

2011 Esri Developer Summit

Palm Springs, CA

Building RIA Clients using ArcGIS Workflow Manager REST Services

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Session Topics

- **ArcGIS Workflow Manager Overview**
- **Developing with ArcGIS Workflow Manager Server REST API**
 - **Service Configuration**
 - **Job Management**
 - **Job Properties**
 - **Workflow Execution**
 - **Job Reports**



The slide features a dark blue background with a grid pattern. In the top left, there is a satellite-style map of a coastal region with green land and blue water. The bottom half of the slide is decorated with a 3D effect of glowing blue and green cubes of varying sizes, some of which are stacked. Faint, semi-transparent white text, including code snippets and technical terms like 'Symbol', 'Color', and 'Feature', is scattered across the lower portion of the slide.

ArcGIS Workflow Manager Overview

Business Problem

- **GIS project management**
 - **Multiple specialists**
 - **Concurrent operations**
 - **Varying skill levels**
 - **Distributed data**
- **Ensure the right work is completed the right way, at the right time, by the right person**
- **Increase staff productivity and reduce errors and mistakes**

What is ArcGIS Workflow Manager

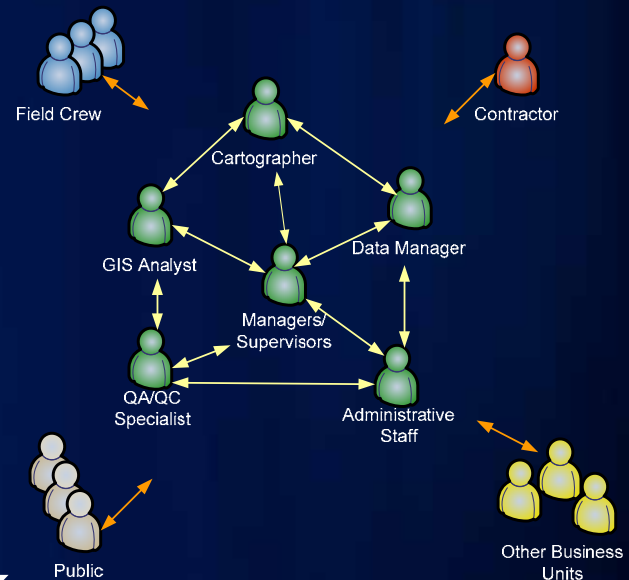
- Complete workflow management system for ArcGIS users

- Used by:

- GIS Analysts
- Managers
- Executives, et cetera

- Manage individual units of work

- Create... Assign... Execute... Track...

