



Banner Document Management Administration Guide

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Notices

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System Overview

This section introduces Banner® Document Management (BDM), an imaging and electronic document management system that meets the specific needs of higher education institutions. BDM integrates Banner with two EMC document management products: ApplicationXtender Document Manager and ApplicationXtender Web Access.

BDM integrates with Banner at the data, event, and page levels. In addition, each Banner product (Human Resources, Finance, Financial Aid, Student, Advancement, and Student Aid) has specific integration points that improve efficiency and supplement the decision-making process through easy access to relevant document collections.

Functional overview

BDM users can scan and index documents, then associate the images and document data with Banner information. BDM functionality is available from virtually every Banner page. BDM options on the Banner Tools menu allow users to access ApplicationXtender Document Manager and ApplicationXtender Web Access, without any additional login, to query stored documents and add new documents.

BDM uses Banner security mechanisms to control the retrieval of images and documents. BDM recognizes Banner Finance fund/organization security and Banner Human Resources security so that document access is determined by data access privileges. Using EMC document level security strategy, document access can be based on criteria as specific as the document type or a value within an index field.

Existing Banner users can be easily set up as BDM users.

Images and documents can be made available across the enterprise by using cross-application queries. Queries can be saved for re-use, incorporated into Banner context rules, and executed from a defined location on a Banner page.

Banner requirements linking takes integration to the next level, providing for updates within Banner based on activity in BDM. Processing of student admissions requirements and financial aid tracking requirements benefits from improved event integration.

BDM supports integration with Banner Workflow, Banner Travel and Expense Management, Banner Faculty Load and Compensation, and Banner Enterprise Identity Services.

BDM also works in standalone mode, outside the Banner environment. Users can use BDM for information that does not logically fit with Banner. For example, documents such as letters to college personnel or promotional literature can be captured and managed with BDM.

How BDM can help your institution

The following examples show how BDM can help your institution.

New student application without BDM

The admissions clerk at XYZ University receives an admissions application and personal essay from Judy Grant. The clerk processes the application and updates the Banner record indicating that the documents are ready for the admissions counselor to review.

The clerk places the application in an inter-office mail envelope and places it in the outgoing mail bin. Unfortunately, the clerk fails to notice that Judy's essay is not in the envelope with the rest of her application.

The next day, upon reviewing the application, the counselor notices that the essay is not included with the application. Because the application cannot be processed without this required document, the counselor returns the application to the clerk and asks the clerk to notify Judy that Judy's essay is missing.

Two days later Judy faxes another copy of the essay to the clerk who places it in the inter-office mail envelope with the rest of her application and sends it to the counselor.

After reviewing Judy's application, the counselor decides that Judy should be offered a place in the upcoming freshman class. The counselor updates the Banner record and returns the application to the clerk to be filed.

New student application with BDM

The admissions clerk at XYZ University receives an admissions application and personal essay from Judy Grant. The clerk scans the documents in BDM and indexes them to Judy Grant's ID. Banner is automatically updated to reflect that these documents are received.

Using BDM, the clerk routes the application to the admissions counselor through the ROUTING STATUS field on the document index.

The counselor queries for the appropriate ROUTING STATUS and sees that there is an application to review. The counselor reviews Judy's application and decides that Judy should be offered a place in the upcoming freshman class. The counselor then updates the Banner record.

BDM components

BDM includes the following components:

- ApplicationXtender (AX) – EMC's suite of content management products that facilitate file and object storage, OCR, and other document management features.
- ApplicationXtender Document Manager – A client/server component of EMC's ApplicationXtender product that allows users to access ApplicationXtender content management functionality through desktop software, scan and index documents, and index batches of documents.
- ApplicationXtender Web Access (WX) – An Internet-based component of EMC's ApplicationXtender product that allows users to access ApplicationXtender content management functionality through a Web browser.

- ApplicationXtender Administrator – An administrative tool that is used to define enterprise configuration settings.
- ApplicationXtender Application Generator – An administrative interface that is used to define BDM application index structures in ApplicationXtender.
- QuickScan Pro – An EMC product that is a user-based client/server application that is used for batch scanning.
- ApplicationXtender Reports Management (ERMx) - An EMC product that facilitates the electronic presentation of business information.

BDM and Multi-Entity Processing

Multi-Entity Processing (MEP) provides the architecture and processes that enable two or more entities to coexist in a single application architecture. BDM in a MEP environment allows you to segregate documents by the entities (campuses, institutions, locations, and so on) that you define in your MEP environment.

For details about BDM in a MEP environment, refer to the *Banner Document Management Multi-Entity Processing Implementation Guide*.

Scope of this document

This document focuses on the responsibilities of the BDM system administrator:

- Configuring image and document storage locations
- Managing users and groups
- Creating and modifying BDM applications
- Adding site-specific validation data, such as document types
- Creating and modifying the rules that are used to launch queries
- Setting up Banner requirements linking
- Overseeing security at the user and document levels
- Integrating BDM with Banner Workflow

Configuration

This chapter gives the steps for configuring Banner® Document Management (BDM) for user access.

Pre-configuration steps

About this task

Perform the following steps before you configure BDM.

Procedure

1. Make sure that BDM is installed.
2. Review the available applications with your users. Identify which applications will be used and the types of documents to be stored in each application.
3. Identify users with similar responsibilities and privileges. During the configuration, you can optionally create groups of users and assign BDM rights to a group rather than to each individual.

Results

If you would like Ellucian Professional Services to perform a needs analysis for your site, contact your Account Consultant to discuss your implementation plans before moving into production with BDM.

Configuration steps

About this task

The following steps are used to configure BDM. Details for each step are provided in the following sections.

Procedure

1. [Create the system settings that are used to run BDM](#) on page 13
2. [Define the users and user groups](#) on page 14
3. [Set up document level security](#) on page 14
4. [Modify the BDM user preference settings](#) on page 14
5. [Establish a data source on each work station](#) on page 15
6. [Implement single login](#) on page 16

7. [Synchronize the clock settings Single Login WX server clock setting WX server clock setting](#) on page 17
8. [Adjust the time out value for SSO](#) on page 17
9. [Adjust the file upload values](#) on page 18

Create the system settings that are used to run BDM

About this task

Use the Document Management Systems Settings (EXAINST) page to establish the system settings that are used to run BDM. See Banner online help for more details about the fields on this page.

Procedure

1. Access the Document Management Systems Settings (EXAINST) page in Banner.
2. Enter the data source name in the **Data Source Name** field.

The data source was created during installation to represent the target database. ApplicationXtender Document Manager and ApplicationXtender Web Access need this value when they are launched from Banner.

The data source name should reflect the intended purpose of the current Banner database. For example, if you are setting up BDM in a pre-production environment that uses a Banner database named "PreProd," the BDM data source should be given a similar name. Each Banner environment can then be directed to the appropriate BDM data source, minimizing the possibility of mistakenly adding production documents to a pre-production database.

The data source name must exist on the ApplicationXtender work station or on the ApplicationXtender Web Access server. The data source name can contain alphanumeric characters and underscores, but no spaces.
3. Enter the pseudo ID prefix in the **Pseudo ID Prefix** field.

This one-character ID is used to identify IDs that are *not* Banner documents. BDM does not perform Banner-related processing on these IDs.
4. Use the **Allow User Preference** check box to indicate whether each user has the authority to control the default behavior of BDM within his/her session:

selected - Each user can control default behavior.

cleared - Each user inherits the behavior established by the administrator.
5. Use the **Enable Context Rules** check box to indicate whether users can initiate an ApplicationXtender session from a Banner page:

selected - Users can initiate an ApplicationXtender session from a Banner page.

cleared - Users cannot initiate an ApplicationXtender session from a Banner page. (You might want to clear this check box during system maintenance.)
6. Use the **Enable Context Rules Auditing** check box to indicate whether users can audit context rules from a Banner page:

selected - Users can audit context rules from a Banner page.

cleared - Users cannot audit context rules from a Banner page.

7. Enter the single sign on (SSO) password in the **Single Sign-On Key** field.

This encrypted password is used for SSO from Banner to ApplicationXtender Web Access.

8. Enter the URL used to access ApplicationXtender Web Access (WX) in the **WebXtender Root** field.

ApplicationXtender Web Access sites use this field to identify the initial point of entry for an ApplicationXtender Web Access session.

For ApplicationXtender Web Access .NET, this is the typical value:

```
http://<server>/AppXtender/ISubmitQuery.aspx
```

For CAS SSO to ApplicationXtender Web Access .NET, this is the typical value:

```
http://<server>/AppXtender/ISubmitQuery.aspx?sso=true
```

9. Enter the root URL to the INBAXBridge.htm. page in the **INB-AX Bridge** field.

This page is used to serve the application that facilitates communication between Banner and ApplicationXtender. If your site does not plan to use ApplicationXtender with Banner, this field may be left blank.

10. Enter the root URL to ApplicationXtender Web Services in the **Web Services Root** field.

If your site does not plan to use ApplicationXtender Web Services with Banner, this field may be left blank.

11. Save.

Define the users and user groups

About this task

Define users and user groups. See [User and Group Management](#) on page 19, for more information about this process.

Set up document level security

About this task

Set up document level security (DLS) for each BDM application. Because user groups are the basis of DLS functionality, you should establish DLS based on your groups. For more information refer to the *EMC ApplicationXtender Concepts and Planning Guide*.

Modify the BDM user preference settings

About this task

As BDM administrator, use the Document Management User Preference (EXAUPRF) page to modify the user preference settings.

Procedure

1. Log in to Banner as BASELINE user.
2. Launch the Document Management User Preference (EXAUPRF) page from the Banner menu bar by selecting **Tools > Banner Document Management > User Preferences**.
3. Modify the following user preference settings. The new preference settings become the default settings for all future BDM users.
 - Default association between Banner and ApplicationXtender Document Manager and ApplicationXtender Web Access
 - Default source for a new document or page
4. Save.

Note: If the same settings will be used by all users, the Banner administrator can restrict access to EXAUPRF.

Establish a data source on each work station

About this task

Each work station running ApplicationXtender needs its own local data source. The data source contains configuration information, stored on the PC, that associates the Banner database to the ApplicationXtender product suite and contains connection information to the Banner database.

Note: For information and instructions on defining data sources in a Multi-Entity Processing (MEP) environment, refer to the *Banner Document Management Multi-Entity Processing Implementation Guide*.

A data source can be established manually on each work station, or it can be created by importing an ApplicationXtender settings file (.axs) into ApplicationXtender. The following instructions give the steps for manually establishing a data source.

Use the following steps to manually establish a data source on a single work station. These instructions use the ApplicationXtender Data Source Selector (DSS) to locate a data source. Only data sources that were previously added to ApplicationXtender Administrator are accessible through DSS. You cannot add a data source for use within DSS without it first being added to ApplicationXtender Administrator.

Note: For more details about running DSS, refer to the *EMC ApplicationXtender Core Components Administrator's Guide*.

Procedure

1. From the Windows Start menu, select Programs > ApplicationXtender Desktop > AppXtender Data Source Selector. The AppXtender Data Source Selector window is displayed.
2. Click **Locate**. The Data Link Properties window is displayed.
3. Select the Provider section.
4. Select **Microsoft OLE DB Provider for Oracle**.

Warning! Do *not* choose **Oracle Provider for ODBC** under any circumstances. Only the provider authored by Microsoft is supported, not for the provider authored by Oracle.

5. Click **Next**. The Connection section is displayed.
6. In field 1, enter the database alias, or the instance name, that is defined in the TNSNAMES.ORA file.
Examples: PROD, TEST, TRNG, DEV
7. In field 2, enter OTGMGR in the **User name** field and OTGMGR's password in the **Password** field.
8. Click **Test Connection**.
9. If the test connection succeeds, click **OK**.
If the test connection fails, check whether you can connect to the database through SQL*Plus as OTGMGR. Contact BDM Support for assistance.

Note: Refer to the *Banner Document Management Installation Guide* for more information about configuring data sources.

Implement single login

About this task

Single login functionality between Banner and ApplicationXtender Web Access relies on a symmetric encryption algorithm and an administrative password. You must choose a password, between 8 and 12 characters long, and store it on both the Banner side and the ApplicationXtender Web Access side. Whenever you change this password, you must change it on both the Banner and ApplicationXtender Web Access sides.

Change password on the ApplicationXtender Web Access side

About this task

The password on the ApplicationXtender Web Access side is contained in the `Web.config` file. Use the following steps to change the password for ApplicationXtender Web Access.

Procedure

1. Navigate to `C:\Inetpub\wwwroot\AppXtender`. Open `Web.config` in an editor.
2. Locate the following line at the end of the file:

```
<add key="WxCryptoKeyPassword" value="password" />
```
3. Change the value of "password" to the password (case sensitive) that you are using at your site.
4. Save.
5. Reset IIS.

Change password on the Banner side

About this task

The password on the Banner side is contained in the EXBINST table. This table is maintained on the Document Management Systems Settings (EXAINST) page. Use the following steps to change the password for Banner.

Procedure

1. Access the Document Management Systems Settings (EXAINST) page in Banner.
2. Enter the password in the **Single Sign-On Key** field.
3. Ensure that the same value exists in the `Web.config` file and in the EXBINST table. The password is case sensitive.
4. Save.

Synchronize the clock settings Single Login WX server clock setting WX server clock setting

About this task

Single login functionality requires clock synchronization between the ApplicationXtender Web Access server and the Banner Oracle database server. When a Banner session invokes ApplicationXtender Web Access, an encrypted URL is passed from Banner to ApplicationXtender Web Access. The encrypted URL includes a time element. The login is successful only if the time on the ApplicationXtender Web Access server is the same as the time on the Banner Oracle database server or less than ten minutes after the time on the Banner Oracle database server.

To avoid the burden of manually synchronizing the servers, you should implement a time synchronization protocol, such as Network Time Protocol, on these two servers.

Adjust the time out value for SSO

About this task

When ApplicationXtender is accessed from Banner or Self-Service Banner (SSB), the generated URL expires after a set number of minutes. The default value for the single sign on credentials expiration timeout is 10 minutes. If you want to change this value, use the following steps to adjust the `WxCryptoCredExpireInterval` value in `Web.config`.

Procedure

1. Navigate to `C:\Inetpub\wwwroot\AppXtender`. Open `Web.config` in an editor.
2. Locate the `WxCryptoCredExpireInterval` key name.
3. Change the value (in minutes) for `WxCryptoCredExpireInterval`, based on your requirements.
4. Save.

-
5. Reset IIS.

Adjust the file upload values

About this task

The default value for the maximum size for an upload file is 10MB, and the default value for the upload timeout is 10 minutes. If you want to change these values, use the following steps to change the values in `Web.config`.

Procedure

1. Navigate to `C:\Inetpub\wwwroot\AppXtender`. Open `Web.config` in an editor.
2. Locate the `httpRuntime` settings section.
3. Change the value (in kilobytes) for `maxRequestLength`, based on your requirements.
4. Change the value (in seconds) for `executionTimeout`, based on your requirements.
5. Save.
6. Reset IIS.

User and Group Management

You can import existing Oracle/Banner® user accounts into Banner® Document Management (BDM). If a user does not have an Oracle account, you can manually define the user as a BDM user. A user does not need an Oracle account to be a BDM user.

ApplicationXtender Application Generator is used to administer ApplicationXtender privileges. The passwords for these user accounts are maintained separately.

Note: For information and instructions on importing users and creating ApplicationXtender users in a Multi-Entity Processing (MEP) environment, refer to the *Banner Document Management Multi-Entity Processing Implementation Guide*.

Import Banner users into BDM

About this task

You can import existing Oracle/Banner user IDs into BDM. A user must have an Oracle account to be imported through the import functionality. Use the following steps to import existing users into BDM.

Procedure

1. From the Windows Start menu, select **Programs > ApplicationXtender Desktop > Application Generator**.
2. On the **Login** window, log in as SYSOP.
3. Right-click the **Users** node and select **Import**.
4. On the **Import Users** window, expand the list of **Available Users** to display the existing Oracle accounts in the system.

Note: Banner schema owners (such as GENERAL, SATURN, and PAYROLL) are filtered from this list because they are not potential BDM users. The list of filtered names is maintained in the EXBUFLT table.

5. For each user that you want to import, select the user name in the list and click **Add**. The selected user is displayed in the list of **Users to Be Imported**.
6. When you are done selecting users, click **OK** to save the imported user IDs.
7. Grant each user access to one or more applications, or assign each user to a group with the desired access level. Refer to the *EMC ApplicationXtender Core Components Administrator's Guide* for more information.

Manually define non-Banner users in BDM

About this task

Any user name can be manually created as a BDM user. The user does not need an Oracle account to be considered a BDM user. Use the following steps to create non-Banner users in BDM.

Procedure

1. From the Windows Start menu, select **Programs > ApplicationXtender Desktop > Application Generator**.
2. Log in as SYSOP.
3. Right-click the **Users** node and select **New**.
4. On the **User** page, enter information in the **User Name**, **Full Name**, **Password**, and **Verification** fields.
5. Click **Next**.
6. On the **Groups** page, choose how you want to assign the user.

If...	Then...
You do not want to assign the user to a group	<ul style="list-style-type: none"> • Click Next. • On the Profile page, select an application from the Application drop-down list, or keep the value <Global Profile>. • Assign the user's privileges by selecting specific check boxes or clicking Full Privileges. • Click Next. The Security Mapping page is displayed.
You want to assign the user to a group	<ul style="list-style-type: none"> • Scroll through the list of groups in the Not Member Of list to find the group name. • Double-click the group name. The group name moves to the Member Of list. • Repeat these steps for each group in which the user is a member. • When you are done, click Next. • On the Profile page, click Next. The Security Mapping page is displayed.

7. Make sure that the **Alternative security** check box is cleared.
8. Click **Finish**.
9. Grant the user access to one or more applications, or assign the user to a group with the desired access level. Refer to the *EMC ApplicationXtender Core Components Administrator's Guide* for more information.

Define user groups

About this task

It is helpful to organize users into groups by functional similarity or access privileges. The use of groups can reduce the effort associated with security administration. Groups are also the foundation for more advanced implementation concepts such as document level security and annotation groups.

There are two types of security profiles:

- A global profile is associated with all BDM applications. Group members can access enabled ApplicationXtender functions in all applications.
- An application profile is associated with a specific application. Group members can access enabled ApplicationXtender functions in this application.

Procedure

1. From the Windows Start menu, select **Programs > ApplicationXtender Desktop > Application Generator**.
2. Log in as SYSOP.
3. Right-click the **Groups** node and select **New**.
4. On the **Group** page, enter information in the **Group Name** and **Description** fields.
5. Click **Next**.
6. On the **User** page, scroll through the list of users in the **Non-Members** list to find the user name.
7. Double-click the user name.

The user name moves to the **Members** list as a member of that group.

Note: You can also drag a user name from the **Non-Members** list to the **Members** list.

8. Repeat steps 6 and 7 for each user that you want to add to the group.
9. When you are done, click **Next**.
10. On the **Profile** page, select <Global Profile> from the **Application** drop-down list to implement global security.
11. Assign the group's privileges by selecting specific check boxes or clicking **Full Privileges**.
12. Click **Next**.
13. On the **Security Mapping** page, make sure that the **Alternative security** check box is cleared.
14. Click **Finish**.

Customize user profiles

The administrator can use ApplicationXtender User Profile Administrator to customize ApplicationXtender Web Access user profiles. This tool is installed with ApplicationXtender Administrator.

If the administrator grants **Configure WS** permissions to users, users can manage their own profile after logging into ApplicationXtender Web Access. ApplicationXtender User Profile Administrator gives the administrator control over what users can and cannot configure on their own.

Example

If you set the **Enable IRC (Interactive Client)** setting to `False` (disabled) for all users, users cannot download the ApplicationXtender Web Access IRC module. They must use ApplicationXtender Web Access in ApplicationXtender Web Access thin client mode. (IRC mode provides functions such as redaction, annotations, and rubber stamps; thin client mode provides only zoom or rotate functionality.)

Refer to the *EMC ApplicationXtender Web Access Administrator's Guide* for more information.

BDM Applications

This chapter describes Banner® Document Management (BDM) applications and the document types that can be stored and indexed in BDM applications.

BDM applications

A BDM application in ApplicationXtender is an index-driven data structure where documents can be stored and retrieved. Each application, uniquely identified by a name and application ID, contains a combination of index fields that identify the documents that are stored in that application. Each time a document is stored in an application, index information for the document must be entered into the index fields.

Delivered applications

The following applications are delivered with BDM. Users should be given access only to the applications that are appropriate to their functional areas.

Banner Product	BDM Application Name	Code	ID
Advancement	Advancement Common	B-A-ID	500
Advancement	Advancement Gift/ Pledge	B-A-IDGP	501
Finance	Finance Common	B-F-ID	502
Finance	Finance Grant	B-F-GRNT	499
Finance	Finance Proposal	B-F-PROP	498
Finance	Finance Purchasing/AP	B-F-DOCS	506
Finance	Finance Travel & Expense	B-F-TVLEXP	494
Financial Aid	Financial Aid Common	B-R-ID	505
Financial Aid	Financial Aid Tracking Requirement	B-R-TREQ	507
General	Common	B-G-ID	513
Human Resources	HR Common	B-H-ID	503
Human Resources	HR Applicant	B-H-APPL	508
Human Resources	HR Employee	B-H-EMPL	512
Human Resources	HR Position	B-H-POSN	496

Banner Product	BDM Application Name	Code	ID
Human Resources	HR Faculty Load and Compensation	B-H-FLAC	495
Student	Student Common	B-S-ID	504
Student	Student Catalog and Course Section	B-S-SECT	497
Student	Student Admissions	B-S-ADMN	509
Student	Student Course	B-S-CRSE	510
Student	Student Degree	B-S-DGRE	511
Student Aid	Student Aid All Tracking Requirements	B-K-AREQ	403
Student Aid	Student Aid Award Administrator Fund Base	B-K-AW-FBSE	405
Student Aid	Student Aid Award Administrator Fund Year	B-K-AW-FNDC	406
Student Aid	Student Aid Common	B-K-COMMON	404

The B-G-ID application is required at all BDM sites. This application can be used as a repository for general purpose documents. This application also facilitates ApplicationXtender query functionality when a target application cannot be identified by its Banner context. Because Banner requires the B-G-ID application when no other application is defined for querying, all Banner and ApplicationXtender users should have access to the B-G-ID application.

Other BDM applications are product specific and may or may not be present, depending on whether the associated Banner products are installed.

Application data structure

The BDM application data structure has the following features:

- Document level security (DLS)
- Auto index system
- Shared key reference system
- Data synchronization with Banner tables
- Banner context sensitivity

For detailed data structures for each application, see [Appendix: Application Data Structures](#) on page 114.

Document level security (DLS)

Document level security allows you to protect specific documents in an application from access by unauthorized users or to permit users to access only particular documents in an application. Document level security is based on the value of a specific field in the index. The setup and use of DLS is documented in the *EMC ApplicationXtender Concepts and Planning Guide*.

Auto index system

The auto index system is a lookup feature that retrieves repeating Banner data related to the key field of an index. This feature allows users to find Banner records to use for indexing without having to look them up in Banner.

Example

The Banner RRRAREQ table contains financial aid tracking requirements for an ID. Associated tracking requirement records are inserted into the AE_AI507 table. An ApplicationXtender user opens the index, enters the ID, presses Tab, and clicks **Auto Index** in the toolbar. If the ID has one tracking requirement, the auto index data is displayed in the index. If the ID has more than one tracking requirement, the Auto Index panel lists the tracking requirements for the ID. The user selects one of the tracking requirements, and tracking requirement information is displayed in the index.

The auto index system is most effective when used with other lookup methodologies, such as the key reference system.

Data in the auto index system is synchronized in real-time with Banner data. The specific fields that are part of an auto index record depend on the application. For information on the auto index data of each BDM application, see [Appendix: Application Data Structures](#) on page 114.

Shared key reference system

A key reference system is a lookup table that contains data used frequently during the indexing process. This lookup system is created when an application is created and is based on the specified fields within the application's structure. In a standalone environment, an application can have its own key reference lookup system.

Of the 20 delivered BDM applications, 14 applications rely on a "shared key reference system." This is a common set of data that can be used to facilitate the indexing process. The shared key reference system includes Banner data that corresponds with the following fields in an application:

- ID
- PIDM
- LAST NAME
- FIRST NAME
- SSN
- BIRTH DATE

The ID field is defined as a “key reference” field. The other fields are defined as “data reference” fields. This means that the ID value is the primary driver for information about an individual. During the key reference data lookup processes, the ID is evaluated first, and then the current, relevant data is retrieved.

PIDM is included in the indexing structure. The PIDM is a static value that never changes and is never duplicated in Banner. While an ID and name can change, the PIDM is used in BDM to ensure that an indexed document is always associated with the correct person.

The shared key reference information is stored in the `OTGMGR.AE_RFSCT` table.

The following exceptions exist for key reference systems:

- Finance data is not typically based on a person. Therefore, the Banner Finance applications (B-F-DOCS, B-F-GRNT, and B-F-PROP) do not use the shared key reference system. They use their own standalone key reference system, which is aligned with the individual application structure. The underlying table behind these key reference systems is `OTGMGR.AE_RF<AppID>`.
- Applications B-H-POSN and B-S-SECT do not have a key reference system.
- Application B-F-TVLEXP uses a view (`ae_rf494_view`) of the `AE_RFSCT` table for the following index fields: ID, PIDM, EXPENSE OWNER LAST NAME, and EXPENSE OWNER FIRST NAME.

Data synchronization with Banner tables

The following ApplicationXtender tables are synchronized with Banner data:

- **Key reference system tables** (`AE_RFxxx`). `AE_RFSCT` is automatically updated when records are added to or updated in the `SPRIDEN` and `SPBPERS` tables. `AE_RF506`, `AE_RF498`, and `AE_RF499` are synchronized with Banner Finance data tables. This synchronization occurs in real-time through database triggers installed with BDM.
- **Data tables** (`AE_DTn`). These tables contain values for all index fields except data reference fields, which are stored in key reference system tables (`AE_RFxxx`).
- **Auto index system tables** (`AE_AIn`). These tables contain lookup data. This data is synchronized to ensure that the data used for indexing is always up to date with data in Banner. These tables are BDM application-specific, where *n* is the application number.
- **User-defined list tables** (`ULn_m`). These tables contain values displayed within the application's drop-down lists. The data is consistent with the data in Banner. These tables are BDM application-specific, where *n* is the application ID for the user-defined field and *m* is the application number.

Synchronization in a Multi-Entity Processing (MEP) environment

If a Banner table is used for data synchronization with a BDM application and the Banner table is enabled for VPD/MEP, then the BDM application must also be enabled for VPD/MEP. Refer to the *Banner Document Management Multi-Entity Processing Implementation Guide* for more details.

Types of synchronization

There are two types of synchronization:

- **Real-time synchronization** reflects incremental changes in Banner tables as the updates occur. This type of synchronization uses database triggers that invoke packaged procedures. Real-time synchronization scripts are located in the dbprocs folder after BDM installation.
- **Batch synchronization** (rebaselining) provides an on-demand, full refresh of the EMC tables with Banner data. The DBA can run scripts during the BDM installation to provide a baseline data set within ApplicationXtender components. The scripts can be rerun at any time to correct data gaps that may result from system downtime. The system can be “re-baselined” by re-executing these scripts. Batch synchronization scripts are located in the plus folder after BDM installation.

Refer to for more details on the real-time and batch synchronization scripts.

Events that trigger synchronization

Inserts, updates, and some deletions of Banner data are reflected in the ApplicationXtender data. For example, name changes performed within Banner are reflected immediately in the BDM index structure; new students are immediately available in the key reference system; and ID changes are reflected in real-time in the auto index system.

Banner context sensitivity

Banner context sensitivity is established by user-defined context rules that define key relationships between a specific Banner page and integrated BDM applications. Depending on security rights, a user can execute a query from a Banner page and access ApplicationXtender Document Manager or ApplicationXtender Web Access to view images and documents that are associated with Banner data.

BDM document types

The integration of Banner with ApplicationXtender uses pre-defined document type codes included in each BDM application. For a list of document type codes that are delivered with BDM, see [Appendix: Document Types](#) on page 217.

Create and synchronize new document type codes

About this task

In addition to the pre-defined document type codes that are delivered with BDM, you can add new document type codes to any application and synchronize the new document type codes with ApplicationXtender. Document type codes are created and synchronized on the Document Management Document Type Validation (ETVDTYP) page.

Some document type codes may be defined in ApplicationXtender but are not integrated with Banner. These document type codes do not need to be listed on ETVDTYP. Use this page only for those document type codes that are integrated with Banner.





The user who synchronizes document type codes with ApplicationXtender must have the “Modify App” privilege for the target application.

Use the following steps to create a document type in Banner and synchronize the new document type with ApplicationXtender.

Procedure

1. Access the Document Management Document Type Validation (ETVDTYP) page in Banner.
2. Insert a new record.
3. Enter the new document type code in the **Document Type Code** field.
4. Enter a unique description for the document type code in the **Description** field.
5. Save the new record.
6. Select the new record.
7. Select **Options > Doc Type Synchronize**.

The Document Type Synchronization window is displayed.

8. Use one of the following actions to synchronize the document type code with ApplicationXtender:
 - a) To add the document type code to a single application, select the application in the **Not Available in Applications** column, and click .
 - b) To add the document type code to all applications, click .
 - c) To remove the document type code from a single application, select the application in the **Available in Applications** column, and click .
 - d) To remove the document type code from all applications, click .

Note: If records exist for the document type in the selected application, you cannot remove the synchronization.

9. Click **OK**.

The main window is displayed.

Results

Synchronization changes are immediately available to ApplicationXtender users. Users with an active ApplicationXtender session at the time of the change must log out and log in again to pick up the change.

Synchronize new document type codes for ApplicationXtender Web Access

About this task

ApplicationXtender Web Access recognizes data changes in the underlying user-defined list (UDL) tables differently than ApplicationXtender Document Manager. The `UDLFieldRefreshRate` key in the `web.config` file controls how often ApplicationXtender Web Access updates the UDL field definitions within its internal cache. Use the following steps to edit the `Web.config` file.

Procedure

1. Navigate to `C:\Inetpub\wwwroot\AppXtender`. Open `Web.config` in an editor.
2. Locate the following key:

```
<add key="UDLFieldRefreshRate" value="0" />
```

A value of 0 indicates that UDL fields are not refreshed for the lifetime of the application. A value greater than 0 indicates how often the fields are refreshed in minutes.

3. Modify the value to an integer that represents an acceptable wait time (in minutes) for your users.

UDL values do not change that frequently, so immediate response time may not be necessary. The value may be set as low as 1.

Example

A value of 1 indicates that ApplicationXtender picks up changes to user-defined lists one time a minute. A value of 10 indicates that ApplicationXtender picks up changes one time every 10 minutes.

Multiple indexes for a single document

ApplicationXtender has an option, when creating an application, that supports multiple indexes referencing a single document. BDM-delivered applications, however, do not support multiple indexes referencing a single document. If a document had multiple indexes, a user could potentially see only one index due to document level security. If the user deleted the visible index, the entire document would be deleted, including the indexes that were not visible. In addition, the use of multiple indexes adversely impacts the BDM-delivered functionality within Banner requirements linking for financial aid tracking requirements, student admissions requirements, and Banner Workflow events.

Context and Parameter Rules

Banner® uses rule-based functionality to launch a query within ApplicationXtender. The results of the query are based on the location of the cursor within a Banner page and, potentially, the data values in key specific fields on that page. Two types of rules must exist for this integration to function properly: context rules and parameter (context query criteria) rules.

Banner is delivered with several hundred pre-defined rules that represent desirable integration behaviors. You can create your own rules or modify the delivered rules. If you need help, you can contact the Action Line or seek additional training from the Ellucian Technical Services organization.

Context rules

Context rules are based on the cursor location (context) on a Banner page. When a user clicks the **RETRIEVE** button on the Banner toolbar, ApplicationXtender Document Manager or ApplicationXtender Web Access is accessed and a query is run, based on the location of the cursor on the page.

A context rule identifies the BDM application that is used in the query and the optional document type(s). If no document type is specified, the query is run for all document types within that BDM application.

There are four levels of context rules in BDM:

- Page-level rules run a query from any location on the Banner page.
- Section-level rules run a query from any location within a specified section of a Banner page.
- Item-level rules run a query from a specified field within a Banner page.
- Item-value-level rules run a query based on the value of the specified field within a Banner page.

The priority of rules, from lowest to highest is page, section, item, and item-value. A rule can be superseded by another rule that has higher priority. If two or more rules apply to a cursor location, the highest priority rule takes precedence. For example, if an item-level rule and section-level rule apply to a specific field, the item-level rule has higher priority and is used to run the query.

Parameter (context query criteria) rules

A parameter rule identifies the field(s) that are queried in ApplicationXtender. Each parameter rule maps a Banner field name to an ApplicationXtender index field name for each context.

There is a one to many relationship between context and parameter rules. A context rule may have multiple parameter rules. Occasionally, no parameter rules may be defined for a context rule.

Examples

Some examples of context rules and corresponding parameter rules are listed in this section.

Page-level rule

Clicking the **RETRIEVE** button anywhere in SPAPERS queries the B-S-ID application for all document types. The absence of a specific document type acts as a wild card.

Context rule:

Page Name	Section Name	Item Name	Item Value	BDM Application	Document Type
SPAPERS				B-S-ID	

Parameter rule:

Page Name	Section Name	Item Name	Item Value	Banner Item Field Name	Application Index Field Name
SPAPERS				ID	ID

Section-level rule

Clicking the **RETRIEVE** button anywhere in the SARADAP section of SAAADMS queries the B-S-ADMN application for the Admission Application document type.

Context rule:

Page Name	Section Name	Item Name	Item Value	BDM Application	Document Type
SAAADMS	SARADAP			B-S-ADMN	ADMISSIONS APP

Parameter rules:

Page Name	Section Name	Item Name	Item Value	Banner Item Field Name	Application Index Field Name
SAAADMS	SARADAP			ID	ID
SAAADMS	SARADAP			KBENTRY_ TERM_ CODE	TERM CODE
SAAADMS	SARADAP			SARADAP_ APPL_NO	APPLICATION NUMBER

Item-level rule

Clicking the **RETRIEVE** button in the SPBPERS_SSN field of the SPBPERS section of SPAPERS queries the B-S-ID application for the Social Security Card document type.

Context rule:

Page Name	Section Name	Item Name	Item Value	BDM Application	Document Type
SPAPERS	SPBPERS	SPBPERS_SSN		B-S-ID	SSN CARD

Parameter rule:

Page Name	Section Name	Item Name	Item Value	Banner Item Field Name	Application Index Field Name
SPAPERS	SPBPERS	SPBPERS_SSN		ID	ID

Item-value-level rule

Clicking the **RETRIEVE** button in the SPBPERS_DEAD_IND field when it has a field value of Y in the SPBPERS section of SPAPERS queries the B-S-ID application for the Death Notice document type.

Context rule:

Page Name	Section Name	Item Name	Item Value	BDM Application	Document Type
SPAPERS	SPBPERS	SPBPERS_DEAD	IND	B-S-ID	DEATH NOTICE

Parameter rule:

Page Name	Section Name	Item Name	Item Value	Banner Item Field Name	Application Index Field Name
SPAPERS	SPBPERS	SPBPERS_DEAD	IND	ID	ID

Create rules

You can use the Document Management Context Determination (EXABCXT) page to create your own context and parameter rules. These local rules are the property of your institution. Future Ellucian releases do *not* overwrite local rules. The **Baseline Data** check box on the Activity window indicates which rules are baseline and which rules are local.

Create a page-level rule

About this task

Use the following steps to create a page-level rule.

Procedure

1. Access the Document Management Context Determination (EXABCXT) page in Banner.
2. Enter the page name in the **Form Name or Pattern** field.
3. Click **Go**.
4. When you see the alert message, click **Yes**.
5. In the **Form** field, select the page name from the list of values.
6. In the **Application Name** field, select the application name from the list of values.
7. **Optional:** If you want to query a specific document type, enter the document type code in the **Document Type** field. If you want to query all document types, leave this field blank.
8. Navigate to the Context Search Criteria section.
9. In the **Banner Item Field Name** field, enter the Banner field that supplies the parameter value to be queried in ApplicationXtender.

If the page contains the same field in more than one section, use the following format:

blockname.fieldname

Example: RCRAPP1.RCRAPP1_SSN

10. In the **Application Index Field Name** field, enter the ApplicationXtender index field name to be queried from the target BDM application.
11. Save.

Create a section-level rule

About this task

Use the following steps to create a section-level rule.

Procedure

1. Access the Document Management Context Determination (EXABCXT) page in Banner.
2. Enter the page name in the **Form Name or Pattern** field.
3. Click **Go**.
4. When you see the alert message, click **Yes**.
5. In the **Form** field, select the page name from the list of values.
6. Enter the section name in the **Block** field.

Note: To determine a section name, expand the page name in the navigation pane on the left side of the page.

7. In the **Application Name** field, select the application name from the list of values.
8. **Optional:** If you want to query a specific document type, enter the document type code in the **Document Type** field. If you want to query all document types, leave this field blank.
9. Navigate to the Context Search Criteria section.
10. In the **Banner Item Field Name** field, enter the Banner field that supplies the parameter value to be queried in ApplicationXtender.

If the page contains the same field in more than one section, use the following format:

blockname.fieldname

Example: RCRAPP1.RCRAPP1_SSN

11. In the **Application Index Field Name** field, enter the ApplicationXtender field to be queried from the target BDM application.
12. Save.

Create an item-level rule

About this task

Use the following steps to create an item-level rule.

Procedure

1. Access the Document Management Context Determination (EXABCXT) page in Banner.
2. Enter the page name in the **Form Name or Pattern** field.
3. Click **Go**.
4. When you receive an alert message, click **Yes**.
5. In the **Form** field, select the page name from the list of values.
6. Enter the item name in the **Item** field.

