Detailed Content Management Design - Students

FSA Portals, Release 2

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1. Introduction

1.1 Project Overview

The FSA Students channel portal will bring together, in one simple, personalized Web site all the information and productivity tools relevant to FSA's customers, employees, and parents to make informed financial aid decisions and empower Students Channel staff to assist students. The personalized "front door" will automatically identify and distribute content relevant to each user. The portals will integrate with existing FSA web sites (e.g., FAFSA, etc.), and external sites (Department of Labor, FINAID, etc.), using the ITA infrastructure. The portals will be the glue that bonds all of FSA's web services together providing a uniform starting point for students and parents to access FSA.

1.2 Purpose

The purpose of this document is to provide a detailed design of the content management systems proposed for Release 2 of the FSA Students Portal. This is meant to identify and describe each of the components required for such a system to be delivered. This is a living document and is in its first draft.

2. Definitions

1. *User Group*: A logical organization of application users.
2. *User Role*: Roles that specify access privileges within Interwoven TeamSite.
3. *Approved Content*: Content that has been processed through the entire workflow and approval process.
4. *Deployment*: The process of moving content into the production environment.
5. *Data Capture Template (DCT)*: The interface used to capture a piece of content, and then push it through workflow.
6. *Data Capture Record (DCR)*: The content record created through the use of a DCT.
7. *Content Type*: Defines a piece of content in the business context of how the content is viewed on the public web site,
8. *Branch*: A logical and physical structure within the Interwoven Team Site environment that reflects the organization of content and workflow within a business.
9. *Workflow*: The content contribution, review and approval process.
10. *.wft:* A workflow template file or "woofty".

3. Content Management

One of the major requirements for Phase 2 of the FSA Students Portal initiative is to incorporate a content management system to enable business users to have control over their content.

3.1 What is 'Content Management'?

A content management system (CMS) is a system used to manage the content of a website. Typically, a CMS consists of two elements: the content management application (CMA) and the content delivery application (CDA). The CMA element allows the content contributor or author, who may not know HTML, to manage the creation, modification, and removal of content from a Web site without needing the expertise of a webmaster. The CDA element uses and compiles that information to update the website. The FSA Students Portal engagement has chosen Interwoven's TeamSite suite as the CDA and IBM's WebSphere as the CDA.

3.2 Presentation vs. Templating

3.3 Benefits of Content Management

A content management system will offer many benefits to the FSA Students Portal team, not the least of which is that it will allow business users maximum ownership over portal content, and it will minimize the reliance on other departments for the publishing of standard content.

3.4 Limitations

The templates provided with the delivery of the content management system will help FSA Students Portal achieve a standard look and feel across the site. However, the trade off is that the user is effectively locked into a particular page layout.

4. Branching

The term "branching" in the context of the FSA Students Portal engagement and for the purposes of this document refers to the organization of content, or content infrastructure within the TeamSite environment. The purpose of this infrastructure is to help categorize and structure the collection of content. The main categorizations within this infrastructure include the branch, workarea, data type and data category.

The branch is the highest level of division within the TeamSite environment. The branch allows the business to structure their content management into multiple areas of development. It is possible for branches within a single TeamSite environment to be either related (e.g. same site, different language branches) or completely independent (e.g. internet branch, intranet branch). Every branch within the TeamSite environment will consist of archived snapshots of content called editions, a staging area where content is integrated and individual workareas by which it is possible to separate content creation (a more detailed description of these is found below). Branches can also be infinitely sub-divided by using sub-branches, allowing for increased separation of content development. Several branching options were investigated for the FSA Students Portal engagement, focused on aligning the branching structure as closely to the business's internal organization. The final approach is that of a single production content entry branch called "students".

The students branch will contain all business-entered content including text, images, presentations and multi-media within a single workarea called "content". A TeamSite workarea is a virtual copy of all content within the associated branch's staging area. The workarea is intended to separate content that is "in process" from the approved content in the staging area or other work areas. It is in the workarea that files are added, edited, and deleted.

TeamSite requires that within a workarea, the infrastructure be further divided into data categories and data types. The data category was used to divide the workarea into functional areas that closely paralleled the production site layout – “Preparing”, “Choosing”, etc. These 12 data categories were further subdivided into data types in order to accommodate the language (internationalization) requirement. Each data type uniquely identifies a data capture template. Figure 2, below, offers an illustrative view of this branching scheme.

