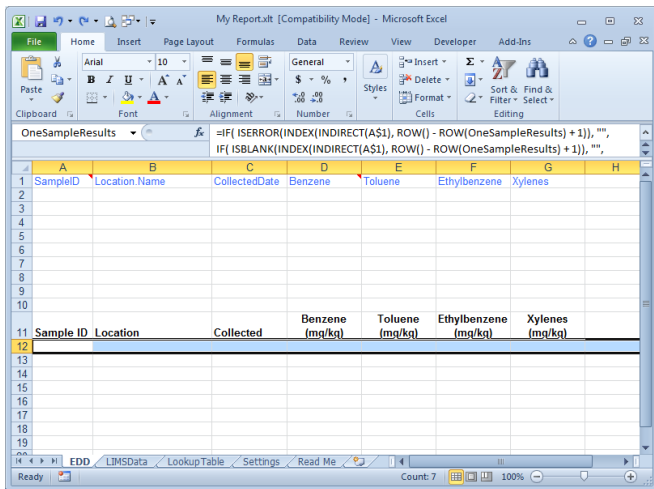
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MSC-LIMS™ Insights

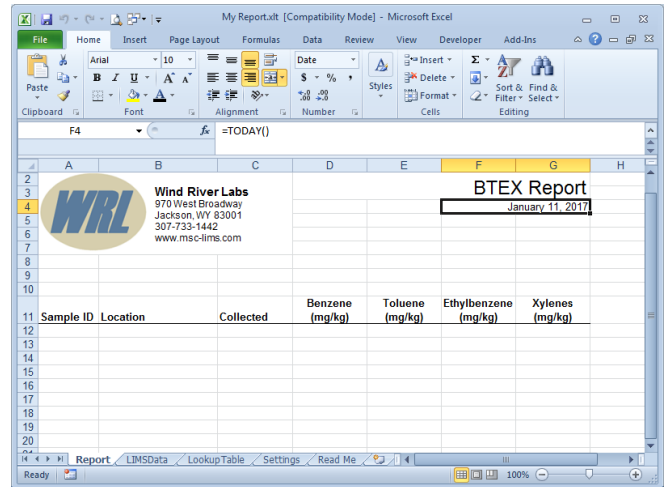
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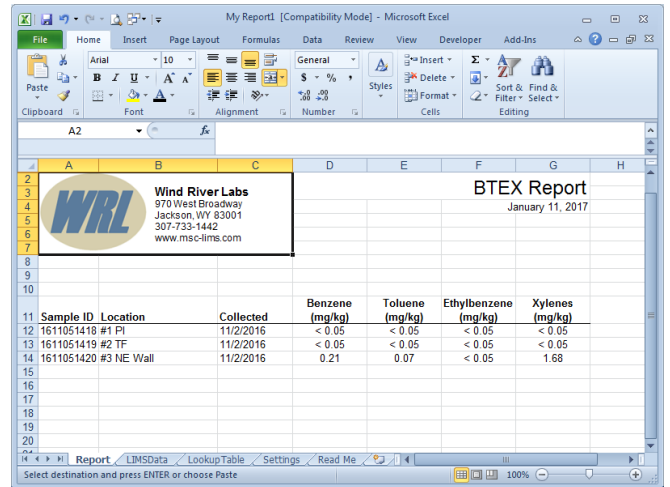
To add your own report header rows, select any row 2 cell then use Insert | Insert Sheet Rows from the Cells group on the Home tab (or use Alt+I,R). Note that by inserting rows, Excel properly adjusts formulas and the location of the OneSampleResults named range as shown in the screen below.




Add any report header text, images, formulas and formatting then hide row 1. Note that this template's macro does not insert rows as it copies the OneSampleResults named range, which means any cells with data below the OneSampleResults named range will likely be overwritten when exporting data to the template. To add a footer with page number or disclaimer text, use the Header & Footer option in the Text group on the Insert tab.



Since the template's macro does not reference the first worksheet by name, you can rename the sheet as we have done here. Save and close your template then test by exporting a multiple-sample Sample Summary report to the template.



When you need a simple tabular style report with data for each sample on a single row, create your own Excel template from an EDD template and design the report appearance you prefer. 

MSC-LIMS and SQL Server

While a version of MSC-LIMS that uses a SQL Server back end database is more than a year or two away, that is the direction we are now headed with MSC-LIMS.

Why SQL Server?

For a number of years Microsoft has recommended moving larger mission-critical Access databases to SQL Server for better reliability, scalability, and security. In fact, the user-level security feature, which MSC-LIMS currently uses to implement login accounts and security roles, has been removed from newer Access file formats beginning with Access 2007. MSC-LIMS continues to use the older Access 2002-2003 MDB file format to maintain user-level security. In the absence of new Access security features a more capable database is required and SQL Server is an appropriate solution.


