TEM Server 7.5

Service Release Notes

PN 308676

Revision 7.5.1 • 14-Sep-20

Contents

1   Introduction

TEM 7.5.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 3.5.X for High End systems with a Titan column.
- Talos 2.5.X for Mid Range systems with a Talos column.

This document describes the changes and improvements made with respect to the previous release, TEM 7.4.X.

1.1   Mandatory and Breaking Changes

1.2   Highlights

Titan

- New CEOS version 5.1.5 with new Linux Kernel 7.8

1.3   Supported Microscope Types

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

Refer to Supported Hardware on page 8 for a list of supported modules and subsystems.

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

1.4   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.

Range	Generation	Supported Upgrade Scenarios
HighEnd (Titan column)	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.
MidRange (Talos column)	G1	No regular supported upgrade scenario.
	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.*

1.5   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.

1.5.1   Microscope PC

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

Software	Version	Upgrade	Remarks
Tomography	5.3	**Mandatory**	Includes Tomography 4.15 for STEM and STEM/EDS experiments.
EPU	2.8	**Mandatory**	
EPU-D	1.4	**Mandatory**	
MAPS	3.13	**Mandatory**	
Velox	2.13	**Mandatory**	
TIA	5.5.0	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.
	3.4.0.2804	**Mandatory**	• TEM Server 7.5.0 • For Gatan Continuum 1065 / 1066 / 1077
	3.4.1.2940	**Mandatory**	• TEM Server 7.5.0 • For Gatan Continuum 1067 / 1069
	3.4.2.3048	**Mandatory**	• TEM server 7.5.1 • Replaces 3.4.0.2804 and 3.4.1.2540
Bruker Esprit	2.1.2.17929	**Mandatory**	For Dual-X / Single-X
Sherpa	2.2	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**	
Imaging Codec Pack	3.14.0	Optional	
Data Collector	3.0	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	1.2.18	Check TEM SW Archive - Auto Alignments - Tip Replacement for latest update
Alignment Checker	1.4.5	*Not available for FSEs* Check TEM SW Archive - Alignment Checker for latest update.

1.5.2 Support PC and Network PC

1.5.2.1 TEM 7.X.Y - Microscope PC Operating System

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	

1.5.3 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	

1.5.4 Other PCs

SW Product	Version	Upgrade	Remarks
TIA Offline	5.5.0	Optional	TIA Offline is backward compatible. There are no new features in TIA since 4.22. The upgrade is optional, but recommended.
Velox Offline	2.13	**Mandatory**	Velox Offline is backward compatible.
Bruker Esprit Offline	2.1.2.17929		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		

1.6 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	G2	
	G2.3	
Gun	FEG G2	XFEG and SFEG, with and without Monochromator
	CFEG	
	Thermionic	LaB6 and Tungsten
Vacuum		
IGPD2 power supply	IGPD2v2	
	IGP2CI	With interlock
	IGPCU 5KV / 5.5KV	
Optics		
Talos Optics Boards	Version 1	
Current Measuring Board	CMAG	
Phase Plate	SCU Remote Controlled Heating	Keithley Power Supply (USB)
	PPHS Powwer Supply (Ethernet)	

Functionality	Hardware	Remarks
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 Enfinium SE/ER	Embedded configuration.
	Gatan Quantum 963 / 964 / 965 / 966	Embedded configuration.
	Gatan BioQuantum 967	• With Gatan K2 camera. • Embedded configuration.
	Gatan BioQuantum 1967	• With Gatan K3 camera. • Only in stand-alone configuration.
	Gatan Continuum: 1065 ER / 1066 / 1066 HR / 1069 / 1069 HR / 1069 Dual Camera / 1077 S	• With Gatan Continuum camera. • Embedded configuration.
STEM Detectors	HAADF	
	BF/DF Retractable	
	BF/DF Retractable Mk2	
	Panther STEM BF-S/DF-S	Also known as NextGen- or NG-STEM.
	Gatan 805, 807, BF/DF	

Functionality	Hardware	Remarks
EDS	SuperX-G2 / G2 Lite	Requires Velox
	Dual-X / Single-X	Requires Esprit 2.1
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.**

1.7 Discontinued Hardware

None since the previous release.

