CA Gen and ASP.NET

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CA

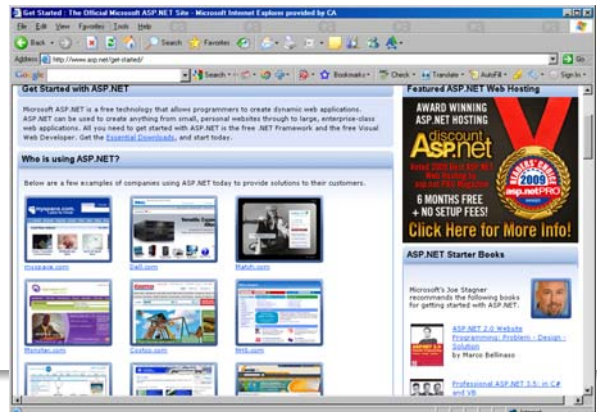**ca** Transforming IT Management

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Agenda

> What is ASP.NET?

> ASP.NET in CA Gen

> ASP.NET Web Clients in CA Gen r8

> Beyond CA Gen r8

> Questions & Answers

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What is ASP.NET?

From Microsoft's www.asp.net website:

Microsoft ASP.NET is a free technology that allows programmers to create dynamic web applications. ASP.NET can be used to create anything from small, personal websites through to large, enterprise-class web applications.

.Net in CA Gen r8

> ASP.Net Web Clients

> .Net Servers

> .Net Proxies

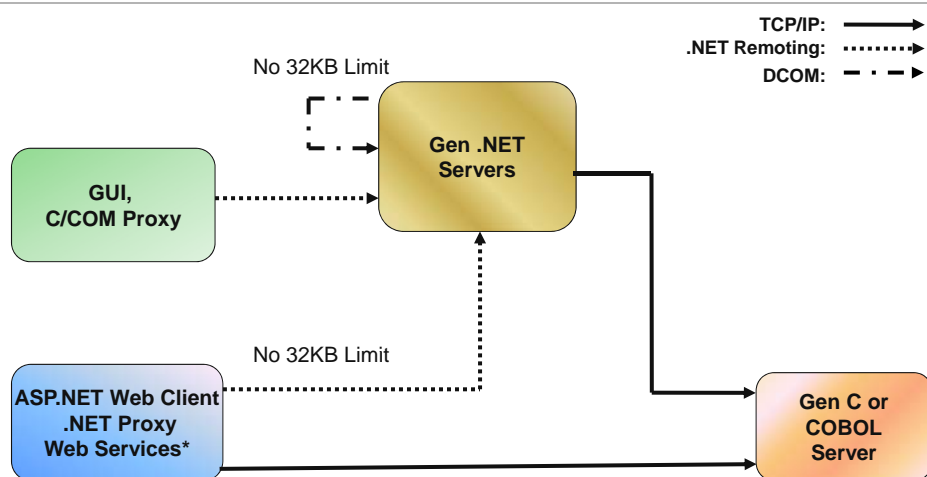> Web Services based on .Net Proxies (newly supported in CA Gen r8)

CA Gen - ASP.NET Web Clients

> Are 100% CA Gen-generated client applications.

> Can communicate with the following servers:
>   - .NET Servers
>   - C Servers
>   - Cobol Servers

> Use C# for the application logic and ADO.NET for database access.

> Dynamically create the user interface (HTML and JavaScript).

> Targeted to Internet Information Services (IIS) on Windows XP, Windows Server 2003, Windows Server 2008 and Vista.

Communications

TCP/IP:
.NET Remoting:
DCOM:

No 32KB Limit

Gen .NET Servers

GUI, C/COM Proxy

No 32KB Limit

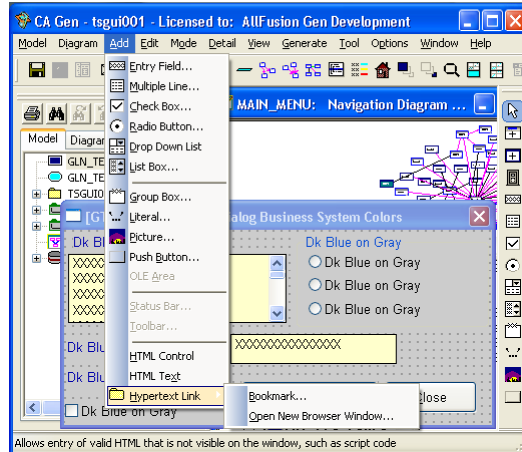ASP.NET Web Client .NET Proxy Web Services*

