Exploiting the Power of Workflow Management

Presenter: Daniel Johns, GISP
Clay County Utility Authority (Middleburg, Florida)
Biography

- GIS manager for a local utility organization specializing in water, wastewater, and reclaimed water
- Master of Business Administration from Florida International University
- Bachelor of Science in Computing and Information Systems from University of North Florida
- GIS Professional since 2011
Concerns

- No project status tracking
  - Repetitive tasks driving up labor cost
- No standardized QA/QC methods
  - Data entry errors and/or omissions
  - Difficult QA/QC process (forced to retrace steps)
- “Edit-as-you-go” workflow (each user uses a static version and map document)
- 3-tier version tree (should we change it?...)
Research

- Program a solution in-house?
  - No
- Research third party solution?
  - No
- Go with Esri’s product solution?
  - Yes
Solution(s)

- ArcGIS Workflow Manager
- ArcGIS Data Reviewer
- Esri’s Infrastructure Editing Tools (Attribute Assistant)
  - Now known as Esri’s Water Utility Network Editing Tools
- Esri’s Industry Model for Water Utilities
- Portal for ArcGIS
  - ArcGIS Workflow Manager Web Edition Application
Implementation Time

- ArcGIS Workflow Manager
  - 1 - 2 weeks
- ArcGIS Data Reviewer
  - 2 - 3 weeks
- Esri’s Water Utility Network Editing Tools (Attribute Assistant)
  - 1 week
- Portal for ArcGIS
  - 1-2 days
- Migration to Esri’s Industry Model for Water Utilities
  - 3-4 months
Workflow Manager (WFM)
Data Reviewer (DR)
Water Utility Network Editing Tools
Attribute Assistant

- Auto-ID rule
- Auto calculation rules for latitude and longitude coordinates, length, and nearest address fields
- Intersecting feature rule for fittings to transfer attributes
- Split intersecting rule to create new line segments (i.e., split at water valves)
- Expressions for custom steps
  - `iif(InStr([ASBUILT],"",""), "Feature references multiple As-builts", iif([ASBUILT] = "Unknown", "No as-built information provided; check as-built ","X:/Engineering/General/Asbuilts/" & [ASBUILT] & ".dwg"))`
  - If the “as-built” field contains a comma(“,”) populate the “link” field identifying multiple, if “unknown” populate identifying no information, else populate the path using the as-built name in .DWG file extension
- Removed the QAQC version
  - In our configuration the DBO would be required to post the version
  - Additional branch in tree created version posting delays
Step Integration (WFM and DR)

- Create the ‘Reviewer Session’ at the time the job is created inside of WFM.
- Post the ‘Job Version’
  - Send transactions to the default version
  - Transaction posting MUST occur during the WFM session
  - JTXDesktopSteps.LaunchGPTool Arguments: toolboxpath:"C:\Program Files (x86)\ArcGIS\WMX\Desktop10.4\ArcToolbox\Toolboxes\Workflow Manager Tools.tbx" /tool:PostJobVersion /param:Input_JobID:[JOB:ID]
- Delete the ‘Reviewer Session’ once the job is complete
  - Keeps the database table clean and prevents DR from slowing down
  - Executable Arguments: Scripts\Production\DeleteSession.py [REVSESSION:ID] [JOB:ID]
  - Pass the Session ID and Job ID as parameters to the Python executable and use the code to read those values
Python Code to Delete Session

```python
# Name: DeleteSession.py
# Description: Passes custom parameters and deletes a Reviewer session from a Reviewer workspace
# Author: Daniel Johns
# Date: October 2015

import arcpy
import sys, os
REVSESSION = sys.argv[1]
SESSION = sys.argv[2]
WORKSPACE = "***Path to Reviewer Workspace***"

print 'Preparing to delete Session ' + REVSESSION + ' : ' + SESSION
print '... checking out the license'
# check out a Data Reviewer extension license
arcpy.CheckOutExtension("datareviewer")

# session
SESSION = "Session " + REVSESSION + " : " + SESSION

# execute the Delete Reviewer Session tool
arcpy.DeleteReviewerSession_Reviewer(WORKSPACE, SESSION)
print 'Reviewer session ' + SESSION + ' has been deleted'
print '... checking in the license'
# check in the Data Reviewer extension
arcpy.CheckInExtension("datareviewer")
print 'Finished.'
```
Portal Tie-in

- Changed from a ‘Traditional User Store’ to a ‘Portal User Store’
  - Portal hosted on premise
    - Portal is used to manage users
    - WFM console used to specify groups and permissions
  - Utilizing Single Sign-On (SSO) / Federated Services
    - Enhanced security
    - Doesn’t require username or password
Portal Application
Portal Application Cont.

- Web-based application
- Deployed directly from Esri with no programing involved
  - Does require parameters to be changed
- All CCUA employees have access
- Provides overall work progress
One Less Thing To-Do

- Included a step to send out an email along with attachment(s)
- Included a step to generate a PDF of the project (utilizing dynamic labels for automation)
- Built reports for project tracking
  - Utilizing a table view summarize projects

**[COMPLETED] GIS Job Report**

GIS job status report was prepared on 5/24/2017 at 10:02:19 AM

<table>
<thead>
<tr>
<th>Job ID</th>
<th>Date Completed</th>
<th>Job Name</th>
<th>As-built Doc #</th>
<th>Job Priority</th>
<th>Days Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>35651</td>
<td>5/24/2017 9:44:29 AM</td>
<td>2672 Shannon Street</td>
<td>11459</td>
<td>Low</td>
<td>20</td>
</tr>
<tr>
<td>35647</td>
<td>5/24/2017 9:44:21 AM</td>
<td>813-816 (Lots 78-79) Wicklow Court</td>
<td>11464</td>
<td>Low</td>
<td>20</td>
</tr>
<tr>
<td>35644</td>
<td>5/24/2017 9:44:15 AM</td>
<td>940-942 (Lot 41) Ridgeway Court</td>
<td>11456</td>
<td>Low</td>
<td>20</td>
</tr>
<tr>
<td>31621</td>
<td>5/24/2017 9:44:07 AM</td>
<td>2438 - 2442 Sylvan Chase</td>
<td>11441</td>
<td>Low</td>
<td>40</td>
</tr>
<tr>
<td>35240</td>
<td>5/24/2017 9:44:00 AM</td>
<td>Lots 16-17 &amp; 58-59 Foxridge Road</td>
<td>11455</td>
<td>Low</td>
<td>21</td>
</tr>
<tr>
<td>35241</td>
<td>5/24/2017 9:43:52 AM</td>
<td>1206 Autumn Pines Drive</td>
<td>11457</td>
<td>Low</td>
<td>21</td>
</tr>
<tr>
<td>35650</td>
<td>5/18/2017 8:33:47 AM</td>
<td>Keystone (Hallman Road) Water Main Extension</td>
<td>11443</td>
<td>Low</td>
<td>14</td>
</tr>
</tbody>
</table>
Table View Example (for Reporting)

- ‘DAYS_PENDING’ = Date Difference between Created and Ending Dates
- ‘DAYS_FROMCREATED’ = Date Difference between Created and Current Date
Lessons Learned

- Adapt and implement sooner!
  - Technology is constantly changing...
- Use the tools available
- Continue to evaluate other processes to see where WFM and DR can improve them
- Redundancy existed in various departments
  - Setting procedures is important, since buy-in is not guaranteed
- The 3-tier version tree was not necessary
Questions?

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Thank you!