



Brillium

Integration Guide

Technical Documentation

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Overview

Brillium assessment software provides multiple methods of integration with external databases, Websites, or Learning Management System (LMS) applications. In all, there are four methods of integrating Brillium with another system presented in this guide. Each method has a distinct purpose and, in some cases, more than one method may be applied to your particular situation. By referencing the information in this guide and consulting a Brillium technical consultant, you can determine which method is best for your organization.

The remainder of this guide is intended to instruct you on selecting the correct integration method and to give you the information required to perform the integration. If you have any questions about whether Brillium can be integrated with a particular product or technology, contact us via phone or email.

Why Integrate with Brillium?

Customers wishing to integrate with Brillium do so for several reasons:

- They wish to authenticate the respondent on their own system or Website and send the authenticated user credentials to Brillium thereby eliminating the assessment login process (facilitating single sign-on).
- They wish to receive data regarding the respondents results (i.e. date/time completed and score) from Brillium for storage when the respondent has completed their assessment.
- They wish to create a learning object within their LMS allowing respondents (or students) to click on a link bringing the respondent directly into an assessment and passing results back to the LMS upon completion.
- They wish to receive a nightly (or periodic) batch of respondent results to perform custom analysis on.

What Type of Integration is Possible with Brillium?

With the exception of Method 4 (Integration via Data Feed or Extract), all integration is performed with the Brillium Assessment Engine. The Assessment Engine is the component of Brillium where respondents go to complete their assessment. It is composed of the assessment login pages, the beginning instructions page, the question answer pages, and the assessment result pages. In general, when integrating with Brillium you will be passing information into the assessment engine before the respondent starts the assessment and/or receiving information from the assessment engine when the respondent completes an assessment.

Which Method of Integration Should I Use?

The following helpful hints should point you towards the correct method of integration. However if you are planning a major integration project, you should speak with a Brillium technical consultant to determine the best method of integration.

- If you wish to integrate Brillium with your custom developed Internet or Intranet Website, custom application, or custom database that does not support an e-Learning standard, you should investigate Method 1.
- If you have an application that supports the AICC standard for integration, you should investigate Method 2. This is especially true if you are using Brillium hosted services as AICC is preferred over SCORM when the LMS is on a different server than Brillium.
- If you have an application that supports the SCORM standard for integration and you will be running Brillium on an internal server within the same domain as that application, you should investigate Method 3.
- If you do not have an application or database that may be integrated with Brillium in real-time (i.e. always on and ready to send or receive data across the Internet), you should investigate Method 4.

Who Is The Target Audience For This Guide?

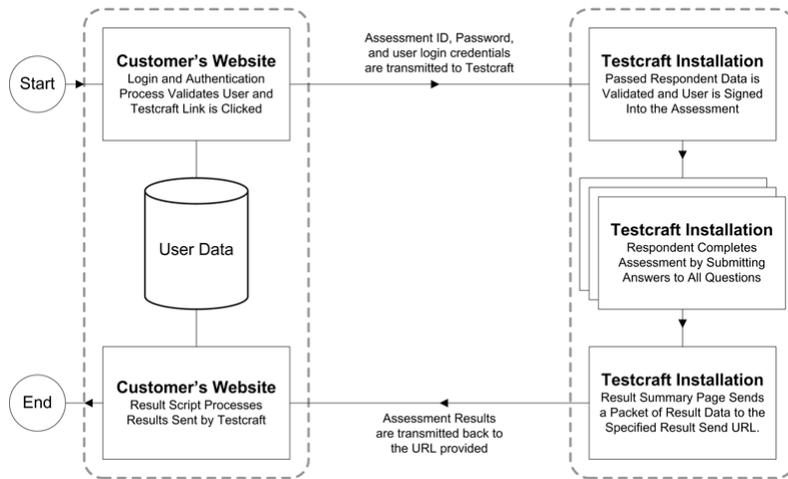
The remainder of this integration guide is very technical in nature and is targeted at the developer or system integrator that will be performing the integration with Brillium. If you are not an information technology professional, you may have difficulty interpreting some of the instructions and should consider seeking assistance from a Brillium technical consultant or your own information technology staff.

