

TEM Server 7.2

Service Release Notes

PN 307413

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1 Introduction

TEM 7.2.X is a TEM Server software version. It is released for a selection of new, factory-built Thermo Scientific systems as the following microscope software versions:

- Titan 3.2.X
- Talos 2.2.X

This document describes the changes and improvements made with respect to the previous release, TEM 7.1

Note **TEM 7.2.X does not support field upgrades from TEM 6.X.**

This document is intended for Thermo Fisher Scientific service and factory engineers only. The latest version of this and other documentation can be found on the TEM Service CD.

1.1 Mandatory and Breaking Changes

- The Multiloader / Manual Loader is no longer supported.
- The Super-X G1 Detector is no longer supported.

1.2 Highlights

- The Falcon 4 camera is available in bottom-mounted configuration. The Falcon 4 camera can only be installed in combination with a Ceta camera.
- The Dose Protector is improved to protect sensitive cameras from harmful exposure, such as high dose rates and bright spots (for example: diffraction patterns).

1.3 Supported Microscope Types

Family	Type or Generation	Supported	Remarks
Titan	Titan G1/G2/G3/G3i	No	All Titan-family models of generation G1, G2 and G3/G3i (Titan, Themis, Krios, Metrios, Halo, ETEM)
	Titan G4	Yes	All Titan-family models of generation G4. (Spectra, Krios, Metrios)
Talos	Talos G1	No	
	Talos G2: • Talos F200i • Talos L120C	Yes	
	Talos G2: • Talos F200S/X/C • Talos Arctica	No	
	Glacios	No	

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.

Note This TEM 7.X release does not support upgrades from TEM 6.X software.

1.4 Supported Software

The tables below specify the minimum compatible versions for various software applications surrounding the microscope and its use. The *Upgrade* column shows the necessity for upgrading to the specified version.

Upgrade	Explanation
Mandatory	The application <i>must</i> 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 <i>can</i> 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.

Future releases of the software applications may be backward compatible with a limited range of recent TEM Server releases. Refer to the release notes of these software applications for a specification of the supported TEM Server releases.

1.4.1 Microscope PC

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

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

The Microscope PC for systems with Windows 10 is *not* available as a FRU.

Software	Version	Upgrade	Remarks
Tomography	5.0	Mandatory	Includes Tomography 4.13 for STEM experiments and for calibrations.
EPU	2.5	Mandatory	
EPU-D	1.1	No change	
MAPS	3.11	Mandatory	
Velox	2.10	Mandatory	
TIA	5.2.0	Automatic	Included in Titan and Talos SW installation. There will be no new features in TIA anymore, only bugfixes.
GMS	3.3.2.2403	Mandatory	For systems without a Gatan Continuum filter.
	3.4.0.2662	Mandatory	Required for Gatan Continuum filter
Bruker Esprit	2.1.2.17929	No change	Required for Dual-X
Sherpa	1.14	Automatic	Included in Titan and Talos SW installation
CEOS	4.6.10	Automatic	Included in Titan SW installation when configured with corrector(s)
Metrios UI	N/A	N/A	Metrios skips the TEM 7.1 release
Quadera Software	N/A	N/A	ETEM skips the TEM 7.1 release
RAPID	4.0.1	Mandatory	Older releases may still work also.
Imaging Codec Pack	3.13.0	Optional	

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	1.2.16	Check TEM SW Archive - Auto Alignments - Tip Replacement for latest update
SQT	1.2.003	
Alignment Checker	1.4.4	Not available for FSEs Check TEM SW Archive - Alignment Checker for latest update.

