TEM Server 7.6

Service Release Notes

PN 308893

Revision 7.6.2 • 11-Feb-21

Contents

1 Introduction

TEM 7.6.X is a TEM Server software version. It is released for Thermo Scientific Transmission Electron Microscope (TEM) systems as the following microscope software versions:

- Titan 3.6.X for High End systems with a Titan column.
- Talos 2.6.X for Mid Range systems with a Talos column.

This document describes the changes and improvements made with respect to the previous release, TEM Server 7.5.1.

1.1 Mandatory and Breaking Changes

None since the previous release.

1.2 Highlights

Titan and Talos

- The **Thermo Scientific Selectris** and **Selectris X** Energy Filters are introduced for Krios and Glacios microscopes.
- The **Sherpa** > **HT Conditioning** application replaces the
  Sherpa > HT Ramp-up application for Talos L120 and the *AutoAlignments Tip* tool for systems with an SFEG or XFEG source.
- The **Imaging Codec Pack** is now included with the Prerequisites installation on the Microscope PC.
  On other computers, the installation of the Imaging Codec Pack is still a manual action.

Talos

- The **AFIS** calibration is now also available on Talos microscopes. With AFIS, the throughput in an EPU Automated Acquisition run can be significantly increased.

2 System, Software and Hardware Compatibility

2.1 Supported Microscope Types

Range	Generation	Supported	Models and Remarks
HighEnd TEM (Titan column)	G1/G2	**No**	Titan, Themis, Krios, Metrios, Halo, ETEM
	G3	**No**	ETEM
	G3, G3i	Yes	Themis, Krios, Metrios, Halo
	G4	Yes	Spectra, Krios, Metrios
MidRange TEM (Talos column)	G1	**No**	Talos, Glacios
	G2	Yes	Talos, Glacios

Note	**Verify that all microscope hardware is supported before installation of this TEM Server release.**

Refer to Supported Hardware on page 9 for a list of supported modules and subsystems.

2.2 Supported Software Upgrades to TEM Server 7.X

Note	**This TEM Server 7.X release does not support a direct upgrade from TEM Server 6.X software.**

To install a new TEM Server 7.X software version on a system, only the following scenarios are supported.

Upgrade scenarios for High-End systems with a Titan column
(Titan, Themis, Spectra, Krios, Metrios, ETEM)

Generation	Supported Upgrade Scenarios to Titan 3.X Software
G1, G2	No regular supported upgrade scenario. Submit an NSR to investigate the feasibility to upgrade the system to Titan 3.X software.

G3, G3i	• Titan 3.X to any later Titan 3.X
	  For instructions, refer to 308714.
	• Titan 2.15.X (Windows 7) to Titan 3.2.1 (Windows 10)
	  This software upgrade is only supported as an NSR.
	  For instructions, refer to 308780.

G4	Titan 3.X to any later Titan 3.X For instructions, refer to 308714.

Upgrade scenarios for Mid-Range systems with a Talos column
(Talos, Glacios)

Generation	Supported Upgrade Scenarios to Talos 2.X Software
G1	No regular supported upgrade scenario. Submit an NSR to investigate the feasibility to upgrade the system to Talos 2.X software.

G2	• Talos 2.X to any later Talos 2.X
	  For instructions, refer to 307345.
	• Talos 1.15.X (Windows 7) to Talos 2.2.1 (Windows 10)
	  This software upgrade is only supported as an NSR.

2.2.1 Special Attention Points for Systems with NSR(s)

Note	**According to the NSR process, regular software upgrades are not supported for systems with an NSR.**

If a system with an NSR requires a software upgrade, then a new NSR should be submitted for the desired software upgrade. In practice, systems with one or more NSRs are often upgraded without submitting a new NSR.

Note	**If a system has one or more NSRs, then the installation of a software upgrade must be treated with the same caution and attention to detail as the initial NSR(s).**

Pay special attention to:

- Supported Hardware on page 9.

- Discontinued Hardware on page 12.

- Non-standard software functionalities.
  Verify that all non-standard functionalities are still supported.

2.3   Supported Software

Note	This chapter specifies the *minimum* software versions that are compatible with this TEM Server release.

Newer software versions may be available that are backward compatible with this TEM Server release.

- Check TEM SW Archive for the most recent compatible software versions.

- Refer to the release notes of the listed software products for a specification of the supported TEM Server releases.

In the tables below, the *Upgrade* column specifies whether or not an upgrade is necessary.

Upgrade	Explanation
Mandatory	The application *must* be upgraded to maintain system functionality and/or performance. If the application is not present on the system, then it is not necessary to install it.
Automatic	The application upgrade is included in the TEM Server installation.
Optional	The application *can* be upgraded, this is not required for system functionality or performance.
No change	There is no new application version.
Uninstall	The application must be removed.
N/A	The application does not support, or is not supported by this TEM Server release.

