

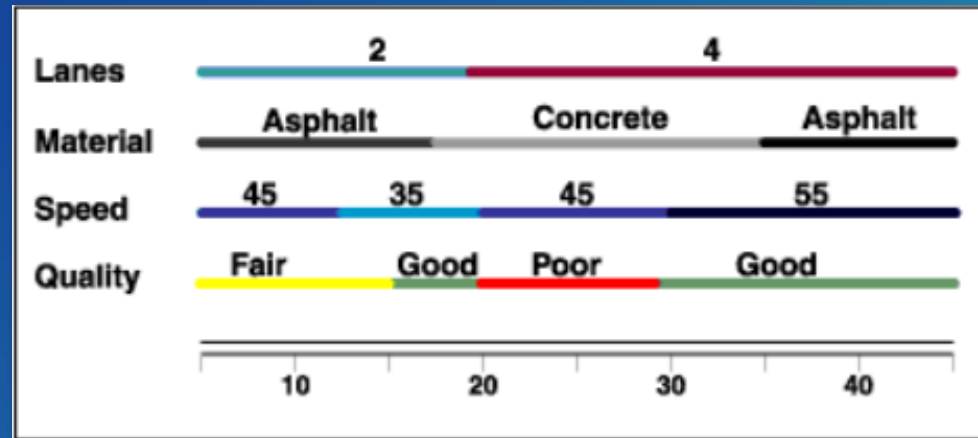
# Validating Linear Reference Events

Francisco Perez Giusti

# Validating Linear Reference Events

## Linear Referencing

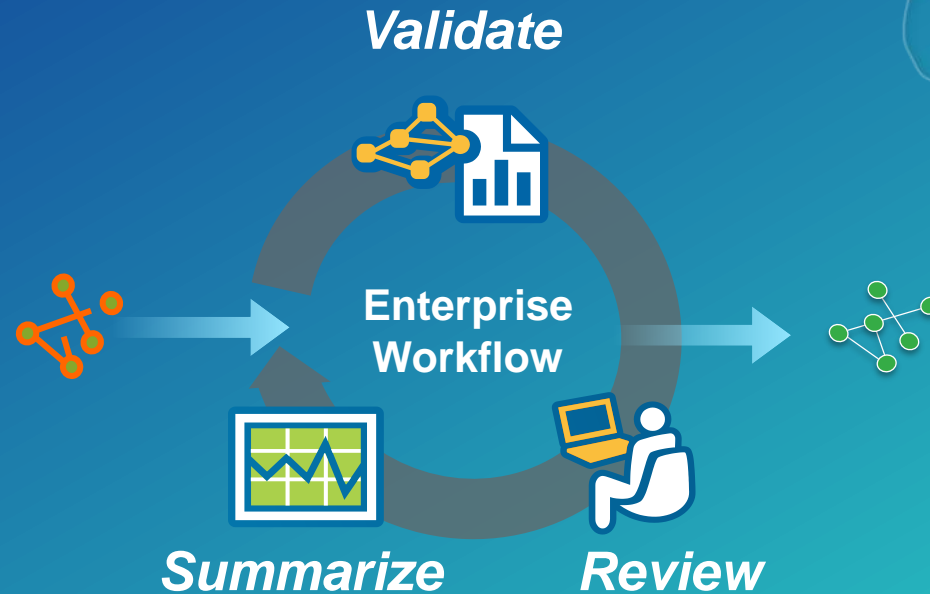
### What is Linear Referencing?