1.4.2 Support PC

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

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

SW Product	Version	Upgrade	Remarks
RAPID	4.0.1	Optional	Older releases may still work also.
Email Service and Port Forwarder	-	Mandatory	Install from Titan/Talos ISO
Imaging Codec Pack	3.13.0	Optional	

1.4.3 Remote Operation PC

SW Product	Version	Upgrade	Remarks
RAPID	4.0.1	Optional	Older releases may still work also.
TARO Simple	-	Mandatory	Install from Titan/Talos ISO
Imaging Codec Pack	3.13.0	Optional	

1.4.4 Other PCs

SW Product	Version	Upgrade	Remarks
TIA Offline	5.2.0	Optional	TIA Offline is backward compatible. There are no new features in TIA since 4.22. The upgrade to 4.23 is optional, but recommended.
Velox Offline	2.10	Mandatory	Velox Offline is backward compatible
Imaging Codec Pack	3.13.0	Optional	
Inspect3D	Upgrade depends on compatibility with Tomography data		
Amira / Avizo	Upgrade depends on compatibility with Inspect3D data		

1.5 Supported Hardware

Functionality	Hardware	Remarks
Communication		
CAN Controller	SCU	
	SCU2	
User I/O	OSD for Talos	
	OSD for Titan G4	
	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
	X-CFEG	
	Thermionic	LaB6 and Tungsten
Vacuum		
IGPD2 power supply	IGPD2v2	
	IGPCU 5KV / 5.5KV	
Optics		
Talos Optics Boards	Version 1	
Current Measuring Board	CMAG	
Phase Plate	SCU Remote Controlled Heating	Keithley Power Supply
Correctors	CS Corrector	
Cameras and Detectors		
Cameras	Flucam 2	
	Flucam 3	
	Falcon 3EC	

Functionality	Hardware	Remarks
	Falcon 4	Requires a Ceta camera
	Ceta	<ul style="list-style-type: none"> Including Ceta Speed Enhancement (Ceta-2) Supported Sensor Packages: Ceta 16M, Ceta-D/-M/-S
	Gatan OneView	
Filters	Gatan Quantum 963 / 964 / 965 / 966 / 967 / 968	
	Gatan Enfinium SE/ER	
	Gatan BioQuantum 967 / 968	With Gatan K2 camera
	Gatan BioQuantum 1967	With Gatan K3 camera
	Gatan Continuum S 1077 / ER 1065 / HR 1077	
STEM Detectors	HAADF	
	BF/DF Retractable	
	BF/DF Retractable Mk2	
	BF-S/DF-S	Also known as NextGen- or NG-STEM
	Gatan 805, 807, BF/DF	
EDS	SuperX-G2 / G2 Lite	Requires Velox
	Dual-X / Single-X	Requires Esprit 2.1
Scan Engines	PIA, PIA EDS	
	CAB/A	
Motion and Specimen Loader		
Compustage Mk1 / Mk2	TSC	
Piezo Enhancement	PI E545	
	PI E727	
Automated Aperture System	AAM-G2 with TAC	Including Heated Apertures
Autoloader	Plan 3 with TAC	Plan 3 with NYCe4000 is not supported
IVIS		

Note **Although the supported hardware list contains a limited selection of (legacy) hardware that is not available on new, factory-built systems, TEM 7.2.X software can *not* be retrofitted on legacy systems.**

1.6 Discontinued Hardware

None since the previous release.

- The Multiloader / Manual Loader is no longer supported.
- The Super-X G1 Detector is no longer supported.
In the Configurator for Titan software, the Super-X G1 detector is still displayed. This is a leftover that will be removed in the next release.

2 Source and High Tension

2.1 New Features

No (major) items.

2.2 Improvements

No (major) items.

2.3 Impact on Service / Install

Titan and Talos

- Tip exchange tool behavior when the extractor voltage is not set correctly is improved.

3 Vacuum

3.1 New Features

Titan and Talos

- *TEM User Interface > Vacuum* control panel:
The background color of each pressure value indicates if the vacuum level is good enough to open the column valves:
 - Red: not OK to open the column valves.
 - Green: OK to open the column valves.

