sync*AXIS* control 1.4.0 is a software release with new features, changes and bug fixes as listed hereafter following version 1.3.1. In addition, the sync*AXIS* Viewer and sync*AXIS* Configurator got updates with several improvements. They are part of the sync*AXIS* control software package, therefore their new features and changes are explained as separate points.

## 1. New API Functions sync*AXIS* control 1.4.0

- **slsc_cfg_reinitialize**
  To re-initialize an existing sync*AXIS* control instance with its current configuration. [Otherwise XML-file has to be started and all used API-commands have to be typed again.]
- **slsc_cfg_select_heuristic**
  New is the possibility to define multiple DynamicReductionFunction entries in XML.
  Use the slsc_cfg_select_heuristic command to choose from the list.
  It is no longer necessary to load a new XML-file to change the DynamicReductionFunction.

## 2. Changes within sync*AXIS* control 1.4.0

- Logging library is changed:
  spdlog is used instead of log4cplus.
- Higher shift-accuracy for ActiveChannel control parameters: The calculation of ActiveChannel values for automatic laser control is based on trajectory dependent control parameters (velocity, radius, user defined parameter ramp). The output of these control parameters is shifted in time relative to the position signals by an amount determined by the sum of LaserSwitchOffsetTime and the ActiveChannel individual shift value. Before this version, the control parameter shift was performed in multiples of 10 µs. Now, shifts below 10 µs are considered.
- The 64 bit version of sync*AXIS* control is included in the release package.

## 3. Bug Fixes sync*AXIS* control 1.4.0

- Fixed: Delay difference compensation between scanner and stage is shifted by one cycle (10 µs) in case of short scanner delay. As a result of this bug fix, the user might have to readjust hardware delay values in the XML configuration file.
- Fixed: Setting CTIME = 0 in XML has the same effect as setting CTIME = -1, i.e. CTIME is read from the ACS controller.
- Fixed: Spot distance control does not work when sync*AXIS* control instance is initialized in ScannerOnly mode.
- Fixed: Broken slsc_JobCharacteristic MinimalMarkSpeed and MaximalMarkSpeed when using function slsc_list_playback_module.
- Fixed: Occasional dynamic violation at the very end of a job.

## 4. New Functions sync*AXIS* Viewer 1.4.0

- When using the color map, the job function can be shown in the tracker when moving the cursor over a curve.
- Vertical guides can be shown in the diagram area and all guides are depicted dashed.
- A drop down menu is added that contains meta information about the simulation file mainly concerning the configuration and header information.
- The possibility to open 1.3 version files is given.

## 5. Changes within sync*AXIS* Viewer 1.4.0

- The precision of scan field limits dialogue is increased by three more digits.
- More command line arguments are added for configuration of the sync*AXIS* Viewer:
  - –h displays help dialogue
  - –r N reads only N-th line
  - –a sets the accurate position option to true
  - –l sets the accurate limits option to true
- The notification popup when a simulation file did not have a correction file declared is changed: The popup only appears when all files were loaded instead of after each file loaded.
- A cancel button in the import dialogue stops a file import.
- Appended file names are added to the display plot, instead of showing only the first file name.

## 6. New Functions sync*AXIS* Configurator 1.4.0

- If files from version 1.3 are opened, a popup dialog with information appears.
- Default values are implemented for excelli*SCAN*14 and excelli*SCAN*20.
- Motion decomposition is refactored to allow for multiple sequences of Heuristic curves
- An asterix is added in the configuration tab (next to file name), that denotes if a configuration has been changed from file.
- If the dialog is closed a check for changes is executed to allow the user to save these changes

## 7. Changes within sync*AXIS* Configurator 1.4.0

Following dialogs are refactored to be more user friendly:

- Radis Factor Curve editing dialog
- Velocity Factor Curve editing dialog
- Reduction Function editing dialog
- Directory selection dialog