



Leica Application Suite
Release Notes V3.3.0



Leica Application Suite

Release Notes V3.3.0

Abstract

This document describes the V3.3.0 release of the Leica Application Suite. You should read this document before installing your copy of this software. This document also acts as a supplement to the User Guide.

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1 Introduction

This document describes the release of the Leica Application Suite (LAS). You should read this document before installing your copy. LAS is supplied on a single DVD.

If you have just received a new Leica computer system, the software will have already been installed and configured and you should ignore the sections on Installation and Configuration, but please take the time to read the remaining sections.

2 Reason for this Release - Version V3.3.0

The reasons for this release are:

- The introduction of LAS Image Explorer (Folders) for image acquisition and browsing in LAS Core. Compatible with all LAS Modules.
- The introduction of a new archiving capability based on Windows Folders. The 2 optional modules are LAS Archive Basic and LAS Archive Standard. Further details are given below. Compatible with all LAS Modules.
- Removal of previous SQL based archiving that is replaced by LAS Folder Archive Basic and LAS Folder Archive Standard.
- Introduction of LAS Image Analysis module for the thresholding and automatic measurement of images. Further details are given below.
- Update to LAS Steel Expert

LAS Image Acquisition and Management

LAS operates in 2 distinct modes depending how the user wishes to manage the acquired images. These are known as

LAS Image Explorer

And

LAS Folder Archive

LAS Image Explorer is used when images are stored to the hard drive in an informal manner. The user can save the images anywhere on the hard drive in any folder and organizes the images as convenient. While this method has the benefit of simplicity, there is a chance that over time the images will become harder to find.

LAS Folder Archives are used where a more disciplined approach to the organization of data is demanded. This might occur where it is mandatory to save additional user defined fields with the images or where several users need to add data to images in a systematic manner. This also means that images are saved in locations where other users will be able to find them. In this case it is an advantage to restrict the locations that the images are saved. We call these 'Folder Archives' because the images are still saved to the Windows file system but only in predefined locations.

LAS is designed to be used on a single PC and does not provide multi-user network access. Data and images can be saved to any mapped network drive where the performance will depend on the bandwidth available.

The image management capabilities of LAS are expressed by different optional Editions with increasing capability, namely LAS Core, LAS Basic and LAS Standard. The features of these are:

LAS Core using Image Explorer

Features the storages of images and metadata in Windows folders:

- Controls and displays data from all LAS supported microscopes and cameras
- Used with all LAS supported microscopes and cameras
- Can be used with all optional modules
- Form view is provided and an image note and description can be added
- Individual images can be printed with heading and footer
- Export images with a user defined file name

12730206 LAS Folder Archive Basic

- Databases with one sub-level plus the image level
- Can be used with all optional modules
- User can add image records and sequence records
- User can make a new database from the supplied templates
- User can add and name categories
- User can add text fields to database
- User can rename fields in database
- Shows grid view and form view
- Allows selection of fields for display on data form
- Search for text in all fields of records and search for text in specified fields only
- Allows multiple files to be attached to record such as a word document
- Allows Sound file to be recorded, attached to record and replayed
- Data limited by available PC memory, no limit of images in database

12730207 LAS Folder Archive Standard

- Allows multi-level database structure in a hierarchy of levels
- Allows new database structure to be created
- Text, Memo, Numeric, Boolean, Date, Keyword fields
- Keyword list creation and use
- Any data from selected records can be output to a Word template
- Example Word templates are provided and can be customized by the user
- Output via Word template directly to pdf, html and Word
- Example multi-level databases provided

12730218 LAS Image Analysis Module

- Processing Sequence that can be rapidly adapted
- Run sequence automatically and Pause on any step in sequence
- Interactive adjustment of sequence step so the effects are immediately visible
- Split-screen view for before and after image display
- Image smoothing and sharpening
- Image Delineation for accurate edge definition
- Thresholding colour and mono image
- Binary opening, closing, skeleton, separation
- Binary editing for easy modification of the measurement mask
- Rejection and acceptance of measurement regions
- Size, shape, intensity, topography, boundary, position parameters
- Multiple Acceptance criteria
- Colour coding and labelling of feature results on screen
- Post-measurement deletion of feature
- Freely defined Histogram, Bar chart and Pie chart
- Export of results and images to customisable Excel reports

Update to LAS Steel Expert

This version introduces the following features:

- Significantly improved detection capabilities for coloured TiN inclusions
- Separate results display for TiN inclusions
- Use of 6 rather than 3 focus points for improved predictive focus

3 System Requirements

3.1 Supported Hardware

The supported hardware is described in the document **System Requirements** that is in the root folder of the LAS Disc and is also installed under the Start - > Leica Application Suite menu.

3.2 Computer System Requirements

The recommended PC specification is described in the document **System Requirements** that is in the root folder of the LAS Disc and is also installed under the Start - > Leica Application Suite menu.

Please ensure that the PC specification corresponds to the recommendations made. If using LAS with Windows Vista, a suitable Windows Experience Index is 3.5 or higher.

Other factors that influence the performance of LAS are also noted in the same document.

3.3 Computer Operation

As well as the computer hardware and software components, the performance will be influenced by the 'health' of a PC. If the PC is overloaded, too full or being used for too many tasks, it may become sluggish in operation. Please check the following points regularly:

LAS performance may be limited if there is less than 400 Mbyte of free RAM because other running programs may occupy RAM.

Other running programs may occupy the processor and these may limit LAS's performance. It is recommended to close other programs.

Virus scanners, AntiSpyware programs and similar may affect the performance of LAS. If this is the case, consult your system administrator to reduce checks on LAS components.

Check the hard drive has 50% free space. If the space is used up, consider installing a larger drive.

The hard drive must be defragmented regularly.

Please select 'High quality' or 'Optimal quality' where Direct 3D options are offered by the graphics card and not 'balanced' which appears by default.

The location of the archive is linked to the LAS user who must have write access to this folder.

Store data to a local drive and not to a mapped network location, as this can be very slow due to the network speed. The archive images and metadata can be stored on a remote drive if the speed is acceptable.

Note that a back-up device and a back-up strategy for archives, images and data are essential. The user must ensure that regular and reliable back up of important files is performed.

User Accounts

User log-On and Off is by use of Windows accounts so that the computer access rights are synchronized between Windows and LAS.

The Windows user groups define users and these determine the access granted to an LAS user. The correspondence is as follows:

Windows User Level	LAS access granted
Windows Administrator	Required for LAS installation
Windows Administrator or Windows Power user or Windows user and member of Windows User Group – LASAdministrator	Complete access to all LAS features including configuration.
Windows user	Access to LAS configuration features is not allowed.

