

# Integration Guide

*iPlanet BillerXpert 4.6*

April 2002

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# About This Document

The iPlanet BillerXpert 4.6 Integration Guide describes integration options that you can use to implement BillerXpert. It also lists the system prerequisites and describes the architecture of the integration components.

This preface contains the following sections:

- Audience
- What's in This Document
- Documentation Conventions
- The Document Online
- Related Documentation
- Product Support

## Audience

The audience for this document is system administrators who will integrate the BillerXpert product with other products to enhance the productivity of the product solution. The system administrator will be responsible for maintaining the various servers and will also need to have access to root user ID and some experience with UNIX administration as the root user. You must have access to the iPlanet Application Server (iAS) documentation:

`http://docs.ipplanet.com/docs/manuals/ias.html`

You need to use this manual if you are integrating third party products with BillerXpert.

## Before You Begin

This guide is written with the assumption that you have an understanding of relational databases and the operating system on which you are running this software. The documentation is also written with the assumption that you have some basic background including:

- a general understanding of the Internet and the World Wide Web
- experience in setup and management of web services
- experience in setup and administration of relational databases

In addition to the documentation provided by iPlanet, you may find it helpful to read and review:

- your operating system manuals
- your relational database manuals

## Required Documents

When integrating BillerXpert with other products you may need to refer to the *BillerXpert 4.6 B2C Edition API & Schema Reference Manual* for information about and examples of using component business object interfaces.

You will also need to have read or have available the following iPlanet Application Server (iAS) documents:

- *iAS Java Programmer's Guide* — Provides background information about using the iAS programming constructs upon which BillerXpert was developed.  
(<http://docs.iplanet.com/docs/manuals/ias/60/sp2/JavaProgGuide/contents.htm>.)
- *iAS Foundation Class Reference (Java)* — Provides descriptions of classes that BillerXpert uses or classes from which BillerXpert classes are derived.  
(<http://docs.iplanet.com/docs/manuals/ias/60/sp2/javaapi/contents.htm>.)



# What's in This Document

The following table summarizes what each chapter covers.

**Table 1** Chapter Summary

If you want to know about this	See this chapter
Describes the contents of this guide; listing of documentation set; information on product support.	"About This Document"
<p>The various third party product solutions that the BillerXpert product has been enhanced to accomodate via integration:</p> <ul style="list-style-type: none"> <li>• Payment Services</li> <li>• Billing Systems</li> <li>• Currency Feed</li> <li>• Enrollment</li> <li>• Data Parsing and Mapping</li> </ul>	Chapter 1, "iPlanet BillerXpert 4.6 Integration"
<p>Provides information for integrating the following Payment Services products, including setup and verification:</p> <ul style="list-style-type: none"> <li>• VeriSign Setup</li> <li>• Clear Commerce Setup</li> </ul>	Appendix A, "Payment Services"
<p>Provides information for integrating the following Billing Systems products, including setup and verification:</p> <ul style="list-style-type: none"> <li>• Infranet by Portal Software</li> </ul>	Appendix B, "Billing Systems"
<p>Provides information for integrating the following Currency Feed products, including setup and verification:</p> <ul style="list-style-type: none"> <li>• Installation Process for Currency Converter</li> <li>• Installation of Reuters Investor</li> </ul>	Appendix C, "Currency Feed"
<p>Describes the BillerXpert Realtime Enrollment and Activation (REA) process, including:</p> <ul style="list-style-type: none"> <li>• Request - Response Flow in the REA Framework</li> <li>• Installation and Handler Procedures</li> <li>• Example of a Request Response</li> <li>• Testing REA</li> </ul>	Appendix D, "Enrollment"

**Table 1** Chapter Summary

If you want to know about this	See this chapter
Describes the tasks to successfully integrate BillerXpert with Xenos. This chapter covers the following topics: <ul style="list-style-type: none"> <li>• Xenos d2E Platform Solution Overview</li> <li>• Location of the Xenos Transformation Files</li> <li>• Document Type Definition (DTD) Message Responses</li> <li>• BillerXpert Loader Script</li> </ul>	Appendix E, “Data Parsing and Mapping”

## Documentation Conventions

This document uses the following conventions:

- The `monospace` font is used for sample code and code listings, Application Program Interface (API) and language elements (such as method names and property names), file names, commands, path names, directory names, Hypertext Markup Language (HTML) tags, and any text that must be typed on the screen.
- The *italic* font is used in code to represent placeholder parameters (variables) that should be replaced with an actual value, or items that require *emphasis*.
- Brackets ([]) are used to enclose optional parameters.
- A slash (/) is used to separate directories in a path. (Windows NT supports both the slash and the backslash.)

## The Document Online

For an overview of BillerXpert changes, refer to the BillerXpert 4.6 Release Notes.

An electronic version of these notes are available at:

<http://docs.iplanet.com/docs/manuals/>

## Related Documentation

The BillerXpert documentation set includes:

- *Release Notes*—Contains important information on the current release of BillerXpert. Read this document before working with the new BillerXpert release.
- *Administrator's Guide*—Provides reference information and instructions on administering a fully-installed BillerXpert system.
- *Installation Guide*—Provides instructions for installing the BillerXpert product and its enabling software.
- *Customization Guide*—Provides guidelines and instructions for customizing the BillerXpert system.

Documentation for all iPlanet products can be found at the following web site:

<http://docs.iplanet.com/docs/manuals/>

## Product Support

If you have problems with your BillerXpert system, contact iPlanet customer support using one of the following mechanisms:

- iPlanet online support web site at:

<http://www.iplanet.com/support/online/>

From this location, the CaseTracker and CaseView tools are available for logging problems.

- The telephone dispatch number associated with your maintenance contract

So that the technical support staff can best assist you in resolving problems, please have the following information available when you contact support:

- Description of the problem, including the situation where the problem occurs and its impact on your operation
- Machine type, operating system version, and product version, including any patches and other software that might be affecting the problem
- Detailed steps on the methods you have used to reproduce the problem
- Any error logs or core dumps



# iPlanet BillerXpert 4.6 Integration

iPlanet BillerXpert 4.6 B2C Edition software provides a comprehensive Internet Bill Presentment and Payment (IBPP) solution that allows an enterprise to provide customer convenience, build customer loyalty, manage customer relationships, and generate new revenue opportunities. Product features include:

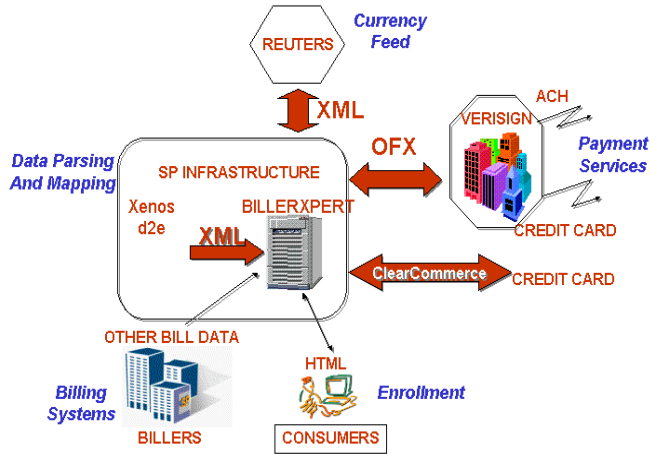
- Comprehensive, highly scalable; supports all models of IBPP
- Enables provider to leverage interaction with customer using targeted marketing tools to facilitate cross-sell and up-sell of services
- Customers can view bill summaries or line-item details with search and analysis features
- Rapid acceleration of e-payments.

## Overview

The evolutionary growth of the BillerXpert product market has presented the opportunity to integrate additional functionality with other business applications. By foreseeing the demands of our new net economy, the BillerXpert product, as seen in Figure 1-1, has been enhanced to accommodate the following opportunities for product integration:

- Payment Services
- Billing Systems
- Currency Feed
- Enrollment
- Data Parsing and Mapping

**Figure 1-1** BillerXpert Integration

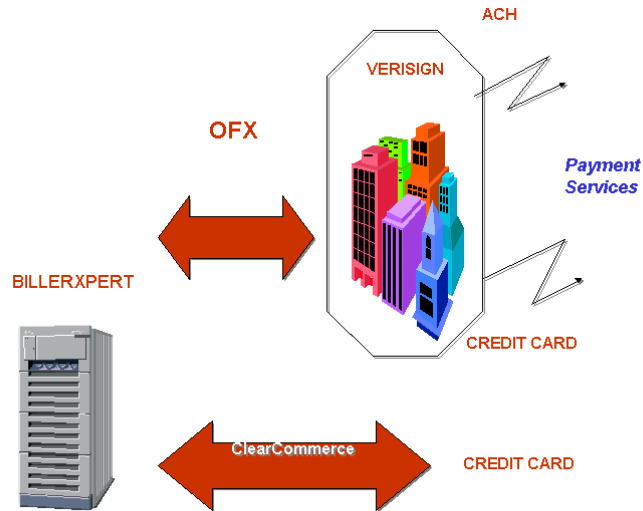


## Payment Services

BillerXpert has introduced an Open Financial Exchange (OFX) client to support consumer OFX payments and to generate applicable OFX payment requests. OFX Payments consist of a set of functions for creating, modifying, cancelling, and for synchronizing payment information.

BillerXpert’s OFX client allows users to send payment transactions to an OFX compliant Payment Service under the “Pay-some” model. “Pay-some” systems restrict users to only make payments to payees that appear on an approved list. The relationship between BillerXpert and Payment Services is depicted in Figure 1-2.

**Figure 1-2** Payment Services Integration with BillerXpert



BillerXpert includes support for both VeriSign Setup and Clear Commerce Setup payment services.

## Payflow<sup>(SM)</sup> by VeriSign Payment Services

The integration of BillerXpert and VeriSign offers customers a high volume IBPP solution that integrates bill presentment with a convenient online payment service.

