Comparative Feature, Performance and Image Quality Evaluation

HP LaserJet Pro M281fdw and HP LaserJet Pro M254dw vs. Competitive Models

TEST OBJECTIVE

Keypoint Intelligence - Buyers Lab was commissioned by HP Inc. to conduct a comparative evaluation of performance, including image quality, usability (from the desktop, at the panel and using the mobile print/scan app), feature set, simplex and duplex speeds and cost per page, of the HP LaserJet Pro M281fdw and HP LaserJet Pro M254dw versus competitive models from Brother, Dell, Samsung and Xerox. BLI used its proprietary speed and image quality test targets printed and copied in default mode. BLI technicians compared density readings and the visual quality across the samples. Technicians measured printing and copying times for single and multi-page documents, in simplex and duplex modes.
EXECUTIVE SUMMARY

In evaluating the newest HP models against the top in-class competitors, BLI’s analysts found that the HP LaserJet Pro M281fdw multifunction printer and single-function printer counterpart based on the same engine, the LaserJet Pro M254dw, had some significant advantages. Compared to laser models from Brother, Dell, Samsung and Xerox, the LaserJet Pro M281fdw and LaserJet Pro M254dw had greatest advantage in print and copy speeds, producing pages faster than other brands. Both HP models delivered the fastest simplex and duplex print speeds from ready mode for all documents tested (single-page, three-page and 10-page documents) when compared to the in-class competitive models tested. The HP models also had a slight advantage in color print and copy quality, producing more vibrant shades than the competition; black output was comparable across all models tested.

In terms of usability, BLI analysts felt the HP Smart app was robust and intuitive, offering more customization and flexibility than competing apps. Another advantage is the higher toner yields, which contribute to lower running costs and less frequent intervention rates. BLI’s calculations show that supplies costs for both the LaserJet Pro M281fdw and LaserJet Pro M254dw are lower than the competing models tested. Based on the results of this test, BLI feels both the LaserJet Pro M281 and LaserJet Pro M254 are affordable options for small workteams looking for fast and vibrant color output.


OVERALL PERFORMANCE RATINGS

<table>
<thead>
<tr>
<th>Feature Set</th>
<th>Supplies Cost Per Page</th>
<th>Print Speed</th>
<th>Copy Speed</th>
<th>Color Print Quality</th>
<th>Black Print Quality</th>
<th>Color Copy Quality</th>
<th>Black Copy Quality</th>
<th>Mobile App</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>=</td>
<td>✓</td>
<td>=</td>
<td>✓</td>
</tr>
</tbody>
</table>

✓ indicates an advantage; = indicates parity. Ratings above are with respect to each other.
Features Assessment

When compared to the current competitive models, the HP LaserJet Pro M281fdw offers key advantages, including a faster rated print speed and first-print time in both color and black, standard automatic duplexing (three models in the group only include manual duplexing), a paper capacity of 250 sheets (three models in the group only offer a 150-sheet input capacity), a 50-sheet document feeder (four models have lower capacities) and the highest available toner yields for black and color, which contribute to reduced intervention rates and lower cost per page. Some models in the group do, however, have larger touchscreen panels and higher memory capacities.

Manufacturer Specifications Comparison (US Market)

<table>
<thead>
<tr>
<th>Feature Set</th>
<th>HP LaserJet Pro M254dw</th>
<th>Brother HL-3140CW</th>
<th>Brother HL-3170CDW</th>
<th>Samsung Xpress C1810W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplies Cost Per Page</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Print Speed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Color Print Quality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Black Print Quality</td>
<td>=</td>
<td>=</td>
<td>=</td>
<td></td>
</tr>
<tr>
<td>Mobile App</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

✓ indicates an advantage; = indicates parity. Ratings above are with respect to each other.
### Manufacturer Specifications Comparison (US Market)

