thermoscientific

TEM Server 6.14

Service Release Notes

PN 306019

Revision A • 16-Apr-19

ThermoFisher SCIENTIFIC

Contents

1 Introduction 4

1.1 Mandatory and Breaking Changes 4
1.2 Supported Microscope Types 4
1.3 Supported Software 5
1.4 Supported Hardware 8
1.5 Discontinued Hardware 9

2 Source and High Tension 10

2.1 New Features 10
2.2 Improvements 10
2.3 Impact on Service / Install 10

3 Vacuum 10

3.1 New Features 10
3.2 Improvements 10
3.3 Impact on Service / Install 11

4 Optics 11

4.1 New Features 11
4.2 Improvements 11
4.3 Impact on Service / Install 12

5 Cameras and Detectors 12

5.1 New Features 12
5.2 Improvements 12
5.3 Impact on Service / Install 13

6 Motion 14

6.1 New Features 14
6.2 Improvements 14
6.3 Impact on Service / Install 14

7 Autoloader 15

7.1 New Features 15
7.2 Improvements 15
7.3 Impact on Service / Install 16

8 TAD, Service Tools, Installer and Licensing 16

8.1 New Features 16
8.2 Improvements 17
8.3 Impact on Service / Install 17

9 NSR Support 17

10 Solved Issues 18

11 Known Issues 20

12 Addendum to Release Notes for New Software Releases on APM, EPU 2, and Permission Management 24

13 Index 26

1 Introduction

TEM 6.14.X is a TEM Server software version. It is released for a selection of Thermo Scientific and FEI systems as the following microscope software versions:

- Titan 2.14.X
- Talos 1.14.X

This document describes the changes and improvements made with respect to the previous release, TEM 6.13.1.

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

Titan and Talos

- Sherpa Automated Performance Monitoring (APM):
  - The Objective aperture precondition for the Center Objective Aperture alignment is changed from the 70 μm to the 100 μm aperture.
- Upgrade scenario for a system with NG-STEM to TEM 6.14:

Note	**The software upgrade to TEM 6.14 must be only be performed with direct assistance from R&D.**

Since no systems with TEM 6.13 and NG-STEM have been shipped from the factories it is not expected that this scenario occurs on customer sites.

- All NG-STEM calibrations are invalidated during a software upgrade to TEM 6.14, and must be renewed.
- The position sensors for the BF-S and DF-S detector are re-wired, and now behave differently.
- On the backplane, multiple signal I/O locations are changed.

1.2 Supported Microscope Types

Family	Type	Supported	Remarks
Titan	Titan (all)	Yes	
	Themis Z/S	Yes	
	Krios	Yes	
	Metrios	**No**	Metrios skips the TEM 6.14 release
	ETEM	Yes	

Family	Type	Supported	Remarks
	Halo	Yes	
Talos	F200X/C/S/i	Yes	
	L120C	Yes	
	Arctica	Yes	
	Glacios	Yes	
Tecnai	All	**No**	TEM 6.7 is the last release that supports Tecnai systems

Note	**Make sure that all microscope hardware is also supported by this TEM Server release.**

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

Note	**This TEM Server release does not support the direct upgrade from Windows XP based Titan 1.X software. To upgrade from Titan 1.X, please submit an NSR.**

105960 - Titan Software Upgrade to Windows 7

1.3 Supported Software

The tables below specify the recommended versions for various software products surrounding the microscope and its use.

In the 'Upgrade' column an advise is given whether or not an existing installation needs to be upgraded:

- Mandatory: to maintain full functionality and performance in combination with the upgraded TEM Server, the involved software product must be upgraded as well.
- Automatic: the involved software product is updated automatically by the TEM Server software installer.
- Optional: upgrade is recommended, but not necessary.
- No change: no new version is needed since the preceding Microscope software release.
- N/A: the software product is not supported by, or does not support this version of the TEM Server.

