



Brand Mobiliser User Manual

[PRODUCT DOCUMENTATION]



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Revision History

Version 1.1 - March 2011



1 Introduction

Brand Mobiliser is the Sybase Mobile Interactive platform to fulfill the needs of our enterprise customers in mobilizing all aspects of their business including: brand awareness, financial and banking, payment, commerce, CRM, and much more. The flexibility of the platform enables our customers to adjust their mobile applications in real time when the business needs change without disruption. This is critical in the mobile world with billions of subscribers globally.

In addition, the mobile lifestyle of consumers has increasingly demanded more interactions with their mobile applications. Brand Mobiliser comes with a rich web composer that enables business users to design mobile interactive applications and deploy them into service with minimal time and effort. The real-time Interactive Composer enables you to adjust your business flow to meet the changing business needs without disruption to the mobile subscribers.

Brand Mobiliser comes with a high-performance and scalable Interactive Engine to serve the continued growth of mobile traffic demanding instant interactions with the mobile applications. It is designed based on node architecture suitable for cloud deployment and scalability.

Brand Mobiliser is based on the OSGi™ modular architecture so it can easily be extended with plug-in components that enable even richer interactive mobile applications in the near future. Components are also available to integrate with our customer's enterprise services, or our partner's and other third-party services using the Service Oriented Architecture.

1.1 References

1. Brand Mobiliser Development Manual; Version 1.1 – March 2011
2. Brand Mobiliser State Developer's Guide; Version 1.1 – March 2011

1.2 Conventions

The following conventions are followed within this document:

- Application – refers to Interactive Application
- BrandUI – refers to the Brand Mobiliser web user interface. Internally, there are two parts to Brand Mobiliser: the web user interface for human interaction; and the incoming request interface to service the incoming messages from mobile handsets
- BrandEngine – refers to the Brand Mobiliser interactive engine that processes incoming messages from mobile handsets. Internally, there are two parts of Brand Mobiliser: the web user interface for human interaction; and the interactive engine (incoming request interface) to service the incoming messages from mobile handsets
- **Manage Workspace** – bolded font indicates screen or page name. The word screen and page are used interchangeably to mean the same thing
- ***“Workspace”*** – bolded italic font and surrounded by quotation indicates a word that is used multiple times in this document. Style when used for the first time is ***bold italic*** and surrounded by quotation. Style when used subsequently is *italic* with no emphasis
- *at least one assigned unique short code* – underlined and italic indicates that the statement is important



- [My Account](#) – indicates a hyperlink to a screen, in this case, the **My Account** screen
- **Best Practice** – added to sections when necessary. The Best Practice provides recommendation so that novice users can avoid implementations that lead to system limitation(s)
- **NOTE: and the details are bolded.**

1.3 Workspace

Brand Mobiliser adopts the concept of "**Workspace**" that is a logical grouping of users who are collaborating on the same projects or tasks. More importantly, workspace need to have unique short code so a short code cannot be shared across workspaces. More than one unique short code can be assigned to the workspace. Please refer to [Short code](#) section for discussion on how short codes are used within Brand Mobiliser.

A workspace can have only one active "**Delivery Channel**". Please refer to [Delivery Channel](#) section for detailed discussion of *delivery channel*. So for example, if an alternative *delivery channel* another workspace will need to be created. The delivery channel(s) are defined on the brand mobiliser platform level and can be shared across workspaces.

Once the workspace is created, users may be assigned to the workspace. Users are assignable to more than one workspace. The system has a pre-defined workspace called "default". A pre-defined user called "admin" who has the role of the "SUPER ADMIN" is initially assigned to this "default" workspace.

Note: In version 1.0, it is possible during user creation to not assign a workspace to a user. However, during saving the system will automatically assign a "default" workspace to the user. Automatic assignment also occurs during user modification.

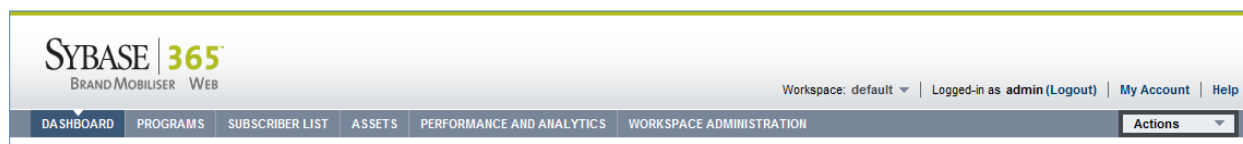
The **Manage User** screen allows the removal of all assigned workspaces from a user. However, while saving the "default" workspace is added automatically by the system. An automatic assignment does not occur if there is at least one assigned workspace.

Best Practice:

- Do not assign the pre-defined "default" workspace to any users. Preserve the initial setup of the "default" workspace assigned to the pre-defined "admin" user. Treat the "default" workspace as a "guest" workspace so when users are in-advertently assigned to the "default" workspace, no damages can be done.
- In addition, the current version of brand mobiliser does not support the ability to disable user. So disable user can be, assign the user to the "default" workspace and remove all the assigned roles. This should be secure provided the above recommended practice is also adopted.

1.3.1 Change Workspace

As discussed earlier, a user may be assigned to multiple workspaces. After login, a user with multiple assigned workspaces will be placed automatically into one of the workspaces. The user may change to another workspace using the dropdown control (called "Workspace") displayed in the header, as shown below.



The dropdown control shows the workspace that the user is currently in, and when clicked it will show all the workspaces that are assigned to the user. Selecting an item from the dropdown and clicking it to accept it will

invoke the change workspace action. The user will be placed in a new workspace and the screen Since the change workspace control is in the header, the user can access the change workspace control from any screens. However, the user should be aware that when the workspace is changed the screen will change to **Dashboard**. This is necessary because as described earlier, each workspace have their unique artifacts: short codes, delivery channel, interactive applications, etc. So when changing workspace, all of those artifacts will need to change as well.

For security and system reasons, the user cannot work across workspaces. The user cannot see artifacts from multiple workspaces. This is by design.

1.4 User

Brand Mobiliser expects a pre-defined user at startup. The user is “admin”, and the initial password is “brand”. This user is added when running the database script during installation. The first thing an application administrator should do is to change the password and to save the password in a safe location.

Currently, Brand Mobiliser does not allow deleting user or disabling user. As described in the best practice of the Workspace section, disabling users is accomplished by assigning the user a “default” workspace and removing all the assigned roles. Disclaimer: this practice is secure provided that the “default” workspace is not assigned to any users as recommended in the best practice of the Workspace section.

Best Practice: This recommended practice should be implemented in conjunction with the best practice in the Workspace section.

- Remember to change the password of “admin” user

1.5 Short Code and Keyword

Short code is used within Brand Mobiliser to identify a workspace. Therefore, when you enter a short code for a workspace the UI will check and ensure that the short code has not been used by other workspace. When an incoming message arrives at Brand Mobiliser (specifically BrandEngine), the message’s destination MSISDN is mapped to a short code. The short code is used to dispatch the message to the correct workspace. A workspace may contains many applications so in order to route the message to the correct application, keywords are used.

The use of short code in Brand Mobiliser should not be confused with how it is used in the bigger picture of the mobile operator world. Short codes (as defined in the [Appendix A2](#)) are often associated with mobile services, and therefore assigned by the mobile operator to the owner of the service. In this case, the service is the Brand Mobiliser interactive application. A real example will make it clear.

For example, company XYZ is interested in providing a mobile service for paying street-side parking in San Francisco Financial District. XYZ will apply (with the help of Sybase 365) an assigned short code from a mobile operator. Typically, this assigned short code (let’s say 9999) is advertise in the San Francisco Financial District area. The example advertisement: “For paying parking with you mobile phone, text SFpay to 9999. When the mobile subscriber sends a text to 9999, the message will first reach the mobile operator and then it is routed to Brand Mobiliser server by the operator. So it is important to understand that the process of routing a short code (i.e., 9999) to Brand Mobiliser server is done by the operator, and has nothing to do with the Brand Mobiliser. When the message arrives at the Brand Mobiliser server, the BrandEngine receives the message and it will try to associate the destination MSISDN (i.e., the short code) to a workspace. Once the workspace is identified, BrandEngine will look at the keyword (i.e., SFpay) and mapped it to an interactive application in that workspace.

Best Practice:

- Each interactive applications should have at least one assigned keyword
- Check that the keyword has not been used by other application in the workspace using the “Keyword Usage” tool provided on the **Keywords** screen. Note: Brand Mobiliser UI does not automatically check and prevent



duplicate keyword usage. When a keyword is used by multiple applications, Brand Mobiliser does not guarantee which applications get mapped to. In fact, it may change on each occurrences.

- When regular expression is used as a keyword, you should ensure that the regular expression does not overwrite existing keywords already in use by other applications

1.6 Delivery Channel

Brand Mobiliser comes with two built-in delivery channels: SMPP and JMS. These channels are configured using the **Manage Channel Configurations** screen. For each channel, one or more connections can be defined. It is important to understand that the *delivery channel configurations are a system-wide configuration*.

The defined channel connections are then assignable to a workspace from the **Manage Workspace** screen – “SMS out” field. For security and system stability reason, the SUPER ADMIN role is the only one that can define the delivery channel configurations.

Note: Changes including addition, deletion or modification of channel connections will require a system restart.

1.7 Approval

Brand Mobiliser uses the concept of approval but not quite the full-fledge approval process implementation. In current version, there are two places that approval is needed: Default Menu and Interactive Application. Newly created item will need approval and any changes made will require re-Approval.

Why is Approval needed? Approval can be thought of as *deploying or making it live*. Brand Mobiliser maintains two versions internally; one version is “Live”, and the other version is “In-Review”. Any changes made on the BrandUI will be stored as “In-Review” version until it is approved. So it will not affect the “Live” version yet. The approval action is nothing but replicating the “In-Review” version to the “Live” version.

A good understanding of the approval concept is essential especially when there is a “Live” version running. Once the Approval is completed, the changes are committed and it cannot be rolled back. It is “Live”. If a mistake was made and changes cannot be rectified quickly, it may be necessary to shutdown the application. One way to shutdown an application is to change the “Active To” date to the past date, then re-Approve. This will terminate the application. A more destructive method is to delete the application. There is no mechanism to stop the Default Menu as it is designed to be live at all time. To stop the Default Menu can only be accomplished by disconnecting the delivery channel (discussed above).

2 Brand Mobiliser - Web User Interface

The design of the Brand Mobiliser user interface focused on usability from the beginning. The UI was designed and reviewed by a team of professionals specializing in information architecture, interaction and visual design, and branding. The ultimate goal is to give our customers a user friendly tool to accomplish their main tasks quickly. Brand Mobiliser is truly a usability driven application and will continue to be enhanced with the same philosophy.

Brand Mobiliser web based management tools (BrandUI for short and used for the rest of this document) provides Dashboard, Application Creation and Management, and Workspace Administration. The following sections will explore each of the areas of the BrandUI in greater detail.

2.1 General User Interface Features

2.1.1 Screen Layout

BrandUI adopts a fluid page layout so that users with wider screen can benefit from it. Certain areas of the page will stretch according to the browser size. Users can adjust the browser size to reduce empty spaces. The following screens show the same **Dashboard** screen with different adjusted browser sizes on a 22-inch widescreen monitor. The top screen shows the browser in maximized mode, while the bottom shows a reduced browser screen.

The screenshot displays the SYBASE 365 Brand Mobiliser Web interface. At the top, the logo and navigation tabs are visible. The 'Application Short List' table contains the following data:

Application Name	Category	Schedule	Related Assets	Status
mPay Coffee		Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions
mPay Lunch	mPayment	Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions
mPay Movie	mPayment	Start Tue, Dec 14, 2010 End Thu, Dec 30, 2010	—	See Details Actions
mPay Parking	mPayment	Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions

Below the table are buttons for 'Create New Application', 'Approve Applications', and 'View All Applications'. The right sidebar includes sections for 'Workspace Short & Long Codes', 'Quick Start Templates', and 'Reports & Analysis' with various charts and a 'CREATE CUSTOM REPORT' button.

Maximized Dashboard Screen



The screenshot shows the Sybase 365 Brand Mobiliser Web dashboard. At the top, there is a header with the Sybase 365 logo and navigation links: Workspace: default, Logged-in as admin (Logout), My Account, and Help. Below the header is a navigation bar with tabs: DASHBOARD, PROGRAMS, SUBSCRIBER LIST, ASSETS, PERFORMANCE AND ANALYTICS, and WORKSPACE ADMINISTRATION. The main content area is titled 'Application Short List' and contains a table with the following data:

Application Name	Category	Schedule	Related Assets	Status
mPay Coffee		Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions
mPay Lunch	mPayment	Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions
mPay Movie	mPayment	Start Tue, Dec 14, 2010 End Thu, Dec 30, 2010	—	See Details Actions
mPay Parking	mPayment	Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions

Below the table are links: Create New Application, Approve Applications, and View All Applications. To the right of the table is a sidebar with sections: Workspace Short & Long Codes 1111(Default), Quick Start Templates (BLANK INTERACTIVE APPLICATION), and Reports & Analysis (Workspace Traffic Report, Program 1, Program 2, Custom Reports, Opt-In Report (Coming Soon), CREATE CUSTOM REPORT).

Reduced Dashboard Screen

2.1.2 Login Status Bar

The Login Status bar displays some information about the login user and provides a link to the help screen.

The screenshot shows the Login Status Bar with the Sybase 365 logo and navigation links: Workspace: default, Logged-in as admin (Logout), My Account, and Help.

Workspace – indicates the current workspace that a login user is in. If the user has more than one assigned workspaces, the dropdown list will show all the assigned workspaces. The user can change to a different workspace by selecting from the dropdown list.

Note: The login status bar is on the header and shown on every single screen. Hence, users can change workspace from any screen. Although changing workspace does not require a user to log in again, it does result in significant changes in accessibility of artifacts including: programs, interactive applications, etc. Therefore, after changing the workspace the user is redirected to the Dashboard screen, similar to a successful login experience. In addition, all artifacts are refreshed with the current workspace artifacts.

Logout – for user to logout.

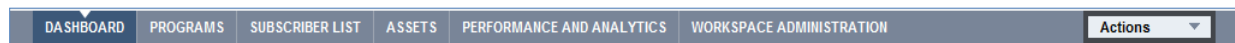
My Account – for user to find out all the account information, assigned roles, etc. Currently, change password is performed in this screen.

Help – currently not active. This is a place holder for future online help.

2.1.3 Navigation Bar

The Navigation bar stretches across the header. The navigation is purposely kept to a single level. Currently, the navigation items are:

- Dashboard
- Programs
- Subscriber List
- Assets
- Performance and Analytics
- Workspace Administration



[Dashboard](#) – the first displayed screen after successful login. Provides summaries of most recently worked on applications, notifications, templates for creating commonly used application, shortcuts to pages, etc.

[Programs](#) – this is a place holder for future releases. The design is to have a “Program” as the high level container encapsulating programs “Assets”. For example, users can create a Christmas Coffee Promotion program. The program will have the following assets: several set of subscribers, messages to send, and several interactive applications. The program is started by sending a push campaign to the “set of subscribers” and each set has a custom message. In addition, the message will have a “call to action” and the receiving subscribers can reply to the message with one of the following options: opt-in, decline, or opt-out. Each of these reply options are handled by the interactive applications.

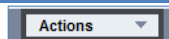
[Subscriber List](#) – currently not active. This is also a place holder for future releases and it is intended for handling subscriber list management including: upload, filters, etc.

[Assets](#) – The design of assets is to be reusable artifacts. Assets includes: messages, interactive applications, media contents, etc. Currently, the **Assets** screen displays interactive applications only. Other assets type will be added in the future releases and users can filter asset type(s) to display or filter based on certain criteria.

[Performance and Analytics](#) – this is also a place holder for future releases for monitoring program performance or creating reports and analytics.

[Workspace Administration](#) – this navigation items is available to users with SUPER ADMIN and ADMIN roles only.

2.1.4 Navigation Actions



The [Navigation Actions Menu](#) dropdown is placed on the navigation bar and right-aligned. This is a list of shortcut links to commonly used screens.

The following shortcut links are included:

- Setup Default Menu – See [Default Menu](#) section
- Simulate Application – See [Simulate Application](#) section



2.1.5 Table List

Table List in Brand Mobiliser UI is presented with common features such as: currently shown items, total items, page navigator, and number of items shown per page, as shown below. If the column-name header is a hyperlink, it indicates that the table is sortable by the column. Sorting is by toggling between ascending or descending order.

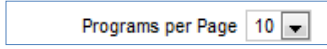
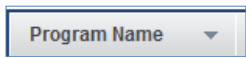
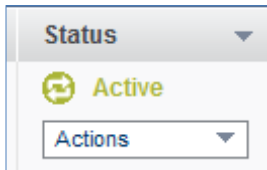
Typically, entries in the table list are a summary. For example, the table list shown below is a summary of programs. Entries in the list may have a hyperlink mode. The hyperlink when clicked will link to the screen that shows the details. Using the program example shown below, the Program Name is a hyperlink to the program details screen.

In some cases like the following example, the Status column (typically the last column) has the “Actions” dropdown menu. The entries in the Actions menu are always context aware. Using the following example again, the program with “Active” status has different entries from the program with “In Review” status.

