

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. 24

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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. 

Create Excel Templates by Copying Other Templates

Unless you are proficient with Visual Basic for Applications (VBA) macros in Excel you should only create new Excel templates used with MSC-LIMS by copying an existing template file. All Excel templates used with MSC-LIMS must be in Excel 97-2003 format with an XLT file extension. Currently, MSC-LIMS does not support Excel's newer XLTM macro-enabled template format.

It is problematic to export a LIMS report to a template, make a few changes to the resulting workbook, then save the new workbook as a template. While tempting, a template created in this manner will trigger any number of errors and unexpected results the next time it is used. To understand why you should avoid this scenario, consider the tasks performed by the template's macros.

All Excel templates used with MSC-LIMS include an AfterTransferFromLIMS macro, which is invoked after Excel creates a new workbook from the template and the LIMS transfers data to the new workbook. Among other tasks, the AfterTransferFromLIMS macro in most of the example templates supplied with MSC-LIMS will create named ranges for the data transferred from the LIMS to the workbook's LIMSDATA worksheet, which allows formulas to refer to LIMS data by

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From the Developer

Earlier this year we marked the 20th anniversary of MSC-LIMS. It is fascinating to review how far both MSC-LIMS and computer technology have evolved since that very first version was installed in April 1995. In those 20 years, nearly 150 labs around the world have implemented MSC-LIMS. Some of the users who began with an MSC-LIMS 1.x version in the latter half of the 1990s are still using MSC-LIMS today. See "MSC-LIMS 20 Years Ago" for a look at the past.

MSC-LIMS' integrated Excel interface remains one of its most popular and important features. The capabilities of the Excel interface have been enhanced many times since it was first introduced in MSC-LIMS version 2.0 in 1999. I often get a glimpse of the reports our users have created with Excel templates and I am impressed by their professional appearance, ingenuity, and their use of images and graphs. While multi-page final reports with cover pages, table of contents, narratives, summaries, analytical results, and QC data have always been possible with Excel templates, multi-page PDF files created from such templates can be emailed automatically with MSC-LIMS Messaging beginning with upcoming version 4.1. See "What's Coming in Version 4.1" for a brief overview.

We could not have survived for 20 years in the LIMS business and MSC-LIMS would not be the product it is today if not for the comments and suggestions of our software's users. I remain grateful for your contributions.



Rick Collard is the founder of Mountain States Consulting, LLC and the principal developer of the MSC-LIMS software. You can reach Rick by email at rcollard@msc-lims.com.

What's Coming in Version 4.1

We expect to release MSC-LIMS version 4.1 during the fourth quarter this year. As always, all annual subscription licensees and all full system licensees with current annual maintenance will automatically receive the update. Below are a few of the new features expected in version 4.1:

- ✓ Analysis specifications (i.e. result and warning minimum and maximum) on the Analyses, Projects, and Requirements setup screens will include a new Report Specifications text field to enter acceptable results, limits, and ranges for final reports.
- ✓ When multiple samples are queried in edit mode in the Sample Login screen, clicking the [Results] button will open the Results by Sample screen with all queried samples. This allows quicker access to all sample results and to a sample summary report.
- ✓ When exporting to Excel, the maximum number of characters transferred for Notes and Conclusions fields will be configurable to allow more than the current 512-character limit available in newer versions of Excel.
- ✓ New Excel final report templates will include options with QC data and templates with each sample on a separate worksheet or page.
- ✓ MSC-LIMS Messaging will support new customer project messaging configuration, which will allow different message styles and recipients for a customer by LIMS project. This feature eliminates the need to create customer-specific projects just for messaging.
- ✓ MSC-LIMS Messaging will be able to create PDF files from multiple-worksheet Excel workbooks where each worksheet begins on a new PDF page.
- ✓ MSC-LIMS Messaging will include a new "Save workbooks in Excel 97-2003 format" option to overcome Excel's unreadable content errors in xlsx workbooks containing images or shapes. 

Using Customer Sample Login Options

In a busy lab processing a large volume of samples for many customers, LIMS sample login can be time consuming. Any technique to reduce the time required for sample login is helpful. Consider using customer-specific sample login options to speed sample login.

Use the Sample Login tab of the Customers setup screen to define sample login parameters frequently used for a specific customer. The following simple example will help demonstrate the benefits.

