

PDF Signing for Adobe CDS - Securing Educational Credentials

Certified Document Services (CDS) provides a cost effective PDF digital signing solution

The Drivers behind eDiplomas

The importance of 'Trust' in the age of the Internet cannot be underestimated as the Internet continues to expand and the availability of desktop publishing tools becomes virtually ubiquitous. This is especially true considering the diverse nature of many global businesses where language barriers of cause issues with interpretation of local regulations. It is also paramount to understand in the Internet model that it is not necessarily the direct employer of the student that needs to rely upon the information. It could easily be an alternative relying party at a sub level, or an auditor several years hence. Once an employer makes a business decision on the suitability of a candidate for a role it could very well be the brand of the employer that suffers from a lack of due diligence if the diploma is later shown to have been manipulated or modified. Increasing level of fraud perpetrated by internal members of staff is causing higher levels of concern for employers and employment agencies. A strong irrefutable audit trail is essential for future reference. Only digitally signed documents supporting long lived digital signatures offer this level of scalability to multiple relying parties and their need to archive content used to facilitate critical business decisions.

For many organisations the electronic document format of choice is unquestionably PDF (Portable Document Format) mainly due to the fact that almost 800+ million people have access to Adobe's Acrobat Reader supporting multiple languages across multiple operating systems. The growth in the use of PDF documents across a number of industry verticals has been widely recognised as best practice for archiving materials and scanned copies of documents for well over 10 years. Unfortunately many educational providers (Universities, Colleges or External training agencies) fail to appreciate the capability to digitally sign documents which has been available since Version 5.0 of Adobe's Acrobat product range back in 2004. Used both to secure and to attest to the authenticity of the signed content, digital signatures add significant value to any underlying document. Whilst Adobe's Acrobat product offers the ability to digitally sign a document with any X509 compliant digital certificate it was the release of CDS (Certified Document Services) supporting SHA-256 at version 7 which allowed authors to meet all of the critical requirements needed for a successful eDiploma, namely:-

- * Improve quality of service for Students & Alumni with via increased 'Ease of Use' and faster document delivery.
- * Enhanced security and control of documents beyond the trusted network.
- * Protect Educational Institution's Brand name especially with "Diploma Mills" generating authentic looking fake diplomas.
- * Protect prospective employers with Trustworthy signatures.

Whilst 800M+ users worldwide have access to the Adobe PDF Reader, is PDF not a proprietary standard? The answer is no, in that PDF is an International Standards Organisation (ISO) standard (ISO 32000-1) and equally importantly the signature mechanisms built into Adobe Acrobat, Reader and LiveCycle ES conform to a European Standard. ETSI/ESI Technical Standard (TS) 102 778, better known as PAdES (pronounced with either a long or short a), highlights how the digital signature format described in ISO 32000-1 meets the needs of the 1999 EU Signature Directive.

- Part 1: "PAdES Overview - a framework document for PAdES"
- Part 2: "PAdES Basic - Profile based on ISO 32000-1" (Best Practice)
- Part 3: "PAdES Enhanced - PAdES-BES and PAdES-EPES Profiles"
- Part 4: "PAdES Long Term - PAdES-LTV Profile"
- Part 5: "PAdES for XML Content - Profiles for XAdES signatures"

