Degree Boost Appliance Installation

Be sure to read the appendices for background information and helpful hints.

Pre-Installation tasks:

Required Skill set

- Virtual Machine Hosting and Administration
- VM fileset in VMWare ESXi 4.1 format. (may change)
- Windows server administration (2008 R2 Standard)
  - Basic IIS7 configuration (directions included)
  - Firewall configuration
- SQL Server administration (2008 R2 Express)
  - Account management/security configuration
  - Restoring database backups
- Knowledge of ETL processes to populate data from HP3000 sources.
  - Instructions will assume that a HPSA (HP staging area) database will be the source for any required student data based on standard Minisoft OLEDB extracts.

Obtain Degree Audit Template Data

Contact SBCTC-IT and get full backup of the college's Degree Audit production database. (Typically delivered as SQL .bak file) Be sure your registrar has completed any pending template configuration and testing before requesting the backup from SBCTC-IT. Only templates marked as active will be used by the estimate calculation engine.

Ensure needed SMS data is being staged

The following turbo image datasets will be required and must be staged to your HPSA database prior to running any SQL scripts.
- SM.STU_D
- SM.STU_COURSE_D
- SM.YRQ_M
- SM.STU_CLASS_D
- TRAN.TRAN_DEGREE_D

Plan for Local Network Integration

TCP/IP. By default the appliance OS is not joined to a domain and all operations are preformed using local machine accounts and local SQL accounts.

Installation Script:

!!!IMPORTANT!! – Do not join the appliance VM to your windows domain. This scenario is currently unsupported. The permission changes introduced by joining to the domain are variable and would require reinstallation and testing of all solution components. Do not join the VM to your domain.
Turn on VM through host tools, access the host via the virtual console. Login as local Administrator (Password: boost27!) Activate the windows OS (requires license, all other software does not require any MS license.) Configure the IP network: remove WWCC static IP address. Set passwords on local accounts:
  User: Administrator
  User: dawebdaemon (used for IIS application pool and application access)

Set passwords for SQL accounts:
  SQL service should be running and available for configuration using the management studio. SQL service is configured for the default SQL port 1433.
  User: sa
  User: daweb

Reconfigure IIS web application
First reconfigure the Degree Templates application pool with the new password for the dawebdaemon account.

Advanced Settings -> Process Model -> Identity -> Custom Account -> Set... ->
Web application configuration
Sites->Default Web Site->C200->DegreeTemplateService
Right-click and choose Manage Application->Advanced Settings
Choose the Physical Path Credentials setting and set to specific user (dawebdaemon, use the new password)
Reconfigure the degree template web-service and console client applications

Edit the following XML configuration files:

C:\DegreeBoost\EstimatorConsole\DegreeCompletionConsole.exe.config

Only change the "PWD=******" portion to reflect the new sql account password.

<connectionStrings>
  <add name="DegreeCompletionCore.Properties.Settings.GIEXTRACTSConnectionString"
      connectionString="Data Source=localhost;Initial Catalog=GIEXTRACTS;User
Id=daweb;PWD=******;"
      providerName="System.Data.SqlClient" />
  <add name="DegreeCompletionCore.Properties.Settings.DegreeCompletionEstimatesConnectionString"
      connectionString="Data Source=localhost;Initial Catalog=DegreeEstimates;User
Id=daweb;PWD=******;"
      providerName="System.Data.SqlClient" />
</connectionStrings>

In the applicationSettings section...
GradeFilterString: enter the list of letter grades that the estimator will use
to throw out classes for use in the calculations.

wsCollegeCode: enter your CTC college code

If your college uses decimal grading instead of/in addition to letter grading configure the following
items. Otherwise leave this option disabled.

UsableDecimalGradeThreshold: This is the minimum grade course must have to be retained for progress
calculations.
CollegeUsesDecimalGrading: should be set to True

CompletionScaleFactor: should not be changed.

