

From Eye to Insight



# LAS X

## for Applied Microscopy only

**Release Notes LAS 3.0.14**

## **Release documentation for LAS X 3.0.14**

This document describes the 3.0.14 release of the Leica Application Suite X imaging and analysis software for applied microscopy. You should read this document before installing your copy of this software.

All reasonable steps have been taken to ensure that this publication is correct and complete, but should any user be in doubt about any detail, clarification may be sought from Leica Microsystems CMS GmbH, or their accredited representative. The information in this document is subject to change without notice and should not be construed, as a commitment by Leica Microsystems CMS GmbH. Leica Microsystems CMS GmbH accepts no responsibility for any errors that may appear in this document.

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**Date: October 16<sup>th</sup>, 2020, applying to build number 23224**

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# 1. Compatible Microscopes and Cameras

- 1.1 Compatible Microscopes\*

Microscope/ System	Compatibility	Comments
<u>Inverted Microscopes</u>		
Leica DMI8	NO	
Leica DMI8 M/ C/ A	YES	
Leica DMI6000 B/ with AFC	NO	
Leica DMI5000 M	YES	
Leica DMI4000 B	NO	
Leica DMI3000 B/ M	YES	
Leica DM IL/ M	YES	
Leica DMI1 with integrated camera	NO	only supported in Windows 7, Windows 10 implementation is ongoing
<u>Upright Research Microscopes</u>		
Leica DM4 B/ M/ P	YES	
Leica DM6 B/ M/ as LMD base	YES	
Leica DM12000 M	YES	
Leica DM8000 M	YES	
Leica DM6000 B/ M/ as LMD base	YES	stands with production date >=2008 only
Leica DM5500 B	NO	
Leica DM5000 B	NO	stands with BZ >= 03 only
Leica DM4500 B	NO	stands with production date >=2008 only
Leica DM4000 B/ M/ P /LED	YES	stands with production date >=2008 only
<u>Fixed Stage Microscopes</u>		
Leica DM6 FS	NO	
Leica DM6000 FS	NO	
<u>Stereos and Macroscopes</u>		
Leica M205 C/ A/ FA/ FCA	YES	
Leica M165 C/ FC	YES	
Leica M125/ M125 C	YES	
Leica M80	YES	
Leica M60	YES	
Leica M50	YES	
MZ16 F/ A/ FA	YES	
MZ10 F	YES	
Z16 APO/ APO A	YES	
Z6 APO/ APO A	YES	
S8 APO	YES	
S6 D	YES	
S APO	YES	
S9D / S9i	YES	
<u>Digital Microscopes</u>		
DVM6	YES	
DMS 1000	YES	
DMS 300	YES	
VZ 700C (DVM2500)	YES	

<u>Upright Routine Microscopes</u> Leica DM3000 / LED Leica DM2700 M/ P Leica DM2500 M/ P/ LED Leica DM2000 / LED Leica DM1750 Leica DM1000 / LED  <u>Educational Microscopes</u> Leica DM750 Leica DM500 Leica EZ4E Leica EZ4HD Leica EZ4W	<b>YES</b> <b>YES</b> <b>YES</b> <b>YES</b> <b>YES</b> <b>YES</b>  <b>YES</b> <b>YES</b> <b>YES</b> <b>YES</b> <b>YES</b>	only USB connection, Ethernet not supported only USB connection, Ethernet and Wifi not supported
<u>TIRF and GSD Systems</u> Leica AM TIRF MC Leica AM TIRF MC with AFC Leica SR GSD	<b>NO</b> <b>NO</b> <b>NO</b>	
Confocal systems in combination with Leica AM TIRF MC	<b>NO</b>	
<u>Forensic Stands</u> FSC FSM FS CB FS 4000	<b>NO</b> <b>NO</b> <b>NO</b> <b>NO</b>	
<u>LIBS</u> LIBS Modul	<b>YES</b>	

\* = operating with standard LAS X 3.0.14. LAS X 3.0.14 also contains a new user interface that is designed only for the DVM6 referred to as LAS X.next, this new interface is only compatible with the DVM6.

