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# Application Navigator Handbook

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# Seamless Navigation

This chapter discusses setting up and using seamless navigation with Application Navigator.

## Overview

Application Navigator facilitates seamless navigation between Banner 8.x forms, Banner 9.x pages, Banner 9.x Self-Service, and Banner 8.x Self-Service applications, allowing them to behave like a single application.

Application Navigator includes a main menu, an application menu, unified search, and uses a common authentication mechanism to provide an integrated user experience. Users can navigate between the Banner modules using a single interface.

**Note:** Application Navigator is delivered and installed separately from the Banner administrative applications. For specific information on installing and configuring Application Navigator, refer to the *Application Navigator Installation Guide*.

Key block globals are shared across Banner 8.x and Banner 9.x Administrative applications. The GURTRAN table facilitates this exchange by providing a crosswalk between the Banner 8.x globals and Banner 9.x globals.

## Integration with Banner Administrative Applications

The following 9.x Administrative applications can be integrated with Application Navigator.

- Banner Administrative pages
- Banner General Event Management
- Banner Student Academic History
- Banner Student Attendance Tracking
- Banner Student Course Catalog
- Banner Student Class Schedule
- Banner Student Overall
- Banner Student Registration

The following 8.x products can be integrated with Application Navigator.

- Banner INB
- Banner Workflow

Ellucian Ethos Identity can be integrated with Application Navigator.

Refer to the *Compatibility Matrix* in the Ellucian Hub for the applications that can be integrated with Application Navigator and the minimum required versions.

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## Integration with Banner Self-Service applications

The Banner 9.x and Banner 8.x Self-Service applications can be integrated with Application Navigator as the Self-Service applications announce support.

See the Release Guide of each Banner 9 Self-Service application for information about integration support. The information is also provided in the *Compatibility Matrix* in the Ellucian Hub and in Article 000037022.

## Implementation

Use the following steps to implement seamless navigation using Application Navigator. The order of some steps may vary based on your institutional objectives. For more information on each step, refer to the *Application Navigator Installation Guide*.

### Procedure

1. Implement a Single Sign On (SSO) protocol.
  - You can implement CAS SSO for all your Banner 8.x and 9.x Administrative and Self-Service applications. For more information, refer to the *CAS Single Sign On Handbook*.
  - or -
  - You can implement SAML2 SSO for Banner 9.x applications with Ellucian Ethos Identity as the Identity Provider.  
  
See the *Application Navigator Installation Guide* for detailed instructions on installing CAS or SAML2, including checklist appendices.
2. Enable seamless navigation for Banner 8.x forms.  
  
For more information, refer to the "*Enable seamless navigation for Banner 8.x forms*" section in the *Application Navigator Installation Guide*.
3. Run the seamless navigation utility for those Banner 8.x baseline administrative forms that you want to include in the unified menu.  
  
This is done as part of the seamless navigation implementation and enables seamless navigation and globals sharing between the Banner 9.x pages and the Banner 8.x baseline administrative forms.  
  
For more information, refer to the *Banner General Release Guide 8.6.4*.
4. On GUAPAGE, update the module **Integration** indicator to checked (Yes) for the Banner 9 Administrative applications that are being integrated. Self-Service applications do not have module records on GUAPAGE.  
  
For more information, refer to the "Change the setting using GUAPAGE" section in the *Application Navigator Installation Guide*.
5. On GUAPAGE, review the setting of **Platform Type** field and verify that the value for the platform type associated with the Banner 9.x module is one of two codes.

- ADMJF - Java Forms Administrative
  - ADMZK - ZK Administrative
6. The module code and related GUBPAGE records that are required with Application Navigator are inserted through seed data scripts. This occurs during the installation of an integrated Banner 9.x Administrative application.
  7. Rebuild the menu. For more information, refer to the "Rebuild the Banner Menus" section in the *Application Navigator Installation Guide*.
  8. If you are using Self-Service Banner, make sure that the variable, `banner8.SS.url`, in the configuration file has at least one occurrence of `ssomanager`.

For example: `banner8.SS.URL = 'http://<SSO_manager_host>:<port>/ssomanager/c/SSB?pkg='`

9. Add the URL to the Self-Service menu end points in the Application Navigator configuration file. This URL must match the new entry that is required in Web Tailor. The URL must be added to the appropriate menu in Web Tailor.

For example, if the URL to Faculty Grade Entry is `http://<banner_9_application_host>:<port>/StudentFacultyGradeEntry/ssb/gradeEntry` then this link should be added to the Self-Service menu endpoints in the Application Navigator configuration file and to the Web Tailor menu.

- a) To provide access to the Self-Service application through Application Navigator for a specific Entity (MEP code), your institution should add the query parameter, `mepCode={mepCode}`, to the URLs to provide Entity specific URLs to end users.

For example, the URL to Faculty Grade Entry should be appended with the `mepCode` to make it entity specific: `"http://<banner_9_application_host>:<port>/StudentFacultyGradeEntry/ssb/gradeEntry?mepCode= {mepCode}"` This link should be added to the Application Navigator configuration file and to the Web Tailor menu.

10. Define a new Web Tailor menu entry for each Banner 9 Self-Service application integrated with Application Navigator.

- a) Access Web Tailor Administration through the Banner 8 Self-Service menu.
- b) Under **Web Menus and Procedures**, choose a menu on which to show the page. This menu should have the same roles that the application requires for access.

The menu that the Self-Service application is placed on will determine the roles for which this application will appear in Application Navigator menu. The role on the menu controls which users can see the menu when logged into Application Navigator.

For example, if the Faculty Grade Entry application is added to a menu item that allows users with a role of faculty to access the menu, then the faculty user will see the Faculty Grade Entry application in the Application Navigator menu. If the Faculty Grade Entry application link is added to a menu item that allows users with a role of employee to access the menu, then the user with just the faculty role will not see the Faculty Grade Entry application in the Application Navigator menu.

