

From Eye to Insight



LAS X for Widefield

Release Notes LAS X 3.6.1

Release documentation for LAS X 3.6.1

This document describes the 3.6.1 release of the Leica Application Suite X imaging and analysis software for life science research and applied microscopy. You should read this document before installing your copy of this software.

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1. Compatible Microscopes and Cameras

1.1 Compatible Microscopes

Microscope/ System	Compa- tibility	Comments
<u>Inverted Microscopes</u>		
Leica DMI8	YES	
Leica DMI8 C/ A	YES	
Leica DMI6000 B/ with AFC	YES	
Leica DMI4000 B	YES	
Leica DMI3000 B	YES	
Leica DM IL	YES	
<u>Upright Research Microscopes</u>		
Leica DM4 B	YES	
Leica DM6 B	YES	
Leica DM6000 B	YES	
Leica DM5500 B	YES	
Leica DM5000 B	YES	stands with BZ >= 03 only
Leica DM4500 B	YES	stands with production date >=2008 only
Leica DM4000 B	YES	stands with production date >=2008 only
<u>Fixed Stage Microscopes</u>		
Leica DM6 FS	YES	
Leica DM6000 FS	YES	
<u>Stereos and Macroscopes</u>		
Leica M205 C/ A/ FA/ FCA	YES	
Leica M165 C/ FC	YES	
<u>Upright Routine Microscopes</u>		
Leica DM3000 / LED	YES	
Leica DM2000 / LED	YES	
Leica DM1750	YES	
Leica DM1000 / LED	YES	
<u>Educational Microscopes</u>		
Leica DM750	YES	
Leica DM500	YES	

Leica EZ4E	YES	only USB connection, Ethernet not supported
Leica EZ4W	YES	only USB connection, Ethernet and Wifi not supported
<u>Infinity Port Modules</u>		
Infinity TIRF	YES	
Infinity TIRF HP	YES	
Infinity Scanner	YES	
Infinity Scanner FS	YES	
WF FRAP	YES	
Combination PLU and WSU	YES	
<u>TIRF and GSD Systems</u>		
Leica AM TIRF MC	YES	
Leica AM TIRF MC with AFC	YES	
Leica SR GSD	NO	
<u>THUNDER Imagers</u>		
THUNDER Imager Tissue	YES	
THUNDER Imager 3D Tissue	YES	
THUNDER Imager Cell Culture	YES	
THUNDER Imager Live Cell	YES	
THUNDER Imager Model Organism	YES	
<u>CLEM</u>	YES	

1.2 Compatible Cameras

Supplier	Camera Type	Comments
Leica	DFC7000 T	
	DFC7000 GT	
	DFC9000 GT	
	DFC9000 GTC	
	DFC3000 G	
	DMC2900	
	DMC4500	
	DMC5400	
	DFC365 FX	
	DFC360 FX	
	DFC350 FX	
	DFC345 FX	
	DFC340 FX	
	DFC310 FX	
	DFC550	
	DMC6200	
	DFC495	
	DFC490	
	DFC450	
	DFC450 C	
	DFC425 /C	
	DFC420 /C	
	DFC295	
	DVM2500	
	MC120 HD	
	MC170 HD	
	MC190 HD	
	IC80 HD	
	IC90E	USB only
	ICC50 HD	
	DMS1000	
	DMS300	
	DVM6	
	ICC50W	USB only
	ICC50E	USB only
	EZ4W	USB only
	EZ4E	USB only
	EZ4 HD	
	S9i	

Supplier	Camera Type	Comments
Andor	iXon 885	
	iXon 897	
	iXonX3 885	
	iXonX3 897	
	iXonUltra 888	
	iXonUltra Life 897	
	iXonUltra 897	
	Neo 5.5 CL	
	Zyla 4.2 CL	
Hamamatsu	C9100 -02	
	C9100 -13	
	C9100 -14	
	Flash 4.0 V2 CL	
	Flash 4.0 V2 USB	
	Flash 4.0 V3	
	Flash 4.0	
Photometrics	Evolve 512	
	Evolve 512 Delta	
	MYO	
	Prime95B	Ext. trigger only on DMI8 with Synapse
	KINO	
PCO	PCO Edge 5.5 CL	

USB3 cameras:

Leica USB3 cameras are tested with USB3 PCIe cards from DeLock. These cards have a Renesas PD720202 chipset. Leica strongly recommends to use 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 does not assume any liability when not using the recommended USB3 PCIe card.