# 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



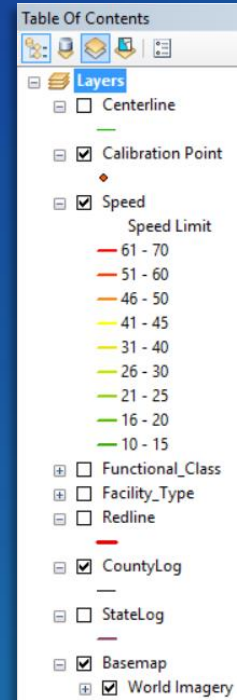


# Validating Linear Reference Events

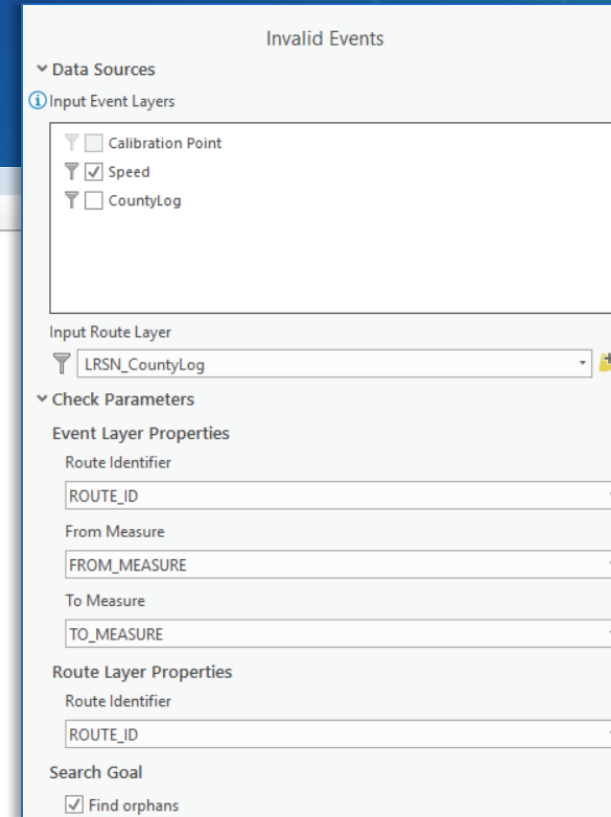
## Invalid Events

### Industries

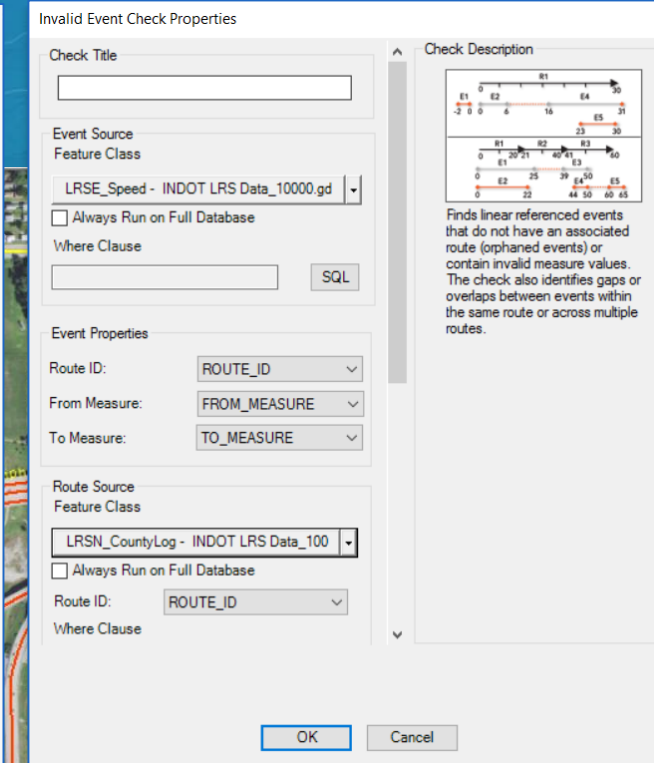
- Roadway Management
- Pipeline Management
- Orphan Events
- Invalid Events
- Event Gaps
- Event Overlaps



## ArcGIS Pro

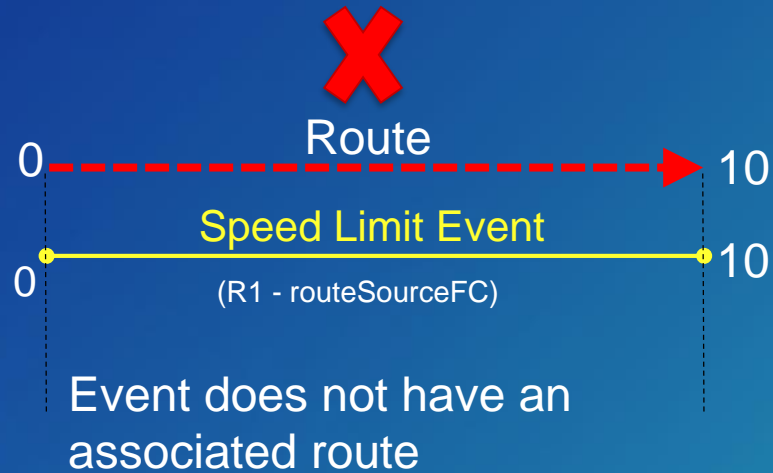
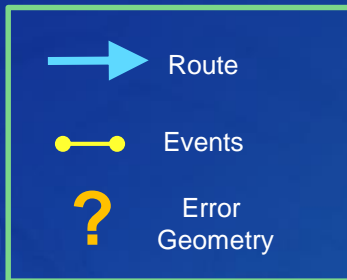


## ArcGIS Desktop



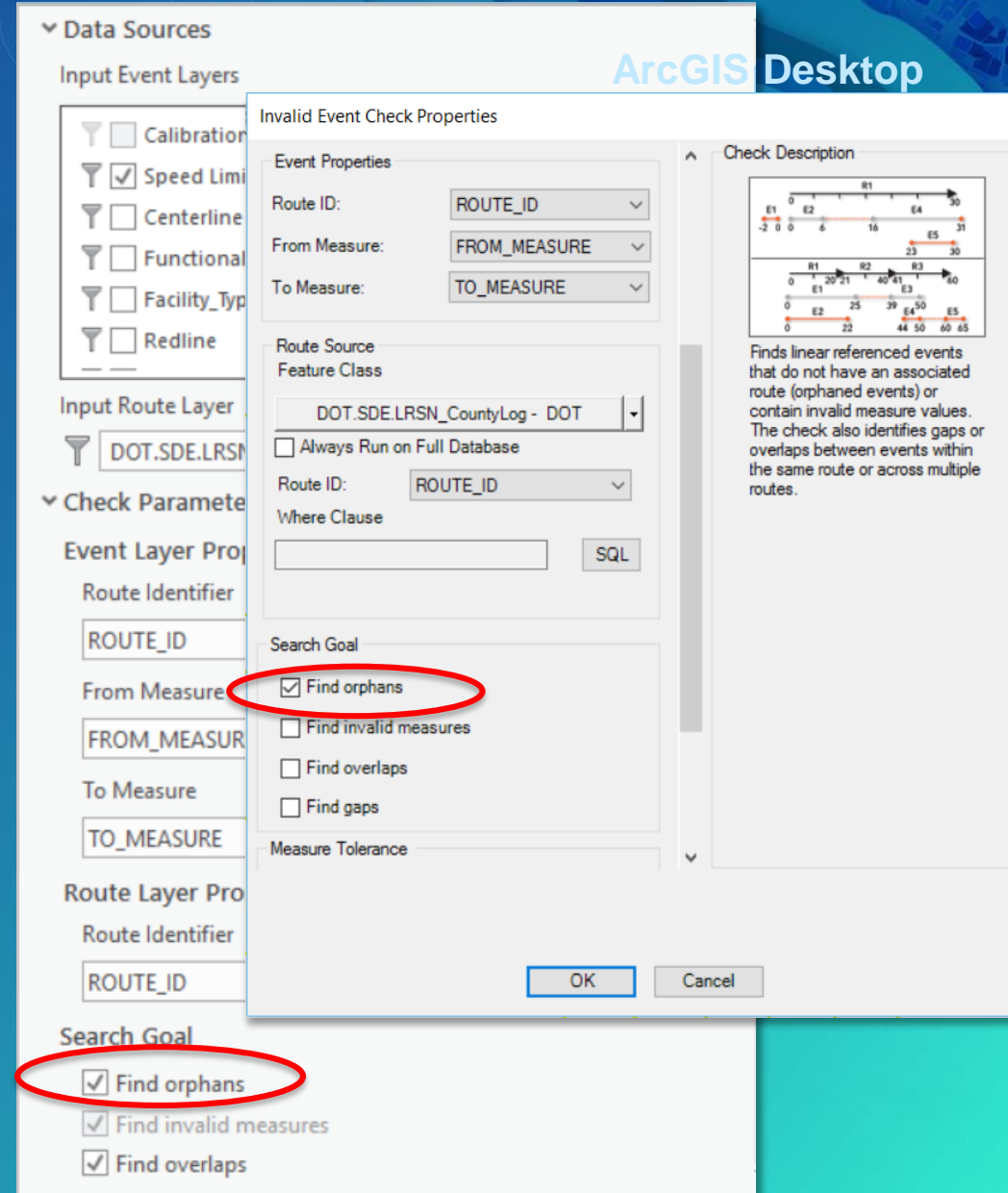
# Invalid Events (Error Scenarios) Orphans

