



GIS

The Geographic Approach for the Nation



ESRI Federal User Conference

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Job Tracking for ArcGIS (JTX) An Introduction to Workflow Solutions for ArcGIS

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Objectives of this Workshop

- Understand the business problems that JTX solves
- Present the JTX architecture
- Discuss key features of JTX
 - Work management and tracking
 - Data management
 - Notifications and Reporting
- Demonstrations
- Questions

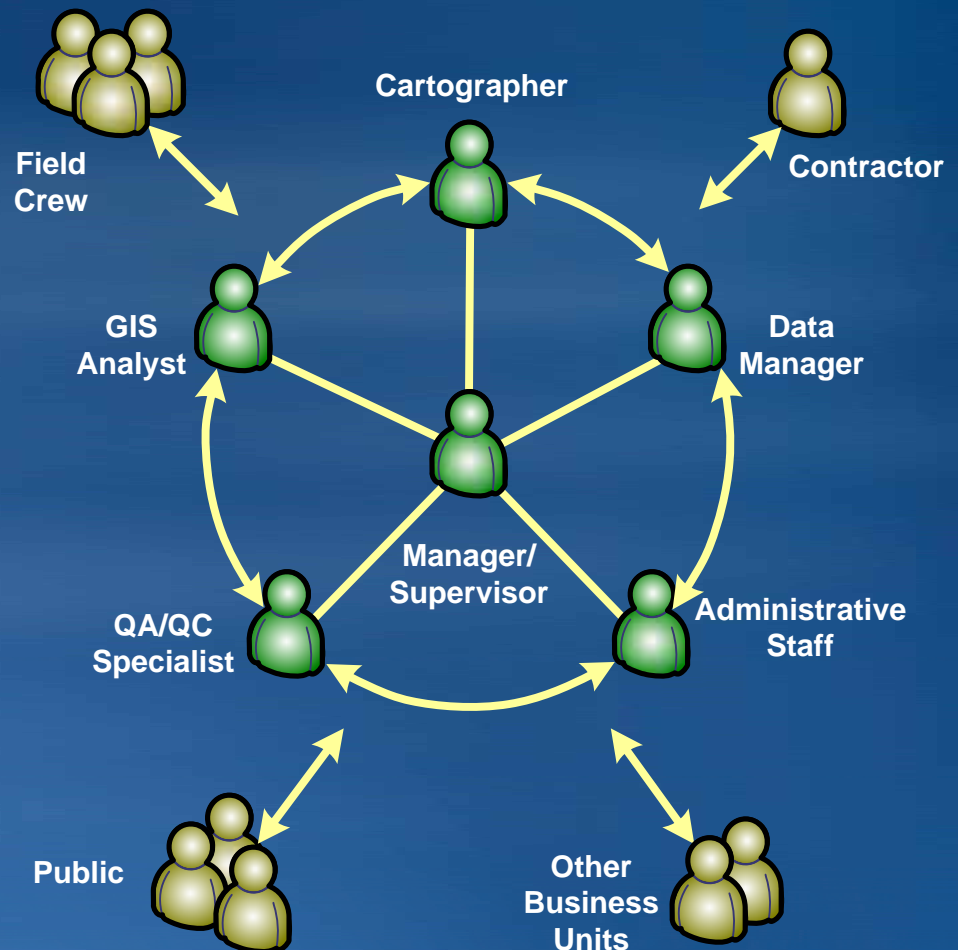
What is JTX?

- Workflow management system
 - Integrated with your GIS
- Applications for publishing your business processes
- Centralized work information

***... a solution that helps organizations carry out
their day to day work more efficiently***

Business Problem

- GIS project management
 - Multiple specialists
 - Concurrent operations
 - Varying skill levels
 - Distributed data



Emergency Operations Center

Fire Incident Mapping workflow

- Responsible for creating up to date map products
- High and fast demand
- People from many organizations and departments
- Technicians need to become familiar with operation processes quickly

Geospatial Production Center

Data and map production

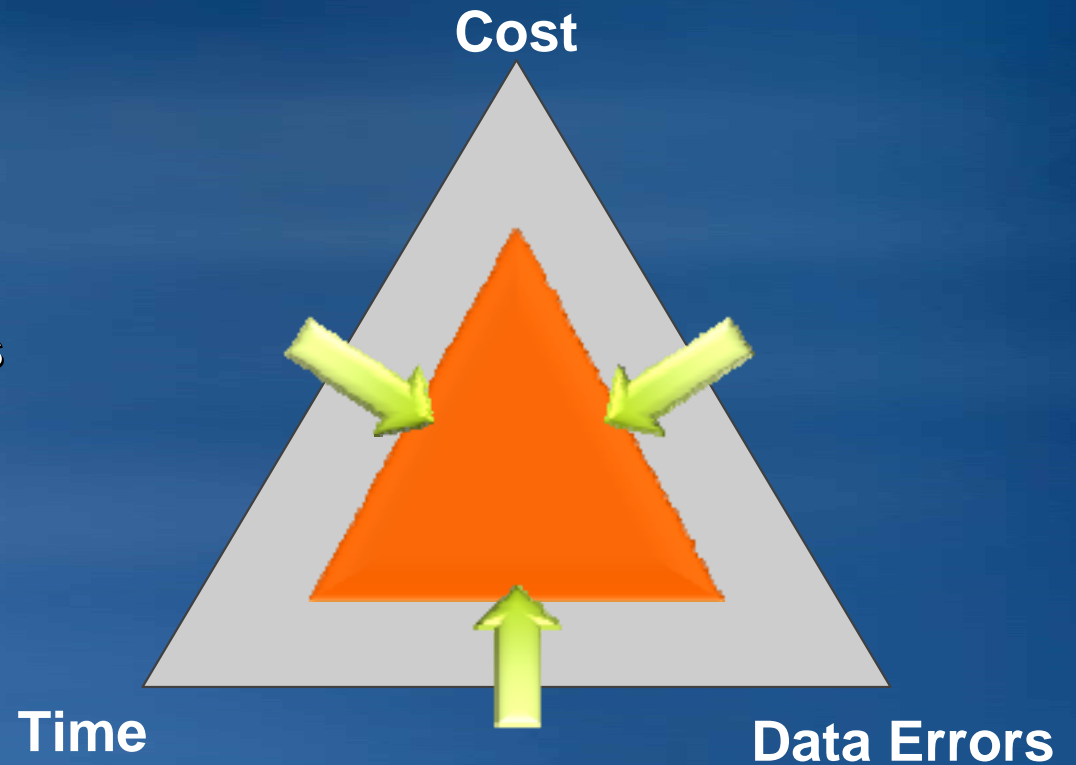
- **Local and remote data access**
 - Updating data by in-house editors and contractors
 - Multi-user editing environment
- **Data access control**
 - Based on user roles
 - Based on user geographic location
- **Deliver consistent data and map products**
- **Require dashboard view for work status**

Solution Requirements

- **GIS business management solution needs to support:**
 - Workflow modeling & documentation
 - Staff scheduling
 - Concurrent, asynchronous job tasks
 - Alerting
 - History tracking
 - Reporting
 - Spatial data integration