<applicationSettings>
  <DegreeCompletionCore.Properties.Settings>
    <setting name="GradeFilterString" serializeAs="String">
      <value>D-,F,U,V,Z,I,NP,W</value>
    </setting>
    <setting name="wsCollegeCode" serializeAs="String">
      <value>200</value>
    </setting>
    <setting name="UsableDecimalGradeThreshold" serializeAs="String">
      <value>2.0</value>
    </setting>
    <setting name="CollegeUsesDecimalGrading" serializeAs="String">
      <value>False</value>
    </setting>
    <setting name="CompletionScaleFactor" serializeAs="String">
      <value>6.0</value>
    </setting>
  </DegreeCompletionCore.Properties.Settings>
</applicationSettings>

C:\Web\C200\DegreeTemplates\Web.config
Only the database connection string needs to be updated.
<connectionStrings>
Deploy and populate required databases:
At this point you will need to restore your backup copy of the degree audit database exported from SBCTC-IT. Be sure you restore the database over the CTCDegreeAudit database already present on the server. Various components of the installation expect this to be the name of the database.

NOTE: When restoring the CTCDegreeAudit database you will need to use the option to overwrite the existing database or the SQL manager will complain. (under the ‘options’ page)

After restoring the database confirm that the daweb SQL account is granted the db_datareader role on the following databases:
CTCDegreeAudit
DegreeEstimates
GIEXTRACTS
Also confirm that the db_datawriter role is granted on:
DegreeEstimates

You will also need to populate all of the tables in the GIEXTRACTS database prior to running the estimate application. If you are using a semi-standard form of the HPSA (HP Staging area) you can use the SQL script provided at C:\DegreeBoost\DBScripts\HPSA_GIViews.sql
This script provides the conversions from the raw format emitted by the Minisoft OLEDB driver. You may need to configure the Windows firewall for this step as the rule allowing inbound SQL connections is disabled by default.

Run the completion estimate generator:
Once all of the data is staged and ready you can run the estimate generation tool. It is a console application located at C:\DegreeBoost\EstimatorConsole\DegreeCompletionConsole.exe

Run the application without any parameters to get the list of available options. Depending on the number of students included, the number of active degree templates, available hardware, etc the calculations may take 30 minutes to several hours to complete. On successful completion the results will be stored in the DegreeEstimates database. Every time you run the console application the results are stored with a batch id unique to each run and the old results are not removed.

By default estimates with a metric of 6.0 should be quite likely to pass a full degree audit from the CTC Degree Audit system.

Appendix A. HPSA to GIEXTRACTS hints.
The views deployed to your HPSA database match 1:1 to the tables in the GIEXTRACTS database. You will need to pre-test the views by doing unrestricted selects against them. Most colleges will have some data which is out of range due to conversion issues that occurred around 1985. The out-of-range data will cause an error in the view conversion. The data in the HPSA tables must be pre-cleaned before being converted via the views.
WWCC currently only needs to run the following cleanup. Your college may require a different approach depending on what data is affected or based on your own specific requirements.

```sql
update SM.YRQ_M
set LAST_TEN_UPD = 0
where LAST_TEN_UPD > 999999

delete from SM.STU_YRQ_M
where QTR_CR_EARN > 999
```

Once the data is clean implementing and scheduling the transfer to the VM GIEXTRACTS database is up to you. Note that the IMAGE_RECNBR in the GIEXTRACTS tables field is not used so you can just let the database auto-generate the value.

**Appendix B. Notes on degree completion estimate data.**

It is important to realize that the data generated by this system is not intended to be a replacement for running a full SBCTC degree audit. The metrics produced use a decimal scale from 0 upwards with metrics of 6.0 or higher indicating a strong chance that the student would pass a full degree audit. This system essentially performs hundreds of thousands to millions of rough degree audits against the cohort of students selected to generate estimated completions of all active degree audit templates.

**IMPORTANT:** After successfully generating completion estimates you should review the results for accuracy. If you have used a cohort of students drawn from the past eight quarters or more you should see a fairly continuous distribution of completion metrics. All zeros or some other constant value may indicate a problem with the Degree Audit template or the estimate engine.

You should also take a random sample of estimates for critical programs with estimates near 6.0 and compare them to the output of a full SBCTC degree audit. The following is a sample of the validation performed at WWCC.
**Estimates Validation (Batch 11 3/29/2010)**

*All with metrics >= 5.5*

Validation against Production Degree Audit results.

Metrics 6.0 or above indicate a high probability of completion.

Metrics 5.5-6.0 indicate the student is quite close to completion.

