

Struts/Forms Best Practices Part I

IES Abroad IT development team meeting
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- Basics: Struts action, struts form (bean). Nulls vs. empty string in J2EE/forms, so form beans should prevent nulls
- `jsp:useBean` tag
- Form beans should extend `org.iesabroad.common.struts.IesActionFormWrapper`
- `ApplicationResources.properties`
- Validation issues
 - Every viewable page should have an action
 - Equip pages to handle fake data
 - Input actions and processing actions share the same form bean. That is why the input action should have `validate` set to `false`.
 - The `<action>`'s `input` attribute should be a `.do`, not a JSP
 - Scope of the `<action>` and `<jsp:useBean>` tags should be "request"
- The `name` attribute in `struts-config` becomes the form name that
 - javascript/DOM will recognize
 - must be used as the `id` in the `<jsp:useBean>` tag
- `struts` `<html: namespace>`
 - `iesabroad.org` standard practice: always use
 - Convention is to use `<html: namespace>` although anything can be used.
 - `html: namespace` tags can **not** be assembled on the fly with String concatenations
 - Styles are added to `<html: namespace>` tags with the "styleClass" attribute
- In `struts-config.xml`, the `path` attribute of `<action>` reads `"/actionName.do"`. Slash is required, the context path is not included. The same is true for the "action" attribute of the `<html: form>` tag
- Define the forms field names in one place (in `Whydah`, `Globals.java`).
 - Use these in the `<html: namespace>` tags
 - Use these in Javascript
 - Be vigilant about keeping them in sync with the names in the form Bean
- In dropdowns, the "Please select one" option should return the value `org.iesabroad.common.struts.StrutsFormsGlobals.NO_SELECTION_VALUE`
- How struts handles checkboxes, radioboxes

Request a Catalog

Lines in struts-config.xml

In <form-beans>:

```
<form-bean
  name="requestCatalogInputPageForm"
  type="org.iesabroad.actions.requestCatalog.RequestCatalogInputPageForm"
/>
```

In <action-mappings>:

```
<action path="/requestCatalog"
  type="org.iesabroad.actions.requestCatalog.RequestCatalogInputPageAction"
  input="/requestCatalog.do" name="requestCatalogInputPageForm"
  scope="request" validate="false">
  <forward name="success"
    path="/pages/aboutIES/requestCatalog/requestCatalog.jsp"/>
</action>

<action path="/requestCatalogSubmitFormAction"
  type="org.iesabroad.actions.requestCatalog.RequestCatalogSubmitFormAction"
  input="/requestCatalog.do" name="requestCatalogInputPageForm"
  scope="request" validate="true">
  <forward name="success"
    path="/pages/aboutIES/requestCatalog/requestCatalogThankYou.jsp"/>
  <forward name="failure"
    path="/pages/aboutIES/requestCatalog/requestCatalogFailure.jsp"/>
</action>
```

In requestCatalog_tile.jsp:

```
<jsp:useBean id="requestCatalogInputPageForm" scope="request"
  class="org.iesabroad.actions.requestCatalog.RequestCatalogInputPageForm"/>
```

Where Request a Catalog's files are in Whydah

JSP pages: /pages/aboutIES/requestCatalog

Action and Form classes: org.iesabroad.actions.requestCatalog

Struts/Forms Best Practices Part 2

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- `.do` is the standard extension for servlet mappings
- JSPs must not be reachable by a URL ending in `.jsp`. All JSPs must be assigned a struts action and reachable only by a URL ending in `.do`. Unless there is a reason to do otherwise, the names should match. For example the JSP `editFacultyPage.jsp` should have `editFacultyPage.do` as its URI.
- JSP Pages which are not forms can have **ForwardAction** as their struts action
- JSP pages which are forms:
 - must use a customized Struts action. The classname should end with the word "Page" as in **FacultyCenterPage.java**. This indicates that the purpose of the action is to assemble a page (as opposed to processing a form submission).
 - should use names that begin with read or create if they are input forms for a CRUD action. For example, `readFacultyPage.do`, `createNewFaculty.do`, etc.
 - should use the same Struts ActionForm as the Struts action that will process the form
 - should retrieve any shared data via the ActionForm. If a struts action has to share data with the page it forwards to, the ActionForm should contain fields to accomodate this. Do not pass data with session variables.
 - should retrieve their querystring parameters through the ActionForm
- Struts ActionForms:
 - should have URIs closely matching their class name (e.g. `programFeesForm` for the URI and `ProgramFeesForm.java` for the class)
 - should end in the word "form" such as `programFeesForm`
- The `<action>` element in `struts-config.xml`:
 - should only use a `.do` URI for the input attribute. The input attribute should not be a path to a JSP file, but rather the `.do` URI mapped to that JSP. Not doing so (1) will cause a page error when the user hits the back button, and (2) might result in data missing on the page (depending on what the Struts action does).
 - should forward to a JSP [atj] only if it is a non-form page. If the page it is forwarding to is a form, it should forward to a `.do` URI.
 - should have a scope "request" unless there is some reason to use something else
 - should have `validate` set to "true" for form submission actions, and "false" for page creation actions. This is what allows the page creation Action and the form submission action to share the same ActionForm. You only validate when someone presses submit.

This struts-config.xml code does everything right:

```
<form-bean
    name="howtoapplyForm"
    type="org.iesabroad.actions.howtoapply.forms.HowtoapplyForm"
/>
<action
    path="/readHowtoapplyPage"
    type="org.iesabroad.actions.howtoapply.input.ReadHowtoapplyInputPageAction"
    name="howtoapplyForm"
    input="/adminHomePage.do"
    scope="request"
    validate="false">
    <forward name="success"
        path="/pages/howtoapply/readHowtoapplyPage.jsp"/>
</action>
<action
    path="/updateHowtoapplyAction"
    type="org.iesabroad.actions.howtoapply.UpdateHowtoapplyAction"
    name="howtoapplyForm"
    input="/readHowtoapplyPage.do"
    scope="request"
    validate="true">
    <forward name="success" path="/readHowtoapplyPage.do"/>
</action>
```

This struts-config.xml code works, but stylistically does everything wrong and might have problems:

```
<form-bean
    name="applyBean"
    type="org.iesabroad.actions.howtoapply.forms.HowtoapplyForm"
    <!-- bean name and java class don't correspond. -->
    <!-- bean name does not end with "Form" -->
/>
<action
    path="/readHowtoapply"
    type="org.iesabroad.actions.howtoapply.input.ReadHowtoapplyInputPageAction"
    <!-- URI and java class don't correspond -->
    <!-- URI and java class don't end with "Page" -->
    name="applyBean"
    input="/pages/adminHome.jsp"
    <!-- input is a JSP path instead of a .do -->
    scope="request"
    validate="false">
    <forward name="success"
        path="/pages/howtoapply/howtoapply.jsp"/>
    <!-- (The above is correct...forwarding to a jsp is what this
action does -->
</action>
<action
    path="/updateHowtoapply"
    type="org.iesabroad.actions.howtoapply.HowtoapplyAction"
    <!-- URI and java class don't correspond -->
    name=" applyBean"
    input="/pages/howtoapply/readHowtoapplyPage.jsp "
    <!-- input is a JSP path instead of a .do -->
    scope="request"
    validate="true">
    <forward name="success"
        path="/pages/howtoapply/readHowtoapplyPage.jsp "/>
    <!-- forwarding page is a JSP path instead of a .do -->
</action>
```