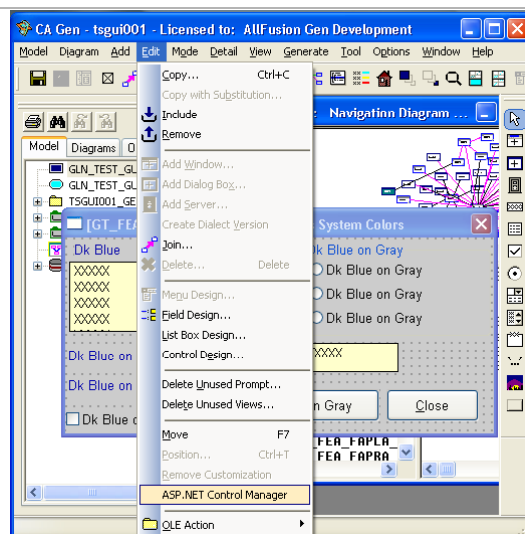Gen C or COBOL Server

* Web Services based on the .Net Proxy

Controls Available

> The Navigation Diagram allows you to select standard Gen controls available for GUI applications.

> ActiveX controls (OCXs) are excluded from .Net.

> Additional controls:
  - HTML Control
  - HTML Text
  - Hypertext Link:
    - Bookmark
    - Open New Window
  - Button displayed as Hypertext Link
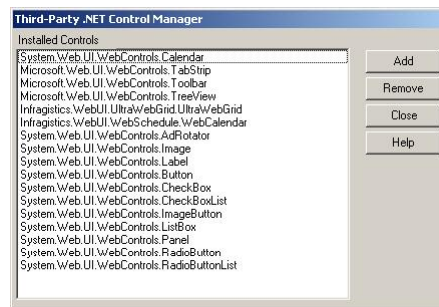 - Fixed size Tables
  - Varying Size Table

ASP.NET Web Controls
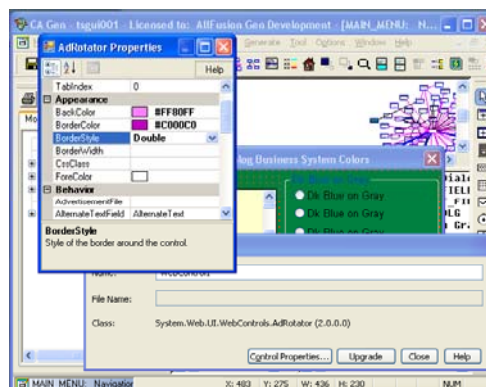
Can be added through using the ASP.NET Control Manager.

Third-Party .NET Control Manager

> Shows you the list of available 3rd party ASP.NET controls.
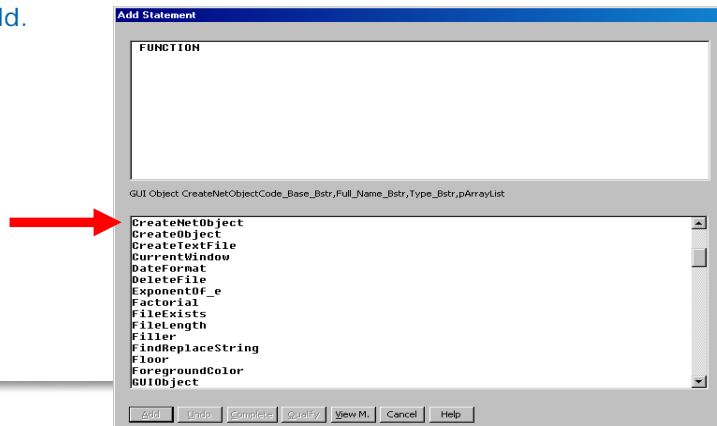
> Allows you to remove & add ASP.NET Web Controls.

