

# Version History

## Astro-Physics Command Center (APCC)

### Standard and Pro

**If you are upgrading from v 1.0.3.4 or earlier versions, you must uninstall any previous version of APCC in the Windows Control Panel (due to new version of Eltima Virtual Ports driver) – you won't lose your settings**

**You must install the most recent version of the ASCOM APV2 driver – at least v 5.09.04**

#### Version 1.5.0.20 – 02-20-17

**Note: This version should be used with the AP V2 ASCOM driver v5.09.04 or later.**

- APCC - Expanded allowable timezone range to -23:59:59 to +23:59:59.

#### Version 1.5.0.19 – 01-29-17

- APCC - FIXED - Protect against certain out-of-range values in Home and Limits Configuration dialog.
- APCC - IMPROVEMENT - A popup window will open to restore unpark from last parked position after unparking from one of the named park positions. If the user is not at the screen or does not select an option, the window will auto-close and change the default to unpark from last parked position.
- APCC - FIXED - Status window's Connect/disconnect button wouldn't change when APCC is connected/disconnected from the mount.
- APCC - FIXED - a set tracking rate command was being sent out of order during initialization.
- APCC - IMPROVEMENT - On both the Horizon and Meridian Tabs, removed the Reset Limit Trigger button and the Auto-reset checkbox. Auto-reset is now always the default.
- APCC - IMPROVEMENT - removed the check box option to close the Stop Window when a slew completes. The Emergency Stop window now always closed automatically when a slew completes .
- APCC - BUG FIX - The Log Zipper was not working so it has been moved into its own separate application. The new log zipper application is included in the installer going forward.
- APCC - NEW FEATURE - Automatically send mount flip point to Sequence Generator Pro. "Meridian Limits" and "Counterweight up slews within West limits" must both be enabled.
- APCC Pro (APPM) - BUG FIX - After a point mapping run, APPM offers to immediately use the data. Clicking "OK" would often result in a message saying the model was not installed correctly (but it was). This false error message should no longer occur.
- APCC Pro (APPM) - IMPROVEMENT - when attempting to connect to Sequence Generator Pro, APPM first checks that SGPro is running. If SGPro is not running, a pop up message indicating that is displayed.
- APCC Pro (APPM) - BUG FIX - Numerous improvements and bug fixes to the plate solving architecture.
- APCC Pro (APPM) - BUG FIX - DSLR ISO values are now properly passed to SGPro.

- APCC Pro (APPM) - BUG FIX - The command to set Slew Rate was getting ignored when starting a APPM run.
- APCC Pro (APPM) - BUG FIX - Camera Binning setting was not being used to adjust the unbinned image scale.
- APCC Pro (APPM) - Optional settings review dialog allows you to review the settings before starting a mapping run.
- APCC - Updated documentation.

### Version 1.5.0.18 – 12/09/16 (Public Beta)

- APCC - Updated documentation.
- APCC - Fixed Status View Connect button text (never changed from "Disconnect").
- APCC - Advanced Settings window was missing the "Help" button.
- APCC - Fixed a problem that could cause the Virtual ports to not be auto-allocated.
- APCC - When the mount needs to be initialized APCC will now bring up the Initialize mount window, even if auto-initialize is disabled. The user can decide to initialize or not.
- APCC - Fixed issue with APCC showing the wrong button text when a connect to the driver fails.
- APCC - Removed some unnecessary debug log statements.
- APCC Pro (APPM) - APPM's slew rate was not getting set down in the mount.
- APCC Pro (APPM) - Fixed several problems with plate solve directory function.
- APCC Pro (APPM) - Fixed several bugs in the plate solving state machine.
- APCC Pro (APPM) - To improve startup speed, if dark frame subtraction is selected APPM will start the dark frame in parallel with the mount settling after a move.

### Version 1.5.0.17 – 11/14/16 (Private Beta)

- APCC - Updated documentation

### Version 1.5.0.16 – 11/02/16 (Private Beta)

- APCC Pro - Increased range of allowable barometric pressure from 800-1100 to 500-1300.
- APCC Pro (APPM) - Minor fixes for PinPoint compatibility (Note: PinPoint 6.1d or later is required if using PinPoint's All-Sky plate solves)

### Version 1.5.0.15 – 10/31/16 (Private Beta)

- APCC - Added new option in Advanced Settings to keep mount time synced to the computer. This option overrides the same feature in the ASCOM driver. If enabled, APCC will sync time even if the option in the driver is disabled (Driver v5.09.02 or later required). When disabled in APCC however, the driver can temporarily (until APCC is restarted) enable time sync in APCC. When connected to APCC the driver will delegate Time syncing to APCC and the driver will not itself perform time syncing.
- APCC - **EXPERIMENTAL - Requires driver v5.09.02 or later** - APCC will now define two Virtual Ports for the ASCOM driver. Because of the way COM interop works, a separate instance of the driver will be created each for ASCOM clients running from the user account, and for ASCOM clients running "as administrator." In a hope to allow applications that need to be run "as administrator" work with applications that don't.
  - The first virtual port will be used by the instance of the driver started in user mode.

