

Functional Specifications: .NET Overview

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Introduction to Training Partner Online .NET

Introduction

When GeoMetrix developed Training Partner Online the key goal was to provide a powerful system in which clients could alter online pages to meet their business practices without preventing or hampering their ability to utilize upgrades.

Unlike Training Partner Online, most web-based delivery technologies are based around pages consisting of either HTML and/or program code that produce web pages when requested. These could be HTML pages, Active Server Pages, Perl-scripts, etc. While such systems are common, a fundamental problem with each appears as soon as different groups modify the pages. This is a basic problem of all documents. For example, suppose you give others a copy of a document that you have created – say an Excel file containing a list of sales figures. They then add new columns, remove columns, reformat parts of it, and put in some special calculations. However, a few weeks later you discover some mistakes in your Excel file, correct them, and send the others your latest copy. What are the other people to do? They have made changes and you have made changes. The others are left in the position of either having to redo all their changes in your modified document or they need to compare the two documents, find all the differences, and then apply them to their modified document. Neither case works well in practice and both are time consuming and error prone.

A similar situation exists in most online systems – although typically on a much larger scale. Web-based systems often consist of hundreds of pages and many clients routinely make significant alterations to the online representing hundreds or even thousands of hours of work. In most cases, redoing that much work is impractical at best.

Some systems may provide workarounds to this problem. Most reduce the problem by limiting a client's ability to modify pages. For example, you can only modify look-and-feel (say style-sheets) or you can only modify certain aspects of specific pages using predefined options. However, this is rarely an acceptable solution as most clients routinely require that the content, layout, and work flow of the pages be altered to meet their business needs. This isn't typically possible in systems that restrict one's ability to modify pages. For example, most systems wouldn't allow client users to hide a table and replace it with their own. This would typically require users to delete the code for table within the page and add their own. This would create an upgrade issue as soon as the vendor provided another version of the page. Clients would need to either redo all their work or not accept the fixes or additions contained in the new version of the page.

Training Partner Online solved most of the update issues in the way it operates. With Training Partner Online, pages are maintained as a series of separate elements that the online uses to dynamically generate web pages. When clients customize the Online module, they use the Online Designer to modify or add new elements. When GeoMetrix sends out updates or fixes, the system can read-in changes to the pages on an element-by-element basis and combine sets of changes. For example, suppose the above example (hiding a table and adding a new one) was done within Training Partner Online. Later GeoMetrix issues an update fixing a link on the bottom of the same page. Since the client didn't alter the link, the update can update just that element without overwriting the addition of a new table or the hiding of the existing table.

Active Server Pages are a Microsoft® technology for dynamically generating web pages using a file containing both HTML and scripts instructing IIS to access databases, read or update information, and product web-pages based on information within the database. ASP.NET expands upon the older ASP technology and compiles the pages using the Microsoft .NET compiler technology. This gives ASP.NET systems greater performance, scalability and interoperability over older ASP pages. However, despite the advantages of ASP and ASP.NET, both have the same issues as all other page-based systems. They are delivered in pages – either .asp, or .aspx files. If clients modify these pages, they effectively make it impossible to accept future upgrades. The vendor would provide a new set of .aspx pages and clients would need either be required to redo possibly months worth of changes to the pages or live without the changes.



Training Partner Online and .NET

Training Partner Online .NET leverages many of the performance and scalability benefits of a .NET solution, while maintaining a system that clients can easily modify while still receiving upgrades.

Instead of delivering a static set of ASP.NET pages that clients install and use, the system is capable of dynamically producing ASP.NET pages using the same rules built within the Online Designer itself. Thus, clients do not modify ASP.NET pages when they wish to modify the online interface. They continue making changes within the Online Designer and *export* the Training Partner Online pages to ASP.NET pages. GeoMetrix continues to deliver upgrades and fixes to the normal online pages and clients can install them – without overwriting their changes – and merely re-export their pages back to the .NET format. The advantages of this system are significant:

- As in the current Online module, clients can continue to make changes to pages (layout, look-and-feel, content, flow, etc.) without compromising their ability to receive or install upgrades. Altering the online pages does not prevent future bug fixes or new features.
- Clients continue to be able to use the current Online Designer. This allows non-technical users to rapidly prototype, build and test changes to their online system without the need to program.
- Existing clients can leverage their current online pages. There is no need to rewrite pages to move to .NET. The system can export pages with little or no changes. If you have already added, modified or removed pages in Training Partner Online, you end up with a set of .NET pages that produce exactly the same results.
- The system maintains common functionality, extensibility and upgrade process with the current Training Partner Online. The .NET pages function in the same way as pages produced using the Online Designer. All features in Training Partner Online (including customized pages) are supported: languages, portals, access rights, etc. You save/load, transfer and apply updates in the same way as the current Online application.

