

# SELECTING THE RIGHT PRINT SDK

In this article, David Stevenson of Global Graphics Software, outlines the key considerations for developers selecting a capable and specialised print software development kit (SDK) in the printing industry



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A robust print SDK includes support for CMYK, spot colours and colour management via ICC profiles

Modern print workflows rely heavily on the accurate processing of complex files through page description languages (PDLs). For example, portable document format (PDF), PostScript and printer command language (PCL). These languages define how digital content should appear when printed, encompassing layout, fonts, images and colours. However, parsing these formats is only the beginning. For developers building applications within the print industry, selecting a capable and specialised SDK, ensures reliable performance, accuracy and scalability.

## UNDERSTANDING THE ROLE OF PDLs

PDLs are central to digital printing, with PDF being the most common in commercial print. Standards – such as PDF/X-1 and PDF/X-4 – exist to enforce requirements. These include colour management, font embedding and transparency handling. Other PDLs serve specific industry needs. Personalised print mark-up language (PPML) supports variable-data printing (VDP), while inkjet print data stream (IJPd) caters to high-speed inkjet devices.

PDF processing alone poses substantial challenges. The specification exceeds 1,000 pages, covering complex areas such as transparency blending, overprint behaviour, image compression and font rendering. Accurate rendering requires more than simple parsing – it demands a deep understanding of print-specific features. It also needs support for industry standards, such as

international colour consortium (ICC) colour profiles, OpenType fonts and extensible metadata performance (XMP).

## WHAT DEFINES A PRINT SDK?

A print SDK is a toolkit aimed specifically at developers in the print industry. It goes beyond generic document handling to provide features aligned with professional printing needs. These include support for CMYK and spot colours, colour management via ICC profiles, generation of separations and screening of raster images. A robust print SDK enables the creation of applications that manipulate, convert and render PDL content accurately across different stages of the print workflow.

***“Selecting a capable and specialised SDK, ensures reliable performance, accuracy and scalability”***

## PERFORMANCE AND SCALE

Speed is critical in print environments, particularly in high-volume or variable-data scenarios. In variable-data print jobs – where each page may contain unique content – the ability to process thousands or even millions of pages efficiently is essential. Technologies such as PDF Form XObjects allow for shared objects – such as logos or templates – to be reused across pages. This reduces file size and improves processing speed, as Raster Image Processors (RIPs) can cache and reuse

rendered content.

SDKs optimised for print should leverage such features while maintaining high throughput. Performance gains may also be achieved through graphics processing unit (GPU) acceleration, offloading rasterisation tasks from the central processing unit (CPU) and enabling parallel processing. This is especially useful in demanding environments where multiple jobs must be processed simultaneously. This novel approach has been proven by the introduction of the Apex technology in Global Graphics Software's Mako Core SDK.

***“A specialised print SDK offers more than functional tools”***

## ADDRESSING THE SKILLS GAP

Many experienced print professionals are retiring and fewer new developers are entering the field with specialised print knowledge. As a result, SDKs must



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compensate by being intuitive and intelligent. A 'smart' print SDK provides high-level application process interfaces (APIs) that abstract complex PDL behaviour. This allows developers without deep print expertise to build reliable, production-ready applications.

### ***“A print SDK is a toolkit aimed specifically at developers in the print industry”***

Such SDKs often include automated handling of overprints, spot colours and transparency, as well as built-in validation for PDF/X compliance. These features help bridge the gap between design intent and final output. This ensures accuracy, while reducing the need for manual intervention or expert troubleshooting.

#### **KEY SELECTION CRITERIA**

When evaluating print SDKs, developers and organisations should consider the following factors:

**Support for Multiple PDLs** – Selecting an SDK that supports PDF, PostScript and PCL in one unified framework, reduces integration complexity and ensures consistency across workflow.

**Maturity and Proven Reliability** – An SDK developed and refined over many years is more likely to handle malformed or non-compliant files gracefully – something newer tools may struggle with.

**VDP Capabilities** – Efficient handling of large-scale VDP jobs, with optimisation for repeated content, is essential in sectors such as direct mail or transactional print.

**Overprint Simulation** – Accurate onscreen previewing of overprint behaviour is critical for preventing costly production errors.

**Standards Compliance** – The SDK should pass recognised test suites, such as the Ghent Workgroup PDF Output Suite,



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indicating reliable colour handling and rendering accuracy.

**Advanced Colour Management** – Support for extended gamut, spot colour accuracy and ICC workflows is necessary for colour-critical applications.

**Rendering Quality** – The ability to render smooth gradients, using 8-bit or 16-bit output, ensures high-quality visual results without banding.

**GPU Support** – SDKs that harness GPU acceleration can deliver faster performance and improve system efficiency, especially in high-throughput environments.

**Cross-Platform and Cloud Compatibility** – Support for multiple operating systems and cloud environments allows for greater flexibility and future-proofing of solutions.

**Programming Language Support** – Widely used languages such as C++, C#,

Java and Python should be supported to accommodate diverse development teams.

**Developer Support and Documentation** – Timely, expert assistance from the vendor ensures smoother integration, faster issue resolution and sustained reliability during production.

#### **CONCLUSION**

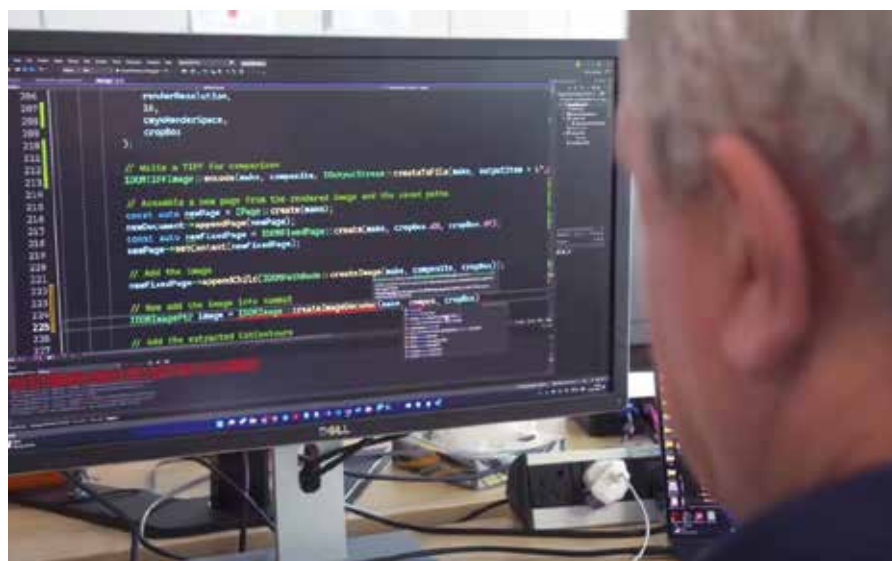
Selecting the right print SDK is a strategic decision that directly affects the quality, reliability and scalability of print solutions. While many SDKs offer general support for PDLs, only those specifically built for print can handle the demands of high-performance production environments.

### ***“The SDK should pass recognised test suites”***

A specialised print SDK offers more than functional tools – it provides embedded print knowledge, automation and resilience, honed through real-world use. By choosing a mature, feature-rich SDK with broad format support, high-quality rendering and responsive support, developers can build solutions that meet today's printing challenges and adapt to tomorrow's opportunities. ■

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*A smart print SDK, such as Mako Core from Global Graphics Software, enables developers without deep print expertise to build reliable, production-ready applications*

#### **Further information:**

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