

Release 1941

Error Report 2336
Redesign of 24x7 Logon for Web Applications

Detail Design

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Introduction

Error Report 2336

Error report 2336 states that:

As modified for "24x7 logon" by release 1921, the logon Web Service process is:

- *In the 24x7 region, attempt to invoke the logon service in the campus region via a Web Service request*
- *If the Web Service request was processed in the campus region*

Exit

ELSE

(The campus region is not responding so)

Verify the user id and password from the 24x7 region, Exit

So, if the campus region is honoring Web Service requests, the pass ticket is used in the campus region, otherwise it is used in the 24x7 region.

This design will not work since pass tickets are usable in only one "application" (i.e. one CICS region). In order to solve this problem, the logon process must be re-factored so that user id and password verification always taken place in the same CICS region.

As part of the resolution of this problem the Base payroll group recommends that the program that does the user id and password verification should run only in a 24x7 CICS region.

Since this program will be used by all applications that require logon services (not just PPS) and will run only in a 24x7 region it is also recommended that it should be removed from the PPS Base Payroll system and be placed under the control of IR&C.

Changes required to the logon service to accommodate various forms of authentication (e.g. single sign on, shibboleth) can then be made by IR&C as part of the maintenance and extension of system level infrastructure.

Modifications:

1. Remove the existing (release 1921) logon web service, PS010, from all PPS campus CICS regions and make it obsolete in PPS.
2. Replace, with a new version, the existing (release 1921) logon web service, PS010¹, and deploy it outside of the Base PPS release process for use only in 24x7 CICS regions and establish it as part of IR&C infrastructure support.
3. Remove the existing (release 1921) web service requester, PR010, from all 24x7 regions and make it obsolete in all systems.
4. Create a new web service, PR009², and deploy it outside of the Base PPS release process for use in all 24x7 CICS regions and establish it as part of IR&C infrastructure support.
5. Rewrite the logon web service, PS010, to complete user id and password verification before invoking the new web service PS009 in a campus CICS region to obtain a token.
6. Create a new web service, PS009, and deploy it in a Base PPS release for use in all PPS campus CICS regions.

¹ PR010 is a web service requester used to invoke web service provider PS010.

² PR009 is a web service requester used to invoke web service provider PS009.

Overview of PPS Modifications

Logon Process Code Refactoring

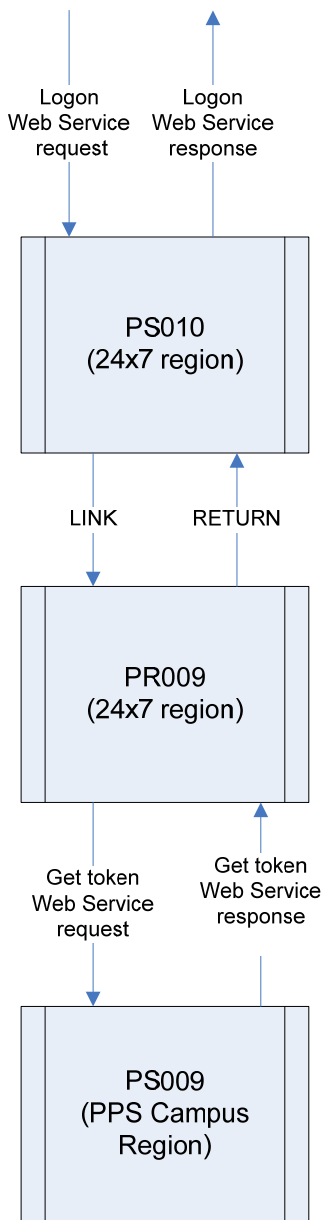
“Code refactoring is the process of changing a computer program's source code without modifying its external functional behavior in order to improve some of the nonfunctional attributes of the software. Advantages include improved code readability and reduced complexity to improve the maintainability of the source code, as well as a more expressive internal architecture or object model to improve extensibility.”³

The changes enumerated in this document will resolve the functional problem cited in error report 2336 as well as accomplish a useful code refactoring that isolates a potentially volatile web service in a single⁴ CICS region and establishes it as part of an infrastructure supporting all applications that use web services requiring end user authentication.

³ http://en.wikipedia.org/wiki/Code_refactoring

⁴ A “single region” within each of three domains - development, QA, and production.

Refactored process diagram



New and Modified Programs

PPWEBSEC

PPWEBSEC will be modified to include PS009 in the list of web services that do not require a token.

PS010

PS010 will be modified to carry out only two functions, *Verify the user id and password and (conditionally) invoke web service PS009*. If the verification succeeds PS010 will link to program PR009 to make a request to web service PS009 in the campus CICS region identified by the current requester.

Code will also be added to determine if PS010 is hosted in a region known to be a 24x7 region. If not, service will be refused; this will guard against deployment of this service in campus regions.

PS009 (new)

PS009 is a new web service that has a single function, the creation of a token in the region in which it is running. Code will be included that checks to determine if the requester is a known 24x7 region. If not, service will be refused; this will guard against requests for a token made from unknown application servers.

PS009D (new)

PS009D will be a new web service support program generated by software supplies by IBM to support the creation of CICS hosted web services.

PR009 (new)

PR009 is a new web service requester that has a single function, making a web service request to web service PS009. PR009 should be deployed in a 24x7 region only.

Copy Members

PS009 (new)

PS009 will be a copy member that defines the data structure used to pass data to program PS009.

PR009 (new)

PR009 will be a copy member that defines the data structure used to pass data to program PR009.

PR009I01 (new)

PR009I01 will be a new web service support copy member generated by software supplies by IBM to support the creation of CICS hosted web services; it will define the data structure used to pass input data to program PR009.

PR009O01 (new)

PR009O01 will be a new web service support copy member generated by software supplies by IBM to support the creation of CICS hosted web services; it will define the data structure used to pass output data.

Obsolete Objects

The following objects will be made obsolete in PPS.

Programs

- PS010
- PS010D
- PR010

Copy Members

- CPWSHOST
- PR010
- PR010I01
- PR010O01
- PS010

Objects Made Part of IR&C Infrastructure Support

Programs

- PS010
- PS010D
- PR009

Copy Members

- CPWSHOST
- PR009
- PR009I01
- PR009O01
- PS010

Chart of Current Versus New Code Deployment

Region:	24x7	Campus
OLD	PS010 PS010D PR010	PS010 PS010D
NEW	PS010 PS010D PR009	PS009 PS009D