Method 1 - Integration via HTTP

Introduction

Integration is performed via standard HTTP POST (via Form) or GET (via QueryString). Since integration is based on these common Internet transfer protocols, it is easy to build custom scripts to tie Brillium into almost any new or existing Website, application, or database. Most customers integrating with Brillium do so using common technologies such as Active Server Pages (ASP Classic), ASP.NET, Java Server Pages (JSP), or Common Gateway Interface (CGI) scripts.

Following is a diagram that summarizes the typical integration flow. Since this is only a typical integration flow, your integration to the Brillium application may be more complex (involving encryption and/or multiple applications). In the diagram, the word Customer indicates the client or third party software being integrated with the Brillium service. The word Brillium indicates a screen or process within the Brillium application.



Configuring Brillium for HTTP Integration

Brillium Settings

[Required For Integration]

In order to properly establish communication between the Brillium assessment engine summary page and your Website, application, or database, you **MUST** correctly set three fields for each assessment you wish to integrate. These settings are maintained within the Brillium Assessment "Advanced Options" page. They may be set during the original creation of the assessment, or they may be changed any time thereafter.

Mandatory integration settings:

- **Application Integration** – This field defaults to "None", which indicates no data will be transmitted to Brillium from an external site or application when a respondent comes to enter an assessment. Change this to "POST (via Form)" if your application will send login information to Brillium within an HTML form that is posted to the Brillium assessment engine. Change this to "GET (via QueryString)" if your application will send login information to Brillium within the link clicked by the respondent (i.e. on the QueryString).
- **Result Send Method** – This field defaults to "None", which indicates no data will be sent from Brillium to your Website, application, or database result script when the respondent reaches the summary page of their assessment. Change this to "Blind Post" if you would like Brillium to send result summary information to your integration script without returning anything from the script. Change this to "Post and Return" if you would like Brillium to send result summary information to your integration script and also display returned data or messages to the respondent at the bottom of their result summary page. This returned data may be a custom message or custom scoring report you would like to display to the respondent depending on their results.
- **Result Send URL** – Enter the Web address (fully-qualified URL) the summary results will be sent to when the respondent reaches the summary page of their assessment (i.e. when they have completed their assessment and a score has been issued). The respondent will not see the communication between Brillium and the script specified.

Optional integration settings:

- **Logout Button Title** (located in the Basic Assessment Options page) – Enter the caption that should appear on the Logout button at the end of the assessment. This is the button that will trigger the Link After Assessment URL and bring the respondent back to your Website or application.
- **Link After Assessment** (located in the Basic Assessment Options page) – This is the Web address (fully-qualified URL) the respondent will go to when he or she clicks on the Logout button at the end of the assessment. Note: The Logout button may not say Logout if you have changed its title using the option above.
- **Entry Hash Password** – Enter the password that will be involved in creating the MD5 hash used in authenticating the user when they enter an assessment using this method of integration. For more information regarding this optional authentication password, see Authenticating Respondents with MD5 Hash Passwords below.

Sending Respondents Login Information to Brillium

Field Descriptions and Recommendations

The following table contains information that may be transmitted to Brillium's login screen to facilitate the assessment login process. Note the fields size limitations for each field. Brillium will enforce these size limitations and data will be truncated if it is beyond the imposed limitation.

It is also important to note that you may submit any subset of this information to Brillium. Any required information that is not submitted will be prompted for from the respondent.

Field ID	Description	Size	Required
AID	Assessment Identifier	Text (25)	Yes
APASS	Assessment Password	Text (25)	Yes
FNAME	Respondents First Name	Text (50)	Yes*
LNAME	Respondents Last Name	Text (50)	Yes*
EMAIL	Respondents Email Address	Text (255)	Yes*
CUST1	Custom Field 1	Text (255)	No*
CUST2	Custom Field 2	Text (255)	No*
CUST3	Custom Field 3	Text (255)	No*
CUST4	Custom Field 4	Text (255)	No*
CUST5	Custom Field 5	Text (255)	No*
CUST6	Custom Field 6	Text (255)	No*

CUST7	Custom Field 7	Text (255)	No*
CUST8	Custom Field 8	Text (255)	No*
CUST9	Custom Field 9	Text (255)	No*
CUST10	Custom Field 10	Text (255)	No*
LOGINHASH	Optional MD5 Hash String of the Entry Hash Password and the Respondents Primary Key	Text (32)	No

* Indicates default values of the required status for each field. First name, last name, email address, and all ten custom fields can be set to "Required" or "Not Required" via the Edit Custom Fields form within Brillium.