## LEGEND



ArcGIS Pro

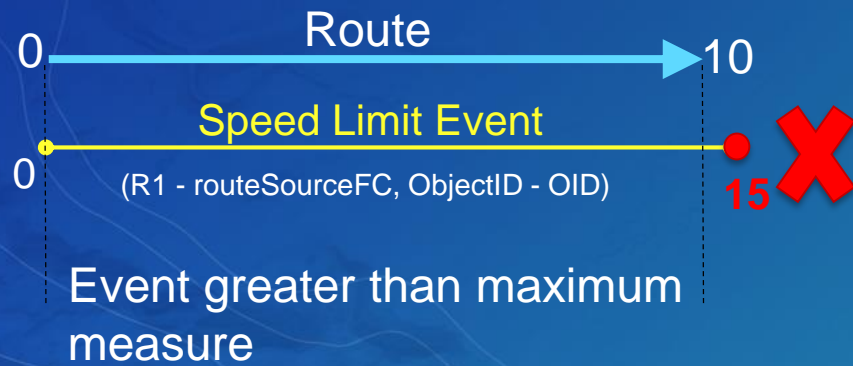
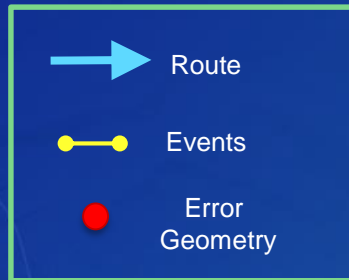
ArcGIS Desktop



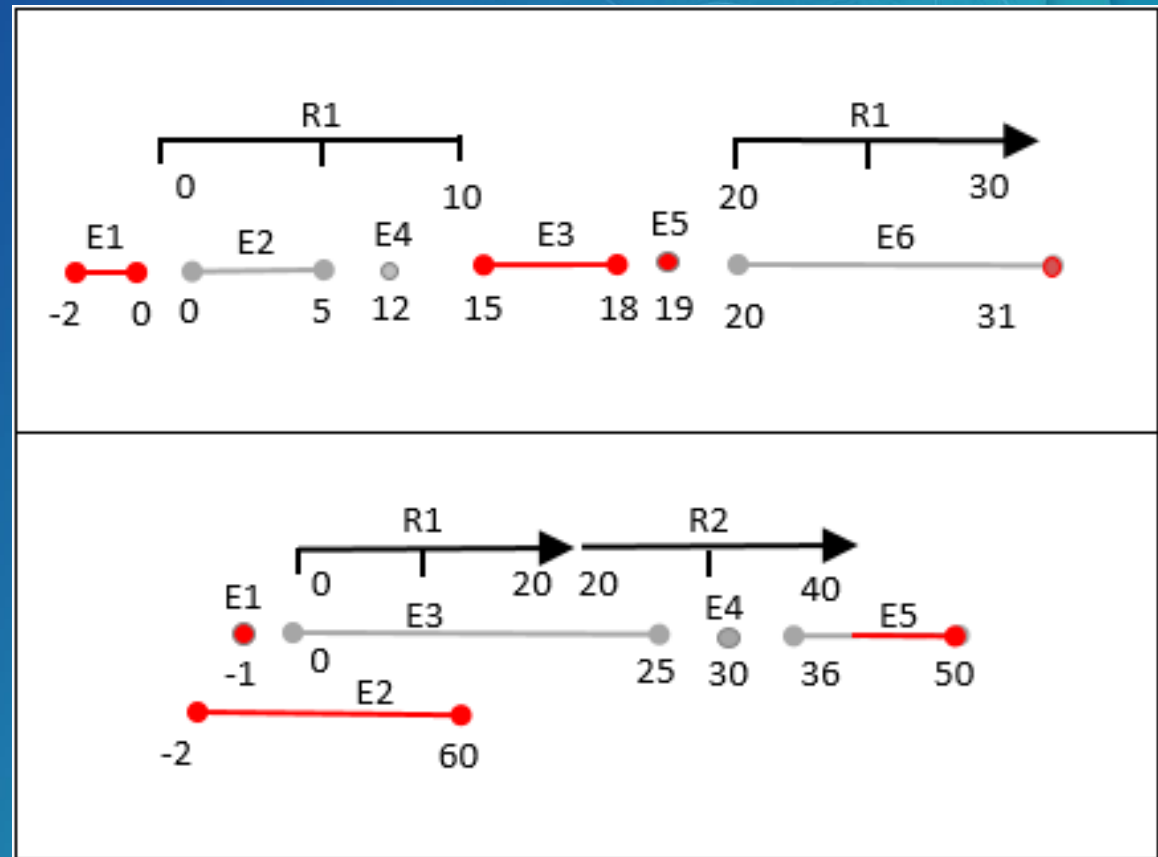
# Invalid Events (Error Scenarios)