3.2 Improvements

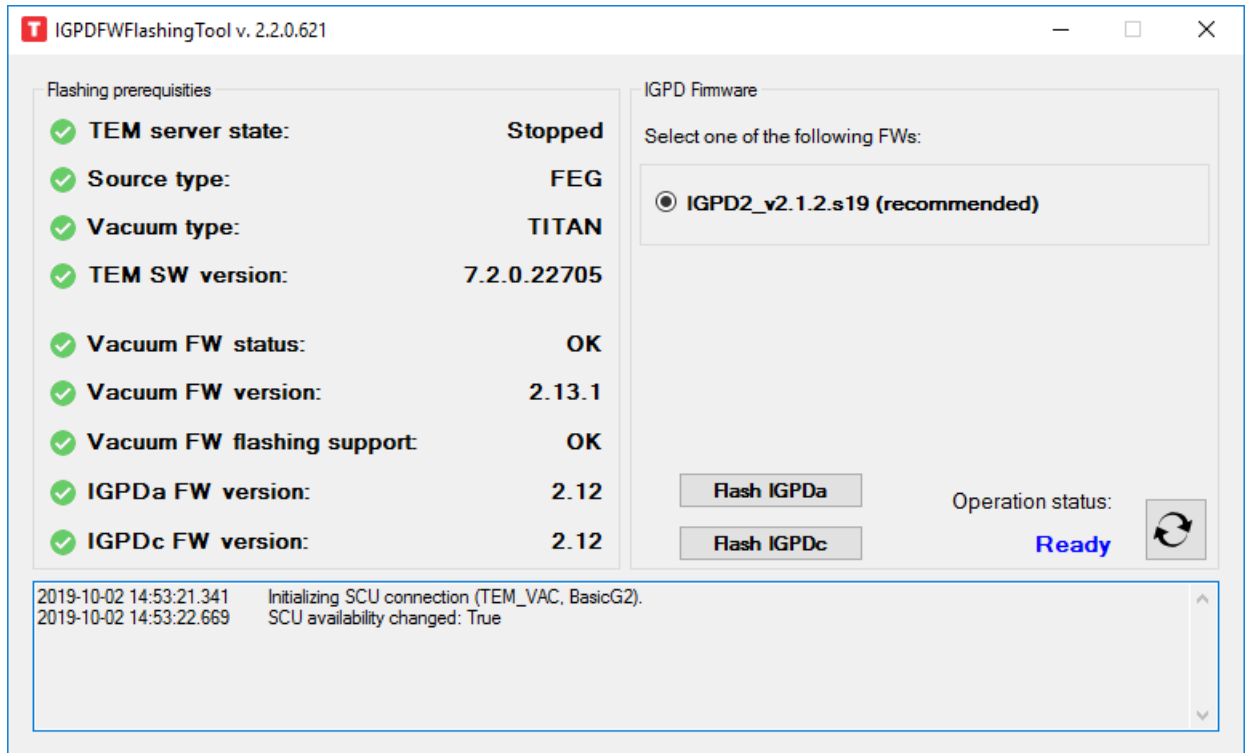
Titan and Talos

- The interval between holder detection and starting the evacuation of the Load Lock is increased from 3 to 10 seconds.

3.3 Impact on Service / Install

Titan and Talos

- Semi Automated Bake Out (SABO)
- IGPD Firmware download tool.
 - Select *Microscope Software Launcher > Tools > Other > IGPD Flashing tool (SCU2)* for the user interface of the IGPD Firmware Download tool.



- The IGPD Firmware Download tool also features a command line interface.

Titan

- Vacuum G2 requires the SCU2 board.
The SCU2 board is supported by the Firmware Validation tool that runs before the TEM Server software is started. If new firmware is available, then the Firmware Validation tool downloads the new firmware to the SCU2.
- Vacuum Test dialog:
 - The Evacuate and Conditioning actions can be reverted.
 - To revert the *Projection Evacuate* action, select *Projection Vent*
 - To revert the *Column Conditioning* action, select *Column Vent*
 - To revert the *Column Evacuate* action, select *Column Conditioning*
 - To abort the *Evacuate All* action, select an action that counters the current phase of the *Evacuate All* procedure.
 - Options > Bypass evacuate accelerator:
If ticked, the Evacuate All function does not evacuate the accelerator. Use this option when the FEG is not connected.
 - Semi Automated Bake Out (SABO) is available for Titan family microscopes with a Vacuum G2 system and an XFEG source with or without Monochromator.
To start the SABO procedure:
 - Switch to *Accelerator Service* mode.
 - Vent the accelerator.
 - Start the SABO procedure.

