

**ACT360 Media Ltd.
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**Linking Partner Systems with
TestDEN E-Learning Platform**

Revision 5.2 for use with TestDEN Release 4.2

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For use with TestDEN Release 4.2

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Introduction

This document provides a detailed overview of ACT360's specification for integrating the TestDEN e-learning platform with external Learning Management Systems (LMS) and Office Automation (OA) systems.

This document is intended for two audiences:

- Users of ACT360's TestDEN e-learning platform
- ACT360's international marketing partners

For users of the TestDEN e-learning platform, this document describes how to load, launch, and deliver TestDEN applications to end users.

For ACT360 international marketing partners, this document describes how corporate customers can integrate their LMS and OA systems with TestDEN. The TestDEN Integration Interface allows customers to automatically open user accounts and exchange data with TestDEN. TestDEN is compatible with all LMS and OA systems, including Saba, Docent, and custom systems currently in use.

Specifically, this document includes the following sections:

- Part I – Overview of the TestDEN E-learning Platform.
- Part II – Customizing TestDEN Look and Feel
- Part III – User Account Distribution: Manual Password Method
- Part IV – User Account Distribution: Integrating with Partner Systems for Auto-Download

Part I – Overview of TestDEN E-Learning Platform

TestDEN On-line Applications

Partners may choose any combination of the available products to brand as their own. The current product list consists of:

- TOEFL IBT Practice Test - three full tests for training and assessment
- TestDEN IBT Trainer for TOEFL – 60 day training course for Speaking and Writing
- TOEIC Practice Test – three full tests for corporate training and assessment. Old and new TOEIC test versions available.
- Trainer for TOEIC – 60 day training course
- TOEIC Beginner Course – 60 day course with 30 key business lessons

The duration of each course can be adjusted to each partner's needs.

System Architecture

ACT360's TestDEN platform is hosted on state-of-the-art servers in Vancouver, Canada at a secure telco facility with 24 hour security, pre-action fire suppression systems, and independent power back-up.

TestDEN online applications are run from the Vancouver server center. ACT360 also operates secondary server facilities in Tokyo, Beijing and Hong Kong. These secondary sites host the multimedia files to reduce download times for end users in these regions.

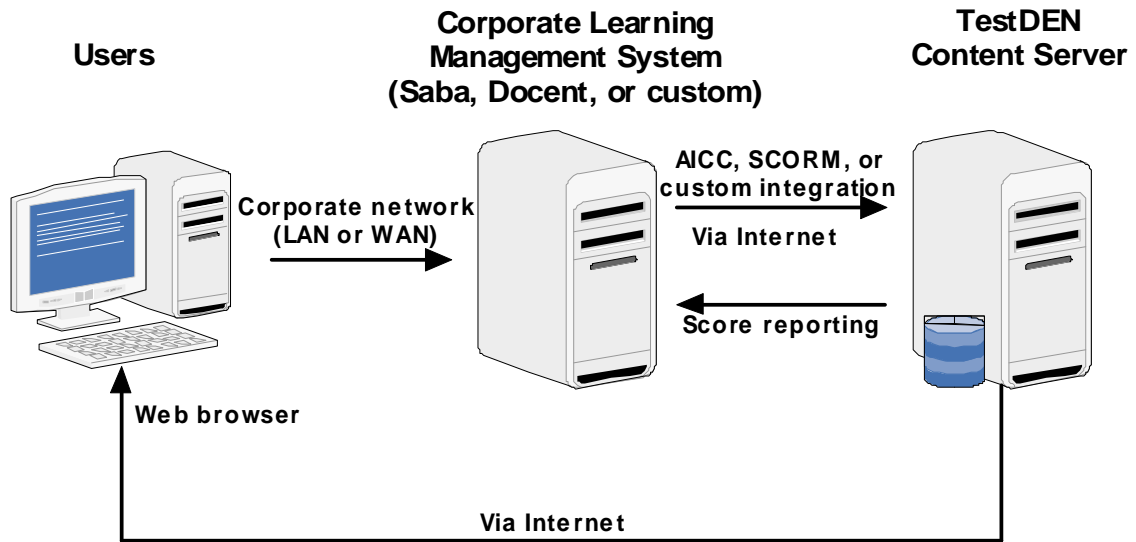
Sound files may also be hosted at a partner's local server to provide optimal download speeds for corporate users.