2.3.1 Microscope PC

The Microscope PC must run on the Windows 10 IOT Enterprise operating system.

Software	Version	Upgrade	Remarks
Tomography	5.4	**Mandatory**	Includes Tomography 4.15 for STEM and STEM/EDS experiments.
EPU	2.9	**Mandatory**	
EPU-D	1.5	**Mandatory**	
MAPS	3.14	**Mandatory**	Maps 3.14 is not released yet at the time that TEM Server 7.5.1 is released.
Velox	2.14	**Mandatory**	
TIA	5.6.0	Automatic	Included in Titan and Talos SW installation. There will be no new features in TIA anymore, only critical issues are solved.
GMS	3.3.2.2403	**Mandatory**	For systems without a Gatan Continuum filter.
	3.4.2.3048	**Mandatory**	For systems with a Gatan Continuum filter.
Bruker Esprit	2.2.1.4279	**Mandatory**	For Dual-X / Single-X
Sherpa	2.3	Automatic	Included in Titan and Talos SW installation.
CEOS	5.1.5	Automatic	• Included in Titan SW installation. Only for systems with corrector(s). • Requires Linux Kernel 7.8 on the Corrector PC.
Metrios UI	4.3	**Mandatory**	
Quadera Software	N/A	N/A	
RAPID	4.0.1	**Mandatory**	
Data Collector	3.2	Automatic	

Service Tools

Note	**The mentioned software versions are the minimum version numbers for this TEM Server release. Service Tools are often backward compatible with a limited range of preceding TEM Server releases.**

SW Product	Version	Remarks
AutoAlignments Tip	**Uninstall**	• Replaced by *Sherpa > HT Conditioning*. • The AutoAlignments Tip tool is *not* compatible with TEM Server 7.6.X.
Alignment Checker	1.4.5	*Not available for FSEs* Check TEM SW Archive - Alignment Checker for latest update.

2.3.2   Support PC and Network PC

The Support PC or Network PC must run on a Windows 10 operating system.

SW Product	Version	Upgrade	Remarks
RAPID	4.0.1	**Mandatory**	Older releases may still work also.
Email Service and Port Forwarder	-	**Mandatory**	Install from Titan/Talos ISO
Imaging Codec Pack	3.14.0	Optional	

2.3.3   Remote Operation PC

SW Product	Version	Upgrade	Remarks
RAPID	4.0.1	**Mandatory**	Older releases may still work also.
TARO Simple	-	**Mandatory**	Install from Titan/Talos ISO
Imaging Codec Pack	3.14.0	Optional	

2.3.4   Other PCs

SW Product	Version	Upgrade	Remarks
TIA Offline	5.6.0	Optional	TIA Offline is backward compatible. There are no new features in TIA since 4.22. The upgrade is optional, but recommended.
Velox Offline	2.14	**Mandatory**	Velox Offline is backward compatible.
Bruker Esprit Offline	2.2.X.X		Same version as on the Microscope PC.
Imaging Codec Pack	3.14.0	Optional	
Inspect3D	Upgrade depends on compatibility with Tomography data		
Amira / Avizo	Upgrade depends on compatibility with Inspect3D data		

2.4 Supported Hardware

Functionality	Hardware	Remarks
Facilities, Communication and Infrastructure		
Microscope PC	HP Z4 G4	
CAN Controller	CCB	Only in the TEM Cabinet, not in the Optics Cabinet
	SCU	
	SCU2	
User I/O	OSD for Talos	
	OSD for Titan G4 and Themis S	
	Loading Area LEDs for Krios G4	
	KVM Extender	
Source and High Tension		
HT Tank	G1	
	G2	
	G2.3	
Gun	FEG G1	XFEG and SFEG, with and without Monochromator
	FEG G2	XFEG and SFEG, with and without Monochromator
	CFEG	
	Thermionic	LaB6 and Tungsten
Vacuum		
IGPD2 power supply	IGPD2v2	
	IGPD2CI	With cable interlock
	IGPCU 5KV / 5.5KV	

Functionality	Hardware	Remarks
Optics		
Talos Optics Boards	Version 1	
Current Measuring Board	CMAG	
	CMIB	
Phase Plate	SCU Remote Controlled Heating	Keithley Power Supply (USB)
	PPHS Power Supply (Ethernet)	Type 1 and Type 2
Probe Corrector	DCORPLUS	
	SCOR	
Image Corrector	CETCORPLUS	• non-constant power • constant power
	CcCOR	
Cameras and Detectors		
Cameras	Flucam 2	
	Flucam 3	
	Falcon 3EC	
	Falcon 4	Requires a Ceta camera
	Ceta	• Including Ceta Speed Enhancement (Ceta-2) • Supported Sensor Packages: Ceta 16M, Ceta-D/-M/-S
	Gatan US1000XP	
	Gatan OneView	
Filters	Gatan Filters	See Support for Gatan Filters on page 12.
	Selectris	Only for Krios and Glacios
	Selectris X	Only for Krios and Glacios
STEM Detectors	HAADF	
	BF/DF Retractable	
	BF/DF Retractable Mk2	
	Panther STEM BF-S/DF-S	Also known as NextGen- or NG-STEM.