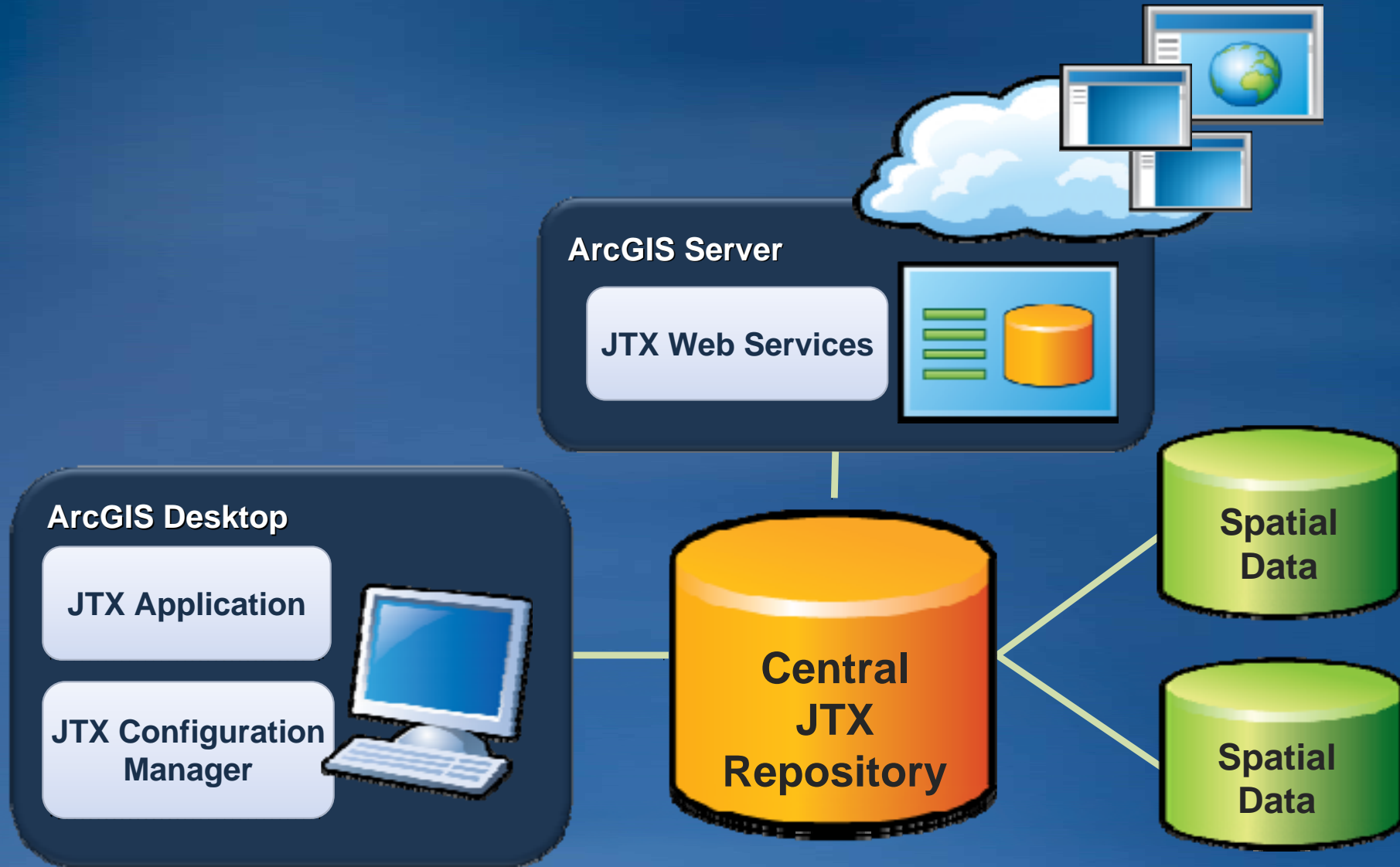
JTX Solution

- Decrease Risks
 - Control access to Geospatial Databases
 - Manage units of work as jobs
 - Publish standardized workflows
 - Centralize information



JTX System Architecture

- Spatially enabled enterprise work management



JTX Software Requirements

- Job management repository
 - Multiuser Geodatabase
- JTX Desktop
 - ArcGIS Desktop
 - ArcEditor or ArcInfo license level
- JTX Server
 - ArcGIS Server
 - Standard edition or higher



Session Topics

...solution for managing enterprise geospatial workflows

- Job Management
- Workflow Management
- Geodata Management
- ArcGIS Integration
- Tracking and Notifications
- JTX Server



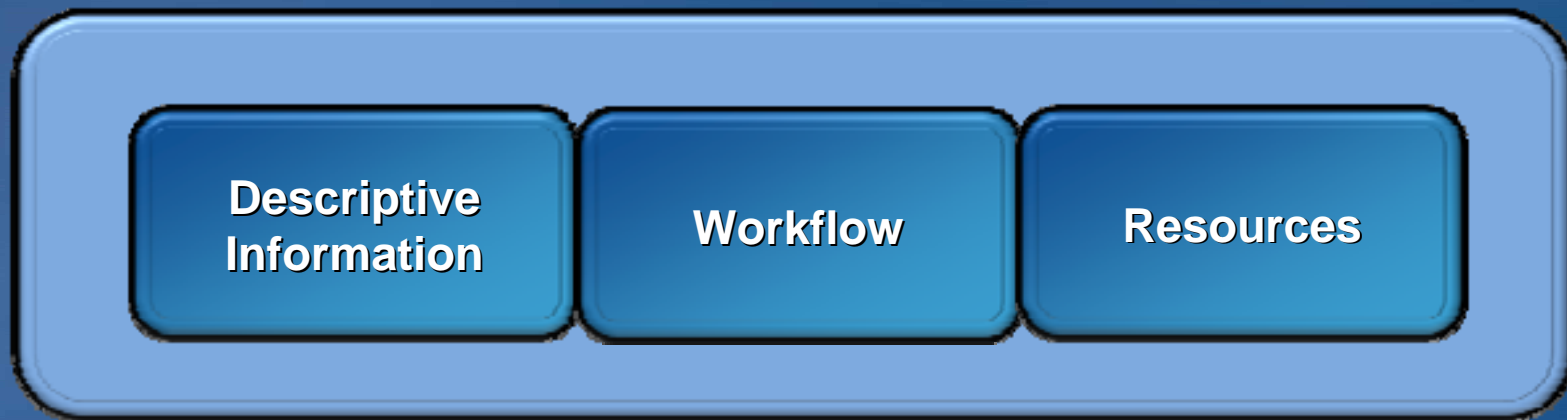
Job management

What is a “Job”?

- A unit of work performed by one or more people
- Examples:
 - Extract new features from aerial photography
 - Update hydrant at specified coordinates
 - Create a workplan for a subdivision
 - Create a 1:50,000 scale map
 - Loading and processing of data
 - Perform site analysis for store location
 - Track search and rescue operations

Job Types

- **Blueprint for jobs**
- **Standardizes typical work processes**
- **Predefine descriptive and operational information**





Demo I

Introduction to JTX

Anatomy of a Job



Job Properties



- Standard
 - Name, due date, assignment, priority, etc.
- Extended
 - Custom, business specific
 - i.e. 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
ADI Defined 50% Complete

Ownership Dates Data Workspace Description

Job Ownership

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

Job Assignment

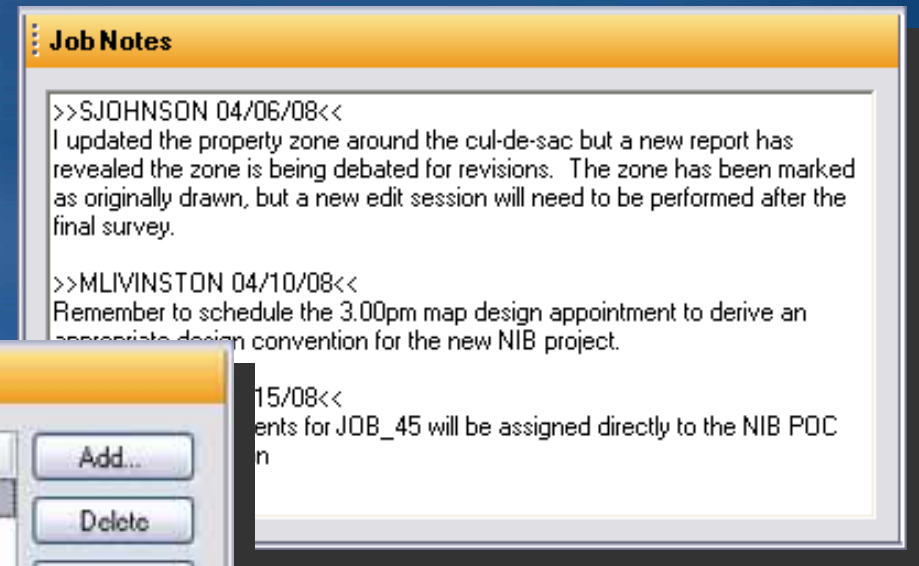
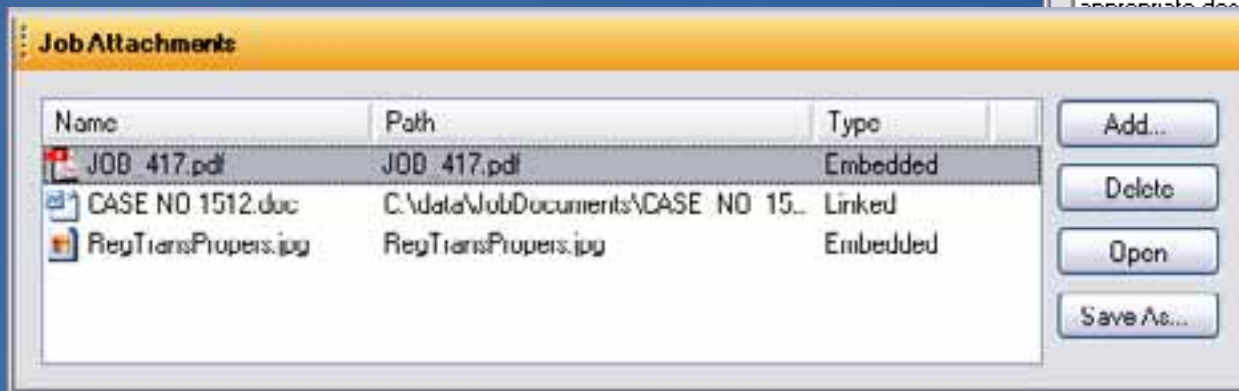
☒ User
☐ Group
☐ Unassigned

