

Next Generation Scan and Print Solution: HP Handheld sp400 All-in-One



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Introduction

Today, information-driven workflows can be only as good as the IT infrastructures and mobile devices that support the business. Optimizing and greening scan and print and apply workflows, are prime areas for logistics operations to increase productivity, flexibility and reliability, with cost effective solutions. Traditionally, scan, print and apply operations have been addressed with multiple hardware devices and/or bulky, label consuming printers. Now, imagine a lightweight, hand-mounted device that prints directly on a surface without label media. The HP Handheld sp400 All-in-One is the first and only integrated scan-and-print solution designed to simplify logistics operations, providing a lower total cost of ownership.

The HP sp400 is a true all-in-one scan-and-print device that combines three basic functions: scanning, printing, and wireless connectivity. The AiO provides direct-to-target, paper-less printing allowing a jump-start to optimizing and greening logistic operations. At first use, the HP sp400 eliminates the cost and time needed for labeling operations including label stock, application, and replacement, and reduces the labeling environmental footprint. However, the compilation of benefits from the HP sp400 scan-and-print simplicity provides a reliable solution enabling more productivity, flexibility, and mobility.

This paper addresses the following topics:

- An overview of scan, print and apply operations
- Introduction of the HP Handheld sp400 All-in-One
- The HP sp400 AiO in operation
- Summary of benefits with the HP sp400 All-in-One

Mobile scan, print, and apply

Scan, print, and apply is a widely deployed front-end process across logistics operations. Scanners, printers and people identify, label, and track information, packages, and materials. Many scan, print and apply processes are done manually and require multiple pieces of hardware to perform and are anchored because of fixed or legacy infrastructures. The process is frequently setup to include a handheld scanner, a mobile or fixed label printer along with the operator needed to apply the label.

Scanners are available in many different configurations. They may be equipped with laser or imaging scan engines providing functionality to scan one and two-dimensional barcodes, text and images. Choices of scanner configurations provide tradeoffs of flexibility, response times and data rates. Robust scanners increase mobility and reliability with traditional tracking and confirmation benefits.

Mobile print and apply functions are enabled from a wide range of hardware solutions. Printing technologies provide direct thermal, thermal transfer and inkjet options with a large variety of label media to choose from. The most widely used printing hardware for scan, print and apply processes are mobile or portable label printers. Choice of printer configurations directly impacts the cost per label, life of the print, interaction rate and the amount of waste in operation.

In today's world, mobility is essential for operation efficiency. Wireless integration has enabled scan and print operations to be more flexible than ever. Device to host communication can be seamlessly integrated into current wi-fi networks eliminating the need for local host stations and expensive wiring, to create the mobility needed for shifting operational resources and priorities. HP has brought a true all-in-one device to the market that optimizes this process. The scan, print and apply paradigm is being redefined with the HP Handheld sp400 All-in-One.

Figure 1. HP sp400 All-in-One



The HP Handheld sp400 All-in-One scanner printer

The HP Handheld sp400 All-in-One is the next generation scan and print solution. An imager, inkjet printer and wireless radio are integrated into one hand-mounted scanner printer creating a productive and flexible device.

HP All-in-One distinction

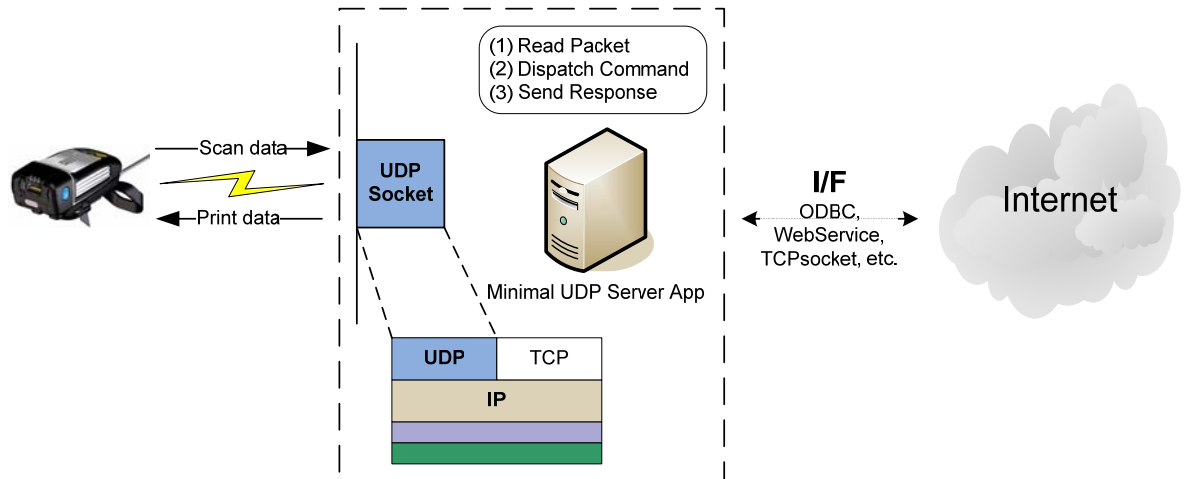
There are three main functions of the HP sp400 AiO.

