

# **Federal Student Aid (FSA) Portal – Release 2**

*XAP Data Transfer Solution to Maintain a Single-Site User Experience Between FSA and XAP*

## **Detailed Design Document**

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## 1. INTRODUCTION

This Detailed Design document details the design, using accepted specifications jointly agreed upon by Accenture LLP (Accenture) and XAP Corporation (XAP), of the Data Transfer and Data Receipt Modules, as well as associated items. These modules are being developed to enable a single-site user experience between the two physical sites, Federal Student Aid (FSA) Portal and XAP. Using this approach, XAP will create portions of the student portal with FSA's look and feel, a common login, and shared user profiles, such that transitions between the two physical sites would be transparent to the user. Moreover, this solution relieves the complexities of mixed platforms, communications protocols, and security.

## 2. SOLUTION

The primary difficulties of combining heterogeneous interactive sites into a seamless user experience are security, data consistency, and technical compatibility. The solution XAP proposes addresses each of these issues in an uncomplicated, yet effective manner.

In general, web browsers and web servers exchange data with each other in a well-defined, platform-independent manner. Moreover, SSL is a ubiquitously available standard for encryption. XAP's solution derives its simplicity from embracing these factors. The final roadblock, consistency, is addressed by ensuring that data is transferred synchronously when a user crosses from one physical site to another.

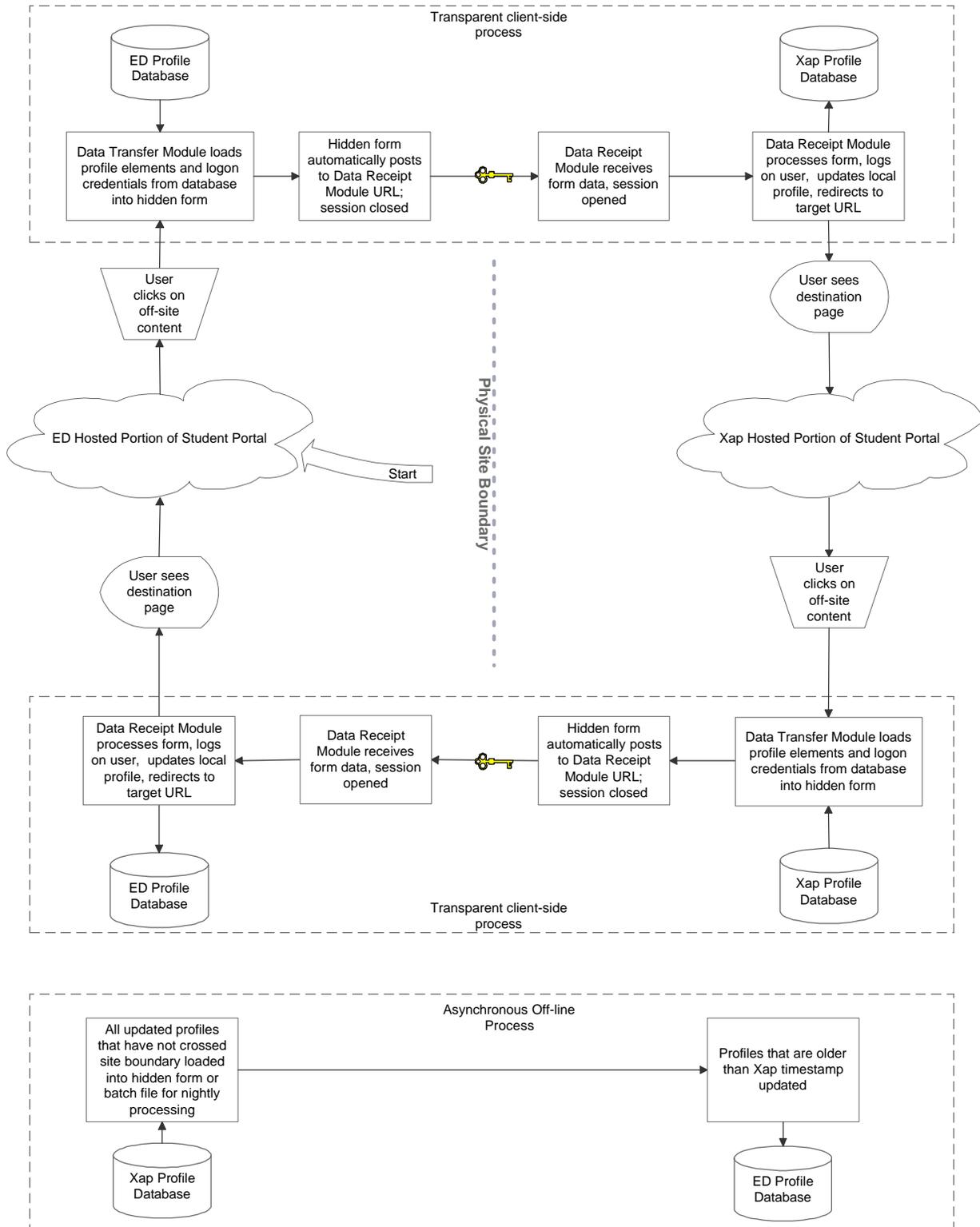
XAP's solution relies on the use of hidden HTML forms to hand off a user from one server to another. This is accomplished by transparently posting profile and authentication information whenever a user clicks on a link to a page that is hosted on a different physical site than the current page. This process is entirely client-side and synchronous. All data between the user's browser and the server would be encrypted using SSL and there is no requirement for synchronous server-to-server communication.

