NOVONIX™
BATTERY TECHNOLOGY SOLUTIONS

UHPC-Protocol Release Notes

> **Info**
>
> All software versions built and tested on MS Windows 11 64-bit (Build 26100)

2.10.1

- Fix for validation bug that could occur when a lower current step limit or global limit is set for current, and a current unit is chosen with weight or capacity

2.10.0:

- Some users have noticed the UHPC installer not automatically removing previous versions. After installing, check Windows → Installed Apps (or Apps and Features)→ NOVONIX UHPC Protocol to ensure only one version remains.
  - Please contact NOVONIX Support if issues occur
- New End Step Types:
  - Last Step Charge Capacity
    - Also available as built in custom variable LStepCCap
  - Last Step Discharge Capacity
    - Also available as built in custom variable LStepDCap
  - Last Cycle Charge Capacity
    - Also available as built in custom variable LCycleCCap
  - Last Cycle Discharge Capacity
    - Also available as built in custom variable LCycleDCap
  - New End Step Type “Zero (0)”
    - Intended to be used for more complex custom variable expressions, by serving as a static comparison value
    - example: End Protocol When: 0 > 0.8 * StartCap - LStepCCap
      - In other words the last step charge capacity (LStepCCap) has degraded by 20% of the original starting capacity (StartCap).
- Starting Cell Capacity (StartCap) available as a custom variable by default
- 20A hardware accuracy and longevity improvements

    - A 2 second OCV delay is recommended between Charge and Discharge for 20A systems
    - A 10 second OCV delay is recommended between Discharge and Charge for 20A systems
    - This change stabilizes the current applied to the hardware components and cell when switching between charge and discharge. It's intended to increase hardware lifespan and test accuracy.
- When editing Step Type, the window now pops up in center of application to prevent off screen popups
- Edited pop-up text stating Set Temperature (Temperature Variance) uses Cell Holder RTD. Temperature commands, such as Set Temperature and Temperature Variance, are controlled via the thermal chamber RTD
- Underscore (_) now supported for current and voltage with custom variables

2.9.1:

- New Icon

2.9.0:

- “Save All“ has been added to File menu in toolbar. This option saves all open files in protocol.
- Drag and Drop has been added to loading protocol files.
- Fixed bug reversing the order of steps when “Paste Before” was called with multiple protocol steps.
- Fixed issue with importing files of different chargers to protocol.
- EIS step configuration simplified
    - Changed default initial frequency from 100khz to 10khz
- Fixed issue that could prevent user configuration file saves

2.8.0:

- New Step type “EIS“ has been added.
- Added a one time prompt on startup if a new version of software is available.
- Software update available pop up has been added on application start.
- Request for contact info when downloading updates from software.
- Users can now see the release notes before downloading the update (Enable software updates pop up on startup for this feature).
- Set Temperature - Temperature Variance updated to 1C as default value from 0.1C
    - User Manual “Set Temperature” section updated
- ‘Esc’ key now closes the company details window when downloading software updates.
- Users can now view Global limits ad password will only be requested to edit them.
- Added an additional checkbox to override step limits when charger mismatch is detected.
- Save failed pop has been added when we fail to save protocol file.

2.7.6:

- Custom variables bug fix with multiple decimal values can be added in one equation.

2.7.5:

- Fixed the protocol icon on taskbar for the application.

2.7.4:

- Removed “Temperature Variance” and “Temperature Hold” end step conditions from Open Circuit Storage
    - Intended to be used with new IP enabled Watlow Controller
    - Still works with “Set Temperature” step type

2.7.3:

- Updated User Manual
- Fixed bug saving new protocol with default name
- Fix header not updating when “Save-As” is used on protocol with no changes

2.7.2:

- Fixing issue allowing duplicate protocol file names
- Fixing issue preventing save of brand new protocols on save and exit
- Adding “Temperature Variance” and “Temperature Hold” end step conditions to Open Circuit Storage
    - Supports IP Enabled Thermal Chamber use cases with many concurrent channels

2.7.1

- Backwards compatibility enhancements

2.7.0:

- Right clicking an Action in Condition Control List now has “Add Action to All Steps”
    - Ex: Save Data every 5 seconds can be added to every test step
- New StepType “Set Temperature”
- AND/OR now only show if more than one condition
- Fixed validation warnings that could occur when changing tabs after updating step limits
- UNDO and REDO remember selected position
- Using “Save As” and selecting a .pro1 file (or other extension types) now saves as .pro2
- Optional Warning when using '<' symbol with step capacity and (%) step capacity
- Step Safety Limits for Time and Capacity have been removed
    - Please update to the latest UHPC Control for protocols made after 2.7.0
    - Old Protocols will function in UHPC Control as expected
    - Capacity and Time conditions will still be valid.
    - Step Limits for Time and Capacity were redundant, and mostly causing tests to fail unexpectedly
    - Any special use-cases can be handled with step conditions
    - Please contact NOVONIX with any questions or concerns regarding this change
- Improved handling for opening/saving files when using network directory that is no longer connected to network.
    - Loading circle mouse added
    - Popup informing user of issue reading network directory
    - Still requires 5-30 seconds network timeout if it occurs
- Multiple files can now be imported at the same time.
- Reduced duplicate errors logging.
- Switched to 64-bit Architecture.
- Fixed the issue of not being allowed to fix errors on “Save and Exit“ when quitting protocol.

2.6.4:

- Fix for Δt, ΔV, ΔI being validated with step/global limits improperly

2.6.3:

- Fix preventing Save after user has used right click → “Loop Items” on an opened, already saved protocol file.

