Please do not distribute the ADP software bundled with this documentation.

Disclaimer: follow your standard practices for backing up any systems that will be affected by this installation process.

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Pre-requisites

- Access to SBCTC DSA-E
  (More info: http://www.cis.ctc.edu/wctc/DataStaging/DSA_instructions.htm)
- MSSQL 2005 or 2008
  - Minimum recommended by MS should be sufficient. Depends on the size of your college’s datasets. It is highly recommended that the SQL server instance be on its own dedicated hardware or VM.
- IIS6.0 or IIS7+ with 6.0 compatibility settings, ASP.NET 2.0 runtime, .NET 3.5 extensions
  - ~0.5-1GB of RAM for the ADP web application process, depending on size of the college and usage.
  - SSL certificate
- SBCTC WTS (Web Transaction Server) for default authentication mode.

*By far the most extensive production usage has been on IIS6.0/Windows 2003. Some colleges have deployed to an IIS7+ environment but some custom server configuration may be required.*

First Steps

Once the base OS and software is in place we recommend that an unprivileged domain user be created that will be used for database access and the process identity of the web application. This user will be referred to as the “ADP user” within this document.

Establish the Data Environment

Some Definitions

**DSA-E**: (Data Staging Area – Eloquence) hosted by the SBCTC-IT.

**HPSA**: (HP Staging Area) college local MS-SQL replica of selected tables from DSA-E. The only transformations applied to the data at this point should be those imparted by accessing the data through the standard Minisoft OLEDB libraries.

**HPSA Conversion Views**: Set of custom view provided by WWCC that are installed to the HPSA database and convert the data to the format expected by the TxxxEXTRACTS database.

**TxxxEXTRACTS**: Database in a custom format based on the CIS Golden Image SQL schema published for re-hosting.

Requirements

The HPSA, and TxxxEXTRACTS database objects require MSSQL 2005 or higher.

Stage Data from DSA-E (Data Staging Area – Eloquence)

You will first need to gain access to the DSA-E and replicate the data to a local SQL database. The target database will be referred to as the HPSA database.

The following DSA-E tables are used by the ADP application.
Prior to staging the data from DSA-E for the first time please run the `\DB\HPSAViews.sql` script against your HPSA database. There are more views included in this script than are actually used by ADP so some errors may occur. But if you pre-staged all of the required tables then the needed views should have been successfully completed.

**Test the HPSA Conversion Views**

We provide view objects to translate the data ADP requires to the required custom format. The HP TurboImage datasets may contain corrupt data or data that does not conform to the target schema. (See appendix B for sample cleanup scripts.) After populating the HPSA tables you will need to test the conversion process by performing unfiltered select queries against the views for the following tables. The corresponding HPSA view will be prefixed with “v_”.

```
SM.ADV_D  SM.YRQ_M
SM.ALT_ADDR_M  SM.STU_D
SM.APPT_D  SM.STU_CLASS_D
SM.CLASS_D  SM.STU_COURSE_D
SM.COURSE_D  SM.STU_PIN_D (optional)
SM.DEPT_DIV_M  SM.TEST_SCORE_D
TBL3.DAY_D  TRAN.TRAN_CLASS_D
EMP.EMP_M  TRAN.TRAN_COMMENT_D
SM.EDUC_PRG_M  TRAN.TRAN_DEGREE_D
TBL3.FEE_PAY_STAT_M  TRNSFR.TRNSFR_COURSE_D
TBL3.STU_INT_M  TBL4.TRNSLT_GR_D
SM.STU_YRQ_M  MAGWL.WAITLISTS
```

TODO provide example cleanup scripts.
Create and Populate the TxxxEXTRACTS Database
Create a database to house the converted data the suggested format is T(college code)EXTRACTS.

The script provided at ~\DB\TxxxEXTRACTS.sql will create the required database table objects.

It is up to each college to decide when and how often to update the tables.