The 'Upgrade' advise only applies when the involved software product is already present. When the advise for a software product is 'Mandatory', but the software is not present, there is no need to install it unless the customer requests it and has purchased any necessary licenses.

1.3.1 Microscope PC

On the Microscope PC, a Windows 7 Professional operating system image must be installed. Microscope PCs that are installed before 2015 may run on a Windows 7 Ultimate operating system. It is *not* necessary to replace the Windows PC image by a Windows Professional version.

For the Titan and Talos Microscope PC, the following FRU is defined:
105334 - PC W7 IMBA RACK

SW Product	Version	Upgrade	Remarks
Tomography	4.10	Mandatory	
EPU	2.2	Mandatory	
MAPS	3.8	Mandatory	
Velox	2.7	Mandatory	
TIA	4.22	Automatic	Included in Titan and Talos SW installation
GMS	3.2.3.1521	Mandatory	
Bruker Esprit	1.9.4.2	No change	Required for Super-X G1
Bruker Esprit	2.1.2.17921	Mandatory	Required for Dual-X
Sherpa	1.11	Automatic	Included in Titan and Talos SW installation
AutoCTF	N/A	Uninstall	AutoCTF functionality is integrated in Sherpa. AutoCTF software *must* be uninstalled.
CEOS	4.6.8	Automatic	Included in Titan SW installation when configured with corrector(s)
Metrios UI	N/A	N/A	Metrios skips the TEM 6.14 release
Quadera Software	4.6.2	No change	ETEM only
RAPID	3.3.1	Optional	Older releases may still work also.
Imaging Codec Pack	3.11.0	Optional	

Service Tools

Note	**Mentioned versions are the minimum version numbers. Higher tool versions may be backward compatible with the installed TEM software version.**

SW Product	Version	Remarks
AutoAlignments Tip	1.2.14	Check TEM SW Archive - Auto Alignments - Tip Replacement for latest update
SQT	1.2.003	
Alignment Checker	1.4.3	Check TEM SW Archive - Alignment Checker for latest update

1.3.2 Support PC

On the Support PC, a Windows 7 Professional operating system image must be installed.

Support PCs that are installed before 2015 may run on a Windows 7 Ultimate operating system. It is not necessary to replace the Windows PC image by a Windows Professional version.

SW Product	Version	Upgrade	Remarks
RAPID	3.3.1	Optional	Older releases may still work also.
Email Service and Port Forwarder	-	Mandatory	Install from Titan/Talos ISO
Imaging Codec Pack	3.11.0	Optional	

1.3.3 Remote Operation PC

SW Product	Version	Upgrade	Remarks
RAPID	3.3.1	Optional	Older releases may still work also.
TARO Simple	-	Mandatory	Install from Titan/Talos ISO
Imaging Codec Pack	3.11.0	Optional	

1.3.4 Other PCs

SW Product	Version	Upgrade	Remarks
TIA Offline	4.22	Mandatory	TIA Offline is backward compatible
Velox Offline	2.7	Mandatory	Velox Offline is backward compatible
Imaging Codec Pack	3.11.0	Optional	
Inspect3D	Upgrade depends on compatibility with Tomography data		
Amira / Avizo	Upgrade depends on compatibility with Inspect3D data		

1.4 Supported Hardware

Functionality	Hardware	Remarks
Communication		
CAN controller	CCB	
	SCU / SCU+UIOB	
Motion		
Compustage Mk1 / Mk2	SMCB	
	TSC	
Piezo enhancement	PI E545 and PI E727 controller	
Autoloader	Plan 1, 2 and 3 with NYCe 4000 controller	
	Plan 3 with Two Axis Controller (TAC)	
Apertures	AAS G1 with NYCe4000 controller	
	AAS G2 with TAC	
	Heated Apertures	Only with AAS G2
IVIS		
Detectors and Imaging		
EDS	SuperX G1	Requires Esprit 1.9
	SuperX-G2 / G2 Lite	Requires Velox
	Dual-X	Requires Esprit 2.1
STEM Detectors	HAADF	
	BF/DF Retractable	
	BF/DF Retractable Mk2	
	BF-S/DF-S	
	Gatan 805, 807, BF/DF	
Scan Engines	PIA, PIA EDS	
	DigiScan	
	CAB/A	

