



HP System Health Apps & Device Health - Security White Paper

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Introduction

To enable faster resolution of device issues and simplify the problem diagnosis for customers with printers and MFPs not under a managed print contract, HP has extended its Smart Device Service (SDS) platform to some of its Enterprise and SMB printers.

This whitepaper defines the capabilities of the System Health Apps & Device Health, how they communicate data to HP's cloud, how that data is stored, and how these capabilities leverage the broader SDS ecosystem. The broader SDS security white paper is available upon request.

System Health Apps & Device Health takes the HP Smart Device Services (SDS) platform and extends its functionality into non-managed transactional devices to improve the customer experience when an issue requiring support occurs.

Supported capabilities include remote issue detection, potential remote issue resolution, and device diagnostics visibility for devices not under a managed print services (MPS) contract. For the purposes of this document, the combined capabilities and functionality of this solution is referred to as HP System Health Apps/Device Health.

Key Benefits

System Health Apps provides simple connectivity of qualifying devices to HP cloud services. Additional information on System Health Apps is detailed below and in the FAQ section. Device Health enables the effortless transmission of a printer's event logs to HP Support to simplify and accelerate issue identification and resolution.

Together, System Health Apps & Device Health extend HP Smart Device services benefits by enabling remote device management capabilities such as remote reboot, firmware upgrade, diagnostics, and configuration to enable some issues to be resolved remotely without the need for an on-site service visit. If an on-site visit is required, System Health Apps/Device Health enable the service technician to acquire any needed parts and documentation to resolve the issue in advance of the on-site visit.

This generally leads to faster issue resolution and fewer visits to resolve the issue.

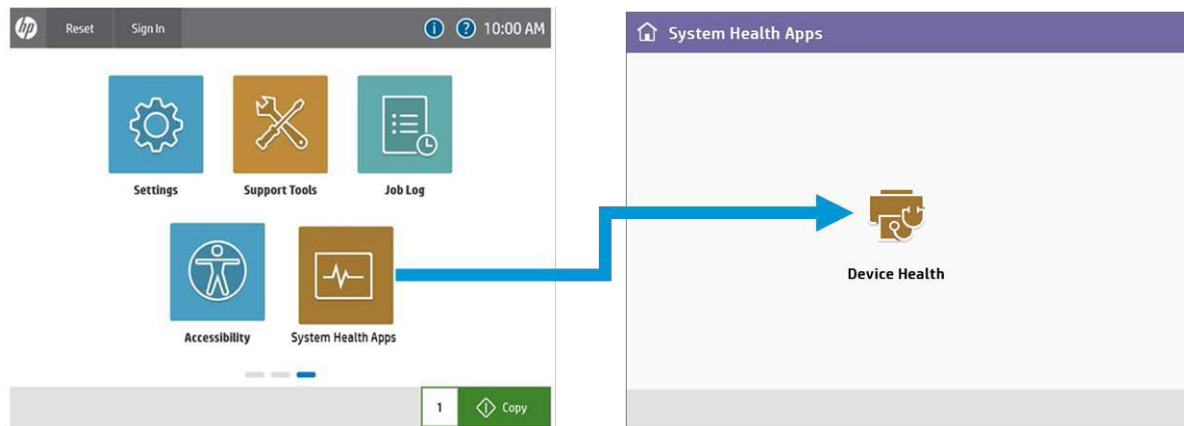


Figure 1: Note: System Health Apps and Device Health icons will not be visible to end users in most enterprise environments. This representation shows their relationship. System Health Apps resides on the device. It is responsible for connecting the device to HP cloud services and exposing available HP cloud-based applications. Device Health is one of these cloud-based applications. In the future, there will be additional applications shown here.

HP System Health Apps/Device Health Components

HP cloud services are applications HP provisions over the internet. Device Health (detailed below) is one of several HP cloud services.

System Health Apps is a new, extensible control panel application included as part of FutureSmart 4.11 firmware (or later). This is an on-device capability that simplifies an IT manager's ability to connect the device to HP cloud services. This capability can be enabled through the out-of-box experience, or at some later time via the control panel, a remote-control panel, or the embedded web server. The associated icon can be hidden from end users and is not a requirement for Device Health. This icon is only enabled on printers with a 4.3" (10.9 cm) or larger touchscreen control panel. It is expected that in most environments, these icons would be hidden from end users.

Device Health is a multi-component solution built on top of the cloud-based HP Smart Device Services (SDS) platform. The solution allows select enterprise class printers and MFPs that are not under a managed print services contract to connect to the HP cloud and pass device telemetry data such as event logs, toner levels and page counts to the SDS platform.