The Windows user group LASAdministrator is established during the installation of LAS. It is for use in organisations that restrict user access on computers. Please ask your system administrator to add individual users to this group.

Accessing Hardware Setup

The hardware setup application can be accessed either through LAS or by starting the executable directly.

a) Starting from LAS

In order to access the Hardware Setup from LAS, then you need to either:

Become a member of the LASAdministrator group (see above) then start LAS as normal (recommended).

Right click on the LAS desktop icon while holding down the **Shift key** and select

“Run as Admin” if using Vista

“Run As...” for XP

Enter the credentials of a user who belongs to the Admin group.

Continue to hold down the **Shift key** and when LAS starts, select the Options menu item and then select Hardware Setup.

b) Starting the Hardware Setup executable directly

Alternatively create a short cut to the Hardware Setup application located at

“C:\Program Files\Leica Microsystems\Leica Application Suite V3\Libraries\HWModel\Hardware configuration.exe”

For non-standard installations consult your IT administrator to find out where LAS was installed.

3.4 Other Leica Software

You must use Leica Servers V3.10.0 with this version of LAS in conjunction with Leica QWin or MW.

4 Release History

4.1 Version V3.3.0 release

This release - see section 2.

4.2 Version V3.2.0 release

The reasons for this release are:

Stereo- and Microscopes

Support for the following is added:

- M205A (motorized high-end stereomicroscope)
- M50 and M80 (manual routine stereomicroscopes)
- LED5000 CXI (coaxial LED illumination)
- LED3000 NVI (near vertical LED illumination)
- Firmware update for Z6APOA and Z16APOA for compatibility with new MotorFocus

Leica DFC Cameras

Support for the following new cameras is added:

- Leica DFC295 using 1394b interface
- Leica DFC310 FX using 1394b interface
- Leica ICC50 (camera module for DM500 & DM750)

DM Microscopes

Support for the following is added:

- Leica DM500
- Leica DM750

LAS Core Software

LAS is now normally supplied on a single DVD.

The organisation of the DVD is such that it can be copied onto 5 CDs and each CD installed individually if necessary.

LAS is supplied for Windows Vista 32 and 64 bit and Windows XP 32-bit. Some hardware is not compatible with 64-bit operation. Please see the section 'restrictions'

LAS Imaging Modules

LAS MultiFocus and Montage - Enhancements to extended focus algorithms improve performance with difficult images.

4.3 Version V3.1.0 release

The reasons for this release are:

Stereo- and Microscopes

Support for the following is added:

- M205FA, fully motorized fluorescence stereomicroscope with 20.5:1 zoom range
- M165FC, manual fluorescence stereomicroscope with coded filter wheel, zoom and iris and 16.5:1 zoom range
- M125, manual stereomicroscope with 12.5:1 zoom range
- New motorized focus drive MST51
- New FluoCombi™ attachment for fluorescence stereomicroscope with coded objective positions
- New Fluorescence objective revolver with coded objective positions

Leica DFC Cameras

Support for the following new cameras is added:

- Leica DFC290 HD
- Leica DFC400

DM Microscopes

Support for the following is added:

- FSC Version II is now fully supported
- Firmware for STP6000 for FSC

LAS New Software Modules

The following new modules are introduced:

- LAS Live Measurements – see Help file for description
- LAS Web Sharing – see section 10 of this for operating notes
- LAS Reticule (now integrated in LAS) – see Help file for description

LAS Core Software

Enhancements to LAS Core include (further details in section 9):

- Can use a 'demo camera' when no actual camera is available
- Vertical live scale bar
- Additional image formats and compression options
- Can specify number of decimal places in measurements
- Can apply different units e.g. change from μm to mm
- Delete, Rename archive
- Gallery image size can be adjusted by slider

LAS Imaging Modules

Enhancements to LAS Imaging Modules include:

- LAS Archive Basic
 - Search can be performed on text, memo, date, numeric, Boolean data fields
- LAS Interactive Measurements
 - Measurement data file linked to record automatically
 - Circle displays diameter, radius or area

Further notes describing the new features are in Section 9.

4.4 Version V3.0.1 release

This release is a Steel Expert update only. The reasons for this release are:

- To provide enhanced support for the EN 10247 standard of steel inspection
- Improve the speed of data capture and processing
- Enhance the usability of certain parts of Steel Expert, in particular the manual rejection of inclusions
- Improve the reporting of data by providing Excel templates for most of the standards supported
- Improved the ability to analyse data in Excel by including positional information relative to the scan origin, and optionally removing artefacts from the raw data
- Miscellaneous other bug fixes and enhancements to Steel Expert

4.5 Version V3.0.0 release

The LAS V3.0.0 release supported:

- The introduction of high performance, professional image archiving
- For Discovery II, a new firmware update. We recommend the update of the demo equipment Discovery II (e.g. the new DM4-6000 stands for market introduction)

- Update for camera software – DFC Twain 6.10.0 support for Leica DFC360 FX
- Minor fixes for the TL RCI and the IsoPro stage firmware

LAS Archive

Archives can be created to match the users needs in terms of image, data and documentation. The structure is versatile while the workflow orientation of LAS provides a deceptively simple user experience that makes it ideal for microscopy. A virtually unlimited number of images and related data can be handled with high security.

The database consists of a hierarchy of levels that allows the record data to be conveniently organised into related categories. All types of data may be linked to an image including text, measurements, dates, microscope and camera settings. All this data can be searched by simple and intuitive search methods for rapid retrieval of stored information.

The archiving capabilities of LAS are expressed by different optional Editions with increasing capability, namely LAS Core, LAS Basic and LAS Standard. The features of these are:

LAS Core

Features are similar to LAS V2.8 but use an SQL database and not folders for storing images- other differences are:

- Database template is provided to store images and sequences with one sub-level plus the image level
- Example database is provided for general use
- User can add image records and sequence records
- Can be used with all optional modules
- User can make a new database from the supplied templates
- User cannot add or rename fields
- Data limit of 4Gb, no limit of images in database
- Used with all LAS supported microscopes and cameras
- Form view is provided and an image note and description can be added
- Individual images can be printed with heading and footer
- Export images with a user defined file name
- Is used on a single PC

Compared to LAS 2.8, enhancements include

- Gallery is shown on acquire
- Gallery loading speed much improved
- Acquire directly from Browse
- Large image view can also show gallery
- The data view of all workflow steps can be individually customised
- Demo of non-licensed modules can continue after licensing of some modules
- New licensing method used – any V2.x options will need to be re-licensed
- Hardware dongle (Part No. 12730205) is optionally available for licensing

12730206 LAS Archive Basic

- User can add and name categories
- User can add text fields to database
- User can rename fields in database
- Shows grid view and form view
- Allows selection of fields for display on data form
- Displays data from all LAS supported microscopes and cameras
- Search for text in all fields of records and search for text in specified fields only
- Allows multiple files to be attached to record such as a word document
- Allows Sound file to be recorded, attached to record and replayed

12730207 LAS Archive Standard

- Allows multi-level database structure in a hierarchy of levels
- Allows new database structure to be created
- Text, Memo, Numeric, Boolean, Date, Keyword fields
- Keyword list creation and use
- Any data from selected records can be output to a Word template
- Example Word templates are provided and can be customized by the user
- Output via Word template directly to pdf, html and Word
- Example multi-level databases provided

For details of earlier versions of LAS, please see the Release Notes included with the earlier versions.