Note: To determine an item name, expand the page and section names in the navigation pane on the left side of the page.

7. Enter the section name in the **Block** field.
8. In the **Application Name** field, select the application name from the list of values.
9. **Optional:** If you want to query a specific document type, enter the document type code in the **Document Type** field. If you want to query all document types, leave this field blank.
10. Navigate to the Context Search Criteria section.
11. In the **Banner Item Field Name** field, enter the Banner field that supplies the parameter value to be queried in ApplicationXtender.

If the page contains the same field in more than one section, use the following format:

blockname.fieldname

Example: RCRAPP1.RCRAPP1_SSN
12. In the **Application Index Field Name** field, enter the ApplicationXtender field to be queried from the target BDM application.
13. Save.

Create an item-value-level rule

About this task

Use the following steps to create an item-value-level rule.

Procedure

1. Access the Document Management Context Determination (EXABCXT) page in Banner.
2. Enter the page name in the **Form Name or Pattern** field.
3. Click **Go**.
4. When you receive an alert message, click **Yes**.
5. In the **Form** field, select the page name from the list of values.
6. Enter the item name in the **Item** field.

Note: To determine an item name, expand the page and section names in the navigation pane on the left side of the page.

7. Enter the section name in the **Block** field.
8. Enter the field value for the rule in the **Item Value** field.
9. In the **Application Name** field, select the application name from the list of values.
10. **Optional:** If you want to query a specific document type, enter the document type code in the **Document Type** field. If you want to query all document types, leave this field blank.
11. Navigate to the Context Search Criteria section.
12. In the **Banner Item Field Name** field, enter the Banner field that supplies the parameter value to be queried in ApplicationXtender.

If the page contains the same field in more than one section, use the following format:

blockname.fieldname

Example: RCRAPP1.RCRAPP1_SSN
13. In the **Application Index Field Name** field, enter the ApplicationXtender field to be queried from the target BDM application.
14. Save.

Modify rules

You can use EXABCXT to change a delivered rule. After a rule is changed, the rule is no longer a baseline rule and becomes a local rule that is the property of your institution. Future Ellucian releases do *not* overwrite local rules.

The **Baseline Data** check box on the Activity section indicates which rules are baseline and which rules are local.

System-delivered rules may be deleted if they are not needed.

In some cases, context rules should be adjusted to meet the needs of users who retrieve documents and the needs of users who index directly from Banner by using the “Add Document” functionality. Document retrieval may require a rule that is less broadly defined than an indexing rule. In these situations, the users must prioritize their needs and create rules that serve the greatest need. Consider the following:

- What parameters must be passed to retrieve the desired documents?
- Will those parameters work when used during an “Add Document” operation?

Delete rules

About this task

Use the following steps to delete context rules and parameter rules for a page.

Note: All rules must be deleted from the Form Context section of EXABCXT. You cannot remove the page in the tree view on EXABCXT. Attempting to do so generates an alert message.

Procedure

1. Access the Document Management Context Determination (EXABCXT) page in Banner.
2. Enter the page name in the **Form Name or Pattern** field.
3. Click **Go**.
4. Select the page's last section-level rule in the **TREE STRUCTURE** pane. Information for the associated context rule is displayed in the Form Context section.
5. Navigate to the Form Context section and place the cursor in the **Form** field.
6. Select **Record > Remove**.
7. Repeat steps 4 through 6 to delete each section-level rule for the page.
8. When all section-level rules are deleted, delete the page-level rule.
9. Save.

View rules

About this task

Use the following steps to view all BDM context rules on the BDM Context Rules Report (EXRBCXT).

Procedure

1. Access the Process Submission Controls (GJAPCTL) page in Banner.
2. In the **Process** field, enter EXRBCXT..
3. Go to the Printer Control section.
4. **Optional:** Enter any print parameters.
5. Go to the Submission section.
6. Click **Submit**.
7. Save.
8. Refer to the *Banner General User Guide* for information on viewing or printing the EXRBCXT report.

Track rule usage

About this task

You can track how users at your institution use context and parameter rules to access ApplicationXtender from Banner. You have a lot of flexibility in the types of data that you can track. For example, you can collect the following kinds of information:

- Which Banner pages have toolbar buttons and menu options for accessing ApplicationXtender?
- How many Banner pages are used to display documents, and how many Banner pages are used to add documents?
- Which Banner pages use which context rules?
- Where is the cursor located on a Banner page when a user accesses ApplicationXtender?
- Which Banner users access ApplicationXtender in their daily work?
- Which Banner user updated specific student admissions requirements or financial aid tracking requirements?

Use the following steps to track the usage of context and parameter rules.

Procedure

1. Access the Document Management Systems Settings (EXAINST) page.
2. Select the **Enable Context Rules Auditing** check box to turn on tracking and write audit information to the EXBAUDT table.
3. When you are ready to review audit information, dump the contents of EXBAUDT to an Excel or .csv file.
4. Use the Excel or .csv file to create custom reports.

Configure saved queries

BDM context rules can be defined to call public queries that are saved in ApplicationXtender. To do this, enter the name of the saved query in the **Saved Query** field on EXABCXT. A saved query can be defined for page-level, section-level, item-level, and item-value-level context rules.

When a user executes a cross-application saved query from a Banner page, the user must have access to the application defined in the context rule and to the BDM applications defined in the cross-application saved query.

All baseline context rules are delivered without a value in the **Saved Query** field. You can modify any context rule to call a saved query.

Parameter precedence

Saved queries can potentially involve both ApplicationXtender query parameters and Banner query parameters. In these situations, the parameters might contradict each other. For example, a saved query in ApplicationXtender might require the term code value to be between 200110 and 200130. If a parameter rule in Banner dynamically formulates a Banner query parameter value based on the term code on the Banner page (for example., 200220), then a contradiction could occur.

In situations where a non-null criterion exists in both ApplicationXtender and in Banner for a searchable field in a saved query, then Banner always takes precedence over ApplicationXtender. This precedence has the following implications:

- If you save an ApplicationXtender query with a parameter that you always want to supercede its respective Banner query parameter, a Banner query parameter must *not* be defined on EXABCXT for that field. (If a Banner query parameter is defined for that field, the ApplicationXtender query parameter is ignored.)
- The precedence algorithm is applied on a field-by-field basis for the set of parameters of a saved query. As a result, a query's execution might potentially result from a mixture of Banner and ApplicationXtender query parameters.
- Saved queries, when executed from standalone EMC products, act exactly as specified in the EMC documentation. Queries executed in standalone products always execute using ApplicationXtender query parameters, never Banner query parameters.

Cross-application queries for B-F-DOCS and B-F-TVLEXP

About this task

The B-F-DOCS (Finance Purchasing/AP) application contains documents that relate to documents for the B-F-TVLEXP (Finance Travel & Expense) application. Use the following steps to set up cross-application queries in ApplicationXtender for both applications.

Procedure

1. Set up a cross-application query in ApplicationXtender for the B-F-DOCS and B-F-TVLEXP applications. Refer to the *EMC ApplicationXtender Document Manager User's Guide* for instructions.

Because both applications have related documents, set up the cross-application query under both applications in ApplicationXtender. The common index field between the two applications is DOCUMENT ID.

2. Access the Document Management Context Determination (EXABCXT) page in Banner.
3. Enter the page name in the **Form Name or Pattern** field. This is the Banner Finance page that you want to use with the cross-application query.
4. Press Enter.
5. Determine whether context rules are defined for the page.

Note: Context rules are delivered for most Banner pages as part of the baseline BDM installation.

- a) If context rules are defined:
 - Verify that one of the applications used in the cross-application query is defined in the **Application Name** field in the Form Context section.
 - Add the name of the cross-application query in the **Saved Query** field in the Form Context section.
 - Save.
- b) If context rules are not defined, use the steps in [Create rules](#) on page 33 to set up a new context rule. Make sure that you enter the name of the cross-application query in the **Saved Query** field in the Form Context section.

Banner Requirements Linking

Banner® requirements linking is the functionality within Banner® Document Management (BDM) where a Banner table is updated automatically when documents are indexed in BDM. This functionality is provided in the following BDM applications:

- B-R-TREQ (Financial Aid Tracking Requirement)
- B-S-ADMN (Student Admissions)

Indexing a document in one of these BDM applications essentially marks the Banner record as “received.” There is no need to manually update Banner.

Linking of financial aid tracking requirements

Within Banner Financial Aid, the tracking requirements checklist includes the documents that are required for a financial aid application (for example, a savings statement). When a required document is indexed in ApplicationXtender, the Banner RRRAREQ and RORSTAT tables can be updated automatically, including the creation of new requirements data.

The B-R-TREQ (Financial Aid Tracking Requirement) application stores material related to tracking requirements.

There are two ways to update tracking requirements in Banner when documents are indexed in BDM. You can use Direct Choice, which allows you to select a specific tracking status in a BDM index field structure. Or you can use rules that are defined in BDM. The rules-based method works well for sites with a small set of potential statuses, and for whom the majority of updates are standardized.

Conditions for updating Banner Financial Aid

The following conditions must be met before an indexed document can update Banner Financial Aid:

- If a rule-based methodology is being used, a rule must exist on the Document Management FinAid Requirements Linking (ERALINK) page for the document type and tracking requirement associated with the scanned document.
- If a rule-based methodology is being used, the aid year associated with the document must fall within the range of aid years identified by the rule.
- If Direct Choice is being used, Direct Choice system settings must be defined on ERALINK.

Define system settings

About this task

Use the following steps to define the system settings that apply when indexed financial aid documents create or update tracking requirements in Banner.

Procedure

1. Access the Document Management FinAid Requirements Linking (ERALINK) page in Banner.
2. Select **Next Section**.
The System Settings window is displayed. This window contains the settings that determine the level of interaction during the requirements linking process.
3. Enter the global system settings.
These settings apply when indexed financial aid documents create or update the tracking requirement in Banner. These settings apply whether you select a specific tracking status in a BDM index field structure (Direct Choice) or you use rules defined on ERALINK.
4. If you are using Direct Choice, enter the Direct Choice system settings.
These settings apply only when you select a specific tracking status in a BDM index field structure.
5. Save.

Define a requirements linking rule

About this task

Use the following steps to define a rule that links the receipt of a document to the satisfaction of a financial aid tracking requirement in Banner.

Procedure

1. Access the Document Management FinAid Requirements Linking (ERALINK) page in Banner.
2. Select **Insert** from the toolbar.
3. Enter the BDM document type in the **Document Type** field.
4. Enter the tracking requirement value in the **Tracking Requirement** field.
This is the tracking requirement related to the document type. For example, a tracking requirement value CITIZN may be satisfied by the receipt of a document type called DRIVERS LICENSE.
The tracking requirement must be Active on the Requirements Tracking Validation (RTVTREQ) page.
5. If the tracking requirement is specific to a fund, enter the fund code in the **Fund** field.
The fund code must be Active on the Fund Base Data (RFRBASE) page.

6. If the tracking requirement is specific to a source/background code, enter the source/background code in the **SBGI** field.
7. If the tracking requirement is specific to an aid year or a range of aid years, enter the aid years in the **Effective Aid Year From/To** fields.

OR

If the tracking requirement applies to all aid years, leave the **Effective Aid Year From/To** fields blank.

8. Enter the tracking requirement status codes in the **Tracking Status Indexing** and **Tracking Status Unindexing** fields.

These fields define the status codes that are displayed on the Applicant Requirements (RRAAREQ) page when a document with the correct set of index values is added, or when an indexed document is deleted.

Example:

A rule is defined on ERALINK as follows:

Document Type = PASSPORT

Tracking Requirement = CITIZN

Effective Aid Year = blank (any aid year)

Tracking Status Indexing = S

Tracking Status Unindexing = E

A user indexes a document in the B-R-TREQ application using the following index values:

ID = 1234

Document Type = PASSPORT

Tracking Requirement = CITIZN

Effective Aid Year = blank

The **Status** field on RRAAREQ for student ID 1234 would be updated to S. If this document is deleted (perhaps to correct a mistake made in the indexing process), the **Status** field would be updated to E.

9. If the tracking requirement is specific to a period, enter the value in the **Period** field.
The tracking requirement must be Period Eligible on the Requirements Tracking Validation (RTVTREQ) page.
10. Use the **Permit Requirement** check boxes to indicate whether the tracking requirement is eligible for insert or update.
11. Use the **Permit Feedback** check boxes to indicate whether a message is displayed when an insert or update is attempted.
12. Save.

Insert a financial aid tracking requirement

About this task

A new financial aid tracking requirement can be inserted into Banner when a document is received and indexed. This feature is useful when a document is received from a student before the specific tracking requirement is created on RRAAREQ. This capability, however, is *not* enabled by default. Your institution must formulate a policy before this feature is implemented.

Use the following steps if you choose to implement this feature.

Procedure

1. Access the Document Management FinAid Requirements Linking (ERALINK) page in Banner.
2. Review the requirements linking rules on the main window.
3. Ensure that the **Permit Banner Insert** check boxes are selected.
4. Select **Next Section**.
The System Setting window is displayed.
5. Review the system settings.
6. Ensure that the **Permit Insert of New Requirement** check box, in the Global Settings section, is selected.
7. Save.
8. If ApplicationXtender is open, close the session and log in to a new session.
You must do this so ApplicationXtender recognizes the changes made to the ERALINK system settings.

Linking of student admissions requirements

Within Banner Student, the admissions requirements checklist includes the documents that are required for an admissions application (for example, a high school transcript). When a required document is indexed in ApplicationXtender, the Student Admissions Checklist requirements (SARCHKL) table can be updated automatically, including the creation of a new record.

The B-S-ADMN (Student Admissions) application stores material related to admissions requirements. It also stores documents for the applications originating in the Ellucian CRM Recruit product. To do so, your institution must have a product license for Ellucian CRM Recruit, and integrate it with Banner® Document Management (BDM).

When Ellucian CRM Recruit sends a document to BDM, if the document index also includes the Banner student ID as the "ID" value, then the Banner SARCHKL may be updated based on the conditions for updating the Banner student.

Related Links

[Conditions for updating Banner Student](#) on page 45

Conditions for updating Banner Student

The following conditions must be met before an indexed document can update Banner Student:

- A rule must exist on the Document Management Student Requirements Linking (ESALINK) page for the document type and admissions requirement associated with the scanned document.
- The term associated with the document must fall within the range of terms identified by the rule.

Related Links

[Linking of student admissions requirements](#) on page 44

Define system settings

About this task

Use the following steps to define the system settings that apply when indexed admissions documents create or update admissions requirements in Banner.

Procedure

1. Access the Document Management Student Requirements Linking (ESALINK) page in Banner.
2. Select **Next Section**.

The System Settings window is displayed. This window contains the settings that determine the level of interaction during the requirements linking process.

3. Enter the system settings.

These settings are global. They override admission requirements rules.

If the **Permit Auditing for Admissions Requirements** check box is selected, all changes made to the Banner SARCHKL table through BDM are logged in the ESRAUDT table. Changes can be viewed on the Document Management Student Requirements Linking Audit (ESIAUDT) page.

4. Save.

Define a requirements linking rule

About this task

Use the following steps to define a rule that links the receipt of a document to the satisfaction of a student admissions requirement in Banner.

Procedure

1. Access the Document Management Student Requirements Linking (ESALINK) page in Banner.
 2. Select **Insert** from the toolbar.
 3. Enter the BDM document type in the **Document Type** field.
 4. Enter the admissions requirement value in the **Request** field.
-

This is the admissions requirement related to the document type. For example, a request value ESSY may be satisfied by the receipt of a document type called ESSAY.

5. If the checklist requirement is specific to a term or range of terms, enter the terms in the **Effective Term From/To** fields.

OR

If the checklist requirement applies to all terms, leave the **Effective Term From/To** fields blank.

6. Enter one of the following codes in the **Scope Modifier** field to expand or restrict the scope of the rule:

Option	Description
N	The rule applies only to the exact application number and term code in the document index.
T	The rule applies to all matching SARCHKL records with the term code in the document index, regardless of the application number.
A	The rule applies to all term codes and all application numbers, regardless of the index structure.

7. If the value of the **Scope Modifier** is A and you want to restrict the scope to a range of terms, enter the range of terms in the **Scope Term From/To** fields.
8. Use the **Allow Checklist Requirement** check boxes to indicate whether the admissions requirement is eligible for insert, update, or undo.

Note: Undo functionality only extends to the exact application number and term code of the document index. Manual review is advised for undos on rules with expanded scopes.

9. Use the **Permit Feedback** check boxes to indicate whether a message is displayed when an insert or update is attempted.
10. Save.

Insert a student admissions requirement

About this task

A new student admissions requirement can be inserted into Banner when a document is received and indexed. This feature is useful when a document is received from a student before the specific admissions requirement is created on SARCHKL. This capability, however, is *not* enabled by default. Your institution must formulate a policy before this feature is implemented.

Use the following steps if you choose to implement this feature.

Procedure

1. Access the Document Management Student Requirements Linking (ESALINK) page in Banner.
2. Review the requirements linking rules on the main window.

3. Ensure that the **Allow Checklist Requirement Insert** check boxes are selected.
4. Select **Next Section**.
5. Review the system settings.
6. Ensure that the **Permit Insert of New Requirement** check box is selected.
7. Save.
8. If ApplicationXtender is open, close the session and log in to a new session.

You must do this so ApplicationXtender recognizes the changes made to the ESALINK system settings.

Security

This chapter describes the following methods for protecting data in Banner® Document Management (BDM):

- User authentication
- Document level security
- Banner HR security
- Banner Finance fund/organization security

User authentication

Authentication is the process of confirming a user's identity. BDM requires all users to enter a valid user name and password to access most ApplicationXtender components.

When you create a data source in ApplicationXtender Administrator, you must choose which security provider to use for the new data source. ApplicationXtender Administrator supports the CM security provider, which is packaged with ApplicationXtender Administrator.

Benefits of the CM security provider

The CM security provider offers the following benefits:

- Simplifies the creation and maintenance of users. Administrators can create BDM users in ApplicationXtender Application Generator without doing any database work.
- Improves overall system performance through connection pooling. All ApplicationXtender Document Manager and ApplicationXtender Web Access database connections are created using credentials for one generic user (for example, OTGMGR).
- Allows easier integration with other products, including Self-Service Banner (SSB). Users do not need database accounts. An account can be created in ApplicationXtender Application Generator for any user who needs to access documents stored in BDM.
- Provides an easy way to import users by retrieving a list of users from the Banner database instead of the Windows domain. See [Import Banner users into BDM](#) on page 19.

Password synchronization

The CM security provider stores user passwords in the AE_LOGIN table. Single sign on (SSO) from Banner to ApplicationXtender Document Manager and ApplicationXtender Web Access requires a user to have the same password in ApplicationXtender and Banner. To synchronize the passwords and to ensure that SSO from Banner to ApplicationXtender functions properly, you must do one of the following:

- Launch BDM from Banner to automatically synchronize the user's Oracle password and her/his ApplicationXtender password that is stored in the AE_LOGIN table. Every time ApplicationXtender is launched from Banner, BDM checks the user's ApplicationXtender password against the user's Banner password and updates the user's ApplicationXtender password with the current Banner password, if necessary.
- Access the Oracle Password Change (GUAPSWD) page in Banner and update the user's Oracle password. The user's password in the AE_LOGIN table is automatically updated.

Document level security

About this task

Document level security is used to enable or disable access to specific information within an ApplicationXtender application. You can use ApplicationXtender Application Generator to establish document level security for individual fields of applications.

Use the following steps to enable document level security for an application field.

Procedure

1. From the Windows Start menu, select **Programs > ApplicatioXtender Desktop > application Generator**
2. On the **Log in** page, log in as SYSOP.
3. Expand the **Applications** node and select the application.
4. On the **Main** window, select the **Fields** section.
5. Double-click a field name in the **Application Field Order** list.
6. In the Flags section, select the **Doc Level Security** check box.
7. Click **Modify**.
8. Click **Apply**.
9. Select the **Document Level Security** section.
10. In the **Fields** list, select that you want to configure for document level security.
11. In the **Groups** list, select the group that you want to configure for document level security.
12. Select a **Security Type** option:

Option	Description
Inaccessible	Only users in the selected group can access the document.
Accessible	All users in the selected group cannot access the document.

13. Click **Add Item**.
14. On the **Add New Secured Value** window, enter or select the value that you want to secure with document level security.
15. Click **OK**.

The value is added to the **Data Values** list.

Banner HR security

When a query is performed, a user can view “metadata” for all documents that match the query criteria. If Banner HR security is activated, BDM enforces the same HR security strategies that are defined in Banner. In this situation, a user can access a Banner HR document only if he/she has the appropriate access rights.

Multiple security methods provide a “layered” security system, with each method operating independently from the others. Denial of access in one method results in complete denial of access to a document, regardless of success in another method. Information regarding denied access is displayed at the time of denial and is stored in the BDM Error Results Table (EXRRSLT).

Error messaging

About this task

If a user fails the security tests, a message is displayed in ApplicationXtender Document Manager or ApplicationXtender Web Access. The default message is a generic .NET error message. You can, however, change a setting to see full error messages such as the following sample error message:

```
HR Access Denied (user 'testuser' in B-H-EMPL). Index values: ID =
000000012; pidm = 1547; posn = PR01; suffix = 01 *ERROR* Salary; You do
not have Permission to see this Salary Level.
```

To display full error messages, you must modify a parameter in the `Web.config` file that is located on the ApplicationXtender server where ApplicationXtender Web Access is installed. Use the following steps to change the parameter.

Procedure

1. Navigate to `C:\Inetpub\wwwroot\AppXtender`. Open `Web.config` in an editor.
2. Locate the following line:

```
<customErrors mode="RemoteOnly" />
```
3. Change the setting from `"RemoteOnly"` to `"Off"`. With this value, detailed ASP.NET error information is always displayed.
4. Save.
5. Reset IIS.

HR Common (B-H-ID) application

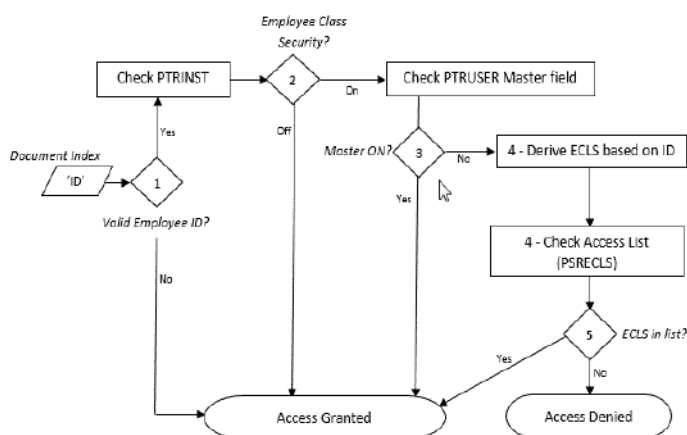
The B-H-ID application contains the following fields:

- ID (SPRIDEN_ID)

- PIDM
- DOCUMENT TYPE
- LAST NAME
- FIRST NAME
- SSN
- BIRTH DATE
- ROUTING STATUS
- ACTIVITY DATE
- VPDI_CODE

The following sections describe the Banner HR security strategies that are enforced by BDM.

Employee Class Code security

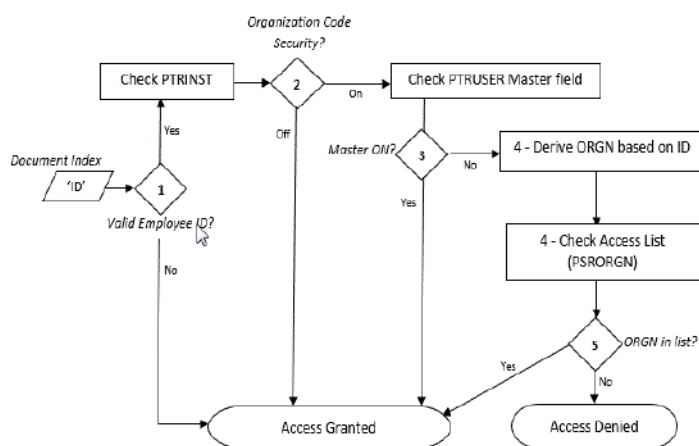


The Employee Class Code security strategy performs the following tests.

1. Is the ID a valid Banner ID in the PEBEMPL table?
 - Yes - The ID belongs to an “employee.” The HR security engine proceeds to the next security test.
 - No - Access is granted to the user.
2. Is the Employee Class Security Indicator (PTRINST_ECLS_SECURITY_IND) turned off or on? This indicator is set on the Installation Rules (PTRINST) page.
 - Turned off (indicator is N) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.

- Turned on (indicator is Y) - The HR security engine proceeds to the next security test.
- 3. Does the user have access to all records, regardless of employee class, or does the user have a specific access list? This is determined by the PTRUSER_MASTER_ECLS_IND.
 - Can access all records (indicator is Y) - Access is granted to the user.
 - Can access selected records (indicator is N) - The HR security engine proceeds to the next security test.
- 4. What employee class is associated with the employee ID? This is determined by identifying the SPRIDEN_PIDM associated with the ID and then selecting from PEBEMPL_ECLS_CODE where SPRIDEN_PIDM = PEBEMPL_PIDM.
- 5. Does the user/employee class combination exist in the PSRECLS table? (PSRECLS_USER_CODE is the current user.)
 - Yes - Access is granted to the user.
 - No - Access is denied to the user.

Organization Code security

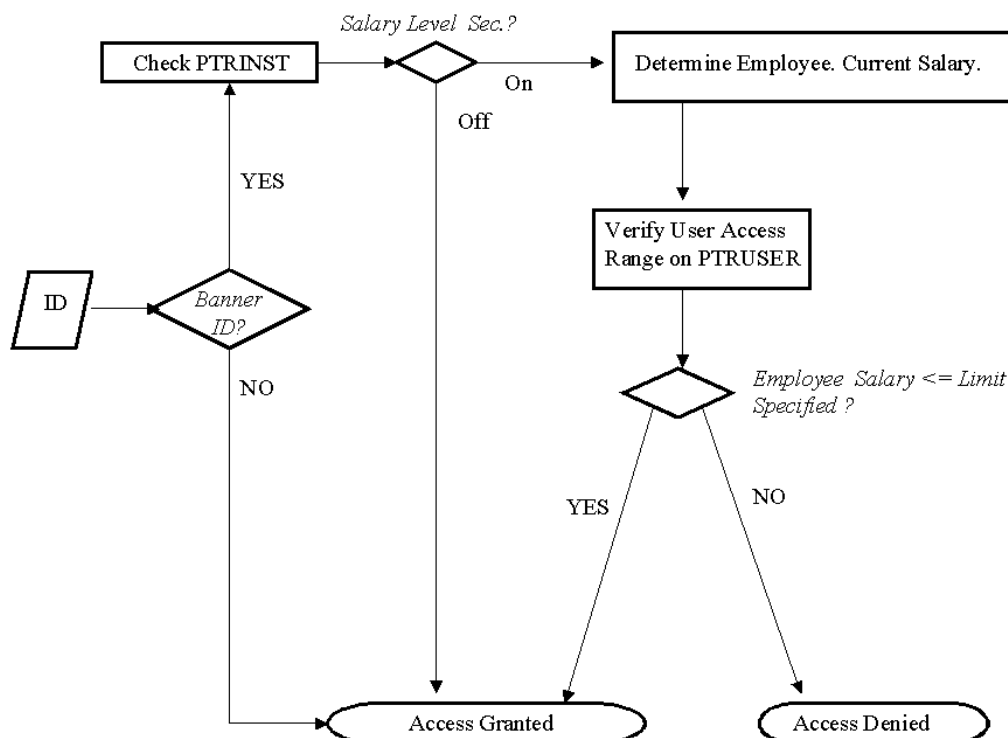


The Organization Code security strategy performs the following tests.

1. Is the ID a valid Banner ID in the PEBEMPL table?
 - Yes - The ID belongs to an "employee." The HR security engine proceeds to the next security test.
 - No - Access is granted to the user.
2. Is the Organization Code Security Indicator (PTRINST_ORGN_SECURITY_IND) turned off or on? This indicator is set on the Installation Rules (PTRINST) page.

-
- Turned off (indicator is N) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.
 - Turned on (indicator is Y) - The HR security engine proceeds to the next security test.
3. Does the user have access to all records, regardless of organization code, or does the user have a specific access list? This is determined by the PTRUSER_MASTER_ORGN_IND.
- Can access all records (indicator is Y) - Access is granted to the user.
 - Can access selected records (indicator is N) - The HR security engine proceeds to the next security test.
4. What organization is associated with the employee ID? This is determined by identifying the SPRIDEN_PIDM associated with the ID and then selecting from PEBEMPL_ORGN_CODE_HOME where SPRIDEN_PIDM = PEBEMPL_PIDM.
5. Does the user/organization combination exist in the PSRORGN table? (PSRORGN_USER_CODE is the current user.)
- Yes - Access is granted to the user.
- No - Access is denied to the user.

Salary Level security



The Salary Level security strategy performs the following tests.

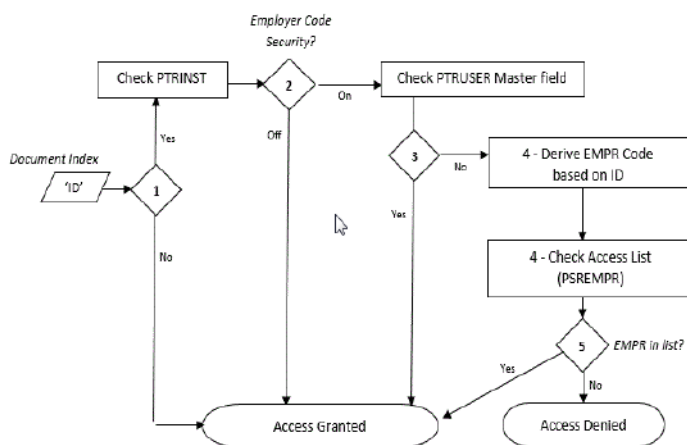
1. Is the ID a valid Banner ID in the PEBEMPL table?

Yes - The ID belongs to an “employee.” The HR security engine proceeds to the next security test.

No - Access is granted to the user.
2. Is the Salary Level Security Indicator (PTRINST_SALA_SECURITY_IND) turned off or on? This indicator is set on the Installation Rules (PTRINST) page.
 - Turned off (indicator is N) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.
 - Turned on (indicator is Y) - The HR security engine proceeds to the next security test.
3. What is the current salary of the employee? This is determined by identifying the SPRIDEN_PIDM associated with the ID and then selecting current records from NBRJOBS_ANN_SALARY.
4. How does the employee’s salary compare with the value in PTRUSER_SALA_LEVEL?
 - Employee’s salary is less than or equal to PTRUSER_SALA_LEVEL - Access is granted to the user.

- Employee's salary is greater than PTRUSER_SALA_LEVEL - Access is denied to the user.

Employer Code security



The Employer Code Security strategy performs the following tests.

- Is the ID a valid Banner ID in the PEBEMPL table?
 - Yes - The ID belongs to an “employee.” The HR security engine proceeds to the next security test.
 - No - Access is granted to the user.
- Is the Employer Code Security Indicator (PTRINST_EMPR_SECURITY_IND) turned off or on? This indicator is set on the Installation Rules (PTRINST) page.
 - Turned off (indicator is N) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.
 - Turned on (indicator is Y) - The HR security engine proceeds to the next security test.
- Does the user have access to all records, regardless of employer code, or does the user have a specific access list? This is determined by the PTRUSER_MASTER_EMPR_IND.
 - Can access all records (indicator is Y) - Access is granted to the user.
 - Can access selected records (indicator is N) - The HR security engine proceeds to the next security test.
- What employer code is associated with the employee's current job?
- Does the user/employer code combination exist in the PSREMPR table? (PSREMPR_USER_CODE is the current user.)
 - Yes - Access is granted to the user.

-
- No - Access is denied to the user.

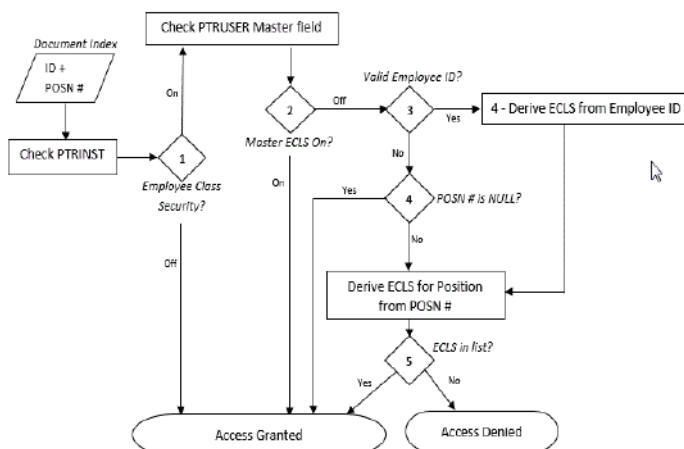
HR Employee (B-H-EMPL) application

The B-H-EMPL application contains the following fields:

- ID (SPRIDEN_ID)
- PIDM
- DOCUMENT TYPE
- LAST NAME
- FIRST NAME
- SSN
- BIRTH DATE
- POSITION
- POSITION NUMBER
- POSITION SUFFIX
- HIRE DATE
- TERMINATION DATE
- ROUTING STATUS
- ACTIVITY DATE
- VPDJ_CODE

The following sections describe the Banner HR security strategies that are enforced by BDM.

Employee Class Code security

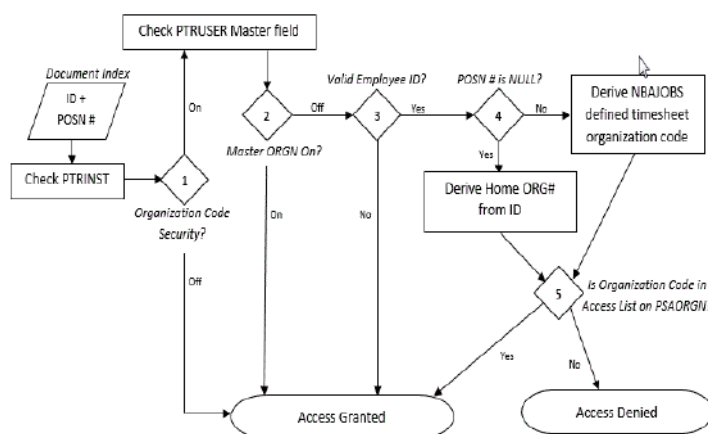


The employee ID and position number from the document index are the basis for evaluating HR security for a document. The Employee Class Code security strategy performs the following tests.

1. Is the Employee Class Security Indicator (PTRINST_ECLS_SECURITY_IND) turned off or on? This indicator is set on the Installation Rules (PTRINST) page.
 - Turned off (indicator is N) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.
 - Turned on (indicator is Y) - The HR security engine proceeds to the next security test.
2. Does the user have access to all records, regardless of employee class, or does the user have a specific access list? This is determined by the PTRUSER_MASTER_ECLS_IND.
 - Can access all records (indicator is Y) - Access is granted to the user.
 - Can access selected records (indicator is N) - The HR security engine proceeds to the next security test.
3. Is the ID a valid Banner ID in the PEBEMPL table? This is determined by identifying the SPRIDEN_PIDM associated with the ID and then selecting from PEBEMPL_ECLS_CODE where SPRIDEN_PIDM = PEBEMPL_PIDM.
 - Yes - The ID belongs to an "employee." The HR security engine proceeds to the next security test.
 - No - If the ID has a position number, the HR security engine proceeds to the next security test. If the ID does not have a position number, access is granted to the user.
4. What employee class is associated with the employee ID?
 - If the ID is a valid Banner ID, the employee class is determined by identifying the SPRIDEN_PIDM associated with the ID and then selecting from PEBEMPL_ECLS_CODE where SPRIDEN_PIDM = PEBEMPL_PIDM.
 - If the ID is not a valid Banner ID but has a valid position number, the employee class for the position is used, as defined in the NBAJOBS table.

5. Does the user/employee class combination exist in the PSRECLS table? (PSRECLS_USER_CODE is the current user.)
 - Yes - Access is granted to the user.
 - No - Access is denied to the user.

Organization Code security

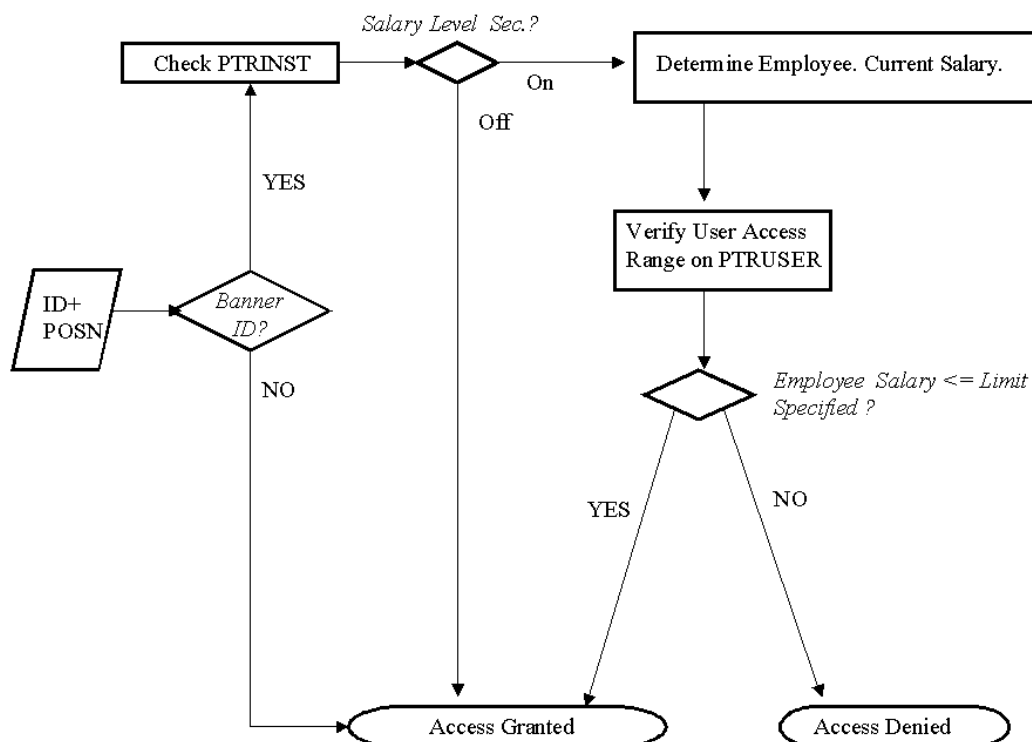


The employee ID and position number from the document index are the basis for evaluating HR security for a document. The Organization Code security strategy performs the following tests.