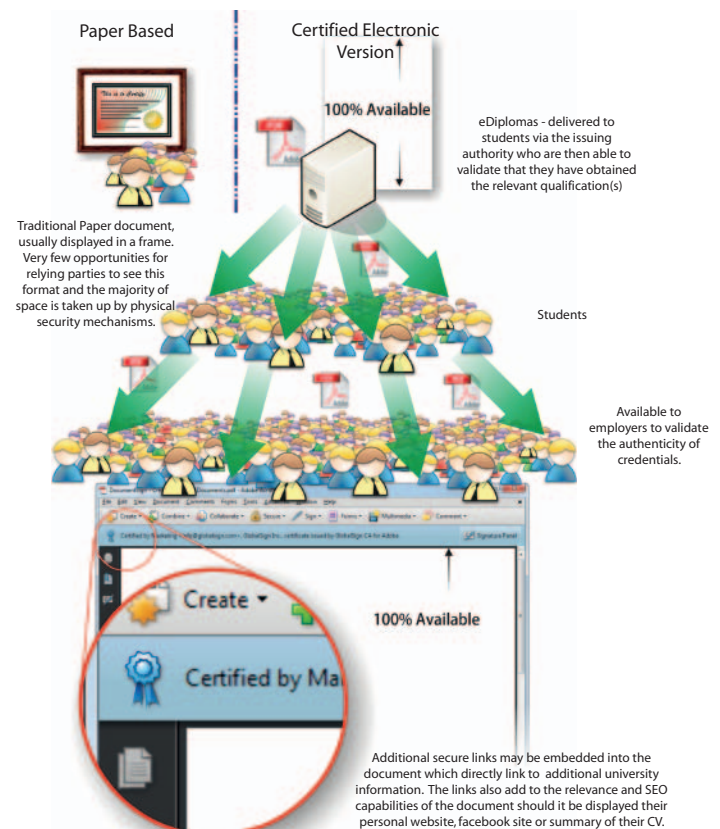
This document you are viewing conforms to Part 2 and as best practice embeds a copy of the certificate used to sign the document, the status of the certificate (Via a Certificate Revocation List) and also a digitally signed Timestamp.

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The additional advantages over Paper?

eDiplomas offer a number of key advantages over their paper counterparts, to the brand owner. Most notably, they retain their integrity and authenticity throughout their lifecycle regardless of the number of copies made. Students possessing digitally signed diplomas more readily display these on their personal web space areas (LinkedIn, Facebook and so on), leading to increased SEO (Search Engine Optimisation) and greater brand awareness for the brand owner. Unlike paper based certificates which increasing need additional security features adding (Holograms, Water Marked paper, Intricate Designs and/ or printing techniques/inks), the full 100% of the diploma is available.



Customer Case Study

A leading U.S. mid-western university faced growing concerns surrounding the distribution of falsified versions of one of their most sensitive documents - student transcripts. The increasing incidence rate of students falsely using cheap internet-based "diploma mills" coupled with lengthy delays surrounding paper-based delivery of the legitimate system quickly led to the selection of a CDS-based digital signature solution. Implemented over two years ago, the following objectives were achieved:

- 1) A standards-based implementation suitable for employers.
- 2) Zero proprietary client software required for students and employers
- 3) Highest level of ease of use for all parties.

CDS provided a more cost efficient, faster, and secure method to deliver transcripts. It continues to protect the university's brand name and student and alumni legitimate academic credentials.

PDF Signing for Adobe CDS - How it Works & Solutions by Industry

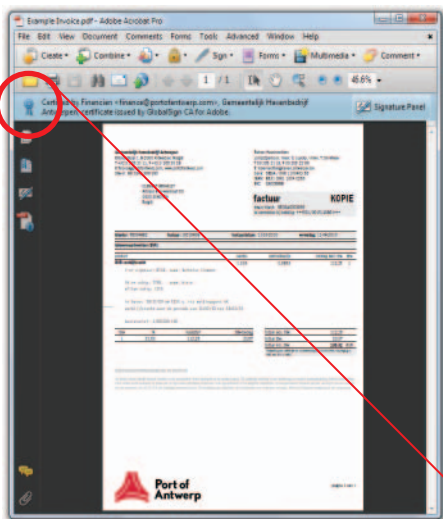
Certified Document Services (CDS) provides a cost effective PDF digital signing solution.

How it Works...

Certified Document Services (CDS) is a service which is enabled by the Adobe root certificate authority and was introduced into the Adobe® Acrobat® product range supporting SHA-256 signatures from version 7.0 onwards. CDS empowers document authors to digitally sign Portable Document Format (PDF) files, using an industry standard X.509 digital certificates chained to the Adobe Root Authority to allow automatic validation of authenticity of the author using the free Adobe Reader software. No additional client software or configuration is required.

A major advantage to any organisation with stakeholders in multiple countries, is the built-in international language support within the PDF reader itself. Available in over 30+ languages, Adobe Reader ensures a consistent digital signature experience worldwide. CDS was designed specifically to enable any organisation providing documents to large and disparate recipients, who may be in multiple countries, to increase the assurance level of the document. The document's integrity and authenticity are digitally preserved by the addition of the CDS signature to the PDF. Document authors are able to increase this assurance level without requiring recipients to deploy additional processes - it simply works, ensuring an effective ROI through a vast reduction in the investment normally associated with supporting a proprietary security system.