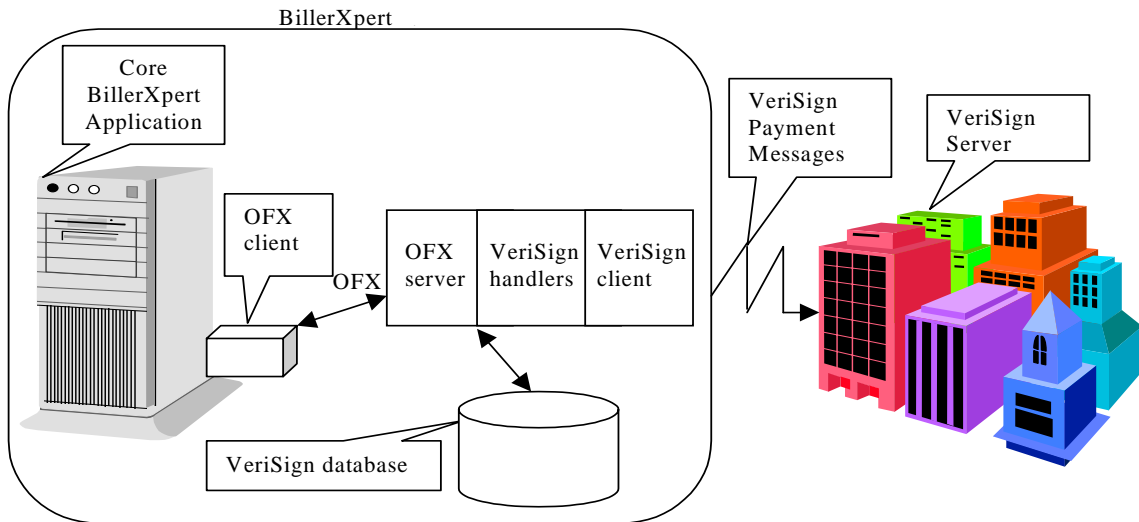
VeriSign is an e-commerce service company which provides multiple tender options in a single interface, with customizable payment solutions. By using VeriSign's Payflow payment services, iPlanet BillerXpert businesses can automate the validation and acceptance of all major consumer credit cards, debit cards and automated clearing house (ACH) transactions. Further, the average Verisign transaction times are less than 3 seconds for real-time credit card and Internet check authorizations.

### Overview

The communication between BillerXpert and VeriSign Payment Services is transparent as OFX Payment functions are used to interface BillerXpert and VeriSign Payment Services.

When a user submits a payment transaction, BillerXpert's OFX client generates the appropriate OFX request which is routed to BillerXpert's OFX Server. The applicable Payment Handler is invoked and the request is translated and submitted to the VeriSign Client. The VeriSign client then sends the request to the VeriSign Payment Service's Server. BillerXpert's OFX Server sends the OFX Response to BillerXpert's OFX client as acknowledgement of the transaction. Figure 1-3 describes the payment flow for BillerXpert.

**Figure 1-3** BillerXpert VeriSign Payment Services model



*See also*

For more technical information regarding VeriSign Payment Services, including Payment Handlers, Setup and Verification processes, please refer to Appendix A, "Payment Services".

## ClearLink by Clear Commerce

ClearLink for iPlanet® BillerXpert™ is a packaged integration between the iPlanet® BillerXpert™ Internet Bill Presentment and Payment services and ClearCommerce Corporation's Hosting Engine™ multi-merchant transaction processing system. ClearLink for BillerXpert allows an enterprise to take full

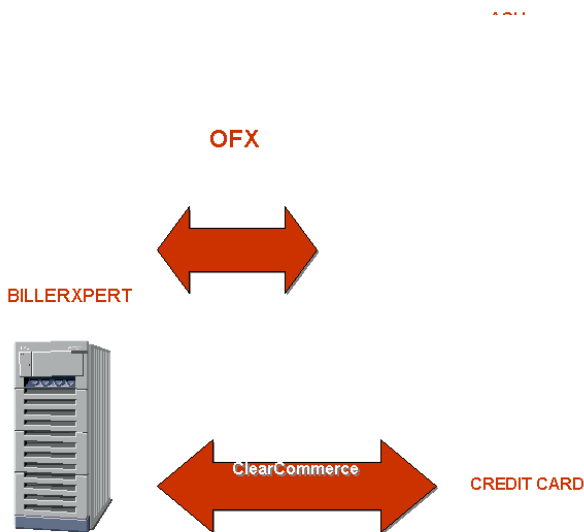


advantage of both powerful Internet applications; BillerXpert's comprehensive Internet Bill Presentment and Payment solutions and the ClearCommerce Engine's fast, reliable, and scalable credit card fraud detection and transaction processing environment for their customers.

By working with ClearCommerce, BillerXpert is extending its payment system offerings for customers requiring choice in their payment solution deployments. Flexible payment options allow payment by credit card, or, scheduled bill payments for a future date. Additionally, customers can create automatic payments for recurring bills, or make partial payments against bills when appropriate.

ClearCommerce and BillerXpert communicate using OFX, as seen in Figure 1-4.

**Figure 1-4** ClearLink by ClearCommerce



*See also*

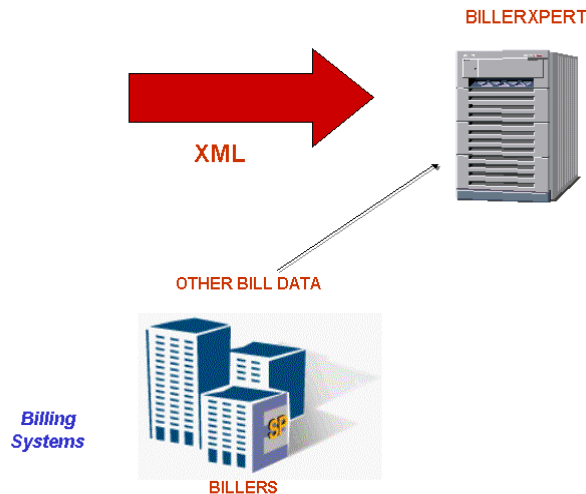
For more technical information regarding ClearCommerce, including setup and verification processes, please refer to Appendix A, "Payment Services".

# Billing Systems

Through the integration with Portal Software, iPlanet is enabling customers to achieve a tighter integration between iPlanet BillerXpert and the customer's billing and rating engines. This direct connection between iPlanet BillerXpert and the billing and rating technologies leverages XML to eliminate the costly process of breaking down complex print image data and realizes a significant cost-savings to telcos and service providers. Additionally, the cost of creating and maintaining complex parsing maps is eliminated, and consumers now have the tools to take advantage of customer self service features.

Service Providers can now aggregate billing feeds from Portal Software and other sources of billing information including Utilities, Telcos, Cable, etc., and present one aggregated view to the customer. Figure 1-5 illustrates how billing data from multiple sources flow to BillerXpert.

**Figure 1-5** Billing Systems Integration with BillerXpert



## Infranet® by Portal Software

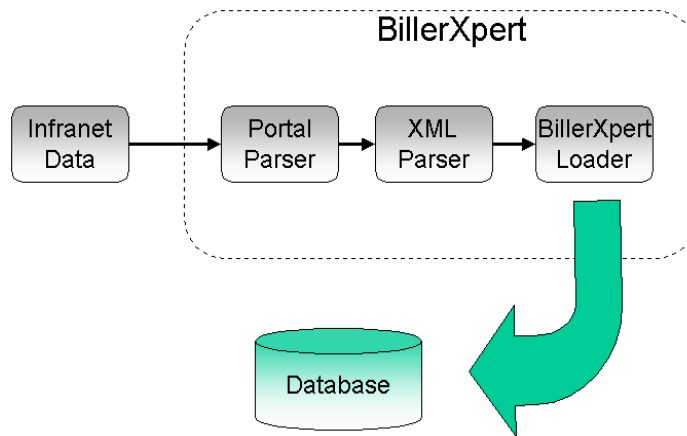
Portal Software is the leading provider of customer management and billing software for Internet and emerging, next-generation communications services. The company's real-time solution enables service providers to manage customers, support services and collect money.

Infranet from Portal Software allows service providers (SPs) to provision new services in real-time and capture usage revenue. Infranet delivers a powerful range of integrated capabilities including:

- Creation & management of accounts, development, pricing, provisioning of service offerings.
- Acts as the billing and rating engine, feeding information into iPlanet(TM) BillerXpert in XML form.
- Ability to track, rate & analyze customer activity complements iPlanet(TM) BillerXpert's analytical function.

Until now, SPs have created their own Internet billing systems by buying and assembling separate components which may not be compatible. As an end-to-end integrated solution, this solution also eliminates the need for data parsing in billing and promotes customer self service, thus will greatly reduce costs for customer support and care. In addition, Infranet's sophisticated rating engine and flexible account administration facilities enable you to more effectively manage customer usage and billing so you can stay one step ahead of your customers' evolving needs and expectations. Figure 1-6 illustrates the Infranet flow of data as it is being converted through BillerXpert via the portal parser and then formatted with the XML parser and lastly, being uploaded to the biller's database.

**Figure 1-6** Infranet by Portal Software



The Infranet rating and billing engine feeds information in XML form into the iPlanet BillerXpert program, where it may be further aggregated with bills from other sources. The ability of Infranet to track, rate, and analyze customer activity complements the iPlanet BillerXpert program’s analytical functions.

*See also*

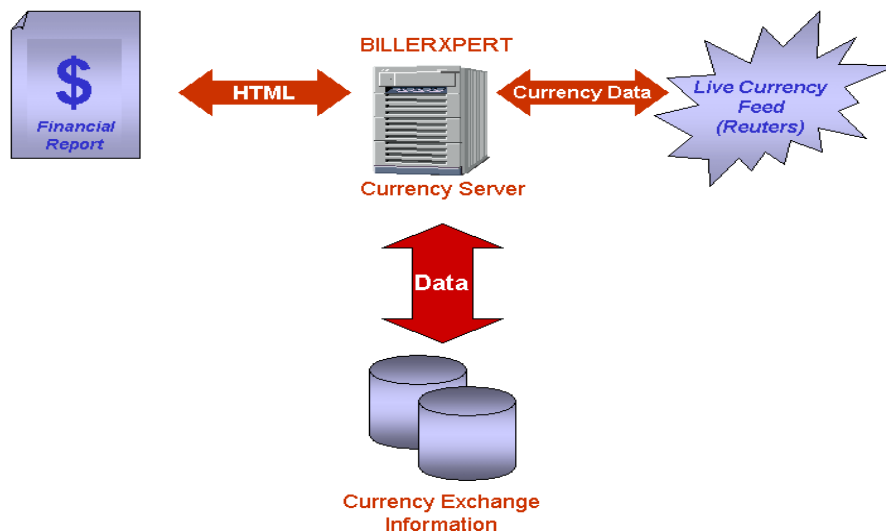
For more technical information regarding Infranet by Portal Software, including Setup and Verification processes, please refer to Appendix B, “Billing Systems”.