Assume our lab has just acquired a new customer that will be submitting water samples for a new river study they are conducting. The client will collect samples at five different locations along the river and, of course, they will want to see the river location on any final report we supply with their results. We add the five new river locations to the existing list of sampling locations using the Locations setup screen.

Since the Locations screen already has many hundreds of locations, the Locations pick list in the sample login screens may seem unwieldy. We can help the folks logging samples for our new customer by adding the five river locations to the customer's sample login options and enabling the "Automatically display these options during sample login" setting as shown in the screen below.

Project	Location	Sample Type	Sampler	Description	PO	Login Batch
	Hoback River at Camp Creel					
	Hoback River at Forest Boun					
	Hoback River at Hwy 189 Bri					
	Hoback River at Jack Creek					
	Hoback River at Kozy Camp					

Now if we first select the customer in either of the sample login screens, we are automatically presented a list of this customer's options. In this example, instead of navigating the lengthy Location pick list, we can

select from the customer's five river locations in the popup screen.

Project	Location	Sample Type	Sampler	Description	PO
	Hoback River at Camp Creel				
	Hoback River at Forest Boun				
	Hoback River at Hwy 189 Bri				
	Hoback River at Jack Creek				
	Hoback River at Kozy Camp				

The above example demonstrates a simple way to eliminate use of the Locations pick list at sample login for our new customer. In practice, you can further speed sample login by defining combinations of sample characteristics frequently used for a customer.

Returning to our example, assume we will be performing either microbiological analyses or a combination of microbiological and metals analyses for our customer's river water samples. In this case we can further refine the customer's sample login options by including project, sample type, and sampler along with location. Sample login is even simpler with these options presented for our customer's samples as shown below. Just double-click on any row or single-click and select the OK button to automatically insert the row's values into the sample login screen and close the popup.

Project	Location	Sample Type	Sampler	Description	PO
Micro	Hoback River at Camp Creel	Grab	CS		
Micro	Hoback River at Forest Boun	Grab	CS		
Micro	Hoback River at Hwy 189 Bri	Grab	CS		
Micro	Hoback River at Jack Creek	Grab	CS		
Micro	Hoback River at Kozy Camp	Grab	CS		
Micro and Metals	Hoback River at Camp Creel	24-Hr. Composite	CS		
Micro and Metals	Hoback River at Forest Boun	24-Hr. Composite	CS		
Micro and Metals	Hoback River at Hwy 189 Bri	24-Hr. Composite	CS		
Micro and Metals	Hoback River at Jack Creek	24-Hr. Composite	CS		
Micro and Metals	Hoback River at Kozy Camp	24-Hr. Composite	CS		

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Use any combination of the sample characteristics available on the Sample Login tab of the Customers setup screen to define frequently used parameters for

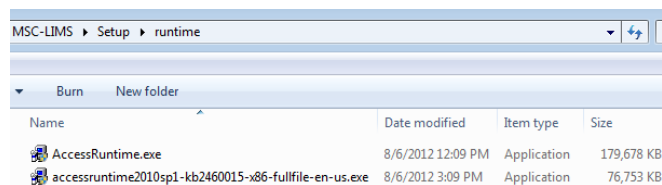
your customer's samples. If applicable, you can also define frequently used customer login batches during batch sample login. Put this handy feature to work in your lab and streamline sample login. 

Verify Your Version 4.0 Setup Folder

All MSC-LIMS version 4.0 installations should maintain a current Setup folder, which contains all files required to install MSC-LIMS on a workstation. Maintaining a proper Setup folder allows easy installation repair, installation on new workstations, and simple subscription updates for Annual Subscription licensees.

In a default single-workstation installation, the Setup folder will be found within folder C:\MSC-LIMS. In a multi-user installation, the Setup folder is normally found within the server folder where your LimsData4.mdb database resides. See the bottom of the MSC-LIMS main menu for the location of your LimsData4 database. Note that the Setup folder may be moved at any time.