Toolset ASP.NET Designer

> Allows you to customize a 3rd party Web Control in the Navigation Diagram.
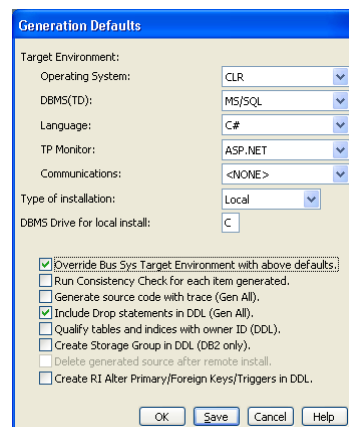
> No External Files are necessary.

CreateNetObject

> Function/method available in ASP.NET Mode only.

> Allows you to create an instance of an object in a specified .NET assembly.

> Creates unlimited opportunities for Gen clients to interact with the external world.


```
Add Statement

FUNCTION

GUI Object CreateNetObjectCode_Base_Bstr,Full_Name_Bstr,Type_Bstr,pArrayList

CreateNetObject
CreateObject
CreateTextFile
CurrentWindow
DateFormat
DeleteFile
ExponentOf_e
Factorial
FileExists
FileLength
Filler
FindReplaceString
Floor
ForegroundColor
GUIObject

Add  Undo  Complete  Qualify  View M.  Cancel  Help
```

Generation Options

•**Operating System:** CLR

•**DBMS(TD):** uses Technical Design for selected DBMS. In reality it uses ADO.NET

•**Language:** C#

•**TP Monitor:** ASP.NET

•**Communications:** <None>


```
Generation Defaults

Target Environment:
    Operating System:          CLR
    DBMS(TD):                  MS/SQL
    Language:                  C#
    TP Monitor:                ASP.NET
    Communications:            <NONE>
Type of installation:          Local
DBMS Drive for local install:  C

[x] Override Bus Sys Target Environment with above defaults.
[ ] Run Consistency Check for each item generated.
[ ] Generate source code with trace (Gen All).
[x] Include Drop statements in DDL (Gen All).
[ ] Qualify tables and indices with owner ID (DDL).
[ ] Create Storage Group in DDL (DB2 only).
[ ] Delete generated source after remote install.
[ ] Create RI Alter Primary/Foreign Keys/Triggers in DDL.

        OK   Save   Cancel   Help
```

CBD and ASP.NET Web Clients

> Different Components can be individually:
> - generated
> - installed
> - uninstalled

> The application name for Components expected to communicate HAS to be identical.

> This allows installing different components in one application domain.

CA Gen r8 Features

CA Gen r8 ASP.NET Enhancements

In CA Gen r8, ASP.Net features focused
primarily around 2 themes:

1. Application Performance

2. User Experience

ASP.NET Web Client

Application Performance

ASP.NET Web Client Application Performance

> ASP.Net AJAX

> Creating JavaScript Libraries

> Session management enhancements

> ViewState optimization

> New Compilation and Deployment Option
   - NGEN
   - Data Compression
   - Pre-compile ASPX Pages

ASP.NET AJAX

> From www.asp.net/ajax:

   ASP.NET AJAX is the free Microsoft AJAX framework for building highly interactive and responsive web applications that work across all popular browsers.

> AJAX stands for: Asynchronous JavaScript and XML.

> It is a mechanism for developing interactive Web applications.

> Allows portions of web pages to be updated asynchronously without having to reload the whole page.

ASP.NET AJAX in CA Gen

> Listboxes and Tables are usually the controls that contain significant amounts of data.

> In CA Gen r8, they will be enhanced to use AJAX.

> Only the data that is needed for display will be downloaded to the browser and cached in the table control at any given time.

> When an event such as scrolling occurs, an asynchronous request to the server results in downloading more data.

> This makes the pages more interactive.

> Also the download time is shorter.

Creating JavaScript Libraries

> Applications generated prior to CA Gen r8 contained JavaScript as a part of each page.

> CA Gen r8 created JavaScript libraries.

> Once a library is referenced, it is cached on the browser.

> The JavaScript libraries are textually compressed during our build process to reduce the download size.

> This will make downloading JavaScript consume less time and bandwidth.

Session Management Enhancements

> Session State is a mechanism to associate application state with a particular user session.

