

# PDF Programming

## PDF for developers, Graphics, Imaging, Text, Fonts, Forms, Metadata, Security, Navigation, Project

Portable Document Format (PDF) is a standard representation of pages in a document. It is used for document interchange between document producers (word processors, report generators, CAD programs, specialist editing apps) and document consumers (on-screen viewers, printers, digital signature validators, forms engines, etc).

PDF became popular as the native file format for Adobe Acrobat and has been standardized by ISO, initially as ISO 32000-1:2008 (same as Adobe PDF 1.7) & recently ISO published a major update - [ISO/PRF 32000-2](#).

Pretty much every computing device that has an attached display and/or printer can display/print PDF files. The vast majority of modern document editing environments can output to PDF - hence it is an extremely popular shared representation of a publication.

This course is aimed at developers who wish to gain a low-level technical understanding of PDF and how they can use it programmatically from within their own applications. This course provides an excellent foundation for developers who wish to build their own PDF import/export libraries and those who wish to use one of the existing libraries available for this purpose.

| <b>Contents of One-Day Training Course</b>                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p><b>Target Audience</b><br/>Developers wishing to produce, transform and consume PDF files from their own applications.</p> <p><b>Prerequisites</b><br/>Software developers with experience of creating document editing apps, particularly their file formats.</p> <p>Knowledge of graphics programming (e.g. painter's algorithm) is required.</p> | <p><b>PDF Technical Overview</b><br/>Describing page representations<br/>Applying ink to a page<br/>Tour of functionality<br/>Relationship between PDF and PostScript</p> <p><b>PDF Concepts</b><br/>Coordinate system<br/>Painter's algorithm<br/>Imaging model<br/>Color management<br/>Transparency</p> <p><b>Document and Page Layout</b><br/>Overall file structure<br/>How each page is represented<br/>Contents of a page<br/>Common data</p> <p><b>Text And Fonts</b><br/>Typography in PDF<br/>Glyphs<br/>Fonts<br/>Ways to represent text<br/>Text objects</p> <p><b>Graphics</b><br/>PDF supports many 2D diagramming constructs, from line to Bézier curves to various graphical shapes<br/>State information<br/>Use of 3D<br/>Path construction</p> <p><b>Images</b><br/>Bitmaps and their use in PDF<br/>Supported imaging formats<br/>Rendering images on the page</p>                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                        | <p><b>Color and Transparency</b><br/>Precisely specific color requirements<br/>CIE<br/>Masking<br/>Clipping</p> <p><b>Forms</b><br/>Forms options in PDF<br/>Designing forms<br/>Accessing form fields after completion<br/>Changes in forms for ISO/PRF 32000-2</p> <p><b>Metadata</b><br/>Attaching additional metadata to PDF<br/>Metadata formats<br/>Extensibility</p> <p><b>Digital Signatures</b><br/>Signing what uses can see<br/>Digitally signing a PDF file<br/>Verifying a digital signature<br/>Cryptographic options (algorithms etc.)</p> <p><b>Navigation</b><br/>Allowing users to easily navigate to pre-determined destinations within a document (hierarchy &amp; thumbnails)<br/>Document outline<br/>Flexible inter-page navigation</p> <p><b>Multimedia</b><br/>Embedding video, audio and 3D in a document<br/>Formats supported<br/>Enabling media playing</p> <p><b>Project</b><br/>Write a project to programmatically create a PDF document</p> |