

FalCon eXtra - Release Notes / News

Version 10

Common

- Toolbar "R": Reset the window positions of the analysis dialogs:
 - a) delete all corresponding registry entries
 - b) reset analysis main window and possibly the open image window incl. Zoom window (Sometimes necessary in multi-screen sessions or Teams meetings.)
- A parallel installation of the 32 bit and the 64 bit application of the same version number is now supported.
- Since Windows 8 the file WinHlp32.exe is no more delivered/installed by Microsoft in the correct form. Therefore the FalCon help has now changed to the CHM file, which is included in all setup files except extra_woh.exe).
- Dialog "Select Directory" new, similar to Windows Explorer; now alike for 32 and 64 bit application.
- AVI Info: extended for x264 library, Build Date, FourCC.
Requirement: suitable codec needs to be installed.
- Movie Info: shows the (real) keyframes of the video.
- In Windows10 window titles are displayed (as default) in white = pale. It is almost impossible to distinguish, which dialog window currently is activated.
We recommend modifying the settings as follows:
Windows Settings / Personalization / Colors: Choose your accent color; select here Custom color: R=160, G=180, B=210.
Mark the checkbox „Title bars and window borders“ below „Show accent color on the following surfaces“.
- Start of program extra.exe with parameters - new features:
During start all supported file types (videos, pictures, measurement channels or eXtra documents) can be passed as parameters.
Switch /S = single instance = transmit to already opened eXtra.
Special case, if parameters = measurement channel files:
If you would like to add several channels into a plot window, put them into brackets.
Use commas as separators commas within the brackets. The switch /L (or /L=0, /L=1 ... until 4) allows to order the channels in a sequence like in the Master panel. The index of L=0, L=1 corresponds to the ordering in the Master panel.
Example:
eXtra (TEST045.001, TEST067.001) TEST089.001 /L=1 /S
=> open two plot windows: two channels in the first and one channel in the second window.
- Activation of AVI with Mouse suppresses not wished Zoom-In.
- License management: shows now the license information = company name and KeyID.
- RTF Report in landscape format.

- Handling of dongles - changes:
 A server dongle can be used in the network as well as locally.
 It behaves in both cases similarly:
 + site licenses are written into the registry and refreshed
 + single licenses are not activated during start of the program;
 these are no more activated automatically, but only via menu "License" or by opening
 the corresponding document.
- New: Font sizes > 100% are now supported: dialogs and texts are scaled up
 correspondently. Apply e. g. at 4K screens.
 Please give us feedback, if single parts of a dialog or texts are cut or drawn superposed:
 we will take care to adjust the layout.
- Save picture as PNG: single images and analysis image.
- Plot & Analysis Image - Capture as AVI: now selectable uncompressed/compressed;
 used codec = default, see Program Settings / Picture File Parameters.
- Automatic window layout also when window was maximized before.

QuickView

- Movie viewer: improvements during enlargements and reductions:
 + with Ctrl key pressed and several windows the individual factor is changed by +-25%.
 + with Shift key pressed only the current window will be affected and the size of the
 window keeps constant, even if you try with Shift and "-" to reduce the zoom factor
 (= clipping); this works also, if the window was manually squeezed.
 + with Shift key pressed the zoom increment is +-5 %.
 + with Shift key pressed and Home key the video image will be fitted in the window
 (without clipping).
- Accelerated picture optimization of type "Manufacturer" from NAC, including optional
 support of CUDA
- For pictures of producer PCO (*.B16) a new interpolation (from producer) is
 implemented
- For debayering (demosaicking of imager-raw-data) new algorithms are implemented.
 Please note that these are sometimes very time-consuming;
 only use them if you also have CUDA support!
 + Hamilton Adams
 + Bilinear
 + Malvar-He-Cutler Linear Image
 + Gunturk-Altunbasak-Mersereau Alternating Projections, once with
 Hamilton-Adams, once with Bilinear
 + SSD Self-similarity Driven Demosaicking
- Picture optimization: white balance in 12 bit pictures: error in case of saturated RGB
 white values (= 255) fixed.
- Recompress AVI: frequency and T0 are now written correctly into the file header, if
 they are edited before.

