



Alerts

in HP Web Jetadmin

This technical brief examines the functionality of alerts from within HP Web Jetadmin 6.5.

Overview

HP Web Jetadmin 6.5 includes the ability to configure an HP Jetdirect device to trigger an email message when an event occurs such as an error condition. This feature is referred to as “alerts”.

Alerts will send notifications of significant events to designated recipients via email. When a device has a condition to report (e.g. tray empty, toner low), the designated recipient will receive an email message typically containing the address of the device, the name and description of the problem, and contact information to gather more details if necessary (see Figure 1).

The advantage of alerts is that administrators can receive real-time warnings via email for events that occur on a networked printer. Receiving early notification of printer events allows administrators to correct the problems before they impact end user productivity. This saves time for both the administrator and the end user.

How Do Alerts Work?

An administrator will instruct HP Web Jetadmin to either listen for specific traps (alerts) from a device or periodically poll the device for status if the device does not support traps.

Once a condition is reported from a device, and HP Web Jetadmin determines that it is supposed to act on that condition, HP Web Jetadmin will construct an email message that describes the condition. This email message will then be forwarded to all designated recipients of that particular device condition.

Configuring Alerts

To configure alerts in HP Web Jetadmin, administrators must perform the following steps:

- Inform HP Web Jetadmin of the location of an SMTP compliant mail server.
- Instruct HP Web Jetadmin to start listening for alerts from devices or poll devices for status.

- Select which devices will be monitored for alerts.
- Configure which alerts will be enabled.
- Specify which email accounts will receive notifications.

These steps will now be discussed in detail.

Configure Mail Server

The first step in configuring alerts in HP Web Jetadmin is to inform HP Web Jetadmin of the location of an SMTP compliant mail server through which email messages can be sent.

HP Web Jetadmin can be informed of the presence of an SMTP server under *Preferences, Network, SMTP (Mail)* (see Figure 2).

After entering the SMTP compliant mail server hostname or IP address, click *Apply* to save the information into HP Web Jetadmin. An error message will appear if the mail server entered is not deemed to be SMTP compliant. HP WebJetadmin performs the following telnet test on port 25 to determine SMTP compliance:

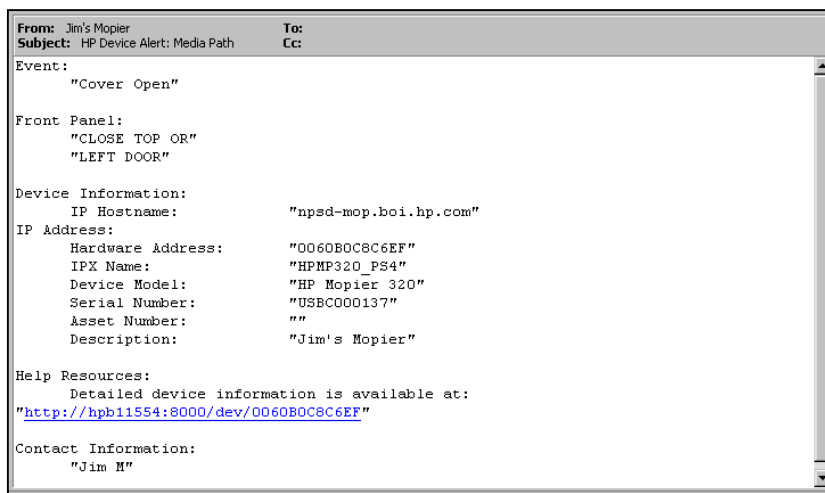


Figure 1

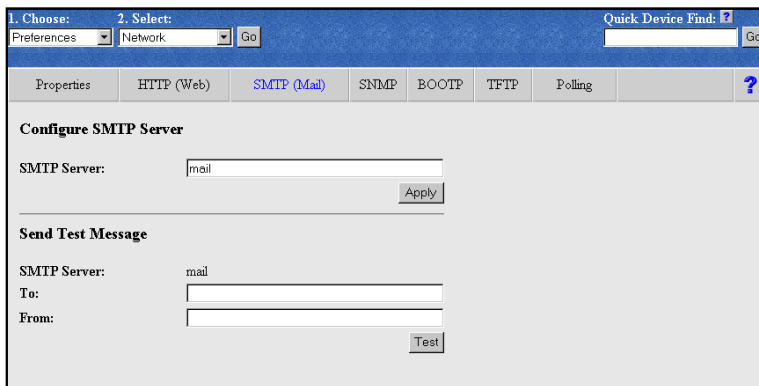


Figure 2

1. telnet <mail server> 25
(expected result: 220 xxxx)
2. HELO
3. RSET

If the server is deemed to be SMTP compliant, a test message can be sent through the mail server by entering the following additional information and selecting *Test*:

- *To address* - an email address that will be used as the recipient of the optional test message that can be sent from this page.
- *From address* - an email address that will be issued as the source address in not only the optional test message but also all alert email messages sent by HP Web JetAdmin.

An error message will appear if the *To* and *From* addresses are not valid or if the mail server is not configured to relay email. The addresses can be manually verified with the following commands through a telnet session using port 25:

1. telnet <mail server> 25
(expected result: 220 xxxx)
2. HELO
3. MAIL FROM: <from address>
(expected result: 250 xxxx)
4. RCPT TO: <to address>
(expected result: 250 or 251 xxxx)
5. RSET

NOTE: Some mail servers require that the sender email address be a valid address. HP Web Jetadmin will use the following email address by default as the sender when issuing alert email messages:

WebJetadmin@"machinename"

Some email servers will reject this sender name and will not deliver the message. To modify the sender address that is used during alert email messages, add the following entry:

SMTPMailFrom=(desired name)

to the [Alerts] section of the hpjwja.ini file located in the following subdirectory:

C:\Program Files\HP Web Jetadmin\doc\plugins\hpjwja

The HP Web Jetadmin service must be stopped and restarted in order for the change to take place.

Enable Alerts in HP Web JetAdmin

The next step in configuring alerts is to instruct HP Web Jetadmin to start listening for alerts from devices or poll devices for status, depending upon the capabilities of the device. Alerts can be enabled in HP Web Jetadmin by selecting *Alerts*, *Properties*, and checking any of the *Enable* buttons (see Figure 3).

Traps vs. Polling

It is perceived that the use of traps to report status changes is a more efficient use of network resources than polling for status. Traps minimize network traffic since they only create network traffic as events occur on the printer. Polling creates network traffic at scheduled intervals, regardless of an event occurring on the printer or not. Traps also provide real-time alert messages, meaning an alert message is sent instantly after an event occurs on a printer. Polling checks the status of printers at scheduled intervals, which may not coincide with the exact time an event occurred on the printer. However, polling does have some advantages. For example, if a printer suddenly goes down completely where it cannot communicate on the network, it would be impossible for the printer to send a trap warning of the event. Polling, on the other hand, will occur

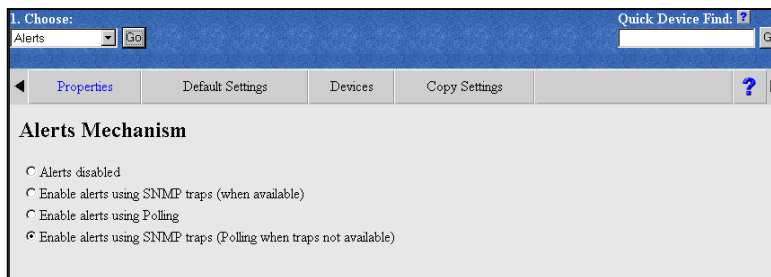


Figure 3

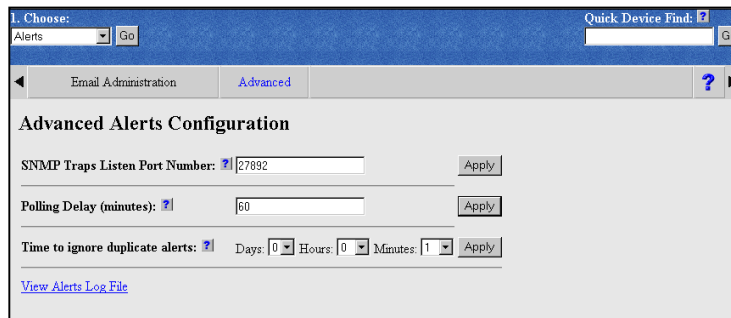


Figure 4

regardless of the state of the printer, and can determine that the printer is in a down state.