1. Is the Organization Code Security Indicator (PTRINST_ORGN_SECURITY_IND) turned off or on? This indicator is set on the Installation Rules (PTRINST) page.
 - Turned off (indicator is N) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.
 - Turned on (indicator is Y) - The HR security engine proceeds to the next security test.
2. Does the user have access to all records, regardless of organization code, or does the user have a specific access list? This is determined by the PTRUSER_MASTER_ORGN_IND.
 - Can access all records (indicator is Y) - Access is granted to the user.
 - Can access selected records (indicator is N) - The HR security engine proceeds to the next security test.
3. Is the ID a valid Banner ID in the PEBEMPL table? This is determined by identifying the SPRIDEN_PIDM associated with the ID and then selecting from PEBEMPL_ECLS_CODE where SPRIDEN_PIDM = PEBEMPL_PIDM.
 - Yes - The ID belongs to an “employee.” The HR security engine proceeds to the next security test.

- No - Access is granted to the user.
- 4. Does the ID have a valid position number?
 - Yes - The home organization code is derived from the ID. The HR security engine proceeds to the next security test.
 - No - The timesheet organization code is derived from NBAJOBS. The HR security engine proceeds to the next security test.
- 5. Is the organization code on the PSAORGN table?
 - Yes - Access is granted to the user.
 - No - Access is denied to the user.

Salary Level security

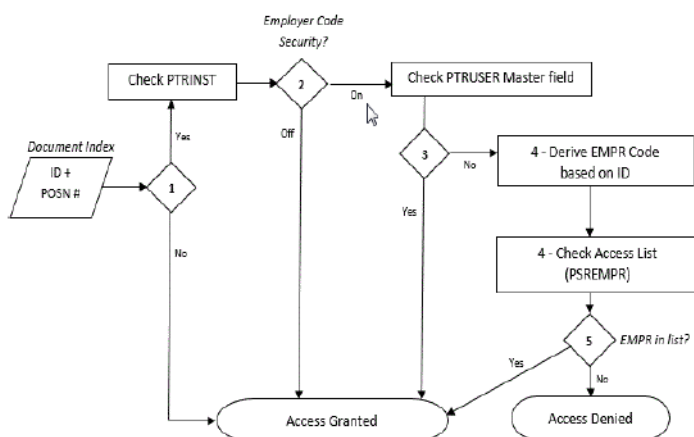


The Salary Level security strategy performs the following tests.

1. Is the ID a valid Banner ID in the PEBEMPL table?

- Yes - The ID belongs to an “employee.” The HR security engine proceeds to the next security test.
 - No - Access is granted to the user.
2. Is the Salary Level Security Indicator (PTRINST_SALA_SECURITY_IND) turned off or on? This indicator is set on the Installation Rules (PTRINST) page.
 - Turned off (indicator is N) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.
 - Turned on (indicator is Y) - The HR security engine proceeds to the next security test.
 3. What is the current salary of the employee? This is determined by identifying the SPRIDEN_PIDM associated with the ID and then selecting current records from NBRJOBS_ANN_SALARY.
 4. How does the employee’s salary compare with the value in PTRUSER_SALA_LEVEL?
 - Employee’s salary is less than or equal to PTRUSER_SALA_LEVEL - Access is granted to the user.
 - Employee’s salary is greater than PTRUSER_SALA_LEVEL - Access is denied to the user.

Employer Code security



The Employer Code security strategy performs the following tests.

1. Is the ID a valid Banner ID in the PEBEMPL table?
 - Yes - The ID belongs to an “employee.” The HR security engine proceeds to the next security test.
 - No - Access is granted to the user.

2. Is the Employer Code Security Indicator (`PTRINST_EMPR_SECURITY_IND`) turned off or on? This indicator is set on the Installation Rules (`PTRINST`) page.
 - Turned off (indicator is `N`) - Banner-related restrictions to document access are not enforced. Access is granted to the user. The user is still subject to document access restrictions originating within ApplicationXtender, such as document level security.
 - Turned on (indicator is `Y`) - The HR security engine proceeds to the next security test.
3. Does the user have access to all records, regardless of employer code, or does the user have a specific access list? This is determined by the `PTRUSER_MASTER_EMPR_IND`.
 - Can access all records (indicator is `Y`) - Access is granted to the user.
 - Can access selected records (indicator is `N`) - The HR security engine proceeds to the next security test.
4. What employer code is associated with the employee's current job?
5. Does the user/employer code combination exist in the `PSREMPR` table? (`PSREMPR_USER_CODE` is the current user.)
 - Yes - Access is granted to the user.
 - No - Access is denied to the user.

Banner Finance fund/organization security

About this task

When a query is performed, a user can view “metadata” for all documents that match the query criteria. If fund/organization security is activated in Banner Finance, BDM enforces all fund/organization security strategies that are defined in Banner. In this situation, a user can access a Banner Finance document only if he/she has the appropriate access rights. If the user fails the security tests, a “fund organization” security message is displayed in ApplicationXtender Document Manager or ApplicationXtender Web Access.

To ensure that the fund/organization error message is displayed, you must modify a parameter in the `Web.config` file located on the ApplicationXtender server where ApplicationXtender Web Access is installed. Use the following steps to change the parameter.

Procedure

1. Navigate to `C:\Inetpub\wwwroot\AppXtender`. Open `Web.config` in an editor.
2. Locate the following line:


```
<customErrors mode="RemoteOnly" />
```
3. Change the setting from `"RemoteOnly"` to `"Off"`.
4. Save.
5. Reset IIS.

Customization

This chapter gives information about customizing Banner® Document Management (BDM) for your institution's needs.

Create a custom application

You can create a new BDM application by using ApplicationXtender Application Generator under the administrative login (SYSOP). When you design a new application, consider the following questions:

- What is the business need?
- What information should be included in the index?
- What information should be included in the primary key?
- To what extent does the application require lookup capability?
- Will this application be integrated with Banner?

A new application is initially standalone, but can be integrated with BDM.

For instructions on creating new applications, refer to the *EMC ApplicationXtender Concepts and Planning Guide*.

If the new application includes a new user-defined list table (AE_UL table), then additional steps are required to grant the new UL table to the BANINST1 schema.

Custom applications can be configured to take advantage of the shared key reference system that is used by baseline BDM applications. FAQ 1-T7W40 provides step-by-step instructions.

Configure a custom application to use the shared key reference table

About this task

The `updaeapps.sql` script allows applications to use the shared key reference table AE_RFSCT. If a script is not needed, use the following steps to configure a custom application to use AE_RFSCT.

Procedure

1. Open a database connection and connect as OTGMGR user.
2. Execute the following command, where <appname> is the name of the custom application:

```
select appid from ae_apps where appname = '<appname>';
```

This query returns the application ID.
3. Execute the following command, using the application ID identified in step 2.

```
update ae_appsset rfname = 'AE_RFSCCT' where appid =  
<APPID_VALUE>;commit;
```

Integrate a custom application with Banner

About this task

After you create a new application with ApplicationXtender Application Generator, use the following steps to create page-level integration with Banner.

Procedure

1. Access the Document Management Application Validation (ETVAXAP) page in Banner.
2. Select **Insert** from the toolbar.
3. Enter the application code in the **Application Name** field.
4. Enter a unique description of the application code in the **Description** field.
5. Enter the unique application number in the **Application ID** field. This application number was assigned when the application was created with ApplicationXtender Application Generator.
6. Enter the associated Banner system code in the **System** field. This code identifies the Banner system that is associated with the application.
7. Leave the **Link Indicator** check box cleared.
8. If Banner Document Retention (BDR) is installed at your institution, enter the field number of the application's DOCUMENT TYPE index field in the **Document Type Field Number** field. BDR uses this field number to locate the application's document type when disposition rules are defined on the Document Retention Disposition Rules (EDRARULE) page.
9. Save.

Results

Banner is now aware that the new application exists. The new application is available for use on the Document Management Context Determination (EXABCXT) page.

Enable a new application for synchronization

About this task

Use the following steps to enable a new application for document type synchronization on the Document Management Document Type Validation (ETVDTYP) page.

Procedure

1. Open a database connection and connect as OTGMGR user.
2. Execute the following command, where <appname> is the name of the new application:

```
select appid from ae_apps where appname = '<appname>;
```

This query returns the application ID.

3. Execute the following command:

```
select * from user_tables where table_name like '%AppId%'
```

Where AppId is the application ID of the new application.

This query returns a list of tables that are related to the new application.

4. Execute the following command for each table name returned in step 3:

```
grant select, insert, update, delete, references on <table_name> to
baninst1
```

This command grants BANINST1 privileges to access the tables that are related to the new application.

5. Log in as BANINST1.
6. Execute the following command for each table name returned in step 3:

```
create synonym <table_name> for otgmgr.<table_name>
```

This command creates a private synonym.

Note: Data synchronization occurs only if the appropriate database objects are created to support this activity. You can develop this code on your own, or you can contact Ellucian Professional Services. The Action Line is not responsible for custom code.

Modify a delivered application

Be extremely careful when modifying a delivered application. It is easy to modify an existing application in ApplicationXtender Application Generator without immediately recognizing the impact of the changes. Ellucian's delivered applications have a deliberate design that is used by the Banner integration code in several ways. These applications may be modified to a certain degree, but not to the same extent as a standalone application.

Refer to the following guidelines when changing an Ellucian-delivered BDM application:

- Any new field must be added to the end of the existing index structure. Inserting a field in the middle of the existing structure alters the predicted sequence of fields and severely impacts the integrity of the lookup and synchronization systems.
- A new field cannot be defined as a "key reference," "data reference," or "auto index" field. The structures of the shared key reference and auto index tables must remain fixed for real-time data synchronization to function correctly.
- The order of delivered fields in an application cannot be changed.
- Any field may be flagged as available for document level security without affecting the integrity of BDM.
- A value can be added to or deleted from any user-defined list in an application. The deletion of a value might impact an existing BDM context rule that includes this value in its search criteria.

- The existing maximum width for user-defined list values should not be exceeded. If the existing maximum width is exceeded, the system must build a new AE_DTn table, where “n” refers to the application ID. This process can take a long time.
- An unlimited number of items can be added to a user-defined list. However, a large number of items (more than 400) can affect performance negatively. Also, the effect is cumulative. For example, if an application has three user-defined list fields, each with 200 items, then the effect is equivalent to having one user-defined list field with 600 items. Each item can contain up to 132 characters. Document types greater than 60 characters may be used in the applications, but cannot be mapped to Banner.
- Names, data types, formats, and most field flag settings for existing fields should not be modified or deleted. If you believe that such a change is required, consult Action Line for assistance in assessing the potential impact.

For additional instructions on modifying existing applications, consult with Action Line.

Modify EFKCUST

The EFKIMAG package integrates BDM functionality with Banner. The EFKCUST package accepts callouts at the top and bottom of the hook events in EFKIMAG, giving you the ability to participate in API logic for the various hooks without modifying EFKIMAG code. You can modify EFKCUST, as long as the input and output parameters match the EFKIMAG callouts.

EFKCUST is delivered one time by Ellucian. It contains no real code except setting `CONTINUE_IND` to TRUE where this parameter exists. The `CONTINUE_IND` indicates that code in EFKIMAG should or should not continue upon return from EFKCUST.

You can write custom database procedures that are executed during the normal course of BDM activity (indexing, unindexing, or deleting a document). Ellucian-delivered code is executed until it calls out to EFKCUST. At this point, the custom procedures in the modified EFKCUST are executed. Ellucian-delivered code either resumes or stops based on the `CONTINUE_IND` value. One example is a site-specific security check that continues processing under one condition, or aborts under another.

Customized security tests and other event processing can be added to a client site without concern that future Ellucian code will overwrite changes made within EFKIMAG.

Administration Forms

Banner® 9 provides administration pages that support Banner® Document Management (BDM). An administrator can use these pages to perform the following tasks:

- Establish system settings that determine default behavior.
- Review BDM applications that are integrated with Banner.
- Establish new BDM document type codes.
- Create new context rules for querying.
- Set up requirements linking between documents indexed in BDM and Banner.
- Review system error and exception messages.

The following administration pages are accessible from the Document Management (*BDM) menu in Banner pages:

Page	Page Name	Description
ERALINK	Document Management FinAid Requirements Linking	Defines the links between documents indexed in BDM and tracking requirements used in Banner Financial Aid. Banner information can be created or updated as a result of these links.
ESALINK	Document Management Student Requirements Linking	Defines the links between documents indexed in BDM and admissions requirements used in Banner Student. Banner information can be created or updated as a result of these links.
ESIAUDT	Document Management Student Requirements Linking Audit	Tracks Banner activity associated with admissions requirements linking on the SARCHKL table when admissions requirements documents are indexed or unindexed.
ETVAXAP	Document Management Application Validation	Lists the BDM applications that were created using ApplicationXtender Application Generator and are integrated with Banner.
ETVDTP	Document Management Document Type Validation	Lists the document codes that can be stored and indexed in BDM applications.
EXABCXT	Document Management Context Determination	Creates context and parameter rules for BDM. Links between Banner and ApplicationXtender depend on these rules.
EXAINST	Document Management System Settings	Defines the system settings that are needed to run BDM.
EXAPRID	Document Management Previous ID Rules	Establishes a link between an ApplicationXtender field on an application and previous IDs that were stored in the SPRIDEN table.

Page	Page Name	Description
EXARSLT	Document Management Error/Result	Displays information about any BDM error conditions that occurred when running BDM.

Refer to *Banner online help* for details on the preceding pages.

The Document Management User Preferences (EXAUPRF) page requires special access privileges. EXAUPRF is used to set the preferences for users who connect from a Banner page to an ApplicationXtender product. The page is also used to set other preferences for creating documents from Banner.

Banner Workflow Integration

When Banner® Document Management (BDM) and Banner Workflow are integrated, the indexing of documents in BDM can launch workflow activities. The BDM indexing operation creates an entry on the Banner Events Queue table. The Banner Workflow events process manager polls the table and launches workflows accordingly.

Note: Starting with BDM 8.3, BDM workflow events are written to the Banner Events Queue table under the WORKFLOW target name. In earlier releases, BDM workflow events were written under the BXSCKFLOW target name.

ApplicationXtender Web Access is the preferred interface for the integration between BDM and Banner Workflow.

Integration requirements

Integration between BDM and Banner Workflow has the following requirements:

- BDM 8.x or higher, using ApplicationXtender 6.50 or higher, must be installed.
- Banner Workflow 4.4.2, or higher, must be installed.
- Seed data must be loaded into the Banner events tables. If BDM 8.4 is installed, refer to the *Banner Document Management 8.4 Installation Guide* for details on running the seed data script. For earlier BDM releases, refer to the *Banner Document Management 8.2 Upgrade Guide* for details.

BDM events

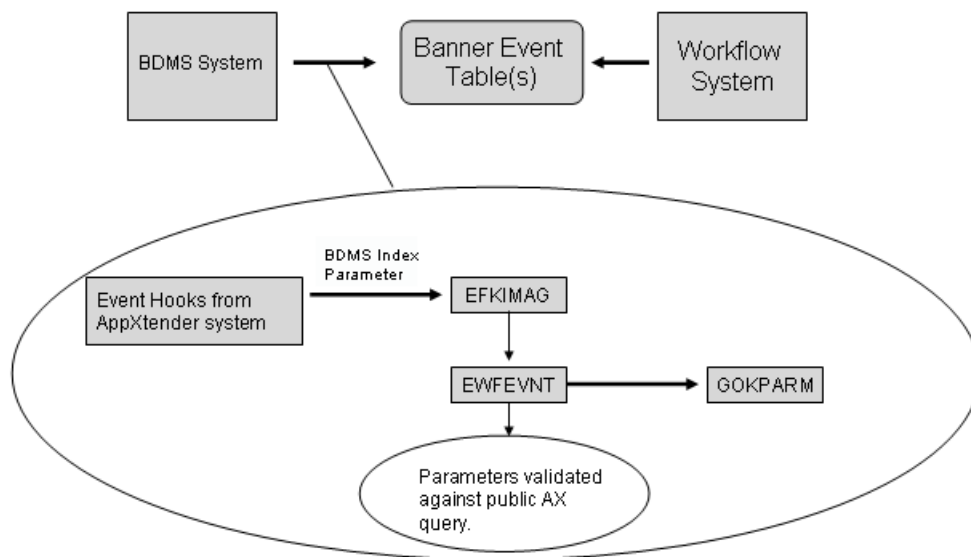
The following events (actions) in any BDM application in ApplicationXtender can launch a workflow activity:

Event	Description
Document creation	The addition of a new document to BDM, by an approved method (such as scanning, import, insert object), and the simultaneous creation of the first index for this document in the relevant AE_DT% table can be an event.
Index creation	The creation of an index for a common document ID can be an event. Most, but not all, baseline applications delivered with BDM allow 1-n indexes for a single document file (document ID).

Event	Description
Index update	The modification of any values in an existing index can be an event.
Document deletion	The removal of the last index for a given document ID can be an event.
Index deletion	In cases where multiple indexes exist for a given document ID, the deletion of a single index for a document ID can be an event.

Event processing

When a create, update, or delete action is performed in ApplicationXtender Document Manager or ApplicationXtender Web Access, BDM writes a record to the Banner Events Queue table. Banner Workflow systematically polls the table.



Example of event processing

An admissions staff member uses BDM to scan and index a document that is required for admissions. A typical index in the B-S-ADMN application consists of the following fields:

Field	Format
ID	Text (9)
PIDM	Integer (8)

Field	Format
DOCUMENT TYPE	User-defined list
LAST NAME	Text (60)
FIRST NAME	Text (60)
SSN	Text (15)
BIRTH DATE	Date (11)
TERM CODE	User-defined list (6)
APPLICATION NUMBER	Text (4)
ADMISSIONS REQUIREMENT	User-defined list (4)
INSTITUTION NUMBER	Text (10)
ROUTING STATUS	User-defined list (40)
ACTIVITY DATE	Time stamp (20)

A workflow is set up to automatically send an e-mail to an admissions officer when the index is saved. The e-mail includes the index information necessary for the admissions officer to retrieve the document using a standard BDM query. The admissions officer must review the new document that is indexed into the system with the following index values:

DOCUMENT TYPE = APPLICATION

TERM CODE= 201110

BDM parameters

Event information is passed from BDM into the Banner Events Queue table using a set of parameters that are unique to the ApplicationXtender application that is calling the workflow. A parameter set includes two types of parameters:

- Fixed parameters apply to all applications. These parameters have the same placement and the same name for all applications.
- Non-fixed parameters vary from one application to another. These parameters correspond exactly to ApplicationXtender application field names.

Parameter names must be loaded as seed data into the Parameter Group Code Rule Table (GOREQPG) before the integration is set up. Each parameter code includes a `BXS.` prefix that differentiates the parameter from other similarly named parameters that may be used by another system. The `EVENTNAME`, `PRODUCTTYPE`, and `WORKFLOWSPECIFICNAME` parameters are exceptions to this rule. They are part of the GOREQPG table key and are used by all systems that write data to the Banner Events Queue table.

Fixed parameters

The following fixed parameters, defined in the GOREQPG table, apply to every event:

Sequence Number	Parameter Code	Description	Required to Invoke Workflow?
1	EVENTNAME	Part of the table key	Yes
2	PRODUCTTYPE	Part of the table key	Yes
3	WORKFLOWSPECIFICNAME	Information that appears in the workflow work list	No
<p>The WORKFLOWSPECIFICNAME parameter has the following format:</p> <p>Transaction type (Index, Update, Add)</p> <p>+ Document type (COLLEGE TRNSCRPT, ADMISSIONS APP, etc)</p> <p>+ ID (person) or document ID such as INVOICE (nonperson)</p> <p>Example: Update COLLEGE TRNSCRPT for A00012345</p>			
4	BXS.DATASOURCE	Target data source of the ApplicationXtender system	Yes
5	BXS.APPID	Target document collection from OTGMGR.AE_APPS	Yes
6	BXS.APPNAME	Name corresponding to the application ID	Yes
7	BXS.DOCID	Numeric value that identifies the file corresponding to the index values	Yes
8	BXS.WORKFLOW_CREATED_BY		No
9	BXS.WORKFLOW_DATETIME_CREATED		No

Non-fixed parameters

Non-fixed parameters are also defined in the GOREQPG table. These parameters are not required. Certain fields in the ApplicationXtender application structure, however, must contain a value. Therefore, null non-fixed parameters are never sent through the API. Most callouts have many non-null parameters that are passed into Banner Workflow.

Non-fixed parameters are derived from the table OTGMGR.AE_ADEFS.COLDESC.

Banner Workflow does not allow spaces in parameter names. The field names created as seed data use underscores instead of spaces. Additional parameters created to support custom ApplicationXtender applications must be created the same way.

The following table shows an example set of non-fixed parameters for the B-S-ADMN application. Other applications follow a similar convention of mapping ApplicationXtender field names to parameter names.

Sequence Number	Parameter Code
10	BXS.ID
11	BXS.PIDM
12	BXS.DOCUMENT_TYPE
13	BXS.LAST_NAME
14	BXS.FIRST_NAME
15	BXS.SSN
16	BXS.BIRTH_DATE
17	BXS.TERM_CODE
18	BXS.APPLICATION_NUMBER
19	BXS.ADMISSIONS_REQUIREMENT
20	BXS.INSTITUTION_NUMBER
21	BXS.ROUTING_STATUS
22	BXS.ACTIVITY_DATE

Integration steps

About this task

The following steps are used to integrate BDM and Banner Workflow. Details for each step are provided in the following sections.

Procedure

1. [Ensure that seed data is loaded](#) on page 73
2. [Set up a BDM user for Banner Workflow](#) on page 73
3. [Create event filters in ApplicationXtender](#) on page 73
4. [Create business events](#) on page 74
5. [Build workflows](#) on page 75
6. [Associate business events with workflow](#) on page 75

Ensure that seed data is loaded

About this task

Ensure that seed data is loaded into the Banner events tables. If BDM 8.4 is installed, refer to the *Banner Document Management 8.4 Installation Guide* for details on running the seed data script. For earlier BDM releases, refer to the *Banner Document Management 8.2 Upgrade Guide* for details.

Set up a BDM user for Banner Workflow

About this task

Set up a specific user to own the queries that filter BDM events for Banner Workflow. One user can be used for all applications. The user name must begin with WORKFLOW (for example, WORKFLOW_BXSADMIN). For details on creating this user, refer to [Manually define non-Banner users in BDM](#) on page 20.

If your university or college uses Multi-Entity Processing (MEP), refer to the “Administration” section of the *Banner Document Management Multi-Entity Processing Implementation Guide* for additional instructions on creating this BDM user.

Create event filters in ApplicationXtender

About this task

A private query, created in ApplicationXtender for an application, is used as a filter to allow specific event criteria to launch a workflow. This filter streamlines BDM event processing by preventing the Banner Events Queue table from receiving events that are unrelated to defined workflows.

Use the following steps to create a private query in ApplicationXtender for each application that is being integrated with Banner Workflow.

Procedure

1. Log on to ApplicationXtender Document Manager or ApplicationXtender Web Access as the user that was created in [Set up a BDM user for Banner Workflow](#) on page 73. This user owns the private queries that are created in the following step. The user name must begin with WORKFLOW (for example, WORKFLOW_BDMADMIN).
2. Create a private query to filter the event criteria that launch a workflow. Use the following guidelines:
 - All queries that are used as workflow filters must start with @BXSWF as the prefix (for example, @BXSWF_AidYr0708).
 - At least one field must have search criteria defined.
 - To search for all documents within a BDM application, define a search expression using the “greater than” criteria. For example, for B-S-ID, the private query can be set up so that the PIDM field has Expression: > 0 as the search criteria. This retrieves a results set that includes the current document.

- If a list of values or a search expression is used in the query definition process, the query should be created in ApplicationXtender Document Manager instead of ApplicationXtender Web Access.

Results

Hooks in ApplicationXtender call `BANINST1.EWFEVNT`. This package evaluates any private query in the `AE_QRY` and `AE_QSEG` tables and determines if the result set includes the current document. If the test is a match, an event is created in the Banner Events Queue table. If there is no match, no action is taken.

Note: By default, users do not receive feedback when an event is created in the table. The commented out messaging capability, however, is included in the `EFKIMAG` package if you want to track the integration during Banner Workflow testing.

Create business events

About this task

Before a BDM event can launch a workflow, you must create a BDM business event in Banner Workflow. The Banner Event Wizard in Banner Workflow provides an easy way to create a business event by selecting the desired event components. Use the following steps to create a business event with the wizard.

Procedure

1. Launch Banner Workflow.
2. Select **Administration > Business Events**.
3. On the **Business Events** page, click **Business Event Definitions**.
4. On the **Business Event Definitions** page, click **Banner Event Wizard**.
5. On the **Banner Event Wizard - Introduction** page, click **Next**.
6. On the **Banner Event Wizard - Targets** page, in the **Targets** field, select the Workflow application.
7. Click **Next**.
8. On the **Banner Event Wizard - Events** page, in the **Events** field, select the combination of the BDM application name (prefixed with BXS) and the Insert, Update, or Delete function that you want to create.
9. Click **Next**.
10. On the **Banner Event Wizard - Parameters** page, select any parameters that you want to include in the business event.
11. For each selected parameter, select the type and indicate whether the parameter is guaranteed.
12. Click **Next**.
13. **Optional:** On the **Banner Event Wizard - Summary** page, change the name of the business event.

14. Select the Miscellaneous Desktop Application product type.
15. Click **Create Event**.

Results

For more information on creating business events, refer to the *Banner Workflow Analyst/Administrator Handbook*.

Build workflows

About this task

Define the workflows that are associated with BDM business events. Refer to the *Banner Workflow Analyst/Administrator Handbook* for details on building workflows.

Note: You can use BDM integration URLs to build powerful workflows that efficiently route documents between participants in a workflow. For more details, refer to [BDM integration URLs](#) on page 76.

Associate business events with workflow

About this task

After you create a BDM business event in Banner Workflow, you must associate the business event with the workflow that the business event launches. This includes mapping parameters to the new business event. Use the following steps to associate a business event with a workflow and map parameters to the business event.

Procedure

1. Launch Banner Workflow.
2. Select **Administration > Business Events**.
3. On the **Business Events** page, click **Business Event Definitions**.
4. On the **Business Event Definitions** page, click the name of the business event that you want to associate with a workflow.
5. On the **Business Events** page, in the Associated Workflows section, click **Add Workflow Association**.
6. On the **Workflow Association** page, select the organization/workflow/ version combination that you want to associate with the business event.
7. Click **Save**.
8. On the **Parameter Mapping** window, map all required context parameters.

Note: All required context parameters must be mapped before the workflow association can be saved.

9. Click **Save Parameter Mappings**.

BDM integration URLs

You can combine the following features to build powerful workflows that efficiently route documents among participants in a workflow:

- Three URL links, contained in BDM, can be used to open a document, search for documents, or upload a document.
- The Custom Activity Designer, contained in Banner Workflow, can be used to create custom activities that include simple HTML tags such as `<href>` for URL links that use workflow context parameters.
- Business event parameters are delivered as part of the integration between BDM and Banner Workflow.

These combined features streamline paper-based processes, resulting in cost savings, consistent processes, and reduced paper usage to meet green initiatives.

This section includes information about using these features to build workflows. This section does *not* provide details about enabling single sign on (SSO) between Banner Workflow and BDM. Banner Workflow contains features that enable enterprise access managers for SSO. The Banner Workflow integration with BDM requires users to re-enter their credentials the first time they access a BDM document from a Banner Workflow session.

Note: Because users sign in to BDM with their own accounts, they must have the BDM privileges that allow them to view documents.

URL format

ApplicationXtender provides the functions that are called to open, search for, and upload documents. The URL that BDM passes to the workflow page must include the parameters that help a user open, search for, or upload a document. At a minimum, the URL, regardless of which BDM function you are calling, must contain the following parameters in the following order:

```
http://<server>/AppXtender/<function>.aspx?DataSource=<data source value>
```

Additional Banner Workflow parameters can be added to the end of the URL as follows:

```
http://<server>/AppXtender/IDocument.aspx?DataSource=<data source value>&<parm1>=<parm1 value>&<parm2>=<parm2 value>
```

The `<server>` parameter is constant for each URL and must always be part of the URL. This parameter identifies the location where ApplicationXtender is installed and where the document is or will be stored, depending on the type of function being requested. The value for `<server>` is defined when ApplicationXtender is installed. The value can be provided by the department at your site that maintains the ApplicationXtender software and server, or by accessing the Document Management Systems Settings (EXAINST) page in Banner. The `<server>` is identified in the **WebXtender Root** field.

URL examples

The following sections show examples for opening a document, searching for a set of documents, and uploading a document for B-S-ADMN (Student Admissions). In these examples, the BDM ApplicationXtender server is INSTSRV1. Workflow business event parameters are defined as follows:

Parameter	Value
BXS.ADMISSIONS_REQUIREMENT	CLT1
BXS.APPNAME	B-S-ADMN
BXS.DATASOURCE	TESTDB01
BXS.DOCID	1302
BXS.ID	AABBCCDD1
BXS.TERM_CODE	200820
BXS.APPLICATION_NUMBER	1

Open a document

This URL allows a user to open a specific document in ApplicationXtender Web Access.

Template URL:

```
http://<server>/AppXtender/IDocument.aspx?DataSource=
<BXS.DATASOURCE>&Docid=<BXS.DOCID>&appname=<BXS.APPNAME>
```

Sample URL with parameters:

```
http://INSTSRV1/AppXtender/IDocument.aspx?DataSource=
TESTDB01&Docid=1302&appname=B-S-ADMN
```

Parameters:

The following parameters are included in the URL that is passed between the Banner Workflow session and ApplicationXtender Web Access:

Parameter	Description
IDocument.aspx	ApplicationXtender function that allows a user to open a specific document in ApplicationXtender Web Access.

Parameter	Description
Datasource=<data source value>	Banner database that contains the Banner records that are linked to each document in ApplicationXtender by means of the document's index. The value is provided in the workflow business event parameter BXS.DATASOURCE.
Docid=<docid value>	Internal value assigned by the ApplicationXtender process when a document is indexed. The value is provided in the workflow business event parameter BXS.DOCID.
appname=<appname value>	BDM-assigned application name. The value is provided in the workflow business event parameter BXS.APPNAME.

Search for a document

This URL allows a user to search for a document, or a list of documents, in ApplicationXtender Web Access, based on parameters in the URL.

Note: Including more parameters in the URL enables a more fine-grained query.

Template URL:

```
http://<server>/AppXtender/ISubmitQuery.aspx?DataSource=
<BXS.DATASOURCE>&appname=<BXS.APPNAME>&ID=<BXS.ID>
```

Sample URLs with parameters:

```
http://INSTSRV1/AppXtender/ISubmitQuery.aspx?DSN=TESTDB01
&appname=B-S-ADMN&ID=AABBCCDD1
```

The ID parameter is passed with the appname parameter. This URL retrieves either a single document or a list of documents for the ID, depending on how many documents are stored in ApplicationXtender for the matching ID.

```
http://INSTSRV1/AppXtender/ISubmitQuery.aspx?DSN=TESTDB01
&appname=B-S-ADMN&ID=AABBCCDD1&APPLICATION NUMBER=1&TERM CODE=200820
```

The ID, APPLICATION NUMBER, and TERM CODE parameters are passed with the appname parameter. This URL retrieves either a single document or a list of documents for the ID, depending on how many documents are stored in ApplicationXtender for the matching ID, term code, and application number.

Parameters:

The following parameters are included in the URL that is passed between the Banner Workflow session and ApplicationXtender Web Access:

Parameter	Description
ISubmitQuery.aspx	ApplicationXtender function that allows a user to search for a single document or a list of documents in ApplicationXtender Web Access, depending on the parameters included in the URL.
DSN=<data source value>	Banner database that contains the Banner records that are linked to each document in ApplicationXtender by means of the document's index. The value is provided in the workflow business event parameter BXS.DATASOURCE.
appname=<appname value>	BDM-assigned application name. The value is provided in the workflow business event parameter BXS.APPNAME.
ID	Optional parameter for this BDM function.

Upload a document

This URL allows a user to upload a document to ApplicationXtender. The document must be stored electronically on your local machine or on a server that you can access.

Template URL:

```
http://<server>/AppXtender/IDocImport.aspx?DataSource=
<BXS.DATASOURCE>&appname=<BXS.APPNAME>&ID=<BXS.ID>
&APPLICATION_NUMBER=<BXS.APPLICATION_NUMBER>&TERM_CODE=
<BXS.TERM_CODE>&ADMISSIONS_REQUIREMENT=<BXS.ADMISSIONS_
REQUIREMENT>
```

Sample URL with parameters:

```
http://INSTSRV1/AppXtender/IDocImport.aspx?DataSource=
TESTDB01&appname=B-S-ADMN&ID=AABBCCDD1&APPLICATION_NUMBER=1
&TERM_CODE=200820&ADMISSIONS_REQUIREMENT=CLT1
```

Several parameters are passed with the `appname` parameter. This URL helps you index the new document in BDM. Passing more parameters reduces the lookup that must be done when the document is indexed in BDM.

Parameters:

The following parameters are included in the URL that is passed between the Banner Workflow session and ApplicationXtender Web Access:

Parameter	Description
IDocImport.aspx	ApplicationXtender function that allows a user to upload a one or more documents in Application Xtender Web Access to be indexed to a Banner record.
Datasource=<data source value>	Banner database that contains the Banner records that are linked to each document in ApplicationXtender by means of the document's index. The value is provided in the workflow business event parameter BXS.DATASOURCE.
appname=<appname value>	BDM-assigned application name. The value is provided in the workflow business event parameter BXS.APPNAME.
ID	Optional parameter for this BDM function.
APPLICATION NUMBER	Optional parameter for this BDM function.
TERM CODE	Optional parameter for this BDM function.
ADMISSIONS REQUIREMENT	Optional parameter for this BDM function.

Custom activities

The Custom Activity Designer, contained in Banner Workflow, is used to create custom workflow activities and pages. A custom page can include a display area that contains read-only information about the custom workflow activity. This display area can include simple HTML tags such as <href> for URL links that use workflow context parameters. These URL links can be used to open a document, search for documents, or upload a document.

Note: The same URLs can be generated by following the instructions in this section, without the requirement that they come from a BDM event. For example, you can use the instructions for integrating a document search query using a SPRIDEN ID that your workflow populated from a different event.

Note: If you want to use advanced integration options, such as including direct links to BDM documents from Workflow Notifications, contact your account manager or Banner Workflow Professional Services consultant.

Use the following steps to add BDM integration URLs to a custom workflow activity.

Create workflow context parameters for the BDM event

About this task

A workflow that is integrated with BDM is typically started by a BDM event such as scanning and indexing an admissions document. To support a BDM event, create the following “text” type workflow context parameters:

BXS_APPNAME

BXS_DATASOURCE

BXS_DOCID

BXS_ID

Refer to the *Banner Workflow Analyst/Administrator Handbook* for details on creating workflow context parameters.

The rest of this section assumes the use of these parameter names.

Build a workflow

About this task

Build a workflow that is associated with the BDM business event. When you activate the workflow, map the event definition parameters to the workflow context parameters. Refer to the *Banner Workflow Functional Integration Guide* for details.

Create a custom activity in the workflow

About this task

Use the following steps to create a custom activity in the workflow to use with BDM.

Procedure

1. Launch Banner Workflow.
2. Select Administration > Banner Workflow Modeler. The Banner Workflow Modeler is launched.
3. Click the **Custom Activity** icon.
4. Click the drawing canvas to place the custom activity in the model.
5. Right-click the custom activity and select **Custom Activity Designer**.
6. In the left pane, click the value next to the **Parameters** attribute, and then click “...”. The Parameters window is displayed.
7. For each of the following local parameters, click **Add Local Parameter** and enter the parameter name in the **Name** field.

BXS_APPNAME

BXS_DATASOURCE

BXS_DOCID

BXS_ID

8. When all of the local parameters are defined, click **OK** twice.
9. Right-click the custom activity and select **Parameter Mappings**. The Parameter Mappings window is displayed.
10. Map each workflow context parameter to the associated local parameter as follows:
 - a) Click **Add**.
 - b) Select the workflow context parameter from the drop-down list in the **Context Parameter** field.
 - c) Select the associated local parameter from the drop-down list in the **Component Parameter** field.
11. Click **OK**.

Add BDM integration URLs to the custom activity

About this task

BDM integration URLs can be added on the display area of the Custom Activity Page to view a document, search for documents, and upload a document. For consistency, you should add the display areas below any other data that you are presenting to a user. Use the following steps to add a URL link to a display area.

