ArcGIS Data Reviewer: An Introduction

Chandan Banerjee

Jay Cary

Workshop Agenda

- Importance of Data Quality
- What is ArcGIS Data Reviewer?
- Automated review
- Semi-automated review
- Managing errors and reporting data quality
- Summary/Resources

Importance of data quality

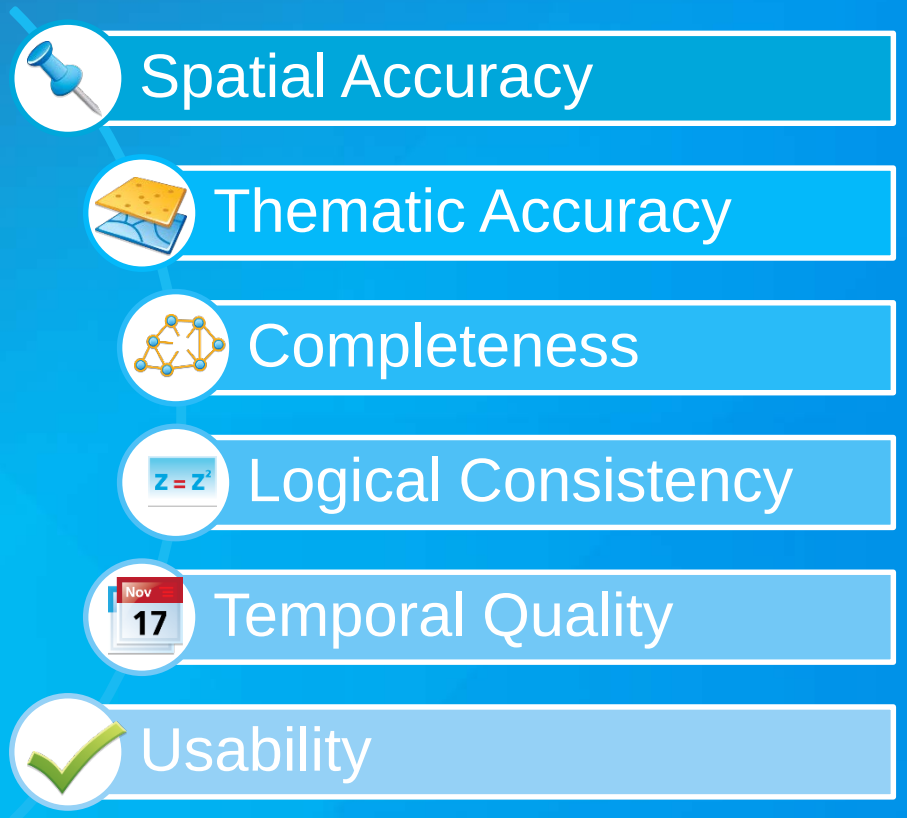
Defining quality

A business perspective

- **Executive**
  - Confidently make decisions
  - Reduce financial risk
  - Optimize organizational performance
- **Manager**
  - Effective data stewardship
  - Drive increased usage
  - Maximize productivity
- **Knowledge worker**
  - Increased efficiencies
  - Confidence in GIS

Defining Quality

A Technical Perspective



ISO-19157:2013 Geographic information – Data quality

Data quality management

Capabilities of the ArcGIS Platform

Geodatabase integrity

- Schema constraints
- Geoprocessing tools
- Data load checks
- Versioning

Advanced data types

- Topologies
- Geometric networks

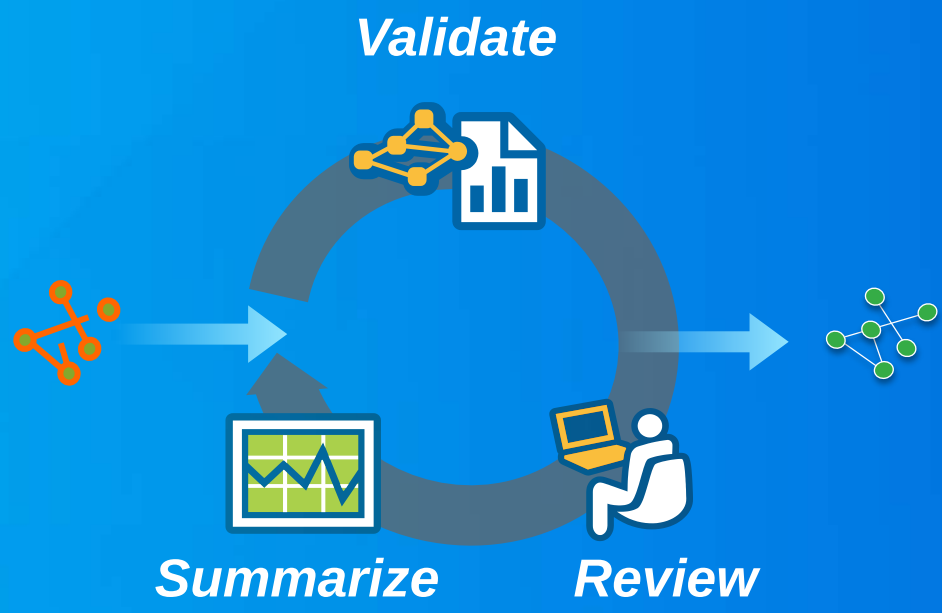
ArcGIS Data Reviewer

- Automated review
- Semi-automated review
- Error management
- Quality reporting

What is ArcGIS Data Reviewer?