## Currency Feed

BillerXpert 4.6 has introduced a Currency Converter module to support currency conversion capabilities for both banks and billers. The Currency Converter module is a pluggable component that provides host applications API’s to help convert currencies. It is EURO compliant.

Within the Currency Conversion module, there is also a loader program, which is used to load the currency conversion entries. The loader program takes in an Extensible Markup Language (XML) file of conversion data and loads it into the conversion table. Updates to the currency conversion table are performed by the administrator either manually, or via an external scheduling software program.

**Figure 1-7** Reuters live Currency Feed to BillerXpert enables accurate financial reporting in response to customer inquiries.



In Figure 1-7, a user submits an HTML request for financial information to BillerXpert, which calls its stored currency data, which is refreshed regularly from Reuters XML feeds.

## Reuters Investor

Few categories of Internet based information are more highly used than personal financial information. And no company's financial information is as comprehensive, accurate, and well respected as Reuters. Quotes, market and company news, price histories, charts and portfolio information are the essential financial components everyone needs to see all day, every day - from serious investment managers to stock market debutantes.

Reuters Investor enables you to include reuters news and market data in your website on the public internet, subject to the correct data licenses, agreements, and exchange fees. You can provide your users with the latest news headlines and stories, as well as price information and charts from a range of markets.

The Reuters Investor service is hosted at a Reuters Data Centre and delivers all data via the Internet. You do not need to install any Reuters hardware or software applications.

Reuters Investor is built on top of the standard HTTP and HTTPS protocols. It provides a set of functions that let you access the relevant Reuters Investor server, which retrieves the information your requested.

*See also*

For more technical information regarding Currency Feed, including setup and verification processes, please refer to Appendix C, "Currency Feed".

## Enrollment

The enrollment process is the first process that a customer comes in contact with in order to interact with the BillerXpert system. In order to alleviate redundancies and save time in the enrollment process, BillerXpert includes a Realtime Enrollment and Activation feature.

### Realtime Enrollment and Activation

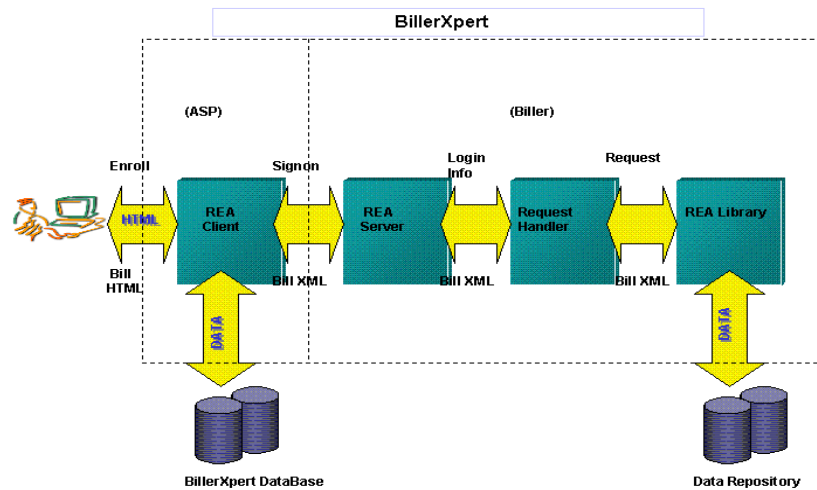
Enrolling a new member is an easy process and is virtually instantaneous, using the Realtime Enrollment and Activation (REA) feature of BillerXpert. Using REA, a customer can obtain almost immediate delivery of a user's profile and billing information.

Realtime Enrollment and Activation is a process of:

- Validating a user against an enrollment database
- Loading and displaying customer data
- Allowing customers to verify and modify customer profile data
- Retrieving customer bills from the database during online registration
- Loading and revealing the most recent bill

BillerXpert not only contains REA but also a small test data repository that demonstrates the entire feature as well as REA implementation methods used to validate and process the request.

**Figure 1-8** Realtime Enrollment and Activation Integration with BillerXpert



In Figure 1-8, the user is requesting enrollment through their service provider's REA client, which in turn communicates, realtime, with the billers REA server and request handler to validate and activate the user and immediately return personal billing data to them.

*See also*

For more technical information regarding Realtime Enrollment and Activation, including setup and verification processes, please refer to Appendix D, "Enrollment".

## Data Parsing and Mapping

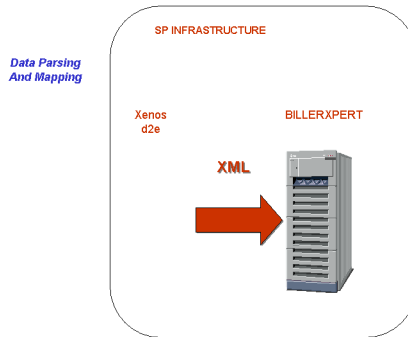
Moving a complex bill or statement to the Web isn't as simple as creating a version in a PDF or HTML format. The content for these complex documents is drawn from disparate data sources and incorporates business logic (i.e., how the document is presented and maintained) that can be difficult, even impossible, to duplicate.

Xenos is a recognized leader in the legacy data conversion space and is especially strong in AFP Parsing Xerox Metacode into XML for presentment on the web, which is a frequent requirement for BillerXpert customers. Additionally, Xenos has a Graphical User Interface (GUI) front end to their parser which eases the conversion and mapping process.

## Integrating Xenos D2E Platform

iPlanet BillerXpert integrates with the Xenos d2e Platform to provide a total, end-to-end solution for Internet Bill Presentment and Payment (IBPP). Xenos' e-business enabling technology transforms legacy data formats contained in billing statements, such as IBM AFP print streams, into e-content formats, including XML. Customers benefit from fast time to market and rapid return on investment.

Figure 1-9 illustrates the integration of the Xenos d2e Platform and BillerXpert.



**Figure 1-9** Data Parsing and Mapping with Xenos and BillerXpert

*See also*

For more technical information regarding Data Parsing and Mapping with Xenos, please refer to Appendix E, "Data Parsing and Mapping".



# Payment Services

BillerXpert provides, through the Administration console, the ability to route OFX payment requests to an OFX compliant Payment Service. The setup is done by the Billing Service Provider (BSP) for the hosted Biller.

This appendix will discuss:

- VeriSign Setup
- BillerXpert Setup
- Payment Testing
- Clear Commerce Setup

---

**NOTE** Testing payment verification is subject to and dependent upon customization of BillerXpert and the Payment Services provider. For reference as an example of testing Payment Services with VeriSign, see the section VeriSign Setup in this appendix.

---

## VeriSign Setup

To activate VeriSign payment processing in BillerXpert, a Biller simply needs to set up a VeriSign account, create a VeriSign Oracle user and install the BillerXpert support modules during installation.

---

**NOTE** The `ofxuser` and `ofxpass` fields must be edited to reflect the proper user. These fields are located in the `billxpert.conf` file which is stored in the `$BX_HOME/java` directory.

---

In order for payments to process properly, you must execute the following two scripts:

```
$BX_HOME/oracle/schema/create_verisignuser.sh
```

```
$BX_HOME/schema/oracle/testdata/bspTestdata/sqlscripts/BXOFXSIGNON.sql
```

In order to support VeriSign's Payment Services, BillerXpert has five (5) Payment Handlers. Details of these Payment Handlers are included in the following section.

## Payment Handlers

The five (5) Payment handlers that convert OFX messages-responses to VeriSign requests-returns to handle basic consumer payments:

- Payment Creation handler
- Payment Status Inquiry handler
- Payment Modification handler
- Payment Cancellation handler
- Data Synchronization handler

The details of each Payment handler follow:

### Payment Creation handler

A Payment Request <PMTRQ> is sent from the OFX client within BillerXpert to request a payment to schedule an electronic payment. Payment Response <PMTRS> is sent from the VeriSign Payment Services server in response to the Payment Request.

- A.C.H. (Automated Clearing House)
- Credit card

Reference <http://www.ofx.net/ofx/downloads/spec16/payments.html#9033> for specific assigned parameters for <PMTRQ> and <PMTRS>.

## Payment Status Inquiry handler

The Payment Status Inquiry Request, <PMTINQRQ> is sent from the OFX client within BillerXpert to obtain the current processing status of a payment from the VeriSign Payment Service's server. Payment Status Inquiry Response, <PMTINQRS> is sent from the VeriSign Payment Service's server to a Payment Status Inquiry Request.

- Credit card
- A.C.H. (Automated Clearing House)

Reference <http://www.ofx.net/ofx/downloads/spec16/payments.html#9033> for specific assigned parameters for <PMTINQRQ> and <PMTINQRS>.

## Payment Modification handler

The Payment Modification Request <PMTMODRQ> is sent from the OFX client within BillerXpert to request modification of a payment from the VeriSign Payment Service's server. Payment Modification Response <PMTMODRS> is sent from the VeriSign Payment Service's server in response to a Payment Modification Request.

- Credit card

---

**NOTE** ACH is NOT supported for Payment Modification handler.

---

Reference <http://www.ofx.net/ofx/downloads/spec16/payments.html#9033> for specific assigned parameters for <PMTMODRQ> and <PMTMODRS>.

## Payment Cancellation handler

A Payment Cancellation Request <PMTCANCRQ> is sent from the OFX client within BillerXpert to request a cancellation of a scheduled payment request from the VeriSign Payment Service's server. Payment Cancellation Response <PMTCANCRS> is sent from the VeriSign Payment Service's server in response to a Payment Cancellation Request.

- Credit card

---

**NOTE** ACH is NOT supported for Payment Modification handler.

---

Reference <http://www.ofx.net/ofx/downloads/spec16/payments.html#9033> for specific assigned parameters for <PMTCANCRQ> and <PMTCANCRS>.

## Data Synchronization handler

A synchronization scheme insures that an accurate copy of the server data is maintained.

The interface between BillerXpert and VeriSign Payment Service's uses an "instance" temporarily stored database to expedite data retrieval. The database maintains a module capability and stores the last transaction ID.