Procedure

1. Right-click the custom activity and select **Custom Activity Designer**. The Custom Activity Designer window is displayed.
2. Click the **Display Area** icon. A display area is displayed with the Label attribute equal to `Unlabeled`.
3. Clear the value of the Label attribute.
4. Edit the Text attribute, using the `<a>` tag for an HTML link. The URL should look like one of the following, depending on whether you want to view a document, query documents, or upload a document:
 - View a document - The following example shows the URL format and local parameters that provide a **View the Document** link on the custom page. The link opens a new window with the document that created the initial event.

```
<a href="http://INSTSRV1/AppXtender/IDocument.aspx?
DataSource=@BXS_DATASOURCE&Docid=@BXS_DOCID&appname=@BXS_APPNAME"
target="new">View the Document</a>
```

- Query documents - The following example shows the URL format and local parameters that provide a **Query Documents** link on the custom page. The link opens a new window with the set of documents in the specified application name for the person's ID.

```
<a href="http://INSTSRV1/AppXtender/ISubmitQuery.aspx?
DataSource=@BXS_DATASOURCE&appname=@BXS_APPNAME&ID=@BXS_ID"
target="new">Query Documents</a>
```

- Upload a document - The following example shows the URL format and local parameters that provide an **Upload a Document** link on the custom page. The link opens a new window that displays the BDM screen used to upload a document. The following example populates the person's ID. You can optionally include other fields as described in the preceding section that covers the options of the BDM URLs.

```
<a href="http://INSTSRV1/AppXtender/IDocImport.aspx?
DataSource=@BXS_DATASOURCE&appname=@BXS_APPNAME&ID=@BXS_ID"
target="new">Upload a Document</a>
```

5. Click **OK**.
6. Click **Apply**.
7. Click **OK**.

BDM workflow events in the Banner Events Queue table

About this task

BDM workflow events are stored in the Banner Events Queue table. Use the following steps to view the BDM workflow events.

Procedure

1. Access the Event Queue Record Maintenance (GOAEQRM) page in Banner.
2. In the **Target System** field, select WORKFLOW.

Note: BDM workflow events before BDM 8.3 use the target name BXS WKFLOW.

3. In the **Event Code** field, select the applicable BDM event name.
4. Click **Go** and scroll down the page.

The Events Data section shows basic information about all events that match the criteria in the key section.

BDM and Ellucian CRM Recruit integration

This section provides information regarding the Banner® Document Management (BDM) integration with Ellucian CRM Recruit.

Ellucian CRM Recruit is student recruitment and analytical software that tracks performance against desired results to build stronger relationships with your desired students. It maintains prospective student records and applications from persons wishing to apply to the college or university.

Related Links

[Define BDM rules on ESALINK \(Banner Student Admissions Requirement Linking\)](#) on page 86

Integrate BDM with Ellucian CRM Recruit

To integrate BDM with Ellucian CRM Recruit, you must have completed an upgrade, installation and deployment, and configuration.

About this task

The following references provide information on the versions required for the various Banner and Recruiter products required for integration to occur.

Procedure

1. Upgrade BDM 8.6.1.
See the *Integrating BDM with Ellucian CRM Recruit* section in the *Banner Document Management Upgrade Guide 8.6.1..*
2. Install and deploy the BDM APIs.
See the *Banner Document Management API Install Guide 9.1.*
3. Configure Ellucian CRM Recruit for the BDM integration.
See the *Configure BDM integration settings* section in the *Ellucian CRM Recruit Help*.

BDM application for Ellucian CRM Recruit documents

The Ellucian CRM Recruit integration uses the BDM baseline application B-S-ADMN.

The BDM baseline application B-S-ADMN shares its information with the Banner Student Admissions Checklist requirements (those that appear for a Banner student on either SAAADMS/Checklist or SAAACKL pages in Banner).

The B-S-ADMN application in Banner Document Management for Ellucian CRM Recruit in the BDM 8.6.1 release has a new index field called RECRUITER ID.

The RECRUITER ID can be either a 38-character GUID (an identifier assigned to a record in Ellucian CRM Recruit), or a pseudo ID (when you do not know the GUID), or spaces (when you

do not know the GUID or when you do not create a pseudo ID). If the RECRUITER ID does not contain a value, then there is the possibility that the document is not for a Ellucian CRM Recruit prospective student, but is for a Banner student.

Note: The pseudo ID always has a special character prefix, such as a tilde, because it is only a temporary ID assigned to the prospective student until Ellucian CRM Recruit generates a GUID when it creates a record for that person. The EXAINST form in Banner identifies the special character requirement for creating a pseudo ID.

Recruiter and Banner Student Admissions integration

When an application is created in Ellucian CRM Recruit, the application can then be transferred to Banner Student Admissions to create an application in Banner Student and the application's corresponding checklist requirements records (Supplemental Items) in Ellucian CRM Recruit.

After the application is transferred to Banner, a Banner Student ID is created. Banner sends the Student ID to Ellucian CRM Recruit. Ellucian CRM Recruit receives the Student ID and updates the `Erp Id` in the applicant's Ellucian CRM Recruit record with the student ID information.

For more information about Ellucian CRM Recruit integration with Banner, see *Ellucian CRM Recruit 4.1.5 Installation and Administration Guide*. You can access this documentation on the Ellucian Customer Support Center.

Recruiter and BDM integration

The integration of Ellucian CRM Recruit and Banner Document Management (BDM) depends on when Ellucian CRM Recruit sends an application to Banner. Ellucian CRM Recruit might send a document to BDM before or after sending the application to Banner.

Note: BDM rules must be defined on Student Admissions Requirements Linking (ESALINK) page for each admission request used by Ellucian CRM Recruit when sending documents to BDM. A document type is associated with each admission request. Ellucian CRM Recruit uses the document type while creating a document index in BDM.

Ellucian CRM Recruit sends a document to BDM before sending the application to Banner

- The Banner Student ID (`Erp Id` in Recruiter) is unknown, so Recruiter uses a pseudo-ID value as the `ID` in the document's index.
- The document is saved in the BDM document repository, B-S-ADMN, along with the metadata sent by Recruiter.

Metadata is required for creating the document index.

- BDM does not have the Banner Student's relevant key data (ID), so the BDM stored procedure that evaluates incoming actions from ApplicationXtender, bypasses all logic pertaining to Banner Student Admissions Checklist requirements updates.

Ellucian CRM Recruit sends a document to BDM after sending the application to Banner:

- The Banner Student ID (`Erp Id` in Recruiter) is updated in the Recruiter application, so Recruiter uses the `Erp Id` value passed as the 'ID' index field in the document's index.
- The document is saved in the BDM document repository, B-S-ADMN, along with the metadata sent by Recruiter.
Metadata is required for creating the document index.
- BDM has the Banner Student's relevant key data (ID), so the BDM stored procedure that evaluates incoming document index actions from ApplicationXtender implements the logic pertaining to Banner Student Admissions Checklist requirements.

Define BDM rules on ESALINK (Banner Student Admissions Requirement Linking)

You can use ESALINK to define the admission request and assign document type associated with each request. Ellucian CRM Recruit uses each admission request while sending documents to Banner Document Management (BDM) and Ellucian CRM Recruit uses the document type to create a document index in BDM.

About this task

The document type associated with each admission request is always `ADMISSION REQ.`

Procedure

1. Access ESALINK in Banner.
2. In the **Document Type** field, enter `ADMISSIONS REQ.`
3. In the **Request** field, enter the admissions requirement value.
The admissions requirement value is related to the document type.

For example, `ESSY` is one of the admissions requirement value for the document type, `ADMISSIONS REQ.`

4. Determine the checklist requirements.

If checklist requirement is...	Then...
Specific to a term or range of terms	Enter the terms in the Effective Term From/To fields.
Applies to all terms	Leave the Effective Term From/To fields blank.

5. In the **Scope Modifier** field, expand or restrict the scope of the rule by entering a suitable code.
Scope modifiers, `T` and `A` allow BDM to update existing admissions requirements records in SARCHKL. However, if the admissions requirement does not exist in Banner Student, the admissions requirement cannot be inserted into Banner Student Admissions Checklist Requirements table (SARCHKL).

6. If the value of the **Scope Modifier** is **A**, and you want to restrict the scope to a range of terms, enter the range of terms in the **Scope Term From/To** fields.
7. Use the **Allow Checklist Requirement** check boxes to indicate whether the admissions requirement is eligible for insert, update, or undo.
Undo functionality only extends to the exact application number and term code of the document index. Manual review is advised for Undo on rules with expanded scopes.
8. Use the **Permit Feedback** check boxes to indicate whether a message is displayed when an insert or update is attempted.
9. Click **Save**.

Example

When Ellucian CRM Recruit passes an admission request, `CLT3` and document type, `ADMISSIONS REQS`, the document type on ESALINK is defined as `ADMISSIONS REQS` and the request, `CLT3`.

Note: The `User Id` seen in the **Item Description** field on the Checklist tab of the Banner Student Admissions (SAAADMS) page in Banner is the BDM user account defined in the `DocumentManagementApi_configuration.groovy` file that was configured as part of the BDM integration for Recruiter.

Related Links

[Define system settings](#) on page 45

Types of functions that can be performed from Ellucian CRM Recruit to Banner Document Management (BDM)

Ellucian CRM Recruit interacts with BDM for various actions such as send a document, query a document, view a document, and update document indexes in BDM. You can be aware of these actions for a better understanding of tasks performed by Ellucian CRM Recruit.

Recruiter action	Description
Send documents to BDM	<ul style="list-style-type: none"> Uploads documents into the designated application in BDM. The document is not yet indexed, so it is retained in a batch in the application in BDM. Creates the document index based on the file name from the upload and the index values passed into the BDM API by Ellucian CRM Recruit.
Query documents in BDM	Queries for documents stored in BDM for the Ellucian CRM Recruit supplemental items.

Recruiter action	Description
	Query criteria is based on the criteria defined by Ellucian CRM Recruit; the criteria is the Recruiter GUID which is a unique value.
View documents in BDM	Displays the document in the BDM viewer for the supplemental item selected in Ellucian CRM Recruit.
Update Document indexes in BDM	<p>Updates a document index when a change occurs in Ellucian CRM Recruit,</p> <p>For example, when Ellucian CRM Recruit has transferred an application to Banner and receives the <code>Erp_Id</code> value back from Banner. The <code>Erp_Id</code> will then be updated in any document index associated with the <code>RECRUITER_ID</code>.</p>

Types of functions that can be performed from Banner Document Management (BDM) to Ellucian CRM Recruit

BDM interacts with Ellucian CRM Recruit for various actions such as link document to Ellucian CRM Recruit record, query a Ellucian CRM Recruit document, and view a Ellucian CRM Recruit document. You can be aware of these actions for a better understanding of tasks performed by BDM.

Recruiter action	Description
Link document to a Ellucian CRM Recruit record	<p>Upload document and index the document directly in either ApplicationXtender Document Manager or Web Access.</p> <p>To link a BDM document to a Ellucian CRM Recruit record, you must create BDM events in Banner Events Publisher (BEP). In addition to creating BDM events, the value of <code>ETVAXAP_BEP_INS_IND</code> must be set to <code>Y</code>. This generates BDM events for Ellucian CRM Recruit, which is inserted into BEP and subsequently pulled into Banner Recruiter Integration Manager (BRIM) and then handled accordingly by Ellucian CRM Recruit.</p>
Query a Recruiter document	<p>Search for documents in either ApplicationXtender Document Manager or Web Access using the query options available in ApplicationXtender.</p> <p>If the GUID of the Ellucian CRM Recruit application is known, it can be used as query criteria.</p>
View a Recruiter document	View a document in either ApplicationXtender Document Manager or Web Access by using the query document action and then select the document for display.

If the GUID of the Ellucian CRM Recruit application is known, the GUID is the preferred value to be entered for the RECRUITER ID index field in the BDM application when creating the document index. However, the RECRUITER ID index field can contain either a pseudo-id or spaces.

BDM events for Ellucian CRM Recruit by using Banner Events Publisher (BEP)

When Banner Document Management (BDM) and Ellucian CRM Recruit are integrated, actions such as indexing, modifying and deleting documents can launch an activity to BEP. The integration between BDM and BEP requires minimum versions of certain applications.

The following versions of applications are required when BDM and BEP integrate:

- BDM 9.1 or higher
- EMC ApplicationXtender 7.0 SP1 or higher
- BEP 1.2.4 or higher

For more information about BEP, see *Banner Events Publisher Handbook*.

Type of BDM events for Recruiter

When a Banner Document Management (BDM) event occurs in the B-S-ADMN application, the event can launch a Banner Event Publisher activity when the RECRUITER ID is either entered into the document index or removed from the document index.

BDM Event	Description
Document Creation	<p>The addition of a new document in BDM through an approved method (scanning, importing, or sending a document to BDM from Ellucian CRM Recruit) and the simultaneous creation of the first index for this document in the relevant BDM application index table (AE_DT%).</p> <p>For a BDM document index event to be inserted into Banner Events Publisher (BEP), the application record in Document Management Application Validation (ETVAXAP) page must have ETVAXAP_BEP_INST_IND set to Y.</p>
Document Index Update	The modification of any values in an existing index can be an event.
Document Deletion	The removal of the last index for a given document can be an event.
Document Index Delete	<p>The deletion of a single index for a document can be an event.</p> <p>The case where there is a GUID value in the RECRUITER ID index field and the value is removed will generate this event.</p>

For more information about the instructions for updating the ETVAXAP_BEP_INST_IND to Y, see the *Banner Document Management Upgrade Guide 8.6.1*.

Create BDM shared user account for Ellucian CRM Recruit integration

A BDM shared user account is required to single sign on from the Ellucian CRM Recruit to BDM. In addition to single sign on, the shared user account is also required to create, update, and view a document from the Ellucian CRM Recruit. The user account is set up in ApplicationXtender for the B-S-ADMN application.

Before you begin

The BDM shared user account must also be a Banner user account, hence a Banner user account must already exist.

About this task

The Ellucian CRM Recruit administrator sets up a BDM user ID, which is used when configuring Ellucian CRM Recruit for BDM integration.

Procedure

1. Create the BDM shared user account in ApplicationXtender.
2. From the Windows Start menu, select **Programs > ApplicationXtender Desktop > Application Generator**.
3. On the login window, enter `SYSOP`.
4. Right-click the **Users** node and select **New**.
5. On the User page, enter the **User Name**, **Full Name**, **Password**, and **Verification** information.
6. Click **Next**.
The **Groups** page is displayed.
7. Click **Next**.
The **Profile** page is displayed.
8. Select **B-S-ADMN** from the **Application** drop-down list.
9. Assign the user's privileges by selecting specific check boxes to enable the privilege.

Some of the privileges available are as follows:

- Scan/Index Online
- Batch Scan
- Batch Index
- Modify Index
- Display

- Delete Doc

Enabling the batch privileges automatically enables the **Add Page** privilege.

10. Click **Next**.

The **Security Mapping** page is displayed.

11. Ensure that the **Alternative** security check box is cleared.
12. Click **Finish**.

Verify settings in web.config file

To allow the Banner Document Management (BDM) APIs access the ApplicationXtender APIs, system settings in the web.config file of the ApplicationXtender must be set to a particular value. A BDM administrator performs this task while integrating BDM with Ellucian CRM Recruit.

Procedure

1. Access the `web.config` file in your web site's ApplicationXtender Web Access .NET folder located at `C:\Inetpub\wwwroot\AppXtender\Web.config`.
2. Open the file and search for `AxWebServicesDocumentPointer`.
3. If the value of `AxWebServicesDocumentPointer` is not equal to 2, modify the value as follows: `<add key="AXWebServicesDocumentPointer" value="2"/>`.
4. Save and close the `web.config` file.
5. Locate the AX Web Services `web.config` file at `C:\inetpub\wwwroot\AppXtenderServices`.
6. Repeat steps 1 to 5.
7. Perform an `IISRESET` to implement the changes to the `web.config` file.

Technical Reference

This chapter provides technical information for Banner® Document Management (BDM)

Library module

`EOQRPLS.pll` is the BDM forms library file. It contains the main logic to enable Banner interaction with ApplicationXtender Document Manager through COM calls or ApplicationXtender Web Access through URL interfaces.

This file is named `EOQEPLS.pll` in the BDM release. You must rename it to `EOQRPLS.pll` and recompile it to `EOQRPLS.plx` during the BDM installation. For more information, refer to the *Banner Document Management Installation Guide*.

Tables

The following sections describe the tables that BDM uses. For more details about any table, review the `ALL_COL_COMMENTS` view of the Oracle Data Dictionary.

Context Rules Table (EXRBCXT)

This table is used to define imaging context points within Banner. This includes the Banner page name and the optional blocks, items, or values within the Banner page from which a user can access ApplicationXtender Document Manager and ApplicationXtender Web Access to view documents. This table contains all context rules that are shown on the Document Management Context Determination (EXABCXT) page.

The page name, section, item, and item value identify exactly how a context rule applies to the user's location within the page. BDM is mapped to this Banner context by creating the following components:

- One particular BDM application is chosen to apply to this Banner context.
- Document type filtering can optionally be enabled. If no document type is entered for a given context point, then all document types are queried.
- A context can be mapped to the execution of a stored query in the BDM application.
- If necessary, parameter rules can be created to apply to this context. A context rule can contain any number of parameter rules.

The following schema represents the structure of EXRBCXT.

Column	Datatype	Default	Constraint
EXRBCXT_BNR_FORM_NAME	varchar2 (30)		Not null
EXRBCXT_AXAP_CODE	varchar2 (64)		Not null
EXRBCXT_RELEASE_EFF	varchar2 (15)		Not null
EXRBCXT_SYSTEM_REQ_IND	varchar2 (1)	'Y'	Not null
EXRBCXT_USER_ID	varchar2 (30)	User	Not null
EXRBCXT_ACTIVITY_DATE	date	Sysdate	Not null
EXRBCXT_BNR_BLOCK_NAME	varchar2 (30)		
EXRBCXT_BNR_ITEM_NAME	varchar2 (50)		
EXRBCXT_BNR_ITEM_VALUE	varchar2 (120)		
EXRBCXT_DTYP_CODE	varchar2 (4000)		
EXRBCXT_CALLED_QUERYNAME	varchar2 (133)		

Context Rule Parameters Table (EXRAXPA)

This table is used to create a set of parameters that are used to query the data structure within ApplicationXtender using a context value from the EXRBCXT table. This table contains one record for each possible queryable field within ApplicationXtender whose value may be derived from a Banner page. This table contains all parameter rules that are shown on the Document Management Context Determination (EXABCXT) page.

The following schema represents the structure of EXRAXPA.

Column	Datatype	Default	Constraint
EXRAXPA_BNR_FORM_NAME	varchar2 (30)		Not null
EXRAXPA_PARM_SOURCE_NAME	varchar2 (50)		Not null
EXRAXPA_PARM_TARGET_NAME	varchar2 (50)		Not null
EXRAXPA_RELEASE_EFF	varchar2 (15)		Not null
EXRAXPA_SYSTEM_REQ_IND	varchar2 (1)	'N'	Not null
EXRAXPA_USER_ID	varchar2 (30)	User	Not null
EXRAXPA_ACTIVITY_DATE	date	Sysdate	Not null
EXRAXPA_BNR_BLOCK_NAME	varchar2 (30)		
EXRAXPA_BNR_ITEM_NAME	varchar2 (50)		

Column	Datatype	Default	Constraint
EXRAXPA_BNR_ITEM_VALUE	varchar2 (120)		

Systems Setting Table (EXBINST)

This table serves as the repository for system settings for BDM. There is only one record in this table. The following schema represents the structure of EXBINST.

Column	Datatype	Default	Constraint
EXBINST_OTG_SCHEMA_NAME	varchar2 (30)		Not null
EXBINST_ENABLE_CTXT_QUERY_IND	varchar2 (1)	'Y'	Not null
EXBINST_ENABLE_BNR_LINKING_IND	varchar2 (1)	'Y'	Not null
EXBINST_PSEUD_SPRIDEN_ID_PRFX	varchar2 (1)	'~'	Not null
EXBINST_USER_ID	varchar2 (30)	User	Not null
EXBINST_ACTIVITY_DATE	date	Sysdate	Not null
EXBINST_SHARE_KEYREF_SYNC_DATE	date		
EXBINST_WEB_EXT_ROOT	varchar2 (100)		
EXBINST_DATA_SOURCE_NAME	varchar2 (64)	'SCT_BXS'	Not null
EXBINST_AX_ROOT	varchar2 (100)		
EXBINST_ALLOW_UPRF_IND	varchar2 (1)	'Y'	Not null
EXBINST_RRRAREQ_UPD_REQ_IND	varchar2 (1)	'N'	Not null
EXBINST_RRRAREQ_INS_REQ_IND	varchar2 (1)	'N'	Not null
EXBINST_RRRAREQ_UPD_FBK_IND	varchar2 (1)	'Y'	Not null
EXBINST_RRRAREQ_INS_FBK_IND	varchar2 (1)	'Y'	Not null
EXBINST_ENA_RTVTRST_SYNC_IND	varchar2 (1)	'Y'	Not null
EXBINST_SARCHKL_UPD_REQ_IND	varchar2 (1)	'N'	Not null
EXBINST_SARCHKL_INS_REQ_IND	varchar2 (1)	'N'	Not null
EXBINST_SARCHKL_UPD_FBK_IND	varchar2 (1)	'Y'	Not null
EXBINST_SARCHKL_INS_FBK_IND	varchar2 (1)	'Y'	Not null

Column	Datatype	Default	Constraint
EXBINST_SARCHKL_UND_REQ_IND	varchar2 (1)	'Y'	Not null
EXBINST_SARCHKL_AUD_IND	varchar2 (1)	'N'	Not null
EXBINST_RRRAREQ_UND_REQ_IND	varchar2 (1)	'Y'	Not null
EXBINST_RRRAREQ_TRST_UNDO_VAL	varchar2 (1)		
EXBINST_BHPOSN_INCL_HIST_DATA	varchar2 (1)	'N'	Not null
EXBINST_SSO_KEY	varchar2 (64)		
EXBINST_WEB_SRVCS_ROOT	varchar2 (100)		
EXBINST_ENABLE_CNTEXT_AUDITING	varchar2 (1)	'N'	Not null
EXBINST_DOC_RTN_INSTALLED	varchar2 (1)	'N'	Not null

Error Result Logging Table (EXRRSLT)

This table contains numerical values for each error and result. The following schema represents the structure of EXRRSLT.

Column	Datatype	Default	Constraint
EXRRSLT_ERROR_SOURCE_TYPE	varchar2 (12)		Not null
EXRRSLT_ERROR_LOCATION	varchar2 (50)		Not null
EXRRSLT_ERROR_FUNC_TYPE	varchar2 (14)		Not null
EXRRSLT_ERROR_MESSAGE	varchar2 (200)		Not null
EXRRSLT_USER_ID	varchar2 (30)	User	Not null
EXRRSLT_ACTIVITY_DATE	date	Sysdate	Not null

Document Type Validation Table (ETVDTYP)

This table contains all BDM integrated document type codes used in ApplicationXtender Document Manager and ApplicationXtender Web Access applications. New document type codes must be added to this table before they are used in the EXABCXT table. The following schema represents the structure of ETVDTYP.

Column	Datatype	Default	Constraint
ETVDTYP_CODE	varchar2 (60)		Not null
ETVDTYP_DESC	varchar2 (100)		Not null
ETVDTYP_SYSTEM_REQ_IND	varchar2 (1)	'N'	Not null
ETVDTYP_USER_ID	varchar2 (30)	User	Not null
ETVDTYP_ACTIVITY_DATE	date	Sysdate	Not null

Integrated AX/WX Applications Validation Table (ETVAXAP)

This table contains all ApplicationXtender Document Manager and ApplicationXtender Web Access applications that are integrated with Banner. The following schema represents the structure of ETVAXAP.

Column	Datatype	Default	Constraint
ETVAXAP_CODE	varchar2 (64)		Not null
ETVAXAP_DESC	varchar2 (100)		Not null
ETVAXAP_APP_ID	number (5)		Not null
ETVAXAP_SYSTEM_REQ_ID	varchar2 (1)	'N'	Not null
ETVAXAP_BNR_LINKING_IND	varchar2 (1)	'N'	Not null
ETVAXAP_INSTALLED_IND	varchar2 (1)	'N'	Not null
ETVAXAP_USER_ID	varchar2 (30)	User	Not null
ETVAXAP_SSN_PRIVACY_IND	varchar2 (1)	'N'	Not null
ETVAXAP_DOB_PRIVACY_IND	varchar2 (1)	'N'	Not null
ETVAXAP_ACTIVITY_DATE	date	Sysdate	Not null
ETVAXAP_SYSI_CODE	varchar2 (2)	'N'	
ETVAXAP_DOCTYP_FLDNUM	number (2)		
ETVAXAP_BEP_INS_IND	varchar2 (1)	'N'	

Financial Aid Requirements Linking Rules Table (ERBLINK)

This table contains financial aid tracking requirements linking rules. The following schema represents the structure of ERBLINK.

Column	Datatype	Default	Constraint
ERBLINK_DTYP_CODE	varchar2 (60)		Not null
ERBLINK_TREQ_CODE	varchar2 (6)		Not null
ERBLINK_USER	varchar2 (30)	User	Not null
ERBLINK_ACTIVITY_DATE	date	Sysdate	Not null
ERBLINK_TRST_CODE	varchar2 (1)		Not null
ERBLINK_UPD_FEEDBACK_IND	varchar2 (1)	'Y'	Not null
ERBLINK_INS_FEEDBACK_IND	varchar2 (1)	'Y'	Not null
ERBLINK_UPD_REQ_IND	varchar2 (1)	'Y'	Not null
ERBLINK_INS_REQ_IND	varchar2 (1)	'Y'	Not null
ERBLINK_TRST_CODE_UNDO	varchar2 (1)		
ERBLINK_RULE_EFF_LOWER_AIDY	varchar2 (4)		
ERBLINK_RULE_EFF_UPPER_AIDY	varchar2 (4)		
ERBLINK_FUND_CODE	varchar2 (6)		
ERBLINK_SBG_CODE	varchar2 (6)		
ERBLINK_PERIOD_CODE	varchar2 (15)		

Student Admissions Requirements Linking Rules Table (ESBLINK)

This table contains student admissions requirements linking rules. The following schema represents the structure of ESBLINK.

Column	Datatype	Default	Constraint
ESBLINK_DTYP_CODE	varchar2 (60)		Not null
ESBLINK_ADMR_CODE	varchar2 (4)		Not null
ESBLINK_USER	varchar2 (30)	User	Not null
ESBLINK_ACTIVITY_DATE	date	Sysdate	Not null
ESBLINK_UPD_FEEDBACK_IND	varchar2 (1)	'Y'	Not null
ESBLINK_INS_FEEDBACK_IND	varchar2 (1)	'Y'	Not null
ESBLINK_INS_REQ_IND	varchar2 (1)	'Y'	Not null
ESBLINK_UPD_REQ_IND	varchar2 (1)	'Y'	Not null
ESBLINK_UND_REQ_IND	varchar2 (1)	'Y'	Not null
ESBLINK_SCOPE_MOD	varchar2 (1)	'N'	Not null

Column	Datatype	Default	Constraint
ESBLINK_RULE_EFF_LOWER_TERM	varchar2 (6)		
ESBLINK_RULE_EFF_UPPER_TERM	varchar2 (6)		
ESBLINK_CONDNTL_SCOP_ LOW_TERM	varchar2 (6)		
ESBLINK_CONDNTL_SCOP_ UPR_TERM	varchar2 (6)		

Student Requirements Linking Audit Table (ESRAUDT)

This table stores student admissions requirements linking audit information. The following schema represents the structure of ESRAUDT.

Column	Datatype	Default	Constraint
ESRAUDT_PIDM	number (8)		Not null
ESRAUDT_ADMR_CODE	varchar2 (4)		Not null
ESRAUDT_USER_ID	varchar2 (30)	User	Not null
ESRAUDT_ACTIVITY_DATE	date	Sysdate	Not null
ESRAUDT_ACTION	varchar2 (6)		Not null
ESRAUDT_APPL_NO	number (2)		Not null
ESRAUDT_TERM_CODE	varchar2 (6)		Not null
ESRAUDT_DOC_TYPE	varchar2 (60)		Not null
ESRAUDT_OBJECT_NUM	number (10)		Not null

User Preference Table (EXBUPRF)

This table stores user preference settings. The following schema represents the structure of EXBUPRF.

Column	Datatype	Default	Constraint
EXBUPRF_USERNAME	varchar2 (30)		Not null
EXBUPRF_USE_DEFAULT_PREF_IND	varchar2 (1)	'Y'	Not null
EXBUPRF_CSB_INVOKES	varchar2 (2)	'AX'	Not null
EXBUPRF_INB_INVOKES	varchar2 (2)	'WX'	Not null
EXBUPRF_AX_DOC_SOURCE	number (2)	12	Not null

Column	Datatype	Default	Constraint
EXBUPRF_WX_DOC_SOURCE	number (2)	12	Not null
EXBUPRF_USER_ID	varchar2 (30)	User	Not null
EXBUPRF_ACTIVITY_DATE	date	Sysdate	Not null

Document Create Events Table (EXBBPDC)

This table stores the BDM events for the creation of a document index in ApplicationXtender, if the ETVAXAP_BEP_INSERT_IND is set to 'Y' (to generate these types of events to be consumed by Banner Events Publisher).

Column	Datatype	Default	Constraint
EXBBPDC_DMTYPE	varchar2 (30)		
EXBBPDC_DOCRE	varchar2 (30)		
EXBBPDC_INDEX	varchar2 (4000)		
EXBBPDC_FMRIND	varchar2 (4000)		
EXBBPDC_AX_USER	varchar2 (30)		
EXBBPDC_DOCID	varchar2 (20)		
EXBBPDC_EVENT	varchar2 (20)		
EXBBPDC_DATA	varchar2 (30)		
EXBBPDC_SURROGATE	number (19)		
EXBBPDC_VERSION	number (19)		
EXBBPDC_VPDI	varchar2 (6)		
EXBBPDC_USER	varchar2 (30)	User	Not null
EXBBPDC_ACTIVITY_DATE	date	Sysdate	Not null

Document Index Update Events Table (EXBBPDU)

This table stores the BDM events for the document index updates in ApplicationXtender, if the ETVAXAP_BEP_INSERT_IND is set to 'Y' (to generate these types of events to be consumed by Banner Events Publisher).

Column	Datatype	Default	Constraint
EXBBPDU_DMTYPE	varchar2 (30)		
EXBBPDU_DOCRE	varchar2 (30)		

Column	Datatype	Default	Constraint
EXBBPDU_INDEX	VARCHAR2 (4000)		
EXBBPDU_FMRIND	VARCHAR2 (4000)		
EXBBPDU_AX_USER	VARCHAR2 (30)		
EXBBPDU_DOCID	VARCHAR2 (20)		
EXBBPDU_EVENT	VARCHAR2 (20)		
EXBBPDU_DATA_	VARCHAR2 (30)		
EXBBPDU_SURROG	NUMBER (19)		
EXBBPDU_VERSION	NUMBER (19)		
EXBBPDU_VPDI_	VARCHAR2 (6)		
EXBBPDU_USER_	VARCHAR2 (30)	User	Not null
EXBBPDU_ACTIV	DATE	Sysdate	Not null

Document Delete Events Table (EXBBPDD)

This table stores the BDM events for the deletion of a document index in ApplicationXtender, if the ETVAXAP_BEP_INSERT_IND is set to 'Y' (to generate these types of events to be consumed by Banner Events Publisher).

Column	Datatype	Default	Constraint
EXBBPDD_DMTYPE	VARCHAR2 (30)		
EXBBPDD_DOCRE	VARCHAR2 (30)		
EXBBPDD_INDEX	VARCHAR2 (4000)		
EXBBPDD_FMRIND	VARCHAR2 (4000)		
EXBBPDD_AX_USER	VARCHAR2 (30)		
EXBBPDD_DOCID	VARCHAR2 (20)		
EXBBPDD_EVENT	VARCHAR2 (20)		
EXBBPDD_DATA_	VARCHAR2 (30)		
EXBBPDD_SURROG	NUMBER (19)		
EXBBPDD_VERSION	NUMBER (19)		
EXBBPDD_VPDI_	VARCHAR2 (6)		
EXBBPDD_USER_	VARCHAR2 (30)	User	Not null
EXBBPDD_ACTIV	DATE	Sysdate	Not null

Database packages

BDM uses the following packages:

Package	Description
EOK495R	Contains real-time synchronization code for the B-H-FLAC application.
EOK496R	Contains real-time synchronization code for the B-H-POSN application.
EOK497R	Contains real-time synchronization code for the B-S-SECT application.
EOKARTS	Contains real-time data synchronization code for Banner Advancement applications.
EFKCUST	Accepts callouts at the top and bottom of the hook events in EFKIMAG. Allows client sites to participate in API logic for various hooks without modifying EFKIMAG code. This package may be modified at client sites, as long as the input and output parameters match the EFKIMAG callouts. For more information on customizing, refer to Modify EFKCUST on page 65.
EOKFRTS	Contains real-time data synchronization code for Banner Finance applications.
EFKIMAG	Contains hook procedures that are called by BDM code. These hook procedures are used to implement Banner requirements linking, enforce Banner Finance fund/organization security and Banner HR security, and support other integration functionality.
EOKPRTS	Contains real-time data synchronization code for Banner HR applications.
EOKPSEC	Contains code to enforce Banner HR security in ApplicationXtender Document Manager and ApplicationXtender Web Access.
EOKRFSY	Contains real-time data synchronization code for the SPRIDEN and SPBPERS tables.
EOKRLNK	Contains code that supports requirements linking for Banner Financial Aid (from the B-R-TREQ application).
EOKRRTS	Contains real-time data synchronization code for Banner Financial Aid applications.

Package	Description
EOKRSLT	Contains procedures that write logging and reporting information to the EXRRSLT table.
EOKSECR	Contains security related procedures and functions.
EOKSLNK	Contains code that supports requirements linking for Banner Student (from the B-S-ADMN application).
EOKSRTS	Contains real-time data synchronization code for Banner Student applications.
EOKUTIL	Contains miscellaneous BDM utility functions and procedures.
EOKWTOW	Contains Banner pages and ApplicationXtender Web Access integration related stored procedures and functions.

Database triggers

Refer to [Real-time synchronization scripts](#) on page 229 for information on database triggers.

Scripts

Refer to [Installation/re-baselining \(batch\) scripts](#) on page 222 for information on BDM scripts.

Data synchronization

Index data elements for an object stored in ApplicationXtender Document Manager or ApplicationXtender Web Access contain an accurate picture of data within Banner. When new documents are indexed within ApplicationXtender Document Manager or ApplicationXtender Web Access, standard lookup systems provide an up-to-date picture of Banner data that may become index field values for the object. Similarly, when search criteria are specified for a query against existing ApplicationXtender objects, drop-down data must remain current with the Banner data that it reflects (typically a Banner validation table). If file objects were stored using copies of Banner data, changes to Banner data also need to be reflected in the stored ApplicationXtender data.

Real-time synchronization

BDM implements a real-time synchronization system. Table-level triggers and PL/SQL packages synchronize Banner data to ApplicationXtender key reference (RF) tables, auto index (AI) tables, document index (DT) tables, and some user-defined list (UL) tables. Refer to the BDM knowledge base for a detailed description of the ApplicationXtender database table structure.

Data synchronization is one-way. Banner always “owns” the data. Changes are only populated from Banner into ApplicationXtender, never vice versa. Changes to ApplicationXtender data – where permitted – do not impact Banner data in any way. Banner requirements linking is the only exception to this rule (For more information, see [Banner Requirements Linking](#) on page 41.)

The real-time synchronization system maintains all new data (inserts), modified data (updates), and most deleted data (deletes) in the Banner system within an RF, AI, DT, or UL table. The real-time system handles all incremental changes in Banner data and propagates similar changes in the copied data within the ApplicationXtender tables that are owned by Oracle schema OTGMGR.

Re-baselining

When BDM is installed at your site, the ApplicationXtender lookup systems are baselined with copies of all relevant Banner data through the execution of certain SQL*Plus scripts. (See "Appendix D_Data_Synchronization_Scripts". Initially, this creates a copy of Banner data. The real-time synchronization system is also established during installation.

Under ideal circumstances, all ApplicationXtender data stays synchronized with Banner data on an ongoing basis. However, lapses in the real-time synchronization system may require a “re-baselining” of the ApplicationXtender lookup data. There are two types of re-baselining:

- A total re-baselining deletes all ApplicationXtender lookup data (AI, UL, and potentially RF) and reloads all data. Key reference (RF) data should not be deleted if it contains non-Banner data.
- An incremental re-baselining leaves existing ApplicationXtender lookup data intact, but re-runs the same scripts to port over any data that was omitted during the lapse of the real-time system.

The scripts that port the data are repeatable. One set of scripts accomplishes both the incremental and total re-baselining tasks. The only difference is that a total re-baselining first deletes all existing ApplicationXtender data so that all data is ported, whereas the incremental re-baselining does not delete the existing ApplicationXtender lookup data.

The total re-baselining method takes considerably longer to accomplish, but this methodology ensures the synchronization of the copied data. Due to the amount of time that it takes to perform a total re-baselining of your system, it is highly recommended that you perform an incremental re-baselining of your system instead of a total re-baselining.

Synchronization in a Multi-Entity Processing (MEP) environment

If a Banner table is used for data synchronization with a BDM application and that table is enabled for VPD/MEP, then the BDM application must also be enabled for VPD/MEP. Refer to the *Banner Document Management Multi-Entity Processing Implementation Guide* for details.

Synchronization of key reference data

The ApplicationXtender key reference (RF) system lets the user populate index information based on the value of the key field. Every ApplicationXtender application that supports the key reference system has a key reference table. Usually the name of this table is AE_RFnnn, where nnn is the application ID. The BDM shared key reference system follows the design of the ApplicationXtender key reference system. One field, usually the ID field, is designated as the key reference field, and other fields that depend on that key are defined as data reference fields (within ApplicationXtender Application Generator).

Note: For the Banner Finance application B-F-TVLEXP, a view (ae_rf494_view) of the key reference table provides the data reference field information, such as EXPENSE OWNER LAST NAME and EXPENSE OWNER FIRST NAME.

For all applications except B-F-DOCS, B-F-GRNT, B-F-PROP, B-H-POSN, and B-S-SECT, the ID field is the key reference field. Other fields such as LAST NAME and BIRTH DATE are data reference fields. When a new ApplicationXtender object is indexed, you enter the ID and press the Tab key. A key reference table (RF table) is consulted to provide the dependent values (data reference fields) for that ID.

