VERSION 7.3C
November 2026

Product Release Notes

SmartShell and Robotics Server



ROSS

PRODUCT RELEASE NOTES

Welcome to the SmartShell and Robotics Server 7.3c Release Notes. Please read this document to find essential information about changes to the software running on the Ross Robotics product line.

These release notes previously formed part of the SmartShell Release Notes. Going forward, SmartShell Release Notes will cover SmartShell, Robotics Server, Integrated Server, Bridge Server and SmartShell CX Panel Adapter applications. Robotics Release Notes will cover firmware and software relating to Furios, CamBots, legacy Furio joystick, and CAN-based Collision Avoidance.

This document includes version history for recent past releases. However, the **Known Issues** section applies only to the most recent release.

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VERSION HISTORY

VERSION 7.3c – NOVEMBER 2026

LOAD LINEUP

- SmartShell & Servers
  - SmartShell 7.3.300.03
    - Requires .NET Framework 4.6.1
  - Robotics Server 7.3.300.03 & Integrated Server 7.3.300.03
    - Requires Visual C++ Redistributable Packages for Visual Studio 2017 (32-bit)
    - Requires .NET Framework 4.5.2
  - SmartShell CX Panel Adapter 1.0.0-2025.04.08-14.04
  - Bridge Server 7.3.300.03
  - Cambot Translation Server 7.3.300.03

BUGS ADDRESSED

- When Vision[Ai]ry has active control of a Cambot, a new preset couldn't be recalled. Now the robotics server can be set to suppress joystick control for Vision[Ai]ry, and the Vision[Ai]ry control will be suppressed to allow the robot to come to a stop and allow preset recall. Once preset recall has begun Vision[Ai]ry can once again have joystick control. (RCS-193)

VERSION 7.3b – OCTOBER 2025

WHAT'S NEW

- **SmartShell**
  - This release allows external changes to a camera group file to be dynamically loaded by SmartShell without having to restart. This change also includes the ability to specify an alternative camera name within the camera group file. These features allow third party automation systems to change camera groups and camera display names without needing to restart SmartShell.
- **Robotics Server**
  - This release introduces support for capturing thumbnails using NDI (Network Device Interface). This feature allows you to capture high-quality thumbnails from any supported NDI-enabled source. This can be combined with existing SDI capture from other sources or to avoid the need for a hardware capture card.

LOAD LINEUP

- SmartShell & Servers

- SmartShell 7.3.200.02
  - Requires .NET Framework 4.6.1
- Robotics Server 7.3.200.02 & Integrated Server 7.3.200.02
  - Requires Visual C++ Redistributable Packages for Visual Studio 2017 (32-bit)
  - Requires .NET Framework 4.5.2
- SmartShell CX Panel Adapter 1.0.0-2025.04.08-14.04
- Bridge Server 7.0.100.8410

- Robotics Firmware
  - Furio Firmware – Artimo free-roaming pedestal
    - Furio-arm64-7.2.300.07
      - Runs on Artimo free-roaming pedestal only
    - Artimo OS 1.01
    - Artimo axis configuration:
      - Pan – 5130ER-003-01_144
      - Left Wheel – 5130ER-007-01_144
      - Right Wheel – 5130ER-006-01_144
      - Tilt – 5130ER-004-01_142
      - Lift – 5130ER-005-01_141
    - Artimo dolly board firmware 0.17
  - Furio Firmware – Other robots
    - Furio-phy-7.0.200.04
      - Runs on phyCORE-equipped VR600, VR100, and X-series heads
    - Furio-i686-7.0.200.04
      - Runs on CamBot XY pedestals having Furio OS
      - Upgrading CamBot OS to Furio OS requires a flash card replacement
    - Latest Furio OS is version 20210505-1 for Gen2 bricks, and 20211016-1 for Gen3 bricks.
  - CamBot Firmware
    - 3.4.300.3105 for 520PT and 600PT/600PTL heads
    - 3.7.200.3112 for XY pedestals
  - Joystick Firmware 4.6.100.7375
  - VISCA Protocol Converter Firmware 3.4.150.2962
  - Vinten Legacy Protocol Converter Firmware 1.3.100.2671
  - Collision Avoidance Firmware 1.2.70 (Tested on Collision Avoidance Module 5100AR-750-02)

BUGS ADDRESSED

- When video routing with a device using the Probel SW-P-08 protocol, switch requests to establish a route that was already in place would result in a routing "timed-out" error in SmartShell, and further switch requests made before the time out would be dropped with a "Router is busy" error. The routing server will no longer timeout while

waiting for a data reply from the Probel device, and instead waiting only for an ACK to confirm the switch request has occurred. (RCS-43) (ROB-5390)

