

Developing a generic deployable component for single sign-on

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Overview

- Background
- Requirements
- Single sign-on method
- login2 PowerLink
- Challenges
- Wish list
- Other applications

Background

- Migrated from Campus Edition 4.1 to Vista 4 SP3 in Summer 2006
- c.20,000 active users (c.18,000 students)
- 1,750 sections p.a. (and growing!)
- PowerLinks SDK - deployable component

Requirements

- Need to reproduce the CE4.1 integrations with other tools; e.g.
 - Weblog (in-house)
 - WebBoard
 - QuestionMark Perception
- More than just “single sign-on” (cosign from University of Michigan)
- Automatic registration with external tool
- Single point of entry avoids need for data synchronisation

Single sign-on method

- Same method as used by Blackboard - see *System Integration Utility Guide*:
 - a PowerLink in WebCT passing parameters in the query string to the external tool
 - a connection script on the external tool server to receive the parameters
- Secure data by:
 - a *Message Authentication Code* (MAC) using a shared secret
 - passing a timestamp
 - redirecting the user after validating parameters

login2 PowerLink

- End result is to redirect user to a URL of the form:
`http://tool.server/script?param1=value1&...&mac=...`
- Aim is to provide a generic solution from which a proxy tool can be created for each external tool
- Design decisions:
 - which parameters should be passable?
 - how to allow the parameters to be selected

login2 parameters

- URL for connection to external tool
- Course ID
- Course title
- Section ID
- Section title
- Section fulltitle
- WebCT user ID
- User name
- User fullname
- User firstname
- User lastname
- User email
- User status
- User roles
- User-defined
- Timestamp
- Message authentication code
- Shared secret
- Configure this tool externally?
- Name of configure tool button
- URL for external configuration script

login2 settings page

Settings:

Title	Value	Options
*Operational Timeout	<input type="text" value="10"/>	<input type="checkbox"/> Lock this setting
*URL for external system connection	<input type="text" value="https://.../webct/connect.php"/>	<input checked="" type="checkbox"/> Lock this setting
Course ID parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
Course title parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
Section ID parameter	<input type="text" value="courseid"/>	<input checked="" type="checkbox"/> Lock this setting
Section title parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
Section fulltitle parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
WebCT user ID parameter	<input type="text" value="webctid"/>	<input checked="" type="checkbox"/> Lock this setting
User name parameter	<input type="text" value="name"/>	<input checked="" type="checkbox"/> Lock this setting
User fullname parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
User firstname parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
User lastname parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
User email parameter	<input type="text" value="email"/>	<input checked="" type="checkbox"/> Lock this setting
User status parameter	<input type="text" value="status"/>	<input checked="" type="checkbox"/> Lock this setting
User roles parameter	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
User-defined parameters (name1=value1;name2=value2)	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
Timestamp parameter	<input type="text" value="time"/>	<input checked="" type="checkbox"/> Lock this setting
Message authentication code parameter	<input type="text" value="mac"/>	<input checked="" type="checkbox"/> Lock this setting
*Shared secret	<input type="text" value="*****"/>	<input checked="" type="checkbox"/> Lock this setting
*Configure this tool externally?	<input checked="" type="radio"/> No / <input type="radio"/> Yes	<input checked="" type="checkbox"/> Lock this setting
Name of configure tool button	<input type="text" value="Create link"/>	<input checked="" type="checkbox"/> Lock this setting
URL for external configuration script	<input type="text" value="NA"/>	<input checked="" type="checkbox"/> Lock this setting
*Open in new window	<input type="radio"/> true / <input checked="" type="radio"/> false	<input type="checkbox"/> Lock this setting

Release to myWebCT

* Required field

login2 settings page (part 1)

Settings:

Title	Value	Options
*Operational Timeout	<input type="text" value="10"/>	<input type="checkbox"/> Lock this setting
*URL for external system connection	<input type="text"/>	<input type="checkbox"/> Lock this setting
Course ID parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
Course title parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
Section ID parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
Section title parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
Section fulltitle parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
WebCT user ID parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User name parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User fullname parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User firstname parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User lastname parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User email parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting

login2 settings page (part 2)