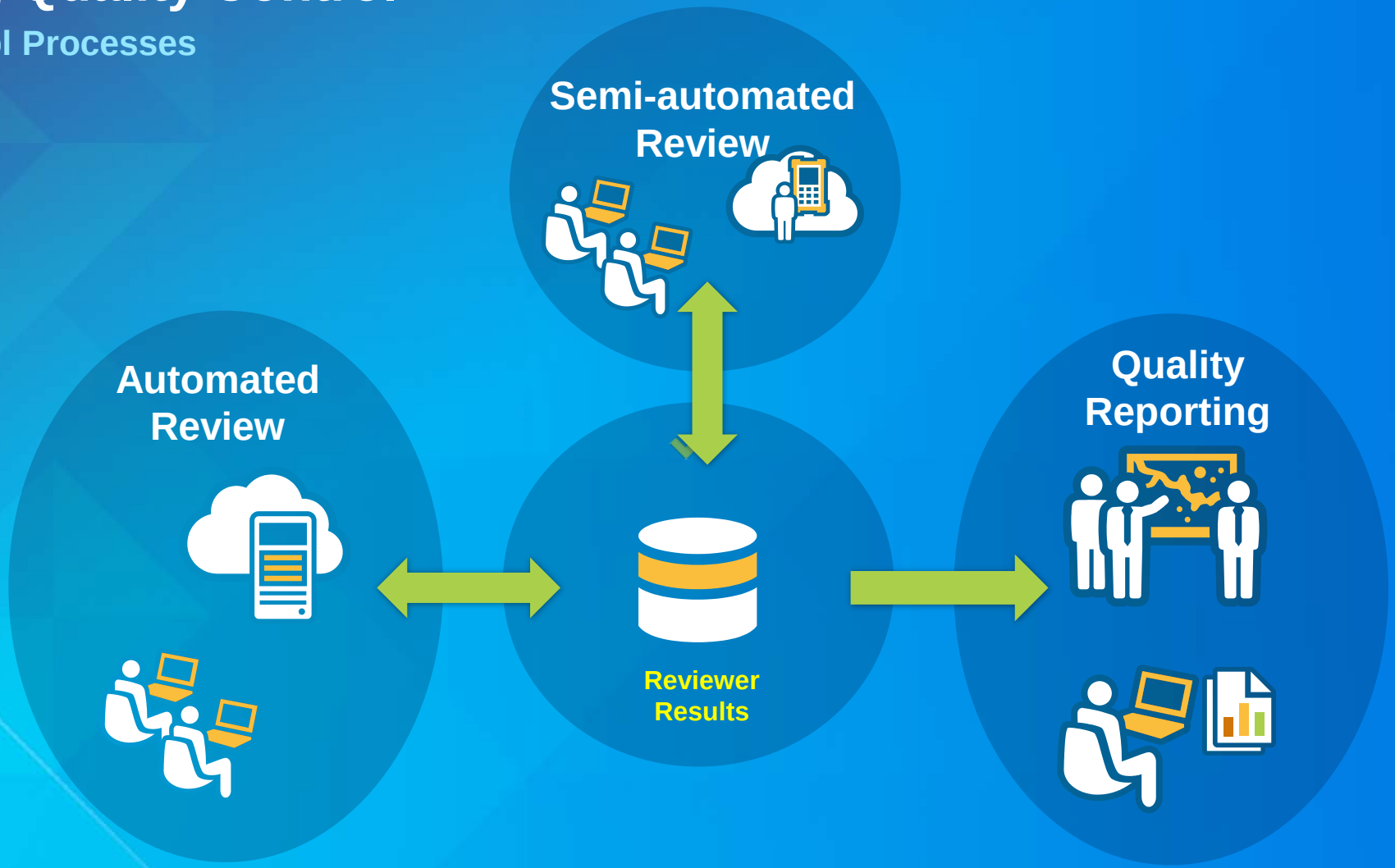
Data Quality Management for ArcGIS

- **Provides**
  - Rule-based validation
  - Interactive tools
  - Track errors
- **For individuals and enterprise**
  - Saves time/money
  - Less rework
- **For multiple domains**
  - Configurable
  - Extendable



Managing Quality Control

Quality Control Processes



What is ArcGIS Data Reviewer?

Data quality management in the ArcGIS platform

- **Data Reviewer for Desktop**
  - ArcMap
  - ArcGIS Pro
- **Data Reviewer for Server**
  - Standard or higher
- **Data Reviewer API for**
  - FLEX
  - JavaScript

Automated Review

Types of quality control

Automated review

- **Fast**
- **Consistent and repeatable**
- **Objective**
- **100% coverage**

Defining Quality

Sources of data quality requirements

Industry standards / Specifications

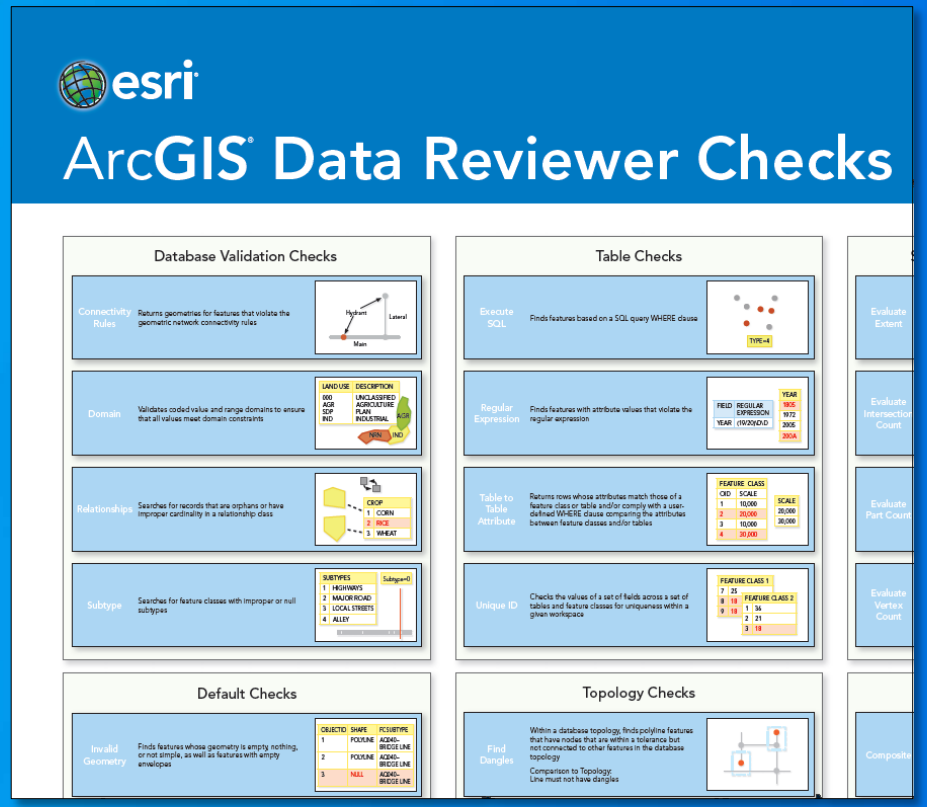
Subject matter experts

Training and experience

Quality assurance plans

Automating Data Validation

- **Implementing quality requirements**
  - **40+ configurable checks**
  - **Attribute**
    - Feature and table values
  - **Spatial**
    - Spatial relationships
  - **Feature integrity**
    - Collection rules
  - **Metadata**
    - Completeness/Content



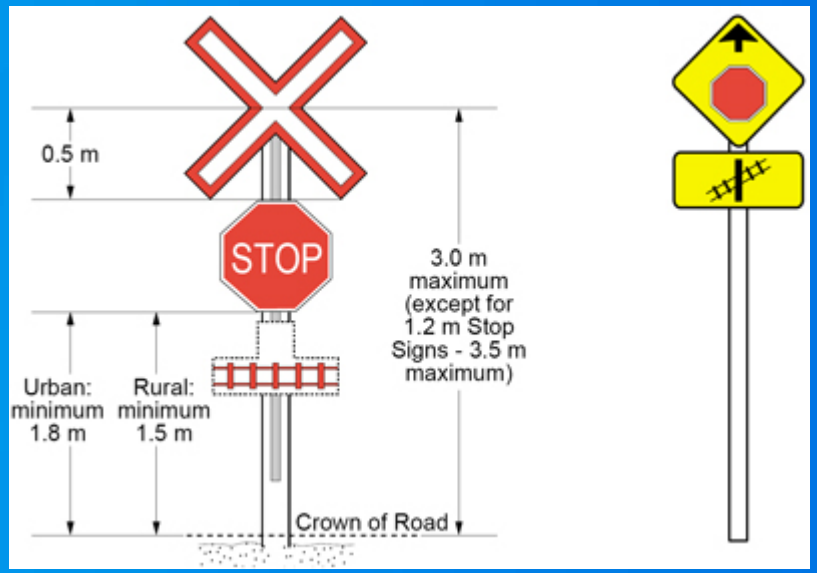
http://j.mp/DRCheckPoster

Demo: Getting Started with Automated Review

Demo Scenario

- **Department plans to use field staff with field data collection devices to map road-related features (signs, street furniture).**

- **Goals**
  - Features should be positionally accurate based on siting criteria
  - Key attributes are populated and have the correct values
  - All features should be collected within the survey area