> It can be stored in one of two modes:
  - In-memory: In Proc
  - out-of-process: SQL Server or State Server

> In Gen r8, Session State will:
  - Be optimized to reduce its size.
  - Purge expired session data proactively.
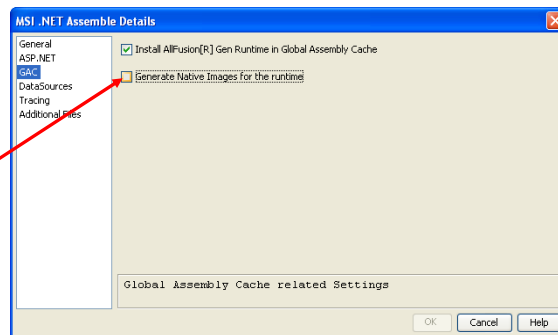
> This positively impacts performance.

View State Optimization

> View State is used to hold the data for the controls on the page.

> It restores the control data on Postbacks.

> In CA Gen r8, the usage of View State was optimized to minimize the amount of data serialized and deserialized on every page.
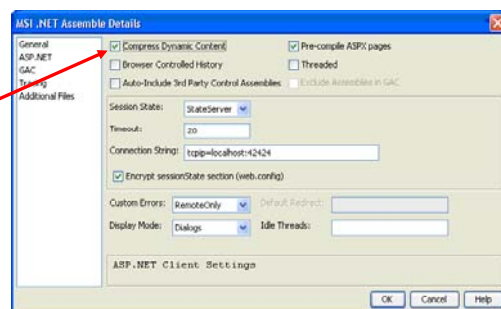
NGEN

> Is the Native Image Generator.

> Is used to create platform specific "native code".

> It enhances performance.

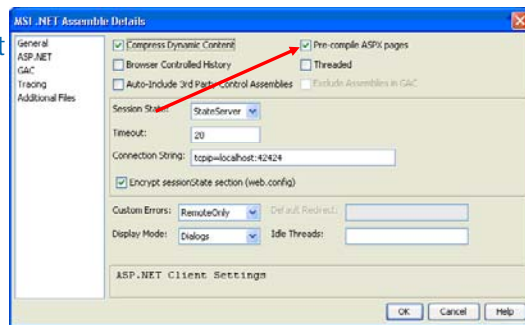> The Assemble Utility will have an option on the GAC tab.

Data Compression

> Compress Dynamic content will be an option available at Assemble time

> If selected, it will enhance the performance of your application

> Compression uses the GZIP compression algorithm

> This content is streamed to the browser and automatically de-compressed by the browser

Pre-compile ASPX Pages

> ASPX pages need to be compiled to produce the HTML/JavaScript necessary to render the user interface.

> Normally, compilation occurs when a page is first requested.

> The option to Pre-Compile ASPX Pages causes the compilation to occur upon deployment.

> It reduces load time at startup.

ASP.NET Web Client

User Experience

ASP.NET Web Client - User Experience

> Themes and Skins

> Tabbed Browsing

> Integrating a Web Server (Cassini) in the Toolset

> DataSource changes

> WiX

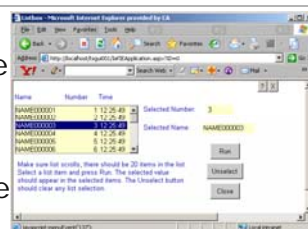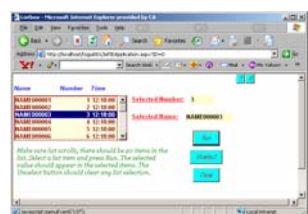
Themes and Skins

> Themes:
- are a collection of files that can be applied as a single entry to define the appearance of controls in the application.
- each theme has a folder under the Web Server.

Without Theme

> Skins:
- are visual attributes for individual controls.
- are stored in a file with the extension of .skin under a theme folder.
- Will define the appearance of Gen controls.

With Theme

Themes and Skins in CA Gen ASP.NET

> Each application can define a theme at Assemble time.

> You can create .skin files under ~~~ application hierarchy.
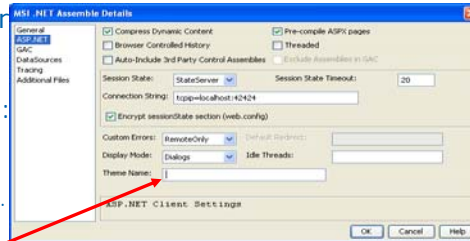
> The web.config file will contain:

<configuration><system.web>

<pages theme="<themeName>"/> ..

</system.web></configuration>

> An example skin file, Gen_Sample.skin, is included in CA Gen's sample\ASP.NET directory.