- The second virtual port will be used by the driver if it started "as administrator"
- APCC - Fixed range errors in some controls.
- APCC Pro (APPM) - Added support for SGPro Cameras to APPM.
- APCC Pro (APPM) - Removed checkbox for PinPoint All-Sky and added separate buttons to do All Sky Solve and All Sky Solve and Sync
- APCC Pro (APPM) - Added new plate-solving choices to APPM: SkyX Image Linking, and Sequence Generator Pro (tested with PlateSolveX)
- APCC Pro (APPM) - Added option to set explicitly set the Slew Rate for mapping runs.
- APCC Pro (APPM) - Added option to open Images in the by double clicking the entry in the mapping table.
- APCC Pro (APPM) - Added feature to Plate Solve files in a directory.

### **Version 1.5.0.14 – 09/19/16 (Public Beta)**

- APCC - FIXED - do not invoke COM port fallback when disconnected.
- APCC - FIXED - responses to the ASCOM driver could sometimes be delayed significantly, thus making the driver think it had lost a connection to the mount.
- APCC - Adjusted position of new indicators in the "Telescope Position" group box to look better for APCC Standard.
- APCC - Widened the "TRACK" indicator to allow "TRACKING" and "PARKED" to fit.
- APCC - FIXED - PEM indicator was not working correctly.
- APCC - Added "Auto-Reset" option to Horizon Limits and Meridian Limits. When checked these limits will automatically be reset when the mount goes back within limits.
- APCC - FIXED - APCC was returning a cached value of the mount's time to the driver, which was causing the driver to sometimes think the time had gone outside the two-minute range.
- APCC - Stopped using cached values on the virtual ports for the following commands: GC, GL, GG, GP, GA, and GZ. These commands now pass through to the mount.
- APPM - Added "Sequence Generator Pro" as a new camera option.
- APPM - Fixed the "Image Link Test" setting for TheSkyX plate solving.
- APPM - BUG FIX - Even when TheSkyX plate solving was selected, PinPoint Plate solves were being used. (more work needed here).

### **Version 1.5.0.13 – 09/07/16 (Private Beta)**

- APCC - Added COM port fallback to ethernet/wi-fi connection
- APCC - Added "Pier Flip" button to "Move Scope" and "Meridian Delay" Group boxes
- APCC - Added "Slew Speed" to "Move Scope" group box so that it is easy to tell the set slew speed.
- APCC - Rearranged controls in "Move Scope" group box to make better use of space
- APCC - Added Tracking State and PEM State labels (with Tool Tips) to "Telescope Position" group box
- APCC - Meridian/Horizon labels in "Telescope Position" group box can be single-clicked to open their respective tabs. Double clicking will toggle their enabled state.
- APCC Pro - Changed labels for Pointing and Tracking rate correction to "Point Corr" and "Rate Corr", respectively.
- These labels can be single-clicked to open the Pointing Model tab. Double clicking will toggle their enabled state.

- APCC - Added warning messages when enabling "Stop Tracking after Unparking"
- APCC - Don't allow user to set or clear Meridian Delay while Meridian Limits and Slew within East/West is enabled.
- APCC - Added "Exhaustive COM Port Search" option (default) to Advanced Settings
- APCC - Added "Just Warn" option to Meridian and Horizon Limits
- APCC - Fixed behavior of Horizon and Meridian Limits status fields
- APCC Pro - Changed RA and Dec pointing error from Decimal mins/arc-mins to Mins/Secs and Degs/Secs, respectively.
- APCC Pro - Changed RA and Dec tracking rate units from "secs/sec" and "arc-secs/sec" to a more understandable "secs/hour" and "arc-secs/hour", respectively.
- APCC - Close "Find GTOCP4" window when "Select" is clicked.

### **Version 1.5.0.12 – 08/30/16 (Public Beta)**

- APCC - Added check box to stop tracking after unparking.
- APCC - Changed confusing custom park Alt/Az boxes to labels.
- APCC - Changed look of a number of labels to be more consistent.
- APCC - Added status labels for Meridian Limits, Horizon Limits, Pointing and Tracking rate correction (Tooltip info is presented when mouse hovers over them).

### **Version 1.5.0.11 – 08/25/16 (Private Beta)**

- APCC - Fixed incorrect time zone when unparking
- APCC - Fixed meridian delay getting cleared when slewing with meridian limits disabled.

### **Version 1.5.0.10 – 08/22/16 (Public Beta)**

- APCC - Even more changes to Time Zone logic to fix issues with an European version of Windows.
- APCC - Fix double moves in counterweight up positions when using the GTOCP4.
- APCC - Fixed some logic errors with the Counterweight-up slews within East/West Limits.

### **Version 1.5.0.9 – 08/17/16 (Private Beta)**

- APCC - Further changes to Time Zone logic to fix issues with an European version of Windows.

