



# IMPRESSION COUNTING

in HP Web Jetadmin

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## OVERVIEW

More users are printing in duplex mode as a consequence of Go Green/ecological sustainability. Today's current page counting methods are designed to enable efficient service and support by counting sheets as they pass through the print engine. For duplex printing, sheet counting focuses more on paper and duplex usage rather than accuracy of toner usage. HP has developed firmware to alter the duplex counters for many printers in order to more accurately bill for toner usage. The device owner or administrator can enable an optional impression-based page counting feature, if desired, to implement new page counting methods that are more aligned with today's job accounting needs. HP Web Jetadmin can be used to enable the new impression counting feature where the device returns the number of impressions instead of the number of sheets.

## IMPRESSIONS OR SHEETS

HP printers have traditionally counted pages printed as sheets. Sheet counting can monitor paper consumption and the physical wear and tear on the print engine components because every sheet that passes through the print engine is counted. A simplex page is counted as either one mono sheet or one color sheet depending on whether color toner was present on the sheet. A duplex page is counted as two sheets. However, the most costly side of the usage is counted for a duplex page, which means that if color exists only on one side of the duplex page, the printer meters two color pages. Blank sides of a duplex page are counted as printed pages and are metered as the usage on the printed side. Duplex 1 Image page counts are incremented for each blank side of a duplex page but are not tracked as color or mono.

HP has developed firmware that implements new page counting methods that are more aligned with today's job accounting needs. Storage and reporting of new duplex counters can be changed to impression-based counters (rather than sheet-based). An impression is defined as a side of a page that contains toner. Impression counts eliminate the concept of duplex pages and separate the pairing of color counts and duplex counts. Each side of a page is counted as an impression based upon whether toner is on the page. An impression is color if color toner is used, otherwise the impression is mono. Both color and mono are used for billing, but color is billed at a higher rate (because of the higher cost) than mono. Under the new impression counting technique, toner usage is more accurately metered.

## IMPRESSION COUNTING

If the impression counting method is enabled on a device, the behavior for incrementing duplex page counts changes on the device.

- Duplex counts for mono and color increment only for sides where toner is applied and do not increment for sides that do not contain toner.
- The Duplex Mono column count value is only incremented by a value of one for each side of a duplexed sheet of paper where mono toner is applied to the page.
- The Duplex Color column count value is only incremented by a value of one for each side of a duplexed sheet of paper where color toner is applied to the page.
- Only pages with toner applied to them are counted in the Mono and Color Simplex and Duplex columns. Because of this, the Duplex 1 Image columns are no longer incremented.

## Old Behavior

Content	Metered As
Blank + Blank	2 x Mono
Blank + Mono	2 x Mono
Blank + Color	2 x Color
Mono + Blank	2 x Mono
Mono + Mono	2 x Mono
Mono + Color	2 x Color
Color + Blank	2 x Color
Color + Mono	2 x Color
Color + Accent	2 x Color
Color + Color	2 x Color

## New Behavior

Content	Metered As
Blank + Blank	0 x Mono
Blank + Mono	1 x Mono
Blank + Color	1 x Color
Mono + Blank	1 x Mono
Mono + Mono	2 x Mono
Mono + Color	1x Mono + 1x Color
Color + Blank	1 x Color
Color + Mono	1 x Color + 1x Mono
Color + Accent	1 x Color + 1 Accent
Color + Color	2 x Color

The impression counting does not apply to copy jobs. Copy jobs scan images into the copy pipeline using a CCD scanner. When this process is performed, it is similar to taking a picture of the original. Because of how this technology works, the device does not have the ability to determine whether the original contains an image on the page. Therefore, if a blank page is copied, the copy system still counts the page as a mono or color page based on the original setting for the copy. The Scanned (Copy, Send & Fax) section (multifunction products only) is not affected by this new functionality.

Most products support the Duplex Blank Pages feature to increase the throughput speed of the device. Products that support the feature and have it enabled do not duplex jobs that contain one sheet of paper with toner applied only to the front side of the sheet (for example, one sheet of paper with an image on page 1, and page 2 left blank). Due to this behavior, the Simplex count increments by one instead of the Duplex Count. This feature is enabled by default.

## MAKING THE DECISION TO IMPLEMENT IMPRESSIONS

Impression-based counting is an optional page counting feature that the device owner or administrator can enable, if desired. If the new counting method is enabled, the device cannot return to the previous counting method. If the feature is not enabled, nothing on the device changes and it continues to count pages as it originally did when shipped from the factory. Device administrators and product owners should review the information in this document in order to make an informed decision about whether to permanently enable the new counting behavior or to stay with the original factory counting behavior. Devices in the future will be shipped from the factory with impression-based counting already enabled. However, HP Web Jetadmin will still be able to count sheets for duplex print jobs in order to accurately reflect the wear and tear on the print engine.

