2 Using Digital Signatures

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2 Using Digital Signatures

Approval is often a necessary step in the processing of a form. Traditionally, forms have been approved on paper by signing them with a pen. Today, technology allows us to sign forms electronically with digital signatures. Signing electronically reduces the need to print forms and, in some ways, offers more security than paper signatures.

You configure a template for signing by drawing one or more signature cells on the form using Informed Designer. Each signature cell can sign the entire form or only certain parts of the form. With a properly configured form template, Informed Filler users can easily sign completed forms and check the validity of signatures.

Informed supports the use of digital signature technology both for signing completed forms with Informed Filler, and for authorizing templates with Informed Designer. Authorizing a template adds an additional level of security to forms that are filled out and signed electronically. This security feature is described in detail in Chapter 7, "Authorizing Form Templates."

In this chapter, you'll learn how digital signatures work and the steps necessary to configure a form template for electronic signing.

How Signatures Work

Digital signature technology employs sophisticated encryption algorithms to provide reliable signer identification and fail safe tamper detection. This means that once someone has signed data electronically, the resulting digital signature can be used to:

- verify the identity of the person who signed the data
- detect whether or not the data has changed since it was signed

A digital signature is like a special number that's derived from information about the person signing and the data being signed. This number can reliably identify the signer and detect any changes in the signed data. While the digital signature is stored with the signed data, the data itself is not altered in any way.

Attached to form
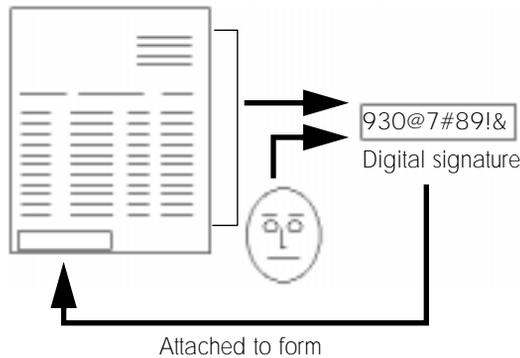
Once a digital signature is created, you can easily verify its validity. The verification process involves re-creating parts of the digital signature using current data, then comparing the results with the original signature. If they are not equal, then either the signed data or the digital signature itself has been changed or tampered with.

Before users can sign electronically, it is usually necessary that they obtain special files that act as their "electronic identity" for signing purposes. These files are often controlled and distributed by an organization's security or administrative manager.

Signing Plug-ins

Informed Designer and Informed Filler gain access to digital signature services through Informed signing plug-ins. A signing plug-in interacts directly with the available digital signature services and insulates Informed from the complexities of different signing technologies. That way we can introduce support for new or different signing technologies by simply developing new signing plug-ins. Like any Informed plug-in, signing plug-ins must be placed in your Informed plug-ins folder.

Through the use of signing plug-ins, Informed includes support for several digital signature services including Nortel's Entrust, and Informed's own built-in signing services—I-Sign™(POP) and I-Sign™(IMAP). More information about signing plug-ins can be found in the "Signing Plug-ins" topic of Informed Designer's on-line help.

Signing With Informed Filler

Most signing services provide ways of signing files. Signing this way signs an entire file, regardless of its content. Signing forms with Informed Filler offers significant advantages over signing the entire file. Informed Filler users can sign parts of forms or entire forms, and the way they sign forms is more similar to the way paper forms are signed.

When a form is signed with Informed Filler, the user is actually signing a single record. Each form filled out with Informed Filler is stored as a single record in a data document. Each digital signature

applies to some or all of the data for a single record, even if the data document contains multiple records. This means that the Informed Filler user can sign one form (or record), then change other records in the data document without affecting the digital signature on the signed form. To prevent the user from unintentionally changing signed data, Informed Filler locks cells once their contents have been signed.

Informed Filler provides other features that make using digital signatures easy and efficient. They include the ability to:

- see exactly which cells a particular signature cell signs
- sign multiple records at the same time
- verify multiple digital signatures at the same time
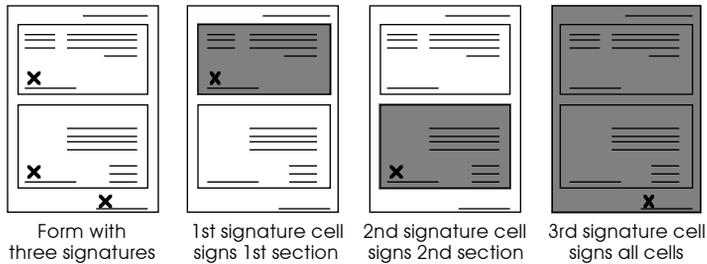- automatically verify digital signatures so that you don't have to.

For an explanation of Informed Filler's digital signature features, please see Chapter 4, "Using Digital Signatures" in your *Informed Filler User's Manual*.
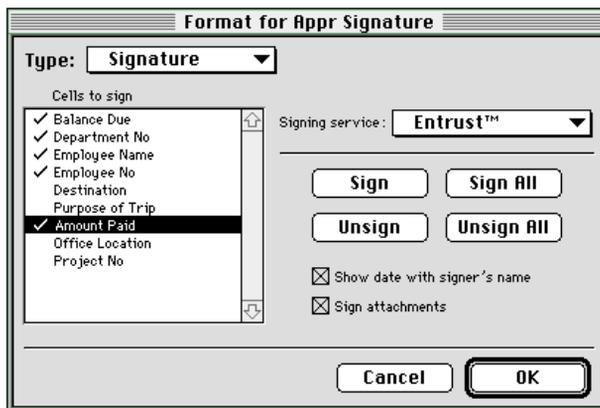
Signature Cells