The technical requirements for such a solution are two simple modules on each side of the physical site boundary. These modules are a Data Transfer Module and a Data Receipt Module. Rather than pointing directly to content on the other side of a site boundary, each off-site link would instead go through these modules.

In this solution, the entire logon process is transparent. Moreover, since the user and the user's data travel together, the user would never see a profile inconsistency between the different sites. See Figure 1.



Figure 1. Multiple Sites with Single Site User Experience





### 3. DESIGN

The Solution was accepted by Accenture to create a seamless user experience between FSA and XAP. To accomplish a seamless transfer process between physically separate sites, the following items are being implemented:

- A Data Transfer Module and a Data Receipt Module on each site (FSA and XAP)
- A mutually agreed upon list of profile elements (Figure 2)
- Logon module and the profile update module, hosted by XAP (Figure 3)
- Nightly off-line batch update

**Figure 2: Profile Elements**

Attribute	Data Type	Variable Name	Format
USER_ID	VARCHAR2	uid	ASCII Normal
FIRST_NAME	VARCHAR2	firstname	ASCII Normal
LAST_NAME	VARCHAR2	lastname	ASCII Normal
EMAIL	VARCHAR2	email	ASCII Normal
PASSWORD	VARCHAR2	password	ASCII Normal
TELEPHONE	VARCHAR2	telephone	ASCII Normal
DATE_MODIFIED	VARCHAR2	modifieddate	date 01 - mm/dd/yyyy hh:mm:ss
DATE_OF_BIRTH	VARCHAR2	dob	date 01 - mm/dd/yyyy
EDUCATION_LEVEL_ID	VARCHAR2	edlevel	ASCII Normal
STATE_RESIDENCE_ID	VARCHAR2	stateresidence	ASCII Normal
COUNTRY_ID	VARCHAR2	country	ASCII Normal
PASSWD_HINT_QUESTION	VARCHAR2	pwdhint	ASCII Normal
PASSWORD_HINT_ANSWER	VARCHAR2	pwdhintans	ASCII Normal
LOCALE	VARCHAR2	locale	ASCII Normal
RETURNURL	VARCHAR2	returnURL	ASCII Normal
QUERY	VARCHAR2	query	ASCII Normal
BACKURL	VARCHAR2	backURL	ASCII Normal

**Figure 3: Logon module and the profile update module**

Commands	Comments
transferin	Tells transfer module to receive profile elements, log user on, and redirect to returnURL
transferout	Tells transfer module to load profile elements, construct hidden form, log user off, and post to other site
logon	To XAP site only -- tells transfer module to collect logon credentials and then transfer user to returnURL
create	To XAP site only -- tells transfer module to collect account creation information, log user on, and then transfer to returnURL



#### 4. EXPLANATION OF DESIGN ITEMS

##### 4.1. **Data Transfer Module**

The Data Transfer Module is a single web page script with no visible user interface, responsible for collecting the common profile elements, logon credentials, and desired destination URL into a hidden HTML form. Once loaded, this form automatically posts itself to the Data Receipt Module URL on the other side of the site boundary.

##### 4.2. **Data Receipt Module**

The Data Receipt Module is a single web page script with no visible user interface that receives and collects the posted variables, updates the user profile, logs the user on, and seamlessly redirects the user's browser to the desired local destination page.

##### 4.3. **Profile Elements**

###### Stored Profile Items

- 4.3.1. USER\_ID: User defined unique identifier
- 4.3.2. FIRST\_NAME: User defined first name
- 4.3.3. LAST\_NAME: User defined last name
- 4.3.4. EMAIL: User defined email. This profile element is used to detect and block duplicate accounts by one user
- 4.3.5. PASSWORD: User defined password
- 4.3.6. TELEPHONE: User defined telephone number
- 4.3.7. DATE\_MODIFIED: Time stamp of last profile modification
- 4.3.8. DATE\_OF\_BIRTH: User defined date of birth. Used to check if user if of legal age
- 4.3.9. EDUCATION\_LEVEL\_ID: User defined education level identified by Ed Level Code
- 4.3.10. STATE\_RESIDENCE\_ID: User defined state of residence identified by State Code
- 4.3.11. COUNTRY\_ID: User defined country of residence identified by ISO code
- 4.3.12. PASSWD\_HINT\_QUESTION: User defined question to recall answer
- 4.3.13. PASSWORD\_HINT\_ANSWER: User defined answer to question which is used to recall user defined password (PASSWORD)

###### Session Variables

- 4.3.14. LOCALE: Spanish/English page identifier
- 4.3.15. RETURNURL: Destination URL
- 4.3.16. QUERY: String of search characters
- 4.3.17. BACKURL: URL of last page viewed prior to crossing of site boundary

##### 4.4. **Nightly off-line batch updates**

Since a user may update his or her profile and not cross a site boundary, it is possible for profile data to be inconsistent between the sites. If the site with the out-of-date profile performs off-line processes, it is necessary to synchronize the databases. This will be accomplished by recording the last time the profile is updated and the last time a site boundary is crossed. A nightly process will analyze all of the profiles that have been updated after the last boundary crossing and relay those updates to the other site. This will be accomplished through a batch file transfer.