Following a thorough verification of the 'Applicant' requesting a PDF Signing for Adobe CDS certificate, GlobalSign will issue a 'pickup' link which allows a certificate to be generated and securely stored on a SafeNet® hardware cryptographic device. Authors can digitally certify PDFs using certificates "chained" up to the trusted Adobe Root. Recipients simply need to open the document using the Adobe free reader to instantly verify the authenticity and integrity of the document. Adobe's simple to interpret "Blue Ribbon, Yellow Warning Triangle, and Red X" trust messaging allows even novice users an easy to understand method to determine if the document is legitimate.



Valid and certified!
Authenticity and Integrity are verified
Pass



Error!
Authenticity Check Fails



Error!
Integrity Check Fails

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Solutions by Industry

Electronic Invoicing

Electronic VAT invoicing offers numerous advantages to organisations both large and small – cost reductions, low carbon footprint ecosystems, greater security and trust for all stakeholders and faster cash collection than traditional out-dated paper billing.

<http://www.globalsign.co.uk/solutions/industry-solutions/e-invoicing.html>

Healthcare

The New England Journal of Medicine, 2004, reports "paperwork represent 31% of all healthcare costs". CDS can help relieve the burden on physicians surrounding cumbersome processes involving patient paper-work while being part of a CFR 21 Part 11 compliant solution.

<http://www.globalsign.co.uk/solutions/industry-solutions/healthcare.html>

Manufacture and Design

Architecture, Engineers and Construction (AEC) professionals benefit from CDS with faster design collaboration, more efficient and less expensive electronic document storage, and stronger protection via tamper evident engineering and product documentation as documents are exchanged among customers, partners, contractors, and building departments.

<http://www.globalsign.co.uk/solutions/industry-solutions/manufacturing.html>

Education

More and more educational institutions are increasing student and alumni satisfaction as universities and colleges disseminate sensitive documents like transcripts and admissions letters electronically in a fraction of the time and costs seen with their paper equivalent.

<http://www.globalsign.co.uk/solutions/industry-solutions/education.html>

Government

CDS supports both local and federal government initiatives including the Government Paperwork Elimination Act helping reduce costs, enhance citizen accessibility to government information and reduce unnecessary environmental waste while at the same time providing high assurances to its citizens that the information is legitimate.

<http://www.globalsign.co.uk/solutions/industry-solutions/government.html>

Financial Services

Industry best practices coupled with government imposed regulation like Sarbanes-Oxley make CDS an attractive option as a thorough audit of the signature properties are embedded in the document itself. Well after the Digital ID expires, the signature characteristics are preserved providing relying parties strong authentication of both the organisation and individual or role that signed the PDF, whether the content is still intact, and the exact date and time of the transaction as determined by a RFC 3161 compliant time-stamp.

<http://www.globalsign.co.uk/solutions/industry-solutions/financial-services.html>

The Notarial and Legal Professions

CDS provides unequalled support of trusted documents in multiple languages. This alone facilitates cross border transactions as both sides are able to interrogate the authenticity of a document in their local language; the ideal solution for e-Notarisation.

<http://www.globalsign.co.uk/solutions/industry-solutions/notary-legal.html>

The SafeNet iKey 4000 & 5100

GlobalSign's PDF Signing for Adobe CDS Certificates are usually provided with either a SafeNet iKey 4000 (SHA1 capable) or a SafeNet iKey 5100 (SHA256 capable). As an extension of smart card technology both keys plug into any USB port to provide strong portable user authentication without the need for costly reader devices. Certificates installed on to either token ensure regulatory compliance with the FIPS 140-2 Level 2 requirements of the Adobe CDS program.

For organisations with high volume signing requirements or the need for automation, GlobalSign is able to provide a HSM (Hardware Security Module) in either PCI, PCI(e) or Network attached.

In addition, GlobalSign's ePKI (Enterprise PKI) solution is available for companies that require multiple digital identities.

