From Eye to Insight

LAS X
for Widefield Research

Release Notes LAS X 3.11.1

Release documentation for LAS X 3.11.1

This document describes the 3.11.1 release of the Leica Application Suite X imaging and analysis software for life science research. 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.

Date: March 10, 2026, applying to build number 30653

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1. Technical Requirements and Installation

1.1 Warnings

LAS X 3.11.1 is a **Widefield Research release supporting Viventis SCAPE**.
Do not install on Confocal systems nor Applied Microscopy systems.

If **"Start THUNDER after acquisition automatically"** is OFF, the THUNDERed data will not be available in the project tree.

Workaround: Switch "Start THUNDER after acquisition automatically" ON. This setting will be kept also on LAS X restart. Alternatively, the raw data can be processed within the process tab.

If **Single Image** or **Capture** is pressed the THUNDERed data will not be available in the project tree no matter if **"Start THUNDER after acquisition automatically"** is ON or OFF. Repetitive pressing of Single Image or Capture while THUNDER On The Fly is active can create a new project in the project tree.

Workaround: Do not use THUNDER On The Fly in combination with Single Image or Capture.

Individual Z stacks are not possible in LAS X 3.11.1.
“Same Stack Size for all Regions” is always ON.

Attention: NVIDIA’s latest driver has discontinued support for the GeForce GTX 1080 Ti.

Users with GTX 1080 Ti must manually install the latest supported driver version 581.80. Please note that this driver is not tested anymore with LASX.

Further information: https://www.guru3d.com/story/nvidia-has-ended-windows-support-for-maxwell-and-pascal-gpus-with-driver-59144/

LAS X 3.11.1 does not support:

- **DMI6000 B/ with AFC**
- **DMI4000 B**
- **DMI3000 B**
- **AM TIRF MC**
- **AM TIRF MC with AFC**
- **SR GSD**

The following hardware will not work with Windows Core Isolation:

- **Maerzhaeuser Tango Desktop (SCAN plus IM 130x85)**
- **Maerzhaeuser Tango Pilot (Motorized stage 75x50)**
- **Tokai Hit Climate Control**
- **Lumen Dynamics X-Cite XLED1**

Systems with Hamamatsu Flash camera: updating from LAS X versions below 3.10.0 requires configuring the Flash camera in the Hardware Configurator once again. Otherwise, it will not be loaded.

1.2 Operating System

LAS X 3.11.1 is a genuine 64-bit program and runs on **Windows 11 and Windows 10.**

Windows 11 N and Windows 10 N versions require the Windows Media Feature Pack to be installed before starting LAS X. For installation of Windows Media Feature Pack please follow the procedure described below:

Check Windows Version:

- Windowskey+R and run "Winver" or
- Settings/System/Info

Windows 11 N: Select the Start button, then select Settings > Apps > Optional features. Select View features next to Add an optional feature, and then select the Media Feature Pack in the list of available optional features.

Windows 10 N: Select the Start button, then select Settings > Apps > Apps & features > Optional features > Add a feature. Then locate the Media Feature Pack in the list of available optional features.

1.3 Cybersecurity Advices

Leica Microsystems recommends the installation of all available security updates and hotfixes for Microsoft Windows.

Please check the regularly updated Leica Microsystems Product Security web page to get the latest information and recommendation regarding product security vulnerabilities and detailed mitigation strategies:
www.leica-microsystems.com/company/product-security/

A detailed privacy and security manual can be found at
https://www.leica-microsystems.com/products/microscope-software/p/leica-las-x-ls/downloads/

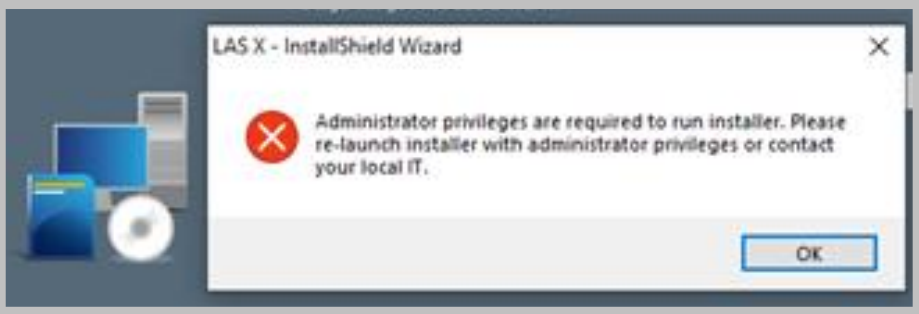
If you need further information or are not sure about security fixes suggested by a system component manufacturer, please contact us via www.leica-microsystems.com/service/

If a vendor of a PC system component announces severe security vulnerability, it is also recommended to update the drivers/software as suggested by the vendor (i.e. graphic card drivers).

