



Esri International User Conference | San Diego, CA
Technical Workshops | July 11 – 15 2011

ArcGIS Workflow Manager

An Introduction

Kevin Bedel

Tope Bello

Objectives of Workshop

- **Present ArcGIS Workflow Manager framework**
- **Understand how to solve business challenges using ArcGIS Workflow Manager**
- **Demonstrations**
- **Questions**

Session Topics

- **Introduction to ArcGIS Workflow Manager**
- **Defining and executing workflows**
- **Integrating workflows with ArcGIS**
- **Tracking and reporting progress**

Introduction



What is ArcGIS Workflow Manager

- Enterprise workflow management application
 - Manages organization-wide projects
 - Integrates GIS and non-GIS workflows



What is ArcGIS Workflow Manager

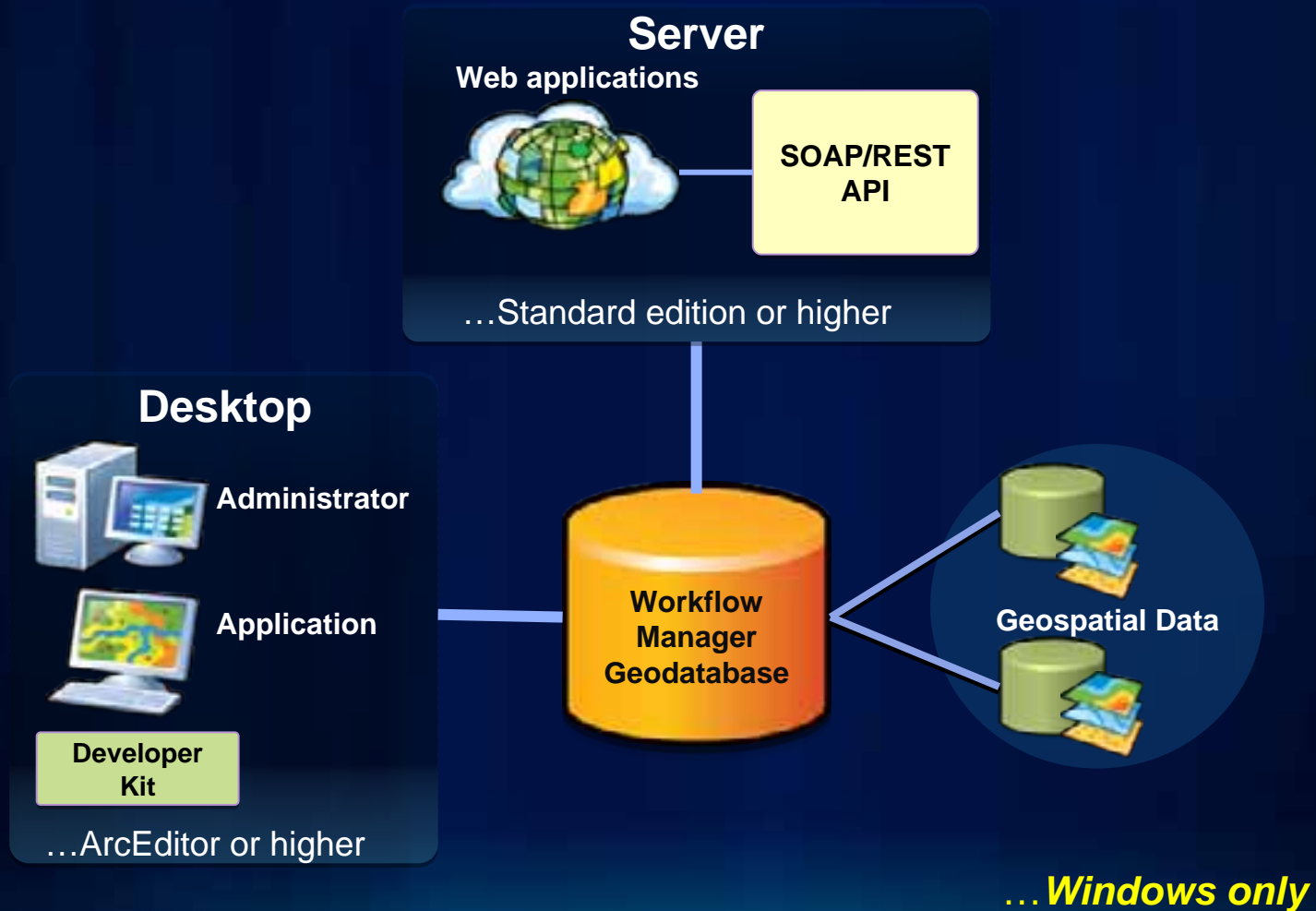
Provides a framework for continuous process improvement

Allows users to:

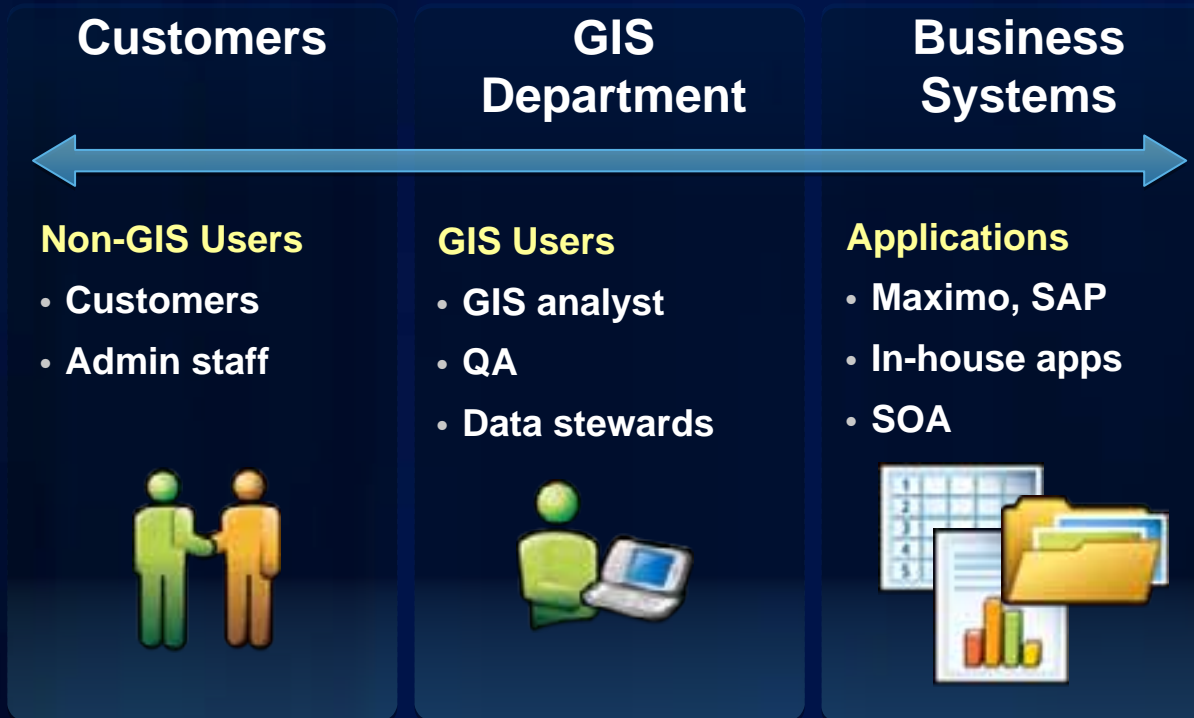
- **Plan & Create**
workflows quickly
- **Execute & Manage**
standardized workflows
efficiently
- **Evaluate & Improve**
performance continuously



Workflow Manager System Framework



Why ArcGIS Workflow Manager Server?