SQL Server also offers improved reliability and recovery options. Database corruption that can occur with an Access database in multi-user environments is

no longer an issue with SQL Server. And SQL Server is a more scalable database capable of handling more concurrent users with larger databases without the performance degradation inherent with large Access databases.

What will happen to existing MSC-LIMS data?

When a new SQL Server version of MSC-LIMS is eventually released, the installation and update process will include utilities and data migration tools to move all existing MSC-LIMS data from the Access database to SQL Server with no data loss.

Do current or new MSC-LIMS users have to purchase SQL Server?


No. Microsoft offers a free SQL Server Express edition. Sites that do not already have a server running SQL Server can download and install SQL Server Express. If you have a single-user version of MSC-LIMS, you will be able to install and run SQL Server Express on the same LIMS workstation. 

Compact your Database Regularly

The overall size of your LimsData database (see "How Large is your Database?" in this issue) and the rate at which the database grows can affect system performance. Compacting your database will reduce the size of the LimsData file and will improve system performance.

We recommend you compact LimsData at least once a month but preferably once a week. In addition to minimizing the size of the LimsData database, compacting also rewrites the database's tables in

primary key order, recreates indexes, and updates database statistics, all of which contribute to improved system performance.

Use the Compact LimsData option on the Admin menu in MSC-LIMS and follow the prompts to compact the database. Note that you need exclusive control of LimsData to compact. Use the View Current Users option on the Admin menu to ensure no others are logged on to the LIMS before compacting. 

Notes from Technical Support

Adding or Deleting an Analysis from all Batch Samples


A user recently called with a simple question. After forgetting to delete an analysis from the first sample in the Batch Login screen then copying the sample 19 times to create a 20-sample batch, he wanted to know if there was a way to delete the unwanted analysis without manually deleting from all 20 samples.

To add or delete one or more analyses from all samples in the Batch Login screen, use the **Add...** or **Delete...** button above the list of analyses in any batch sample. Use the often overlooked "Add to all batch samples" or "Delete from all batch samples" option to add or delete the selected analyses from all batch samples.

Analyte	Units	Samples
Ammonia	mg/L	1
BOD5	mg/L	1
Total Suspended Solids	mg/L	1
Volatile Suspended Solids	mg/L	1

Delete from all batch samples

Analysis Notes:

Similarly, use the **Add...** or **Delete...** button in Edit Mode in the single Sample Login screen to add or delete analyses from all queried samples. In this case, enable the "Add to all queried samples" or "Delete from all queried samples" check box to add or delete the selected analyses to all queried samples. 

One-Time Customers

A user recently asked:

We conduct business with homeowners who want to test their well water. Do we need to add each individual homeowner as a customer even though they may never return to submit another sample?

Consider using a generic customer in this case, as demonstrated below:

1. Add a new customer with only a name such as "One-Time".

2. When you log a sample use the "One-Time" customer but enter the customer's name and address or whatever you want to display on your final report in either the sample's Description or Notes field. If either field will work for you, choose Description (max. 255 characters) because searches by Description are faster than searches by the Notes field. If you log a multiple-sample batch, you only need to populate Description/Notes for the first sample in the batch.

3. Update your Excel final report template to use the Description/Notes field instead of the customer's name and address. For example, in any template derived from one of the MSC-LIMS final report example templates change the formula =CustomerMailingLabel in the merged customer information cell on the Report sheet to:

```
=IF(INDEX(Customer.Name,1) = "One-Time",  
INDEX(Description,1),  
CustomerMailingLabel)
```

With this formula, if the first report sample's customer is "One-Time" the sample's Description is listed, otherwise the CustomerMailingLabel named range from the Customer worksheet is listed. Change "One-Time" in the above formula to your chosen generic customer name and replace Description with Notes if you use the Notes field.

Note that you can use wildcard pattern matching in the Description and Notes fields on the Additional tab of the query controls to find samples for specific one-time customers. For example, if you entered the following in the sample's Description field at login:

Jane Doe
123 Main St.
Portland, ME


You can find the sample by entering "*Jane Doe*" or "*123 Main*" (without the quotes) in the Description query field.

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MSC-LIMS™ *Insights*

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A tradeoff to using the generic customer is that you will not be able to automatically send these one-time customers a final report with MSC-LIMS Messaging.


But you could still automate the creation of the reports by emailing results for the "One-Time" customer to yourself then manually forwarding the email to the customer. 

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.

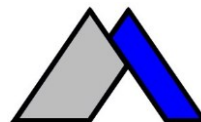
File Library

[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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