5 Problems Fixed

5.1 Problems fixed in V3.3.0

Montage Compound Weighted method is corrected

5.2 Problems fixed in V3.2.0

The white balance no longer fails unexpectedly

Search using Help no longer causes problems

A magnification changer not in the camera light path no longer changes calibration

Scalebar now appears in Web Sharing Client on German O/S

Filters can be manually adjusted while using DMI4000 with LAS Image Overlay without errors

16bit (grey or Colour) images are now acquired in Image Overlay

5.3 Problems fixed in V3.1.0

The magnification changer can be set to 'none' – in the Setup->Mic, select magnification changer and right-click in the table, select delete.

When dual-camera ports are used, the calibration now updates to the selected port for appropriate microscopes.

Search now returns records from all levels.

5.4 Problems fixed in V3.0.0

This is the first release of this version of LAS. Please refer to the section on limitation on use for know issues.

Problems fixed in versions of LAS prior to this release can be found in the release notes of these versions.

6 Restrictions

6.1 Software - Core

Windows version

This software is not supported on the following environments:

Macintosh

Unix/Linux

Windows Vista Starter, Home

Windows XP other than Professional Edition

Windows 2000 any version

Windows 98

Windows NT

Windows 95

64-bit Windows XP

Personally constructed PCs or operating systems

An environment that is an upgrade of the original manufacture-installed operating system

Multi-boot environments

Language Translations

The user interface is translated into the usual languages. Multilingual Windows is strongly recommended particularly for Chinese and Japanese. Native Windows for Chinese, Japanese and Korean do not display the user interface correctly.

The help file and user manual are in English or in some case refer to the earlier V3.2 version of LAS. Please contact DI.Support for updates if your language does not appear. LAS Steel Expert user manual is not translated.

Leica Server Version

Note that the Leica Server version compatible with LAS V3.3.0 is V3.10.0. If you are using Leica QWin, MW, FW or CW software, and have any doubts about compatibility, please contact DI.Support on di.support@Leica-Microsystems.com for advice concerning the correct versions of software to install. Please do not assume compatibility.

Installation

The installation procedure assumes that all the software components are installed on the first hard disk drive (i.e. C:). During the installation of LAS you can select the destination directory and drive for LAS, however this release does not support the installation of LAS on drives other than C:.

LAS V3.2 does not have to be uninstalled before installing LAS V3.3 but this is recommended. After installing LAS V3.3, it is not possible to revert to LAS V3.2.

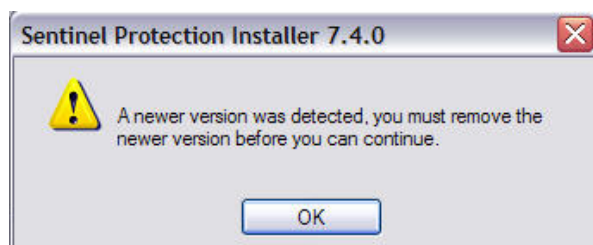
Before installing LAS V3.3, we recommend that a backup is made of any existing archives using the LAS V3.2 Backup tool.

Do not delete archives before installing V3.3 as they can only be imported into V3.3 if they are left in an unchanged state.

The use of archives is only possible when these are on the local drive of the PC or a mapped network drive to which the user has full access. Sequence modules do not work with network drives.

Please note that if you are to install Leica AF6000 software on the same PC, then it **must be installed before LAS**. If you later reinstall Leica AF6000, it will be necessary to reinstall LAS afterwards.

Please note that if you are installing LAS V3.3 on a PC that already has Leica MM AF installed, then the following message may appear during installation. Please ignore this advice as LAS V3.3 is compatible with the newer version of the Sentinel Protection software that is detected. Do NOT remove the newer version, simply click OK and continue.



Use of Mapped Network Drives

Images can be stored directly to a mapped network drive provided you have appropriate permissions to use this. Sequences cannot be stored to a network drive in order to preserve performance.

Note that speed of operation to a network will potentially be slow.

User Access to Folder Archives

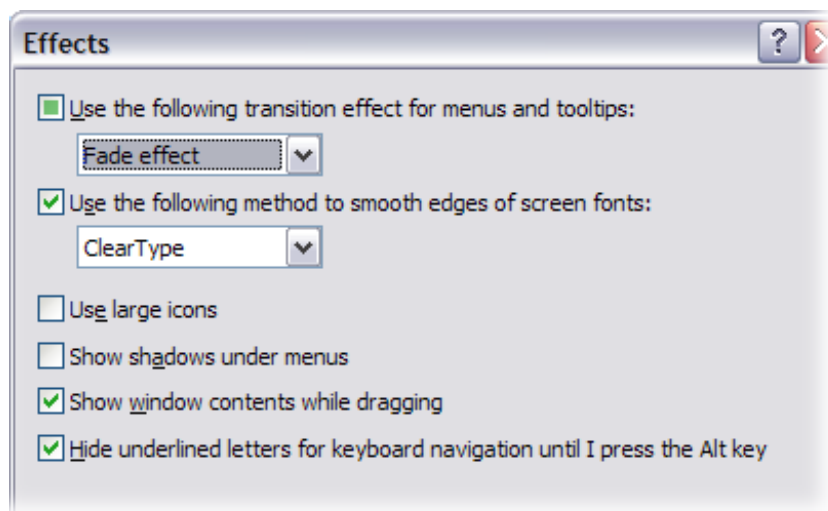
If a Folder Archive is in a location that is shared by a number of Windows users, only one user at a time can access a Folder Archive. This user must close LAS or select a different Archive to allow another user access.

Windows Limited User Restrictions

If you are operating LAS as a Windows user (not Administrator or Power User), some folders are not available to you. For example, Shading Correction files are stored in the All User folder and cannot be stored by a limited user. A limited user will need to be granted write access to this folder by an Administrator. Similar issues can arise with annotation and measurement files and must be resolved in each case by a Windows administrator.

Windows Font Selection

The Fonts used by LAS require that the 'ClearType' option is switched on. Please check that this is the case by looking in Start -> Control Panel -> Display -> Appearance -> Effects as shown below.