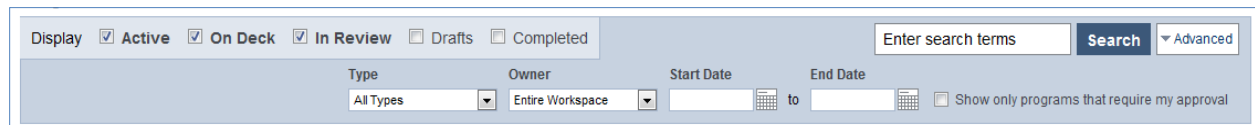
Showing 11- 20 (229 Total Programs)							Programs per Page 10
Program Name	Type	Owner	Schedule	Keywords	Related Assets & Lists	Status	
Program Name 11	Promotion	Jill Miller	Start 10/11/2010 End 11/11/2010	—	Lists (2) Messages (3) Applications (12)	Active Actions	
Program Name 2	Interactive	Joe User	Start 10/11/2010 End 11/11/2010	LifeSavers Candy Lollipop	Lists (2) Messages (3) Interactive Applications (12) Images (12)	In Review Actions	
Program Name 13	Alert	Tom Bobber	Start 10/11/2010 End 11/11/2010	Cookware Book	Lists (2) Messages (3)	Active Actions	
Program Name 14	Interactive	Michelle Lewis	Start 10/11/2010 End 11/11/2010	Show Queen	Lists (1) Messages (1) Interactive Applications (13) Images (1)	Active Actions	
Program Name 15	User initiated Service	Tom Bobber	Start 10/11/2010 End 11/11/2010	—	Lists (3) Messages (1) Images (1)	On Deck Actions	
Program Name 16	Promotion	Jill Miller	Start 10/11/2010 End 11/11/2010	—	Lists (3) Messages (1) Images (1)	In Review Actions	
Program Name 17	Interactive	Joe User	Start 10/11/2010 End 11/11/2010	LifeSaver Candy Lollypop	Lists (3) Messages (1) Interactive Applications (13) Images (1)	Active Actions	
Program Name 18	Alert	Tom Bobber	Start 10/11/2010 End 11/11/2010	Cookware Book	Lists (2) Messages (3)	Active Actions	
Program Name 19	User initiated Service	Jill Miller	Start 10/11/2010 End 11/11/2010	—	Lists (3) Messages (1) Images (1)	Active Actions	

Showing 11- 20 (229 Total Programs) Programs per Page 10

Showing 11- 20 (229 Total Programs)	the currently displayed programs are 11 to 20 out 229 total programs
	Page navigator; Select the page or click the left-arrow or right-arrow for pagination

	<p>Number of programs shown per page; Use the dropdown list to choose a different value. The selected value will be sticky until changed or user logout.</p>
	<p>Header name followed by an “arrow head” indicates sortable column; Sort by clicking on the header name</p>
	<p>Context aware Actions dropdown menu</p>










Typically, above the table list is a Filter, Search and Advanced Search features. The search and advanced search fields are table list specific. For example, the program list may have the followings:



The program list can be filtered by the program status, in this case, active, on deck, in review, draft or completed. The program list can also be filtered by entering a specific search keyword. The advanced search provides additional search filters by: types, owner, start and end dates, or only the programs that require my approval.

2.1.6 Action Buttons

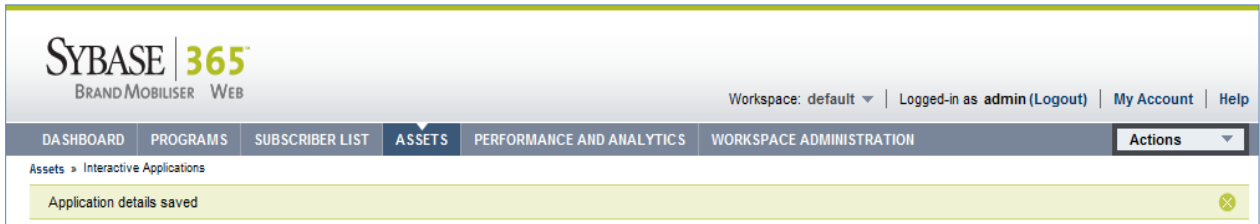
Buttons have unique icons with assigned functionality as described below.


	Save settings
	Add settings
	Delete settings
	Settings are in used (cannot be deleted)
	Feature is approved
	Feature is NOT approved
	Cancel
	Enabled button
	Disabled button



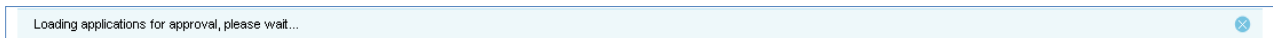
2.1.7 Feedback Panel

The application feedback panel is displayed below the navigation bar and the breadcrumb (if shown). The background color of the feedback panel is adapted to the feedback status. The feedback panel shown below is for a success status.

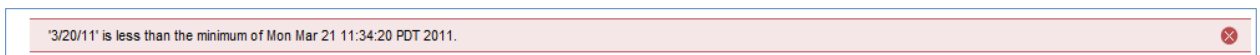


Note: The feedback panel can be closed by clicking on the  icon.


The feedback panel for the in progress status is shown below.

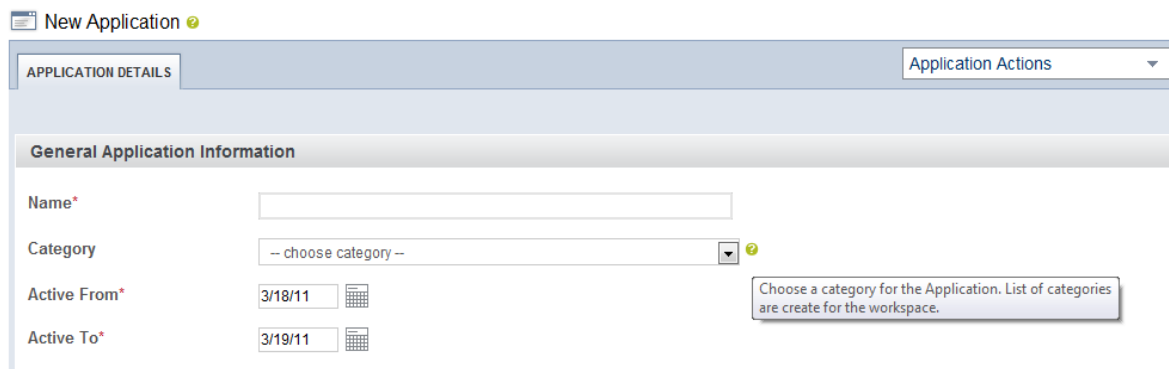


The feedback panel for the error status is shown below.




2.1.8 Help Tooltip


Tooltip is provided in some screens as a less intrusive mechanism to provide additional help to the user. The tooltip is typically shown using the  icon. To display the additional help information, place the mouse cursor over the tooltip and a moment later a help box should appear.



2.1.9 Mandatory Form Field


The mandatory form field is designated with a red * following the field name as shown below. The mandatory fields on the following screen are: Name, Active From, and Active To.


New Application 


APPLICATION DETAILS Application Actions 

General Application Information

Name*

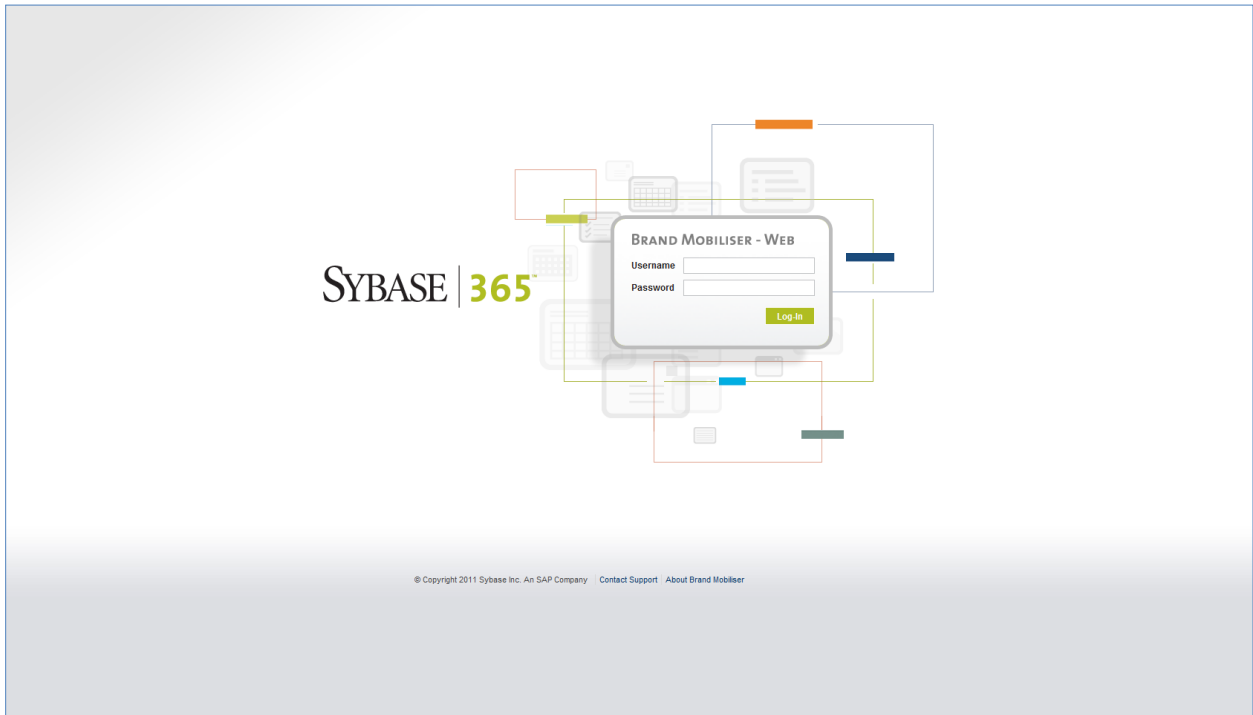
Category 

Active From* 

Active To* 

Choose a category for the Application. List of categories are create for the workspace.

2.2 Login Screen



2.3 Dashboard Screen

Dashboard is the first screen that a login user sees and it is the most important screen in Brand Mobiliser. As users become more familiar with BrandUI, they will find that **Dashboard** is an essential screen and also the “go to” screen when they are lost. The **Dashboard** has been carefully designed with strong emphasis on usability. As indicated earlier, the ultimate goal is to make it easy and quick for the user to accomplish their intended tasks.

Dashboard screen composes of modules. Some modules are displayed conditionally. For example, in future releases, users will see the notification module if there are programs or applications that needs approval.



The module has the following common features:

- All of the modules may be minimized to just show the module title
- Module comes in two sizes: wide and displayed to left [Left], and narrow and docked to the right [Right].

Currently, the following modules exist on the **Dashboard** screen. The text inside the square bracket indicates whether the module is displayed on the left or right column.

- Application Short List [Left]
- My Recent Programs [Left] (Place holder for future release)
- Workspace [Right]
- Quick Start Templates [Right]
- Report & Analysis [Right]

SYBASE | 365
BRAND MOBILISER WEB

Workspace: default | Logged-in as admin (Logout) | My Account | Help

DASHBOARD | PROGRAMS | SUBSCRIBER LIST | ASSETS | PERFORMANCE AND ANALYTICS | WORKSPACE ADMINISTRATION | Actions

Application Short List

Application Name	Category	Schedule	Related Assets	Status
Banking Application		Start Wed, Dec 1, 2010 End Thu, Mar 31, 2011	—	See Details Actions
MyApplication		Start Wed, Dec 1, 2010 End Sat, Dec 18, 2010	—	See Details Actions
MyCRM		Start Mon, Nov 1, 2010 End Thu, Jun 30, 2011	—	See Details Actions

Create New Application | Approve Applications | View All Applications

My Recent Programs

Workspace Short & Long Codes
7654(Default)

Quick Start Templates

BLANK INTERACTIVE APPLICATION
Create a new interactive application

Reports & Analysis

Workspace Traffic Report

Program 1

Program 2

Custom Reports

Opt-In Report (Coming Soon)

CREATE CUSTOM REPORT

2.3.1 Module – Application Short List

The Application Short List module displays a short list of interactive applications. For a complete list of interactive applications, user should go to the **Assets** screen. By default, the list is sorted by the “Application Name” – first column.

Application Short List				
Application Name	Category	Schedule	Related Assets	Status
mPay Coffee		Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions
mPay Lunch	mPayment	Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions
mPay Movie	mPayment	Start Tue, Dec 14, 2010 End Thu, Dec 30, 2010	—	See Details Actions
mPay Parking	mPayment	Start Tue, Dec 14, 2010 End Fri, Dec 31, 2010	—	See Details Actions

[Create New Application](#) [Approve Applications](#) [View All Applications](#)

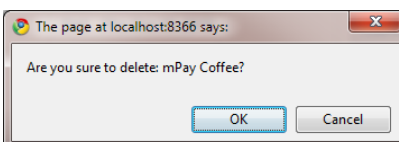
The following functionalities are found within this module.

Sort by Application Name – click on the “*Application Name*” header to toggle the sorting.

Actions – each row has a context aware **Actions** dropdown menu on the “*Status*” column. The **Actions** dropdown menu has the following options: Show Details and Delete actions.

Actions - Show Details links to the **Application** screen, showing the details of the selected application. Please refer to the [Application Details](#) section for details.

Actions – Delete is for deleting the application in this row. A confirmation dialog showing the application name and the “OK” or “Cancel” buttons. Clicking OK will result in deleting the application, while Cancel will just close the dialog. Upon a successful delete, the list is refreshed with updated entries.



Create New Application – located at the footer of the module, and links to the **New Application** screen with all fields empty and ready for a new application. Please refer to [Application Creation](#) section for details.





Approve Application – located at the footer of the module, and links to the Application Approval screen. Please refer to [Application Approval](#) section for details.

View All Applications – located at the footer of the module, and links to the **Assets** screen displaying all the interactive applications. Please refer to the [Assets](#) section for details.

2.3.2 Module – My Recent Programs

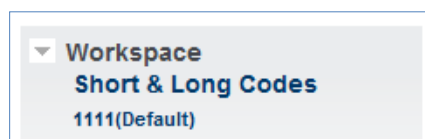
The My Recent Programs module is a place holder for the recent programs that the user has worked on. The program model is scheduled feature for future release.



My Recent Programs				
Program Name	Type	Schedule	Related Assets & Lists	Status
		Start End	<ul style="list-style-type: none">  Lists  Messages  Applications 	 Draft Actions
Create New Program View All My Programs				

2.3.3 Module – Workspace

The Workspace module displays the short and long codes assigned to the current workspace.

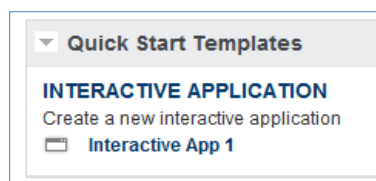


The **(Default)** indicator next to the code indicates that the code is used as default for outbound message in the absent of explicit configuration. For more details discussion, please refer to [Workspace Administration – Manage Workspaces – Workspace Short codes](#) section.

If the user has a SUPER ADMIN role, the workspace title becomes a hyperlink to the **Workspace Configurations** screen as explained in details in the [Workspace Administration – Manage Workspaces – Workspace Configurations](#) section.

2.3.4 Module – Quick Start Templates

The Quick Start Templates module provides commonly used quick start templates to build interactive application. Also shown is the list of assets used by this template. For example, the screen below shows a template for creating a new interactive application, and it uses one interactive application asset. Future templates may include more than one interactive applications, subscriber list, etc.



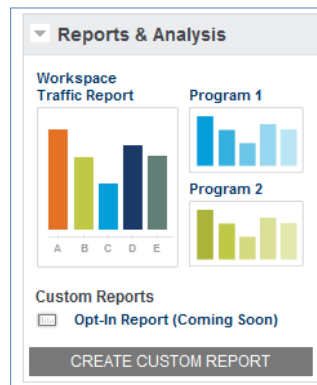
Available templates include:

- Interactive Application – a blank template to create a new interactive application from scratch. This is a link to the **New Application** screen. Please refer to [Application Creation](#) section for details.
- More templates will be added in the future releases.

2.3.5 Module – Report & Analysis

The Report & Analysis module displays common used reports. Currently, there is only one report available: the Traffic Report from the interactive application in the current workspace. This is currently a link to the [Traffic](#)

[Reports](#) screen. More details of the traffic report screen is provided in the [Workspace Administration – Traffic Reports](#) section.



2.4 Assets Screen

The **Assets** screen displays all the reusable assets in the current workspace. Reusable assets include: messages, multimedia like images, interactive applications, etc. The limitation of the current version includes: displays interactive application assets only; the search feature is disabled, and “Related Programs” and “Last Updated” columns are not populated so they are always empty.

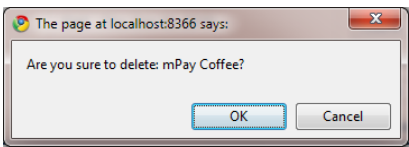
The screenshot shows the SYBASE 365 Assets screen. The top navigation bar includes 'DASHBOARD', 'PROGRAMS', 'SUBSCRIBER LIST', 'ASSETS', 'PERFORMANCE AND ANALYTICS', and 'WORKSPACE ADMINISTRATION'. The main content area displays a table of assets with the following columns: Name, Type, Category, Related Programs, Last Updated, and Actions. The table contains four rows of interactive applications: mPay Coffee, mPay Lunch, mPay Movie, and mPay Parking. The 'Related Programs' and 'Last Updated' columns are empty.

Name	Type	Category	Related Programs	Last Updated	Actions
mPay Coffee	Interactive Application				Actions
mPay Lunch	Interactive Application	mPayment			Actions
mPay Movie	Interactive Application	mPayment			Actions
mPay Parking	Interactive Application	mPayment			Actions

The table is sorted by the Name column (i.e., Application Name). The context aware Actions menu contains the following links:

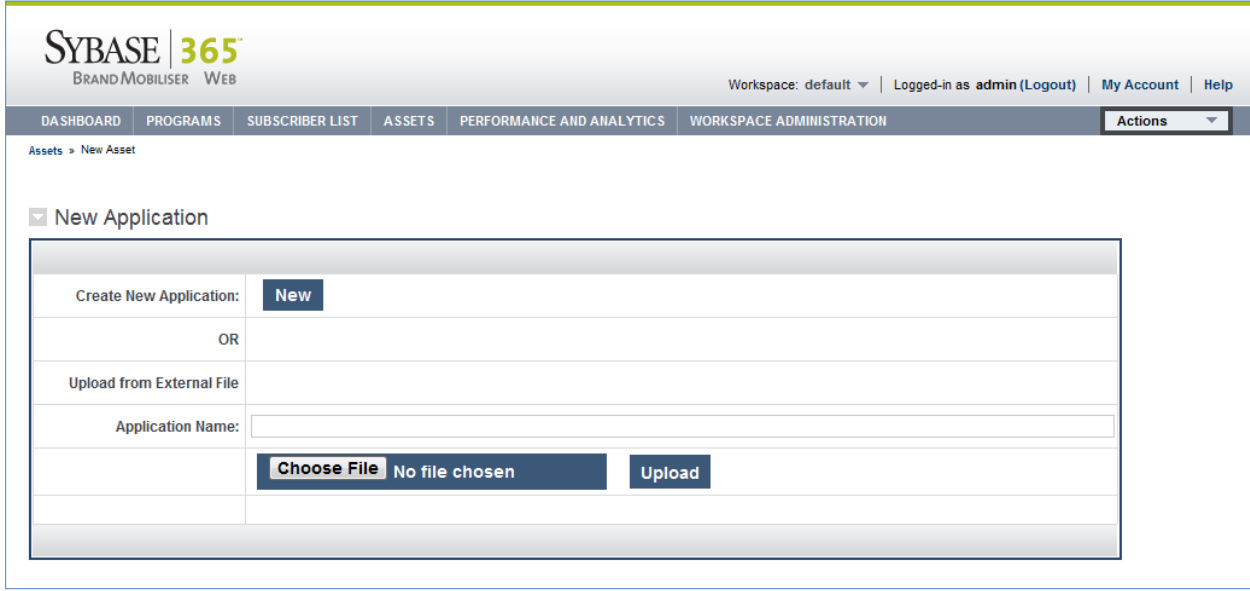
- **Actions - Show Details** – link to the **Application** screen showing the details of the selected application. Please refer to the [Application Details](#) section for details.
- **Actions - Delete** - is for deleting the application in this row. A confirmation dialog showing the application name and the “OK” or “Cancel” buttons. Clicking OK will result in deleting the application, while Cancel will just close the dialog. Upon a successful delete, the list is refreshed with updated entries.