- c) Enter the name of the menu.

For example, if you want to add the Self-Service application to the Faculty Grade Entry menu you would enter `bmenu.P_FacMainMnu` and select the menu.

- d) On the resulting page after selecting a menu, scroll to the bottom of the page, and click **Customize Menu Items**.
- e) Click **Copy Baseline to Local** if no local rows exist.
- f) Click **Add a New Menu Item**.
- g) Add the URL for the Self-Service application and the **Link Text** that will display on Application Navigator.

For example, the URL you would enter for Faculty Grade Entry is `http://<banner_9_application_host>:<port>/StudentFacultyGradeEntry/ssb/gradeEntry`

The Link Text and URL are both required for the link to appear properly on the Application Navigator menu.

- h) Make sure the **Enabled** check box is selected, and click **Submit Changes**.

If there are two menu items for an application like “Banner Student Registration” with the same URL and Link Text which exist on different parent menus and the user has access to both the parent menus, the link for the application will appear only one time in the Application Navigator menu when the user logs in.

If there are two menu items for an application like “Banner Student Registration 1” and Banner Student Registration 2, with the SAME URL and the user has access to both menu items, then the user will see both items in Application Navigator.

Refer to the *Banner Web Tailor User Guide* for detailed information about how to edit Web Tailor menus.

11. Enable seamless navigation for Banner 8.x Self-Service. The menu items available on the Banner 8.x Self-Service menu will depend on the role assigned to the Self-Service user. For more information, refer to the "Enable seamless navigation for Banner 8.x Self-Service Pages" section in the *Application Navigator Installation Guide*.

## Application Navigator Landing Page Features

The following icons are used with Application Navigator.

- The **Menu** icon is a group of three horizontal lines at the top left of the page. It indicates the main menu. Clicking this icon will display or hide the names of the Application Navigator icons. Click the **Menu** icon or the **Back to Main Menu** link to display the main menu on any screen.

You can choose to display (or hide) the seven letter object identifier on the menu by checking or unchecking the **Display Form Name on Menu** indicator on GUAUPRF. This change will take effect after you log out and in to the session again.

- The **Dashboard** icon is indicated by a home image. Click this icon to return to the landing page from any screen.
- The **Applications** icon is indicated by 9 small boxes in a grid of 3 by 3. This icon is used to display the **Banner**, **My Banner**, and **Banner Self-Service** menus, in addition to menus for any other integrated applications such as Banner 9 Registration.



- The **Search** icon, indicated by a magnifying glass, can be used to find pages or forms using key words or the seven letter object identifier for the form or page. This search is performed on the menu data, therefore if the form or page is not included on the menu, it is not included in the search results.
- The **Recently Opened** icon is indicated by an open file folder. When a new page is opened, the number attached to the folder increases by one. When selected, the recently opened icon displays a list of the recently opened forms and pages.
- The **Help** icon, indicated by a question mark, displays the online help for Banner 9 administrative applications. Online help is also available for Banner 8.x Self-Service.
- The **Sign Out** icon, indicated by a lock, is used to log out of Application Navigator.
- The landing page contains a search field which can be used to search for forms, pages, jobs, menus, and quickflows. If a form or page is selected, that form or page will open. If a menu item is selected from the landing page search results, the menu panel will open and the selected menu will be displayed. When an item is selected from the search results, the search results list is cleared.
- Click the **Keyboard Shortcuts** link at the lower right corner of the landing page to see the list of keyboard shortcuts that can be used to navigate through the landing page.

## Accessibility Options in Application Navigator

The user interface of Application Navigator has been designed to be accessible to all users. The table outlines the different accessible options for Application Navigator features and UI elements. These keys can also be used with assistive tools like JAWS and VoiceOver.

**Table 1: Accessibility Options**

Feature	Keyboard Navigation
Center Search	<ul style="list-style-type: none"> <li>• TAB to get focus</li> <li>• CTRL+SHIFT+X to get focus</li> <li>• UP and DOWN arrow keys to navigate through the search results</li> <li>• ENTER to select an item from the search results</li> </ul>
Toggle Side Menu	<ul style="list-style-type: none"> <li>• TAB to toggle icon and Enter to Open</li> <li>• LEFT ARROW key when on Center search and ENTER to Open</li> </ul>
Side Menu	<ul style="list-style-type: none"> <li>• UP and DOWN ARROW keys to navigate menu items</li> <li>• RIGHT and LEFT ARROW keys to open or close sub menu</li> </ul>
Dashboard/Home	CTRL+SHIFT+X
Application Menu	<ul style="list-style-type: none"> <li>• CTRL+M</li> <li>• UP and DOWN ARROW keys to navigate</li> </ul>

Feature	Keyboard Navigation
Side Search	<ul style="list-style-type: none"> <li>• RIGHT ARROW/ENTER keys to Open</li> <li>• LEFT ARROW/ESCAPE to Close</li> </ul>
Recently Opened	<ul style="list-style-type: none"> <li>• CTRL+SHIFT+Y</li> <li>• UP and DOWN ARROW keys to navigate</li> <li>• RIGHT ARROW/ENTER keys to Open</li> <li>• ESCAPE to Close</li> </ul>
Help	CTRL+SHIFT+L
Sign Out	CTRL+SHIFT+F
MEP Dialog	<ul style="list-style-type: none"> <li>• DOWN ARROW key to select options from MEP dialog</li> <li>• ENTER to save the selection</li> </ul>
University Home	Read only - no key navigation
Keyboard shortcuts dialog	<ul style="list-style-type: none"> <li>• TAB and ENTER to open</li> <li>• ESCAPE to close</li> </ul>

## Page display bar elements

Banner 9.x applications that are integrated with Application Navigator do not display the breadcrumb trail in the bar at the top of administrative pages that is used for navigation.

Instead, the bar contains the following elements that can be displayed using indicators in the Display Options section on the General User Preferences Maintenance Page (GUAUPRF).