If you are making use of the Contact Information fields and would like to send Brillium these pieces of information regarding your respondent, use the following information to do so.

Field ID	Description	Size	Required
ORGNAME	Respondent's organization or company name.	Text (100)	Optional
POSITION	Respondent's position or title.	Text (100)	Optional
DEPT	Respondent's department or group.	Text (100)	Optional
ADDR1	Respondent's mailing address row one.	Text (100)	Optional
ADDR2	Respondent's mailing address row two.	Text (100)	Optional
ADDR3	Respondent's mailing address row three.	Text (100)	Optional
CITY	Respondent's mailing address city.	Text (100)	Optional
STATE	Respondent's mailing address state or province.	Text (100)	Optional
POSTALCODE	Respondent's mailing address postal or zip code.	Text (50)	Optional
COUNTRY	Respondent's mailing address country.	Text (100)	Optional
PHONE	Respondent's phone number.	Text (50)	Optional
FAX	Respondent's fax number.	Text (50)	Optional

Link Example

Following is an example link to the Brillium login page. This link would typically be used in an HTML <form> tag as the action parameter. We recommend that your method parameter be POST, unless you have a specific reason for using the GET method. Passing login information along the QueryString by using the GET method is slightly less secure than using the POST method.

<https://mycompany.brillium.com/assess.aspx?a=L2>

Important notes about the link above:

- Brillium Hosted Account Customers: Substitute the term "mycompany" within the link with the name of your Brillium sub-domain. If you are unsure of your sub-domain's name or correct URL, please contact Brillium support using the contact information provided at the beginning of your Brillium Authoring Guide.

- Brillium Server Edition Customers: The link you use will be the URL of your Brillium installation with "assess.aspx?a=L2" appended to the end.
- Don't forget to include the "?a=L2" at the end of the link. This critical piece of the URL notifies Brillium that you are passing login information that should be processed without displaying the login screen.

Authenticating Respondents with MD5 Hash Passwords

Securing Integration

If your organization is concerned about respondents signing into an assessment as a fictitious identity, discovering all of the questions with their answers, and then signing in again and completing the assessment as their true identity, you will be happy to note Brillium's Entry Hash Password feature. This feature is intended to prevent such spoofing of the system by highly knowledgeable respondents.

The screenshot shows a configuration window titled "Assessment Integration Options". It contains several fields:

- Application Integration: POST (via Form)
- Entry Hash Password: mypassword (highlighted with a red box)
- Proctor Required?: No
- Result Send Method: Blind Post
- Result Send URL: http://www.mycompany.com/TestcraftResults.aspx

By specifying an Entry Hash Password when you author an assessment, you indicate to Brillium that you will be sending an MD5 hash along with the Assessment ID, Password, and user login credentials. This MD5 hash is a 32-character, hexadecimal string that is composed of a hashed version of the password specified above and the respondents primary key value (email address by default). Respondents attempting to complete this assessment without the MD5 hash string will not be allowed into the assessment.

To generate the 32-character, hexadecimal hash value:

- Concatenate the value entered as Entry Hash Password with the value of the respondent's Primary Key of the account owning the assessment being signed into. By default the Primary Key is the respondents email address, but it may be changed to one of the ten Custom Fields by the account owner. Do not place any spaces or additional characters between the concatenated values.
- Run the newly concatenated value through an MD5 hash algorithm to generate a 32-character, hexadecimal string. This string is not case-sensitive.
- Pass this string to Brillium with the other login data as a field named "LOGINHASH".

It is important to test login to Brillium assessments thoroughly when implementing the MD5 hash login feature. You must ensure the hash is generated properly for all potential primary key values and entry hash password combinations. If the passed "LOGINHASH" field does not match the hash generated by Brillium, the respondent will not be allowed into the assessment.