Functionality	Hardware	Remarks
	NanoMEGAS	
Cameras	Flucam 1 / 2	
	Falcon 2	Not supported by EPU 2.X
	Falcon III(EC)	
	Ceta 16M	also known as Ceta-1
	Ceta-2	also known as Ceta Speed Upgrade
	Gatan US1000XP	
	Gatan US1000, US4000	
	Gatan Orius SC200, SC1000	
	Gatan OneView	
Filters	Gatan Quantum 963 / 964 / 965 / 966 / 967 / 968	
	Gatan Enfinium SE/ER	
	BioQuantum 967/968	with Gatan K2 camera
	BioQuantum 1967/1968	with Gatan K3 camera
Vacuum/High Tension		
IGPD2 power supply	IGPD2v2	
	IGPCU 5KV / 5.5KV	
HT Tank	Generation 1	
	Generation 2	
FEG Accelerator	Generation 1	
	Generation 2	

1.5 Discontinued Hardware

None since the previous release.

2 Source and High Tension

2.1 New Features

No (major) items.

2.2 Improvements

Titan and Talos

- Standby state and voltage are obsolete:
  - *Standby* state is removed from the FEG control panel for systems with an SCU controlled gun.
    On systems with a CCB controlled gun, the *Standby* state is still present.
  - FEG Service control panel:
    Standby voltage is renamed to *Optimal* voltage.
  - FEG Control (user) and FEG Control (Expert) control panel:
    The *Operate* button is removed, it is no longer needed. The *Operate* status is shown in the *FEG Control* control panel > *Status* field.

Talos

- 120 kV systems:
  - Measured HT voltage accuracy is improved to 1 decimal.
    High Tension control panel now shows 0 kV when High Tension is off.
  - Filament control panel now shows an appropriate message when the reference voltage is absent.

2.3 Impact on Service / Install

Talos

- The emitter type is added to HealthMonitor for 120 kV systems

3 Vacuum

3.1 New Features

No (major) items.

3.2 Improvements

Talos

- The *Vacuum Gauge* dialog is removed from the Microscope Software Launcher menu.

3.3 Impact on Service / Install

Titan and Talos

- The *TMP Load* is added to HealthMonitor and D2i.
  This is *not* supported for Vacuum G1 systems.

4 Optics

4.1 New Features

Titan and Talos

- Advanced TEM Scripting is introduced with support for moving the currently selected Phase Plate to the next index position.
  This requires the following license:
  `Advanced TEM Scripting Phase Plate`

Titan

- CEOS:
  The S-CORR User Interface is available.

4.2 Improvements

Titan and Talos

- Sherpa Automated Performance Monitoring (APM):
  - Traffic light:
    Traffic light was reset when *Save and back-up alignments* step was run after *Check alignments* step was executed. Traffic light now remains on after executing the *Check alignments* step.
  - Multiple retract/insert moves of the Objective Aperture:
    When running check alignments and objective aperture is inserted at the moment *Check alignments* is started, the Objective Aperture was retracted and inserted for each coma measurement (which in total is done 5 times). Retraction/insertion of objective aperture is now done only once: retract when the *Check alignments* procedure is started and insert when it is finished.
  - EFTEM button:
    The EFTEM button was colored gray when an alignment failed although EFTEM mode was still active. The EFTEM button now remains yellow when EFTEM mode is active, even when an error occurs.
  - The Objective aperture precondition for the Center Objective Aperture alignment is changed from the 70 μm to the 100 μm aperture.

Titan

- Sherpa Automated Performance Monitoring (APM):
  - The Rotation Center step always uses the FluCam.