Building .NET Pages

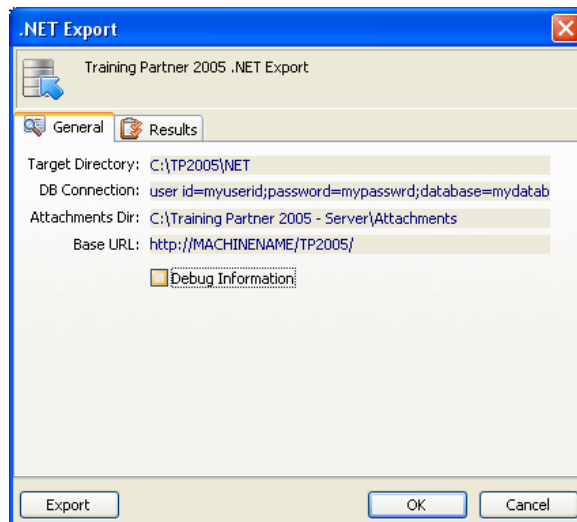
With Training Partner Online .NET, you never build or modify .NET pages. You design pages using the Online Designer and then export the pages to the ASP.NET format.

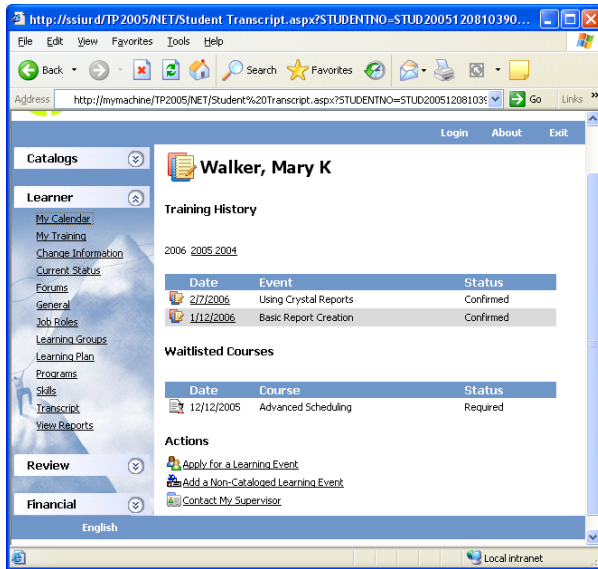
Exporting Pages

Exporting pages from Training Partner Online is simple. From within the Online Designer:

1. Click on the 'Export .NET' button (E). This displays the .NET export dialog.
2. If necessary, enter any of the export options in the General panel. See below.
3. Press the Export button.

Training Partner Online will output each of the pages to ASP.NET pages in the target directory. The progress is displayed in the Results panel. The standard pages can be exported in about two minutes. In the case of any issues with the pages, the system displays any problems within the Results panel. After exporting all the pages, Training Partner will open the "TP2005.aspx" page in a web browser for you.





Exporting a Single Page

You can also export a single online page to the .NET format. Typically this is only used when developing/testing pages.

To export a single page to .NET you simply right-click on the page within the Designer's page list and select 'Export Page to .NET' from the pop-up menu.

Training Partner exports the .NET page using the same options as previously set when exporting the entire set of pages. It will then display the page in your web browser.

Note: Changes made to one page may affect multiple pages. For example, if you alter 'Page Start' you must re-export all pages that include 'Page Start.' The safest method is to always export all pages prior to testing and deployment.

The saved .NET pages will exist within your target directory. The web pages consist of VB.NET pages and contain code to produce the same web pages as Training Partner 2005 Online. While, you could view these pages using NotePad.exe or another application, there is little point. The key point of Training Partner 2005 Online is that *these ASP.NET pages should never be modified.*

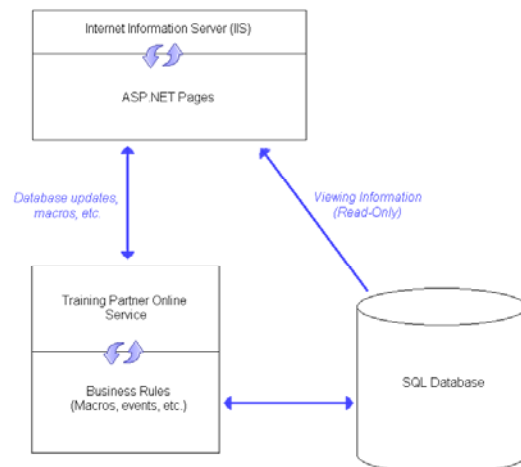
The key advantage to Training Partner Online .NET is that the editing of pages remains within the Online Designer to allow the system to accept and maintain further upgrades. If you modify the resulting .aspx pages, the system will merely overwrite them the next time you modify the pages or install upgrades.

Processing Pages

When a user requests a Training Partner .NET page, the .NET compiler will compile the page (if it has not been compiled since it was last modified) and evaluates the page. Most evaluation of pages are handled solely via .NET code.

However, in certain cases, elements cannot be evaluated solely using ASP.NET code. This is typically because the element needs to perform extremely complex logic (such as enrolling a learner, tracking CBTs, or generating a calendar) or must trigger business logic within Training Partner itself – for example events and macros, sending of e-mails during status changes, field changes, etc. Training Partner Online .NET handles this by seamlessly allowing the ASP.NET pages to evaluate macros or specific elements within the Training Partner Online service running on the machine evaluating the ASP.NET pages.

This system allows the increased performance and scalability offered by .NET while still allowing processing of complex business rules entered from a single source.



Most pages do not require calls into Training Partner Online, and most processing (95%+) is performed solely within the ASP.NET pages. Actions that require evaluation within Training Partner Online itself are limited to less frequent operations such as modifying records within the database and complex macros. These are only required in specific cases.