Terry Bent

Notes and Attachments



- **Attachments**
 - Supporting documents of the job
- **Notes**
 - Free text
 - Miscellaneous information



Resource

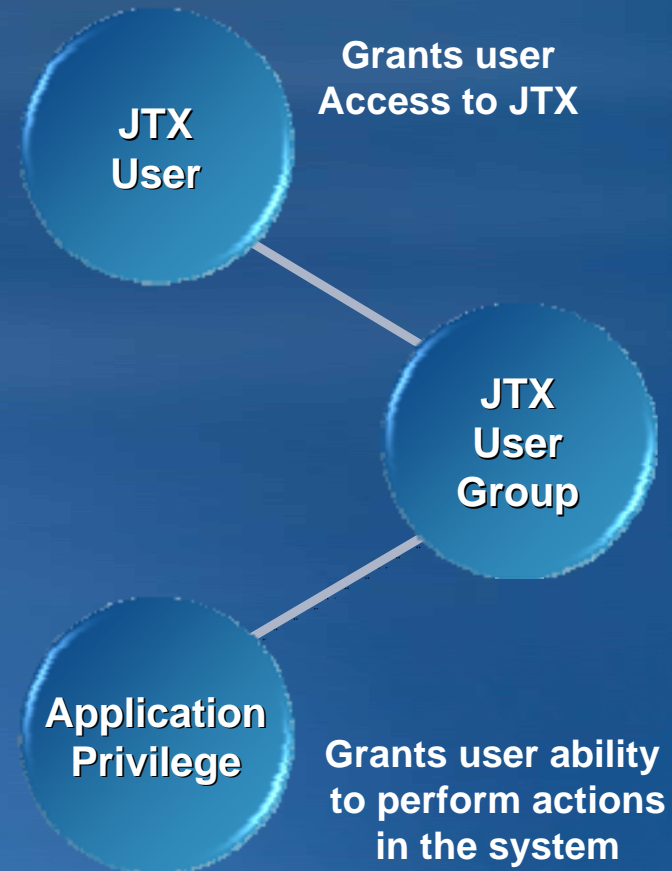


- Which user or group is currently responsible for the job?
- Automatically reassign job at any point in workflow to either:
 - User
 - Group
- User can belong to any number of groups

Application Privileges

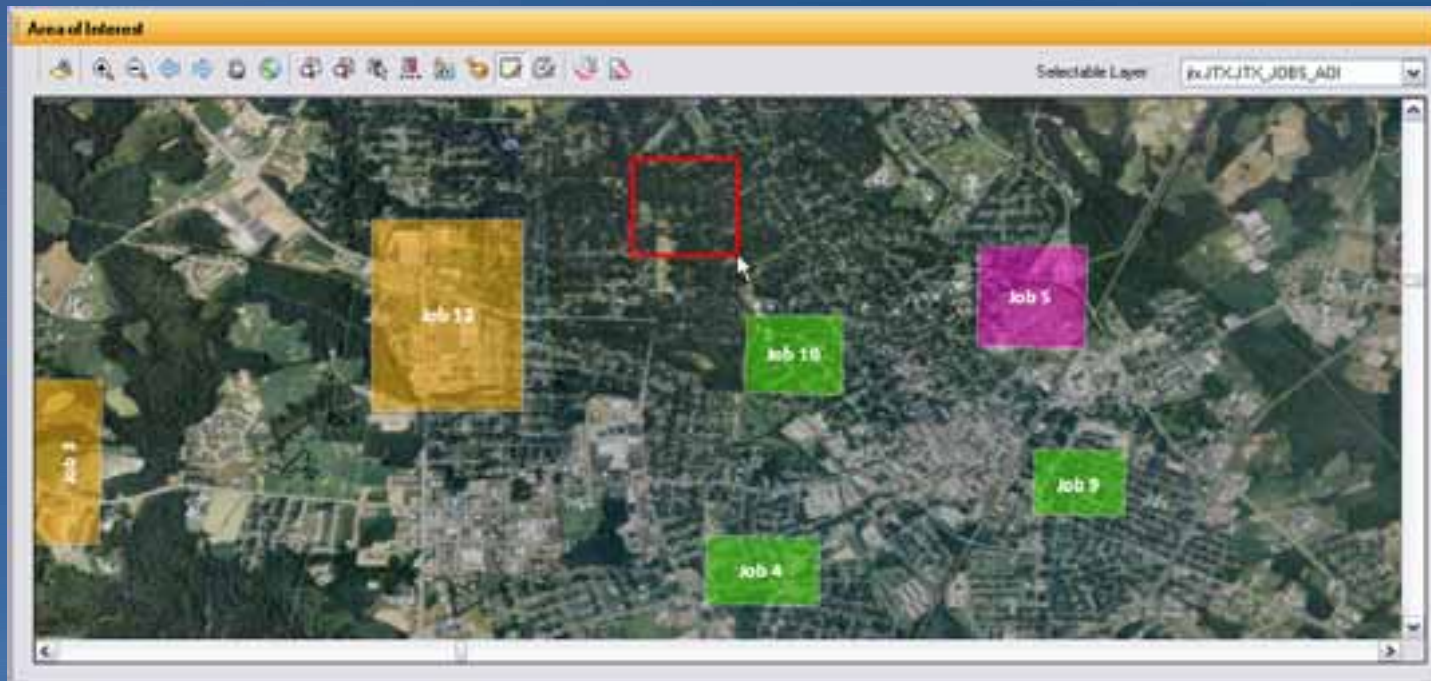
- Who is allowed to do which action?

- Application privileges are the gate-keepers of your business processes
- User group provides the link between application privileges and user



Area of Interest

- Defines where the work is located
- Spatial component of job
- Guide for users
- Visualization / analysis tool for managers



Anatomy of a Job





Demo II

Job Management



Workflow



Workflow Management with JTX

- Operational aspect of the job
- Leverage best practices and procedures
- Consistent, traceable process for users to follow
 - “no step left behind”

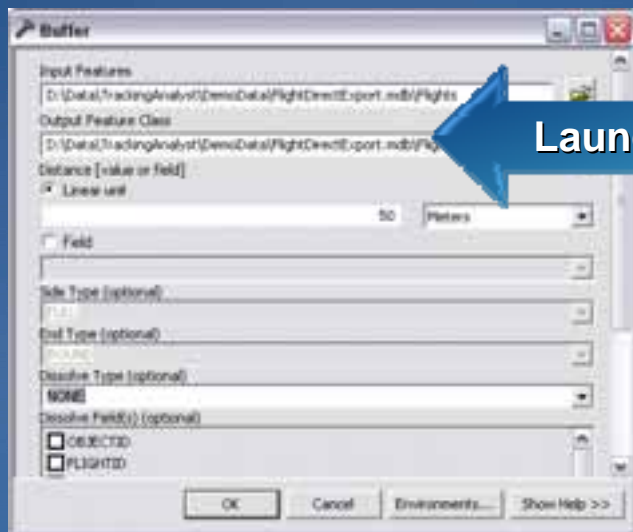


Workflow Steps: Manual

- Non-automated task
- Indicates some manual action for the user
- Status and completion tracked
- Examples:
 - Collecting field data
 - Retrieving paper documents
 - More....

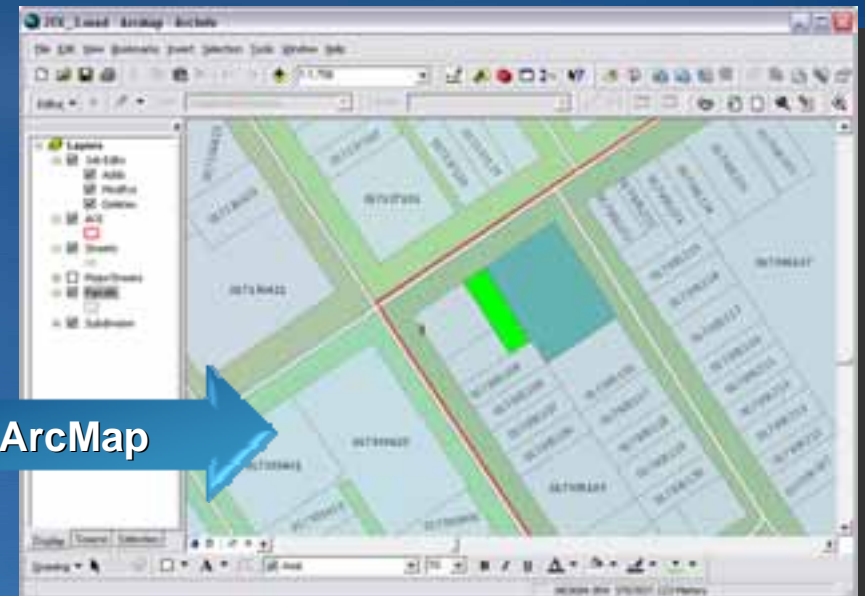
Workflow Steps: Automated

- Launches an application, executable, script
- Calls to other components and services
- Extensible step framework



