

Overview of IBM Workplace Forms

First Edition (November 2005)

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Introduction

The IBM® Workplace Forms™ suite includes the following products:

- IBM Workplace Forms Viewer
- IBM Workplace Forms Designer
- IBM Workplace Forms Server

Together, these tools allow you to create, fill, and submit forms, and integrate those forms with your back-end processes.

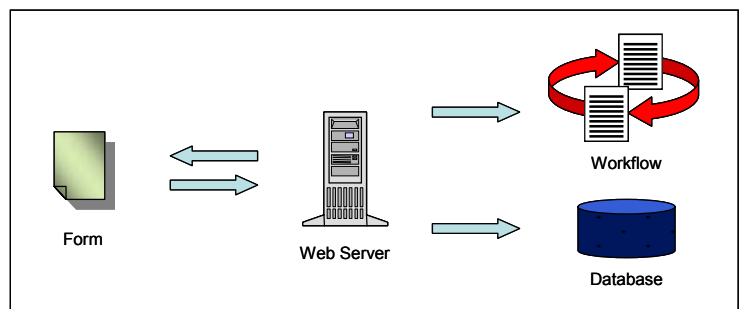
This document explains how the Workplace Forms tools work together to make each function possible, and how you can use the tools to create an end-to-end solution. Finally, this document includes an example of how the Workplace Forms products can be used to create a real-world application.

About IBM Workplace Forms

Paper forms are perhaps the most common front end for any business process. They are typically used to gather information from a user, which in turn starts a particular business process. For example, one of your customers might fill out a paper form to open a new account. Once that form is completed and passed to the correct department, the process of creating that account begins.

In the same way, IBM Workplace Forms can provide the front end for an organization's electronic processes. For example, consider moving the same 'new account' process to the Internet. In this case, your users might log on to a web site to create a new account. Once on the web site, they still need to provide information about themselves. Using the

Workplace Forms tools, you can easily create an electronic form that will capture this information. Once the user submits the form, you need to get the information from the form into your business process. Again, the Workplace Forms tools make this possible. Using the Server product, you can capture the information from the form and pass it to your existing systems, be they workflow applications (such as WebSphere® Business Integration), database applications (such as DB2® Universal Database or DB2 Content Manager), or some other electronic process.



Integration is also simplified by the nature of the forms themselves. Workplace Forms are written in an XML syntax called XFDL (eXtensible Forms Description Language). Each form is a single XML file that contains both the description of the form and the data the user has entered. Because it is XML, it's easy to integrate with other XML-based processes, and because it's a single file, it's easy to move a form through your systems.

Creating a Form

IBM Workplace Forms Designer provides a drag-and-drop environment for creating forms. Once created, each form is saved as a single XML file. Most commonly, you will then place your forms on a central server, such as a corporate web server, for distribution. However, because the files are easy to manage, you can also distribute them directly to your users through email or some other system.

Workplace Forms Designer is similar to a graphic design or paint program. You begin with a blank page, then design a form by placing items on that page. For example, you might add a number of labels and fields to a form to create an address block.

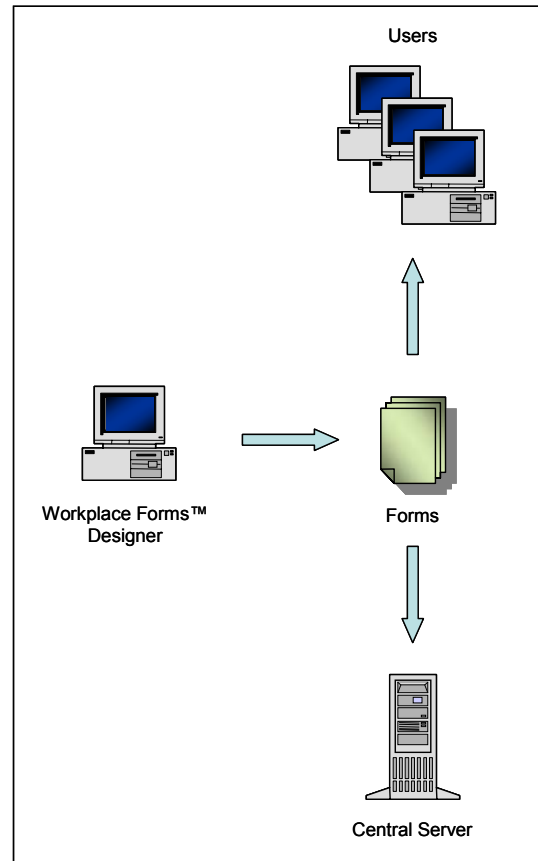
Once the basic items are in place, you can edit each item to add special features and logic. For instance, you might want to limit input on the ZIP Code field so that the user can only enter numbers, or you might want to limit the user's choices by creating a Country drop-down list that only includes five selections.

