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Thinking Inside the Box: Streamlining VUI Design Documentation

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Overview

- ▶ Challenges of VUI Design Documentation
 - Commonly Used Approaches
 - Pros and Cons
- ▶ A Different Approach to VUI Design Documentation
 - Embedding Data in Visio Objects
 - Applying Data Graphics
 - Extracting Hidden Data

Challenges of VUI Design Documentation

- ▶ Lack of industry standards
- ▶ Lack of VUI design tools
- ▶ Personal preferences
 - Visio call flows versus Word documents or Excel spreadsheets
- ▶ Various audiences
 - Customers, Developers, QA Testers, Project Managers
- ▶ Customer-specific requirements

Common Methods of Documenting VUI Designs

- ▶ Typical methods of VUI design documentation range from:
 - A simple call flow and prompt list
 - ...to...
 - A detailed call flow combined with detailed dialog state tables/descriptions

Pros and Cons of Using Only Detailed Call Flows

▶ Pros

- Provide visual representation of the user experience
- Easy for non-technical *and* technical audiences to follow

▶ Cons

- Too much detail on a page can make the design difficult to read
- Too little detail
 - Can cause confusion with customers, developers, and QA
- Difficult to make and track changes

Pros and Cons of Using Only Detailed Dialog State Tables

▶ Pros

- Can hold all details needed for development, QA, and customer review
 - Retries, confirmations, exit prompting, developer notes, grammar names, etc
- Provides customer with comprehensive documentation of the VUI design

▶ Cons

- Difficult to navigate, maintain and format
- Very large document
- Extremely time consuming
- Manual process allows room for lots of error

Pros and Cons of Combining Call Flows and Dialog State Tables

▶ Pros

- Little room for ambiguity
- Good representation of the user experience
- Appeals to all audiences

▶ Cons

- Double effort
 - Same details in both documents
- Maintenance nightmare
 - Both documents must be updated simultaneously or documents become out of synch
 - Lots of room for error

Combining the Best of Both Worlds

- ▶ Data can be hidden inside of Visio objects
 - Can include all details needed for each dialog state
 - Prompting
 - Developer notes/special handling
 - Grammar names
 - Call flows remain uncluttered
 - Data documented in one location resulting in easy maintenance
 - Automated extraction of data for easy review
 - Customizable data display
 - Reusable templates



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Embedding Data in Visio Objects

Embedding Data in Visio Objects

- ▶ Drop object on the page
- ▶ Right click on the object
 - Choose data/shape data from drop down menu
 - When asked if you would like to define shape data now, click 'yes'



Defining Shape Data

- ▶ The following pop up box will appear which will allow you to define all of the properties for this shape

Define Shape Data

Label:

Name:

Type: Language:

Format: Calendar:

Value:

Prompt:

Sort key:

Ask on drop Hidden

Properties:

Label	Name	Type
Property1		String

Defining Shape Data- Continued

- ▶ Simply add your own values to each property
- ▶ Add new properties as necessary by clicking “New” at the bottom of the pop up
 - See Appendix A “Shape Data Properties” table for descriptions of each property

Customized Shape Data Example

Define Shape Data ✕

Label:

Name:

Type: Language:

Format: Calendar:

Value:

Prompt:

Sort key:

Ask on drop Hidden

Properties:

Label	Name	Type
DialogStateName	DialogStateName	String
Lang1_Init_Prompt_Name1	Lang1_Init_Pr...	String
Lang1_Init_Text1	Lang1_Init_Te...	String

Defining Shape Data

- ▶ When finished, click “OK” and a box displaying the information you just entered will appear. For instance...

Shape Data

DialogStateName:

Lang1_Init_Prompt_Name1:

Lang1_Init_Text1:

(Note: Additional properties not shown)

Prompt
Enter the name of the dialog state in the value slot above.