Payment Synchronization Request <PMTSYNCRQ> is sent from the OFX client within BillerXpert to request a synchronization of data from the VeriSign Payment Services database. Payment Synchronization Response <PMTSYNCRS> is sent from the VeriSign Payment Services database in response to a Data Synchronization Request.

Reference <http://www.ofx.net/ofx/downloads/spec16/payments.html#9033> for <PMTSYNCRQ> and <PMTSYNCRS>.

## Activating VeriSign

To activate VeriSign payment processing in BillerXpert, the biller simply needs to set up a VeriSign account, create a VeriSign oracle user, and install the BillerXpert support modules during the installation process.

Before downloading VeriSign Payment Services software, you have to register with VeriSign Payment Services as a vendor. If you are already a vendor, skip the following setup instructions and go to the Downloading section for instructions.

Once you are a registered Biller you will be given a userid and password.

---

**NOTE** The `ofxuser` and `ofxpass` fields must be edited to reflect the proper user. These fields are located in the `billxpert.conf` file which is stored in the `$BX_HOME/java` directory.

---

## Becoming a Vendor

1. VeriSign Payment Services can be accessed at <http://www.verisign.com/payment/>

2. Choose the sign up tab and then choose either *Try it!* (if you are testing) or *Buy it!* (if you are buying) VeriSign Payment Services.
3. Clicking on *Try it* brings the software selection screen. Select *PayFlow Pro*.
4. This will bring you to the VeriSign Registration screen.
5. Enter the Vendor ID that you want and enter the password twice.
6. Enter the required information in the fields provided.
7. Select *FDMS Nashville* or *Nova* for Credit Card processing. For *ACG* processing, contact VeriSign sales (`sales @ signio.com`) to sign up.

## Downloading

1. Connect to `https://manager.signio.com/`
2. Enter your Vendor ID and Password.
3. Select Downloads.
4. Follow the instructions for downloading software. You might have to send email to `downloads@signio.com` before you will be able to download.
5. Once you are authorized, go back to `manager.signio.com` and select the appropriate software to download (depending on your architecture and operating system).
6. For SunSparc, the download file is `pfpro_sunsparc.tar`
7. Extract the software using the following command:
 

```
>tar - xvf pfpro_sunsparc.tar
```
8. This will create a directory structure under VeriSign Payment Services.
9. The VeriSign Payment Services directory contains the *PayFlow Pro guide*. It also contains the directory for the architecture. Under this directory, you will find the software.
10. The bin directory contains the *PayFlow Pro client* which allows you to test payment transactions from the command line.
11. Read the `readme.txt` file in the directory for test instructions. You will have to put the VeriSign lib directory in the library path in order for the tests to work properly (environment variable `LD_LIBRARY_PATH`). It is recommended that you copy the `libpfpro.so` file to `/usr/lib` as to avoid having to change your library path setup or change your `LD_LIBRARY_PATH` variable.

# BillerXpert Setup

In order to route Payment transactions under the adopted model, BillerXpert's OFX client needs to be pointed to BillerXpert's internal OFX Server. The setup is done through the Billing Services provider (BSP) administration screen.

The procedure consists of the following steps:

- Login to Admin Console
- Editing the Biller Profile
- Adding The Internal OFX URL

## Login to Admin Console

1. Enter the URL of the Administrative Interface Website, `http://URL:port#/admin`  
For example: `http://plantation.mcom.com:8080/admin`
2. The Login window appears.
3. Enter **BSP** in the Biller field.
4. Enter the user name (default name - `bxadmin`) in the user name field.
5. Enter the password (default value - `bxadmin`) in the Password field.
6. Click the Login button.

## Editing the Biller Profile

1. Click the Billers button from the main Admin menu to display the Biller window.
2. Select the Biller from the Biller selection box.  
For example: California Telecom
3. Select the Retrieve Billers button.
4. Select the Biller to edit from the Billers that meet the above search criteria window.  
For example: California Telecom
5. The Biller Profile window should appear.

## Adding The Internal OFX URL

1. In the Biller Profile window, select the Update Profile button.
2. The Biller Profile edit window appears. Scroll down to the URL to send OFX messages selection box.
3. Enter the URL as
 

```
http://<your server>:<port>/NASApp/billxpert/OFXServlet
```

For example:

```
http://plantation:8080/NASApp/billxpert/OFXServlet
```
4. Scroll down to the bottom of the Biller Profile edit window and select Update Biller Profile.
5. The Biller Name was successfully updated message should be displayed.
 

For example: California Telecom was successfully updated
6. Select the Logout button to exit the Biller Profile window.

## Setup Scripts

In order for payments to work properly, you must execute two scripts:

- `$BX_HOME/oracle/schema/create_verisignuser.sh`
1. Update the script as follows:
 

```
Type <username>/<password>@<database name> <billername>
```

For example: `mickey/mickey@b2c telco`

    - The user name and password are assigned to you by the payment service.
    - The database name should be the same as your Oracle\_SID. You can find this in your biller profile.
    - There should be a space in between the database and biller name.
  - `$BX_HOME/schema/oracle/testdata/bspTestdata/sqlscripts/BXOFXSIGNON.sql`
    1. Update the script as follows:
 

```
Type the CSP user, CSP Password and CSP name. These should replace the values 'Netscape', 'Netscape', 'Netscape'.
```

For example: mickey, mickey, billerone.

## Payment Testing

Once BillerXpert has been installed with the VeriSign support modules and configured, the simplest method to check functionality is to make a test payment from BillerXpert's sample user (bambam) account.

The procedure to test payments is:

- Login to BillerXpert
- Pay Balance
- Test Payment and Verify Payment Acceptance
- Verify Payment Completed

The steps are detailed in the following sections.

### Login to BillerXpert

1. Type the Biller URL address (`http://biller_name:port#/telco`)  
For example: `http://plantation.mcom.com:8080/telco`
2. Type the test account name and password which is bambam

### Pay Balance

1. Select the Sign On button to log in.  
Soon after, the Billing Center screen will be displayed.
2. Select the Pay Balance link.  
The Pay screen will be displayed.

### Test Payment and Verify Payment Acceptance

Select the Make Payment button and the payment request will be sent out to VeriSign Payment services.



After the payment request is received, the VeriSign payment services responds with an acknowledgement message and BillerXpert displays the Payment confirmation.

## Verify Payment Completed

Once the payment transaction is completed, the Pay Balance screen is updated and the Payments page is updated reflecting the payment has been submitted.

See *Also*

For further details regarding VeriSign Payment Services, please visit [www.verisign.com](http://www.verisign.com).

# Clear Commerce Setup

## Payee Configuration on the ClearCommerce Hosting Engine

In order for a credit card transaction to be processed on behalf of a payee on the BillerXpert system, an account for that merchant must be created and configured on the ClearCommerce Hosting Engine. For details of account creation and configuration see the manual *ClearCommerce Engines for Unix 3.8.2*.

BillerXpert supports a 'pay-some' model. 'Pay-Some' systems restrict users to only make payments to payees that appear on an approved list. A unique Payee ID exists for each approved payee on the BillerXpert system. This ID is used to identify the merchant on the clearcommerce engine and must correspond to the store name or config file name on the ClearCommerce engine. BillerXpert also allows the payee to be specified by name. In that case the store name is mapped to the payee ID by means of properties in the `ClearCommerce.properties` file.

## Customization of the ClearLink Property Files

The properties listed are set in the `clearcommerce.properties` file. Note that all property names and values are case sensitive.

## Configuring ClearCommerce

There are two areas in which clearcommerce needs to be configured, as described in the following steps:

1. In the `$BX_HOME/java` directory there is a file `billxpert.conf`.
  - o Edit the `billxpert.conf` file and go to the `ofx`-section, where you will see 2 entries for usernames and password:

```
ofx user = noel
```

```
ofx pass = netscape
```
  - o Change those to the clearcommerce *username* and *password*.
2. Login as the Biller Admin.  
For example: `admin@store1`
3. Click on the Billers tab.  
Retrieve the Biller.
4. Double click on the biller which needs to be setup for clearcommerce.  
An Edit Entry window will pop up.
5. Click on the Advanced button.  
A property editor window will pop up.
6. From this list select the `nsurl` field and enter the clearcommerce URL.  
For example, `machinename:port/NASApp/billxpert/CCOFXServer`.
7. Click on the OK button and close all the windows.

See *A/so*

For further information regarding ClearLink by ClearCommerce, please refer to the *ClearLink (JLink) documentation*.

# Billing Systems

This appendix contains the following sections:

- Infranet by Portal Software
- Integration

## Infranet by Portal Software

The direct connection between iPlanet BillerXpert and the billing and rating technologies of Infranet leverages XML to eliminate the costly process of breaking down complex print image data and realizes a significant cost-savings to telcos and service providers. Additionally, the cost of creating and maintaining complex parsing maps is eliminated, and consumers now have the tools to take advantage of customer self service features.

## Integration

In order to provide a seamless integration between Infranet and BillerXpert, you will find the following components for integration:

1. PortalParser.java : Portal XML File Converter Program
2. invoice.xml : Portal XML File
3. XMLFileParse.java -- the Program to parse the XML file in BillerX Format. This program is used in association with PortalParser.java. This file must be located in the same directory as PortalParser.java.
4. PortalParser.java -- Build File : javac PortalParser.java
5. PortalParser -- Execute Program : PortalValid2.bat

PortalParser is a java Program which converts the Portal XML file into BillerXpert XML Format and Parses the converted file with validating SUN XML Parser.

The program will take three input arguments where :

- First parameter is the XML File Portal Format
  - Second parameter is the name of the XML File of the BillerXpert Format
  - Third parameter is the UserID
6. Run the `PortalValid2.bat` file to execute the the program for converting and validating the xml file.
  7. After the XML file is in BillerX format, load the XML file into the database via the XML loader.

### *See Also*

For more information regarding Infranet by Portal Software, please refer to the offical support site at: <http://www.portal.com/developers/>

# Currency Feed

This appendix contains the following sections:

- Implementaton Strategies
- Currency Conversion Process
- Installation Process for Currency Converter
- Installation of Reuters Investor

## Implementaton Strategies

With BillerXpert, you can integrate Reuters Investor using the Server-side XML method as described in the following section.

### Server-side method – XML

Here, your webservice requests each item of data from the Reuters Investor servers in XML format, which your scripts must parse and format for display in pages or applications (for example, a ticker or charting applet). The user has no direct contact with the Reuters Investor servers.