Note   **According to the official NSR process, 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 an NSR 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 8.

- Discontinued Hardware on page 10.

- Non-standard software functionalities.
  Verify that all non-standard functionalities are also supported in the target software version.

2 Source and High Tension

2.1 New Features

Titan

- Sherpa:
  Support for CFEG beam current stability optimization routines to condition the tip before first use. These routines ensure that the tip reaches the specified flash duration.

  - First Emitter Ramp-up.

  - Beam Current Stability Measurement.

  - Beam Current Stability Optimization.

2.2 Improvements

Titan and Talos

- The recovery behavior for short disruptions in the communication between the FEG and the vacuum system is improved. This reduces the number of unnecessary *FEG Off* events.

- TEM User Interface > CFEG control panel:

  - During Extractor voltage ramp-up, the actual Beam Current Measurement result will not be displayed.

  - During Gun Lens ramp-up the actual Beam Current Measurement result is displayed directly without moving average filter.

- Gun Dialog:
  The radiobuttons for the FEG state control are replaced by buttons. Only the buttons for valid state transitions are available. Buttons for invalid transitions are disabled.

2.3 Impact on Service

No (major) items.

3 Vacuum

3.1 New Features

Titan

- The IGP2CI power supply is introduced for microscopes with a Vacuum G2 system. Compared to the exisiting IGP2 power supplies, the IGP2CI has an interlock socket and LED for each IGP channel. The cables between the IGP and the IGP2CI have a matching interlock connector.

  - If the interlock is not connected, then it is not possible to switch on the IGP.

  - If the IGP cable is disconnected while the IGP is switched on, then the IGP channel switches off and goes into an *Error* state.

  To recover from a disconnected interlock:

  a. Reconnect the **IGP cable**

  b. Select **Microscope Software Launcher** > **Tools** > **Vacuum Test**

  c. Select **Recover**

  d. Select the **IGP** that is in *Error* state (red), so that it goes to the *Off* state (gray).

  e. Select the **IGP** again, so that it goes to the *On* state (green).
  Depending on the pending errors it may be necessary to select the IGP repeatedly until it switches on.

  The instructions above will be published in a new Work Instruction.

3.2 Improvements

No (major) items.

3.3 Impact on Service

No (major) items.

4 Optics

4.1 New Features

Titan and Talos

- Sherpa > Factory / Service: added the Camera to Camera calibration FluCam.

Talos

- Sherpa: added the following functions for Factory / Service:

  - Automatic Spot Saturation
    (for Talos L120C)

  - Align Genie

4.2 Improvements

Titan

- Lorentz TEM alignment on a system with Image Corrector:
  Only include the Image Corrector during the Lorentz alignment at the highest High Tension voltage. The Image Corrector is switched off for all other High Tension voltages.

- The HM-STEM alignment for Dual-X is adapted to support future EDX detectors.

- CEOS software 5.1.5 replaces version 4.6.
  The upgraded Corrector User Interface includes an Auto CETCORPLUS function. This function is only available for Thermo Fisher Scientific engineers.

- Sherpa:

  - APM:

    - The *Beam Tilt Pivot Point* alignment is now automated.

    - The *Center Objective Aperture* action can now be done without diffraction calibration.

  - Camera to Camera Calibration: added support for:

    - Gatan K3

    - Gatan OneView as reference camera for the FluCam.

  - Linear Distortion Correction (LDC): the robustness of the procedure at high magnifications in EFTEM mode is improved.

4.3 Impact on Service

Titan and Talos

- New parameters in Health Monitor:

  - Lens Excitations

  - Probe Angle range: normal or large range.