BDM implements a shared key reference system. Multiple ApplicationXtender applications can use the same key reference table AE_RFSCT. This AE_RFSCT table must be kept synchronized with Banner SPRIDEN and SPBPERS data.

Similarly, key reference tables for Banner Finance data are kept in separate RF tables relevant to the B-F-DOCS, B-F-GRNT, and B-F-PROP applications. For example, a new invoice created in Banner is immediately copied into the B-F-DOCS RF table (in real-time) to allow immediate availability of the new Banner data for indexing, lookup, and validation.

Synchronization of auto index data

Data in the auto index (AI) system includes repeating data associated with the key field of the index. For example, the AI system contains multiple financial aid records for a student if the student applied for aid in each year of attendance.

When a new ApplicationXtender object is indexed, a user enters data into an index field and presses the F7 key (ApplicationXtender Document Manager) or clicks the **Auto Index** button (ApplicationXtender Web Access). The entered data is matched against a record in the auto index table that contains relevant Banner data. ApplicationXtender Document Manager or ApplicationXtender Web Access populates all other auto index enabled index fields with data from the record. In cases where multiple records exist, a window allows the user to select the appropriate record.

Every ApplicationXtender application that supports auto index functionality has an auto index table named AE_AIxxx, where xxx is the application ID. When related data is changed in Banner, triggers in the BDM real-time synchronization system automatically update corresponding data in ApplicationXtender AI tables.

Note the following in a VPD/MEP environment. If a Banner table is used for data synchronization with a BDM application and that table is enabled for VPD/MEP, then the BDM application must also

be enabled for VPD/MEP. Refer to the *Banner Document Management Multi-Entity Processing Implementation Guide* for details.

Auto index data for B-H-POSN

The B-H-POSN application uses the position number as the key field for repeating data. In Banner HR, data for a specific position may change (for example, position class, employee class, title, and salary information). Some, but not all, of this data exists in the auto index system for B-H-POSN. The auto index system includes the following data:

- Position number
- Position title
- Position class
- Employee class

There are two ways to present position data within the auto index system: Historical position records can be displayed, or only the current position record can be displayed.

Display historical position records

With this method, the AI table is baselined with all records from the NBRPOSH table. This may result in multiple entries for a given position code, differentiated by such values as title, position class, or employee class. Records accrue through time as changes are made within Banner. Records are never deleted.

In cases where multiple NBRPOSH records exist for the same combination of index values, differentiated by details not included in the ApplicationXtender index structure, the auto index system displays one record per index identified by the maximum position change date (NBRPOSH_CHANGE_DATE_TIME). Duplicate occurrences of the index values are not displayed.

Example

The following table represents historical records in NBRPOSH:

Change Date	Position Number	Position Title	Position Class	Employee Class
24-JAN-2004	A01	Instructor	PCLS2	ECLS2
12-DEC-2003	A01	Instructor	PCLS2	ECLS2
9-SEPT-2002	A01	Faculty	PCLS1	ECLS1
8-OCT-2001	A01	Faculty	PCLS1	ECLS1

By selecting the maximum change date value, the auto index system is limited to the following records:

Change Date	Position Number	Position Title	Position Class	Employee Class
24-JAN-2004	A01	Instructor	PCLS2	ECLS2

Change Date	Position Number	Position Title	Position Class	Employee Class
9-SEPT-2002	A01	Faculty	PCLS1	ECLS1

To help the user quickly identify the appropriate record, the current record in the auto index lookup system is presented in UPPERCASE. All historical values are displayed in lowercase.

Display current position record only

With this method, the auto index system is baselined with the current position record only. Only the most current record is displayed. As changes are made within Banner, old position records within the auto index system are deleted and current records are inserted.

B-H-POSN is delivered with this model.

Change the way auto index data is displayed for B-H-POSN

About this task

Use the following steps if you want to change the way auto index data is displayed for B-H-POSN.

Procedure

1. Execute the following statement to update the `EXBINST_BHPOSN_INCL_HIST_DATA` flag in `EXBINST`:

```
sql> Update BANIMGR.EXBINST set EXBINST_BHPOSN_INCL_HIST_DATA = '<Y or N>';
```

To display historical position records, enter `Y`. To display the current position record only, enter `N`. (The table is delivered with the value set to `N`.)

2. Execute the following statement to truncate the existing auto index table for the B-H-POSN application:

```
sql> truncate table OTGMGR.AE_AI496;
```

This ensures that the existing data is dropped from the table without altering the table structure.

3. Re-baseline the auto index system by running the script `ei496ai.sql`. This script loads either current or historical position data, based on the state of the `EXBINST_BHPOSN_INCL_HIST_DATA` flag.

Synchronization of document index data

The `AE_DTnnn` table contains index data for images in a particular application. When related information is updated in Banner, the BDM real-time synchronization system updates the corresponding data in `AE_DTnnn` to reflect this change. The structures of the various `AE_DTnnn` tables vary by application, according to the number and type of fields in the index. The `AE_DTnnn` tables contain data for any field that is not defined as a data reference field.

Synchronization of user-defined list data

Some ApplicationXtender index fields, such as TERM CODE and AID YEAR, use user-defined lists that contain Banner-related data. The BDM real-time synchronization system updates a user-defined list if the corresponding Banner data is changed. For example, a new term code that is added in STVTERM is added to the corresponding ApplicationXtender user-defined list.

The BDM real-time synchronization system does not synchronize the DOCUMENT TYPE user-defined list with the document type codes that are stored on the Document Management Document Type Validation (ETVDTYP) page. To add a new document type code, you must add it to ETVDTYP first and then use the Document Type Synchronization window within ETVDTYP to add the new code to a specific ApplicationXtender application. The underlying tables take the naming convention UL<AppID>_# , where # represents the field number within the application.

Note the following in a VPD/MEP environment. If a Banner table is used for a user-defined list in a BDM application and the Banner table is enabled for VPD/MEP, then the BDM application must also be enabled for VPD/MEP and the AE_UL table associated with the application must be enabled for VPD/MEP. Refer to the *Banner Document Management Multi-Entity Processing Implementation Guide* for details.

BDM Self-Service super user password

A super user is used for the BDM Self-Service integration process. Use the following steps to periodically change the super user password.

Verify BANIMGR privileges

About this task

Verify that BANIMGR has enough privileges to update the super user password in the AE_LOGIN table. To verify the privileges, check to see if EXBUFLT_FLT_ID = '1' where EXBUFLT_USERNAME = 'BANIMGR'. If not, then update EXBUFLT for BANIMGR.

Update the super user password

About this task

Use the following steps to update the super user password in the EOBUSER and AE_LOGIN tables.

Procedure

1. Log in to SQL*Plus as BANIMGR user.
2. Execute the following command:

```
set serveroutput on
```
3. Execute the euusers.sql script.

4. When prompted, enter the super user ID.
5. When prompted, enter the new password.
6. Click **OK**.

If the password change is successful, the following message is displayed: Password successfully changed for user <username>. Continue with the next step.

If the message Password could not be updated. Permission denied is displayed, BANIMGR does not have sufficient permissions to update the password in the AE_LOGIN table. Return to step 1.

7. Execute the following command:

```
set serveroutput off
```

8. Log out of the SQL*Plus session.

Update the super user Oracle password

About this task

Use the following steps to update the super user Oracle password.

Procedure

1. Log in to SQL*Plus as SYS (or SYSTEM) user or any other Oracle account that has privileges to alter a user's password.
2. Execute the following command:

```
ALTER USER <username> IDENTIFIED BY <newPassword>;
```

where <username> is the super user ID and <newPassword> is the new Oracle password for the super user ID. If successful, the following message is displayed: User Altered.

QuickScan Pro setup

For BDM to update a student admissions requirements record or a financial aid tracking requirements record, specific index fields must always be passed to BDM. If QuickScan Pro is integrated with ApplicationXtender, the Index Profile and the Export Profile that are created in QuickScan Pro must include these required index fields for the B-S-ADMN (Student Admissions) and the B-R-TREQ (Financial Aid Tracking Requirement) applications. If a required index fields is not included, then BDM cannot update the associated Banner record.

Key reference fields, such as PIDM, LAST NAME, and FIRST NAME, do not have to be defined in the Index Profile or the Export Profile. These fields are filled in by the database lookup process that is done when QuickScan Pro creates the index in ApplicationXtender.

If any key reference field, such as LAST NAME, is included in the Index Profile or Export Profile, QuickScan Pro does not perform the database lookup process; it assumes the user is providing information for all key and data reference fields. This prevents BDM from updating the associated

Banner record because PIDM, which is one of the key/data reference fields, is part of the key for both Banner Student and Banner Financial Aid.

The following index fields must be included in both the Index Profile and the Export Profile that are created in QuickScan Pro:

Application	Required Index Fields
B-S-ADMN	ID DOCUMENT TYPE TERM CODE APPLICATION NUMBER ADMISSIONS REQUIREMENTS
B-R-TREQ	ID DOCUMENT TYPE AID YEAR TRACKING REQUIREMENT TRACKING STATUS

ApplicationXtender Index Image Import setup

The ApplicationXtender Index Image Import utility performs a database lookup to pull data reference fields from the applicable AE_RF*** (key reference) table into an import file. Use the following steps to set up ApplicationXtender Index Image Import to update student admissions requirements records and financial aid tracking requirements records.

Create import specifications

About this task

Create an import specification for each application that uses the ApplicationXtender Index Image Import utility. The specification for an application contains the index fields that are required to create a document in ApplicationXtender. For the B-S-ADMN and B-R-TREQ applications, the specification contains the index fields that are required to update associated Banner records.

You can create an import specification in ApplicationXtender Application Generator on the Index Image File Setup section. The following guidelines apply:

Procedure

1. An import specification must include any fields that are flagged as required for the application in ApplicationXtender Application Generator. However, any data reference field (such as PIDM, LAST NAME, and FIRST NAME) must *not* be included in the specification unless you include all

data reference fields and you want values in the import file to overwrite the data reference field values.

2. If no data reference fields are included in the import specification, then the values are pulled from the ApplicationXtender key reference table for that application.
3. If at least one data reference field is included in the import specification, then ApplicationXtender assumes that all data reference fields are manually entered. ApplicationXtender does not pull any data reference field values from the key reference table associated with the application.

Warning! ApplicationXtender overwrites the application's key reference table with the values of the index fields as they appear in the import file. Generally this is not advisable for baseline-delivered BDM applications such as B-S-ADMN and B-R-TREQ.

Results

The B-S-ADMN and B-R-TREQ applications use the following index fields:

Application	Required Index Fields	Optional Index Fields
B-S-ADMN	ID	
	DOCUMENT TYPE	
	TERM CODE	
	APPLICATION NUMBER	
	ADMISSIONS REQUIREMENTS	
B-R-TREQ	ID	FUND
	DOCUMENT TYPE	SOURCE/INST CODE
	AID YEAR	PERIOD
	TRACKING REQUIREMENT	
	TRACKING STATUS	

Create the import file

About this task

Create the import file for the ApplicationXtender Index Image Import utility with data populating the fields defined in the import specification and proper paths to the file objects being imported.

Run the import process

About this task

The ApplicationXtender Index Image Import utility performs a database lookup to pull data reference fields from the applicable AE_RF*** (key reference) table into the import file. Use one of the following methods to run the utility:

Procedure

1. Command line - Disable the database bulk objects switch: /J.
2. Wizard - Access the wizard from the ApplicationXtender Desktop menu options. On the Options page, clear the **Use Bulk Objects** check box to disable the database bulk objects option. Then click **Import**.

Results

Refer to the *EMC ApplicationXtender Core Components Administrator's Guide* for more information about the Index Image Import utility.

ApplicationXtender Reports Management setup

About this task

For BDM to update a student admissions requirements record or a financial aid tracking requirements record, specific index fields must always be passed from ApplicationXtender Reports Management to BDM. If a required index field is not passed, then BDM cannot update the respective Banner record. Use the following steps to set up ApplicationXtender Reports Management to pass the required index fields.

Procedure

1. If you have not already done so, install ApplicationXtender Reports Management 6.5 Patch 1.
2. Ensure that the following index fields are included in the ASCII text file or the PDF file that is processed by ApplicationXtender Reports Management:

Application	Required Index Fields
B-S-ADMN	ID DOCUMENT TYPE TERM CODE APPLICATION NUMBER ADMISSIONS REQUIREMENTS
B-R-TREQ	ID DOCUMENT TYPE

Application	Required Index Fields
	AID YEAR
	TRACKING REQUIREMENT
	TRACKING STATUS

In the B-R-TREQ application, the TRACKING STATUS index field can be either `RULES-BASED` or a one-character code used for the Direct Choice option in BDM. When creating the sample report, the TRACKING STATUS index field should use a placeholder string of Xs in the following format:

XXXXXXXXXXXX

When the physical file is processed, the field is read correctly whether TRACKING STATUS is defined as `RULES-BASED` or `R` (or `N`, or `T`, or some other value).

Multiple-Entity Processing (MEP)

Multi-Entity Processing (MEP) provides the architecture and processes that enable two or more entities to coexist in a single application architecture. MEP is implemented by using Oracle's Virtual Private Database (VPD), which implements row level security using Fine Grained Access Control (FGAC) and user-defined security policies. In simplest terms, Oracle applies defined rules to dynamically append conditions to SQL statements, thus controlling data access.

Example

Oracle uses policies to internally change the following:

```
SELECT * FROM OTGMGR.AE_DT506;
```

to:

```
SELECT * FROM OTGMGR.AE_DT506 WHERE VPDI_CODE = 'CAMP1';
```

Starting with BDM 8.3.0.5, all BDM BANIMGR tables, such as `EXRBCXT` and `EXRAXPA`, include `VPDI_CODE`. Before implementing BDM MEP, you must install BDM 8.3.0.5 or later, and you must run the Database Extension Utility for all Banner product tables.

Starting with BDM 8.4, the index structure of each BDM-delivered application includes `VPDI_CODE`. In addition, all BDM baseline-delivered packages, triggers, and library object support both MEP and non-MEP environments.

The existence of `VPDI_CODE` in an application's index structure does not mean the application is enabled for VPD/MEP. The BDM MEP process must be performed to enable the `VPDI_CODE` in the BDM application. This process creates and assigns the VPD policies for the `VPDI_CODE` index field of the application.

Generally, not all BDM applications need to be enabled for VPD/MEP. If a Banner table is enabled for VPD/MEP, then BDM applications that are integrated with that table must be enabled for VPD/MEP. This allows document queries and indexing in BDM to use the correct record in the Banner table, based on the `VPDI_CODE` value.

Example

If RRRAREQ, the Banner Financial Aid table for tracking requirements is enabled for VPD/MEP, then the BDM application B-R-TREQ must also be enabled for VPD/MEP.

Even when policies are applied to VPDI_CODE, not all index fields in the application, such as user-defined lists, must be enabled for VPD/MEP. Again, it depends on whether the Banner table that integrates with that index field is enabled for VPD/MEP in Banner.

The *Banner Document Management Multi-Entity Processing Implementation Guide* provides information and instructions for implementing VPD/MEP for BDM applications. The handbook includes the following information:

- Creating institution-specific schema owners (under OTGMGR) in Banner
- Creating institution-specific data sources in ApplicationXtender to support the corresponding institutions that were created in Banner for the MEP environment
- Creating policies and predicates (VPD) for the ApplicationXtender tables that are used by an application

Note: ApplicationXtender tables are those tables that are owned by OTGMGR, such as AE_DT (data index), AE_AI (auto index), AE_UL (user-defined lists), and AE_RF (key reference) tables.

- Enabling batches for VPD/MEP (optional)
- Enabling PATHS for VPD/MEP (optional)
- Importing Banner users into ApplicationXtender
- Creating non-Banner users in ApplicationXtender

Appendix: Application Data Structures

This appendix provides information about each Banner® Document Management (BDM) application. The following information is included for each BDM application field name:

- Datatype and format
- Properties
- Field type
- Banner validation source
- Synchronization type

The following additional information is provided for each application:

- Key reference data
- Auto index data
- Banner triggers associated with auto indexing
- Banner requirements linking
- Data synchronization

Legend

The tables in this appendix refer to the following field types:

Field Type	Description
1	EMC primary key field
2	Non-primary key field derived strictly from the ID
3	Data derived from the auto index system
4	Other (independent, non-Banner integrated) data

Field Type	Description
5	Non-primary key field derived from ApplicationXtender DataSource_INST-CODE in an environment that is enabled for VPD/MEP, and updated by a trigger on this index field

The tables in this appendix refer to the following synchronization types:

Synchronization Type	Description
1	Data is copied from Banner tables. Table triggers update the key reference, data reference, and auto index (where applicable) data. Synchronization is real-time through AFTER UPDATE and AFTER INSERT triggers on the Banner tables.
2	Data is contained with a “user-defined” datatype (drop-down list) of ApplicationXtender. Synchronization is real-time through AFTER UPDATE and AFTER INSERT triggers on the Banner tables.
3	Table triggers update the VPDI_CODE in the application index when the BDM application is enabled for VPD/MEP.

B-A-ID - Advancement Common (Application Number = 500)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared)	2	SPRIDEN_PIDM (used for all	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only		synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	
DOCUMENT TYPE	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
LAST NAME	Text (60)	Data reference (shared) Required Read-only Searchable	2	Uppercase of SPRIDEN_LAST_NAME	1
FIRST NAME	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
BIRTH DATE	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	n/a
ROUTING STATUS	User-defined (drop-down list)	Searchable Document level security	4	Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
ACTIVITY DATE	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables are validated and maintained by existing Banner applications. Using database trigger(s) on this table, the shared key reference table of person data (and any other ApplicationXtender structures that contain this information) requires updating.

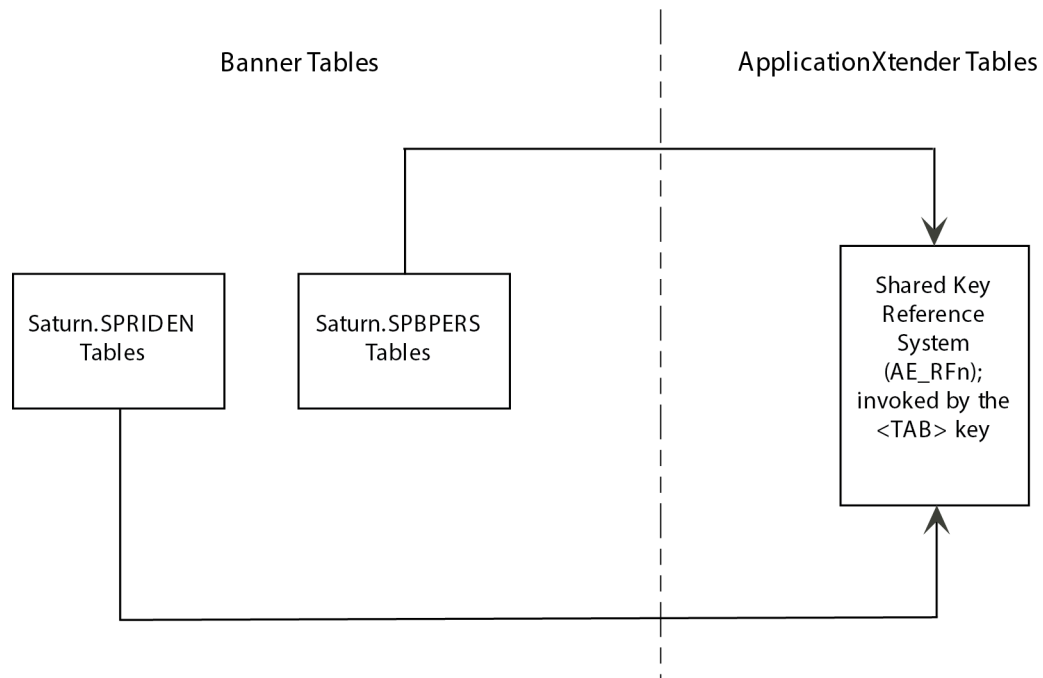
A process initially populates the shared key reference table with unique rows of SPRIDEN and SPBPERS. The triggers keep the data structures in the BDM applications synchronized with Banner person tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Advancement ID-Related (B-A-ID) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-A-IDGP - Advancement Gift/Pledge (Application Number = 501)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable Auto index	1, 3	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
DOCUMENT TYPE	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
LAST NAME	Text (60)	Data reference (shared) Required	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only Searchable			
FIRST NAME	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
BIRTH DATE	Date (standard Banner format DD- MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
PLEDGE NUMBER	Text (7)	Primary key Searchable Auto index Read-only	3	AGBPLDG_PLEDGE_NO	1
GIFT NUMBER	Text (7)	Primary key Searchable Auto index Read-only	3	AGBGIFT_GIFT_NO. Data is derived from the auto index system and is copied from Banner tables.	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ROUTING STATUS	User-defined (/drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
ACTIVITY DATE	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID
- PLEDGE NUMBER
- GIFT NUMBER

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

AFTER DELETE triggers are not used like AFTER INSERT and AFTER UPDATE.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the shared key reference system, refer to [Shared key reference system](#) on page 25.

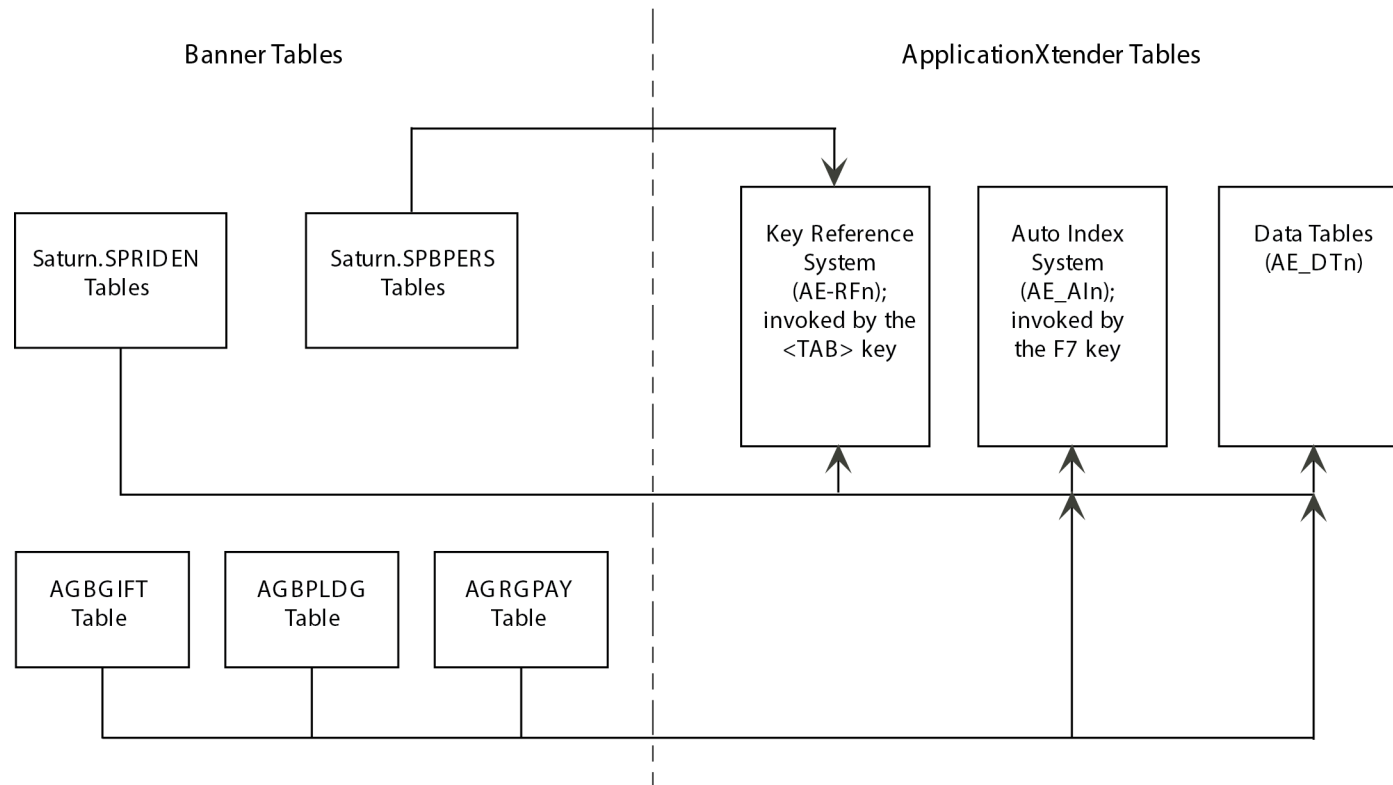
For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 123.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Advancement Gift/Pledge-Related (B-A-IDGP) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-F-DOCS - Finance Purchasing/AP (Application Number = 506)

Field Name	Datatype and Format	FABCHKS_CHECK_1 FABINVH_CODE FPBPOHD_CODE FPBREQH_CODE FGBJVCH_DOC_NUI FGBTRNH_DOC_COI		Banner Validation Source	Synchronization Type
		Field Type			
DOCUMENT ID	Text (8)	Required Primary key Key reference Read-only Searchable	1		1
BANNER DOC TYPE	User-defined (drop-down list)	Data Reference Searchable Document level security Read-only	2		1
DOCUMENT TYPE	User-defined (drop-down list)	Required Searchable Document level security	1	Initial data comes from a script that loads a table.	n/a
TRANSACTION DATE	Date (Banner standard format DD-MON-YYYY)	Required Searchable Data reference	2	FABCHKS_CHECK_DATE FABINVH_TRANS_DATE FPBPOHD_TRANS_DATE FPBREQH_TRANS_DATE	1

Field Name	Datatype and Format	Field Type		Banner Validation Source	Synchronization Type
		FABCHKS_CHECK_1 FABINVH_CODE FPBPOHD_CODE FPBREQH_CODE FGBJVCH_DOC_NUI FGBTRNH_DOC_COI			
		Read-only		FGBJVCH_TRANS_DATE FGBTRNH_TRANS_DATE	
VENDOR ID	Text (9) uppercase	Data reference Read-only Searchable	2	Depends on whether the document has PIDM-related data. If SPRIDEN is the source of vendor information, the relevant fields are based on obtaining the value of SPRIDEN_ID based on the following fields' PIDM values: FABCHKS_VEND_PIDM FABINVH_VEND_CHECK_PIDM FPBPOHD_VEND_PIDM FPBPOHD_VEND_CHECK_PIDM	1
VENDOR NAME	Text (60)	Data reference Read-only Searchable	2	Depends on whether the document has PIDM-related data. If SPRIDEN is the source of vendor information, the relevant fields are based on obtaining the value of SPRIDEN_LAST_NAME based on the following fields' PIDM values: FABCHKS_VEND_PIDM FABINVH_VEND_CHECK_PIDM FPBPOHD_VEND_PIDM FPBPOHD_VEND_CHECK_PIDM.	1
FIRST NAME	Text (60)	Data reference Read-only Searchable	2	Depends on whether the document has PIDM-related data. If SPRIDEN is the source of vendor information, the relevant fields are based on obtaining the value of SPRIDEN_FIRST_NAME	1

Field Name	Datatype and Format	FABCHKS_CHECK_1 FABINVH_CODE FPBPOHD_CODE FPBREQH_CODE FGBJVCH_DOC_NUI FGBTRNH_DOC_COI	Field Type	Banner Validation Source	Synchronization Type
				based on the following fields' PIDM values: FABCHKS_VEND_PIDM FABINVH_VEND_CHECK_PIDM FPBPOHD_VEND_PIDM FPBPOHD_VEND_CHECK_PIDM.	
PIDM	Integer (8 digits maximum)	Data reference Read-only	2	Where not null, the data comes from Banner tables. Validation depends on whether the document has PIDM-related data. If SPRIDEN is the source, the relevant fields are based on obtaining the values of the following fields: FABCHKS_VEND_PIDM FABINVH_VEND_CHECK_PIDM FPBPOHD_VEND_PIDM.	1
ROUTING STATUS	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
ACTIVITY DATE	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a

Field Name	Datatype and Format	FABCHKS_CHECK_1 FABINVH_CODE FPBPOHD_CODE FPBREQH_CODE FGBJVCH_DOC_NUI FGBTRNH_DOC_COI	Field Type	Banner Validation Source	Synchronization Type
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a
DOCUMENT NAME	Text (255)	Searchable	4	n/a	n/a
CREATE NAME	Text (60)	Searchable	4	None Finance Self-Service login user who attaches the document to the Finance Purchase Requisition item.	n/a

Key reference data

This application does not use the shared key reference system. It has its own standalone key reference system, which includes the following fields:

- DOCUMENT ID
- DOCUMENT TYPE
- TRANSACTION DATE
- VENDOR ID
- VENDOR NAME
- FIRST NAME

- PIDM

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Data validation

When a document is indexed within ApplicationXtender, a check for consistency of values is applied to the values that the user forwarded to the database for storage. Typical checks include ensuring that the PIDM and VENDOR ID values match, that a given Finance document really belongs to that PIDM/VENDOR ID, and that the name data matches data in SPRIDEN (or the one-time-vendor fields of FABINVH).

Banner requirements linking

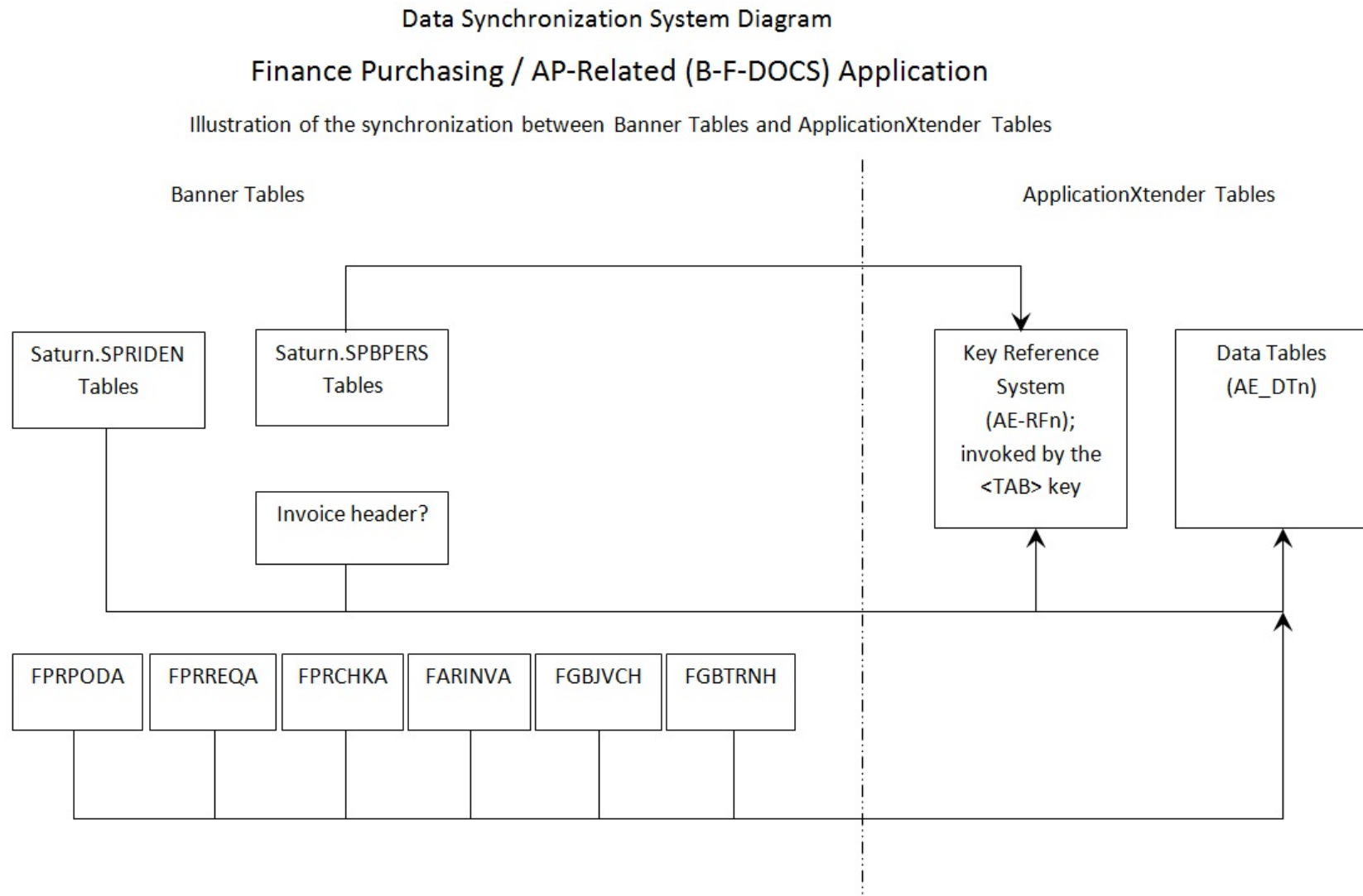
Banner requirements linking is not applicable for this application.

Data synchronization

Banner Finance data is contained at the highest level within tables FABCHKS, FABINVH, FPBPOHD, FPBREQH, FGBJVCH, and FGBTRNH. When data is inserted or changed in these tables, corresponding changes must be made in both the ApplicationXtender key reference system and the actual ApplicationXtender data files (tables AE_DTnn).

Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. The data reference data (within AE_RFnn), and any other ApplicationXtender structures that contain this information, must be updated using the database triggers in these tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.



B-F-GRNT - Finance Grant (Application Number = 499)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
GRANT CODE	Text (10)	Required Primary key Key reference Read-only Searchable	1	FRBGRNT_CODE	1
GRANT TITLE	Text (35)	Required Searchable Data reference Read-only	2	FRBGRNT_TITLE	1
COAS CODE	User-defined (drop-down list)	Required Searchable Data reference Read-only	2	FRBPROP_COAS_CODE	1
DOCUMENT TYPE	User-defined (drop-down list)	Required Searchable Primary key	1	ETVDTYP	n/a
RESPONSIBILITY CODE	Text (6)	Data reference Read-only	2	FRBGRNT_ORGN_CODE_1 RESP_OFFICE	

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable			
PROPOSAL CODE	Text (10)	Data reference Read-only Searchable	2	FRBGRNT_PROP_CODE	1
AGENCY ID	Text (9)	Data reference Searchable	2	SPRIDEN_ID	1
AGENCY PIDM	Integer (8 digits maximum)	Data reference Read-only Searchable	2	FRBGRNT_AGENCY_PIDM	1
AGENCY LAST NAME	Text (60)	Data reference Read-only Searchable	2	SPRIDEN_LAST_NAME	1
PI ID	Text (9)	Data reference Searchable Read-only	2	SPRIDEN_ID	1
PI PIDM	Integer (8 digits maximum)	Data reference Read-only Searchable	2	FRBGRNT_PI_PIDM	1
PI LAST NAME	Text (60)	Data reference Read-only	2	SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable			
PI FIRST NAME	Text (60)	Data reference Read-only Searchable	2	SPRIDEN_FIRST_NAME	
ROUTING STATUS	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
ACTIVITY DATE	Timestamp	Required Searchable Read-only	4	SYSDATE	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application does not use the shared key reference system. It has its own standalone key reference system, which includes the following fields:

- GRANT CODE
- GRANT TITLE
- RESPONSIBILITY CODE
- PROPOSAL CODE
- AGENCY ID
- AGENCY PIDM
- AGENCY NAME
- PI ID
- PI PIDM
- PI LAST NAME
- PI FIRST NAME

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Data validation

When a document is indexed within ApplicationXtender, a check for consistency of values is applied to the values that the user forwarded to the database for storage. Typical checks include ensuring that the PIDM, AGENCY ID, and PI ID values match the name data in SPRIDEN.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Banner Finance data is contained at the highest level within tables FABCHKS, FABINVH, FPBPOHD, and FPBREQH. When data is inserted or changed in these tables, corresponding changes must be made in both the ApplicationXtender key reference system and the actual ApplicationXtender data files (tables AE_DTnn).