Defining your Business Processes

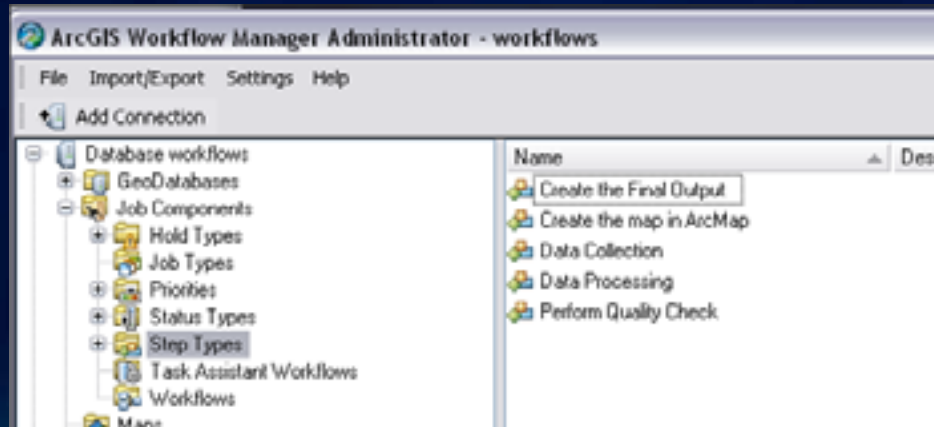


Defining Workflows

- **How do I “model” my business processes?**
- **Using 3 steps**
 - **Outline steps to represent your activities**
 - **Connect steps with paths to define the flow**
 - **Update step and path properties to improve efficiency**

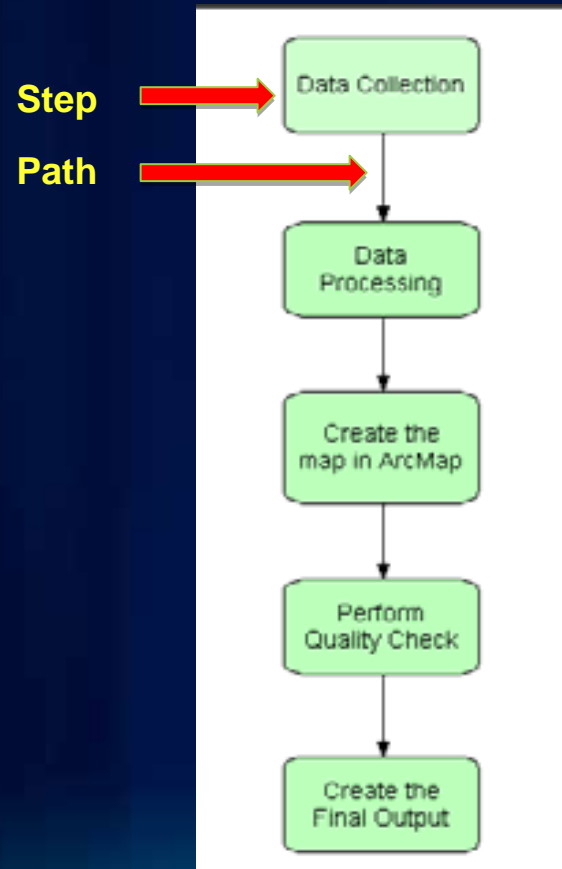
Outline Steps

- Break down your process into activities (for e.g.)
 - Data collection
 - Data processing
 - Create map product in ArcMap
 - Review quality of map content
 - Create final output
- Translate these into step types



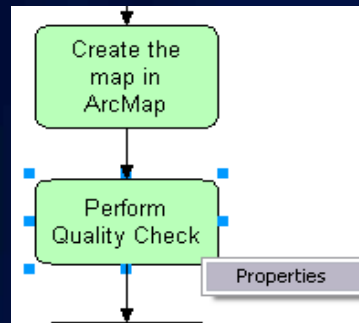
Connect Steps

- Steps are connected by defining their paths.



Update Step and Path Properties

- Preset default behavior on steps and paths



Step Properties

Step Name: Perform Quality Check

Description:

Assignment:
☐ User ☒ Group ☐ Unassigned
Quality Assurance Team

Options:
☐ Proceeds to the next step after execution
☒ Step can be skipped

Details OK Cancel

Detailed Step Properties

Step ID: 25
Step Type Name: Perform Quality Check

Advanced Options:
☒ Automatically executes when reached
☐ Can start parallel execution

Execution Properties:
Executable:
Arguments:

Status:
Status: Quality Assuran (Pre-Execution)
% Complete: 75 (Post-Execution)

OK Cancel

Defining Workflows

Workflow Tools

Step Properties



Utilizing your Business Processes



Executing Workflows

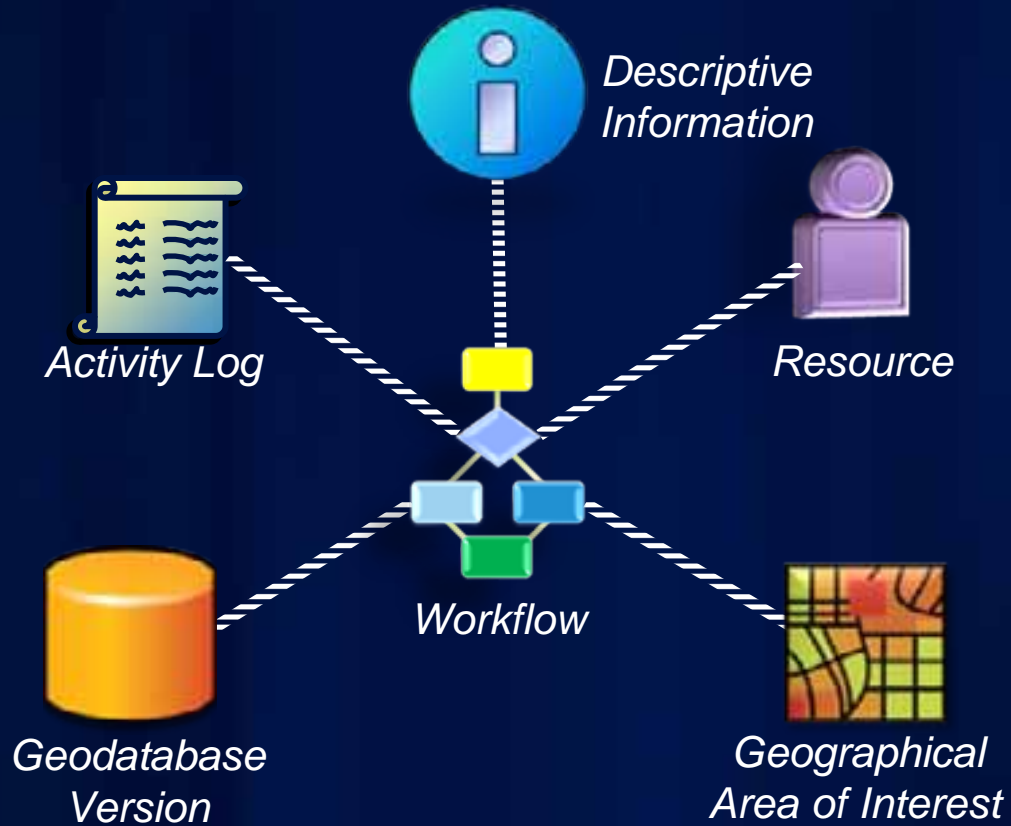
- **How do I make these processes operational?**
 - Associate workflow to job type
 - Create a job (an instance of the workflow)
- **Examples:**
 - Evaluate a new development plan
 - Create a 1:50,000 scale map product for a specific area