Create the ADP application database
The script is provided at ~\DB\AdvisorDataPortal_AppDb.sql

Assign Database Rights to the ADP user

- TxxxEXTRACTS
  - Add db_datareader

- ADP database
  - Add db_datareader
  - Add db_datawriter
  - Add db_ddladmin (required to reset auto-number seeds.)
Prepare and Install the ADP web application

Default AUTH and data plugins
The ADP application provides a plugin model for some features that allows each college to implement custom handling of certain features. We have provided default implementations of the plugins which may be replaced by custom implementations at each college if they so desire.

Default AUTH plugin
The default AUTH plugin implementation uses the State Board Web Transaction Server to authenticate employee PINs. Additionally employees must be authorized to use ADP and the default implementation requires that the employee is active and has an advisor record. For this purpose the TxxxEXTRACTS ADV_D and EMP_M tables are used.

Additionally administrative level access is granted by configuring a list of employee SIDs in the web.config file in the section specific to the plugin DLL.

Default Data Plugin
The default data plugin currently only handles lookup of email addresses. The default plugin simply returns a not-implemented response for all lookups.

Source Code for Default plugins
We have provided the complete source code and visual studio project for the default plugin implementations under:
~\Source\ADPDataPluginNullImplementation
~\Source\C200CTCAuthPluginImplementation

In order to build the default plugin libraries you will need to remap the references to the contract libraries which are documented below.

Essentially each plugin library must implement a concrete class from its corresponding contract DLL. We have provided copies of the contract libraries at:
~\ADPDefaultPlugins\ADPDataPluginContracts.dll
~\ADPDefaultPlugins\CTCAuthPluginContracts.dll

For each library there is an abstract class that you must implement in your plugin implementation which will be loaded by ADP at runtime. Consult the source of the default implementations for more information.

Deploying the ADP web application
The pre-compiled web application already has the default plugin libraries deployed to the bin directory and the configuration sections used by the plugins are pre-merged into the web.config file. Several portions of the web application require some editing before deployment. The following directions are most specific to IIS6.0 on Window Server 2003 but the concepts are almost identical when deploying on IIS7/Windows 2k8.

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jack.carico@wwcc.edu
1. Grant required permissions to the ADP user on the web server. Using the `aspnet_regiis.exe` utility associated with version 2.0 of the .NET framework. “`aspnet_regiis.exe –ga domain\username`”
2. Ensure the .NET Framework 3.5 is installed.
3. Edit the `web.config` file for the college environment. See Appendix A for details.
4. Create folder to contain the web application resource files. Grant read/execute rights to the ADP user.
5. Edit the `Login.aspx` script for content specific to your college and method of authentication.
6. Edit the `MultipleCourseEnrollment.aspx` file. Replace the WWCC specific branches with your own. (2 character branch code found in many places within SMS)
7. Copy the contents of the `~\ADPWeb` folder to the production web server. Ensure the `web.config` file has been edited for your production environment.
8. Create a new application pool using the ADP user for the process identity. Review the pool settings to be sure that the defaults are what you want. Typically the pool recycling options should all be off/cleared unless you understand the implications. You may want to alter the Idle timeout setting as this is the maximum time that the application will retain session data if no-one is interacting with the application.
9. Create a new virtual directory. Use the new application pool and be sure to require SSL for all requests. Also ensure the ASP.NET version is set to 2.0. (higher versions will likely also work but 2.0 is probably the best match.)
Appendix A. Web application configuration file details

Starting from the top of the web.config file.

Instructions follow with each section headed by the containing element within the configuration file.

<log4net>
Logging is handled through the open source Log4Net library. By default only logging to a file is enabled. You will need to edit the file path and filename in the first appender element. Be sure to add read/write/modify permissions to the folder for the ADP user.

There is a second appender configured for email notifications but it is not enabled under the log4net root element.