Note **Known Issue 845860: during the SABO procedure, do not select *TEM User Interface > Vacuum > Recover***

There are no UECs for the SABO procedure.

Talos

- Firmware for the vacuum SCU1 board is no longer updated.
- Vacuum test dialog:
The captions for the automatic actions are revised.

4 Optics

4.1 New Features

Titan

- Dose Protection for Falcon 4 on systems with a CEOS corrector.
- Aberration Free Beam Shift (AFBS) on systems with a Probe Corrector.
- Support for the SCU2 Optics board.
- 60 kV alignment for Metrios G4.
- Automated Condenser Center alignment for Metrios.
- Sherpa APM > Sequence:
 - The selected actions are persisted.
 - Gun Shift and Gun Tilt are not selected by default. The

Talos

- Phase Plate is now available for Talos F200i.
- 100 kV alignment for Glacios.
- MED lens series for systems with an X-Twin lens.
- Extended Mh lens series for systems with the Holography option.
- Sherpa APM:
 - The manual Rotation Center alignment is replaced by an automated version.

4.2 Improvements

Titan and Talos

- When High Tension switches off, the Lensref no longer scales down.
- Sherpa APM:
 - Center Objective Aperture:
 - Accuracy is improved from a reasonable centered aperture to a perfectly centered aperture.
 - Rotation Center Alignment:
 - Automated version is now available for Talos systems.
 - Increased speed and robustness.
 - Presets for EFTEM mode:
 - Use counting mode instead of linear mode.
 - Use align integrated image.
 - Use spot size 7 or 8, depending on alignment.

Talos

- The Gun Blanker is removed from the TEM BlankerShutter Monitor.

4.3 Impact on Service / Install

Titan and Talos

- Optics error reporting is improved.
- The Blanker is moved from the Align_GT dialog to a separate GunTiltBlanker dialog.

Titan

- Sherpa:
 - Linear Distortion Correction Alignment is introduced for Krios G4. The alignment adjusts the diffraction stigmator to minimize the linear distortion.
 - Camera to Camera calibration is introduced for the Falcon 4 camera on Krios G4.
 - The results of the following APM actions are logged by DataServices: Auto Eucentricity, Align Beam Shift, Adjust Rotation Center, Align Diffraction Pattern, Auto Objective Aperture, Objective Stigmatism Correction, Coma Correction, Align Beam Shift, Check Alignments.
 - The results of the following AutoCTF actions are logged by DataServices: Coma Measurement, Coma Correction, Objective Astigmatism Measurement, Objective Astigmatism Correction.

5 Cameras and Detectors

5.1 New Features

Titan and Talos

- The Falcon 4 camera is available in bottom-mounted configuration, only in combination with a Ceta camera.
- Extended Drift Correction is now available for Falcon 3EC cameras.
- The following Gatan Continuum filters are now supported in an embedded configuration:
 - Gatan Continuum S 1077
 - Gatan Continuum ER 1065
 - Gatan Continuum HR 1066

For systems with an embedded Gatan Continuum filter, use Gatan GMS 3.4.X software for all Gatan cameras, filters and detectors.

If no embedded Gatan Continuum filter is present, then use Gatan GMS 3.3.X software.

- The Gatan Quantum 1967 (BioQuantum with K3 camera) is supported in an embedded configuration.
For instructions to embed the Gatan Quantum 1967 filter, refer to [306022](#).
This was already supported for Windows 7 systems in TEM Server 6.15.2. For Windows 10 systems this was not available yet.

Talos

- SingleX is now available for Talos L120C.