As a final step, you can clean up your design. Workplace Forms Designer allows you to control the placement of all items on the form with pixel-by-pixel precision.

Furthermore, you can add design elements, such as boxes, lines, and colors, all of which serve to organize the information on the form and make it more attractive.

As an alternative to designing a form from scratch, you can also import a scanned image of any paper form into Workplace Forms Designer. You can then design your form over top of the scanned image, allowing you to effectively 'trace' the paper form and create a very precise electronic copy.

Finally, there are third party tools available that can help to convert existing electronic forms to the Workplace Forms™ format. This is particularly valuable if you have a customer who is migrating from a different forms platform, and has an extensive library of electronic forms that are already in use.



Filling Out a Form

There are two solutions for filling out forms:

- **Rich Client Solution** — IBM Workplace Forms Viewer is a rich client that you must install on every desktop. It allows users to complete and submit forms on or offline, and provides more functionality than the zero-footprint solution.
- **Zero Footprint Solution** — IBM Workplace Forms Server — Webform Server is a zero footprint solution. It allows users to complete and submit forms in a regular web browser without installing any additional software. However, Webform Server requires the user to stay connected to the web, and does not support all of the features of the rich client.

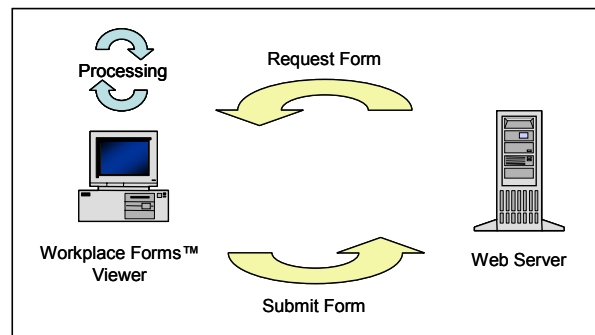
Rich Client Solution

IBM Workplace Forms Viewer is a rich client that allows users to open, complete, and submit forms. It is generally the best solution if you are working with complex forms that contain a lot of logic, or if your users need to work with forms offline.

In a typical scenario, the user goes to a web site and clicks a link to request a form that is stored on a central server. When the form is sent to the user, Workplace Forms Viewer will automatically open as a browser plug-in, and the user can then complete the form and submit it back to the server.

Because Workplace Forms Viewer is a rich client, it not only supports all of the advanced features available, such as complex logic and signatures, but it also processes all logic on the client side. This means that users can work offline.

Once a form is open, the user no longer needs an active connection to the web. They can fill out the form at their leisure, and can even save it to their hard drive so they can work with it later. Once they have completed the form, they can reconnect to the web and submit the form for processing.



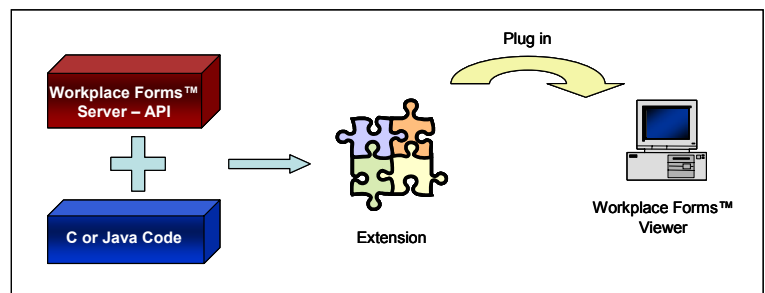
Additionally, you can create extensions that expand the functionality of Workplace Forms Viewer. For example, you might need to perform extremely complex calculations that are not easily supported by the internal logic of the form, or you might want to encrypt each form before it is submitted. You can add functionality like this to Workplace Forms Viewer by creating extensions (for more information, see “Expanding the Functionality of Workplace Forms Viewer” below).