<table>
<thead>
<tr>
<th></th>
<th>HP LaserJet Pro M254dw</th>
<th>Brother HL-3140CW</th>
<th>Brother HL-3170CDW</th>
<th>Dell E525w</th>
<th>Samsung Xpress C1800FW</th>
<th>Xerox WorkCentre 6027NI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Street Price</strong></td>
<td>$299</td>
<td>$199.99</td>
<td>$249</td>
<td>$199.99</td>
<td>$250</td>
<td>$250</td>
</tr>
<tr>
<td><strong>Print Speed</strong></td>
<td>22 ppm color/22 ppm</td>
<td>19 ppm color/19 ppm black</td>
<td>23 ppm color/23 ppm black</td>
<td>19 ppm color/19 ppm black</td>
<td>23 ppm color/23 ppm black</td>
<td>19 ppm color/19 ppm black</td>
</tr>
<tr>
<td><strong>First-Page-Out Time</strong></td>
<td>12.5 sec color/10.8 sec black</td>
<td>16 sec color/16 sec black</td>
<td>16 sec color/16 sec black</td>
<td>16 sec color/16 sec black</td>
<td>16 sec color/16 sec black</td>
<td>16 sec color/16 sec black</td>
</tr>
<tr>
<td><strong>System Memory (Standard/Maximum)</strong></td>
<td>256-MB RAM</td>
<td>64 MB</td>
<td>128 MB</td>
<td>256 MB/512 MB</td>
<td>256 MB/512 MB</td>
<td>256 MB/512 MB</td>
</tr>
<tr>
<td><strong>Control Panel</strong></td>
<td>2.7” touch screen</td>
<td>16-character LCD display</td>
<td>16-character LCD display</td>
<td>32-character LCD display</td>
<td>32-character LCD display</td>
<td>32-character LCD display</td>
</tr>
<tr>
<td><strong>In-box Toner Yield</strong></td>
<td>800 pages black/700 pages color</td>
<td>1,000 pages black/1,000 pages color</td>
<td>1,000 pages black/1,000 pages color</td>
<td>1,000 pages black/700 pages color</td>
<td>1,000 pages black/700 pages color</td>
<td>1,000 pages black/1,000 pages color</td>
</tr>
<tr>
<td><strong>Highest Available Toner Yield</strong></td>
<td>3,200 pages black/2,500 pages color</td>
<td>2,500 pages black/2,200 pages color</td>
<td>2,500 pages black/2,200 pages color</td>
<td>2,500 pages black/1,800 pages color</td>
<td>2,500 pages black/1,800 pages color</td>
<td>2,500 pages black/1,800 pages color</td>
</tr>
</tbody>
</table>

The HP LaserJet Pro M254dw also offers some advantages against the competition, including a faster rated first-print time in both color and black, standard automatic duplexing (two models in the group only include manual duplexing), a touchscreen panel to simplify menu navigation and the highest available toner yields for black and color, which contribute to reduced intervention rates and lower cost per page. One model in the group offers a higher memory capacity.
Cost Per Page Assessment

BIL calculated full-color and average cost per page based on rated yields and estimated street pricing for all user replaceable consumables (full color cpp assumes every page printed is in color, while average cpp assumes 50% of pages are printed in black and 50% of pages are in color). When compared to the in-class models tested, both the HP LaserJet Pro M281fdw and LaserJet Pro M254dw offer a supplies cost per page that is the lowest of the group.

Full-Color Supplies Cost Per Page (In US $)

<table>
<thead>
<tr>
<th>Supplies Cost Per Page</th>
<th>HP LaserJet Pro M281fdw</th>
<th>Brother MFC-9130CW</th>
<th>Brother MFC-9340CDW</th>
<th>Dell Color Multifunction Printer E525dw</th>
<th>Samsung Xpress C1860FW</th>
<th>Xerox WorkCentre 6027NI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Toner CPP</td>
<td>3.031¢</td>
<td>3.400¢</td>
<td>3.400¢</td>
<td>3.300¢</td>
<td>3.520¢</td>
<td>3.850¢</td>
</tr>
<tr>
<td>Average Supplies CPP</td>
<td>9.211¢</td>
<td>11.469¢</td>
<td>11.469¢</td>
<td>10.370¢</td>
<td>11.757¢</td>
<td>12.781¢</td>
</tr>
</tbody>
</table>

BIL’s full-color cost per page based on manufacturer estimated street pricing (as of September 2017) divided by the rated yields for all user-replaceable consumables (i.e. the highest-yield toner, drums, transfer belt and waste containers, where applicable). Cost of the device and starter cartridges are not included in this calculation. Buyers Lab has made reasonable efforts to ensure that the information provided is complete and accurate. Pricing is to be used as a comparative price estimate and may not represent the prevailing price of supplies/consumables in a particular location on any particular day.