This method gives you much more flexibility in how you format and display the information that you retrieve, and consequently requires greater programming effort. Note that any pages or applications that include Reuters information must adhere to the Reuters online branding guidelines (see the section on Reuters online branding guidelines within the *Reuters Investor Programmer's Guide* for details).

All requests for Reuters data must be built dynamically (using a server extension technology). This enables you to include a valid Session ID, so that each request can be authenticated.

Note that if you are caching any Reuters Investor data in your servers, your company is obliged to measure and report the number of Reuters Investor data items delivered to your users. (For more details, see the section on Data charges and caching within the *Reuters Investor Programmer's Guide*).

### See Also

The following related documents from Reuters:

- Reuters Investor Access Details

This provides the relevant details that enable your website to connect to the Reuters Investor servers. It includes your user ID and password, the Reuters Investor server addresses, and the function names (which are different from the names in the Functions section of this guide).

- Reuters Investor Data Guides

These contain detailed information about the data that is provided by Reuters Investor. This includes the key RICs (Reuters Instrument Codes) and news codes for each market, exchange lists, field explanations, and lists of exchange and currency identifiers.

- Reuters Online Branding Guidelines

This describes the Reuters branding guidelines that you must implement in your website if you are not only using the default HTML format pages.

## Currency Conversion Process

The currency conversion process is as follows:

1. Currency codes and related information are loaded at the time of installation. These codes are International Organization for Standardization (ISO) standard and should not change. The Euro currencies are identified through the use of a special flag.
2. The latest currency rates are loaded into the database using a loader program. This program reads the data in XML format from a file and loads the rate table. Each load is tracked on the basis of conversion date. Each load is tracked in the database by a sequentially generated id, fileid. Please refer to the database schema for more details.
3. When the conversion method is called, it retrieves the appropriate fileid by using the date specified to find the latest track for that date. This search is on the basis of conversion date (not the load date).

4. Once the appropriate load is determined, the required rate is searched from the currencyconversion table, using the fileid retrieved in step 3.
5. If the currency is a Euro currency, the rate between the other currency and Euro is retrieved. This rate is then used to convert the amount from one currency to another. In case of Euro currencies, the conversion always passes through Euro, i.e. Euro currency -> Euro -> other currency. Please refer to the official site  
[http://europa.eu.int/eur-lex/en/lif/dat/1997/en\\_397R1103.html](http://europa.eu.int/eur-lex/en/lif/dat/1997/en_397R1103.html) for conversion rules regarding the EURO.

## Installation Process for Currency Converter

The currency conversion module is installed automatically as part of the iPlanet BillerXpert installation. The following tasks are performed as part of the BillerXpert installation, which are specific to the currency converter module:

1. Three tables are created in the BSP schema. They are:
  - currency
  - currency conversion
  - currencyloadtrack.

Please refer to the database schema for more details.
2. The files `currconv.zip` and `xml.jar` are located under `$BX_HOME/java`.
3. The files `billxpert_env.csh` and `billxpert_env.sh` include `currconv.zip` and `xml.jar` in the CLASSPATH.

## How to Load Currency Converter

1. Contact Reuters to get the license.
2. Configure `CCLoad.properties` file in `$BX_HOME/currconv` dir.
3. Configure variables in `$BX_HOME/getData.csh`
4. Run the script `$BX_HOME/getData.csh`

5. Check the logs. The Error logs are kept in /tmp.

The file name is `CCLoadErr<date>_<time>.log`

For example, `CCLoadErr20001128_235527.log`

## Configuring CCLoad Properties

The `CCLoad.properties` file is read while pulling data from reuters. The following properties need to be configured:

1. `currConv.load.PullData.servername=LOCAL_FULLY_QUALIFIED_HOSTNAME_USED_TO_PULL_REUTERS_DATA`
  - sets the local server from where connection to reuters will be made. Typically this server gets data from external sites, if the application is hosted within a firewall, this would be the proxy server. (host.domain)
2. `currConv.load.PullData.serverPort=LOCAL_PORT`
  - The port number of the proxy server to connect to external sites (typically 80 or 8080)
3. `currConv.load.PullData.reutersHostname=REUTERS_HOSTNAME`
  - This is Reuters host name for example, `ri2.rois.com`
4. `currConv.load.PullData.reutersPort=REUTERS_PORT`
  - http port on Reuters host (80)
5. `currConv.load.PullData.reutersSession=SESSION_ID_FROM_REUTERS`
  - session id string as given by Reuters
6. `currConv.load.PullData.reutersFormat=XML`
  - reuters data format (XML or HTML). BX needs this to remain as XML.
7. `currConv.load.PullData.reutersRICs=REUTER_RICs_SPACE_SEPERATED`
  - Reuters RICS that need to be pulled. For example: `FX JPYX`
8. `currConv.load.PullData.outDir=DIR_TO_PULL_THE_RICs`
  - Output dir where the data will be pulled to. The pull program creates a directory `.Pulldata` under this directory
9. `currConv.load.CCLoad.CCFFile=${BX_HOME}/currconv/euro_fixed_rates.xml`



- Allows you to specify an XML file that will be loaded with each load. The purpose is to load certain fixed currency rates (for example, the European Union rates). It is recommended to load this file if conversion requires EURO currencies. Since these are fixed rates, Reuters feed will not have these rates.

## Configuring getData.csh

The `getData.csh` defines the following properties. It is recommended to use these values.

1. `setenv DATABASEPROFFILE $BX_HOME/currconv/database.properties`

The file contains the database id and password. This file is created at time of installation.

2. `setenv REUTERS_PROP $BX_HOME/currconv/CCLoad.properties`

Reuters properties file. Refer to the section Configuring CCLoad Properties for more details.

## Installation of Reuters Investor

To use Reuters Investor, your website and server software that access Reuters Investor must have access to the public internet. You can choose your own hardware and operating system, and you can choose which programming language to use. You do not need to install any Reuters hardware or software applications.

If you are using default HTML pages only, then Microsoft Internet Explorer v4.0 (or later) or Netscape v4.05 (or later) are recommended for users' browsers for displaying PNG format charts.

Customers interested in purchasing the Reuters Investor Product to enable Live currency updates with the iPlanet currency converter should contact their local Reuters sales representative at <http://www.reuters.com/onlinemedias>. Click on CONTACT US.



# Enrollment

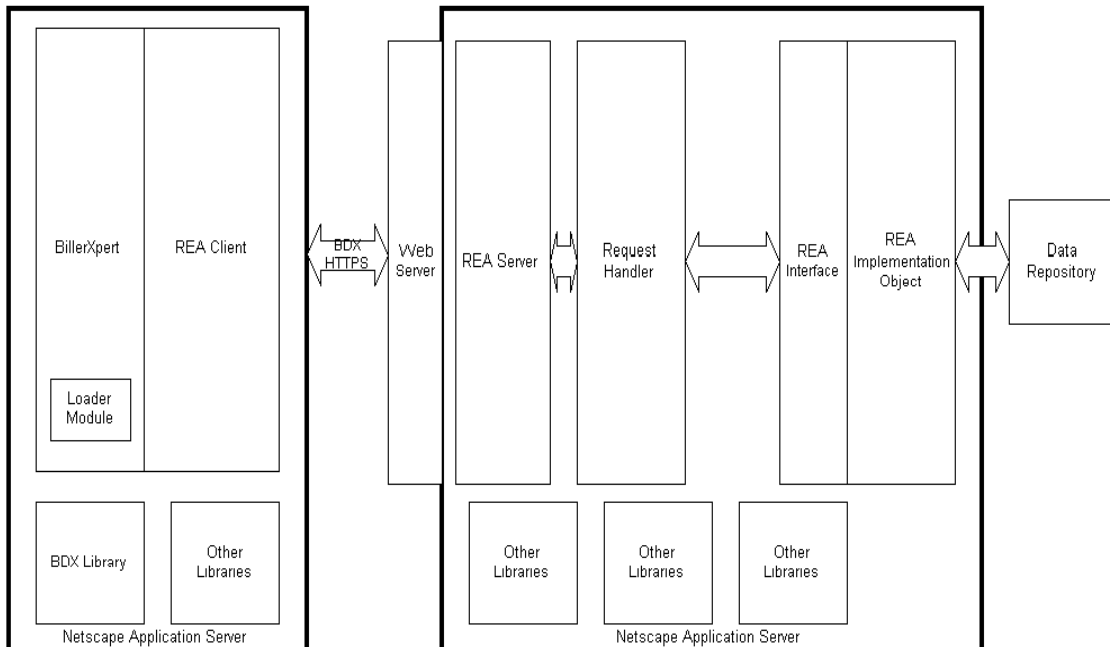
This appendix contains the following sections:

- Realtime Enrollment and Activation (REA)
- Installation and Handler Procedures
- Testing REA

## Realtime Enrollment and Activation (REA)

The Realtime Enrollment and Activation feature of BillerXpert makes it possible to immediately verify and activate a user's online request for membership and personal billing information. Figure D-1 illustrates the components of the REA process.

**Figure D-1** Realtime Enrollment and Activation (REA) component diagram



The details of the REA component diagram are as follows:

- REA Client is closely integrated with the BillerXpert product. It is responsible for sending REA request to the proper REA Server and receiving responses from that server.
- REA Server is implemented as a server running on the iPlanet Application Server. The server accepts the REA requests from the client through the Web server. It is responsible for: accepting, validating, and verifying a request, handing over the request object to the request handler, and returning the response to the REA client.
- Bill Data Exchange (BDX) provides communication between the REA Client and Server. BDX protocol is similar to IFX (Internet Financial Exchange) and uses Biller XML as the data format for the response.
- BDX Library implements the necessary classes required to invoke the BDX protocol.
- REA Interface is used to plug objects into the database for each biller.

- REA Implementation Objects are responsible for verification of customer data. Objects can be in a different format of data and multiple objects can be active in the system, for the same biller.
- Data Repository can be any form of storing data, including, a database, LDAP, or a file system. BillerXpert maintains this data repository.