1.4 Policy Restrictions

Address company specific IT policy restrictions

Note: If you observe the following message during installation:



Dependent on your IT policy you might miss rights for a proper SW installation.

Potential workaround:

Log in with a local administrator account (outside domain)

Install LASX from this account.

1.5 PC Requirements

Recommended PC Configuration:

Operating System:	Win11 Pro64
Processor:	Intel Core i7-13700 2.1GHz, 16Cores
Main Memory:	32GB DDR5 4800 ECC RAM
Graphics Board:	NVIDIA RTX A2000 12GB 4mDP GFX
System Drive:	512GB PCIe 2280 M.2 SSD
Temp Drive:	1TB PCIe 2280 M.2 SSD
Data Drive:	4TB 7200 SATA Enterprise 3.5” HDD

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

PC minimum requirements

Operating System:	Win10 64bit
Processor:	Core i5-13600 (2.7GHz, 24 MB cache, 14 cores)
Main Memory:	16GB RAM DDR5 4800
Graphics Board:	NVidia T400 (4 GB)
System/Temp.Drive:	512GB SSD
Data Drive:	2TB HDD

1.6 Graphics Card Drivers

NVIDIA RTX A5000 (Ada), RTX 4500 Ada, A4000 (Ada), A2000:

581.80-quadro-rtx-desktop-notebook-win10-win11-64bit-international-dch-whql.exe

NVIDIA Quadro T1000, T400:

591.44-desktop-win10-win11-64bit-international-dch-whql.exe

Attention: NVIDIA's latest driver has discontinued support for the GeForce GTX 1080 Ti.

Users with GTX 1080 Ti must manually install the latest supported driver version 581.80. Please note that this driver is not tested anymore with LASX.

Further information: https://www.guru3d.com/story/nvidia-has-ended-windows-support-for-maxwell-and-pascal-gpus-with-driver-59144/

2. Compatible Microscopes and Cameras

2.1 Compatible Microscopes

Microscope/ System	Compa-tibility	Comments
Inverted Microscopes		
DMi8	YES	
DMi8 C/ A	YES	
DMI6000 B/ with AFC	NO	
DMI4000 B	NO	
DMI3000 B	NO	
DM IL	YES	
Upright Research Microscopes		
DM4 B	YES	
DM6 B	YES	
DM6 B Synapse supported	YES	
DM6000 B	YES	stands with production date>=2008 only
DM5500 B	YES	stands with production date>=2008 only
DM5000 B	YES	stands with production date>=2008 only
DM4500 B	YES	stands with production date >=2008 only
DM4000 B	YES	stands with production date >=2008 only
Fixed Stage Microscopes		
DM6 FS	YES	
DM6 FS Synapse supported	YES	
DM6000 FS	YES	
Stereos and Macroscopes		
M205 C/ A/ FA/ FCA	YES	
M165 C/ FC	YES	
Upright Routine Microscopes		
DM3000 / LED	YES	
DM2000 / LED	YES	
DM1750	YES	
DM1000 / LED	YES	
Educational Microscopes		
DM750	YES	
DM500	YES	

EZ4E	NO	
EZ4W	NO	
Infinity Port Modules		
Infinity TIRF	YES	
Infinity TIRF HP	YES	
Infinity Scanner	YES	
Infinity Scanner FS	YES	
WF FRAP	NO	
Combination PLU and WSU	YES	
Viventis SCAPE	YES	
TIRF and GSD Systems		
AM TIRF MC	NO	
AM TIRF MC with AFC	NO	
SR GSD	NO	
THUNDER Imagers		
THUNDER Imager | Tissue	YES	
THUNDER Imager | Cell	YES	
THUNDER Imager | Model Organism	YES	
THUNDER Imager | EM Cryo CLEM	NO	
THUNDER Imager | Nano	YES	

2.2 Compatible Cameras

Supplier	Camera Type	Comments
Leica	DFC7000 T	Ext. Trigger
	DFC7000 GT	Ext. Trigger
	K8	Ext. trigger only with Advanced Sequencer functionality
	K7	Ext. trigger only with Advanced Sequencer functionality
	K5	Ext. Trigger
	K5C	
	K3C	Ext. trigger only with Advanced Sequencer functionality
	K3M	Ext. trigger only with Advanced Sequencer functionality
	DFC9000 GT	Ext. Trigger
	DFC9000 GTC	Ext. Trigger
	DFC3000 G	Ext. Trigger
	DMC2900	
	DMC4500	
	DMC5400	
	FLEXACAM C1	
	Flexacam C3	Firmware above 302z is not supported.
	DMC6200	
	IC90E	USB only
	ICC50W	USB only
	ICC50E	USB only
Andor	iXonUltra 888	Ext. Trigger
	iXonUltra Life 897	Ext. Trigger
	iXonUltra 897	Ext. Trigger
Hamamatsu	Flash 4.0 V2 CL	Ext. Trigger
	Flash 4.0 V2 USB	Ext. Trigger
	Flash 4.0 V3 CL	Ext. Trigger
	Flash 4.0 V3 USB	Ext. Trigger
	Fusion	Ext. trigger only with Advanced Sequencer functionality
Photometrics	Prime 95B PCIe	Ext. Trigger
	Prime 95B USB3	Ext. Trigger
	Kinetix22 PCIe	Ext. trigger only with Advanced Sequencer functionality
	Kinetix22 USB3	Ext. trigger only with Advanced Sequencer functionality