5.2 Improvements

Titan and Talos

- The throughput rate for the Super-X G2 detector is increased.
- For embedded Gatan Quantum 1967 filters (BioQuantum with K3 camera), the stability, throughput and ease-of-use have been improved.
It is no longer necessary to verify the *Gci2* connectivity in the DMRemote Checker. Instead, acquire an image with the EF-CCD camera to verify that the connection performs well.
- Gatan PC:
 - New GMS version with improved stability to solve freezing and crashing of the software.
 - *GfiRemote* and *GciRemote* start automatically after logging in on Windows.

5.3 Impact on Service / Install

Titan and Talos

- The *position factors* for Gatan cameras are improved to make Magnification Calibration more efficient.
- Pro-active dose protection for Gatan cameras.
- DQE Tool:
 - The Ceta-D and Ceta-S Sensor Packages with and without Speed Enhancement (Ceta-D2 and Ceta-S2) are supported.
 - The precision of the values in the DQE report is consistently 3 decimals.
- Camera Performance Test Tool:
 - The Ceta-D and Ceta-S Sensor Packages with and without Speed Enhancement (Ceta-D2 and Ceta-S2) are supported.
 - The Screen Current is displayed.

- DataServices:
 - The Camera Sensor Package ID is added to the DataServices System Config.
 - Health Monitoring supports Flucam2 and Flucam3.

6 Motion

6.1 New Features

Titan and Talos

- Firmware Validation tool:
Enable / disable the firmware validation for selected Motion Devices while the TEM Server is running.

6.2 Improvements

No (major) items.

6.3 Impact on Service / Install

Titan and Talos

- Health Monitoring:
The *IVIS Error Code of the Move* parameter is removed.

7 Autoloader

7.1 New Features

No (major) items.

7.2 Improvements

No (major) items.

7.3 Impact on Service / Install

Titan and Talos

- UECs for the Autoloader are introduced.

Category ID	Category	UEC
2.83.0.X	LOADERS.GRIPPER. CARTRIDGEGRIPPER	ERR_EXPECTED_CARTRIDGE_NOT_DETECTED_CASSETTE
		ERR_EXPECTED_CARTRIDGE_NOT_DETECTED_STAGE
		ERR_UNEXPECTED_CARTRIDGE_DETECTED
		ERR_UNEXPECTED_CARTRIDGE_DETECTED_CASSETTE
		ERR_UNEXPECTED_CARTRIDGE_DETECTED_STAGE
2.84.0.X	LOADERS.SENSOR. CARTRIDGE_PRESENCE	ERR_SENSOR_BROKEN
3.13.38.X	VACUUM.GAUGE.PPAL	ERR_GAUGE_DISCONNECTED
		GAUGE_ERROR
3.13.39.X	VACUUM.GAUGE.PIRDW	ERR_GAUGE_DISCONNECTED
		GAUGE_ERROR

8 TAD, Service Tools, Installer and Licensing

8.1 New Features

Titan and Talos

- Standalone Holder Installation:
Select *Microscope Software Launcher > Tools > Compustage > Run Standalone Holder Installation* to update the available holders in the software configuration without performing a full re-install of the TEM Server.
- Configuration dialog for System Monitoring and Customer Reporting.
- Health Monitor is updated to support the HP Z4G4 Microscope PC:
 - Hard drives:
 - Support for SSD drives.
 - Extended to three physical hard drives.
 - USB inserts and removals.
 - Obsolete voltage sensors are removed.
- DataServices now also uses a PostgreSQL database next to the MSSQL database.

8.2 Improvements

Titan and Talos

- Rebranding:
 - `feiSpy.exe` is renamed to `TemSpy.exe`
 - `FeiBrickAppControl.exe` is renamed to `TemBrickAppControl.exe`
- Prerequisites ISO:
The `.NET 4.0` installer is removed.
- Titan / Talos ISO:
The Backup Restore Tool is upgraded. This is a preparation for future TEM 6.X to TEM 7.X field upgrades.
- Applications ISO:
 - RAPID 4.0.1 is available.
 - The FirePro Graphics Card Driver (AMD Catalyst) is removed.