Example of a proper login hash:

Entry Hash Password: PASSWORD
 Respondent's Primary Key: jdoe@email.com
 Concatenated Pre-Hash: PASSWORDjdoe@email.com
 LOGINHASH Value: 724ff5ae73a6fdb2f94bdbcb34ec9d73c

Receiving Respondents Assessment Results from Brillium

Handling Return Data

The following table contains information to be transmitted from Brillium's logout script to the link provided in the Advanced Options page. The information will be transmitted via HTTP POST or HTTP GET depending on the Application Integration Method setting that is chosen for the assessment within Brillium.

If you are building a script (ASP Classic, ASP.NET, JSP, or CGI) to retrieve the information coming from Brillium, you will need to reference the name in the Field ID column. The description column information is not transmitted, and the size column indicates the maximum number of bytes that will be transmitted for each field.

Field ID	Description	Size
AID	Assessment Identifier	Text (25)
RID	Respondent's unique identifier assigned by the Brillium software.	Integer
FNAME	Respondent's First Name	Text (50)
LNAME	Respondent's Last Name	Text (50)
EMAIL	Respondent's Email Address	Text (255)
CUST1	Custom Field 1	Text (255)
CUST2	Custom Field 2	Text (255)
CUST3	Custom Field 3	Text (255)
CUST4	Custom Field 4	Text (255)
CUST5	Custom Field 5	Text (255)
CUST6	Custom Field 6	Text (255)
CUST7	Custom Field 7	Text (255)
CUST8	Custom Field 8	Text (255)
CUST9	Custom Field 9	Text (255)
CUST10	Custom Field 10	Text (255)
GRADE	Respondent's Grade/Score	Integer
STARTDATE	Respondent's Start Date/Time	Date
FINISHDATE	Respondent's Finish Date/Time	Date
TIMESTAKEN	Number of times respondent has completed this particular assessment.	Integer

Sending Data Example

The following code demonstrates how to link to the Brillium login page via a simple form POST. The filename for this HTML file could be anything. Also note, the fields in this case are visible to the respondent, but could easily be set to HIDDEN instead of TEXT so the respondent would only see a button or link to the test.

Sending Respondent Data to Brillium Example (MyBrilliumLogin.html)

```
<html>
<head>
<title>MyCompany Link To Assessment</title>
</head>
<body>
  <b>MyCompany Link To Assessment via Form</b><br>
  <form name="ASSESSLOGIN" method="POST"
  action="https://mycompany.brillium.com/assess.aspx?a=L2">
  Assessment ID: <input type="TEXT" name="AID" value="TEST123"><br>
  Password: <input type="TEXT" name="APASS" value="PASSWORD"><br>
  First Name: <input type="TEXT" name="FNAME" value="John"><br>
  Last Name: <input type="TEXT" name="LNAME" value="Doe"><br>
  Email Address: <input type="TEXT" name="EMAIL"
  value="jdoe@email.com"><br>
  Company: <input type="TEXT" name="CUST1" value="Doe Corporation"><br>
  Address 1: <input type="TEXT" name="CUST2" value="1 Main Street"><br>
  Address 2: <input type="TEXT" name="CUST3" value="Suite 500"><br>
  City: <input type="TEXT" name="CUST4" value="Anytown"><br>
  State: <input type="TEXT" name="CUST5" value="MA"><br>
  Zip Code: <input type="TEXT" name="CUST6" value="01010"><br>
  Country: <input type="TEXT" name="CUST7" value="USA"><br><br>
  <input type="SUBMIT" name="SUBMIT" value="Login">&nbsp;    
  <input type="RESET" name="RESET" value="Reset">
  </form>
</body>
</html>
```

Receiving Data Example

The following code demonstrates how to receive the data from Brillium after a respondent has completed an assessment. This data can then be populated into a database for analysis or storage. This example is written as a Microsoft Active Server Pages (ASP Classic), but could easily be written in another language or scripting environment. Also note that this code has been simplified and does not contain any error or bounds checking, as your code should.