USB3 cameras:

Leica USB3 cameras K3C, K3M, K5C, DMC2900/4500/5400, DFC3000/7000 T/GT 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 does not assume any liability when not using the recommended USB3 PCIe card.

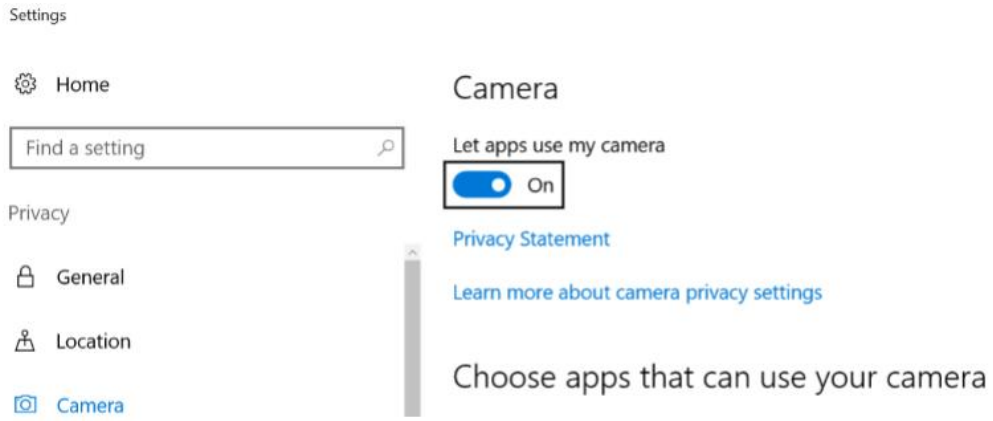
Please also branch the internal power supply when using a card.

Due to the high-power demands of some cameras, and the large amounts of data they deliver, Leica recommends 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 Camera Privacy Settings:

Microsoft introduced since Windows 10 build 1803 „Camera Privacy Settings". There is the possibility to disable/enable the usage of UVC cameras. Please ensure when using ICC50 W/E, IC90 E, Flexacam C1/C3 that "Let apps use my camera" is enabled.



2.4 Compatibility with the former LAS X Versions and LMD

Compatibility to former LAS X Versions

Former LAS X versions on widefield research systems can be upgraded with LAS X 3.11.1

Compatibility to Leica LMD Laser Microdissection

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

Attention! LMD must be installed prior to LAS X installation. If LMD is installed after LASX, the camera module for drivers must be ran again.

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

LMD application software V8.1 and higher support Win10.

LMD application software V8.4 and higher support Win10 and Win11.

2.5 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 3.11.1 are:

DMI 8:

DMi8 Master II (STM32H743XI_MASTER_DMi8.HEX)	V03.30.9999
DMi8 Master II FPGA (LFE5UM-45F-7BG554C_MASTER.HEX)	V01.19
DMi8 Master II FPGA (LFE5U-45F-7BG554C_MASTER.HEX)	V01.19
DMI8 Master (XE167FH200F100L_MASTER.HEX)	V03.70.99999
DMI8 Master FPGA (XP2_17_MASTER.HEX)	V210
SCAPE Galvo (STM32H563RI_MOTCONTROLGALVO_LIGHTSHEET.HEX)	V01.11
SCAPE Galvo Config (STM32H563RI_MOTCONTROLGALVO_LIGHTSHEET_CONFIG.HEX)	V01.14
SCAPE LS Wheels (STM32H563RI_MOTCONTROLTMC_SCAPELSWHEELS.HEX)	V01.00
SCAPE LS Wheels Config (STM32H563RI_MOTCONTROLTMC_SCAPELSWHEELS_CONFIG.HEX)	V00.08
SCAPE Mirrors (STM32F446RE_MOTCONTROL_MIRRORS.HEX)	V02.06
SCAPE Mirrors Config (STM32F446RE_MOTCONTROL_MIRRORS_CONFIG.HEX)	V01.12
SCAPE Power Distributor (STM32F303CC_POWERA_SCAPE.HEX)	V01.29
SCAPE Power Distributor Config (STM32F303CC_POWERA_SCAPE_CONFIG.HEX)	V01.03
Water Dispenser (STM32F446RE_WATERDISPENSER_1.HEX)	V01.40
Water Dispenser Config (STM32F446RE_WATERDISPENSER_1_CONFIG.HEX)	V01.13
Status Indicator (STM32F303CC_LIGHT_STATUS.HEX)	V01.28
Status Indicator Config (STM32F303CC_LIGHT_STATUS_CONFIG.HEX)	V01.01
Power Distributor (STM32F303CC_PWRDISTRIBUTOR_1.HEX)	V01.31
Power Distributor Config (STM32F303CC_PWRDISTRIBUTOR_1_CONFIG.HEX)	V01.02
SBM I2C (DSPIC33FJ128_SBM_I2C.HEX)	V01.01
WF Scanner (DSPIC24HJ064_STEPPERA.HEX)	V01.15
LSU LaserModule (STM32H563RI_LASERMODULE_LSU.HEX)	V01.00
LSU LaserModule Config (STM32H563RI_LASERMODULE_LSU_CONFIG.HEX)	V00.01
LSU LaserModule FPGA (ECP5_LASERMODULE_LSU.HEX)	V01.02
Sequencer 2 (STM32F303CCTX_SEQUENCER2.HEX)	V01.02
Sequencer 2 FPGA (XP2_17_SEQUENCER2.HEX)	V01.29
T-House Splitter (DSPIC33FJ128_DC_TURRETII_B.HEX)	V01.05
motCORR (DSPIC33FJ128_MOT_CORR.HEX)	V01.11
AFCX (TMS320F28335_AFCX.HEX)	V03.10
AFC FPGA (XP2_30_AFC.HEX)	V03.01
LED Module (STM32F303CC_LEDMODUL_4LED.HEX)	V01.79
LED Module Config (STM32F303CC_LEDMODUL_4LED_CONFIG.HEX)	V01.10
LED Module FPGA (ECP5_LEDMODUL_4LED.HEX)	V01.06
LED Module (STM32F303CC_LEDMODUL_4LED-BZ02.HEX)	V01.79
LED Module Config (STM32F303CC_LEDMODUL_4LED-BZ02_CONFIG.HEX)	V01.00

LED Module FPGA (ECP5_LEDMODUL_4LED-BZ02.HEX)	V01.06
LED Module (STM32F303CC_LEDMODUL_4LED-BZ03.HEX)	V01.79
LED Module Config (STM32F303CC_LEDMODUL_4LED-BZ03_CONFIG.HEX)	V01.00
LED Module FPGA (ECP5_LEDMODUL_4LED-BZ03.HEX)	V01.06
SmartMove (TMS320F28023_SMARTMOVE.HEX)	V01.10
Sideports (DSPIC33FJ128_DC_TURRETII.HEX)	V01.07
Touch Panel 2nd Generation (TPC-G2.exe)	2.19.0.5
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)	V01.17
Lamphouse (STM32F301K8_LAMP2.HEX)	V01.03.9999
IL Turret (DSPIC33FJ128_DC_TURRETII.HEX)	V01.07
Mag. Changer (DSPIC33FJ128_DC_TURRETII.HEX)	V01.07
DIC (DSPIC33FJ128_STEPPERB.HEX)	V01.05
IL Diaphragms (DSPIC33FJ128_STEPPERB.HEX)	V01.05

Compound (except DMI 8):

