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Microsoft Dynamics GP Development - Choosing the Right Tool

David Musgrave MVP,
Winthrop Development Consultants



David Musgrave



- Owner & Managing Director of Winthrop Development Consultants
- Microsoft Dynamics GP Most Valuable Professional (MVP)
- Dynamics GP User Group GPUG All Star
- Worked with Dynamics GP since 1994 (including 13.5 years with Microsoft)
- Lives in Perth, Western Australia.



Agenda

- **Introductions**
- **Dynamics GP Customization Tools Overview**
 - Modifier with Visual Basic for Applications (VBA)
 - Visual Studio Tools for Microsoft Dynamics GP
 - Microsoft Dexterity
 - GP Power Tools
 - Service Based Architecture

Agenda cont.

- **Dynamics GP Integration Tools Overview**

- Direct to SQL Table
- Table Import
- Integration Manager
- eConnect
- SOAP based Web Services
- REST based Web Services (using Service Based Architecture)

- **Third Party Tools**

Customization Tools

The background features a radial pattern of lines emanating from the center, creating a sunburst effect. The lines are in various shades of purple and magenta. The background is also filled with a halftone dot pattern, where the density of dots varies to create different shades of purple.

Tools for Customizing the User Interface

- **Modifier with Visual Basic for Applications (VBA)**
- **Visual Studio Tools (VST) for Microsoft Dynamics GP**
- **Modifier with Visual Studio Tools for Microsoft Dynamics GP**
- **Microsoft Dexterity**
 - SBA - Service Based Architecture (Outside world sees into Dexterity)
 - .Net Interop (Dexterity sees into the outside world)
- **User Interface Design Standards**

Hybrid Development

- Don't be afraid to mix and match the tools
- Not just finding the best tool for the job, but the best tool for each part of the job
- It is becoming more common to have solutions delivered using multiple tools
- You also have Service Base Architecture and .Net Interop to extend your customizations

Modifier with Visual Basic for Applications (VBA)

Modifier with Visual Basic for Applications

- VBA part is “End of Life” and not GP Web Client compatible
- Tool for Power Users, Partner Consultants
- Can modify windows in any product (using Modifier)
- Can automate the user interface (using VBA)
- Can add additional business rules (using VBA)
- Can reference system dialogs (using VBA)
- Can work with reports (using VBA)
- No access underlying business logic (using VBA)

Modifier with VBA

Demo

Visual Studio Tools for Microsoft Dynamics GP

Visual Studio Tools for Dynamics GP

- Managed code development (C#, VB.NET)
- Full access to all .NET Framework objects
- Create new WinForms with “Dexterity-like” user interface*
- Can create user interface-based event handlers
- Can call most underlying business logic
- Can access existing Microsoft Dynamics GP or third-party tables without ADO.NET or SQL calls
- Cannot easily work with Report Writer reports

Visual Studio Tools for Dynamics GP

- **GP Web Client compatible**
 - However, HTML5 Web Client does NOT support WinForms.
 - Silverlight Web Client (GP 2013) did support WinForms with only standard controls.
- **Templates for Visual Studio 2010 – 2015 available from Microsoft via VST SDK installer**
- **Templates for Visual Studio 2017 onwards**
 - Article by Tim Wappat on his blog:
<http://timwappat.info/page/visual-studio-templates-for-microsoft-dynamics-gp>

Modifier with Visual Studio Tools

Modifier with Visual Studio Tools

- Replacement technique for VBA
- Web Client compatible
- Forms are modified with Modifier
- Assembly is generated for modified forms dictionary with DAG.EXE tool
- VST project is created and reference to modified forms dictionary assembly is added
- Build project and deploy assemblies in Addins folder
- Cannot create new windows

Modifier with VSTools

Demo

Microsoft Dexterity

Microsoft Dexterity

- Same development environment used to create Microsoft Dynamics GP – Web Client compatible
- Can create seamless integrations
- Can access tables, functions, and procedures
- Can only modify core Microsoft Dynamics GP windows
- Can develop cross-dictionary code
- Can access .NET resources (since v14.0) using .NET Interop
- Can create Web Service procedures (since v14.0) using SBA
- Can create new resources (fields, tables, forms, windows, etc.)