Platform Architecture

Device Health is an HP cloud service that collects telemetry data from printers and passes that data to the HP Smart Device Services platform. That platform is hosted on Amazon Web Services cloud server stacks located in the United States.

The following illustration (Figure 2) shows a common model of how Device Health and HP Smart Device Service communicate with printers.

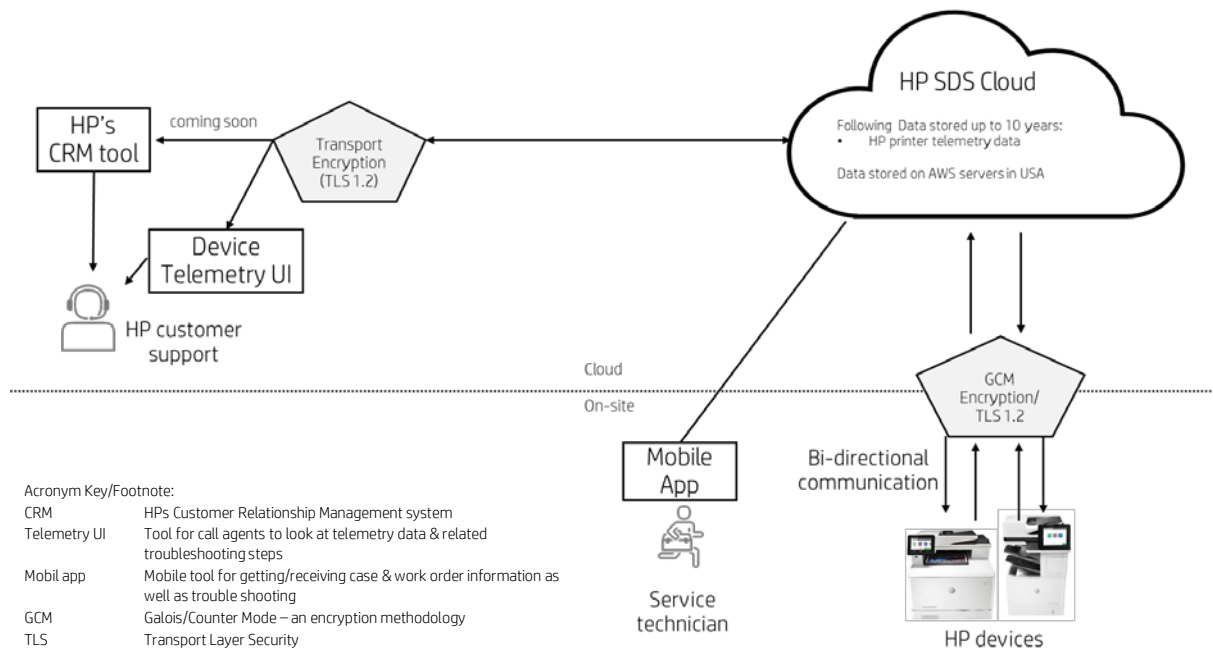


Figure 2: Communication between HP SDS and customer devices via Device Health.

- HP Device Health – an HP cloud service, interacts with the HP Smart Device Service cloud and with printers in a customer environment via secure and encrypted connections.
- The HP SDS Cloud - the secure repository where device telemetry resides.
- Mobile App - a tool HP provides service technicians so that they have visibility to work orders, device telemetry and event logs of the printers & MFPs they've been assigned to service along with simple access to the associated troubleshooting steps.
- The HP Smart Device Services platform infrastructure consists of multiple servers (also known as a stack) that comprise working parts of the overall system. Examples of major components in the working system are load balancers, application servers, HP Smart Device Services platform servers, and database infrastructure.