Receiving Respondent Data from Brillium Example (MyBrilliumResults.asp)

```
<%@ Language=VBScript %>
<%
  Option Explicit

  Dim strAssessID, intRespID, strName, strEmail, strCust(11)
  Dim intGrade, datStart, datFinish, intTimesTaken, intX

  strAssessID = Request.QueryString("AID")
  intRespID = CInt(Request.QueryString("RID"))
  strName = Request.QueryString("LNAME") & ", " & _
  Request.QueryString("FNAME")
```

```

strEmail = Request.QueryString("EMAIL")
For intX = 1 To 10
    strCust(intX) = Request.QueryString("CUST" & CStr(intX))
Next
intGrade = CInt(Request.QueryString("GRADE"))
datStart = CDate(Request.QueryString("STARTDATE"))
datFinish = CDate(Request.QueryString("FINISHDATE"))
intTimesTaken = CInt(Request.QueryString("TIMESTAKEN"))

'Now that you have the fields passed from Brillium stored
' in the variables above, you can use some script to store
' the data in a database or use within an application.
%>
<html><body>
<!-- Your content here, if any. -->
</body></html>

```

Method 2 - Integration via AICC

Introduction

Integrating Brillium with an AICC compliant Learning Management System (LMS) or application requires that each Brillium account hosting an AICC compliant assessment be configured in a very specific way. The account is restricted to specific Custom Fields and the assessment must have AICC Compliant specified as its Application Integration setting.

Additionally, once the Brillium account and assessments are configured for AICC integration, you must also configure your AICC compliant application to link to the Brillium assessments with its AICC course linking mechanisms. In the text below you will find detailed instructions on setting up your Brillium account and assessment, and you will also find some guidelines to use when setting up your AICC compliant LMS or application. If you need more information regarding the capabilities or configuration of your AICC compliant LMS or application, contact the applications vendor.

Configuring Brillium for AICC Integration

Configuration Steps

The following steps must be performed within Brillium to configure any assessment or group of assessments for AICC integration:

1. It is essential to create a new sub-account or entire sub-account structure to host all AICC integrated assessments. Each account containing AICC assessments will be required to have the set of statically assigned custom fields detailed in the next steps.

Once created or identified, sign into an account that will host AICC integrated assessments.

2. For each account that will host AICC integrated assessments, you must implement a specific set of Custom Fields to allow for AICC integration. Fortunately, Brillium provides a "Predefined Set" of Custom Fields for easy implementation of AICC compatible fields.

From the account home page, select "**Edit Account Configuration**" from the Account

Control Panel. Then from the Account Configuration Editor page select "**Edit Custom Fields**" from the Config Control Panel. Select "**AICC Compatible**" from the Predefined Set selector in the upper-right portion of the page. Upon selecting the Predefined Set, you will be asked to confirm your selection. Be careful, if you have existing Custom Fields, they will be lost and replaced with the Predefined Set (shown below).

Custom Field Settings Editor

Account ID: AICC-TEST Predefined Set: **AICC Compatible**

Field	Name Displayed	Field Type	Req.	Case Pref	Actions
FNAME	First Name	No Validation	Displayed	As Entered	[Edit] [Up] [Down]
LNAME	Last Name	No Validation	Displayed	As Entered	[Edit] [Up] [Down]
EMAIL	Email Address	Email Address	Hidden	As Entered	[Edit] [Up] [Down]
CONTACT	Contact Information	Contact Validation	Disabled	As Entered	[Edit] [Up] [Down]
CUST1	Student ID	No Validation	Displayed	As Entered	[Edit] [Up] [Down] [Delete]
CUST2	AICC URL	No Validation	Hidden	As Entered	[Edit] [Up] [Down] [Delete]
CUST3	AICC Session ID	No Validation	Hidden	As Entered	[Edit] [Up] [Down] [Delete]
CUST4	[Not Used]	N/A	N/A	N/A	[Edit]
CUST5	[Not Used]	N/A	N/A	N/A	[Edit]
CUST6	[Not Used]	N/A	N/A	N/A	[Edit]
CUST7	[Not Used]	N/A	N/A	N/A	[Edit]
CUST8	[Not Used]	N/A	N/A	N/A	[Edit]
CUST9	[Not Used]	N/A	N/A	N/A	[Edit]
CUST10	[Not Used]	N/A	N/A	N/A	[Edit]

Primary Key: Custom Field 1 (CUST1) Important Setting - See (?) Help Above

- Next, for each assessment that will be integrated via AICC, you must specify either "**AICC Compatible (Pass/Fail)**" or "**AICC Compatible (Complete/Incomplete)**" as the Application Integration setting under the assessment's "**Advanced Options**" page.