Launch GP Tool

Automated Step



Open ArcMap

Workflow Steps: Pre-packaged

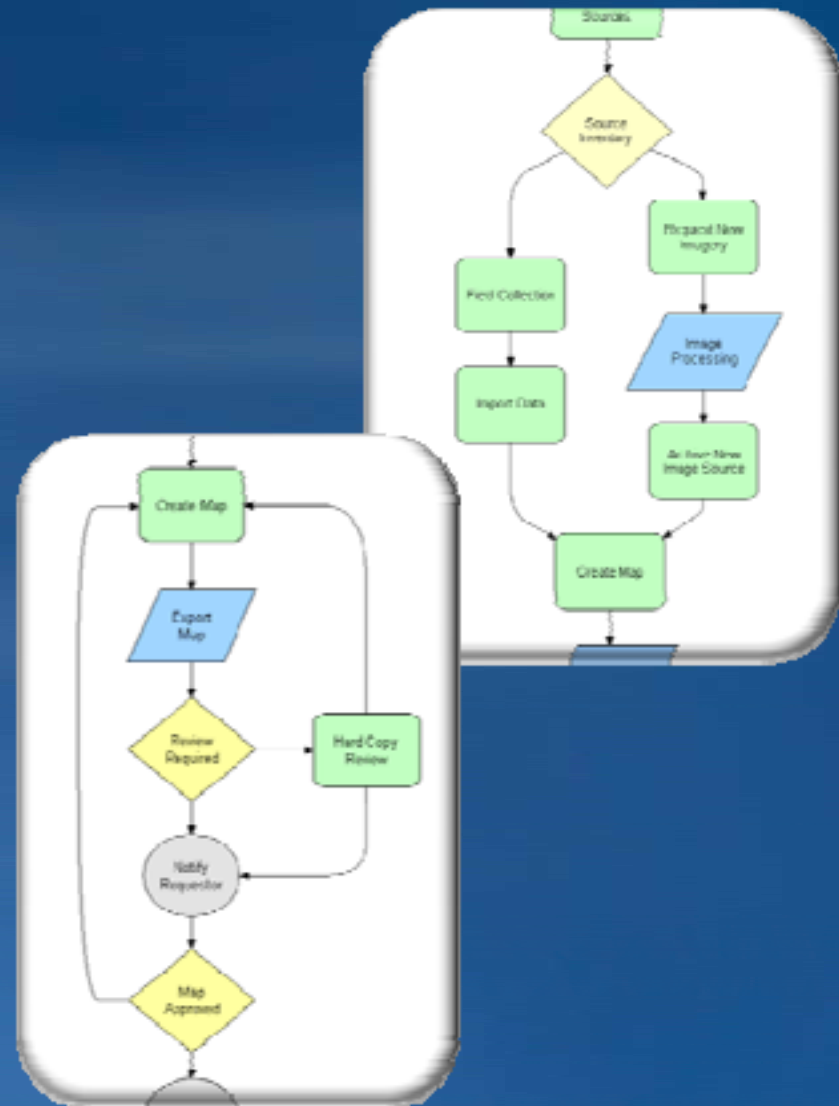
... what steps come with JTX?

- Common steps provided out-of-the-box
- Jump-start workflows with generic steps
- Examples:
 - ArcMap launching
 - Version creation
 - Create map exports (pdf)
 - Geoprocessing integration

... and many more!

Workflow Navigation

- Progression via Step Properties
 - Required
 - Automatically executed
 - Automatic reassignment of Job
- Path options
 - Conditional / Branching
 - Parallel
 - Looping



Step Descriptions

... build a knowledge base about your business processes and publish to your users

- Documentation about the current task
- Step-by-step integrated help
- HTML based
- Link to any URL or design your own

The image displays two overlapping screenshots of the 'Workflow Step Description' window. The left window is titled 'Workflow Step Description' and shows the 'Current Step' as 'Create Version'. It contains a section titled 'Creating a version' with a bulleted list explaining version creation and a diagram showing a hierarchy: 'DEFAULT' at the top, 'QA' in the middle, and 'ProjectA' and 'ProjectB' at the bottom, all connected by arrows. The right window is also titled 'Workflow Step Description' and shows the 'Current Step' as 'Edit Data & Map'. It contains a detailed description of the 'Edit Data & Map' step, stating it is a JTX step that launches ArcMap, loads data layers, and allows for editing and creating cartographic products. It also notes that this step cannot be skipped and must be manually marked as completed.

Workflow Step Description

Current Step: **Create Version**

Creating a version

- You create a version by creating children or branches from any existing version. You create the first version by making a child version of the DEFAULT version. When the new version is created, it is identical to the DEFAULT version. Over time, the versions will diverge as changes are made to the DEFAULT version and to the new version. In the example below, the QA version is a child of the DEFAULT version and ProjectA and ProjectB versions are children of the QA version.

```
graph TD; DEFAULT[DEFAULT] --> QA[QA]; QA --> ProjectA[ProjectA]; QA --> ProjectB[ProjectB];
```

Workflow Step Description

Current Step: **Edit Data & Map**

The **Edit Data & Map** step is a JTX step that Smart-launches Arcmap with data loaded for active job type . When executed this step will open ArcMap and load all the data layers that have been previously configured for the job type. It will also load any cartographic layout templates that were configured.

In this step the user has the opportunity to make any edits needed to the data. As well as create any cartographic products that are required for this exercise.

This step can not be skipped in the workflow.
This step also needs to be manually marked as completed before the user can move ahead in the workflow.

Additional Features

- **Holds**
 - Arbitrary suspension of job
- **Dependencies**
 - Restrict job execution based on other jobs
 - Enable relationship modeling between jobs



Demo III

Workflows



Geodata management



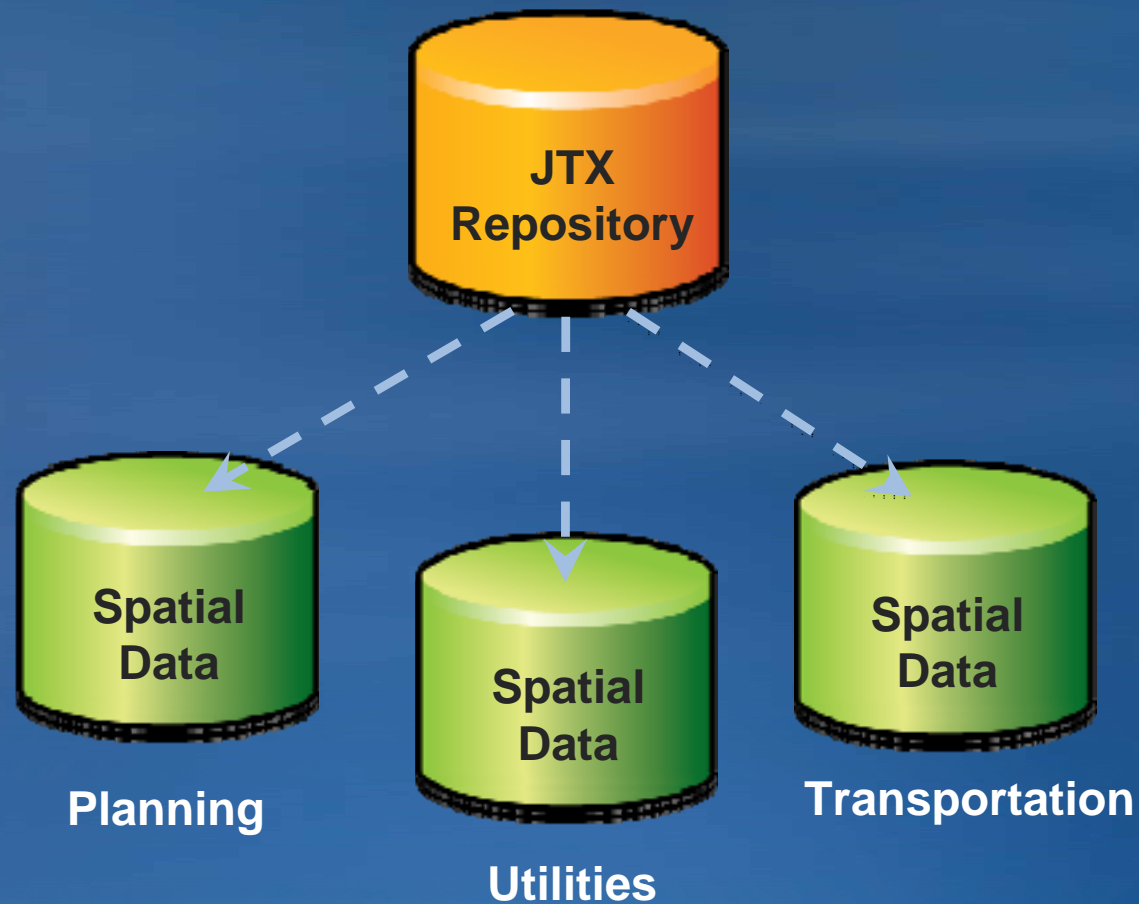
Data Management with JTX

- Access data from multiple GeoDatabases
- Control user access to database via JTX
- Associate editing version with job
- Notifications when changes are made in the database