Authoring Data Quality Rules

Batch Validation

Implementing Cumulative Review

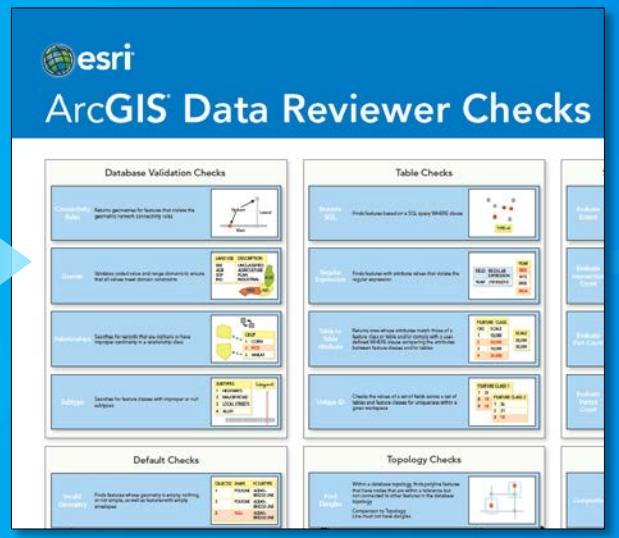
- **Reviewer Batch Jobs**
  - Define and encapsulate quality requirements
  - Captures domain knowledge
  - Designed once and executed many times
    - ArcGIS for Desktop, ArcGIS for Server

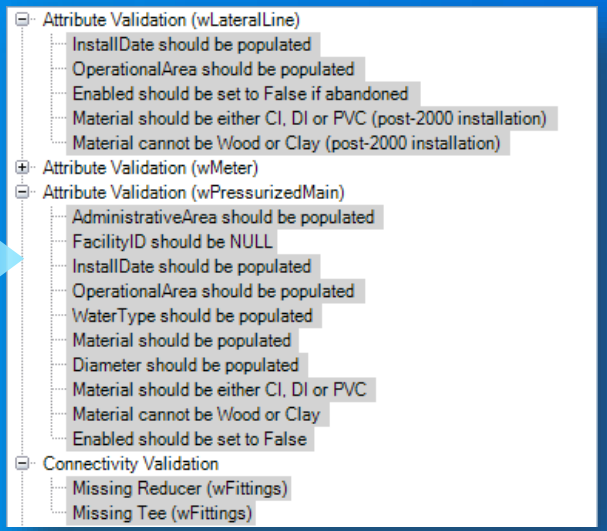
Industry standards / Specifications

Subject matter experts

Training and experience

Quality assurance plans

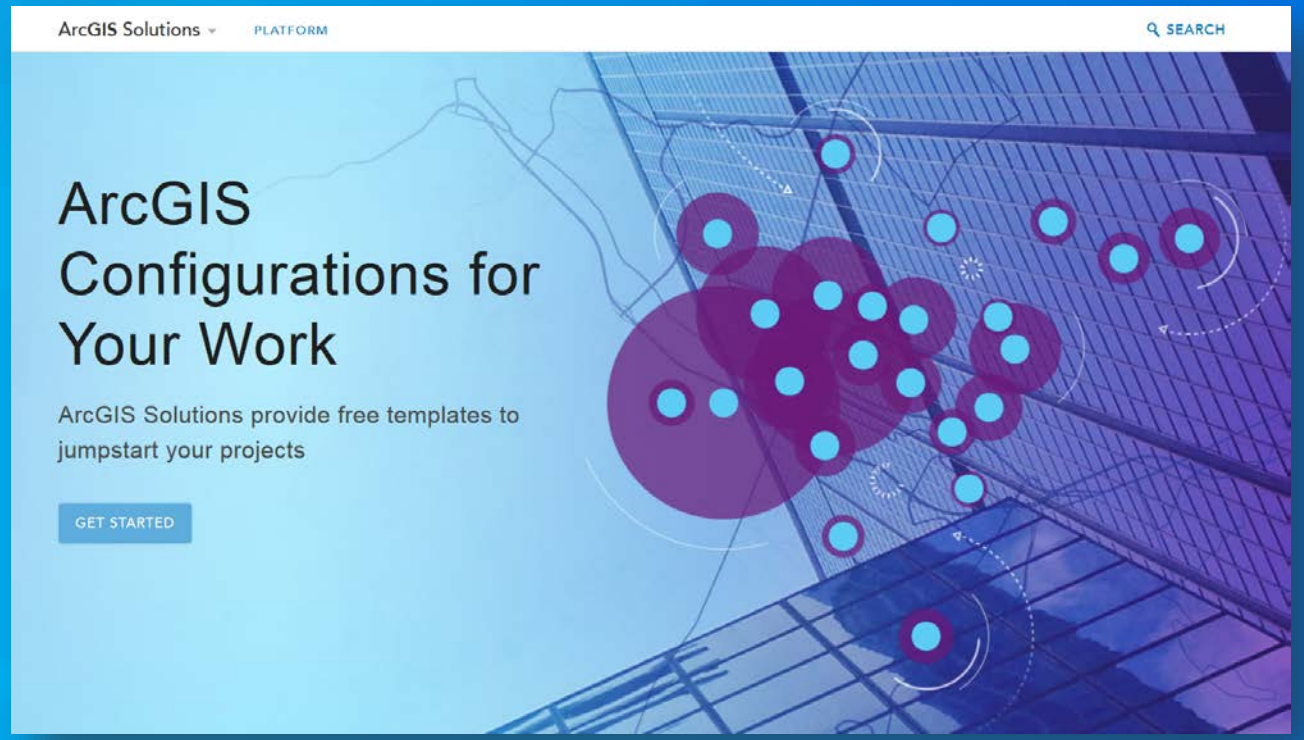




Resources

Esri Solutions

- **Industry templates**
  - Address Management
  - Basemaps
  - Electrical Utilities
  - Gas Utilities
  - Roads & Highways
  - Tax Parcel Editing
  - Water Utilities
- **Based on Esri industry models**
- **Use as Starting point**