Functionality	Hardware	Remarks
	Gatan 805, 807, BF/DF	
EDS	Super-X G2 / G2 Lite	Requires Velox
	Dual-X / Single-X	Requires Esprit 2.2
Scan Engines	PIA, PIA EDS	
	CAB/A	
	Gatan DigiScan	
Motion and Specimen Loader		
CompuStage Mk1 / Mk2	TSC	
Piezo Enhancement	PI E545	
	PI E727	
Automated Aperture System	AAM-G1 with NYCe4000	
	AAM-G2 with TAC	Including Heated Apertures
Autoloader	Plan 1, 2, 3 with NYCe4000	
	Plan 3 with TAC	
IVIS		

Note   **Although the supported hardware list contains a limited selection of (legacy) hardware that is not available on new, factory-built systems, TEM 7.X software can *not* be retrofitted on all legacy systems.**

Note   **All Gatan cameras and filters that are supported by the installed GMS version on the Gatan PC can (also) be installed in Stand-alone configuration.**

2.4.1 Support for Gatan Filters

Gatan Filter	Embedded	Camera Name	GMS	Computer	High Speed Interface
Enfinium SE / ER	Yes	*NA*	3.3.2.2403	Micr. PC	No
Quantum 963	Yes	EF-CCD	3.3.2.2403	Micr. PC	No
Quantum 964	*No*	-	-	-	-
Quantum 965	Yes	EF-CCD	3.3.2.2403	Micr. PC	No
Quantum 966	Yes	EF-CCD	3.3.2.2403	Micr. PC	No
BioQuantum 967	Yes	EF-CCD	3.3.2.2403	Gatan PC	No
BioQuantum 968	Yes	EF-CCD	3.3.2.2403	Gatan PC	No
BioQuantum 1967	Yes	EF-CCD	3.3.2.2403	Gatan PC	Yes
Continuum 1065 ER	Yes	EF-CCD	3.4.2.3048	Gatan PC	No
Continuum 1066 HR	Yes	EF-CCD	3.4.2.3048	Gatan PC	No
Continuum 1077 S	Yes	*NA*	3.4.2.3048	Gatan PC	No
Continuum 1069 K3	Yes	EF-CCD	3.4.2.3048	Gatan PC	Yes
Continuum 1069 K3 dual	Planned	EF-CCD	TBD	Gatan PC	No
	Planned	EF-K3	TBD	Gatan PC	Planned
Continuum 1069 K3 HR	Yes	EF-CCD	3.4.2.3048	Gatan PC	Yes
Continuum 1069 K3 HR dual	Planned	EF-CCD	TBD	Gatan PC	No
	Planned	EF-K3	TBD	Gatan PC	Planned
BioContinuum 1067 K3	Yes	EF-CCD	3.4.2.3048	Gatan PC	Yes

The *Enfinium SE / ER* and *Continuum 1077 S* are EELS filters that do not have imaging capabilities.

Note **The *Continuum 1069 K3 Dual* and *Continuum 1069 K3 HR Dual* filters are already available in the Configurator, but they are *not* supported yet in embedded configuration.**

2.5 Discontinued Hardware

Titan and Talos:

- The Gatan Quantum 964 filter is no longer supported in embedded configuration.

3 Source and High Tension

3.1 New Features

Titan and Talos

- **CFEG**:
  - The new smart Beam Current Measurement (BCM) based ramp up function ensures stable beam currents after a low temperature flash.
    - E-CFEG: smart BCM ramp-up is standard behavior.
    - X-CFEG: smart BCM ramp-up is an option
      in the *TEM User Interface > X-CFEG* control panel > *Expert* tab.
  - The timestamp of the most recent CFEG Flash is added to the metadata parameters in the MRC2014 FEI2 Extended Header image format.
  - CFEG is now also available for Metrios AX 4.0.

- **Sherpa** > **HT Conditioning**:
  Systems with Thermionic, SFEG and XFEG sources now use a common HT Conditioning application. For Thermionic sources this application is available for users. For SFEG and XFEG, the HT Conditioning application is only available to Thermo Fisher Scientific engineers.