Assessment Integration Options

Application Integration: **AICC Compatible (Pass/Fail)**

Entry Hash Password:

Proctor Required?: **No**

Result Send Method: **None**

Result Send URL:

- Otherwise, build and maintain each assessment as you normally would.

AICC Compliant LMS or Application Configuration

Method Selection

There are typically two methods to setup AICC compliant content within a Learning Management System (LMS) that supports AICC standards. The first way, being the simpler of the two, is via a single URL that points to the content on the Web. The second way is via Course Structure Data Files. Following is some assistance in each of these setups.

Single URL Setup

Use the following URL format as a guide for linking to the content:

<https://mycompany.brillium.com/assess.aspx?a=L2&aid=myassessid&apass=mypass>

Where mycompany.brillium.com represents the domain of your organizations Brillium installation. The text mycompany represents the installation sub-domain of your organizations Brillium installation (ask your Brillium sales representative if unsure). The text "myassessid" represents the Assessment ID of the assessment you are linking to, and the text "mypass" represents the Assessment Password of the assessment you are linking to.

Here is an example for an assessment named "MATH101" with a password of "MYPASS" developed by Sample Corporation:

```
https://samplecorp.brillium.com/assess.aspx?a=L2&aid=MATH101&apass=MYPASS
```

Course Structure Data Files Setup

This method of course setup is more typical in a complex Learning Management System and allows for much greater control of the entire course and its assessments. We recommend you use this method of setup if your course requires content in addition to a Brillium assessment.

More information regarding this type of setup can be found at the AICC website (www.aicc.org) in the document number CMI001, entitled "CMI Guidelines for Interoperability AICC". Level 1 complexity, as defined by AICC guidelines, is the simplest level and requires the following four course structure data files:

MyCourse.CRS
MyCourse.AU
MyCourse.DES
MyCourse.CST

Creating Course Structure Files Automatically

To allow Brillium to create your course files automatically for you, perform the following steps.

1. Go to the Edit page of the assessment you will be creating course files for (click on the pencil and paper icon beside the assessment on the account home page).
2. Click on the "**Download AICC Course Files**" button in the Assessment Control Panel. If the button is not within the Control Panel, it is probably because you do not have "AICC Compatible" specified as your Application Integration option in the Advanced Options for the assessment.
3. Once the files have been generated, you will see instructions and links to each of the four course files. As specified in the instructions, it is important to right click on each link and select "Save Target As..." or "Save Link As..." from the context menu that appears. Always be sure to save each file with the proper file extensions indicated above. Your browser may wish to append ".txt" to the filename, this must be removed if it happens.

AICC Course Files	
Assessment ID:	AICC-TEST
Download Instructions:	<p>Below are links to download the four AICC course files required by your Learning Management System or other learning application. All four files are required to import the link to the assessment within the learning application. Download each file into the same directory that is easy to locate from your learning application.</p> <p>NOTE: To save these files to your computer, right click on the links below and select "Save Target As..." or "Save Link As..." from the context menu that appears. This is necessary in case any of the AICC file extensions are associated with other programs on your computer.</p>
Individual Course File Download:	TCAICC-AICC-TEST-v3p5.au TCAICC-AICC-TEST-v3p5.crs TCAICC-AICC-TEST-v3p5.cst TCAICC-AICC-TEST-v3p5.des
Alternative ZIP Package Download:	TCAICC-AICC-TEST-v3p5.zip
<input type="button" value="Go Back"/>	

- Now that you have each of the course files saved, you may import them into your LMS or AICC compatible application.

Creating Course Structure Files Manually

Although Brillium can automatically generate these files for you, following are some examples of each of the required files if you decide to create your own course files. Use these examples when building your own courses in an AICC compliant Learning Management System or application.

The following set of course structure file examples represents a course that is composed of two assessments. The first is a simple assessment that tests the respondent's addition (mathematics) skills. The second is also a simple assessment that tests the respondent's multiplication skills. The Assessment IDs are MATH101 and MATH102 respectively.

NOTE: Course structure files, as shown below, are not required when using the Single URL method of AICC integration described above.