- Page name long name and seven letter identifier  
The seven letter page name can be displayed by checking the **Display Form Name on Title Bar** indicator.
- Application version number  
The application version number can be displayed by checking the **Display Release Number on Title Bar** indicator.
- Database instance  
The database instance can be displayed by checking the **Display Database Instance on Title Bar** indicator.

## Unified Menu

The unified menu displays the existing Banner administrative menu system and is provided in addition to the **Go To...** and **Related to Current** list of pages used in Banner 9.x.

The unified menu panel is displayed on the left side of the page and can be opened and closed. You can navigate up and down the menu tree in this panel and refer to the **Recently Opened** list.

If the version of the application you are using cannot be integrated with Application Navigator, the application will not display the full Banner administrative menu system. Instead, the application will only display menu items related to pages that have not yet been integrated. The breadcrumb trail will still be displayed at the top of the page for navigation purposes. For example, Banner Student Course Catalog 9.x will display Course Catalog pages as standalone pages, but those pages will not be displayed with in the unified menu in the Application Navigator.

## Unsaved changes

Application Navigator tracks the state of unsaved data in applications with which it has been integrated.

The **Recently Opened** list displays an icon next to a page or application that has unsaved changes, as a visual cue for users. Additionally, when users attempt to sign out of Application Navigator, they will be prompted when any page or form still has unsaved changes.

This release does not support unsaved changes with Banner 8 Self-Service applications.

## Quickflows

Banner Quickflows can be launched from Application Navigator. The Quickflow support is limited to launching a Quickflow that has forms or pages of a single technology type (In either INB or a Banner 9 Administrative Application with a Platform type of ADMJF on GUAPAGE).

Each Quickflow must contain Forms/Pages in only one platform type in order for the Quickflow to run from Application Navigator. If the Quickflow has a mix of forms and pages of multiple types, the Quickflow will appear in the Application Navigator menu/search but when launched, the application will prevent the Quickflow from running. The user will see a message that the Quickflow cannot be executed.

Pages that exist in a module with a platform type of ADMZK (on GUAPAGE) are not supported in Quickflows. In order to accommodate the ability to search for a Quickflow that has a length of less than three characters, the Application Navigator search was modified.

The Application Navigator search field returns search results (which now includes forms, pages, jobs, menus and quickflows) when the user has entered three or more characters in the search field.

## Search capabilities

Perform a search by entering three or more characters in the search field.

**Note:** Quickflows are an exception to the three-character rule. If you perform a search for the name of a quickflow that contains one or two characters it will be displayed in the search results. If it contains three or more characters, you will need to enter at least three characters.

The Application Navigator search field returns search results that include the following.

- forms
- pages
- jobs
- menus
- quickflows

Some forms and pages are opened by Banner when needed for processing, but the user cannot see or access them directly. These are included in the baseline version of the applicationNavigator configuration file for exclusion from the search, menu and Recently Opened.

Users can search for Banner 8 or Banner 9 Self-Service pages based on the Link Test entries for a page.

To prevent additional pages and forms from being displayed in the Search, Menu, and Recently Opened, add the page or form mnemonic to the delivered list included in the following parameter in the configuration file.

```
seamless.excludeObjectsFromSearch = [
"GUAGMNU","GUAINIT","GUQSETI","FOQMENU","SOQMENU","TOQMENU",
"AQMEMU","GOQMENU','ROQMENU','NOQMENU','POQMENU','FACICON",
"FAQINVP","FAQMINV","FAQVINV","FGQACTH","FGQAGYH","FGQDOCB",
"FGQDOCN","FGQDOCP","FGQFNDE","FGQFNDH","FGQLOCH","FGQORGH",
"FGQPRGH","FOQADDR","FOQDCSR","FOQENCB","FOQFACT","FOQINVA",
"FOQJVCD","FOQPACT","FOQRACT","FOQSDLF","FOQSDLV","FPCRCVP",
"FPQBLAP","FPQCHAP","FRCBSEL","FSCISSR","FSCSTKL","FTQATTS",
"FXQDOCN","FXQDOCP","**SSB_MASKING","TSQCONT","TSQEXPT","TOQCALC",
"GPBADMN","SFQESTS","SFQPREQ","SFQRQST","SFQRSTS","SFQSECM","SFQSECT",
"SHQDEGR","SHQQPNM","SHQSECT","SHQSUBJ","SHQTERM","SHQTRAM","SLQBCAT",
"SLQEVNT","SLQMEET","SLQROOM","SMQSACR","SMQSGCR","SMQSGDF","SMQSPDF",
"SOQCSCP","SOQCTRM","SOQHOLD","RPQLELG","RPQCOMP","ROQADDR"
]
```

## Job Submission

You can select a Banner job from the Application Navigator Menu or Search field. When you select a job, the Job Submission Controls form (GJAPCTL) will be displayed with the job name entered in the Process field.

The version of GJAPCTL displayed is dependent on the Banner8/Banner9 Display Option for that job on the Object Maintenance form (GUAOBS). BANJSPROXY/Wallet is required to run job submission on Banner 9.

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### Value of Banner8/Banner9 Display Option on Version displayed GUAOBS

All (Banner8 & Banner9)	Banner 8 version
Banner8 Only	Banner 8 version
Banner9 Only	Not supported
Unified Menu All (Ban8 & Ban9)	Banner 9 version
Unified Menu Ban9 only	Banner 9 version

# Module, Page, and Object Maintenance for Administrative applications

This chapter discusses using options on the Banner9 Module and Page Maintenance Form (GUAPAGE) and the Object Maintenance Form (GUAOBS) with Application Navigator.

## Module and page maintenance

The Banner9 Module and Page Maintenance Form (GUAPAGE) is used to create records for modules and pages and then assign the pages to specific modules. An object can only exist in one module. Here is a list of the fields with descriptions for GUAPAGE.