A signature cell is a cell that can store a digital signature. With Informed Designer, you draw a signature cell the same way you draw any other field cell—using the Field tool. With the flexibility that the Field tool offers, you can make a signature cell look just like the space for a signature on any paper form. For a complete explanation of Informed Designer's Field tool, see Chapter 6 of your *Informed Designer Design and Graphics* manual.
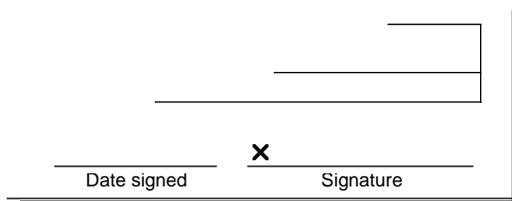
You can draw more than one signature cell on a single form. Each cell can be configured to sign different information. For example, a form that has two sections which are often filled out by two different people could have two signature cells. Each cell would sign only those cells in its respective section. You could even have a third signature cell that signs the entire form including the other two signatures.

| Form with three signatures | 1st signature cell signs 1st section | 2nd signature cell signs 2nd section | 3rd signature cell signs all cells |

You use Informed Designer's Format command to indicate which cells a signature cell signs. With a signature cell selected, choose **Format…** from the Settings menu to display the Format dialog box.

Note   You cannot configure multiple signature cells at the same time. With two or more cells selected, the 'Signature' choice in the 'Type:' drop-down list on the Format dialog box is not available.

The scrolling list contains all cells on the form template with the exception of the signature cell itself. To indicate that a cell is to be signed, select its name in the list, then click 'Sign.' Click 'Unsign' to exclude a cell from being signed. As a shortcut, you can double-click a cell in the list to toggle its setting between signed and unsigned. To include or exclude all cells on the form, click either 'Sign All' or 'Unsign All.'

When configuring a signature cell, other signature cells appear in the scrolling list on the Format dialog box. A signature cell, therefore, can sign other signature cells. Signing a signature cell, however, does not automatically sign the cells that the other signature cell signs. For example, suppose that cell A signs five cells and cell B signs cell A. Signing the form in cell B signs cell A only, and not the five cells that cell A signs.

The Signing Service

The 'Signing service' drop-down list contains the names of the signing plug-ins in your plug-ins folder. Normally you'll see only one signing plug-in, such as Entrust, that corresponds to the digital signature technology used in your organization.

The 'Signing service' drop-down list also contains a 'User's choice' item. When configuring a signature cell, you can specify that a particular signing service be used or you can allow the Informed Filler user to choose the service. If you select the 'User's choice' option, the user will be asked to select which signing service to use when signing forms. This will happen only if there are two or more signing plug-ins installed.

Once you've indicated which cells are to be signed, and selected the correct signing service, click 'OK' on the Format dialog box to save the configuration. To cancel the Format command, click 'Cancel' instead.

Display Options

With Informed Filler, the presence of a digital signature is indicated by a signature icon in the signature cell. The name of the person who signed the form appears to the right of the signature icon in the cell's font, font size, style, and alignment. When testing a template, you'll see the word "signature" instead.
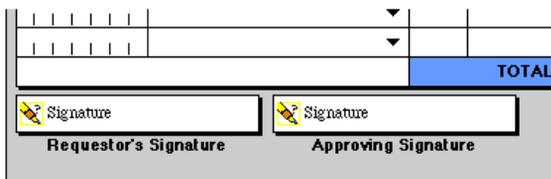
Informed Filler can also display the date on which a record was signed in the signature cell. If you select the 'Show date with signer's name' option, the date of signing will appear to the right of the signer's name.

Like any cell, you can change the font, size, style, and alignment of a signature cell using the Type command or the Style submenus. When selecting the cell's type settings, be sure that the name (and date, if selected) will fit in the dimensions of the cell. For more information about type settings, please see Chapter 7 of your *Informed Designer Design and Graphics* manual.

Signing Attachments

Chapter 5, "Attachments," in your *Informed Filler User's Manual* explains how the Informed Filler user can attach files to records. This feature is useful if the user wants to attach associated files to completed forms. For example, an engineering organization may use an engineering change request form to authorize design changes. If the design documents were also stored electronically using,

say, a CAD program, the user could attach the relevant design documents to the corresponding engineering change request form. Informed Filler stores the attached file along with the record's cell data in a data document.

Like cell data, attached files can also be signed by a signature cell. By doing so, a signature can protect the integrity of attached files in addition to the information on the form itself. To configure a signature cell to sign attachments, select the 'Sign attachments' option on the Format dialog box.

Testing Signature Cells

Informed Designer's Test mode allows you to fill out a single record to test your calculations, formatting, and other intelligent features.

When testing a form, you can select a signature cell like any other cell: by tabbing to the cell, or by clicking the cell with the mouse. When selected, a bold outline frames the cell's interior, and all cells that are signed by that cell are framed with a red box. You cannot, however, test signing a record or verifying a signature using Informed Designer's Test mode.

Important Precautions

Care must be taken when planning the use of digital signatures. Once users have filled out and signed forms, changes to the template that might affect the signed data must be avoided. Otherwise you risk unintentionally invalidating existing digital signatures.

Changes that can invalidate existing digital signatures include:

■ changing the cell type of a cell that contains signed data
■ deleting a cell that contains signed data
■ changing the configuration of a signature cell (changing which cells it signs).

If you need to change a form template (in the ways described above) that is associated with previously filled out and signed records, you should make the change in a new copy of the template to avoid affecting the existing data and digital signatures. This means that users would have two templates, one containing the unchanged design for use with previously completed and signed forms, and the other containing the revised design with which new records could be entered. This leaves the data of the previously completed forms unchanged, therefore preserving the integrity of any existing digital signatures.

For more information about revising form templates, see Chapter 8, "Form Template Distribution and Revision."