Accessing Jobs

- Queries
- List / Map View
 - Filter results based on business specific rules



Components of a Job



Job Properties

- **Standard**
 - Name, due date, assignment, priority, etc.
- **Extended**
 - Custom, business specific
 - For e.g. Parcel Number, Department, Permit ID

Created by: Suzie Johnson on 7/22/2008 at 1:32 PM
Job ID: 417 Job Type: Utility Map Request

[Job Status](#)

Job Status: Cartography Current Step: Export Map
AOI Defined 50% Complete

[Ownership](#) [Dates](#) [Data Workspace](#) [Description](#)

[Job Ownership](#)

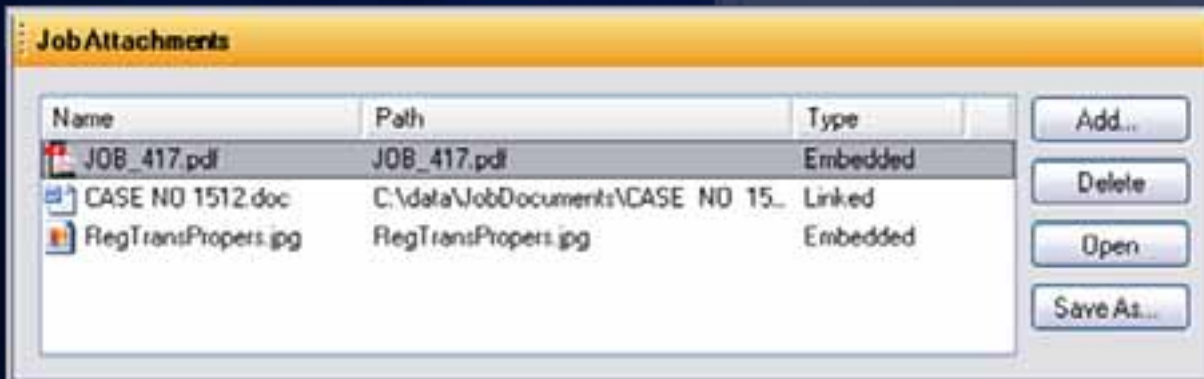
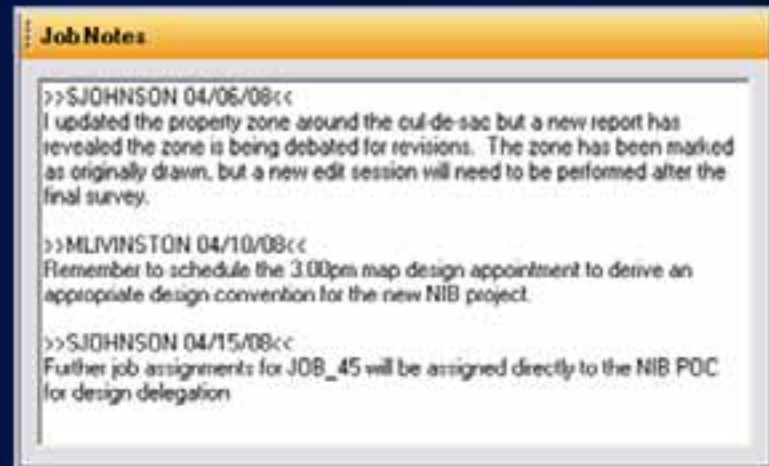
Job Owner: Suzie Johnson
Job Name: JOB_417
Priority: Medium
Parent Job:

[Job Assignment](#)

☒ User
☐ Group
☐ Unassigned
Terry Bort

Notes and Attachments

- **Notes**
 - Free form text
 - Miscellaneous information
- **Attachments**
 - Files supporting a job



Job Resource

- Automatically assign job at any point in workflow to either:
 - User
 - Group
- User can belong to any number of groups



Application Privileges

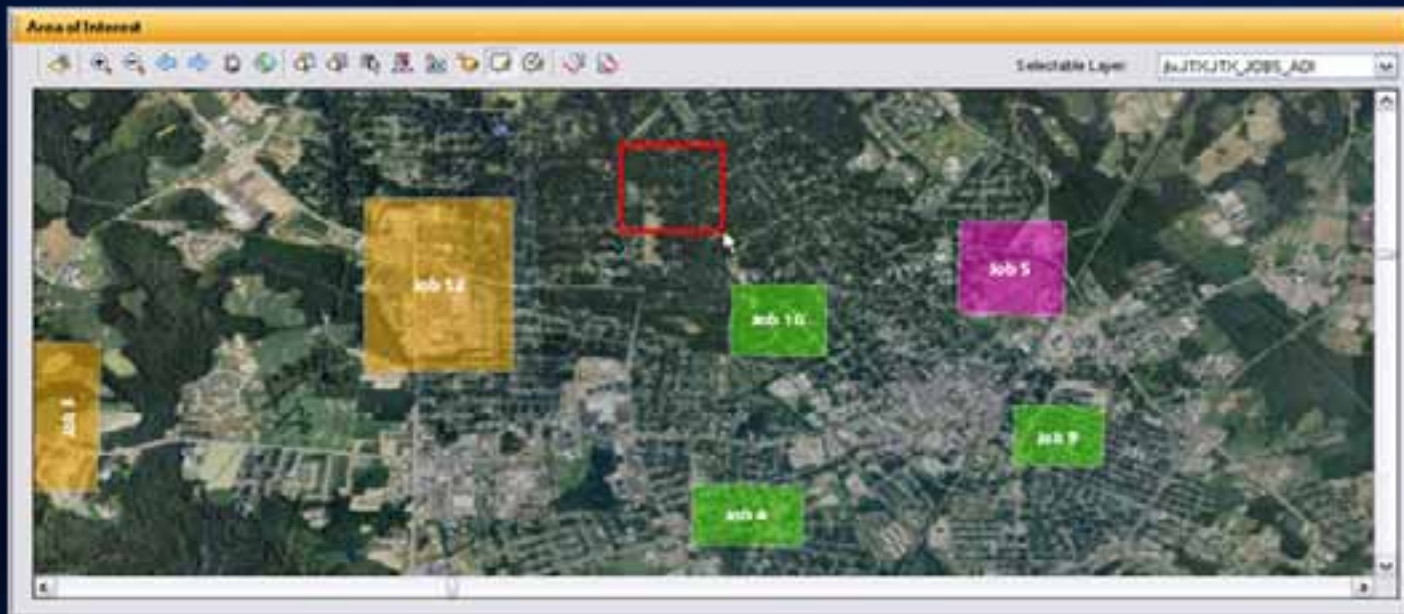
- Gate keepers of business process
- User group links privileges and user



...Who is allowed to do which action?