<connectionStrings>
Update the connectionString attribute for all of the connection strings added in this section.

<AdvisorDataPortal.Properties.Settings>
Review all settings. There should be XML comments describing each setting.

<ADPBLL.Properties.Settings>
EnableAewSummaryReport: should be left disabled. The Academic Early Warning (AEW) application is entirely separate and is a major rollout in terms of coordinating all of the potential end users.

EnableDegreeCompletionEstimateReport: prior to enabling this option a separate service and set of processes must be deployed. Contact WWCC for details. Significant lead time may be required if this data is to be available to ADP at launch.

EnableQuarterlyPinReport: If you chose to replicate STU_PIN_D data then this option may be enabled with no further steps required.

EnableAdvisorCommentFeature: no dependencies may be enabled or disabled at any time.

CTCAuthPluginAssemblyPath: must be set to the absolute path on the production webserver’s bin directory.

CTCAuthPluginFactoryClass: see XML comments, if you are using the default AUTH plugin this should already be correctly set.

EnableWWCCPhotoService: Should be set to off. The behavior of this feature only generates a pattern based URL so you might be able to provide a matching service easily but this service is not provided by WWCC.

EnableAcademicMilepostFeature: this feature is self-contained to ADP and may be enabled/disabled at any time.

EnableUsageStatDisplay: Enable/disable at any time.

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EnableCasasDataDisplay: This feature is extremely dependent on specific WWCC requirements and should be left disabled.

EnableECompassDisplay: Enabling this feature requires that your college has a process to parse the HTML reports from eCompass and associate them with the student’s SID. If your college is willing to manage that process contact WWCC and we can provide the database schema that ADP expects the data to be stored in.

<ADPDAL.Properties.Settings>
ADPDataPluginAssemblyPath: absolute path to the bin directory and DLL on the production webserver.

ADPDataPluginFactoryClass: if you are using the default plugin this should already be set correctly.

<C200CTCAuthPluginImplementation.Properties.Settings>
WTSCGIURL: path to the SBCTC Web Transaction Server CGI endpoint. Must be set if PIN authentication is to work.

AuthFailCooldownMilliseconds: should leave this as the default setting 2500ms.

AuthExceptionCooldownMilliseconds: recommended to be at least several seconds as these kinds of errors from the service typically indicate heavy usage stress.

ADPAdminUserList: Only the users who have their SID included in this list will be able to access the web application’s configuration UI.

<system.serviceModel>
These setting should not be removed but are only used if the AEW or degree estimate services are deployed for your college. If either of those services is deployed the only section that should be modified is under the <client> tag where the address of the web service endpoint will need to be entered.
Appendix B. HPSA cleanup hints
The following scripts are used at WWCC are intended only as an example of what may be required for the conversion views to work. Data exported from the staging area may reveal errors in the source data which are usually found in the 1984-1985 range.

/* EMP.EMP_M cleanup */
delete from EMP.EMP_M
where
  [SID] ="
  OR EMP_ID ="
  OR [SID] IS NULL
  OR EMP_ID IS NULL

update SM.YRQ_M
set LAST_TEN_UPD = 0
where LAST_TEN_UPD > 999999
GO

delete from SM.STU_YRQ_M
where QTR_CR_EARN > 999
GO
Appendix C. Database Performance Tuning

The TxxxExtracts database creation scripts do not define any additional indexes or other performance enhancements beyond what was specified by CIS in the base schema. Some colleges find that some of the ADP queries are significantly improved by some standard SQL server tweaks.

**SQL Server Profiler and Database Engine Tuning Advisor**

If a particular page or operation is very slow in ADP it is best to start up the SQL Server Profiler and capture all queries hitting the TxxxEXTRACTS database. Sort the results by execution time and copy the query text of the longest running item. You may be able to determine which performance tweaks are needed by inspecting the query manually but Microsoft provides another tool in their Database Engine Tuning Advisor.