## Request - Response Flow in the REA Framework

1. REA Client constructs the request using the input parameters provided by the customer during online registration. The input parameters are stored in `/tmp/BDX_.xml` after enrollment.
2. REA Client then sends the request to the REA Server.
3. REA Server validates the request using the SignOn object. Validation comes from initializing the logging information (request type, source of the request, time or arrival, and so on) and hands over the request to the Request Handler.
4. The Request Handler, depending upon the BillerID in the request, calls the specific REA Implementation Object for this request.
5. The REA Implementation Objects (implementing the IG Interface) validates the user's credential against the data stored in the Data Repository.

In the case of a valid user, the data from the repository is retrieved, and the Data Transformation Library is used to transform the data from the legacy format to the Biller XML format. The data is then returned to the Request Handler.

In case of validation failure, the failure code and failure message are returned to the Request Handler.

6. The Request Handler passes the returned data from the REA Implementation Object over to the REA Server.
7. The REA Server updates the bookkeeping variables, logs, and then returns the response back to the REA Client.
8. The REA Client passes the response to the Response Handler.
9. The Response Handler processes the response using the Data Loader Module that stores the data in the Biller Database or LDAP.

## REA Implementation Methods

The REA server is installed at the biller site. An Interface is exposed, whose methods are called internally by the server to send the response back. The Biller or integrator has to implement these methods to get the required data from their legacy systems. The functions are:

1. `isValidUser ()` which should validate the user and return the result.
2. `getCustomerProfile()` gets the customer profile of the user in XML format.
3. `getCustomerBill()` gets the latest bill of the specified customer in XML format.

# Installation and Handler Procedures

## REA Server Installation Procedure

1. Put `$BX_HOME/java/bds.zip` in their server CLASSPATH.
2. Register `netscape.bds.server.BDXServlet` with the Web Server.
3. Copy `DBParam.conf`, data in the ClassPath Directory.

## BillerXpert Installation

To install REA, use BillerXpert's installation script (`setup`). Once installed, access the REA Server files from `$BX_HOME/java` for the REA Server installation. After this data is gathered, the following scenarios could occur:

- User information needs to be downloaded. Due to the large number of customers, some Billers could be downloading data of only the enrolled users in the BillerXpert database. In such a scenario, the information is verified against the database and then relevant information is downloaded to the Biller database.
- User information is incorrect. The user is asked to re-enter the information and the process is repeated.

## Handler Procedure

1. REA Client executes with the required parameters:

```
> java netscape.bds.handlers.BDXPresCustomerDataHandler
```

The Parameter details and values are shown below

**Table D-1** Parameter Details and Values

First Name		John
Middle Name		Can be null
Last Name		Doe
Address 1		4210 Network Circle
Address 2		Santa Clara
Address 3		Can be null
Biller URL	URL of BDX Servlet part of bds.zip	http://<hostname>:<port>/NAS App/billingdata/BDXServlet
City		Santa Clara
State		CA
Zip Code		94086
Country		USA
Day Phone		(408) 276-3400
Evening Phone		(408) 276-3400
Email		john.doe@netscape.com
Tax ID	Number used for validation purposes	123-45-6789
Social Security Number	Number used for validation purposes	123-45-6789
Date of Birth		00-00-0000
Account Number	Account number of user with Biller	650 789 000 ABC
Transaction ID	Unique 12 digit number	123456789012
Date	Transaction date	Today's date

---

**NOTE** Null parameters should be represented by “”.

---

## Example of a Request Response

The REA Client sends the request. After the REA Server processes the request, the REA Server responds with the customer and billing information as noted in the following:

Given URL in BDHandler is :  
 http://plantation:8080/NASApp/billingdata/BDXServlet

The Supplied URL Is :  
 http://plantation:8080/NASApp/billingdata/BDXServlet

After creating URL...

BDXClient SUCCESS

Writing success

SUCCESS BDHANDLER

```

SGML DATA: <PRESCUSTOMERDATATRNRQ>
    <TRNUID>100000000001</TRNUID>
    <DATE>07262000</DATE>
<PRESCUSTOMERDATARQ>
<CUSTOMERINFO>
    <FIRSTNAME>John</FIRSTNAME>
    <LASTNAME>Doe</LASTNAME>
    <MIDDLENAME></MIDDLENAME>
    <ADDR1>21, Network Circle</ADDR1>
    <ADDR2></ADDR2>
    <ADDR3></ADDR3>
    <CITY>Santa Clara</CITY>
    <STATE>CA</STATE>
    <POSTALCODE>94085</POSTALCODE>
    <COUNTRY>USA</COUNTRY>
    <DAYPHONE>408-276-4300</DAYPHONE>
  
```



```

<EVEPHONE>408-276-4300</EVEPHONE>
<EMAIL>john.doe@netscape.com</EMAIL>
<TAXID>123-12-1234</TAXID>
<SECURITYNAME>who</SECURITYNAME>
<DATEOFBIRTH>01/01/1970</DATEOFBIRTH>
<ACCOUNTNUMBER>650 937 6181 778 N20</ACCOUNTNUMBER>
</CUSTOMERINFO>
</PRESCUSTOMERDATARQ>
</PRESCUSTOMERDATATRNRQ>

```

**The following response is displayed:**

```

FileInputStream is not null
ARIF ACNTVParser obj has created
Request Sent
Status Line :HTTP/1.1 200 OK
Header1 Line :Netscape-Enterprise/4.0
Content-Type Line :text/html
Status Code : 200
Response File Name: BDX9646484233900
OUT Element Name : PRESCUSTOMERDATATRNRS
INSIDE PRESCUSTDATARS Element Name : PRESCUSTOMERDATATRNRS
OUT Element Name : PRESCUSTOMERDATATRNRS
INSIDE PRESCUSTDATARS Element Name : PRESCUSTOMERDATATRNRS
OUT Element Name : TRNUID
INSIDE PRESCUSTDATARS Element Name : TRNUID
OUT Element Name : STATUS
INSIDE PRESCUSTDATARS Element Name : STATUS
OUT Element Name : CODE
OUT Element Name : SEVERITY
OUT Element Name : PRESCUSTOMERDATARS

```

```
INSIDE PRESCUSTDATARS Element Name : PRESCUSTOMERDATARS
OUT Element Name : CUSTOMERBILLS
OUT Element Name : CUSTOMERBILL
OUT Element Name : BILLINXML
OUT Element Name : BillXpertDoc
OUT Element Name : Operation
OUT Element Name : BillerId
OUT Element Name : FileId
OUT Element Name : BXBillerCustomerAccount
OUT Element Name : BcaUserId
OUT Element Name : BcaAcctType
OUT Element Name : BcaCusType
OUT Element Name : BcaAcctNum
OUT Element Name : BcaDesc
OUT Element Name : BcaTaxId
OUT Element Name : BcaSince
OUT Element Name : BcaAcctStat
OUT Element Name : BcaUnPaidBill
OUT Element Name : BcaUnPaidBal
OUT Element Name : BcaAcctBal
OUT Element Name : BcaAcctBalDate
OUT Element Name : BcaDisStat
OUT Element Name : BcaBillAddr
OUT Element Name : BcaServAddr
OUT Element Name : BXContainer
OUT Element Name : BXDocument
OUT Element Name : BillType
OUT Element Name : DocType
OUT Element Name : DocCDate
OUT Element Name : DocBDate
OUT Element Name : DocStatus
```

OUT Element Name : DocCpType  
OUT Element Name : BXSummary  
OUT Element Name : StDate  
OUT Element Name : EndDate  
OUT Element Name : OrigAmt  
OUT Element Name : CurBal  
OUT Element Name : CurChg  
OUT Element Name : PrevBal  
OUT Element Name : PrevPmt  
OUT Element Name : BalDate  
OUT Element Name : DueDate  
OUT Element Name : LateAfterDate  
OUT Element Name : PenaltyType  
OUT Element Name : PenaltyRate  
OUT Element Name : MinPayAmt  
OUT Element Name : PayAmt  
OUT Element Name : LastPayDate  
OUT Element Name : PayStatus  
OUT Element Name : DisputeAmt  
OUT Element Name : DisputeStatus  
OUT Element Name : SUMStatus  
OUT Element Name : DiscntType  
OUT Element Name : DiscntRate  
OUT Element Name : BXLineItem  
OUT Element Name : BXLineItemType  
OUT Element Name : TotalAmount  
OUT Element Name : Description  
OUT Element Name : CUSTOMERPROFILE  
OUT Element Name : BILLINXML  
OUT Element Name : BillXpertDoc  
OUT Element Name : Operation

OUT Element Name : BillerId  
OUT Element Name : OrgName  
OUT Element Name : FileId  
OUT Element Name : BXCUSTOMERPROFILE  
OUT Element Name : bcpLogin  
OUT Element Name : bcpAcct  
OUT Element Name : bcpFname  
OUT Element Name : bcpMname  
OUT Element Name : bcpLname  
OUT Element Name : bcpDphone  
OUT Element Name : bcpNphone  
OUT Element Name : bcpEmail  
OUT Element Name : bcpSWord  
OUT Element Name : bcpPwd  
OUT Element Name : bcpAddr1  
OUT Element Name : bcpAddr2  
OUT Element Name : bcpAddr3  
OUT Element Name : bcpCity  
OUT Element Name : bcpState  
OUT Element Name : bcpCountry  
OUT Element Name : bcpPostal  
OUT Element Name : bcpAcctType  
Response Object: <PRESCUSTOMERDATATRNS>  
    <TRNUID>10000000001</TRNUID>  
<STATUS>    <CODE>0</CODE>  
    <SEVERITY>INFO</SEVERITY>  
</STATUS><PRESCUSTOMERDATARS>  
<CUSTOMERBILLS>  
<CUSTOMERBILL>  
    <BILLINXML><BillXpertDoc>  
    <Operation>  UPDATE</Operation>

```

<BillerId> California Telecom</BillerId>
<FileId> 80016</FileId>
<BXBillerCustomerAccount>
  <BcaUserId> bambam</BcaUserId>
  <BcaAcctType> Regular Account</BcaAcctType>
  <BcaCusType> REGULAR</BcaCusType>
  <BcaAcctNum> 650 937 6181 778 N20</BcaAcctNum>
  <BcaDesc> bambam</BcaDesc>
  <BcaTaxId> 123-12-1234</BcaTaxId>
  <BcaSince> 1990</BcaSince>
  <BcaAcctStat> ACTIVE</BcaAcctStat>
  <BcaUnPaidBill> 1</BcaUnPaidBill>
  <BcaUnPaidBal> 80.11</BcaUnPaidBal>
  <BcaAcctBal> 80.11</BcaAcctBal>
  <BcaAcctBalDate> 2000-07-02</BcaAcctBalDate>
  <BcaDisStat> NODISPUTE</BcaDisStat>
  <BcaBillAddr> 19980728225960-BXADDRESS</BcaBillAddr>
  <BcaServAddr> 19980728225957-BXADDRESS</BcaServAddr>
<BXContainer>
  <BXDocument>
    <BillType> TELCO</BillType>
    <DocType> BILL</DocType>
    <DocCDate> 2000-07-02</DocCDate>
    <DocBDate> 2000-01-24</DocBDate>
    <DocStatus> ACTIVE</DocStatus>
    <DocCpType> ORIGINAL</DocCpType>
  <BXSummary>
    <StDate> 1999-12-26</StDate>
    <EndDate> 2000-01-24</EndDate>
    <OrigAmt> 55.24</OrigAmt>
    <CurBal> 0.0</CurBal>
  </BXSummary>
</BXDocument>
</BXContainer>