Supplies Cost Per Page (In US $)

<table>
<thead>
<tr>
<th>Supplies Cost Per Page</th>
<th>HP LaserJet Pro M254dw</th>
<th>Brother HL-3140CW</th>
<th>Brother HL-3170CDW</th>
<th>Samsung Xpress C1810W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Toner CPP</td>
<td>3.031¢</td>
<td>3.400¢</td>
<td>3.400¢</td>
<td>3.520¢</td>
</tr>
<tr>
<td>Color Toner CPP</td>
<td>15.391¢</td>
<td>16.898¢</td>
<td>16.898¢</td>
<td>18.851¢</td>
</tr>
<tr>
<td>Average Supplies CPP</td>
<td>9.211¢</td>
<td>11.469¢</td>
<td>11.469¢</td>
<td>11.757¢</td>
</tr>
</tbody>
</table>

Toner CPP is based on the manufacturer’s declared yield, in accordance with ISO/IEC 19798, and estimated street pricing for the cartridges (i.e. cost of supply divided by rated yield). Average CPP assumes 50% of the pages printed are in black and 50% are in color and includes pricing and yields for all user replaceable consumables.
**Speed Performance**

The biggest advantage of the HP models is in the area of output speeds, providing the fastest speeds in every single test. In BLI’s speed testing from ready mode, the LaserJet Pro M281fdw was the fastest when printing and copying a three-page file in simplex and duplex modes. The LaserJet Pro M254dw was also the fastest of the group in duplex mode. When printing four different single-page files (black Word document, color Excel file, color PowerPoint file and black PDF file) from ready mode, the LaserJet Pro M281fdw and M254dw were faster than all models from other brands tested.

**BLI Speed Test Results**

*Single-Page File (Time in Seconds)*

<table>
<thead>
<tr>
<th>File Type</th>
<th>Xerox WorkCentre 6027NI</th>
<th>Samsung Xpress C1860FW</th>
<th>Dell E525w</th>
<th>Brother MFC-9340CDW</th>
<th>Brother MFC-9130CW</th>
<th>HP LaserJet Pro M281fdw</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word (.doc)</td>
<td>24.34</td>
<td>20.15</td>
<td>20.97</td>
<td>21.56</td>
<td>21.38</td>
<td>19.82</td>
</tr>
<tr>
<td>Excel (.xls)</td>
<td>20.94</td>
<td>20.88</td>
<td>21.38</td>
<td>21.38</td>
<td>20.97</td>
<td>20.97</td>
</tr>
<tr>
<td>PowerPoint (PPT)</td>
<td>16.81</td>
<td>15.88</td>
<td>17.56</td>
<td>17.56</td>
<td>17.56</td>
<td>15.88</td>
</tr>
<tr>
<td>Acrobat (.pdf)</td>
<td>19.84</td>
<td>16.88</td>
<td>18.82</td>
<td>19.47</td>
<td>18.82</td>
<td>18.82</td>
</tr>
</tbody>
</table>

