



Background

Client is a market leader in manufacturing of all kinds of consumer, professional and industry level Printers, All-in-one devices, Cameras and Scanners. Client wanted Robosoft to develop test plans, create test suites and undertake the Qualification testing of the product so as to qualify it for final release.

Product

The product is a full-fledged software solution, which is to be used with various products like All-in-one devices consisting of *Print, Scan, Fax* and *Copy* functions.

The major features of this software include:

1. A *Print* application that has value-added features like Greeting card creation and printing, Banner printing, CD printing, Panorama printing and iron-on sticker printing
2. It also has image enhancement software, which can be used to enhance the image quality like brightness, contrast, color, etc
3. Imports the images from any connected mass storage media to the Mac
4. Slide show
5. Online photo sharing
6. Automatic Software update
7. Contextual help for all the features

Test Methodology

Client supplied us with the Functional Requirements document, based on which the Test plans and Test cases were developed. These Test plans and Test cases were sent for Customer's approval after which the product was tested based on these Test cases.

The different types of testing undertaken to complete Product Qualification testing for the above product included:

- Functionality testing
- Error handling
- Localization testing
- Interoperability testing
- Compatibility testing
- Reliability testing

Some of the specifics that were taken care of and paid close attention to, during the testing were:

- To test the interoperability and print performance, we printed various documents from a variety of popular applications, such as Adobe Photoshop, Adobe Acrobat Reader and Microsoft Office applications like Word, Excel and PowerPoint. These documents contained elements from simple text to complex tables, charts, and bitmapped images. The time taken to print and also the quality of the printed output were observed to verify the overall quality of printing.
- To rate the quality of photos, we printed several photos at different resolutions that let us evaluate specific attributes such as lines and edges, gradients, dithering and color.

We also measured the scan performance and its quality. We scanned glossy photographs of different sizes and areas, by setting the scan resolution to various dpi (72dpi - 2400dpi) and at different bit rate (1 bit to 24-bit) with Black & White, Gray scale and color document formats. We also scanned images using TWAIN drivers and saved the files into various industry-standard image types such as JPEG, BMP, Tiff, PNG, etc. and then studied the images carefully and evaluated them for resolution, clarity, dynamic range and color.



The fax feature was tested by initiating the fax from both the front panel of a device (scanning a document from the Flatbed/ ADF) and also from the software (sending a file from PC/ Mac). We verified that the job was completed as expected in both cases. The received and printed fax was then analyzed to compare it to the source document in appearance, size, orientation, and page order.

The above product was also subjected to localization Test. The different languages covered under the localization tests are English, French, Japanese, Italian, Spanish, German, Chinese (Simplified), Swedish, Brazilian Portuguese and Dutch.

Test Deliverables

We worked with the client to arrive at the Product Acceptance Criteria. The result of each test case was recorded as Pass or Fail. Periodic Test updates were sent to the client along with the Defects identified and classified severity-wise, category-wise and phase-wise. The Defect Injection Ratio (DIR) and product health was monitored with the help of dashboards.

Our experience helped us to design and execute a test strategy that validated the Client's solution across all features of the product. The strategy included the functionality testing based on the use cases, in addition to end-to-end performance testing to ensure performance under realistic conditions. Along the way, we uncovered problems, from usability to interoperability that only such a unified testing approach could have found. A detailed Test Summary Report was submitted to the client.

Test Bed

Our state-of-the art test facility, which includes a wide array of Mac Operating Systems, Graphic Drivers, RAM Capacities and other software supports, helped us simulate the real environment the product will be subjected to. The testing of the product was conducted with the following parameters:

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| Processor/ Speed | PowerPC G4 – 400 MHz PowerPC G4 – 700 MHz PowerPC G4 – 1 GHz PowerPC G4 – 1.25 GHz PowerPC G5 DP – 2 GHz Intel ADP 2.1 – 3.6 MHz Intel Core – 1.83 MHz |
| System RAM | 256 MB, 512 MB, 1 GB |
| OS | Mac OS 10.3.9, 10.4.3, 10.4.4, 10.4.5 |

Project Duration 17 person-months