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

Due to the high power demands of some cameras, and the large amounts of data they deliver, Leica recommends to use each camera on a separate card. Leica recommends not to use other instruments with high power requirements, such as external harddrives, on the same USB socket.

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

2. Technical Requirements and Installation

Warnings

Warning!! LAS X 3.6.1 is a Widefield Research release only. Do not install on Confocal systems nor Applied Microscopy systems.

Operating System

LAS X 3.6.1 is a genuine 64 bit program and runs on Windows 10 and Windows 7 64-bit only.

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

2.1.1 Compatibility to former LAS X versions

Former LAS X versions on widefield research systems can be upgraded with LAS X 3.6.1.

Former LAS X versions on EM Cryo CLEM systems can be upgraded with LAS X 3.6.1, but the performance of the PC might be not good enough to have a smooth software process.

2.1.2 Compatibility to LAS

LAS X 3.6.1 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 LAS AF versions

All LAS AF 4 versions can be upgraded with LAS X 3.6.1

LAS X 3.6.1 and LAS AF 2.x cannot be installed on the same computer, unless it is configured with a dual boot option. Before installation of LAS X 3.6.1 on an offline workstation running LAS AF 2.x, it is necessary to uninstall LAS AF 2.x.

LAS X 3.6.1 does not accept the LAS AF 2.x license dongle and vice versa. Please make sure that the correct dongle is inserted in the workstation. LAS X dongles have a Leica logo engraved and a shiny surface to distinguish them from LAS AF 2.x dongles.

LAS X 3.6.1 can read and process files generated with LAS AF 2.x versions and LAS AF 4.x versions. LAS AF 2.x versions however cannot read all data acquired with LAS AF 4 or LAS X software versions.

2.1.4 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 Win7 und 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 3.6.1 are:

DMI 8:

DMI8 Master (XE167FH200F100L_MASTER.HEX)	V02.61.9116
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	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	V01.15
Sequencer 2	V01.02
Sequencer 2 FPGA	V01.24
Touch Panel 2nd Generation (TPC-G2.exe)	2.14.0.9116

Compound (except DMi8):

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)	V02.40.9116
Master Module (DM4000, DM4500, DM4) (BM-16Bit.HEX)	V02.70.9116
Master Module (DMI6000, DMI5000, DMI4000) (DMI.HEX)	V02.80.9116
Master Module (DM8000, DM12000) (DM8_12000.HEX)	V02.10.9116
Touch Panel 2nd Generation (TPC-G2.exe)	2.14.0.9116
Touch Panel (STP6000) (TPC6000.exe)	1.46.0.9116
DM3000 Master (DM3000.HEX)	V02.30.9116
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)	V03.10.9116
Advanced Z Module (Z_ADV.HEX)	V03.10.9116
LMD 6000 Head (LMD_6000.HEX)	V01.24.9116
Master Module LED4000 (LED4_7000.HEX)	V01.04.9116
LED7000 (LED7000.HEX)	V01.04.9116
AFC DSP (AFC_DSP.HEX)	V01.25
PIC motCORR (PIC_Corr.HEX)	V01.03
PIC GSD (PIC_GIST.HEX)	V01.01

Stereos:

	M205FA	M165 FC	MacroFluo
Zoom	4.00.511469	4.00.511469	4.01.281758
Filter Wheel	3.03.481710	3.01.120368	---
Focus	3.02.492813	3.02.492813	3.02.492813
Focus DCI (Dragon Focus)	4.01.438861	4.01.438861	4.01.438861
Smart Touch (TCU)	5.00.497063	5.00.497063	5.00.497063
TL RCI Base	4.01.338410	4.01.338410	4.01.338410
TL LED (TL 5000 Ergo B.)	4.01.438080	4.01.438080	---
TL 3000 Ergo Base	5.00.446074	5.00.446074	
IsoPro Stage (6x4")	3.01.167675	3.01.167675	3.01.167675
IsoPro DCI	3.01.133449	3.01.133449	3.01.133449
Obj. revolver	4.00.320268	4.00.320268	---
Footswitch	3.03.255036	3.03.255036	3.03.255036

