Technical white paper

HP Print Quality Diagnostics

An HP System Health App

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Introduction

The **HP Print Quality (PQ) Diagnostics** app within the System Health Apps is designed to resolve print quality issues for transactional HP Enterprise MFPs.

This industry-leading, cloud-based diagnostic tool enhances device uptime and improves support experiences by leveraging advanced cloud algorithms to provide actionable insights.

To enable this application, the System Health Apps must be activated on the device by the end user during installation, first-time use workflow, or through the Web Services configuration process.



HP Print Quality (PQ) Diagnostics supports transactional workflows and is compatible with Enterprise HP FutureSmart MFPs.

The app provides diagnostic insights and recommended actions by printing 2 test pages with QR codes, which are then scanned to HP's cloud for analysis. Machine learning algorithms perform a root cause analysis using diagnostic information and mapping the results to specific remediation steps. These steps are available to onsite technicians, support agents, or end customers.

In the customer support agent workflow, the scanned images and necessary information to resolve the print quality issue are accessible through HP cloud support systems using the Quick View feature. For onsite users or technicians, scanning the QR code with a phone or tablet provides detailed information about the recommended actions and how to perform the resolution steps. Additionally, this information can be printed as a report.

Given that print quality issues are among the top drivers for service visits, the **HP Print Quality (PQ) Diagnostics** app streamlines diagnostic workflows for both customer service and onsite solutions. The enhanced workflow ensures quick availability of image defect data, reducing return visits by providing real-time root cause analysis of PQ defects from the field.

Key Benefits

HP Print Quality (PQ) Diagnostics provides simple connectivity of qualifying devices to HP cloud services, by enabling the effortless transmission of print quality issues to simplify and accelerate issue identification and resolution in real-time.

Extending System Health Apps to include print quality issues improves the customer support experience while reducing downtime through immediate root cause analysis and resolution steps.

Other benefits include the following:

- **Improved Device Uptime**: By providing detailed diagnostics and remediation steps, the app helps to quickly identify and resolve print quality issues, reducing downtime.
- **AI-Driven Insights**: The app uses AI and machine learning to analyze test pages, offering precise insights and solutions for various print quality problems.
- **Cloud-Based Analysis**: Test pages are scanned to the cloud for analysis, and diagnostic results are returned via QR code, ensuring efficient and accurate diagnostics.
- **Enhanced Support**: Diagnostic information can be used by HP support to assist in solving print quality issues, streamlining the support process.
- **Mobile Usability**: The scannable QR code improves usability on mobile devices, making it easier for users to access diagnostic information and remediation steps.
- **Reduction in Service Visits**: By providing real-time images of PQ defects and detailed remediation steps, the app aims to reduce the number of return visits needed to resolve issues.

Qualifying Devices

The **HP Print Quality (PQ) Diagnostics** app has the following requirements:

- Device must have System Health Apps enabled directly or via configuration management. See the *Set up and Use Guide* for instructions.
- Devices must have a 4.3" control panel display or larger.
- Devices must have an internet connection to the HP cloud using port 443.
- Devices must be a transactional Enterprise MFP. Click here for a list of supported printers.

Cloud Data Architecture

Machine learning analyzes the data and provides a highly accurate assessment of the root cause analysis along with remediation steps. Support agents are provided with the telemetry data and remediation steps to quickly dispatch support technicians to immediately resolve customer issue.

Data Flow

The illustration in Figure 1 provides the dataflow from the initiation of the **HP Print Quality (PQ) Diagnostics** app to the final issue resolution using HP Support providing the solution.

The illustration in Figure 2 provides a similar dataflow with the customer receiving resolution steps instead of HP Support. The communication flow from the MFP, using the **HP Print Quality (PQ) Diagnostics** app, provides the device telemetry and image defect data to the HP SDS machine learning platform.

Figure 1: *Provides the diagnostic data flow with an in-warrant workflow. The diagram displays the initiation of the* ***HP Print Quality (PQ) Diagnostics*** *app on the control panel to the issue resolution with a technician providing support.*