> You can override the skin information using dynamic attributes or dot notation.
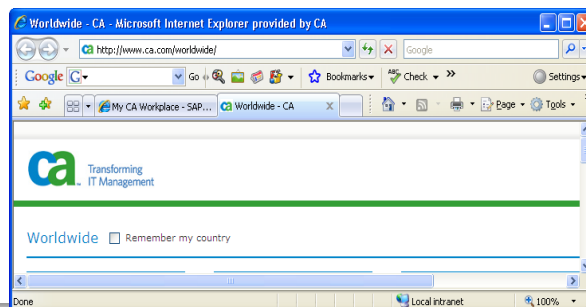

Tabbed Browsing

> This is a feature available in I.E. and other browsers.

> CA Gen applications will run in different browser tabs.

> This includes **both** different instance of a single application or different applications.
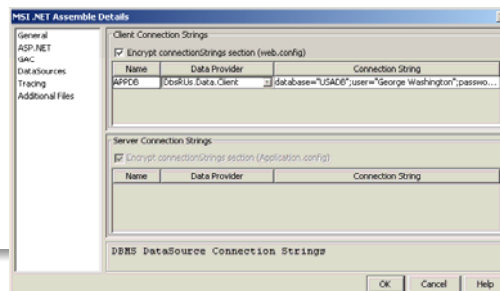
Integrating a Web Server (Cassini) in the Toolset

> The Toolset is capable of displaying 3rd party Web Controls in the Navigation Diagram by creating an ASPX file dynamically.

> The ASPX file has to be deployed to an application Server to compile and turn its contents to HTML.

> In AllFusion Gen r7.6, IIS was required to run on the Toolset system to render these controls.

> CA Gen r8 bundles Cassini the Toolset so you are no longer required to install IIS.

DataSources

> The DataSources now have entries in the Assemble tool.

> You can now specify the connection string in the Assemble tool instead of in external XML files.

> datasourceinfo.xml and odbcdbmsinfo.xml are no longer used.

> There are 4 certified data providers (System.Data.SqlClient, System.Data.ODBC, IBM.Data.DB2, Oracle.Data.Client). You can add a custom provider.

Encryption

> You can also encrypt the Connection String.

> You can encrypt the Session State information.

> To modify encrypted/decrypted information, users may need to configure IIS to add an RSA Key Container to their application.

> You can use the following command to decrypt and re-encrypt specific sections:
>   - aspnet_regiis.exe

WiX

> WiX is Windows Installer XML.

> It is a method of creating MSI packages.

> Gen r8 will use WiX during Assemble of GUI and .NET applications.

> The major objectives of using WiX in Gen are:
>   - You can customize the web.config template shipped with Gen.
>   - Eliminates the need to purchase Visual Studio for building and assembling ASP.NET Web Clients and .NET Servers. The .NET Framework and the Microsoft SDK will be sufficient.
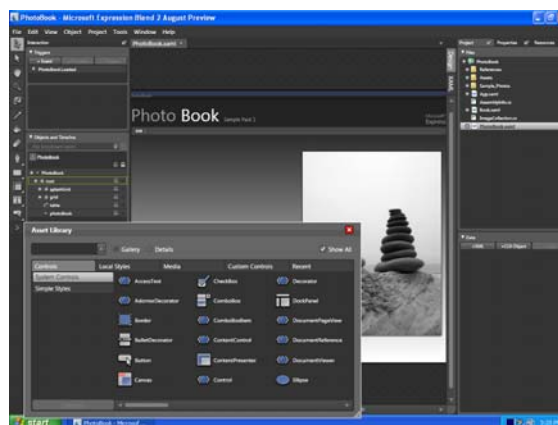
Beyond CA Gen r8

Modernizing the Toolset UI Design

> Beyond CA Gen r8, we are investigating modernizing the Toolset User Interface Design for GUI and ASP.NET applications.

> One of the goals is to maintain all the artifacts in the model.

> We are exploring opportunities to utilize a third-party tool such as Microsoft Expression.

Summary

> What is ASP.NET?

> How to design, generate, build, and assemble an ASP.NET Web Client

> ASP.NET Web Clients in CA Gen r8

> Beyond CA Gen r8

Disclaimer

CA reserves the right to modify any plans regarding any future deliverables addressed in this presentation

Questions and Answers