The TestDEN platform is based on combination of Microsoft and Macromedia Flash technology:

- Windows 2000
- IIS 5.0

- SQL Server 2000
- ASP and Flash Communication Server

Figure 2 outlines a typical partner integration:



End User Technical Requirements

- Internet access with 56k connection or higher
- Web browser: Internet Explorer 6.0 and above
- Macromedia Flash plug-in installed
- Sound card with speakers or headphones
- Mouse

Options for Partner Integration

Partners may choose two one of two password distribution methods:

	Option 1 Manual Password Download	Option 2 Integration with Partner Systems
Description	<p>For partners without LMS or OA system.</p> <p>Manually download account passwords from TestDEN Partner site.</p> <p>Each user is issued one password.</p>	<p>For partners with LMS* or OA** system.</p> <p>Automatic account generation and reporting to partner LMS or OA system.</p> <p>No additional passwords required as all accounts are opened automatically.</p>
Advantages	<p>Fast set up</p> <p>Flexible business model suited for TestDEN resellers.</p>	<p>Automatic account creation</p> <p>Works with existing partner user management system removes need for multiple passwords.</p> <p>User information is stored on partner system.</p> <p>Saba and Docent LMS are supported through AICC.</p> <p>Custom LMS and OA systems are supported through single URL pointing to TestDEN Content Server.</p>
Disadvantages	<p>Passwords and accounts are managed manually by partner</p> <p>All information is stored on ACT360 side.</p>	<p>Additional setup time</p>

* LMS = Learning Management System

* OA = Office Automation

Part II – Customizing TestDEN Look and Feel

Product Branding: Creating a Private Label

There are five steps for partners to create a custom branded application interface:

1. Partner chooses a name for each of the products they have chosen.
2. Partner should design product header and footer that they want to appear on the products and supply to ACT360 in the format shown below.
3. Partner should decide how the Log in procedure will be handled. If the Partner website can handle scripts, ACT360 will provide special web page code to enable Partner end users to connect to TestDEN server from the Partner website. Partners integrating their own LMS / OA with TestDEN will bypass this step.
4. Partner should determine which web page they want to return learners to when they log out from the TestDEN program.
5. Optional – Partner can provide a technical support e-mail address to add to the application for first line customer support.

Header and Footer Dimensions

TestDEN TOEIC Trainer, TOEIC Practice Test

- Page header in HTML or .jpg format, 600 by 55 pixels with partner logos and/or slogan
- Page footer in HTML or .jpg format, 600 by 45 pixels, with partner logos, other text, etc.

TestDEN IBT Trainer, TOEFL IBT Practice Test

- Page header in HTML or .jpg format, 200 by 52 pixels with partner logos and/or slogan
- Page footer in HTML or .jpg format, 200 by 52 pixels, with partner logos, other text, etc.

Product Demonstrations

Partners will receive a product demonstration custom branded for their company. The branding will be composed of the logo and header/footer look and feel provided above.

One product demonstration for each product will be provided. Each demonstration allows the user to review the main feature of the product, test out a sample of the product, and leads into purchasing of the product.

Each product demo can be posted in the local language. In this case, ACT360 will provide the partner with the English text and the partner will be asked to provide the appropriate translation. ACT360 will then input the translation into the demo files.

Product Log-in Page

ACT360 will provide the partner with the code (see below) to create a login page to be hosted on the appropriate partner webpage. Partners may choose to host the login page, or have ACT360 create a login page on the TestDEN server.

To see a sample, go to:

<http://www.testden.com/scripts/partners/jasa/index.asp>

Select a universal user name for your students. Students will use this user name along with a unique password, to log into the products. Typically, this user name will be representative of your organization. Examples of typical user names: testden-trial, abcschool, abc_toefl

Example of basic html login form:

```
<form method="POST" action="/scripts/validate.asp" name="validate">
  <form method=post name=login action="/scripts/validate.asp">
    Please enter your User Name: <input type="text" name="userName" size=25><br>
    Please enter your Password: <input type="password" name="password" size=30><BR>
    <INPUT TYPE="submit" value="submit">
```

```
<BR><BR>
```

```
<INPUT TYPE="hidden" name="lng" value="7">  
<input type="hidden" name="filename" value="http://www.partnerwebsite.com/login.asp">  
</form>
```

We send back this variable to the web page defined in the "filename" variable if the log-in fails (eg. account expired or account does not exist):

```
MSG=Y
```

This can be retrieved in vbscript like this:

```
<%
```

```
if Request("msg") = "Y" then
```

```
    Response.write("The username and password combination you entered is incorrect or the  
account has expired. Please try again.<BR>")
```

```
end if
```

```
%>
```

Part III – User Account Distribution: Manual Password Method

Password Download Center

In this system, partners will visit a password protected URL on ACT360's website that allows them to download pre-determined groups of User IDs. Upon purchasing a specified number of User IDs, the partner receives the purchased list and is then responsible for selling and distributing these individually to users.