<table>
<thead>
<tr>
<th>SID</th>
<th>Template Program Code</th>
<th>Template Begin YRQ</th>
<th>Degree Title</th>
<th>Completion Metric</th>
<th>SBCTC Production DA Test Run Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>814xxxxx</td>
<td>745</td>
<td>A901</td>
<td><strong>CARPENTRY DEGREE</strong></td>
<td>5.9761 (Very Good Match)</td>
<td>(125.5 of 126 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>160</td>
<td>A901</td>
<td><strong>TURF MANAGEMENT DEGREE</strong></td>
<td>5.9756 (Very good Match)</td>
<td>(122.5 of 123 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>839</td>
<td>A901</td>
<td><strong>EDUCATION PARAPROFESSIONAL</strong></td>
<td>5.9666 (Very good match)</td>
<td>(94 of 90 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>381</td>
<td>A901</td>
<td><strong>MEDICAL ASSISTING CERTIFICATE</strong></td>
<td>5.9804 (Very good Match)</td>
<td>(61.3 of 61.5 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>323</td>
<td>A901</td>
<td><strong>ASSOCIATE DEGREE NURSING</strong></td>
<td>5.5045 (OK match)</td>
<td>(80 of 109 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>125J</td>
<td>A901</td>
<td><strong>JOHN DEERE AG TECHNOLOGY DEGREE</strong></td>
<td>6.0000 (Very Good Match)</td>
<td>(141 of 144 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>001</td>
<td>A901</td>
<td>*<strong>ASSOCIATE IN ARTS-DTA</strong></td>
<td>6.0000 (Very Good Match)</td>
<td>(99 of 90 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>001</td>
<td>A901</td>
<td>*<strong>ASSOCIATE IN ARTS-DTA</strong></td>
<td>6.0000 (Very good match)</td>
<td>(96 of 90 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>001</td>
<td>A901</td>
<td>*<strong>ASSOCIATE IN ARTS-DTA</strong></td>
<td>6.0666 (very good match)</td>
<td>(96 of 90 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>120</td>
<td>A901</td>
<td><strong>FARRIER SCIENCE DEGREE</strong></td>
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<td>(125 of 125 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>823</td>
<td>A901</td>
<td><strong>COSMETOLOGY DEGREE</strong></td>
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<td>(139.8 of 139.8 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>501</td>
<td>A901</td>
<td><strong>INFORMATICS IN SOFTWARE DESIGN</strong></td>
<td>6.0000 (good match)</td>
<td>(103 of 108 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>ELEM</td>
<td>A901</td>
<td>***ASSOCIATE IN ELEMENTARY EDUCATION - DTA</td>
<td>6.0000 (very good match)</td>
<td>(105 of 96 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>ELEM</td>
<td>A901</td>
<td>***ASSOCIATE IN ELEMENTARY EDUCATION - DTA</td>
<td>6.0312 (good match)</td>
<td>(86 of 96 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>ELEM</td>
<td>A901</td>
<td>***ASSOCIATE IN ELEMENTARY EDUCATION - DTA</td>
<td>6.0625 (very good match)</td>
<td>(94 of 96 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>ELEM</td>
<td>A901</td>
<td>***ASSOCIATE IN ELEMENTARY EDUCATION - DTA</td>
<td>6.0625 (very good match)</td>
<td>(96 of 96 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>709</td>
<td>A901</td>
<td><strong>AUTO BODY REPAIR TECHNOLOGY DEGREE (AAAS)</strong></td>
<td>6.0000 (very good match)</td>
<td>(144 of 144 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>505A</td>
<td>A901</td>
<td><strong>BOOKKEEPING CERTIFICATE</strong></td>
<td>6.0000 (very good match)</td>
<td>(70 of 70 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>121</td>
<td>A901</td>
<td><strong>ENOLOGY &amp; VITICULTURE DEGREE</strong></td>
<td>6.0280 (good match)</td>
<td>(97 of 107 credits applied)</td>
</tr>
<tr>
<td>814xxxxx</td>
<td>121</td>
<td>A901</td>
<td><strong>ENOLOGY &amp; VITICULTURE DEGREE</strong></td>
<td>6.0280 (good match)</td>
<td>(103.5 of 107 credits applied)</td>
</tr>
</tbody>
</table>