Other functionalities on the Assets screen are as follow.

Add An Asset – located on the top right hand side just below the Navigation Actions. This links to the **New Asset** screen. Like the dashboard screen, the **New Asset** screen is designed to have modules. Currently, there is only one: **New Application** module.

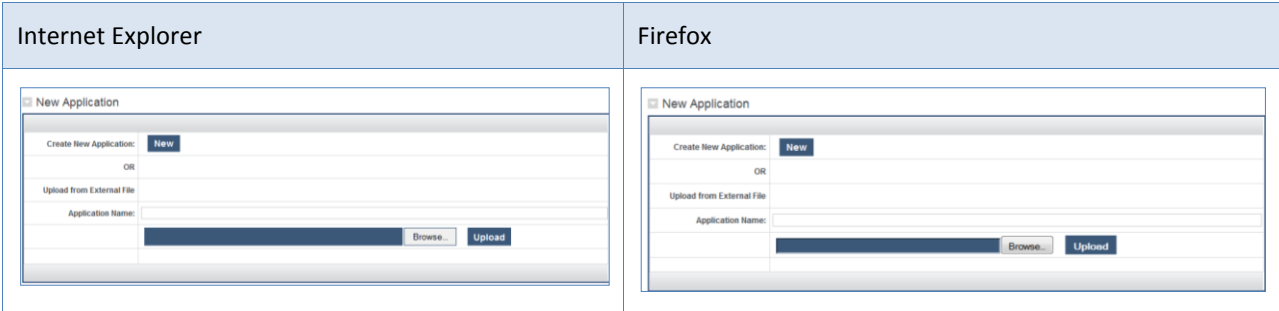


2.4.1 Module – New Application

This module is used to create new interactive application. There are two ways to create application: starting from scratch, or uploading from local application file. The application file typically comes from a previously saved interactive application for the purpose of backup or export to another environments or systems.

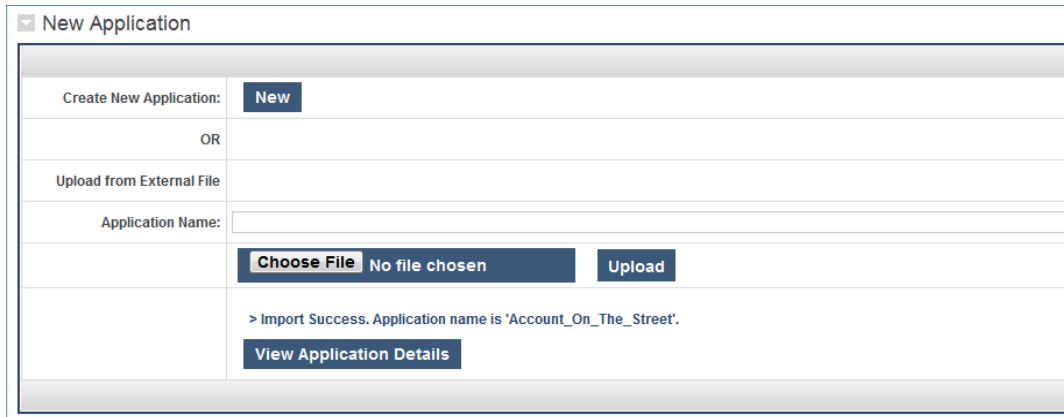
To create a brand new application from scratch, click “**New**” button and the **New Application** screen with all the fields empty are ready for the new application. Please refer to [Application Creation](#) section for details.

To upload application from local file, select the “Choose File” button to find and select the file on your computer and click the “Upload” button. The “Choose File” button is from the Google Chrome browser. If you are using other browser, the button differs as shown below for Microsoft Internet Explorer and Mozilla Firefox.



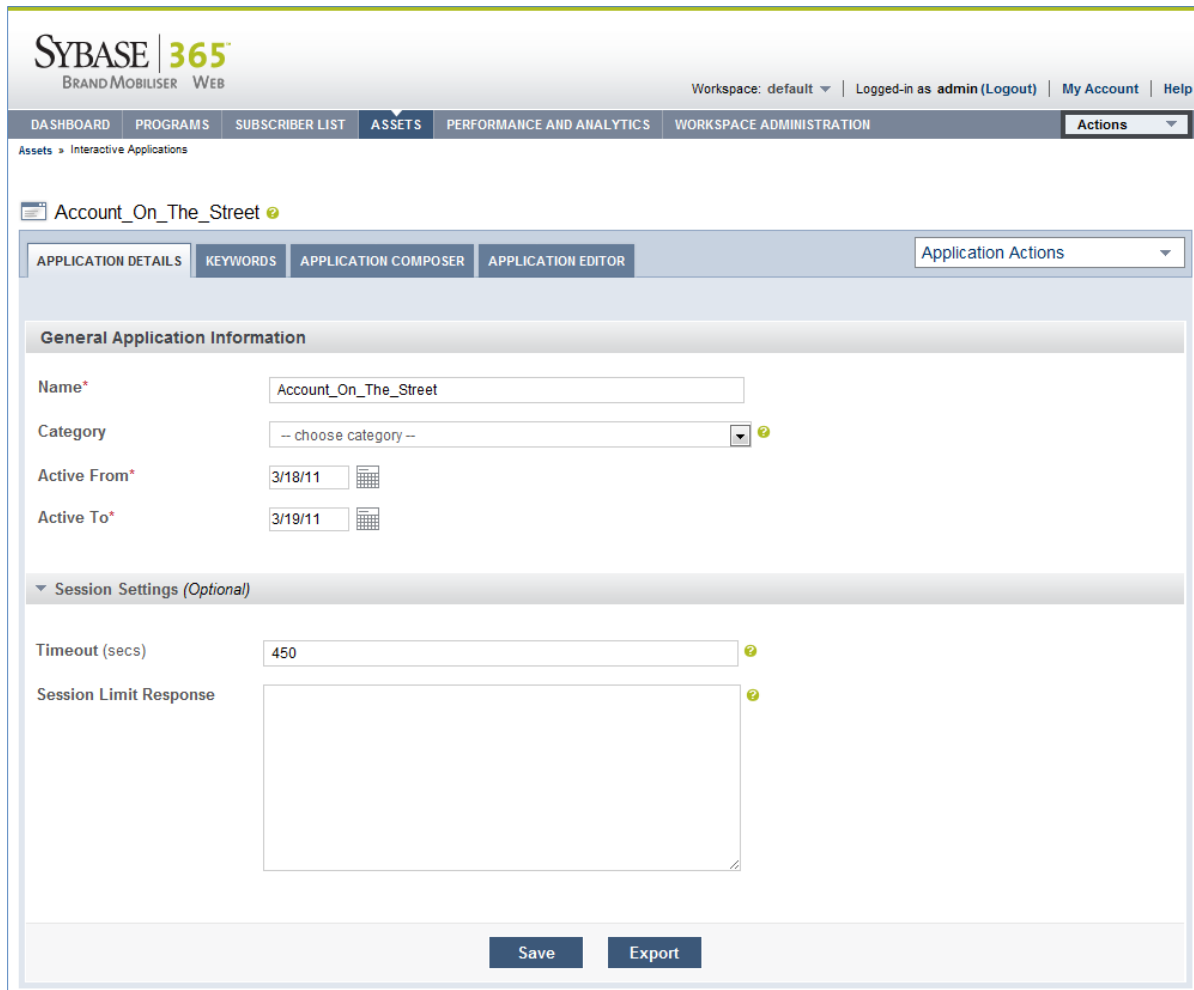
It's possible to overwrite the existing application by entering a new name in the "Application Name" field. If the field is left empty, the existing application name is used.

When the upload is complete, a confirmation message is displayed below the file name field, as shown below.



The screenshot shows a web form titled "New Application". It has two main sections: "Create New Application" with a "New" button, and "Upload from External File". Below the upload section is an "Application Name" input field. Underneath the input field are two buttons: "Choose File" (which shows "No file chosen") and "Upload". A confirmation message is displayed below the buttons: "> Import Success. Application name is 'Account_On_The_Street'." Below the message is a "View Application Details" button.

Clicking on the "View Application Details" shows the **Application** screen with details of the uploaded application. Please refer to [Application Details](#) section for details.



The screenshot shows the "Account_On_The_Street" application details page. The page header includes the SYBASE | 365 logo and navigation links like "Workspace: default", "Logged-in as admin (Logout)", "My Account", and "Help". The main navigation bar contains "DASHBOARD", "PROGRAMS", "SUBSCRIBER LIST", "ASSETS", "PERFORMANCE AND ANALYTICS", and "WORKSPACE ADMINISTRATION". The page title is "Assets > Interactive Applications". The application name "Account_On_The_Street" is displayed at the top. Below the name are tabs for "APPLICATION DETAILS", "KEYWORDS", "APPLICATION COMPOSER", and "APPLICATION EDITOR", along with an "Application Actions" dropdown menu. The "General Application Information" section contains fields for "Name*" (Account_On_The_Street), "Category" (dropdown), "Active From*" (3/18/11), and "Active To*" (3/19/11). The "Session Settings (Optional)" section includes "Timeout (secs)" (450) and "Session Limit Response" (text area). At the bottom are "Save" and "Export" buttons.



2.5 Interactive Application Screen

Mobile Interactive Applications are the heart of Brand Mobiliser. Interactive Applications are the business processes orchestrated using the application states to meet your organization needs. These states can refer to any functionality that is exposed through an SOA layer including your enterprise services. Brand Mobiliser comes with a rich web-based application designer, called Application Composer that is used to develop interactive applications. Please refer to the “Brand Mobiliser – Development Manual” for how to develop an interactive application.

Out of the box, Brand Mobiliser is pre-packaged with states that refer to the Sybase Money Mobiliser platform. You may add additional states to Brand Mobiliser using the plugin system enabled by the OSGi™ Services Registry. Please consult to the reference “Brand Mobiliser – State Developer’s Guide” for more information on how to develop plugin states for use within the Brand Mobiliser Application Composer. The plugin states enrich the interactive application capability.

2.5.1 Application Creation

To create a new interactive application, start from the **New Application** screen. For convenience, this screen is accessible from several locations as follows:

- From the **Dashboard** – Application Short List module – [Create New Application](#) link at the footer of the module
- From the **Dashboard** – Quick Start Templates module – Interactive Application template
- From the **Assets**, click the [Add An Asset](#) link to the **New Asset** screen. On the New Application module of the **New Asset** screen, click the “New” button

The new application screen starts with a single “Application Details” tab containing the information needed to create a new application. Once the mandatory fields are provided and save, additional tabs will be displayed.

Mandatory fields on the Application Details tab are:

- Name – name of the application. The name is displayed in many places when referring to the application. Duplicate name within the workspace is allowed but not recommended. No checking or warning is provided for occurrence of duplicate name within the workspace. It is the application creator’s responsibility to check prior to assigning the name.
- Active From – the start date that the application will be in service. The date is used by the BrandEngine to activate or deactivate the application.
- Active To – the end date that the application will be in service. The date is used by the BrandEngine to activate or deactivate the application.

Optional Fields on the Application Details tab are:

- Category – information only; used for easily grouping application. New category may be added from the **Manage Application Category** screen. The dropdown list shows the available categories. The **Manage**



Application Category screen is accessible from this screen by using the **Application Actions** menu – Manage Application Category link. Please refer to [Application Category](#) section for details.

- Timeout – in seconds. An interactive application establishes conversation with the mobile subscribers. When the conversation starts, a unique session is established for the conversation. By default, this session is terminated (or timeout) when there is no conversation for more than 7:30 minutes or 450 seconds. This timeout field is used to adjust the timeout.
- Session Limit Response – the default message sent to the mobile subscriber when the application is not able to start or carry-on a conversation for various reasons. Typically, the reason is because there are too many conversations already taking place beyond the capacity of the system. In this case the default message provided in this field is sent to the mobile subscriber immediately. For example, the message can say: “Sorry, the service is busy, please try again in few minutes”.

Buttons are:

- Save – save the application. Once the application is saved successfully, three additional tabs appear: Keywords, Application Composer, and Application Editor. See below for details on each tab.
- Export - exports the complete application in a portable XML format to your local file system. The XML format is easily transferrable to other Brand Mobiliser installations. You can also use the feature to safely backup an application in a portable way.

Another commonly used of “Export” functionality is for developing and testing application in the development environment. Once completed, the application can be exported and re-import to the production environment.

Note: The export button is disabled when creating a new application and prior to saving.

Application Actions Menu is a dropdown list that contains links (shortcuts) to application related functionalities as follows:

- Approve Application – Once application creation is complete or when application information is modified, the application needs approval before going into service. For further discussions on Approval in general, please refer to [Approval](#) section. Please refer to [Application Approval](#) section for detailed discussion on how to approve application.
- Simulate Application – Once an application is approved, it is ready for service. This application may be tested using **Simulation** screen without the need to send from the mobile handset. Please refer to [Simulate Application](#) section for details on how to use the **Simulation** screen.
- Manage Application Category – Add new or modify categories may be done from this screen. Please refer to [Application Category](#) section for details.

Recent Activity Log Module – Not available in this version.

Related Items Module – Not available in this version.

2.5.2 Application Details

The screenshot displays the SYBASE 365 Brand Mobiliser Web interface. The top navigation bar includes the SYBASE 365 logo, the text 'BRAND MOBILISER WEB', and user information: 'Workspace: default', 'Logged-in as admin (Logout)', 'My Account', and 'Help'. Below the navigation bar are tabs for 'DASHBOARD', 'PROGRAMS', 'SUBSCRIBER LIST', 'ASSETS', 'PERFORMANCE AND ANALYTICS', and 'WORKSPACE ADMINISTRATION'. The 'ASSETS' tab is selected, and the breadcrumb 'Assets > Interactive Applications' is visible. The main content area shows the 'Send Money' application details. The 'APPLICATION DETAILS' tab is active, with other tabs for 'KEYWORDS', 'APPLICATION COMPOSER', and 'APPLICATION EDITOR'. A dropdown menu 'Application Actions' is located on the right. The 'General Application Information' section contains the following fields: 'Name*' (Send Money), 'Category' (mPayment), 'Active From*' (3/18/11), and 'Active To*' (3/31/11). Below this is the 'Session Settings (Optional)' section, which includes 'Timeout (secs)' (450) and 'Session Limit Response' (Sorry, session limit reached. Please try again later.). At the bottom of the form are 'Save' and 'Export' buttons.

Once a new application is saved or when modifying an existing application, the **Application** screen will have four active tabs: Application Details, Keywords, Application Composer and Application Editor.

Please refer to the [Application Creation](#) section for detailed description of the fields on the Application Details tab.

Note: The Export button is enabled. The export button is used to export the complete application in a portable XML format to your local file system. The XML format is easily transferrable to other Brand Mobiliser installations. You can also use the feature to safely backup an application in a portable way.

[Application Actions Menu](#) is a dropdown list that contains links (shortcuts) to application related functionalities described in the [Application Creation](#) section.

Note: The contents of the Application Action Menu dropdown are universal across the Application screen and all four tabs: Application Details, Keywords, Application Composer and Application Editor.

2.5.3 Application Keywords

When an incoming message arrives, the BrandEngine looks at the message's destination MSISDN and keyword. The message's destination MSISDN is matched to the short code or long code of the workspace, and the keyword is



matched to the application within the workspace. The keywords tab is where the keyword(s) for the application is specified. Keyword can also be looked at as a mechanism to enable sharing of a short code.

Keywords can be a simple string like “coupon”. There is a date range associated with the keyword so you can control how long the keyword is active irrespective of the Application. A keyword is uniquely assigned to one application, but an application can have more than one keywords.

Prior to version 1.1, the dates (Active From and Active To) are mandatory and not-null fields. From version 1.1 forward, the fields have been relaxed allowing them to be left empty or null. When left empty, the Application date range as specified in the Application Details tab will be the governing dates. If the keyword dates are specified, then the keyword date range will be the governing dates irrespective of the Application Details dates. Furthermore, it is possible to have an expired Application Details date range, but a non-expired Keyword date range. In this case, the application will be active under the keywords with a non-expired date range only.





Even though keyword should be unique for each application within the workspace, BrandUI does not check or prevent a keyword to be assigned to more than one application. This is due to the fact that keyword can also take regular expressions so it is difficult to detect duplicates. A simple tool called “Keyword Usage” provided on the same screen, allow the application creator to do a quick and simple test to see if the keyword is used by other application within the workspace. This is not a duplicate-proof tool though, as it cannot test against the regular expressions. To use “Keyword Usage”, enter a keyword in the field and click Search.

Once the keyword is saved, it is not active until the application is approved.

The keyword string can also take regular expressions. However, the *use of highly complex regular expressions is not recommended*. Please refer to [Appendix Regular Expression](#) for more detailed discussion on regular expressions.

Note: It is the application developer’s responsibility to ensure that no application keyword overlapped within the workspace. When overlapped keyword occurs within the workspace, there is no deterministic way of finding which application will be mapped to the keyword.