QuickView Drawings

- Drawings in pictures: mode "Moving" = f(markers)

- Picture drawings: "Add scale" now also using AVICreator license.
- New: Scaling of drawing elements in physical units:
define one or several scales (distance) as well as coordinate systems (origin and orientation). Scales can be saved and reloaded.
But ATTENTION: The accuracy cannot be comparable to MovXact!
- Select edges of a rectangle to be drawn.
- Drawing of each element can be switched on/off (important for scaling).

Plot

- Apply templates: now inclusive copying the units (and the scaling) from the template.
- New/Add Curves: sort channel names in selection lists alphabetically.
Flag is saved to the registry.
- Save a diagram as a picture file: *.tif, *.jpg, *.png, *.bmp.
- Print Diagram:
Until now line width and font sizes are not handled correctly.
New solution: the diagram is saved as a screenshot into a RTF file and then printed like a WORD document. Use optionally a PDF printer, e.g. „Microsoft Print To PDF“!
Optimum is a plot window with a width of 1024 pixel; see new list of standard window sizes.

Select in the new printer dialog, if you prefer the pure plot image or additionally a header and footer. These can be composed in the Program Settings / Options / Administration. The printer selection does not overwrite the standard printer on your PC. The print preview is deleted in the plot toolbar.

- Open ISO MME channel files *.### via drag&drop on the FalCon desktop:
 - a) release one or several channel files above the plot window =
add curves in this window,
 - b) release one or several channel files in the empty area =
open a new plot window for each curve,
 - c) release several channel files in the empty =
open a single plot window with all curves.
- Save diagram: type *.plt or while Ctrl key pressed *.rtf.
- Extension of statistics:
 - + min/max of filtered curve
 - + min/max in plot interval
 - + statistics about n curves
- New: Support ISO MME Multimedia Channel Version 2.1.
Information file = *_Channel.mmi.

Picture Transformation & FrameMerge

- New OrthoView: Rectification according to an oblique view (parameters = camera position).
- Import COR files via drag&drop in tab „Rectify“ from the Windows Explorer. New default of interpolation = cubic.

- Drag&drop of pictures from the Windows Explorer directly to the tab “Input”.
- Insert of time (\$PICTIME) and picture number (\$PICNO) now also at Drawings. So you are free with position.
- Every drawing element can be fixed at markers. So you have moving elements. different settings for each element possible.

ImagerControl

- New imager types:
 - + Phantom VEO E-310L, VEO E-340L
 - + IDT MotionExtra OS9V3S1(S)
 - + Phantom VEO-440S, VEO-440L
 - + Megavis Mini CS1
 - + Phantom v1212, v2512
 - + Phantom MIRO 320S, 321S, C320, C320J
 - + Photron FASTCAM NOVA S16, MH6-ST
 - + Phantom VEO4K 990
 - + IDT CCM-1540, CCM-3525, CC Stick-HD, Os8/OsA8
 - + NAC Q2m/Q2m DE, MX-5 DE, M3-Cam
 - + Photron FASTCAM SA-5
 - + USB-WebCam
 - + Fastcam Nova S12, S9, S6
 - + NAC HX7S
 - + MX5M2, MX5MFT
 - + FastCam MH6
 - + MotionXtra OS3V3S(1-3)
 - + NAC MX, AOS via GigE
- Camera: NAC GX5 with μ -Cam head:
during the live functions “black images” can be occur: problem solved.
- IDT cameras N und Y:
SyncOut is not refreshed during a test.
During a test in ImagerControl the SyncOut output is initialized once. After change of the frequency (e.g. 1000 --> 2000 fps), the SyncOut of the cameras is not changed=> SyncOut is provided by the camera.
- Create 2 videos of one camera:
 - a) with/without AntiShake
 - b) with different time intervals
- Message, if the slave disk is full – including the name of the slave: user handling improved.
- Message “IP addresses wrong“: instead of confirmation of each single camera the messages are collected and shown at the end collectively.
- Ini-Files for NAC Q2mDE
- Photron FASTCAM Nova S16:
Download: bug during reading to BMP format fixed.
Raw image files in format MRAW/CIHX are now supported in FalCon eXtra viewer.

AutoShading is now activated also before „Live Normal“ and „Live Low“.

List of supported image formats and frequencies extended until 200.000 fps.