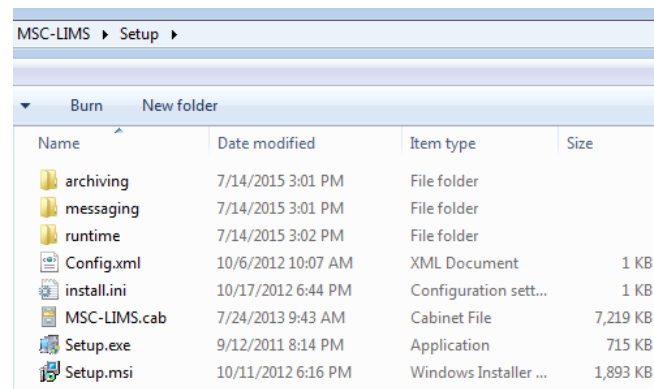
The email provided with your initial MSC-LIMS order included installation instructions and links for two download files. You will also find installation instructions in the Release Notes (Start | All Programs | MSC-LIMS | Release Notes). The first download file MSC-LIMS-400-Access2010Runtime.exe is a 250 MB file containing the Microsoft Access 2010 Runtime files used by the MSC-LIMS installation software. Following the installation instructions, this file must be run first which will create the "runtime" folder within the Setup folder. The executable files within the runtime folder should not be run manually. The image below shows the contents of the runtime folder within the Setup folder.



MSC-LIMS > Setup > runtime			
▼ Burn New folder			
Name	Date modified	Item type	Size
 AccessRuntime.exe	8/6/2012 12:09 PM	Application	179,678 KB
 accessruntime2010sp1-kb2460015-x86-fullfile-en-us.exe	8/6/2012 3:09 PM	Application	76,753 KB

The second download file with a name in the form MSC-LIMS-400-AAANNN-YYYY-MM-DD.exe is a 15 MB file with the remaining files required for your

MSC-LIMS installation. This file, which will add all remaining files in the Setup folder, will launch the MSC-LIMS installation software and should only be run after file MSC-LIMS-400-Access2010Runtime.exe has created the runtime folder. Below is a list of the files and folders that must exist in your Setup folder.



MSC-LIMS > Setup >			
▼ Burn New folder			
Name	Date modified	Item type	Size
 archiving	7/14/2015 3:01 PM	File folder	
 messaging	7/14/2015 3:01 PM	File folder	
 runtime	7/14/2015 3:02 PM	File folder	
 Config.xml	10/6/2012 10:07 AM	XML Document	1 KB
 install.ini	10/17/2012 6:44 PM	Configuration sett...	1 KB
 MSC-LIMS.cab	7/24/2013 9:43 AM	Cabinet File	7,219 KB
 Setup.exe	9/12/2011 8:14 PM	Application	715 KB
 Setup.msi	10/11/2012 6:16 PM	Windows Installer ...	1,893 KB

With the Setup folder and its runtime folder intact, running the application file Setup.exe in the Setup folder will update an existing MSC-LIMS installation or install the software on a new workstation. Similarly, running file Setup.exe in the archiving and messaging folders will install MSC-LIMS Archiving and MSC-LIMS Messaging, respectively.

In the Setup folder, file MSC-LIMS.cab is an archive containing the files required by the MSC-LIMS installation software. For annual subscription licensees, MSC-LIMS.cab includes your current subscription expiration date. To perform a subscription update you need only extract file MSC-LIMS.cab from the downloaded zip file, copy the file to the Setup folder replacing the existing file, then run Setup.exe in the Setup folder from each workstation to update the installation.

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Full System licensees should keep a current copy of their LimsCode4.mde file in the Setup folder and use the options on the LimsCode tab of the System Configuration screen in MSC-LIMS to ensure all

workstations are using the current version of the software.

Verify the location and ensure the contents of your MSC-LIMS Setup folder are correct and you will find installation repairs, new installations, and subscription updates simple, quick and painless. ▲

Using the Logo Size Setting

If you supplied your company logo when you ordered MSC-LIMS, your logo should appear on the main menu. The presence and appearance of your logo on all system reports is managed by an option on the System Configuration screen.

Use the logo size setting on the Reports tab of the System Configuration screen to control the appearance of your logo. While there is very little space reserved for your logo on all MSC-LIMS system reports, selecting the proper logo size setting will affect the appearance of your logo. Following is an overview and examples of the four available options.



Off. Use this setting to disable the logo on all system reports.



Clip. This setting displays the logo at its actual size, which will clip the image if it is larger than the space allocated for the logo.



Stretch. This setting will resize the logo so that it fills the available logo space. Depending on your logo's size and shape, this setting may distort the image.