Master Module (DM6 2020) (XE167FH200F100L_MASTER_DM.HEX)	V02.00.9999
Master Module (DM6, DM5000, DM5500, DM6000) (SYS.HEX)	V02.60.12940
Master Module (DM4, DM4000, DM4500) (BM-16Bit.HEX)	V03.00.9999
Master Module (DMI6000, DMI5000, DMI4000) (DMI.HEX)	V02.91.12940
Master Module (DM8000, DM12000) (DM8_12000.HEX)	V02.30.12940
Master Module (DM4000, DM4500, DM5000) (MAN1.HEX)	V01.31
DM Master FPGA (XP2_17_MASTER.HEX)	V210
SBM I2C (DSPIC33FJ128_SBM_I2C.HEX)	V01.01
motCORR (DSPIC33FJ128_MOT_CORR.HEX)	V01.11
SmartMove (TMS320F28023_SMARTMOVE.HEX)	V01.10
Z Axis (DSPIC24HJ064_STEPPERA.HEX)	V01.15
XY Axes (DSPIC24HJ064_STEPPERA.HEX)	V01.15
Nosepiece 2 positions (DSPIC33FJ128_NOSEPIECE_2POS.HEX)	V01.01
Nosepiece (DSPIC33FJ128_NOSEPIECE.HEX)	V01.17
IL Turret (DSPIC33FJ128_DC_TURRETII.HEX)	V01.07
Mag. Changer (DSPIC33FJ128_DC_TURRETII.HEX)	V01.07
TL Diaphragms (DSPIC33FJ128_STEPPERB.HEX)	V01.05
DIC, ZHw, Tub (DSPIC33FJ128_STEPPERB.HEX)	V01.05
IL Diaphragms (DSPIC33FJ128_STEPPERB.HEX)	V01.05
Zoom (DSPIC33FJ128_STEPPERB.HEX)	V01.05
Lamphouse (STM32F301K8_LAMP2.HEX)	V01.03.9999
Sequencer 2 (STM32F303CCTX_SEQUENCER2.HEX)	V01.02
Sequencer 2 FPGA (XP2_17_SEQUENCER2.HEX)	V01.27
IL Module DM (STM32F303CCTX_ILMODULEDM.HEX)	V01.11
Condenser 2 DM (STM32F303CCTX_CONDENSER2DM.HEX)	V01.02.9999
Touch Panel 2nd Generation (TPC-G2.exe)	2.19.0.5
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
Leica Screen Module (DM5000) (MAN2.HEX)	V01.07
XYZ Module (DM6000, DM5500) (XYZ_DIS.HEX)	V01.10
Master Module LED4000 (LED4_7000.HEX)	V01.04.12940
LED7000 (LED7000.HEX)	V01.04.12940
Advanced XYZ Module (XYZ_ADV.HEX)	V03.40.12940
Advanced Z Module (Z_ADV.HEX)	V03.40.12940
LMD 6000 Head (LMD_6000.HEX)	V01.24.12940
PIC motCORR (PIC_Corr.HEX)	V01.03

Stereo:

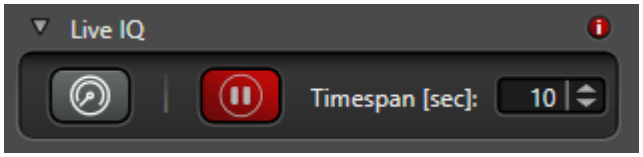
DVM6-Base	V5.00.484890	(DVM6_Base.bin)
DVM6-Base BOOT	V5.00.377379	(DVM6_Base_BootLoader.bin)
DVM6-Base BOOT	V5.00.377379	(DVM6_Base_BootUpdater.bin)
DVM6-LED	V5.00.533950	(DVM6_LED.bin)
DVM6-LED BOOT	V5.00.377379	(DVM6_LED_BootLoader.bin)
DVM6-LED BOOT	V5.00.377379	(DVM6_LED_BootUpdater.bin)
DVM6-MCU	V5.00.381414	(DVM6_MCU.hex)
DVM6-MCU BOOT	V5.00.387276	(DVM6_MCU_BootLoader.hex)
DVM6-MCU BOOT	V5.00.400733	(DVM6_MCU_BootUpdater.hex)
DVM6-Zoom	V5.00.569227	(DVM6_Zoom.bin)
DVM6-Zoom BOOT	V5.00.377368	(DVM6_Zoom_BootLoader.bin)
DVM6-Zoom BOOT	V5.00.377368	(DVM6_Zoom_BootUpdater.bin)
M205-D	V5.00.656739	(M205_D.bin)
MAZ1	V5.00.458206	(MAZ1.bin)
MAZ1 BOOT	V5.00.437655	(MAZ1_BootLoader.bin)
MAZ1 BOOTUPDATE	V5.00.437655	(MAZ1_BootUpdater.bin)
MDG30	V4.01.338410	(MDG30.hex)
MDG30 BOOT	V4.01.263201	(MDG30_CANBoot.hex)
MDG30	V4.01.338410	(MDG30_FULL.hex)
MDG43	V5.00.446074	(MDG43.bin)
MDG43 BOOT	V5.00.439523	(MDG43_BootLoader.bin)
MDG43 BOOTUPDATE	V5.00.439523	(MDG43_BootUpdater.bin)
MDG41i	V4.01.438080	(MDG4x.bin)
MEB109	V3.01.212854	(MEB109_V51.hex)
MEB109 BOOT E	V3.01.117634	(MEB109_V51_CANBoot_Updater.hex)
MEB110	V3.01.128263	(MEB110_V51.hex)
MEB110 BOOT E	V3.02.126882	(MEB110_V51_CANBoot_Updater.hex)
MEB111	V3.01.267922	(MEB111_C30.hex)
MEB111 BOOT	V4.00.290100	(MEB111_C30_CANBoot_Updater.hex)
MEB112	V3.01.136125	(MEB112_C30.hex)
MEB113	V3.01.136125	(MEB113_C30.hex)
MEB115	V3.01.591555	(MEB115_C30.hex)
MEB115 BOOT	V4.00.290100	(MEB115_C30_CANBoot_Updater.hex)
MEB122	V3.01.162839	(MEB121_122_C30.hex)
MEB124	V3.01.408218	(MEB124_C30.hex)
MEB124 BOOT	V4.00.291245	(MEB124_C30_CANBoot_Updater.hex)
MEB125	V3.01.267778	(MEB125_C30.hex)
MEB125 BOOT	V4.00.290100	(MEB125_C30_CANBoot_Updater.hex)
MEB127	V3.01.386468	(MEB126_127_C30.hex)
MEB126 BOOT	V4.00.290100	(MEB126_127_C30_CANBoot_Updater.hex)
MEB128	V3.01.218256	(MEB128_C30.hex)
MEB129	V3.01.216808	(MEB129_V51.hex)
MEB129 BOOT E	V3.01.117634	(MEB129_V51_CANBoot_Updater.hex)
MEL82-DCI	V4.01.320196	(MEL82DCI.bin)
	V5.00.479890	(MEL90.bin)
	V5.00.474771	(MEL90_BootLoader.bin)
	V5.00.474771	(MEL90_BootUpdater.bin)
MFS17	V3.03.255036	(MFS17.hex)
MFS17 BOOT E	V3.02.147234	(MFS17_CANBoot_Updater.hex)
	V5.00.644974	(MFS17_r1.bin)
MFS17	V3.03.255036	(MFS17_V51.hex)
MFS17 BOOT F	V4.00.254686	(MFS17_V51_CANBoot_Updater.hex)
MHS3	V2.12	(MHS3.hex)
MHS5	V3.01.119315	(MHS5.hex)
MHS5 BOOT E	V3.01.117634	(MHS5_CANBoot_Updater.hex)
MHS6	V5.00.537513	(MHS6.chex)
MHS7	V3.01.267191	(MHS7.bin)
	V5.00.560185	(MRE18_r1.bin)

