Automating Visio Infrastructure Diagrams

David Cuthbertson
Square Mile Systems

Debby Binns
Premier Computer Solutions
Advanced Visio Automation Techniques

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Agenda

13:45  Diagramming and Visio 2010
       Gareth Arnold, Microsoft

14:15  Case Study- Creating Visio Service Maps from a CMDB
       Anthony Brimacombe, Lloyds Banking Group

14:45  Quick Tips To make Visio Programming Easier
       Debbie Binns, Premier

15:15  Break

15:30  Case Study – Automating Data Centre Diagrams
       Dan Nunn, ICM Business Continuity

16:00  Advanced Visio Automation
       David Cuthbertson, Square Mile/AssetGen
Square Mile Overview

• Develop AssetGen toolsets, training and techniques for operational management of complex IT infrastructure

• Focus areas
  – Data center management
  – Connectivity management
  – Service mapping
  – System change impact analysis
  – Documentation techniques
  – Infrastructure visualisation

• All technologies!

<table>
<thead>
<tr>
<th>Business Processes</th>
<th>Departmental, Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>End user, infrastructure, supplier</td>
</tr>
<tr>
<td>Applications</td>
<td>PC, server, mainframe, SOA</td>
</tr>
<tr>
<td>Virtual Infrastructure</td>
<td>Network, Servers, Storage, DBMS</td>
</tr>
<tr>
<td>Hardware Infrastructure</td>
<td>Network, Servers, UPS, Storage, Other</td>
</tr>
<tr>
<td>Fixed Infrastructure</td>
<td>(Cabling, Power, Cabinets, Buildings)</td>
</tr>
</tbody>
</table>
Information Resources

- **Web sites**
  - [www.squaremilesystems.com](http://www.squaremilesystems.com)
  - [www.assetgen.com](http://www.assetgen.com)
  - [www.youtube.com](http://www.youtube.com)
  - videos on “how to create visio”
  - search for “assetgen”

- **Networking for IT Infrastructure**
  - [www.linkedin.com](http://www.linkedin.com)
  - [www.datacenterprofessionals.net](http://www.datacenterprofessionals.net)

- **Third party**
  - [www.brighttalk.com](http://www.brighttalk.com)
  - [www.bcs-cmsg.org.uk](http://www.bcs-cmsg.org.uk)
  - [smsg.bcs.org](http://smsg.bcs.org)
  - [www.itsmf.co.uk](http://www.itsmf.co.uk)
  - [www.bicsi.org](http://www.bicsi.org)
  - Online webcasts
  - BCS config mgmt focus group
  - BCS ITIL focus group
  - ITIL issues
  - Cabling and data centres
Expectations

• Why do we want to automate Visio diagrams?

• What do we mean by automation?
What You Should Gain

- Understand more about Visio
- Reduce workload creating project/operational diagrams
- Reduce workload maintaining diagrams
- Reduce the number of maintained diagrams
- Improve quality and accuracy by automated updating
- Tips and tricks
- See examples of applying different automation methods
- Plus any issues / questions you may have
## Visio 2010 Version Comparison

<table>
<thead>
<tr>
<th>Features</th>
<th>Visio Standard</th>
<th>Visio Professional</th>
<th>Visio Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainstorming/mind maps</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>Cause and effect/Ishikawa/fishbone</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>Cross-functional flowchart/swim lane</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>Organizational charts</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Project management diagrams</strong> including timelines and calendars, Gantt Chart and Port Chart</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Building architecture and service diagrams</strong>, including space, floor plan, electrical, plumbing, HVAC and more</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Detailed network diagrams</strong>, including Active Directory services, and rack servers</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Engineering diagrams</strong>, including electrical, chemical, mechanical, and more</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>ITIL (IT Infrastructure Library) diagram</strong> to define infrastructure technology requirements</td>
<td>![ Rectangular Snap ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Pivot diagram</strong> to automatically create hierarchical diagrams that group and total your data for visual analysis and presentation</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Software and database diagrams</strong>, including UML and Web site map</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Value stream maps</strong> including UML and Web site map</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Web site mapping and documentation</strong> including auto-generation of Web site maps</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Wireframe diagram</strong> to create medium-fidelity wireframe diagrams for software application prototyping and design</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Business Process Modelling Notation (BPMN) template</strong> that contains BPMN shapes and intelligent rules</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>SharePoint Workflow template</strong> that contain SharePoint workflow shapes and intelligent rules</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td><strong>Six Sigma templates</strong> that contain Six Sigma shapes and intelligent rules</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
</tbody>
</table>
# Data Automation & Publishing