Each User ID is not activated until a user logs in the first time. ACT360 will invoice the partner immediately for these pre-purchased User IDs.

Download Center Set Up

1. ACT360 will assign a Partner ID.
2. Partner may choose their own partner login password.
3. Partner should choose general User Name for its users. Each user in the partner organization will have the same User Name with a unique user password. e.g. testden-trial, ABCCompany
4. Partner distributes passwords to users.
5. Partner may monitor user progress through the Partner Login center.

Part IV – User Account Distribution: Integration with Partner Systems

ACT360 has created standard integration procedures to work with Saba and Docent LMS systems. Please contact ACT360 for more information. The following methods are intended for custom LMS and OA systems

Single Authentication

The single authentication method is used by partners less concerned with security. The partner server communicates with the TestDEN Content server and an account is automatically opened. No further authentication is done.

1. A link on your site passes a minimum set of two arguments to ACT360:

Username = Unique user identifier which does not change

If the username is not unique or can change then ACT360 will need to store a different identifier.

Resource=TOEFL (or resource=TOEFL23, etc.)

WHERE resource identifies the specific resource on our system

Product Name	Resource
IBT Practice Test 1	IBT1
IBT Practice Test 2	IBT2
IBT Practice Test 3	IBT3
IBT Practice Test 4	IBT4
IBT Trainer	IBTTRAIN1
TOEFL Trainer	ECTRN1
TOEIC Test 1	TOEICTEST1
TOEIC Test 2	TOEICTEST2
TOEIC Test 3	TOEICTEST3
TOEIC Trainer	TOEICTRN1
TOEIC Beginner Course	TOEICBEG1

Each registration is therefore separate so if one user is to be given access to 2 different TOEIC Tests and 1 TOEIC Trainer, then partner needs to keep track of which TOEIC tests the student has access to. In this way, ACT360 will know which program to provide access for if the student has more than one program active.

Note: Each user (SI) can only be assigned one of each program/version (ie. one TOEIC Trainer, TOEIC Test 1, TOEIC Test 2, and TOEIC Test 3. For example, a user cannot be assigned two TOEIC Tests.

Example:

<http://www.testden.com/validatecompany.asp?Username=jen01&resource=TOEICTRN1>

Note: Partners can specify the argument names if preferred.

Optional:

Additional variables may be specified which simplifies searching for users in the Management Center.

- FirstName = The user's first name
- LastName = The user's last name
- Email = The user's email address
- Instance = 1, 2, 3...Used for multiple product assignments

Example:

<http://www.testden.com/validatecompany.asp?Username=jen01&resource=TOEICTRN1&firstname=jennifer&lastname=cheung&email=jcheung@testden.com&instance=1>

2. TestDEN validates using HTTP referrer:

Is this link referrer from www.act360partner.com?

YES: continue

NO: reject "Incorrect or no referrer"

Note:

Partner system acts as gatekeeper. The system only generates a URL to TestDEN system for properly authenticated users granted specific permissions. Therefore checking HTTP referrer "closes the loop" and assures that only users with correct permissions gain access to the specified resource on TestDEN.

3. If YES, our system queries its user table:

Does Username value jen01 exist in our Username column?

YES: access granted to resource "T1"

NO:

- a) A new user record is inserted for that username.
- b) Access to the program is granted.

The next time this user tries to access the same resource partner system grants access at step 3 YES above since the user record is already stored in partner system. Further calls to TestDEN (ie, user re-validation) are not necessary.

The validate file could encounter several different error conditions which prevent the user from being logged on. These are:

1 - Account Expired

Occurs if the time for that user has run out.

2 - Account Not Active

Occurs if the user account has been cancelled.

3 - Resource Not Found

Occurs if partner system sends back an incorrect resource code.

4 - Cookies not Enabled

Occurs if the user does not have cookies enabled and therefore cannot be logged in.

5 - User ID Not Found

Occurs if the cookie is corrupted or due to a bug -- should normally not happen with automated login.

TestDEN can redirect the user to partner site if one of these problems occurs. Please provide a link to the file TestDEN should redirect to.

ACT360 can send the variable "errcode" with value 1-5 or use a different naming convention if partner chooses (we can send error message instead of a code).

ACT360 will also need a link to redirect users when they click on the Log Out button from within the program.