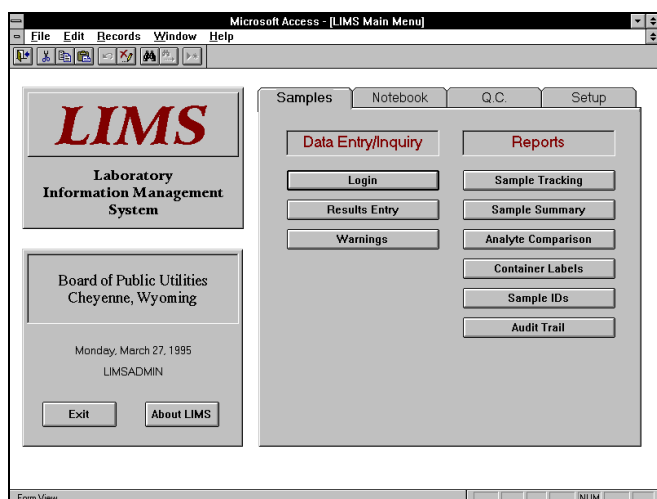
Zoom. This setting will display the logo in its entirety without distorting the image after resizing to fit either the height or width of the available logo space. ▲

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MSC-LIMS 20 Years Ago

Since this year marked the 20th anniversary of MSC-LIMS it is natural to reminisce about where it all began. The very first version of MSC-LIMS was installed on a single PC in April 1995 at the City of Cheyenne, Wyoming's water and wastewater lab. The PC was a 486 system running the 16-bit Windows 3.1 operating system. You can read more about MSC-LIMS' origins in a 1996 Water Online article titled ["A Small Lab Develops A Laboratory Information Management System"](#).

Admittedly, MSC-LIMS version 1.0 was very basic and as you can see in some of the screen images below, we had not even settled on a product name. The software's official moniker would not arrive until later in the year. The image below shows the appearance of the MSC-LIMS version 1.0 main menu.



Pictured below are the version 1.0 sample login and results entry screens. It would be several years before batch sample login and results entry by analyte were added.

Analysis	Requirement	Expires	Preservative	Container Type	Sample Amount	Inhouse
Chlorine	Wastewater	4/2/95	None	Glass	500	☒
Lead	Wastewater	4/26/95	None	Plastic	100	☒
Mercury	Wastewater	4/26/95	None	Plastic	100	☐
pH		4/10/95	None	Plastic	100	☒
Phosphorus		3/29/95	None	Glass	100	☒

Warn	Analysis	Date	Time	Result	Units	MDL	Expires	Inhouse	Outside Laboratory
	Chlorine	3/15/95	5:35 PM	25	mg/L	1	3/20/95	☒	☐
	pH	3/14/95	2:15 PM	7.5	units	0.01	3/28/95	☒	☐

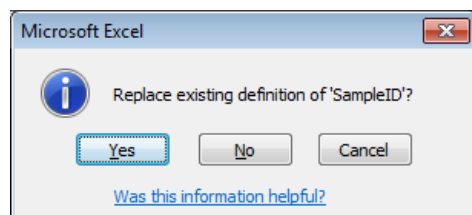
The overwhelming success of this first MSC-LIMS implementation and the lack of competitive PC-based LIMS products at the time justified continued development. We devoted much of the following year to commercializing the software and MSC-LIMS was offered to other labs beginning in 1996.

Computer technology has evolved considerably in the 20 years since our first installation and MSC-LIMS has kept pace. Thanks to the comments and suggestions from its many users in labs throughout the world, MSC-LIMS has evolved into the stable and capable system it is today. We remain grateful to all our valued customers. 

Create Excel Templates by Copying Other Templates

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name rather than by cell address. For example, the formula `=INDEX(SampleID,1)` will display the sample ID for the first sample exported. A cell with this formula will correctly show a `#NAME?` error in the template because the SampleID name does not exist until you export to the template and the new workbook's AfterTransferFromLIMS macro creates the names. Saving a workbook containing all of the named ranges as a template appears innocuous until you export to the template and the new workbook's macro attempts to create named ranges for names that already exist, which results in a litany of errors or warnings such as the one in the screen below.