- When video routing with a device using the Probel SW-P-08 protocol, switch requests sent close together could result in some switch requests being dropped with a "Router is busy" error. The routing server now processes Probel switch requests since it only waits for an ACK response, so switch requests sent close together are no longer dropped. (RCS-94)
- When there were gaps in an active Camera Group, the tally status indication would sometimes not be shown on the correct camera button on the CX-3R panel. Tally indication now follows camera buttons on CX-3R when blanks are used in Groups. (RCS-51)
- On loss of connection to a CX-3R, SmartShell sometimes didn't reconnect. Fixed the issue and SmartShell will now always reconnect to a CX-3R after losing connection. (RCS-54)
- A security vulnerability related to binary format deserialization was discovered in the CamBot File Importer feature. The CamBot File Importer has been removed to address this issue. (RCS-46)

VERSION 7.2c – JULY 2025

WHAT'S NEW

- **Furio Firmware for Artimo XY-50 pedestal**
  - Additional information in the Web UI to enhance supportability
    - Status page now shows the firmware revisions for all motor controllers
    - Version information now includes the OS version
  - Web UI supports upgrade of OS, replacing previous SD card-based upgrade

UPGRADE CONSIDERATIONS

- **Upgrade for pre-7.2b releases**

  See notes for 7.2b below when upgrading from a pre-release version of 7.2

LOAD LINEUP

- New in this release:
  - Furio Firmware – Artimo free-roaming pedestal
    - Furio-arm64-7.2.300.07
      - Runs on Artimo free-roaming pedestal only.
    - Artimo OS 1.01
    - Artimo axis configuration:
      - Pan – 5130ER-003-01_144
      - Left Wheel – 5130ER-007-01_144
      - Right Wheel – 5130ER-006-01_144

- Unchanged from 7.2b:
  - Furio Firmware – Artimo free-roaming pedestal
    - Artimo dolly board firmware 0.17
    - Artimo axis configuration:
      - Tilt – 5130ER-004-01_142
      - Lift – 5130ER-005-01_141
- Unchanged from 7.0b:
  - Furio Firmware
    - Furio-phy-7.0.200.04
      - Runs on phyCORE-equipped VR600, VR100, and X-series heads
    - Furio-i686-7.0.200.04
      - Runs on CamBot XY pedestals having Furio OS
      - Upgrading CamBot OS to Furio OS requires a flash card replacement

        - Latest Furio OS is version 20210505-1 for Gen2 bricks, and 20211016-1 for Gen3 bricks.
    - CamBot Firmware
        - 3.4.300.3105 for 520PT and 600PT/600PTL heads
        - 3.7.200.3112 for XY pedestals
    - Joystick Firmware 4.6.100.7375
    - Collision Avoidance Firmware 1.2.70 (Tested on Collision Avoidance Module 5100AR-750-02)

- SmartShell & Servers – tested with SmartShell Release 7.3a:
    - SmartShell 7.3.100.09
    - Robotics Server 7.0.100.8410 & Integrated Server 7.0.100.8410
        - Requires Visual C++ Redistributable Packages for Visual Studio 2017 (32-bit)
        - Requires .NET Framework 4.5.2
    - SmartShell CX Panel Adapter 1.0.0-2025.04.08-14.04
        - for CX-Panel users
    - Bridge Server 7.0.100.8410

BUGS ADDRESSED

Artimo

- This release has added improvements to the stability of the lidar-based localization as well as tuning of the control loops that have together contributed to significant improvements in move accuracy and fixes to several associated issues:
    - Move runs were failing to reach the desired end position, with XY position error greater than 30mm and pan error greater than 1 degree. Improvements to localization and tuning of the control loops mean that moves are now reaching their desired XY position within the expected tolerance of 20mm. Pan accuracy is improved, but is still outside of the stated tolerance and will be addressed in follow-up releases. (RSW-52, RSW-146, RSW-77)
    - Multiple cues were often required to cue a move successfully, sometimes up to five cues. In most cases, moves are now ready to run after a single cue, and at worst require a second cue to correct a pan error. (RSW-53)
    - Looped moves would fail after a few cycles due to failure to return to the correct XY and pan start position at the end of the move. Improvements in move and cueing accuracy mean that looped moves can now be run successfully. (RSW-149)
    - Poor quality lidar scans were impacting mapping and localization accuracy. This has been improved by using averaging to ensure that lidar scans used during mapping and targeting are more stable. (RSW-65)
    - Fast pan rotation could cause localization to lose lock, resulting in a requirement to retarget the robot. Corrections to the localization algorithm

now mean that accurate position monitoring is maintained even during fast pan rotation (RSW-159)

- Failure to properly compensate for the motion of the robot when using the lidar data for blur compensation was causing errors in the reported position of the robot during motion, which resulted in moves failing to reach their target position. (RSW-102)
- Failure to consider the delay in the pan and XY traction motors was contributing to failure to correct for discrepancies between the desired and actual trajectory of the robot (RSW-101).
- Use of desired rather than actual velocity when compensating for robot motion during localization was causing problems when the robot approached a limit where its velocity was reduced – resulting in large position errors and a requirement to retarget the robot (RSW-108)
- Moves were not always reaching the desired position due to the inability of the control loop to correct for drift of the robot position away from the desired trajectory. The gains of the control loop have been tuned so that it can now compensate for drift caused by factors such as small errors in caster alignment (RSW-172)