- **Scanner:** The AiO is equipped with a CMOS imager. The imager offers a flexible solution for barcode, text and image applications. It enables reliable and accurate visibility into shipments, inventory and delivery with a hand-mounted industrial design enabling task flow optimization.
- **Printer:** Integrated into the AiO is HP's inkjet printer technology. This unique feature delivers a remarkable mobile printer that increases productivity and decreases consumable waste. A single recyclable ink cartridge creates thousands of prints eliminating the need for label media and time consumed changing rolls or extra material handling. With the AiO, print and apply become one motion instead of the classic two entities, a print and an apply, reducing waste and increasing productivity. Replacing manual processes with real-time data flow eliminates transition times and helps optimize workflows.
- **Wireless Connectivity:** Wi-Fi integration completes the all-in-one functionality. Wireless communication is crucial for mobility and productivity on the floor. The AiO delivers real-time data transmission to the user with the information and form factor needed for a more productive and efficient workflow. The ease of use and minimal operator interaction increases operational efficiencies versus comparable solutions.

Other outstanding features

- **Hand-mounted or handle accessory:** The scan and print HP sp400 AiO may be hand-mounted or handle-mounted. The hand-mount provides a hands-free and productive solution that is especially conducive to material handling operations while the handle-mounted solution offers operations task flexibility for general floor operations.
- **Battery:** The extended battery provides up to eight hours of continuous operation while the standard battery option can operate up to 4 continuous hours. For the hand-mount operation, the battery is secured on the forearm with the use of a battery case. The handle accessory has the battery attached at the base.

Figure 2. HP Handheld sp400 All-in-One Communication Overview



HP Handheld sp400 All-in-One in operation

The HP Handheld sp400 AiO is easily integrated with current and new IT infrastructures. It sits on the edge of the network with a server application sending and receiving data. An open documented communication protocol is available for custom applications.

The three primary capabilities of the AiO are scanning, printing and wireless communication. The usage and primary capabilities are described in further detail below. The HP Handheld sp400 All-in-One Communication Overview diagram provides a roadmap of operation.

The 2D imager, powered by Adaptus imaging technology, enables capture of one and two-dimensional bar codes, text, and images. This provides reliable and accurate omni-directional decoding of captured information. With its solid state electronics, the 2D imager is durable and robust. From the one dimensional barcode to a handwritten signature, the imager provides flexibility for a variety of data capture environments.

The data captured is decoded and communicated wirelessly over a UDP socket on an 802.11 network. Although the device may communicate over a variety of protocols, the UDP connection is the fastest exchange in most logistics environments. Since UDP sits on top of the IP layer at the same level as TCP, communication is a standard protocol supported by current TCP/IP topologies. The WPA TKIP-PSK protocol is supported for secure transmission.

The data transmitted is received by a server application that determines how to act upon the command or data received. The server application may manipulate, store, or associate data for identification or tracking materials through integration into a backend data management systems. At this time, the application may pull and package print data to be sent down to the AiO. Server applications are customized to organizational needs.

Print data is packaged to a specified template form in the server application and sent wirelessly to the AiO. The AiO will be ready to print when the data is received. To print, the nose of the AiO is positioned in contact with the target material and rolled over the target area. The inkjet printer will deliver the print in one swipe. With this solution, traditional label stock and label printers are no longer necessary and costly time intervals of human-device information retrieval or inaccurate apply processes become exceptions, ultimately delivering a seamless workflow.

The HP sp400 – One customer's success story

A worldwide leader in parcel delivery approached HP with a dilemma: under pressure from competitors and internal costs, they wanted a way to significantly increase the efficiency of their US-based distribution centers. In particular, within these DCs, their data capture and labeling stations were identified as a high cost contributor, and a major bottleneck.

These stations, located at the receiving docks of their distribution centers, were operated by workers that used handheld barcode scanners to read incoming shipping label barcodes, while a desktop thermal label printer produced labels that contained routing information. This process, which was developed several years ago, was slow, inflexible, and prone to data errors.

Due to the high cost of retrofitting hundreds of existing buildings, automation was not the answer. Did HP have a solution that could increase labor productivity, while decreasing operating costs?

HP saw an opportunity to work with an industry leader to develop a solution that would push the bounds of data capture and mobile printing devices for the logistics industry.

The result, the HP sp400, is a converged, mobile and wireless device whose lightweight form and flexible architecture allowed it to be seamlessly integrated into the customer's workflows and homegrown IT applications. As a result, not only did the customer raise its productivity, it has been able to reduce operational costs by lowering the labor hours needed for package sorting and worker training, and by lowering their costs of supplies by using a paperless solution.

Summary

The HP Handheld sp400 All-in-One is the first and only integrated scan-and-print solution designed to simplify logistics operations and deliver a lower total cost of ownership. The small, handheld All-in-One device integrates easily into current workflows delivering a fast, dynamic, and rugged mobile solution. In addition, the wireless connectivity increases workflow mobility and eliminates the need for fixed scan and print infrastructures, saving cost and space.

In operations, the HP sp400 All-in-One increases workflow throughput and flexibility as an integrated device. The design and function eliminates paper labels and waste and increases ease-of-use. The benefits are greener processes and improved productivity and cost of ownership.

How can the HP sp400 All-in-One improve your efficiencies?

- **More productivity.** Helps simplify and increase throughput of manual scanning and labeling operations; Increase customer service levels.
- **More flexibility.** Easy to use and ultra portable; Allows you to bring tools to workflow in contrast to designing workflows around tools.
- **Better TCO.** Lower labor costs from higher productivity; Direct-to-package printing reduces supplies cost and eliminates the waste of paper labels; HP reliability and support to maximize uptime.

For more information

For additional information, contact HP by e-mailing handheldprinting@hp.com or access the HP Web site at <http://www.hp.com/large/products/handheld-sp400-aio.html>

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