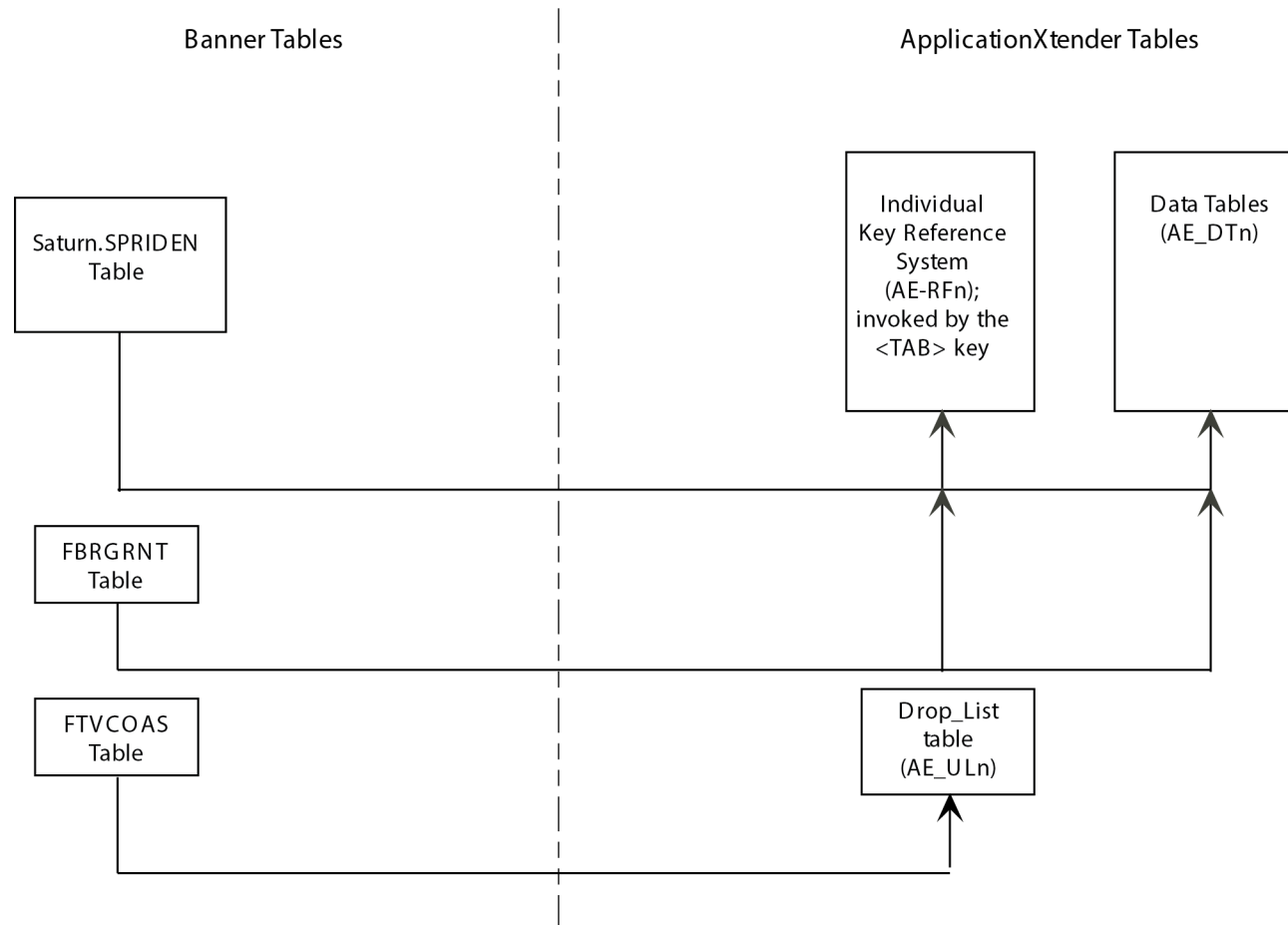
Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. The data reference data (within AE_RFnn), and any other ApplicationXtender structures that contain this information, must be updated using the database triggers in these tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Finance Grant-Related (B-F-GRNT) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-F-ID - Finance Common (Application Number = 502)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
DOCUMENT TYPE	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
LAST NAME	Text (60)	Data reference (shared)	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Required Read-only Searchable			
FIRST NAME	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
BIRTH DATE	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
FISCAL YEAR	User-defined (drop-down list)	Primary key Read-only Searchable Document level security	1	FTVFSYR_FISCAL_YEAR	2
CHART OF ACCOUNT	User-defined (drop-down list)	Primary key Read-only	1		2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable Document level security			
ROUTING STATUS	User-defined (drop-down list)	Searchable Document level security	4	FTVCOAS	n/a
ACTIVITY DATE	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST- CODE in a BDM VPD/ MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD- MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. Using database trigger(s) on this table, the shared key reference table of person data (and any other ApplicationXtender structures that contain this information) requires updating.

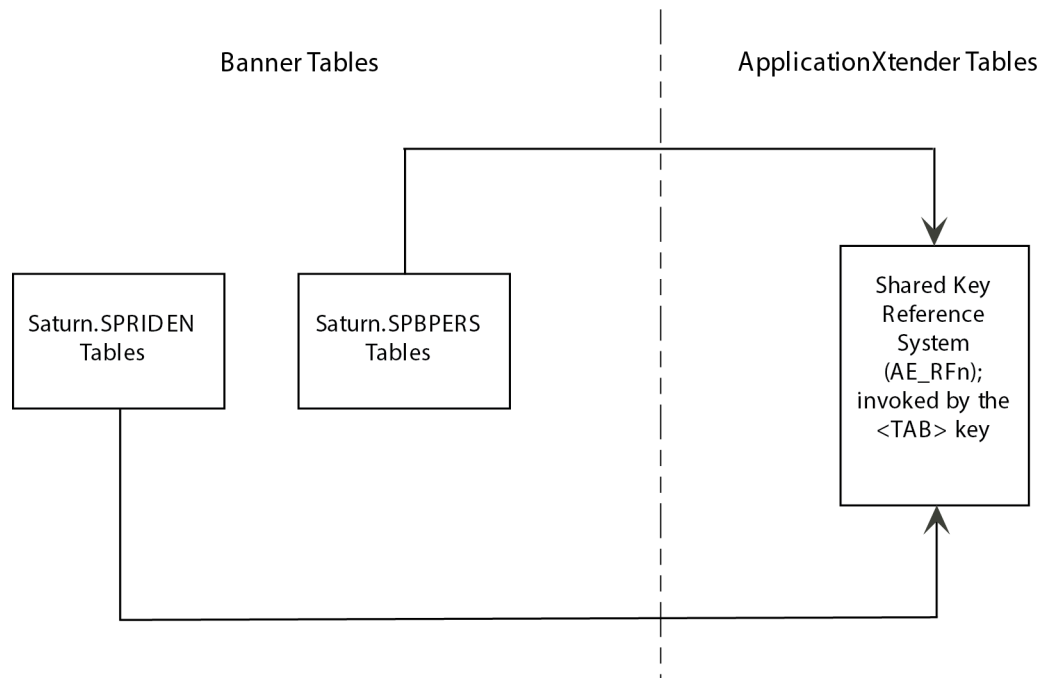
A process initially populates the shared key reference table with unique rows of SPRIDEN and SPBPERS. The triggers keep the data structures in the BDM applications synchronized with Banner person tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Finance ID-Related (B-F-ID) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-F-PROP - Finance Proposal (Application Number = 498)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
PROPOSAL CODE	Text (10)	Key reference Required Primary key Read-only Searchable	1	FRBPROP_CODE	1
PROPOSAL TITLE	Text (35)	Required Searchable Data reference Read-only	2	FRBPROP_TITLE	1
COAS CODE	User-defined (drop-down list)	Required Searchable Data reference Read-only	2	FRBPROP_COAS_CODE	1
DOCUMENT TYPE	User-defined (drop-down list)	Required Primary key Searchable	1	ETVDTYP	n/a
RESPONSIBILITY TYPE	Text (6)	Data reference Read-only	2	FRBPROP_ORGN_CODE_1	RESP_OFFICE

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable			
GRANT CODE (will be updated if changed in Banner)	Text (10)	Primary key Read-only Searchable	1	FRBPROP_GRNT_CODE	1
AGENCY ID	Text (9)	Data reference Read-only Searchable	2	SPRIDEN	1
AGENCY PIDM	Integer (8 digits maximum)	Data reference Read-only Searchable	2	FRBPROP_AGENCY_PIDM	1
AGENCY LAST NAME	Text (60)	Data reference Searchable Read-only	2	SPRIDEN_LAST_NAME	1
PI ID	Text (9)	Data reference Read-only Searchable	2	SPRIDEN_ID	1
PI PIDM	Integer (8 digits maximum)	Data reference Read-only Searchable	2	FRBPROP_PI_PIDM	1
PI LAST NAME	Text (60)	Data reference Read-only	2	SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable			
PI FIRST NAME	Text (60)	Data reference Read-only Searchable	2	SPRIDEN_FIRST_NAME	
ROUTING STATUS	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
ACTIVITY DATE	Timestamp	Required Searchable Read-only	4	SYSDATE	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST- CODE in a BDM VPD/ MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application does not use the shared key reference system. It has its own standalone key reference system, which includes the following fields:

- PROPOSAL CODE
- PROPOSAL TITLE
- COAS CODE
- RESPONSIBILITY CODE
- GRANT CODE
- AGENCY ID
- AGENCY PIDM
- AGENCY LAST NAME
- PI ID
- PI PIDM
- PI LAST NAME
- PI FIRST NAME

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Data validation

Validation of data is provided through the key reference system, which is synchronized in real-time with Banner data. Non-Banner data is allowable within the system, for which no validation (other than standard ApplicationXtender validation) takes place.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Banner Finance data is contained at the highest level within tables FABCHKS, FABINVH, FPBPOHD, and FPBREQH. When data is inserted or changed in these tables, corresponding changes must be made in both the ApplicationXtender key reference system and the actual ApplicationXtender data files (tables AE_DTnn).

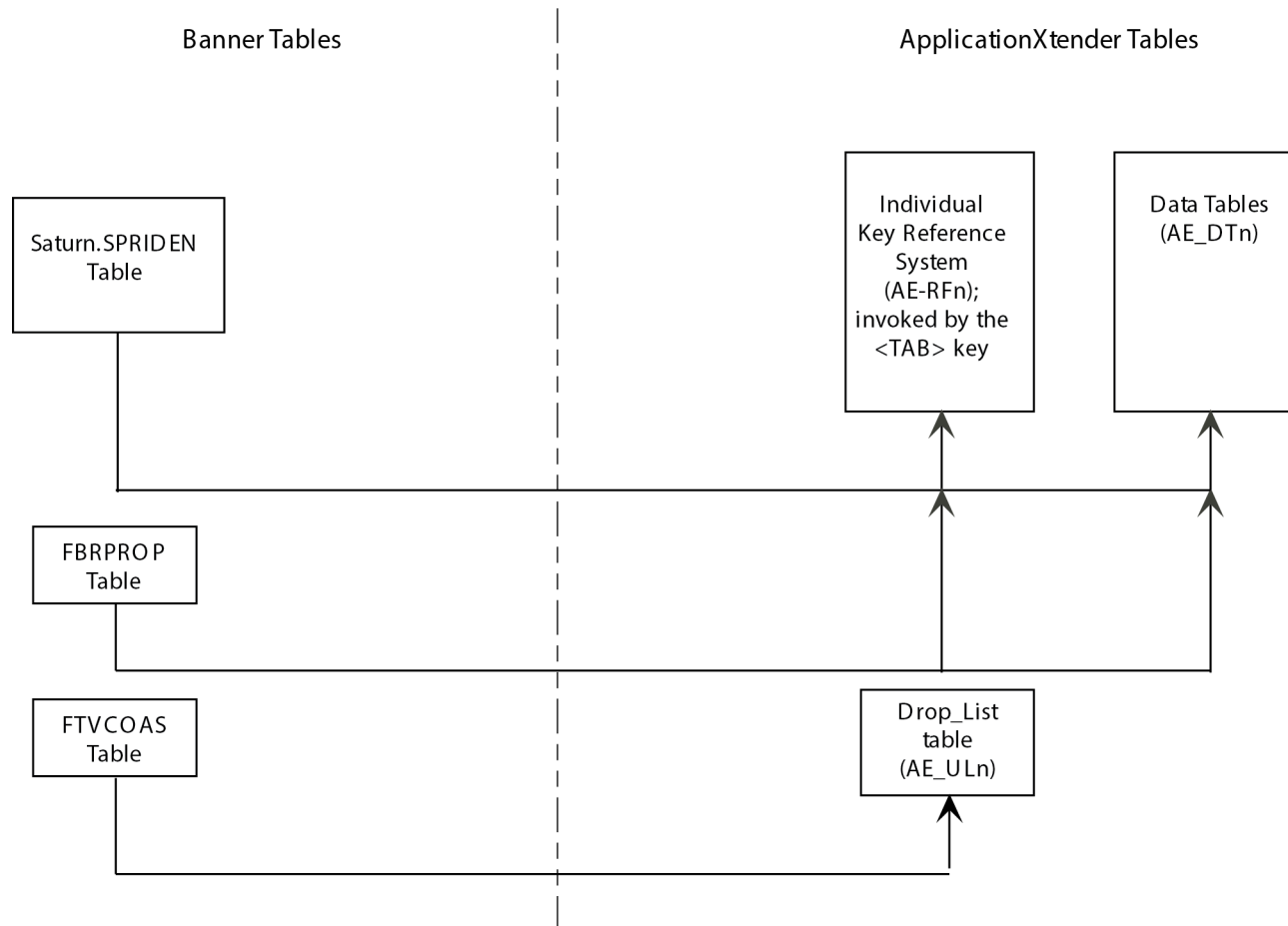
Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. The data reference data (within AE_RFnn), and any other ApplicationXtender structures that contain this information, must be updated using the database triggers in these tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Finance Proposal-Related (B-F-PROP) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-F-TVLEXP - Finance Travel & Expense (Application Number = 494)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
EXPENSE OWNER ID	Text (9) uppercase	Primary key Key reference (shared) Required Searchable	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data. (Uses ae_rf494_view, which is a subset of ae_rfsct.)	1
EXPENSE OWNER PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only Searchable	1	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
EXPENSE OWNER LAST NAME	Text (60)	Data reference (shared) Required Read-only Searchable	1	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
EXPENSE OWNER FIRST NAME	Text (60)	Data reference (shared) Required Read-only Searchable	1	Uppercase of SPRIDEN_FIRST_NAME	1
PORTFOLIO CODE	Text (8)	Primary Key Required Read-only Searchable	2	Banner Finance table FTPBPOR	1
DOCUMENT ID	Text (8)	Primary key Required Read-only Searchable	2	Banner Finance tables: FTRBREMB (prefix of TR for reimbursements) FTRBAUTH (TA for authorizations)	1
DOCUMENT NAME	Text (60)	Primary key Required Read-only Searchable	2	None. File name of document is provided by user or when document is imported. It includes the file type, such as .txt, .doc, .pdf, .gif, .jpg.	1
TRAVEL DOC TYPE	User-defined (drop-down list)	Required Searchable	4	None. Initial data comes from the XML file that builds	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
				the application in ApplicationXtender.	
TRANSACTION DATE	Date (standard Banner format DD- MMM-YYYY)	Read-only Searchable	2	Banner Finance tables: FTRBREMB (reimbursements) or FTRBAUTH (authorizations)	1
CREATE USER	Text (60)	Searchable	4	None. Username (SPRIDEN_ID) of the Banner Travel and Expense Management login user who is attaching the document to the Travel and Expense item.	n/a
ACTIVITY DATE	Timestamp	Searchable	4	None. Date when the attachment was uploaded and indexed in BDM.	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST- CODE in a BDM VPD/ MEPed application which relates to the VPDI_CODE of the Banner record	3

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
DISPOSITION DATE	Date (standard Banner format DD- MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses ae_rf494_view of the shared key reference system (AE_RFSCT) for the following fields:

- EXPENSE OWNER ID
- EXPENSE OWNER PIDM
- EXPENSE OWNER LAST NAME
- EXPENSE OWNER FIRST NAME

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

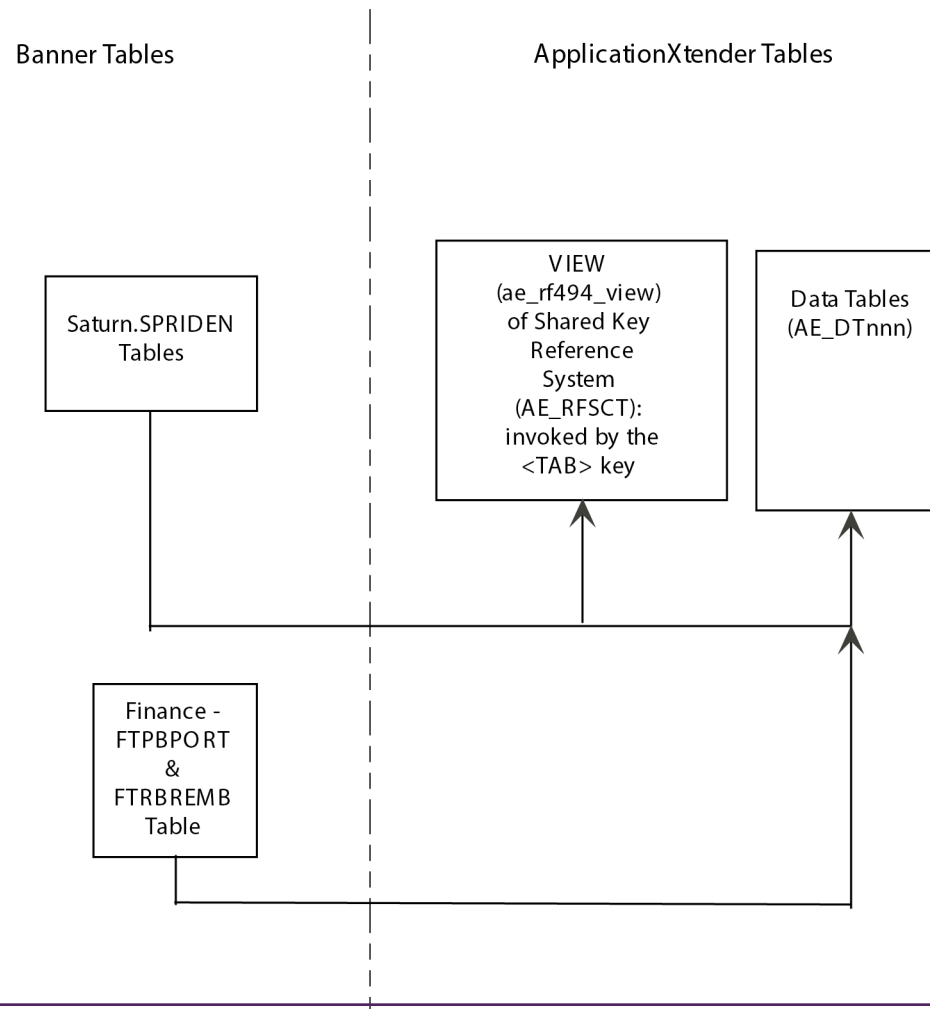
For synchronization issues related to the shared key reference system, see the [Shared key reference system](#) on page 25.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Finance Travel & Expense-Related (B-F-TVLEXP) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-G-ID - Common (Application Number = 513)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
DOCUMENT TYPE	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
LAST NAME	Text (60)	Data reference (shared)	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Required Read-only Searchable			
FIRST NAME	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
BIRTH DATE	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
ROUTING STATUS	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
ACTIVITY DATE	Timestamp	Required Searchable	4	None (functions similarly to activity dates within Banner)	n/a

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only			
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST- CODE in a BDM VPD/ MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD- MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. Using database triggers on this table, the shared key reference table of person data (and any other ApplicationXtender structures that contain this information) requires updating.

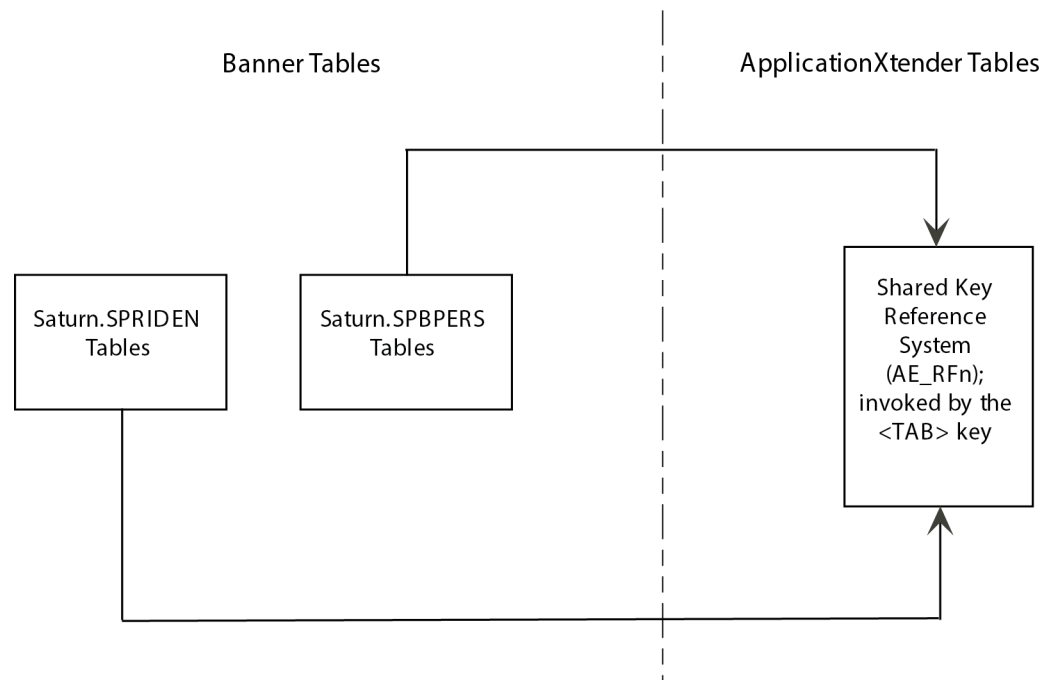
A process initially populates the shared key reference table with unique rows of SPRIDEN and SPBPERS. The triggers keep the data structures in the BDM applications synchronized with Banner person tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

General ID-Related (B-G-ID) Application

Illustration of the synchronization between Banner Tables and ApplicationX tender Tables



B-H-APPL - HR Applicant (Application Number = 508)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable Auto index	1, 3	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
DOCUMENT TYPE	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
LAST NAME	Text (60)	Data reference (shared) Required	2	Uppercase of SPRIDEN_LAST_NAME.	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only Searchable			
FIRST NAME	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
BIRTH DATE	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
POSITION	Text (30)	Auto index Searchable Read-only	2, 3	NBBPOSN_TITLE	1
POSITION NUMBER	Text (6)	Primary key Auto index Searchable Document level security	1, 3	PABAPPL_POSN	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only			
APPLICATION DATE	Date (standard Banner format (DD-MMM-YYYY))	Auto index Searchable Read-only	1, 3	PABAPPL_DATE	1
ROUTING STATUS	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
ACTIVITY DATE	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID
- POSITION
- POSITION NUMBER
- APPLICATION DATE

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (`AFTER INSERT` and `AFTER UPDATE`). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

`AFTER DELETE` triggers are not used like `AFTER INSERT` and `AFTER UPDATE`.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the shared key reference system, see the [Shared key reference system](#) on page 25.

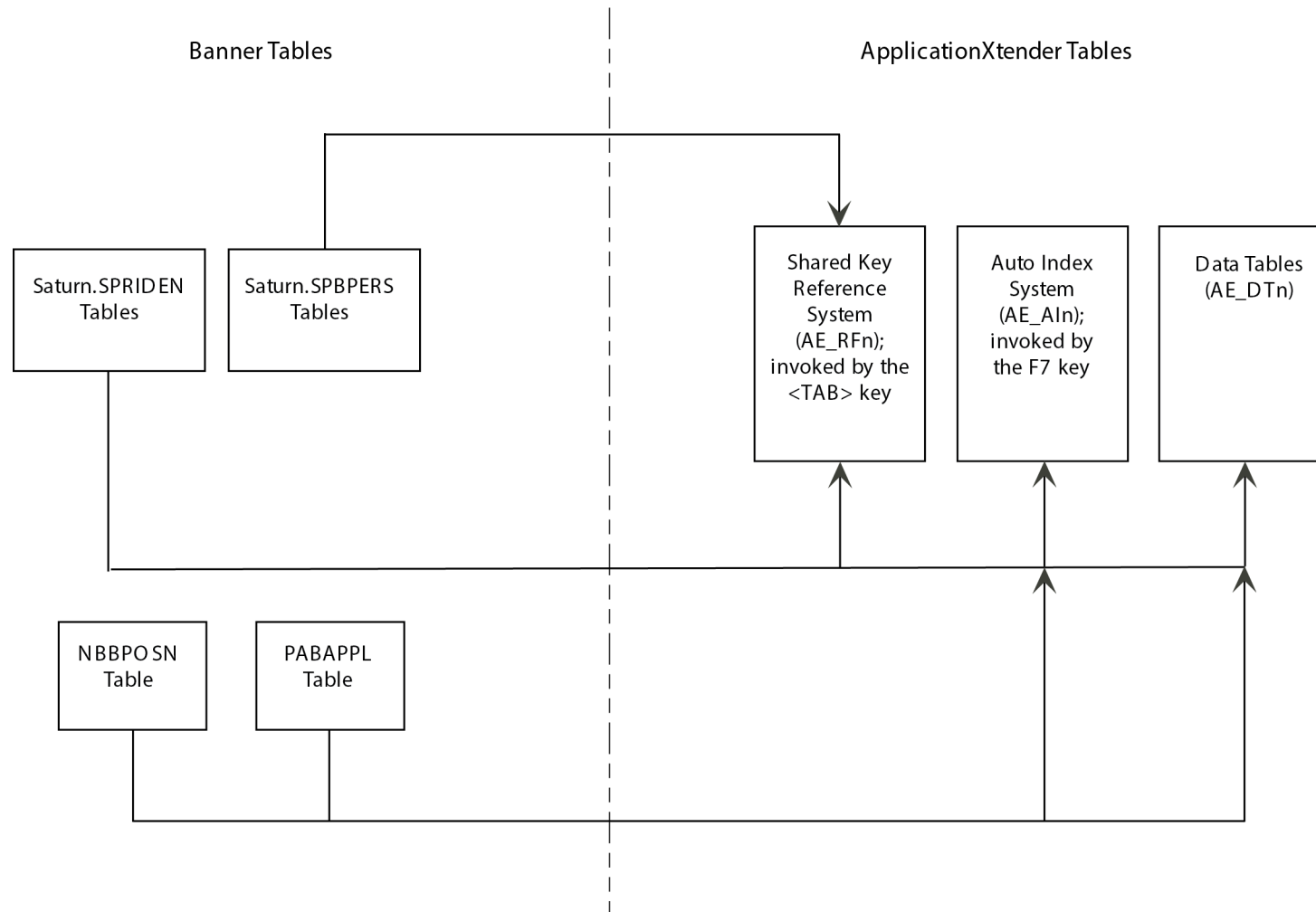
For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 160.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Human Resource Applicant (B-H-APPL) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-H-EMPL - HR Employee (Application Number = 512)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable Auto index	1, 3	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
DOCUMENT TYPE	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
LAST NAME	Text (60)	Data reference (shared) Required Read-only Searchable	2	Uppercase of SPRIDEN_LAST_NAME	1
FIRST NAME	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Position	Text (30)	Auto index Searchable Read-only	2, 3	NBRJOBS_DESC	1
Position Number	Text (6)	Primary key Auto index	1, 3	NBRJOBS_POSN	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable Document level security Read-only			
Position Suffix	Text (2)	Primary key Auto index Searchable Read-only	1, 3	NBRJOBS_SUFF	1
Hire Date	Date (standard Banner format DD-MMM-YYYY)	Auto index Searchable Read-only	2, 3	PEBEMPL_CURRENT_HIRE_DATE	1
Termination Date	Date (standard Banner format DD-MMM-YYYY)	Auto index Searchable Read-only	2, 3	PEBEMPL_TERM_DATE	1
Routing Status	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
Activity Date	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID
- POSITION
- POSITION NUMBER
- POSITION SUFFIX
- HIRE DATE
- TERMINATION DATE

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

AFTER DELETE triggers are not used like AFTER INSERT and AFTER UPDATE.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the Shared Key Reference Subsystem, see the [Shared key reference system](#) on page 25.

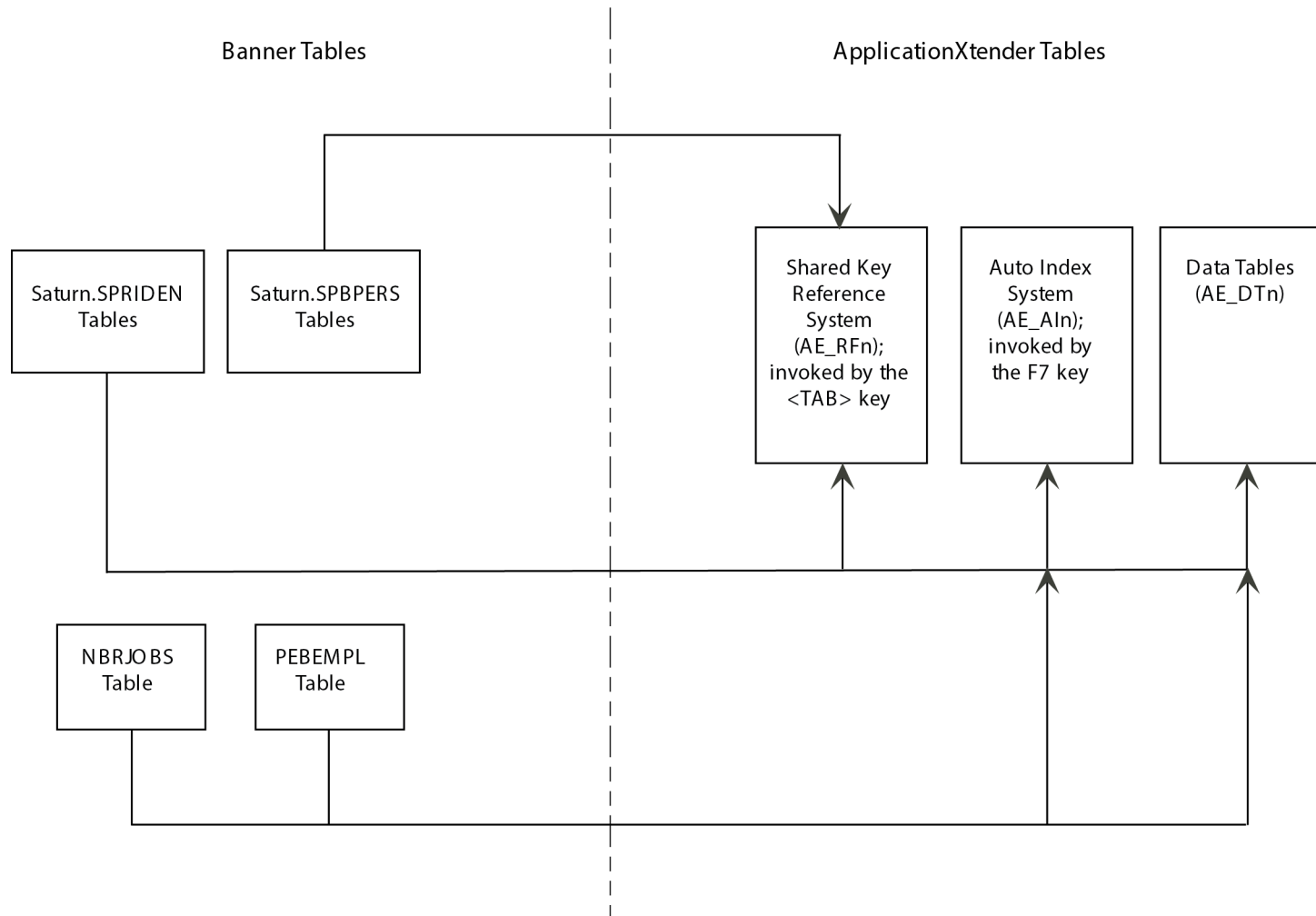
For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 165

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Human Resource Employee-Related (B-H-EMPL) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-H-ID - HR Common (Application Number = 503)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
Last Name	Text (60)	Data reference (shared)	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Required Read-only Searchable			
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Routing Status	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
Activity Date	Timestamp	Required Searchable	4	None (functions similarly to activity dates within Banner)	n/a

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only			
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST- CODE in a BDM VPD/ MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD- MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with Auto indexing

Auto indexing is not applicable for this application.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. Using database triggers on this table, the shared key reference table of person data (and any other ApplicationXtender structures that contain this information) requires updating.

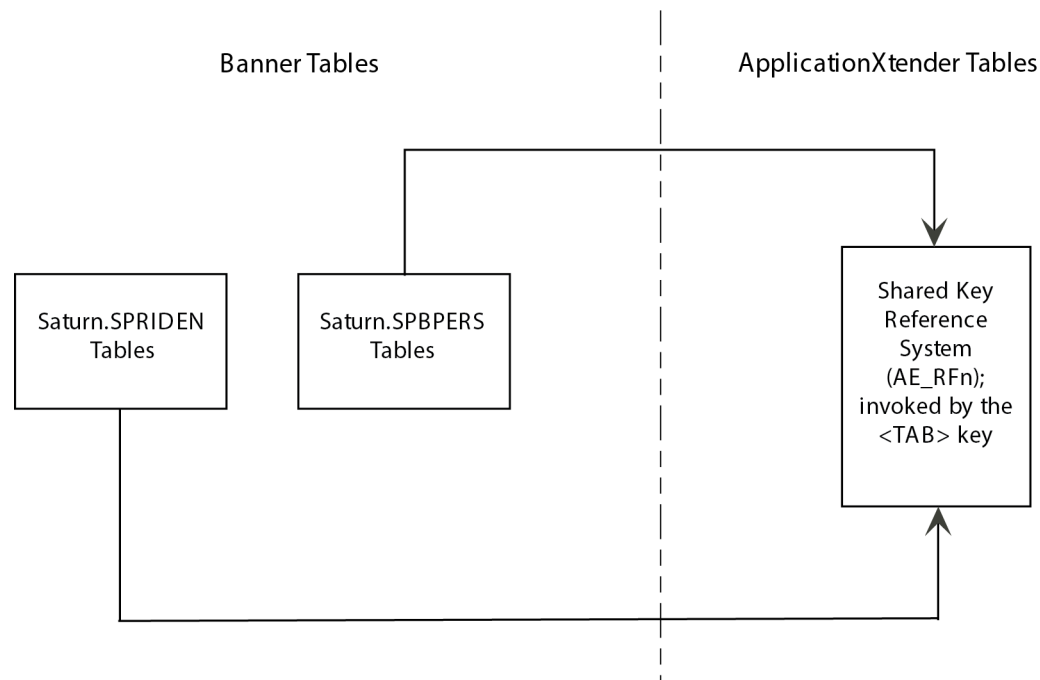
A process initially populates the shared key reference table with unique rows of SPRIDEN and SPBPERS. The triggers keep the data structures in the BDM applications synchronized with Banner person tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Human Resource ID-Related (B-H-ID) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-H-POSN - HR Position (Application Number = 496)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Position Number	Text (6)	Primary key Required Searchable Auto index	1, 3	NBBPOSN_POSN NBRPOSH_POSN	1
Position Title	Text (30)	Read-only Required Searchable Auto index	1, 3	NBBPOSN_TITLE NBRPOSH_TITLE	1
Document Type	User-defined (drop-down list) (40)	Primary key Required Searchable Document level security	1	Partial relationship to ETVDTYP, but may contain additional standalone values.	2
Position Class	User-defined (drop-down list) (5)	Read-only Non-required Searchable Auto index Document level security	1, 3	NTRPCLS_CODE NBBPOSN_PCLS_CODE NBRPOSH_PCLS_CODE	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Employee Class	User-defined (drop-down list) (2)	Read-only Non-required Searchable Auto index Document level security	1,3	PTRECLS_CODE NBBPOSN_ECLS_CODE NBRPOSH_ECLS_CODE	1
Eff Fiscal Year	User-defined (drop-down list) (4)	Primary key Non-required Searchable	1	NBBFISC_CODE	2
Routing Status	User-defined (drop-down list) (40)	Non-required Searchable Document level security	4		2
Activity Date	Date	Timestamp Searchable	4		2
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application does not have a key reference table.

Auto index data

This application has the following auto indexing fields:

- POSITION NUMBER
- POSITION TITLE
- POSITION CLASS
- EMPLOYEE CLASS

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the key reference system, refer to [Shared key reference system](#) on page 25.

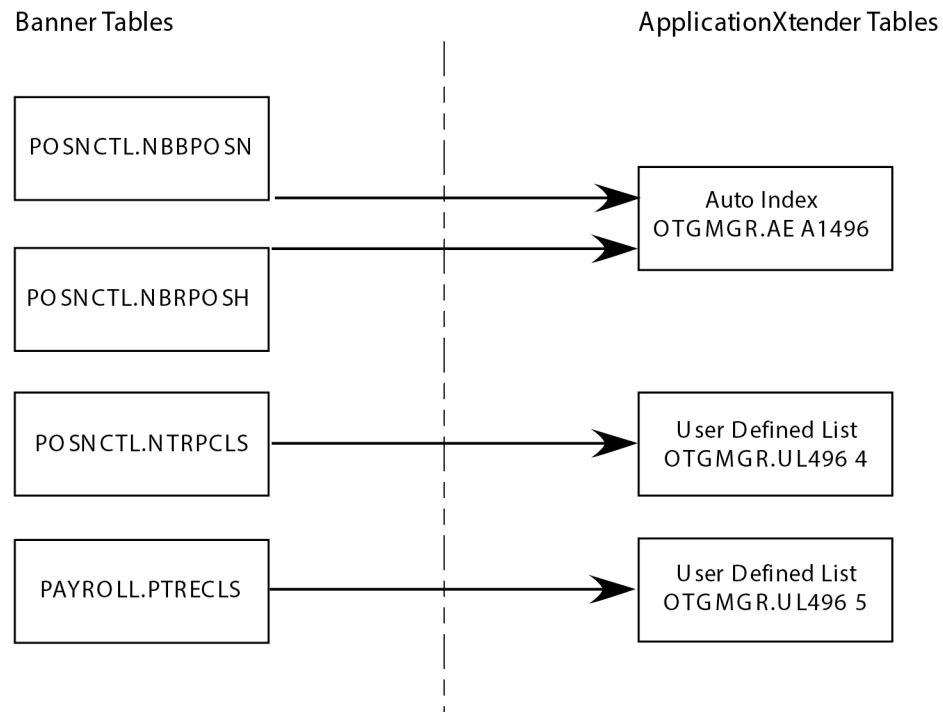
For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 174.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Human Resource Position-Related (B-H-PO SN) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-H-FLAC - HR Faculty Load and Compensation

(Application Number = 495)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Required Searchable Auto index	3	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Required Searchable		Banner table (ETVDTYP) ETVDTYP_CODE	2
Last Name	Text (60)	Data reference (shared) Required Read-only	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable			
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
Contract Type	User-defined (drop-down list)	Required Searchable Auto index	3	Banner tables (PERFCNT and STVFCNT) PERFCNT_FCNT_CODE + STVFCNT_DESC	2
Term Code	User-defined (drop-down list)	Required Searchable Auto index	3	Banner table (PERFCNT) PERFCNT_TERM_CODE	2
Routing Status	User-defined (drop-down list)	Searchable	4	User-defined data	n/a
Activity Date	Timestamp	Required Searchable Read-only	3	Banner table (PERFCNT) PERFCNT_TERM_CODE	2
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
DISPOSITION DATE	Date (standard Banner format DD- MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID
- CONTRACT TYPE
- TERM CODE

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (`AFTER INSERT`, `AFTER UPDATE`, and `AFTER DELETE`). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the shared key reference system, see the [Shared key reference system](#) on page 25.