Titan

- New CEOS version 5.1.5 with new Linux Kernel 7.8
  For instructions how to upgrade the Linux Kernel on the Corrector PC, refer to 4022 190 62142.

- New parameters in Health Monitor:

  - Two condenser lens mode: C2 off / C3 off

5 Cameras and Detectors

5.1 New Features

Titan and Talos

- Falcon 4:

  - The Gain Reference image for EER acquisitions is now stored as a TIFF file on the Storage Server to support EPU Quality Monitor (EQM) and 3rd party image processing applications.

  - CMTS-based Qualification Tool for Sensor Package qualification.

  - The Falcon 4 camera is now also available forTaloas F200C systems.
    TEM Server 7.5.1 and later.

- Gatan Continuum:

  - The Gatan BioContinuum filter is now supported in embedded configuration.

  - It is now possible to align the corrector with the post-filter camera of a Gatan Continuum 1065/1066 filter, provided that the camera is available as *EF-CCD* in the *CCD/TV Camera* control panel.
    For a Gatan Continuum dual-camera filter only the camera that is configured as EF-CCD can be used for corrector alignment.

- Gatan K3:
  Forced defect correction is now supported for uncorrected counting / super resolution acquisitions. This correction allows for valid dark corrected fractions for post-porcessing clients.

Talos

- Falcon 4:
  Drift Correction is now also available on Talos systems.

- FluCam:
  The FluCam image is now available on the On System Display (OSD). The refresh rate is limited to approximately 1 fps.

5.2 Improvements

Titan and Talos

- FluCam:

  - Hot Pixel detection is improved.

  - Bias and Gain Correction image acquisition is now faster.

- Falcon 4:
  The CMTS > AMC3 board is removed from the configuration.

- Gatan GMS:
  The following applications and processes can now be executed with regular user privileges. It is no longer necessary to use the *Run as Administrator* option:

  - GMS 3.4.1 for Continuum 1067 and 1069 with K3

  - RpcServer (started automatically) for all configurations with a BioQuantum 1967 or Continuum 1067 filter and the Gatan camera is shipped with a dedicated Gatan PC.

  - GfiRemoteProxy (started automatically) for all system configurations where the Gatan camera is shipped with a dedicated Gatan PC.

  - Gci2RemoteProxy (started automatically) for all system configurations where the Gatan camera is shipped with a dedicated Gatan PC.

- 4D-STEM:
  The metadata in the MRC files is extended with the following parameters:

  - Optics: Camera length, Scan rotation, Scan pixel size, Diffraction pattern rotation, Image rotation

  - Source: HT (High Tension)

  - Camera: detector commercial name.
    Remark: within the scope of 4D STEM, the detector commercial name metadata field is only filled for camera device: Ceta 16M Speed. Other camera devices are out of scope.

Titan

- Sherpa:
  Camera to Camera Calibration: added support for:

  - Gatan K3

  - Gatan OneView as reference camera for the FluCam.

5.3 Impact on Service

Titan and Talos

- Falcon 4:
  It is now possible to downgrade the CPI firmware.
  TEM Server 7.5.1 and later.

- Gatan K2 and K3:
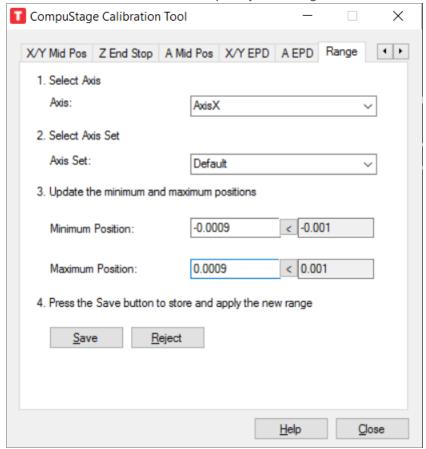 Annealing mode is now logged to DataServices.

6 Motion and AutoLoader

6.1 New Features

No (major) items.

