



## Discovering Third Party Devices in HP Web Jetadmin

This technical brief discusses the ability of HP Web Jetadmin to discover and manage printers from third party vendors.

### Overview

HP Web Jetadmin has the ability to discover non-HP printers connected to the network via non-HP print server devices. By supporting third party printers, HP offers a network printer management solution that drives one step further toward the “one-stop-shopping” concept that LAN administrators desire. Now, LAN administrators will be able to discover and manage printers offered by all major printer vendors from a single software interface.

### Criteria

In order for third party printers and/or print servers to be discovered in HP Web Jetadmin, the following criteria must be met:

- The printer must be Standard Printer MIB (RFC 1759) compliant.
- The print server device must be MIB II (RFC 1213) compliant.
- The print server device must be able to effectively send Standard Printer MIB requests to the printer and relay the answers back to HP Web Jetadmin.

### What is a MIB?

HP Web Jetadmin uses SNMP queries to gather information from the printer and print server

device. A MIB (Management Information Base) is a set of objects that defines the types of SNMP queries that can be asked of a device.

### Standard Printer MIB

The Standard Printer MIB is a set of objects as defined in RFC 1759. The Standard Printer MIB consists of objects that describe functionality and capabilities of the printer such as languages, media types, etc. The printer must be able to answer queries defined in this Standard Printer MIB in order to be discovered in HP Web Jetadmin. Otherwise, there is not enough information pertaining to the printer to warrant showing it in the list of discovered devices. HP Web Jetadmin focuses on printer management, and it would be

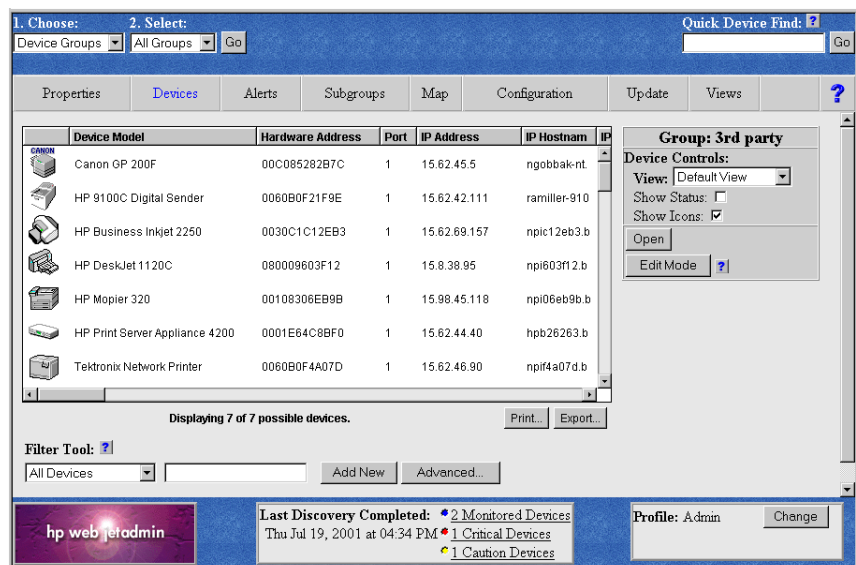
increasingly difficult to distinguish devices as printers unless they can answer a standard set of questions such as those defined in the Standard Printer MIB.

HP Web Jetadmin will merely perform a “walk” of the Standard Printer MIB to determine if the device supports it or not. HP Web Jetadmin checks for the existence of an object in the SPM tree by performing an SNMP GET NEXT from 1.3.61.2.1.43, then checks to ensure that the response is somewhere in the 1.3.6.1.2.1.43 tree.

### MIB II

MIB II is a set of objects as defined in RFC 1213, and is explicitly referenced in the Standard Printer MIB (RFC 1759). The print server device must be able to answer queries defined in this MIB II in order for the printer to be discovered. The following list contains examples of MIB II questions typically sent by HP Web Jetadmin to obtain information about the print server device:

- MAC address
- IP address
- Host name
- System description



The screenshot shows the HP Web Jetadmin interface with a table of discovered devices. The table has columns for Device Model, Hardware Address, Port, IP Address, and IP Hostname. The devices listed include Canon GP 200F, HP 9100C Digital Sender, HP Business Inkjet 2250, HP DeskJet 1120C, HP Mopier 320, HP Print Server Appliance 4200, and Tektronix Network Printer. The interface also shows a 'Group: 3rd party' section with 'Device Controls' and a status bar at the bottom indicating 'Last Discovery Completed: Thu Jul 19, 2001 at 04:34 PM' with 2 Monitored Devices, 1 Critical Device, and 1 Caution Device.

