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INTRODUCTION

Welcome to the HP Open Extensibility Platform (OXP) and HP FutureSmart firmware technology backgrounder. The purpose of this document is to present an overview of these new technologies uniquely available from HP. Both provide customers unparalleled investment protection, ease of use, new and innovative features, and significant IT productivity gains.

OVERVIEW

HP has once again revolutionized the business imaging and printing market with two innovative technologies: HP Open Extensibility Platform (OXP 1.6) and HP FutureSmart firmware. Small, medium, and large enterprise customers now have the tools needed to optimize and manage devices and improve document workflows in ways that yield significant cost savings. HP OXP enables developers to create easy-to-use device applications, while HP FutureSmart firmware eases the burden of IT professionals responsible for managing a fleet of imaging and printing devices. Together, HP OXP and HP FutureSmart firmware transform the way businesses access, move, and publish content, now and in the future. Let us take a look at the two new technologies.

WHAT IS HP OXP?

HP OXP is a common software interface for interacting with HP imaging and printing devices. HP engineers and the HP developer community can access this interface via the HP OXP software development kit (SDK) to create device applications for HP imaging and printing devices. Rather than each HP device requiring unique software, OXP-enabled HP devices now support a common interface. This allows developers to create one device application that runs properly and behaves consistently across devices, making them easier to use. HP OXP also simplifies managing device applications.

HP OXP, which resides on the firmware of the imaging and printing device, reduces complexity by providing a consistent interface layer via open web standards, i.e., web services. The HP OXP interface is comprehensive; it represents all of the capabilities of that particular device.

As shown in Figure 1, there are three layers, or methods of accessing HP OXP. One layer interacts with devices (OXPd), another with device management (OXPm), and another addresses document workflows (OXPw). This is consistent with HP’s three-part enterprise management strategy of optimizing infrastructure, managing environment, and improving workflows. The new and revolutionary features added in HP OXP 1.6 include: a mini web browser, application management features, and advanced graphics capabilities. Let us take a look at how these new features can radically change business imaging and printing processes.
The new mini web browser is not just another browser-based user interface (see Figure 2). This feature fundamentally changes the way device applications can be developed for HP imaging and printing devices. The new browser interface removes the need to install device-specific software on each device. With the new browser, applications run on web servers and display user interface controls and status on device control panels. This feature allows users to complete business document processes at the device’s console. For example, users can access an electronic filing cabinet directly from the front panel of an HP MFP and either print a document from the file or add a document to the electronic filing cabinet using the HP MFP.

All HP devices that are compatible with HP OXP 1.6 and include a graphical control panel can now provide a consistent user experience, allowing users to move between devices without having to learn a new interface. These server-based applications developed for HP MFPs run with confidence on all the HP OXP 1.6-enabled HP MFPs. This is because device applications use the same embedded browser for the user interface and are essentially device-independent. Since applications can now reside outside the device, this frees critical resources like processor bandwidth and memory requirements on the HP MFP or printer. Furthermore, remote device applications can take advantage of the resources available on the hosting web server (see Figure 3). With HP OXP 1.6, there are a virtually unlimited number of solutions or device applications available for any particular device. This feature has the potential to substantially reduce operational costs and improve end-user productivity by optimizing existing document workflow processes. In some cases unnecessary workflows may even be eliminated, resulting in further cost reduction.
HP has a long tradition of partnering with developers of imaging and printing solutions. These partners belong to a closed developer community, where HP provides them with products and software development kits (SDKs) to help with the development and integration of their document solutions. The SDK contains documentation that describes the features made available to them through HP OXP and how to interact with them; it also contains development tools that simplify the work of the developer. The partner program also qualifies the final solutions through a rigorous testing program before they can be released as HP preferred solutions.

HP expects to see many new device applications become available with the common development platform provided by HP OXP technology. However, as the number of device applications increases, special attention to managing device applications is required. HP OXP addresses this issue by providing management features to device management applications, like HP Web Jetadmin. Now IT support professionals can install, configure, and manage device applications using HP Web Jetadmin. Before HP OXP 1.6, each application included separate utility software which could be problematic and time consuming. These problems have now been eliminated with HP OXP and HP Web Jetadmin. This represents another significant reduction in IT resource requirements, as IT professionals can now use one tool (HP Web Jetadmin) to manage both devices and device applications. This is another unique solution available from HP.