- Speed up of creating AVIs when working with raw data images > 8 bit.
- Acceleration by parallel computing using slaves: especially during access to NAC cameras!
- Insert of time (\$PICTIME) and picture number (\$PICNO) now also at Drawings. So you are free with position.
- Every drawing element can be fixed at markers. So you have moving elements. different settings for each element possible.
- New: Accelerated communication (set/get parameters, ready, live) with imagers by parallel sending commands to images.
- New: Add Cameras: insert cameras from a preceding IMC file.
- New: Assign detected cameras to already defined ones via drag&drop from dialog "Available Cameras".
- New: Lens control, automatic adjustment, also in automatic mode.
- New: Nicknames for Camera numbers (IDs) with display below the thumbnail images. Set definition file *.xls in Program Settings/ImagerControl/Defaults.
Excel layout: 1st worksheet with fixed name "teststand", column A with names of possible teststands; 2nd - nth worksheet with name of the teststand, column A with original IDs, column B with nicknames.
Note: If an ID consists only of digits Excel requires an apostrophe as prefix!
- Reordering imager by drag&drop in imager list.
- Proportional fonts in reduced AVIs.
- Selectable text insertion at reduced AVIs.
- Tab titles: bold texts now fully readable.
- Step by step replacement of storage of special settings for imagers. Now these values are stored at host in INI-files, no more in registry and NOT at slaves. Existing are CAM-Ini-files (values for the individual imager), TYPE-Ini-files (common values for this imager type) and the user is able to create groups of imager types. All this is found at "Settings"- "ImagerControl" – "Imager" – "INI Files"
- Actions according of „Sum-Status“ of all selected Imagers

MMEViewer/Creator

- Extend photos by a text stripe:
 - + sequence "top/bottom" swapped
 - + query before overwriting of all photos
 - + additional logic name = \$PHOTODESCRIPTION
 - + preview implemented
- Check of SI unit in channels: invalid units are labelled by =NOSIUNIT=.
- Extend all photos by a text strip – improvements:
 - + if the strip is appended on the top or on the bottom, the MME picture height will be refreshed.

- + if overwriting of a photo file is not successful, e.g. due to write protection, a message window shows up.
- + the photo file of the preview will be deleted after closing of the dialog.
- + the preview window will be closed during closing the dialog.
- + temporary photos are now written with the same type of the input photo.
- Improvements at appending photos via drag & drop.
- ISO MME: Version 2.1 of 18-02-2021 supported (read/write)
- Picture sequence as movie: in the file MII are permitted not only container files (*.avi) but also lists of pictures in a subdirectory.
- Plus comments extended:
 - + restriction up to now = 15 lines; new: during read and write comments with unlimited number are supported.
 - + The effective number is shown in the tab „Plus“ beside the button „+“.
 - + use the arrow buttons to scroll in the list “up/down”.
 - + error in case of missing license and pressing the button “Add” fixed.
 - + underscores are now permitted as signalization of an additional descriptor/comment, e.g. plus-descriptors start with prefix "+", "." or "_".
 - + The value after a plus-descriptor might now be NOVALUE also during writing.
- New: Support ISO MME Version 1.6 and parallel Version 2.0 (Beta Version).
- Save with GUI:
 - + progress bar
 - + disable other actions in tree or menu during saving
 - + message after completion
- Start a New Analysis:
 - + new analysis with list of single frames
 - + save before "New Analysis"
 - + analysis file will be saved to directory "Report"
- New: Support folder Diagram and Report (see Document); incl. display of file properties date of modification and. Permitted comment files *.txt are supported.
- Move photos, e. g. from PRE to POST or between test objects, via mouse dragging.
- Comments: empty lines or with blanks (or NOVALUE) are no more identified as =INVALID=, but ignored = not listed.

CustomerView

- CV Layout – divers improvements:
 - + window now always without scrollbar.
 - + default width of the recorded windows in list box enlarged.
 - + recorded plot files are now opened 1:1; if they do not exist, the program tries to access the original channel files, e.g. from the CV test folder; thereby all plot types can be supported, e.g. XY(t).
 - + show recorded windows by truncated file path ("..."), thus the file name is visible.