| Device Model                   | Hardware Address | Port | IP Address   | IP Hostname  |
|--------------------------------|------------------|------|--------------|--------------|
| Canon GP 200F                  | 00C085282B7C     | 1    | 15.62.45.5   | ngobbak-nt.  |
| HP 9100C Digital Sender        | 0060B0F21F9E     | 1    | 15.62.42.111 | ramiller-910 |
| HP Business Inkjet 2250        | 0030C1C12EB3     | 1    | 15.62.69.157 | npic12eb3.b  |
| HP DeskJet 1120C               | 080009603F12     | 1    | 15.8.38.95   | np1603f12.b  |
| HP Mopier 320                  | 00108306EB9B     | 1    | 15.98.45.118 | np106eb9b.b  |
| HP Print Server Appliance 4200 | 0001E84C8BF0     | 1    | 15.62.44.40  | hpb26263.b   |
| Tektronix Network Printer      | 0060B0F4A07D     | 1    | 15.62.46.90  | np14a07d.b   |

## Communication Between Printer and Print Server

The print server device must be able to effectively send Standard Printer MIB requests to the printer, and relay the answers back to HP Web Jetadmin in order for the printer to be discovered. This certainly becomes an issue for external print server devices, especially third party devices.

HP external print server devices use a proprietary language (PML) to communicate with HP printers. Third party external print server devices must be able to use a similar mechanism to send and receive the Standard Printer MIB questions to and from the printer.

Even though a print server may be MIB II compliant, and the printer may be Standard Printer MIB compliant, it is still possible that the printer will not be discovered in HP Web Jetadmin. This can happen if the print server device cannot effectively pass the HP Web Jetadmin requests to the printer, thus the responses to these requests never make it back to HP Web Jetadmin. If HP Web Jetadmin cannot receive any printer details, it will not discover the printer. Although the print server device may be answering its MIB II requests, there is not enough information in just the print server responses to warrant a discovery. There is no way to distinguish the device as a printer unless the printer can answer the Standard Printer MIB questions.

## Support

For devices that are discovered by HP Web Jetadmin, the amount of information that is displayed for each device depends upon the ability of that device to answer the SNMP queries it receives from HP Web Jetadmin. Each of the following items will appear in Web Jetadmin if the

queries can be returned successfully by the device.

### Bitmap and Icon

Once a third party device is discovered and opened to reveal the Status page, HP Web Jetadmin will determine if it can display a matching bitmap and icon for the device. It will match the printer type that is returned from the device against some predefined bitmaps and icons that have been created to provide a fair representation of common printer vendors. Printers from the following vendors will display a matching bitmap and icon:

- Canon
- IBM
- Lexmark
- Kyocera
- Tektronix
- Xerox

Third party devices not in this list will display the bitmap for a generic HP LaserJet model printer and an icon with a question mark.

### Model

The model name will appear on the Diagnostics page and will be displayed according to the response to the SNMP query.

The model name will also appear on the Status page. However, either the model name that appears on the Diagnostics page, or a generic string describing the device (e.g. Lexmark Network Printer), will be displayed, depending upon the vendor.

### Serial Number

The serial number will be displayed on the Diagnostics page, the Status page, and can be enabled as a column to view on the list of all devices.

### Page Count

Page count will be displayed on the Diagnostics page and can be enabled as a column to view on the list of all devices.

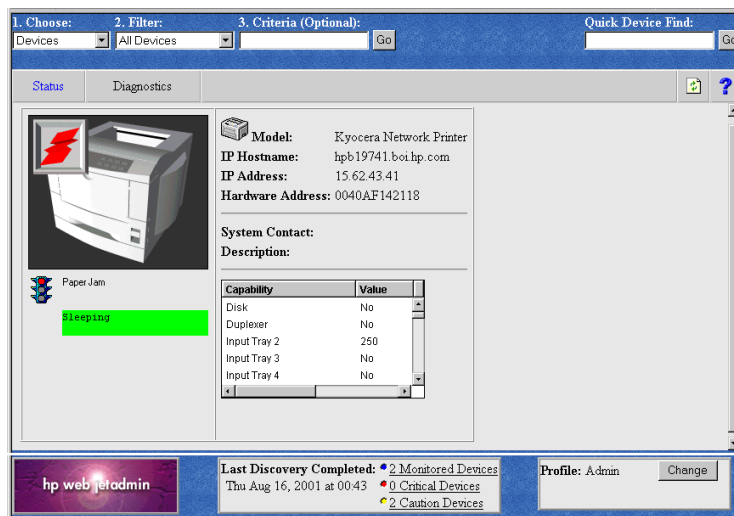
### IP Address

IP Address will be displayed on the Diagnostics page, the Status page, and can be enabled as a column to view on the list of all devices.