## Invalid Measures

### LEGEND



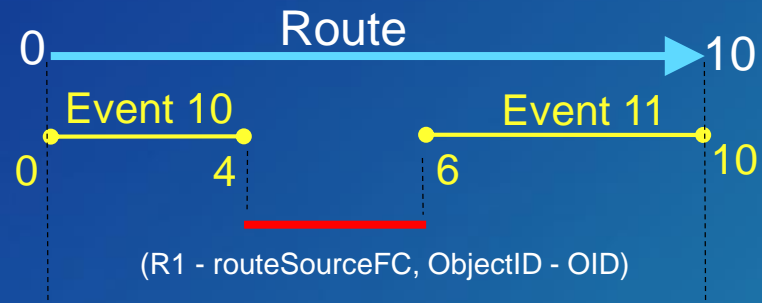
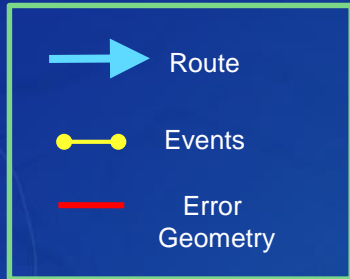
### Invalid Event Error Scenarios



# Invalid Events (Error Scenarios)

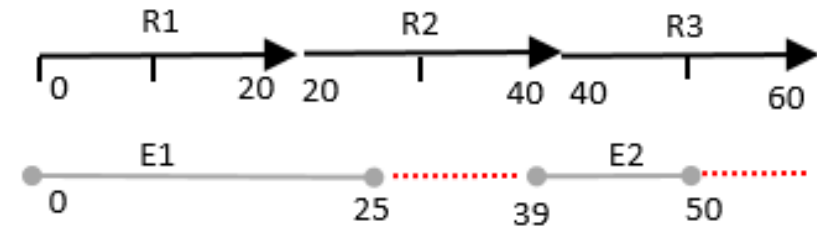
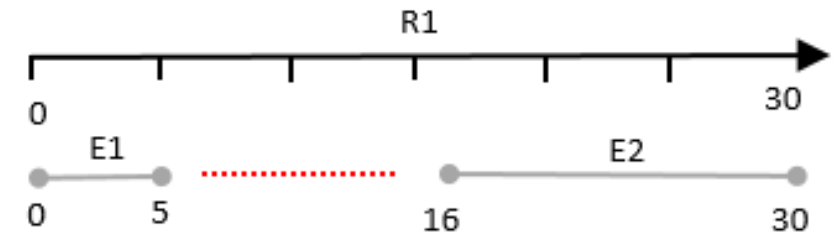
## Gaps

### LEGEND



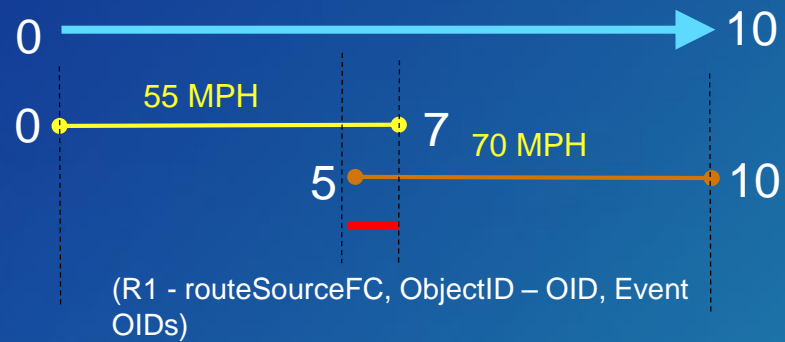
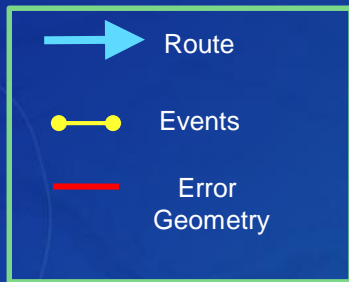
Gap between measure 4 to 6