AntiShake

- If a check box before a reference marker is not selected, the measurement/tracking is not performed.

- The capture range shown in the dialog is now a master setting for all setup markers and will be applied to the marker properties.
- The function “Section“ showed no feedback, if the trajectories have gaps. Now a message box shows a warning.
- In case of strong image jitters there is a new selectable motion type "Static" or "Moving".
- AntiShake: improvements of automatic section
 - + sequence of Edit-FlipRotate was not correct: fixed.
 - + auto-section was always in according to the aspect ratio of the input picture: now the cropped margins are minimized.
 - + internal transformation was not correct in case of horizontal movements.

MovXact

- If a video file does not exist (in the previous path) during opening an analysis, the previous path is shown in a message box. The width of the box is now limited, i.e. the path might be shown by several lines.
- Export of 3D measurements in format eXtra ASCII – permutation of columns corrected: time value in last column.
- ISO 8721: report in format *.rtf fully released. Diverse adaptations in dialogs. Type Online and Offline implemented. Changes of version ISO8721:2018 checked.
- Dialog Track Markers - addition only in mode Manual & Single:
button „Delete“ = delete single trajectory value or delete all trajectory values, if Ctrl key is pressed.
- Dropout Help: new setup of marker with optional change of its type..
- During interactive inputs in the analysis image or the zoom window, e.g. during setup or manual tracking of markers, all other inactive dialogs cannot be activated. Thus the image windows remain always in the foreground.
- Shortcut:
Dialog Track Markers: Press Ctrl key and click on Measure => track/measure one or all selected markers in start image and open directly the dialog Dropout Help.
- Import of an ISO MME file, e.g. during creating a new analysis:
The test information incl. test objects is saved internally. It is applied as default values in the information about the analysis.
New functions for preview, copy and remove in dialog „Information About Analysis“.
- Export of analysis into an ISO MME file:
Note the following prioritization:
 1. MME data from visible values in dialog „Information About Analysis“.
 2. Internal imported MME information
 3. Destination MME information (during insert into an existing file)
- Export by Merge into an existing MME file:
Only new comments are added, if they are not available in the destination file.
Operator = Laboratory Data will not be mixed:
Laboratory Name valid => keep all corresponding Laboratory data, even if there can be

single NOVALUES.

Use the current time value as Timestamp in the destination file.

- Check Trajectories:
Trajectories are checked for plausibility according to criterion with temporal differences. Until now in the dialog Edit Markers /Trajectories. Here the number of values, which are above a threshold criterion, is shown as overview.
New: display in main document window/tab Trajectories/column Check.
New: change thresholds and save as defaults in dialog Settings.
If you would like to deactivate the check, e.g. in case of shaking cameras, set the values to a high level, e.g. 100 pixel.
- Dialog Edit Markers/Trajectories: new buttons for gap handling:
fill all gaps = interpolate
- Dialog Check Trajectories: Ctrl key pressed + "Interpolate" = fill all gaps = interpolate.
- Dialog Track Markers: only in mode Manual/Single Markers: new buttons
 - a) measure single trajectory value manually
 - b) fill all gaps = interpolate
 - c) delete single trajectory value
- Export in format Excel *.xls: until now each channel on an own worksheet.
New: (selectable) on a single worksheet (dialog Export or Diagrams/Save Curves).
- During saving curves in the dialog Diagrams curves with only one valid value are supported. (Warning at DIAdem channels)
- Setup of virtual markers with known 3D coordinates - handling improved.
- Edit/Trajectories: width of columns extended due to pixel coordinates > 2000).
- Minimizing of the analysis image blocked during tracking/measuring.
- Stencil = triangle/line: select parameters during setup; enable rotated lines by disabling edges.
- Save in format Excel: all gap modes selectable.
- Capture analysis images as AVI: mode "compressed" = now enabled.
- Excel export: in case of Novalues no values are written, e.g. the column element remains empty.
Note: leading Novalues and Novalues after the last valid value are suppressed, e.g. no filling within the full time interval.
- Interactive Measuring: Overlay using logical placeholders implemented in legends: (\$VAL1) ... (\$VAL4) correspond to the output elements of measurement values in the dialog.
- MXT algorithm: only version MXT-1 is now supported.
The MXT version 1 proves to be extremely robust during marker tracking and it is insensible to variations of the illumination. eXtra version 10.x supports also the measuring of markers with diameter over 70 pixel.
- Edit contours: cutting and painting now selectable also for all graphs in all images.
- Import contours via drag&drop from another analysis.