6.2   Improvements

Titan and Talos

- A-tilt axis post-home range check:

    - The *post-home range check parameter: [yes | no]* is removed from the Registry > UserData for all axes except the B-axis. This parameter is no longer specific for the individual system, it is now a pre-determined configuration parameter.

        - Talos Arctica and Glacios:
          Post-home range check for the A-tilt axis is always *enabled.*

        - All other Talos systems and all Titan systems:
          Post-home range check for the A-tilt axis is always *disabled.*

- For systems with a Prodrive TEM Stage Controller (TSC), the Compustage Calibration tool is extended with a tab to specify the range for each axis.

Because the range values are specified for the individual system, the values are stored in the Registry > UserData so that they are not erased or reset during a software upgrade.

6.3   Impact on Service

No (major) items.

7   TAD, Service Tools, Installer and Licensing

7.1   New Features

Titan

- Sherpa now logs values to DataServices for AFIS Alignments: timestamp at which the procedure is started.
- Configurator:
  - Added the Krios Rx.
  - Added EDX Calibration Tool for Ultra-X

Talos

- Configurator:
  - Additional High Tension voltage options: 100 kV and 150 kV
  - Added the Gatan OneView camera.
  - If Single-X or Dual-X is selected, then TEM Scripting is automatically selected too.

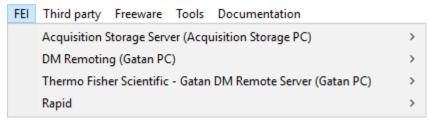## 7.2   Improvements

Titan and Talos

- Configurator:
  The selected configuration can now be saved without performing the installation.
- TAD:
  - Added the *Fast HT Ramp-up* test
  - Removed the *HT Stability* test and *Mains Supply Ripple* test.
- DAR:
  The export of the relevant nodes in the Windows Registry is now in RegEdit format instead of the Regini format.

- Applications Master Installer:
  The *FEI* menu item is renamed to *Remote*

TEM Server 7.4 and earlier.

TEM Server 7.5 and later.

Titan

- Configurator:

  - Renamed X-CFEG to CFEG.

  - Obsolete correctors are no longer available: Cs Image, DCOR and Cs Probe.

  - SCA and CCB are no longer available.

  - Condenser Lens System option is removed.
    Titan family systems always have three condenser lenses.

  - The shutdown sequence before installation is updated.

7.3 Impact on Service

No (major) items.

8 Solved Issues

Solved in TEM 7.5.0

ID	Description	Titan	Talos
-	When C1/A1 or B2/A2 tuning is run many times from Sherpa, without restarting Sherpa in the meantime, it becomes progressively slower.	X	X
AUTSTR-2190	APM - reset user_DS before running align diffraction shift	X	
BG-125	HASP driver installation issues fixed	X	X
BG-126	Fixed issues with sending email notifications	X	X
BG-132	Fixed printout of LPT dongle information	X	X
CAMERA-3813	TT840856 - Falcon4 gives message about vacuum seal when venting projection	X	X
CAMERA-3968	Peoui reports "BM-Ceta cooling temperature unstable. Contact service" (RDTS-131) (TT844958) <6.15.4>	X	X
CAMERA-4031	The Response curve window should show the new company logo	X	X
CAMERA-4091	Camera/Offloading/OneCameraCeta2/OneAcquisitionCeta2NonDefaultRoi fails when enabled	X	X
CAMERA-4111	[NPI] DQE report rounding spec. values on SW7.2+	X	X
CAMERA-4116	TT 883850: F4 (Talos): acquisition failed due to error	X	X
CAMERA-4174	TEM UI crashes	X	X
CAMERA-4201	Falcon 4 camera pre-test: VCO not calibrated	X	X
CAMERA-4234	TT887601: Krios4/Falcon4: RunTimeError: CMTS storage is busy	X	X
CAMERA-4243	TT826187: event in IOffloadJob cannot be subscribed	X	X
CAMERA-4267 RDTS-355	CN41778: Beam not blanked after P2 error	X	X
CAMERA-4284	TT889788: F4: HM: Mean Dose and Acc Dose show image dose rate iso. sensor dose rate	X	X
CAMERA-4293	TT736511: blankershuttermonitor.log seems to log infinitely	X	X
CAMERA-4325 RDTS-384	Storage server and CAB logging not part of DAR	X	X