	V5.00.559591	(MRE18_r1_BootLoader.bin)
	V5.00.559591	(MRE18_r1_BootUpdater.bin)
MRE17/18/19	V4.00.320268	(MRE18_V51.hex)
MRE17/18 BOOT E	V3.02.207905	(MRE18_V51_CANBoot_Updater.hex)
MST 31/34	V1.32	(MST31.hex)
MST51	V3.02.492813	(MST51_V51.hex)
MST51 BOOT E	V3.02.126882	(MST51_V51_CANBoot_Updater.hex)
MST5x-DCI	V4.01.782974	(MST5XDCI.bin)
	V6.00.780774	(MST5x_r1.bin)
	V5.00.519383	(MST5x_r1_BootLoader.bin)
	V5.00.517630	(MST5x_r1_BootUpdater.bin)
MTI91	V3.01.167675	(MTI91.hex)
MTI91-DCI	V3.01.133449	(MTI91DCI.hex)
MTI91DCI BOOT E	V3.01.117634	(MTI91DCI_CANBoot_Updater.hex)
MTI91-DCI	V3.01.133449	(MTI91DCI_FULL.hex)
MTI91 BOOT E	V3.02.147234	(MTI91_CANBoot_Updater.hex)
	V5.00.715203	(Mxxx_FA_r1.bin)
	V5.00.532274	(Mxxx_FA_r1_BootLoader.bin)
	V5.00.532274	(Mxxx_FA_r1_BootUpdater.bin)
M205FCA-F	V3.03.481710	(Mxxx_FA_V51.hex)
M205FA-F BOOT E	V4.00.217862	(Mxxx_FA_V51_CANBoot_Updater.hex)
	V5.00.559889	(Mxxx_FC_r1.bin)
	V5.00.532274	(Mxxx_FC_r1_BootLoader.bin)
	V5.00.532274	(Mxxx_FC_r1_BootUpdater.bin)
M165FC-F	V3.01.120368	(Mxxx_FC_V51.hex)
	V5.00.560177	(Mxxx_r1.bin)
	V5.00.559779	(Mxxx_r1_BootLoader.bin)
	V5.00.559779	(Mxxx_r1_BootUpdater.bin)
M205FCA	V4.00.400935	(Mxxx_V51.hex)
M Zoom BOOT F	V4.00.217723	(Mxxx_V51_CANBoot_Updater.hex)
Z16APOA	V4.01.281758	(ZxxAPOA.hex)
ZxxAPOA BOOT E	V3.02.128967	(ZxxAPOA_CANBoot_Updater.hex)
Z16APOA	V4.01.281758	(ZxxAPOA_V51.hex)
ZxxAPOA BOOT F	V4.00.231498	(ZxxAPOA_V51_CANBoot_Updater.hex)

3. New Features

3.1 Live IQ

Virtual live and dynamic frame rate are offered in the acquisition tab.