To only listen for traps from devices, check the box labeled *Enable alerts using SNMP traps (when available)*. HP Web Jetadmin will launch a trap service to listen for traps.

HP Web Jetadmin can also be configured to poll devices periodically for status. Click the button labeled *Enable alerts using Polling* to enable HP Web Jetadmin to only use polling for alerts.

To enable both the traps and polling techniques, click the button labeled *Enable alerts using SNMP traps (Polling when traps not available)*. With this method, traps will be attempted for all devices. If a device does not support sending traps, polling will be used.

In order for a device to support traps, the following requirements must be met:

- Must support setting the Trap Destination List via SNMP. For HP Jetdirect devices, the firmware version must be x.06.00 or greater.
- Must support the Standard Printer MIB. The questions that Web Jetadmin asks of the printer during the alerts processing are defined in the Standard Printer

MIB. For HP printers, this includes all models from the HP LaserJet 5Si and forward.

HP Web JetAdmin will check these criteria when traps are enabled on a device. It will remember this information to determine whether traps or polling will be used to provide the alerts feature for a device.

If traps are supported for a device, alerts are configured on a device by adding the IP address of the machine running HP Web Jetadmin to the SNMP Trap Destination List of the device, in addition to a unique port number. The default port number is 27892, and can be changed by selecting *Alerts, Advanced* (see Figure 4) and changing the *SNMP Traps Listen Port Number* value. When an event occurs on the device, it now knows exactly where to send the trap.

For devices that do not support traps and must use polling for alerts, the default polling interval is set to 60 minutes. This interval can be changed by selecting *Alerts, Advanced*, and changing the value under *Polling Delay (minutes)*. (see Figure 4).

Some events, such as *toner low*, will cause traps to be sent fairly often, such as every time a print job is received. To alleviate the potential problem of having an email inbox full of *toner low* messages, a parameter exists under *Alerts, Advanced* called

Time to ignore duplicate alerts that can eliminate duplicate alerts from being sent to recipients for the same event. There are two situations where this parameter maybe used:

1. Some network devices, such as HP Jetdirect devices, send multiple traps for the same event in case the first trap is lost. HP Web Jetadmin will process the first trap, and store any additional duplicate traps in a cache. To process the first trap, HP Web Jetadmin will perform a DNS lookup on the device, check the status of the device, and send an email message to an email server for distribution. If these steps for processing the trap take a substantial amount of time because of a slow/non-existent DNS server or a slow mail server, and exceed the value entered for *Time to ignore duplicate alerts*, the next trap, which is identical, is processed as a real live problem, and so on for any additional duplicate traps. This behavior can cause multiple alert messages to be sent for a single event. In such a case, the *Time to ignore duplicate alerts* parameter can be configured to allow ample time to process traps. Typically, two to three minutes is ample for processing alerts.
2. Some alert types, such as *toner low*, may not be corrected on the printer by an administrator in a timely manner. Therefore, alert messages for this printer event may be continually sent to recipients during the course of the day before the event is addressed. Administrators can increase the *Time to ignore duplicate alerts* parameter to a value such as 1 day to reduce the number of email messages sent for an event to one per day. Of course, caution must be exercised here because it may be

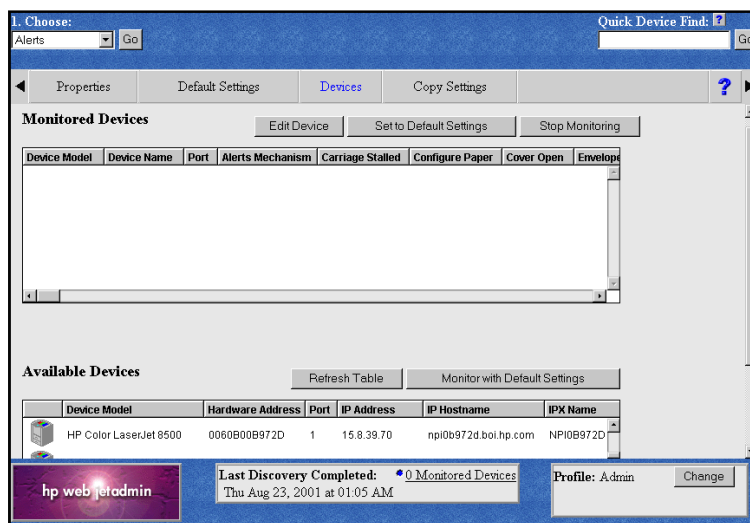


Figure 5

desired for some critical events to always be sent regardless of the repetition per day.