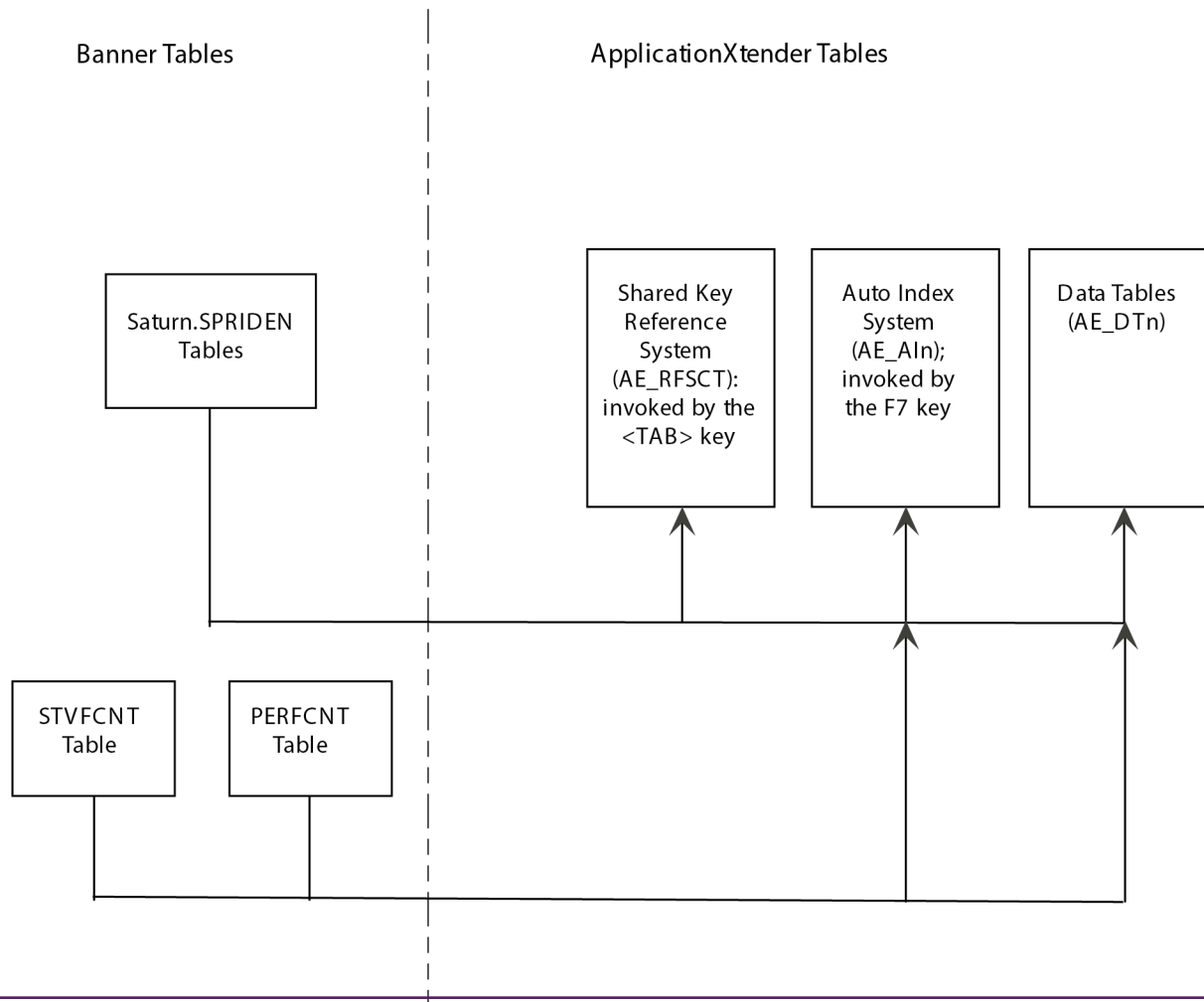
For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 178.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Human Resource Faculty Contract-Related (B-H-FLAC) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-R-ID - Financial Aid Common (Application Number = 505)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
Last Name	Text (60)	Data reference (shared)	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Required Read-only Searchable			
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Aid Year Code	User-defined (drop-down list)	Primary key Read-only Searchable Document level security	1	Uppercase of ROBINST_AIDY_CODE	2
Routing Status	User-defined (drop-down list)	Searchable	4	Contains Ellucian Imaging 3.1 legacy data (for migrating	n/a

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Document level security		sites only); otherwise, user-defined data entirely.	
Activity Date	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. Using database triggers on this table, the shared key reference table of person data (and any other ApplicationXtender structures that contain this information) requires updating.

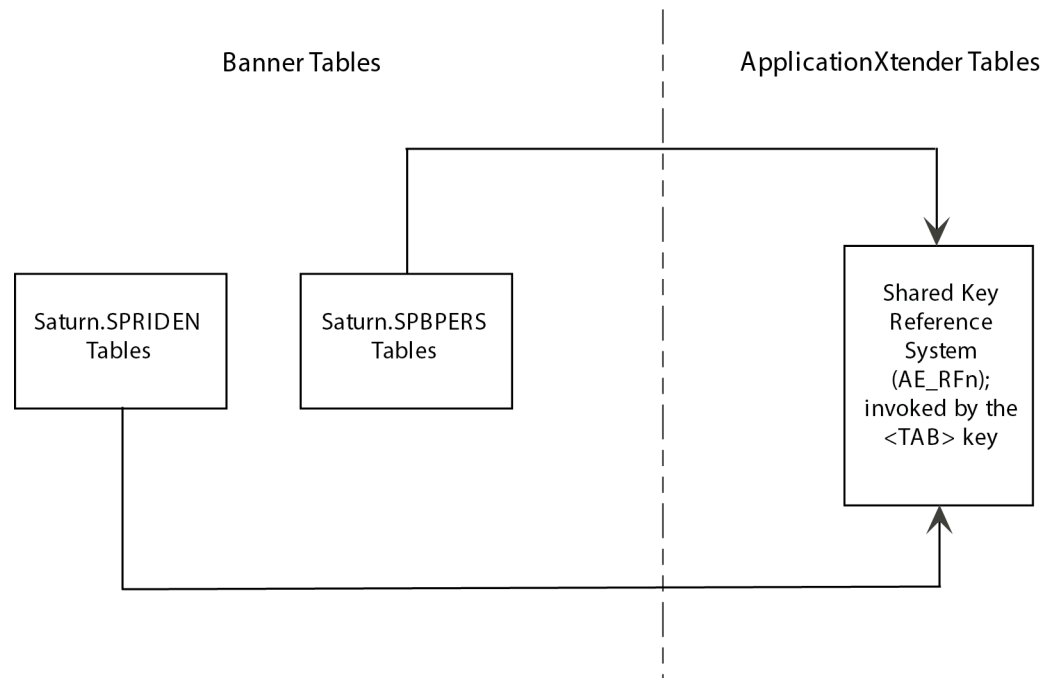
A process initially populates the shared key reference table with unique rows of SPRIDEN and SPBPERS. The triggers keep the data structures in the BDM applications synchronized with Banner person tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Financial Aid ID-Related (B-R-ID) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-R-TREQ - Financial Aid Tracking Requirement (Application Number = 507)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable Auto index	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
Last Name	Text (60)	Data reference (shared) Required	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only Searchable			
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Aid Year	User-defined (drop-down list)	Primary key Read-only Searchable Document level security Auto index	1	User-defined list: ROBINST_AIDY_CODE. Actual DT/AI data: RRRAREQ_AIDY_CODE	2
Tracking Requirement	User-defined (drop-down list)	Primary key Auto index	1	User-defined list: RTVTREQ_CODE	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable Document level security Read-only		Actual DT/AI data: RRRAREQ_TREQ_CODE	
Tracking Status	User-defined (drop-down list)	Searchable Document level security	1	User-defined list: RTVTRST_CODE	
Fund	User-defined (drop-down list)	Primary key Auto index Searchable Document level security Read-only	1	User-defined list: RFRBASE_FUND_CODE Actual DT/AI data: RRRAREQ_FUND_CODE	2
Source/Inst Code	Text (6)	Primary key Auto index Searchable Read-only	1	User-Defined List: STVSBGI_CODE Actual DT/AI Data: RRRAREQ_SBGI_CODE	1
Period	User-defined (drop-down list)	Primary key Auto index Searchable Document level security	1	ROBPRDS_PERIOD	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only			
Routing Status	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
Activity Date	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID

- AID YEAR
- TRACKING REQUIREMENT
- FUND
- SOURCE/INST CODE
- PERIOD

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

AFTER DELETE triggers are not used like AFTER INSERT and AFTER UPDATE.

Banner triggers associated with user-defined lists

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE).

Banner requirements linking

Banner requirements linking is relevant. See [Banner Requirements Linking](#) on page 41 for more information.

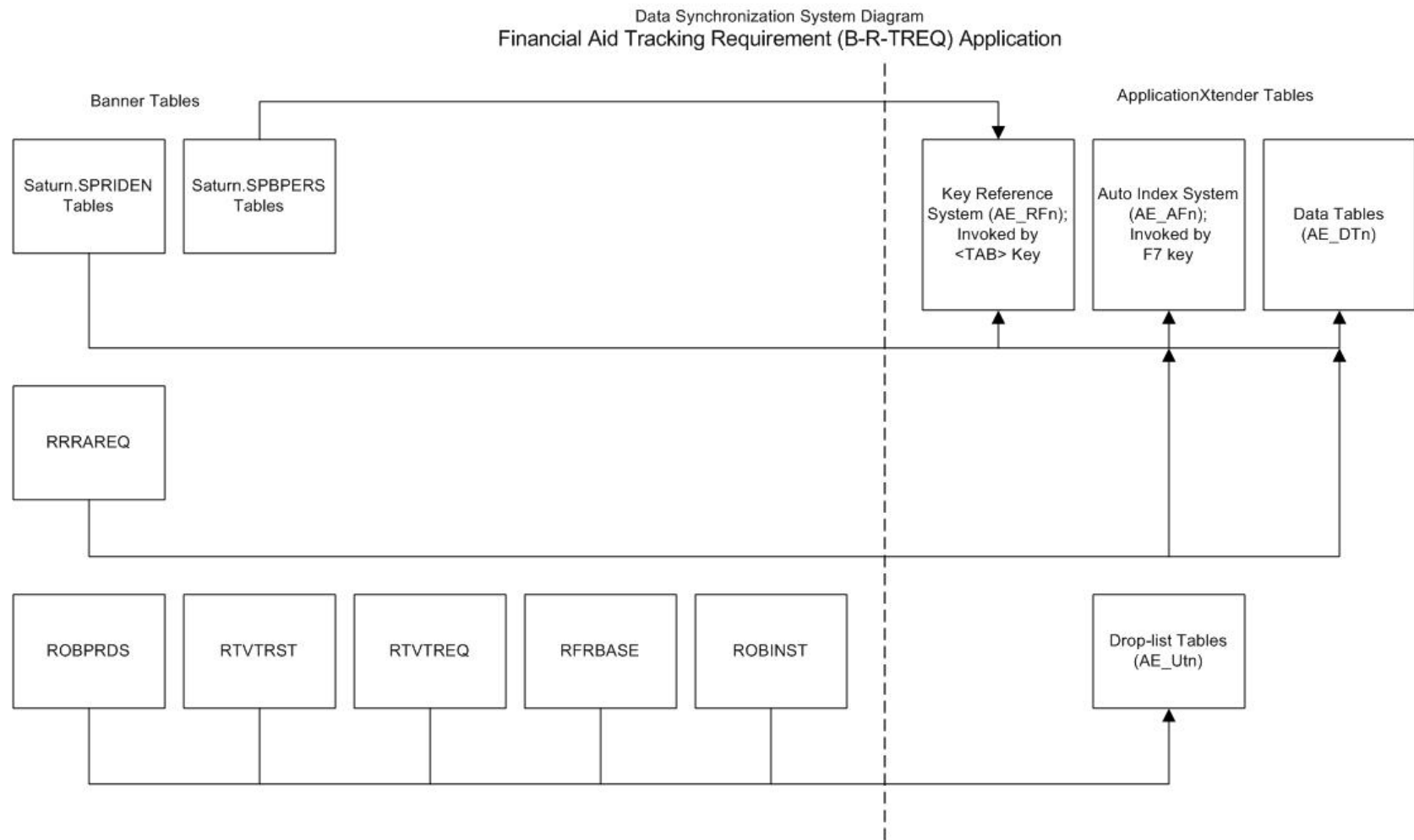
Data synchronization

For synchronization issues related to the shared key reference system, see the [Shared key reference system](#) on page 25.

For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 189.

For synchronization issues related to certain user-defined lists, refer to [Banner triggers associated with user-defined lists](#) on page 189.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.



B-S-ADMN - Student Admissions (Application Number = 509)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable Auto index	1, 3	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2
Last Name	Text (60)	Data reference (shared) Required	2	Uppercase of SPRIDEN_LAST_NAME	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only Searchable			
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Term Code	User-defined (drop-down list)	Primary key Read-only Searchable Document level security Auto index	1	STVTERM_CODE	2
Application Number	Text (4 digits maximum)	Primary key Auto index	1, 3	SARCHKL_APPL_NO	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable Read-only			
Admissions Requirement	User-defined (drop-down list)	Primary key Auto index Searchable Document level security Read-only	1, 3	SARCHKL_ADMR_CODE 2	
Institution Number	Text (10)	Auto index Searchable Read-only	2, 3	SARCHKL_CODE_VALUE1	
Routing Status	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
Activity Date	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the	3

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
				VPDI_CODE of the Banner record	
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a
RECRUITER ID	Text (38)	Searchable	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID
- TERM CODE
- APPLICATION NUMBER
- ADMISSIONS REQUIREMENT
- INSTITUTION NUMBER

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

AFTER DELETE triggers are not used like AFTER INSERT and AFTER UPDATE.

Banner triggers associated with user-defined lists

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE).

Banner requirements linking

Banner requirements linking is relevant. See [Banner Requirements Linking](#) on page 41 for more information.

Data synchronization

For synchronization issues related to the shared key reference system, see the [Shared key reference system](#) on page 25.

For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 194.

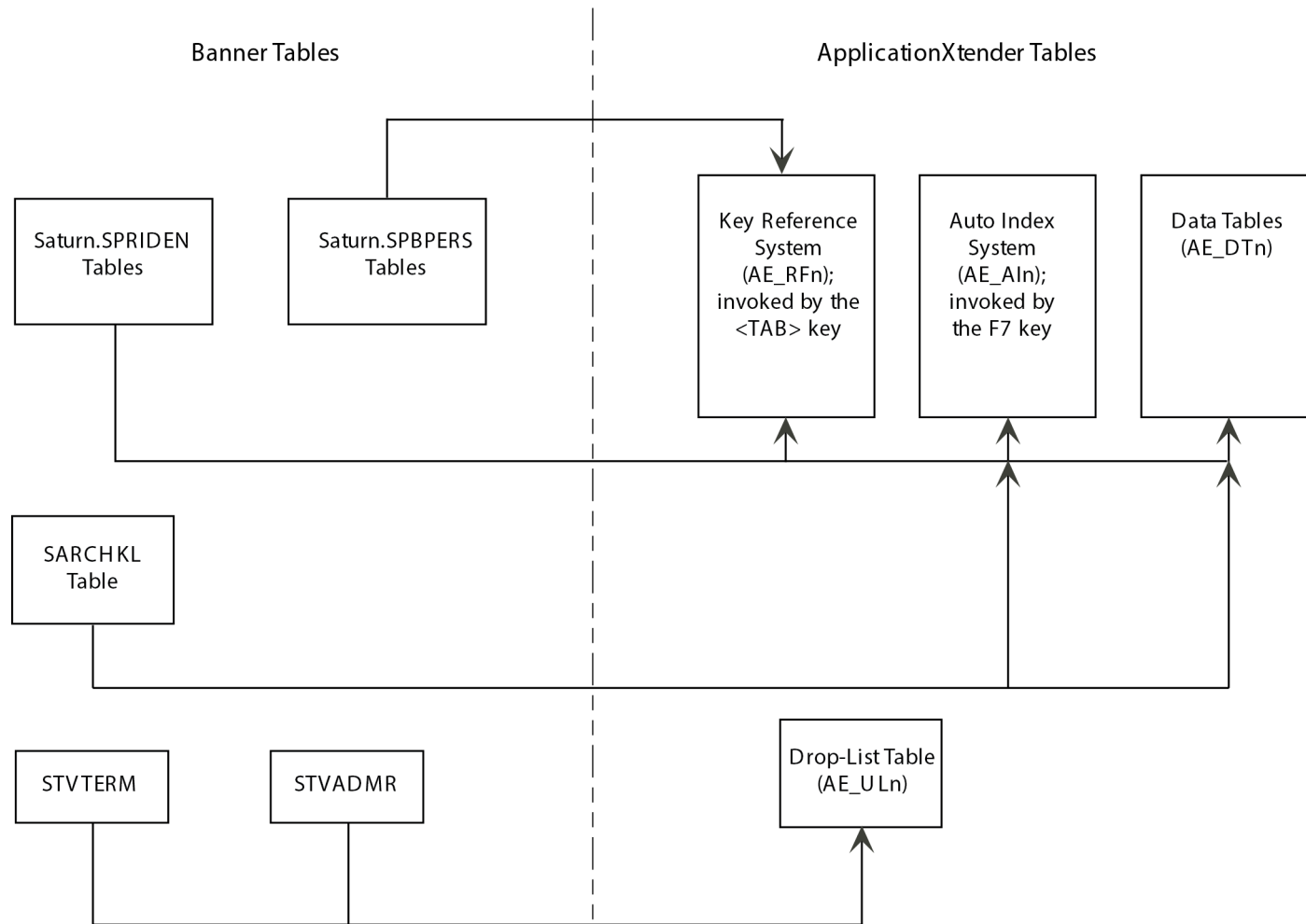
For synchronization issues related to certain user-defined drop-lists, refer to [Banner triggers associated with user-defined lists](#) on page 194.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Student Admissions Checklist-Related (B-S-ADMN) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-S-CRSE - Student Course (Application Number = 510)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable Auto index	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Last Name	Text (60)	Data reference (shared) Required Read-only Searchable	2	Uppercase of SPRIDEN_LAST_NAME	1
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Term Code	User-defined (drop-down list)	Primary key Read-only Searchable Document level security	1, 3	STVTERM_CODE	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Auto index			
Subject	Text (4)	Auto index Searchable Read-only Document level security	2, 3	SSBSECT_SUBJ_CODE 1 unioned with SHRTCKN_SUBJ_CODE	
Course Number	Text (5)	Auto index Searchable Read-only document level security	2, 3	SSBSECT_CRSE_NUMB 1 unioned with SHRTCKN_CRSE_NUMB	
Course Reference number	Text (5)	Primary key Auto index Searchable Read-only	1, 3	SFRSTCR_CRN unioned with SHRTCKN_CRN	1
Routing Status	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
Activity Date	Timestamp	Required Searchable	4	None (functions similarly to activity dates within Banner)	n/a

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Read-only			
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST- CODE in a BDM VPD/ MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD- MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID
- TERM CODE
- SUBJECT
- COURSE NUMBER
- COURSE REFERENCE NUMBER

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

AFTER DELETE triggers are not used like AFTER INSERT and AFTER UPDATE.

Banner triggers associated with user-defined lists

Real-time synchronization from Banner table events is used (`AFTER INSERT` and `AFTER UPDATE`).

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the shared key reference system, see the [Shared key reference system](#) on page 25.

For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 200.

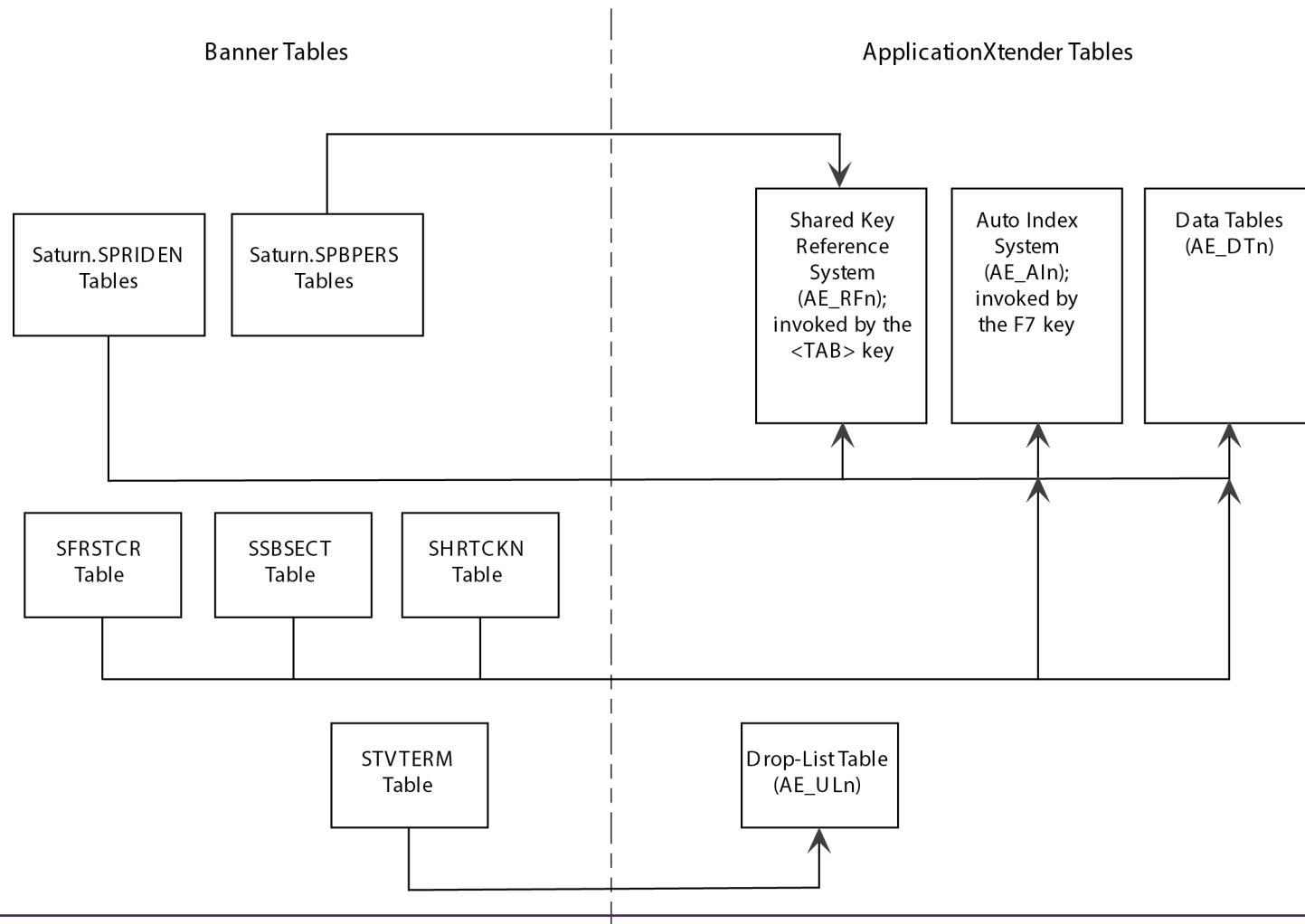
For synchronization issues related to certain user-defined lists, refer to [Banner triggers associated with user-defined lists](#) on page 201.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Student Course-Related (B-S-CRSE) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-S-DGRE - Student Degree (Application Number = 511)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable Auto index	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Last Name	Text (60)	Data reference (shared) Required Read-only Searchable	2	Uppercase of SPRIDEN_LAST_NAME	1
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Term Code	User-defined (drop-down list)	Primary key Read-only Searchable Document level security	1	STVTERM_CODE	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Degree	Text (6)	Auto index Searchable Document level security Read-only	2, 3	SHRDGMR_DEGC_CODE	1
Degree Number	Text (4 digits maximum)	Primary key Auto index Searchable Read-only	1, 3	SHRDGMR_SEQ_NO	1
Routing Status	User-defined (drop-down list)	Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a
Activity Date	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
DISPOSITION DATE	Date (standard Banner format DD- MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

This application has the following auto indexing fields:

- ID
- DEGREE
- DEGREE NUMBER

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

AFTER DELETE triggers are not used like AFTER INSERT and AFTER UPDATE.

Banner triggers associated with user-defined lists

Real-time synchronization from Banner table events is used (AFTER INSERT and AFTER UPDATE).

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the shared key reference system, see the [Shared key reference system](#) on page 25.

For synchronization issues related to the auto index system, refer to [Banner triggers associated with auto indexing](#) on page 206.

For synchronization issues related to certain user-defined lists, refer to [Banner triggers associated with user-defined lists](#) on page 206.

B-S-ID - Student Common (Application Number = 504)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
ID	Text (9) uppercase	Key reference (shared) Primary key Required Searchable	1	SPRIDEN_ID (where SPRIDEN_CHANGE_IND is null); may contain pseudo-IDs for non-Banner data.	1
PIDM	Integer (8 digits maximum)	Data reference (shared) Read-only	2	SPRIDEN_PIDM (used for all synchronization beyond the time of indexing); field is not required to accommodate non-Banner data.	1
Document Type	User-defined (drop-down list)	Primary key Required Searchable Document level security	1	Banner table (ETVDTYP)	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Last Name	Text (60)	Data reference (shared) Required Read-only Searchable	2	Uppercase of SPRIDEN_LAST_NAME	1
First Name	Text (60)	Data reference (shared) Read-only Searchable	2	Uppercase of SPRIDEN_FIRST_NAME	1
SSN	Text (15)	Data reference (shared) Read-only Searchable	2	SPBPERS_SSN	1
Birth Date	Date (standard Banner format DD-MMM-YYYY)	Data reference (shared) Read-only Searchable	2	SPBPERS_BIRTH_DATE	1
Routing Status	User-defined (drop-down list)	Searchable Document level security	4	Contains Ellucian Imaging 3.1 legacy data (for migrating sites only); otherwise, user-defined data entirely.	n/a

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Term Code	User-defined (drop-down list)	Primary key Read-only Searchable Document level security	1	STVTERM_CODE	2
Activity Date	Timestamp	Required Searchable Read-only	4	None (functions similarly to activity dates within Banner)	n/a
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application uses the shared key reference system.

Auto index data

Auto indexing is not applicable for this application.

Banner triggers associated with auto indexing

Auto indexing is not applicable for this application.

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

Primary person tables in Banner are SPRIDEN and SPBPERS. All data in these tables is validated and maintained by existing Banner applications. Using database triggers on this table, the shared key reference table of person data (and any other ApplicationXtender structures that contain this information) requires updating.

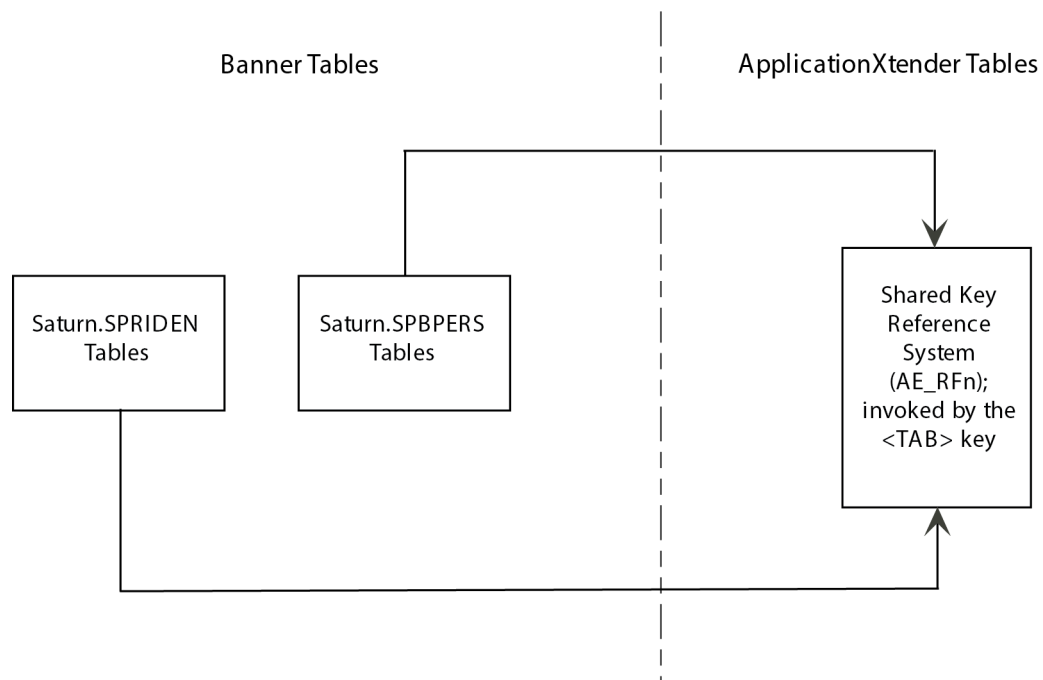
A process initially populates the shared key reference table with unique rows of SPRIDEN and SPBPERS. The triggers keep the data structures in the BDM applications synchronized with Banner person tables.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Student ID-Related (B-S-ID) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



B-S-SECT - Student Catalog and Course Section (Application Number = 497)

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
Subject	User-defined (drop-down list) (4)	Read Only Required Searchable Part of unique key Auto index Document level security	1,3	STVSUBJ_CODE SCBCRSE_SUBJ_CODE SSBSECT_SUBJ_CODE	1
Course Number	Text (5)	Read-only Required Searchable Part of unique key Auto index	1, 3	SCBCRSE_CRSE_NUMB SSBSECT_CRSE_NUMB	1
Document Type	User-defined (drop-down list) (40)	Required Searchable Part of unique key Document level security	1	Partial relationship with ETVDTYP	2
Course Title	Text (30)	Read-only Non-required	2, 3	SCBCRSE_TITLE SSBSECT_CRSE_TITLE	1

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Searchable Part of unique key Auto index			
Term Code	User-defined (drop-down list) (6)	Read-only Non-required Searchable Part of unique key Auto index Document level security	1, 3	STVTERM_CODE SCBCRSE_TERM_CODE SSBSECT_TERM_CODE	1
Section	Text (3)	Read-only Non-required Searchable Part of unique key Auto index	1, 3	SSBSECT_SEQ_NUMB	1
Course Reference Number	Text (5)	Read-only Non-required Searchable Part of unique key Auto index	1, 3	SSBSECT_CRN	1
Routing Status	User-defined (drop-down list) (40)	Non-required Searchable	4	N/A	2

Field Name	Datatype and Format	Properties	Field Type	Banner Validation Source	Synchronization Type
		Document level security			
Activity Date	System	Timestamp Searchable	4	N/A	2
VPDI_CODE	Text (6)	Read-only	5	DataSource_INST-CODE in a BDM VPD/MEPed application which relates to the VPDI_CODE of the Banner record	3
DISPOSITION DATE	Date (standard Banner format DD-MMM-YYYY)	Searchable Read-only	4	n/a	n/a

Key reference data

This application does not use a key reference table.

Auto index data

This application has the following auto indexing fields:

- SUBJECT
- COURSE NUMBER
- COURSE TITLE
- TERM CODE
- SECTION
- COURSE REFERENCE NUMBER

Banner triggers associated with auto indexing

Real-time synchronization from Banner table events is used (AFTER INSERT, AFTER UPDATE, and AFTER DELETE). Batch process synchronization permits an administrator to “re-baseline” the ApplicationXtender key reference and auto index data on an ad hoc basis.

Banner triggers associated with user-defined lists

Real-time synchronization from Banner table events is used (AFTER INSERT, AFTER UPDATE, and AFTER DELETE).

Banner requirements linking

Banner requirements linking is not applicable for this application.

Data synchronization

For synchronization issues related to the Auto index Subsystem, refer to [Banner triggers associated with auto indexing](#) on page 215.

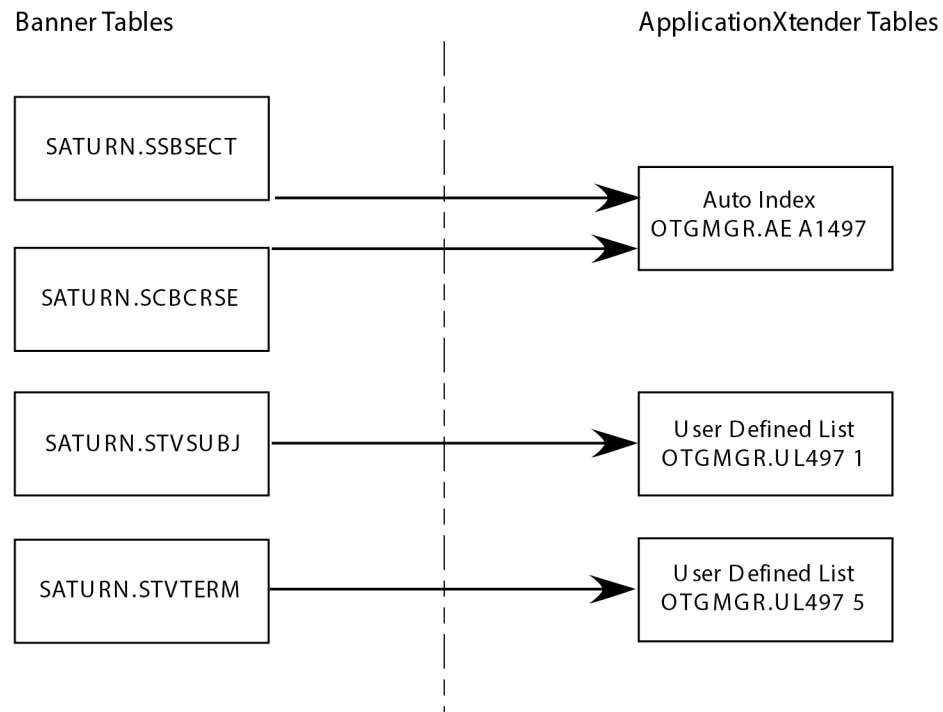
For synchronization issues related to certain user defined drop-lists, refer to [Banner triggers associated with user-defined lists](#) on page 215.

The following diagram shows synchronization between Banner tables and ApplicationXtender tables.

Data Synchronization System Diagram

Student Catalog and Course Section-Related (B-S-SECT) Application

Illustration of the synchronization between Banner Tables and ApplicationXtender Tables



Appendix: Document Types

The successful integration of Banner® documents with Banner® Document Management (BDM) depends on the synchronization of document type codes between each BDM application and a master list defined within Banner. These codes are set up on the Document Management Document Type Validation (ETVDTYP) page and are stored in the BANIMGR.ETVDTYP table.

The following table lists the sample document type codes that are delivered with BDM. You are not limited to these codes. You can use ETVDTYP to add other document types. For more information on ETVDTYP, refer to Banner online help.