The presence of existing LIMS data is another problem with saving a workbook created by exporting to a template as a template itself. For simplicity, our example templates' macros assume the template is free of existing LIMS data which eliminates the need to perform any housekeeping tasks such as deleting old data or names. For example, if you export ten samples to a template, save the resulting workbook as a template, then export five samples to the new template, the template's macro will still see ten samples since only the first five samples were overwritten with new data. In this case, the results are certainly not what were expected.

For these reasons at a minimum, you can see why all templates should be devoid of existing LIMS data and the named ranges created from that data. Understand the difference between a template and a workbook created by exporting LIMS data to the template and you will avoid this common error. 

Notes from Technical Support

Who Deleted Samples and When

A user recently asked:

Is there a way in LIMS to see when samples are deleted? There's a batch of five that was deleted but we're not sure when or who deleted it.

You can use the Audit Trail report on the Samples menu to see who deleted the samples and the date and time deleted. In the Audit Trail Setup dialog, specify a date range that encompasses the suspected date the samples were deleted then select "Sample Deleted" for the audit type. Query then preview the report and you will find who deleted the samples and the date, time, and reason they were deleted. 

Results by Analyte Display Column

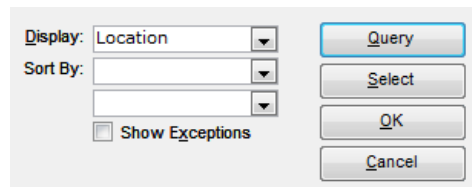
Recently, a lab manager asked why some of her LIMS workstations showed the sample ID and collected date on the Results by Analyte screen while other workstations showed sample ID and location. The answer lies in the use of the Display field on the Results by Analyte Setup screen.

The second column of the Results by Analyte screen, immediately to the right of the fixed sample ID column, will display the collected date if no other field is selected on the Results by Analyte Setup screen. When the setup screen's Display field is set to another sample field, that field will be displayed instead of collected date. The Display field offers a user-configurable option to distinguish samples on the Results by Analyte screen and is an alternative to the screen's "Show Sample" mode.

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The screenshot shows a configuration window with a 'Display' dropdown menu set to 'Location'. Below it is a 'Sort By' dropdown menu. To the right of these fields are four buttons: 'Query', 'Select', 'OK', and 'Cancel'. There is also a checkbox labeled 'Show Exceptions'.

The Display field's selection is saved with the workstation's other MSC-LIMS settings so that it is preserved for future LIMS sessions. While some users may change the Display field frequently for different sample groups, most select just once the sample field that best distinguishes samples. Once set, it is easy to forget the purpose of the Display field. If you want the Results by Analyte screen uniform on all LIMS workstations, ensure that the Display field is configured properly on each workstation. 

Error with a Period in Messaging Attachment File Name

One user recently noticed that their Excel-based final reports automatically emailed by MSC-LIMS Messaging were failing for just one of their new customers with the error "Could not send with MsgExcel ...". Checking the designated folder where Messaging creates files before attaching to emails showed the expected file names for the customer's reports. However, unlike all other files in the folder, this customer's files had no extension (e.g. xlsx, pdf, etc.).

The user had entered the following expression for the attachment file names on the Messaging tab of the System Configuration screen:

```
Customer.Name & " " & Batch &  
Format(Now(), "-yymmddhhmm")
```

Seeing no problem with this expression, we attempted to duplicate the error in Messaging. Assuming a customer name of "Wind River Labs Inc." and a batch number of 987, the expression above yields the following example file name, which triggered the error:

Wind River Labs Inc. 987-1507130845

You can manually create an Excel file with the above name, so what's the problem? When creating a report with an Excel template, Messaging programmatically tells Excel to save the workbook with the file name resulting from the expression and lets Excel apply the proper file extension (e.g. xls, xlsx, etc.). In this case, we learned that when the file name already includes a period (.), regardless of where the period occurs in the file name, Excel omits the file extension.

Since the culprit period originates in the customer name, we solved the problem with an updated attachments file name expression that strips any periods in the customer name:

```
Replace(Customer.Name, ".", "") & " " &  
Batch & Format(Now(), "-yymmddhhmm") 
```

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.

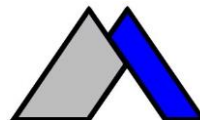
File Library

[Final Report Example with QC.xlt](#)

Create your own custom final reports with QC data by copying and modifying this new example template. See the template's Read Me worksheet for details. 

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