.CRS File Example (Math101.CRS)

```
[Course]
Course_Creator=MyCompany
Course_ID=MATH-BASIC
Course_System=Brillium
Course_Title=MATHEMATICS - BASIC SKILLS - 1
Level=1
Max_Fields_CST=4
Total_AUs=2
Total_Blocks=1
Version=2.0

[Course_Behavior]
Max_Normal=2

[Course_Description]
This course is a set of assessments that test the AICC compliance
of the Brillium version 8.50. The assessments ask simple mathematics questions.
```

.AU File Example (Math101.AU)

```
"System_ID", "Type", "Command_Line", "File_Name", "Max_Score", "Mastery_Score",  
"Max_Time_Allowed", "Time_Limit_Action", "System_Vendor", "Core_Vendor"  
"A001", "Assessment", "", "https://mycompany.brillium.com/assess.aspx  
?a=L2&aid=MATH101&apass=PASSWORD", "100", "60", "", "", "Brillium", "NA=0"  
"A002", "Assessment", "", "https://mycompany.brillium.com/assess.aspx  
?a=L2&aid=MATH102&apass=PASSWORD", "100", "60", "", "", "Brillium", "NA=0"
```

.DES File Example (Math101.DES)

```
"System_ID", "Developer_ID", "Title", "Description"  
"A001", "MATH101", "Mathematics 101 - Addition", "This assessment tests the  
respondent's skills in addition."  
"A002", "MATH102", "Mathematics 102 - Multiplication", "This assessment tests  
the respondent's skills in multiplication."
```

.CST File Example (Math101.CST)

```
"Block", "Member", "Member", "Member"  
"Root", "A001", "A002"
```

Information Sent Back to the LMS in AICC Communication

The following information will be communicated back to the LMS upon the successful completion of the assessment by the respondent.

- Respondent's Session ID (used to locate record in LMS to be updated)
- Lesson Location (always indicates "end" telling the LMS they are complete)
- Score (value from 0-100 based on the points earned versus points available)
- Time (total time from beginning to end of assessment expressed as hh:mm:ss)
- Lesson Status (either "pass" or "fail")

Method 3 - Integration via SCORM

Introduction

Brillium supports the ADL SCORM standard versions 1.2 and 1.3 (SCORM 2004). More information about the SCORM standard can be found on the ADL Website (<http://www.adlnet.org/>).

Configuring Brillium for SCORM Integration

Configuration Steps

The following steps must be performed within Brillium to configure any assessment or group of assessments for SCORM integration:

1. It is essential to create a new sub-account or entire sub-account structure to host all SCORM integrated assessments. Each account containing SCORM assessments will be required to have the following set of statically assigned custom fields.

At this time, sign into an account that will host SCORM integrated assessments.

2. For each account that will host SCORM integrated assessments, you must implement a specific set of Custom Fields to allow for SCORM integration. Fortunately, Brillium provides a "Predefined Set" of Custom Fields for easy implementation of SCORM compatible fields.

From the account home page, select "**Edit Account Configuration**" from the Account Control Panel. Then from the Account Configuration Editor page select "**Edit Custom Fields**" from the Config Control Panel. Select "**SCORM Compatible**" from the Predefined Set selector in the upper-right portion of the page. Upon selecting the Predefined Set, you will be asked to confirm your selection. Be careful, if you have existing Custom Fields, they will be lost and replaced with the Predefined Set (shown below).

Custom Field Settings Editor

Account ID: MOODLE-SCORM Predefined Set: SCORM Compatible

Field	Name Displayed	Field Type	Req.	Case Pref	Actions
FNAME	First Name	No Validation	Displayed	As Entered	[Edit] [Add] [Remove]
LNAME	Last Name	No Validation	Displayed	As Entered	[Edit] [Add] [Remove]
EMAIL	Email Address	Email Address	Hidden	As Entered	[Edit] [Add] [Remove]
CONTACT	Contact Information	Contact Validation	Disabled	As Entered	[Edit] [Add] [Remove]
CUST1	Leamer ID	No Validation	Displayed	As Entered	[Edit] [Add] [Remove]
CUST2	Leamer Full Name	No Validation	Hidden	As Entered	[Edit] [Add] [Remove]
CUST3	SCORM Callback URL	No Validation	Hidden	As Entered	[Edit] [Add] [Remove]
CUST4	[Not Used]	N/A	N/A	N/A	[Edit]
CUST5	[Not Used]	N/A	N/A	N/A	[Edit]
CUST6	[Not Used]	N/A	N/A	N/A	[Edit]
CUST7	[Not Used]	N/A	N/A	N/A	[Edit]
CUST8	[Not Used]	N/A	N/A	N/A	[Edit]
CUST9	[Not Used]	N/A	N/A	N/A	[Edit]
CUST10	[Not Used]	N/A	N/A	N/A	[Edit]

