Solution overview

Sharpen your device, data, and document security

64%

of IT managers state their printers are likely infected with malware[1]

73%

of CISOs expect a major security breach within a year[2]

3.8M

is the average cost of a data breach[3]

Recognize hidden risks

IT is continually tasked with protecting confidential information, including employee identities and customer data, across multiple devices and environments. This need to support a broad range of people in different locations makes unanticipated IT security threats a constant challenge.

Although many IT departments rigorously apply security measures to individual computers and the business network, printing and imaging devices are often overlooked and left exposed. The security threats are real, and as printing and imaging devices become increasingly sophisticated, they offer greater opportunities for attackers to compromise the device or the entire network.

Understand potential costs

Even one security breach has the potential to be costly. If private information is jeopardized due to unsecured printing and imaging, the ramifications could include litigation, loss of licensing, identity theft, and a tarnished brand image or reputation.

A breach could also result in untold financial damage. Every year, millions of dollars are lost to private and corporate lawsuits, government fines, public relations disasters, industry violations, employee and customer identify theft, and stolen competitive information.

HP can help

It's time to develop and deploy an end-to-end imaging and printing security strategy. With the embedded security features in HP devices, a broad portfolio of HP JetAdvantage solutions and services, HP can help give you the strategic foundation to assess, manage, and fortify security for:

- Imaging and printing fleets
- Data in transit and at rest
- Printed documents
- Cloud access
- Printing from mobile devices

The world's most secure printers[4]

HP Sure Start

HP Sure Start technology for HP LaserJets leverages the groundbreaking technology developed for HP EliteBook computers by HP Labs, the company's central research arm.

Find out more

HP embedded security features
hp.com/go/PrintersThatProtect

HP print security features protect, detect, and recover

The latest generation of HP Enterprise LaserJet printing devices are unique in the marketplace, because they offer three key technologies designed to thwart attackers' efforts and self-heal. These features automatically trigger a reboot in the event of an attack or anomaly.

After a reboot occurs, HP JetAdvantage Security Manager automatically assesses and, if necessary, remediates device security settings to comply with pre-established company policies.[5] There's no need for IT to intervene. Administrators can be notified via HP management applications such as JetAdvantage Security Manager and ArcSight.

HP Sure Start
The BIOS is a set of boot instructions used to load fundamental hardware components and initiate the HP FutureSmart firmware of an enterprise-class HP device.

HP Sure Start technology works behind the scenes when devices power on—helping to make sure your printing and imaging device is safeguarded from malicious attacks. HP Sure Start validates the integrity of the BIOS at every boot cycle. If a compromised version is discovered, the device restarts using a safe, "golden copy" of the BIOS.

Whitelisting
Enterprise-class HP devices feature FutureSmart firmware. Like a PC's operating system, firmware coordinates hardware functions, runs the control panel, determines what features are available when printing, scanning, or emailing, and provides network security. Compromised firmware could open your device and network to attack.

Whitelisting helps ensure only authentic, known-good HP code that has not been tampered with is loaded into memory. If an anomaly is detected, the device reboots to a secure, offline state. It then sends a notice to IT to reload the firmware.

Run-time intrusion detection
Most of us wouldn't leave our computers running unguarded. Yet few vendors offer this basic level of protection for their imaging and printing devices. HP's run-time intrusion detection helps protect devices while they are operational and connected to the network—right when most attacks occur. This feature checks for anomalies during complex firmware and memory operations. In the event of an intrusion, the device automatically reboots.

How does it work?

The embedded security features address three primary steps in the cycle of an HP device.

HP JetAdvantage Security Manager completes the check cycle.

Continuous monitoring

Run-time intrusion detection
Detects anomalies during complex firmware and memory operations. If an attack occurs, it shuts down the device and reboots.

Check printer settings

HP JetAdvantage Security Manager
Checks and fixes any affected device security settings.

Load BIOS

HP Sure Start
HP Sure Start validates the integrity of the BIOS code. If the BIOS is compromised, HP Sure Start defaults to a safe, "golden copy" of the BIOS.