Talos

- The Configurator is revised:
 - Unsupported options are removed.
 - If only one option remains, then the selection is removed and the only remaining option is selected by default.

8.3 Impact on Service / Install

No (major) items.

9 Solved Issues

Solved in TEM 7.2

ID	Description	Titan	Talos
TT473203	Optics Degraded: TEM User Interface should show Water interlock active information.		X
TT654943	Falcon/Ceta linearization fails at the end when there's no CFN	X	X
TT659708	Ceta and Falcon quad ring degradation during high insert/retract duty cycle	X	X
TT671276	Talos - remove 'Gun blanker' from 'TEM BlankerShutter monitor'		X
TT676139	HM:Gun > FEG state > Operation Time Counter does not add up to 24 hrs per day	X	X
TT717387	SuperX G2 deadtimes at low count rates are not ok during acquisition	X	X
TT720510	Talos with Gatan filter - Position factor	X	X
TT751658	Using Ceta Reference manager caused unresponsiveness of Ceta2	X	X
TT769428	AutoCTF does not show phase plate activation graph when stopping measurement	X	X
TT770204	DSSystemConfig: camera sensor package ID	X	X
TT771504	Images from BioQuantum camera have a black bar in the middle	X	X
TT779881	AutoCTF phase plate plot and microscope image occupy same UI space	X	X
TT780288	IVIS doesn't become compensating but reports compensating	X	X
TT788203	IVIS did not recover after network disconnection	X	X
TT789995	Gun Dialog can transition Cold Start <-> Warm Start	X	X
TT793429	auto coma error:: needs to wait longer after enabling objective aperture	X	
TT798298	Increase start compustage load lock pump timer to 10 s	X	X

ID	Description	Titan	Talos
TT802046	Error code on move items not registered in HealthMonitoring (TSC, AAM, AL)	X	X
TT806945	Stage2 OCX does not load correctly after TEM server restart	X	X
TT807186	Falcon 4 servicetool: Basic CAB information missing	X	X
TT807292	Falcon 4 Service tool: AMC product information not filled	X	X
TT807599	Falcon 4 servicetool: CPI diagnostics info missing	X	X
TT808743	Falcon 4 Service tool: CPI cooling diag: Peltier control information missing	X	X
TT808747	Falcon 4 Service tool: sensor information missing	X	X
TT810148	Configurator for Themis S (4.0) tooltips refer to Metrios	X	
TT810797	Remove "(default)" from source input selection in service tool	X	X
TT812112	HAADF not checked by default for Metrios (4.0)	X	
TT812118	wrong tooltip for Automatic cryo box checkbox	X	
TT815774	Beam not restored correctly when switching from Parallel to Probe mode on corrected systems	X	
TT816617	add RDP hotfix to the Storage Server prerequisites	X	X
TT817933	Install of VC runtime fails if a newer version is installed	X	X
TT817976	Missing "TEM Experts" user group in Windows 10 image	X	X
TT818259	TL CAL: Camera switch off temperature fr 60 to 50C and temp warning fr 50 to 45C	X	X
TT819326	Crash in Beam Settings OCX (Related to 825024)	X	
TT823171	Probe Corrector System STEM issue	X	
TT823925	Objectionable "Perform coma-free alignment" error message for Thermionic systems		X
TT824111	Pixel size in meta data of image in mrc offloaded file is not correct	X	X
TT824170	CETA camera visibility in TEM SW installer	X	X