Exit and restart

When you close the LAS application, but do not exit to Windows, it takes a few seconds for the microscope to be closed. Please wait a few seconds before restarting LAS. Alternatively, exit directly to Windows.

Autofocus Module

The following cameras only are supported: Leica DFC280, 320, 480, 300FX, 350FX.

Store and Recall

Recall for focus drive and x/y position is not available for specimen security.

Image Overlay and use of 16-bit images is not supported with Store and Recall.

Font shown on buttons

If the text shown on the dialog buttons does not appear to fit correctly, you may have selected the wrong screen fonts in the display driver. The fonts used must be the 'small fonts' shown at 96dpi. Often larger fonts are selected when high-resolution displays are used but these do not scale correctly to the buttons sizes.

Changes in configuration

LAS is susceptible to changes in configuration e.g. change of camera, changing microscope to None. The problem is solved if the user restarts LAS after changing configuration.

Annotation Merge

This facility is not available for 16- or 48-bit images. On a Greyscale image, the annotation is converted to greyscale when it is merged. To avoid this, firstly convert the image to 24-bit colour from the Process-> Enhance tab.

LAS appears disabled when Twain is minimised

If the Twain window is opened from LAS and minimised, and another Windows program become active, the main LAS window will appear when selected from the Windows taskbar. However, this is disabled because Twain is open. To activate Twain use Alt +Tab and not the taskbar.

LAS operation after LAS EZ

If both LAS and LAS EZ are installed and LAS EZ is run, the next time LAS is run, it will not start completely. Please restart the PC and LAS will now start. We do not expect customers to be using both products on a PC so this is only of concern for demo use.

6.2 Restrictions with LAS Modules

LAS Image Analysis

For images with a resolution higher than 2592 x 2048, such as from Leica DFC490, DFC500 the following advanced features are not available:

- Selected feature highlight
- Colour coded images
- Feature Outline
- Magnifier
- Edit accept, reject, keep, delete

For images $\geq 4096 \times 4096$, IM will be disabled.

LAS Interactive Measurements

The Export to Word facility requires that Microsoft Word is fully licensed on the PC and for Office 2003 the Office Service Packs must be installed. Office 2007 may also be used.

LAS MultiFocus, LAS Montage and LAS MultiStep Memory Limits

These modules use computer memory to store the sequence images. For best performance, they should be held in physical memory and not virtual (paging or disc) memory. For example, 50 images each of 5Mb would require 250Mb plus some additional working memory. This is why the recommended minimum memory for use with these modules is 2Gb. If your PC memory is 512Mb, of which the operating software uses half, it is easy to see that the physical memory can be exceeded. If problems are encountered, please increase the virtual memory by 1Gb and restart Windows. However please be aware that the use of virtual memory severely impairs the speed of operation by a factor >10 and is not recommended.

If insufficient memory is available, a warning will be given and the operation terminated.

The maximum practical file size for the Mosaic image created by LAS MultiStep is 500MB for which 2GB of PC memory is required.

LAS MultiFocus and LAS Montage

When using the image alignment option with stereo images, artefacts may be noticed at the edge of the MultiFocus image if the Z-travel range is large.

Please note that the Profile line can be drawn on any image. However if it is drawn on one of the stack images and the stack is from a non-aligned source, the profile may be measured from the wrong position. Please always draw the profile on one of the result images and not on the stack images to avoid this problem.

If using the LAS 3D Viewer, please ensure that the manufacturer's latest graphics board drivers are installed, particularly for ATI Radeon models.

LAS MultiStep

For Leica DFC500, only the 1-shot and 4-shot modes should be used.

LAS MultiTime

Images with horizontal resolution greater than 2048 pixels cannot be saved in a movie file. In practise, movies are intended to be saved using a fast, lower resolution mode in order to achieve a high frame rate. If the cameras Leica DFC320, 420, 490, 500 are used for movie recording, please switch these to a binned or a progressive scan mode.

Please ensure that the manufacturer's latest graphics board drivers are installed, particularly for ATI Radeon models.

LAS MultiTime – Movie requires a Microsoft Windows XP patch file to be installed. If your operating system language is one of the LAS supported languages, the patch file appropriate to the language will be installed. If you are using Windows with any other language, you must download the patch file from Microsoft. The effect of not installing this patch is that Movie files will not be compressed. The following link works at the time of writing these release notes but you can otherwise search for the article KB904706:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=2636cfce-49ea-4d06-80ba-21a84f3658a5&DisplayLang=en>

Select the correct language and download the patch file.

You CANNOT install the patch properly just by double clicking on it. You need to run it from a DOS prompt or use the Run option from the Start menu. The command you use will look like this:

```
WindowsXP-KB904706-v2-x86-ENU.exe /b:SP2QFE
```

The file name is specific for each language (the one above is English, ENU) so make sure you use the filename and path for the file you have. Use "/b:SP2QFE" as the command line parameter/option otherwise LAS won't work properly although the patch will install.

LAS Image Overlay

Does not use the external filter wheel.

Does not control the lamp on an external light source.

In the unlikely event that image corruption is noticed with full frame high-resolution images, e.g. from Leica DFC490, it is probably that the PC memory has been exceeded. Please reduce the image resolution and try again.

LAS Power Mosaic

In Turboscan mode, occasionally a white frame may be observed. If this occurs please check that the hard drive has ample free space and is defragmented regularly. If this continues to occur, it indicates that the performance of the PC is not sufficient and a faster processor and a faster hard drive are required.

Calibration of exported mosaics is not correct on binned images and DFC290 XGA and VGA modes. These modes are not recommended with Power Mosaic as they reduce the resolution of the mosaic, countering the object of mosaic imaging.

Use of LAS Power Mosaic with IsoPro stage (must be the V2 stage) requires that unidirectional scan is used for accurate stitching. The recommended configuration is with Leica Z16APOA.

6.3 Restrictions with LAS Applications

LAS Image Organizer

This module is replaced by LAS Folder Archive Basic.

For continued use of LAS Image Organizer, please use LAS V2.8. Note that both LAS V3 and LAS V2.8 can be installed on the same PC. You can start either V3 or V2.8, but you cannot start both at the same time.

6.4 Computer

Graphics Display

When using Windows Vista, the display mode will default to 'Aero'. We have experienced problems with some graphics boards drivers that stop LAS updating the display correctly. (For example the exposure slider does not update the accompanying numeric. In another case the mouse cursor is erratic). If this is noticed, please try switching the Vista display to 'Basic'. You can see the difference in the opacity of the Windows dialogs. With Aero they will be semi-transparent and with Basic they will be solid.

The bit-depth of the graphics display system of the PC must be set to 32 bits and support DirectX 9c. DirectX 10 can be used with Windows Vista.