- SmartShell messaging during targeting failures had not been updated to reflect Artimo-specific workflows and still referenced outdated floor-based targeting. This has been corrected - pop-up messages now display context-appropriate language based on the targeting method in use. Additionally, logging has been enhanced to ensure that every targeting attempt includes a clear result entry. (RSW-76)
- XY move validation failed to check that an XY trajectory's velocity stayed below the pedestal maximum velocity limit. As a result, any move segment that exceeded the maximum velocity limit fell short of its target position. This has now been resolved, and trajectories properly consider the maximum velocity when validating a move. (RSW-147, RSW-97)
- Stopping and re-starting joystick control of XY motion could result in unnecessary caster movement which could cause image shake. This unnecessary caster movement has now been removed (RSW-119)
- A slight image shake was sometimes visible at the start of a curved move run, due to unwanted movement of the casters. Recalculation of the trajectory after the move cue to ensure that the casters are properly aligned for the exact start position of the robot means that shake is no longer seen in the image at move start. (RSW-11)
- Calculation of the time for moves using tension of 100 for "stop and turn" behaviour did not take into account the time required for caster realignment, which resulted in moves falling short of their desired position. Time for caster alignment is now included when the move trajectory is planned (RSW-61, RSW-62)
- Inputting a noisy sync signal could cause unexpected behaviour such as robot failing to respond to joystick control. Monitoring of the external sync signal has been improved, and robot will switch to an internal sync signal if the external sync signal is not stable. Logging has been improved to better understand the source of problems with sync signals. (RSW-106, RSW-107)

- The colors of the motion LEDs at the base of the pedestal were reversed. This has now been corrected so the amber light indicates the direction in which the pedestal is currently moving, and the blue represents the direction that the pedestal is moving away from (RSW-100, ROG-1810)
- Artimo failed to respect a section of circular studio limits or a circular studio boundary when the studio map was created with a marker that had a non-zero rotation. This has now been resolved, and circular obstacles can be safely used regardless of marker orientation. (RSW-60)
- Fixed an issue where the Web UI did not show a reminder to restart the robot when settings had been changed if the user switched to the tally page (RSW-51)

VERSION 7.2b – MAY 2025

WHAT'S NEW

- **Furio Firmware for Artimo XY-50 pedestal**

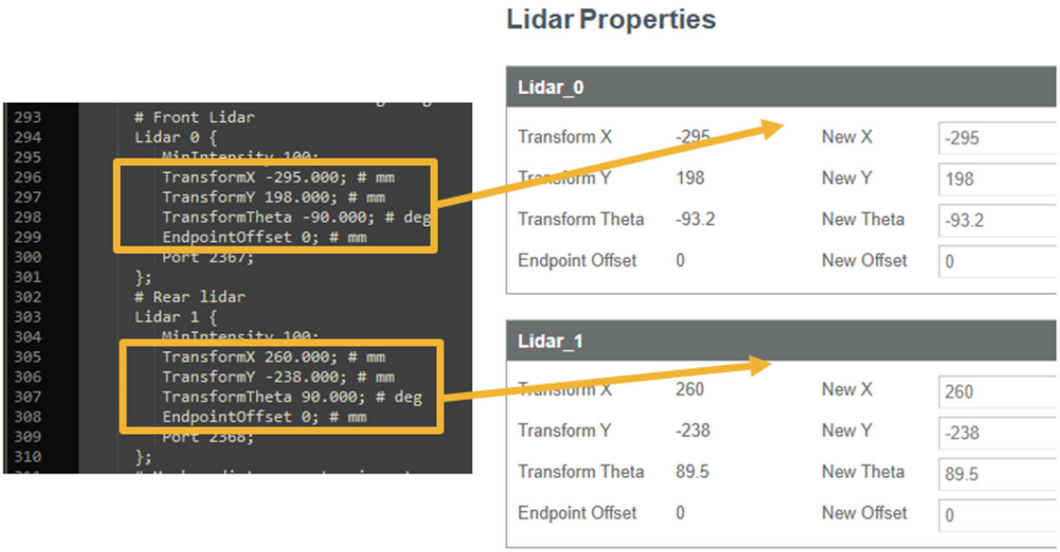
  This release adds support for the Artimo XY-50 free-roaming pedestal. The XY-50 has several key features that distinguish it from the CamBot XY pedestal, including:

  - **Lidar-based localization.** Artimo uses lidar to localise itself within the studio to maintain position accuracy without the need for periodic re-targeting. This removes the need for the permanently mounted floor target that is required by CamBot XY.
  - **Actively controlled casters** eliminate the uncontrolled caster swivel that occurs with passive casters when the pedestal changes direction. When a passive caster swivels, it imparts a small rotation impulse to the payload it supports. Active casters provide better image stability.
  - **Suspension** for dampening of vibrations caused by floor imperfections.
  - **Pan stage at base of lift allows rapid rotation of base.** With the visible base rotation linked to pan, Artimo is best steered using pan relative steering. Note that unlike other Furio robots, Artimo pan limits are relative to the floor.
  - **Tally Lamp and Lamp Brightness Control** – Artimo offers a two-color tally 'lamp', red for on-air, and green for preview. The intensity of both these lamps is configurable through the Furio web interface.
  - **Motion LEDs and Brightness Control** – Artimo dolly is equipped with forward and rearward motion LEDs. Forward movement direction is indicated by an amber color, while the trailing end of the dolly is lit in blue. The intensity of each color is configurable through the Furio web interface.
  - **Unique Default Credentials** – Later this year, Artimo pedestals will ship with unique default credentials (UDC) for the Linux root account. The default factory-programmed password will be printed on the 5130AR-012-xx serial number label. Should a user change this password, booting the robot with DIP switch #3 set to ON will reset the root password to the factory-programmed UDC.

UPGRADE CONSIDERATIONS

- **Manual Transfer of Calibration Values**

  When upgrading from pre-release versions of 7.2 (excluding 7.2.200.02), users must manually transfer lidar calibration values from the Artimo_conf.tmpl template file to the new Factory Settings page.



- **Recalibration Recommended**

  For all upgrades from pre-release versions of 7.2, it is strongly recommended to recalibrate the lidars using the Lidar Calibration Tool, followed by studio remapping. The tool automatically optimizes the Transform Theta values for both Lidar 0 and Lidar 1, resulting in improved preset and move recall accuracy.

LOAD LINEUP

- New in this release:
  - Furio Firmware – Artimo free-roaming pedestal
    - Furio-arm64-7.2.200.04
      - Runs on Artimo free-roaming pedestal only.
    - Artimo OS 1.00
    - Artimo dolly board firmware 0.17
    - Artimo axis configuration:
      - Pan – 5130ER-003-01_142
      - Tilt – 5130ER-004-01_142
      - Left Wheel – 5130ER-007-01_143
      - Right Wheel – 5130ER-006-01_143
      - Lift – 5130ER-005-01_141

- Unchanged from 7.0b:
    - Furio Firmware
        - Furio-phy-7.0.200.04
            - Runs on phyCORE-equipped VR600, VR100, and X-series heads
        - Furio-i686-7.0.200.04
            - Runs on CamBot XY pedestals having Furio OS
            - Upgrading CamBot OS to Furio OS requires a flash card replacement
        - Latest Furio OS is version 20210505-1 for Gen2 bricks, and 20211016-1 for Gen3 bricks.
    - CamBot Firmware
        - 3.4.300.3105 for 520PT and 600PT/600PTL heads
        - 3.7.200.3112 for XY pedestals
    - Joystick Firmware 4.6.100.7375
    - Collision Avoidance Firmware 1.2.70 (Tested on Collision Avoidance Module 5100AR-750-02)

- SmartShell & Servers – tested with SmartShell Release 7.3a:
    - SmartShell 7.3.100.09
    - Robotics Server 7.0.100.8410 & Integrated Server 7.0.100.8410
        - Requires Visual C++ Redistributable Packages for Visual Studio 2017 (32-bit)
        - Requires .NET Framework 4.5.2
    - SmartShell CX Panel Adapter 1.0.0-2025.04.08-14.04
        - for CX-Panel users
    - Bridge Server 7.0.100.8410

BUGS ADDRESSED

Artimo bugs resolved from pre-release versions of 7.2:

- Artimo pedestals were experiencing intermittent disconnections, with varying symptoms such as SmartShell failing to reconnect after a lost connection and complete loss of network ping. The root cause was traced to incorrect RAM timing settings in the Linux kernel, which caused the hardware to operate at unstable margins. The issue was resolved by correcting the RAM timing configuration. Additionally, the investigation led to improvements in the Furio process's memory management, enhancing overall system stability. (ROG-1574)
- During XY axis operation, the wheel amplifiers would occasionally report errors such as tracking errors and overcurrent, which in turn triggered SmartShell disconnection events. The issue was resolved by retuning the wheel amplifiers. (ROG-1746)
- Rapid reversal of direction when controlling the tilt axis with a joystick could result in crossing of the tilt limits and consequently the tilt axis hitting the mechanical end-stops and becoming disabled, requiring a reboot of the pedestal to recover. (ROG-1797)

