Picsel ePAGE

Excel file format support

Copyright

Introduction

On handheld computers, traditional applications typically rely on synchronization with a PC to convert content from the original document format into a simpler format used by the device. This creates at least three problems. Firstly, some visual integrity is inevitably lost in the conversion process from a rich format to a simpler one, resulting in documents that do not look exactly like the original. Secondly, the reliance on a PC for synchronization means that direct network access is difficult, and the device is severely hampered when untethered from the PC. Thirdly, traditional applications take a monolithic approach, converting only a single format so that separate applications are needed for each different document type.

Picsel's ePAGE applications present a new concept in document viewing software. Unlike traditional approaches, the viewer can access native files, so synchronisation is not necessary and files can be grabbed straight off PC filing systems, flash cards and networks/internet without the need for pre-conversion. ePAGE deals directly with the original document in its native format, and aims to faithfully represent all of the features of the original. Moreover, the novel software architecture based on Picsel's ePAGE technology enables multiple format types to be richly supported in a single application.

ePAGE achieves a breakthrough in its ability to interpret and render complex file formats. Many apparently straightforward formats have in the past encountered difficulties even when used in their original application software on a different platform, for example when going from a PC to a Macintosh. Sometimes these files assume characteristics of the computer on which they are used, such as the screen size or byte order, and such assumptions have to be unravelled when using them on a different device. To compound the challenge, some formats may contain proprietary features which are not revealed to the public, and which even have been forgotten within the originating company. Others, such as HTML, have written standards yet are still subject to differing interpretations as evidenced by the varying treatment of web pages in proprietary browsers.

ePAGE supports the most popular global file formats. The formats interpreted by ePAGE are richly expressive, containing not just text but sophisticated layout and rendering features, rich fonts, colour, images, tables, graphics and many other document features. Picsel is continuously developing its file format support to eventually cover every feature of the native file. With such a wealth of features across many document types, this is inevitably an ongoing process, with milestone releases of new functionality planned at periodic intervals. The approach involves researching the feature set most commonly found in real documents, building support early for the most frequently used elements, and ensuring these features are reproduced with total faithfulness to the original. The emphasis of ePAGE is on displaying rich content rather than on reproducing the document creation facilities of the original application.

This document describes the features supported in ePAGE. This level of support already covers the vast majority of characteristics that occur in day to day documents of this type, and the specific features are described with notes where appropriate. Those features planned for future implementation are also described, for completeness.

Excel Features

Feature	Support	Notes
Supports Excel 5 format	Yes	BIFF5
Supports Excel 95	Yes	BIFF7
Supports Excel 97	Yes	BIFF8
Supports Excel2000	Yes	
Creates a viewable page for each worksheet in the original file	Yes	
Displays name of worksheet	Yes	Page name exported by DA, displayed via application layer
Supports page size	No	Not meaningful as view shows worksheet, not print veiw
Supports page margins	Yes	Margins applied around contents of worksheet
Supports headers and footers	Yes	Inserted on page
Displays cell row and column headings	No	

Feature	Support	Notes
Retains "frozen titles" for rows and columns when scrolling	No	Does not fit the ePAGE graphic model
Displays variable column width and row height	Yes	
Supports merged cells	Yes	
Displays page breaks within a worksheet (both horizontal and vertical breaks)	No	Not needed as sheet is not printed
Supports background image on worksheets	Yes	Not tiled images
Supports cell border positioning on top, bottom, right, left of cells	Yes	
Supports cell border thickness and double line borders	Yes	
Supports cell background colours and shading	Yes	
Supports cell background fill pattern	No	
Supports absolute and relative cell references	Yes	
Supports 3D cell references (i.e. to different sheet in file)	Yes	
Provides facility to either hide or display rows, columns or sheets that are hidden	No	Hidden items not visible
Supports names and labels for cells	Yes	
Supports scenarios, displays names of scenarios contained in worksheet	No	Displays only the default scenario
Provides facility to select scenario and display cell contents accordingly	No	
Supports all number formats: • Number • Currency • Accounting • Date • Time • Percentage • Fraction • Scientific • Special • Custom	Yes	