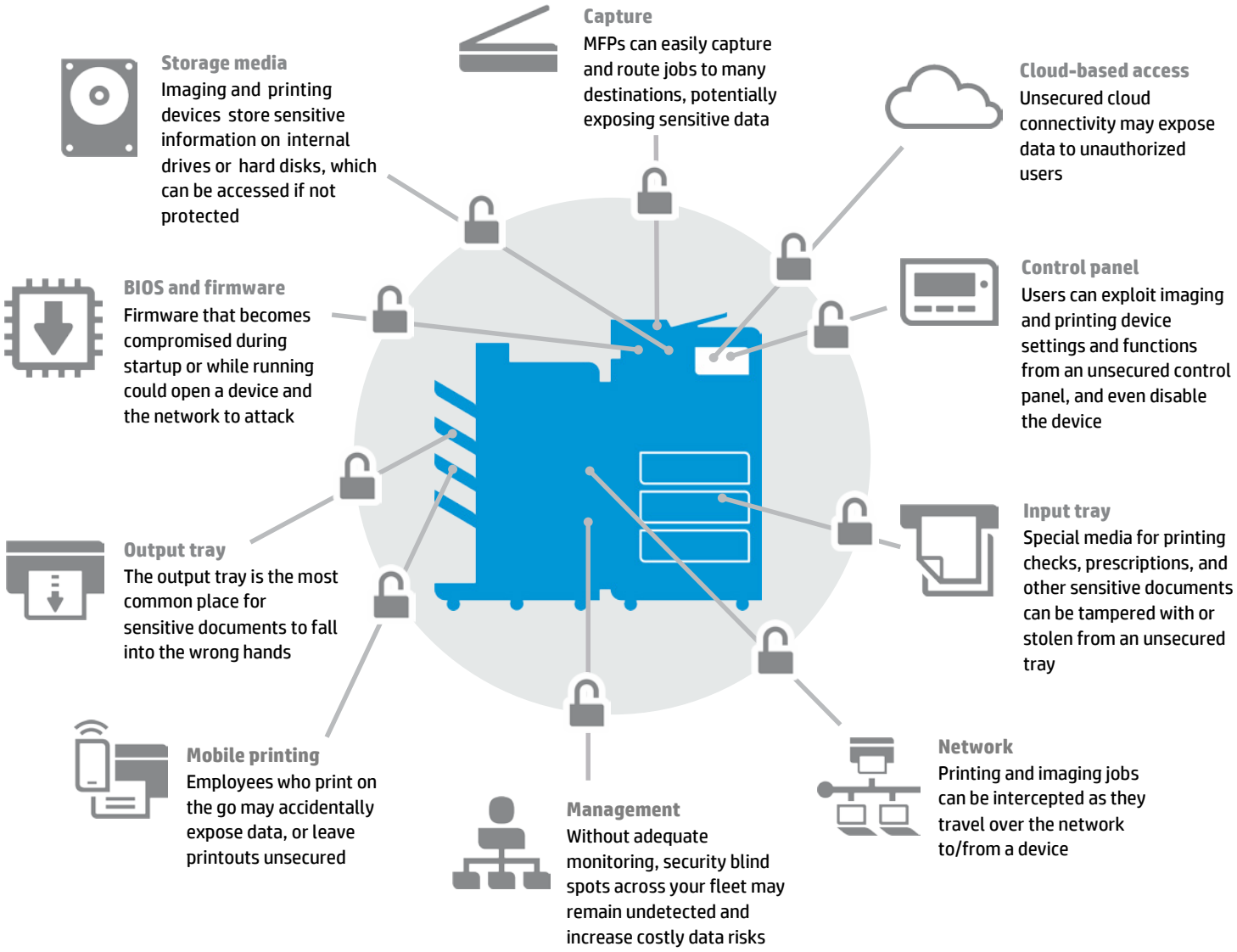
Check firmware

Whitelisting
Ensures only authentic, known-good HP code—digitally signed by HP—that has not been tampered with is loaded into memory. If an anomaly is detected, the device reboots.

Mind the security gap

Critical gaps can occur at multiple points within your imaging and printing environment. Once you understand these vulnerabilities, you can more easily reduce the risks.

Figure 1. Imaging and printing vulnerability points



Defend your imaging and printing environment

Even when you understand the vulnerabilities, creating a complete imaging and printing security strategy can be complicated. It requires coordinated protection of devices, data, and documents, plus comprehensive security monitoring and management solutions.

HP offers the industry's deepest level of printer security,[4] designed to work together with management solutions to help reduce risk, improve compliance, and protect your network from end to end.

Protect the device

Embedded features and add-on solutions can help you defend your printers and reinforce simple but effective security habits.

Count on embedded, self-healing security features
Multi-level, built-in features help protect your printer against complex security threats from boot up to shut down. HP Sure Start securely boots the device, whitelisting validates the integrity of the firmware code, and run-time intrusion detection continually guards against attacks.[4]

Physically secure your devices
Protect each device from theft and tampering by using a lock that requires a physical key for removal. Disable physical ports to prevent unauthorized access or use.

Secure code
Choose devices certified as compliant with internationally recognized security standards. Ensure device updates are code signed to confirm authenticity and integrity of the code.