Data Collection Flow

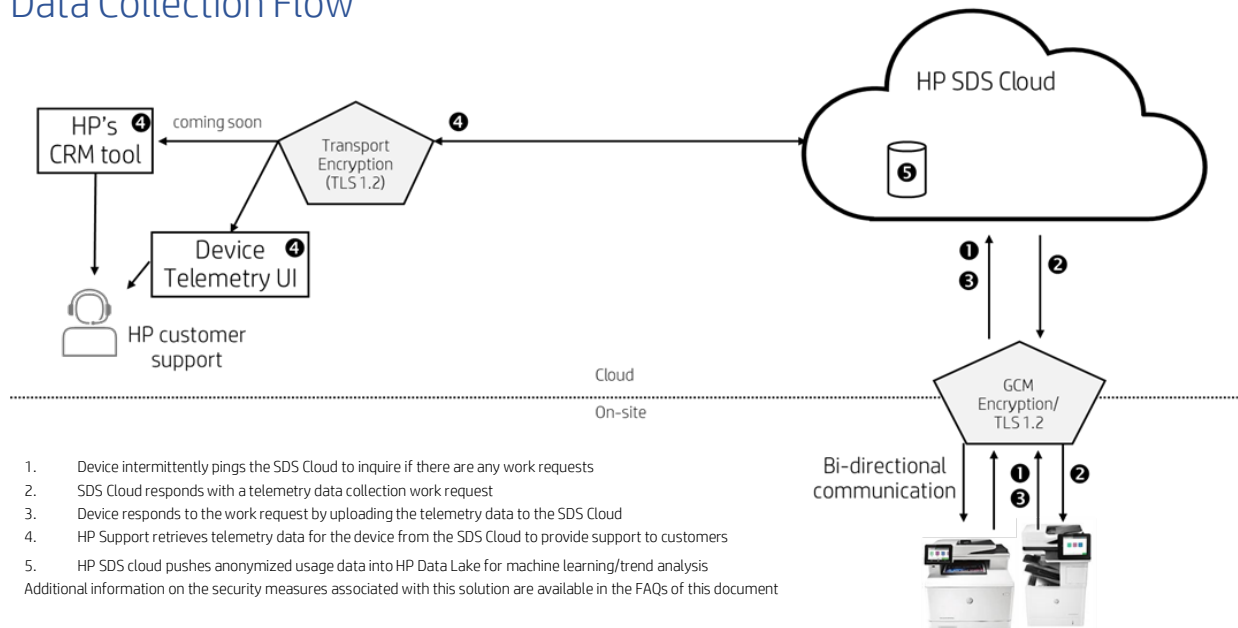


Figure 3: Hp SDS Data Collection

To track device performance, HP Device Health collects telemetry data which includes device information, and software registration. Device data is collected from the printer by the SDS cloud. The Device Health app initiates the data collection and, if exposed, allows the user to track the process. All data gathered is governed by the [HP Privacy Statement](#). HP acknowledges and ensures that the end-user customer is aware of, and consents to, the following data collection parameters which includes:

- Information about devices such as model number, serial number including additional unique device identifiers, network connection information, firmware version, control panel language, date installed, number of pages printed, media used, ink or toner metrics and identifiers, and device configuration.
- Information about solutions that are installed on devices, such as solution name and version.
- Information about device events, such as errors and warnings.

NOTE: None the following items are collected:

- Print job content
- Print job information
- Print job headers
- Job title name
- Sender info, etc.

Data Security

The security of HP customers' devices, data and personal information is a top priority for HP. All communications between the Device Health enabled Printers/MFPs and the HP SDS platform uses secure AES-256 encryption for data at rest. Data in transit is secured using TLS 1.2 channel encryption and GCM secure encryption of the payload. 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.

After device deactivation, customer and device telemetry data is only held in the HP SDS data stores and is not visible outside HP. To ensure the security of device data, HP cloud platform uses secure AES-256 encryption for data at rest.

Qualifying Devices

System Health Apps simplifies the process of connecting the device to HP cloud services. It is a firmware delivered capability. It was released on FutureSmart (firmware) version 4.11. It will be included in all future versions of FutureSmart firmware except for version 5.0.

Because of the necessity of conveying Terms of Use and the HP Privacy Statement – and the need for customers to be able to accept or decline these capabilities, System Health Apps can only be exposed on printers with a touch screen control panel of 4.3” (10.9 cm) or larger.

Device Health 1.0 is enabled via System Health Apps; consequently, it inherits the same firmware and control panel constraints. HP is investigating ways to expand the number of printers and MFPs that could benefit from Device Health by providing an alternative onboarding mechanism that would remove the control panel and firmware constraints while retaining the ability to present the HP Privacy Statement and Terms of Use and enable customers to indicate acceptance.

The additional requirements for both System Health Apps and Device Health are that the printer must be connected to a network with internet connectivity through any firewall with port 443 open. If the network requires a proxy, the onboard process will prompt the user accordingly. By default, both of System Health Apps and Device Health will be turned off and hidden when a printer is configured for a managed print services contract.