All devices tested using the default driver with the engine in a warmed-up and ready state. First-print time in seconds indicates the time it took to process, image and deliver a single-page test document to the output tray.
All devices tested using the default driver with the engine in a warmed-up and ready state. First-print time in seconds indicates the time it took to process, image and deliver a single-page test document to the output tray.
### Three-Page File in Simplex and Duplex; Print and Copy Modes (Time in Seconds)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Device</th>
<th>Time (Seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplex Copy (Color)</td>
<td>HP LaserJet Pro M281fdw</td>
<td>22.28</td>
</tr>
<tr>
<td></td>
<td>Xerox WorkCentre 6027NI</td>
<td>23.15</td>
</tr>
<tr>
<td></td>
<td>Samsung Xpress C1860FW</td>
<td>23.68</td>
</tr>
<tr>
<td></td>
<td>Dell E5520w</td>
<td>24.88</td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9340CDW</td>
<td>30.46</td>
</tr>
<tr>
<td></td>
<td>HP LaserJet Pro M281fdw</td>
<td>43.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44.28</td>
</tr>
<tr>
<td>Duplex Copy (Mono)</td>
<td>HP LaserJet Pro M281fdw</td>
<td>22.28</td>
</tr>
<tr>
<td></td>
<td>Xerox WorkCentre 6027NI</td>
<td>22.91</td>
</tr>
<tr>
<td></td>
<td>Samsung Xpress C1860FW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dell E5520w</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9340CDW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HP LaserJet Pro M281fdw</td>
<td>22.28</td>
</tr>
<tr>
<td>Simplex Copy (Color)</td>
<td>HP LaserJet Pro M281fdw</td>
<td>22.28</td>
</tr>
<tr>
<td></td>
<td>Xerox WorkCentre 6027NI</td>
<td>21.15</td>
</tr>
<tr>
<td></td>
<td>Samsung Xpress C1860FW</td>
<td>25.28</td>
</tr>
<tr>
<td></td>
<td>Dell E5520w</td>
<td>26.88</td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9340CDW</td>
<td>30.47</td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9130CW</td>
<td>30.46</td>
</tr>
<tr>
<td></td>
<td>HP LaserJet Pro M281fdw</td>
<td>46.28</td>
</tr>
<tr>
<td>Simplex Copy (Mono)</td>
<td>HP LaserJet Pro M281fdw</td>
<td>22.28</td>
</tr>
<tr>
<td></td>
<td>Xerox WorkCentre 6027NI</td>
<td>22.91</td>
</tr>
<tr>
<td></td>
<td>Samsung Xpress C1860FW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dell E5520w</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9340CDW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9130CW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HP LaserJet Pro M281fdw</td>
<td>43.22</td>
</tr>
<tr>
<td>Duplex Print (Color)</td>
<td>HP LaserJet Pro M281fdw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Xerox WorkCentre 6027NI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samsung Xpress C1860FW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dell E5520w</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9340CDW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9130CW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HP LaserJet Pro M281fdw</td>
<td></td>
</tr>
<tr>
<td>Duplex Print (Mono)</td>
<td>HP LaserJet Pro M281fdw</td>
<td>22.06</td>
</tr>
<tr>
<td>Simplex Copy (Color)</td>
<td>HP LaserJet Pro M281fdw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Xerox WorkCentre 6027NI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samsung Xpress C1860FW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dell E5520w</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9340CDW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9130CW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HP LaserJet Pro M281fdw</td>
<td>37.72</td>
</tr>
<tr>
<td>Simplex Copy (Mono)</td>
<td>HP LaserJet Pro M281fdw</td>
<td>27.18</td>
</tr>
<tr>
<td>Duplex Print (Color)</td>
<td>HP LaserJet Pro M281fdw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Xerox WorkCentre 6027NI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samsung Xpress C1860FW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dell E5520w</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9340CDW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother MFC-9130CW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HP LaserJet Pro M281fdw</td>
<td>37.78</td>
</tr>
<tr>
<td>Duplex Print (Mono)</td>
<td>HP LaserJet Pro M281fdw</td>
<td>27.83</td>
</tr>
</tbody>
</table>

All devices tested in using default settings with the engine in a warmed-up and ready state. 3-page mixed color and black documents are sent to the device. Time in seconds indicates the time from the start of the job until the last page of the job drops into the output tray.
### 10-Page File in Simplex and Duplex; Print and Copy Modes (Time in Seconds)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Time in Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duplex Copy (Color)</strong></td>
<td>60.54</td>
</tr>
<tr>
<td><strong>Duplex Copy (Mono)</strong></td>
<td>56.81</td>
</tr>
<tr>
<td><strong>Simplex Copy (Color)</strong></td>
<td>47.09, 51.31, 58.81</td>
</tr>
<tr>
<td><strong>Simplex Copy (Mono)</strong></td>
<td>42.43, 43.47, 44.53</td>
</tr>
<tr>
<td><strong>Duplex Print (Color)</strong></td>
<td>91.78</td>
</tr>
<tr>
<td><strong>Duplex Print (Mono)</strong></td>
<td>90.41</td>
</tr>
</tbody>
</table>