Figure 1. Overall Branching

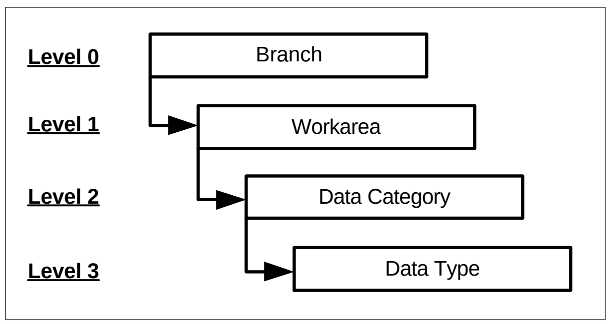


Figure 2. Branching Strategy for Students Portal

students

→ content

- templatedata
  - students
    - preparing
      - data
        - english
        - spanish
      - presentation
      - datacapture.cfg
    - choosing
    - applying

        - funding
        - attending
        - repaying
        - headlines
        - audience
        - siteresources
        - sitemap
  - images
  - attachments
  - english
    - preparing
    - choosing
    - applying
    - funding
    - attending
    - repaying
    - headlines
    - audience
    - siteresources
    - sitemap
  - spanish
  - admin
  - styles
  - scripts

The section of the branching schema under ‘preparing’ below the data folder (‘english’ and ‘spanish’) will be repeated in the data folders for each of the 10 data types. The data folder will hold the dcrs created via that template, the presentation folder will hold the presentation templates that transform the content entered via dcts into the .jsp page that displays on the internet, and the datacapture.cfg file is the code for the dct itself. The generated .jsp pages themselves will be stored in the appropriate language folder at the templatedata level. The following ideas provide support as to why this particular branching schema was chosen.

4.1 Flexibility and Scalability

In the TeamSite environment, it is very easy to create new branches based on the contents of another. As such, by using a single branch, FSA Students Portal has the flexibility to create additional branches based on the original “students” branch without concerns for distributed content. This gives the business the flexibility to create separate areas of content development, without a major development effort. This same concept provides FSA Students Portal the ability to scale the system by expanding the scope of the application to include management of content for additional net centric applications such as a corporate intranet.

4.2 Ease of Use/Maintenance

The single branch structure makes the system easier to use and maintain from several perspectives. First, having only one branch effectively removes top-level navigation decision-making from the business user resulting in easier acceptance of the system. Second, since an edition is a snapshot of the staging area within a branch, it is much easier for the support team to manage content, i.e. deployment, rollback & archiving, via blocks of single editions instead of through a distributed content model. Additionally, limiting production content to a single branch minimizes the number of editions that are cut, reducing I/O and storage overhead.

5. Data Capture Templates

Data capture templates (DCTs) are forms that collect the various content created by the FSA Students Portal team. As indicated in the branching section above, this design provides for 12 individual templates. Several of the designs incorporate the idea of “page level”. For example, a visitor to the FSA Students Portal site clicks on the “Preparing” tab on the homepage. This takes them to the “level one” Preparing page, or the main page. The level one Preparing page lists several links to more information and content. One of these links, “Plan Your Classes”, takes the visitor to the “Recommended Classes” page. This is considered a “level two” Preparing page. Several of the following template designs capture level one and level two content via the same template.

5.1 Preparing, Choosing, Applying, Attending, Funding, and Repaying Templates

These templates are designed to capture all content displayed within the main tabs on the Students Portal: Preparing, Choosing, Applying, Attending, Funding, Repaying. It was decided that six copies of the template, each stored in its own folder, would fall in line with the business process. In addition, there will be less confusion on the part of the business user and thereby a greater acceptance of the system by keeping each channel's content separate.

When a user opens one of these templates, the first field they will see is the 'Page Level' select list. Based upon their selection, the following additional fields will be provided.

Level One

If the user selects "level 1" from the drop down list, the following fields will be provided:

Main Header:	"Preparing"		Textbox	Required
SubHeader:	This field will capture page sub heading, and will be displayed in red font.		Textbox	Required
Description/Blurb:	This is the free form paragraph following the sub heading.		Textarea	Required
Disclaimer:	This is the short disclaimer and will be displayed in italics.		Textarea	Required
Replicant block 1:	This is a repeating field that will capture each section of the main page.		Replicant	Required
	Page Section Header:	For example: "Students"	Textbox	Not Required
	Paragraph title	For example: "Make a Checklist"	Textbox	Not Required
	Paragraph title link	This is the URL a user is taken to should they click on the paragraph title.	Textbox	Not Required
	Descriptive paragraph(s)	A paragraph(s) describing the link/title above.	Textbox	Not Required

Image	This field will capture the image displayed in the upper left corner of the page.		Image	Not Required
Alt Text	For 508 compliance, captures mouseover text for the image		Textbox	Only required if image is provided

Note that not every field is required. In the case of the 'Alt Text' field, it must only be provided if an image is also provided. This is to ensure standard compliance with section 508.