Talos

- L120C STEM magnification unification.
- TEM Server can start when the SCU is not responding.

4.3 Impact on Service / Install

Talos

- Automatic Firmware download to the Optics boards.
- Coil Calibration logging.
- Firmware: Impedance trip monitor.
  When the impedance of the lens coils is higher than the limit in STEM mode, the optics boards don't go to the degraded state.

5 Cameras and Detectors

5.1 New Features

Titan and Talos

- Advanced TEM Scripting is introduced with support for:
  - Falcon II and Falcon III cameras. This requires the following license:
    `Advanced TEM Scripting Electron Counting`
  - Acquisition of Dose Fractions. This requires the following license:
    `Advanced TEM Scripting Camera Dose Fractions`
- Mixer clipping:
  The Mixer Clipping functionality detects clipping in one or more detector segments for a single detector use case. The detector output is then clipped accordingly to notify the user that the current acquisition is useless.

Talos

- Systems with a single CAB/A board are now supported.
  Systems with two CAB/A boards are still the default configuration.

5.2 Improvements

No (major) items.

5.3 Impact on Service / Install

Titan and Talos

- BioQuantum 967 / 968 with Gatan K2 camera:
  After installation of the GMS 3.2.3.1521 software is completed, the Gatan Camera Controller and GIB require a power cycle.
- Storage Server:
  - For systems that more than one camera connected to the Storage Server, the HealthMonitor parameters are now separated per camera.
  - Rebranding: the `FEI Storage Server` service is renamed to `Storage Server` service.
- NG STEM:
  - New HealthMonitor parameters:
    - BF/DF insert/retract cycle count and state.
    - CAB temperatures and voltages.
  - New calibrations in the Acquisition Monitor:
    - BdfaCalibrations
      This procedure must be performed first. It contains multiple smaller calibrations which can take more than 15 minutes to complete.
    - Bdf-OffsetCalibration
- Upgrade scenario for a system with NG-STEM to TEM 6.14:

Note	**The software upgrade to TEM 6.14 must be only be performed with direct assistance from R&D.**

Since no systems with TEM 6.13 and NG-STEM have been shipped from the factories it is not expected that this scenario occurs on customer sites.

- All NG-STEM calibrations are invalidated during a software upgrade to TEM 6.14, and must be renewed.
- The position sensors for the BF-S and DF-S detector are re-wired, and now behave differently.
- On the backplane, multiple signal I/O locations are changed.

- The following Unique Error Codes (UECs) are added.

UEC_ SUBSYSTEM	UEC_ DEVICES	DEV_ INSTANCES	DEV_ ERROR_CODES
CAMERA (33)	CMOS_CAMERA (57)	BM_CETA (0)	ERR_STORAGE_SERVER_CMTS_DISCONNECTED (24)
CAMERA	CMOS_CAMERA	BM_FALCON(1)	ERR_STORAGE_SERVER_CMTS_DISCONNECTED
INFRASTRUCTURE (16)	PC (11)	STORAGESERVERPC (2)	ERR_STORAGE_SERVER_CMTS_DISCONNECTED

The string representation for the cameras is:

- BM_CETA: Ceta16M
- BM_FALCON: BM-Falcon

6 Motion

6.1 New Features

No (major) items.

6.2 Improvements

No (major) items.

6.3 Impact on Service / Install

Titan and Talos

- Firmware upload from TAD for Prodrive motion controllers:
  Uploading firmware for the following devices will not take place automatically anymore at TEM Server start up and/or when the controller is enabled.
  - Compustage with TSC controller
  - AAM-G2
  - Autoloader with TAC motion controller
  - IVIS

  Firmware upload will take place during installation (cannot be disabled) and can be performed manually from TAD.

- The TAD Communication tests have been replaced by a single new test:
  TAD > Communication > Auto > Motion Communication test
  - This test supports:
    - Prodrive motion controllers for the Compustage (TSC), AAM-G2 and Autoloader (TAC) and IVIS.
    - PI motion controllers for the Compustage Piezo Enhancement (PI-E545 and PI-E727).