## DEVICES SUPPORTING IMPRESSIONS

The new impression-based counters can be enabled on the following devices as long as the minimum firmware level is met.

### Single-function Mono

Model	F/W Date	F/W Version
HP LaserJet P3005	20100222	02.090.7
HP LaserJet P3015	20100120	07.040.7
HP LaserJet P4014	20100212	04.070.7

### Single-function Color

Model	F/W Date	F/W Version
HP Color LaserJet CP3505	20100220	03.070.7
HP Color LaserJet CP3525	20100106	06.050.5
HP Color LaserJet CP4005	20100211	46.130.5

HP LaserJet P4015	20100212	04.070.7
HP LaserJet P4515	20100212	04.070.7
HP LaserJet 4250	20091230	08.160.4
HP LaserJet 4350	20091230	08.160.4
HP LaserJet 5200	20091230	08.100.4
HP LaserJet 9040	20100213	08.140.5
HP LaserJet 9050	20100213	08.140.5

HP Color LaserJet CP3505	20100220	03.070.7
HP Color LaserJet CP3525	20100106	06.050.5
HP Color LaserJet CP5520	20100120	07.020.7
HP Color LaserJet CP4025/CP4525	factory enabled	
HP Color LaserJet 4700	20100209	46.130.5
HP Color LaserJet 5550	20100126	07.140.5
HP Color LaserJet CP6015	20100121	04.060.6

#### Multifunction (MFP) Mono

Model	F/W Date	F/W Version
HP LaserJet M3027/35 MFP	20100306	48.121.4
HP LaserJet 4345 MFP	20100220	09.170.8
HP LaserJet M4345 MFP	20100306	48.121.4
HP LaserJet M5025/35 MFP	20100306	48.121.4
HP LaserJet 9040 MFP	20100219	08.160.8
HP LaserJet 9050 MFP	20100219	08.160.8
HP LaserJet M9040 MFP	20100306	51.071.4
HP LaserJet M9050 MFP	20100306	51.071.4

#### Multifunction (MFP) Color

Model	F/W Date	F/W Version
HP CM8050 MFP with Edgeline	20091130	77.018.0
HP CM8060 MFP with Edgeline	20091130	77.018.0
HP Color LaserJet CM3530 MFP	20100306	53.051.4
HP Color LaserJet 4730 MFP	20100219	46.250.9
HP Color LaserJet CM4540 MFP	factory enabled	
HP Color LaserJet CM4730 MFP	20100306	50.101.4
HP Color LaserJet CM6030 MFP	20100306	52.071.4
HP Color LaserJet CM6040 MFP	20100306	52.071.4
HP Color LaserJet 9500 MFP	20100219	08.160.8

## USING WEB JETADMIN TO ENABLE IMPRESSIONS

HP Web Jetadmin can be used to enable impression counting on devices that have recent firmware to support it. HP Web Jetadmin can be used to determine if the appropriate firmware is installed on each device and upgrade those where it is not. First, the latest firmware must be uploaded into the HP Web Jetadmin firmware repository by selecting **Firmware > Repository** in the navigation tree and clicking **Import**. Any devices that are not up-to-date with the supported firmware can be upgraded by selecting the devices in the list, right-clicking the selection, selecting **Device**, and clicking **Upgrade Firmware**. Now follow the wizard to select the new firmware and complete the upgrade.

A configuration item is present in HP Web Jetadmin for instructing the device to count impressions instead of pages. HP Web Jetadmin displays a checkbox on the device **Config** tab (see Figure 1) to enable setting the flag for the new duplex impression counting mechanism. This checkbox is only present if the device supports the feature. The setting can also be enabled on multiple devices at once (batch mode).

When attempting to enable impression counting on a device, HP Web Jetadmin presents an OPT In message that states the device will change how it counts pages and will be viewable from all customer-viewable perspectives, including the EWS Usage page, Printed Usage page, and HP Web Jetadmin.

