

**Digital Signatures  
in a  
Document-Intensive  
Organization**

**White Paper**

Written by  
Motty Alon  
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## **Introduction**

For the last 30 years, organizations worldwide have been trying to move from a paper-intensive environment to a paper-less environment. Word processors have replaced the writing pad and pen, spreadsheet applications have replaced manual spreadsheets and emails have supplanted handwritten letters. One of the key problems not yet solved in the transition from a paper-intensive to a paper-less environment is data-authentication, validating that a certain document or transaction was not changed. In the paper-intensive world, people authenticate written data with their handwritten signatures. When moving to a paperless environment, organizations have failed to find an easy-to-use and an easy-to-deploy electronic signature solution. The need to validate data has therefore, often interrupted the organization's progression to paper-less transactions.

## **Upgrading to Digital Signatures**

Digital-signatures provide data authenticity by adding a unique piece of electronic data to the original document or transaction that validates its authenticity. A digital-signature is unique to the original data signed and to the signer in the following way:

- If two different people sign the same data, two different digital signatures are being created.
- If the same person signs two different pieces of information, once again, two different signatures are being created.

In recent years, most countries worldwide have been adapting legislation and regulations that recognize the legality of a digital signature and deem it a binding signature. Today, most countries welcome the use of digital-signatures in order to help organizations move away from a paper-intensive environment.

Digital-signatures create an easy-to-use, non-forgable way of authenticating electronic data (documents and transactions) without the need for printing and manually signing the printed-document, thus enabling organizations to complete their transition to a paperless environment. The incentive for moving to digital signatures should be the same as that which has been leading the entire IT industry during the last 30 years. Moving to a paper-less environment expedites transactions, reduces operational costs and in some cases, creates competitive advantages for the organization. In addition, digital-signatures are non-forgable, with a signing technology that has not been compromised since invented some 30 years ago.

## **Introducing CoSign**

CoSign is a turnkey digital-signature solution. It provides its users with non-forgable and easy to use digital signatures. CoSign integrates with a large number of applications and enables their users to use digital-signatures in an easy and convenient manner.

CoSign has been integrated with leading user-management systems including MS-Active Directory and Novell / NDS to provide its customers with fast deployment as well as a solution which does not require any management overhead.

More on the different CoSign features will be described further in this document.

## **CoSign in a Document-Intensive Organization**

Digital-signatures can play a crucial part in an organization that processes large amounts of documents. Insurance companies, in their underwriting and claims settlement departments, lawyers and accountants, banks in their loan departments and purchase departments in large organizations are but a few examples of groups that create, receive and process large amounts of documents on a daily basis. In these cases, savings that are associated with moving to a total paper-less environment by using digital-signatures can amount to hundreds of dollars per day for the organization.

This document describes how CoSign can be deployed in a document-intensive organization to provide digital-signatures and create an efficient work place.

## ***Signing on Electronic Documents***

Electronic documents are created and manipulated by numerous applications. However, the two most popular tools for electronic documents' creation and manipulation are: Microsoft Office and Adobe / Acrobat.

Both applications have integrated digital-signatures using common interfaces to their tool-sets. Using CoSign to digitally sign a MS-Office document (Word, Excel, etc.) or an Adobe/Acrobat PDF file is as easy as clicking on the mouse. CoSign works with these applications out-of-the-box without requiring any additional integration work.

CoSign is able to integrate with a large number of other applications. To verify whether a specific application integrates with CoSign, please contact your AR representative.

## **Batch Signing**

In organizations with heavy document traffic, workflow procedures are implemented using such applications as content-management systems or Enterprise Resource Planning (ERP) applications. When an organization decides to implement an automatic workflow procedure, documents created are moved from one user to another without the need of manually routing them each time. In some cases there is a need for a signature by each user who participates in the workflow-chain. One option is for the user to open the data-entry application (i.e., MS-Word, Adobe / Acrobat, etc.), but when the workflow process is automatically performed, there is a requirement to sign the document without opening the application.