As with all rich client solutions, Workplace Forms Viewer must be installed on every desktop. This means that all of your users must have access to Workplace Forms Viewer install package. While this can often be a barrier to entry, you can use IBM Workplace Forms Server — Deployment Server to distribute Workplace Forms Viewer to your users through a simple web interface (for more information, see “Distributing Workplace Forms Viewer to Your Users” below).

Expanding the Functionality of Workplace Forms Viewer

In some cases, the logic system supported by Workplace Forms may not be sophisticated enough to do what you need. In these cases, you can expand the functionality of Workplace Forms Viewer by writing an extension. An extension is similar to a browser plug-in — it simply plugs in to Workplace Forms Viewer to extend the functionality of your forms.

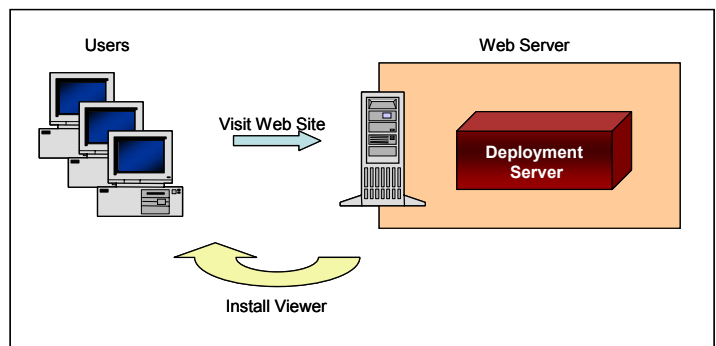
To write an extension, you use IBM Workplace Forms Server — API. The API provides a toolkit that lets you program your own ‘form functions’ in either a C or Java development environment. You can then call these ‘form functions’ from within your forms as though they were part of the normal logic system.



Distributing Workplace Forms Viewer to Your Users

IBM Workplace Forms Server — Deployment Server offers an easy way to distribute Workplace Forms Viewer to your users. Using the Deployment Server, you can create a web site that will automatically download Workplace Forms Viewer to anybody viewing the site. This means that your users can simply go to an ‘Install’ page on your corporate web site and watch as Workplace Forms Viewer is installed on their computer.

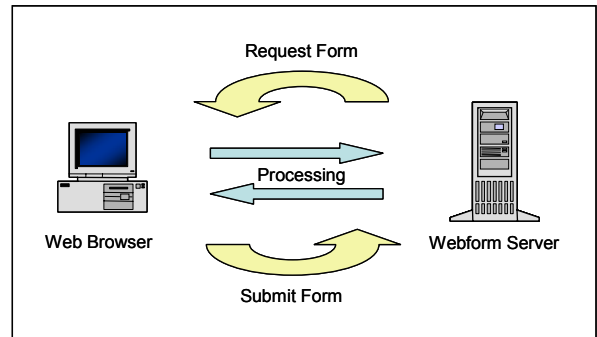
Deployment Server can also check to ensure that users have the latest copy of Workplace Forms Viewer. When a user opens the distribution page, Deployment Server will check their system to see what they have installed, and will update their installation if required. This makes it simple to keep everybody up to date.



Zero Footprint Solution

IBM Workplace Forms Server — Webform Server is a zero footprint solution that allows users to open, complete, and submit forms using only a web browser. Webform Server is generally the best solution if your forms contain little logic and you need to distribute them to a large user base, such as the general public.

In a typical scenario, the user goes to a web site and clicks a link to request a form. Webform Server then translates that form into a collection of HTML and Javascript, and sends that information to the user's web browser. The browser then displays the translated HTML form to the user, who can then complete the form and submit it back to the server.



Because Webform Server is a zero footprint solution, not all of the logic in a form can be processed on the client side. While the form that is sent to the user can perform some simple calculations, there are many things it can't do without help from the server. Because of this, the user's web browser will also make calls back to the server when required. This means that the user cannot work with the form offline. Instead, they must remain connected to the web while they complete the form.

However, users can still save forms to their local computer. Furthermore, each form is saved as a single XFDL file, rather than a collection of HTML and javascript. This allows users to save work in progress, or to route forms to other people – a marked advantage over typical HTML forms.

Furthermore, Webform Server does not support some features that may be required in your forms, such as digital signatures, nor does Webform Server support the use of Workplace Forms Viewer extensions.