Virtual live: if there is no movement in x, y, z and no camera or channel settings are changed, the live image will freeze after a user defined timespan in order to protect the sample. The live image becomes active again when changing a setting or moving in xyz.

Dynamic frame rate: if x, y, z is changed during live mode, the system will automatically increase gain and/or reduce exposure time to minimize movement artefacts.

3.2 Use z-position for new drawn regions

Activated +Z button will remember individual Z levels for each newly defined region. These settings will not be overwritten by a focus map. The +Z button only becomes available if same stack size for all regions is ON. Z level can be changed via “Redefine Z”.

3.3 Reactivate LDI light source after interlock is closed

On spinning disk systems, the LDI light source will automatically be reactivated when interlock is closed, and live image is activated or images acquired.

3.4 Wellplate Analysis in Aivia

Images acquired with LAS X 3.11.1 are compatible with Aivia Wellplate Analysis.

4. New Hardware Support

4.1 Support of Viventis SCAPE

Viventis SCAPE is a light-sheet imaging system based on single-objective OPM/SCAPE technologies. This single-objective configuration simplifies the optical setup and enables imaging of samples mounted on standard carriers such as microscope slides or multi-well plates. The system incorporates remote focusing techniques, allowing rapid scanning through different planes without physically moving the sample. This enhances both imaging speed and mechanical stability. Combined with the inherently low phototoxicity of light-sheet illumination, Viventis SCAPE is ideally suited for imaging 2D and 3D cultures, tissue explants and model organism —especially when capturing fast volumetric intra-cellular processes or when increased throughput imaging in multi-well plate formats is required.

4.2 LDI4 and LDI5 Gen 2

LDI4 Gen 2 and LDI5 Gen 2 laser light source for Leica Spinning Disk systems can be controlled as generic light source using analog and digital triggers. LDI4 needs 8 I/O ports, LDI5 needs 10 I/O ports.

5. End of Life: unsupported Hardware

none

6. Important Information

- **FIXED**: Z stacks with acquisition ROI are working again.

- **FIXED**: Line profile works again for more than one image.

- If "**Start THUNDER after acquisition automatically**" is OFF, the THUNDERed data will not be available in the project tree.
  Workaround: Switch "Start THUNDER after acquisition automatically" ON. This setting will be kept also on LAS X restart. Alternatively, the raw data can be processed within the process tab.

- If **Single Image** or **Capture** is pressed the THUNDERed data will not be available in the project tree no matter if "**Start THUNDER after acquisition automatically**" is ON or OFF. Repetitive pressing of Single Image or Capture while THUNDER On The Fly is active can create a new project in the project tree.
  Workaround: Do not use THUNDER On The Fly in combination with Single Image or Capture.

- Individual Z stacks are not possible in LAS X 3.11.1. “Same Stack Size for all Regions” is always ON.

- In rare cases the Z interface disappears. An LAS X restart will bring the Z interface back again.

- In Navigator experiments the raw data is not doubled anymore. The storage capacity on the temp drive will therefore allow for larger experiments.

- Process tab-> Crop tool-> ROI is missing.
  Workaround: go to acquisition tab and back to process -> Crop ROI is available again.

- Experiments with “Wait for Trigger IN” must use shutter mode “After each image”. If shutter mode “Always open” is used, the shutter stays open after experiment start.

- Acquisition with an auto-immersion objective: the stage acceleration must be set to “acceleration for liquid medium” or to a maximum of 200mm/s². Otherwise, the water drop of auto immersion objectives will not be following the stage movement.

- In some cases the multi-channel viewer only shows the first tile of a tilescan experiment.
  Workaround: go to Quantify tab and back to Acquisition tab.

- pE300 white using LED IL shutter from sequencer: if fluo channels use different pE300 LEDs the LED is switched off when changing to the other channel. This only happens in live mode. Acquisition is working properly.
  Workaround: switch live on again when using the other channel

- Images of the same region are differentiated by specifying the nth image in brackets, e.g. R1 (2). If this name is changed, e.g. to R1 (2)_MOD a renaming error occurs.
  Workaround: Remove the brackets in the image name before renaming.

- THUNDER On The Fly-> Extract Center plane extracts the first plane instead of the center plane.
  Workaround: uncheck “extract center plane” and crop the THUNDERed center plane post acquisition.

- Systems with Hamamatsu Flash camera: updating from LAS X versions below 3.10.0 requires configuring the Flash camera in the Hardware Configurator once again. Otherwise, it will not be loaded.