#### Comparison Devices:
- Xerox WorkCentre 6027NI
- Samsung Xpress C1860FW
- Dell E525w
- Brother MFC-9340CDW
- Brother MFC-9130CW
- HP LaserJet Pro M281fdw
- Samsung Xpress C1810W
- Brother HL-3170CDW
- Brother HL-3140CW
- HP LaserJet Pro M254dw

All devices tested in using default settings with the engine in a warmed-up and ready state. 10-page mixed color and black documents are sent to the device. Time in seconds indicates the time from the start of the job until the last page of the job drops into the output tray.
Image Quality Assessment (Print Mode)

Business users want vibrant colors and clean text and to get the results they expect the first time; if users have to reprint a page because colors are wrong or quality is lacking, they’re wasting valuable time and resources. BLI evaluated image quality of all the devices using a series of BLI proprietary targets, as well as the ISO 24712 test suite, printed in default mode on 24-lb. multipurpose paper with ColorLok technology.

In BLI’s assessment, the HP devices had a slight advantage in overall color print and copy quality, with more vibrant blues, though flesh tones were slightly oversaturated. Black text was comparable across all tested models. Specific examples can be seen below and on the following pages.

Black Text Comparison (Magnified to show detail)
When producing red text on a light blue background, the HP models produced darker, sharper text, with a brighter smoother shaded background. Text from the Brother units was lighter with some visible mottling. While text from the Dell and Xerox were dark and smooth, the background had visible mottling.

When printing color business graphics, the HP models produced the most vibrant output, especially when producing shades of blue.
PRINT DENSITY READINGS (Default Mode)

Density readings taken in default mode show that most black density readings were comparable across the group; however, the Brother HL-3170 had the highest readings, while the Dell, Samsung and Xerox devices were the lowest.

Image Quality Assessment (Copy Mode)

In copy mode, output was generally comparable across all models tested, though the HP models produced more vibrant shades of blue. Flesh tones from the HP devices were a bit oversaturated, while Specific examples can be seen below and on the following pages.

Color Graphics Comparison (Magnified to show detail)

When copying color business graphics, the HP models provided vibrant output with smooth transitions across color bands. In the graphic above, you can clearly see each color of the rainbow in the HP output, and also in output from the Samsung and Xerox models, whereas the Brother’s output lacks clear transitions and colors appear washed out; the output from the Dell model was also vibrant, but the text appeared fuzzy due to registration issues.
Solid Color Accuracy (Magnified to show detail)

The HP models provided the best color accuracy in copy mode, as seen here in a copy of a blue square. The two Brother units produced a shade of blue darker than the original, with some visible banding. The Dell, Samsung and Xerox models produced a shade closer to the original, but there was noticeable mottling.

Black Text Comparison (Magnified to show detail)

Copied text from most models was comparable, though the output produced by the Brother units was not nearly as cleanly formed and edges of text appeared jagged.
Density readings taken from copied output in normal mode show that the Brother MFC-9340CDW delivered the highest black density readings and the Dell E525w delivered the lowest black density.

**Mobile Print/Scan App Assessment**

Modern office workers need to remain productive, even when they are away from their PC, often relying on smartphones and tablets to access and print files remotely. So it’s important to have access to an intuitive and feature rich mobile app. BLI found the HP Smart app to be an intuitive and flexible choice for mobile printing and scanning. The HP interface is more modern and graphical than the competing apps, provides at-a-glance status on the main screen and provides detailed help. Print and scan preview, as well as document editing functionality differentiate the HP app from most of the competition. Users can also customize the main screen of the HP Smart app to have one-touch access to their most common functions.
The main screen of the HP Smart App can be customized with features and functions, providing one-touch shortcuts to most common functions. The HP Smart app is robust and easy to use, supporting a wide array of choices (selections include Print Photos, Camera Scan to Email, Print Facebook Photos, Print Documents, Printer Settings, Get HP Help and Support, How to Print, Scan to Email, Scan to Cloud, Camera Scan to Cloud, Scan, Camera Scan, Print from Google Drive and Print from Dropbox). The main screen also provides at-a-glance toner/ink status for the selected device.

The main screen of the Brother iPrint&Scan app includes selections for Print, Scan, Copy Preview, Fax and Machine Status. Users must select the icon to see ink/toner status (a step not required for HP, as status is visible on the main screen).