- Init files *.ina:
 - + extended by the new parameters CalMode and CamCalPath.
 - + new: templates *.ana, *.apt.
 - + new: documentation.
- Camera calibration: import ISO MME *.COR- or eXtra ASCII *.TXT files via drag&drop from Windows Explorer.
- New Analysis: double click on "..." => add AVI – now again available after import of an analysis.
- MovXact Settings: selectable name of ISO time channel for DIAdem export: "000000000000TI00" or "000000000000TI0V" (V=Video).
- Setup virtual markers via 3D control points – improvements:
 - + In case of additional active correction of the camera position a toggle switch for the direction of the depth axis might be necessary: new in dialog 2D coordinate system. Note: do not change generally!
 - + Applying the control point coordinates and during 3D transformation the depth values are expected to be relative to the scale plane; see dialog Setup Markers / Virtual 3D.
- Selection Lists (markers, channels etc.):
 - + In case of multiple selection the new state of the clicked check box will be applied to all selected items.
 - + In case of single selection and pressed Ctrl key the state of all(!) items will be toggled.
 Example:
 before: 0=A, 0=B, 1=C, 1=D, 0=E
 afterwards: 1=A, 1=B, 0=C, 0=D, 1=E
- ISO 2.0 codeextension:
 - creating extended channel codes one needs a "Reference system id". This is composed by an object and a type. See new elements in dialog "Information about Analysis".
- New: Analysis Image/Time Display Format. This setting affects identically the time format in the movie window - and vice versa.
- Info about Analysis: reset date via Ctrl+calendar button.
- Diagrams: keep values of time interval after switch off of the check box "diagram time interval". Until now the time range was set to the maximum interval after switch off.
- New: dialog Edit Trajectories "Check".
 - To check the plausibility of the measurements differences of second order are evaluated. In case of physically homogeneous movements these values are typically < 1 pixel. Warnings are marked by red color, if the values are greater than the threshold. New list dialog with editing options enter manually, interpolate, delete.
- New: dialog Edit Overview "Check @ calibrated measurement data".
 - New list dialog with 2D or 3D+std.dev. columns and editing option delete.
- Multiple Save in dialog Diagrams revised for selected time intervals: The export of container channels is adapted. Time channel corresponds now to the whole time interval of the video – independent of the selected marker or time interval; especially for DIAdem channels.

- Hint: Diagram Display: until now the time channel of a curve was always defined on the base of the full time range, i.e. starting at begin of the image sequence. New: shortening of the time vector by novalues at begin of the curve. Thus the automatic scaling uses only the really visible values.
- New: Dialog Calibration now with a common button "Preview" (for 2D, 3D and 3Dby6D) as well as "Overview" about the effective measurement data of all markers.
- Preselection of the App(s) in MovXact Settings/Algorithms:
Select the used App(s) as standard.
- Diagrams: "channel name with prefix 'view'" now active for time curves again and (newly) additional at plot legend = ISO code.
- New: multiple setup of selected default markers and multiple delete of selected markers.
- Long path strings of the analysis directory are shortened in order to let the last=target directory visible in the main dialog.
- 2D Export in ASCII tables: press Ctrl during click on "Export" => Select: "Standard = sorted by names" or "Table sorted by time values".
- Channel name with prefix 'view': until now only in case of 2D and more than 1 view; new: prefix also in case of 1 view only, if the view name is not the default name "View 1".
- Open/Create New Analysis in maximized window mode - bug fixed.
Hint: Work with not-maximized analysis window and shift it to the right upper corner; the analysis image and diagrams are designed to be positioned in the left upper corner.
- New list box for views in dialog "New Analysis":
+ with individual setting of the calibration mode (2D/3D/6D)
+ with manual sorting
+ with import of camera calibrations in format *.txt, *.cor
+ import of a test from the subdirectory /Movie.
- New dialog "Edit Views ":
+ new view/ delete view
+ with individual setting of the calibration mode (2D/3D/6D)
+ with manual sorting
+ quick setting of the view names:
click with right mouse button opens a selection list; Ctrl key = change all names according to sub-string of video name.
- Export options extended:
+ settings selectable individually for all export file types and storable in registry: gap handling, display "channel name = ISO code", time range.
+ dialog MovXact Settings/Tab Algorithms/Button "Gaps and ISO Names"
- Export in ASCII format: the ISO base name is extended by "DS.V", e. g. "10HEAD000000DS.V"; a dot "." is used as place holder for the direction X,Y,Z.
- Save curves in dialog "Diagrams: default for time and spatial curves DIAdem R64 instead R32. If you would like to change this default, use the possibilities "Save/Apply Defaults" in dialog "Export" in order to manage this file type.
Hint: In the dialog "Export" the DIAdem type is fixed R64.