Appendix – Frequently Asked Questions

1. Q: What are System Health Apps and Device Health?

A: System Health Apps is a new, extensible control panel application included as part of FutureSmart printers running 4.11 firmware or later. When launched, System Health Apps displays currently provisioned cloud-based diagnostic and troubleshooting applications to the user. As of 2020, System Health Apps is only available on devices with a touch screen control panel of 4.3” (10.9 cm) or larger.

Note: System Health Apps enables access to HP cloud-based solutions such as Device Health. As such, it can only provide benefits to devices that are connected to a network providing access to the internet.

HP Device Health is the diagnostic and troubleshooting tool launching with System Health Apps. It enables the effortless transmission of a printer’s event logs to HP Support to simplify and accelerate issue identification and resolution.

Once System Health Apps has been enabled – either from the control panel or at device set up, Device Health will automatically transmit data periodically without any customer or IT Print manager effort. Together, System Health Apps & Device Health are a simplified extension of the HP Smart Device Service (SDS) capability to non-contractually managed printers.

2. Q: Which policies govern HP Data use and transport?

A: All data gathered by HP is safeguarded per the tenets of the Online [HP Privacy Statement](#) and [Terms of Use](#).

3. Q: Do System Health Apps, Device Health and HP SDS meet the EU’s General Data Protection Regulation (GDPR) requirements?

A: Yes. At HP, we have a strong policy for privacy and data protection and HP is implementing additional controls to ensure that we have established the compliance framework to meet the GDPR requirements. These include controls for managing third parties, enhancing the way we gather individual customer consents and implementing systemic procedures for the way we design our products, services and software. Data is stored in secure servers in the US.

4. Q: Which network endpoints are accessed by the device as part of System Health Apps & Device Health?

A: The device accesses the following endpoints:

https://*.smartcloudprint.com

*.avatar.ext.hp.com -- over either UDP port 9930, https port 443 or http port 80

Note that communications to these endpoints are encrypted/decrypted outside of the transport channel using GCM encryption. Specific URLs are available upon request.

5. Q: Which certificates are used for network communication?

A: HP System Health Apps/Device Health uses certificates signed by DigiCert Inc. to secure and validate communication from the printer to the cloud. Certificate revocation lists located at the following URLs should be made accessible through the network firewall:

<http://crl3.digicert.com/ssca-sha2-g6.crl>
<http://crl4.digicert.com/ssca-sha2-g6.crl>

6. Q: What version of TLS (Transport Level Security) is used by System Health Apps/Device Health
A: This solution utilizes TLS version 1.2 or above end to end as appropriate.
7. Q: Does HP System Health Apps & Device Health require the EWS password for data collection or to send telemetry to the HP cloud?
A: No
8. Q: What are the benefits of/who benefits from System Health Apps & Device Health?
A: HP Device Health – the application enabled by System Health Apps -- delivers benefits to customers/IT decision makers by maximizing device uptime and enabling faster issue resolution.
9. Q: Why is HP deploying this capability?
A: This deployment aligns with HP's strategy to improve the customer experience and to simplify and streamline HP's ability to deliver support and services to customers. With connected devices, HP can detect and resolve some customer issues remotely and seamlessly. For those circumstances where on-site service is required, HP can detect the issue in advance improving the likelihood of resolving the customer's issue in one visit and with the correct part if a part is needed.
10. Q: Is System Health Apps & Device Health anything like Smart Device Service (SDS)?
A: Yes. System Health Apps & Device Health are the extension of SDS to enterprise class transactionally placed printers (i.e. printers not under a managed print services contract). As with SDS, System Health Apps & Device Health sends device telemetry to the cloud to enable remote monitoring of a device's event logs and consumable levels.
11. Q: Are there any limitations to which printers offer these capabilities?
A: Yes. These capabilities are currently only available on devices that have FutureSmart 4.11 firmware or later (except for 5.0 which is not supported) AND that have a control panel of 4.3 inches or greater. HP is investigating how to extend this functionality to devices lacking such a control panel and devices using older and different versions of firmware.
12. Q: Why would an IT manager/customer want to enable System Health Apps & Device Health?
A: For devices capable of exposing System Health Apps, that capability simplifies the process of connecting the device to HP's SDS cloud and allows for the Device Health functionality to work. Without this connectivity, those services cannot be provisioned. Device Health improves the print IT manager/end user experience by:
 - 1) enabling call center agents to remotely resolve some issues over the phone (faster return to printer uptime),
 - 2) enabling HP to diagnose the root cause before sending a service tech on-site so that they can resolve the printer's issue with the right part(s) (when needed) and on the first visit (faster return to printer uptime).
13. Q: What effort is involved on the part of an IT print manager or end user?
A: If System Health Apps is enabled during the device set-up process, no additional effort is required.