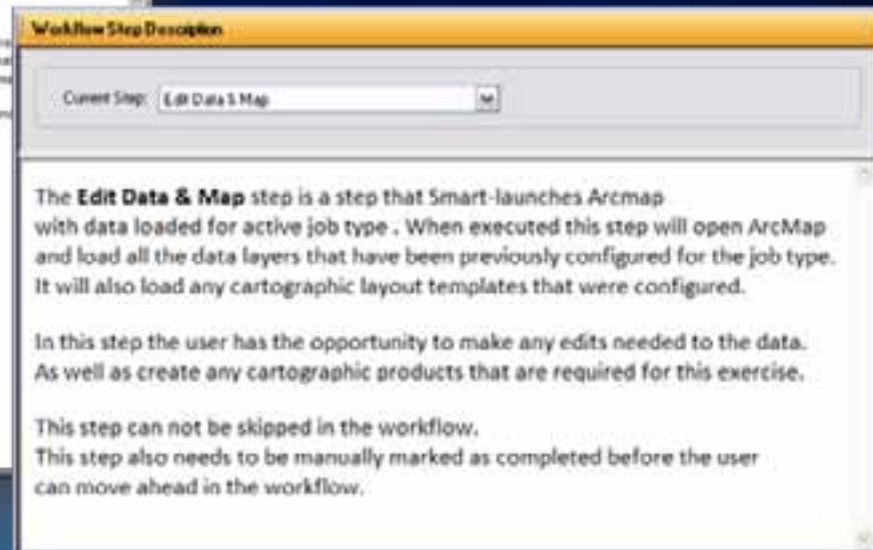
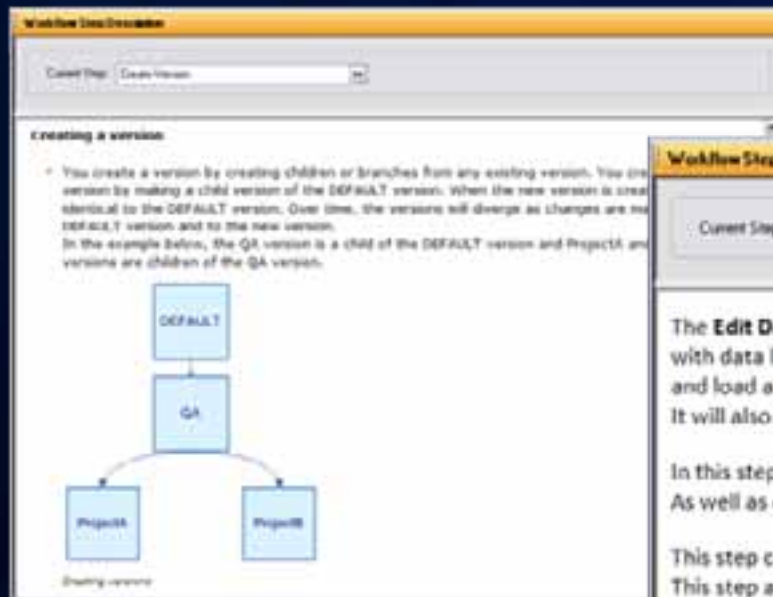
Area of Interest

- Spatial component of job
 - Defines work location for users
 - Restrict edits to within job AOI



Step Descriptions

- Documentation about current task
 - HTML-based
 - Link to any URL or design your own



Workflow Execution Tools

- Progression defined via *Step Properties*
 - Required
 - Automatically executed
 - Automatic reassignment of job



Holds and Dependencies

- **Holds**
 - Arbitrary suspension of job
- **Dependencies**
 - Restricts job execution based on other jobs
 - Models relationships between jobs

Job Management

Job Creation

Job Properties



ESRI | ArcGIS Workflow Manager | Web Edition

Jobs

- Public Queries
- General Jobs
- General Queries
- GIS Jobs
- Unassigned Jobs
- Group Queries
- Personal Queries
- Other Queries

Submit a Job to Edit Job

Map

Los Angeles

Long Beach

Huntington Beach

All Jobs

ID	Name	Assigned To	Last Run
1	2016_1	GIS Analyst	Landmark Update
42	2016_42	GIS Analyst	Landmark Update
10	2016_10	Technician	Landmark Update
11	2016_11	Technician	Landmark Update
12	2016_12	Technician	Landmark Update
13	2016_13	Technician	Landmark Update
14	2016_14	Technician	Landmark Update
15	2016_15	Technician	Landmark Update
16	2016_16	Technician	Landmark Update
17	2016_17	Technician	Landmark Update
18	2016_18	Technician	Landmark Update
19	2016_19	Technician	Landmark Update
20	2016_20	Technician	Landmark Update
21	2016_21	Technician	Landmark Update
22	2016_22	Technician	Landmark Update
23	2016_23	Technician	Landmark Update
24	2016_24	Technician	Landmark Update
25	2016_25	Technician	Landmark Update
26	2016_26	Technician	Landmark Update
27	2016_27	Technician	Landmark Update
28	2016_28	Technician	Landmark Update
29	2016_29	Technician	Landmark Update
30	2016_30	Technician	Landmark Update
31	2016_31	Technician	Landmark Update
32	2016_32	Technician	Landmark Update
33	2016_33	Technician	Landmark Update
34	2016_34	Technician	Landmark Update
35	2016_35	Technician	Landmark Update
36	2016_36	Technician	Landmark Update
37	2016_37	Technician	Landmark Update
38	2016_38	Technician	Landmark Update
39	2016_39	Technician	Landmark Update
40	2016_40	Technician	Landmark Update
41	2016_41	Technician	Landmark Update
42	2016_42	Technician	Landmark Update
43	2016_43	Technician	Landmark Update
44	2016_44	Technician	Landmark Update
45	2016_45	Technician	Landmark Update
46	2016_46	Technician	Landmark Update
47	2016_47	Technician	Landmark Update
48	2016_48	Technician	Landmark Update
49	2016_49	Technician	Landmark Update
50	2016_50	Technician	Landmark Update
51	2016_51	Technician	Landmark Update
52	2016_52	Technician	Landmark Update
53	2016_53	Technician	Landmark Update
54	2016_54	Technician	Landmark Update
55	2016_55	Technician	Landmark Update
56	2016_56	Technician	Landmark Update
57	2016_57	Technician	Landmark Update
58	2016_58	Technician	Landmark Update
59	2016_59	Technician	Landmark Update
60	2016_60	Technician	Landmark Update
61	2016_61	Technician	Landmark Update
62	2016_62	Technician	Landmark Update
63	2016_63	Technician	Landmark Update
64	2016_64	Technician	Landmark Update
65	2016_65	Technician	Landmark Update
66	2016_66	Technician	Landmark Update
67	2016_67	Technician	Landmark Update
68	2016_68	Technician	Landmark Update
69	2016_69	Technician	Landmark Update
70	2016_70	Technician	Landmark Update
71	2016_71	Technician	Landmark Update
72	2016_72	Technician	Landmark Update
73	2016_73	Technician	Landmark Update
74	2016_74	Technician	Landmark Update
75	2016_75	Technician	Landmark Update
76	2016_76	Technician	Landmark Update
77	2016_77	Technician	Landmark Update
78	2016_78	Technician	Landmark Update
79	2016_79	Technician	Landmark Update
80	2016_80	Technician	Landmark Update
81	2016_81	Technician	Landmark Update
82	2016_82	Technician	Landmark Update
83	2016_83	Technician	Landmark Update
84	2016_84	Technician	Landmark Update
85	2016_85	Technician	Landmark Update
86	2016_86	Technician	Landmark Update
87	2016_87	Technician	Landmark Update
88	2016_88	Technician	Landmark Update
89	2016_89	Technician	Landmark Update
90	2016_90	Technician	Landmark Update
91	2016_91	Technician	Landmark Update
92	2016_92	Technician	Landmark Update
93	2016_93	Technician	Landmark Update
94	2016_94	Technician	Landmark Update
95	2016_95	Technician	Landmark Update
96	2016_96	Technician	Landmark Update
97	2016_97	Technician	Landmark Update
98	2016_98	Technician	Landmark Update
99	2016_99	Technician	Landmark Update
100	2016_100	Technician	Landmark Update