### IP Hostname

IP Hostname will be displayed on the Diagnostics page, the Status page, and can be enabled as a column to view on the list of all devices.

### IPX Name



The screenshot shows the HP Web Jetadmin interface for a third-party printer. At the top, there are search filters: '1. Choose: Devices', '2. Filter: All Devices', and '3. Criteria (Optional):'. A 'Quick Device Find:' field is also present. The main content area is divided into 'Status' and 'Diagnostics' tabs. The 'Status' tab is active, showing a printer icon with a red lightning bolt, indicating a 'Paper Jam' error. Below the icon, a green bar indicates the printer is 'Sleeping'. To the right, the printer's details are listed: Model: Kyocera Network Printer, IP Hostname: hpb19741.boi.hp.com, IP Address: 15.62.43.41, and Hardware Address: 0040AF142118. A 'System Contact' section is also visible. At the bottom, a table shows capabilities and their values:

| Capability   | Value |
|--------------|-------|
| Disk         | No    |
| Duplexer     | No    |
| Input Tray 2 | 250   |
| Input Tray 3 | No    |
| Input Tray 4 | No    |

At the bottom of the interface, a status bar shows 'Last Discovery Completed: Thu Aug 16, 2001 at 00:43' and a summary of device counts: 2 Monitored Devices, 0 Critical Devices, and 2 Caution Devices. The user profile is 'Admin'.

Third Party Printer Status page

IPX Name will be displayed on the Diagnostics page and can be enabled as a column to view on the list of all devices.

*System Contact*

System contact will be displayed on the Diagnostics page, the Status page, and can be enabled as a column to view on the list of all devices.

*Description*

Description will be displayed on the Diagnostics page, the Status page, and can be enabled as a column to view on the list of all devices.

*Asset number*

Asset number will be displayed on the Diagnostics page and can be enabled as a column to view on the list of all devices.

*Capabilities*

Capabilities such as installed languages, trays, and accessories will be displayed on the Status page.

*Status*

Device status, indicating the current state of the printer (e.g. online, paper jam, etc.) will be displayed on the Status page.

*Toner gauges*

The amount of toner or ink remaining in a particular cartridge can be displayed on the Status page. Also, the Diagnostics tab may be able to display additional information pertaining to the device, provided the device can answer the SNMP queries for such information.

**Configuration**

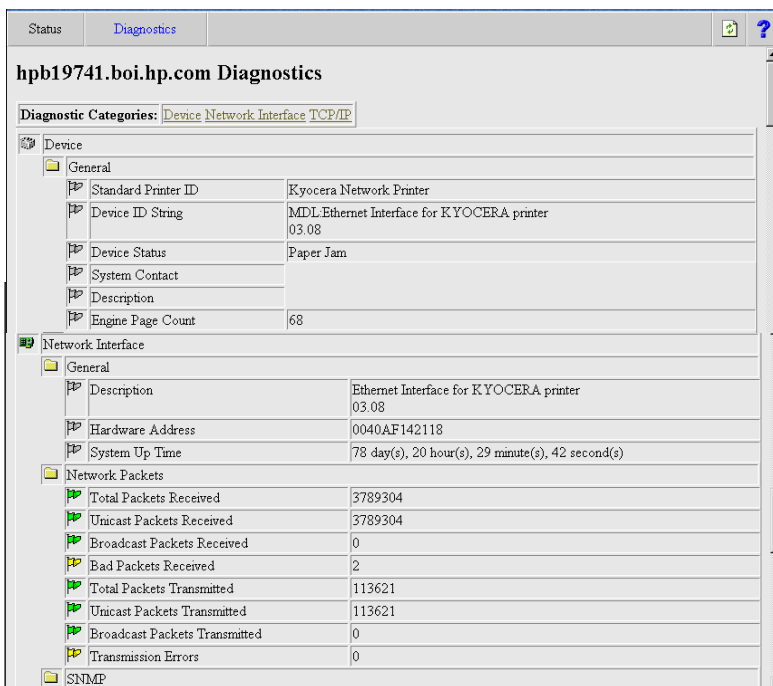
Print path creation and device configuration is reserved for HP printers connected via HP Jetdirect devices. Third party devices are not supported for configuration and print path, only for reporting information

back to HP Web Jetadmin regarding status and capabilities.

**Exception:** Third party printers that are connected to HP Jetdirect EX devices can be configured for Novell NetWare configuration since configuration involves the Jetdirect device only.

**Conclusion**

By supporting third party printers in HP Web Jetadmin, LAN administrators will now be able to discover and manage printers offered by all major printer vendors from a single software interface. This will undoubtedly save administrators time and effort since they will only have to learn a single tool to provide printer management.



Third Party Printer Diagnostics page