Level Two

If the user selects "level 2" from the drop down list provided, an alternate set of fields will display as this content page has a different layout than that of the main Preparing page:

Main Header:	"Make a Checklist"		Textbox	Required
Description/Blurb:	This is the free form paragraph following the sub heading.		Textarea	Required
Replicant Block 1:	This is a repeating field that will capture each section of the page.		Replicant	Required
	Paragraph/Section Title	For example: "Pre High School"	Textbox	Not Required
	Descriptive paragraph(s)	A paragraph(s) describing the Paragraph/Section Title field above.	Textarea	Not Required
Image	This field will capture the image displayed in the upper left corner of the page.		Image	Not Required
Alt Text	For 508 compliance, captures mouseover text for the image		Textbox	Only required if image is provided
Source Credit	This field captures any source that needs to be noted.		Textbox	Not Required

5.2 Audience Template

The Audience template is designed to capture the content directed toward a particular group of visitors to the FSA Students Portal. When a business user selects the Audience template, the following fields will be available:

Header	"Returning Students"		Textbox	Required
Description	This is the free form paragraph following the main header.		Textarea	Required
Replicant Block 1	This is a repeating field that will capture each section of the main page.		Replicant	Required
	Paragraph title	"Assess Yourself"	Textbox	Not Required
	Paragraph title link	This is the URL a user is taken to should they click on the paragraph title.	Textbox	Not Required
	Descriptive paragraph(s)	A paragraph(s) describing the link/title above.	Textarea	Not Required
Image	This field will capture the image displayed in the upper left corner of the page.		Image	Not Required
Alt Text	For 508 compliance, captures mouseover text for the image		Textbox	Only required if image is provided
Audience	This is metadata that will inform the application server where to display this content.	Drop Down: Returning Students, International Students, Parents, Graduate Students	Select list	Required

5.3 Site Resources Template

The Site Resources Content template was designed to capture the high level FSA Students Portal content having relatively the same page layout. The decision to group this content together is based on a couple of factors: the content doesn't really belong to any other logical grouping, and it would be inefficient to have a separate template for each content area as there would likely be only a couple of individual pages per template. In addition, links to all of these pages are provided in the 'Site Resources' section of the homepage, or within the header. With this in mind, a user will utilize the Site Resources Content template to create content for the following areas: About Us, Contact Us, Technical Help, Privacy, Security, Notices, and Publications. The template will provide the user with the following fields:

Header	"Notices"		Textbox	Required
Description	This is the free form paragraph following the main header.		Textarea	Required
Replicant block 1:	This is a repeating field that will capture each section of the main page.		Replicant	Required
	Page Section Header:	For example: "Non-personal information we record"	Textbox	Not Required
	Content Body	This is the free form paragraph(s) following each page section header.	Textarea	Required
Content Type	This is metadata that will inform the application server where to display this content.	Drop Down: About Us, Contact Us, Technical Help, Privacy, Security, Notices, Publications	Select List	Required

Currently there are anchor tags imbedded within the Privacy page. These will no longer be available with Release 2.

5.4 Site Map Template

The Site Map template is designed to capture links to the various pages of the site. The table below describes the fields that will be available to a business user when they open the template:

Header	"Site Map"			Textbox	Required

Replicant Block 1:	This is a repeating field that will capture each main page link.			Replicant	Required
	Functional Area Title	This field captures the main functional areas of the site		Textbox	Required
	Functional Area Link	This field captures the URL behind the Functional Area Title		Textbox	Not Required
	Replicant Block 2:	This is a repeating field that captures secondary page information.		Replicant	Not Required
		Secondary Page Title	This field captures the main functional areas of the site	Textbox	Not Required
		Secondary Page Link	This field captures the URL behing the Secondary Page Title	Textbox	Not Required

5.5 Headlines Template

The existing Calendar and Announcements templates will continue to be used for Release 2 with the addition of one field: Modification Date.