## Data Driven Diagrams

<table>
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<th>Visio Professional</th>
<th>Visio Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automatic data linking</strong> to one or multiple data sources such as Microsoft Excel, Access, SQL, and SharePoint Foundation list</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Automatic data refresh</strong>, with the time intervals you define</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Data graphics</strong> to show real-time data right within the diagrams, using vibrant colors, icons, symbols, and data bars</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Data legend</strong> to explain the meaning of data-linked data graphics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

## Sharing

<table>
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<tr>
<th>Features</th>
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<th>Visio Professional</th>
<th>Visio Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Static sharing of diagrams</strong> by saving as PDF, XPS, or a Web page.</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Real-time sharing of dynamic, data-driven diagrams via a browser</strong>, using Visio Services and SharePoint 2010 integration</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
Visio Resources

- Microsoft web site
- Visioguy [www.visguy.com](http://www.visguy.com)
- Books [www.bvisual.net](http://www.bvisual.net)
- Linkedin group – Visio Enthusiasts
- Equipment manufacturer web sites
  - Cisco
  - HP, others [www.visiocafe.com](http://www.visiocafe.com)
- Stencils
  - netZoom [www.altimatech.com](http://www.altimatech.com)
Not all Diagrams Help!

WHAT ARE THE GREEN, BLUE AND YELLOW THINGIES? SERVERS? APPLICATIONS? COMPONENTS?

RECTANGLES
Overview

• Using Visio manually
• Linking to spreadsheets / databases
• Navigating to more detail
• Understand the process of diagram creation
• Creating & maintaining Visio diagrams automatically
• Example project work flow
  – Planning
  – Producing project diagrams
  – Updating operational systems
I Need An Infrastructure Diagram!
Common Diagram Issues

- Using the same stencils
- Use of different shapes for a component
  - Logical
  - Physical
  - Architecture
- Use of connectors
- Consistent and accurate shape data
- Maintaining hyperlinks
The Process of Drawing a Diagram

1. Purpose
2. Gather data
3. Define shapes
4. Transfer data to diagram
5. Layout
6. Add extra detail
7. Save
8. Send / publish diagram

Where can we automate?
Shape Issues Affecting Automation

- Shape selection
- Shape positioning
- Shape linking
- Shape data definition
- Shape data update and maintenance
- Shape data display
- Shape hyperlinks
The Process of Updating a Diagram

1. Purpose
2. Gather data
3. Check diagram for match
4. Add / Delete shape Connector, Data
5. Review layout
6. Add extra detail
7. Save
8. Send / replace diagram

Where can we automate?
A Few Types of Diagrams

- Physical
- Path
- Logical
- System
- Architecture – single / multi-technology
- Process maps
- Service maps
Visio 2010 Automation Features

- Programmers toolkit
- Linking to External Data
- Shape Data
- Data graphics
- Hyperlinks to external data
- Publishing to Sharepoint server
A Few Issues With Data Linking

• Good for importing, bringing data into Visio
• Use data graphics to display appropriate data
• Requires good file management
• Multiple data sources / gaps/ overlaps cause problems
• Manual filtering and selection
The Process of Drawing a Diagram

1. Purpose
2. Gather data
3. Define shapes
4. Transfer data to diagram
5. Layout
6. Add extra detail
7. Save
8. Send / publish diagram

Linking Data still requires manual selection

Produces one diagram at a time
AssetGen Approach

1. **Purpose**
   - a. Select and filter data

2. **Gather data**
   - b. Add/update shapes

3. **Define shapes**
   - c. Create diagrams

4. **Transfer data to diagram**
   - d. Layout (where practical)

5. **Layout**
   - e. Enable refresh of existing diagrams

6. **Add extra detail**

7. **Save**

8. **Send / publish diagram**

AssetGen Software Solutions
One Source – Multiple Views

Manual Update
- Location and position
- Resource reservation for projects
- Physical connectivity
- Audits and manual data gathering
- Impacts and dependencies
- Adds, moves and changes