User email parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User status parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User roles parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
User-defined parameters (name1=value1;name2=value2)	<input type="text"/>	<input type="checkbox"/> Lock this setting
Timestamp parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
Message authentication code parameter	<input type="text"/>	<input type="checkbox"/> Lock this setting
*Shared secret	<input type="text"/>	<input type="checkbox"/> Lock this setting
*Configure this tool externally?	<input checked="" type="radio"/> No / <input type="radio"/> Yes	<input type="checkbox"/> Lock this setting
Name of configure tool button	<input type="text"/>	<input type="checkbox"/> Lock this setting
URL for external configuration script	<input type="text"/>	<input type="checkbox"/> Lock this setting
*Open in new window	<input type="radio"/> true / <input checked="" type="radio"/> false	<input type="checkbox"/> Lock this setting

Release to myWebCT

Save

Cancel

* Required field

Example redirect URL

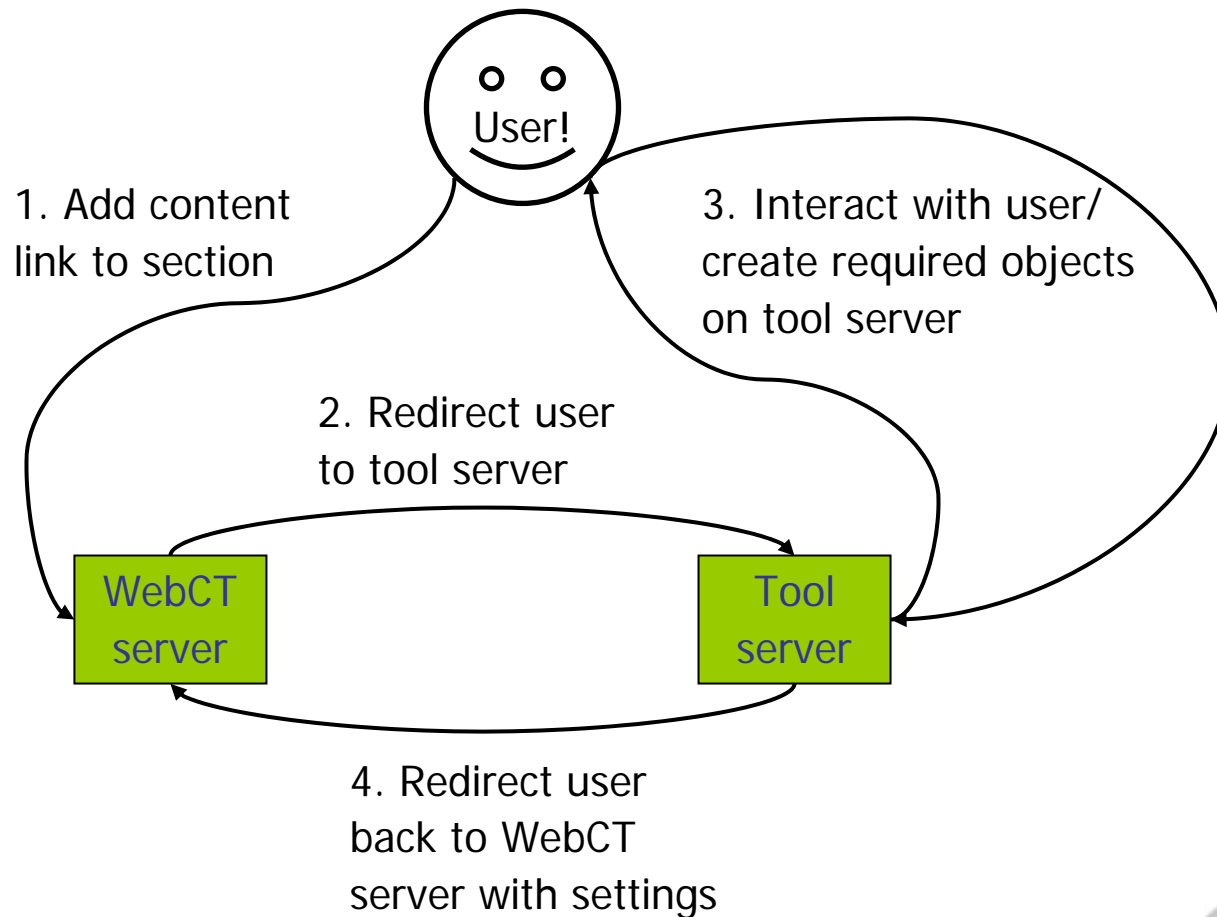
- Connect to Mediawiki:

```
https://.../webct/connect.php?  
  courseid=bb_dev_con_07&  
  webctid=svickers&  
  name=Stephen%20Vickers&  
  email=stephen.vickers@ed.ac.uk&  
  status=D&  
  time=1184321700&  
  mac=A32C995E1DE867F27563CCFCA68240A6
```

