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Version 11.0: 2023-05-16  
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- Support multi-staged Revert of settings apply procedures.
- Fixed "Set As Reference" menu.
- Add a new tool for importing snapshots from user-prepared csv/xlsx files.
- Refine the field-of-interest for Settings View:
  - Do not show PHA\_CREST, AMP\_COEF for all SRF cavities.
- Improved the live data refreshing speed by ~50%.
  - Now has three speed options: Fast, Normal (default) and Slow.
- Improved the header names for SettingsView.
- Added two new filter buttons for "Live State": Live On and Live Off.
- Adopted the new updates of beam info display widget to show:
  - Beam bound, beam destination
- Re-designed the widget for snapshot taking procedure:
  - Improved the speed for capturing settings data.
  - Improved the speed for capturing the machine state data.
  - Support the diagnosis of the originated snapshot template from a loaded one.
  - Support to take a new snapshot based on a snapshot template.
  - Automatically check the right options for creating a new snapshot that matches the current beam operations.
  - Refactored WhatYouSeeIsWhatYouCapture option.
  - Refactored taking snapshot with machine state data option.
  - Set exclusive relationship to tag selection, e.g. LINAC and FSEE cannot check one, the same to SCS1 and SCS2.
  - Now a standalone function is available for taking a snapshot.
- Introduced a splashscreen to guide the app starting up process:
  - Adopted multi-threaded approach to speed up required data loading.
  - e.g. loading lattice, pulling data from the database, establishing network connections, etc.
- Enhanced the database management:
  - Pre-pull the snapshots that match current beam operations.
  - By default pull all the snapshots, but users can select how many to pull.
  - Added new controls for easy pulling data and indicating the status.
  - Keep tracking of the snapshot generation history by introducing a new property to each snapshot data.
  - Add support to auto-pulling data at defined frequency, at every 30 mins by default.
  - Auto pull snapshots if the beam bound is changed.
- Other fixes and enhancements, including UI refinements.

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Version 10.5: 2023-02-16  
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- Add support to work with multiple ion source lines, needs phantasy-ui.
- Override the write permission as False to all ion source devices.
- Fixed tag editing issue when no snapshot is loaded.
- Fixed Excel reading issues.
- Refactor the settings scaling procedure: only scale scaled device settings.
- Refined the settings Apply procedure:
  - Only enable the Apply button when items are checked.
  - Reduced the warning messageboxes before Apply.
  - Do not ask if snapshot to be taken before Apply (see revert).
- Support revert last applied device settings.
- Support abort ongoing Apply procedure.
- Refactored the set log message system.
- Compatibility fixes.
- Add menus for reading user guide (PDF).
- Updated the UI.

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Version 10.4: 2022-12-02  
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- Refactor the order of taking snapshot and tag/note assignment.
- Update the style of tags.
- Generate styled ion icons if not provided.

- Re-implemented 'Delete' snapshot action.
- Split PV map files to be configuration files, under [DATA] section.
- Create a shell command for running Settings Manager for ReA.

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Version 10.3-2: 2022-09-16  
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- Solve the issue of clicking multiple items in a dropdown menu, the menu now keep showing until all clicking is done.
- New snapshot must be assigned with at least one tag and note string.
- Update UIs.
- Show warning message if non-unity scaling factor is about to apply.

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Version 10.3-1: 2022-08-26  
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- Add icons for Thulium
- Refactor the data refreshing routine, update every 10 seconds
- Add log message when data is refreshed
- Always use NPROC of 1 (no obvious advantage for > 1)

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Version 10.3: 2022-08-22  
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- Add menu for reading changelog.
- Post snapshot note info when a snapshot is loaded.
- Update the PV info for loaded snapshot.
- Return +charge\_state for SnapshotData.ion\_as\_str().

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Version 10.2: 2022-08-17  
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- Improved data refreshing efficiency when Alarm Config button is checked.
- Enable 'Keep Refreshing' after loading a snapshot, refresh data every 20 seconds.
- Resolved one issue regarding high CPU loading.
- Improved the Settings View looking style.
- Post text info when data is refreshed and snapshot is loaded.
- Added argument support for --snapshot and --snapshot-window-off options.
- Changed the settling time of alarm set to 20 ms.
- Other bugfixes.

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Version 10.1: 2022-07-15  
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- Live data updating at 0.5 Hz is working fine by enabling 'Keep Refreshing' button.
- Limit the access of snapshot deletion function through the menu.
- Fix the performance regression for data refreshing:
  - Refresh tolerance, reference, alarm switches status when needed.
- Rename column names: State --> Live State, Last State --> State.
- Fix a bug regarding the multi-field device state display.

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Version 10.0: 2022-06-22  
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- As of this release, Settings Manager supports to work together with the dedicated
  - Phoebus Display
  - Phoebus Alarm system, which is maintained as separated projects.
- Fixed the backcompatibility of reading old snapshots that does not have device state info.
- Add support for Reference Setpoint set and visualization.
- Add support for device alarm controls.
- Add support for filtering reference set, alarm controls.