AssetGen Outputs
- Capacity management – space, power, connectivity
- Change impact analysis – impact, risk, auditing
- Inventory extracts
- Custom reporting
- Physical plans
- Floor and rack diagrams
- Topology diagrams
- Networks, power, storage
- System & Architecture Maps
- ITIL services, applications

Trusted sources
- Discovery systems
- Monitoring tools
- Service desk CMDB
- Spreadsheets – risk, contracts
- Recovery plans
- Project handover

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AssetGen Products

Service Mapping

Asset & Connectivity Management

Business Processes
- Departmental, Company

Services
- End user, infrastructure, supplier

Applications
- PC, server, mainframe, SOA

Virtual Infrastructure
- PCs, Network, Servers, Storage, DBMS

Hardware Infrastructure
- PCs, Network, Servers, UPS, Storage, Other

Fixed Infrastructure
- (Cabling, Power, Cabinets, Rooms, Buildings)
AssetGen Products

- **Fixed Infrastructure**: Cabling, Power, Cabinets, Rooms, Buildings
- **Hardware Infrastructure**: PCs, Network, Servers, UPS, Storage, Other
- **Virtual Infrastructure**: PCs, Network, Servers, Storage, DBMS
- **Applications**: PC, server, mainframe, SOA
- **Services**: End user, infrastructure, supplier
- **Business Processes**: Departmental, Company

SQL Server platform
Single or Multi-User?

Desktop Version (evaluation available)
- Visio
- SysMap / Connect Professional
- MS SQL Database
- PC

Multi-User Server Version
- Visio
- SysMap / Connect Professional
- MS SQL Database
- Web Application
- Windows Server
- Web Browser PC

AssetGen Software Solutions
Example – CMDB Integration

User Interface

Service Desk
(Remedy, SM7, Peregrine etc.)

CI Details
Incidents
Changes
Parent/Child
Impact

Enhanced CMDB Information

1. Visio Service Maps
2. Multi-level Impact
3. Multi-CI Impact
4. Excel Batch Query
5. External Toolset links

Visio
SysMap Professional
SysMap Web Application
AssetGen
SysMap

MS SQL Database

Offline CMDB copy
Other mappings - flow, etc

AssetGen
Software Solutions

SQUARE MILE
Examples of Visio Automation

- Floor plans
- Rack diagrams
- Network and other topology diagrams
- Service maps
- Data flow diagrams
- Architecture maps
- Path diagrams

Plus Capacity reporting
Audit trails
Workflow
## AssetGen Connect Licensing Example

<table>
<thead>
<tr>
<th></th>
<th>Desktop</th>
<th>Server</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Users</strong></td>
<td>1</td>
<td>Many</td>
</tr>
<tr>
<td><strong>Up to 500 Devices</strong></td>
<td>![Check]</td>
<td></td>
</tr>
<tr>
<td><strong>Up to 1000 Devices</strong></td>
<td>![Check]</td>
<td></td>
</tr>
<tr>
<td><strong>Up to 2000 Devices</strong></td>
<td>![Check]</td>
<td></td>
</tr>
<tr>
<td><strong>Unlimited no. of Devices</strong></td>
<td>![Check]</td>
<td></td>
</tr>
<tr>
<td><strong>Single building</strong></td>
<td></td>
<td>![Check]</td>
</tr>
<tr>
<td><strong>Campus – many buildings</strong></td>
<td>![Check]</td>
<td></td>
</tr>
<tr>
<td><strong>Unlimited – many sites</strong></td>
<td>![Check]</td>
<td></td>
</tr>
</tbody>
</table>
Visio Automation Summary

1. A better understanding of standard Visio capabilities
2. Different types of automation to reduce manual tasks
3. Multiple diagrams can be produced and maintained
4. Gained an understanding of AssetGen technology

Automation can give

a. Increase in staff productivity – projects and operations
b. Confidence in diagram accuracy
c. A more strategic approach to infrastructure documentation
Next Steps

• **Training Courses**
  – Visio for IT Professionals (2 days)  
  – Visio automation in-house workshop (1 day)  
  8/9th Nov (London)

• **Web content**
  – Premier courses and consultancy
  – Videos on AssetGen site
  – Webcasts [www.brighttalk.com](http://www.brighttalk.com)

• **Downloads / demo**
  – AssetGen evaluation version
  – Online demo
Thank You For Attending

Please fill in the feedback form

Have a safe journey