Perhaps the biggest HP OXP news is that imaging and printing devices developed by HP after 2005 can be upgraded to support HP OXP 1.6. This means that legacy HP products and newer HP devices and solutions will behave consistently, thereby improving end-user experience, boosting IT productivity, and protecting customers’ investments in HP devices.

**WHAT IS HP FUTURESMART?**

HP FutureSmart firmware is essentially a new and improved operating system for all future HP imaging and printing devices. Using a common operating system for all new HP devices improves compatibility between devices, simplifies device management, and provides for consistent behavior and interaction for end users. HP FutureSmart resides between the actual device hardware and the abstract layers of HP OXP (see Figure 4). Basically, HP FutureSmart provides services or features to OXP, which in turn exposes these services or features to developers via open web standards.

HP FutureSmart-enabled devices now enjoy the following advantages over previous firmware versions: Microsoft Active Directory integration, enhanced network security, improved GUI interface, role-based permission policies, image preview, improved user feedback messaging, application quick sets and enhanced workflow capabilities. As new features are added to FutureSmart, all supported devices can be upgraded accordingly. HP’s new firmware strategy effectively “future proofs” customers’ investments by providing a method of adding new features to earlier HP FutureSmart-enabled imaging and printing devices.

HP FutureSmart also extends the global print capability of HP LaserJet printers and HP MFPs by embedding more than 50,000 unique glyphs for the four major Asian regions. This is good news, especially for international customers printing from SAP. Unlike previous HP LaserJet international font solutions, the new embedded fonts work with all HP LaserJet and HP MFP internal page description languages (PDLs), including PCL5e, PCL6, PostScript, and PDF.
HP OXP AND HP FUTURESMART IN COMBINATION

HP OXP and HP FutureSmart firmware work together to provide value for customers. The distinction between the two is that HP OXP is a web service application that provides access to a device’s status and capabilities via open web standards. HP FutureSmart, on the other hand, is firmware included with new HP imaging and printing devices that provides HP OXP access to hardware features. This strategy effectively shields device-specific differences and provides users, administrators, support personnel, and application developers with a device-independent method for interacting with HP devices.

HP OXP and HP FutureSmart firmware are revolutionary technologies that provide many benefits to customers. Since HP imaging and printing solutions are considerably easier to use and manage than competitive offerings, customers can achieve significant productivity gains and cost control and reduction. As business needs change, customers using HP imaging and printing solutions can easily adapt some or all of their HP devices accordingly.

Many of the benefits associated with HP OXP and HP FutureSmart technologies are realized by simply deploying newer imaging and printing devices from HP. This is due to the fact that HP OXP and HP FutureSmart are embedded technologies that perform automatically. Older imaging and printing devices from HP may require upgrades to match features available on newer devices. However, as mentioned earlier, these units are easily upgraded with HP Web Jetadmin. With relatively little effort customers can:

- Increase productivity by adding device applications.
- Reduce training and helpdesk costs with a consistent user experience.
- Reduce operational costs by optimizing document workflows.
- Reduce support costs with universal firmware code (HP FutureSmart).
- Maximize ROI of existing imaging and printing infrastructure (future proofing).

HP OXP and HP FutureSmart are also scalable technologies that allow customers to choose the features and benefits desired. Whether customers are interested in cost reduction, productivity gains, greater returns on technology investments, or some combination thereof, they’ll appreciate the ease with which HP devices are customizable and adaptable.

For example, imagine a healthcare provider who spends a considerable amount of time updating patients’ health records and printing reports for doctors to review. Going back and forth from workstation to MFP devices can be time consuming and inefficient. With HP OXP 1.6 enabled MFPs this document workflow can be optimized with a device application which allows changes to the patient’s health records and the ability to print directly from the device’s control panel (see Figure 5).

**SUMMARY**

HP FutureSmart and HP OXP technology provide a development framework that is unparalleled in the imaging and printing industry. Applications can be created using a common development platform (HP OXP) and deployed across a wide range of unique imaging and printing devices without worry of compatibility or device functionality (HP FutureSmart). This framework gives HP customers the ability to adapt to the technology needs of the future, today.