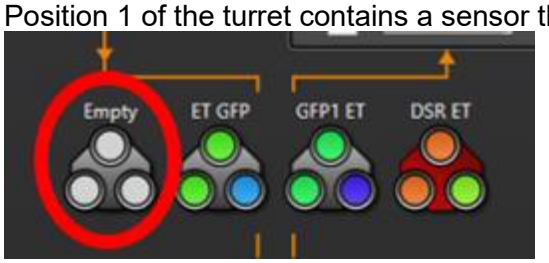
- After installation of LAS X 3.11.1, systems with two or more cameras need to get the emission filter wheel assigned to a camera port. Otherwise, the emission filter wheel cannot be used. This does not affect LAS X system with one camera only.

- K8 and Kinetix22 camera, streaming mode: Images are acquired correctly but some of the images are missing their histogram and thus appear almost black. This can happen as well with sequencer controlled Fusion camera with 1ms exposure, minimized time.
  Workaround: scale images manually instead of using autoscaling.

- Export interface: Multipage TIF files are exported individually for each selected channel.

- Images containing parallax acquired in Navigator first need to be merged before EDOF (Extended Depth of Focus) is applied.

- M205 FC and FCA: when performing a multi-channel time lapse sequence, one of the filters included must be located in filter turret position 1.
  Position 1 of the turret contains a sensor that prevents the turret drifting over time.



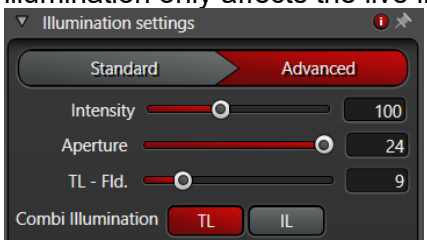
- Using AFC and software autofocus during experiments on DMi8 requires sequencer being activated.

- Experiments using RFC (Relative Focus Correction): always switch to the first channel before starting the experiment. Otherwise the RFC applies wrong offsets.

- When using multi line LEDs, the shutter delays in the “hardware configurator->File->AF System Settings->IL Shutter Delay” must be set to 1ms. A longer delay time will make the shutter stay open during time intervals.

- Do not create Excel reports without installed Excel.

- Fluo-DIC and Fluo-Ph Combi Mode on DM6 and DM4: Combi Illumination within the Illumination Settings panel needs to be switched to TL before activating a live image. Otherwise the TL illumination will be missing in the Combi Mode. The missing TL illumination only affects the live image but not image acquisition.



- M205 FCA multichannel timelapse experiment with shutter control modes optimized and after each image: all images are acquired properly but light shortly switches on and off again after each cycle.

- M205 FCA multichannel experiment with Lambda then Z acquisition: all images are acquired properly but light switches on too early.
Workaround: use Z then Lambda for acquisition.

- High-speed triggered sCMOS cameras or high-speed Navigator experiments require the temp file being located on an SSD NVMe drive. Temp file on a normal SSD disk may cause the experiment to stop without being completed.

- 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.

- When installing LAS X from USB-Stick, Trend Micro blocks the AUTORUN.inf.
Workaround: start setup.exe manually.

- HDR acquisition with camera: only 8 bit, high-speed acquisition not supported

- Stopping a running mark and find experiment may cause loss in data. This does not happen in M&F t-series, even if the experiment is stopped before the first cycle is completed.
Workaround: wait till mark and find experiment is finished.

- 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).

- Z-stack acquisition with finefocus in combination with "AFC on demand" is not supported.

- Do not change hold position during AFC on demand while AFC is activated.

- In high speed multi-channel T-series with shutter always open light intensity might differ between live image and acquired image.
  Workaround: use shutter mode “after each image”.

- When zooming into an image with measurement lines the measurement lines are not zooming accordingly.
  Workaround: perform measurements after zooming.

- 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.

- 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.

- 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).

- The Leica Lamphouse for TL illumination works only in highspeed with I2C connection. BNC Connection is not supported for highspeed.

- XLED light source in combination with sequencer advanced and t-series with image streaming and high-speed autofocus: if acquisition channel and HS-AF channel both use the 365nm or 460 nm line, the HS-AF images are illuminated properly, but there is no light on the sample for the acquisition channels.

- When using DFC9000 GT with exposure time < 1,5ms and light source X-LED with 460nm, some images in an external triggered time series may not be illuminated correctly.

- Hardware Configurator: TIRF cube alignment: After power up of the microscope - the first start of the TIRF cube alignment can accidently terminate the Hardware Configurator application. In this case a restart Hardware Configurator application and a rerun of the TIRF cube alignment procedure is recommended.

- Hardware Configurator: 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.