```

```

    <CurChg> 55.24</CurChg>
    <PrevBal> 45.34</PrevBal>
    <PrevPmt> 45.24</PrevPmt>
    <BalDate> 2000-01-24</BalDate>
    <DueDate> 2000-02-18</DueDate>
    <LateAfterDate> 2000-02-23</LateAfterDate>
    <PenaltyType> FIXED</PenaltyType>
    <PenaltyRate> 5.0</PenaltyRate>
    <MinPayAmt> 15.0</MinPayAmt>
    <PayAmt> 25.24</PayAmt>
    <LastPayDate> 2000-02-23</LastPayDate>
    <PayStatus> FULLY_PAID</PayStatus>
    <DisputeAmt> 0.0</DisputeAmt>
    <DisputeStatus> NODISPUTE</DisputeStatus>
    <SUMStatus> ACTIVE</SUMStatus>
    <DiscntType> FIXED</DiscntType>
    <DiscntRate> 0.0</DiscntRate></BXSummary>
  <BXLineItem>
    <BXLineItemType> BASIC</BXLineItemType>
    <TotalAmount> 13.5</TotalAmount>
    <Description> Basic
Service</Description></BXLineItem></BXDocument></BXContainer></BXBi
llerCustomerAccount></BillXpertDoc></BILLINXML>
</CUSTOMERBILL>
</CUSTOMERBILLS>
<CUSTOMERPROFILE>
  <BILLINXML><BillXpertDoc>
    <Operation> UPDATE</Operation>
    <BillerId> California Telecom</BillerId>
    <OrgName> iPlanet</OrgName>
    <FileId> 87845</FileId>
  </BILLINXML>
</CUSTOMERPROFILE>

```

```

<BXCustomerProfile>
  <bcpLogin> bambam</bcpLogin>
  <bcpAcct> 1001</bcpAcct>
  <bcpFname> John</bcpFname>
  <bcpMname></bcpMname>
  <bcpLname> Doe</bcpLname>
  <bcpDphone> 408-276-4300</bcpDphone>
  <bcpNphone> 408-276-4300</bcpNphone>
  <bcpEmail> john.doe@netscape.com</bcpEmail>
  <bcpSWord> who</bcpSWord>
  <bcpPwd> bambam</bcpPwd>
  <bcpAddr1> 21, Network Circle</bcpAddr1>
  <bcpAddr2></bcpAddr2>
  <bcpAddr3></bcpAddr3>
  <bcpCity> Santa Clara</bcpCity>
  <bcpState> CA</bcpState>
  <bcpCountry> USA</bcpCountry>
  <bcpPostal> 94085</bcpPostal>
  <bcpAcctType> Regular
Account</bcpAcctType></BXCustomerProfile></BillXpertDoc></BILLINXML
>
</CUSTOMERPROFILE>
</PRESCUSTOMERDATARS>
</PRESCUSTOMERDATATRNRS>

```

## Testing REA

Enrolling a new member is an easy process and is virtually instantaneous, using the new Realtime Enrollment and Activation (REA) feature of BillerXpert.

# To Enroll A New Member

1. Go to your company home page.



Figure D-2 Example of a company home page

2. At the New Online Member area of your home page, click the Sign Up Button.  
The New Member Registration page is displayed as illustrated in Figure D-3.



**Figure D-3** New Member Registration

**New Member Registration**

Customer Name

**Primary Contact**

Please enter the name of the primary contact for this account:

Salutation

First Name  \*

Middle Name/Initial

Last Name  \*

Suffix

[Return To California Cable Home](#)

3. Enter appropriate data into the input fields to complete your registration. You may refer to Table D-2 for field descriptions.

**Table D-2** Primary Contact

Field Name	Description
Salutation	Title of primary contact
First Name	First name of primary contact
Middle Name/Initial	Middle name or initial of primary contact
Last Name	Last name of primary contact
Suffix	Suffix or additional title of primary contact
Clear	Clears the input fields for new member registration
Next	Go to the next window
Return	Return to the previous window

---

**NOTE** All fields with an asterisk \* are required entry fields.

---

- Click Clear to clear the data incorrectly entered in the input fields or Next to proceed to the next window, as displayed in Figure D-4.

**Figure D-4** New Member Registration - Page 2

**CC New Member Registration**  
Help us locate your account.

**Line Account Numbers**  
Please enter your main telephone account number:

Account Number  \*  
(Ex: ACCT-12345678 A)

For security purposes please enter the total for last month bill:

Last Month Total  \*  
(Ex: 15.50)

If you have other numbers which you are billed for they should be entered below:

Account Number   
Last Month Total

Account Number   
Last Month Total

- Your customer account number and line account numbers can be found at the top of the statement for each line.  
- If you have more than 3 numbers they can be added later after your online account has been activated.

[Return To California Cable Home](#)

- Enter appropriate data into the input fields to complete your registration. You may refer to Table D-3 for field descriptions.

**Table D-3** Line Account Numbers

Field	Description
Account Number	Main telephone number and area code
Last Month Total	Total amount of last month's bill (for security purposes)
Account Number	If you have other telephone numbers for which you are billed.
Last Month Total	See previous field, if other telephone numbers apply
Account Number	If second telephone number, enter that phone
Last Month Total	If second telephone number, enter that total

**Table D-3** Line Account Numbers

Field	Description
Clear	Clears the input fields for new member registration
Next	Go to the next window
Return	Return to the previous window

**NOTE** All fields with an asterisk \* are required entry fields.

- Click Clear to clear the data incorrectly entered in the input fields or Next to proceed to the next window, as displayed in Figure D-5.

**Figure D-5** New Member Registration - Page 3

**New Member Registration**  
Name and Address

**Billing Address**  
Please enter the address that bills should be sent to:

Address  \*

City  \*

State  \* Zip Code  \*

[Return To California Cable Home](#)

- Enter appropriate data into the input fields to complete your registration. You may refer to for field descriptions.

**Table D-4** Primary Contact

<b>Name of Field/Object</b>	<b>Description of Field/Object</b>
Address	Enter address where bills should be sent.
Address	
City	Enter the city where bills should be sent.
State	Enter the state where bills should be sent.
Zip Code	Enter the zip code of the state where bills are sent.
Clear	Clears the input fields for new member registration
Next	Go to the next window
Return	Return to the previous window

---

**NOTE** All fields with an asterisk \* are required entry fields.

---

8. Click the Clear button to clear the data incorrectly entered in the input fields or the Next button to proceed to the next window, as displayed in Figure D-6.

Figure D-6 New Member Registration - Page 4

**New Member Registration**  
Payment Information

**Primary Payment Method**

If you do not plan to pay bills online or would not like to save your payment info online you can skip this step.

Otherwise please enter the primary method to pay your bills:

**Bank Account**

Checking  Saving

Bank Routing ID  \*

Account Number  \*

Nickname

How you would like to refer to this card on the site.

**Credit Card**

Cardholder Name  \*

As it appears on the card

Type  \*

Number  \*

Expiration Date  \*  \*

Card Address: Check "Same as Billing Address" if the address for this card is the same as your billing address otherwise please enter the address for the card below.

Same as Billing Address

Address  \*

City  \*

State  \* Zip Code  \*

Card Nickname

How you would like to refer to this card on the site.

[Return](#) To California Cable Home

9. Enter appropriate data into the input fields to complete your registration. You may refer to Table D-5 for field descriptions.

Table D-5 Primary Payment Method

Name of Filed/Object	Description of Field/Object
Bank Routing ID	Identification number of the bank account used
Account Number	Your bank account number
Nickname	Name (you would prefer to use ) for this card
Cardholder Name	Name of cardholder
Type	Type of card
Number	Number of card
Expiration Date	Expiration date of card
Card Address	Address of cardholder
City	City of cardholder
State	State of cardholder
Zip Code	Zip code of state of cardholder

**Table D-5** Primary Payment Method

Name of Filed/Object	Description of Field/Object
Card Nickname	Account reference for this card
Clear	Clears the input fields for new member registration
Next	Go to the next window
Return	Return to the previous window

**NOTE** All fields with an asterisk \* are required entry fields.

- Click Clear to clear the data incorrectly entered in the input fields or Next to proceed to the next window, as displayed in Figure D-7.

**Figure D-7** New Member Registration - Page 5

**New Member Registration**  
Online Membership Info

**Password & User Login**  
Please enter an online name and password:

Online Name  \*

Password  \*

Repeat Password  \*

**Contact Information**  
Please fill in the following information if we need to contact you:

Preferred Method  Phone  Email

Daytime Phone Number  (Ex. 415-555-1212)

Best Time

Your Email Address

[Return To California Telecom Home](#)

- Enter appropriate data into the input fields to complete your registration. You may refer to Figure D-6 for field descriptions.

**Table D-6** Billing Address

Name of Field/Object	Description of Field/Object
Address	Address where bills are sent
Address	See above address field
City	City where bills are sent.
State	State where bills are sent
Zip Code	Zip code of state, where bills are sent
Clear	Clears the input fields for new member registration
Next	Go to the next window
Return	Return to the previous window

---

**NOTE** All fields with an asterisk \* are required entry fields.

---

12. Click Clear to clear the data incorrectly entered in the input fields or Next to proceed to the next window, as displayed in Figure D-8.