- XY movement of the pedestal with the joystick could result in up to 5-second delay as the base first rotated into position before forward motion started. This has been resolved by using a J-shaped trajectory where forward motion starts before rotation of the base is complete. This J-curve can result in a sideways movement of up to 90 mm before Artimo starts to move in the desired direction. (ROG-1575)
- Fixed an issue where lens control would not work from SmartShell after a power cycle or reboot. The issue was observed with a Fujinon HA18x7.6BERD-S6B lens. The timing of the digital lens detection routine was modified to better conform to timing requirements of Fujinon lenses. (ROG-1558)
- After recalling a preset, controlling Artimo pan, lift, or tilt with a joystick further towards a limit would result in crossing the axis limits. Axis limits are now being respected. (ROG-1509, ROG-1361)
- Recalling presets and moves could result in a large position error from the stored position. This has been significantly improved through changes to pedestal calibration, map creation, and continuous fitting to the map. (ROG-1512, ROG-1778)
- It was not possible to turn off the tally light. This feature is now available through the web interface. (ROG-1715)
- The mapping process has been improved to provide better instructions to operators and clearer feedback about progress (ROG-1652, ROG-1704)

CamBot XY bugs fixed for Artimo

- It was not possible to set persistent and temporary pan limits on CamBot XY pedestals. Setting pan limits is supported on Artimo pedestals, where pan limits are set relative to the floor, but is still not possible for CamBot XY pedestals.

Separation of Release Notes for Robotics Firmware and SmartShell

This release marks a split in the SmartShell Release Notes. The development cycle for SmartShell and the Robotics Server has been split from the development cycle for the software running on the robotics platforms, so releases will be reported independently:

- SmartShell release notes will continue to report changes to SmartShell and the software running on the Robotics Server, Integrated Server, Bridge Server and SmartShell CX Panel Adapter applications
- Robotics Firmware release notes will report changes to the software running on all Ross robotics platforms, including Artimo, Furios, CamBots, legacy Furio joystick, and CAN-based Collision Avoidance.

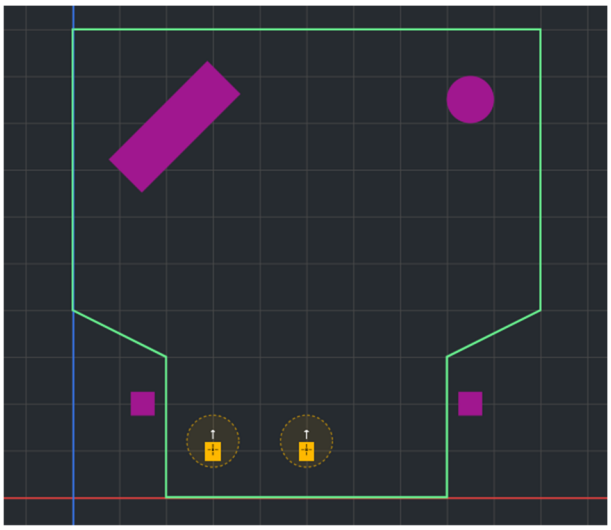
Both sets of release notes will report the full suite of software versions against which they were tested.

VERSION 7.0b – JUNE 2024

WHAT'S NEW

- **Furio Firmware**

  Studio Limits for XY axis – Studio limits define an area of operation for XY pedestals which no part of the pedestal may cross. Fixed obstacles can also be defined. The shape of the area of operation and of the obstacles can be a polygon of arbitrary shape, a rectangle, or a circle.



  Studio limits are created in a separate tool, Studio Creator. A 'studiocfg' file is exported from Studio Creator and loaded onto a robot through the new Studio Tab in the Furio web interface.

  Various messaging in SmartShell and the Furio web interface warn operators if the pedestal is beyond limits. A pedestal could find itself beyond limits after loading a studio map, or returning from local control, in which case the primary indicator can be seen in SmartShell:

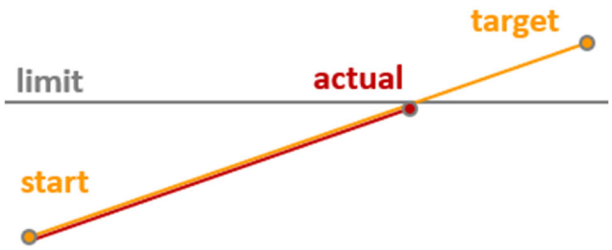


  When beyond limits, the XY axis can only be operated by the joystick and movement is permitted only towards the closest edge of the operating zone, within a range of 90 degrees in either direction.

  - **Barcode Positioning Sensor for Track position** – Support added for a new type of track position sensor that relies on barcode tape affixed to the rail

instead of a wiredraw cable. Presets and moves are maintained when upgrading from the wiredraw sensor type to the new barcode sensor type.