Action buttons are:

	Save settings
	Delete settings
	Application is approved
	Application is NOT approved

SYBASE | 365[™]
BRAND MOBILISER WEB

Workspace: default | Logged-in as admin (Logout) | My Account | Help

DASHBOARD | PROGRAMS | SUBSCRIBER LIST | ASSETS | PERFORMANCE AND ANALYTICS | WORKSPACE ADMINISTRATION | Actions

Assets > Interactive Applications

Send Money

APPLICATION DETAILS | KEYWORDS | APPLICATION COMPOSER | APPLICATION EDITOR | Application Actions

Keyword	Active From	Active To	Actions
send	<input type="text"/>	<input type="text"/>	
send*	<input type="text"/>	<input type="text"/>	
Add New Keyword <input type="text"/>	<input type="text"/>	<input type="text"/>	

Keyword Usage

Keyword: Search

Used By	Type	Keyword	Active from	Active to
Account_On_The_Street	START	account		

2.5.4 Application Composer

The basis of Application Composer is to visually compose, modify and test these conversational services, known as interactive applications. These applications are then fulfilled by the BrandEngine, which allows for high-throughput session management for customer interaction with these applications.

The key to effective development of interactive applications is the easy-to-use visualization of the workflows involved in the mobilization of business processes. This is primary purpose of the web-based visualization interface. There are two different views of the application that are currently provided; the Application Composer view and the Application Editor view. This section describes the Application Composer view.

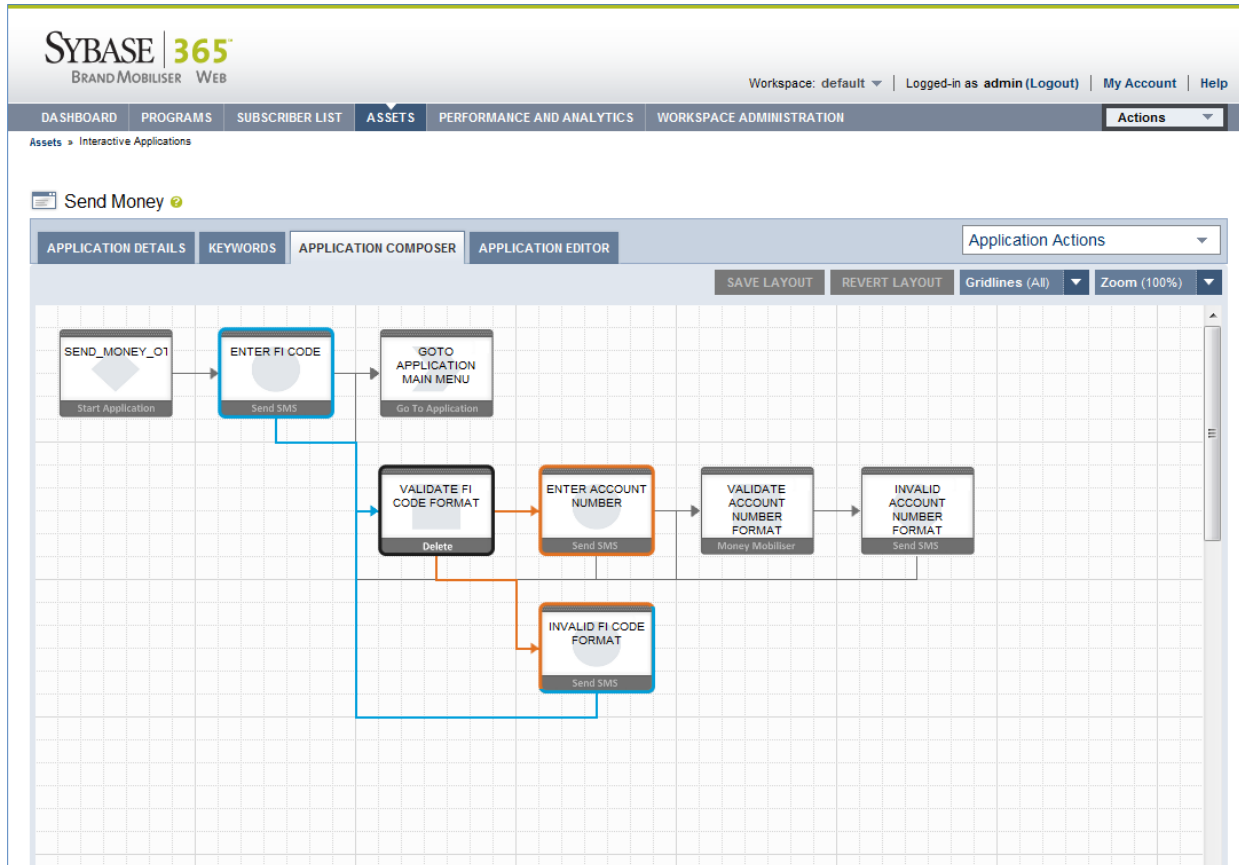
The Application Composer state layout view is the primary way of visualising the processing steps of the application workflow, by visualising the states and drawing the transitions between these states. Much as a generalised visual workflow tool would do, the Application Composer allows the application designer the ability to;

- visualise states in the application using an automatic layout,
- dragging and dropping of states to re-arrange layout and to persist the modified layout,
- highlight the context and dependencies, the transitions of states, and
- zooming in and out of the application composer view to see a complete or partial application layout.



The Application Composer also provides complete facilities to traverse through the workflow through a state editor popup window. The state editor popup's purpose is to allow configuration of the state's settings and values. This is described separately in the next section.

We will only introduce features of Application Composer in this document. For in-depth discussions, please refer to the "Brand Mobiliser – Development Manual".



Application Composer features include:

Layout Canvas shows the application flow. The flow is from left-to-right. The flow consists of states (icon shown as box) and transitions connecting two states (shown as line). The state icon shows the name of this state instance on top of the icon, the type of the state in the bottom bar of the icon and a watermark pattern to also help signify the type of the state. The transition between one state and the next is shown as a directional arrow between the related states. In more complex applications, transition lines may overlap others.

Context and Dependency Highlighting is essential for more complex flow. Any state can be 'highlighted'. Highlighting a state allows all of its transition lines that "go to it" and "go from it" to also be highlighted, along with the states they come from or go to.

To select a state, move the mouse over the state icon and left-click. The dependent states and transition lines are then highlighted in different colors:

- The highlighted state is shown with a dark grey surround. For example, the "Validate FI Code Format" state on the above screen. Also notice that when a state is a selected state, the state type icon is replaced with the delete icon. Please refer to "State Editor" discussion below.
- Any states that transition TO the highlighted state have a blue surround, with the transition line emboldened in blue. For example, the "Enter FI Code" state on the above screen.

- Any states that are transitioned FROM the highlighted state have an orange surround, with the transition line emboldened in orange. For example, the “Enter Account Number” state on the above screen.
- Any states that have both transition TO and transition FROM the highlighted state have both blue and orange surrounds (dual mode). For example, the “Invalid FI Code Format” state in the above example.
- The popup State Editor window will open automatically. The State Editor will be discussed in details in the “[State Editor](#)” section.

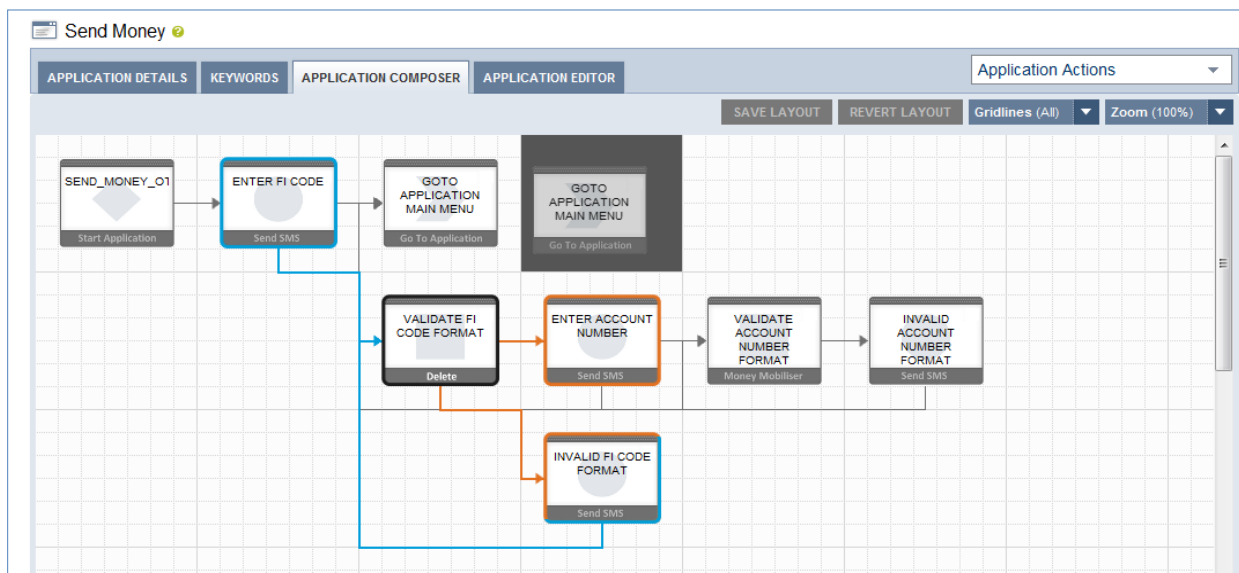
Note: the state icon is a toggle button. When you click a selected state again, the state will be de-selected and all the highlighting will disappear.

Re-arrange Layout can be accomplished by “click-and-drag” the state icon. On first entry to the Application Composer view any states that have been added to the application are laid out automatically on the canvas. Occasionally, it is worth re-arrange the layout of the states, to get a better view of the transitions between the states, particularly when transition lines are overlapping. The state icons on the canvas are sensitive to drag-and-drop into fixed grid positions on the canvas.

To start a drag;

- move the mouse over the state icon you want to move,
- left-click on the mouse and hold the click down, and
- drag to an alternative grid position

The figure below shows that when being dragged, the state icon will become transparent and target grid positions will be highlighted when the mouse enters that grid area.



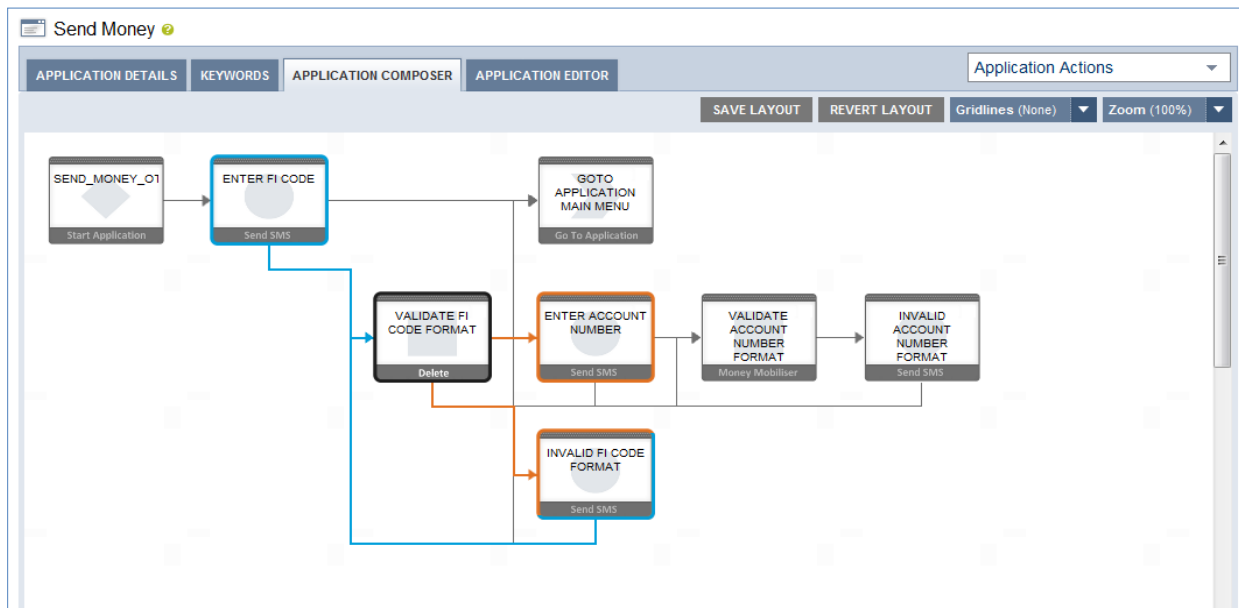
Note: The canvas will not allow absolute free-form positions and each state will be snapped-to a specific grid position as highlighted when being dragged. The transition lines are always automatically positioned and there is no way to move a transition line itself.

SAVE LAYOUT – the re-arranged layout can be saved for future display, by clicking on this button which saves the layout to the database. This button is enabled only when the layout has been modified.

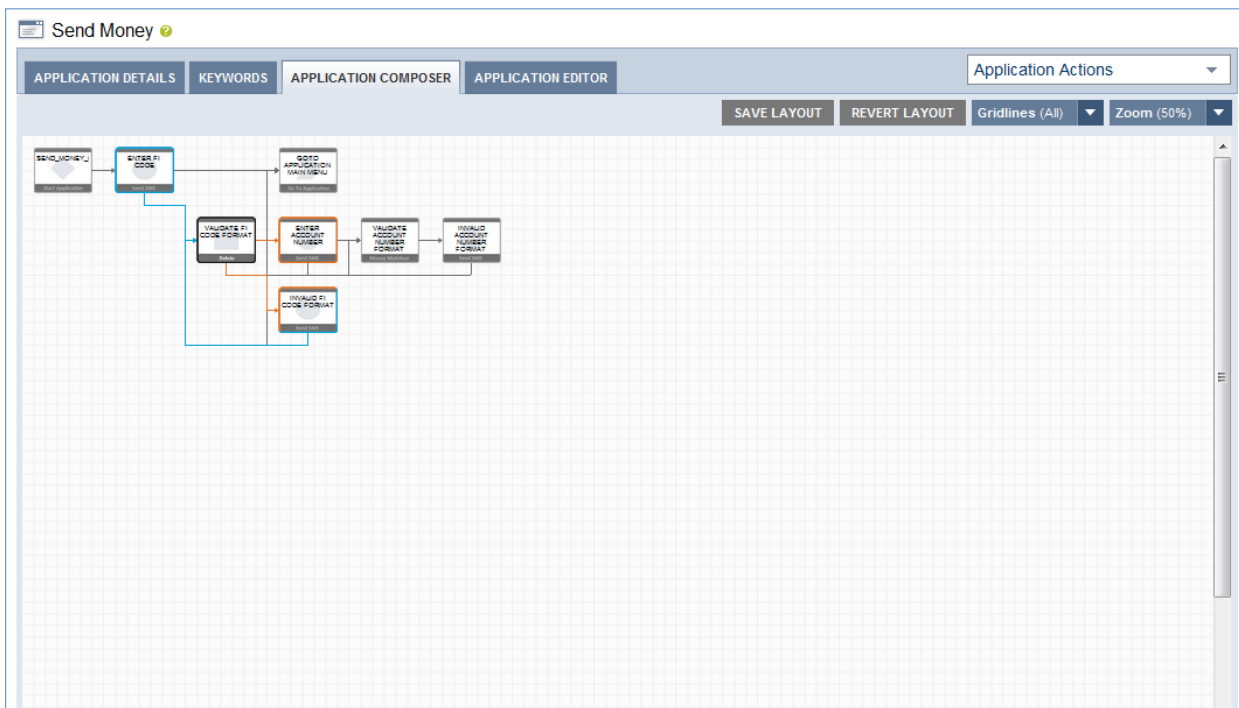


REVERT LAYOUT – reverts the application layout to the last saved layout from the database. This button is enabled only when the layout has been modified.

Gridlines – Allows the option to display all the grid-lines, a partial grid line or none at all. The none gridline is shown below.



Zoom – Allows the option to zoom the Application Composer view panel both out and in so that applications with a large number of states can show the complete workflow on one screen (see example below). **Note: If you have zoomed out from the default 100% view, you must reset the zoom level back to 100% before making any layout changes.**



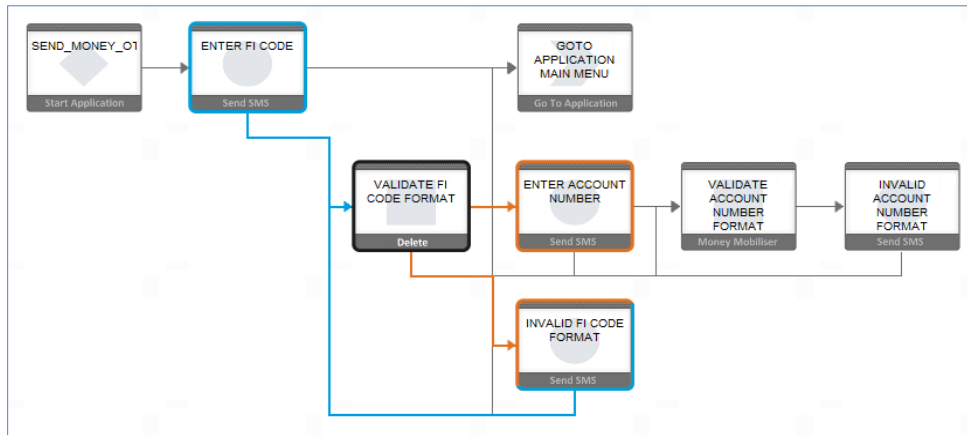
Application Actions Menu is a dropdown list that contains links (shortcuts) to application related functionalities. The content of the Application Action Menu dropdown are universal across the **Application** screen and all four tabs: Application Details, Keywords, Application Composer and Application Editor.

2.5.4.1 State Editor

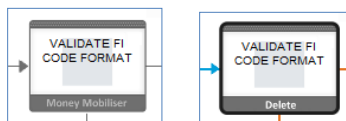
The Application Composer also provides facilities to manage the states displayed on the layout canvas including: select the state, delete the state and configure the state using the State Editor.

SELECT State When the application layout is displayed for the first time, there will be no state selected. To select a state, move the mouse over the state icon and left-click. Three things will happen after clicked:

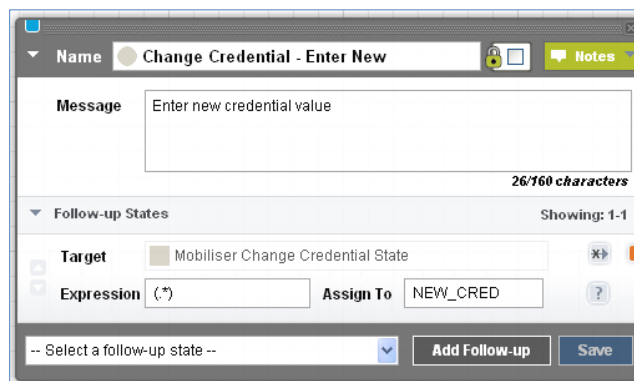
- The state will be selected and highlighted as explained above. The “Validate FI Code Format” is the selected state, shown below.