A log file is kept to track alert messages that have been sent from HP Web Jetadmin. The log file can be viewed by selecting the *View Alerts Log File* link under *Alerts, Advanced*. The log file itself can be viewed and manipulated with a text editor as well. The file is named *hpallog.txt* and can be found under the following subdirectory:

```
<drive>\Program Files\HP Web Jetadmin\doc\plugins\hpjwja
```

Select Devices for Alerts

Once HP Web Jetadmin has been instructed to perform alerts, the administrator must now select devices that HP Web Jetadmin will listen to for traps or poll for status. Individual devices can be enabled for alerts from the *Status* page of that device by selecting the *Alerts* tab and clicking *Enable alerts for this device*. (see below). The method that will be used to listen for alerts on this device (SNMP traps vs. polling) will be displayed in parentheses.

Enable alerts for this device (SNMP Traps)

HP Web Jetadmin also includes the functionality to enable alerts for several devices simultaneously. This technique saves time by allowing for multiple printers to be configured for alerts through a single configuration setup.

Multiple devices can be enabled for alerts on the *Monitored Devices* screen (see Figure 5), accessed by selecting *Alerts, Devices*. Another method of arriving at the *Monitored Devices* screen is by clicking on the *Monitored Devices* link at the bottom of the main screen of discovered devices.

The *Available Devices* section of the screen presents a list of all discovered devices from which to choose to have alerts monitored.

Configure Alert Types

Once alerts have been enabled for specific devices, HP Web Jetadmin must be told which events (or alerts) to monitor for those devices. The following list of events (alert types)

can be configured to trigger an email message:

- Carriage Stalled
- Configure Paper
- Cover Open
- Envelope Feeder Error
- High Capacity Input Error
- High Capacity Output Error
- Ink Error
- Intervention Needed
- Manual Feed Needed
- Offline
- Online
- Out of Memory
- Output Bin Full
- Paper Jam
- Paper Out
- Printer Error
- Stapler Error
- Toner Low
- Toner Out

This is a generic list of alerts that should apply to most printers. See *Appendix A* for examples of typical printer events and their corresponding alert categories. HP Web Jetadmin will attempt to provide the message that appears on the front panel of the printer as well in order to provide more specific information about the event in the email message.

Devices that are selected to be monitored for alerts can be edited individually or set to the default values. Additionally, if the device resides as a member of a group, the device can be edited individually or set to the group defaults.

Default settings are available by selecting *Alerts, Default Settings*. (see Figure 6). These are global settings that can be applied to all monitored devices.

Individual devices can also be custom configured by choosing *Edit Device* from the *Monitored Devices* screen, or