Control access
Require authentication for access to device settings and functions to reduce potential security breaches. Enable administrative access controls, as well as user access controls such as PIN or LDAP authentication, smart cards, or biometric solutions.

Restore control, reinforce security, and reduce costs using HP Access Control Secure Authentication. This solution offers advanced authentication options, including touch-to-authenticate with NFC-enabled mobile devices.

Find out more

HP Access Control Secure Authentication
hp.com/go/hpac

Find out more

HP Universal Print Driver featuring Secure Encrypted Print
hp.com/go/upd

HP Web Jetadmin
hp.com/go/wja

HP JetAdvantage Workflow Solutions
hp.com/go/documentmanagement

Protect the data

Stored or in transit, your data requires constant protection. Here are some essential steps to help ensure safe arrivals and usage.

Authenticate users
Ensure that only authorized employees can access data on your printing and imaging device by using PINs, LDAP authentication, proximity cards, smart cards, or biometric access control solutions.

Secure keys, credentials, and certificates
For an extra level of security, the optional HP Trusted Platform Module (TPM) accessory can be added to the device to strengthen protection of encrypted credentials and data by automatically sealing device encryption keys to the TPM. It provides secure device identity by generating and protecting certificate private keys.

Encrypt print jobs to protect data in transit
Make print jobs virtually impossible to read if intercepted. Protect your network and documents with a variety of encryption options.

For added security, choose end-to-end Secure Encrypted Print. HP Universal Print Driver provides true symmetric AES256 print job encryption and decryption from the client to the page based on a user-defined password using FIPS 140 validated cryptographic libraries from Microsoft®.

Encrypt data in storage
Any sensitive data stored on the internal drive or hard disk is potentially vulnerable. HP devices come with built-in encryption to help protect sensitive business information.

Remove sensitive data
Storing data about completed jobs on your devices creates unnecessary risk of exposure. Use built-in device capabilities to securely overwrite stored data, and safely remove sensitive information. This is especially important when disposing of devices or returning leased equipment.

Protect management data
Device management data that travels over the network between the device and HP Web Jetadmin and other management tools can also be protected. All connections to the device Embedded Web Server administration interface can be securely encrypted.

Secure capture and route
Ensure scans are protected with document encryption features or encrypted email. Control where users are able to route scans and monitor content for information governance. HP also offers a rich portfolio of HP JetAdvantage Workflow Solutions that provide advanced capture and route capabilities with enterprise level security.

Safeguard cloud content and access
Secure access and retrieval of documents for printing via the cloud requires specialized tools that extend document protection beyond your physical network. Look for a security solution that enforces user authentication and data access control regardless of where data travels and how it printed.

Find out more

HP JetAdvantage Private Print
hpjetadvantage.com/ondemand

HP Access Control Secure Pull Printing
hp.com/go/hpac

HP Access Control
hp.com/go/hpac

HP ePrint Enterprise
hp.com/go/ePrintEnterprise

HP and TROY Secure Document Printing
hp.com/go/HPandTROY

Hewlett-Packard Company
NFC/WiFi Direct
Outstanding Achievement in Innovation

Buyers Laboratory, LLC gave HP an Outstanding Achievement in Innovation award for its use of NFC/Wi-Fi Direct to bring security and simplicity to mobile printing.

Protect documents

Integrate smart hardware and software solutions with your larger IT security plan to protect the thousands of documents printed organization-wide every day.

Activate secure pull printing

Pull printing stores print jobs on a protected server, in the cloud, or on your PC. Users identify themselves with a PIN or other verification method at their chosen print location to pull and print their jobs. These security measures also eliminate unclaimed prints, which can reduce cost and waste.

- **HP JetAdvantage Private Print**—With HP's cloud-based solution you get the advantages of pull print, without the complexity. It is simple to set up and does not require a server, installation, or maintenance.[6]
- **HP Access Control Secure Pull Printing**—This optional robust server-based solution offers multiple forms of authentication including badge release, as well as enterprise level security, management, and scalability.

Enable secure mobile printing

Help employees stay productive with effortless HP mobile printing from their smartphones, tablets, and notebooks—while maintaining security policies and managing printer access. With HP's wireless direct printing or NFC touch-to-print, employees can print from their mobile devices without connecting to your network, using a secure peer-to-peer connection.

If you're looking to deploy mobile printing across a printer fleet, HP offers server-based solutions that provide secure pull-printing, as well as advanced management and reporting capabilities.

- **HP Access Control** leverages existing email infrastructure, allowing mobile users to email a print job to their print queue, and then pull it from any solution-enabled printer or MFP. Protect network print devices with authentication features, including Mobile Release.
- **HP ePrint Enterprise** makes it easy for employees to print from mobile devices to selected HP or non-HP printers on your networks.[7] The solution scales to meet the demands of any enterprise.