- The bottom portion of the state icon on the layout will change to display the “Delete” icon. The following figure shows the non-selected and selected state on the left and right, respectively.

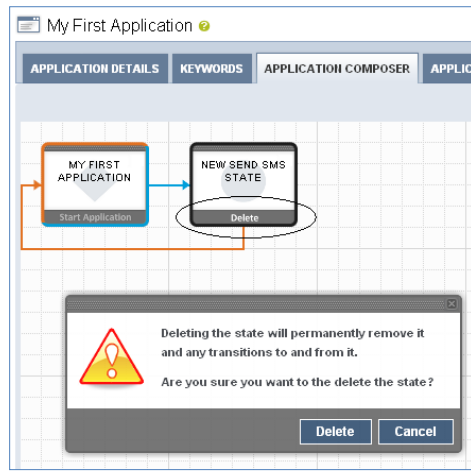


- The popup State Editor window will open automatically showing the state configurations. The following figure shows the state editor for Send SMS state.

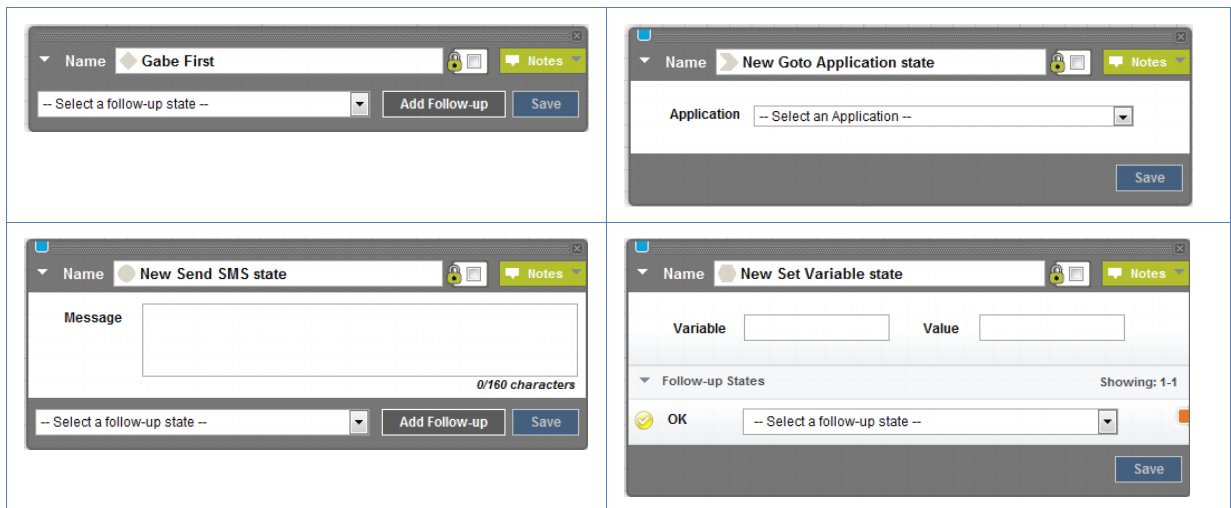


The state icon on the layout is a toggle button. When clicked again, the state will be de-selected and all the highlighting will disappear. The popup state editor window will remain open because you can move to other states connected to or from the current states.

DELETE State can be accomplished by clicking on the “Delete” icon of the selected state. Deleting a state will permanently delete that state and any transitions that were associated with it. You are prompted to ensure you know the implications of deleting the state, and can continue or cancel the delete action.



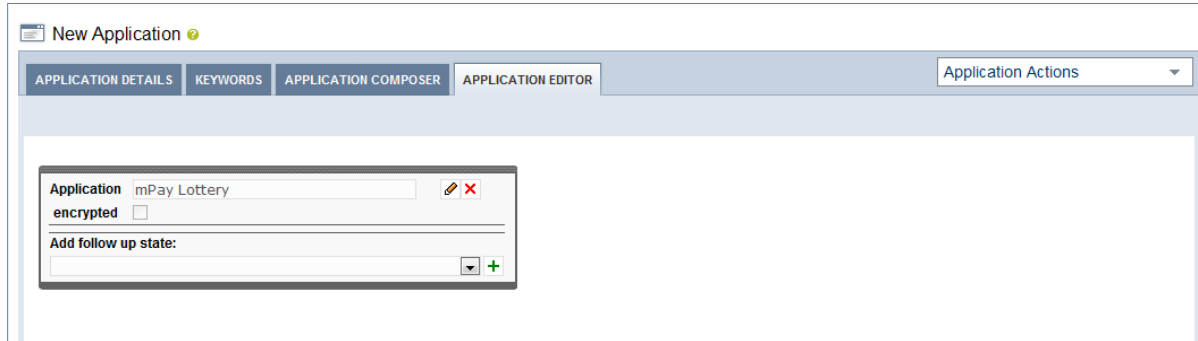
CONFIGURE State is done using the State Editor. The following figures show the state editor for the basic infrastructure states: Start Application, Goto Application, Send SMS, and Set Variable.



Please refer to the “Brand Mobiliser Development Manual” for more detailed information on how to use the state editor.

2.5.5 Application Editor

For a newly created application, the Application Editor shows the “Application” state, as shown below. This is the initial state (also known as the Start Application state) and every application starts with this state. We will only introduce features of Application Editor in this document. For in-depth discussions, please refer to the “Brand Mobiliser – Development Manual”.



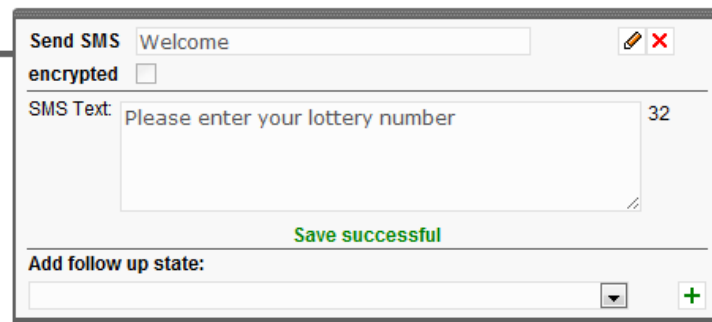
To build the application, update the following fields:

- Title - the name of your application
- Add follow up state - to handle the interaction of your application.

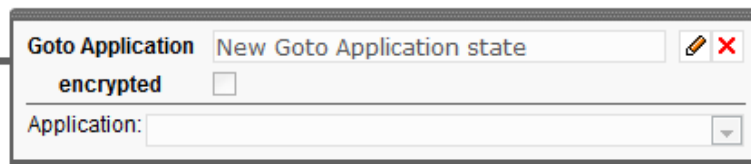
2.5.5.1 Add Follow up States

Create a complete application by adding follow up states. Choose the follow up states from the “Add follow up state” dropdown list and click the “green cross” to add. Brand Mobiliser is pre-package with Basic states and Money Mobiliser states. The Basic states are non-domain specific states. There are five basic states as follow.

- Send SMS State is used for sending SMS message to the mobile subscriber, and waiting for response before continuing the application flow. **Note: By default there is a 7.5 minute timeout for the wait.**



- Goto Application State is used to forward the flow to other pre-built interactive application.



- Set Variable State is used to assign information into a specific session variable for downstream conversation.

- External Call State is used to forward message to external system via a SOAP request.

In the course of further usage of the follow up states you will see some buttons and fields that appear in the appropriate boxes depending on the follow up state you chose before. Find a short description below:

	Add a new follow up state
	Delete a follow up state
	Field to entitle a keyword
	Field for keywords (List of regular expressions see appendix)
	Button to sort a follow up state up
	Button to sort a follow up state down
	Button to unlink a follow up state
	Warning that a keyword is missing for a follow up state

For an in-depth discussion on how to build an interactive application, please refer to the document “Brand Mobiliser Development Manual”.





A sample of an interactive application is shown below.

The screenshot displays the SYBASE 365 application editor interface. At the top, the SYBASE 365 logo is visible, along with navigation tabs: DASHBOARD, PROGRAMS, SUBSCRIBER LIST, ASSETS, PERFORMANCE AND ANALYTICS, and WORKSPACE ADMINISTRATION. The current workspace is 'default', and the user is logged in as 'admin'. The main content area shows the 'Send Money' application editor, which is divided into several sections: APPLICATION DETAILS, KEYWORDS, APPLICATION COMPOSER, and APPLICATION EDITOR. The APPLICATION EDITOR section contains a flowchart with the following states and transitions:

- Send Money State:** Application: send_money_other_FI. Variable: [] = [] Keyword: [] Target State: Enter FI code.
- Send SMS State:** Application: []. SMS Text: Enter FI code of the receiver account or press 0 to return to the main menu. Variable: [] = 0 Keyword: [] Target State: Goto Application main menu. Variable: FI_CODE = (.*) Keyword: [] Target State: Validate FI code format.
- Goto Application State:** Application: []. Keyword: Goto Application main menu.
- Mobiliser Method Call State:** Application: []. Keyword: Validate FI code format. About this state: This enters an application and returns to this state. Use the following follow up states: - Dyn: Evaluate return result. Variable: [] = SUCCESS Keyword: [] Target State: Enter account number. Variable: [] = FAILURE Keyword: [] Target State: Invalid FI code format.
- Send SMS State:** Application: []. SMS Text: Enter receiver's 10 to 18-digit account number at {FI_CODE} or press 0 to return to the main menu. Variable: [] = 0 Keyword: [] Target State: Goto Application main menu. Variable: ACCOUNT = (.*) Keyword: [] Target State: Validate account number format.
- Goto Application State:** Application: []. Keyword: Goto Application main menu.
- Mobiliser Method Call State:** Application: []. Keyword: Validate account number format. About this state: This enters an application and returns to this state.

2.6 Application Category Screen

Manage Application Category screen is used to add new categories used by applications, as shown below.

	Save settings
	Delete settings
	Settings are in used (cannot be deleted)
	Cancel

2.7 Application Approval Screen

2.7.1 Application Approval – Initial Screen

Applications are not active until they are “Approved”. The initial Application Approval screen is blank; you can use the “Load Application for Approval” button to search for applications that required approval. Applications require approval if they are a new application or have been modified recently. Any modifications to an existing application changes the Application status to “In-Review” and the modifications will not take effect until the application is approved. Please refer to [Approval](#) section for more detailed discussion on Approval.

2.7.2 Application Approval – List

SYBASE | 365
BRAND MOBILISER WEB

Workspace: default | Logged-in as admin (Logout) | My Account | Help

DASHBOARD PROGRAMS SUBSCRIBER LIST ASSETS PERFORMANCE AND ANALYTICS WORKSPACE ADMINISTRATION Actions

Showing: 1 - 1 (1 Total Applications to Approve) Applications per Page: 10

Application Name	Category	Active From	Active To	Actions
Send Money		Mon, Mar 14, 2011	Thu, Mar 31, 2011	In Review Actions

Load Applications for Approval Approve All

The list of new/modified applications is displayed and you can review each of the application's details before deciding to approve them. The "Actions" drop down menu has the options "Approve" and "Show Details". "Show Details" will take you to the application details for you to review. "Approve" is to approve the current application. If you have more than 1 application and have review each one of them already, you can batch approve all of the applications using the "Approve All" button.

2.8 Simulate Application Screen

SYBASE | 365
BRAND MOBILISER WEB

Workspace: default | Logged-in as admin (Logout) | My Account | Help

DASHBOARD PROGRAMS SUBSCRIBER LIST ASSETS PERFORMANCE AND ANALYTICS WORKSPACE ADMINISTRATION Actions

Simulate Incoming/Outgoing Message

Customer MSISDN:

Client MSISDN: 7654

Send SMS

Message Channel: SMS

Message Encoding: normal

Message Text:

Send to Brand Mobiliser

Send to CUSTOMER Send with Acknowledge

Send 100 Messages at max rate to CUSTOMER

(Simulate incoming Message from customer) (Simulate outgoing Message TO customer - You better be aware what you do)

Refresh message log

Timestamp Message Receiver Client MSISDN Dir Msg

Application Simulation allows testing of the application before making it available to your customers. You can simulate an inbound message to any short codes that is active in the system. The target short code is selected using the "Client MSISDN" selection box. The "Customer MSISDN" field allows you to set and keep the incoming MSISDN to simulate an ongoing session with the application. The "Message Text" area is sent verbatim as the SMS message to Brand Mobiliser. You can view the results of the simulation using the "Refresh message log" button.



Note: The “Send to CUSTOMER” option is good for troubleshooting purposes, but please heed the warning on the screen.

2.9 Default Menu Screen

The Default Menu applies to the workspace. There is one Default Menu per workspace. The purpose of the Default Menu is to catch all un-recognized keywords and respond with some guidance. The reason it’s called “Default Menu” is because traditionally the response guidance is a menu. For example, the response message for all un-recognized keywords can be as follow:

Please send:

bank – for banking

payment – for payment

weather – for weather

This Default Menu takes it a step further by allowing user to specify the application and the menu are automatically generated. Please refer to the screen below for the following discussion. The applications can be added by choosing it from the “Add Application to Default Menu” – Choose Application dropdown list. After clicking “Add to Menu button”, the selected application appears in the Default Menu table. There is a maximum limit of five applications.

SYBASE | 365
BRAND MOBILISER WEB

Workspace: default | Logged-in as admin (Logout) | My Account | Help

DASHBOARD PROGRAMS SUBSCRIBER LIST ASSETS PERFORMANCE AND ANALYTICS WORKSPACE ADMINISTRATION Actions

Setup Default Menu
Menu sent in Response to unrecognized Keywords.

MENU SETUP KEYWORDS

Default Menu (Limit to 5 Applications)

Menu Item No.	Application Name	Actions
---------------	------------------	---------

Add Application to Default Menu

Choose Application:
-- choose application -- Add to Menu

Response when Default Menu is empty

Message:
Default Menu

Save

Approve Default Menu

Note: Approval is required for any changes to take effect including Menu list and Keywords. After removing application from menu list, Approval is also required.

Approve

Let say, you have added two applications called mPay Coffee and mPay Lunch. Once the default menu is approved (see discussion below on approval), when a mobile subscriber sends it an unrecognized keyword, let’s say “unknown”, Brand Mobiliser will respond with the following message:

Choose:

1 – mPay Coffee

2 – mPay Lunch

In addition, the subscriber can send 1 or 2 to select an option, instead of typing the keyword for mPay Coffee or mPay Lunch.

If you do not want to publish your application using the Default Menu but want to be polite, you can use the “Response when Default Menu is empty” – Message. The message is sent to the subscriber on any unrecognized keyword. For example, the message can say: “Sorry, request not recognized”.

Any changes on the **Default Menu** screen require approval before it becomes active in service.

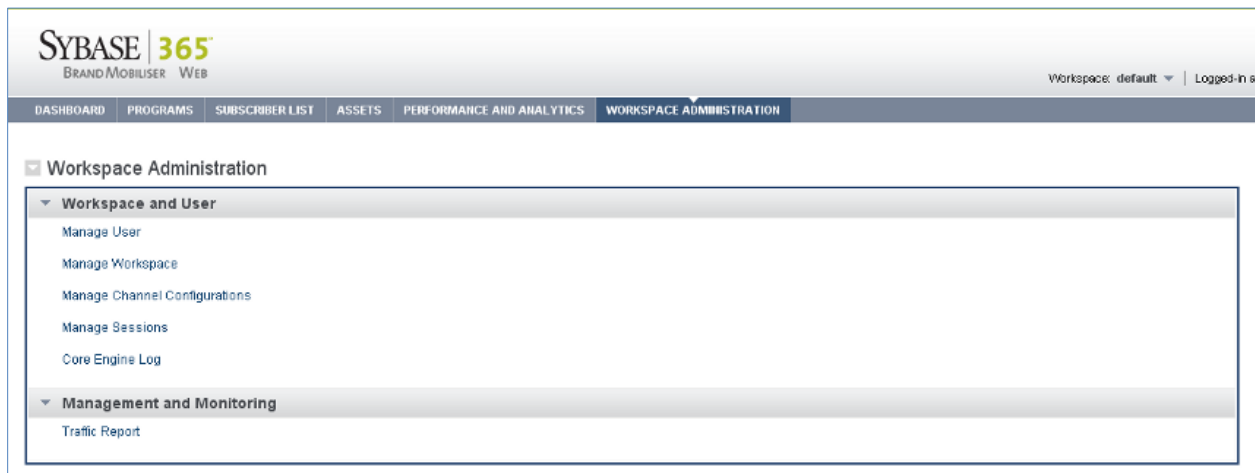
Note: When the Default Menu reference application(s), the application(s) require approval first before the Default Menu can be approved.

So, if the approve button is disabled, chances are one or more of the reference applications have not been approved. So, go to the **Dashboard** screen on the footer Application Short List module click the “Approve Applications” link.

2.10 Administration Screens

2.10.1 Workspace Administration

The Workspace Administration Tab consists of the following items.



Access to the functions is determined by permissions of the user. The Managed Users and Channel Configurations items are not available unless you are the Super Admin.

2.10.2 Workspace Administration - Manage Users

User Management – Allows adding/removal of users in the system. Click on the pencil image to edit a user.

The “Add New User” links to the New/Modify user screen below.