2.3 PC Requirements

2.3.1 PC Requirements

Recommended PC Configuration:

Operating System: Win10 64bit
CPU: Intel XEONW-2123 3.6 4C CPU
RAM: 64GB DDR4 2666 ECC REG RAM
1st hard drive: 512 GB SSD
2nd hard drive: 4TB 7200 SATA ENT 3.5 2ND HDD
Graphics board: NVIDIA QUADRO P1000 4GB

High-speed triggered sCMOS cameras or high-speed Navigator experiments require a SSD RAID NVMe hard disk.

Minimum requirements for EM Cryo CLEM 3 systems:

Operating System: Win10 64bit
CPU: Intel XeonW-2123 3.6 4C
RAM: 128 GB DDR4-2666 ECC REG
1st hard drive: SSD 512 GB SATA
2nd hard drive: 2TB SSD RAID NVMe hard disk
Graphics board: NVIDIA Quadro P1000 (4 GB)
Monitor: minimum screen resolution is 1000 lines vertically

PC minimum requirements (except EM Cryo CLEM 3)

Operating System: Win7 64bit
CPU: Intel Core-I5 3,20 GHz
RAM: 16 GB DDR3-1333 ECC
Hard drive: 500 GB HDD
Graphics board: NVIDIA Quadro K600 (1GB)

3. Product Security Fix

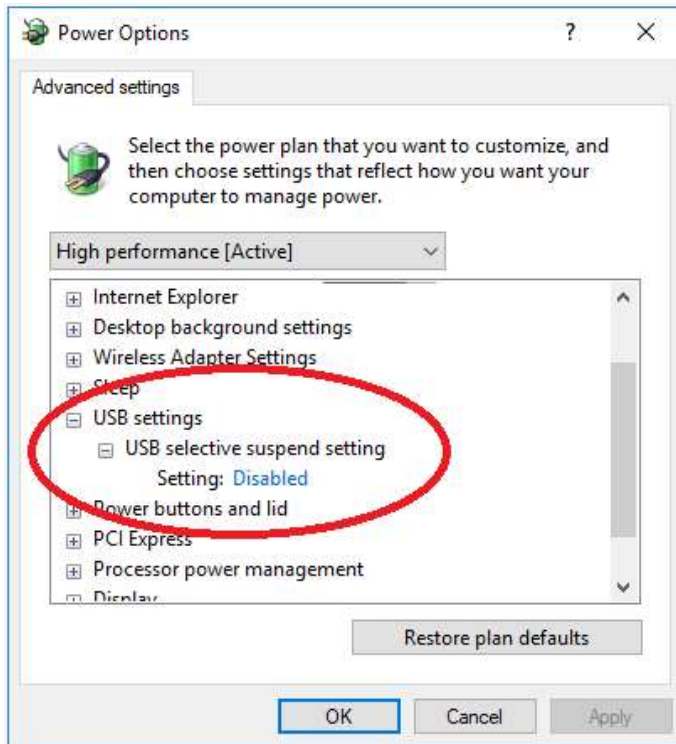
Update of license component to a new secure version

Please see the official communication for detailed information

<https://www.leica-microsystems.com/company/product-security/product-security-updates/>

4. Important Information

- High-speed triggered sCMOS cameras or high-speed Navigator experiments require the temp file being located on a SSD RAID NVMe hard disk. Temp file on a normal SSD disk may cause the experiment to stop without being completed.
- "Data handling in folders" requires more space on the temp drive compared to working in projects. For large experiments it is recommended to use "Data handling in projects".
- Experiments with high-speed autofocus and camera in global reset require the experiment to start with a selected acquisition channel. Starting the experiment with a selected autofocus channel can lead to underexposed images.
- Particle tracking and "Analyze for all time points" not working in 2D Analysis. However, particle tracking and analysis over time is working fine in 3D analysis.
- EM Cryo CLEM: DFC9000 GT is the tested and approved camera for the EM Cryo CLEM. No other camera should be used.
- When installing LAS X from USB-Stick, Trend Micro blocks the AUTORUN.inf. Workaround: start setup.exe manually.
- When using USB cameras: please disable "USB selective suspend setting" in Windows advanced power settings. LAS X workstations have these settings already preset.



