Making SharePoint Work with Workflow

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3 Part Presentation Series
SharePoint 2010 Workflow with SharePoint Designer and Visio

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http://www.thorprojects.com/blog
Who am I?

- 7 Time Microsoft MVP currently awarded for SharePoint
- Architect = Developer + IT Professional
- Author of The SharePoint Shepherd’s Guide for End Users – and 17 other books.
- Blogger: [http://www.thorprojects.com/blog](http://www.thorprojects.com/blog)
What is a workflow?

- The American Heritage Dictionary for the English Language, Fourth Edition says...

  “1. The flow or progress of work done by a company, industry, department, or person.  
  2. The rate at which such flow or progress takes place.”
Workflow is What?

- Serializable
- Resumable
- Long-Running
- Deferrable
Actions on Data

- Alerts
- Event Receivers
- Workflows
SharePoint Workflow Tools

- Web User Interface
- SharePoint Designer
- Visio
- Visual Studio 2010
Starting a Workflow

- Manual
  - Manual with Manage Web
- On Major Version
- On Item Created
- On Item Changed
Out of the Box Workflows

• Three State (SF)
• Approval
• Collect Feedback
Configuration vs. Customization

- Configuring Workflows in the User Interface
- Customizing Workflows in SharePoint Designer
Workflow Options

• SharePoint / Workflow Foundation 3.5
  – Serial
  – State Machine
• Workflow Foundation 4
  – Flowchart
Association Form

• Displayed when the workflow template is associated to a list, content type, or site
• Used to set up the configuration for the workflow template
Instantiation Form

- Displayed when a user manually starts a workflow
- Is not displayed when workflows are automatically started
Variables and Parameters

- Variables = Working Data
- Parameters = Variables provided on the association or instantiation form
Workflow Attachment

• List / Library
• Content Type
• Site
Start with a sketch
Visio and Workflow

• New SharePoint workflow template
• Exported workflows can be imported into SharePoint Designer
• Not a complete workflow tool – can’t specify the details
SharePoint Designer Actions

- Add a Comment
- Add Time to Date
- Assign a Form to a Group
- Assign a To-do Item
- Check In Item
- Check Out Item
- Collect Data from a User
- Compare a version of the Document Set
- Copy List Item
- Declare Record
- Delete Item
- Discard Check Out Item
- Do Calculation
- Extract Substring from End of String
- Extract Substring from Index of String
- Extract Substring from Index with Length
- Extract Substring from Start of String
- Find Interval Between Dates
- Log to History List
- Lookup Manager of a User
- Pause for Duration
- Pause until Date
- Send an Email
- Send Document Set to Repository
- Set Content Approval Status
- Set Content Approval Status for the Document Set
- Set Field in Current Item
- Set Time Portion of Date/Time Field
- Set Workflow Status
- Set Workflow Variable
- Start Approval Process
- Start Custom Task Process
- Start Document Set Approval Process
- Start Feedback Process
- Stop Workflow
- Undeclare Record
- Update List Item
- Wait for Field Change in Current Item
SharePoint Designer Conditions

• If any value equals value
• Title field contains keywords
• Created by a specific person
• Created in a specific date span
• Modified by a specific person
• Modified in a specific date span
• Person is a valid SharePoint User
DEMO: SHAREPOINT DESIGNER WORKFLOW
The Role of InfoPath

• Enhanced Form Validation
• Multiple Views
• Requires SharePoint Server
Reusable and Global Reusable

- Reusable = in the Site
- Global Reusable = in the site collection
Packaging

• Workflows are packaged as SharePoint Solutions (WSP)
• Reusable workflows can be packaged
• Global reusable workflows can not be directly packaged
Workflow Save As Template

- Creates a WSP that can be imported into Visual Studio
- Can’t package global workflows (Those available in all sites in the site collection)

SharePoint Designer Limitations

- Looping
- Iteration
- State Machine Workflows
- Debugging
SharePoint Designer Advantages

• EASY!
• Accessible – anyone can do it
• Safe – It’s difficult to create a workflow that will hurt the system
Thank You

• Questions?
• What’s next
  – Extending SharePoint Designer Workflows
  – Developing Workflows with Visual Studio 2010
Extending SharePoint Designer Workflows

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Activities

• Simple
  – Not a container for other activities
  – Generally does something

• Complex
  – Container for other activities
Dependency Properties

• A WF concept that allows properties to be “sparse”
• Big hash table/lookup to improve space
• Used to link the properties of one activity to another
Activities and Actions

• Activities are the components of a WF workflow.
• Actions are a sentence representation of workflows activities that SharePoint Designer uses.
Custom SPD Actions

• Create a workflow activity in VS and:
  – Create an .Actions File
  – Update the web.config to add an authorized type

• Develop a Sandbox Workflow Action
SharePoint Designer and Exceptions

- Workflow Supports
  - Fault Handlers (think `catch {}`
  - Interactive Debugging

- SharePoint Designer doesn’t
  - Output Exception as a variable rather rethrowing
  - Check Exception Output
DEMO: SANDBOXED WORKFLOW ACTION
DEMO: WORKFLOW ACTIVITY
SharePoint Workflow Execution

• Declarative
  – SharePoint Designer
  – All activities used must be declared as safe as AuthorizedTypes in web.config
  – While and Replicator are **not** authorized
  – Runs as the user context

• Code Based
  – Must run full trust
  – Runs the system context
Revising SharePoint Designer Workflows

- Previous versions are renamed (with the time of the next version)
- The previous version is set for no new instances
- New versions are set to allow (new instances)
Thank You

• Questions?
• What’s next
  – Developing Workflows with Visual Studio 2010
Developing Workflows with Visual Studio 2010

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Importing SPD workflows into VS

• Importing as a workflow converts it to a mostly functional code based workflow
  – A very large number of activities are generated – to the point of making this nearly unusable.

• Importing as a WSP package leaves the Workflow as a declaritive – but the designer doesn’t work.
Correlation Tokens

- Unique Identifier
- How WF determines where to send events
- Have a container
  - Normally the workflow
  - Should be inside loop or repeater if in one of those composite activities is a parent
Modification Form

• Can be used to modify a running workflow
• Practically never used, custom edit forms for tasks are more popular
Status Form

• The form displayed when the user looks at the status of your workflow
• Rarely changed but powerful for complex workflows
Application Pages

• Visual Studio Template available

• No visual designer – but automatic wire up of the class and .ASPX
Design vs. Run Time

• Loops are copies
• Use caution when directly referencing the activity -- cast the sender parameter
Fault Handlers

- Fault Handlers – Catch `{}` blocks
- Set at an activity level
- Set a global fault handler to handle all exceptions
History List

- Hidden (but accessible) list
- Fields
  - HistoryDescription – Limited to 255 characters
  - OtherData – Unlimited Additional Storage
DEMO: VISUAL STUDIO WORKFLOW
Thank You

• Questions?
• Resources
  – My Blog: http://www.thorprojects.com/blog
  – David Mann http://www.mannsoftware.com
  – SPD blog
    http://blogs.msdn.com/b/sharepointdesigner/