- **Ethernet Collision Avoidance** – Collision Avoidance data is now exchanged over the Ethernet network, rather than CAN bus. This removes the limitations of number of dollies and track length imposed by the CAN-based collision avoidance system.
- **Change to XY limit behaviour** – The following diagram illustrates the pedestal behavior in the case of a preset or move to a target position that is beyond a limit. The XY axis now stops at the first limit encountered. Joystick operation is unchanged; the XY axis also stops at the limit.



Previously, for presets and moves the XY trajectory was altered to follow the limit.

- **SmartShell**
  - **Station Name in title bar** – If configured, the Station Name is displayed in the SmartShell window title bar.

LOAD LINEUP

- SmartShell 7.0.100.8411
- Robotics Server 7.0.100.8410 & Integrated Server 7.0.100.8410
  - Requires Visual C++ Redistributable Packages for Visual Studio 2017 (32-bit)
- Furio Firmware
  - Furio-phy-7.0.200.04
    - Runs on phyCORE-equipped VR600, VR100, and X-series heads
  - Furio-i686-7.0.200.04
    - Runs on CamBot XY pedestals having Furio OS
    - Upgrading CamBot OS to Furio OS requires a flash card replacement
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- CamBot Firmware
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- Vinten Legacy Protocol Converter Firmware 1.3.100.2671

- Collision Avoidance Firmware 1.2.70 (Tested on Collision Avoidance Module 5100AR-750-02)

BUGS ADDRESSED

FURIO FIRMWARE – XY PEDESTALS

- Difficulties could occur when trying to exit local control mode while the ped was in motion. Switching out of local control mode would result in the ped continuing to move, but no longer responding to control from either the local control joystick or the SmartShell joystick. Corrected a logic error such that any input from the local control box is canceled when switching to remote mode. (ROB-5289)
- When entering local control mode, the operator had to wait two seconds for the local stick to calibrate. Touching the stick during the calibration period would result in the pedestal moving when the local control stick was released to its rest position. To reduce the window of opportunity of this problem, calibration only occurs the first time Furio reads data from the local control box, either on first switch from remote to local mode, or on boot if the local control box is set to local mode.. The previous behaviour can be restored by configuring parameter CalibrationOnce to false in Furio template under LocalControlOptions:

  ```
  CalibrationOnce { Value FALSE; };
  ```

  (ROB-2661)
- In a looped move, pan would rotate to bizarre angle during start of second loop (third sequence). Corrected a logic error and the move loops correctly once more. (ROB-5752)
- Pedestal stopped short of the X or Y limit, by as much as 50 cm. This occurred under joystick control, typically when approaching the limit at high speeds. The new Studio Limits implementation has fixed this issue. (ROB-3915)
- XY limits could be exceeded while operating in tank mode. The new Studio Limits implementation has fixed this issue. (ROB-4018)

FURIO FIRMWARE

- Joystick control parameters on Track, Pan, and Tilt have been adjusted to offer smoother starts and stops. (ROB-5120)
- Re-enabling the track axis after a track safety error required five or more attempts, or a reboot, before the axis would stay enabled. Corrected an initialization error in the track Safety feature and now the track axis enables on first try. (ROB-4180)
- Accessing the web interface with a motor missing or missing a Collision Avoidance node would crash the Furio application. Corrected a logic error and the web interface correctly reports the inoperative motor. (ROB-5509)

SMARTSHELL

- Unable to control Furio from joystick panel of SmartShell 2 after SmartShell 1 had disconnected. SmartShell 2, connecting after SmartShell 1 had disconnected from the Furio, would receive the same session ID from Furio. Joystick control from the joystick panel would not work for SmartShell 2 if the timestamp of the second joystick panel was older than the timestamp of the first joystick panel, causing Furio to reject joystick input for that recycled session ID as out of sequence. Corrected the issue by ensuring session IDs are no longer recycled but assigned sequentially starting from one.

  However, this discovery highlighted a session ID handling flaw in all SmartShell versions prior to version 7.0a. The flaw has been corrected but relies on Furios to have unique serial numbers.
  Upgrade consideration: To avoid problems such as ghost events, ghost presets, or the reappearance of this loss of joystick bug, ensure all Furio devices have unique serial numbers as seen in the Furio web interface main page. (ROB-5960) (ROB-4251)
- When Confirm Control Takeover option was disabled, the confirmation popup still appeared. Corrected logic error and now the option behaves as expected. (ROB-5961)
- Camera selection buttons would alternate between camera name and an amber WARNING label whenever a warning-level notification was logged. Notifications are still logged, but the cameras selection buttons only flash on ERROR now. (ROB-5546)

CAMBOT FIRMWARE

- When entering local control mode, the operator had to wait two seconds for the local stick to calibrate. Touching the stick during the calibration period would result in the pedestal moving when the local control stick was released to its rest position. To reduce the window of opportunity of this problem, calibration only occurs the first time CamBot reads data from the local control box, either on first switch from remote to local mode, or on boot if the local control box is set to local mode. The previous behaviour can be restored by setting config.dat parameter:

  CalibrateOnceForLocalCtrl 0

  (ROB-2661)

KNOWN ISSUES

This section outlines known issues in the latest release. Issues related to SmartShell and the Robotics Server are no longer reported in these release notes – see SmartShell Release Notes.