Workspace Administration » Manage Users

Users				
User Name	Password	Permissions	Workspaces	
admin	*****	super admin	default sybase	
app	*****	application admin	default sybase	

[Add New User](#)

2.10.3 Workspace Administration - Manage Users - Add/Modify User Form

Workspace Administration » Manage Users

User Name

Password

Re-type Password

Workspaces

available items		selected items
<input type="text"/>	<-	default
	->	sybase

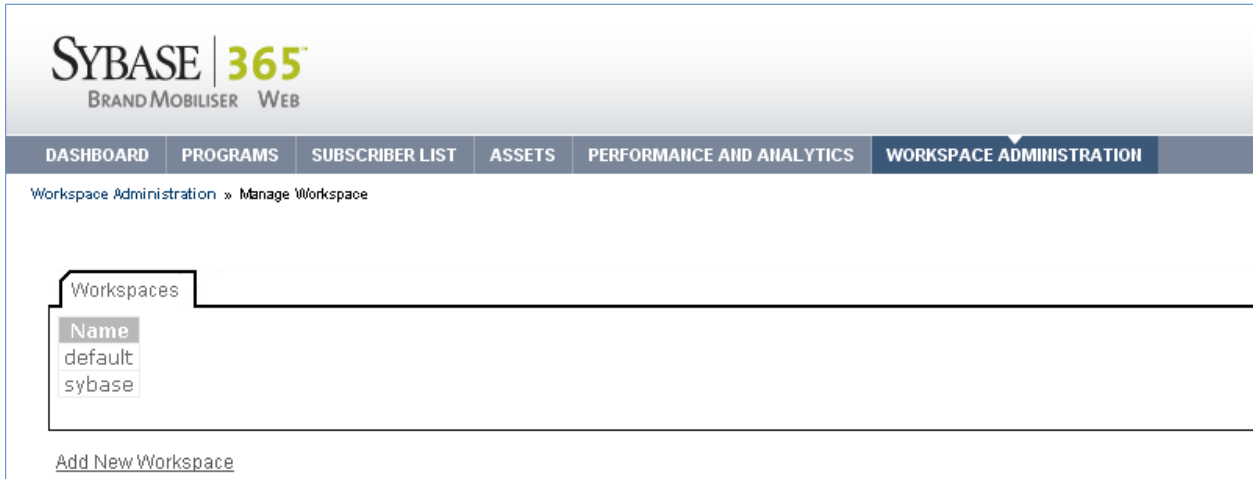
Permissions:

available items		selected items
APPLICATION ADMIN	<-	SUPER ADMIN
ADMIN	->	

[Go to User List](#)

The **Manager User** screen allows creation or modification of a user. Users must have a password associated with their unique Username and requires the assignment of a workspace and permissions. Workspaces are explained in the next section and Permissions are explained in "Appendix B". Changes saved using the "Save" button will take effect immediately.

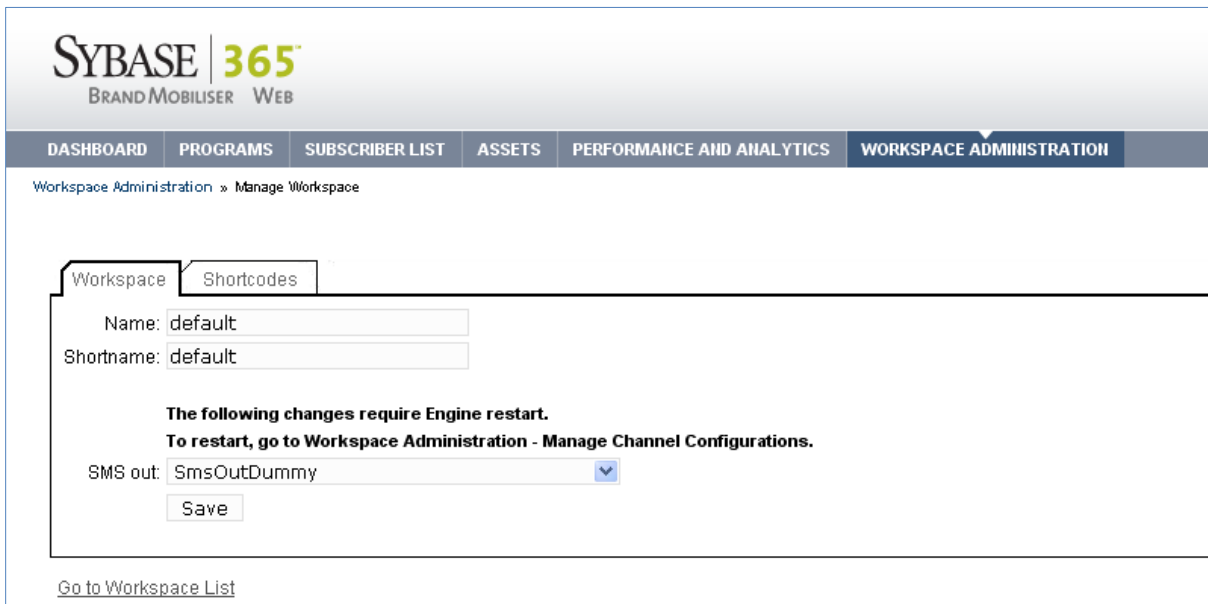
2.10.4 Workspace Administration - Manage Workspaces



The screenshot shows the SYBASE 365 Brand Mobiliser Web interface. The navigation menu includes DASHBOARD, PROGRAMS, SUBSCRIBER LIST, ASSETS, PERFORMANCE AND ANALYTICS, and WORKSPACE ADMINISTRATION. The current page is 'Workspace Administration > Manage Workspace'. A table titled 'Workspaces' has columns for Name, default, and sybase. The table contains two rows: 'default' and 'sybase'. Below the table is a link 'Add New Workspace'.

Managed Workspace shows a list of the current workspaces in the system and a link to add a new workspace into the system. Workspace is a logical grouping of applications, users and short codes. The grouping allows Brand Mobiliser to efficiently dispatch incoming messages to a group of applications in a Workspace. Multiple workspaces are not required. If there is only one short code assigned to your organization, then the default Workspace created is sufficient for Brand Mobiliser.

2.10.5 Workspace Administration - Manage Workspaces - Workspace Configurations



The screenshot shows the SYBASE 365 Brand Mobiliser Web interface. The navigation menu includes DASHBOARD, PROGRAMS, SUBSCRIBER LIST, ASSETS, PERFORMANCE AND ANALYTICS, and WORKSPACE ADMINISTRATION. The current page is 'Workspace Administration > Manage Workspace'. The page displays configuration fields for Name, Shortname, and SMS out. A warning message states: 'The following changes require Engine restart. To restart, go to Workspace Administration - Manage Channel Configurations.' A 'Save' button is visible. Below the configuration fields is a link 'Go to Workspace List'.

The Workspace configuration allows changing of the name and what outbound channel is used by the workspace. The outbound channel refers to a specific instance of a configured channel in the “Workspace Administration -> Manage Channel Configurations” section. By default, a dummy channel that outputs to the system log is assigned to a newly created workspace.

Note: Any changes to the channel configuration will require a restart of the Interactive Engine.



2.10.6 Workspace Administration – Manage Workspaces - Workspace Short codes

SYBASE | 365[™]
BRAND MOBILISER WEB

DASHBOARD PROGRAMS SUBSCRIBER LIST ASSETS PERFORMANCE AND ANALYTICS WORKSPACE ADMINISTRATION

Workspace Administration » Manage Workspace

Workspace Shortcodes

Shortcode	Default	Use for reply	
7654	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: Enter the Shortcode before clicking +

[Go to Workspace List](#)

The short codes configuration allows adding and removal of short codes to uniquely determine how to dispatch an incoming message. Once a short code has been added to a workspace, then all incoming messages with the short code as the destination MSISDN is dispatched to the assigned workspace's incoming queue. If there is more than one short code assigned to a workspace, then the "Default" and "Use for reply" flags come into play.

For example, if we have short code A, B and C. Short code "A" has the "Default" flag checked and Short code "B" has the "Use for reply" flag checked; Short code "C" has no flags checked. Here is what happens when an inbound message is sent to each short code.

- If an inbound message came in on "B", then the outbound response message will come from "B" since the "Use for reply" is checked.
- If an inbound message came in on "C", then the outbound response message would come from "A". As "C" does not have the "Use for reply" flag checked, the system selects the "Default" Short code to use as the "from" MSISDN.
- If an inbound message came in on "A", then the outbound response message would come from "A" since it is the "Default" Short code.

The "Default" short code is always used as the "from" MSISDN in outgoing messages unless the "Use for reply" flag has been checked in the matching inbound short code.

2.10.7 Workspace Administration - Manage Channel Configurations

Manage Channel Configurations provide configuration of the IO channels for Brand Mobiliser. The default channels supported are the SMPP channel and the JMS channel. Both channels support Inbound and Outbound messages. The SMPP channel uses the standard SMPP protocol to send/receive SMS with an external SMSC. Configuration of the Inbound and outbound SMPP connections are separate.

2.10.7.1 SMPP Inbound Channel

SYBASE | 365
BRAND MOBILISER WEB

DASHBOARD | PROGRAMS | SUBSCRIBER LIST | ASSETS | PERFORMANCE AND ANALYTICS | WORKSPACE ADMINISTRATION

Workspace Administration » Manage Channel Configurations

Changes will not take effect until Restart

JMS Connector | SMPP

Incoming (SMS) | Outgoing (SMS)

Name	Url	Port	User	Password	System Type	Active	
SmsInSmppIn	localhost	2777	smpplient	password	smpplient	<input type="checkbox"/>	

Status: online

The SMPP inbound connection is active for all workspace in the system. Use the pencil image to edit the different parameters. After saving the changes, a system restart using the “Restart” button must occur before changes take effect.

The following are the allowable parameters for each SMPP inbound connection.

Parameter	Description
Name	Unique name to allow system to refer to this channel.
Url	Host name of the SMSC.
Port	Port number to listen.
User	User name to authenticate with.
Password	Password to authenticate with.
System Type	Identifier for SMSC.
Active	Whether this channel is active or not.



2.10.7.2 SMPP Outbound Channel

SYBASE 365
BRAND MOBILISER WEB

Workspace: default | Logg

DASHBOARD PROGRAMS SUBSCRIBER LIST ASSETS PERFORMANCE AND ANALYTICS WORKSPACE ADMINISTRATION

Workspace Administration » Manage Channel Configurations

Changes will not take effect until Restart

JMS Connector SMPP

Incoming (SMS) Outgoing (SMS)

Name	Url	Port	User	Password	System Type	Dest Ton	Dest Npi	Src Ton	Src Npi	Delay (ms)	permanent	Active
SmsOutSmppBashful	bashful	2775	smppclient1	password	smppclient	12	12	12	12	12	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Status: online

Restart Stop

The SMPP outbound connection is active for all clients that have explicitly configured to use the connection. Use the pencil image to edit the different parameters. After saving the changes, a system restart using the “Restart” button must occur before changes take effect.

The following are the allowable parameters for each SMPP outbound connection.

Parameter	Description
Name	Unique name to allow system to refer to this channel.
Url	Host name of the SMSC.
Port	Port number to create connection to.
User	User name to authenticate with.
Password	Password to authenticate with.
System Type	Identifier for SMSC.
Dest Ton	Destination Type of Number
Dest Npi	Destination Numbering Plan Identification
Src Ton	Source Type of Number
Src Npi	Source Numbering Plan Identification
Delay(ms)	Message delay before sending next message.
Permanent	Whether connection is persistent or a new connection is made for every message.
Active	Whether this channel is active or not.

Please consult with your SMSC partner to configure the Src/Dest Ton/Npi values.

2.10.7.3 JMS Channel

SYBASE | 365
BRAND MOBILISER WEB

DASHBOARD | PROGRAMS | SUBSCRIBER LIST | ASSETS | PERFORMANCE AND ANALYTICS | WORKSPACE ADMINISTRATION

Workspace Administration » Manage Channel Configurations

Changes will not take effect until Restart

JMS Connector | SMPP

Name	Url	User	Password	Incoming	Outgoing	Active	
JMSConnectorBashful	tcp://bashful:51515			inQ	outQ	<input type="checkbox"/>	

Status: online

The JMS channel provides a bridge from Brand Mobiliser to send/receive messages using JMS messages. It has been tested with ActiveMQ and a single configuration supports both inbound and outbound traffic. The queue names of the JMS channel dictates whether the message on the queue is an inbound or outbound message.

The message format used by Brand Mobiliser is proprietary. Please consult with your Sybase Support contact if you wish to use this particular channel mechanism.

The following are the allowable parameters for each JMS connection.

Parameter	Description
Name	Unique name to allow system to refer to this channel.
Url	JMS broker to connect to.
User	User name to authenticate with.
Password	Password to authenticate with.
Incoming	Queue name to look for inbound messages.
Outgoing	Queue name to send outbound messages.
Active	Whether this channel is active or not.



2.10.8 Workspace Administration - Manage Sessions

SYBASE | 365
BRAND MOBILISER WEB

Workspace: default | Logged-in as

DASHBOARD PROGRAMS SUBSCRIBER LIST ASSETS PERFORMANCE AND ANALYTICS **WORKSPACE ADMINISTRATION**

Workspace Administration » Manage Sessions

Active Sessions

Refresh

Opened	Last Access	Expires	Type	Name	Customer	
14.12.2010 15:55:59	14.12.2010 15:55:59	14.12.2010 16:03:29	smapp	dddf	4156769893	Kill Session

Manage Sessions provide a mechanism to see the number of active sessions in the system. The refresh button pulls the number of active sessions from the system and allows for terminating a single active session. Active sessions are automatically terminated when the application ends or if the session timeout period has elapsed.

2.10.9 Workspace Administration - Core Engine Log

SYBASE | 365
BRAND MOBILISER WEB

DASHBOARD PROGRAMS SUBSCRIBER LIST ASSETS PERFORMANCE AND ANALYTICS **WORKSPACE ADMINISTRATION**

Workspace Administration » Core Engine Logs

Core Engine Logs

Refresh Log

Timestamp	Message
14.12.2010 11:52:43	Core: startup finished after: 345msec
14.12.2010 11:52:43	Core: startup (MWiz: 1.0.1 - Revision 10956)
14.12.2010 10:34:03	Core: shutdown finished
14.12.2010 10:34:03	Core: shutdown
14.12.2010 10:32:42	Core: startup finished after: 167msec
14.12.2010 10:32:42	Core: startup (MWiz: 1.0.1 - Revision 10956)
14.12.2010 10:32:30	Core: shutdown finished
14.12.2010 10:32:30	Core: shutdown
14.12.2010 10:32:11	Core: startup finished after: 110msec
14.12.2010 10:32:11	Core: startup (MWiz: 1.0.1 - Revision 10956)
14.12.2010 10:31:56	Core: shutdown finished
14.12.2010 10:31:56	Core: shutdown
14.12.2010 10:28:10	Core: startup finished after: 236msec
14.12.2010 10:28:10	Core: startup (MWiz: 1.0.1 - Revision 10956)
14.12.2010 10:28:01	Core: shutdown finished
14.12.2010 10:28:01	Core: shutdown
14.12.2010 10:27:47	Core: startup finished after: 310msec

Display various informational messages during the startup/shutdown of the Brand Mobiliser engine.

The refresh button pulls back the latest messages logged from the database.

2.10.10 Workspace Administration – Traffic Reports

The screenshot shows the SYBASE 365 interface for Workspace Administration. The top navigation bar includes: DASHBOARD, PROGRAMS, SUBSCRIBER LIST, ASSETS, PERFORMANCE AND ANALYTICS, and WORKSPACE ADMINISTRATION. The current page is 'Workspace Administration > Traffic Reports'.

The 'Traffic Report' section contains the following search filters:

- Date from: 13.12.2010 (calendar icon)
- Date to: 14.12.2010 (calendar icon)
- Shortcode: - all - (dropdown)
- Application: - all - (dropdown)
- Direction: In/Out (dropdown)
- Customer MSISDN: (text input)
- Message: (text input)
- Search button

The results table is as follows:

Date	In/Out	Client MSISDN	Service	Customer MSISDN	Message	Ack
14.12.10 14:12:12	↑ OUT	7654	Startpage	4158327654	Startpage Default Menu	
14.12.10 14:12:12	↓ IN	7654	Startpage	4158327654	test	

Traffic Report provides a simple reporting system for the messages going in and out of the system. Supported report filters are by a date range, short code, Customer MSISDN if known, or the targeted application. After setting the filters, the search button builds a query and pulls back the results from the database.



3 Installation and Configuration

From Version 1.1 and later, Brand Mobiliser supports two types of deployment models: Stand Alone and J2EE Web. The Stand Alone deployment model is a self contained Brand Mobiliser running inside the Sybase AIMS Platform as a service. The J2EE web deployment (or war-file) requires a J2EE servlet container like Apache Tomcat server.

This section describes the process of installing Brand Mobiliser in the Stand Alone deployment model. Please review the “Prerequisites” section below prior to installation. Installation and a sample walkthrough with configuration instructions are provided in the following sections.

3.1 Prerequisites

Prerequisites for Brand Mobiliser are as follow. The version number indicates what was used in testing and certification. Other versions may also work but need further testing and certification before deploying it into a production environment.

Software	Vendor	Version
Platform	Redhat Linux	5.5 64-bit
	IBM AIX	6.1.0.6 [JRE 1.6.0 IBM J9 2.4 AIX ppc64-64]
JDK		1.6.0+
Database	Oracle	10g
	IBM DB2	9.7.2
State Plugin	Sybase Money Mobiliser	4.5
J2EE Servlet Container	Apache Tomcat	6.0.32
	IBM Websphere AS	7.0.0.11
Web Browser	Firefox	3.6+
	Chrome	7+
	Internet Explorer	8+

3.2 Software Binary

The Brand Mobiliser distribution binary is a zip file with name “aims-brand-mobiliser-versionNumber.zip”. The *versionNumber* is the version number of Brand Mobiliser. For example, for Brand Mobiliser Version 1.1.1 the filename is “aims-brand-mobiliser-1.1.1.zip”. Copy the file from the distribution medium to the installation location. For the purposes of this document, we assume “/opt” on a Linux server.

3.2.1 UnPackaging

Starting from /opt folder

```
unzip aims-brand-mobiliser-versionNumber.zip
```

A directory is created at /opt/aims-brand-mobiliser-versionNumber with these contents:

```
bin/  
bundle/
```



```

conf/
j2ee/
license/
sql/
README.html
run.bat
run.sh

```

File/Directory	Contents
bin/	Apache Felix kernel and main subsystem bundles.
bundle/	OSGi bundles that make up Brand Mobiliser
conf/	Configuration files for Brand Mobiliser
j2ee/	WAR file for deployment on a J2EE servlet container.
license/	Open Source License information
README.html	Included documentation on the contents of the installation
run.bat/run.sh	Startup scripts for Brand Mobiliser
Sql	Database scripts for Brand Mobiliser

3.3 Database Scripts Installation

Current supported databases are: Oracle and IBM DB2. Please note the certified version number listed in the Prerequisites section. Other version numbers requires testing and certification.