Field	Description
<i>The following fields are in the Module Code section.</i>	
Module Code	Banner 9.x module code. Module codes are delivered with each application through an upgrade script.
Module Description	Banner 9.x module description. Related application pages are delivered with the application as part of the upgrade.
Platform Type	Platform type code that identifies a platform type used with Banner modules. Values come from GTVPLAT. Example codes could be ADMJF (Java Forms Administrative) and ADMZK (ZK Administrative).
URL	Banner 9.x administrative pages web application URL. The URL must be updated by the institution.
Integrated	Check box used to indicate whether the module is integrated with the unified menu.  This indicator should be updated after an institution has installed Application Navigator and wishes to run that module in an integrated mode (such as a Banner 9.x administrative application and Banner 8.x baseline administrative forms under one user interface, sharing the same menu).
<i>The following fields are in the Page Code section.</i>	

Field	Description
Object Code	Object code (form name) that is mapped to the Banner 9.x page. Values come from GUAOBS.
Page Name	Banner 9.x page name.  For Java administrative pages, the page name is delivered as seed data and is the same as the object code name.

## General Common module

When using Application Navigator, a URL must be specified on GUAPAGE for the General Common (GC) module.

This section is only applicable if ADMZK administrative applications are installed.

Because the General Common module is delivered as part of each ADMZK administrative application, to ensure that the most recent version of those pages will be accessed, the General Common URL should be specified as the URL of the most recent ADMZK administrative application that has been installed.

There are several Banner 9.x application modules that have delivered GUBPAGE records. However, these pages are not yet included in the application WAR files. The pages are:

Page	Banner 9.x page name
GUIALTI	alternateidsearch
GUISRCH	telemailsearch
GUQSRCH	extendedsearch
SOACOMP	nonpersonsearch
SOAIDEN	personsearch

The affected Banner 9.x applications are:

- Banner General Event Management
- Banner Student Attendance Tracking
- Banner Student Class Schedule
- Banner Student Course Catalog

It is not advisable to configure the General Common module URL with any of the four Banner 9.x modules listed above when installing either the Banner Student Registration (administrative), Banner Student Overall, or Banner Student Academic History modules. The General Common module URL must be same as one of the three Banner Student modules, preferably the one that was most recently installed.

## Object maintenance and Banner 8.x/9.x display option

The **Banner8/Banner9 Display Option** field is used within the Banner 8.x and Banner 9.x applications, and the Application Navigator to determine which menus should contain the object.

On the Object Maintenance Form (GUAOBS), this field displays the user interface version as one of the following options:

- All (Banner8 & Banner9)
- Banner8 Only
- Banner9 Only
- Unified Menu All (Ban8&Ban9)
- Unified Menu Ban9 Only

## Automatic updates of GUAOBS display option based on GUAPAGE data

During the installation of an Administrative application, new records for the module code, module description, and associated module pages (object codes and page names) are created and can be viewed on GUAPAGE. Each module includes a setting for the **Integrated** indicator.

The unified menu is in use when the **Integrated** indicator for the module is selected on GUAPAGE. This setting is used to determine the setting of the **Banner8/Banner9 Display Option** field on GUAOBS for all pages in that module. Applications with a platform type of ADMZK also contain a parameter in a configuration file that must be updated to integrate with Application Navigator. For more information, see the topic "Steps to implement seamless navigation".

## GUAPAGE records and effect on GUAOBS

Here are some scenarios about how the setting of the **Banner8/Banner9 Display Option** field on GUAOBS affect page display for objects on GUAPAGE.

### Example 1

The current value of the display option is `Banner 8 Only` for an object.

The object is added to GUAPAGE in a newly installed module which has the **Integrated** indicator unchecked or N.

After the menu rebuild, the display option will be updated to `All (Banner8 & Banner9)` for pages in that module.

### Example 2

The current value of the display option is `Banner 8 Only` for an object.



The object is added to GUAPAGE in a newly installed module which has the **Integrated** indicator checked or Y.

After the menu rebuild, the display option will be updated to `Unified Menu All (Ban8&Ban9)` for pages in that module.

### Example 3

A module has been previously installed and then is subsequently released with support for Application Navigator.

The setting of the **Integrated** indicator can be manually updated for that module.

After the menu rebuild, the display option will be updated to `Unified Menu All (Ban8&Ban9)` for pages in that module.

## Facilitate menu rebuild

If you are using a version of GUAPAGE that is at Banner General 8.7.5 Controlled Release or higher, the menu rebuild is run automatically after the **Integrated** indicator setting is changed on GUAPAGE.

If you are using a version of GUAPAGE that is before the Banner General 8.7.5 Controlled Release, the menu rebuild is not run automatically after the **Integrated** indicator setting is changed on GUAPAGE.

In this case, you can perform one of the following tasks to trigger the menu rebuild.

- Update a record on the Menu Maintenance Form (GUTGMNU).
- Update the **Description** field for an object on GUAOBS.

The user interface version in the **Banner8/Banner9 Display Option** field does not need to be manually updated from **All (Banner8 & Banner9)** to **Unified Menu All (Ban8&Ban9)**, because the menu rebuild will automatically set the correct values based on the data in GUAPAGE.

## Form and page access comparison

Here is a comparison of where forms and pages are accessed, based on the user interface version on GUAOBS.

User Interface Version	Displayed In
Banner8 Only	Banner 8.x
All (Banner8 & Banner9)	Banner 8.x Banner 9.x applications that have not been integrated with the Application Navigator
Banner9 Only	Banner 9.x applications that have not been integrated with the Application Navigator

User Interface Version	Displayed In
Unified Menu All (Ban8&Ban9)	Banner 8.x Banner 9.x applications that have been integrated with the Application Navigator
Unified Menu Ban9 Only	Banner 9.x applications that have been integrated with the Application Navigator

The user interface version can be manually updated to prevent the Banner 8.x version of a form from being accessed.