ID	Description	Titan	Talos
TT825024	Crash in BeamSettings OCX (Related to 825024)	X	
TT825026	Crash in Lorentz OCX	X	X
TT825038	No Ceta camera forced to install when selecting a Falcon3/Falcon4 bottom mounted	X	X
TT825044	Dose protector OCX still available when installing Falcon4	X	X
TT825067	Falcon4 reference manager not started from peoui (when BM-mounted)	X	X
TT825608	Camera DQE tool - CETA-D+Fishione beamstop combination	X	X
TT826026	Ceta camera logging reports unstable -18, -19 within 2 seconds	X	X
TT827098	TEM Prerequisites installer fails to install all components, without explanation	X	X
TT827157	G4 system: FEG power IGPf and IGPa status mismatch	X	
TT827835	TemMasterInstall.log not readable because of Chinese characters	X	X
TT828063	IVIS TAD manual test reports fails while result is passed	X	X
TT829019	User interface freezes when pressing 'fill now'	X	X
TT829039	Sherpa: text next to images is not legible	X	X
TT829485	Temperature control help file: broken image	X	X
TT829697	Camera Network settings fix for Win10 image	X	X
TT829831	Setting extractor voltage not possible	X	X
TT830348	Wrong message in StorageServer prerequisites installer	X	X
TT830651	C2 optics board goes into error state	X	
TT831566	ImageCorrector on Titan 3.1.0 losing connection	X	
TT832108	PEOUI crashes when it is closed via the 'close window' icon in the taskbar	X	X
TT832624	EPU aborts with the message: Acquiring an image failed.	X	X

ID	Description	Titan	Talos
TT832637	DualX: Some error messages still mention "Super X" instead of "Dual X"	X	X
TT833619	TEM server crash	X	X
TT833518	Fluscreen shall notify proactive dose protector on state changes	X	X
TT833872	During EPU night run TEM Server crashed.	X	X
TT834257	Column valve status change - report wrong status of vacuum - EMPAD dysfunctional	X	
TT835123	No valves option in pull down menu Ceta and Falcon service tool	X	X
TT835579	Crash in Precession OCX	X	
TT835885	No NTP daemon installed when installing a Falcon4 without Ceta2/Falcon3	X	X
TT836600	Gatan PC freeze	X	X
TT837522	Gatan PC Communication Issues During K3 Embedding	X	X
TT837972	unable to set correct optimum extractor voltage in tip exchange tool	X	X
TT838841	DQE measurement: SA aperture on 120 kV systems	X	X
TT839310	DQE measurement: screen current range after automatic current setting fails	X	X
TT839325	DQE measurement: going to screen current 0 and automatic setting failure	X	X
TT839563	UUID Duplication in TEM_TAD	X	X
TT839569	Wrong value MC in outputs and swap uP and nP		X
TT842366	200KV systems have lensref 1.0 instead of 0.785	X	
TT842861	Minilens setting wrong due to wrong HT range		X
TT844448	Tip Exchange tool does not start extractor_voltage_max is not set in FW	X	X
TT845258	Falcon 4 should revise exposure time to multiples of the frame reduction param	X	X

ID	Description	Titan	Talos
TT845698	Escalation: EDX-detectors warm up to room temp during airlock-cycle	X	
TT848341	SysMon: disk monitoring does not work for SSD disks	X	X
RTC135555	SingleX UI - Acquisition Monitor shows SuperXDetector	X	X
RTC137063	PhasePlate type not set in correct order during TEM server start, which causes phase plate types (I & II) to be ignored	X	X
RTC138436	CameraPerformanceTestTool crashes when TEM SW is stopped because of screen current checks	X	X

Some of the issues in the table above involve legacy hardware that is not available on new, factory-built systems. Although testing and maintenance continues on some legacy hardware, this does not mean that the related hardware is supported by TEM 7.X.Y software.

10 Known Issues

Known issues can be found on the Service CD.

All released software versions have a link to a Known Issues list in the top-level software overview document.