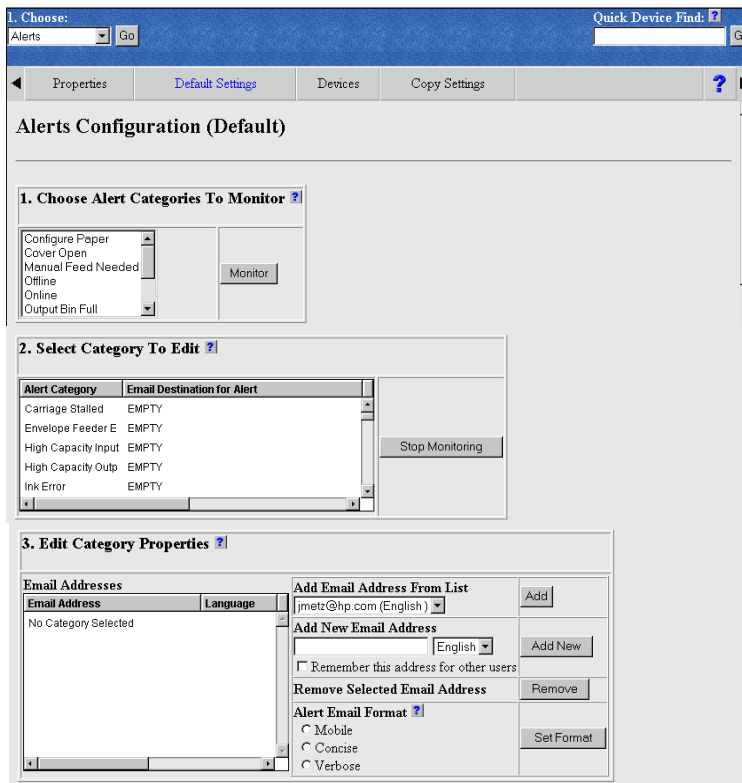


Figure 6

by selecting the *Alerts* tab from the *Status* page of a device. A screen appears similar to the default settings screen (Figure 6), the difference being that the settings will only apply to a single device rather than all devices.

Whether configuring default settings or an individual device, alerts are enabled by selecting the type of alert in the *Choose Alert Categories To Monitor* box and clicking *Monitor*. Multiple devices can be selected at a single time by holding down the *Ctrl* button on the keyboard while highlighting devices. The categories that are selected to monitor will be moved down to the second box of the screen titled *Select Category To Edit* where they can be edited as far as to whom will receive messages for the event and what type of message will be sent.

Groups of devices can also be configured for alerts by selecting the *Alerts* tab while viewing a group (see Figure 7).

This page displays a list of all of the devices in the device group that HP Web Jetadmin is currently monitoring for alerts. This list indicates which alerts are enabled for each device.

Devices can be added to or removed

from the list of devices that HP Web Jetadmin monitors. When a device is added, the alert settings for that device are set to the defaults that are specified for the device group.

A single device can be edited for alerts, and those settings can be applied to all of the devices in the device group. All of the devices in the group can also be set back to the defaults that are specified for the device group.

Personalized settings for individual devices can also be copied from one device to others by selecting *Alerts*, *Copy Settings* (see Figure 8). This is a "cut and paste" method that allows for quickly copying personalized settings to many devices without having to individually configure each device separately.

When HP Web Jetadmin receives a trap from a device, it checks to see if the trap matches any of the selected alerts for the device. If so, HP Web Jetadmin sends additional SNMP queries to the device to gather more information about the device. After gathering the information, a detailed email message is composed and delivered to designated recipients. If a device is polled for status, and a condition matches one of the selected alerts, an email message is composed with details of the event.

Select Recipients to Receive

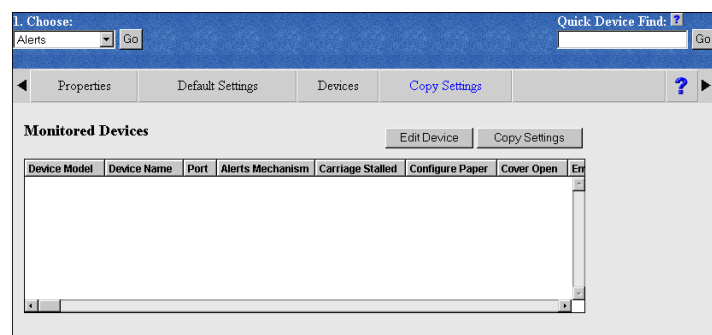


Figure 7

Alerts

The final step in configuring alerts is to select recipients to receive email messages when alerts occur on devices (see Figure 6). HP Web Jetadmin sends an email message to all designated email accounts configured to receive notification.

Email accounts can be entered to receive all alerts for a single device, or individual accounts can be specified to only receive messages for unique alerts that occur on a device. For example, *Toner Low* alerts could be sent to someone in charge of ordering consumables, while *Printer Error* alerts could be dispatched to a Helpdesk or Service Department. Merely highlight the event from the *Select category To Edit* box above, and enter the desired email addresses to receive alerts for those events.

A language preference can also be associated to particular email addresses, giving HP Web Jetadmin the ability to send the same alert to different people in different languages.

HP Web Jetadmin also offers the ability to assign different types, or levels, or email messages to different types of events. The three different categories of alert messages that can be assigned to different events are:

- **Mobile** - a brief text message designed for email-enabled mobile devices such as pagers. This message contains the event, the device name, and the URL for browsing to the device's Status page.
- **Concise** - a brief message that contains the event, the message that appears on the front panel, the device name, a link to the device's Status page, and the name and email address of the person to contact.