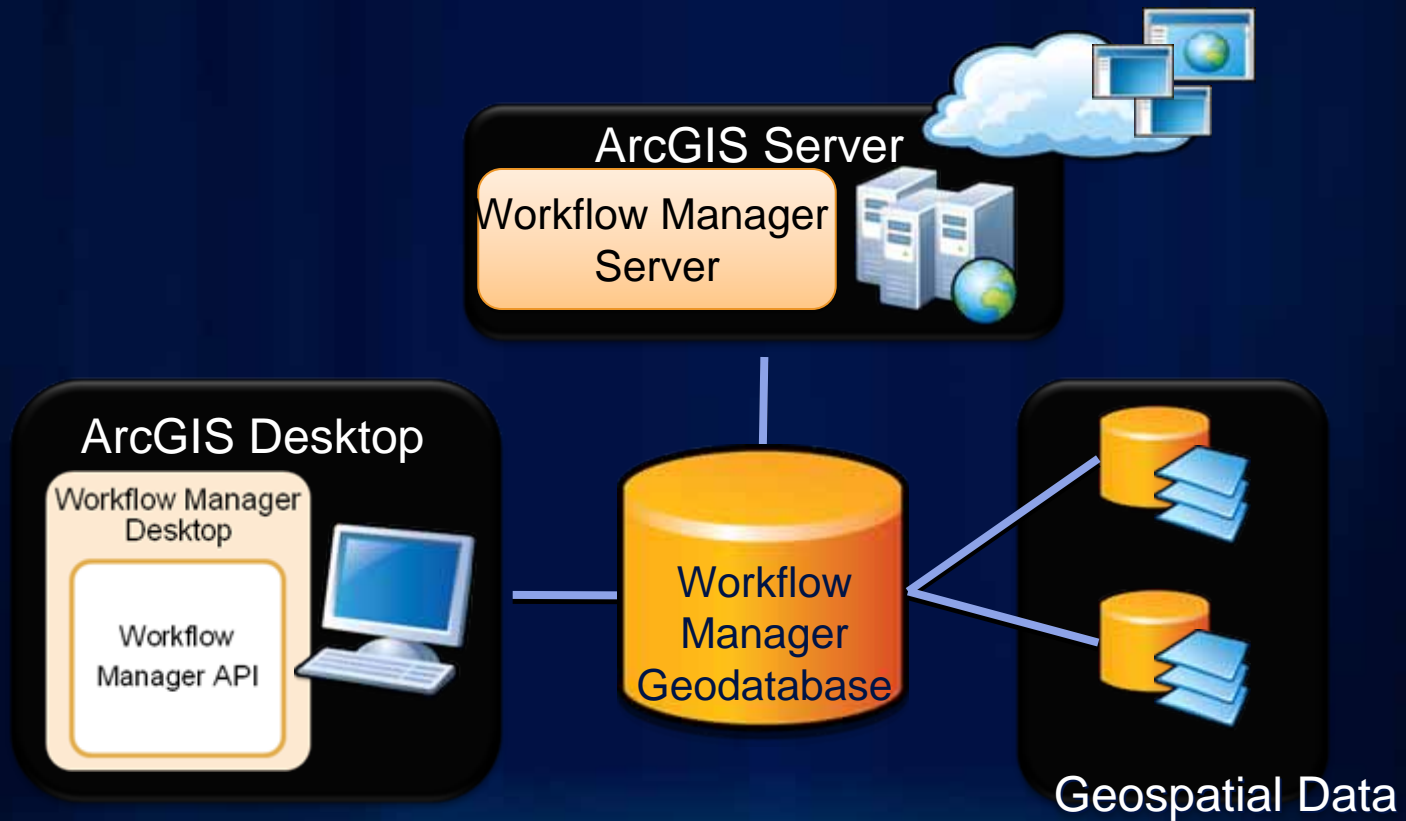


Complete GIS management functions in one tool

Key Benefits of ArcGIS Workflow Manager

- **Author and publish standardized workflows**
- **Centralize Work Information**
- **Controlled access to Geospatial Data**
- **Highly configurable**
- **Integrate GIS activities with business process**

ArcGIS Workflow Manager System Framework



Anatomy of a Job



ArcGIS Workflow Manager REST API

- Publishes workflow information
- Consumed by web applications
- Uses standard JSON format



Base Service URLs

- ArcGIS Server for Java
 - <http://<host>:8399/arcgis/rest/services/<serviceName>/WMServer>
 - JSON and HTML response formats
- ArcGIS Server for .NET
 - <http://<host>/wmrest/services/<serviceName>/WMServer>
 - JSON response format only

ArcGIS Workflow Manager REST API

ArcGIS Workflow Manager REST API

[FRAMES](#) | [NO FRAMES](#) [Description](#) | [Parameters](#) | [Examples](#) | [Response](#)

Workflow Manager Service

URL <http://<catalog-url>/<serviceName>/WMServer>

Parent Resource [Catalog](#)

Child Resources [Jobs](#) [Reports](#) [Users](#) [Groups](#) [Job Type](#) [Job Query](#) [Spatial Notification](#)

Description
TODO

Parameters

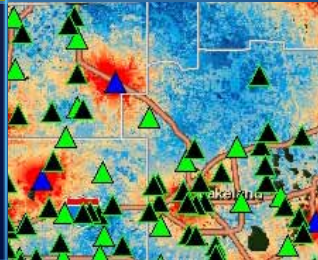
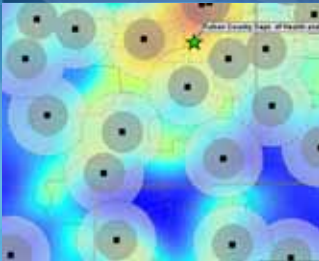
Parameter	Details
f	<i>Description:</i> The response format. The default response format is html. <i>Values:</i> html json

Example Usage

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Demo – REST API Documentation



REST API Resources and Operations

- **Resource URLs**

- Have no parameters
- Verbose JSON responses
- Example:
 - `<baseURL>/community/users`

- **Operation URLs**

- Have both required and optional parameters
- Typically small JSON responses
- Example:
 - `<baseURL>/jobs/5/assign?assignedType=1
&assignedTo=amiller`

Service Configuration - Base Resource

- **URL:** <baseURL>
- **Example:**
 - `http://localhost:8399/arcgis/rest/services/Workflows/WMServer?f=json`
 - `http://localhost/wmrest/services/Workflows/WMServer?f=json`
- **Response contains lists of:**
 - Job types, job queries, priorities, statuses, etc.