... access the right data at the right time

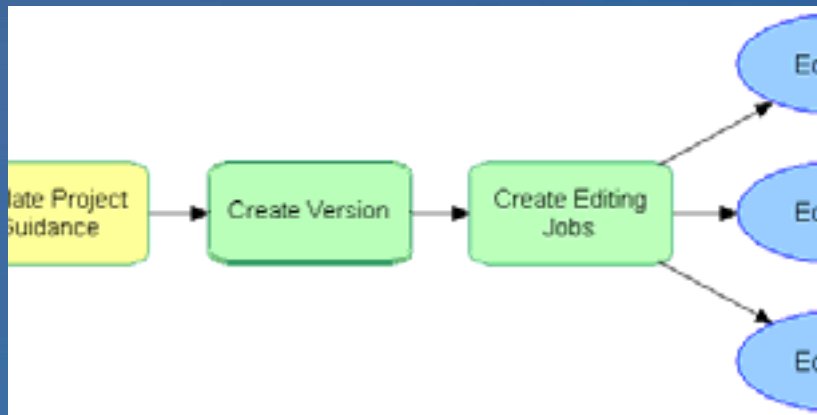
Multiple GDB Support

- Support for many data management strategies



Version Management

- Versioning should be managed with careful thought
- Can sometimes be intimidating for new users
 - Greater potential for errors
- Simplify user's experience working with versions
- Associate a Geodatabase version to job



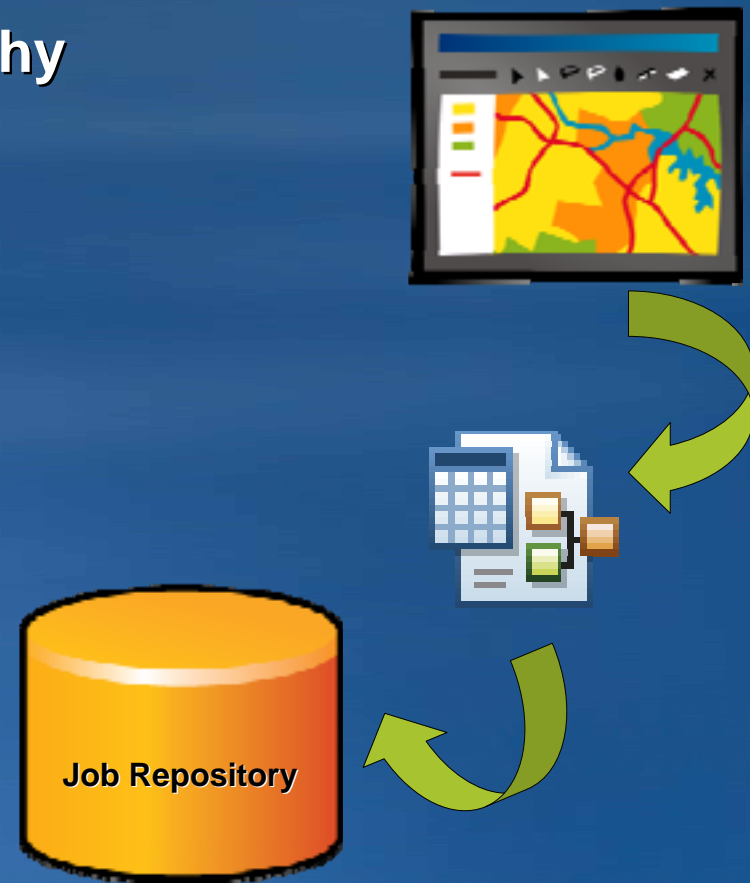
The screenshot shows the 'Manage Version' dialog box in a software application. The dialog has four tabs: 'Ownership', 'Dates', 'Data/Workspace', and 'Description'. The 'Data/Workspace' tab is currently selected. It contains three input fields: 'Data Workspace:' with the value 'Utility Data', 'Version:' with the value 'No Version', and 'Parent Version:' with the value 'dbo.DEFAULT'. Below these fields is a table with the following data:

| Name | Owner | Access |
|---------|-------|-----------|
| DEFAULT | dbo | Protected |
| QAQC | DBO | Public |
| JOB_5 | DBO | Public |
| LAND_1 | DBO | Public |
| JOB_14 | DBO | Public |
| JOB_15 | DBO | Public |

At the bottom right of the dialog, there are three buttons: 'Create', 'OK', and 'Cancel'.

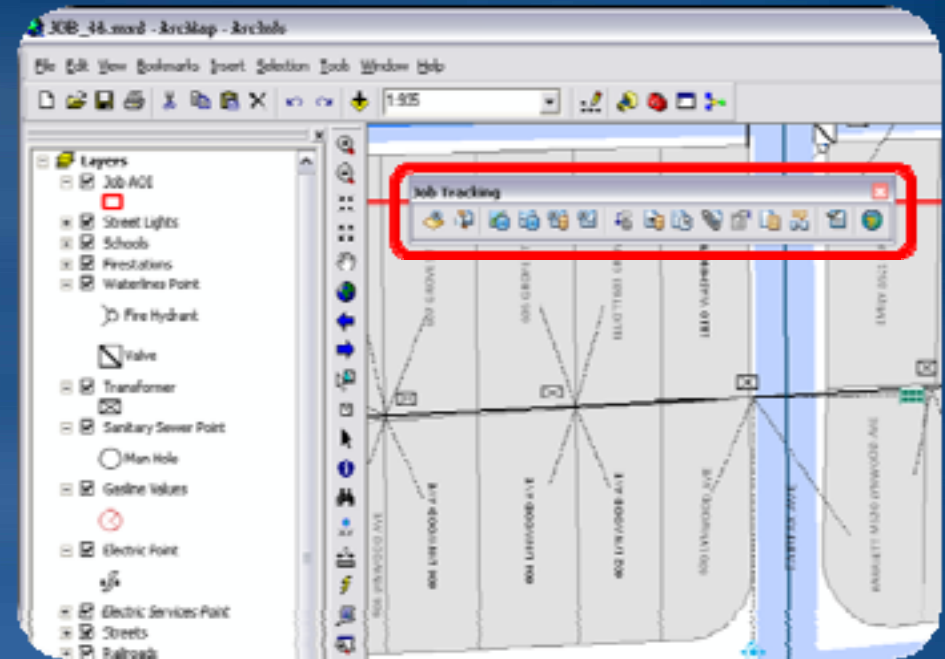
Map Document Management

- Associated and persisted with job
- Predefined contents and cartography
- Portable map session for the job
- Storage
 - Central repository
 - File system