Integrating ArcGIS with your Business Processes



ArcGIS in your Business Processes

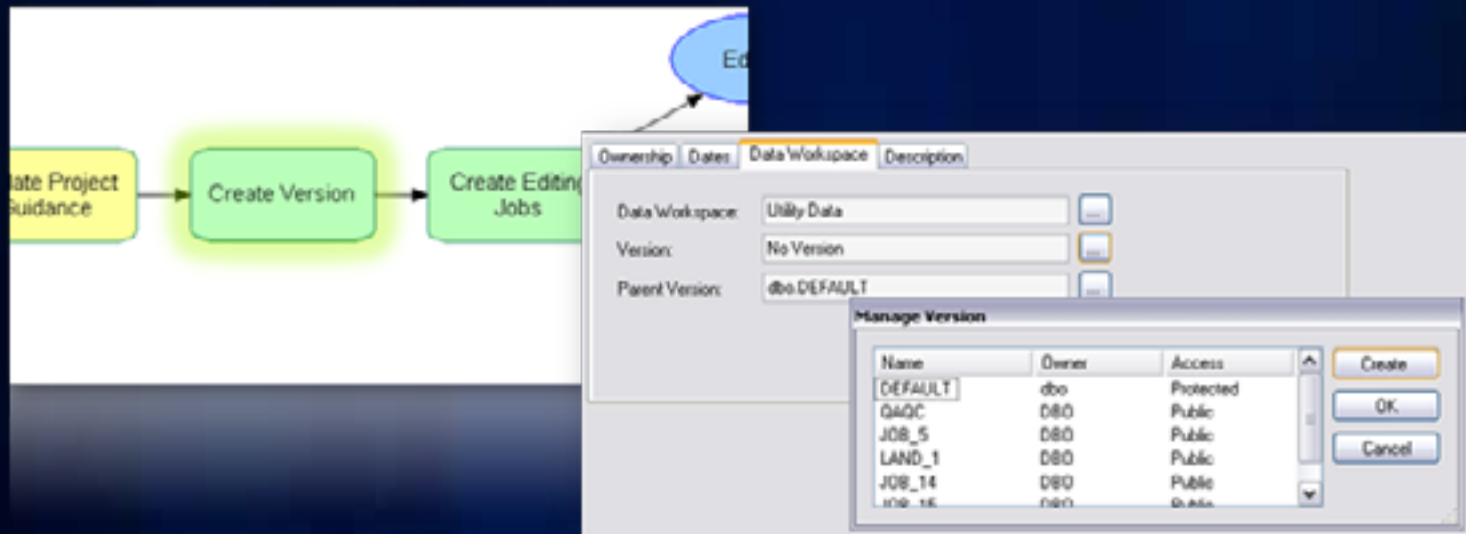
- **Provide spatial orientation for your work**
- **Manage your geodatabase**
 - Versioning
- **Automate advanced GIS tasks**
 - Batch execution
 - Create map templates

Version Management

- Versioning is required for multi-user data editing
- Automate version creation
- Associate version with task/job
- Automate clean up of unused versions

Data Management

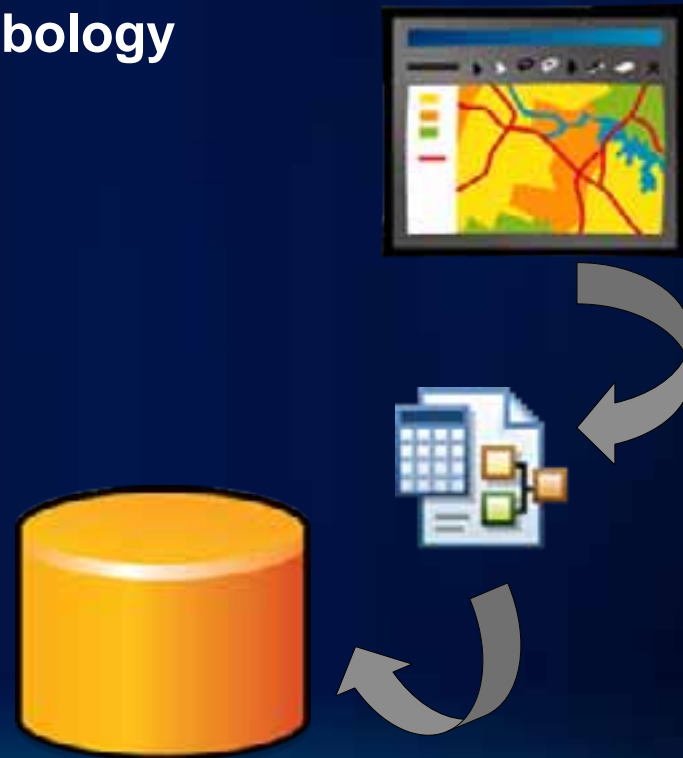
- Access data from multiple geodatabases
- Control user access to database
- Associate editing version with job
- Simplify user experience when working with versions



... access the right data at the right time

Map Document Management

- Associated and persisted with job
- Predefined layers and symbology
- Storage options
 - Central repository
 - File system