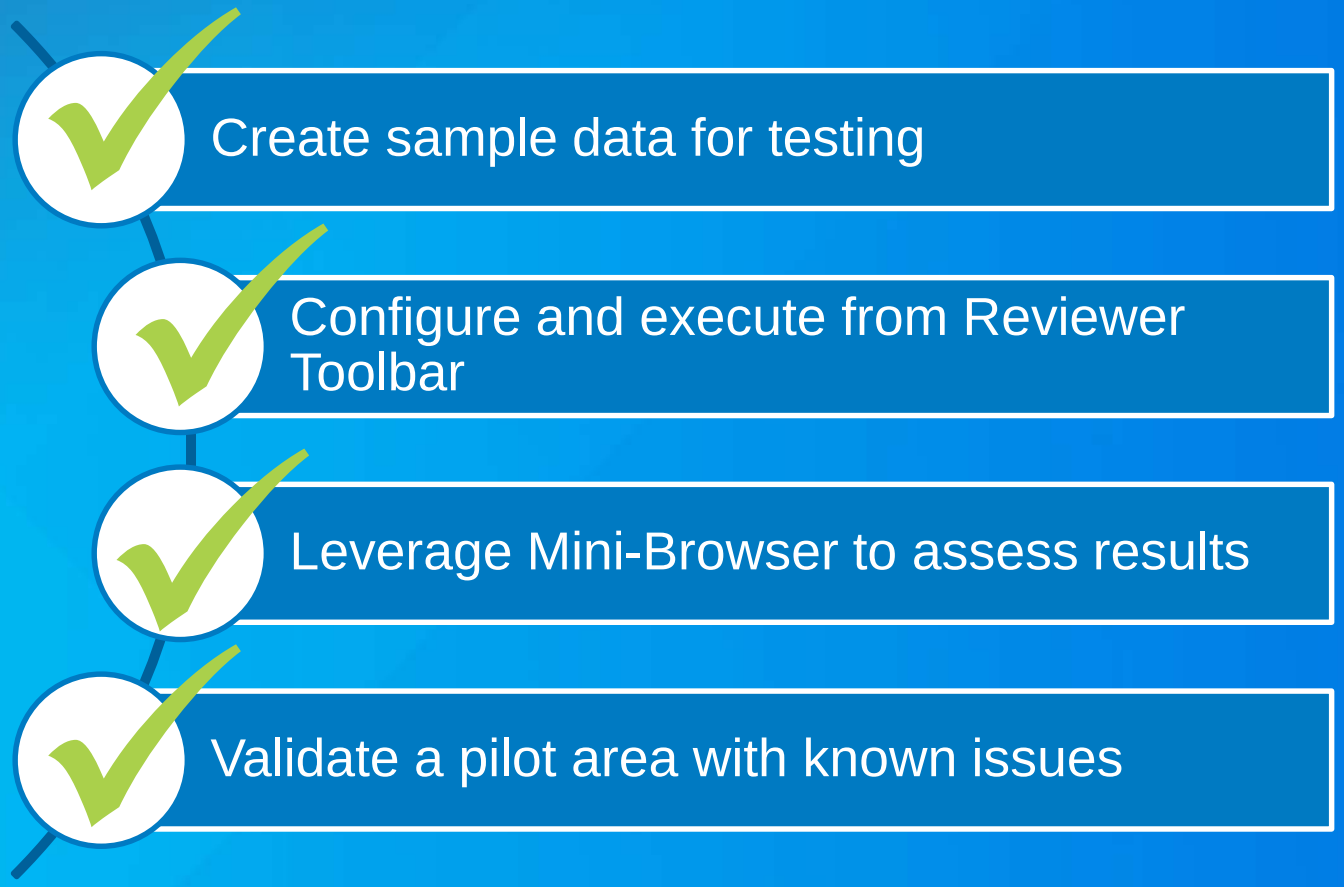


solutions.arcgis.com

Demo:
Authoring Data Quality Rules

Authoring Batch Jobs

Tips and Tricks

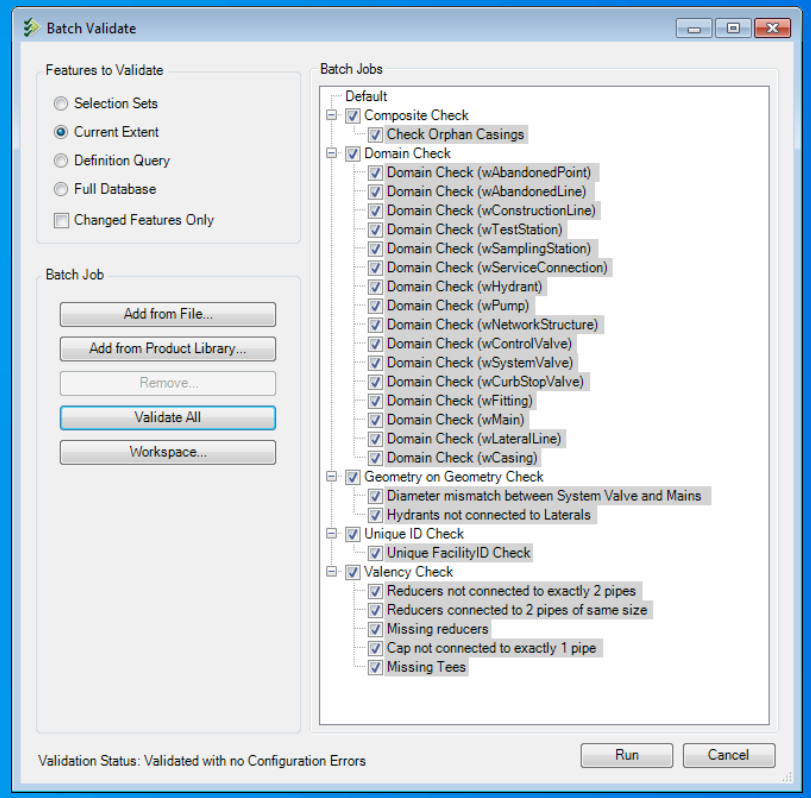


Executing Automated Validation

Methods for executing data validation

Execute data validation using

- ArcMap

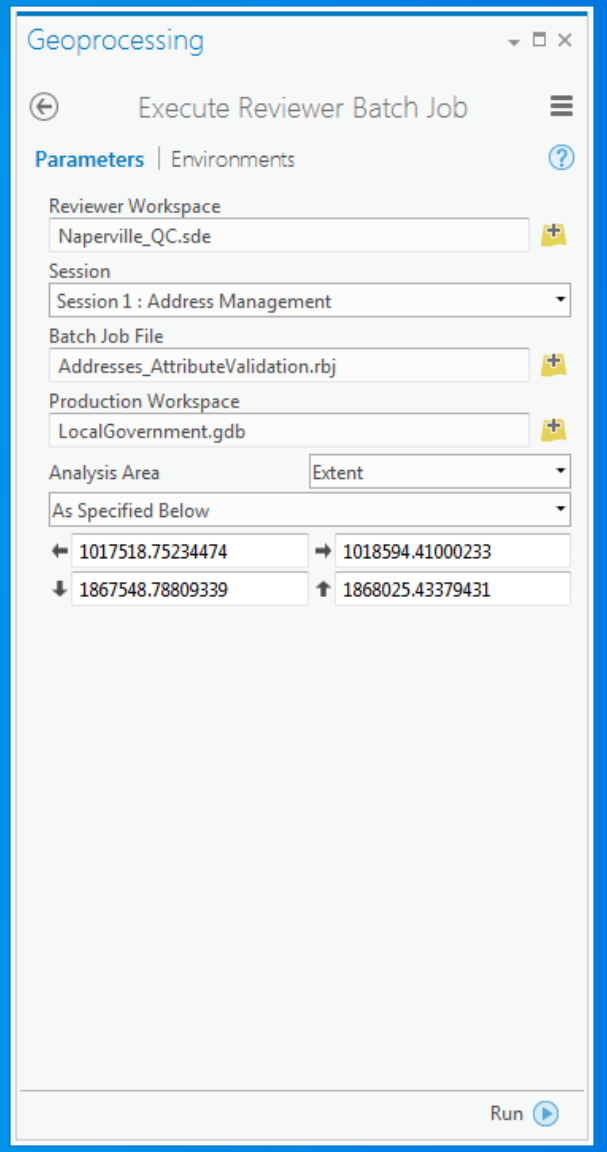


Methods for executing data validation

Execute data validation using