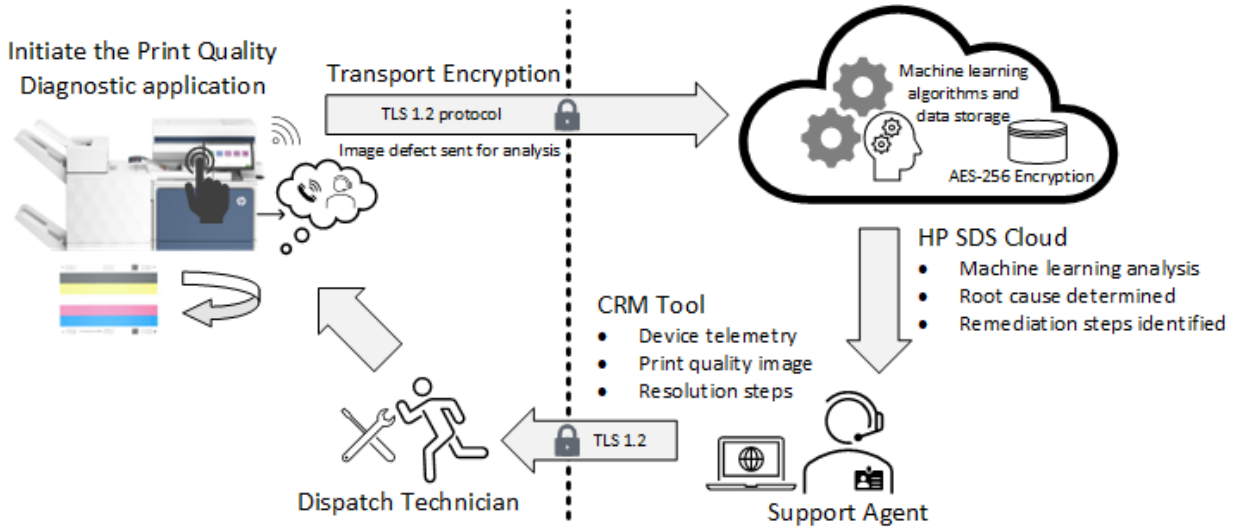
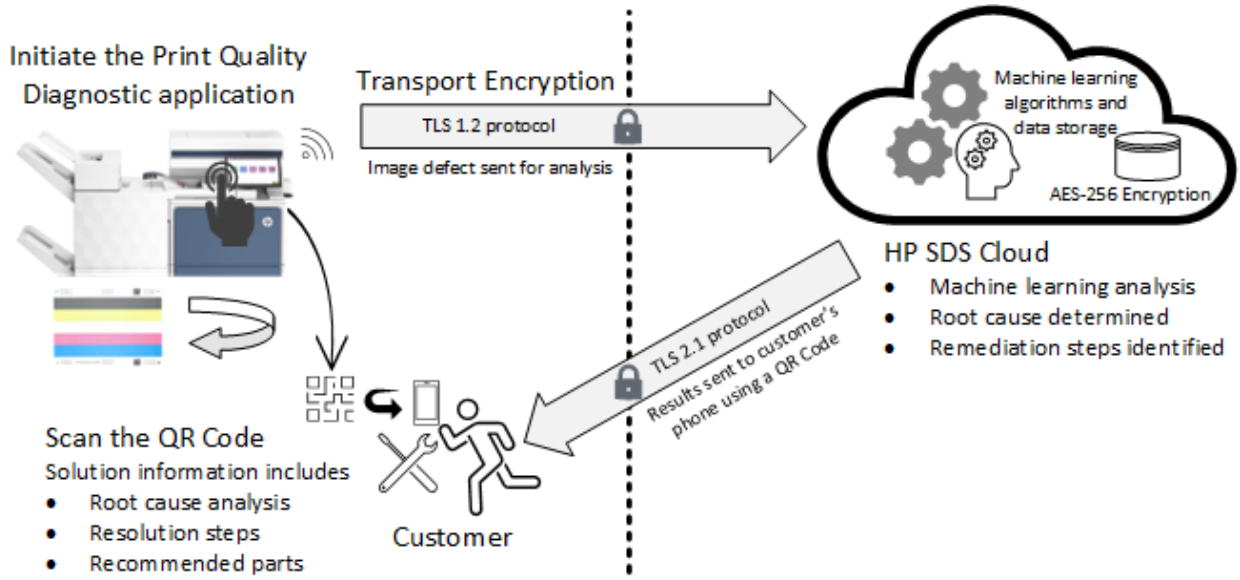


***Figure 2**: Provides the **HP Print Quality (PQ) Diagnostics** data flow with an out-of-warrant workflow. The diagram displays the initiation of the PQ Diagnostics application on the control panel to the issue resolution information provided to the onsite customer.*



Data Security

The security of HP customers' devices, data, and personal information is a top priority for HP.

All data communications on transit between the ***HP Print Quality (PQ) Diagnostics*** app-enabled printers and the HP's Smart Device Services (SDS) platform are secured using a minimum TLS 1.2 channel encryption. Data at rest uses AES-256 encryption. All data gathered by HP is safeguarded per the tenets of the HP Privacy Statement.

HP retains device telemetry data on the HP SDS platform for the purpose of improving SDS machine learning accuracy for up to 10 years after the customer or HP has deactivated the device(s) from System Health Apps & Device Health.

Frequently Asked Questions

Q: Can I use this solution on a Managed Product?

A: No, please use the ***On Device Services*** solutions for Managed Environments.

Q: What is the purpose of the large rectangle with a black outline on some of the diagnostic pages?

A: The area within the rectangle can be used for notes. The area withing the rectangle is not used during the PQ analysis. Please do not write outside the large rectangle with a black outline.

Q: What happens if I put the wrong document into the ADF and hit the scan button?

A: Any unexpected scans will be immediately deleted. If the QR codes cannot be read, then the scans are immediately deleted. The process will need to be started over.

Q: What happens if I put the paper into the ADF upside down and hit the scan button?

A: The pages will feed through the ADF but not be properly scanned. The QR code will not be readable, and the scans are immediately deleted. The process will need to be started over.

Q: What if I take too long to put the pages into the ADF for scanning?

A: The process will time out and need to be restarted.

Q: What if I only put 1 of the 2 diagnostic pages into the ADF?

A: The process will need to start over.

Q: Does it matter which page is on top when the 2 pages are inserted into the ADF?

A: No, either page can be on top.

Q: What if my MFP is out of warrantee?

A: PQ Diagnostics does support out-of-warrantee MFPs. Using PQ Diagnostics, HP will analyze the image defect and provide remediation steps to customers. Once the analysis is complete remediation information will be accessible by scanning the provided QR code on the control panel. A more detailed report can be printed providing step-by-step instructions. Many customers can perform some of the recommended service themselves such as cleaning the scan window or replacing a cartridge.

Q: Can I use this solution on my single function product?

A: No, this solution requires an Automatic Document Feed (ADF).

Q: Do I need to opt in to System Health Apps to use this solution?

A: Yes, this is a requirement. Agreeing to the System Health Apps agreement allows the image defect to be sent directly to HP for analysis.

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