Double Authentication

1. A link on your site passes a minimum set of two arguments to ACT360:

Username = Unique user identifier which does not change

If the username is not unique or can change then ACT360 will need to store a different identifier.

Resource=TOEICTEST1 (or resource=IBT1, etc.)

WHERE resource identifies the specific resource on our system

Product Name | Resource

IBT Practice Test 1 | IBT1
IBT Practice Test 2 | IBT2
IBT Practice Test 3 | IBT3
IBT Practice Test 4 | IBT4
IBT Trainer | IBTTRAIN1
TOEFL Trainer | ECTRN1
TOEIC Test 1 | TOEICTEST1
TOEIC Test 2 | TOEICTEST2
TOEIC Test 3 | TOEICTEST3
TOEIC Trainer | TOEICTRN1
TOEIC Beginner Course | TOEICBEG1

Each registration is therefore separate so if one user is to be given access to 2 different TOEIC Tests and 1 TOEIC Trainer, then partner needs to keep track of which TOEIC tests the student has access to. In this way, ACT360 will know which program to provide access for if the student has more than one program active.

Note: Each user (SI) can only be assigned one of each program/version (ie. one TOEIC Trainer, TOEIC Test 1, TOEIC Test 2, and TOEIC Test 3. For example, a user cannot be assigned two TOEIC Tests.

Example:

<http://www.testden.com/validatecompany.asp?Username=jen01&resource=TOEICTRN1>

Note: Partners can specify the argument names if preferred.

Optional: Additional variables may be specified which simplifies searching for users in the Management Center.

FirstName = The user's first name
LastName = The user's last name
Email = The user's email address
Instance = 1, 2, 3...Used for multiple product assignments

Example:

<http://www.testden.com/validatecompany.asp?Username=jen01&resource=TOEICTRN1&firstname=jennifer&lastname=cheung&email=jcheung@testden.com&instance=1>

2. TestDEN validates using HTTP referrer:

Is this link referrer from www.act360partner.com?

YES: continue

NO: reject "Incorrect or no referrer"

Note:

Partner system acts as gatekeeper. The system only generates a URL to TestDEN system for properly authenticated users granted specific permissions. Therefore checking HTTP referrer "closes the loop" and assures that only users with correct permissions gain access to the specified resource on TestDEN.

3. If YES, TestDEN queries its user table:

Does Username value jen01 exist in our Username column?

YES: access granted to resource "TAG1"

If NO, our system makes a URL call to partner system to validate the user and obtain user information:

<http://www.act360partner.com/extUsrLookUp.asp?UserName=jen01&src=eduCn>

Notes:

- YES condition means that the user has already signed into TestDEN at least once via partner system. Therefore TestDEN already has this user's info on file.
- NO means the user trying to access our resource is a new user. Therefore TestDEN needs to create a new user record.
- The src variable identifies ACT360 and provides an extra level of security.

4. Partner system checks our client IP address:

Is this call originating from 204.244.141.21 or www.testden.com?
Is eduCn registered as an ASP?

YES: delimited stream containing user info returned.

Example:

1|Username|Name|Password (data returned subject to agreement)

See (5)

NO: delimited stream containing error code returned.

Example:

Status|errNum|Error Message

0|23|no such client on file

Notes:

- This allows error trapping on TestDEN side. TestDEN will display the Error Message to the user or re-direct user back to an error page on Partner's web site.
- This should almost never occur except during testing or if someone is trying to hack the system.

5. If YES (first char of string is 1, ie, IF(1)):

- a) TestDEN parses the body of the text stream into an array.
- b) A new user record is then inserted using the values of the array
- c) Access to the test is granted.

The next time this user tries to access the same resource, the partner system grants access at step 3 YES above since the user record is already in your system. Further calls to our system (ie, user re-validation) are not necessary.

The validate file could encounter several different error conditions which prevent the student from being logged on. These are:

1 - Account Expired

Occurs if the time for that user has run out -- set at 15 days for TOEIC Test, 60 days for TOEIC Trainer.

2 - Account Not Active

Occurs if the users account has been cancelled.

3 - Resource Not Found

Occurs if partner system sends back an incorrect resource code to TestDEN.

4 - Cookies not Enabled

Occurs if the user does not have cookies enabled and therefore cannot be logged in.

5 - User ID Not Found

Occurs if the cookie is corrupted or due to a bug -- should normally not happen with automated login.

TestDEN can redirect the user to partner site if one of these problems occurs. Please provide a link to the file TestDEN should redirect to.

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