**Canvas SIS Synchronization System**

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Documentation by: Steve Penners, [spenners@puc.edu](mailto:spenners@puc.edu)

Colleague Developer: Steve Penners

Powershell Developer: Ryan Hiebert, [rhiebert@puc.edu](mailto:rhiebert@puc.edu)

This system keeps Canvas in sync with the Colleague student system. It regularly checks for changes throughout the day and uploads those changes to Canvas. Once a night it runs a master re-sync to catch anything that may have been missed. There are cases where the data indicating a change in Colleague is non-existent and the master re-sync will catch those changes. Specifically I believe when a teacher is removed from teaching a course, there is no record of that change.

**Note:** This system currently uses a now undocumented method of authenticating with Canvas. Our system is slated for upgrade to use the new documented method. This new method will allow us to remove a hack that we have had in place. We will be able to remove a dependency from the script when Powershell 3 is released. Please contact either of the developers to find out about these changes if you desire. We will update the changes in github.com as well.

There are several pieces to this puzzle. They are:

1. Colleague custom batch process: XDPB32-CLEAN
2. Colleague UI screen: XDPF21
3. Windows system task: Canvas Course Updater – PUC.xml
4. Windows batch: xdpb32.bat
5. Powershell script: Upload-CanvasSIS.ps1
6. Powershell script: ConvertFrom-JSON.ps1
7. Powershell modules: ICSharpCode.SharpZipLib.dll, PowershellZip.dll, PowershellZip.dll-help.xml
8. Envision Entity: PUC.CONTROL.POINT
9. Envision Entity: PUC.CANVAS.LOG
10. Envision Entity: PUC.CANVAS.STU.ACAD.CRED
11. Envision Entity: PUC.CANVAS.STU.TERMS

In order to implement this system on your own campus, you will need to modify many things. The system was not designed to be shared and so many PUC specific things are in it. A careful review of the entire system would be recommended and anything specific to PUC should be changed to your institution’s appropriate equivalent function. The Powershell scripts are designed more for sharing, however, so they may just work as is.

The system is running on a virtualized Windows Server 2008, R2 with UniData on it. If you are running on something other than Windows, then the Powershell scripts will need to be changed to some other method. Similarly the task would need to be changed to cron or ?.

For your convenience the Colleague Studio report of XDPB32-CLEAN is in PDF form for quick review. You may use CPIE to import the program into Colleague and from there into Studio. The CPIE export files are included under the folder P01\_XDPB32-CLEAN\_001.

To install the components, follow these steps:

1. Create Envision Entities:
   1. PUC.CANVAS.LOG
   2. PUC.CANVAS.STU.TERMS
   3. PUC.CANVAS.STU.ACAD.CRED
   4. Something similar to PUC.CONTROL.POINT
2. Create computed columns:
   1. STUDENT.TERMS file: XSTTR.XPCST.STATUS
   2. HRPER file: XHRP.STAFF.EMPLOYED (returns 0 or 1, 1 = currently employed)
3. Create subroutines as needed
   1. Line 196: XS.GET.PUC.EMAIL returns institutional email address for a given ID
   2. Line 205: XS.GET.PUC.EMAIL.NAME returns name portion of inst. Email addr
   3. Line 211: XS.CREATE.ACTIVATE.ACCOUNT creates a new active directory account, and posts it into the PERSON file under email addresses and types. Also activates an inst. Email account.
   4. Line 281: XS.GET.NAME returns name according to passed in paramters. LF would be last, first
4. Load and modify program XDPB32-SECURE
   1. Use CPIE to import the package P01\_XDPB32- SECURE\_001. You’ll need to place the folder in a location accessible to your Colleague server.
   2. Import the program XDPB32- SECURE into Studio
   3. Rename or copy to a new program according to your naming parameters
   4. Modify lines 1015,1017 and 1018. Note you will need to create a user called canvasbatch in your system. If you choose another name, replace account ‘canvasbatch’ wherever it is found.
   5. You will need to change any references to PUC.CONTROL.POINT and its fields to a file on your system where you can store parameters. An example of lines you will need to change would be lines 74-80.
   6. Modify line 122 to an email you want to alert about problems to. Check other lines for similar.
   7. Change line 197 to your institutions email extension. Check for other occurrences.
   8. Change line 189 to another ID if you have a PERSON record for “Staff”. This ID is assigned to courses who are not yet assigned to actual teachers. You may have something similar. Check for this ID being used elsewhere.
   9. Review line 394. Names with asterisks at the beginning at PUC are indicative of no longer used IDs at our school. They are ignored basically.
   10. Line 431: WITH-000 is a course that is assigned to withdrawn students. Change to your school’s code if you have one.
   11. XLISTS are specific to our school. That section will need review.
   12. Line 1077 will be different for your school.
   13. Prcs Entry hook: Line 10 will be different for your school.
   14. Process Elements will be different for PUC.CONTROL.POINT, PUC.CANVAS.LOG, PUC.CANVAS.STU.TERMS, and PUC.CANVAS.STU.ACAD.CRED files and fields.
   15. Gen the newly updated program
5. Modify Update program XDPF21 to update the place where your settings are kept
   1. Create your version of XDPF21. See the pdf for details. (optional).
   2. Gen and run the UI screen to set values in your version of PUC.CONTROL.POINT.
6. On your Colleague server, import Canvas Course Updater - PUC.xml using the Task Manager
   1. Modify the xml filename before importing
   2. Modify the xml file contents (author tag)
   3. Modify the remainder of the task after importing
7. Drop the following files into your Colleague server at C:\Users\Public\Documents\WindowsPowerShell
   1. Modules (folder and all files under it)
   2. ConvertFrom-JSON.ps1
   3. Upload-CanvasSIS.ps1
8. Drop the following file into your Colleague server at D:\Datatel\scripts
   1. xdpb32.bat
   2. edit the file as needed with particular emphasis on the DASP and DASU lines (see AN 4901 for how to get the DASP value)
9. Set up a location on your Colleague server for csv files and archives. On our server it is D:\ ftp\_folders\live\PUC.CANVAS.UPLOAD.DIR.
   1. Create folder backups and errors in this new location
   2. If you use a different location, make sure to edit XDPB32-SECURE accordingly

Note that the process can be executed from the colon prompt by typing its name, e.g., XDPB32-SECURE (or whatever you have renamed it to). You can also set it to debug mode in the program. And through the configuration screen you can tell it not to upload files. These steps and mechanisms will allow you to test various aspects of the system without actually syncing with Canvas.