### Gap Error Scenarios



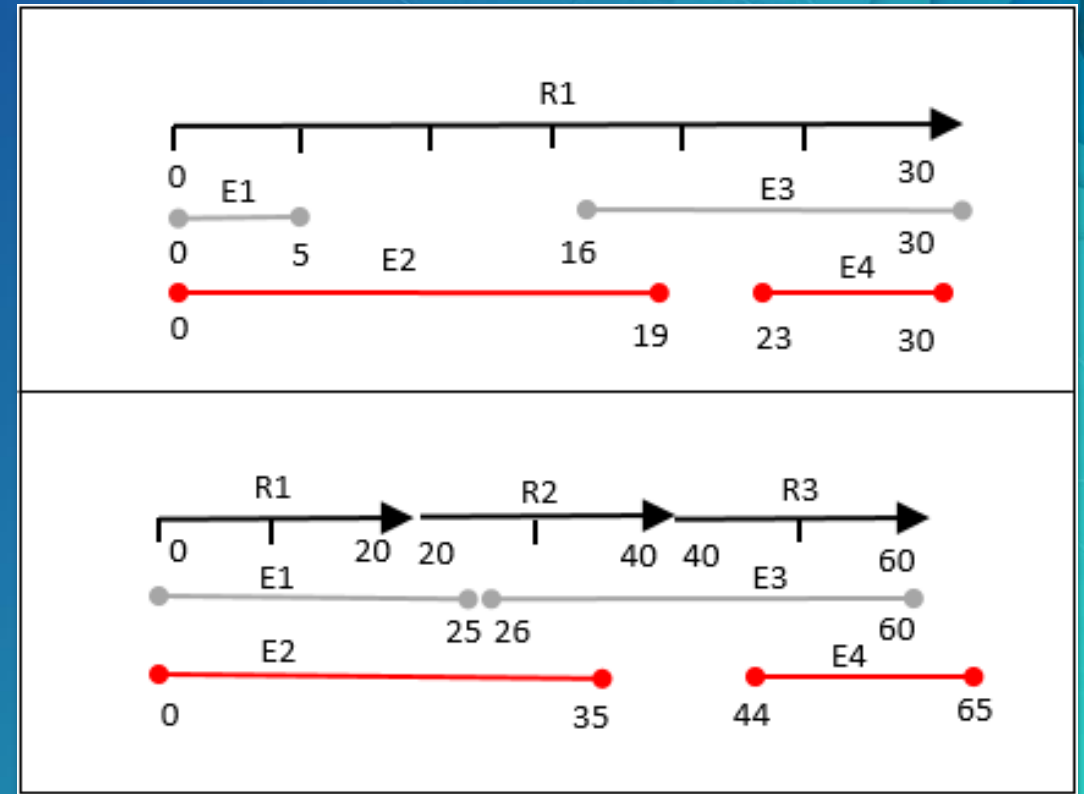


# Invalid Events Overlaps



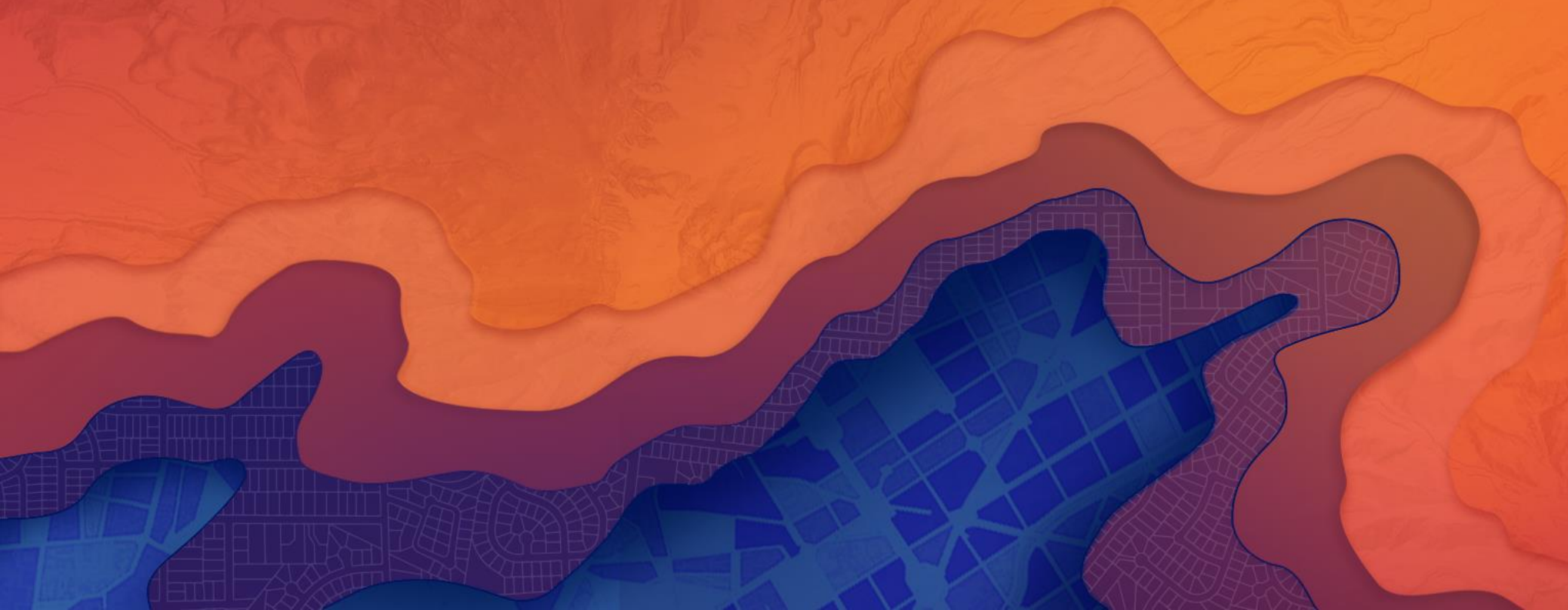
Overlap between measure 5 to 7

## Overlap Error Scenarios



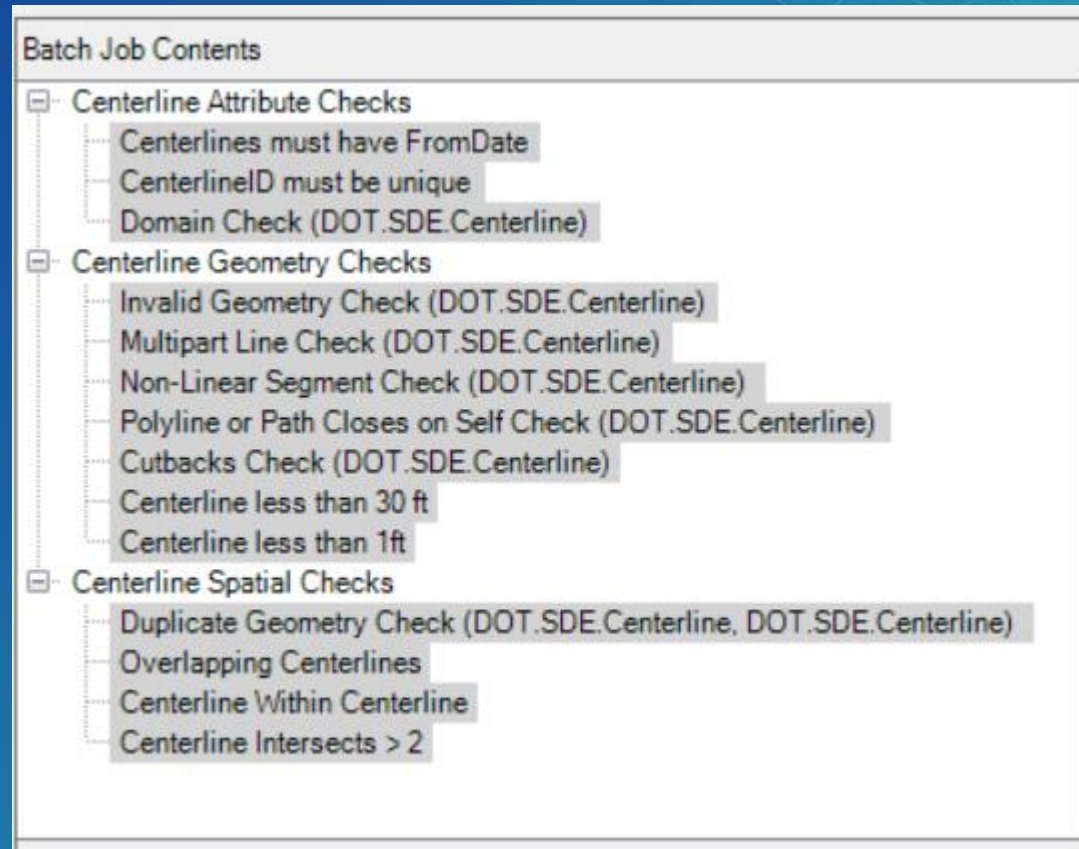


# Invalid Events- Demo



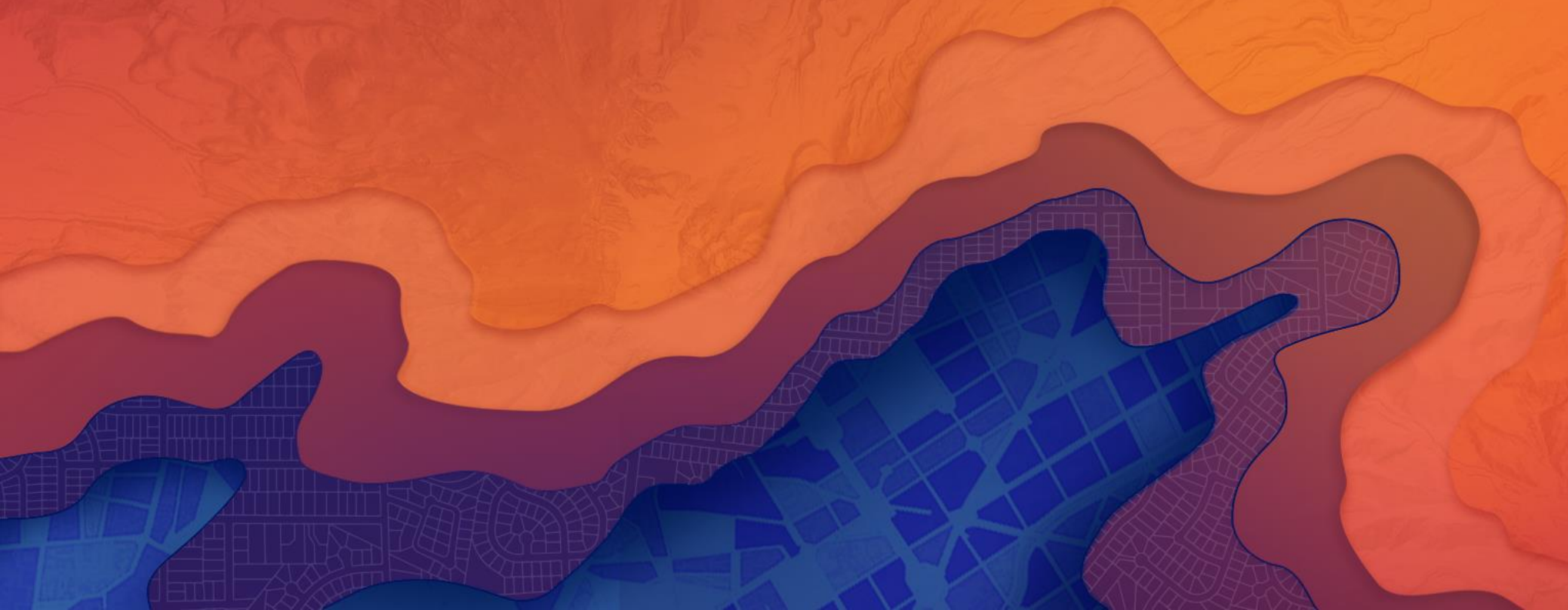
# Available checks to support Linear Referencing

- **Monotonicity**
- *Cutbacks*
- *Geometry and Geometry*
- *Evaluate Polyline*
- *Non-Linear Segment*
- *Duplicate Geometry*
- *Invalid Geometry*
- *Multipart Line Check*
- *Domain*
- *Execute SQL*





# Monotonicity- Demo



# Validating Linear Reference Events

## — Road Ahead

**Future Releases**

- **Post ArcGIS Pro 2.0**
  - Support of Object Classes
  - Event on Event Validation
  - Support for Route Dominance (Roadway Management)

ArcGIS Pro

The 'Invalid Events' dialog box in ArcGIS Pro is shown. It has a title bar 'Invalid Events'. Under 'Data Sources', there is a section 'Input Event Layers' with three items: 'Calibration Point' (unchecked), 'Speed' (checked), and 'CountyLog' (unchecked). Below this is 'Input Route Layer' with a dropdown menu showing 'LRSN\_CountyLog'. Under 'Check Parameters', there is a section 'Event Layer Properties' with three dropdowns: 'Route Identifier' (ROUTE\_ID), 'From Measure' (FROM\_MEASURE), and 'To Measure' (TO\_MEASURE). Below this is a section 'Route Layer Properties' with one dropdown: 'Route Identifier' (ROUTE\_ID). At the bottom is a 'Search Goal' section with a checkbox 'Find orphans' which is checked.