6. Presentation Templates

***add code

6.1 templating.cfg

***explain, add code snippet

7. Naming Conventions

***the dcr and jsp names must match for workflow.

8. XAP Content

*** name, perhaps discuss URL strategy

9. Administrative Tasks

There are certain sections of the FSA Students Portal that will continue to require the assistance of an administrator or webmaster in order to modify. Among these areas are:

- Left Hand Navigation on the homepage
- Header
- Footer
- Survey
- Advanced Search
- Site Resources
- MyFSA
- Homepage

While this content will not be templated, it is still feasible to store the jsp pages in TeamSite. Acting as a source code repository, TeamSite would eliminate the need for the properties file currently being used for internationalization in every case except error message modification. More importantly, the application server would no longer need to be restarted after each modification.

NOTE: XAP hosted pages will NOT be stored in TeamSite.

10. Workflow

The Students Portal at FSA requires a workflow that streamlines the process of creating, approving, and deploying content to production, and that is also effective in allowing content creation, update, and approval by authorized persons. Please refer to the 'Authorized Users' section below for a complete list of authorized persons.

The required functionality can be achieved through customization of TeamSite's workflow templates, and the workflows can be invoked using the functionality associated with TeamSite's Submit Task workflow.

Upon content submission, users will be prompted to select the approver for the workflow.

10.1 Workflow Job Specification File

The workflow job specification file is the actual XML file (skeleton) that defines each of the workflow tasks to be performed. It describes the user tasks such as the submit task, deployment tasks, an approval step, email tasks, and everything that needs to be accomplished by the workflow.

The .wft works very nicely as it allows the combination of the workflow logic and the workflow job skeleton into one file. Using Perl programming logic, it is possible to create the input form, the job specification file, and launch the workflow engine in one place.

10.2 Special Functionality

Automatic Deployment

A major advantage of this workflow is the ease with which content can be pushed to test and production servers without any user intervention. Once the user who creates or updates content submits the file, it is automatically deployed to the test server by the custom script portals_deploytotest.ipl. Similarly, once the designated reviewer has approved a file, it is automatically deployed to the production server by the custom script portals_deploytoprod.ipl. These .ipl files invoke OpenDeploy and DataDeploy on predefined configuration files to deploy content.

To invoke OpenDeploy, execute:

/iw-home/opendeploy/OpenDeployNG/bin/iwodstart <OD_cfg_file>

To invoke DataDeploy, execute:

/iw-home/opendeploy/bin/iwdd.ipl cfg=<DD_cfg_file>
deployment=<deployment_name_from_cfg>

Once the content has successfully deployed, the workflow is complete.

Email Notification

After each user task in the workflow, email notification is sent to the next user informing them of a task requiring their attention. This is done to prevent tasks from sitting in a user's to do list without their knowledge. For external contributors, email notification is the only way of communicating a task.

TeamSite ships with an email script called iwsend_mail.ipl. This script will check for the presence of an email-mapping file, which maps recipient login ids to email addresses. For example: John Doe's login id is johnd. However, the email-mapping file indicates that he should receive any messages not at johnd@ed.gov, but at john_doe@ed.gov.

Iwsend_mail.ipl natively grabs the workflow id and the task id from the TeamSite environment and passes them to itself, however, there is no limit to the number of variables that can be passed into the script. One thing to note is that regardless of the number of variables in the incoming array, workflow id and task id will ALWAYS be the last two variables in the array. For FSA's Students Portal, we pass in the current TeamSite user (the sender of the email), the recipient, the subject, and the message body in addition to the natively passed workflow and task ids. What this means is that when we use these variables inside the iwsend_mail.ipl script, sender is ARGV[0], recipient is ARGV[1], and so on with workflow id and task id being the last two variables. As a result of passing in variables, we are able to customize the body of the message that was created. If different email messages are required based on the recipient, simply copy the entire iwsend_mail.ipl, save it as another name, then make any changes to the new file. When calling the script in the external workflow task, be sure to use the new file name.

Workflow History

Another business requirement for the Students Portal is that a record of each workflow be saved. This record contains the names of each reviewer/approver, any comments added to the task, time and date stamp of each modification, etc. TeamSite creates this XML file without any modification to out-of-the-box functionality and provides accessibility to it via the command line tool iwgetwfobj; however, the file is deleted as soon as the workflow has ended. The Workflow History external task runs just prior to the End task and executes workflow_history.ipl to capture the file using the command line call then writes the XML file to a directory. The workflow file presently saved in the /iw-home/tmp directory with the following naming convention:

wfhistory_**contentfilename**_year_month_day.log

The **contentfilename** referenced in the naming convention above is the actual filename of the content record. Once workflow_history.ipl loops through all the tasks associated with the workflow and creates the file, it calls back to the workflow engine.