ArcGIS Integration

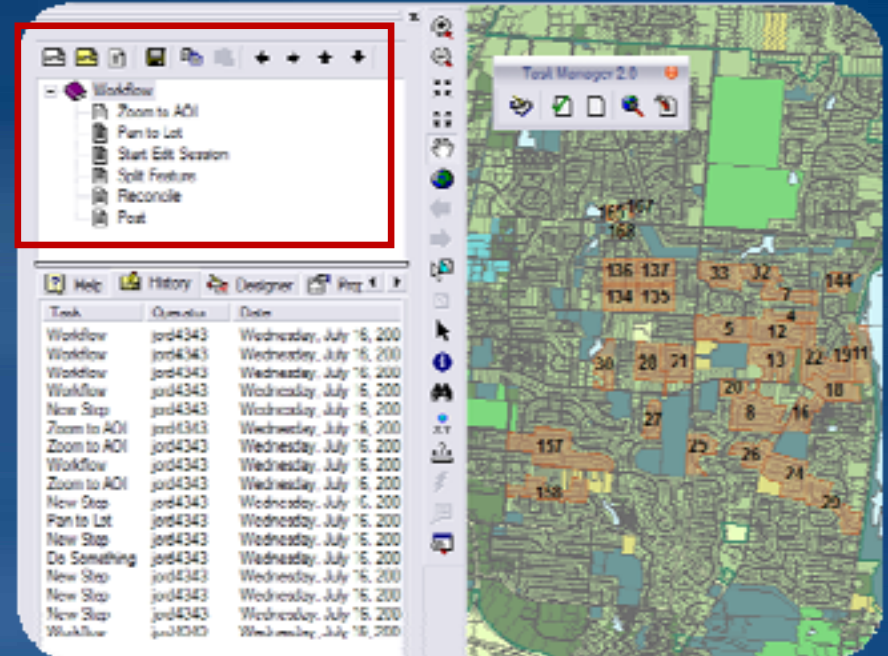
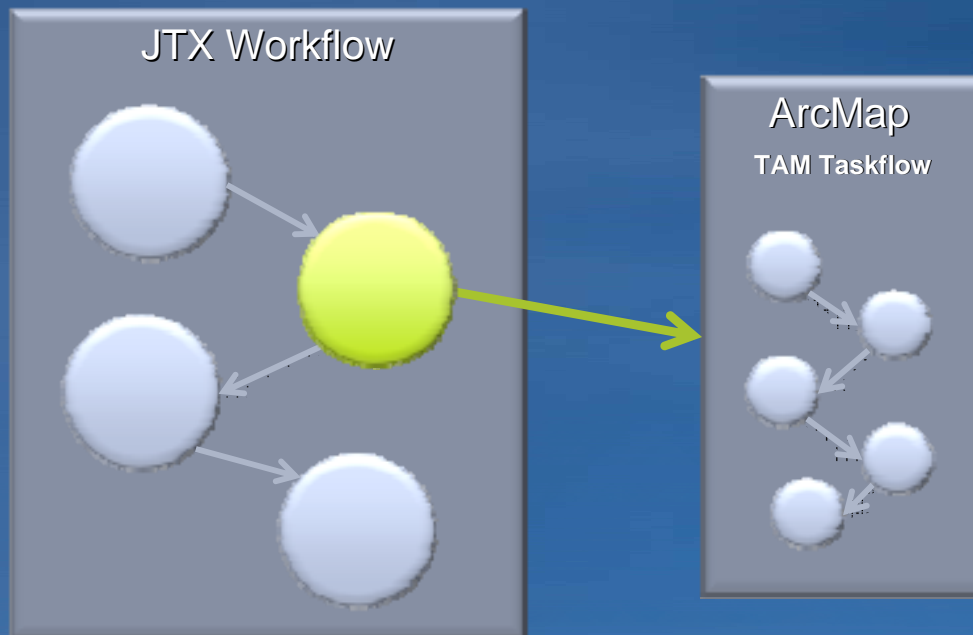
- **Step to start ArcMap**
 - “smart launch”
- **Toolbar for ArcMap**
 - Productivity tools
- **ArcMap document (MXD)**
 - Referenced within the job
- **Step to launch GP Tools**
 - Increased productivity



Task Assistant Manager (TAM)

... *design, implement, and execute ArcMap taskflows*

- Separate, ArcMap Extension
- Packaged with JTX
- Micro-level ArcMap Taskflows





Demo IV

Geodatabase Management

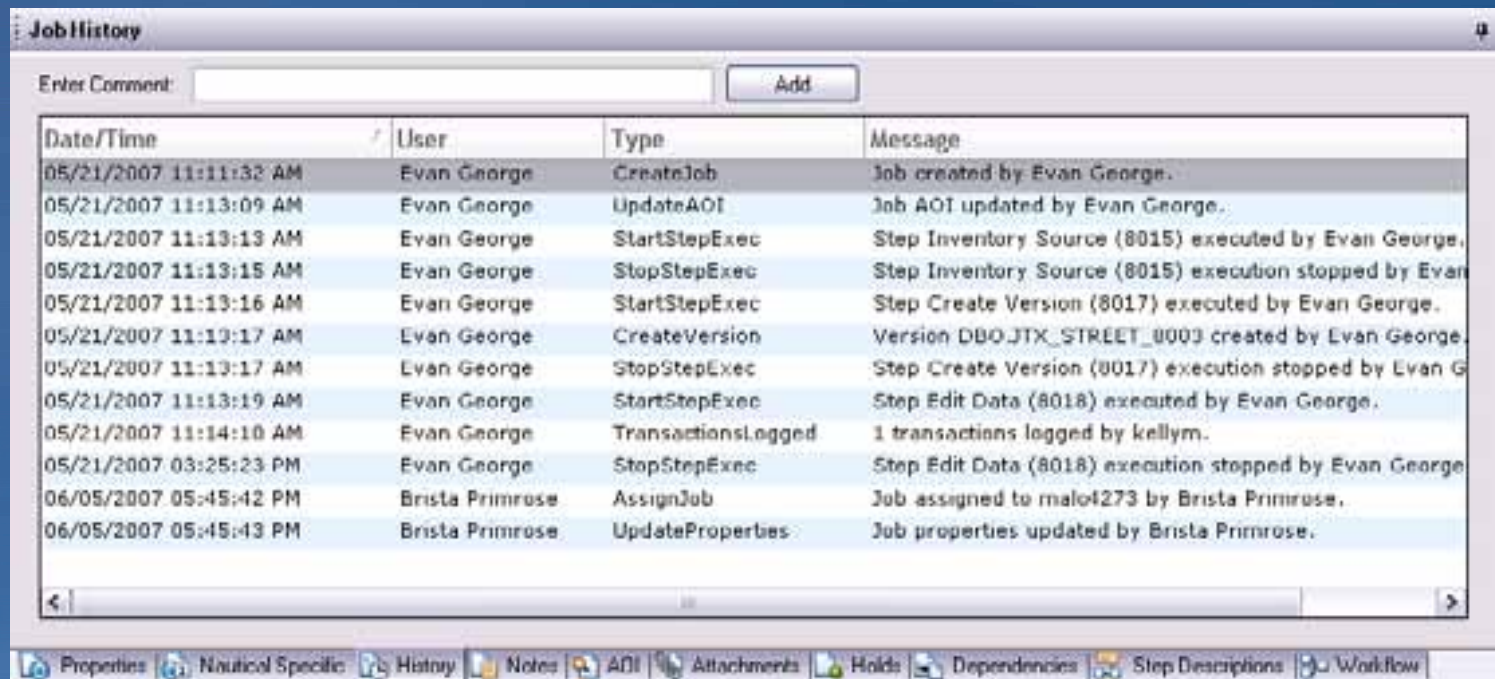


Tracking and notifications



Job History

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



The screenshot shows a software window titled "Job History". At the top, there is a text input field labeled "Enter Comment:" and a button labeled "Add". Below this is a table with four columns: "Date/Time", "User", "Type", and "Message". The table contains 12 rows of job history data. At the bottom of the window, there is a horizontal toolbar with icons and labels for "Properties", "Nautical Specifics", "History", "Notes", "AOI", "Attachments", "Holds", "Dependencies", "Step Descriptions", and "Workflow".

| 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 | StopStepExec | 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_0003 created by Evan George. |
| 05/21/2007 11:13:17 AM | Evan George | StopStepExec | 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 | StopStepExec | Step Edit Data (8018) execution stopped by Evan George. |
| 06/05/2007 05:45:42 PM | Brista Primrose | AssignJob | Job assigned to malot273 by Brista Primrose. |
| 06/05/2007 05:45:43 PM | Brista Primrose | UpdateProperties | Job properties updated by Brista Primrose. |

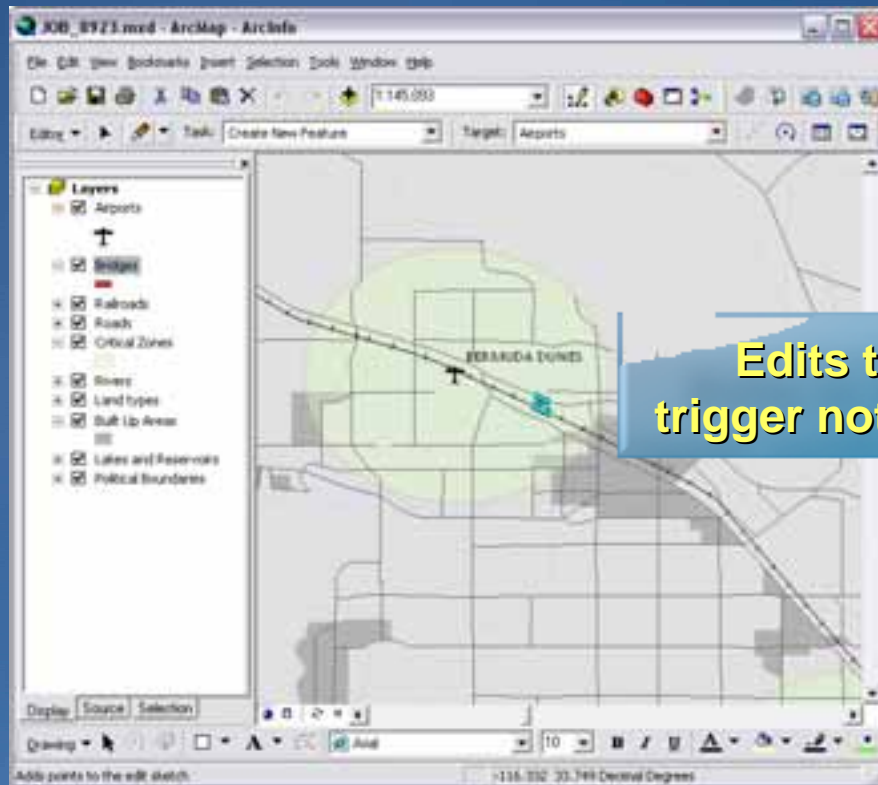
Job Notifications

- “Can I have JTX send an email when something happens in the system?” YES!
- Triggers
 - Any job action
 - Workflow step
- Fully configurable system