Assisted configuration

- Alternative method of entering settings
- Advantages :
 - more user-friendly interface
 - may be controlled by the external tool so that necessary tasks are also performed on this server
- Disadvantage:
 - cannot change settings once tool instance has been created

Assisted configuration



Add weblog tool - step 1

The screenshot shows the WebCT Vista interface. At the top, there is a blue header with the text "WebCT Vista™". Below the header are three tabs: "Build", "Teach", and "Student View". On the left side, there is a sidebar with two main sections: "Course Tools" and "Designer Tools". Under "Course Tools", there is a "Course Content" button with a house icon and a dropdown arrow. Below it, the text "(H) = Hidden from Students" is visible. Under "Designer Tools", there are three buttons: "Manage Course" with a red box icon, "File Manager" with a folder icon, and "Selective Release" with a document icon. On the right side, a dialog box titled "Create Connect to Weblog" is open. It has a title bar and a main area with a text input field containing "Weblog" and a checkbox labeled "Open in a new browser window". At the bottom of the dialog box, there are two buttons: "Create link to Weblog" and "Cancel". Below the dialog box, the text "* Required field" is displayed in red.

WebCT Vista™

Build Teach Student View

Course Tools

Course Content

(H) = Hidden from Students

Designer Tools

Manage Course

File Manager

Selective Release

Create Connect to Weblog

* Title: Weblog

Open in a new browser window

Create link to Weblog Cancel

* Required field

Add weblog tool - step 2

WebCT Vista™ myWebCT | Help | Log out

Build Teach Student View Course - Bb Dev Con '07

Course Tools

- Course Content (H) = Hidden from Students

Designer Tools

- Manage Course
- File Manager
- Selective Release

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Weblog system

Create link to Weblog in WebCT Vista

You have been connected to this page because you have requested a link to a weblog be added to your section in WebCT Vista.

Weblog request	
Code:	bb_dev_con_07
Title:	Course - Bb Dev Con '07

Your WebCT section does not yet have a weblog associated with it. Click the button below to create a new weblog for your section. If you believe that a weblog already exists for your section **do not click the button below but contact the WebCT Helpdesk** for assistance.

Create a weblog

Add weblog tool - step 3

WebCT Vista™ myWebCT | Help | Log out

Build Teach Student View Course - Bb Dev Con '07

Course Tools
Course Content
(H) = Hidden from Students

Designer Tools
Manage Course
File Manager
Selective Release

THE UNIVERSITY of EDINBURGH Weblog system

Create link to Weblog in WebCT

Weblog request	
Section code:	bb_dev_con_07
Section title:	Course - Bb Dev Con '07

A weblog has been created for your section. Click on the button below to add a link to this weblog from your WebCT section.

Create link to existing weblog

Challenges

- Confusion over unused settings in DCC.xml file (e.g. powerlinks-version)
- Undocumented reserved words
- Cannot lock empty settings
- Limited support for settings with array types
- Assisted configuration/SQL Server bug (now fixed)
- Bugs with methods:
 - `getSettings(java.lang.Long learningContextId)`
 - `LearningContextService.getLCChildren()` v. `ContextSDK.getChildren()`
 - `LearningContextVO.isStartDateRestricted()`
 - `LearningContextVO.getAdministrativePeriod()` v. `LearningContextVO.getOrganizationUnit()`
 - incomplete specification (e.g. organisation ID, email, web-link)
- Incomplete documentation; e.g.
 - `ContextSDK.getInstructorPersonIDs()`
 - `LearningContextVO.getStartDate()` data type

Wish list

- Set default icon
- Change settings for assisted configurations
- Access to server and user settings:
 - version of WebCT
 - timezone
 - internationalisation
- Both read and write methods
- Assignment tool
- Database space for saving values
- Standard way of using standard WebCT CSS and JavaScript functions

Other applications

- RSS feed
- QuestionMark perception
- Section toolbox
 - import calendar entries
 - add/remove section instructors
 - edit section start date
 - reset a section
- Google Maps (work-in-progress)

Questions?

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