Note: please consult your DBA prior to running the database scripts to ensure compliance with the company database policies.

3.3.1 Oracle Installation

The SQL scripts are in `sql/oracle` folder for your Oracle 10g installation. There are 4 scripts available for a fresh install. Note: Please consult with your DBA for a custom installation using an existing tablespace or user for the Brand Mobiliser schema.

01-BrandMobiliser-Tablespaces.sql

02-BrandMobiliser-Users.sql

03-BrandMobiliser-Objects.sql

04-BrandMobiliser-Base-Data.sql

Note: the first two scripts require DBA privileges in order to create a new tablespace and users for the mwiz2 user. The last two scripts need to be run using the mwiz2 user that was just created using script 02.

Note: The mwiz2 user will be used in the JDBC connection.

A sample installation of the SQL scripts follows:



1. Create Tablespace.

```
sh-4.1$ sqlplus sys/ as sysdba @01-BrandMobiliser-Tablespaces.sql
SQL*Plus: Release 10.2.0.1.0 - Production on Mon Dec 13 15:42:05 2010
Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter password:

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

Tablespace created.
SQL> exit
Disconnected from Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production
```

2. Create Brand Mobiliser User.

```
sh-4.1$ sqlplus sys/ as sysdba @02-BrandMobiliser-Users.sql
SQL*Plus: Release 10.2.0.1.0 - Production on Mon Dec 13 15:42:59 2010
Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter password:

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

User created.
Grant succeeded.
User altered.
User altered.
User altered.
SQL> exit
Disconnected from Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production
```

3. Create schema using mwiz2 user.

```
sh-4.1$ sqlplus mwiz2/ @03-BrandMobiliser-Objects.sql
SQL*Plus: Release 10.2.0.1.0 - Production on Mon Dec 13 15:48:04 2010
Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter password:
```

```

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

Table created.
...
Table created.
View created.

CREATING SEQUENCE SEQ_MWIZ
=====
Sequence created.

Index created.
...
Index created.
SQL> exit
Disconnected from Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

```

4. Insert initial data.

```

sh-4.1$ sqlplus mwiz2/ @04-BrandMobiliser-Base-Data.sql
SQL*Plus: Release 10.2.0.1.0 - Production on Mon Dec 13 15:49:16 2010
Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter password:

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

1 row created.
...
1 row created.
Commit complete.

SQL> exit
Disconnected from Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

```

The following logs are created by the SQL scripts:

BrandMobiliser_Base_Data.LOG
BrandMobiliser_Objects.LOG
BrandMobiliser_Tablespaces.LOG



BrandMobiliser_Users.LOG

Once the schema is created, the SQL scripts are no longer necessary during application runtime. Please save the scripts in a safe location for future database rebuild if needed.

3.3.2 IBM DB2 Installation

The SQL scripts are in `sql/db2` folder for your IBM DB2 Version 9.7.2 installation. There are 4 scripts available for a fresh install. Note: Please consult with your DBA for a custom installation using an existing tablespace or user for the Brand Mobiliser schema.

01-BrandMobiliser-Tablespaces.sql

02-BrandMobiliser-Users.sql

03-BrandMobiliser-Objects.sql

04-BrandMobiliser-Base-Data.sql

The followings system setup need to be performed prior to installing the scripts. **Note: Steps 1-3 must be run by an user with sudo privileges or as root.**

1. Add the following groups to the system

```
groupadd -g 999 db2iadm1
groupadd -g 998 db2fadm1
groupadd -g 997 dasadm1
```

2. Add the following users to the system

```
useradd -u 1004 -g db2iadm1 -m -d /home/mwiz2 mwiz2
useradd -u 1003 -g db2fadm1 -m -d /home/db2fenc1 db2fenc1
useradd -u 1002 -g dasadm1 -m -d /home/dasusr1 dasusr1
```

3. Change passwords of newly created users

```
passwd mwiz2
passwd db2fenc1
passwd dasusr1
```

Note: The mwiz2 user will be used in the JDBC connection.

4. Create a DB2 instance. Assuming that IBM DB2 is installed on the server.

```
$ pwd
/opt/IBMDB2/V9.7/instance/
$ ./db2icrt -a server -u db2fenc1 mwiz2
```

5. Verifying Installation

- Log in as mwiz2 user on the system
- Start database manager by entering db2start command
type db2start
- Enter the db2sampl command to create the SAMPLE database
type db2sampl
- Enter DB2 Command Line Processor (CLP)
type db2
- Connect to the sample database
type connect to sample

6. Create database in the DB2 instance and grant DBA privilege to mwiz2 user. Ensure that the current DB2 instance has write privilege to the data directory. The script assumes "/home/db2".

```
01-BrandMobiliser-DB_DB2.sql
```

7. Connect to newly created "brandmob" database as the mwiz2 user

```
db2 connect to brandmob user mwiz2 using sql
```

8. Run the rest of the scripts using the -vtf option to db2

```
db2 -l db2out.log -vstf "filename"  
  
02-BrandMobiliser-DB-Tablespaces_DB2.sql  
  
03-BrandMobiliser-Objects_DB2.sql  
  
04-BrandMobiliser-Base-Data_DB2.sql
```



3.4 Stand Alone Deployment

The Stand Alone deployment of Brand Mobiliser uses the Sybase AIMS Platform as a Service environment. Relative paths in the sections below use the Brand Mobiliser home location created in “/opt/aims-brand-mobiliser-*versionNumber*”. Note: the j2ee folder is not used in the Stand Alone deployment.

3.4.1 Binary installation

A directory is created at /opt/aims-brand-mobiliser-*versionNumber* with these contents:

```
bin/  
bundle/  
conf/  
j2ee/  
sql/  
license/  
README.html  
run.bat  
run.sh
```

The “run.sh” starts Brand Mobiliser. The “run.sh” should have its run time permission bit set. If not, please run “chmod 755 run.sh” to set it.

3.4.2 Initial Configuration

Initial configuration required before the startup of Brand Mobiliser.

Brand Mobiliser uses 3 ports. These are:

Port Key	Value
RMI_PORT	5366
osgi.shell.telnet.port	5365
org.osgi.service.http.port	8080

Note: RMI port must not conflict with an existing process or the server will not start.

The RMI_PORT is set in the run.sh script.

The telnet port (osgi.shell.telnet.port) and the Http port (org.osgi.service.http.port) are set in the “conf/config.properties” file.

The telnet port is for system level administration of the AIMS server and is locked to only allow connections from the server on which it is installed (localhost). Normal operations will not require any interaction with the telnet system console. The http port is where the Brand Mobiliser UI can be accessed. Please modify these ports if they are in conflict with existing processes.

3.4.3 Files in the conf/cfgbackup directory

The following are annotated descriptions of the configuration files available with the Brand Mobiliser installation.



service.dsprovider.properties – is used configure the JDBC

```
#####  
#      AIMS - Brand Mobiliser Configuration  
#  
#      Database  
#  
#####  
  
# Oracle JDBC Driver  
driverClassName=oracle.jdbc.driver.OracleDriver  
  
# Change the url to point to your Brand Mobiliser database installation  
# url=jdbc:oracle:thin:@(host):(port):(sid)  
url=jdbc:oracle:thin:@localhost:1521:xe  
  
# Change the username and password to match that of your Brand Mobiliser database  
installation.  
username=MWIZ2  
password=sql  
  
# The following are parameters to the database connection pool.  
# maxIdle is the number of connections to keep open when idle.  
maxIdle=5  
  
# maxActive is the maximum number of connections that can be opened.  
maxActive=25
```

service.mobiliser.properties – is used to configure the Mobiliser Money end points. If you do not use the Mobiliser Web Services backend, please disregard this configuration file.

```
#####  
#      AIMS - Brand Mobiliser Configuration  
#  
#      Mobiliser Endpoints  
#  
#####  
  
# Please change url and authentication information for an active Mobiliser  
installation.  
wsBaseUrl=http://orinoco.sybase.com:7070/ws-core/  
wsUsername=selfcare  
wsPassword=6NWFRQnUPFI=  
countrycode=49  
language=en  
  
# Please change url and authentication information for an active Mobiliser  
installation.  
jaxbBaseUrl=http://orinoco.sybase.com:7070/mobiliser/services  
jaxbServiceConnectTimeout=2500  
jaxbServiceReadTimeout=10000  
jaxbServiceUser=confmgr  
jaxbServicePassword=6NWFRQnUPFI=  
jaxbServiceKeystore=  
jaxbServiceKeystorePassword=  
jaxbServiceKeyAlias=  
  
# The following should not be modified.  
jaxbBalanceServiceUrn=/money/balance  
jaxbAuthoriseServiceUrn=/money/authorise  
jaxbPreAuthoriseServiceUrn=/money/preauthorise  
jaxbPayInvoiceServiceUrn=/money/payinvoice  
jaxbTxnUpdateServiceUrn=/transaction/update
```



service.coreprocessing.properties - The configuration file allows tuning of the internal processing engine and queues. **Note: Changes to the file will not take effect until a restart of the server.**

```
#####
#      AIMS - Brand Mobiliser Configuration
#
#      Configuration File for Core Engine
#
#####
#Per Message Receiver - A message receiver is created for each application.
# Number of threads to handle the message queue for each message receiver.
messageReceiverThreads=2

# Maximum number of messages allowed for each message receiver.
messageReceiverBackLog=500

#Incoming Queue
# Number of threads to handle the dispatch of the incoming queue. Note that this
# should not exceed the number of processors in the system.
incomingThreads=2

# Maximum number of messages allowed in the incoming queue. This is a global queue
# that handles all incoming messages before dispatching to a specific message
# receiver.
incomingBackLog=1000
```

org.ops4j.pax.logging.properties – is used to configure logging.

Logging is controlled by the org.ops4j.pax.logging.properties, the properties are dynamic and uses the log4j configuration format. See <http://logging.apache.org/log4j/1.2/manual.html> for information about the configuration format.

3.4.4 Startup and Runtime

After the initial configuration is complete, Brand Mobiliser can be started using the “run.sh” script.

The following options are available:

Action	Description
start	Starts the server if not started.
stop	Stops the server if running.
restart/reload	Perform a stop then start of the server.
status	Checks to see if the server is running and displays the running process information.

Note that a “brand.pid” file is created on start to store the current instance’s process identifier.

3.4.4.1 Sample run session

```
sh-4.1$ ./run.sh start
Container is not running.
Starting container ...
```



```

sh-4.1$ ./run.sh status

Running container instance:

UID    PID  PPID  C  STIME TTY      TIME CMD
all    27520  1  40  10:32 pts/0  00:00:21 /usr/lib/jvm/java-6-sun/bin/java -Xms256M -
Dnet.paybox.util.prefs.secret=paybox -Dcom.sun.management.jmxremote.port=5366 -
Dcom.sun.management.jmxremote -Dcom.sun.management.jmxremote.authenticate=false -
Dcom.sun.management.jmxremote.ssl=false -Dcom.sun.management.jmxremote.local.only=false -
Djava.rmi.server.hostname=bashful -jar bin/felix.jar

sh-4.1$ ./run.sh stop

Running container instance:

UID    PID  PPID  C  STIME TTY      TIME CMD
all    27520  1  24  10:32 pts/0  00:00:21 /usr/lib/jvm/java-6-sun/bin/java -Xms256M -
Dnet.paybox.util.prefs.secret=paybox -Dcom.sun.management.jmxremote.port=5366 -
Dcom.sun.management.jmxremote -Dcom.sun.management.jmxremote.authenticate=false -
Dcom.sun.management.jmxremote.ssl=false -Dcom.sun.management.jmxremote.local.only=false -
Djava.rmi.server.hostname=bashful -jar bin/felix.jar

Stopping container with pid: 27520

Checking for running container ...

*INFO * Logger terminated.

*INFO * Logger terminated.

Shutting down cascading work queue

Container is not running.

Container stopped.

```

After the server has started, you can then easily access the Brand Mobiliser WebAdmin UI by pointing your web browser to <http://localhost:8080/>

3.4.4.2 Diagnostics

If you encounter any issues with the running the container, check the logs under the “logs” directory.

By default, log groups are created for the different subsystems of Brand Mobiliser.

Log	Description
felix	Server kernel and misc log for all non application related messages.
brand	Main Brand Mobiliser application log.
spring	DI Application framework used by Brand Mobiliser.
ip2*	Framework libraries used by Brand Mobiliser.

Note that these are just the default grouping. If the logging properties configurations are modified, then the mapping described may no longer apply.



Some of the information may only be useful to Support Personnel. The “brand.log” provides the most useful application information and is the first place to check when issues arise.

3.5 J2EE Web Deployment

The J2EE web deployment model allows Brand Mobiliser to run on a J2EE compliant servlet container, like Apache Tomcat server, as a web application.

The relative paths in the sections below use the Brand Mobiliser home location created in “/opt/aims-brand-mobiliser-versionNumber”.

3.5.1 Binary installation

A directory is created at `/opt/aims-brand-mobiliser-versionNumber` with these contents:

```
bin/  
bundle/  
conf/  
j2ee/  
sql/  
license/  
README.html  
run.bat  
run.sh
```

The war file is located in the “j2ee” folder with name “aims-brand-mobiliser-webapp-versionNumber.war”. The *versionNumber* is the release version number of Brand Mobiliser.

3.5.2 Initial Setup and Configuration

The following system setup and configuration are necessary prior to deploying the war file. In the current version, the system setup is slightly different depending on the runtime J2EE servlet container.

3.5.2.1 Apache Tomcat

You need to know the root context where the Tomcat server is started. For the purpose of the following discussion, let’s assume that Tomcat was started from the “tomcat_home/bin” folder.

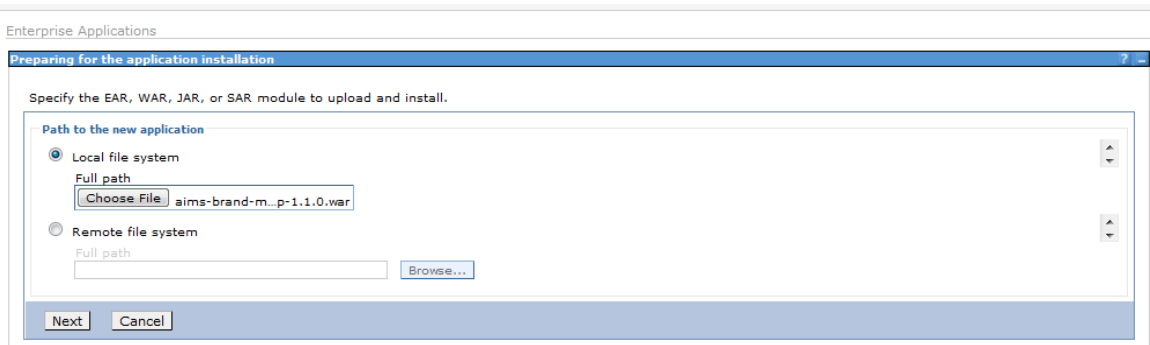
- Create the following folder structures in the “bin” directory:
 - aims
 - aims/_brand
 - aims/_brand/conf
 - aims/_brand/conf/cfgload
 - aims/_brand/conf/cfgbackup

- Note that “_brand” is constructed from the web application context path. If the context “brand” is already taken or the war is deployed to a different context, please modify the above directory structure accordingly by appending a “_” to the front of the web application context path.
- Copy the configuration properties files from the “conf/cfgbackup” of the binary distribution to the “aims/_brand/conf/cfgload” folder.
- Modify the properties files to meet the environment, as described in [“Files in the conf/cfgbackup directory”](#) section of the Stand Alone Deployment.
- Copy the war file (“aims-brand-mobiliser-webapp-*versionNumber*.war”) from the “j2ee” folder of the binary distribution to the “tomcat_home/webapps” folder. Note: the war file name will become the web application context name. **Note: it is recommended to change the war filename to “brand.war”, if not already used, prior to deploying it to tomcat. The web application is access as http://uri/brand**
- Start tomcat server.

3.5.2.2 [IBM Websphere Application Server](#)

You need to know which server “profile” to deploy the web application to. Typically, the default profile is at “profiles/AppSrv01” under the WebSphere Application installed directory. For the purpose of these instructions, we refer to default profile directory as “was_home”

- Create the following folder structures in the “was_home” directory:
 - aims
 - aims/_brand
 - aims/_brand/conf
 - aims/_brand/conf/cfgload
 - aims/_brand/conf/cfgbackup
- Copy the configuration properties files from the “conf/cfgbackup” of the binary distribution to the “aims/_brand/conf/cfgload” folder.
- Modify the properties files to meet the environment, as described in [“Files in the conf/cfgbackup directory”](#) section of the Stand Alone Deployment.
- You should have the war (“aims-brand-mobiliser-webapp-*versionNumber*.war”) from the “j2ee” folder of the binary distribution available for upload from a web browser. Use the Websphere Integrated Solution console to deploy the war file.



- During the deployment using the Websphere Integrated Solution console, make sure to set the context root to “brand” (if not already used), so that the application is accessed as <http://uri/brand>.



Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Map virtual hosts for Web modules

→ **Step 4: Map context roots for Web modules**

Step 5 Summary

Map context roots for Web modules

Context root defined in the deployment descriptor can be edited.

Web module	URI	Context Root
AIMS Sling Launchpad Web Application	aims-brand-mobiliser-webapp-1.1.0.war.WEB-INF/web.xml	/brand

Previous Next Cancel

4 Application Maintenance & Tuning

This section provides some guidance on how to perform regular maintenances for the application. The maintenance frequency varies based on the amount of traffics (or in this cases messages) served by the application.

4.1 Database Tables Maintenance

Database is used to persist configuration, transaction and session data, as well as for storing logging. The information provided in this section is to help the DBA to incorporate the application tables into the overall database maintenance plan. As always, regular backups are essential for recovery in the event of unexpected failure.

The following tables requires regular archiving & truncation.

Logging Tables [Need regular Archiving in high traffic volume]

Table Name	Descriptions	Volume	Archive & Purge
M_CORE_STATUS_LOG	Engine Logs	High	See Core Rule
M_LOGIN_HISTORY	Grows with number of user login	High	See Login History Rule
M_MESSAGE_LOGS	Grows with number of subscribers and traffics	High	See Message Logs Rule
M_MESSAGE_RECEIVERS	Grows with number of subscribers and traffics	High	See Message Receivers Rule
M_SESSION_ATTRIBUTES	Grow with traffics; Session data	High	See Session Attributes Rule
M_SESSIONS	Grow with traffics; Session data	High	See Session Rules
M_SMAPP_TRANSITION_LOG	Grow with traffics; Session data	High	See Transitions Rules

4.1.1 Archive – Core Rule

Archiving and purging should be defined by the DBA based on the company policy. The following recommendation should be treated as guidance and be reviewed by the DBA.