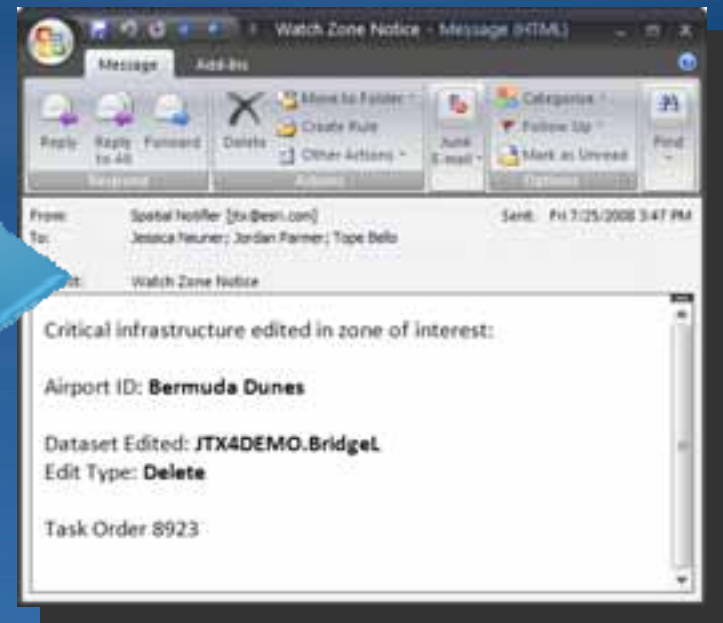


Spatial Notifications

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



Edits to data
trigger notifications



Reporting

- Build simple reports about job information
- Query and summarize key fields
- Stylized output
- Execute from desktop and server

JOB PERCENT COMPLETE

This report displays jobs based on the percent complete.

| Percentage Complete | Job Type Name | Total Jobs |
|---------------------|------------------|------------|
| 5 | | |
| | Data Product | 3 |
| | Landbase Updates | 2 |
| | Utilities Job | 3 |
| Overall Total: | | 8 |

| Percentage Complete | Job Type Name | Total Jobs |
|---------------------|------------------|------------|
| 10 | | |
| | Data Product | 1 |
| | Landbase Updates | 1 |
| | Utilities Job | 1 |
| Overall Total: | | 3 |

Status Report (All Jobs)

| Champion | Priority | Count |
|--------------------|----------|-------|
| | | |
| Michael Livingston | High | 1 |
| Peter Parker | High | 1 |
| Terry Bent | High | 1 |
| | | 3 |

| Champion | Priority | Count |
|-----------------------|----------|-------|
| | | |
| Online Request System | Low | 1 |
| Suzie Johnson | Medium | 1 |
| | | 2 |

| Champion | Priority | Count |
|------------|----------|-------|
| | | |
| Terry Bent | High | 1 |
| Terry Bent | Medium | 1 |



Demo V

Tracking and Notifications



JTX Server

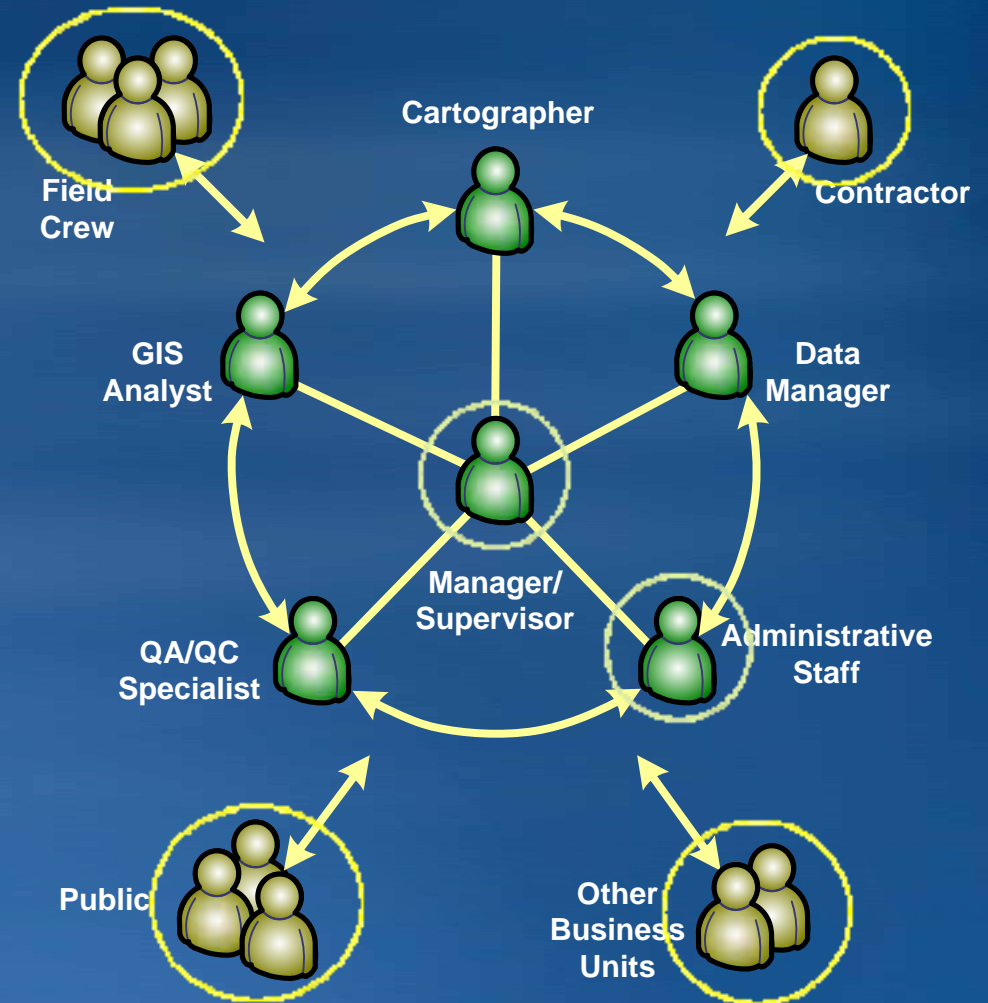
Why Server for JTX?

- Exposes JTX capabilities to non-GIS users and systems
- Leverages the investment in JTX across the organization
- Integrates job management capabilities into a Service Oriented Architecture



Use Cases for JTX Server

- Manager/Supervisor
- Non-GIS user
- Integration with other business systems
 - Action in external system initiates an action in JTX





Demo VI

JTXServer

Product Information

- **Current Release**
 - Version 9.3.1 SP1
 - Supports 9.3.1 SP1 Desktop and Server
- **What we're working on**
 - 10
 - Continue to support existing versions