2.6.2:

- Asterisk (*) properly disappears after saving a protocol when increment cycle step has been used.

2.6.1:

- Custom Expressions now support:
  - log(y,x)
    - base y
  - ln(x)
    - base e
  - lg(x)
    - base 10
  - exp(x)
    - e^x
  - cos(x),sin(x),tan(x),csc(x),cot(x),sec(x)
- Custom Expressions now converted to lower case.
- Better formatting for .PRO2 files

2.6.0:

- New Protocol Format .PRO2
  - Faster load times
  - AND functionality added for step conditions
  - Custom Variables for tracking things like Step Capacity
    - Step 3 Update Variable: StepCapacity = ChargeStep3Capacity Ah
    - Step 4 Update Variable: StepCapacity = CCCVStep4Capacity Ah
  - Custom Equations for creating dynamic conditions
    - ex: Step 4 Constant Current Charge at (Step2Capacity+Step3Capacity)/20 A
    - ex: End Step 6 when Step Time > (Step3EndTime * 2) hours
- Removed Emergency limits from Global and Step Limits.
- Undo & Redo now work as expected
- ‘Enter’ key now lets user login when protocol is started.
- When the last protocol tab is closed we create a new default tab and close the tab.
- The release notes are now packaged along with software (Help → Release Notes).
- In the “Create or Change Configuration“ window, the “Save changes“ button is changed to “Load Configuration“, while the “Exit“ button has been renamed “Close“ (The previous prompt when Exit is clicked has been converted to tool tip for the Close button) .
- Restore default limits functionality has been added (Options → Global limits → Restore defaults).
- Offer to save all unsaved protocol on Exit or Exit without saving
- Select all steps is now CTRL+A
  - Previously SHIFT + A
- Removed “Change Password” option for Global limits
- Global Limit / Super-user passwords now match UHPC Control
  - Please contact NOVONIX for assistance if required
- The Loops can now be collapsed and maximized in the protocol using the expander button beside loop lines.

2.5.1:

- Fixed the issue of config values persisting when exited without saving.
- Fixed the software crashing under some specific use cases.

2.5.0:

- Fixed mouse scroll wheel when adding conditions to protocol step
- Protocol limits(legacy) will not be written in the files from now on (step limits will be used for validation).
- When limits are saved in configuration the new protocols in the window will be updated.
- Factory reset button has been added to toolbar → Help → Factory Reset. This will delete all users' configurations, global limits, and system limits.
- Bug where the default config would load whenever global limits are updated has been resolved.
- When create or change config is exited the unsaved changes are discarded after warning the user.
- Fixed bug where protocol step limits could be incorrect if global limits were adjusted after adjusting step limits on an open protocol
- Default limits are updated as below to match UHPC Control v2.6.0
  - 1A system limit upper value - to 100Ah from 9999Ah
  - 2A system limit upper value - to 100Ah from 9999Ah
  - 10A system limit upper value - to 300Ah from 9999Ah
  - 20A system limit upper value - to 500Ah from 9999Ah
  - 10A global capacity operation upper value - to 150Ah from 50Ah
  - 10A global capacity emergency upper value- to 200Ah from 60Ah
  - 20A global capacity operation upper value- to 300Ah from 500Ah
  - 20A global capacity emergency upper value- to 400Ah from 550Ah
  - 1A global current operation upper value - to 1.05A from 1A
  - 10A global current operation upper value- to 10.05A from 10A
  - 20A global current operation upper value- to 20.05A from 20.1A
  - 20A default current operation/Emergency/System lower limit is set to 0.00 from 0.01.
- Only the selected configuration is saved when “Save changes” is clicked.
- Fixed issues with validating the textboxes in protocol step conditions
  - previously did not validate all cases
- When a existing protocol file is loaded, if the protocol is outside of the range of global limits, the user is warned
- The configuration save design has been updated. The default folder has been removed from the user configuration.
- Default configuration for step limits created by software will now have step limits same as global limits.
- When the configuration file is corrupted or incomplete the config will be using default configuration of software.
- Contact us button added containing customer support email added to Help dropdown
- Check for update option added to Help dropdown.
- Added a button “Reset Step Limits“ to protocol which will change the step limits of loaded protocol to step limits in selected configuration.
- “Enable recommended capacity at end step” checkbox has been removed from configuration.
- Protocol error logs have been moved to C:\Novonix\UHPC Log Files\ErrorLogs and the file name is ProtocolErrorLog
- Checks for software updates when the application starts and “Download update“ button will be shown if a new version is available.
- Added third party plugin licensing information

2.4.1:

- Adding support for UHPC Plot instead of HPC plot
- Upgraded to use new installer
- Fixed “delete condition” being locked for new protocol steps
- Fixed dropdown to open UHPC Plot or Control

2.4.0:

- Moving version in line with UHPC Control

2.3.0:

- Renamed HPC Protocol to UHPC Protocol
- Updated Icons to use latest Novonix Graphic
- Incorrect password prompt no longer shows an "Incorrect Password" popup when clicking x on password prompt
- Error text when entering blank password

2.2.0.9:

- Fixed the Help Manual to open the UHPC Software .pdf
- Fixed the bug where new protocol control conditions couldn't be deleted until the files are re-opened.
- Default step limits for open circuit have been corrected
- Fixed the default values in Step Control Conditions for CCCV charge to match the defaults of other protocol steps
- Fixed the current time when saving any protocol file/configuration or Global/Step Limits

> ⚠ **Warning**
>
> As of 2.2.0.9, the following folder should be removed if the above features are not working: C:\Novonix\UserConfigurations

> ⓘ **Info**
>
> The latest version of each software package is available for download in the NOVONIX Customer Area