- 1.2 Compatible Cameras

<b>Leica Color Camera</b>	<b>Leica Monochrome Cameras</b>
DFC295 (3)	DFC3000 G (1)
DFC310 FX (3)	DFC365 FX (3)
DFC450 (3)	DFC9000 GT/GTC (1/4)
DFC450 C (3)	
DFC495 (3)	
DFC550 (3)	
DFC7000 T (1)	
DMC2900 (1)	
DMC4500 (1)	
DMC5400 (1)	
DMC6200 (1)	
IC80 HD (2)	
IC90E (2)	
ICC50 HD/W/E (2)	
MC120 HD (2)	
MC170 HD (2)	
MC190 HD (2)	
FLEXACAM C1 (1)	

- (1) USB 3
- (2) USB 2
- (3) Firewire B
- (4) Camlink

**No more supported as of LAS X Version 3.0.14:**  
**DFC340 FX, DFC345 FX, DFC350 FX, DFC360 FX**  
**DFC 420/420 C, DFC 425/425 C, DFC 490**

Note 1) DMC2900 is only supported with 8 Bit. It will work with a USB2.0 interface but with limited functionality

Note 2) DMC4500 will work with USB2.0 interface but only a single image format available (full frame)

Note 3) DFC3000G & DFC 7000T requires a USB3.0 interface and will not work with USB2.0 interfaces.

Note 4) Wi-Fi and Ethernet connection are not supported in LAS X

## 2. Technical Requirements and Installation

### Warnings

**Warning!! LAS X 3.0.14 is an Industry release only. Do not install on Confocal or Widefield systems.**

**Warning!! Do not install LAS X version 3.0.14 on systems with LAS AF version 2.x or lower.**

**Warning!! Do not upgrade firmware via LAS**

Perform firmware updates only via the Leica Hardware Configurator tool installed together with this LAS X release.

### Operating System

**LAS X 3.0.14 is a genuine 64-bit program and runs on Windows 10 only.**

- 2.1 Compatibility to LAS, LAS AF, former LAS X versions and LMD

#### 2.1.1 Compatibility to former LAS X versions

**LAS X 2.0.0 can be upgraded with LAS X 3.0.14**

**LAS X 3.0.x can be upgraded with LAS X 3.0.14**

**All LAS X 1.x versions can be upgraded with LAS X 3.0.14**

Before installation of LAS X 3.0.14 on a workstation running LAS X 1.7.x or LAS X 1.6.x, it is necessary to uninstall LAS X.

LAS X 1.x dongles used on DVM6 systems need to be upgraded, before using them with LAS X 3.0.8 or higher (otherwise some functions will be missing).

LAS X 3.0.11 or higher can read and process files generated with LAS X 1.x

#### 2.1.2 Compatibility to LAS

LAS X 3.0.14 can read and process single images generated with LAS versions. However, image series generated with LAS need to be imported with the LAS X file importer by entering the metadata manually.

LAS versions cannot read data acquired with LAS AF or LAS X software versions.

### **2.1.3 Compatibility to Leica LMD Laser Microdissection**

LAS X is fully compatible to Leica LMD application software and can be installed on the same workstation.

Important note: Use only one software at a time. The LMD application software and LAS X software cannot be used simultaneously.

LMD application software V8.x supports Win10.



- 2.2 Installing the Correct Firmware Versions

In most cases, the LAS X installation takes care of installing the required microscope firmware. However, in some cases, the updating of the firmware may not take place. The firmware then must be updated manually via the LAS X Hardware Configurator.

The correct versions of firmware for use with LAS X 3.0.14 are:

**DMI 8:**

DMI8 Master (XE167FH200F100L_MASTER.HEX)	V02.71.9705
DMI8 Master FPGA (XP2_17_MASTER.HEX)	V210
SBM I2C (DSPIC33FJ128_SBM_I2C.HEX)	V01.01
motCORR (DSPIC33FJ128_MOT_CORR.HEX)	V01.08
AFC (TMS320F28335_AFC.HEX)	V02.21
SmartMove (TMS320F28023_SMARTMOVE.HEX)	V01.10
Sideports (DSPIC33FJ128_DC_TURRETII.HEX)	V01.06
Bottomport (DSPIC33FJ128_DC_TURRETII.HEX)	V01.06
Z Axis (DSPIC24HJ064_STEPPERA.HEX)	V01.15
XY Axes (DSPIC24HJ064_STEPPERA.HEX)	V01.15
Buttons Left (DSPIC33FJ128_BUTTONS_LEFT.HEX)	V01.08
Buttons Right (DSPIC33FJ128_BUTTONS_RIGHT.HEX)	V01.04
Nosepiece 2 positions (DSPIC33FJ128_NOSEPIECE_2POS.HEX)	V01.01
Nosepiece (DSPIC33FJ128_NOSEPIECE.HEX)	V01.14
IL Turret (DSPIC33FJ128_DC_TURRETII.HEX)	V01.06
Mag. Changer (DSPIC33FJ128_DC_TURRETII.HEX)	V01.06
T-House Splitter (DSPIC33FJ128_DC_TURRETII_B.HEX)	V01.05
DIC (DSPIC33FJ128_STEPPERB.HEX)	V01.05
IL Diaphragms (DSPIC33FJ128_STEPPERB.HEX)	V01.05
PIC GSD (PIC_GIST.HEX)	V01.01
FRAP (DSPIC24HJ064_STEPPERA.HEX)	V01.15
Lamphouse (STM32F301K8_LAMP2.HEX)	V01.01.9999
WF Scanner (DSPIC24HJ064_STEPPERA.HEX)	V01.15
Sequencer 2 (STM32F303CCTX_SEQUENCER2.HEX)	V01.02
Sequencer 2 FPGA (XP2_17_SEQUENCER2.HEX)	V01.24
Touch Panel 2nd Generation (TPC-G2.exe)	2.14.0.9705

**Compound (except DMI 8):**

Master Module (DM4000, DM4500, DM5000) (MAN1.HEX)	V01.31
Leica Screen Module (DM5000) (MAN2.HEX)	V01.07
Master Module (DM5000, DM5500, DM6000, DM6) (SYS.HEX)	V02.50.9705
Master Module (DM4000, DM4500, DM4) (BM-16Bit.HEX)	V02.80.9705
Master Module (DMI6000, DMI5000, DMI4000) (DMI.HEX)	V02.80.9705
Master Module (DM8000, DM12000) (DM8_12000.HEX)	V02.20.9705
Touch Panel 2nd Generation (TPC-G2.exe)	2.14.0.9705
Touch Panel (STP6000) (TPC6000.exe)	1.46.0.9705
DM3000 Master (DM3000.HEX)	V02.30.9705
Condenser Module (PH/DIC) (KONDSCH.HEX)	V01.06
Condenser Module II (PH/DIC) (KONDSCH01.HEX)	V01.01
Condenser Module III (PH/DIC) (KONDSCH02.HEX)	V01.03
XYZ Module (DM6000, DM5500) (XYZ_DIS.HEX)	V01.10
Advanced XYZ Module (XYZ_ADV.HEX)	V03.10.9705
Advanced Z Module (Z_ADV.HEX)	V03.10.9705
LMD 6000 Head (LMD_6000.HEX)	V01.24.9705
Master Module LED4000 (LED4_7000.HEX)	V01.04.9705
LED7000 (LED7000.HEX)	V01.04.9705
AFC DSP (AFC_DSP.HEX)	V01.25
PIC motCORR (PIC_Corr.HEX)	V01.03
PIC GSD (PIC_GIST.HEX)	V01.01