Enabling System Health Apps any time after initial device set up from the control panel or remote-control panel takes roughly 1 to 2 minutes – after that, no effort is required. Set up can also be done from the device’s embedded web server. HP is investigating a utility to automatically set up multiple printers.

End users generally would not be expected to interact with these controls unless they were also responsible for the printer’s support.

14. Q: If an IT manager/customer enables either of these capabilities, can they be hidden from end users?

A: Yes. HP understands that IT print managers who want the benefits of these services also want the ability to hide these icons from end users. Controlling which icons do/do not display to end users is simple, core functionality to FutureSmart devices.

15. Q: How does HP protect the IT manager/customer’s device data?

A: HP is committed to the privacy and security of our customers and adheres strictly to the various privacy and security standards such as GDPR and CCPA. The HP Privacy Statement is available at set up and can also be accessed [here](#).

16. Q: Does either System Health Apps or Device Health involve additional expenses for the IT Manager/customer?

A: No.

17. Q: Will these capabilities bring benefits to subcontracted service technicians?

A: Yes. Because HP fields the calls before dispatching a work order to a subcontractor, HP will be able to view the device telemetry and provide a diagnosis and associated trouble shooting steps improving the likelihood that the subcontractor can resolve the customers issue in one visit and with the correct part if a part is needed.

18. Q: Is internet connectivity required?

A: Yes. Without access to the internet, the device cannot utilize Device Health capabilities or other HP Cloud services.

19. Q: When will printers begin shipping with these capabilities?

A: System Health Apps – the firmware element of this solution resident on the device, is part of the 4.11 FutureSmart firmware bundle released to manufacturing and made available for download August of 2020.

20. Q: Is IT Manager/customer consent needed?

A: Yes. Per HP policy and stringent cybersecurity and privacy protocols, connecting any device to the internet should not be done without customer awareness of the HP Privacy Statement approval and customer consent to the HP Terms of Use.

21. Q: What data does HP System Health Apps & Device Health collect?

A: System Health Apps/Device Health mirrors the data collection of Smart Device Service (SDS). In keeping with strict security and privacy standards such as General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), Device Health does NOT collect job usage habits, usernames, job names, document names or document/image contents, or the like. Only

machine level data is collected. This telemetry is collected for the purpose of identifying the root cause of any printer issue a customer may contact HP for help resolving. The telemetry data collected includes things like FW version, FW revision, and FW date code, serial number (to associate the device with the telemetry) consumables levels, event logs, page counts, and subsystem configuration settings. For more information, the SDS Security White Paper is available upon request.

22. Q: Are there security or privacy issues?

A: Per the answer to question 4, HP is committed to the privacy and security of our customers and adheres strictly to the various privacy and security standards such as GDPR and CCPA. The HP Privacy Statement and Terms of Use are available at set up and can also be accessed [here](#) (Privacy Statement) and [here](#) (Terms of Use)

23. Q: What is needed to enable System Health Apps & Device Health at installation?

A: The out of box process is simple and clear. A detailed user guide has been developed, but the 3 steps are clearly presented on the control panel during installation:

1) With the Print IT decision maker or customer's consent, answer Yes to the question:

"This device is about to check for internet connectivity. If available, services that improve user experience can be enabled. Proceed with connectivity check?"

2) Before selecting "Yes" to "Enable System Health Apps" -- be sure that the customer/IT decision maker:

- Has reviewed the HP Privacy Statement
- Consents to the HP Terms of Use

3) Select Yes to "Enable System Health Apps"

24. Q: If an IT manager/customer does NOT enable these capabilities at installation, can they enable them later?

A: Yes. Via the control panel, or remote-control panel of the embedded web server.

NOTE: HP is investigating a utility to automatically enable multiple devices remotely.

25. Q: If an IT manager/customer DOES enable these capabilities at installation, can they disable them later?

A: Yes. Via the embedded web server.

26. Q: How is Device Health different from Managed Print Service offerings?

A: MPS provides predictive and proactive services for customers under contract. Device Health is focused on providing support for customer-initiated support inquiries from devices that are not under a managed print services contract.

27. Q: Are Device Health & System Health Apps supported for printers that connect wirelessly?

A: No. Device Health and System Health Apps may function with a wireless printer connection but that is not the design intent. For security reasons most enterprise class printers are connected to the enterprise's intranet via a wired connection. HP will not support Device Health or System Health Apps related connectivity problems encountered with wireless environments.