10.3 Authorized Users

Internal Contributors

The FSA Students Portal internal contributors (those contributors who have access to the TeamSite tool) have the role of Editor within TeamSite. An internal contributor can have a dual Editor/Approver role or can just be an Editor.

Editor/Approver. These users have the capability to create or modify content, and they also have the ability to approve content. It is important to note that a user will never be allowed to approve his/her own content.

Internal Contributor	TeamSite ID	Email address
Sheree Myers	TBA	Sheree.Myers@ed.gov
Adam Essex	TBA	Adam.Essex@ed.gov
Karen Epps	TBA	Karen.Epps@ed.gov
Marianella Garcia	TBA	Marianella.Garcia@ed.gov

Editor Only. These users have the capability to create or modify content.

Internal Contributor	TeamSite ID	Email address
Angela Washington	TBA	Angela.Washington@ed.gov

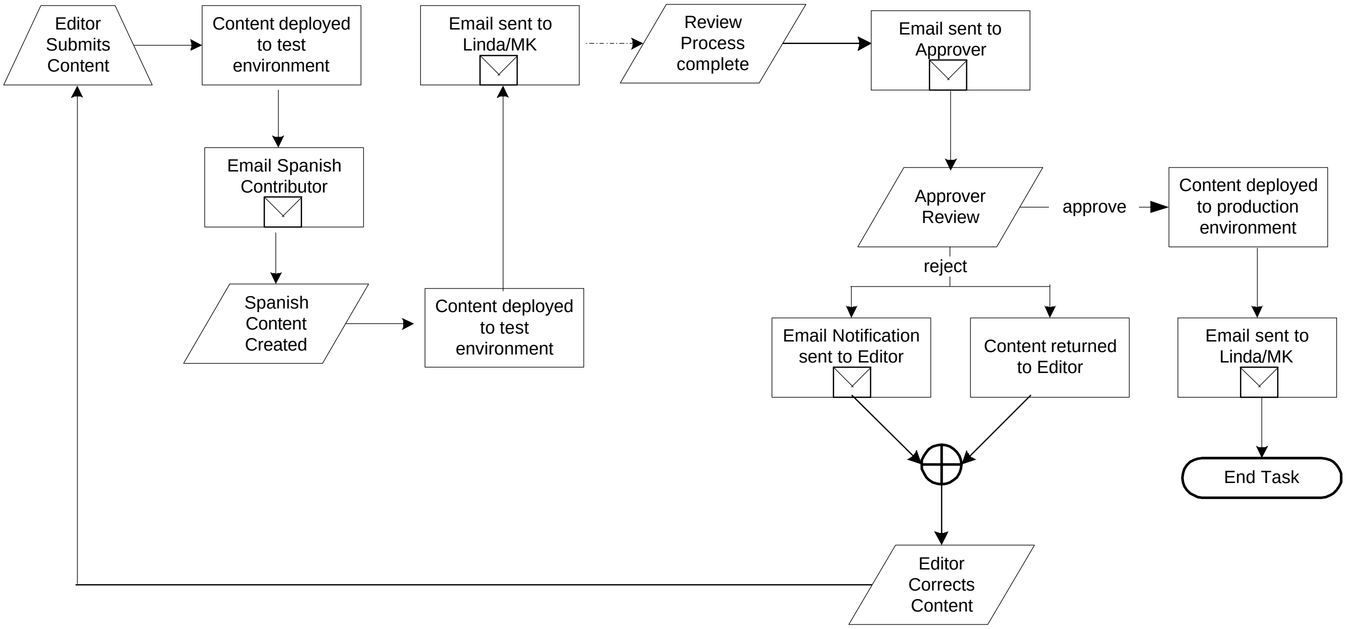
External Contributors

The FSA Students Portal team also has external contributors who do not access TeamSite. Rather, all communications with internal contributors (content creation or modification assignment and approval) is conducted via email.

External Contributor	TeamSite ID	Email address
Linda Hall	N/A	Linda.Hall@ed.gov
Mary K. Muncie	N/A	Mary.K.Muncie@ed.gov

10.4 Workflow Diagram

The following symbol denotes activities that occur outside of TeamSite.


Editor Submits Content
Content deployed to test environment
Email Spanish Contributor
Spanish Content Created
Content deployed to test environment
Email sent to Linda/MK
Review Process complete
Email sent to Approver
Approver Review
approve
Content deployed to production environment
reject
Email Notification sent to Editor
Content returned to Editor
Email sent to Linda/MK
End Task
Editor Corrects Content