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Version 11.1: 2023-07-07
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  - Fix: Make items with 'nan' saved set values are not checkable.
  - Fix: Handle parent node info for reading/exporting a snapshot.
   - Bug: unexpected behavior for tag/note editting of an unloaded snapshot.

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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 snasphot.
  - Introduced a splashscreen to guide the app starting up process:
    - Adopted multi-threaded approached 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 scalabled 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 prodived.
 – Re-implemented 'Delete' snapshot action.
 – Split PV map files to be configuartion 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 me
nu 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 backcompatiblity 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/referece_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.
   - Chanve 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 b
y 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.

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.

Version 9.3: 2021-10-22
=======================

- 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 sti

ll managed by MachinePortal
   – It will cause caget timeout and freeze the GUI before this fix
   – Show warning dialog if the snashot 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-reac
hable devices, uncheck
     this option to make settings table for offline devices
– Now "Add Devices" tool only work with adding devices from pre-deployed
 machine configuartions
   – The field of interest for the high-level element is updated with STR
IPPER, SLT device type.
– Ensure the database connection
– Update the configuration file for machine state data fetching (some BP
Ms are relocated)

Version 9.2: 2021-10-01
=======================

– 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 wo
rking mode)

Version 9.1: 2021-09-29
=======================

– 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
=======================

– 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 d
ata
– 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
========================

- 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
========================

- 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
========================

- 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
========================

- 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
========================

- 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
========================

- 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 typoes.

- Scaling factor:
  - Set scaling factor format with '.5g'.

- Maintaince:
  - 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/max-imize 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 r
ow
- Implement dynamic filter buttons for ion names and tag names to Snapsh
ots
- 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
=======================

- Hide Save and Load Settings tools, use Save and Cast in Snapshots Wind
ow instead
- Initialize cofiguration 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 p
ossible files
  – Update TableSettings, SnapshotData and SnapshotDataModel to support
show more metadata
  – Support in-place saving data
  – Support input tags, golden setting indicator, ion species
  – Keep cast status after taking snapshot or auto refreshing working di
rectory

– Settings Apply:
  – Remove setdone status
  – Implement applying progress bar, and highlight current applying devi
ce
  – 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
========================

– 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 fi
les,
  due to the changes of phantasy-machines (commit: 39c94e5)

– Do not need to manually load lattice before load settings from CSV fil
e