**Figure D-8** New Members Registration - Page 6

**New Member Registration**  
Customer Profile

**Additional Information**  
The following is optional information so that we may better serve you:

Gender: Female  
Age: <18  
Profession: HiTech  
Salary: \$25K - \$35K  
Interests: Outdoor Sport  
Vehicle Preference: Coupe

Clear Submit

[Return](#) To California Telecom Home

13. Enter appropriate data into the input fields to complete your registration. You may refer to Figure D-7 for field descriptions.

**Table D-7** Additional Information

Name of Field/Object	Description of Field/Object
Gender	Select from dropdown list box
Age	Select from dropdown list box
Profession	Select from dropdown list box
Interests	Select from dropdown listbox
Vehicle Preference	Select from dropdown listbox
Clear	Clears the input fields for new member registration
Next	Go to the next window
Submit	Submits data to the IG database



---

**NOTE** All fields with an asterisk \* are required entry fields.

---

14. Click Clear to clear the data incorrectly entered in the input fields or Submit to proceed and submit the data to the IG database.

## Verification

Once IG processes the request and response, the user will be able to login to BillerXpert and see their account and billing information.

Testing REA

# Data Parsing and Mapping

This appendix contains the following sections:

- Introduction
- Xenos d2E Platform Solution Overview
- Location of the Xenos Transformation Files
- Document Type Definition (DTD) Message Responses
- BillerXpert Loader Script

## Introduction

iPlanet BillerXpert integrates with the Xenos d2e Platform to provide a total, end-to-end solution for Internet Bill Presentment and Payment (IBPP). Xenos' e-business enabling technology transforms legacy data formats contained in billing statements, such as IBM AFP print streams, into e-content formats, including XML. Utilizing their existing print stream, customers benefit from fast time to market and rapid return on investment.

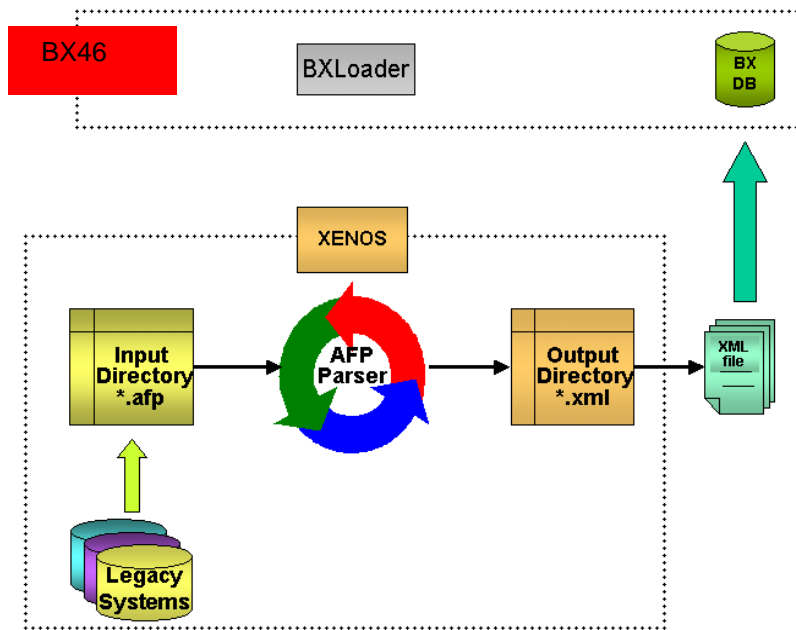
## Xenos d2E Platform Solution Overview

Software from Xenos will transform existing data from legacy systems to electronic content (e-content) that BillerXpert will then transform into Internet Bill Presentment and Payment. Data transformation, usually a time consuming, error-prone and complex part of Internet billing, will be simplified through this process, mapping the information directly into XML (extensible mark-up language) to be readable by BillerXpert software.

Xenos is a recognized leader in the legacy data conversion space and is especially strong in AFP Parsing into XML for presentment on the web, which is a frequent requirement for BillerXpert customers. Additionally, Xenos has a GUI front end to their parser which eases the conversion and mapping process.

Xenos' solution parses specific bill fields that are required by BillerXpert. Fields such as account number, payment due date, payment amount and previous payment are parsed directly from bill statements, as well as detailed transaction information. These fields are used by iPlanet BillerXpert to display bill summary and bill detail information on the Internet. These fields are transformed into XML using the iPlanet XML Document Type Definition (DTD) Message Responses. The XML objects are stored directly into the BillerXpert database, as seen in figure E-1.

**Figure E-1** Xenos Converts Legacy (\*.afp) Data Into XML



## Location of the Xenos Transformation Files

The following files and locations described in Table E-1 should be noted. Each of these directories can be found in your install directory. For example:

```
</export/home/xn/new>/idc/omnitel
```

**Table E-1** Notable Xenos Files and Directories

File or Directory Name	Location	Description
/idc/omnitel	/idc/omnitel	The directory to deposit your *.AFP file for transformation into XML. The process is started once a file is detected in this directory.
bcaSingleUserMany Details_<20010710 _180858>.xml	/idc/output	A date_time stamped file which is the XML output file. Note that if this file is not grabbed prior to creating a new output file, the existing file will be overwritten.
dme.out	/idc/logs	Output from the dme process.
dme.prm	/idc/config	Parameter file.
event.evt	/idc/logs	All events.
omnitel.afp	/idc/queues	Sample input file.
omnitel.dms	/idc/resources	Contains the business rules that govern how the print stream is processed.
omnitel.par	/idc/queues	Parameter file.
qmon.prm	/idc/config	Parameter file.
start_idc.scr	idc/commands	Starts the Xenos operation of the dme and qmon processes.
stop_ids.scr	/idc/commands	Stops the Xenos operation of the dme and qmon processes.
trigger_<20010710 _180858>.txt	/idc/output	A date_time stamped file which is the corresponding output file that indicates readiness for the loading of the XML output file to the BillerXpert database.

## Document Type Definition (DTD) Message Responses

Xenos has enhanced XML capabilities to generate BillerXML. Xenos validates the generated XML against DTDs to ensure that the data will load correctly into the BillerXpert database, resulting in out of the box functionality. The Biller Xpert DTD file locations are described in Table E-2.

**Table E-2** Biller Xpert DTD file locations

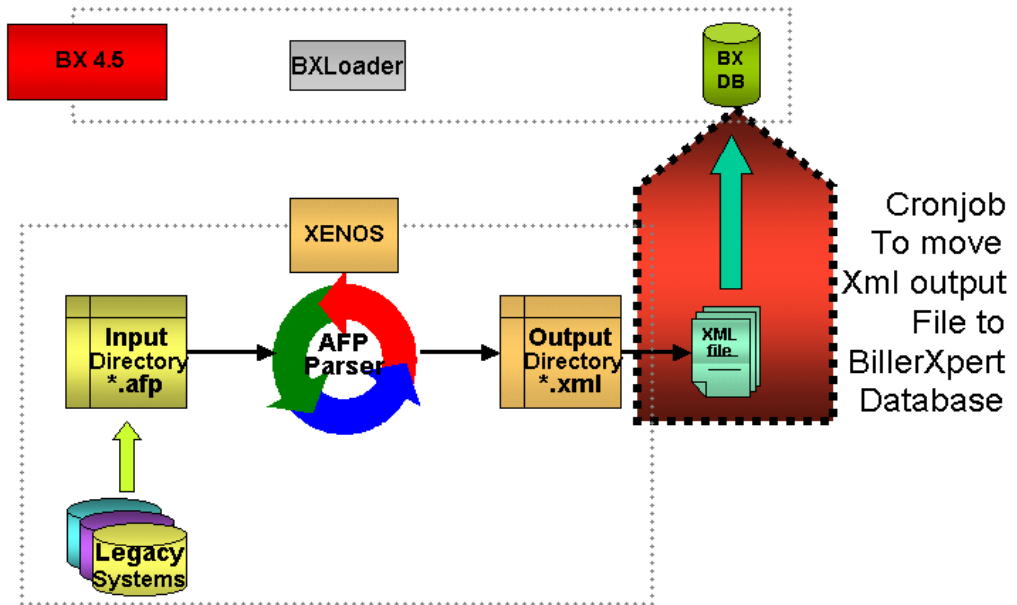
File Purpose	Location	File Name(s)
Loading	\$BX_HOME/loading/templates/	<ul style="list-style-type: none"> <li>• billx.dtd</li> <li>• billxbcadel.dtd</li> <li>• billxmemb.dtd</li> <li>• billxmembdel.dtd</li> <li>• financial.dtd</li> </ul>
OFX	\$BX_HOME/tools/ofx/	<ul style="list-style-type: none"> <li>• ofx160.dtd</li> </ul>
Others	\$BX_HOME/tools/xml/	<ul style="list-style-type: none"> <li>• xauthreq.dtd</li> <li>• xdetailreq.dt</li> <li>• xsumreq.dtd</li> <li>• xchangeprofile.dtd</li> <li>• xpayreq.dtd</li> <li>• xviewprofile.dtd</li> </ul>

## BillerXpert Loader Script

The output file created by Xenos does not export the output file directly to the BillerXpert database. Rather, it is temporarily stored in the Xenos output directory until the next job is run. Each output file is overwritten with the next output file that is created.

The BillerXpert Loader Script, which can be scheduled, runs in the background and is implemented to carry the resulting \*.xml file from the Xenos output directory to the BillerXpert database. This is illustrated in Figure E-2.

**Figure E-2** BillerXpert Loader Script Runs in background



Before running the script for the first time, be sure to:

- Edit the script
- Make sure all the variables point to the right directories.

### How the BillerXpert Loader Script Operates

This script is setup as cronjob. When the script executes, it first verifies that there is only one instance of the script running. If there is already an instance running, the newer one terminates.

If it is the only instance running, then the script checks the following:

- Verifies that there is an existing file in the working directory
- Verifies that there is an existing corresponding trigger file.

The trigger file is an empty file that is created after every successful file transfer of the Xenos file.

If it is verified that both of the above files are present, the script will:

- Move the data file to the working directory
- Delete the trigger file
- Invoke the BillerXpert loader, which then loads the data into the database.

Every step in the script is logged in the file pointed to by the `LOG_FILE` variable.

For transforming legacy data formats other than IBM AFP, or for more information regarding the integration of Xenos and iPlanet BillerXpert, please contact Xenos directly.