    It does *not* support the Compustage SMCB controller and does *not* support the NYCe4000 controller.
  - For this test it is not necessary that the TEM Server is running.
  - For this test it is not necessary that the motion modules are enabled before starting the test.
- TAD Low Level Autoloader:
  - The axis homing procedure will be halted when the Park Position sensor emitter current is not OK.
  - The *Homed* status is renamed to *Initialized*, which indicates that the homing procedure has been completed successfully.
    A new status *In Home Sensor* is added, which indicates that the axis is currently positioned at the home sensor.
- TAD > IVIS Validation test: the limits are updated.

Titan

- The Aperture Alignment Wizard now features a template for Energy Slits in the C1 Aperture Mechanism. This template works similar to the template for Phase Plates on the Objective Aperture Mechanism.
  It is also still possible to define the Energy slits manually.
- IVIS is supported for Common Base (G4) systems.
  This includes new Krios, Themis and Metrios systems.

7 Autoloader

7.1 New Features

No (major) items.

7.2 Improvements

No (major) items.

7.3 Impact on Service / Install

Titan and Talos

- TAD Low Level Autoloader:
  - The axis homing procedure will be halted when the Park Position sensor emitter current is not OK.
  - The *Homed* status is renamed to *Initialized*, which indicates that the homing procedure has been completed successfully.
    A new status *In Home Sensor* is added, which indicates that the axis is currently positioned at the home sensor.

8 TAD, Service Tools, Installer and Licensing

8.1 New Features

Titan and Talos

- Prerequisites:
  - KB2921916 is added.
    This Microsoft Windows update fixes an issue with the installation of software from a trusted publisher.
  - Enthought Deployment Manager (EDM) 1.10 for Python packages is added.
- Configurator:
  - *Lorentz Lens* is now compatible with *Precession*.

Titan

- Configurator:
  Titan G4 family is added.

Talos

- The BackupRestore Tool is added to the Talos_rel ISO.
- Configurator:
  - *Permission Management* is no longer an unchangeable default, but an option for all Glacios systems.
  - *HT Human Safety* and *FEG Accelerator* are no longer selected automatically for Thermionic source systems.

8.2 Improvements

Titan and Talos

- The Firmware Validation tool remembers its window size and position and restores them after startup.
- TAD:
  - IGPD2v2 Error primitives readout for vacuum TAD tests.
  - Extended Titan Vacuum G2 Error status monitor Test with Vn2m.
  - Unified Vacuum tests for Titan and Talos (configurable by registry).
  - A set of new PPHS tests was added including Ethernet, State, Stability, Function and Monitor test.
  - New tab in Control Monitor test for firmware verification and firmware update.
- TstHalNG:
  - Cyclic logging for endurance testing.
  - Reporting of byte array content in logs.

8.3 Impact on Service / Install

Titan and Talos

- `DongleConfig.exe` is removed

9 NSR Support

For the Salve NSR, the maximum High Tension is 80 kV. This results in a software exception when Sherpa or the TEM User Interface is started.
The software exception is caused by a software interface component that connects various Software User Interfaces to the TEM Server that is unable to recognize the Objective Lens type to determine the CC and CS.