**Stereo:**

Product	Tradename	Application	Bootloader
DMS	DMS300	1.9.25	1.3.00
	DMS1000		
DVM 2500	MEL82 / 85 DCI	4.01.320196	no BL
	MEB121 / 122	3.01.162839	3.01.162696
	MEB128	3.01.218256	3.01.215563
DVM6 A / S / C / M	Sirius XYZ DVM 6 A / S	5.00.498432	5.00.400691
	Sirius Base Conn DVM 6 A / S / C	5.00.484890	5.00.377379
	Sirius Arm LED DVM 6 A / S / C / M	5.00.533950	5.00.377379
	Sirius Zoom Main DVM 6 A / S / C / M	5.00.569227	5.00.377368
	Sirius Camera DVM 6 A / S / C / M	1.38.480849	no BL
	Sirius Camera MCU DVM 6 A / S / C / M	5.00.381414	5.00.381452
Coded Zoom Knob for S9 series	MEL89/MAZ1	5.00.458206	5.00.437655
Macroscope	Z6 / Z16 APO A (V51)	4.01.281758	4.00.231498
	Z6 / Z16 APO A (C51)	4.01.281758	3.02.128967
Dragon Zoom	M125C / M165C / M165FC / M205C / M205FCA Revision 1	5.00.560177	5.00.559779
	M205A / M205FA Revision 1		
	M125C / M165C / M165FC / M205C / M205FCA M205A / M205FA	4.00.400935	4.00.217723
	M-Zoom Display	4.02.511469	no BL
	M205FA / FCA - Automated Filter Wheel Revision 1	5.00.560772	5.00.532274
	M165FC-F Revision 1	5.00.559736	5.00.532274
	M205FA / FCA - Automated Filter Wheel	3.03.481710	4.00.217862
	M165FC-F	3.01.120368	3.01.117634
CAN to RS232 Converter-Cable	MEL90	5.00.479890	5.00.474771
Stereo Zoom	MZ16A / MZ16FA	2.1	no BL
	MZ16FA-F	2.14	no BL
	MZ16xA-D	2.11	no BL
UMC	MHS3	2.12	no BL
Fluo Combi	MRE17 Revision 1	5.00.560185	5.00.559591
Objective Revolver	MRE18 Revision 1		
Fluo Revolver	MRE19 Revision 1		
Fluo Combi	MRE17	4.00.320268	3.02.207905
Objective Revolver	MRE18		
Fluo Revolver	MRE19		
Focus	MST31	1.32	no BL
Dragon Focus	MST66/67 Focus Revision 1	5.00.549848	5.00.519383
	MST51/52/59/66/67 Focus	3.02.492813	3.02.126882
		3.01.116855	<-POF File
	MST5x-DCI	4.01.534019	no BL
MF Hand Control	MHS7	3.01.267191	no BL
TL RCI Base	MDG30	4.01.338410	4.01.263201
TL 5000 Ergo Base / LSI	MDG4x/MDG4xi	4.01.438080	no BL
TL 3000 Ergo Base	MDG43	5.00.446074	5.00.439523
Iso Pro Stage	MTI91 Iso Pro 6x4"	3.01.167675	3.02.147234
	MTI91 XY-DCI	????	<-POF File
XY Joystick	MTI91 XY-DCI	3.01.133449	3.01.117634
	MHS5	3.01.119315	3.01.117634
Footswitch	MFS17 Revision 1		
	MFS17 (V51)	3.03.255036	4.00.254686
	MFS17 (C51)	3.03.255036	3.02.147234
TCU	MHS6	5.00.537513	no BL
LED 3000 BLI	MEB137	3.01.321686	4.00.309569

LED 5000 CXI	MEB112	3.01.136125	3.01.136125
LED 5000 CXI	MEB133	3.01.285257	4.00.290100
LED 3000 HDI	MEB136	3.01.321335	4.00.305195
LED 5000 HDI	MEB111	3.01.267922	4.00.290100
LED 3000 MCI	MEB125	3.01.267778	4.00.290100
LED 5000 MCI	MEB109	3.01.212854	3.01.117634
LED 5000 MCI	MEB129 Revision 1		
LED 5000 MCI	MEB129	3.01.216808	4.00.215703
LED 3000 NVI	MEB113	3.01.136125	3.01.136125
LED 3000 NVI	MEB132	3.01.285050	4.00.290100
LED 5000 NVI	MEB134		
LED 5000 NVI	MEB135	3.01.321246	4.00.309569
LED 5000 RL	MEB110	3.01.128263	3.02.126882
LED 3000 RL	MEB115	3.01.591555	4.00.290100
LED 5000 RL	MEB124	3.01.408218	4.00.291245
LED RL (Spider)	MEB123	3.01.321686	4.00.309569
LED 3000 SLI	MEB126		
LED 5000 SLI	MEB127	3.01.386468	4.00.290100