Defining Shape Data - Continued

- ▶ Click “OK” again and the shape will look exactly as it did when you dropped it on the page
- ▶ Now you can apply a data graphic
 - Displays only what you want the viewer to see
 - Customizable for different audiences

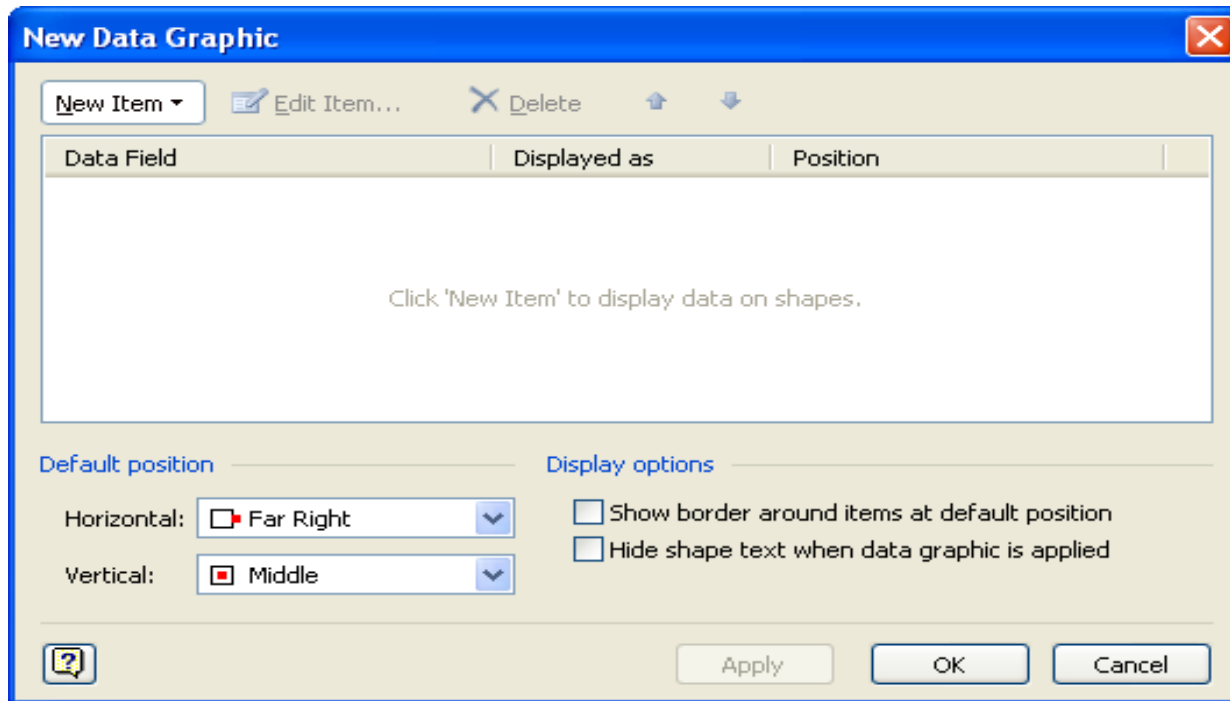


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Applying Data Graphics

Applying Data Graphics

- ▶ Right click on the shape and choose data/edit data graphic
 - The following pop up box will appear



Applying Data Graphics - Continued

- ▶ From the “New Item” drop down box in the top left corner, choose “text”. The following will appear...

New Text

Display

Data field: << Choose a field >>

Callout: Text callout

Callout position

Horizontal: Far Right

Vertical: Middle

Use default position

Details

Show Value	Yes
Value Format	
Label Position	Left of Value
Label	[Default]
Border Type	Bottom
Fill Type	None
Callout Offset	None

OK Cancel

Customizing Data Graphics

- ▶ Customize your data graphic details. For example...

The screenshot shows the 'Edit Text' dialog box with the following settings:

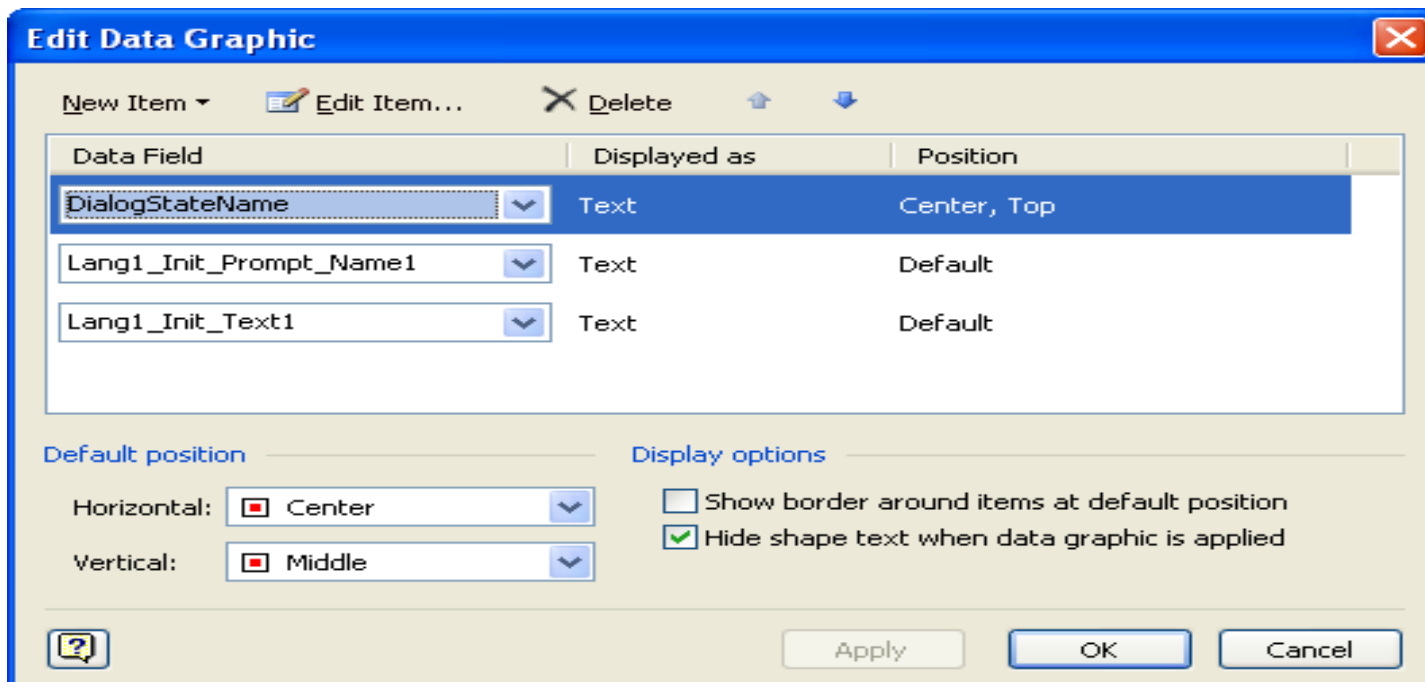
- Display:**
 - Data field: DialogStateName
 - Callout: Heading 3
- Callout position:**
 - Horizontal: Center
 - Vertical: Top
 - Use default position
- Details:**

Value Format	@
Border Type	Bottom
Fill Type	Filled
Horizontal Offset	None
Vertical Offset	None

Buttons: OK, Cancel

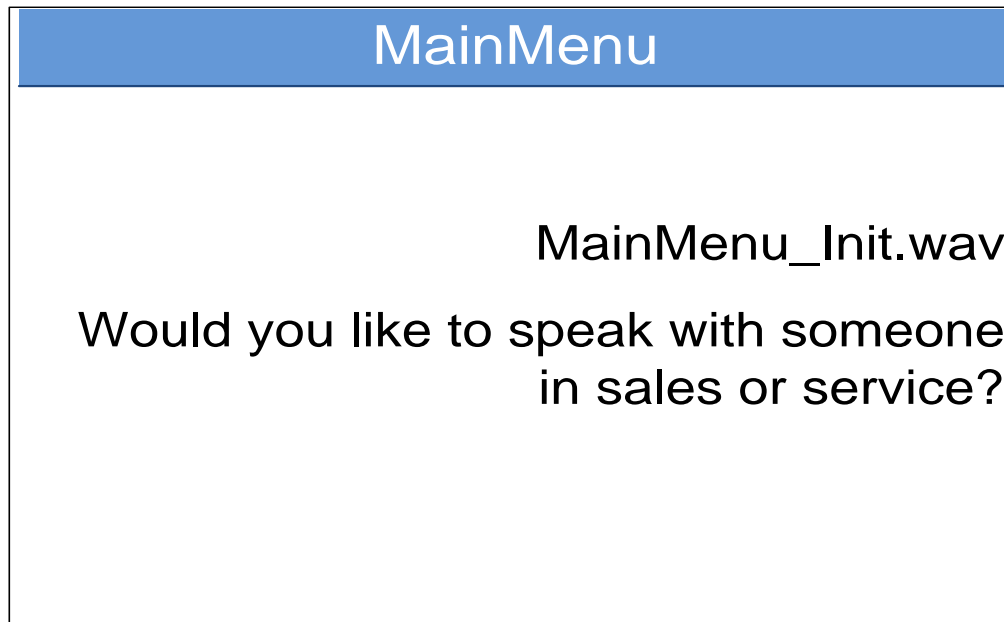
Customizing Data Graphics - Continued

- ▶ When finished adding display data to the data graphic, click “OK”
- ▶ This window now lists the data fields you have chosen to display



Sample Visio Object with Applied Data Graphic

- ▶ Click “OK” again
- ▶ The Visio object will now appear with the data graphic applied, for example...