Rule: M_CORE_STATUS_LOG table can be purged based on the TIMESTAMP2 column

4.1.2 Archive – Login History Rule

Archiving and purging should be defined by the DBA based on the company policy. The following recommendation should be treated as guidance and be reviewed by the DBA.

Rule: M_LOGIN_HISTORY table can be purged based on the TIMESTAMP2 column



4.1.3 Archive – Message Logs Rule

Archiving and purging should be defined by the DBA based on the company policy. The following recommendation should be treated as guidance and be reviewed by the DBA.

Rule: M_MESSAGE_LOGS table can be purged based on the TIMESTAMP2 column

4.1.4 Archive – Message Receivers Rule

Archiving and purging should be defined by the DBA based on the company policy. The following recommendation should be treated as guidance and be reviewed by the DBA.

Rule: M_MESSAGE_RECEIVERS table can be purged based on the MARKED_DELETED = 1 AND if there is no references in the M_MESSAGE_LOG table

4.1.5 Archive – Session Attributes Rule

Archiving and purging should be defined by the DBA based on the company policy. The following recommendation should be treated as guidance and be reviewed by the DBA.

Rule:

- M_SESSION_ATTRIBUTES table needs to be purged prior to purging the M_SESSIONS table
- M_SESSION_ATTRIBUTES table can be purged based on SESSIONS_ID column. The session_id no longer exists in the M_SESSIONS table.

4.1.6 Archive – Session Rule

Archiving and purging should be defined by the DBA based on the company policy. The following recommendation should be treated as guidance and be reviewed by the DBA.

Rule: M_SESSIONS table can be purged based on CLOSED_DATE column.

4.1.7 Archive – Transitions Rule

Archiving and purging should be defined by the DBA based on the company policy. The following recommendation should be treated as guidance and be reviewed by the DBA.

Rule: M_SMAPP_TRANSITION_LOG table can be purged based on the TIMESTAMP2 column

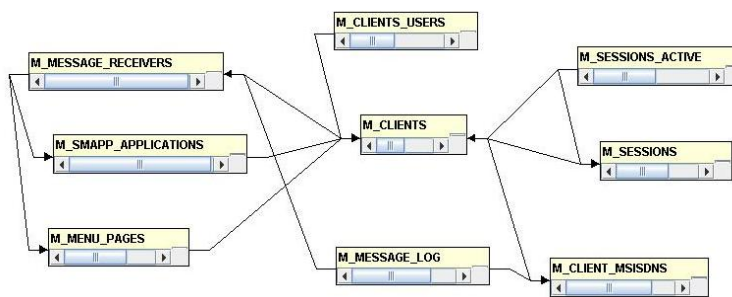
4.2 Special Maintenances

Currently, there is no mechanism provided on the UI to delete Workspace and User. This can be accomplished using the following steps.

4.2.1 Delete Workspace

The ability to delete workspace will be provided through the UI in the future release. In the interim, please follow the following steps to delete a workspace. **NOTE: database backup is recommended prior to performing the following operations.**

- Login using the username with ADMIN role and has been assigned to the workspace
 - Go to Setup Default Menu page. Remove all application assigned to the Default Menu. Then Approve the Default Menu.
 - Remove all the applications in the workspace from the Asset Page
 - Go to the Manage User page, unassigned all users from this workspace including the login user. If the login user is assigned to this workspace only, first assign the login user to a different workspace. Then unassigned the login user from this workspace.
- Using the database management tool
 - Go to M_CLIENTS table, and find the ID (let's say it's 9999) of the workspace to be deleted. The workspace name is in the NAME column.
 - Go to M_CLIENT_MSISDNS table, and find the ID (let's say it's 2222) where the CLIENTS_ID = 9999
 - Delete all entries in M_MESSAGE_LOG where CLIENTS_MSISDNS_ID = 2222
 - Delete an entry in M_CLIENT_MSISDNS table where ID = 2222
 - Delete all entries in M_SESSIONS_ACTIVE table where CLIENTS_ID = 9999
 - Delete all entries in M_SESSIONS table where CLIENTS_ID = 9999
 - Delete all entries in M_MESSAGE_RECEIVERS where CLIENTS_ID = 9999
 - Go to M_MENU_PAGES table, and find the ID (let's say 4444) where the CLIENTS_ID = 9999
 - Delete all entries in the M_MENU_PAGES_LANGS where ID = 4444
 - Delete all entries in the M_MENU_PAGES where CLIENTS_ID = 9999
 - Delete an entry in the M_CLIENTS table where ID = 9999



4.2.2 Delete User

The ability to delete user will be provided through the UI in the future release. In the interim, please follow the following steps to delete a user. **NOTE: database backup is recommended prior to performing the following operations.**

- Login using the username with ADMIN role and has been assigned to the same workspace as the user to be deleted.
 - Go to the Manage User page, unassigned the users from any roles and any workspaces but the default workspace.
- Using the database management tool
 - Find out the ID of the user from the M_USERS table (let's say 8888)
 - Delete all entries in M_CLIENTS_USERS table where the USERS_ID = 8888. (There should only be one entry)
 - Delete the entry in M_USERS table where ID = 8888

4.3 Log Files

Brand Mobiliser creates log files that are stored in the “log” folder. Please refer to “Installation and Configuration” section for the location of the log files. Please make sure that there are enough disk space for the log file.

4.4 Performance Tuning

Brand Mobiliser processing engine can be tuned when necessary to increase throughput. The default setup (see **service.coreprocessing.properties**) should work in typical scenario. Depending on the configurations and utilization of the host server, the processing engine can be tuned to increase throughput. Please run performance benchmark on the new configurations before deploying to the production system.

Note: Changes to the “service.coreprocessing.properties” configuration file will not take effect until a restart of the server.

```
#####  
#      AIMS - Brand Mobiliser Configuration  
#  
#      Configuration File for Core Engine  
#  
#####  
  
#Per Message Receiver - A message receiver is created for each application.  
# Number of threads to handle the message queue for each message receiver.  
messageReceiverThreads=2  
  
# Maximum number of messages allowed for each message receiver.  
messageReceiverBackLog=500  
  
#Incoming Queue  
# Number of threads to handle the dispatch of the incoming queue. Note that this  
# should not exceed the number of processors in the system.  
incomingThreads=2  
  
# Maximum number of messages allowed in the incoming queue. This is a global queue  
# that handles all incoming messages before dispatching to a specific message  
# receiver.  
incomingBackLog=1000
```

A. Appendix - Glossary

A.1 Acronyms

- **SMS:** The **Short Message Service** is a service available on most digital mobile phones, other mobile devices (e.g. a PocketPC) and some fixed phones that permits the sending of short messages.
- **MMS:** The **Multimedia Messaging Service** is a standard for a telephony messaging systems that allow sending messages that includes multimedia objects (images, audio, video, rich text) and not just text messages as in SMS
- **WAP:** The **Wireless Application Protocol** is an open international standard for applications that use wireless communication. Its principal application is to enable access to the Internet from a Mobile Phone or PDA.
- **User:** In this manual a User is the person that is working with the Mobile Wizard e.g. a Product Manager or Marketing Manager
- **MSISDN:** The **Mobile Station Integrated Services Digital Network (MSISDN)** refers to a fixed number of digits (may be 10 or 15-digit, depends of service provider) that is used to refer to a particular mobile device.
- **MO: Mobile Originated.** All incoming messages from the Customer to the Mobile Wizard
- **MT: Mobile Terminated.** All outgoing messages from the Mobile Wizard to the Customer
- **SOAP:** SOAP (originally **Simple Object Access Protocol**) is a protocol for exchanging XML-based messages over computer networks, normally using HTTP.
- **SMPP:** The **Short Message Peer-to-Peer** protocol is a telecommunications industry protocol for exchanging SMS messages between SMS peer entities such as short message service centers

A.2 Definitions

- **Shortcode:** (also known as short numbers) are special telephone numbers, significantly shorter than full telephone numbers that can be used to address [SMS](#) and [MMS](#) messages from mobile phones or fixed phones. There are two types of short codes: dialing and messaging. Short codes are widely used for value-added services such as television program voting, ordering ringtones, charity donations and mobile services. Messages sent to short code can be billed at a higher rate than a standard SMS and may even subscribe a customer to a recurring monthly service that will be added to their mobile phone bill until they text, for example, the word "STOP" to terminate the service. [Source: Wikipedia]



B. Appendix - User Roles

B.1 Roles, Purposes & Accesses

Role and permission are used interchangeably in this release but role will be used in this document as well as in the future release of the software. The role is used to control access to screen or controls (such as, button, input field, etc.) Currently, there are three pre-defined roles:

- SUPER ADMIN
- ADMIN
- APPLICATION ADMIN

The purpose of these roles and who should be assigned to these roles are described below.

Roles	Purposes and Access
SUPER ADMIN	<ul style="list-style-type: none"> ▪ The default user (i.e., username=ADMIN) has a SUPER ADMIN role. It is recommended to leave it unmodified except to change the password. The default password is "brand", with no quotes. Additional user(s) can be created and assigned a SUPER ADMIN role. ▪ Non-limited access (Client comprehensive) ▪ Assign this role to the Brand Mobiliser application administrator ▪ Exclusive access to <i>Workspace Administration</i> → Manage Workspace screen for creating or managing workspaces ▪ Exclusive access to <i>Workspace Administration</i> → Manage Channel Configurations screen for configuring channels. Channels are used to deliver SMS message. Also, the interactive engine can only be "stop" or "Restart" from this screen ▪ On the Dashboard (top right hand column), the Workspace module displays the shortcode(s) that have been provisioned for the current workspace. Only a SUPER ADMIN user can click on the module title (i.e., Workspace) to go to the <i>Workspace Administration</i> → Manage Workspace with the current workspace pre-selected.
ADMIN	<ul style="list-style-type: none"> ▪ Access to all screens except: <i>Workspace Administration</i> → Manage Workspace and <i>Workspace Administration</i> → Manage Channel Configurations. ▪ Should be considered as workspace administrator. Each workspace should have an assigned ADMIN, whose tasks include the following. ▪ Create and Manage workspace user from the <i>Workspace Administration</i> → Manage User screen ▪ Manage sessions that are created by the interactive application(s) in the workspace using the <i>Workspace Administration</i> → Manage Sessions screen ▪ Monitor the Brand Mobiliser engine log using the <i>Workspace Administration</i>

	<p>→ Core Engine Log screen</p> <ul style="list-style-type: none"> ▪ Create report for the traffic generated by the interactive application(s) in the workspace.
APPLICATION ADMIN	<ul style="list-style-type: none"> ▪ No access to the Workspace Administration navigation menu ▪ Assign role to users that will work with interactive application, including: create new, modify, approve, simulate and delete the application. ▪ This user can setup the Default Menu using the <i>Actions</i> → Setup Default Menu screen

Note: More roles may be added as needed in a future release.



C. Appendix - Regular Expressions

C.1 Regular Expression Introduction

This introduction will quickly get you up to speed with regular expressions. Obviously, this brief introduction cannot explain everything there is to know about regular expressions. For detailed information, consult a regular expression tutorial that you can find e.g. here: <http://www.regular-expressions.info/tutorial.html>. Each topic in this quick start corresponds with a topic in the tutorial, so you can easily go back and forth between the two.

Introduction

A regular expression, or regex for short, is a pattern describing a certain amount of text.

Literal Characters

The most basic regular expression consists of a single literal character, e.g.: a. It will match the first occurrence of that character in the string. If the string is Jack is a boy, it will match the a after the J.

This regex can match the second a too. It will only do so when you tell the regex engine to start searching through the string after the first match. In a text editor, you can do so by using its "Find Next" or "Search Forward" function. In a programming language, there is usually a separate function that you can call to continue searching through the string after the previous match.

Eleven characters with special meanings: the opening square bracket [, the backslash \, the caret ^, the dollar sign \$, the period or dot ., the vertical bar or pipe symbol |, the question mark ?, the asterisk or star *, the plus sign +, the opening round bracket (and the closing round bracket). These special characters are often called "metacharacters".

If you want to use any of these characters as a literal in a regex, you need to escape them with a backslash. If you want to match $1+1=2$, the correct regex is $1\+1=2$. Otherwise, the plus sign will have a special meaning.

Character Classes or Character Sets

A "character class" matches only one out of several characters. To match an a or an e, use [ae]. You could use this in `gr[ae]y` to match either gray or grey. A character class matches only a single character. `gr[ae]y` will not match `gray`, `grey` or any such thing. The order of the characters inside a character class does not matter.

You can use a hyphen inside a character class to specify a range of characters. `[0-9]` matches a single digit between 0 and 9. You can use more than one range. `[0-9a-fA-F]` matches a single hexadecimal digit, case insensitively. You can combine ranges and single characters. `[0-9a-fxA-FX]` matches a hexadecimal digit or the letter X.

Typing a caret after the opening square bracket will negate the character class. The result is that the character class will match any character that is not in the character class. `q[^x]` matches `qu` in question. It does not match `Iraq` since there is no character after the `q` for the negated character class to match.

Shorthand Character Classes

`\d` matches a single character that is a digit, `\w` matches a "word character" (alphanumeric characters plus underscore), and `\s` matches a whitespace character (includes tabs and line breaks). The actual characters matched by the shorthand's depend on the software you're using. Usually, non-English letters and numbers are included.

Non-Printable Characters

You can use special character sequences to put non-printable characters in your regular expression. Use `\t` to match a tab character (ASCII 0x09), `\r` for carriage return (0x0D) and `\n` for line feed (0x0A). More exotic non-printables are `\a` (bell, 0x07), `\e` (escape, 0x1B), `\f` (form feed, 0x0C) and `\v` (vertical tab, 0x0B). Remember that Windows text files use `\r\n` to terminate lines, while UNIX text files use `\n`.

Use `\xFF` to match a specify character by its hexadecimal index in the character set. E.g. `\xA9` matches the copyright symbol in the Latin-1 character set.

If your regular expression engine supports Unicode, use `\uFFFF` to insert a Unicode character. E.g. `\u20A0` matches the euro currency sign.

All non-printable characters can be used directly in the regular expression, or as part of a character class.

The Dot Matches (Almost) Any Character

The dot matches a single character, except line break characters. It is short for `[^\n]` (UNIX regex flavours) or `[^\r\n]` (Windows regex flavours). Most regex engines have a "dot matches all" or "single line" mode that makes the dot match any single character, including line breaks.

`gr.y` matches `gray`, `grey`, `gr%y`, etc. Use the dot sparingly. Often, a character class or negated character class is faster and more precise.

Anchors

Anchors do not match any characters. They match a position. `^` matches at the start of the string, and `$` matches at the end of the string. Most regex engines have a "multi-line" mode that makes `^` match after any line break, and `$` before any line break. E.g. `^b` matches only the first `b` in `bob`.

`\b` matches at a word boundary. A word boundary is a position between a character that can be matched by `\w` and a character that cannot be matched by `\w`. `\b` also matches at the start and/or end of the string if the first and/or last characters in the string are word characters. `\B` matches at every position where `\b` cannot match.

Alternation

Alternation is the regular expression equivalent of "or". `cat|dog` will match `cat` in `About cats and dogs`. If the regex is applied again, it will match `dog`. You can add as many alternatives as you want, e.g.: `cat|dog|mouse|fish`.

Repetition

The question mark makes the preceding token in the regular expression optional. E.g.: `colou?r` matches `colour` or `color`.



The asterisk or star tells the engine to attempt to match the preceding token zero or more times. The plus tells the engine to attempt to match the preceding token once or more. `<[A-Za-z][A-Za-z0-9]*>` matches an HTML tag without any attributes. `<[A-Za-z0-9]+>` is easier to write but matches invalid tags such as `<1>`.

Use curly braces to specify a specific amount of repetition. Use `\b[1-9][0-9]{3}\b` to match a number between 1000 and 9999. `\b[1-9][0-9]{2,4}\b` matches a number between 100 and 99999.

C.2 Regular Expression Examples

Examples:

- [egh]** one of the indications „e“, „g“ or „h“
- [0-6]** a number of „0 “to „6 “(hyphens are indicator for a range)
- [A-Za-z0-9]** any Latin letter or any number
- [^a]** any indication except „a “ („^ “at the beginning of an indication class negates it)
- [:alpha:]** Letter: [:lower:] and [:upper:].
- [:blank:]** Blank and tabulator.
- [:cntrl:]** Control character. In the ASCII that is the characters 00 to 1F, and 7F (DEL).
- [:digit:]** Numbers: 0, 1, 2,... to 9.
- [:graph:]** Graphic indications: [:alnum:] and [:punct:].
- [:lower:]** Small letter: not necessarily only from a to z.
- [:print:]** Printer graphics: [:alnum:], [:punct:] and blanks.
- [:punct:]** Indication how: ! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~ .
- [:space:]** Whitespace: Horizontal and vertical tabulator, line and page feed, carriage return and blank.
- [:upper:]** Capital letter : not necessarily only from A to Z.
- [:xdigit:]** Hexadecimal numbers: 0 to 9, A to F, a to f.

- `\d` : a number [0-9]
- `\D` : an indication, which is not a number, thus `[^\d]`
- `\w` : a letter, a number or underlined, thus `[a-zA-Z_0-9]` (and possibly further letters)
- `\W` : an indication, which neither letter nor number still underlined are, thus `[^\w]`
- `\s` : Whitespace; mostly the class of the control characters `\f`, `\n`, `\r`, `\t` and `\v`
- `\S` : an indication, which is not Whitespace `[^\s]`

Example Phone Number

- `(0049(\d{12,13}))` matches all phone Numbers that begin with 0049 and got 12 or 13 digits after that.
- `(0049(\d+))` matches all Numbers that begin with 0049 and min 1 digits after that.

Example Amount

- `(\d+[\.\,]?\d*)` matches 50000,00 or 8976.12 but not 50.988,12

Example Letter and Number

- `([:upper:] [0-6])` Finds everything that looks like: A1 ... G4 ... but not G8



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DOCUMENT ID: DC01691-01-0110-01
LAST REVISED: March 2011

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