- **Verbose** - a detailed message that contains all of the information in the Concise message as well as detailed device information. It also includes a link to the device's Status page. Verbose is the default category that is assigned to alert types.

Again, a category can be assigned to a type of event. The category chosen will be sent to all email addresses assigned to that particular event.

Note: UTF-8 (Universal Transformation Format) is a method for converting 16-bit Unicode characters into ASCII characters for transmission over 8-bit email systems. The Subject line in an email alert message from HP Web Jetadmin is UTF-8 encoded by default. If the Subject line in these messages appears to be corrupted, it is probably due to the mail server not being able to support UTF-8 encoded text. UTF-8 encoding can be disabled (so that no encoding takes place in the Subject line), by adding the following entry under the [alerts] section in the file hpjwja.ini:

```
DisableUTF8Subject=true
```

The path for this file in Windows is:

```
\Program Files\HP Web  
JetAdmin\doc\plugins\hpojwja
```

Status Bar

The Status Bar on the bottom of the HP Web Jetadmin screen of all devices displays the number of devices being monitored for alerts, the number of devices in a critical state, and the number of devices in a caution state (see Figure 8). Clicking on any of these links will bring the administrator to a list of devices that match the designated state.

Devices can be added to or removed from the list of devices monitored for alerts by selecting *Monitored Devices*. Devices in a critical or caution state can be individually opened to check the status and determine the cause of the alert by selecting either *Critical Devices* or *Caution Devices*.

Conclusion

Alerts are a key feature within HP Web JetAdmin. Individuals such as administrators, service departments, and helpdesks can be notified of printer warnings or problems immediately when they occur. This enables these individuals to take action to resolve the issues in a timely manner before receiving calls from end users regarding the problems.

Appendix A

The following table provides a sample of typical printer events, the corresponding Web Jetadmin alert categories to which they belong, and the title that will appear in the email message that each event generates.

Printer Display / Description	Alert Category	Alert Email Title
toner is low (cyan, magenta, yellow, or black)	toner low	supplies
toner out; replace (cyan, magenta, yellow, or black)	toner out	supplies
offline	offline	service
online	online	service
install tray x, load paper (letter, legal, etc.)	paper out	media path
tray x empty	paper out	media path
close top cover	cover open	media path
output bin is full, remove paper	output bin full	media path
manual feed - feed paper into the multipurpose tray	manual feed needed	media path
13.x paper jam	paper jam	media path
20 memory overflow	out of memory	intervention needed
21 page is too complex, simplify job or add memory	out of memory	intervention needed
22 buffer overflow	printer error	intervention needed
40 communications error	printer error	intervention needed
41.x PRINTER ERROR	printer error	service
50.x fuser error, cycle power	printer error	service
51.x bad beam detect, laser malfunction	printer error	service
52.x laser scanner motor malfunction, cycle power	printer error	service
53.xy.zz DIMM slot error	printer error	service
54.x sensor error, cycle power	printer error	service
55.x printer engine error, dc controller	printer error	service
56.x tray cannot support selected mode or paper type	printer error	service
57.x fan motor failure	printer error	service
58.1 multipurpose tray lifter malfunction, cycle power	printer error	service
59.x abnormal main motor startup or rotation	printer error	service
62.x firmware CRC error	printer error	service
63 internal RAM memory test failure	printer error	service
64 scan buffer error	printer error	service
65 DRAM controller error	printer error	service
67.x engine (DC) controller error	printer error	service
66.xx.yy paper handling input device error	printer error	service
66.xx.yy paper handling output device error	printer error	service
68 NVRAM error	printer error	service
69.x duplex unit malfunction	printer error	service
73 PRINTER ERROR	printer error	service
79 service error, cycle power	printer error	service
photosensitive drum unit error, replace drum kit	printer error	service
drum life out or waste toner full, replace drum kit	printer error	service
finishing device out of finishing agent (e.g. staples, glue), add finishing agent	stapler error	service
finisher device alignment error, check finisher	stapler error	service
job is too large to bind or staple	stapler error	service
communications error with paper handling device x, check cables	high capacity input error	service
paper handling device x failed to initialize, check cables	high capacity input error	service
paper handling device failure, check cables	high capacity input error	service
input device paper path is open, close it	high capacity input error	media path
output device paper path is open, close it	high capacity output error	media path
bad envelope feeder connection, check connection	envelope feeder error	media path