

HP SitePrint

High Accuracy Mode



Best practices:

This guide outlines best practices for HP SitePrint users when using High Accuracy Mode (HAM). Following these guidelines ensures optimal performance and precision in layout tasks, minimizing the risk of errors during setup and operation.

1. Robot Setup and Maintenance

- **Purge and Clean Daily:** Clean the printhead at the end of each day using lint-free wipes with ethanol.
- **Check Nozzle Health:** Perform a daily nozzle health check, ensuring nozzle 17 is operational and all others are enabled.
- **Recover Nozzles If Needed:** Conduct nozzle recovery to optimize the printhead's condition.
- **Clean the Robot:** Regularly maintain the robot, including its wheels, to prevent tilting.
- **Perform Pre-Operation Calibration:** Carry out a fine-tune calibration of the robot to ensure optimal accuracy. Please contact your HP representative for additional information.

2. Robotic Total Station Setup and Maintenance

- **Select Accurate Equipment:** Use an RTS with an angular accuracy of 1 second or better. Recommended only with Trimble S9, Leica TS16/60 & Topcon GT.
- **Calibrate Regularly:** Follow the manufacturer's calibration recommendations, ideally once a year on-site.
- **Adjust After Transport:** If the RTS has been moved or subjected to significant impacts (e.g., shipping or bumpy car rides), use the "Check and Adjust" application for internal adjustment.
- **Use a Stable Tripod:** Opt for a heavy-duty wooden tripod rather than a metallic one.
- **Minimize Vibrations:** Secure tripod legs with a spider clamp to prevent movement.
- **Maintain Equipment:** Keep the RTS, tripod, and prism clean and in good working order.

3. Prism Selection

- **Preferred Prisms:** Use the HP SitePrint Spherical prism or the HP SitePrint 360 mini prism.

4. Setup Process

- **Prefer Resection Method:** Use resection instead of orientation to a line.
- **Ensure Accurate Control Points:** Use a professionally measured and adjusted control point network.
- **Use Fixed Targets:** Always use fixed prisms or targets instead of pole-mounted ones.

- **Verify Settings:** Select the correct prism or target in the RTS control panel to avoid constant-related errors.
- **Shoot Multiple Points:** Target more than three control points visible from the RTS station.
- **Target Perpendicular Points:** Ensure control points are at a perpendicular angle to the RTS. Avoid angles less than 30 degrees.
- **Locate Control Points Strategically:** Ensure control points are further than the layout distance.
- **Check Residuals:** Check that the errors/residuals of the resection are within tolerance and discard the observations to the control points that exceed it.
- **Maintain Consistency:** Use the same control points across all setups whenever possible.
- **Distribute Points Evenly:** Ensure control points are spread across all four quadrants of the layout and ideally encompass the printed area.

5. Robot Operation

- **Ensure Line-of-Sight Visibility:** Print only in areas with direct RTS visibility and restrict access to prevent obstructions.
- **Monitor Leveling Frequently:** Adjust the RTS leveling at least hourly, especially in extreme temperature or humidity conditions that could affect the tripod.
- **Verify Job Accuracy:** After completing a job, measure a control point using the RTS to compare theoretical and actual positions.
- **Validate Setups:** When initiating a new setup, verify it by comparing previously printed elements (e.g., points or lines) against the new setup.

6. Expected behavior:

When using High Accuracy Mode, accuracy is prioritized, which may occasionally affect productivity. The following behavior can be expected when using HAM:

- Accuracy requirements for the starting point position are tighter, potentially leading to more retries when printing a specific element.
- More frequent robot calibrations.
- Increased distance for approximating the initial point of a printing element.

How to activate HAM in the User Interface:

Go to the Map in the User Interface, then click on below icon and select: "Accurate". If you want to revert to the previous mode, select "Optimized". Options:

- **Absolute accuracy** is the default Accurate mode. What HP recommends using in most cases as it yields excellent results without a significant performance penalty.
- **Optimize point alignment**, is an extra feature on top of Accurate mode. It prints all points in the same direction. This is useful when relative point accuracy is important, for instance when installing a fixture with multiple holes. It removes the effect of any systematic residual errors since they will all occur in the same direction. However, it is considerably slower. Please use it only if really needed.

Print settings

Print mode

Optimized

Accurate

Accurate mode

Absolute accuracy

Optimize point alignment

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