FURIO FIRMWARE – ARTIMO

- [New]Small misalignment of the casters can result in the robot accumulating some rotational drift, which is not currently compensated for by the error correction. This can result in a pan offset of approximately 0.5 degrees over a typical move. This issue can be minimized by ensuring that casters are properly aligned. (RSW-209)
- [New]Creating a move with keyframes early in the move which are close together in time can result in a 180 degree rotation of the base when the move is run. (RSW-184)
- [New]Loading a new localization map that covers a smaller area than the original map loaded onto an Artimo pedestal can result in the edge of the original map remaining in place around the newly loaded map. Rebooting the robot will resolve this issue and result in a clean load of the new map. (RSW-151)
- Changing the damping level via the slider in SmartShell for the pan, tilt and zoom axes has limited impact on motion. (RSW-38)
- Targeting of the robot can fail when it is positioned close to a non-mapped object such as another robot. Before targeting, or if a targeting failure occurs, ensure that the robot is at least 2m away from walls or other robots and the front and back lidars are not obstructed by close objects so that the robot can 'see' a large portion of the fixed environment. (RSW-12)
- A noticeable image shake can occur at the end of lift homing. (ROG-1353)
- If ESTOP is activated during a preset or move that includes XY motion, upon release of the ESTOP button the XY axis will move forward by up to 30cm. To avoid this movement, turn power off before releasing the ESTOP. (RSW-84)
- Stopping mapping may occasionally fail, leaving the robot in one of several possible inconsistent states, for example where the web interface continuously redirects to "Device is in Mapping Mode" while simultaneously reporting that the robot is not in mapping mode. Workaround: First navigate to the "Status & Logging" page of the Furio web interface, then back to the Localization page. If this doesn't resolve the issue, then to preserve the mapping effort, create a backup, power cycle the robot, and reload the localization map from the backup via the Localization page. (ROG-1729)
- The touchscreen does not yet support a jog function. A controller such as SmartShell must be used to move the robot. (ROG-1567)
- The tracking data output from the Artimo XY-50 does not encode column sway or suspension effects, which may contribute up to +/-1 degree of lean of the column, resulting in up to 35m error in the reported XY position of the virtual camera and up to +/-1 degree of error in the reported Tilt and Roll angles of the camera. (ROG-1568)

- Analog lenses are not yet supported for the Artimo XY-50. (ROG-1350)
- Time Dilation has no effect when used with an Artimo pedestal. (ROB-4059)
- See the CamBot XY Pedestals section below for other issues that may affect Artimo XY-50 pedestals.

FURIO FIRMWARE – CAMBOT XY PEDESTALS

- CamBot XY pedestals running Furio firmware fails to respect a section of circular studio limits or a circular studio boundary when the studio map is created with a target that is rotated relative to the studio orientation. Avoid using circular obstacles or boundaries when the target is rotated in the studio map. [RSW-83]
- When a move is invalid because the allotted time is insufficient for the XY axis to reach a keyframe, clicking on VERIFY and then ADJUST produces the error message "unknown error between keyframes <A> and <B>". As a workaround, manually increase the time between offending keyframes until the move validates successfully. (ROB-6111)
- Rotation of the pedestal XY base may cause a change in pan. A pedestal rotation of equal magnitude in the opposite direction erases the change in pan. (ROB-5316)
- Pedestal alignment commanded by Forward/Back or Left/Right buttons fails with the notification "The XY axis failed to reach its target position" when the resulting pedestal rotation would place the pan axis within less than 20 degrees of the absolute pan limits. As a workaround, prior to commanding a pedestal alignment, position the pan such that it will be more than 20 degrees away from the absolute pan limit after the alignment. (ROB-5746)
- Pedestal cues in the wrong direction, causing XY moves to fail at run time with the move validation error message that the pedestal turn limit would be exceeded. The issue appears to be that the pedestal chooses to cue in the shortest direction at the expense of selecting the one direction (forward vs reverse) that would allow the move run to succeed. (ROB-5750)
- Time Dilation has no effect when used with an XY pedestal. (ROB-4059)
- When manually moving the pedestal in tank mode, it is common practice to push both joysticks fully in opposite directions to rotate the pedestal in place. The direction of rotation is opposite of what you might expect based on the normal action of the joysticks. As you begin to release one or both joysticks, the rotation will slow and the direction of rotation will reverse. You can release both joysticks to stop the motion, and then drive the pedestal as required. (ROB-2520)