ID	Description	Titan	Talos
CAMERA-4339	Blanker Shutter monitor does not connect to TEM server	X	X
CAMERA-4356	CAB logfiles not collected for DAR when running as normaluser	X	X
CAMERA-4358	TEM blocked by change in Camera interface and way of CMTS Qualification tool test structure	X	X
CAMERA-4361	F4: Acquisition with 2.03664 sec; binning 8; ROI = F does not finish	X	X
CAMERA-5115	CPTT: Automatic apertures not supported, switching to manual	X	X
CAMERA-5119	TT879391: crash in ProActiveDoseProtectionServiceTool.exe (smoke + system)	X	X
CAMERA-5316	Backport CAMERA-5150 "Dfly sensor: Verify correctness of Dark Level Bias programming" to TEM 7.5.0	X	X
CAMERA-5417	4D STEM: Ceta pixel size is not correct for non square image	X	X
DBOPTICS-1540 RDTS-322	Image corrector "over the hill" feature	X	
DBOPTICS-1551 RDTS-343	parallel range changes with spot size and with different allignments	X	
DBOPTICS-1557	Solve memory leak in Optics micromap dialog	X	X
DBOPTICS-1602	Exception when Velox set a STEM defocus value	X	
DBOPTICS-1646	Remove strange available part names (e.g. nP x HM x parallel) in Alignments OCX	X	
DBOPTICS-1648 RDTS-385	TEM UI doesn't show correct values	X	
DBOPTICS-1753	Server crash during gun alignments	X	
DBOPTICS-1771 RDTS-408	Magnification Correction lost after (re) installing Titan 3.4.0	X	
DBOPTICS-1799	Crash when closing Peoui and Lorentz ocx is loaded	X	
IADM-196	Flucam arbitration does not work under regular user account	X	X
IN-179	Autostar uninstall - move to uninst.exe (TT890852)	X	X
IN-273	Configuration item ""Microscope Base type"" not set to value during autoinstall	X	X

ID	Description	Titan	Talos
IN-291	AutoStar uninstallation failed on prerequisity condition	X	X
IN-297	Start of TEM fails because of wrong High Tension configuration (Spectra 200 G4 with X-CFEG)	X	
IN-303	Fluscreen Valve is not set correctly per the Micsroscope Base Type	X	
IN-314	TEM installer sets Fluscreen valve to ""Electric"" (was Pneumatic)	X	
IN-317	TEM prerequisite installer reports ready when Matlab runtime installer is still running	X	X
IN-322	Autoloader Ease Of Use installer not installed	X	
IN-336	Installation of Matlab Runtime 9.4 cancelled by user causes deadlock	X	X
IN-74	SuperXTuningSetup installation ends with exception	X	
MOT-1214	TT872716 IVIS TAD manual test reports fails while result is passed	X	X
MOT-1220, MOT-1114	TT771937 part 2 Talos Glacios does not perform post home range check on alpha axis of compustage		X
MOT-1978	IVIS initial firmware upload fails (intake new IVIS release)	X	X
MOT-977	TT880743 After TEM restart UEC disconnected encoder aperture not reposted	X	X
NPD-40 RDTS-452	Sherpa crash during startup for mono without Ultimono	X	
NPD-44	Unable to restart AutoStar task after abort	X	X
OSD-124, TT883753	Smoke platform hangup Feibbox.exe related to OSD and apache	X	X
OSD-136	OSD displays unnecessary confirm dialog after tapping on "Prepare holder insertion" Button on Spectra	X	
OSD-148	Titan Spectra GUI not as expected, wrong rendering of the main screen	X	
OSD-49	ConnectionAbortedError exceptions (Python bug)	X	X
RDTS-161, SSIT-166	Registry32bitView_regLocalMachine_FEI has wrong format (863698)	X	
RDTS-341	LDC alignment fails with some unknown reason	X	