This feature is called "Batch Signing". With batch signing, users can ask CoSign to sign a specific application without opening the file. Currently this feature is implemented for MS-Word and MS-Excel files using CoSign API.

A different implementation of "Batch Signing" is in issuing electronic digitally signed invoices to customers. It is important to digitally sign an invoice in order to avoid potential fraud of the payment. Invoices would normally be prepared in an automated central process, transformed to a "standard" document format such as PDF, and then digitally signed at the end of this process.

## **Multiple Signatures**

Documents that are submitted as part of a workflow procedure sometimes require more than one signature per document. Embedding multiple signatures on a single document is application dependent and is supported by CoSign if the application in question supports this feature. For example, CoSign can support multiple signatures for both MS-Office, as well as Adobe/Acrobat, since both these products support multiple signatures for information about embedding multiple signatures in other applications, contact your AR representative.

## ***Embedding Graphical Images***

Even the most up-to-date paper-less organization needs to print documents from time to time. When trying to print electronic documents that have been digitally signed, the signature does not appear on the printed document.

CoSign solves this problem by using a graphical representation of the signature, in addition to the digital signature. CoSign users can sign their name on an electronic pad when registering to the system. When a user decides to sign a document and presses the “Sign” button, the graphical image of the signature is captured using the electronic pad, embedded in the document and the whole document with the graphic signature is digitally signed. At the time of printing, the graphical signature is also printed, given an indication that this document had been signed on the printed copy.

The document’s object that contains the graphical image cannot be copied and pasted from the original document to another one. Any change in the contents of the document will render the graphical representation invalid and a graphical indication of this invalidity will appear both on the application window and on the printed document, usually as a yellow question-mark or a red X symbol.

Graphical representation of the signature requires a special plug-in for the signing applications for both signing and verifying the signatures. This plug-in is provided by AR. Graphical representation of signatures is currently available for MS-Word and Adobe/Acrobat applications. For information about implementing graphic signatures for other applications, contact your AR representative.

## ***Signing TIFF Images***

Organizations receiving large quantities of paper documents, or are in need of archiving their old documents, need to scan these documents and archive them electronically. Often, there is a need to sign scanned documents, so that they can be sent onwards.

In addition, many organizations are obliged to archive warehouses full of paper documents for years, due to the need to save originally signed documents. If there was a way to digitally sign scanned documents, organizations could save the significant costs of archiving paper documents, as well as enjoy the easier access benefits of electronic storage.

CoSign can sign TIFF<sup>1</sup> images and put the digital signature in a special TAG. Currently TAG number 50685, “Digital Signature” contains the digital signature. The data signed is the actual image information and all the required fields for Grayscale, RGB, or Palette Color images (based on the actual image type) according to the TIFF Revision 6.0 standard.

A graphical signing of a TIFF image, where the graphical representation of the signature will be embedded in a pre-determined location, is planned for the next version of CoSign. The operation of this feature is done using a call to the CoSign API.

### ***Signing Web-Based Forms***

In some cases the organization decides to gather information through Web based forms. This could be done either through a standard Web application such as an ERP module or an e-content form module, or through a tailor-made proprietary Web application.

CoSign can digitally sign these forms as well. CoSign has an easy to use API that enables Web applications to sign on behalf of the user. In this process, the Web application presents a Web form to the user. Once the user enters the data and presses the “Submit” button, the Web application receives the information, and asks the user to authenticate himself/herself, in most cases using a user-name and password<sup>2</sup>. The user-authentication information, along with the data entered in the form, are sent to CoSign, which validates the authenticity of the user, requesting the signature and then signing on his/her behalf.

CoSign's support of signing web-based forms ensures a convenient way for remote users to sign data. Organizations wishing to use Web-based applications in order to eliminate the need for client-software distribution and can enable users to sign information without the need to install any client software whatsoever.

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<sup>1</sup> CoSign currently supports signing TIFF images of the TIFF Revision 6.0 format. Other image types may be supported upon request. Contact your AR representative.

<sup>2</sup> Other authentication methods available also.