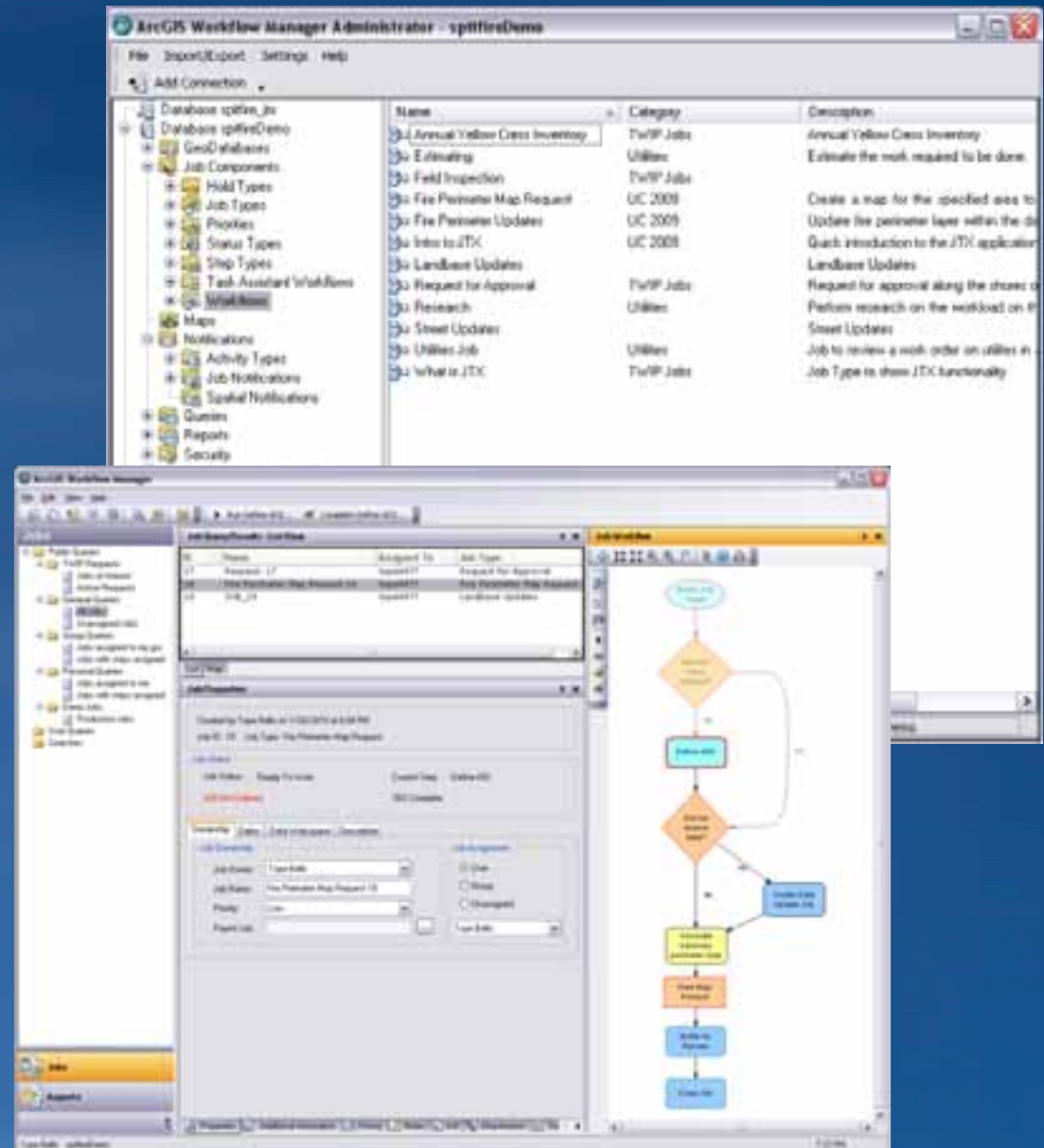
What's new – Product Name

- JTX will be known as ArcGIS Workflow Manager starting with version 10
- Configuration Manager will be known as Administrator



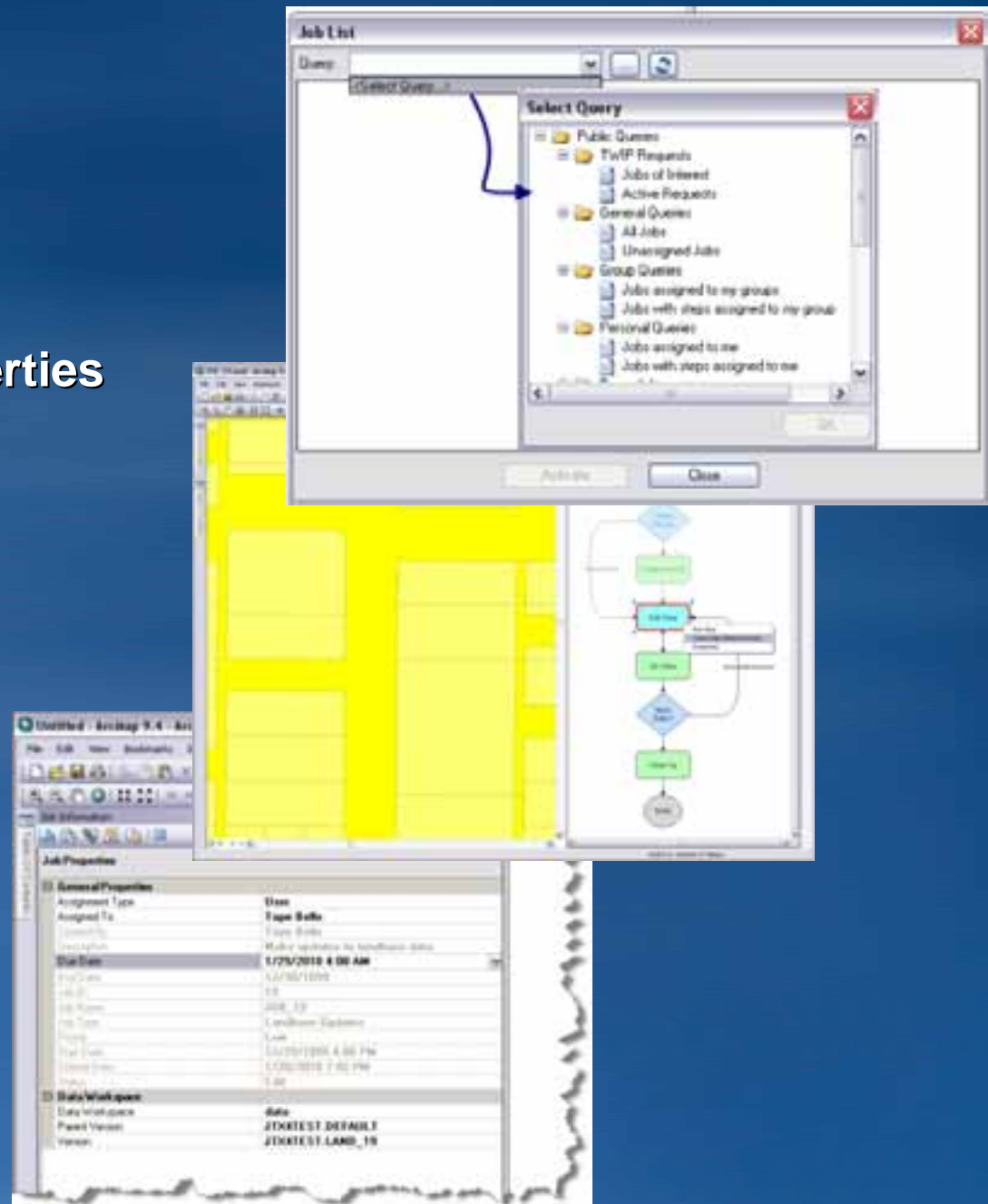
What's new – Desktop

- **Administrator**
 - Configuration management
 - Multiple repositories
 - Copy elements
 - Export single elements
 - Job Components
 - Workflows
 - Maps
 - User management
 - Active Directory
 - Administrator access
- **Application**
 - Persisted UI
 - Tab visibility



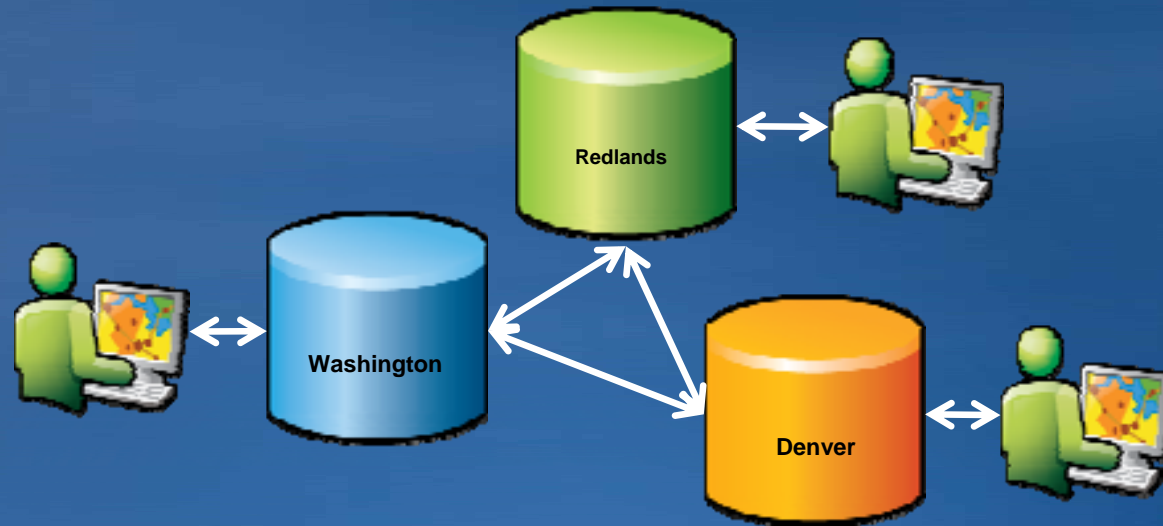
What's new - ArcMap

- **Job Management**
 - Job Activation
 - Basic and extended properties
- **Feature tracking**
 - Geodatabase Archiving
- **Step Execution**
 - Step Description
 - Workflow Execution



What's new - Server

- **REST API**
 - Flex and JavaScript sample viewers
- **Repository Replication**
 - Multiple synchronized job repositories (clusters)
 - Allow users in multiple locations to access the same job



Where to find us...

- **GIS Solutions EXPO**

- Today 10:00 – 4:00

- **Want to learn more?**

- Go to the ESRI Product Page: <http://www.esri.com/jtx>



Questions?