Protect sensitive media with secure input trays

Equip your printers and MFPs with input trays that can be secured to prevent theft of special paper used for printing checks, prescriptions, or other sensitive documents.

Prevent tampering and alteration

Anti-counterfeiting solutions include using security toner that stains the paper if subjected to chemical tampering, adding variable data watermarks to printed pages, and incorporating machine-readable codes that track and audit individual documents. Embed anti-fraud features—including custom signatures, company logos, and security fonts—in sensitive printed documents such as prescriptions, birth certificates, or transcripts.

HP JetAdvantage Security Manager
Secure your HP printing fleet with the solution Buyers Laboratory (BLI) calls trailblazing.[5]
hp.com/go/securitymanager

HP ArcSight Printer Integration
hp.com/go/printsecurity

Monitor and manage printing environments

Security monitoring and management solutions can help you identify vulnerabilities and establish a unified, policy-based approach to protecting data, strengthening compliance, and reducing risk.

Set fleet-wide security settings, and establish access and usage policies
Centralized management allows you to apply a single security policy fleet-wide to prevent protection gaps. Choose from built-in options or added software applications to establish access and usage policies for groups and individuals.

HP JetAdvantage Security Manager is the most comprehensive printing security solution in the market, offering an effective, policy-based approach to securing printing and imaging devices.[5] Reduce cost and resources to maintain fleet security by using automated monitoring and HP Instant-on Security, which automatically adds and configures new devices. HP Security Manager also provides efficient fleet management of unique identify certificates.

Monitor for risks and maintain compliance
Get all the details at a glance with software or services that let you track compliance to your security policies and audit usage. Accurate data allows you to zero in on vulnerabilities and unnecessary usage. Reports can also help you build a business case to update security measures that reduce risk and control costs.

Get real-time monitoring of the security posture of HP FutureSmart imaging and printing devices with the industry-leading Security Information and Event Management (SIEM) tool, HP ArcSight Printer Integration. IT security can easily view printer endpoints as part of the broader IT ecosystem and can take corrective actions.

Take the next step

Contact your HP sales representative for more information about HP security features, solutions and services that can set you on the path of greater protection and peace of mind.

Learn more
hp.com/go/printsecurity

Get help from the experts

HP Printing Security Advisory Services. We'll work with you to engage stakeholders, assess the current state of your security, develop a cohesive security strategy, and recommend solutions to protect your business.

HP Managed Print Services. We can do it all—deliver a full-service, no-hassle solution, or develop a customized strategy to help resolve the imaging and printing security areas you specify.

HP Financial Services (HPFS). When you implement an HP security solution to protect your business, we can offer flexible leasing and financing options to help you invest in the latest products and services. HPFS also protects data by wiping or destroying the disk drives on returned devices.

[1] Ponemon Institute, "Annual Global IT Security Benchmark Tracking Study," March 2015.
[2] Help Net Security, "Why enterprise security priorities don't address the most serious threats," July 2015.
[3] Ponemon Institute, "2015 Global Cost of a Data Breach Study," May 2015.
[4] Based on HP review of 2015 published embedded security features of competitive in-class printers. Only HP offers a combination of security features for integrity checking down to the BIOS with self-healing capabilities. A FutureSmart service pack update may be required to activate security features on the HP LaserJet M527, M506, M577. Some features will be made available as a HP FutureSmart service pack update on selected existing Enterprise printer models. For list of compatible products, see hp.com/go/printersthatprotect. For more information, visit hp.com/go/LJsecurityclaims.
[5] HP JetAdvantage Security Manager must be purchased separately. To learn more, please visit hp.com/go/securitymanager. Competitive claim based on HP internal research on competitor offerings (Device Security Comparison, January 2015) and Solutions Report on HP JetAdvantage Security Manager 2.1 from Buyers Laboratory LLC, February 2015.
[6] HP JetAdvantage Private Print is available at no charge and requires that the printer be connected to the Internet with web services enabled. Not available in all countries. For more information, see hpjetadvantage.com/ondemand.
[7] HP ePrint Enterprise requires HP ePrint Enterprise server software. App-based option requires Internet- and email-capable BlackBerry® smartphone OS 4.5 or newer, iPhone® 3G or newer, iPad® and iPod touch® (2nd gen) devices running iOS 4.2 or later, or Android devices running version 2.1 or newer, with separately purchased wireless Internet service and the HP ePrint Enterprise app. Email-based option requires any email-capable device and authorized email address. Solution works with PCL5/6, PCL3, and PCL3GUI printers (HP and non-HP).

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