Service Configuration - Users

URL: <baseURL>/community/users

- Response contains basic information for all users

URL: <baseURL>/community/users/<username>

- Response contains detailed information for a single user

Service Configuration - Groups

URL: <baseURL>/community/groups

- Response contains basic information for all groups

URL: <baseURL>/community/groups/<groupId>

- Response contains detailed information for a single group

Job Management – Create Jobs

- **URL:** <baseURL>/jobs/create
- **Parameters:**
 - Based on job type default properties
 - ?user=cjones&jobTypeId=1&f=json
 - Based on user-specified properties
 - ?user=cjones&jobTypeId=1&dueDate=1230768000000&priority=3&f=json
- **Response:** List of job IDs

Job Management – Assign Jobs

- **URL:** `<baseUrl>/jobs/<jobId>/assign`
- **Parameters:**
 - Assign to another user
 - `?assignedType=1&assignedTo=amiller`
 - Assign to a group
 - `?assignedType=2&assignedTo=QA%20Team`

Job Management – Close and Delete Jobs

- **URL:** `<baseUrl>/jobs/<jobId>/close`
- **Parameters:**
 - `?user=cjones`

- **URL:** `<baseUrl>/jobs/<jobId>/delete`
- **Parameters:**
 - `?user=cjones&deleteHistory=true`

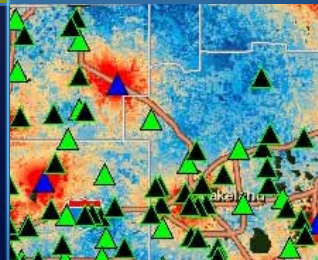
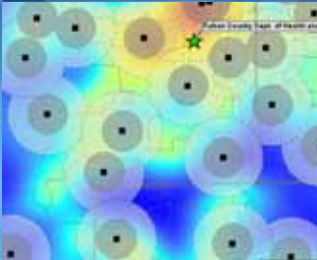
Job Management – Query Jobs

- **URL:** <baseURL>/jobs/query
- **Parameters:**
 - Pre-defined query
 - `?user=cjones&id=5`
 - Ad-hoc query
 - `?user=cjones&tables=JTX_JOBS`
 - `&fields=JTX_JOBS.JOB_NAME,JTX_JOBS.DUE_DATE`
 - `&aliases=Job%20Name,Due%20Date`
 - `&where=JTX_JOBS.ASSIGNED_TO%3D'[SYS:CUR_LOGIN]'`
 - `&orderBy=JTX_JOBS.DUE_DATE`

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Demo – Job Management



Job Properties - Basic

- **Get job properties**
 - **URL:** <baseURL>/jobs/<jobId>
- **Update job properties**
 - **URL:** <baseURL>/jobs/<jobId>/update
 - **Parameters:**
 - **Update job's percentage complete and priority**
 - `?user=cjones&priority=3&percent=85`

Job Properties – Extended Properties

- **Get a job's extended properties**
 - **URL:** `<baseUrl>/jobs/<jobId>/extendedProperties`
- **Get the domain values for an extended property field**
 - **URL:** `<extPropsURL>/<tableName>/listValues`
 - **Parameters:**
 - `?user=rs&field=COUNTY`
- **Update an extended property field**
 - **URL:** `<extPropsURL>/<tableName>/<recordId>/update`
 - **Parameters:**
 - `?user=rs&properties={ "NAME" : "John" , "TYPE" : 2 }`

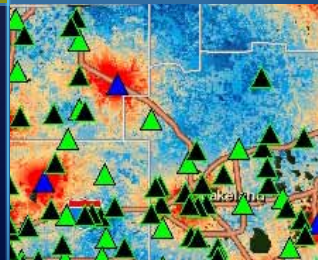
Job Properties – Add and Delete Attachments

- **Add attachment to a job**
 - **URL:** <jobURL>/attachments/add
 - **Parameters:**
 - **Linked attachment**
 - ?user=cjones&storageType=1&filePath=C:\Documents\Job_Guidelines.pdf
 - **Embedded attachment (HTTP multipart file upload)**
 - ?user=cjones&storageType=2
- **Delete a job attachment**
 - **URL:** <jobURL>/attachments/<attachmentId>/delete
- **Job attachment content**
 - **URL:** <jobURL>/attachments/<attachmentId>/content

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Demo – Job Properties



Workflow Execution – Basics

- **Workflow image and structure**
 - **URL:** <jobsURL>/<jobId>/workflow
 - **Parameters:**
 - For the image
 - ?f=image&format=jpg
 - For the structure
 - ?f=json