Hardware acceleration should be set to 'full' or unpredictable artefacts may appear on the display when the mouse cursor or a window is moved.

Dual Monitors

If you have not yet purchased your monitor and wish to have a large screen area, then we recommend a monitor with a resolution of 1920 x 1440. While a dual-screen may be larger, this single monitor option is very convenient because it avoids the centre gap between the monitors.

LAS is configured for display on a single monitor. A dual monitor system should be configured as 2 separate monitors. If the 2 monitors are configured as a single high-resolution monitor, the image will be divided by the gap between the monitors and hence is not convenient to use.

6.5 Cameras

Leica DFC500

Occasionally LAS does not shut-down cleanly after using the DFC500 and the framework.exe program has to be closed from the Task Manager or Windows restarted. If this occurs, please check if a later version of DFC Twain is available from DI.Support.

Accessing camera features

Some of the camera features are accessed from the Leica DFC Twain interface. This displays the live image and allows camera settings to be adjusted and detailed adjustment to the camera operation. Please refer to the Leica DFC Camera Acquisition Guide for further information.

Using Leica DFC280

Please do not use the combination of live image Full Frame and capture image Centre Scan as this causes an error message that effectively hangs LAS.

Leica DC Cameras

Not supported.

Dual Cameras with LAS

LAS supports use of dual connected Leica DFC cameras but only allows one live image to be viewed at a time. The Leica DFC500 cannot be used with this feature.

Hot-swapping

Hot-swapping of cameras while LAS is running is not supported. Please close LAS before changing cameras.

It is recommended that LAS is closed LAS before swapping cameras. Hot-swapping while Leica DFC Twain window is open from LAS can cause LAS to hang. If this occurs use Task Manager to kill the framework.exe process so that LAS can be used again.

System suspend

We do not ensure trouble-free operation of the system suspend, sleep or hibernation functions on all computers in conjunction with LAS.

Matrox Meteor 2, Leutron Frame Grabbers

Not supported.

6.6 Microscopes

We recommend the use of RS232 COM1 for firmware download for DMIs. All other serial interfaces as well as the USB interface may also be used but occasionally the download stops. and has to be restarted. DM microscopes are not affected.

Firmware updates may be required before LAS will communicate correctly with some microscopes.

The serial connection to the Stereo- and Macroscopes MUST be connected to the MotorFocus (MST 31) if available. If you are using a Z6APOA or Z16APOA in combination with MotorFocus (MST31) you MUST connect the serial connection to the zoom. If you are using an IsoPro stage additionally you MUST connect to the USB of the stage.

Note that the initialisation dialog may disappear behind the splash screen at start-up. Please use <ALT>+<TAB> to bring it in front again.

If using KL 2500, LCD CLS 150XD, CLS 150LS or EL6000 one will also get the control panels at start-up of LAS even without power ON of the unit. In this case you can switch ON the power and continue your work without restarting LAS.

KL2500 and EL6000 are not equipped with electronics that allow active feedback while pressing the test button in the hardware setup panel. Please make sure the light source is connected to the right COM port and test the function using the LAS main window.

If you get corrupted or wrong filter names at start up with MZ 16FA please press <Refresh> to update.

External illumination (KL 2500 LCD, CLS 150 XD, CLS 150 LS, EL6000) is not supported in the store and recall module and memory positions. Stage XYZ positions are not recalled by Store and Recall.

The storage of positions within the live image is not possible with the DMI inverted microscopes and Stereomicroscopes. It works fine with the uprights.

7 Installation and Licensing

The software to control the microscope and Leica DFC cameras can be used in accordance with the software license. You do NOT need to apply for a license key if this is your intended use. The remaining (optional) modules can be used for 60 days evaluation and must be licensed for extended use. The procedure for this is detailed in section 7.3.

7.1 Installing LAS

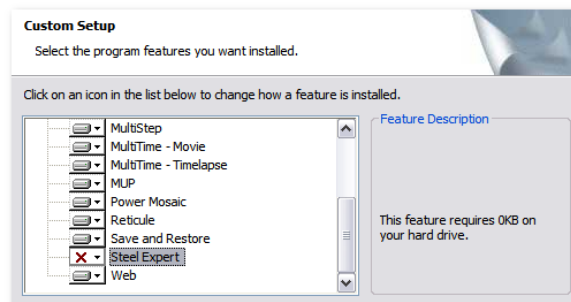
The installation of the Leica Application Suite (LAS) is described in the document **LAS Install Guide** in the root folder of the LAS Disk . You should read this document before installing your copy. After installation, the document can be accessed from the Start Menu -> Leica Application Suite.

Please read the document 'System Requirements.pdf' that is in the root folder of the LAS DVD for details of compatible hardware and software before continuing.

Installing hardware for use with LAS Power Mosaic is also described in the 'System Requirements.pdf'.

7.2 Installing LAS Steel Expert

This option is not installed by default. In order to install LAS Steel Expert, you need to select the Custom install if this is the initial installation of LAS or the Modify installation if you are adding to an existing installation. Scroll down to find Steel Expert and change the symbol from a cross to a file system picture and OK to install.



7.3 Licensing Optional Modules

Note – if you are using LAS Core facilities only, a license file is **NOT required.** Do NOT start the evaluation period because this will give you a warning message for 60 days even if you do not evaluate any modules.

Optional modules may be purchased from your local Leica sales office. The procedure, in brief, is as follows:

1. Place the order for the module/s.
2. You will receive a license number for the registration of these modules (each license might cover or one or more modules).
3. Fill out the information in the registration form accessed via LAS and send the form to the configuration centre - LASConfCent@leica-microsystems.com.
4. Receive a license file from the configuration centre and select this from the LAS License dialog.

You will need have Administrator privileges to license LAS.

The licensing procedure is described in the document **LAS Install Guide** in the root folder of the LAS DVD . You should read this document before installing your copy. After installation, the document can be accessed from the Start Menu -> Leica Application Suite.

You can examine your registered modules from the menu Registration Information.

Your purchase also gives you access to the Leica Application Suite e-mail Hotline in case of technical questions:

di.support@leica-microsystems.com

Or

MQM-Hotline@leica-microsystems.com

When using the Hotline please mention the exact configuration you are working with and your software version/release. You will find this information by selecting the About command from the Help menu. This will facilitate the analysis of your query and accelerate our response time.

Product improvement suggestions and comments are also welcome and can be sent to the Hotline.