- ArcMap
- ArcGIS Pro

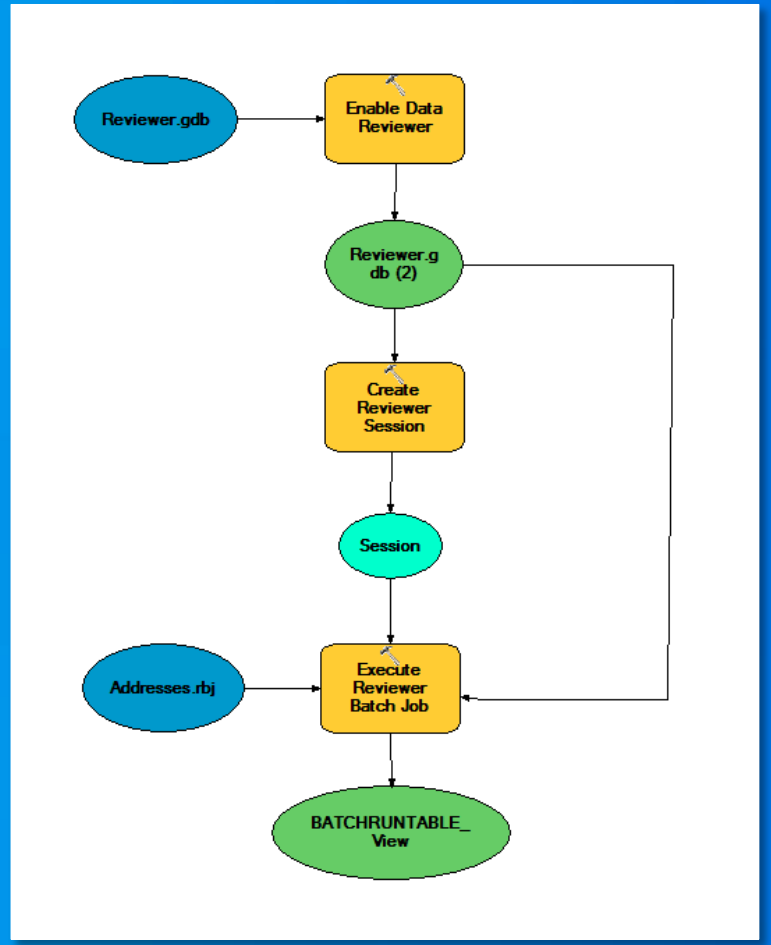
New



Methods for executing data validation

Execute data validation using

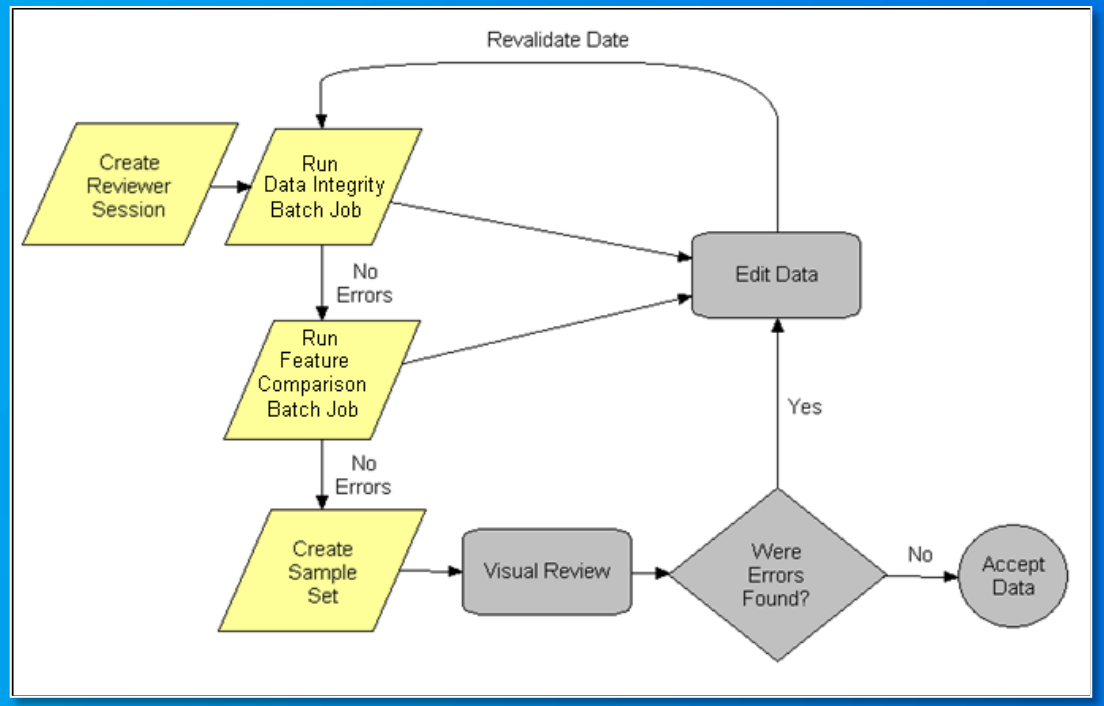
- ArcMap
- ArcGIS Pro
- Model/Python script



Methods for executing data validation

Execute data validation using

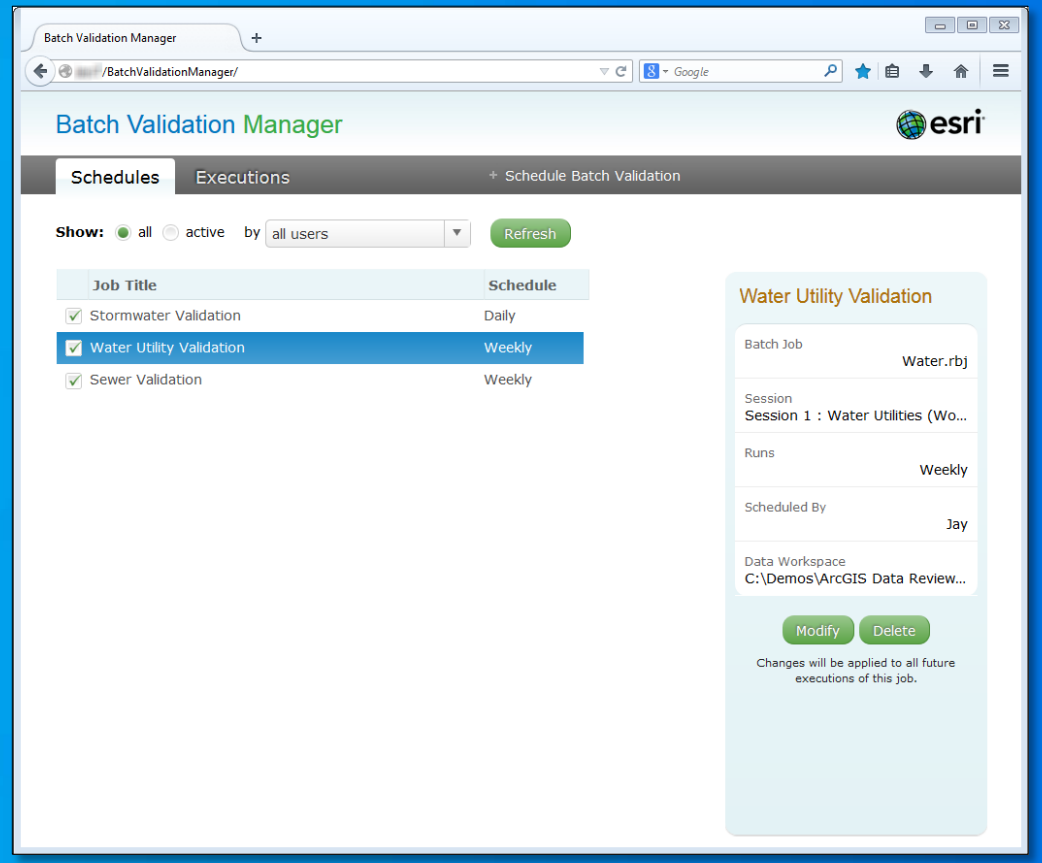
- ArcMap
- ArcGIS Pro
- Model/Python script
- ArcGIS Workflow Manager