- Manage tolerance of live read and set with PVs.
- Add support to set tolerance/reference\_set through context menus.
- Add support to publish snapshot as the one in operation.

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Version 9.8: 2022-04-28  
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- Hide Position column, sort Device column by position.
- Support filter diff device state with a new filter button.
- Support show device state, and last saved device state.
- Support more blocking device types, e.g. AP, ATT, CHP etc.
- Improved data refresh speed.
- Swap the sign of dx02.
- Change the default policy for 'Take Snapshot':
  - Always save the full list of device settings, unless,
  - Enable WYSIWYC option (What You See Is What You Capture)
- Support '+' operation for batch apply settings, i.e. shift setpoint by some value.
- Add scripts for snapshot generation.
- Other bugfixes.

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Version 9.7: 2022-01-24  
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- Fix packages by adding missing files.
- Add new context menu action for data trending
  - Pull and visualize data from Archiver Appliance
- Add support for showing checked items stats.
- Add new button for unchecked all items.
- Update UI.

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Version 9.6: 2021-12-09  
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- Update the routine for settings generation.
- Fix: no-write-access item could still be checked.
- Add STRIP\_D2249 to read-only device list.
- New: support unchecked all items.
- New: add stat for globally checked items.
- Update UI.

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Version 9.5: 2021-11-02  
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- Fix settings view style per write access
- Update carbon stripper position (FRIB only)
- Support Oxygen icon
- Drag and drop XLSX snapshots will also trigger database update
- Export snapshot only update cloned SnapshotData model
- Update the routine for generating snapshots from xlsx files.

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Version 9.4: 2021-10-26  
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- Support visualize BPM signal saved along with SnapshotData.
- Support database backup, merge, etc.
- Update UIs and resources.

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Version 9.3: 2021-10-22  
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- Clean up elements.json configuration file, which was used to keep user-customized high-level device configurations. Now all the device info should be from phantasy-machines.
- Show disconnected status if the devices are not connected, but are still managed by MachinePortal

- It will cause caget timeout and freeze the GUI before this fix
- Show warning dialog if the snapshot to load has non-existing devices (usually happened after machine reconfiguration), inside the dialog, show the saved settings for reconfigured devices.
- Add filter button for disconnected devices
- Refined feature of settings initialization from loaded lattice
  - Add support to initialize settings for those disconnected devices
  - Add option to skip none settings or not, none is return for non-reachable devices, uncheck this option to make settings table for offline devices
- Now "Add Devices" tool only work with adding devices from pre-deployed machine configurations
  - The field of interest for the high-level element is updated with STRIPPER, SLT device type.
- Ensure the database connection
- Update the configuration file for machine state data fetching (some BPMs are relocated)

Version 9.2: 2021-10-01

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- Implemented app configuration module
  - use settings\_manager.toml file to manage all the configurations
  - Runtime change configuration from Preferences dialog
- Add a tool for database management
  - Initialize an empty database
  - Update existing one with snapshot files (Settings Manager in FILE working mode)

Version 9.1: 2021-09-29

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- Support working with SQLite database for snapshot data
  - Also leave option of working with files
- Performance improvement when working with database
  - Use threading to shift data loading
  - Limit number of snapshots to display
  - Lazy-load snapshot table
- Other fixes and enhancements

Version 8.0: 2021-05-14

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- Refactored SnapshotData class to support multi-sheet data
  - Adopt pandas.DataFrame to manage the data
  - Default data format: xlsx
  - Read and save from/to xlsx, h5, csv, etc.
  - Store settings data, metadata for settings data, and machine state data
- Support capture and save machine state data when taking snapshot
- Support save power on/off status data into snapshot
- Support control device power switch via context menu
- Support search snapshot files by note and datetime range

Version 7.1: 2021-04-13

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- Setting View
  - Support to show devices readonly by maintaining hardcode name list
  - Add field of interest for more diagnostic devices
  - Support switch power status via context menu

Version 7.0: 2021-02-22

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- Setting View
  - Support only showing field-of-interest, defined in config/field.toml
  - Support show device power status in a new column
  - Support running with LIVE\_MODE environmental variable
  - Do global data refreshing when any filter button is checked

- F5 (Ctrl+F5) for single data refresher (continuously)
- Manage all devices in phantasy-machines for ISRC1
- other bug fixes

Version 6.0: 2021-01-19

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- Snapshots Window:
  - Add support to show 'Ca' icon
  - Refactor the snapshot data model --> SnapshotData
    - Create unittests for snapshot data
    - Eliminate 'filepath' attribute
    - Support freely re-organize data directory structure
    - Change default naming rule: eliminate ':' from file name
  - Refactor treeview of snapshot data presentation
    - Create context menu actions to perform snapshot operations
  - Fix duplicated signal emit issue
  - Fix 'wrong index when mapFromSource' issue
  - Rename operation 'cast' to 'Load'
  - Treat empty tags as 'NOTAG' when doing tag filtering
  - Fix wrong hit statistics when doing tag/ion filtering
  - New action to copy snapshot data as a table
- Settings View:
  - Add loose/strict wildcard option for filtering
- Preload default machine and segment when starting up app