Note	**The AutoAlignments Tip tool is now obsolete and must be removed from the Microscope PC.**

3.2 Improvements

Titan

- The Ultimono time limiter functionality is adjusted:
  - After 16 hours of activation, the filament is ramped up slowly instead of using the normal speed when deactivating.
  - After 36 hours, the ultimono mode is deactivated automatically and will be ramped up slowly.

3.3 Impact on Service

No (major) items.

4 Vacuum

4.1 New Features

Talos

- The **IGPD2CI** power supply with cable interlock is now supported on Talos systems.

4.2 Improvements

No (major) items.

4.3 Impact on Service

No (major) items.

5 Optics

5.1 New Features

Titan and Talos

- **Falcon 4 Pro-active Protector**:
  The range of the Falcon 4 Pro-active Protector is extended with High Tension voltages below 200 kV.

- **Sherpa** > **APM**:
  The following procedures are automated:
  - Condenser center TEM
  - Condenser stigmation

Titan

- **Sherpa** > **OptiSTEM+**:
  - Improved feedback with user guidance when the procedure fails.
  - The **A2** and **B2** procedures can now be executed separately.
  - The new **B2/A2 single shot** function executes one iteration of the procedure. On bad specimens, this function gives the user the more control to optimize the system step-by-step.

Talos

- **Aberration Free Image Shift (AFIS)** is now supported on Talos and Glacios systems.
  In EPU, AFIS allows for the use of beam shift instead of small stage moves within a defined specimen area. This results in increased throughput.
  The AFIS calibration must be performed by a Thermo Fisher Scientific engineer.

- **Sherpa** > **Align Genie**:
  The *Find Beam*, *Focus Beam* and *Center Beam* functions are now available in STEM mode (not in Diffraction mode).

5.2 Improvements

Titan and Talos

- **Normalizations**:
  The settings in the *Normalizations* control panel are now *system-level* settings. Changes to the settings are no longer limited to the currently logged in user.

Note	This change in the behavior of the Normalizations control panel results in a more consistent system behavior. In rare customer use cases where individual users apply different normalization settings, this change may not be regarded as an improvement.

Titan

- **Correctors**:
  - The Offset_Cs parameter is added to the FEG Registers.
  - A manual is added for the CETCORPLUS corrector.

- **Distortion Correction**:
  The Diffraction Stigmator (DiffStig) excitation range is extended for Low kV High Tension voltages to increase the distortion correction range.

- **Phase Plate Heating Supply**:
  Phase Plate Type 2 is now supported.

Talos

- **Sherpa** > **Align Genie**:
  The ellipse fitting algorithm is improved.

5.3   Impact on Service

Titan and Talos

- **Sherpa** > **Calibrations**:
  Camera-to-Camera calibration for Falcon and FluCam:

  - For the `customerservice` and `factory` accounts,
    the Camera-to-Camera calibration procedures are moved
    from the *TEM User Interface* > *Calibrations* and *Magnification Calibration* control panels
    to the *Sherpa* > *Factory/Service* > *Calibrations* application.

  - For the `supervisor` account, the Camera-to-Camera calibrations are still available in the TEM User Interface.

- **Phase Plate Heating Supply** (PPHS):
  The PPHS option is now available as a selection in the Configurator.

- **Sherpa** > **AutoCTF**:
  Added threefold astigmatism calibration and correction.

- **Sherpa** > **CFEG Tools**:

  - After finishing a conditioning procedure, the CFEG will return to the *Power On* state instead of remaining in the *Operate* state.

  - The High Tension voltage is no longer set by the HT Conditioning procedure. Instead it must be set correctly *before* starting the HT Conditioning procedure.

  - Configuration files are now stored in the `C:\Program Data\FEI\` folder under the corresponding procedure folder name.

- **Sherpa** > **APM**
  On a system with a Selectris (X) energy filter, the *Energy Filter* alignment in the Alignment file is not yet supported by Sherpa APM. Until the *Energy Filter* alignment is supported, APM in EFTEM mode works with the Selectris (X) filter just like it works with a Gatan filter.

Titan

- The new **HR STEM Analysis Algorithm** provides input for the
  Sherpa > HR-STEM microscope test in and for the
  Metrios Tool Readiness > Dumbbell Contrast Analysis.

Talos

- **Sherpa** > **Align Genie**:
  Align Genie actions are logged to Data Services for D2i.

6 Cameras, Filters and Detectors

6.1 New Features

Titan and Talos

- **Selectris** and **Selectris X**:
  The Thermo Scientific Selectris and Thermo Scientific Selectris X Energy Filters are introduced for Krios and Glacios microscopes.

- **Falcon 4**:

  - **Continuous Acquisition** (Live Mode) is available for the `factory` account. Continuous Acquisition streams the live image to TIA.

