

# PDF Signing for Adobe CDS - Architecture, Engineering & Construction

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

## Operating within a regulated industry

Organizations operating within the AEC (Architecture, Engineering and Construction) market face mounting pressure to meet increased industry and government regulations. At the same time, pressure to reduce costs via automation drives the increased use of eBusiness solutions, not only in the creation of high stakes documents, but also in their lifecycle management. Most notably to preserve integrity and authenticity during storage and retrieval. Accountability is no longer an afterthought, and steps to ensure auditable internal controls must be weaved into day-to-day operations. With an increasing level of collaboration and an legislation allowing esubmission of drawings, coupled with geographically dispersed offices, partners and clients, only a secure electronic solution can meet all these needs. Accountability remains critical and decision making capabilities must be mapped to key authorized personnel. Embedding signature details with a Long Term Validation (LTV) SHA-256 signature methods suits the requirement to provide a secure audit trail years in the future.

## Legally Binding Electronic Documents

Legislation has been adopted at both the federal and state level that provides government and commercial organizations the legal framework surrounding electronic signatures. This framework supports and promotes important transactions like electronic submission of drawings to building departments. Florida Administrative Code in the US ( 61G15-23.003 ) is a recent example of such legal framework that defines the procedures for signing and sealing electronically transmitted plans, specifications, reports or other documents. Specifically, the Electronic Signature, which can be generated by using either Public Key Infrastructure or signature dynamics technology, must be as follows:

- Unique to the person using it
- Capable of verification
- Under the sole control of the person using it
- Linked to a document in such a manner that the electronic signature is invalidated if any of the data is changed

## International Standards and Best Practice

Implementation of any IT process to mitigate a security risk must itself be weighed against multiple acceptance criteria. These may include, amongst others, Best Practice, the ability to meet International Standards and suitability for stakeholders. Security through obscurity does not suit delivery of products and/or services to a mass market via the Internet. The Internet itself is a generic service, where as PKI (Public Key Infrastructure) is a highly suitable security service for the Internet. PKI is a pervasive service, meaning investments in PKI to address requirements in AEC will allow additional ROI to be leveraged in other areas of synergy.

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 Organization (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".

For more information about GlobalSign solutions, please call 603-570-7060 or 877-775-4562

Visit [www.globalsign.com](http://www.globalsign.com) for more information

## Maintaining Integrity and Proving Authenticity

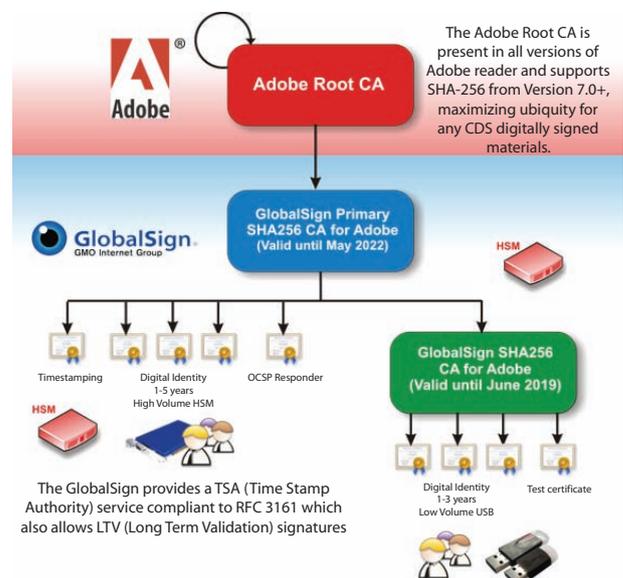
PDF Signing for Adobe CDS Digital IDs are highly vetted and secured digital IDs that tie critical transactions to key personnel. When authors, approvers, and reviewers of Adobe PDF documents apply a digital signature to an Adobe PDF, they bind their identity within an organizational affiliation to precise content. Within the context of the document an exact date and time is embedded, providing auditors an easy to follow and non repudiated audit trail surrounding key and often time sensitive business decisions. This trail is embedded into the signature properties of the PDF and easily retrieved in human readable format. Digitally signed PDFs signed with a CDS compatible digital ID are validated using just the free Adobe reader, providing organizations an easy and cost efficient method to distribute important documents outside the controlled environment of their network whilst avoiding the complex requirements related to maintaining an external verification services.



Any modification, however small, causes an Integrity

The 'Integrity' checking mechanisms within the PDF document clearly highlight whether any modification of the content has occurred since the signature was applied - the result is a strong audit trail of accountability.

How is 'authenticity' handled? the answer is that each Digital Identity is chained through the SHA-256 GlobalSign intermediate issuing CA to the Adobe Root CA which is distributed into Adobe 7.0 onwards, allowing 800M+ users to take advantage of the PKI capabilities built into their viewer.



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

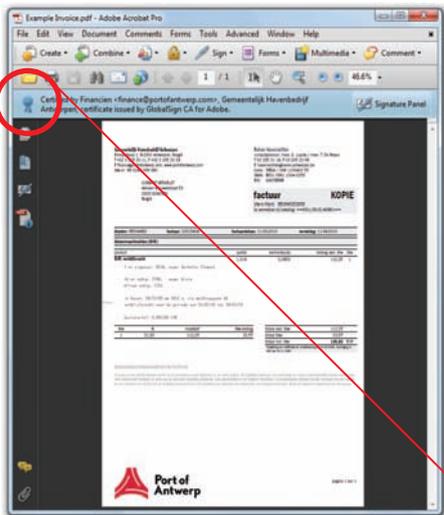
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## How it Works...

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 organization 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 organization 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 organizations 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 organization 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-Notarization.

<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 organizations 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.