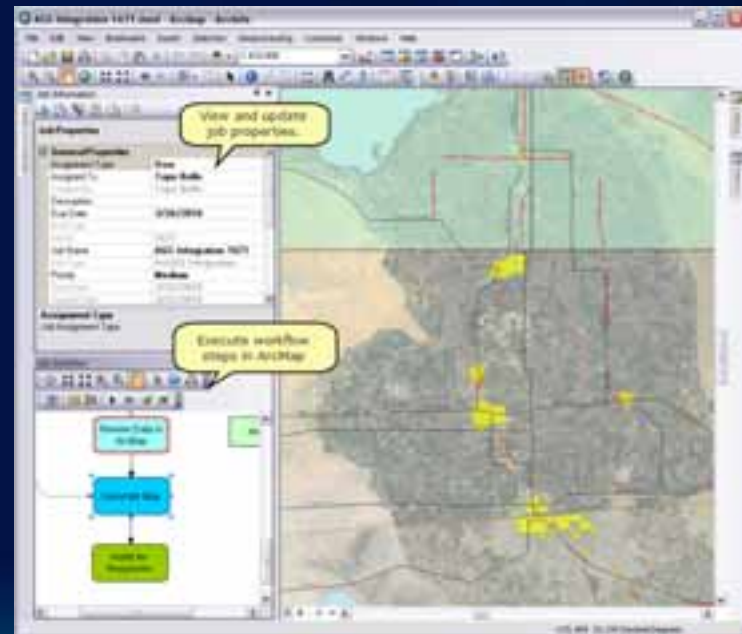
ArcMap Integration

- **Step to launch ArcMap in preconfigured state**
 - Load workflows within ArcMap using Task Assistant Manager
- **Toolbar for ArcMap**
 - Job information and properties



ArcMap integration

- **Access to entire workflow within ArcMap**
 - Manage steps
 - Set current job
- **Use Job Information window to**
 - Update properties
 - Add notes, attachments
 - Execute current steps
 - View history



Geodatabase Archiving

- Integrated with SDE geodatabase archiving
- Investigate edits that happened on jobs
- Revert changes to features

Inspect Historical Data

Inspect: Feature History Display Geometry: ☒ Before ☒ After ☒ Highlight Differences

[-] RoadL
[-] 71728
 6/26/2010 6:01:51 PM - Job 17
 6/26/2010 6:04:09 PM - Job 17

Class Name: sde.ixdata.RoadL
Job ID: 17
Date: 6/26/2010 6:04:09 PM
Transaction Type: Modify
Logged By: kevi6083

FIELD	PREVIOUS	NEW
Shape
f_code		AP030
nam		99
st_length(sha)	0.264571400	0.266722358

FIELD	PREVIOUS	NEW
st_length(sha)	0.264571400	0.266722358
nam		99
f_code		AP030
Shape
FIELD	PREVIOUS	NEW

Geoprocessing Tools

- Step to launch GP Tools
 - Increased productivity
- Workflow Manager Toolbox



ArcGIS Integration

Workflow Execution

Geoprocessing

ArcMap Tools



Tracking your Work Progress



Why Track Progress?

- Enhance communication
- Automatically route work to appropriate resource
- Provide real time status to stakeholders
- Automatically capture history

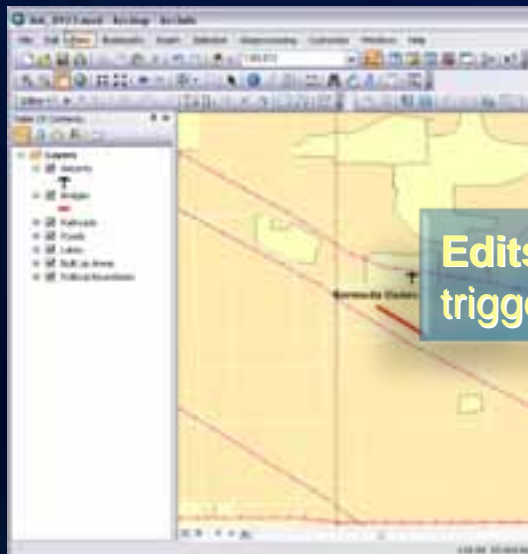
Notification

- Email notifications on
 - Job action
 - Workflow step
- Fully configurable

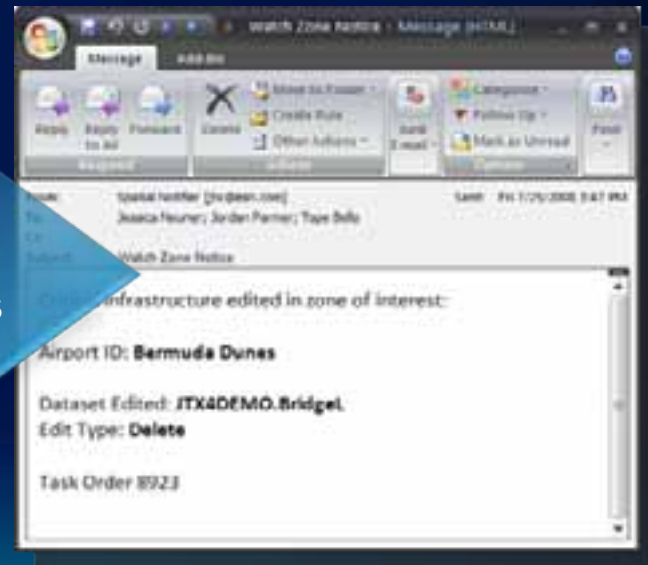


Spatial Notifications

- Be notified when feature edits made
- Create rules for changes to:
Feature class, geographic area, or specific feature