ID	Description	Titan	Talos	Remarks / Workarounds
NA	Continuum Camera Integration: Popup message "Class not registered" at GMS startup.	X	X	Acknowledge the message and proceed.
TT652982	FeiAutoStarServer.exe server still running, after Sherpa and TEM server stopped	X	X	Causes TT736864.
TT704034	TemServiceAccess doesn't start for Salve NSR config	X		
TT725645	Find Beam" routine: in TEM mode (3-condenser mode) does not work properly	X		
TT730847	ta should retract automatically when starting EELS measurement	X	X	
TT733615	AutoCTF is very slow and irresponsive	X		Possibly related to TT821401 and TT821676.
TT736864	Find Beam button in Monochromator (Expert) OCX does not function. (Same root cause as 767667)	X	X	Caused by TT652982.
TT750071	OptiSTEM inserts HAADF in TEM mode	X	X	
TT751977	Inconsistent (incomplete) error messages when no camera present	X	X	
TT751980	AutoCTF fails when starting at a too high defocus	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		

ID	Description	Titan	Talos	Remarks / Workarounds
TT761312	Talos + CETA - increased occurrence of lost frames		X	
TT767667	Find Beam in Monochromator (Expert) doesn't work (however Sherpa does work). STEM Auto Tuning functionality cannot be added to the Workset. (Same root cause as 736864)	X	X	Caused by TT652982. Related to TT821401 and TT821676.
TT772811	Incorrect FFT fit reliable for AutoCTF	X	X	
TT780477	AutoCTF hangs	X	X	
TT784547	When camera is offline AutoStar TemService cannot be started	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 Fails when filling system with LN2	X	X	
TT801222	Sherpa hangs since CTF estimation algorithm cannot handle incorrect pixel sizes	X	X	
TT808176	AutoCTF_wrong defocus value_with higher binning	X	X	
TT809550	VACG2: Vacuum Status does not change when SCU is disconnected	X		
TT814562	ICameraDetector2/3::SupportsContinuousImageAcquisition not correct for DF	X	X	

ID	Description	Titan	Talos	Remarks / Workarounds
TT821401	CTF estimation 'freezes' AutoCTF run	X	X	Related to TT767667.
TT821676	Beta: Sherpa performance issue	X	X	Related to TT767667.
TT821740	AFIS alignment shows misleading error message	X		
TT824931	Sherpa stop button remains active after a (manual) APM run	X	X	
TT829499	user level Sherpa shows EF-FalconService	X	X	
TT838769	APM rotation centre validation does not work in fringe free mode	X		
TT840856	Falcon4 gives message about vacuum seal when venting projection	X	X	
TT841045	Oneview camera timeout during corrector tableau WIN10 GMS 3.3	X	X	
TT842488	STEM CCD Experiment gives error message in TIA	X	X	
TT842833	AutoCTF not responsive when using K3 camera	X	X	
TT845260	Falcon 4 throw on reactive dose protector during insert or start/await acq	X	X	
TT845713	AFIS: presets do not set stage tilt to zero	X		
TT845860	VacG2: SABO: 'Recover' button is available on OCX during Bake-Out	X		
TT847442	PEELS OCX creates spectrum with only half the energy range	X	X	
TT852924	Flucam viewer image is even grey. Status (screen, valves) are displayed properly	X	X	<ul style="list-style-type: none"> Do not use a screensaver. Do not lock the Microscope PC with CTRL+ALT+DEL

ID	Description	Titan	Talos	Remarks / Workarounds
TT856223	FlucamViewer crash	X	X	<ul style="list-style-type: none"> Do not use a screensaver. Do not lock the Microscope PC with CTRL+ALT+DEL
TT856227	Flucam viewer shows no image	X	X	<ul style="list-style-type: none"> Do not use a screensaver. Do not lock the Microscope PC with CTRL+ALT+DEL
TT856878	FeiCommunicationDriver can be leaking	X	X	Close the tstMdlOptics (Micro Map) and tstHEPDiag applications when not in use.
TT860763	TEM Optics (MdlOptics) causes a huge memory increase of FeiBBox.exe	X	X	Close the tstMdlOptics (Micro Map) and tstHEPDiag applications when not in use.
RTC145635	IGPD2v2 communication issue (Vacuum FW not working with IGPD FW 2.xx)		X	

Some of the issues in the table above involve legacy hardware that is not available on new, factory-built systems. Although testing and maintenance continues on some legacy hardware, this does not mean that the related hardware is supported by TEM 7.X.Y software.