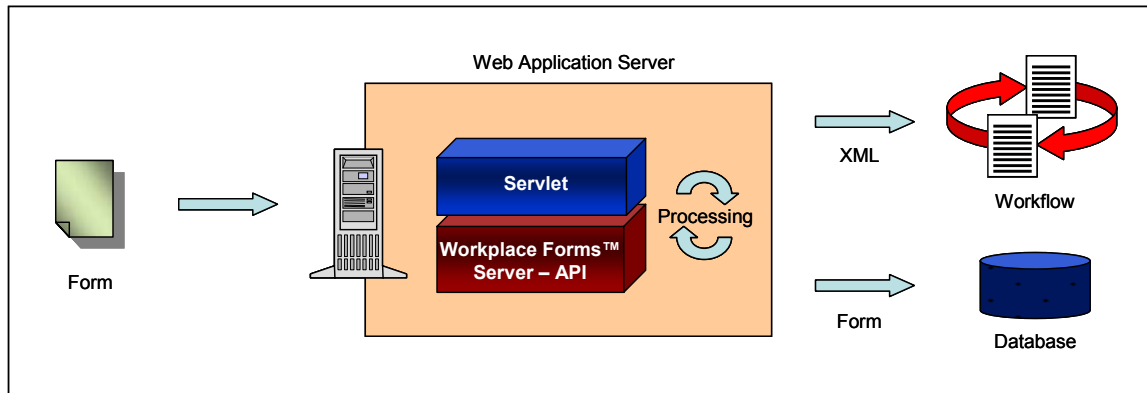
Integrating Forms with other Processes

IBM Workplace Forms Server - API is the primary tool for integrating forms with your other processes. The API is a fully-featured development kit that allows you to write server-side code that can parse and change forms.

The API is typically used to write a servlet (or portlet) that receives forms from users and processes those forms appropriately. For instance, when a user submits a 'new account' form, you may want to process it as follows:

- Save the original application in a database as a permanent record.
- Parse the form to extract the user data.
- Write the data to a file in a particular XML format.

- Pass the new XML file to your workflow process.



Using the API, you can write a servlet that does all of these things. The servlet can also include other libraries as necessary. For example, you might use the JDBC library to create the connection to your database and add the form to the correct table.

Servlets and portlets that use the API can be hosted by a variety of applications. For instance, you can use WebSphere Application Server for to host servlets or WebSphere Portal Server to host portlets.

Sample Workplace Forms Applications

The IBM Workplace Forms toolset is extremely flexible and infinitely adaptable. This means that there are literally an endless number of solutions you can build using Workplace Forms.

This section provides a detailed discussion of one such solution, and then presents short summaries of some other possible solutions.

Detailed Sample Solution

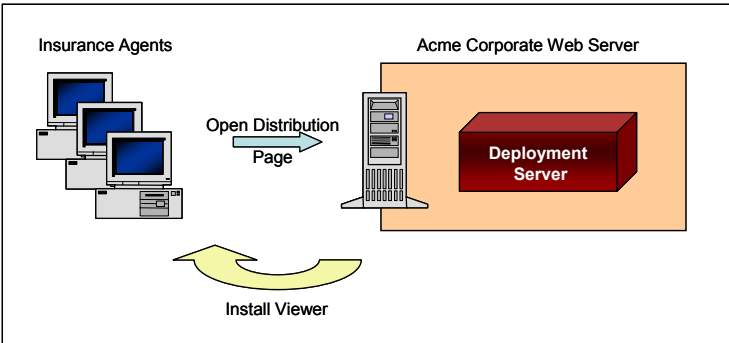
Acme Insurance focuses on auto insurance, and wants to move to a completely electronic process for creating insurance policies and filing claims against those policies. By moving to a web-based solution, Acme Insurance plans to eliminate the data entry costs associated with their current paper process, and also to improve their response time when a claim is filed.

Choosing the Tools

Acme Insurance wants their agents to complete all forms on behalf of their customers. This means that they are serving a 'closed' audience (their insurance professionals) who will have training in the new system.