- Export/Import of camera parameters in dialog Calibration/Camera: file directory as default = analysis directory.
- 2D coordinate system with origin = virtual marker now supported.
- MXT tracking algorithms:
New: MXT-1 supports now also big markers (> 70 pixel.) = accurate, robust and insensitive with respect to changes of illumination or disturbances.
MXT-2 and MXT-2B are no more recommended due to problems at accuracy (depends on marker size) and sensitivity.
- MME export incl. copy of movie files.
- Delete all trajectory vales of several markers: shortened query.
- Edit trajectory: query "Apply?" now always in case of changes.
- Beta version: Export into ISO MME 2.0.
- Slider for image selection under analysis image now disabled during modal Edit dialogs (markers, stencils, contours, contour options).

Mov3D

- Simultaneous calculation of camera positions:
+ presetting: assign 2 cameras to one camera pair
+ input = pairs of control points plus 3D new points
+ improvement of accuracy in case of bad distribution of control points
Note: only available in the 64 bit application, because new AICON Dll is restricted to 64 bit.
- The numerical values of the 3D transformation are now editable - for experts.
Diverse small details improved.
- Dialog Diagrams: Save 3D curves in format ISO CHN: now again all 3coordinate channels.
- Main window with many view tabs: after selection by arrow buttons now refresh of the view tabs.
- New AICON Dll (2.01.05) which enables the handling of standard deviations during transformation of camera positions.
- Read ISO codes from APT file: ISO codes with 16 (or more) characters are now allowed. They are limited automatically to the basic length of 12 characters.
Example: 14DOORFRLO00DSRV => 14DOORFRLO00
- New: App 3D Workflow
- Several improvements/changes:
+ Save X-Diagram: time interval from/to activated
+ Save X-Diagram: ending of the channel name: old = "-x", new "-s_x" (...y,z)
+ Saving several channels in a container file is no more interrupted in case of errors (e.g. number of valid values < 2) by a message box; an overview about errors and successful channels is shown at the end instead.
- Diagrams: markers which are defined in one view only are no more listed in the markers tree as well as in the lists of reference, angles and distance markers.

- Edit marker basic settings: apply changes for all markers (in all 3D views) with same name (motion type, overlay and diagram color).
- Dialog Camera Position:
New: Information about stereo base, about stereo angle = angle in space between camera pair and measurement point (in center of image) = characteristic for measurement accuracy, and about angle difference of the camera orientations (mostly the difference of "axis") = characteristic of the main setup.
- Read APT file: CODE markers with wrong code set:
warning message, code no is now stored, change the code bit-set afterwards in the MovXact settings.
- T-Diagrams: distances always 3D = Res(x,y,z) (now independent on selection at single markers).

CamFolder

- Handling during selection of video file improved:
+ Ctrl + button "Search File" = show the full preset file path (without truncated directories).
+ "Search File": old preset file path and name are used as default.
+ file does not exist: show the previous name by pressing the button "Show".
- Overview about all calibration revised: columnwise list ASCII or Excel.

MovBag

- Stand Alone Version:
track interactively = measure manually - now without limitation of the number of values.
- New: App Airbag Unfolding.
Requirements: 2 scale markers, the origin will be set automatically in the center of the scale. Hint: Info about Analysis: set type of test which is used for display in the message box and for separation of different views of the test stand.

ModifySampleRate V5.1

- New dialog with additional output of the AVI properties incl. Details of x264-coded videos. New documentation.