- When the value is All (Banner8 & Banner9), change it to Banner9 Only.
- When the value is Unified Menu All (Ban8&Ban9), change it to Unified Menu Ban9 Only.

After the manual update is done, run the menu rebuild. If no GUBPAGE record exists for Unified Menu All (Ban8&Ban9), the menu rebuild will switch the value back to Banner8 Only.

## Display results comparison

Here is a comparison of the expected results for Application Navigator and standalone display, based on the user interface setting on GUAOBS.

GUBOBS User Interface Version	Using Application Navigator	Running Standalone
All (Banner8 & Banner9)	The Banner 8.x version of the form is opened, as this option is not unified.	The Banner 8.x form is opened. The Banner 9.x administrative page is opened when the administrative application is in use.
Banner8 Only	The Banner 8.x version of the form is opened.	N/A
Banner9 Only	The administrative page is not included on the unified menu.	A message is displayed in Banner 8.x that the user is not authorized for access. The Banner 9.x administrative page is opened when the administrative application is in use.
Unified Menu All (Ban8&Ban9)	The Banner 9.x version of the administrative page is opened.	The Banner 8.x form is opened. The Banner 9.x administrative page is not included in Banner 9.x menu.

<b>GUBOBS User Interface Version</b>	<b>Using Application Navigator</b>	<b>Running Standalone</b>
Unified Menu Ban9 Only	The Banner 9.x version of the administrative page is opened.	A message is displayed in Banner 8.x that the user is not authorized for access.  The Banner 9.x administrative page is not included in Banner 9.x menu.

## Banner 9.x Self-Service application integration with Application Navigator

Application Navigator can be configured to provide a seamless navigation experience with Banner 9.x Self-Service applications.

When configured, a menu item will appear in the Application Navigator menu for each Self-Service Application. After an application is integrated it will also be included in the search results in the search fields on Application Navigator. The institution can choose to integrate the Self-Service application with Application navigator and also allow some users to access the Self-Service application directly without Application Navigator. If the institution integrates the Self-Service application with Application Navigator, these features will be available to the end user.

- Banner 9.x Self-Service applications are included in the Application Navigator Menu.
- Banner 9.x Self-Service applications are included in the Application Navigator Search.
- Banner 9.x Self-Service applications are included in the Application Navigator Recently open.
- Unsaved changes in Banner 9.x Self-Service applications will be reported when users attempt to log out of Application Navigator.
- Selection of MEP code through a single selector upon login to Application Navigator for those users who are both Administrative and Self-Service users.
- Ability to run Self-Service Application with MEP codes as specified by the Institution for Self-Service-only users.
- Integrated timeout (keep-alive) and logout support for Banner 9.x Self-Service applications integrated with Application Navigator.

## Banner 8.x Self-Service application integration with Application Navigator

Application Navigator can be configured to provide a seamless navigation experience with the Banner 8.x Self-Service application.

When configured, a menu item will appear in the Application Navigator menu for Banner 8.x Self-Service. After Banner Self Service is integrated it will also be included in the search results in the

search fields on Application Navigator. The institution can choose to integrate the Banner 8.x Self-Service with Application Navigator and also allow some users to access the Banner 8.x Self-Service directly without Application Navigator. If the institution integrates the Banner 8.x Self-Service with Application Navigator, these features will be available to the end user.

- Banner 8.x Self-Service pages are included in the Application Navigator Menu.
- Banner 8.x Self-Service pages are included in the Application Navigator Search.
- Banner 8.x Self-Service pages are included in the Application Navigator Recently open.
- Ability to run Banner 8.x Self-Service pages with Multi-Entity Processing (MEP) codes as specified by the Institution for Self-Service-only users.
- Integrated timeout (keep-alive) and logout support for Banner 8.x Self-Service pages integrated with Application Navigator.

The Banner 8 Self-Service menus will continue to display within the Banner 8 Self-Service application when running in Application Navigator. After a user logs in through Application Navigator and selects a Banner 8 Self-Service page, the user will have access to the Banner 8 Self-Service menus (as the user would see if logging in directly to the Banner 8 Self-Service application).

If you have also integrated Banner 9 Self-Service applications in Application Navigator, they will appear in the Application Navigator menu.

When a user launches a Banner 9 Self-Service application from the menu, the application will launch in the browser tab where the integration features with Application Navigator (such as the integrated timeout, unsaved changes, etc.) are supported. In addition, any external URL pages will open in a new browser tab where the integration features with Application Navigator are not supported. To exit the session, the user should return to the tab where Application Navigator is open. This action will result in all tabs open being logged off.

If Single-Sign Out is being used and the user logs out of Application Navigator or from one of the applications running in a separate tab of the same browser, the user will be logged out of all applications participating in Single-Sign Out. To ensure that no data is left displayed, users should close all tabs that are no longer in use and close the browser session at the end of their usage.

---

## Timeout Handling

Application Navigator keeps a user session alive while the user performs activities such as accessing the main menu, searching for menu items, selecting pages from the **Recently Opened** list, and opening online help. Timeouts can be set up in Application Navigator for all user sessions. These timeouts work with embedded applications and are separate from Banner timeouts.

Users are notified when their session is about to expire, and they have the option to refresh the session and continue working. When the user refreshes the session, the timeout counter is reset. The session remains active as long as Application Navigator is in use. The session expires if Application Navigator remains inactive for a specific amount of time.

When the timeout threshold has been reached, the user is notified that the session is about to expire. The user is also notified when any unsaved changes exist. When the session expires, any unsaved changes will be lost.

**Note:** It is expected behavior that when the timeout threshold has been passed and session timeout is inevitable, even if the user performs an action in the final seconds of the timeout countdown, the timeout may still occur.

Administrators can specify the timeout threshold for user sessions, and the threshold for user notification that the session is about to expire. When the session expires, the user is logged out of Application Navigator and all integrated applications.

**Tip:** It is recommended that the setting of the timeout threshold for the individual applications be set to a value that is much greater than the timeout setting for Application Navigator.