FURIO FIRMWARE

- When recalling a preset or move on a Furio head, the system must first stop movement of all axes to calculate the trajectory. In cases where the head is under active joystick control directly or through an automated system such as Vision[Ai]ry Ft, the head may fail to stop in the required time and the shot recall will fail with a MOVETIMEDOUT error. In addition, the wait time of up to 4s for the head to become stationary may cause controllers connected to the head to declare a timeout and disconnect from the head. This behavior, which also impacts CamBot heads, is

intentional, but can have detrimental effects on other systems such as Vision[Ai]ry Ft. It will be reviewed in future releases. (ROB-4804)

- Disabling the track axis while the Furio dolly is in motion results in a hard stop of the dolly, which could result in it becoming unstable and tipping over. it is generally recommended to not expose the controls to disable axes within the SmartShell UI**. If they are enabled, operators should be warned to never disable the track axis while the dolly is in motion**. (ROB-4858)
- LimitBar does not display collision avoidance limits correctly when a temporary limit is set in the same direction. The temporary limit is displayed by the limit bar even though the collision avoidance limit is closer to the dolly. The actual motion limiting behaves correctly.
  Example:



  The dolly is at -2000mm, and the other dolly is at -213mm, with a 1600mm clearance.
  The left figure shows the expected behavior for a temporary high limit set at 169mm. The right figure shows the actual behavior. (ROB-3694)
- Move Cue on any keyframe cues to first keyframe. In firmware versions prior to 5.0, a move could be cued to any keyframe using the CUE button located immediately below the keyframe list. (ROB-2056)
- VR600 Pan/Tilt axes may vibrate when slaved into limits. (ROB-2195)
- Driving the lift into upper or lower limit switches at high speeds via joystick slaving may cause the lift to bounce and oscillate until it is moved away from the limit switch. Setting persistent lift limits avoids the issue. (ROB-1958)
- Tracking destinations can be flagged as Multicast destinations, which allows the default Multicast TTL value of 1 to be overridden. Customer reports suggest enabling this feature impacts motion control performance. (ROB-2437)
- After disabling and reenabling an axis, the temporary limits of that axis appear to be reset to the persistent limits, but actual motion remains limited to the temporary limits. This problem is observed on Zoom, Focus, VR100 Pan, and VR100 tilt axes. To workaround the problem, drive the affected axis to the highest position and toggle the high temporary limit twice; once to clear it, and once to set it anew. Repeat for the low limit. (ROB-2163)
- When upgrading from 4.x firmware, a slight increase to preset and move minimum run times is occasionally required. For example, to validate a move, the move duration had to be increased from 10.0s to 10.2s. (ROB-1961)
- Lift periodically drops several millimeters after being driven into upper or lower limit switches. Setting persistent lift limits works around the problem. (ROB-2156)
- Pulling on the track/lift wiredraws such that the axis crosses a limit switch can result in the axis rejecting subsequent preset/move recall commands. To resolve the problem when it occurs, reboot the robot. (ROB-2095)

- Last Recalled Preset – Applying time dilation to a move or preset recall prevents the preset/move button from displaying a blue outline once the motion completes. (ROB-2077)
- A tracking destination IP address located in unreachable network causes motion stutter. This error appears in the logs as "<Error> Net Exception: Network is unreachable." The workaround is to disable or remove the unreachable IP address from the Furio's Tracking page. Note that unreachable tracking destinations on the same network do not cause motion stutter. (ROB-1856)
- Using time dilation to shorten recall duration can cause loss of axis synchronization if one or more axes reach their velocity limits and further time contraction is applied. Because time dilation can speed up a move by only a factor of 2, this problem can only affect recalls that are executed with a duration that is less than twice the minimum recall duration. (ROB-2365)

CAMBOT FIRMWARE

- When recalling a preset or move on a CamBot head, the system must first stop movement of all axes to calculate the trajectory. In cases where the head is under active joystick control directly or through an automated system such as Vision[Ai]ry Ft, the head may fail to stop in the required time and the shot recall will fail with a BUSY error. This behavior, which also impacts Furio heads, is intentional, but can have detrimental effects on other systems such as Vision[Ai]ry Ft. It will be reviewed in future releases. (ROB-4804)
- Using time dilation to make rapid increases or decreases in run time during a recall of a preset on a CamBot can trigger a servo error and cause the head to stop responding. If this happens, a reboot of the CamBot is required to recover control. (ROB-2269)
- If an XY pedestal is driven under joystick control into an XY limit and comes to a stop past the XY limit, in this state it is possible for an Align Pedestal Wheels operation to cause linear movement of the dolly prior to the expected rotational movement. The resulting linear movement can move the XY pedestal several inches further past the limit. (ROB-1874)

GETTING HELP

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel.

During business hours (Eastern time), technical support personnel are available by telephone any time. Emergency after hours calls are answered by an answering service (live person) who will patch your call to the on-call support specialist. In the event that the on-call person is assisting another customer, the answering service will contact the back-up support specialist.

Our team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

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