ArcGIS Desktop

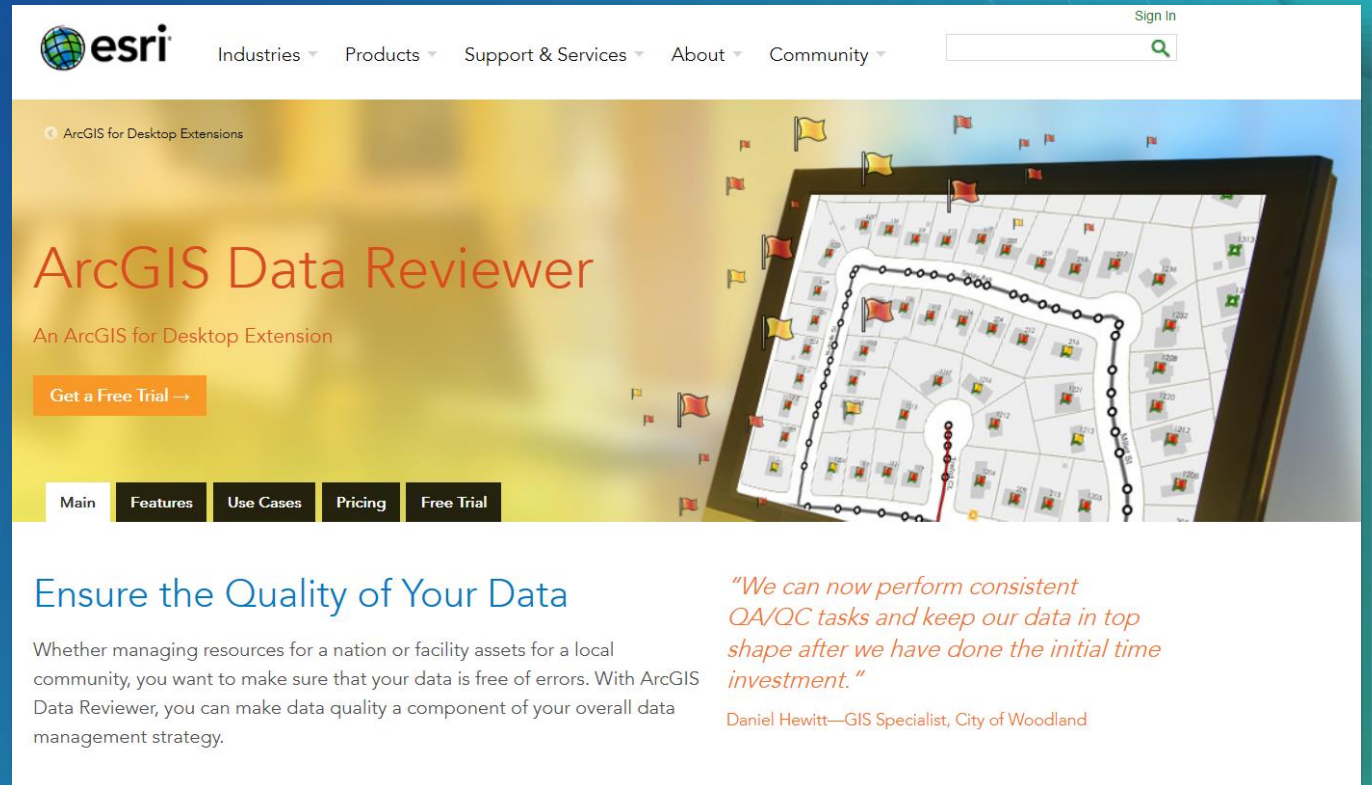
The 'Invalid Event Check Properties' dialog box in ArcGIS Desktop is shown. It has a title bar 'Invalid Event Check Properties'. On the left, there is a 'Check Title' field. Below it is 'Event Source' with a 'Feature Class' dropdown showing 'LRSE\_Speed - INDOT LRS Data\_10000.gd'. There is an unchecked checkbox 'Always Run on Full Database' and a 'Where Clause' field with an 'SQL' button. Below this is 'Event Properties' with three dropdowns: 'Route ID' (ROUTE\_ID), 'From Measure' (FROM\_MEASURE), and 'To Measure' (TO\_MEASURE). Below this is 'Route Source' with a 'Feature Class' dropdown showing 'LRSN\_CountyLog - INDOT LRS Data\_100'. There is an unchecked checkbox 'Always Run on Full Database' and a 'Route ID' dropdown showing 'ROUTE\_ID'. At the bottom are 'OK' and 'Cancel' buttons. On the right, there is a 'Check Description' section with a diagram showing two routes, R1 and R2, with events E1, E2, E3, E4, E5, and E6. Below the diagram is a text description: 'Finds linear referenced events that do not have an associated route (orphaned events) or contain invalid measure values. The check also identifies gaps or overlaps between events within the same route or across multiple routes.'



# Questions ?

# Want to learn more?

- Product information  
[www.esri.com/datareviewer](http://www.esri.com/datareviewer)



The screenshot shows the ArcGIS Data Reviewer product page. At the top is the Esri logo and a navigation menu with links for Industries, Products, Support & Services, About, and Community. A search bar is located on the right. Below the navigation bar, the page features a large banner with the title "ArcGIS Data Reviewer" in orange, followed by the subtitle "An ArcGIS for Desktop Extension". An orange button labeled "Get a Free Trial" with a right-pointing arrow is positioned below the subtitle. To the right of the text is a 3D illustration of a tablet displaying a map with various colored flags (red, yellow, green) and a white line representing a path or boundary. Below the banner is a horizontal navigation bar with tabs for Main, Features, Use Cases, Pricing, and Free Trial. The main content area below the navigation bar has the heading "Ensure the Quality of Your Data" in blue. The text below this heading states: "Whether managing resources for a nation or facility assets for a local community, you want to make sure that your data is free of errors. With ArcGIS Data Reviewer, you can make data quality a component of your overall data management strategy." To the right of this text is a quote in orange: "We can now perform consistent QA/QC tasks and keep our data in top shape after we have done the initial time investment." Below the quote is the name "Daniel Hewitt—GIS Specialist, City of Woodland".