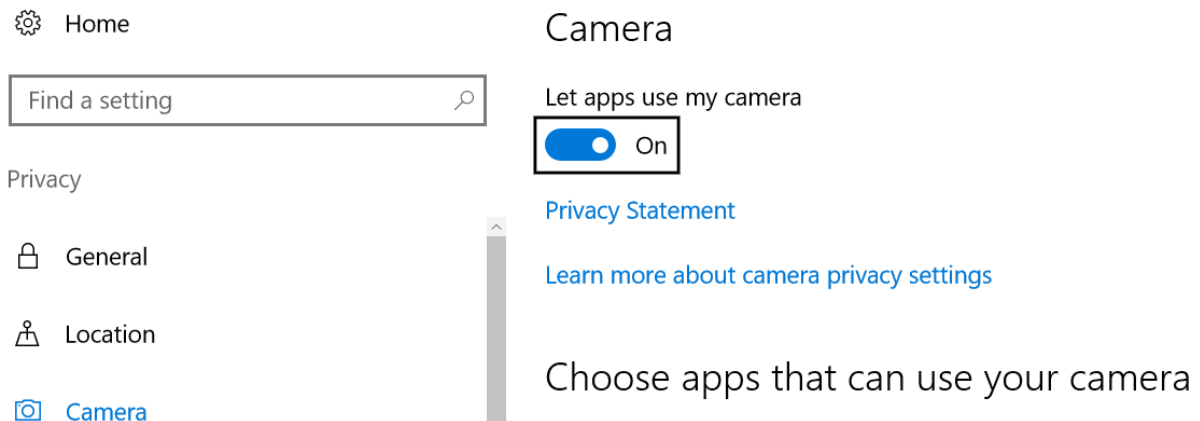
- 2.3 PC Requirements

### 2.3.1 General Requirements:

#### Win 10 Group policies:

Microsoft introduced with Windows 10 build 1803 „Camera Privacy Settings”. There is the possibility to disable/enable the usage of UVC cameras. Please ensure when using **DVM6, ICC50 W, S9i, or EZ4 W/E** that “Let apps use my camera” is enabled.

Settings



#### USB3 cameras:

Leica USB3 cameras are tested with USB3 PCIe cards from DeLock. These cards have a Renesas PD720202 chipset. Leica strongly recommends using these cards. The majority of the Leica USB3 cameras are delivered with this USB3 PCIe card.

If you plan to use a different card or an onboard-USB port with a different chipset, please make sure you have the latest drivers from the card manufacturer and the latest Windows updates installed. Leica cannot guarantee that there is no issue when not using the recommended USB3 PCIe card.

Please also branch the internal power supply when using a card.

Some cameras have considerable power demanding and deliver large amounts of data. Leica recommends using each camera on a separate card. Leica recommends not to use other instruments with high power requirements, such as external hard drives, on the same USB socket.

Some computers have a USB3 charging port (USB3 with a flash sign). We do not recommend using this port, since the camera will never power off and can prevent the computer from rebooting.

### 2.3.2 PC Requirements (except Leica DVM6)

#### Recommended PC Configuration (except Leica DVM6):

Operating System:	Win10 64bit
CPU:	Intel Core i7 CPU 4-Core 3.50GHz
RAM:	16 GB DDR4-2133 4C
Hard drive:	256 GB SSD/1TB HDD
Graphics board:	NVIDIA QUADRO P1000 4GB

#### PC minimum requirements (except Leica DVM6)

Operating System:	Win10 64bit
CPU:	Intel Core-i5 3,20 GHz
RAM:	16 GB DDR3-1333 ECC
Hard drive:	500 GB HDD
Graphics board:	NVIDIA QUADRO P1000 4GB

Graphics board Nvidia NVS 315 (1GB) is sufficient for systems without 3D Visualization

Monitor: minimum screen resolution is 1000 lines vertically

### 2.3.3 PC Requirements for Leica DVM6

#### Recommended PC Configuration Leica DVM6:

Operating System:	Win10 64bit
CPU:	Intel Core i7 CPU 4-Core 4.0GHz
RAM:	16 GB DDR3-1867MHz

Hard drive: 128 GB SSD/2TB HDD (or full SSD min 512 GB, Windows and LAS X are to be installed on the SSD drive)  
Graphics board: AMD Radeon R9 M390 (2 GB)  
Monitor: 5k Display resolution

### **PC minimum requirements Leica DVM6**

Operating System: Win10 64bit  
CPU: Intel Core i7 CPU 4-Core 4.0GHz  
RAM: 16 GB DDR3-1867MHz  
Hard drive: 128 GB SSD/1TB HDD (or full SSD min 512 GB, Windows and LAS X are to be installed on the SSD drive)  
Graphics board: AMD Radeon R9 (2 GB)  
Monitor: 3k Display resolution

**For DVM6 systems that use 3D Surface Viewer, XYZ stitching (or large XY or Z), automated image analysis, please use the 'Recommended PC Configuration'.**

### 3. Product Security Fix

- Update of license component to a new secure version
- Please see the official communication for detailed information
- <https://www.leica-microsystems.com/company/product-security/product-security-updates/>

## 4. Restrictions/ Known Issues

- See **Error! Reference source not found.**
- Mobile Connection: iPads require iOS10 to connect with LAS X.
- Using Windows 10, in some special conditions, the 3D Surface Viewer function will not be available in the Easy Operation Mode. Restarting the system (computer + SW) will solve the issue. This issue appears only on rare occasions, and there are efforts implemented to remediate it for the next release.
- Specimen Overview: if camera image is set to flip X/Y the effect of flipping in the specimen overview image will be displayed after overview acquisition is completed. However, navigation directions are not flipped.
- DMC2900 camera: only 8-bit readout per color channel is supported.
- Restriction for DMI series with manual transmitted light arm: the light intensity of a transmitted light channel can drop to ZERO when changing between channels in the light path settings interface. This restriction does not apply to DMI8.