ID	Description	Titan	Talos
RDTS-360	Flucam hotpixel masking	X	X
RDTS-369, VMR-74	Vacuum FW Connection Lost due to communication issue with TMP		X
RDTS-388	Flucam bias/gain missing acq. Indication	X	X
SCANDIUM-2523	Detector collection angles not correct on Metrios systems	X	
SCANDIUM-2751	4D-STEM stability issue – Dwelltime too low	X	
SCANDIUM-2791	4D-STEM acquisition fails when camera binning 8 is used	X	
SCANDIUM-2792	4D-STEM lacks frames at fastest revised dwell time	X	
SCANDIUM-2793	4D-STEM shows large image shift in the ROI of the HAADF image in Velox	X	
SCANDIUM-2801	Storage server fails to offload when MRC header(s) too large for internal buffer	X	X
SCANDIUM-2806	4D-Stem acquisition (ROI 4096, scan size>=85) fails due to Ceta2 livestream failure	X	
SCOIADGAT-1561	Fractionation in linear mode saves a corrupt image.	X	X
SCOIADGAT-1718	Acquisition Monitor stores the gain reference image in the wrong path	X	X
SCOIADGAT-1800	Wrong camera name in TIA	X	X
TT793682	Flucam viewer freezes when entering ellipse annotation dimensions without units	X	X
TT814254	High tension button available during FEG startup	X	X
TT822394	Flucam viewer not showing beam blank status on closing valves	X	X
TT822450	The Flucam Viewer-radius indicator resolution is too low at SA magnification	X	X
TT823080	Monochromator gets stuck when load an "UltiMono" FEG register	X	
TT851528	Time out error during Chromatic measurement in Image Corrector	X	X
TT856025	Flucam HDR mode white level is not set to max value	X	X
TT863102	Microscope Configuration Importer does not support new DAR tool format	X	

ID	Description	Titan	Talos
TT863698	Registry32bitView_regLocalMachine_FEI has wrong format (RDTS-161)	X	
TT875367	Application installer still uses the name 'FEI'	X	X
TT875991	AutoCTF - defocus has wrong sign in task results when correcting to overfocus	X	
TT885789	HT interlocks messages not displayed in PeoUI	X	X
--	OptiSTEM(+) issues in Sherpa: • When switching to the Details" view in Service/Factory it shows the Auto Functions results. This is especially annoying because to see information in the Logging window other than errors and warnings the "Details" view must be turned on, however to see the graphs produced by certain Service/Factory functions the "Details" view must be turned off because of this (i.e. one has to constantly switch the "Details" on and off to see all information). • When C1/A1 or B2/A2 tuning is run many times from Sherpa, without restarting Sherpa in the meanwhile, it becomes progressively slower. To work around this issue restart Sherpa when C1/A1 or B2/A2 tuning becomes very slow.	X	X