When all applications are inactive, Application Navigator will still handle the synchronized logout when the user is inactive for longer than the specified timeout threshold.

**Note:** When an embedded application has not yet been updated to support timeout integration with Application Navigator, the user can be active in Application Navigator and still experience an unexpected timeout in the application, without being aware of that timeout until the application is selected as the primary active window.

When a user has multiple applications open, timeout messages for those applications may be displayed through Application Navigator. When a user has multiple browser windows open and is not on the browser window that is displaying the Application Navigator timeout warning message, the user could miss the message and fail to extend the session. In this situation, the application will time out, and the user will be logged out of Application Navigator and all integrated applications.

A scenario exists where the Banner 9.x application can time out while Application Navigator remains active:

All integrating applications, regardless of whether or not they support the Timeout Integration API, contain their own built-in timeout processing. In this case, the existing embedded applications will respond to the specific application's built-in timeout processing but will have limited response to Application Navigator's timeout processing. A limited number of activities performed in that application can keep Application Navigator active, (such as entering Key block values or opening and closing pages).

## Configuration

Application Navigator contains a configurable timeout property (`seamless.sessionTimeout`) in the `applicationNavigator_configuration.groovy` file that overrides the value set in the `web.xml` file.

This variable sets the application HTTP session to the new value in minutes. The `seamless.sessionTimeoutNotification` property is used to display the prompt and notify the user that the session is about to expire.

Here is an example of setting the timeout values in the `applicationNavigator_configuration.groovy` file.

```
seamless.sessionTimeoutNotification = 5 // mins
seamless.sessionTimeout = 30 // mins
```

Here is a summary of the seamless timeout configuration properties.

Property	Description
<code>seamless.sessionTimeout</code>	<p>Time in minutes before session timeout occurs.</p> <ul style="list-style-type: none"> <li>Value of <code>-1</code> indicates the session will not time out.</li> </ul> <p><b>Warning:</b> <i>When this setting is used, the session will not expire unless the user signs out.</i></p> <ul style="list-style-type: none"> <li>Value of <code>0</code> indicates the session will expire immediately.</li> <li>Default value is 30 minutes.</li> </ul>
<code>seamless.sessionTimeoutNotification</code>	<p>Notification prompt in minutes before session timeout occurs.</p> <p>Default value is 5 minutes.</p>

## Keep-alive Messaging Support

Application Navigator allows messaging support for integrating Administrative and Self- Service applications to stay alive during the user's session.

The integrating application handles this messaging support by tracking local activity and in turn notifies Application Navigator to keep alive thereby extending the user's session. When the user logs out from Application Navigator, then the session is terminated and user is also logged out from all integrating applications as part of the Single Sign-on configuration.

---

In a Banner 9 Self Service Application, user activity such as focus event, keypress event, click event or even a server-side ajax event enables the keep-alive flag by design. The Banner 9 Self-Service application polls itself within an interval of 5 minutes and notifies Application Navigator if the user's session is to be kept alive. Upon receiving the keep alive message Application Navigator will in turn notify other integrating applications to stay alive and not timeout.

When integrating Banner 8x Self-Service Applications with Application Navigator, administrators can set the default web timeout in Web Tailor Administration to a value that is greater than the Application Navigator timeout. A new procedure `TWBKWSSB.P_KeepAlive` was added in Web Tailor 8.8.3 to provide timeout integration support for Banner 8x Self-Service with Application Navigator.

**Note:**

Key assumptions that have to be taken into account in order for the timeout integration to be effective between Application Navigator and integrating applications:

- Embedded Banner Administrative or Self-Service application timeout must always be greater than Application Navigator timeout.
- Banner 9 Self-Service Application timeout must be greater than the default polling interval of 5 minutes.

## Java Administrative Pages

This section discusses Application Navigator and Banner Java administrative pages.

The Banner Menu Package (GUKMENU) and the Banner9 Module and Page Maintenance Form (GUAPAGE) support using Java administrative pages.

- The GUKMENU package is used to determine which version of the Banner form or page is to be displayed, based on the platform type, when the form or page is accessed from a menu in Application Navigator.
- The **Platform Type** field on GUAPAGE is used to indicate the platform type code associated with the Banner module. Platform type codes are defined on the Platform Type Validation Form (GTVPLAT) and are used specifically with Application Navigator. The `ADMJF` code (Java Forms Administrative) is used with applications that have Java administrative pages.

Please refer to the *Banner General Release Guide 8.7.5* for more information.



## Module Configuration Override

This chapter discusses overriding the module configuration used with the Banner menus and the Menu Service. This functionality allows for multiple deployments of Application Navigator, where each deployment points to a different deployment of Banner 9.x modules that are running against a single Banner database instance.

**Note:** This functionality is intended for technical users in a test or pre-production environment.

### Module configuration override

Application Navigator displays Banner menu items in the Menu and Search option for the Banner administrative applications. Previously, only URLs from the GUBMODU table were used.

This setup created a one-to-one dependency between Application Navigator and the database instance. Users could not install more than one version of the same application within a single database (such as pointing a development environment and a test environment to Application Navigator).

Now, when your institution has Banner Applications deployed on different application servers but pointing to a centralized Banner Database and CAS server, you can override the GUBMODU module URL configuration using module URL overrides as mappings to the `applicationNavigator_configuration.groovy` file.

For example:

```
module.deployments = [
  "<MODULE_CODE>" : "<MODULE_URL>", "<MODULE_CODE>" : "<MODULE_URL>"]
MODULE_URL format same as GUBMODU_URL which is in the format of http://
<server>:<port>/<appname>/
]
```

**Note:** The `MODULE_CODE` value above should be same as `GUBMODU_CODE` value.

### Override setup

When menus are generated by the Menu Service, Application Navigator checks whether a configuration override exists for any `GUBMODU_CODE` value. If an override is found, the `MODULE_URL` value is used. When no configuration override exists, the Menu Service uses the `GUBMODU_URL` value.