**Workaround:** keep live image always on when changing between channels

- 2D Analysis (2D Image Analysis) and all related Materials Applications (including Cleanliness Expert and Steel Expert) are restricted to Analysis of Mosaic images << 4 GB raw format size due to windows library caused memory size restrictions.  
! Important note: these restrictions are independent of compression factors the individual file formats offer. Mosaic images saved in .jpg or .png file formats may experience these restrictions also for significantly lower files sizes due to the considerably higher raw format size these images will require during processing.

**Workaround:** reduce tilescan size or camera resolution

- Users upgrading from LAS X 1.7.x to 3.0.x might have a flipped image. This might happen also if LAS X was started with "Simulator" as imaging source.

**Workaround:** flip the stage axis in the Stage Configuration menu.



- Image Preview requires auto exposure to be manually switched off before starting the function (DVM6)

- Default capture location is deselected in Easy Operation mode, if a subfolder of the capture location is renamed.

**Workaround:** set the capture location new

- After a SW crash, sometimes DVM6 delivers just a black image.

**Workaround:** restart both, HW and SW

- At the first SW start, the live image might miss some functionality (no XYZ controls, no AF and no WB). This can happen in very rare occasions.

**Workaround:** Pause and restart live image

- SW Crash with first launch after fresh system installation (combination of DVM6 + iMac)

**Workaround:** Starting the software again after the crash. Crash will not appear again.

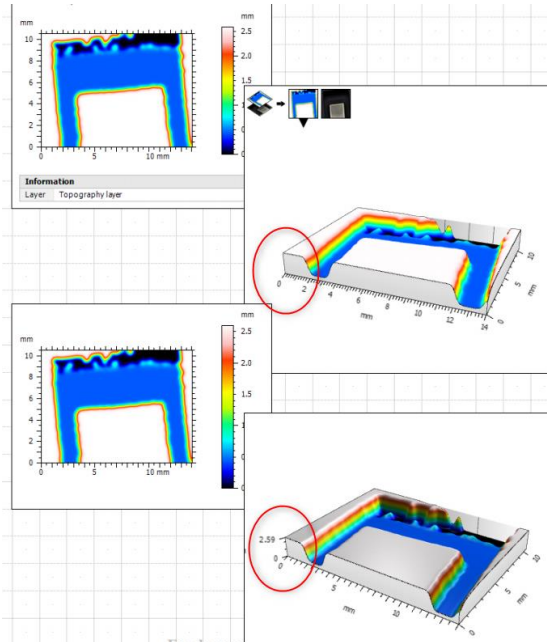
- False positive virus scanner alarms can appear during installation.

**Workaround:** Deactivation of virus scanner during the installation.

- 3D viewer not working (Surface viewer is working correctly!) -> 3D viewer icon is hidden in 3.0.8.



- Leica Map would not display the Z scale in a 3D image – If using Leica Map 7.4.x and higher with LAS X 3.0.6 and higher, there might be some Z scale display issues after exporting the image. This influences only the display (Z scale not shown), the measurements are NOT affected.

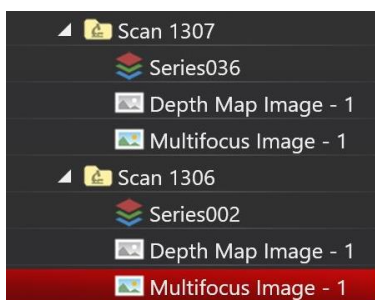


**Workaround:** To resolve this issue, please install Leica Map 7.4.x from the Leica DVD and download / install the latest update (7.4.8495 or higher) from the website of Digital Surf:

<http://www.digitalsurf.com/en/downloads.html>

(Easy update 32-bit or Easy update 64-bit, depending on your system)

- “-1” is added to the end of the Multifocus Image (Z stacks only).



**Workaround:** image name can be edited manually; issue will be corrected for next release.