Workflow Execution – Basics

- **All steps**

- **URL:** `<workflowURL>/steps`

- **Current steps**

- **URL:** `<workflowURL>/steps/current`

- **Step description**

- **URL:** `<workflowURL>/steps/<stepId>/description`

Workflow Execution – Advanced

- **Execute steps**
 - **URL:** `<workflowURL>/steps/execute`
 - **Parameters:**
 - **Execute current steps in the specified order**
 - `?user=rs&steps=12,13`
 - **Execute current step and then automatically execute as many next steps as possible**
 - `?user=rs&steps=12&auto=true`
- **Response contains `executionResult` property**

Workflow Execution – Advanced

- **Can run step**
 - **URL:** <workflowURL>/steps/<stepId>/canRun
 - **Parameters:** ?user=cjones

- **Mark steps as done**
 - **URL:** <workflowURL>/steps/markAsDone
 - **Parameters:** ?user=cjones&steps=12,14

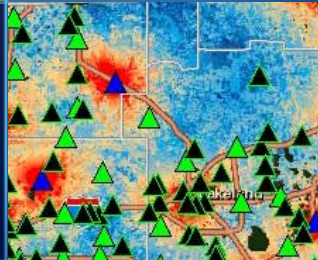
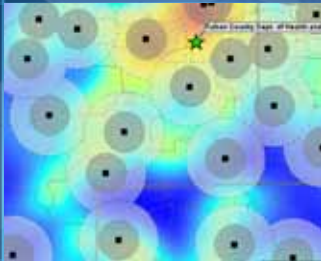
Workflow Execution – Advanced

- Apply the answer to a question step
 - **URL:** `<workflowURL>/steps/<stepId>/moveNext`
 - **Parameters:**
 - `?returnCode=3`
- Choose between two or more next steps
 - **URL:** `<workflowURL>/steps/<stepId>/resolveConflict`
 - **Parameters:**
 - `?optionReturnCode=2&optionSteps=16,17`

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Demo – Workflow Execution



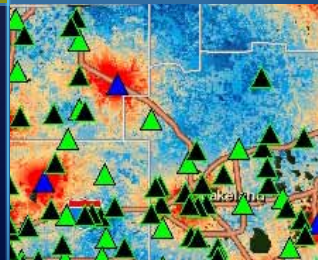
Job Reports

- **Reports list**
 - **URL:** <baseUrl>/reports
- **Get raw report data**
 - **URL:** <reportsURL>/<reportId>/data
 - **Parameters:** ?user=cjones
- **Generate a styled report**
 - **URL:** <reportsURL>/<reportId>/generate
 - **Parameters:** ?user=cjones

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Demo – Job Reports



Resources

- **Workflow Manager Development Resources**
 - ArcGIS Workflow Manager User Guide
 - SDK Developer Help
 - ArcGIS Resource Center
 - <http://resources.arcgis.com/content/workflow-manager/10.0/about>
- **Want To Learn More?**
<http://www.esri.com/workflowmanager>



Questions

```
function onMapReady() {  
  map = new google.maps.Map(  
    document.getElementById('map'),  
    {  
      center: new google.maps.LatLng(37.5, -122.5),  
      zoom: 15,  
      mapTypeId: google.maps.MapTypeId.SATELLITE,  
      streetViewLocator: new google.maps.StreetViewLocator(  
        {  
          apiKey: 'AIzaSyC81S71T2Lh0pV6wYlAsuFESMLjw8yR9' })  
      });  
  map.addLayer(new google.maps.StreetView pegman);  
}  
  
function getDriverIdFromLatLng( lat, lng ) {  
  var features = results; // results from map.getOverlays().get(0).getFeatures();  
  for (var f=0, features = features; f < features.length; f++) {  
    var feature = features[f];  
    if (feature.geometry.getType() === 'Point') {  
      var polySymbol = new google.maps.Symbol({  
        color: 'red',  
        size: 100,  
        text: 'P',  
        fontFace: 'serif',  
        fontStyle: 'italic',  
        fontVariant: 'small-caps',  
        fontWeight: 'bold',  
        textBaseline: 'middle',  
        textOffset: 0, // default is 10  
        textRotation: 0, // default is 45  
        textSize: 16, // default is 24  
        textWidth: 100, // default is 100  
        textHeight: 100, // default is 100  
        textLineHeight: 1, // default is 1  
        textLetterSpacing: 0, // default is 0  
        textWordSpacing: 0, // default is 0  
        textZIndex: 1000, // default is 1000  
        textOpacity: 1, // default is 1  
        textColor: 'red', // default is 'black'  
      });  
      do {  
        polySymbol.setPosition(feature.geometry.getLatLng());  
        feature.setSymbol(polySymbol);  
      } while (feature.getSymbol() !== polySymbol);  
    }  
  }  
}
```



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