Feature	Support	Notes
Supports all function types: • Financial • Date & Time • Math & Trig • Statistical • Lookup & Reference • Database • Text • Logical • Information	Yes	Displays the resultant value of the function
Supports array formulas	Yes	
Text with styling.	Yes	
International Language support	Yes	Refer to the section on 'Character Sets' for more information.
Font face	Yes	ePAGE automatically selects the most suitable font from those available in the system
Font size and colour	Yes	
Bold text	Yes	
Italic text	Yes	
Text with underline	Yes	
Rotated text in cell	Yes	
Horizontal Text alignment in cells - Left - Centre - Right	Yes	
Vertical Text alignment in cells - Top - Middle - Bottom	Yes	
Indentation	Yes	
Supports text wrap within cell	Yes	
Supports break points within wrapped text (hard carriage returns)	Yes	
Displays formula contained in a selected cell	No	
Provides facility to display comments associated with a cell	No	
Supports hyperlinks to other files and web pages	No	
Supports hyperlinks attached to graphics and images	No	
Supports hyperlinks to specific locations/cells within current workbook	No	

Feature	Support	Notes
Displays screen tips associated with hyperlinks	No	

Diagrams and Pictures
  -    WMF (Windows MetaFile)
  -    EMF (Enhanced MetaFile)
  -    Clip Art
	Most	

OLE objects and documents	Yes	
Supports the following chart types: Column, Line charts	Yes	
Supports the following chart features: Chart title, Titles on X axes, Gridlines, Chart legend in original position	Yes	
Displays embedded charts within worksheet in original position	Yes	
Displays chart sheet as a separate page	Yes	
Supports native JPEG images contained in Excel documents.	Yes	
Supports native GIF images contained in Excel documents.	Yes	
Supports native PNG images contained in Excel documents.	Yes	
Supports native BMP images contained in Excel documents	Yes	
Supports animated GIF images contained in Excel documents.	No	
Drawing – lines, curves and freeform drawings. (Created using the drawing toolbar).	Yes	
Drawing - arrows	Yes	
Drawing – Text boxes	Yes	Including vertical alignment of text within box
Drawing – Autoshapes • Basic shapes	Most	
Autoshapes • Block arrows	Most	
Autoshapes • Flowchart symbols	Most	
Autoshapes • Stars and banners	Most	
Autoshapes • Callouts	No	
Autoshapes • Connectors	No	
Supports WordArt	No	
Supports worksheets styled with AutoFormat	Yes	
Marks cells that have been changed using the Excel Highlight Changes command	No	

Feature	Support	Notes
Displays contents of protected worksheets and cells	Yes	
Displays lists according to any filters that are applied	No	
Supports pivot tables	No	
Displays worksheets created as forms (templates) including form data	Yes	
Displays form controls (buttons, check boxes etc)	No	
Runs macros or scripts associated with form controls	No	
Displays phonetic guides for Japanese text: • Hiragana • Full width katakana • Half width katakana	No	
Supports right to left languages	No	

Character Sets

ePAGE can work with all characters in the Unicode specification. Many documents are encoded in other encodings, and ePAGE handles these by automatically detecting the character encoding used, and converting it to UTF-16 Unicode. The character encodings supported by ePAGE are shown in the following table. (In addition to the encoding support, the display of characters is also dependent on the availability of appropriate fonts installed on the device.)

Encoding	Comment
ASCII	
UTF8	Unicode
UTF16	Unicode
Latin1	Western
Shift-JIS (Windows codepage 932)	Japanese
ISO-2022-JP	Japanese
EUC-JP	Japanese
GB 2312	Chinese
Big 5	Chinese
Windows codepage 874	Thai
Windows codepage 936	Simplified Chinese GBK
Windows codepage 949	Korean EUC-KR
Windows codepage 950	Chinese traditional Big5
Windows codepage 1250	Eastern European
Windows codepage 1251	Cyrillic

Windows codepage 1252	Latin
Windows codepage 1253	Greek
Windows codepage 1254	Turkish
Windows codepage 1255	Hebrew
Windows codepage 1256	Arabic
Windows codepage 1257	Baltic
Windows codepage 1258	Vietnamese

Future Support

Picsel continuously strives to enhance the feature set of its software. In addition to the supported Excel features described above, the following features are planned to be incorporated in future versions of the Picsel software. (The ordering in the list does not imply any measure of priority among the items.)

Bar charts, Stacked bar charts, Stacked line charts, Pie charts, Organisation charts, Scatter graphs, Area charts, Radar charts, Surface charts, Bubble charts, Doughnut charts, Stock charts
Hyperlinks
Background fills
Autoshapes
Filtered lists
Dotted and dashed lines and borders
Display cell address, formula and comments