### **Version 1.5.0.8 – 08/14/16 (Public Beta – Pro only)**

- APCC - Captured Time Zone initialization errors and allow APCC to complete startup.
- APCC - "Create Virtual Ports first" option will now automatically select a virtual COM port if none is defined for the first virtual port.
- APCC Pro - Fixed labels for RA pointing and tracking rate corrections
- APCC - when loading a settings file, put up a window indicating the operation is active.

### **Version 1.5.0.7 – 08/07/16 (Public Beta – Pro only)**

- APCC Pro (only) - Pointing model corrections were not being applied when a pier flip occurred when using a GTOCP4.

### **Version 1.5.0.6 – 07/17/16 (Public Beta)**

#### **New Features of APCC Standard and Pro**

- APCC – Added software home and limits function for all GTO mounts. Note: To avoid errors, this tab will not appear if the mount has absolute encoders, which has its own separate hardware/software solution.
- APCC – Updated Connection group box to include USB, Ethernet and WiFi options for the GTOCP4.
- APCC – Added four new application buttons (ApTimer, ApJog, ApRAPAS, PEMPro) to the Main Screen. They will only be visible if the corresponding application is installed.
- APCC – Automatically backs up the settings every time it starts so you can easily go “back in time” to earlier settings by loaded an earlier settings file.

#### **Additional New Features of APCC Pro**

- APPM - Add ASCOM Camera and SkyX Camera Add-on as new cameras.
- APPM - Add SkyX Plate Solving as alternative to PinPoint. (Note: This is not quite ready)

#### **Improved Interface – Standard and Pro**

- APCC - Placed the AutoConnect option into the Connect group box.
- APCC - Moved "COM Events" (COM Port events) button to status bar and renamed to "Comm Events" (Communications Events). It will turn light red (pink?) if there are any communications errors.
- APCC - Added "Auto-Connect Driver" and "Auto-Configure" driver options to "Connection" group box.
- APCC – Added tool tips to some of the options in the connection group box.
- APCC – Added a “NOW” button to do a one-time configuration of the ASCOM driver.
- APCC - Made mount timeout value available while connected (was formerly disabled while connected) to allow changing timeout dynamically.
- APCC - Moved "Create Virtual Ports first" option from "Advanced Settings" to "Connection" group box.
- APCC - Moved "Close Emergency Stop window when done slewing" option from "Advanced Settings" to "Program Operation" group box.
- APCC- Added one extra option to close the Emergency Slew window automatically after a slew completes.
- APCC - Added "Edit Initialize Mount Settings..." to the Settings menu. This allows a user to edit initialization settings without initializing the mount.
- APCC - changes to match the status window and main window's move rates.
- APCC - Changed look of the setup tab.
- APCC - Moved the Virtual Ports tab to the second tab position so users can find it more easily.

#### **Fixed Bugs or Improved Robustness and Function – Standard and Pro**

- APCC - Upgraded to the latest Eltima Virtual Port driver (v8.0.435).
- APCC - Improved overall robustness of Virtual Ports.
- APCC - Auto-create the first virtual port if not defined when starting.
- APCC - Improved robustness of matching the ASCOM driver's port to APCC's first virtual port (requires ASCOM driver v5.09.00 or later).
- APCC - Added new way of determining which COM ports are real and which are virtual ports.
- APCC - Improved intelligence in selecting a free virtual com port for the driver to use.
- APCC - Added a command line switch so APCC knows it is being started by the driver and can do certain start up actions to better ensure the driver can connect.
- APCC - Added more debug statements to track down issues when users have COM port errors.
- APCC - Before unparking force meridian delay to 0.
- APCC - Prevent the Log Zipper window from being used while connected to the mount or driver.

- APCC - Disable Log Pausing for now to capture any potential errors that might be missed when logging is paused.
- APCC - Added additional log output to help debug certain scenarios.
- APCC - Add more logging detail for debugging in case a network error occurs.
- APCC - APCC automatically starts a new log file if the log file size exceeds about 100 MB.
- APCC - When connecting to the AP driver, if "Auto-config" is not selected APCC will automatically setup the driver's COM port and APCC setting if not correctly set.
- APCC - APCC will try up to 3 times to write a setting to a file before throwing an error. It will wait at least 50 milliseconds before retrying a save.
- APCC - "Initialize Mount..." option in Settings menu no longer will proceed unless mount is connected and RA=0 and Dec=90.
- APCC - Add popup window to report details of unhandled exceptions back to Ray Gralak (The user must ok the sending of this data).
- APCC - fixed problem reported by Joe Z. (never-ending park when the park position is under the Horizon limit).
- APCC - Fixed a bug that sometimes caused an incorrect park position.
- Horizons - Added extra debug statements.

#### **Fixed Bugs or Improved Robustness and Function – Pro**

- APCC - Fixed problem reported by David on AP-gto forum concerning goto incorrectly loading the mount's RA/Dec with Pointing Correction enabled.
- APCC - Added a check for a minimum ASCOM platform version, which was causing an issue with APCC's pointing calculations because the old ASCOM utility functions had a few bugs.