Solved in TEM 7.5.1

ID	Description	Titan	Talos
ASP-833	Prerequisities Installer finish with errors - EDM tools fails	X	X
CAMERA-5438	CMOS protector gives status 'Error' while Falcon3 is available and green	X	X
CAMERA-5838	F3: DAR is missing FalconECCabDiagnostics on Talos		X
CAMERA-5844	Cooling status of cameras not updated on PEOUI status	X	X
DBOC-665	Calgetter fix nolor optics change	X	
DBOPTICS-2051	TEM UI does not display the convergence angle value	X	X
IADM-431	Handover from NanoMEGAS to TEM 7.5.1 causes PEOUI crash	X	
IADM-458	Flucam feezes in 3.3.0	X	
IADM-465	During normalizing coils, Flucam camera isn't paused mode in HR mode and there isn`t any message "normalizing, please wait" in the Flucam viewer	X	
IADM-473	TEM server failed to start if Flucam camera was not connected	X	X
IN-385	Partial re-installation - Serial number or Instrument key (D-Number) are not present in Help / About window	X	X
IN-395	HighBase is not set during upgrade 7.5.x	X	
IN-409	Flucam freeze	X	X
IN-419	Patch request: No 60kV in HT menu	X	
SCOIADGAT-2055	Incorrect Position Factor for Dual Continuum 1069 in Titan 7.5	X	
SCOIADGAT-2083	Run DMRemoting and GatanRemoting as admin to be able to support Velox Remoting + GMS 3.4.2	X	X
SCOIADGAT-2106	DM script (TransferMagCal) for multiple cameras	X	X
SCOIADGAT-2159	Gatan licenses failed to install	X	X
SCOIADGAT-2160	Patch request: Calibration factor wrong.	X	

9   Known Issues

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.

ID	Description	Titan	Talos
IN-177	Change Spectra 200 to be based on 200kV High Tension	X	
NPD-112	After reconnecting IGP cable interlock, an error message is presented in the TEM-UI	X	X
NPD-116	The logviewer shows IGPb (part of CFEG) error messages while XFEG software is installed	X	
NPD-117	Activation of an IGP cable interlock generates multiple error messages	X	
SPEC-2589	SuperXG2 Tuning Tool Shutter Control Error	X	X
SPEC-2622	CountrateMonitor::Initialize can trigger event resulting in DZN recursion	X	X
SPEC-2712	Generalize HAL settings interfaces and implement generic SettingsApplier	X	X
SPEC-2718	Migrate AcqSvr to latest Cable interfaces	X	X
SPEC-2973	Insert not allowed without reasons	X	X
SPEC-3057	WaitForShuttersOpen timeout value should change in simulation	X	X
SPEC-3117	New PP configuration missing in ini file causes acqsrv crash	X	
TT652982(*)	FeiAutoStarServer.exe server still running, after Sherpa and TEM server stopped	X	
TT682665	Optimono: BioQuantum (Quantum 967) doesn't support EELS	X	X
TT718847	Correct Objective Stigmator gives HRESULT 80004005	X	
TT725645	Find Beam" routine: in TEM mode (3-condenser mode) does not work properly	X	
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

ID	Description	Titan	Talos
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
TT789332	Semi-transparent 100 um objective aperture - 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	
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

ID	Description	Titan	Talos
TT849594	EPU cannot delete files from Gatan PC DoseFractions shared location (Bioquantum/K3). Remove files manually. Issue will be resolved with GMS 3.4.1.	**X**	**X**
TT851376	APM does not restore settings	**X**	**X**
TT851908	AFIS alignment: wrong (confusing?) error message shown to user	**X**	
TT855189	Sherpa CTF fit not correct, while being OK (RDTS-76)	**X**	**X**
TT855304	Correct the coma on the K2 will crash vacuum (RDTS-88)	**X**	**X**
TT873751	AutoCTF: wrong results displayed when measurement fails during coma correction	**X**	**X**
TT875991	AutoCTF: defocus has wrong sign in task results when correcting to overfocus	**X**	**X**
TT884946	APM Saving and Loadings backups with the FEG not operational	**X**	**X**
TT885724	Missing elements in Sherpa UI for supervisor and user account	**X**	
--	OptiSTEM(+): Aborting a running A2/B2 procedure that is started via the *TEM User Interface > STEM AutoTuning* control panel results in a *Failed* state instead of the *Aborted* state. The abort action itself is successful, only the reported status is incorrect. When the A2/B2 is started in Sherpa > OptiSTEM(+) then the reported state after a successful Abort action is *Aborted*.	**X**	**X**