The easiest way to start the advisor is to use the SQL management studio connect to the TxxxEXTRACTS database and start a new query. Paste the query captured from the SQL profiler into the new query window then right-click. Select “Analyze Query in Database Engine Tuning Advisor”. That should launch the advisor application after which you just need to hit the start analysis button. The advisor will in most cases provide you with a number of performance increasing changes which you may have it apply right away. In many cases the performance increase when using all of the suggested tweaks is extreme.
Appendix D. SMS Data Issues

Advisor records (SM.ADV_D)
Your college may or may not be assigning advisor codes to employees and also tagging student with the resulting advisor code. ADP does refer to the codes assigned through screen IS2002. The “my advisees” search depends on codes defined in this table being assigned to students.
Appendix E. Extended Feature Setup

Photo Directory Integration
When this feature is enabled ADP will generate a link with the following pattern.

<Base URL>/Photo/Student/<sid>

<Base URL>: configured in the web.config file.
<sid>: automatically set according to the specific student data.

e.g. https://portal2.wwcc.edu/C200/PhotoService/Photo/Student/814999999

Email Address Lookup
Lookup of student email addresses is handled by the ADP data plugin model. See the Prepare and Install section of this document for additional detail.

SBCTC Batch Degree Audit
ADP will accept the output of the SBCTC batch degree audit process. Producing the batch audit file requires scheduling of jobs on the HP mainframe.

The SBCTC Degree Audit system allows students and staff to login and run real-time degree audits. Students can run audits only for themselves but on any degree they can select from the menu of degrees your college provides. Staff which your college authorizes to use the SBCTC Degree Audit system can run degree audits for any student – one at a time - also on any degree your college makes available to the degree audit system.

The SBCTC batch degree audit job group: http://www.cis.ctc.edu/wctc/jobdoc/SG102R-E.HTM allows a college to schedule a job that runs degree audits on all students for a YRQ (or subsets of students) but only for their declared major based on the EPC code contained in the student biographic record in SMS. This job group can be scheduled to run regularly (daily, weekly, monthly) or immediate (once) by your SMS job scheduler. We recommend it be run only once a month or on demand after grades are posted each quarter. The output file should be transferred via binary FTP or an equivalent method that does not modify the output file as produced by the job. Normally ByRequest is used for this process. The resulting file must be uploaded to a database in the proper format using a process your college must create.

We recommend the job be scheduled to run “I” (immediate) on a future day (i.e. Monday’s if schedule “W” for weekly). This will have the effect of starting the job as soon as the previous day’s batch and production runs are completed and the SBCTC operations staff puts the “Lift and Shift” servers into production mode for the next days’ processing. Generally this will start the job just after midnight, allowing it plenty of time to complete so your college can import it to the database the next morning. See below for a screen shot of suggested scheduling parameters for a monthly run.
Degree Progress Estimates
Step #1 Ensure your college is using the State Board Degree Audit system and that the degree templates are active and ready for production use.

Step#2 Request a backup of the degree audit SQL database for your college from SBCTC-IT. You will have to do this any time that there are significant changes to degree requirements.


Step#4 Deploy the degree estimate publishing service.
TODO: bundle web components with install package.

eCompass Test Results
Create a new database and use the script at `~\eCompass\eCompassTables.sql` to create the needed database objects. Once you have a process to parse the eCompass HTML report into individual student reports tagged with their SID.

When the data is ready you just need to setup the connection string and enable the feature in the web.config file.

Academic Early Warning

Custom Authentication/Authorization
ADP published a plugin model to handle the AuthN/Z process. See the Prepare and Install section of this document for additional detail.
ADP provides two entry points for the authentication process.

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[jack.carico@wwcc.edu](mailto:jack.carico@wwcc.edu)
~/Login.aspx (standard username/password form)
~/AltAuthn.aspx (token authentication, expects HTTP POST with a single parameter: AUTHNTOKEN)