  - **Advanced Scripting** now supports EER acquisition.

- **Flucam Viewer**:
  A new overlay is available with a 360 degree scale.

Titan

- **Gatan Continuum with K3**:
  The *Duty Cycle* setting is now supported. This allows for shorter exposure times (< 0.0133 sec), which leads to better results for the Monochromator auto-tuning procedre on a system with UltiMono.

6.2 Improvements

Titan and Talos

- **Gatan Filters - High Speed Interface**:
  (see Support for Gatan Filters on page 12)
  The software interface between the TEM Server and a selection of Gatan Filter cameras is redesigned, so that:

  - The imaging throughput is increased.

  - Dose Fractions can be stored as TIFF images with LZW compression.

6.3 Impact on Service

Titan and Talos

- **Falcon 4**:

  - **Calibration results** are now stored in the CCU2 (Camera Control Unit version 2). The CCU2 is closer to the camera, which allows for more advanced calibrations and easier re-use of acceptance test calibration results from the camera supplier.

  - **Calibrations algorithms** are improved to preent mismatches between service calibrations and the supplier's calibration results.

- **Gatan Filters with K3 camera**:
  The **Gain Reference images** and **Pixel Defect Map images** for the K3 camera are High Tension voltage dependent. The naming convention for these image files is revised: it now includes the High Tension voltage. This means that new reference images must be acquired after the software upgrade to GMS 3.4.2.3048 is completed.

- **Gatan Filters with High Speed Interface**
  (see Support for Gatan Filters on page 12):
  The serial number of the post-filter camera is now available in the Data Services database.

7 Motion and AutoLoader

7.1 New Features

Titan

- New functions on the On System Display (OSD) for Krios Rx:

  - **Load Cartridge** can now be done in one step.

  - The **Cassette Slot status** (empty / filled) is now displayed.

7.2 Improvements

Titan and Talos

- **AAM-G2**:
  During the homing procedure, the X and Y axis no longer keep moving until an index pulse is encountered. The length of the search movement is now restricted to prevent collision or other mechanical damage.

- **Auto Cryo Box**:
  On a system with **Auto Cryo Box**, the **stage Alpha tilt range** is automatically adjusted to the insert/retract status of the Auto Cryo Box.

- **On System Display** (OSD):
  The AutoLoader states in the OSD are now all displayed. In preceding TEM Server versions only a subset of the states was implemented. All other states were displayed as `unknown`.

7.3 Impact on Service

Titan and Talos

- **D2i**:
  The aperture configuration is added to the system configuration.

8 TAD, Service Tools, Installer and Licensing

8.1 New Features

Titan and Talos

- PhasePlate type 1 and 2 support added.
- Selectris and Selectis X are added for Krios and Glacios.
- Version updater log moved to standard location.

Titan

- CFEG selection for Metrios AX 4.0

Talos

- New microscope added Talos F200E
- Falcon 4 enabled on Talos F200C

8.2 Improvements

Titan and Talos

- Version updater log is moved to the standard logfiles folder.
- EDS detector Single X is renamed to Single X 100 mm^2
- Obsolete options are removed from the Configurator:
  - Super-X G1
  - Gatan 805/807
  - Gatan Quantum 964
  - Lens series: AsXTwin, Twin, HighContrast, ATwin

Talos

- Delete FP-Code for Cameras from configurator

8.3 Impact on Service

No (major) items.

9   Solved Issues

Solved in TEM 7.6.0

ID	Description	Titan	Talos
BG-164	Crash during reconnection of SCU primitives	X	X
CAMERA-1522 TT807271	Not possible to do a software reboot on CCU2, CV7A and CPI	X	X
CAMERA-4045	Mismatch between Camera DQE/Performance tool and Titan configurator	X	
CAMERA-4569	Remove (wrong) positioning offset Ceta G5 systems	X	X
CAMERA-4971 TT776326	DF: Continously booting CMTS	X	X
CAMERA-5140 TT892357	Falcon 4 - low kV protection (Titan,Talos)	X	X
CAMERA-5324	Values for Peliter voltage readout are mismatched between Falcon 4 service tool and Health monitoring	X	X
CAMERA-5341	Falcon 4 error in OCX version 3.2.1 build 537 (7.6.0)	X	
CAMERA-5346	As Operations engineer, I want to have abort state and acquisition parameters information recorded in the log file of CMTS BQ Tool	X	X
CAMERA-5392	Dragonfly-REQ-1177, fluscreen current mismatch not logged by CMTS BQ tool	X	X
CAMERA-5393	Dragonfly-REQ-1180, CMTS BQ tool, display units for current should be nA, not A	X	X
CAMERA-5394	Dragonfly-REQ-1165 AverageAll uses floats instead of unsigned 16 bits per pixel	X	X
CAMERA-5541	Velox/EPU reports "BM-Falcon/DragonflyCamera" as detector name	X	X
CAMERA-5601	F4: Advanced Scripting: reported dose rate in metadata is not correct	X	X
CAMERA-5831	F3: DAR is missing FalconECCabDiagnostics on Talos	X	X
CAMERA-5832	F4: TotalDose and meanDoseRate in eer metadata always 0.0000	X	X