Here is an example of GUAPAGE form/GUBMODU table entries for the module configuration override in the `applicationNavigator_configuration.groovy` file.

---

GUBMODU_CODE	GUBMODU_URL
SF	<a href="http://PREPROD_SERVER_HOST:PORT/StudentRegistration/">http://PREPROD_SERVER_HOST:PORT/StudentRegistration/</a>
SO	<a href="http://PREPROD_SERVER_HOST:PORT/StudentOverall/">http://PREPROD_SERVER_HOST:PORT/StudentOverall/</a>

---

Here is an example of the configuration entries in the `applicationNavigator_configuration.groovy` file.

```
module.deployments = [  
  "SF" : "http://TEST_SERVER_HOST:PORT/StudentRegistration/",  
  "SO" : "http://TEST_SERVER_HOST:PORT/StudentOverall/"  
]
```

In this example, Application Navigator would render the Registration and Overall application menu URLs to point to the `TEST_SERVER_HOST` instead of the `PREPROD_SERVER_HOST` that was originally configured in the database (GUBMODU table).

## Deep-Linking

This chapter discusses using Application Navigator with deep-linking.

### Deep-linking overview

Application Navigator supports parameter passing for deep-linking. This means that it can recognize parameters passed by an external system and then forward these parameters to the target application. Parameters can be passed from the following external applications: Luminis portlets and Banner Workflow.

### Parameter definition

The parameters are defined as `inbound_args` in the following format.

```
[param-name]::[param-value]::[param-name]::[param-value]
```

Parameters for the `param-name` are defined in the GURTRAN table.

Parameter	Param-name	Param-value
term	KEY_TERM	global.term.lookup
bannerId	KEY_IDNO	global.bannerid.lookup
CRN	KEY_CRN	global.crn.lookup

The GURTRAN table can be modified to add more parameters.

You can optionally define the query parameter `inbound_args` in the URL construct for deep-linking when passing global variables as shown in the example below.

```
http://<application_navigator_host>:<port>/applicationNavigator/
channels?launch_form=PEAREW&inbound_args=param-name::param-value
```

### Luminis Examples

These are examples for calling the Internet Native Banner (INB) application, Banner 9.x Administrative applications, Banner 9.x Self-Service pages, and Banner 8.x Self-Service pages from Luminis.

#### Luminis to an Internet Native Banner link

---

Without query parameters defined:

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=SPAIDEN
```

With term and CRN query parameters defined:

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=SFAALST&inbound_args=term::199310::crn::20064
```

With a bannerId query parameter defined:

```
http://<APPLICATION_NAVIGATOR_HOST>:<PORT>/applicationNavigator/  
channels?launch_form=SPAIDEN&inbound_args=bannerId::SYS000022
```

### **Luminis to a Banner 9.x administrative page link**

Without query parameters defined:

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=SOATERM
```

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=SAAACKL
```

With a bannerId query parameter defined:

```
http://<application_navigator_host>:<port>/channels?  
launch_form=PEAREW&inbound_args=bannerId::SYS000022
```

With a term query parameter defined:

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=SOATERM&inbound_args=term::213016
```

With bannerId and term query parameters defined:

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?  
launch_form=SAAACKL&inbound_args=bannerId::SYS000022::term::213016
```

With term and CRN query parameters defined:

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=SOATERM&inbound_args=term::199310::crn::20064
```

### **Luminis to a Banner 9.x Self-Service page link**

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=http://<SELF_SERVICE_APPLICATION_HOST>:<PORT>/  
StudentRegistrationSsb/ssb/registration
```

### **Luminis to a Banner 8.x Self-Service page link**

---

Link to a page:

```
http://<application_navigator_host>:<port>/applicationNavigator/  
channels?launch_form=bwgksrvy.P_ShowSurveys
```

## Workflow Example

This is an example for calling a Banner Workflow page.

```
http://<application_navigator_host>:<port>/applicationNavigator/  
workflow?wf_args=wf_actionqueue_ior=WF_URL=http://  
<workflow_application_host>:<port>/workflow/bannerintegration?  
CLIENT_ID=<DB_CLIENT_ID>|WF_BANNER_CONNECTION=<TNS_CONNECTION_SID>
```

## Display name functionality

A new name display-formatting feature was added in Banner General 8.8.5.

### About this task

The name display-formatting feature can be used with Application Navigator starting in the 2.0 release.

This feature provides institutions with a mechanism to configure the format of the name that is displayed in the Application Navigator header.

The functionality allows for a hierarchy of name formats (called 'usage rules') to be defined.

A specific Name usage rule can be associated to Application Navigator in the Name Display (GUANDSP) page.

To create the association for Application Navigator on GUANDSP:

### Procedure

1. Open the GUANDSP page.
2. Access the Hierarchy Tab.
3. Perform the following query:
  - Product: Banner General
  - Application: Application Navigator
4. Update the Usage field with the usage rule your institution prefers for Application Navigator.

### Results

When this association is created, the specific rules associated with this Usage rule will be applied to the user name that is displayed in the Application Navigator header.

If no rule is associated to the Product: Banner General Application: Application Navigator, the Usage rule of "Default" will be used to determine the format of the name display for Application Navigator.

If the Banner General 8.8.5 release has not yet been installed, the name displayed in Application Navigator will be Full Name.

If the seed data is not available, refer to the values in the table to use the Name Display (GUANDSP) form and enter the information manually.

Seed data delivered for Application Navigator:

Product	Application
Banner General	Application Navigator

Add this record on the Hierarchy tab of the Name Display (GUANDSP) page. For more information about GUANDSP, refer to the online help.

---

## MEP support

### Administrative user

When an administrative user accesses Application Navigator from a link that does not have an associated MEP code, the user will be prompted to select a MEP code (unless the user has no assigned codes or only one).