Dexterity

Demo

Modifier with GP Power Tools

Modifier with GP Power Tools

- Replacement technique for VBA
- Web Client compatible
- Forms are modified with Modifier
- GP Power Tools Triggers and Scripts add code
- Can use scripts written in Dexterity, SQL, C# or VB.NET
- No deployment necessary, active as soon as saved
- No external development tools needed, fully self contained
- Works with Reports, Modifier added fields, and Modal Dialogs
- Supports external calls from URL links or SBA web service calls

Modifier with GP Power Tools

Demo

Dexterity and SBA

Dexterity and Service Based Architecture

- **Exposes Dexterity Global Procedures as REST web services**
 - Can be window wrapped (driving the UI) or procedural
 - Consumes a user license while code is running
 - Cannot make a second call with same license until first call has completed. Use multiple logins to resolve
 - Flexible, but not performant, runs at same speed as GP itself
 - SBA is supported but not being developed further
- **GP Power Tools allows for custom SBA scripts to be created. No deployment needed, no restarting services**

Integration Tools

Tools for Dynamics GP Integration

- Introduction to GP Integration
- Direct to SQL Table
- Table Import
- Integration Manager
- eConnect
- SOAP Based Web Services
- Service Based Architecture (SBA) Web Services (REST based)
- Third Party Tools

Introduction to GP Integration

- Differentiate between initial setup and continual updates
- Master vs Transaction
- Volume of data
- Manual vs Automated (Polled vs Real time)
- Level of user to Setup integration
- Level of user to Run integration
- Error handling and logging

Direct to SQL Table

Direct to SQL Table

- Lowest level of integration
- Dynamics GP do not allow NULL values so all columns must be specified or columns must have default values
- No Business Rules or Data Validation
- High Risk of data corruption
- Not recommended for data input, but fine to read data
- No access to Data Dictionary for readable names
- Can be extremely fast for large data sets

Table Import

Table Import

- Table import is built-in to Microsoft Dynamics GP
- It is one step above directly importing data into SQL itself
- No Business Rules or Data Validation
- Can only add records, cannot update existing data
- High Risk of data corruption
- Most people don't even know it exists
- Not recommended
- Only listed here for completeness, now forget about it!

Integration Manager

Integration Manager

- Manual process activated by user
- Has multiple connectors and many end points
- Can drive UI – slow but more compatible with ISV Dexterity products (using triggers but not alternate windows)
- Can integrate directly to SQL Server tables
- Can integrate using eConnect
- Does have trial license available for initial implementations
- Does not need development skills, but can be customized

eConnect

eConnect

- **Powerful and flexible API** which can be called in a number of ways
 - COM API
 - .Net API
 - SQL Stored Procedures
 - Biztalk / Message Queueing
 - Web Services
- **Includes Business Logic** to ensure data imported/updated is valid
- **Many end points** available that include “most” core GP features
- **Can be customized** with pre and post integration SQL scripts *backup pre and post scripts before upgrades

SOAP Based Web Services

SOAP Based Web Services

- Using older style SOAP Web Service technology
- Wrappers for eConnect
- Not all eConnect end points are exposed
- Installation and configuration is complex
- Maintaining Security access is a hassle
- Not really recommended, calls only supported from .NET
- There is a better way.... Steve Endow's method of using ASP.NET Core to wrap eConnect in a RESTful web service

SBA Based Web Services

SBA Based Web Services

- Using modern REST Web Service technology and Microsoft Dynamics GP Service Based Architecture (SBA)
- Calls into Microsoft Dynamics GP runtime to run Dexterity procedure
- Limited end points provided by default
- Can be customized using Dexterity scripts to perform any actions
- Window wrapped services can support ISV customisations*
- Uses and locks a user license while code is running, need multiple
- Not performant, runs at same speed as GP application
- Not being developed further and not good for high data volumes

Third Party Tools

Third Party Tools

- eOne Solutions SmartConnect
<https://www.eonesolutions.com/>
- Tibco Scribe
<https://www.scribsoft.com/>
- KingswaySoft
<http://www.kingswaysoft.com/>
- Dell Boomi
<https://boomi.com/>
- Jitterbit
<https://www.jitterbit.com/>

The background is a rich purple color. It features a radial pattern of thin, light purple lines that emanate from the center, creating a sunburst effect. Overlaid on this are bands of a darker purple halftone dot pattern, which are also arranged radially, alternating with the solid purple areas.

Final Thoughts

Compare and Contrast Tools

- Use the best tool for the job
- Different tools have different strengths and weaknesses
- Don't be afraid to use multiple tools
- Hybrid solutions can achieve more
- There is no wrong solution if it works

Links & Contact Info

- David Musgrave's Winthrop Development Consultants Blog

<http://WinthropDC.com/Blog>

- David Musgrave,
Winthrop Development Consultants

david@winthropdc.com

@winthropdc



Make sure to provide positive feedback if you want more sessions like this.

I also have a similar session focused on methods to replace VBA.