Primary Key: Custom Field 1 (CUST1) Important Setting - See (?) Help Above

3. Next, for each assessment that will be integrated via SCORM, you must specify "**SCORM (compatible)**" as the Application Integration setting under the assessment's "**Advanced Options**" page.

Assessment Integration Options

Application Integration: SCORM Compatible

Entry Hash Password:

Proctor Required?: No

Result Send Method: None

Result Send URL:

4. Otherwise, build and maintain each assessment as you normally would.

Creating the SCORM Package File

To allow Brillium to create your SCORM package automatically for you, perform the following steps.

1. Go to the Edit page of the assessment you will be creating course files for (click on the pencil and paper icon beside the assessment on the account home page).
2. Click on the "**Download SCORM Package**" button in the Assessment Control Panel. If the button is not within the Control Panel, it is probably because you do not have "SCORM Compatible" specified as your Application Integration option in the Advanced Options for the assessment.
3. Select the Package Format you require for your LMS or SCORM compliant application. If you are unsure, try "SCORM 1.2" as this format is supported by a large number of application. Click the **Submit** button when your format is selected.

4. Download the generated SCORM package by right-clicking on the link and selecting "Save Target As..." or "Save Link As..." from the context menu that appears.

5. Now that you have the SCORM package saved, you may import it into your LMS or SCORM compatible application.

Information Sent Back to the LMS in SCORM Communication

The following information will be communicated back to the LMS upon the successful completion of the assessment by the respondent.

- Score (value from 0-100 based on the points earned versus points available)
- Time (total time from beginning to end of assessment expressed as number of seconds)
- Status (either "passed" or "failed")

Method 4 - Integration via Data Feed or Extract

Introduction

The Brillium Custom Data Feed option is made available for customers that wish to integrate Brillium with their Learning Management System (LMS), database, or Website but don't require the real-time capabilities of the Brillium application integration architecture. The Custom Data Feed is typically composed of a custom program to extract specified data from a customer's Brillium installation into a defined flat-file for transmission to the customer's own data systems.

NOTE: Since the custom data feed program is typically run independent from the Brillium installation itself, there is usually no setup required within the Brillium accounts or assessments. However, if a subset of information is being pulled from Brillium for a data feed, a naming convention or set of rules may be required to ensure the data feed extracts the proper subset of data for the period being processed.

Preparing for Data Feed or Extract Integration

Data Feed File Specifications

Brillium works with each customer to define the exact specifications of their data feed and then custom develops a solution that will generate the data file to those specifications. By custom designing each data feed to the customer's needs, we remain extremely flexible in providing exactly what their application or solution requires.

During the specification process, the following will be finalized:

- File format and data layout
- Data fields required (from Brillium)
- Data inclusion or exclusion criteria
- Scheduling options
- File transmission options
- Data encryption options

Client Requirements

Depending on the options selected during the specification process, the following may or may not be required for the customer to process the custom data feed:

- FTP client or server (depending on the selection of pull or push methodologies)
- Software to decrypt an encrypted data file (if encryption is required for transmission)

Solution Capabilities

The Brillium Custom Data Feed provides for the following:

- Custom program to extract customer data in the required format
- Scheduled execution of data feed generation (daily, weekly, monthly, etc.)
- Text delimited, CSV, XML, or other major data exchange formats available
- Optional, secure encryption of the data file before transmission (PGP, etc.)
- Optional, File Transfer Protocol (FTP) pull or push methodologies available

Additional Information

For customers requiring a Brillium Custom Data Feed, there will be a fee for initial development and a monthly processing fee will be added to your standard Brillium monthly usage fee. These fees can vary significantly depending on the level of complexity and data structure that you require. Contact your Brillium sales representative for more information.