This link to access Application Navigator will be the same link that was always used by administrative users (even before the Application Navigator integration with Self-Service apps). This will set the user's MEP home context for the session. The items that will display in the menu will include the Banner Administrative menu and any Self-Service applications that the user has a role to access with the selected institution code. The user has the ability to change the process context through the application that is being accessed if the process context is supported in that application (Banner 8 Administrative pages and Banner 9 Administrative pages have support for process context).

### Self-Service user

When a user accesses a Self-Service application that is integrated with Application Navigator, they will not be prompted to select an institution, because the link to access the Self-Service application contains the institution code.

The home institution will be set to the institution code as specified in the URL. (Self-Service applications only have a home context, not a process context). All Self-Service applications accessed during the session will use the same MEP code. If the user also has permission to access the administrative Banner application with that MEP code, the Banner administrative menu will be displayed, and the user can access the Administrative application using that MEP code. Process context will be available in the Administrative application if the institution has created rules for that application.

**Note:** When accessing Application Navigator with a ZK application, the user will be prompted again to select a MEP institution. At that time, the user could select a different MEP institution than the one they selected at login.

To provide access to the Self-Service application through Application Navigator for a specific Entity (MEP code), the institution should continue to provide Entity specific URLs to the end users for access. When the user navigates to the URL, Application navigator will display and the user will have access to all integrated Self-service applications (for that Entity), if the user has the proper role for the application within that Entity (MEP code).

---

## Troubleshooting

Here is troubleshooting information for seamless navigation between Banner 8.x forms and Banner 9.x administrative applications.

### Invalid user interface version error

On the GUAOBS form, when the **Banner8/Banner9 Display Option** field is set to a value that indicates the page is a Banner 9.x page and the Banner 9.x page does not exist in the environment, the Application Navigator displays the page on the menu.

However, when the page is selected from the menu, it is not displayed. Instead, a 404 error is displayed, and the user is forced to sign out.

To correct this issue, the Banner 9.x page entry must be removed from the GUAPAGE form, and the menu rebuild procedure must be executed.

When the page is not listed on GUAPAGE, the **Banner8/Banner9 Display Option** field value can be manually updated on GUAOBS to *Banner8 Only*. After this has been done, the Application Navigator displays the page on the menu and when the page is selected, it is properly displayed. The 404 error will not be displayed.

### Access Banner menu data logs

When you do not have access to Banner menu data and try to authenticate to the Application Navigator, no menus will be displayed on the user interface.

If this occurs, contact your administrator, who can check the Application Navigator logs and identify the root cause. The menu service captures all the exceptions and writes them to the Application Navigator log file.

### Global variables not passed between Banner 8.x and Banner 9.x

If global variables (Key block data) are not being transferred between Banner 8.x forms and Banner 9.x pages, there may be a problem with data in the GURTRAN table.

GURTRAN provides a cross-reference between Banner 8.x global variable names and Banner 9.x global variable names. This table is updated by the `scui_gurtrani.sql` script as part of the Banner 9.x database upgrade process.

You must query the GURTRAN table to determine whether the variables are populated. If the variables are not populated, re-run the `scui_gurtran.sql` script to add the translation values.



---

**Note:** If you have modified the Key block of any Banner 9.x application, or if you have developed your own administrative pages, you may need to add further translation values to GURTRAN. The `scui_gurtran.sql` script can be modified to populate the required translation values.

## User not able to open a second INB form when running seamless navigation

See these articles for more information.

- Article 000033474 - Running Application Navigator and only one INB form will open - Liveconnect Security Exception
- Article 000030656 - Java 7 security restrictions with Liveconnect calls to Oracle Forms Applet

## Pointers for running seamless navigation with Banner Forms

See these articles for more information.

- Article 000032407 - Implementing Seamless Navigation Enhancement Utility on Linux/Unix
- Article 000032952 - Banner 9.x and Cygwin and Seamless Navigation seamapiBanner.shl java.lang.Exception \_jni\_initialize when not using an X-Windows session on Linux
- Article 000033237 - Running seamApiBanner.shl and getting java.lang.Exception \_jni\_initialize Failed to create new forms context

## Pointers for enabling seamless navigation for Banner 9.x applications

See these articles for more information.

- Article 000032067 - Implementing Seamless Navigation and Application Navigator in Banner 9.x
- Article 000031168 - Setting up Application Navigator and getting the error: "FRM-92190: JavaScript is unable to evaluate expression" when opening any form
- Article 000031814 - How to enable or disable the Banner XE Admin integration with Application Navigator

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## Oracle Forms Javascript error after upgrading Banner General release

As part of the Banner General upgrade, make sure to update the `banner8_integration.js` file from the Banner source tree. If this is not done, the following error is displayed at run time when INB is accessed.

*Oracle FRM-92190: Javascript is unable to evaluate expression*

Make sure to restart your Oracle Forms Server for the new changes to take effect.

## Oracle PL/SQL runtime error when attempting to access a Banner 8.x Self-Service page

If a particular Banner 8.x Self-Service page is not accessible, it may be due to an Oracle PL/SQL runtime exception.

An error such as, 'PROCEDURE DOES NOT EXIST' will be displayed. Log out from Application Navigation and log in again to access other Banner 8.x Self-Service pages. Contact your system administrator for further assistance with the page that is inaccessible.

## User not able to open a second Banner 8.x Self-Service page when integrated with Application Navigator

Ensure that the Web Tailor Parameter values are entered accurately.

See the *Verify Web Tailor Parameters* section in the *Application Navigator Installation Guide*. Specifically, ensure that the `http://<application navigator host name>:<port>/applicationNavigator/static/dist/m.js` parameter is configured correctly for your instance.

## Keyboard/Cursor focus issues with Application Navigator and Integrating Banner applications

There are certain keyboard and cursor focus issues that users may experience.

See these articles for more information:

- Article 000036457 - Focus Issues with Application Navigator
- Article 000039028 - Summary of Application Navigator and BannerAdmin 9.x navigation and cursor focus issues