Version 5.2: 2020-12-04

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- Snapshots Window:
  - Add Selenium icon
  - Fix window height retaining issue
  - Rename 'Cast' to 'Load'
- Settings Treeview:
  - Fix bug: cannot invert selection from unchecked to checked

Version 5.1: 2020-12-03

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- Settings Treeview:
  - Bugfix: invert selection
  - ENH: dblclick to toggle item selection
- Snapshot Treeview:
  - Update 1st level node style
  - Do not show parent node if no children hit when filtering

Version 5.0: 2020-11-05

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- Single data refresher:
  - Update with multiple processes
  - Not show progress bar
- SettingsModel:
  - Remove CSET and RD PVs, and regarding view aspect

Version 4.3: 2020-10-26

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- Single data refresher:
  - Add support to show progress
  - Improve the GUI responsiveness

- Continuous data refresher:
  - Only do value updating for the items in current view
- SettingsModel:
  - Speed up the model initialization, FRIB/LINAC 6s --> 2s

Version 4.2: 2020-10-19

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- Settings view filtering:
  - Add support to 'in' test to Settings View filtering.
  - Add support compound 'and' filter for settings view.
  - Compare x0 and x2 with precision number.
  - Implement buttons for filtering with dx12, dx02 warning signs.
- Apply settings:
  - Skip setting device if current setting is close to the proposed.
- Fixes:
  - Fix crash when do inverse selection on all checked items.
  - Fix delta x0, x2 updating retarding issue.
  - Hint typos.
- Scaling factor:
  - Set scaling factor format with '.5g'.
- Maintenance:
  - Update default device sp/rd tolerance list.
  - Always keep set log file.
  - Load elements from config.
  - Update notebook for generating settings files.
  - Support add note meta in contrib notebook for generating settings.
  - Update the notebook to generate settings files for cavity tuning.
- GUI:
  - Hide settings statistics info by default.
  - Update symbol for dx02 and dx12.
  - SettingsModel support 'auto\_fmt' argument, '{0:{n}g}' as auto format.
  - Handle the widget control permission for data updaters.
  - Add option to set .{n}g format for presenting data.
  - Add min/maximize buttons to floating snapshots window.
  - Close device set log by default.
- Tools:
  - Update the command to evoke ipython console.
- Data/FRIB:
  - Update settings data file for cavity tuning.
  - Add generated settings file for 129Xe50 cavity tuning.
  - Add revised settings xlsx file for LS2 phasing.
  - Add setting files for 129Xe27 to 50 from MEBT to FS1A,B, FS2.
  - Add xlsx file for 129Xe27 to 50 for MEBT to FS1A/B, FS2.
  - Add settings with reduced solenoid current, 2020-10-06.
  - Append timestamp to the generated filename.
  - Update settings files for LS1,2 cavity tuning.
  - Add settings files for LS1,2 cavity tuning.
- Doc:
  - Update settings manager guide doc, pdf.
  - Add user guide .doc file.

Version 4.1: 2020-10-01

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- Refactor SnapshotDataModel, w.r.t. the solution to handle buttons in row
- Implement dynamic filter buttons for ion names and tag names to Snapshots
- Add support to delete snapshot from memory or disk drive
- Enable sorting of Snapshots
- Change the naming rule of SnapshotData to avoid name collision

- Other bug fixes and feature enhancements

Version 4.0: 2020-09-25

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- Hide Save and Load Settings tools, use Save and Cast in Snapshots Window instead
- Initialize configuration files for new users
- Update values before taking snapshot
- Add x2/x0 column to show the ratio between current setpoint and saved one
- Auto fill scaling factor if loaded snapshot working with different Q/A
- Updated settings view
- Support open Help contents from menu or F1
- Snapshots Window:
  - Support manage data files from a directory, recursively search all possible files
  - Update TableSettings, SnapshotData and SnapshotDataModel to support show more meta data
  - Support in-place saving data
  - Support input tags, golden setting indicator, ion species
  - Keep cast status after taking snapshot or auto refreshing working directory
- Settings Apply:
  - Remove setdone status
  - Implement applying progress bar, and highlight current applying device
  - Support saving snapshot before apply option
  - Show log messages when applying
  - Support Cancel before Apply
  - Update values after applying is done
- Device Set Log Window:
  - Capture all set log when doing settings apply
  - Support open in system text editor, e.g. do searching

Version 3.0: 2020-09-15

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- Initial settings:
  - Add support initialize settings with loaded lattice
- Settings apply:
  - Add support to input math expression as scaling factor
  - Show progress bar when iterating devices
- Snapshots:
  - Add module to manage snapshots from CSV files
  - Ensure fetch the most recent setpoints before taking snapshot
  - Add support to manage snapshots via drag and drop
  - Add support to preload snapshots from working directory (Preferences)
  - Introduced cast feature of snapshot
  - Add support to input metadata to snapshots
- Add tool dialog to fix LS1,2 corrector name issue for old saved CSV files, due to the changes of phantasy-machines (commit: 39c94e5)
- Do not need to manually load lattice before load settings from CSV file