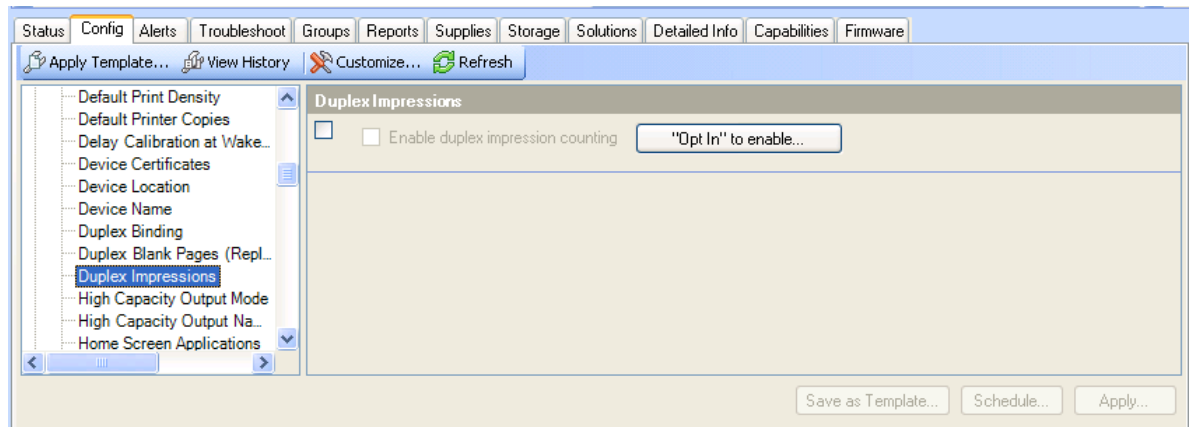


Figure 1 – Enabling Duplex Impressions

Once the device is configured for impression counting, it cannot be reset to count sheets again. Even if a firmware downgrade is performed on the device, once impressions are enabled, they remain enabled.

## DISPLAYING IMPRESSIONS

Once a device is configured to count impressions instead of sheets, HP Web Jetadmin does not message this change by altering column or report headers to indicate impressions. The counts that HP Web Jetadmin presents in columns and reports are impressions, but there are not any visual indications. In the case of data collections for HP Web Jetadmin reports, impressions begin to be reported from the second data collection after impressions are enabled. The first collection triggers an anomaly in HP Web Jetadmin that states that the device started using the new counter in this collection (see Figure 2). All collections prior to the impression change are sheets. Historical data is not converted. When the user enables this functionality, HP Web Jetadmin simply changes from storing sheet counts to storing impression counts.

Anomalies appear for each device during the next data collection after impressions are enabled. These are expected and can be used to verify that the setting change took place. Collections that are affected by this setting are Device Utilization and Peak Usage.

Name	Value	Comment
AnomalyDuplexImpressionDisabledChange	Duplex Impression Reset	
AnomalyDuplexImpressionDisabledChangeDetails	The manner in which duplex page counts are recorded has been reset.	
▶ AnomalyDuplexImpressionEnabledChange	Duplex Impression Change	This is the anomaly thrc
AnomalyDuplexImpressionEnabledChangeDetails	The manner in which duplex page counts are recorded has changed.	
*		

Figure 2 – Reports Anomalies

## IMPRESSIONS ENABLED AT FACTORY

Devices are beginning to ship from the factory with impressions already enabled. The first two devices to ship with impressions enabled are the HP Color LaserJet CM 4540 MFP and HP Color LaserJet CP5520. These products already count report impressions on the EWS Usage page and the Printed Usage page. HP Web Jetadmin still offers the ability to enable impression counting on these devices. But it only changes how the pages are counted in HP Web Jetadmin. It does not change the page counting within the device or the Usage pages found in both areas.

The OPT In statement in HP Web Jetadmin that is presented when enabling impression counting indicates that the device will change how it counts pages as a whole, which is not completely correct. The device does not change how it counts pages. HP Web Jetadmin only changes how it reports pages once impressions are enabled.

HP Web Jetadmin does not report the following types of counts for these products because they no longer expose these counts due to impression counting enabled at the factory:

- Simplex Color Impressions
- Simplex Mono Impressions
- Duplex Color Impressions
- Duplex Mono Impressions
- Simplex Color Sheets
- Simplex Mono Sheets
- Duplex Color Sheets
- Duplex Mono Sheets
- Simplex Total Impressions
- Duplex Total Impressions

Page counts that are available before HP Web Jetadmin enables impressions include:

- Simplex Total Sheets
- Duplex Total Sheets
- Total Color Sheets
- Total Mono Sheets

Page counts that are available after HP Web Jetadmin enables impressions include:

- Simplex Total Sheets
- Duplex Total Sheets
- Total Color Impressions
- Total Mono Impressions

Therefore, sheets always remain active for duplex/simplex counts in HP Web Jetadmin for the purpose of monitoring paper and duplex usage. Once impressions are enabled by HP Web Jetadmin, the ability to more accurately bill for toner usage appears as color and mono pages are not counted as impressions.

## SUMMARY

Impression-based counting is an optional page counting feature that the device owner or administrator can enable to count impressions instead of sheets. Impression counting provides more accurate metering for billing of toner usage while sheet counting provides more accurate metering for tracking paper and duplex usage. Device administrators and product owners should review the information in this document in order to make an informed decision about whether to permanently enable the new impression counting behavior or to stay with the original factory counting behavior.