Methods for executing data validation

Execute data validation using

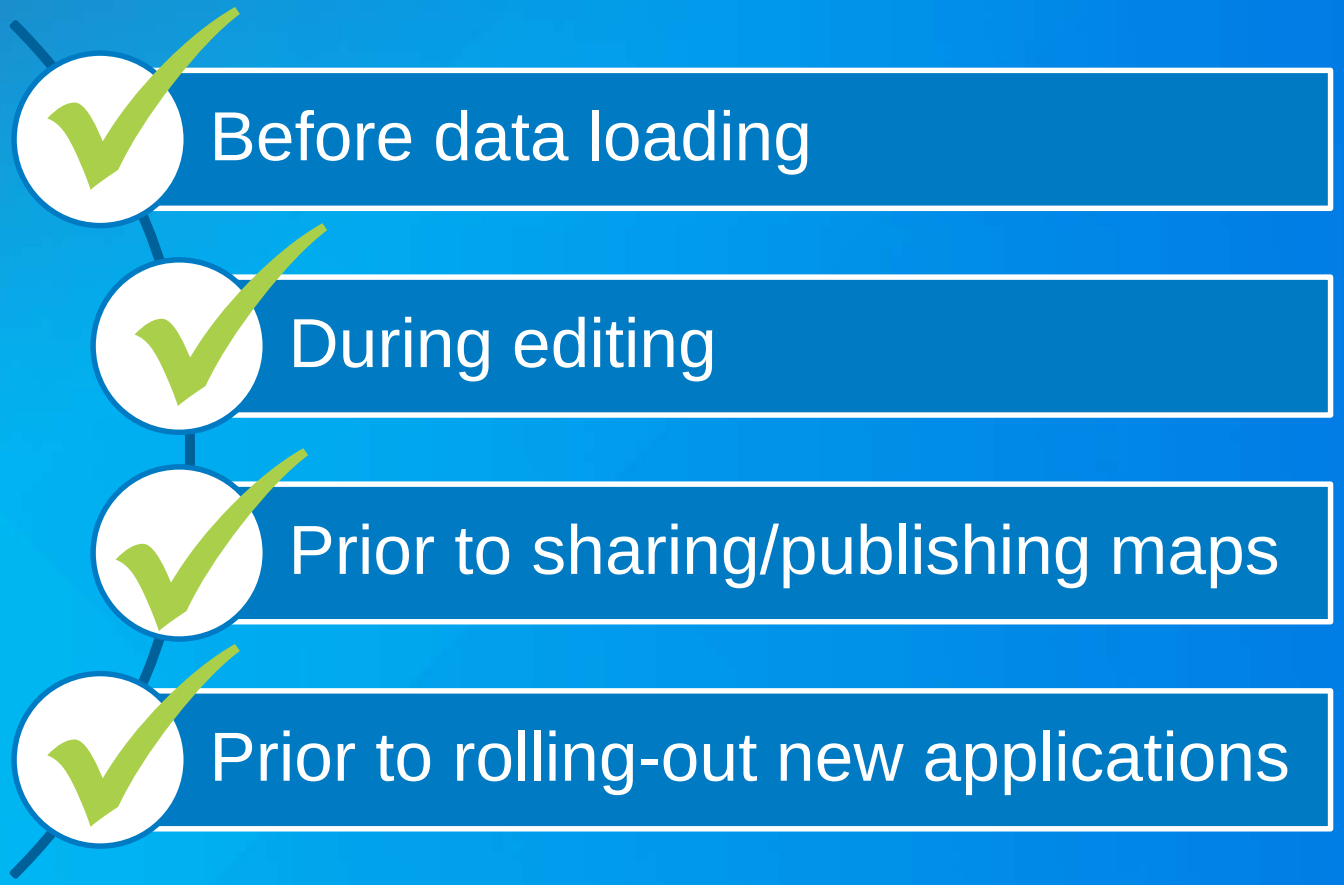
- ArcMap
- ArcGIS Pro
- Model/Python script
- ArcGIS Workflow Manager
- ArcGIS for Server