ID	Description	Titan	Talos
DBOPTICS-1008	DiffStig excitation range extended for low HTs to increase distortion correction range (except for Salve NSR).	X	
DBOPTICS-1434	Reduce memory leaks	X	
DBOPTICS-1665 DBOPTICS-1968	The stigmator display info in TEM UI for Titan is scaled with high tension	X	
DBOPTICS-1844	Add missing help pages for LorentzStem alignments and for direct alignment Diffraction focus	X	
DBOPTICS-1845	Fix dependency StemSwitchBSCorr for Metrios	X	
DBOPTICS-1851	FEG Register OCX uses cached register values during update	X	
DBOPTICS-1853	TEM server crash can be triggered by AutoScript command	X	
DBOPTICS-1911	Slider OL in Lorentz OCX fails	X	
DBOPTICS-1916	LM-STEM calibration lost when upgrading to 7.5	X	
DBOPTICS-1934	ObjectiveLensType in OpticsConfigurationStruct returns value wrong	X	
DBOPTICS-1952	adaCorrector returns INT32 iso UINT16 image for Continuous Acquisition	X	
DBOPTICS-2018	Scanning is off by a factor of 1/LensRef	X	
DBOPTICS-2052	Tem UI does not display correct convergence angle due to too small C2-aperture range	X	
IN-346	Prerequisites storage server fails on installation of KB4103715	X	X
IN-352	Themis S (4.0) 60 kv missing in High Tension OCX	X	
IN-361	Partial re-installation - Serial number or Instrument key (D-Number) are not present in Help / About window	X	X
IN-394	HEP Diagnostics is accessible from MSL (Service/Factory only)		X
IN-406	60 kV option added for Spectra 200 G4	X	
IN-410	Talos F200X software installation can start without a selected source.		X
IN-421	Fixed Configurator layout - overlaps, partly shown labels, etc.	X	X
MOT-2118	Objective Aperture insertion is blocked without detailed description	X	X

ID	Description	Titan	Talos
MOT-2130	Pole touch blocks OBJ aperture usage - unexpected behavior change in TEM7.5	X	X
MOT-2472	Stage2OCX often shows FlipFlop button while it shouldnt	X	X
MOT-2534	Stage OCX can trigger move of stage while being claimed by Autoloader (load in progress)	X	X
MOT-2735	Slit assy acceleration is not according configuration file	X	X
NPD-150	Sherpa AFIS alignment does not run on OneView	X	
OSD-217	Some Autoloader states are reported as UNKNOWN on the OSD	X	X
OSD-220	OSD message "FluCam is locked by other application" now identifies the application that locks the FluCam	X	X
PPHS-23	Configure PhasePlate Type based on default registry value	X	X
RDTS-342	Flucam feezes in 3.3.0 (multiple systems)	X	
RDTS-360	Flucam hotpixel masking	X	X
RDTS-518	Switch of optical mode (diffraction) leaves Flucam paused	X	X
RDTS-541	TEM server will not start when FluCam is not available	X	X
SCOIADGAT-1773 TT886406	Continuum dualcam EF-K3 retract causes exception	X	X
SCOIADGAT-2017	Fractions file are incorrectly stored in TIFF_LZW format	X	X
SCOIADGAT-2052	Shutter control: post/pre for the K2	X	X
SCOIADGAT-2063	DM script (TransferMagCal) for multiple cameras	X	X
SCOMS-1391 TT673016	Autoloader Cockpit doesn't show GUI on startup when AL is busy	X	X
SCOMS-1415 TT853371 EU93810 EU92287	Autoloader de-initialized after cassette dock	X	X
SCOMS-1466	Load / Unload via Peoui triggers an error with empty description	X	X
SCOMS-1564	Cartridge arm and docker crash bugfix in 7.6	X	X