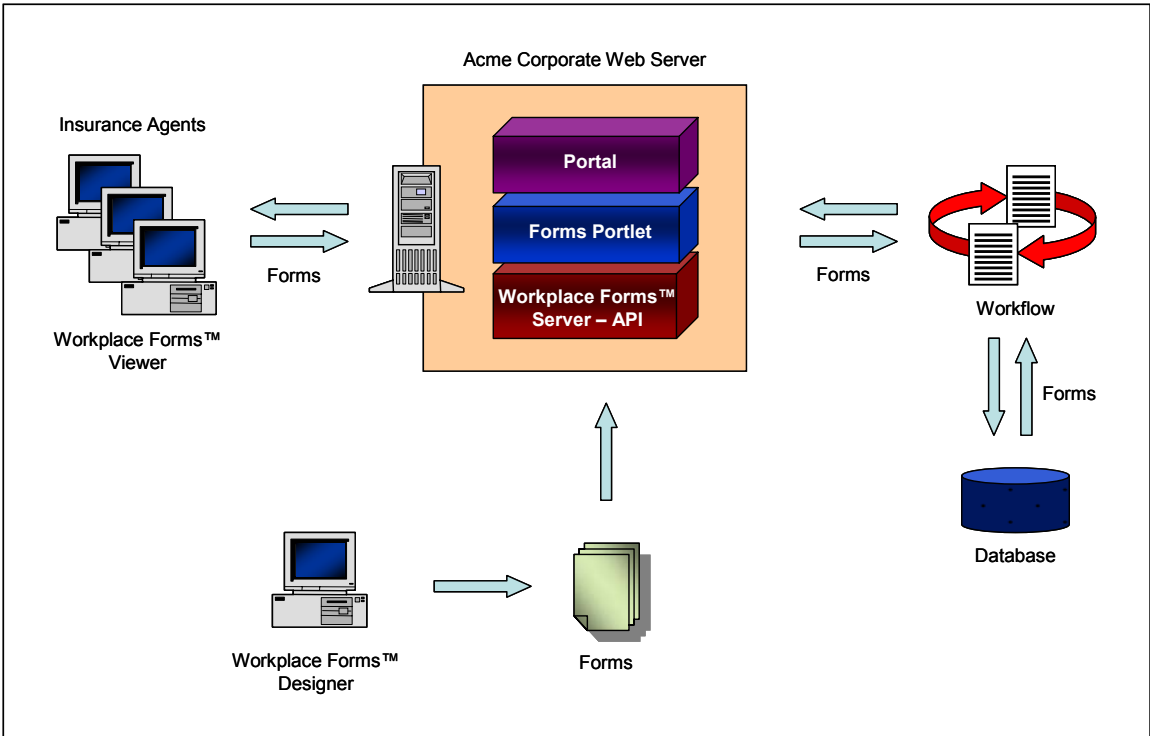
Additionally, Acme Insurance wants to use digital signatures to verify the identity of each agent when a policy or claim is filed.

Because Acme wants to use digital signatures, and because they have a controlled internal audience, they have chosen to use the rich client Viewer. In order to simplify the distribution and maintenance of Workplace Forms Viewer, they have also decided to set up a distribution page on their corporate web site that will host the Deployment Server. This allows their agents to automatically install Workplace Forms Viewer, and to check for updates to the software whenever they like.



Acme has decided to design their own forms using Workplace Forms Designer, and to host those forms on their corporate web site through their Auto Insurance portal. This means that access to the forms will be controlled by their portal software, which is already set up with the appropriate IDs and passwords.

Acme already has a workflow that is accessed through their portal, but that process currently relies on the manual entry of paper forms before processing can begin. To replace this, they have decided to implement a servlet. This servlet receives form submissions, parses the form to verify all signatures, and then passes the form to the workflow process. The workflow then routes the form as required, and stores the form in the database between each step.



Given this architecture, Acme needs to use the following Workplace Forms products:

- IBM Workplace Forms Viewer
- IBM Workplace Forms Designer
- IBM Workplace Forms Server — API
- IBM Workplace Forms Server — Deployment Server

Creating a New Policy

When a customer wants to create a new policy, the following process is followed:

1. An Acme agent logs onto the portal site, opens a list of ‘template forms’, and opens the New Policy form.
2. The agent completes the form on behalf of the customer, signs it using a digital certificate, and submits it for processing.
3. The forms servlet receives the form, verifies the agent’s signature, and passes the form to a workflow (such as WBI).
4. The workflow stores the form in a database (such as DB2 or CM), and then sends the form to an adjustor for approval.
5. The adjustor checks their list of ‘in process’ forms in the portal, opens the form that was filed by the agent, and reviews the application. At this time, the adjustor can add information to the form or change the information provided by the agent. The adjustor then approves or denies the application, signs the form, and submits it for final processing.
6. The forms servlet receives the form, verifies both the agent’s and the adjustor’s signatures, and passes the form to the workflow.
7. The workflow updates the form in the database, and then sends the form to the original agent.
8. The agent checks their list of ‘processed forms’ in the portal, opens the completed form, and calls the customer to tell them the results of their application.