- Photometrics Evolve: brightness of images between live and high-speed acquisition may differ.
- Leica DFC550 and 3d party cameras (various models from Andor, Hamamatsu, PCO): no different binning values for live and acquired images possible.
- HDR acquisition with camera: only 8 bit, high-speed acquisition not supported
- If you use a multicolor lightsource on your system, you've to set the IL shutter mode in the hardware configurator to "Always open after changing contrasting method". Otherwise the hardware shutter of the fluo axis stays closed.
- Sutter DG4/DG5 – New versions of this light source, which have changed from RS232 connection to USB connection, are not supported in LAS X.
- Specimen overview is not offered anymore in LAS X Standard UI. Overviews are now generated within the LAS X Navigator.
- LAS X Navigator is not available within the Easy Operation mode.
- Use Do not use Navigator in combination with data handling "Work in Folders". Navigator experiments require data handling "Work in Projects" (Configuration tab -> User Configuration -> Data handling -> "Work in Projects")
- Do not stop an experiment with remaining manipulation steps in the Scan Sequencer. If stopped, the remaining manipulation steps cannot be deleted from the Infinity Scanners memory. All subsequent manipulations will trigger the remaining manipulations and not the actual definition.

- The scan sequencer works with AFC in continuous mode but not with the image based autofocus (HSAF).
- If LAS X is to be installed on the same workstation as the LMD application software, install first the LMD application software and then the LAS X Software afterwards. Important note: Use only one software at a time. The LMD application software and LAS X software cannot be used simultaneously.
- Huygens Deconvolution: Export of experiments from LAS X to Huygens can fail when using older Huygens versions.
Workaround: Please make sure Huygens version 15.10. or above is installed.
- If an objective is changed via LAS X Inplace Configuration it can happen that in the AFC Panel the AFC cannot be set to "HOLD FOCUS POSITION" or "USE AFC". The checkbox might be grayed out.
Workaround: Close LAS X and use the HW configurator to teach in the objectives again followed by power cycle the microscope. Then start the LAS X again.
- Image intensities in the live image of a high-speed autofocus channel can differ from the intensities of the high-speed autofocus channel during an experiment. Workaround: use integer numbers for exposure time in the high-speed autofocus channel, e.g. 4,0msec instead of 3,9msec.
- Advanced Sequencer with TL and IL lamps controlled via I2C connection: image can be illuminated incorrectly. Workaround: use a real TTL Trigger signal to control the shutter.
- After acquiring an image with FLUO-PH or FLUO-DIC the illumination panel disappears. Workaround: switch to a different contrasting method (not FLUO-PH or FLUO-DIC).
- Image export: Do not delete experiment data during export of the experiment. Otherwise the exported data will be corrupted.
- 3D Surface Viewer is not supported in LASX 3.6.1
- Live stream recording: with Windows 7 and MP4, max resolution is 1920x1088 pixel
- If you teach in a new TIRF cube or replace an existing one with another type in the Hardware Configurator, please do not forget to fine-tune afterwards. Otherwise, the software may use incorrect TIRF fine-tune information.
- Z-stack acquisition with finefocus in combination with "AFC on demand" does not work.
- 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

- Stereomicroscopes: Measurement function in live mode works incorrectly after an objective change. Please leave and re-enter the live mode to readjust the measurement function.
- Mobile Connection: iPads require iOS10 to connect with LAS X.
- LAS X is released for use with Windows Defender Antivirus and TrendMicro Antivirus.
- User Management is renamed to Access Management