ID	Description	Titan	Talos
SCOMS-1589 MSS-TC-388	When Alpha Wobbling is active, Load button is not disabled	X	X
SCOMS-1658	Autofilling of column and AL dewar fails because temperature control status remains busy	X	X
SPEC-1923 RDTS-150 TT861917	Esprit map doesn't end at the end of measurement time	X	X
SPEC-2808	superX G2 calibration tool doesn't start up	X	X
SPEC-2853 EU100661	Last column on EDX map image shows too high intensity, artificial effect	X	X
SPEC-2942 TT884293	Dark vertical lines are visible in the Spectrum image SuperXG2	X	X
SPEC-3269	SuperX G2 tuning tool	X	X
SPEC-3363 TT861917	Esprit map doesn't end at the end of measurement time	X	X
SPEC-3457	Crash TALOSALPHA7_7.5.0.23025_FeiBBox.exe		X
TAD-43	False errors in HTAOP and HTAxS Communication test	X	X
TAD-56	Incorrect network adapter names in Ethernet test	X	X
TT884946	APM Saving and Loadings backups with the FEG not operational	X	X
TT888892	FluCamViewer not available for Align Genie at user account	X	X
TT890660	TEM AFIS doesn't check for the magnification	X	
TT891299	APM Save and back-up alignments procedure fails due to unicode decode error	X	X

Solved in TEM 7.6.1

ID	Description	Titan	Talos
CAMERA-6050	Backport the upgrade of CPI to sw 7.6.1	X	X
CAMERA-6179	CPI-CCU2 communication errors	X	X
CAMERA-6207	F4: Camera offline during 20 sec continuous acquisition and no more acquisitions can be made	X	X
CAMERA-6305 RDTS-770	F4: Camera (CPI) disconnected during acquisition	X	X
DBOC-865	CalGetter XTwin STEM		X
DBOPTICS-2194 RDTS-751	EFTEM not saved in alignment file	X	X
DBOPTICS-2212 RDTS-769	CCOR missing in registry	X	
DOI-2364 RDTS-739	AdjustZLP in UI does not work, however in Sherpa it works correctly	X	X
DOI-2396	Remove [Adjust ZLP] from Filter OCX for Selectris filters	X	X
DOI-2400 RDTS-738	When acquiring image in Sherpa, leaving EFTEM mode crashes python	X	X
DOI-2421	Selectris on Titan/Glacios - Crossover tuning failing	X	X
DOI-2434 RDTS-785	Energy Filter TAD OPD trip level is higher than the measured value	X	X
DOI-2438	Sherpa: XO procedure should be able to correct for all submodes	X	X
DOI-2447	Enable and improve logging Filter OCX	X	X
DOI-2460	Difference between ZLP AutoFunctions and ZLP service/factory	X	X
IADM-558 RDTS-602	During normalizing coils, Flucam camera isn't paused mode in HR mode and no message "normalizing, please wait" in the Flucam viewer	X	X
IN-511 RDTS-775	Installation interrupted due missing motion library (libfftw3-3.dll)	X	X
IN-516 RDTS-715	Cannot install TEM sw (Krios G4.1)	X	
IN-525 RDTS-747	Run Autoloader installer after Motion	X	X

ID	Description	Titan	Talos
IN-538 RDTS-716	Two BM-Falcon 4 and EF-Falcon 4 are allowed to be installed together - not supported	X	X
IN-563	Prerequisites and Customerservice account	X	X
IN-565	Installation of prerequisities ISO on Storage Server 2012 fails	X	X
IN-595 IADM-639 RDTS-708	Multiple BSoD on multiple systems occured.	X	X
SCODBO-5427	Port SourceTestUtils to 7.6	X	X
SCOEMT-4862 SCOEMT-4871 RDTS-587	Microscope UI continues running in background	X	X
SCOEMT-4898 SCOMS-1959 RDTS-721	TEM Server hangs when the sample is unloaded from PEOUI	X	X
SCOEMT-5255 RDTS-782	Vdbf valve remains closed	X	X
SCOEMT-5218 RDTS-777	Not able to see firmware version IGPD2 with cl when swapped in live system	X	X
SCOIADGAT-2288	GatanRemoteTEM process regularly reconnects to IOM	X	X
SCOINFRA-1367 RDTS-677	Installation of TARO simple fails on the Remote Monitoring PC	X	X
SCOMS-2039 RDTS-761	When pressing START FILLING button via temperature control (Autoloader app), TEM server and SampleLoader app crash	X	X

Solved in TEM 7.6.2

ID	Description	Titan	Talos
DBOPTICS-2317 DBOPTICS-2324 RDTS-829	HT-shutdown 200kV (Semicon systems)	X	
SCOEMT-5322	Vdbf valve remains closed	X	
ST-299 RDTS-547	SCORR_error_D3828 & TIA PEOUI error	X	