Demo: Executing Automated Validation

Batch validation

Events when validation may be required



Semi-Automated Review

Types of quality control

Automated review

- Fast
- Consistent and repeatable
- Objective
- 100% coverage

Semi-automated review

- Guided Workflows
- Streamlined processes
- Subjective
- Sampling

Semi-automated review methods

Visual review

- Redlining
- Systematic review
- Sampling

Data inspection

- Feature counts
- Attribute review
- Version differences

Positional accuracy

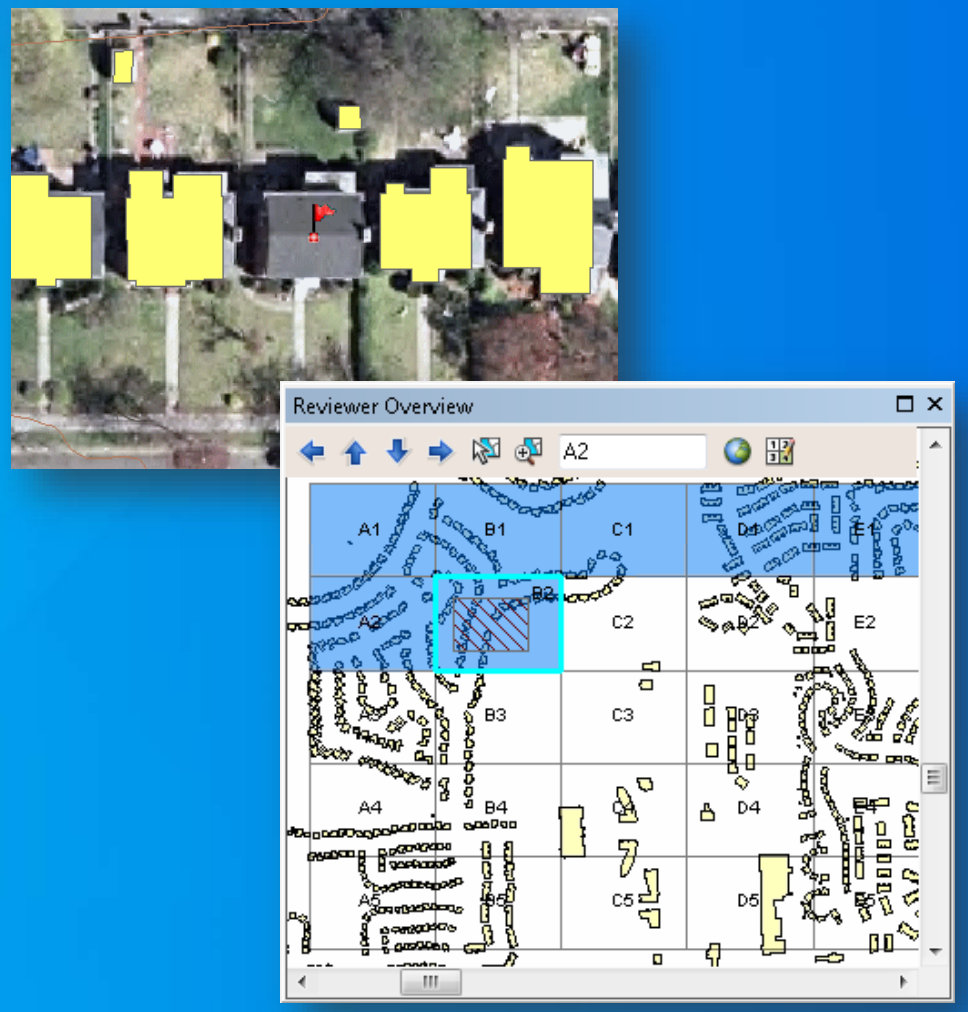
- Assessment tool

Semi-automated review

Leveraging ArcGIS for Desktop

Tools supporting

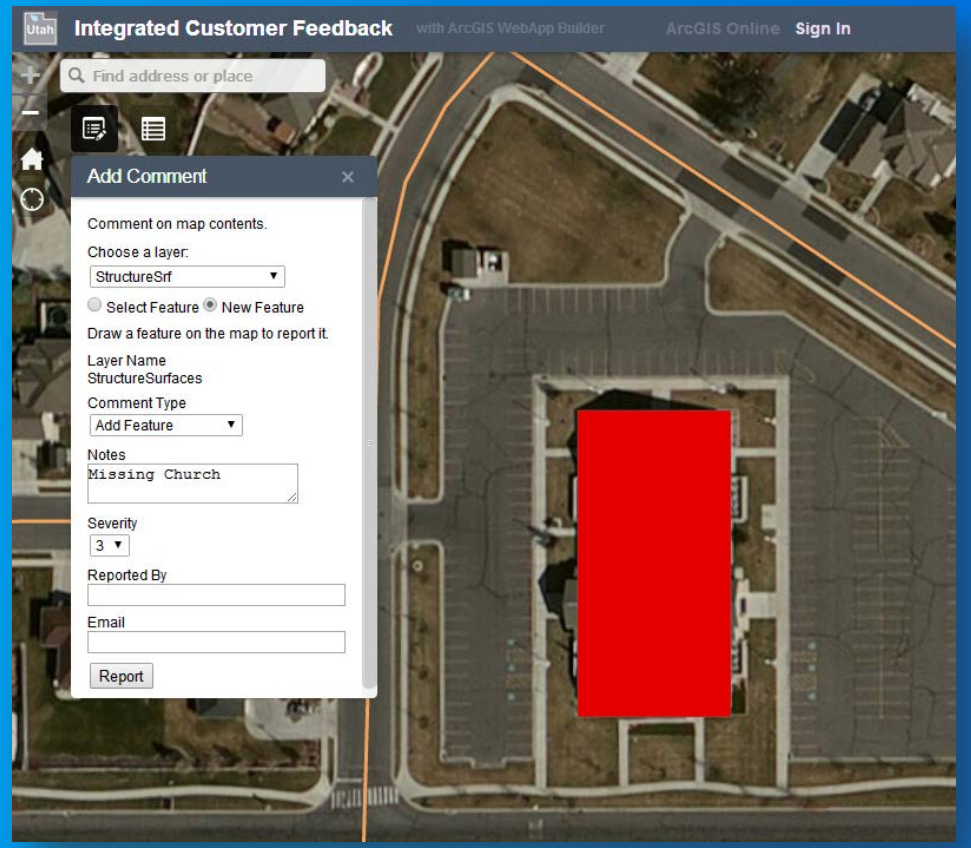
- Selecting/browsing features
- Redlining missing features
- Flagging existing features in error
- Generating random samples
- Assessing positional accuracy
- Comparing geodatabase versions



Semi-automated review

Leveraging ArcGIS for Server

- **Extending quality control workflows into other communities**
  - **QC review across ArcGIS platform**
  - **Simple to use tools for error identification**
  - **Manual QC workflow “automation”**



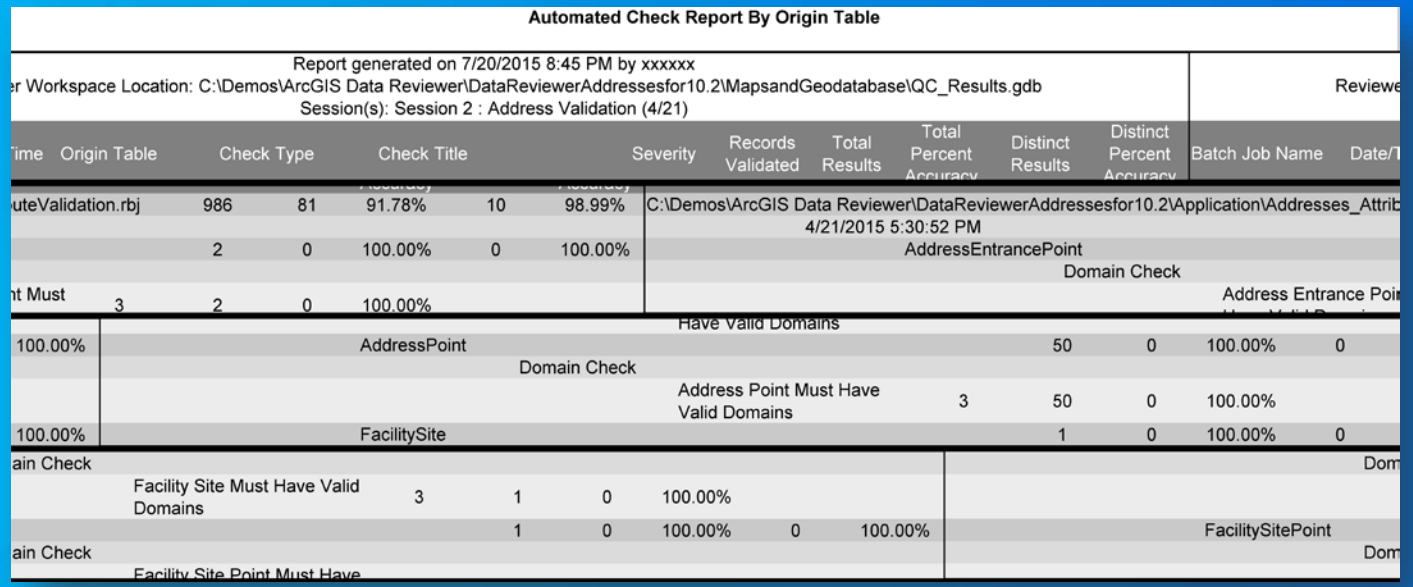
Demo:
Visual Data Review

Reporting Quality

Data Quality Reporting

ArcGIS for Desktop

- **Automated reporting of quality control results**
- **Adhoc result summary tools**
- **Pre-configured reports**
  - Automated Check (Origin Table, Subtype, Check Group)
  - Total Record Count
  - Sampling



Automated Check Report By Origin Table

Report generated on 7/20/2015 8:45 PM by xxxxxx
r Workspace Location: C:\Demos\ArcGIS Data Reviewer\DataReviewerAddressesfor10.2\MapsandGeodatabase\QC_Results.gdb
Session(s): Session 2 : Address Validation (4/21)

ime	Origin Table	Check Type	Check Title	Severity	Records Validated	Total Results	Total Percent Accuracy	Distinct Results	Distinct Percent Accuracy	Batch Job Name	Date/T
uteValidation.rbj		986	81	91.78%	10	98.99%	C:\Demos\ArcGIS Data Reviewer\DataReviewerAddressesfor10.2\Application\Addresses_Attrib				
							4/21/2015 5:30:52 PM				
		2	0	100.00%	0	100.00%	AddressEntrancePoint				
							Domain Check				
t Must	3	2	0	100.00%						Address Entrance Poi	
							Have Valid Domains				
100.00%			AddressPoint					50	0	100.00%	0
			Domain Check								
				3			Address Point Must Have Valid Domains	50	0	100.00%	
100.00%			FacilitySite					1	0	100.00%	0
ain Check											Dom
	Facility Site Must Have Valid Domains	3	1	0	100.00%						
			1	0	100.00%	0	100.00%			FacilitySitePoint	
ain Check											Dom
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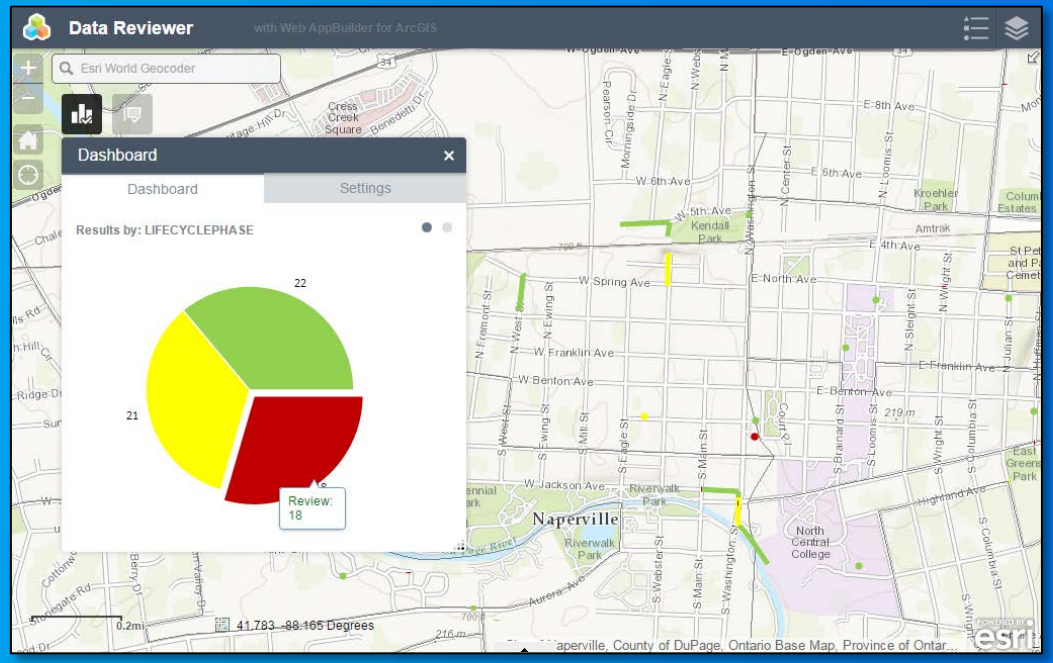
Data Quality Reporting