10 Solved Issues

Solved in TEM 6.14.0

ID	Description	Titan	Talos
TT584772	Disconnected sensors in AutoLoader are interpreted incorrectly	X	X
TT653044	Patch request : Talos SFEG G2 GunLens tables are sub-optimal		X
TT654126	Fine gun lens setting not saved in FEG register Talos 1.6.0		X
TT712204	OptiSTEM is always using default value for energy spread in filtered mode	X	X
TT728045	Problem with count to electrons Gatan OneView	X	X
TT729016	Red cross in PeoUI message area without text (due to pole touch)	X	X
TT734647	Beta: crash mdloptics_titan!Fei:: while running recipe editor	X	
TT735065	Autoloader Cassette stuck between VALAK	X	X
TT752074	TEM_TAD AcquisitionServer hanged	X	X
TT754760	TEM User Interface: HT value not updated on Talos		X
TT757340	Pressure logger sometimes gives error	X	
TT758435	Gatan OneView camera performance test failed	X	
TT758706	[TestElectronSource] "Disable Tip Safety protection" warning pops up on startup	X	
TT760744	Conv. angle for monospots in beam settings menu not updated after C3-ap change	X	
TT761439	Flucam viewer crash caused by TEMserver/HAL motion crash	X	X
TT762558	No access to gun stigmator interface	X	
TT764115	FeiRpc crashes on std::future_error exception	X	X
TT764386	STEM iDPC malfunction after v6.11.1	X	X
TT764932	MdlAFI re-enables when service mode is off	X	X

ID	Description	Titan	Talos
TT765519	Removed Vacuum Gauge dialog from MSL for all Talos systems		X
TT767573	Fix typo in alignment procedure	X	
TT767867	28 Crashes in AcquisitionMonitor.exe	X	X
TT769990	Load to TIA sometimes fails in the reference image manager	X	X
TT770839	Crash in TAD Acquisitionserver	X	X
TT773262	AutoCTF: File saving error under limited account	X	X
TT774415	Nyquist frequency not properly progated to DCOR UI	X	
TT776268	TEM_OMP exception messages contain function names	X	X
TT777599	EPU run stopped due to error retrieving slit insertion state	X	X
TT778590	Alignment instruction jumps from Step 1/5 to Step 5/5 for Condenser Preparation	X	X
TT779102	Default AutoStar logging does not log Python log statements	X	X
TT779364	Gun Tilt not available in Direct Alignments	X	X
TT781932	Ceta-2 and Falcon III do not boot after upgrade from 6.13 to 6.14	X	X
TT783718	Divide by zero error when acquiring image on Enfinium filter	X	
TT785886	APM: Rotation center in EFTEM mode creates a focused beam on the K2 camera	X	

11 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.

- 105946 - Titan Software 2.X.Y
- 106096 - Talos Software 1.X.Y

ID	Description	Titan	Talos	Remarks
TT652982	FeiAutoStarServer.exe server still running, after Sherpa and TEM server stopped	**X**	**X**	
TT704034	TemServiceAccess doesn't start for Salve NSR config	**X**		
TT717382	SuperX G2 deadtimes don't match between idle and active acquisition	**X**	**X**	
TT717387	SuperX G2 deadtimes at low count rates are not correct during acquisition	**X**	**X**	
TT718847	Correct Objective Stigmator gives HRESULT 80004005	**X**		
TT725174	SuperX G2 (PIA Eds) Event Buffer is not large enough for extended use-cases	**X**	**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**	**X**	Caused by Known Issue 652982
TT740184	STEM-EDX-EELS performance is lower for CAPP (NGSTEM) than for PIA	**X**	**X**	
TT743379	Timeout in TBCA firmware during acquisition data transmission	**X**	**X**	
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**	

ID	Description	Titan	Talos	Remarks
TT754769	TEM server installation aborted at CEOS SW installation step	**X**		
TT759907	Strange failure mode of NG STEM in case of low dwell times	**X**	**X**	
TT760558	Install aborted due to CEOS	**X**		
TT760647	Task cannot be stopped during image acquisition	**X**	**X**	
TT761235	Sluggishness on Themis after S-CORR upgrade	**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 Known Issue 652982
TT769428	AutoCTF does not show phase plate activation graph when stopping measurement	**X**	**X**	
TT772811	Incorrect FFT fit reliable for AutoCTF	**X**	**X**	
TT779881	AutoCTF phase plate plot and microscope image occupy same UI space	**X**	**X**	
TT780477	AutoCTF hangs	**X**	**X**	
TT783178	DUAL-X detector insert via IOM software interface blocks after count rate exception.	**X**	**X**	
TT786876	TIA hangs on cumulative PEELS	**X**	**X**	
TT788906	F1 Help on CCB systems displays FEG Control without operate button	**X**		
RTC124013	UnauthorizedAccessException during Installer Upgrade	**X**	**X**	