10 Known Issues

ID	Description	Titan	Talos
AUTSTR-2461	Aborting A2/B2 (OptiSTEM+) via STEM AutoTuning control panel results in Failed state	X	X
CAMERA-5769	F4: Timeout in acquisition with 'gap' in varidistant fractionation scheme	X	X
DBOPTICS-1967	F4: Beam too early unblanked beam during mag change causes the reactive dose protector to kick (Cont. Acq.)	X	X
DOI-2225	Tune isochromaticity: loop while searching for image without mask	X	
DOI-2226	Ni calibrations: Start MP value might not allow wobble		
DOI-2231	Tune all distortions: routine indicates non-convergence while converged		
NPD-252	Filter button remains greyed out occasionally. Workaround: Control slit parameters from GMS	X	X
SCOIADGAT-2009	Server Busy Messages may pop-up when closing GMS. Workaround: Wait ~1min and click retry	X	X
SCOIADGAT-2051	PEELS with Continuum shows only noise on TIA. Workaround: Acquire EELS spectrum on GMS	X	X
SCOIADGAT-2105	OneView becomes unavailable on TEM side if GMS is restarted with EF-CCD selected. Workaround: Select OneView in GMS.	X	X
SCOIADGAT-2113	Dose protector triggers in GMS but the event is not propagated		X
SCODBO-4950	Monochromator normalize does not finish	X	
SCODBO-5116	Make it possible to simulate IOBC2 board	X	X
TT652982	FeiAutoStarServer.exe server still running, after Sherpa and TEM server stopped	X	X
TT682665	Optimono: BioQuantum (Quantum 967) doesn't support EELS	X	
TT718847	Correct Objective Stigmator gives HRESULT 80004005	X	X
TT725645	Find Beam routine: in TEM mode (3-condenser mode) does not work properly	X	

ID	Description	Titan	Talos
TT733615	AutoCTF is very slow and irresponsive	X	
TT736864	Find Beam button in Monochromator (Expert) OCX does not function	X	
TT751977	Inconsistent (incomplete) error messages when no camera present	X	X
TT751980	AutoCTF fails when starting at a too high defocus	X	X
TT752118	Auto coma: fails after first iteration, because image is then set to focus	X	X
TT754769	TEM servers installation aborted at CEOS SW installation step	X	
TT760558	Install aborted due to CEOS (2nd site)	X	
TT760647	Task cannot be stopped during image acquisition	X	X
TT761235	Sluggishness on Themis 1 after S-CORR upgrade	X	
TT767667	Find Beam in Monochromator (Expert) doesn't work (however Sherpa does work)	X	
TT767671	STEM Auto Tuning functionality cannot be added to the workset	X	X
TT772811	Incorrect FFT fit reliable for AutoCTF	X	X
TT780477	AutoCTF hangs	X	X
TT785183	Preconditions Center Objective Aperture alignment ignored when no 100u aperture	X	X
TT785186	No user feedback when missing 100u objective aperture in APM	X	X
TT792457	APM: UI issues	X	X
TT794507	APM: APM Fails when filling system with LN2	X	X
TT801222	Sherpa hangs since CTF estimation algorithm cannot handle incorrect pixel sizes	X	X
TT821401	CTF estimation 'freezes' AutoCTF run	X	X
TT821740	AFIS alignment shows misleading error message	X	
TT823080	Monochromator gets stuck when load an "UltiMono" FEG register	X	

ID	Description	Titan	Talos
TT824931	Sherpa stop button remains active after a (manual) APM run	X	X
TT838769	APM rotation centre validation does not work in fringe free mode	X	X
TT844339	APM: 200kV saved as 300kV	X	
TT848747	Run AlignBeamShift on APM from Sherpa let the Sherpa application hang	X	X
TT849040	APM: camera settings not read from AutoCTF settings file	X	X
TT851908	AFIS alignment: wrong (confusing?) error message shown to user	X	
TT855189 RDTS-76	Sherpa CTF fit not correct, while being OK	X	X
TT855304 RDTS-88	Correct the coma on the K2 will crash vacuum	X	
TT873751	AutoCTF: wrong results displayed when measurement fails during coma correction	X	X
TT885724	Missing elements in Sherpa UI for supervisor and user account		X
TT885789	HT interlocks messages not displayed in PeoUI	X	X
--	Sherpa has been improved such, that a warning is shown when an incorrect value is detected in the APM settings file. This warning is shown only once (the incorrect value will be replaced by the default value after first startup of Sherpa). In versions <= 7.5.x, there is an incorrect value in the APM settings. Upgrading to 7.6.0 will result in the following warning in Sherpa: 'Incorrect parameter in the APM settings: [FocusCorrection] maximum_number_of_iterations with value: "5.0"'.	X	X

Descriptions and workarounds for a selection of Known Issues is available:

- In Fluid Topics (https://thermofisher.fluidtopics.net/home).
- On the Service CD.

For an overview of the described Known Issues per Titan, Talos and Tecnai software version, refer to 307271.