Benefits of Hidden Data

- ▶ Having data hidden inside of the Visio objects
 - Allows the call flows to stay clean and easy to read
 - Allows for automated extraction of the data
 - Saves time
 - Saves money
 - Reduces human errors
 - Maintenance remains in one document
 - Custom objects can be saved in a template for reuse later



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Extracting Embedded Data

Extracting Embedded Data

- ▶ Running reports from Visio is simple and can extract the data in several formats (excel, xml, html)
 - To run a report
 - Go to Data/Reports/New from the top menu and follow the prompts
- ▶ A custom script can then be applied to format the data as desired
- ▶ Or a custom script can be written to extract the data using the VBScript editor in Visio

Sample Data Extraction

State Name	MainMenu			
Developer Notes	barge in on			
Recordings				
Initial Handling				
	File Name	File Text	Data Playback	Confirmation Mode
	MainMenu_Init.wav	Would you like to speak with someone in sales or service?	N/A	1
No Match Handling				
No Match Occurrence	File Name	File Text	Data Playback	Confirmation Mode
First No Match	MainMenu_Err1.wav	I didn't get that. To speak with someone in sales, say 'sales' or press 1. To speak with someone in service, say 'service' or press '2'.	N/A	1
Second No Match	MainMenu_Err2.wav	Sorry I still didn't get that. Please press 1 for sales or 2 for service.	N/A	1
No Input Handling				
No Input Occurrence	File Name	File Text	Data Playback	Confirmation Mode
First No Input	MainMenu_NoInput1.wav	I couldn't hear you. To speak with someone in sales, say 'sales' or press 1. To speak with someone in service, say 'service' or press '2'.	N/A	1
Second No Input	MainMenu_NoInput2.wav	Sorry I still couldn't hear you. Please press 1 for sales or 2 for service.	N/A	1
Confirmation Handling				
Slot	File Name	File Text	Data Playback	Confirmation Mode
Confirmation - Slot 1	ConfirmSales.wav	you said sales, right?	N/A	1
Confirmation - Slot 2	ConfirmService.wav	You said service, right?	N/A	1
Exit Handling				
Slot	File Name	File Text	Confirmation	
Exit - Slot 1	MainMenu_Exit_Sales.wav	OK. Sales.	0	
Exit - Slot 2	MainMenu_Exit_Service.wav	OK. Service.	0	
Grammars				
Speech Grammar(s):				
MainMenu.gram				
DTMF Grammar(s):				
MainMenu_DTMF.gram				
Grammar Slots Speech	Sample Speech Expressions			
sales	"sales", "sales please", "I want			
service	"service", "service please", "the service department"			
Grammar Slots DTMF	Sample DTMF Expressions			
sales		1		
service		2		



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Questions?



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thank you

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Appendix A: Shape Data Properties

Shape Data Property Descriptions Table

Shape Data Property	Description
Label	Name of the property that appears in the shape data dialog box
Name	Uniquely identifies the column in the data record set. Not necessarily the same as the Label.
Type	Type of data to be displayed (string, number, boolean, etc)
Format	Format of the text (normal, lower case, upper case)
Language	Returns the language ID recorded in the object's VERSIONINFO resource.

Shape Data Property Descriptions Table- Continued

Shape Data Property	Description
Value	The data to be displayed in the shape data dialog box
Prompt	Description of what to place in the value slot.
Sort key	Used to sort the order of the properties in the shape data dialog box.
Ask on drop (check box)	Prompts user to enter this property when object is dropped on the page.
Hidden (check box)	Does not prompt user to enter this property when object is dropped on the page.



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Appendix B: Data Graphic Fields

Data Graphic Field Descriptions

Data Graphic Field	Description
“Callout” drop down box	Determines how the data is displayed on the Visio object. (Heading versus text)
“Callout position” drop down boxes	Determines where on the Visio shape the data will be displayed. (Top, center, bottom, etc)
“Value Format”	The format of the data to be displayed (text, percentage, date)

Data Graphic Field Descriptions-Continued

Data Graphic Field	Description
"Border Type"	Determines where to place a border around the text.
"Fill Type"	Determines if data will be displayed with a background color or not.
"Horizontal and Vertical Offsets"	Determines where the text will appear within the data graphic