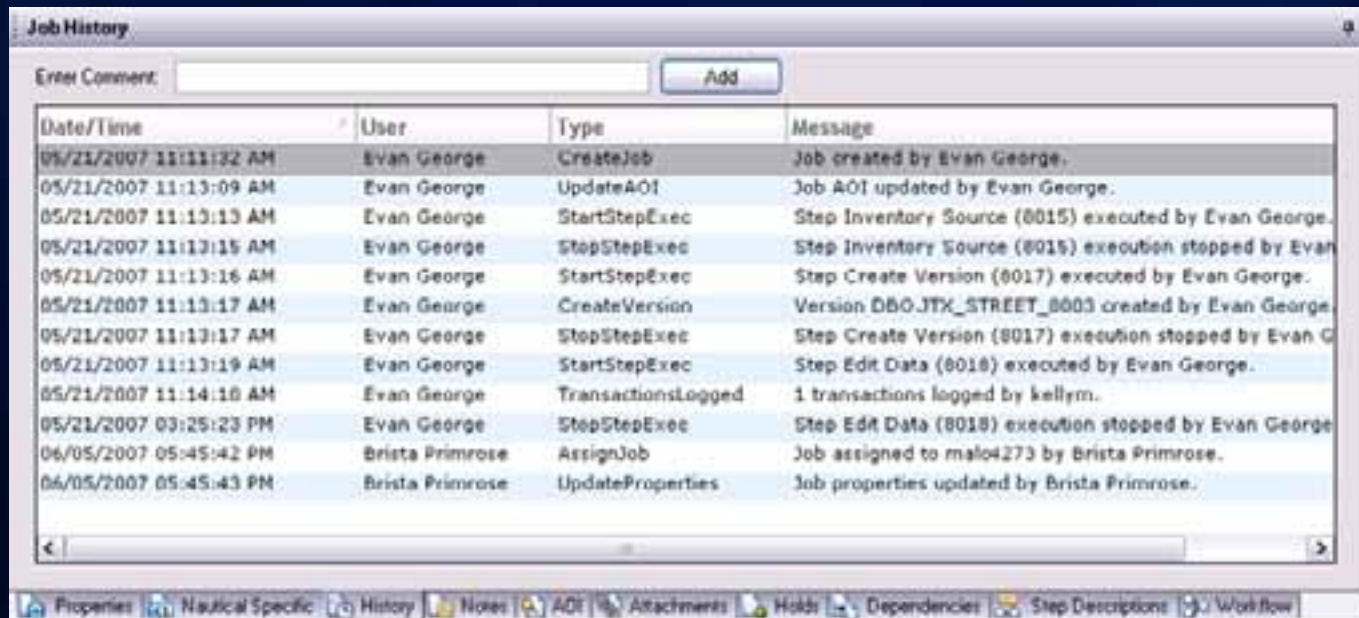


Edits to data
trigger notifications



Job History

- What's happened on this job?
- Tagged with user and date
- Supplemented with user input



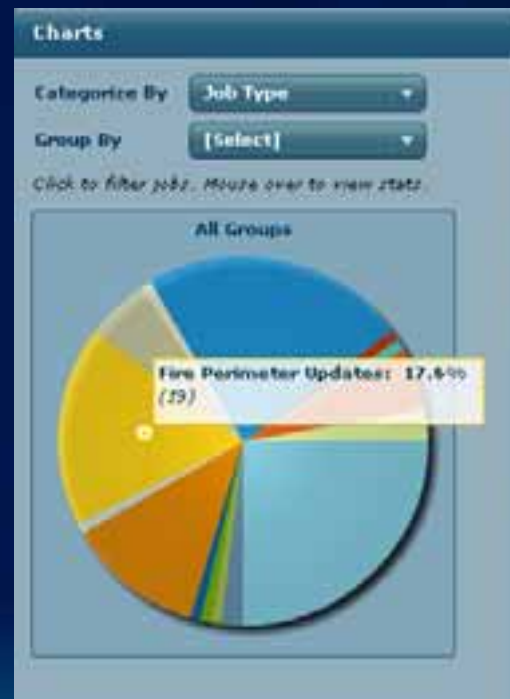
The screenshot shows a 'Job History' window with a table of events. At the top, there is a text field for 'Enter Comment:' and an 'Add' button. The table has four columns: 'Date/Time', 'User', 'Type', and 'Message'. The events are listed in chronological order, showing the creation and subsequent updates of a job, including step execution and data logging.

Date/Time	User	Type	Message
05/21/2007 11:11:32 AM	Evan George	CreateJob	Job created by Evan George.
05/21/2007 11:13:09 AM	Evan George	UpdateAOI	Job AOI updated by Evan George.
05/21/2007 11:13:13 AM	Evan George	StartStepExec	Step Inventory Source (8015) executed by Evan George.
05/21/2007 11:13:15 AM	Evan George	StepStepExec	Step Inventory Source (8015) execution stopped by Evan George.
05/21/2007 11:13:16 AM	Evan George	StartStepExec	Step Create Version (8017) executed by Evan George.
05/21/2007 11:13:17 AM	Evan George	CreateVersion	Version DBO.JTX_STREET_8003 created by Evan George.
05/21/2007 11:13:17 AM	Evan George	StepStepExec	Step Create Version (8017) execution stopped by Evan George.
05/21/2007 11:13:19 AM	Evan George	StartStepExec	Step Edit Data (8018) executed by Evan George.
05/21/2007 11:14:10 AM	Evan George	TransactionsLogged	1 transactions logged by kellym.
05/21/2007 03:25:23 PM	Evan George	StepStepExec	Step Edit Data (8018) execution stopped by Evan George.
06/05/2007 05:45:42 PM	Brista Primrose	AssignJob	Job assigned to mal04273 by Brista Primrose.
06/05/2007 05:45:43 PM	Brista Primrose	UpdateProperties	Job properties updated by Brista Primrose.

At the bottom of the window, there is a toolbar with icons for Properties, Nautical Specific, History, Notes, AOI, Attachments, Hold, Dependencies, Step Descriptions, and Workflow.

Reporting Job Information

- Report on resource allocation, job status, etc.
- Information stored in central repository
- Present contents of repository using different methods
 - Built-in reports
 - Web charting
 - Crystal Reports



Tracking and Notification

Job History

Job Notification

Reports



ESRI | ArcGIS Workflow Manager | Web Edition

Jobs

- Public Queue
- General Queue
- National Queue
- Unassigned Jobs
- Work Queue
- Personal Queue
- Local Queue