7.4 License Transfer

If you wish to move the LAS licence to another PC, please contact

LASConfCent@leica-microsystems.com

7.5 User Interface Language Selection in LAS

The user interface language of LAS may be changed by System Administrators. An example of the use of this could be when an English reader wishes to use LAS on a Windows Japanese systems. A utility program is provided for this purpose called "LanguageSetter.exe". This program is installed in the folder:

C:\Program Files\Leica Microsystems\Leica Application Suite V3

Ensure LAS is closed before running the LanguageSetter. Double-clicking on this program will show the single dialog as below:



Select the language required and click OK. Appropriate fonts must be available for Chinese and Japanese languages. A restart will be required.

Note that this does not change the language of Leica DFC Twain which can only be changed by re-installing the software.

8 Software Version Numbers Included on this CD

The following software versions are provided on this CD:

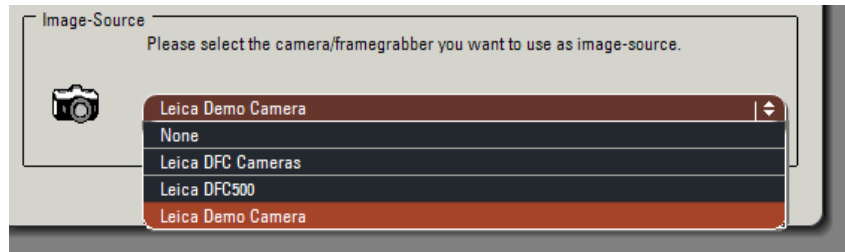
Leica LAS	V 3.3.0
Leica DFC Camera	V 6.12.1

9 Notes concerning the use of new features

The following notes describe in brief the use of features not included in the Help.

9.1 Demo Camera to simulate a live image

This is a feature of DC Twain V6.12 that allows a DFC camera to be simulated. This is useful for training when a real camera is not available. The Demo Camera is installed at the same time as DFC Twain but not with DFC500 Twain. The Demo Camera is selected from the Hardware Setup.



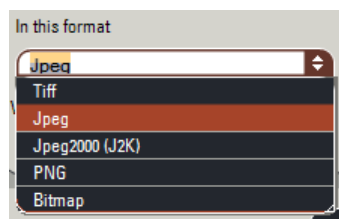
When you access Acquire -> Camera, the image shown is simply one that is recalled from the hard drive – it is not a real live image of course. Consequently the controls do not have any real function, they are simply present for simulation. However an image can be acquired just like a real live image.

The image that is displayed can be replaced by another image from your hard drive if you don't find the example appropriate. If you open the Twain interface, you can see that there is an entry 'Select image'. If you right click on this, you can browse to find the image you wish to use. It must be a BMP or JPG image and it must be larger than 1024 x 768, 24-bit. If the image is not suitable, you will see flashing coloured squares.



9.2 Image saving format options

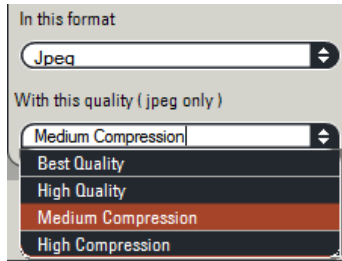
The image save format is selected from the Preferences dialog and now includes Jpeg2000 and PNG.



Jpeg2000 is a wavelet-based image compression standard that can give less blocky images with similar file size to normal Jpeg.

Portable Network Graphics (PNG) is a bitmapped image format that employs lossless data compression. PNG was created to improve upon and replace the GIF format, as an image-file format.

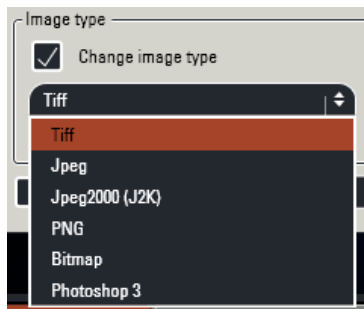
When the Jpeg option is selected, the level of compression can be selected as shown:



Best quality corresponds to the compression used in previous versions of LAS. The other options use more compression and sacrifice image quality. High compression is very blocky and useful only for emailing.

9.3 Image export format options

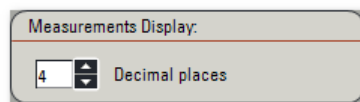
The image formats for exporting include Photoshop 3 in addition to the image saving formats. Note that if you export an image with a format different from the format with which it is saved in the archive, it will take longer to export because it has to be loaded and converted.



The Jpeg option allows the quality to be selected as for image saving.

9.4 Decimal places in Preferences

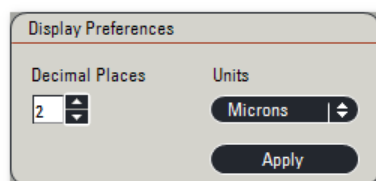
The number of decimal places shown when measurements are displayed is set in Preferences.



The number of decimal places is stored for each image as an archive field when the image is acquired.

9.5 Changing units and decimal places

If you wish to change the number of decimal places or the Units used after acquisition, such as when measurements are displayed, this can be done for single images by the panel on the Process -> Calib tab.



Note that the values shown on the measurement display do not change until the measurement is drawn – existing measurements are not changed.

9.6 Confirming image name on acquisition

When an image is acquired, its name is constructed from the Default Image Name and an incremental number as specified in the Preferences -> Image tab.

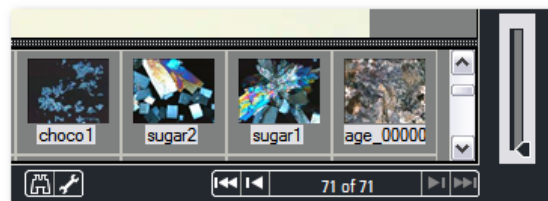
However, if you set the check mark 'Always Confirm Image Name', when the image is acquired a prompt will be displayed and you can enter a new image name for each image.

The default name appears in the prompt, but you can start typing straight away and the default will be removed. The name you enter will be the name of the image file on the hard drive. If the name already exists, the incremental number will be appended. The name you type will become the Default Image Name.

From this dialog, you can also select a new folder location.

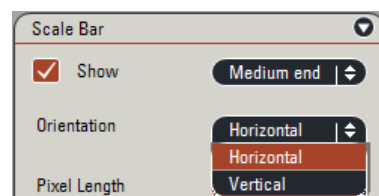
9.7 Adjusting the Gallery thumbnail size

The size of the thumbnail images in the gallery can be adjusted by the slider to the right of the gallery. The smallest size of thumbnails are shown below.



9.8 Vertical Scalebar

The Scale Bar orientation can be selected.