ID	Description	Titan	Talos	Remarks
No ID	IGP sometimes turns off when IGPD FW 2.10+ is used (IGPD2v2 issue)		X	
No ID	TstHalNG can crash in extremely long runs	X	X	

12 Addendum to Release Notes for New Software Releases on APM, EPU 2, and Permission Management

Eindhoven, October 29, 2018

Dear Customer,

With this letter we would like to personally inform you on some significant changes and improvements that we have made in our latest software release. In the official release notes of the new software versions you find the technical specifics of its contents. However, seen the structural modifications that we have implemented, we would like to personally inform you on the main changes in this summary statement.

APM

Before setting up a single particle acquisition run, it is critically important that the microscope is in a state of reproducible and optimal performance.

Automated Performance Monitoring (APM) is a new function that assesses the microscope alignment status in a semi-automated fashion. During an APM run, executed from the supervisor user account, the microscope performs an alignment check, which results in an advice to continue with your scientific experiment or in a suggestion to tweak specific alignment steps via a guided sequence. By performing this APM procedure bi-weekly, you will be assured that the microscope is in its best performing state and will not hamper your scientific output.

EPU 2.x

- A number of daily routine alignments like Auto-coma and Auto-stigmate have now become accessible from the EPU user interface. This avoids switching back and forth between the applications software and the microscope user interface, thereby contributing to an enhanced ease-of-use.
- The screening process has been significantly simplified for the user. Besides the possibility to screen an entire Autoloader cassette of up to 12 samples in one uninterrupted session, the screening process has become much faster. A grid atlas providing a low magnification overview can be recorded in approximately 5 minutes. In addition, an intelligent algorithm can be applied to automatically classify grid squares with similar quality. This will significantly improve the area selection for data acquisition, and thereby the throughput of the SPA workflow.

Permission Management

In order to improve the ease-of-use and shield complexity from the operator, the number of accessible functionality in the TEM User Interface has been revisited. With Permission Management, the available functionality shall be more in line with the intended use of the user level. In addition, one can expect the alignments to become more stable over the life span of the microscope (less issues with accidental misalignments).

Most notably, a subset of the direct alignments have been set to supervisor level, so the user can focus only on the few alignments that need to be done before the application, while the supervisor can still access the full set of direct alignments. Furthermore the column alignments that are proven to be very stable over time have been set to customer-service level.

For a complete overview of the new functionality availability with Permission Management, we refer to the TEM User Interface - Permission Management User Manual.

We hope that the above information is useful for you. Your local service engineer is always there to assist you in setting up and taking the first steps with you on our new software.

With best regards,

The Life Science product management and marketing team

13 Index

A

Addendum to Release Notes for New Software Releases on APM, EPU 2, and Permission Management • 24

Autoloader • 15

C

Cameras and Detectors • 12

D

Discontinued Hardware • 9

I

Impact on Service / Install • 10, 11, 12, 13, 14, 16, 17

Improvements • 10, 11, 12, 14, 15, 17

Introduction • 4

K

Known Issues • 20

M

Mandatory and Breaking Changes • 4

Microscope PC • 6

Motion • 14

N

New Features • 10, 11, 12, 14, 15, 16

NSR Support • 17

O

Optics • 11

Other PCs • 7

R

Remote Operation PC • 7

S

Solved Issues • 18

Source and High Tension • 10

Support PC • 7

Supported Hardware • 5, 8

Supported Microscope Types • 4

Supported Software • 5

T

TAD, Service Tools, Installer and Licensing • 16

V

Vacuum • 10