The main screen of the Dell Document Hub includes choices for Print File, Print Web Page, Scan or Device Monitor (to check status). Users must select the icon to see ink/toner status (a step not required for HP, as status is visible on the main screen).

The main screen of the Samsung includes icons for “print from” locations (Gallery, Camera, Web Page, Documents, Clipboard, Email, Google Drive and More). Icons for scan and fax are found at the bottom left of the screen, while status can be accessed by pressing the “i” at the bottom right of the screen.

The main screen of the Xerox print portal is very basic, providing selections for “print from” locations (Files, Photos, Email, Camera), as well as links to access uploaded documents, select a printer and check job status; no device status is provided.
The HP Smart app offers a good range of file format support (PDF, JPG, PNG, DOCx, XLSx). When a document is selected for printing, a preview is opened onscreen. You can scroll through the entire document using the preview function. Print settings can easily be changed using the touch screen icons located at the bottom of the page. Print settings include number of copies (1-5), Print Quality (Draft, normal and best), Color option (color or grayscale), Paper size selection (Legal, letter or A4), Page range selection (allows user to select all pages of a doc or allows selection of individual pages), Duplex printing (Off, short edge or long edge) and resize (original size, fit to page or fill page).

The Brother iPrint&Scan app supports the same file formats as HP’s app, plus PPT. When users select print, they can choose files from photos or documents stored on the mobile device, or activate the camera to take a photo, as well as choosing a web page or printing content that’s been copied to the clipboard. Settings include Paper Size, number of copies, layout (multi-up printing) and 2-sided.

The Dell Document Hub supports fewer file types (PDF, JPG, DOC, PNG) and lets users select number of copies, Color, Collate, Double-sided printing, Output Size and Pages per Sheet.

The Samsung supports the same file formats as HP’s app (PDF, JPG, PNG, DOCx, XLSx). When users select print, they can modify settings including Paper Size, Image Size, Color, Paper Type, number of copies, collate, double-sided printing and page range.

The Xerox supports the same file formats as Dell’s app (PDF, JPG, DOC, PNG).
### APP FEATURES AT-A-GLANCE

<table>
<thead>
<tr>
<th></th>
<th>HP Smart App</th>
<th>Brother iPrint&amp;Scan</th>
<th>Dell Document Hub</th>
<th>Samsung mobile print</th>
<th>Xerox Print Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Setup</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto device discovery</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes, wireless</td>
</tr>
<tr>
<td>Manual device discovery</td>
<td>Using IP address</td>
<td>Using IP address</td>
<td>Yes</td>
<td>Using IP address</td>
<td>No</td>
</tr>
<tr>
<td><strong>Printing:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File types supported:</td>
<td>PDF, JPG, PNG, DOCx, XLSx</td>
<td>PDF, JPG, PNG, DOCx, XLSx, PPT</td>
<td>PDF, JPG, DOC, PNG</td>
<td>PDF, JPG, PNG, DOCx, XLSx</td>
<td>PDF, JPG, DOC, PNG</td>
</tr>
<tr>
<td>Print Preview</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Document Editing functions</td>
<td>Yes, Delete pages, reorder pages, crop, resize</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Print email/email attachments</td>
<td>Yes/Yes</td>
<td>Yes/Yes</td>
<td>Yes/Yes</td>
<td>Yes, Yes</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Local Pictures (from tab/ phone camera)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Scanning:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scan from ADF/Platen to app (device):</td>
<td>ADF or Platen</td>
<td>Yes</td>
<td>ADF - Simplex only/Platen - Yes simplex only</td>
<td>ADF or Platen</td>
<td>No</td>
</tr>
<tr>
<td>Control of scan functions from device:</td>
<td>Color/Resolution/paper size/rotate 90/crop/File name</td>
<td>Paper size/color or B&amp;W/rotate/crop/skip blank</td>
<td>Color or Grayscale, Resolution 200,300, 600dpi, Doc size, file type (JPG, PNG, PDF)</td>
<td>Color/Quality/Paper size/file type</td>
<td>No</td>
</tr>
<tr>
<td>Scan Preview</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td><strong>Supported scan destinations:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Local to Device (phone/tablet)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>BOX</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>DropBox</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>EverNote</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<td>No</td>
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<tr>
<td>Google Drive</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Other:</td>
<td>Custom URL</td>
<td>No</td>
<td>Dell Doc hub online</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>File formats supported:</td>
<td>JPG and PDF</td>
<td>JPG and PDF</td>
<td>PDF searchable, RTF, DOC, DOCx, XLS, XLSX, PPTX</td>
<td>PDF single/multi, JPEG, PNG</td>
<td>None</td>
</tr>
</tbody>
</table>
## Device Status info:

<table>
<thead>
<tr>
<th></th>
<th>Online/Offline</th>
<th>No</th>
<th>On Line/ Off Line</th>
<th>Yes, Offline/Online</th>
<th>On Line/Off line</th>
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</thead>
<tbody>
<tr>
<td><strong>Machine status/availability</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Supplies Status:</strong></td>
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<td></td>
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<tr>
<td>CMYK ink status bars</td>
<td>None</td>
<td></td>
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<td>Yes</td>
<td></td>
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<tr>
<td>CMYK Status Bars</td>
<td>None</td>
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<td></td>
<td>No</td>
<td></td>
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<tr>
<td><strong>Error messages</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper out, ink out</td>
<td>None</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Any device error is indicated by “ERROR” message on app screen.</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Device configuration info</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detailed info on-screen</td>
<td>No</td>
<td></td>
<td></td>
<td>Basic device info</td>
<td>No</td>
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<tr>
<td><strong>Network configuration status</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detailed info on-screen</td>
<td>No</td>
<td></td>
<td></td>
<td>IP address only</td>
<td>No</td>
</tr>
<tr>
<td><strong>Utility functions:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Device report printout/print head cleaning</td>
<td>None</td>
<td></td>
<td></td>
<td>Test Print</td>
<td>None</td>
</tr>
</tbody>
</table>

## Other features and functions

|                              |                |    |                   |                     |                  |
| **Support/Help**             |                |    |                   |                     |                  |
| Onscreen app help/basic printer support info | No |    |                   | No                  | No               |
| Link to Brother's troubleshooting page | No |    |                   | No                  | No               |
| FAQ and Support tips built in | No             |    |                   | No                  | No               |
| **Customize App main screen** | Yes            |    |                   | No                  | No               |
Appendix A: Test Methodology

Test Environment

Testing was conducted under ambient conditions of 68°F to 78°F and 45% RH (+/- 10%), monitored daily by an Extech RH520 temperature/humidity digital recorder and Honeywell Model 61 Seven-Day Temperature/Humidity Chart Recorder, in BLI’s test facility located at 80 Little Falls Road, Fairfield, NJ (U.S.A).

Test Equipment

BLI’s dedicated test network, consisting of Windows 2003 servers, Windows 10 Professional workstations, 10BaseT/100BaseTX network switches and CAT5 cabling, Yokogawa WT210 power meter, Powerstat voltage regulator and ESP D5143NT Transient Voltage Surge Supressor.

MFP Models Tested

HP LaserJet Pro M281fdw, Brother MFC-9130CW, Brother MFC-9340CDW, Dell E525w, Samsung Xpress C1860FW and Xerox WorkCentre 6027NI.

Single-Function Printers Tested

HP LaserJet Pro M254dw, Brother HL-3140CW, Brother HL-3170CDW and Samsung Xpress C1810W.

About Buyers Lab

Since 1961, Keypoint Intelligence - Buyers Lab (BLI) has been the leading global independent office-equipment test lab. In addition to publishing the industry’s most comprehensive and accurate test reports on office document imaging devices, each representing months of exhaustive hands-on testing in BLI’s US and UK laboratories, the company has been the leading source for extensive runnability testing on imaging media and consumables, as well as extensive specifications/pricing databases on MFPs, printers, scanners and fax machines. BLI also has a long-standing reputation for being the industry’s most trustworthy and complete source for quality testing services and global competitive intelligence.

In addition to testing over 200 office document imaging devices and related consumables annually for its subscribers, BLI provides consulting services to buyers and a range of private testing services that include document imaging device beta and pre-launch testing, performance certification testing, consumables testing (including toner, ink, fusers and photoconductors), solutions evaluations, and imaging media runnability testing.

For more information on BLI, call (973) 797-2100, visit www.keypointintelligence.com, or email info@keypointintelligence.com.