Document Type	Description
401K FORMS	401K Forms, Checks and Amortization Schedules
ACCEPTANCE LETTER	Acceptance Letter
ADMISSIONS APP	Admissions Application
ADMISSIONS REQS	Admissions Requirements
AGENCY NOTES	Agency Notes
ALIEN REG CARD	Alien Registration Card (Green Card)
APPLICANT INFO	Applicant Information
APPLICATION FORM	Application Form
APPLICATION INFO	Application Information
ATTENDANCE ROSTER	Attendance Roster
AWARD	Award Letter
AWARD ACCEPTANCE	Award Acceptance
AWARD OFFER LETTER	Award Offer Letter
BENEFIT BACK-UP DOCS	Birth/Marriage Certificates, Family Change Forms, Insurance Claims
BENEFIT FORMS	Enrollment Forms, Medical and Dental Forms, Benefits Confirmations and Statements
BROKERATE STMT	Brokerage Statement
CATALOG INFORMATION	Miscellaneous Course Information
CERTIFICATIONS	Certifications
CHARITABLE CONT	United Way Donations
CHECK	Check
CLASS ROSTER	Class Roster

Document Type	Description
COBRA FORMS	Termination Letters, Continue Medical Benefits for 18 Months
COLLEGE TNSCRPT	College Transcript
CONFIDENTIAL PAPERS	Payers for Employee Disciplinary Action
CONTACT FORM	Contact Form
CONTRACT INFO	Contract Information
CORRESPONDENCE	Employee Correspondence
COURSE DESCRIPTION	General Description of Course
COURSE SUMMARY	Course Summary
CURRENT VISA INFO	Current Visa Information
DEATH CERTIFICATE	Death Certificate
DEATH NOTICE	Death Notice Documentation
DEGREE INFO	Degree Information
DIPLOMA INFO	Diploma Information
DIRECT CASH RECEIPT	Direct Cash Receipt Form
DRIVERS LICENSE	Copy of Drivers License
EDUCATIONAL TRNSCRPT	Educational Transcript
ELECTRONIC LOAN APPL	Electronic Loan Application
EMAIL	E-mail Document
EMPLOYEE INFO FORM	Employee Information Forms, Employee Records
EMPLOYEE REVIEW FORMS	Employee Review Forms
EMPLOYMENT AUTH FORMS	Employment Authorization Forms
ENCUMBRANCES	Encumbrances
ENROLL VERIFICATION	Enrollment Verification Form
ENTRY VISA INFO	Entry Visa Information
EXAM SCORES	Examination Scores
EXECUTIVE BENEFITS	Executive Benefits
FACULTY COURSE LOAD	Faculty Course Load
FACULTY DATA	Faculty Data
FEDERAL TAX RETURN	Federal Tax Return

Document Type	Description
FLEXIBLE ACCOUNT FORMS	Flexible Spending Accounts/Forms
FMLA	Family Medical Leave Act
FY COMMISSION PLANS	Commission Plans and Analysis
GIFT	Gift
GIFT CHECK	Copy of Gift Check
GIFT STOCK CERT	Gift Stock Certificate
GRANT DOCUMENT	Grant Document
HIGH SCHOOL TRNSCRPT	High School Transcript
HOLD INFO	Hold Information
I-9 FORM	I-9 Form
I-94 FORM	I-94 Form
IMMIGRATION DOCS	Immigration Forms, Visa Agreement Forms, Extension of Visa Forms
INTERNATIONAL DOCS	International Documentation
INTERVIEW NOTES	Candidate Interview Notes
INVOICE	Invoice
INVOICE PAYMENT	Invoice Payment
JOB DESCRIPTION	Job Description
JOURNAL VOUCHER	Journal Voucher
LEAVE OF ABSENCE	Maternity Leave, Short Term Disability, Doctors Letters/Evaluations
LIFE INSURANCE	Voluntary Life Insurance Forms
LOAN DISBURSEMENT	Loan Disbursement Form
LOCK-IN LETTER	IRS Lock-In Letter for Federal withholding
LONG TERM CARE FORMS	Long Term Care Forms
LONG TERM DISABILITY	Long Term Disability Forms
MAILINGS	Mailings – Annual Report, Event Flyers, Letters, etc.
MANUAL LOAN APPL	Manual Loan Application
MEDICAL DOCS	Medical Documents
MEDICAL INS	Medical Insurance
MISC BENEFIT FORMS	Miscellaneous Benefit Forms

Document Type	Description
MISC EMPLOYEE DOCS	Direct Deposit Forms, Time Reports, Employee Referrals, Employment Authorization and Other Docs
NAME/ADDRESS CHANGE	Name and Address Change Forms
NEW HIRE DOCS	Offer Letters, Confidential Agreements, Resumes and Other Docs
OFFER LETTER	Offer Letter
OSHA REPORTS	OSHA Reports, Compliance Materials
PASSPORT	Passport Information
PC LOANS	Promissory Notes, Receipts from Computer Purchase, Loan Amortization Schedules
PERFORMANCE LETTER	Awards, Peer Counselor Letters, Employees Performance Skills Letters
PHOTO-CHILD	Photograph of Child
PHOTO-CONSTITUENT	Photograph of Constituent
PHOTO-SPOUSE	Photograph of Spouse
PI NOTES	Principle Investigator Notes
PLEDGE	Pledge
PLEDGE PAYMENT	Pledge Payment
POSITION BENCHMARK DATA	Salary, Requirements Benchmark
POSITION REQUIREMENTS	Specific Position Requirements
PROMISSORY NOTE	Promissory Note
PROOF OF CITIZENSHIP	Proof of Citizenship
PROPOSAL DOCUMENT	Proposal Document
PROPOSAL FORM	Proposal Form
PRSPCT RESEARCH DOC	Prospect Research Document
PUBLICATIONS	Publications
PURCHASE ORDER	Purchase Order
RECRUITMENT INFO CARD	Recruitment Information Card
REGISTRATION INFO	Registration Information
RELOCATION FORMS	Relocation Agreements, E-mails, Relocation Analysis
REQUISITION	Requisitions

Document Type	Description
RESUME/CV	Resume or Curriculum Vitae
SALARY AND JOB INFO	Salary Adjustment Forms, Job Detail Info, Misc Job Info, Payroll Action Forms, Bonuses
SALARY SURVEY INFO	Salary Surveys, Competitive Information
SECTION INFORMATION	Miscellaneous Section Information
SSN CARD	Social Security Card
STOCK FORMS	Stock Purchase Forms
SUPPLEMENTAL INFO	Supplemental Information
SYLLABUS	Section Syllabus
TAX FORMS	Federal Tax Forms, W4
TERMINATION FORMS	Termination Forms, Letter of Resignation
TEST SCORES INFO	Test Score Information
TIME OFF DOCS	Time Off Documents – Vacation, Sick, Holiday
TRACKING REQUIREMENT	Tracking Requirement
TRANSCRIPT INFO	Transcript Information
VACATION FORM	Vacation Requests, Vacation Rollover Forms
VETERAN CARD	Veteran Information Card
W-11	New HIRE Act Federal Form
WITHDRAWAL FORM	Withdrawal Form
WITHDRAWAL QUERY FORM	Withdrawal Query Form
WORKERS COMP	Workers Compensation

Appendix: Data Synchronization Scripts

This appendix describes each installation/re-baselining and real-time synchronization script.

Installation/re-baselining (batch) scripts

Run the following scripts as BANINST1.

Script	Object Created	Sources	Targets	Storage Location	Notes
Shared key reference system - BDM General					
eiaerfsct.sql	none	spriden spbpers (outered)	ae_rfsct	plus	
euaerfsct.sql	none	spriden spbpers (outered)	ae_rfsct	plus	Re-baselining only (not needed for installation)
ul507_13_080300_01.sql	none	stvtterm	ul507_13	plus	
eulai507.sql	ul507_13	none	ul507_13 h507_14 ae_ai507 ae_adebs	plus	Applies only to a BDM environment that was upgraded from the previous version. For a new BDM installation site, B-R-TREQ (507) should have the fix because the new XML file that creates

Script	Object Created	Sources	Targets	Storage Location	Notes
					the application is included.
erblink_080300_01.sql	erblink_term_code	none	erblink	ddl	
erblink_080300_02.sql	erblink_unq_ind1	erblink	none	ddl	
erblink_080300_03.sql	erblink_term_code (comment)	none	erblink	ddl	
eexrarpai_080300.sql	none	none	exrarpa	dml	
egoreqpgu_080300.sql	none	none	goreqpg	dml	
egtveqpmu_080300.sql	none	none	gtveqpm	dml	
egoreqnmi_080300_01.sql	none	none	goreqnm	dml	
BDM Student					
eisdta.sql	none	spriden sarchkl sfrstcr shrdgmr shrtckn ssbsect	ae_ai509 ae_ai510 ae_ai511	plus	
eisul.sql	none	stvterm stvadmr etvdtyp exrbxxt	ul504_3 ul504_8 ul509_3 ul509_8 ul509_10 ul510_3	plus	

Script	Object Created	Sources	Targets	Storage Location	Notes
			ul510_8 ul511_3 ul511_8		
eusdtaiu.sql	none	spriden	ae_dt504 ae_dt509 ae_ai509 ae_dt510 ae_ai510 ae_dt511 ae_ai511	plus	Re-baselining only (not needed for installation)
ei497ai.sql	none	scbcrse ssbsect	ae_ai497	plus	
eiul497.sql	none	stvsbj stvtterm exrbcxt	ul497_1 ul497_3 ul497_5	plus	
eu497dtai.sql	none	scbcrse ssbsect	ae_ai497 ae_dt497	plus	Re-baselining only (not needed for installation)
BDM Financial Aid					
eirdtai.sql	none	spriden rrrareq	ae_ai507	plus	
eirul.sql	none	robinst rtvtreq rfrbase etvdtyp exrbcxt	ul505_3 ul505_8 ul507_3 ul507_8 ul507_9 ul507_10	plus	

Script	Object Created	Sources	Targets	Storage Location	Notes
eurdtaiu.sql	none	spriden	ae_dt505 ae_dt507 ae_ai507	plus	Re-baselining only (not needed for installation)
BDM Human Resources					
eipdtai.sql	none	spriden nbbposn pabappl	ae_ai508 ae_ai512	plus	
eipul.sql	none	etvdtyp exrbcxt	ul503_3 ul508_3 ul512_3	plus	
eu495dtai.sql	none	spriden	ae_dt495 ae_ai495	plus	Re-baselining only (not needed for installation)
eupdtaiu.sql	none	spriden	ae_dt503 ae_dt508 ae_ai508 ae_dt512 ae_ai512	plus	Re-baselining only (not needed for installation)
ei495ai.sql	none	spriden perfcnt	ae_ai495	plus	
ei496ai.sql	none	nbrposh	ae_ai496	plus	
eiul495.sql	none	perfcnt	ul495_6 ul495_7	plus	
eiul496.sql	none	exrbcxt	ul496_3 ul496_4	plus	

Script	Object Created	Sources	Targets	Storage Location	Notes
			ul496_5 ul496_6		
ul495_3_080000_01.sql	none	n/a	ul495_3	plus	
BDM Advancement					
eiadtai.sql	none	spriden agrgpay agbpldg agbgift	ae_ai501	plus	
eiaul.sql	none	etvdtyp exrbcxt	ul500_3 ul501_3	plus	
euadtaiu.sql	none	spriden	ae_dt500 ae_dt501 ae_ai501	plus	Re-baselining only (not needed for installation)
BDM Finance					
eifdtai.sql	none	spriden fabchks fabinck fabinvh fpbpohd fpbreqh	ae_rf506	plus	
eiful.sql	none	etvdtyp exrbcxt	ul502_3 ul506_3	plus	

Script	Object Created	Sources	Targets	Storage Location	Notes
		ftvfsyr	ul502_8		
		ftvcoas	ul502_9		
eufdtai.sql	none	spriden fabchks fabinck fabinvh fpbpohd fpbreqh	ae_rf506	plus	Re-baselining only (not needed for installation)
eufdtaiu.sql	none	spriden	ae_dt502	plus	Re-baselining only (not needed for installation)
eirf499.sql	none	spriden frbgrnt	ae_rf499	plus	
eirf498.sql	none	spriden frbprop	ae_rf498	plus	
eurf499.sql	none	spriden frbgrnt	ae_rf499	plus	Re-baselining only (not needed for installation)
eurf498.sql	none	spriden frbprop	ae_rf498	plus	Re-baselining only (not needed for installation)
eiul499.sql	none	ftvcoas	ul499_3	plus	
eiul498.sql	none	ftvcoas	ul498_3	plus	

Script	Object Created	Sources	Targets	Storage Location	Notes
eirf506.sql	none	fgbjvch	ae_rf506	plus	
eurf506.sql	none	fgbjvch	ae_rf506	plus	
ul506_2_080300_01.sql	none	none	ul506_2	plus	
bxstxtlenchg_rf506_01.sql	none	ae_rf506_2	ae_rf506	plus	
bxstxtlenchg_ul506_01.sql	none	ul506_2	ul506_2	plus	
BDM Banner Student Aid					
kaiul403_080900i.sql	none	kvraype	ul403_3		Populates user-defined lists
		kvrareq	ul403_4		
		kvtrbcb	ul403_5		
		kvtrfrn	ul403_6		
		kvrapfr	ul403_7		
			ul403_8		
kaiul404_080900i.sql	none	kvrolnk	ul404_3		Populates user-defined lists
kaiul405_080900i.sql	none	kvrfbln	ul405_1		Populates user-defined lists
		kvrfbse	ul405_2		
kaiul406_080900i.sql	none	kvrfyln	ul406_1		Populates user-defined lists
		kvrfndc	ul406_2		
			ul406_3		

Real-time synchronization scripts

Script	Object Created	Sources	Targets	Storage Location	Notes
Shared key reference system and BDM General – All BDM sites receive these scripts, regardless of the Banner products installed at the site.					
eokrfsy.sql	eokrfsy (package spec)	NA	NA	dbprocs	
eokrfs1.sql	eokrfsy (package body)	All triggers on spriden and spbpers	ae_dt513 (updates only) ae_rfsct	dbprocs	
esptiden0.sql	et_spriden_aur_extsol (trigger)	spriden	eokrfsy (package)	dbprocs	Dynamically invokes “silo-specific” packages: eoksrts eokrrts eokprts eokarts eokfrts
esptiden1.sql	et_spriden_air_extsol (trigger)	spriden	eokrfsy (package)	dbprocs	
esptpers0.sql	et_spbpers_aur_extsol (trigger)	spbpers	eokrfsy (package)	dbprocs	
esptpers1.sql	et_spbpers_air_extsol (trigger)	spbpers	eokrfsy (package)	dbprocs	
BDM Student - sequence creation scripts:					

Script	Object Created	Sources	Targets	Storage Location	Notes
exboseq_497.sql	sequence exboseq_497	none	used by ae_ai497	Not migrated	Creates new one-up numbers for DOCID field in AE_AInnn tables
exboseq_504.sql	sequence exboseq_504	none	used by ae_ai504	Not migrated	
exboseq_509.sql	sequence exboseq_509	none	used by ae_ai509	Not migrated	Creates new one-up numbers for DOCID field in AE_AInnn tables
exboseq_510.sql	sequence exboseq_510	none	used by ae_ai510	Not migrated	Creates new one-up numbers for DOCID field in AE_AInnn tables
exboseq_511.sql	sequence exboseq_511	none	used by ae_ai511	Not migrated	Creates new one-up numbers for DOCID field in AE_AInnn tables
BDM Student - Banner requirements linking packages:					
eokslnk.sql	eokslnk (package spec)	NA	NA	dbprocs	
eoksln1.sql	eokslnk (package body)	efkimag.p_axsctdocind xupdate (dynamic invocation)	sarchkl saradap	dbprocs	Used solely by AX application B-A-ADMN
BDM Student - packages:					
eok4971.sql	eok497r (package body)	Triggers on scbcrse ssbsect	ae_dt497 (updates only) ae_ai497	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
		stvsbj	ul497_1		
		stvterm	ul497_5		
eok497r.sql	eok497r (package spec)			dbprocs	
eoksrts.sql	eoksrts (package spec)			dbprocs	
eoksrt1.sql	eoksrts (package body)	All spriden triggers (invoked dynamically) Plus triggers on: stvterm stvadmr sarchkl sfrstcr ssbsect shrtckn shrdgmr	ae_dt504 ul504_8 ae_dt509 (updates only) ae_ai509 ul509_8 ul509_10 ae_dt510 (updates only) ae_ai510 ul510_8 ae_dt511 (updates only) ae_ai511 ul511_8 ul507_13	dbprocs	
BDM Student - triggers:					

Script	Object Created	Sources	Targets	Storage Location	Notes
esatchkl0.sql	et_sarchkl_aur_extsol (trigger)	sarchkl	eoksrts (package)	dbprocs	
esatchkl1.sql	et_sarchkl_air_extsol (trigger)	sarchkl	eoksrts (package)	dbprocs	
esatchkl2.sql	et_sarchkl_adr_extsol (trigger)	sarchkl	eoksrts (package)	dbprocs	
esftstcr0.sql	et_sfrstcr_aur_extsol (trigger)	sfrstcr	eoksrts (package)	dbprocs	
esftstcr1.sql	et_sfrstcr_air_extsol (trigger)	sfrstcr	eoksrts (package)	dbprocs	
esftstcr2.sql	et_sfrstcr_adr_extsol (trigger)	sfrstcr	eoksrts (package)	dbprocs	
eshtckn0.sql	et_shrtckn_aur_extsol (trigger)	shrtckn	eoksrts (package)	dbprocs	
eshtdgmr0.sql	et_shrdgmr_aur_extsol (trigger)	shrdgmr	eoksrts (package)	dbprocs	
eshtdgmr1.sql	et_shrdgmr_air_extsol (trigger)	shrdgmr	eoksrts (package)	dbprocs	
eshtdgmr2.sql	et_shrdgmr_adr_extsol (trigger)	shrdgmr	eoksrts (package)	dbprocs	
esttadmr0.sql	et_stvadmr_aur_extsol (trigger)	stvadmr	eoksrts (package)	dbprocs	
esttadmr1.sql	et_stvadmr_air_extsol (trigger)	stvadmr	eoksrts (package)	dbprocs	
esttterm0.sql	et_stvterm_aur_extsol (trigger)	stvterm	eoksrts (package)	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
esttterm1.sql	et_stvterm_air_extsol_497r (trigger)	stvterm	eoksrts (package)	dbprocs	
esttterm2.sql	et_stvterm_aur_extsol_497r (trigger)	stvterm	eok497r (package)	dbprocs	
esttterm3.sql	et_stvterm_air_extsol_497r (trigger)	stvterm	eok497r (package)	dbprocs	
esttterm4.sql	et_stvterm_adr_extsol_497r (trigger)	stvterm	eok497r (package)	dbprocs	
esttterm5.sql	et_stvterm_aur_extsol_507r (trigger)	stvterm	eokrrts (package)	dbprocs	
esttterm6.sql	et_stvterm_air_extsol_507r (trigger)	stvterm	eokrrts (package)	dbprocs	
esttsubj0.sql	et_stvsubj_aur_extsol_497r (trigger)	stvsubj	eok497r (package)	dbprocs	
esttsubj1.sql	et_stvsubj_air_extsol_497r (trigger)	stvsubj	eok497r (package)	dbprocs	
esttsubj2.sql	et_stvsubj_adr_extsol_497r (trigger)	stvsubj	eok497r (package)	dbprocs	
esctcrse0.sql	et_scbcrcse_aur_extsol_497r (trigger)	scbcrcse	eok497r (package)	dbprocs	
esctcrse1.sql	et_scbcrcse_air_extsol_497r (trigger)	scbcrcse	eok497r (package)	dbprocs	
esctcrse2.sql	et_scbcrcse_adr_extsol_497r (trigger)	scbcrcse	eok497r (package)	dbprocs	
esstsect0.sql	et_ssbsect_aur_extsol_497r (trigger)	ssbsect	eok497r (package)	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
esstsect1.sql	et_ssbsect_air_extsol_497sect (trigger)	et_ssbsect	eok497r (package)	dbprocs	
esstsect2.sql	et_ssbsect_adr_extsol_497sect (trigger)	et_ssbsect	eok497r (package)	dbprocs	
esstsect3.sql	et_ssbsect_adr_extsol_497sect (trigger)	et_ssbsect	eok497r (package)	dbprocs	
BDM Financial Aid - sequence creation scripts:					
exboseq_505.sql	sequence exboseq_505	none	Used by ae_ai505	Not migrated	
exboseq_507.sql	sequence exboseq_507	none	Used by ae_ai507	Not migrated	Creates new one-up numbers for DOCID field in the AE_Alnnn tables
BDM Financial Aid - Banner requirements linking packages:					
eokrlnk.sql	eokrlnk (package spec)	n/a	n/a	dbprocs	
eokrln1.sql	eokrlnk (package body)	efkimag.p_axsctdocinderrrareq, rorstat xupdate (dynamic invocation)		dbprocs	Used solely by AX application B-R-TREQ
BDM Financial Aid - packages:					
eokrrts.sql	eokrrts (package spec)			dbprocs	
eokrrt1.sql	eokrrts (package body)	All spriden triggers (invoked dynamically) Plus triggers on: rrrrareq	ae_dt505 and ae_dt507 (updates only) ae_ai50	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
		robinst	ul505_8		
		rtvtreq	ul507_8		
		stvtterm	ul507_9		
		rfrbase	ul507_10		
			ul507_11		
BDM Financial Aid - triggers:					
errtareq0.sql	et_rrrareq_aur_extsol (trigger)	rrrareq	eokrrts (package)	dbprocs	
errtareq1.sql	et_rrrareq_air_extsol (trigger)	rrrareq	eokrrts (package)	dbprocs	
errtareq2.sql	et_rrrareq_adr_extsol (trigger)	rrrareq	eokrrts (package)	dbprocs	
erotinst0.sql	et_robinst_aur_extsol (trigger)	robinst	eokrrts (package)	dbprocs	
erotinst1.sql	et_robinst_air_extsol (trigger)	robinst	eokrrts (package)	dbprocs	
ertttreq0.sql	et_rvtreq_aur_extsol (trigger)	rtvtreq	eokrrts (package)	dbprocs	
ertttreq1.sql	et_rvtreq_air_extsol (trigger)	rtvtreq	eokrrts (package)	dbprocs	
ertttrst0.sql	et_rvttrst_aur_extsol (trigger)	rtvtrst	eokrrts (package)	dbprocs	
ertttrst1.sql	et_rvttrst_air_extsol (trigger)	rtvtrst	eokrrts (package)	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
erftbase0.sql	et_rfrbase_aur_extsol (trigger)	rfrbase	eokrrts (package)	dbprocs	
erftbase1.sql	et_rfrbase_air_extsol (trigger)	rfrbase	eokrrts (package)	dbprocs	
ertbprds0.sql	et_robprds_aur_extsol (trigger)	robprds	eokrrts (package)	dbprocs	
ertbprds1.sql	et_robprds_air_extsol (trigger)	robprds	eokrrts (package)	dbprocs	
BDM Human Resources - sequence creation scripts:					
exboseq_495.sql	sequence exboseq_495	none	Used by ae_ai495	Not migrated	Creates new one-up numbers for DOCID field in the AE_Alnnn tables.
exboseq_496.sql	sequence exboseq_496	none	Used by ae_ai496	Not migrated	Creates new one-up numbers for DOCID field in the AE_Alnnn tables.
exboseq_503.sql	sequence exboseq_503	none	Used by ae_ai503	Not migrated	Creates new one-up numbers for DOCID field in the AE_Alnnn tables.
exboseq_508.sql	sequence exboseq_508	none	Used by ae_ai508	Not migrated	Creates new one-up numbers for DOCID field in the AE_Alnnn tables.
exboseq_512.sql	sequence exboseq_512	none	Used by ae_ai512	Not migrated	Creates new one-up numbers for DOCID

Script	Object Created	Sources	Targets	Storage Location	Notes
BDM - Human Resources packages:					field in the AE_Alenn tables.
eok4951.sql	eok495r (package body)	Triggers on perfcnt	ae_dt495 (updates only) ae_ai495, ul495_6 ul495_7	dbprocs	
eok495r.sql	eok495r (package spec)			dbprocs	
eok4961.sql	eok496r (package body)	Triggers on: nbbfisc nbrposh ntrpcls ptrecls	ae_dt496 (updates only) ae_ai496 ul496_4 ul496_5 ul496_6	dbprocs	
eok496r.sql	eok496r (package spec)			dbprocs	
eokprts.sql	eokprts (package spec)			dbprocs	
eokprt1.sql	eokprts (package body)	All spriden triggers (invoked dynamically) Plus triggers on: pabappl nbbposn pebempl nbrjobs	ae_dt495 ae_dt503 ae_dt508 and ae_dt512 (updates only) ae_ai495 ae_ai508	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
			ae_ai512		
Banner Human Resources - triggers:					
epatappl0.sql	et_pabappl_aur_extsol	pabappl	eokprts (package)	dbprocs	
epatappl1.sql	et_pabappl_air_extsol	pabappl	eokprts (package)	dbprocs	
epatappl2.sql	et_pabappl_adr_extsol	pabappl	eokprts (package)	dbprocs	
enbtposn0.sql	et_nbbposn_aur_extsol	nbbposn	eokprts (package)	dbprocs	
epetempl0.sql	et_pebempl_aur_extsol	pebempl	eokprts (package)	dbprocs	
epetempl1.sql	et_pebempl_air_extsol (trigger)	pebempl	eokprts (package)	dbprocs	
epetempl2.sql	et_pebempl_adr_extsol (trigger)	pebempl	eokprts (package)	dbprocs	
epetfcnt0.sql	et_perfcnt_aur_extsol_495r (trigger)	perfcnt	eok495r (package)	dbprocs	
epetfcnt1.sql	et_perfcnt_air_extsol_495r (trigger)	perfcnt	eok495r (package)	dbprocs	
epetfcnt2.sql	et_perfcnt_adr_extsol_495r (trigger)	perfcnt	eok495r (package)	dbprocs	
enbtjobs0.sql	et_nbrjobs_aur_extsol (trigger)	nbrjobs	eokprts (package)	dbprocs	
enbtjobs1.sql	et_nbrjobs_air_extsol	nbrjobs	eokprts (package)	dbprocs	
enbtjobs2.sql	et_nbrjobs_adr_extsol	nbrjobs	eokprts (package)	dbprocs	
enbtfisc0.sql	et_nbbfisc_aur_extsol_496r (trigger)	nbbfisc	eok496r (package)	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
enbtfisc1.sql	et_nbbfisc_air_extsol_496r (trigger)	eok496r (package)	dbprocs		
enbtfisc2.sql	et_nbbfisc_adr_extsol_496r (trigger)	eok496r (package)	dbprocs		
enbtposh0.sql	et_nbrposh_aur_extsol_496r (trigger)	eok496r (package)	dbprocs		
enbtposh1.sql	et_nbrposh_air_extsol_496r (trigger)	eok496r (package)	dbprocs		
enbtposh2.sql	et_nbrposh_adr_extsol_496r (trigger)	eok496r (package)	dbprocs		
enttpcls0.sql	et_ntrpcls_aur_extsol_496r (trigger)	eok496r (package)	dbprocs		
enttpcls1.sql	et_ntrpcls_air_extsol_496r (trigger)	eok496r (package)	dbprocs		
enttpcls2.sql	et_ntrpcls_adr_extsol_496r (trigger)	eok496r (package)	dbprocs		
epttecls0.sql	et_ptrecls_aur_extsol_496r (trigger)	eok496r (package)	dbprocs		
epttecls1.sql	et_ptrecls_air_extsol_496r (trigger)	eok496r (package)	dbprocs		
epttecls2.sql	et_ptrecls_adr_extsol_496r (trigger)	eok496r (package)	dbprocs		
BDM Advancement - sequence creation scripts:					
exboseq_500.sql	sequence exboseq_500	none	Used by ae_ai500	Not migrated	

Script	Object Created	Sources	Targets	Storage Location	Notes
exboseq_501.sql	sequence exboseq_501	none	Used by ae_ai501	Not migrated	Creates new one-up numbers for DOCID field in the AE_Alnnn tables
BDM Advancement - packages:					
eokarts.sql	eokarts (package spec)			dbprocs	
eokart1.sql	eokarts (package body)	All spriden triggers (invoked dynamically) Plus triggers on: agbpldg agbgift agrgpay	ae_dt500 ae_dt501 (updates only) ae_ai501	dbprocs	
BDM Advancement - triggers:					
eagtpldg0.sql	et_agbpldg_aur_extsol	agbpldg	eokarts (package)	dbprocs	
eagtpldg1.sql	et_agbpldg_air_extsol	agbpldg	eokarts (package)	dbprocs	
eagtpldg2.sql	et_agbpldg_adr_extsol	agbpldg	eokarts (package)	dbprocs	
eagtgift0.sql	et_agbgift_aur_extsol	agbgift	eokarts (package)	dbprocs	
eagtgift1.sql	et_agbgift_air_extsol	agbgift	eokarts (package)	dbprocs	
eagtgift2.sql	et_agbgift_adr_extsol	agbgift	eokarts (package)	dbprocs	
eagtgpay0.sql	et_agrgpay_aur_extsol	agrgpay	eokarts (package)	dbprocs	
eagtgpay1.sql	et_agrgpay_air_extsol	agrgpay	eokarts (package)	dbprocs	
eagtgpay2.sql	et_agrgpay_adr_extsol	agrgpay	eokarts (package)	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
BDM Finance - sequence creation scripts:					
exboseq_502.sql	sequence exboseq_502	none	Used by ae_ai502	Not migrated	
exboseq_506.sql	sequence exboseq_506	none	Used by ae_ai506	Not migrated	Creates new one-up numbers for DOCID field in the AE_Alnnn tables
BDM Finance - packages:					
eokfrts.sql	eokfrts (package spec)			dbprocs	
eokfrt1.sql	eokfrts (package body)	All spriden triggers (invoked dynamically) Plus triggers on: fabchks fabinvh fpbpohd rpbreqh ftvfsyr rtvcoas frbgrnt fgbjvch frbprop	ae_dt502d and ae_dt506 (updates only) ae_rf506 ul502_8 ul502_9 ae_rf499 ae_rf498 ul499_3 ul498_3	dbprocs	
BDM Finance - triggers:					
efatchks0.sql	et_fabchks_aur_extsol (trigger)	fabchks	eokfrts (package)	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
efatchks1.sql	et_fabchks_air_extsol (trigger)	fabchks	eokfrts (package)	dbprocs	
efatchks2.sql	et_fabchks_adr_extsol (trigger)	fabchks	eokfrts (package)	dbprocs	
efatinck0.sql	et_fabinck_aur_extsol (trigger)	fabinck	eokfrts (package)	dbprocs	
efatinck1.sql	et_fabinck_air_extsol (trigger)	fabinck	eokfrts (package)	dbprocs	
efatinvh0.sql	et_fabinvh_aur_extsol	fabinvh	eokfrts (package)	dbprocs	
efatinvh1.sql	et_fabinvh_air_extsol	fabinvh	eokfrts (package)	dbprocs	
efatinvh2.sql	et_fabinvh_adr_extsol	fabinvh	eokfrts (package)	dbprocs	
efptpohd0.sql	et_fpbpohd_aur_extsol	fpbpohd	eokfrts (package)	dbprocs	
efptpohd1.sql	et_fpbpohd_air_extsol	fpbpohd	eokfrts (package)	dbprocs	
efptpohd2.sql	et_fpbpohd_adr_extsol	fpbpohd	eokfrts (package)	dbprocs	
efptreqh0.sql	et_fpbreqh_aur_extsol	fpbreqh	eokfrts (package)	dbprocs	
efptreqh1.sql	et_fpbreqh_air_extsol	fpbreqh	eokfrts (package)	dbprocs	
efptreqh2.sql	et_fpbreqh_adr_extsol	fpbreqh	eokfrts (package)	dbprocs	
efrtgrnt0.sql	et_frbgrnt_aur_extsol	frbgrnt	eokfrts (package)	dbprocs	
efrtgrnt1.sql	et_frbgrnt_air_extsol	frbgrnt	eokfrts (package)	dbprocs	
efrtgrnt2.sql	et_frbgrnt_adr_extsol	frbgrnt	eokfrts (package)	dbprocs	
efrtprop0.sql	et_frbprop_aur_extsol	frbprop	eokfrts (package)	dbprocs	
efrtprop1.sql	et_frbprop_air_extsol	frbprop	eokfrts (package)	dbprocs	
efrtprop2.sql	et_frbprop_adr_extsol	frbprop	eokfrts (package)	dbprocs	

Script	Object Created	Sources	Targets	Storage Location	Notes
eftfsyr0.sql	et_ftvfsyr_aur_extsol (trigger)	ftvfsyr	eokfrts (package)	dbprocs	
eftfsyr1.sql	et_ftvfsyr_air_extsol (trigger)	ftvfsyr	eokfrts (package)	dbprocs	
efttcoas0.sql	et_ftvcoas_aur_extsol (trigger)	ftvcoas	eokfrts (package)	dbprocs	
efttcoas1.sql	et_ftvcoas_air_extsol (trigger)	ftvcoas	eokfrts (package)	dbprocs	
efgtjvch0.sql	et_fgbjvch_aur_extsol	fgbjvch	eokrrts(package)	dbprocs	
efgtjvch1.sql	et_fgbjvch_air_extsol	fgbjvch	eokrrts(package)	dbprocs	
efgtjvch2.sql	et_fgbjvch_adr_extsol	fgbjvch	eokrrts(package)	dbprocs	
Banner Enterprise Identity Services - triggers					
egotadid0.sql	et_goradid_bs_extsol	goradid	eokutil (package)	dbprocs	Sets state of package EOKUTIL to a known consistent state
egotadid1.sql	et_goradid_ar_extsol	goradid	eokutil (package)	dbprocs	Sets rowids in package EOKUTIL when rows are updated in GORADID. Also sets deleted PIDM in EOKUTIL if row is deleted from GORADID.
egotadid2.sql	et_goradid_as_extsol	goradid	eokutil (package)	dbprocs	Calls GB_INSTITUTION_ROLE.P_MAINTAIN_ROLES.

Script	Object Created	Sources	Targets	Storage Location	Notes
BDM-specific triggers					
eextbcxt0.sql	et_exrbcxt_aur_extsol	exrbcxt	extraxpa (table)	dbprocs	
eextbcxt1.sql	et_exrbcxt_air_extsol	exrbcxt	extraxpa (table)	dbprocs	
eaetapps0.sql	et_aeapps_adr_extsol	etvaxap	exrbcxt (table)	dbprocs	

Appendix: Frequently Asked Questions

This appendix lists the most popular FAQs for ApplicationXtender. Refer to the Customer Support Center for detailed contents of each FAQ.

ApplicationXtender Document Manager

FAQ #	Title
1-2O1M8S	Purging BDM documents using the ApplicationXtender migration tool.
1-3FWIM5	<p>Users cannot scan / index into one particular application and may receive a message similar to the following:</p> <p>A COM error has been encountered Code = 80004005, Unspecified error Description = DB-0024 Unable to lock database - possible collision or "Get sequence docid value 0 and add 1" server error or Batch document load pages exception! Index was out of range. Must be non-negative and less than the size of the collection.</p>
1-E3XINS	Issues with Oracle client when using Windows 2008 64bit server with ApplicationXtender.
1-E3XINU	Is ApplicationXtender 6.5 License Server supported on VMWare?
1-EFRB22	What precautions should I take when running the <code>dbcheck</code> utility with ApplicationXtender Application Generator?
1-I1R59X	Can you provide event ID descriptions for the AE_AUDIT table?
1-3XC0G1	What is the description for AE_AUDIT table event ID " -1 " ?
1-1R0TUJ	How to alphabetize the list of user-defined list items / values in ApplicationXtender Document Manager and ApplicationXtender Web Access.
1-13PW6J	Changing the OTGMGR Oracle password.

ApplicationXtender Web Access

FAQ #	Title
1-1PV31K	How long does it take for ApplicationXtender Application Generator configuration changes to show in ApplicationXtender Web Access?
1-8UX0CH	How do I enable the annotation toolbars and disable thumbnails in ApplicationXtender Web Access for all users?
1-NXHKWX	How can I disable the Silverlight thumbnails icon on the ApplicationXtender Web Access Document View toolbar?

Image Capture

FAQ #	Title
1-S73RAR	How to automate scanner selection for users.

QuickScan Pro

FAQ #	Title
1-IRVMQX	QSP 4.7 with ApplicationXtender 6.50.124 is getting a path/file access error when a non-administrator exports a batch.
1-HJUQUS	<p>The following error occurs while trying to view a document or select Configuration sub menu from the Scan menu in ApplicationXtender Document Manager 6.50.124:</p> <p>Error Message: ScanFix 5 Evaluation Only. The Pegasus Imaging license validation check has failed for the ScanFix 5 control. You do not have an appropriate license to use this control.</p>

DiskXtender

FAQ #	Title
1-IC0UFF	Best practice for moving and upgrading existing DiskXtender extended drive to another / larger drive on the same server.
1-F61QQH	<p>The following message is displayed when a user tries to license DiskXtender File System Manager. DiskXtender runs in evaluation mode for 30 days.</p> <pre>Unable to detect running License server on (Server name), please upgrade the selected license server or point to a different license server</pre>

BDM integration

FAQ #	Title
1-2JTGIK	Why is the BDM Add Document button not pushing Banner data into the index fields when using ApplicationXtender Web Access?
1-2O1M8S	Purging BDM documents using the ApplicationXtender migration tool.
1-2RPVUR	BDM icons are inactive (grayed out) in Banner.
1-3FWIM3	<p>I cannot sync document types on ETVDTYP for my new application. I get errors such as the following:</p> <pre>FRM-40735 WHEN-BUTTON-PRESSED trigger raised unhandled exception ORA-00942 error</pre>
1-3FX6KS	Getting Bad Data error when trying to go from BDM to ApplicationXtender by using the BDM buttons on the Banner toolbar.
1-AV7A4W	Invalid BDM objects: The objects that begin with EOK% are invalid with PL/SQL: ORA-01031: insufficient privileges. You may also receive the error message FRM-40735: Pre-Form trigger raised unhandled exception ORA-04063 has errors in Banner.

Glossary

Annotation

A markup, typically a note or highlight, that is applied to an image to focus attention on a particular part of the page.

Auto index system

A lookup feature that contains examples of repeating Banner® data related to a common ID.

Auto index system helps BDM users while indexing documents. For example, Student Admissions checklist requirements are in the auto index table for the B-S-ADMN application.

Banner® Document Management (BDM)

Combination of EMC ApplicationXtender products, such as Document Manager and Web Access, with Banner software to integrate the products into a functional model where Banner can drive ApplicationXtender.

BDM application

Index-driven data storage structure where documents can be stored and retrieved.

ADD

Button on the Banner toolbar that opens ApplicationXtender Document Manager or ApplicationXtender Web Access so that a new ApplicationXtender document can be created from data stored in Banner.

RETRIEVE

Button on the Banner toolbar that opens ApplicationXtender Document Manager or ApplicationXtender Web Access so that a query can be performed.

Context

Location within a Banner page where the cursor is located when you click the BDM options in the Tools menu or one of the BDM buttons on the page's toolbar to access ApplicationXtender and create a query.

Data reference field

Field that provides data that is derived from a single key reference field. For example, LAST NAME (data reference field) is derived from ID (key reference field).

Data source

Container for connection information that enables an application to connect to and receive data from a particular database.

Document

File or group of files stored in an application and identified by a unique set of index information. Each page of a document is a single object, such as a scanned image file or a word processing document. A document can be small (one page) or large (thousands of pages).

Document type

User-defined code that identifies each type of document that is stored and indexed in a BDM application.

EMC

The Ellucian partner for the integrated BDM solution.

Index

Group of fields where information relating to a document is stored. When a document is stored in an application, the index values that you enter identify the document.

Key reference system

A lookup table that contains data used frequently during the indexing process, such as LAST NAME, FIRST NAME, which is associated with the ID in the lookup table.

Multi-Entity Processing (MEP)

An environment that enables two or more entities (institutions or campuses) to coexist in a single application architecture. MEP uses Oracle's Virtual Private Database functionality to implement the policies required for this coexistence.

Page

Single object within a document. Each page of a document shares the document's index values.

Requirements linking

Tracking rules that facilitate the update of financial aid tracking checklist requirements and student admissions requirements based on activity in BDM. The rules are setup on BDM administrative page ERALINK (for Financial Aid tracking requirements) and ESALINK (for Student Admissions checklist requirements).

VPD

Oracle's Virtual Private Database, which implements row-level security using Fine Grained Access Control (FGAC) for user-defined security policies. This allows data segregation by campus, institution, or entity using the VPDI_CODE column (index field) in Banner and ApplicationXtender tables.