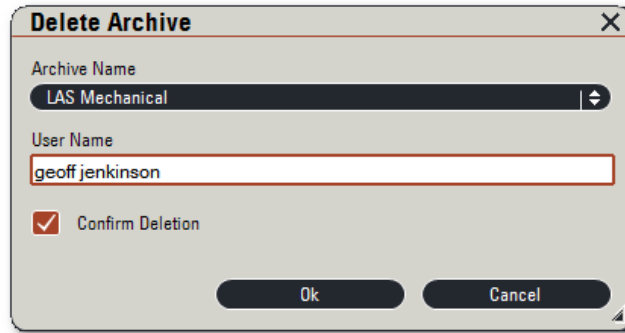
9.9 Rename a Sequence Name

If you want to change the name that you have given to a Sequence, for example from LAS Montage, you can select the sequence in the Navigation tree and click the Rename button or press F2. You can now type in a new name.

9.10 Rename and delete and archive

Under Setup -> Archive the Management panel only available to Administrators, now allows you to rename a non-active Archive.

If you wish to delete an archive, as an administrator, you need to select the archive and enter your user name and tick the Confirm Deletion check box.



The Archive folders are moved to the Recycle bin.

9.11 Edition shown in caption

You can easily see the Edition of LAS that is being used because it is shown to the left of the menu bar.

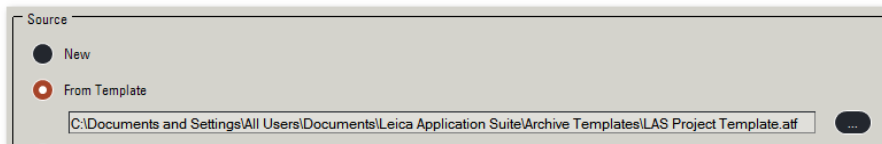


9.12 LAS Core archive creation restrictions

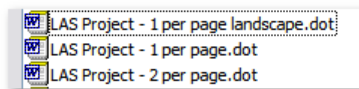
You cannot create or use Folder Archives with LAS Core.

9.13 Example report templates

A number of report templates are installed. To use these with the DM microscopes, create an archive using the template called LAS Project Template as shown.



With this Archive you can use the 3 templates:

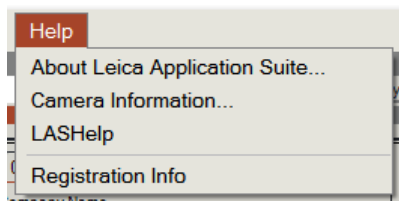


And here are some examples from these. The key point in creating these templates is to use Word tables and put a field into a table cell. The image itself goes into an additional table within a table that has a single cell as this keeps the formatting correct.



9.14 Licensing and Registration

The registration information can be examined from LAS but cannot be changed while LAS is running.



For a PC that has been using a demo license for LAS V3.0, the modules Image Analysis, Live Measurements, Web Sharing and Reticule will not appear. You must start LAS in license mode and install the demo license that ships with LAS V3.3. This will give a 60 day demo of these modules. It will not give you any new demo period for the modules from LAS V3.0.

9.15 License file name

The license file name can now be changed, provided it still ends in lservrc.

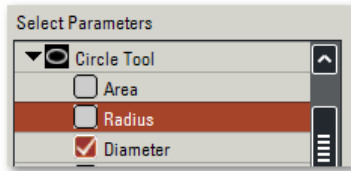
9.16 Reticule uses fit to window

The Reticule module works within LAS and not as a separate application. It appears whenever it is enabled by the licensing. If you don't want to see it, it can be turned off from the Registration screen.

The operation is described in the Help file. Compared to LAS 2.8.1, Reticule no longer allows the overlay to be moved from Browse. An improvement compare to LAS V2.8.1 is that fixed Reticule now scale to the live image resolution rather than the display resolution. This means that fixed Reticules can be shown on any live image rather than having to be modified to suit any the specific image size.

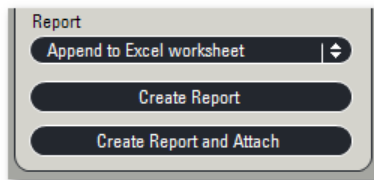
9.17 Diameter display with Manual Measurement

For the display of a circle, the parameter displayed can be selected from Area, Radius or Diameter from the Select Parameters panel under Analysis -> Setup. This feature only applies to the Circle tool.



9.18 Measurement data file linked to record automatically

When measurements are saved, you now have the option of linking the Excel sheet produced directly to the record.



Select the report output to be 'Append to Excel worksheet' and then click 'Create Report and Attach'.

When you look to the Browse -> Attachments panel you will see the Excel sheet you have created appears and can be opened immediately. This saves the time taken in manually attaching the Excel sheet to the record.

Reminder – Microsoft Office 2000 or earlier is not supported – LAS does not generate any results with this version of Office.

9.19 Power Mosaic

Please note that it is essential to check that the Oasis Blue board has the latest firmware (V0.64) installed. The Oasis drivers and firmware are on the LAS DVD and these should be used to check and download the firmware.

It is possible to select the XY and Z drive to be controlled by Oasis Blue with a DM6000. This means that other LAS modules such as LAS Montage can be operated without needing to reconfigure the focus drive for the DM6000.

You will see that in the Acquire -> PM -> Optics Settings -> Initialise and Set Speed dialog, under the Autofocus tab there is a new button labelled 'Calibrate'. This performs a calibration of the Autofocus and is required to ensure that the backlash of the focus drive is measured and appropriately compensated. Before using Autofocus, you should find a field of detail on the specimen that can be sharply focussed, and click 'Calibrate'. The focus control will move to measure the backlash and save this value for the objective used.

The histogram upper and lower limits are now applied to the PM images provided the histogram and exposure panels on the camera tab are not floating.

9.20 Universal Objectives

Additional universal objectives may now be used such as x80 – please check the Setup Microscope for details. To change the C-mount, right-click in the list and enter a new value.

9.21 LAS Camera Software Update

You can delete shading references in LAS.

Saved camera configurations and shading are now camera serial number specific.

Demo camera is automatically installed with DFC cameras (but not DFC500). There is no option in the installer.

Demo camera can load jpegs.

The Gamma curve is displayed on the histogram panel.

9.22 LAS MultiFocus and Montage

The algorithm used to create the result image has been improved and is now less sensitive to out of focus image noise. The images produced show significantly fewer artefacts than previously. Images created using optics that shift the image due to the change of focus during acquisition are also sharper due to improved image alignment techniques.

10 Web Sharing in LAS

10.1 Introduction

Web Sharing enables an LAS user to make the camera live image available to one or more remote users across a network or the internet. The remote user can view the LAS live image by connecting to a web page via a Web Browser, and must have access to the internet and/or access to the same network as the LAS user.

Web Sharing comes in two software parts, one for the LAS user (the server) and the other for the remote user (the client). The server software is installed if it is selected in the LAS installation list of additional modules. The client software is the user's Web Browser but requires the use of an additional browser component called Microsoft Silverlight.