Submit a Job to Edit Job

Map

Los Angeles

Long Beach

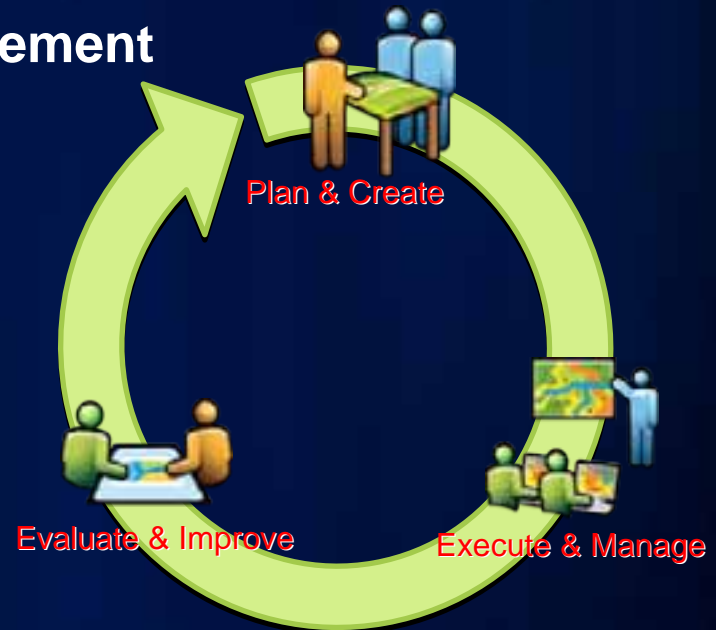
Huntington Beach

All Jobs

ID	Name	Assigned To	Last Run
1	2016_1	GIS Analyst	Landmark Update
42	2016_42	GIS Analyst	Landmark Update
10	2016_10	Technician	Landmark Update
11	2016_11	Technician	Landmark Update
12	2016_12	Technician	Landmark Update
13	2016_13	Technician	Landmark Update
14	2016_14	Technician	Landmark Update
15	2016_15	Technician	Landmark Update
16	2016_16	Technician	Landmark Update
17	2016_17	Technician	Landmark Update
18	2016_18	Technician	Landmark Update
19	2016_19	Technician	Landmark Update
20	2016_20	Technician	Landmark Update
21	2016_21	Technician	Landmark Update
22	2016_22	Technician	Landmark Update
23	2016_23	Technician	Landmark Update
24	2016_24	Technician	Landmark Update
25	2016_25	Technician	Landmark Update
26	2016_26	Technician	Landmark Update
27	2016_27	Technician	Landmark Update
28	2016_28	Technician	Landmark Update
29	2016_29	Technician	Landmark Update
30	2016_30	Technician	Landmark Update
31	2016_31	Technician	Landmark Update
32	2016_32	Technician	Landmark Update
33	2016_33	Technician	Landmark Update
34	2016_34	Technician	Landmark Update
35	2016_35	Technician	Landmark Update
36	2016_36	Technician	Landmark Update
37	2016_37	Technician	Landmark Update
38	2016_38	Technician	Landmark Update
39	2016_39	Technician	Landmark Update
40	2016_40	Technician	Landmark Update
41	2016_41	Technician	Landmark Update
42	2016_42	Technician	Landmark Update
43	2016_43	Technician	Landmark Update
44	2016_44	Technician	Landmark Update
45	2016_45	Technician	Landmark Update
46	2016_46	Technician	Landmark Update
47	2016_47	Technician	Landmark Update
48	2016_48	Technician	Landmark Update
49	2016_49	Technician	Landmark Update
50	2016_50	Technician	Landmark Update
51	2016_51	Technician	Landmark Update
52	2016_52	Technician	Landmark Update
53	2016_53	Technician	Landmark Update
54	2016_54	Technician	Landmark Update
55	2016_55	Technician	Landmark Update
56	2016_56	Technician	Landmark Update
57	2016_57	Technician	Landmark Update
58	2016_58	Technician	Landmark Update
59	2016_59	Technician	Landmark Update
60	2016_60	Technician	Landmark Update
61	2016_61	Technician	Landmark Update
62	2016_62	Technician	Landmark Update
63	2016_63	Technician	Landmark Update
64	2016_64	Technician	Landmark Update
65	2016_65	Technician	Landmark Update
66	2016_66	Technician	Landmark Update
67	2016_67	Technician	Landmark Update
68	2016_68	Technician	Landmark Update
69	2016_69	Technician	Landmark Update
70	2016_70	Technician	Landmark Update
71	2016_71	Technician	Landmark Update
72	2016_72	Technician	Landmark Update
73	2016_73	Technician	Landmark Update
74	2016_74	Technician	Landmark Update
75	2016_75	Technician	Landmark Update
76	2016_76	Technician	Landmark Update
77	2016_77	Technician	Landmark Update
78	2016_78	Technician	Landmark Update
79	2016_79	Technician	Landmark Update
80	2016_80	Technician	Landmark Update
81	2016_81	Technician	Landmark Update
82	2016_82	Technician	Landmark Update
83	2016_83	Technician	Landmark Update
84	2016_84	Technician	Landmark Update
85	2016_85	Technician	Landmark Update
86	2016_86	Technician	Landmark Update
87	2016_87	Technician	Landmark Update
88	2016_88	Technician	Landmark Update
89	2016_89	Technician	Landmark Update
90	2016_90	Technician	Landmark Update
91	2016_91	Technician	Landmark Update
92	2016_92	Technician	Landmark Update
93	2016_93	Technician	Landmark Update
94	2016_94	Technician	Landmark Update
95	2016_95	Technician	Landmark Update
96	2016_96	Technician	Landmark Update
97	2016_97	Technician	Landmark Update
98	2016_98	Technician	Landmark Update
99	2016_99	Technician	Landmark Update
100	2016_100	Technician	Landmark Update

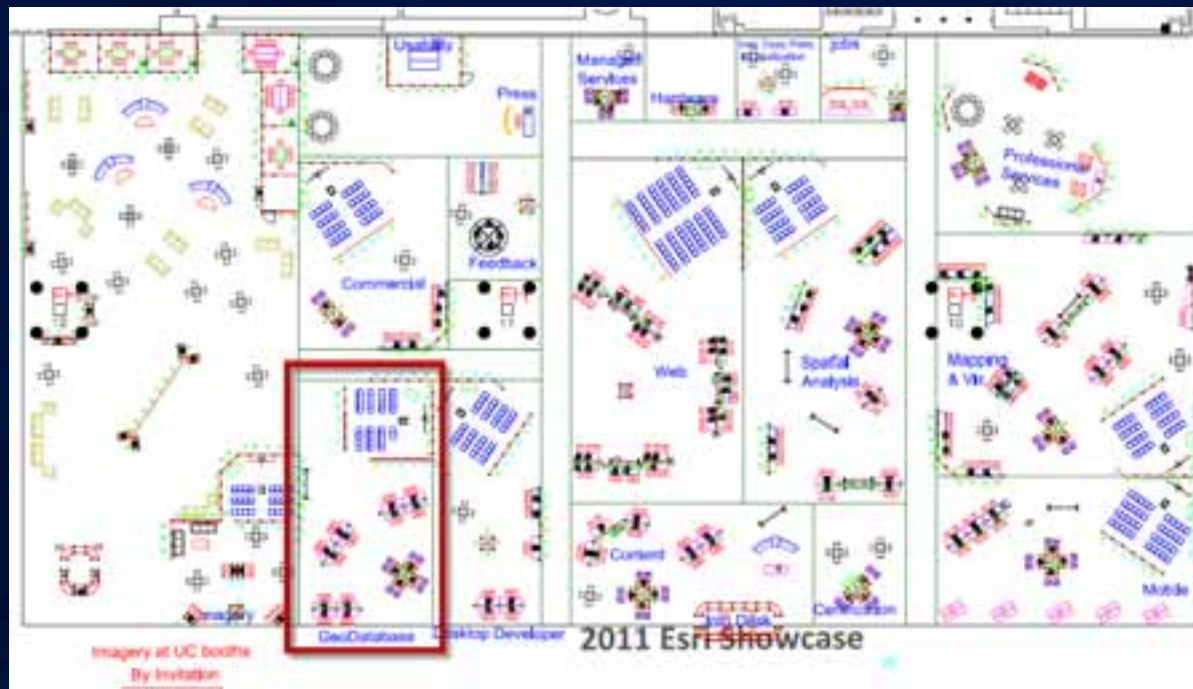
Summary

- **Translate your business processes**
 - Create and execute jobs
 - Manage and track jobs
- **Evaluate for continual improvement**
- **This can be your process!**



Where We Are

- **Geodatabase Management Island**
 - Today until 6:00 pm
 - Thursday 9:00 am - 1:30 pm



Other Sessions

ArcGIS Workflow Manager - Version management and feature tracking

- Thur, July 14th from 3:40 - 4:00 PM in Room 23B

Road Ahead: ArcGIS Workflow Manager

- Thur, July 14th from 8:55 - 9:15 AM in Room 6A

•...and more

Resources

- **ArcGIS Workflow Manager User Guide**
 - <http://resources.arcgis.com/content/web-based-help>
- **Forums**
 - <http://forums.arcgis.com/>
- **Resource Center**
 - <http://resources.arcgis.com/>
- **Product Page**
 - <http://esri.com/workflowmanager>



esri