ArcGIS for Server

Enabling transparency in data quality

- Better decision making by communicating data quality across stakeholders
- Open quality reporting
- Shared across ArcGIS system
- Tools and methods to communicate quality



Demo Scenario

- **As a GIS manager, I need to manage the quality of the GIS database to ensure that it can support existing and new staff operations.**

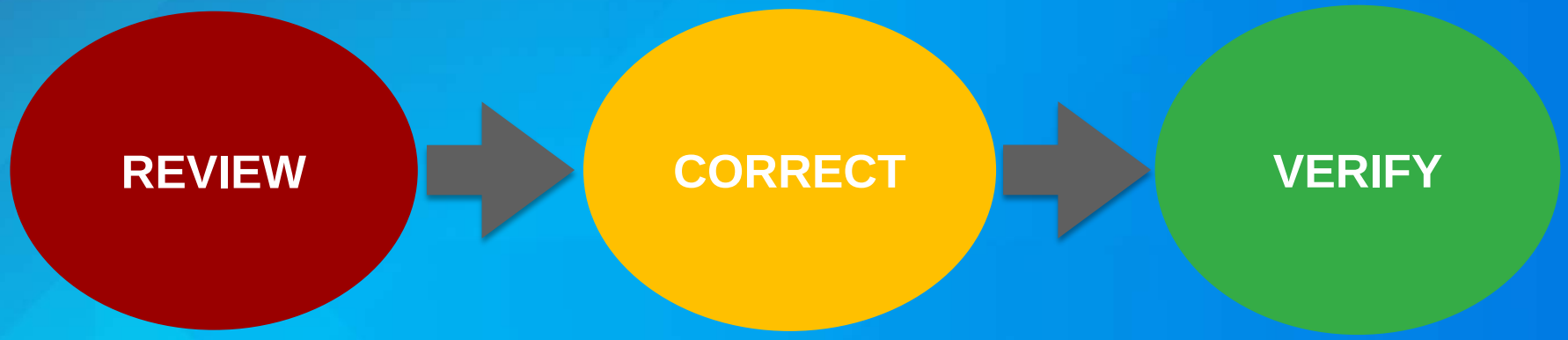
- **Business Requirements**
  - Features should be positionally accurate based on siting criteria (95% accuracy)
  - Key attributes are populated and have the correct values (95% accuracy)

Demo:
Reporting Quality

Managing Quality Results

Managing Quality Control

QC lifecycle management



Find &
Record Errors

Perform Edits
or
Note Exceptions

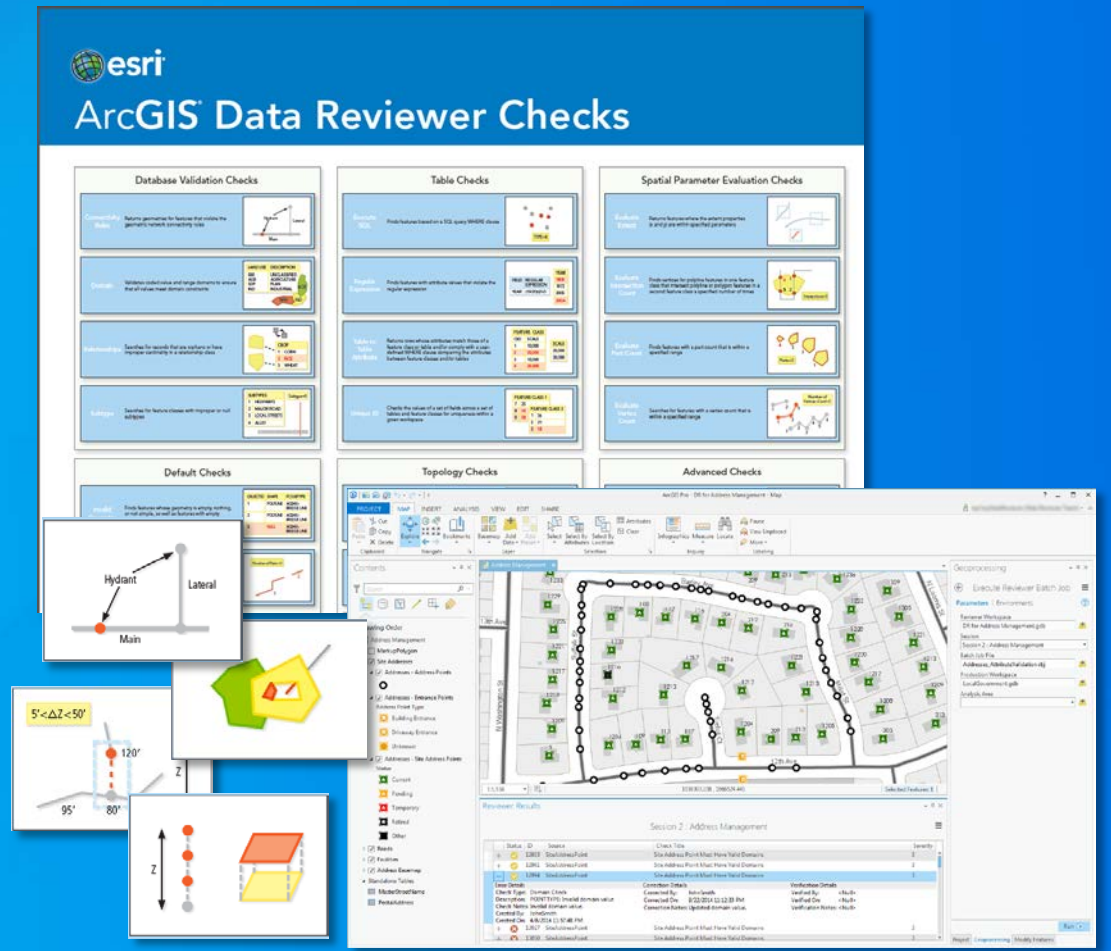
Acceptable
or
Unacceptable

Demo:

Managing Quality Results

Workshop Review

- Importance of data quality
- Forms of data quality control
  - Automated review
  - Semi-automated review
- ArcGIS Data Reviewer
  - Automated validation
  - Semi-automated tools
  - Error lifecycle management
  - Reporting



Want to learn more?

- **Documentation**
  - Resource Center
- **Training**
  - Assessing Data Quality using ArcGIS Data Reviewer (Seminar)
  - Data QC with ArcGIS: Automating Validation (Web Course)
  - Data QC with ArcGIS: Visual Review (Web Course)
  - Quality Control Using ArcGIS Data Reviewer for Desktop (Instructor Led)
- **Questions/Comments**
  - GeoNet (Data Reviewer place)
  - Email (datareviewer@esri.com)

Understanding our world.