Currently, Internet Explorer and Mozilla FireFox Web Browsers are supported, although others also work but some may not.

10.2 Licence

Web Sharing requires an LAS licence to work. It is visible in LAS, and can only be used, if you have a valid demo or full licence.

The following panel will be displayed in the Acquire>Camera tab.



10.3 Starting Web Sharing in LAS

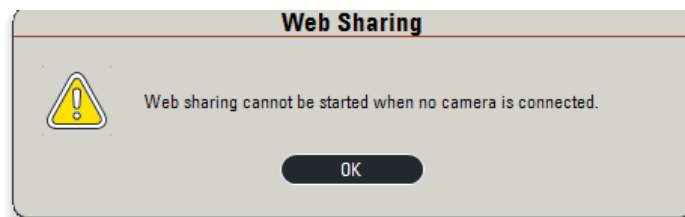
To start Web Sharing, check Enable.

The size of the live image a remote user will see is made by selecting the Image Size. The default size is 640x480, and nominally produces about 10 fps for the remote user, depending on the live image exposure. However the frame rate ultimately is determined by the flow of network traffic and the internet connection for the LAS user and remote user.

Other options are 800x600 and 1024x768, but the larger the size the slower the frame rate will be for the remote user.

Enabling Web Sharing will slow the performance of the LAS computer slightly. However the more remote users are connected, the LAS computer performance will become slower.

Web Sharing requires that a DFC or demo camera should be connected. Otherwise an error dialog will be displayed:



Once Web Sharing is enabled, the panel will also display the network address of the LAS computer, the URL. Web Sharing disables other LAS functions not related to the camera.



Here, the address is shown as:

<http://193.128.84.150/Las/>

and it is this address which the remote user will need to connect to as a web page.

You can copy this address (right-click) and forward to a remote user via email (Copy URL), or test Web Sharing on your own system (Open URL).



Once enabled on the LAS system, the remote user can now connect to the URL address.

The remote user cannot control the LAS live image or the camera, but can see the LAS mouse pointer positions (while it is within the live image viewer), and also LAS Scale Bar.

Web Sharing will continue until it is stopped.

To stop or deactivate Web Sharing, uncheck Enabled, or close LAS.

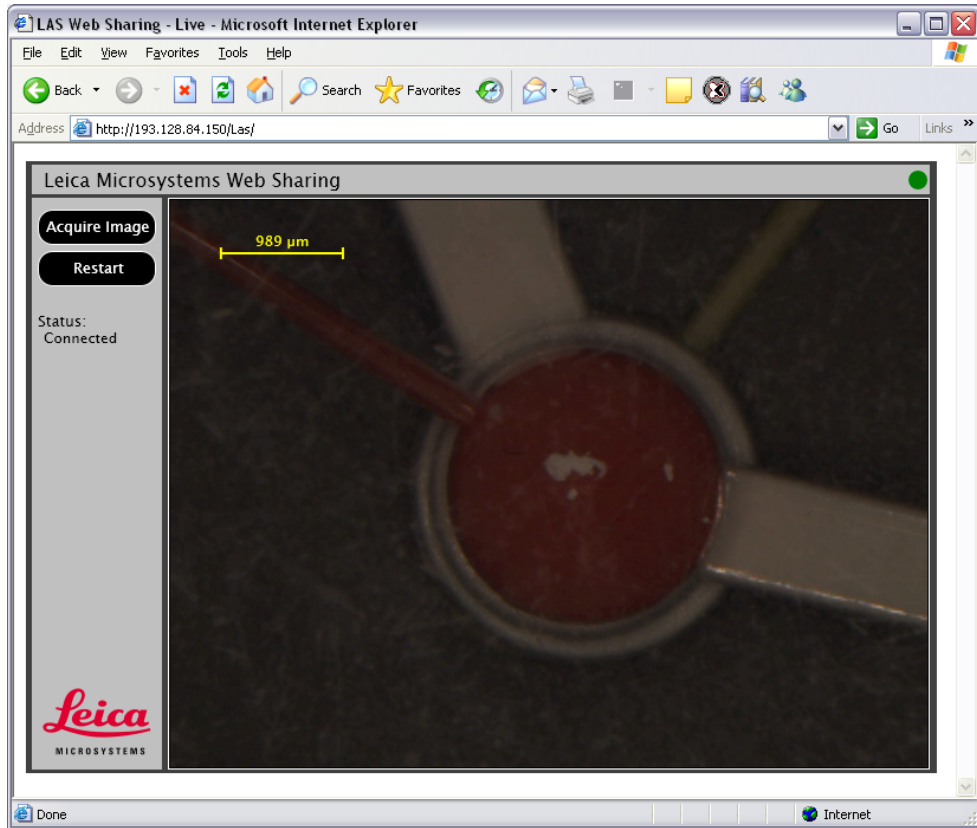
10.4 Remote User

The remote user should open a Web Browser and type the URL address in the Web Page Address line as shown:



If Microsoft Silverlight is not already installed on the remote system, you will be automatically directed to the Microsoft website to download this component. Follow the installation instructions and return the Browser to the Web Sharing address. (JavaScript must also be enabled in the Web Browser.)

Once Silverlight has been installed, the remote Web Sharing page should appear as:



You can capture the image by pressing Acquire Image. The captured image will be displayed in a new web page and can be saved by a right-click over this image. The image size will be the same as the size selected in the Captured Image Size in LAS.

If, for some reason, the remote live image fails or is slow to refresh, you can press Restart or the browser refresh button. This will temporarily stop and reload the page. If there is a lot of internet traffic, the live image may load intermittently. When this happens the status will show as "Buffering.." and the status dot in the top right corner will turn to yellow. A red dot means the LAS web page is not available or has been stopped, and a green dot means you are successfully connected.

Please note that the Web Sharing address is created by the network system of which the LAS computer is part, and may change from time to time. It is not necessarily always the same address from one day to the next.

To disconnect, close the web browser or Web Sharing web page or move to another page.

10.5 Limitations

The remote user will not see the Web Sharing live image if LAS is minimised.

As with any Internet related activity, slow Internet connection or a high volume of traffic will affect the performance of the remote user's connection or live image refresh rate.

Web Sharing currently has no special security measures, and the live or captured images can be viewed by anyone with access to the webpage address.

Too many remote user connections will slow performance of the LAS computer.

Leica Microsystems (Switzerland) Ltd.
Stereo and Macroscopic Systems
CH 9435 Heerbrugg
Switzerland

Telephone: +44 1223 411411
Fax: +44 1223 412526
Hotline: +44 1223 401824
di.support@leica-microsystems.com
www.microscopy-imaging.com

The Leica logo is written in a red, cursive script font. To the right of the logo, there is a vertical black bar at the top and a thin vertical line extending downwards.