Filing a Claim

When a customer wants to file a claim against their policy, the following process is followed:

1. An Acme agent logs onto the portal site, opens a list of ‘template forms’, and opens the New Claim form.
2. The agent completes the claim form on behalf of the customer, signs it using a digital certificate, and submits it for processing.

3. The forms servlet receives the form, verifies the agent's signature, and passes the form to a workflow (such as WBI).
4. The workflow stores the form in a database (such as DB2 or CM), and then sends the form to an adjustor for investigation.
5. The adjustor checks their list of 'in process' forms in the portal, and opens the form that was filed by the agent. The adjustor then investigates the accident. During this time, the adjustor can add information about the accident to the form, including additional documents, pictures, and even video clips. Once finished the investigation, the adjustor signs the forms and submits it for processing.
6. The forms servlet receives the form, verifies both the agent's and the adjustor's signatures, and passes the form to the workflow.
7. The workflow updates the form in the database, then examines the value of the claim. If the claim is large, the workflow sends the form to a manager for approval (step 8). Otherwise, the form is returned to the original agent (step 11).
8. The manager checks their list of 'form waiting approval' in the portal, opens the form the adjustor just filed, and examines the adjustor's work. The manager can add information to the form, then sign it and submit it for processing.
9. The forms portlet receives the form, verifies all three signatures (agent, adjustor, and manger), and passes the form to the workflow.
10. The workflow updates the form in the database, then forwards it to the original agent.
11. The original agent checks their list of 'processed forms' in the portal, opens the completed form, and calls the customer to tell them the results of their claim.

Other Sample Solutions

The flexibility of the IBM Workplace Forms tools allow you to create solutions for almost any form-based process. The following summaries discuss some other possible solutions that you can create using these tools.

Government Program Registration

Government agencies often need to enroll the general public in a variety of programs. In these cases, the government is trying to serve a large and diverse population, with various levels of computer knowledge and Internet connectivity.

The Webform Server component of the Workplace Forms suite offers the perfect solution for these situations. Users can log onto a central web site and complete a registration form using only their web browser. This saves

them from having to download and install Workplace Forms Viewer, which can be intimidating for some users and time consuming over low bandwidths.

Additionally, while it's not possible to issue a digital certificate to each citizen, you can use Clickwrap signatures to capture some information about the user and confirm their approval. Clickwrap signatures simulate the "click to accept" process that is common on many web sites today, and add a measure of security to the form. They can also include information about the user, such as a pass phrase, that you can use later to identify them.

Banking and Regulated Industries

Banking and other regulated industries must comply with a variety of government regulations, and must be able to produce reliable audit trails to demonstrate their compliance. In these cases, records must be maintained for many years, and those records must be secure.

The Workplace Forms tools support a wide range of digital signature technologies. Once a form is signed, the signature makes the form tamper evident. This means that if any of the information in the form is changed, the signature itself breaks, indicating that it can no longer be trusted. Furthermore, most digital signature technologies reliably identify the signer. These features combine to create reliable records: you can reliably identify who signed each form, and you can easily judge whether the form has been changed in any way.

Additionally, the forms themselves are written to comply with open standards. This means that they are never locked into a proprietary format that is dependent on the original company's survival. No matter how much time passes, you will always be able to recover your data because you will always be able to refer to the open standard that it conforms to.

Secured Communications

Some organizations may require more than just signatures to secure their forms. This is sometimes the case due to privacy laws or other legal requirements that insist that the forms themselves cannot be viewed by other people. In these cases, signature technology falls short, because while it will reveal tampering with a form, it does not prevent simple viewing.

Using the API, you can create an extension for Workplace Forms Viewer that will encrypt each form before it is sent. The server that processes the forms can then use the API to decrypt the form once it is safely behind a firewall.

The form is encrypted before it leaves the user's computer. If it is intercepted during transmission, or copied from a public server, it will be completely unreadable. However, once it is safely behind a firewall, it can be decrypted and processed with ease.

Getting More Information

For more information about the Workplace Forms products, refer to the IBM Publications Center at:

<http://www.elink.ibm.link.ibm.com/public/applications/publications/cgi-bin/pbi.cgi>

This site contains complete reference documentation for the Workplace Forms products.

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