esri Industries Products Support & Services About Community

Sign In

ArcGIS for Desktop Extensions

## ArcGIS Data Reviewer

An ArcGIS for Desktop Extension

Get a Free Trial →

Main Features Use Cases Pricing Free Trial

### Ensure the Quality of Your Data

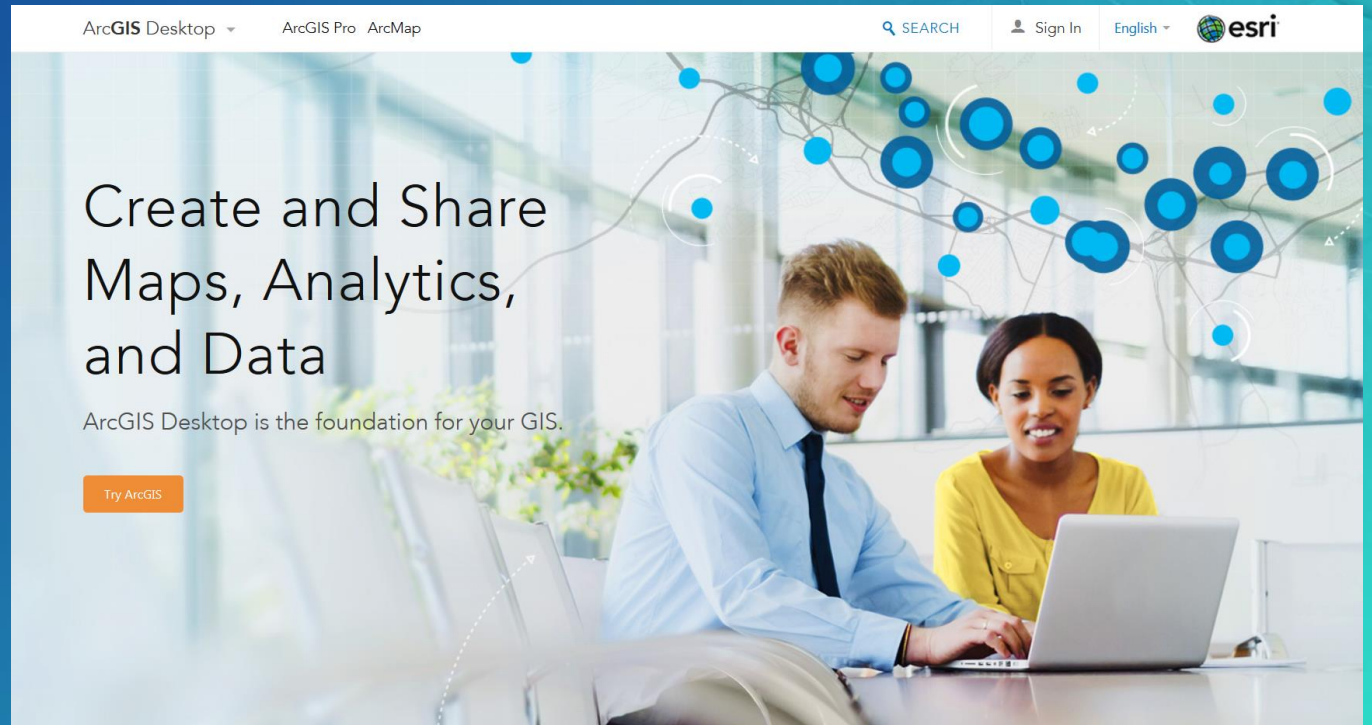
Whether managing resources for a nation or facility assets for a local community, you want to make sure that your data is free of errors. With ArcGIS Data Reviewer, you can make data quality a component of your overall data management strategy.

*"We can now perform consistent QA/QC tasks and keep our data in top shape after we have done the initial time investment."*

Daniel Hewitt—GIS Specialist, City of Woodland

# Want to learn more?

- Documentation
  - Desktop ([desktop.arcgis.com](https://desktop.arcgis.com))



# Want to learn more?

- Documentation
  - Desktop
  - Server
- Training
  - Assessing Data Quality using ArcGIS Data Reviewer
  - Evaluating Positional Accuracy Using ArcGIS Data Reviewer for Desktop
  - Data QC with ArcGIS: Automating Validation
  - Data QC with ArcGIS: Visual Review
  - Quality Control Using ArcGIS Data Reviewer for Desktop
- GeoNet ([geonet.esri.com](http://geonet.esri.com))
  - Data Reviewer place



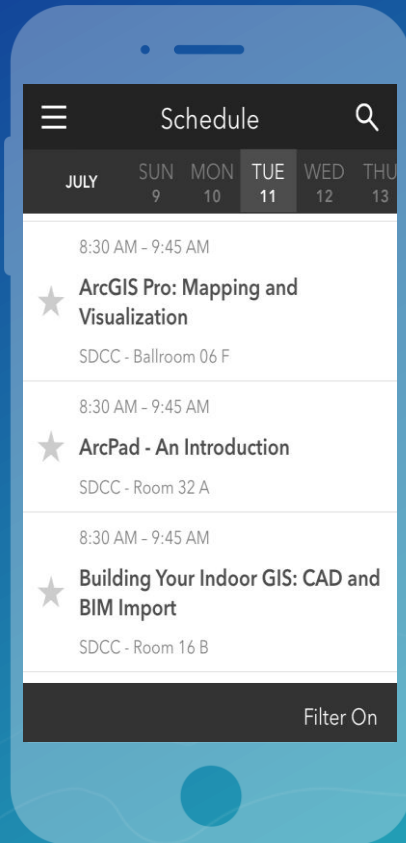


# Please Take Our Survey on the Esri Events App!

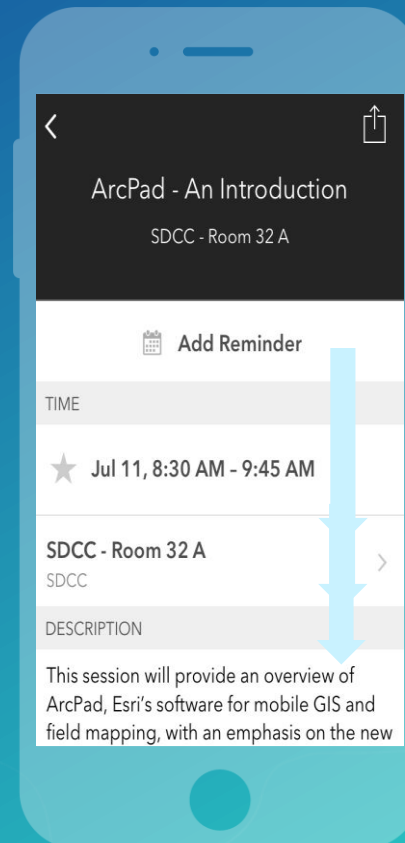
**Download the Esri Events app and find your event**



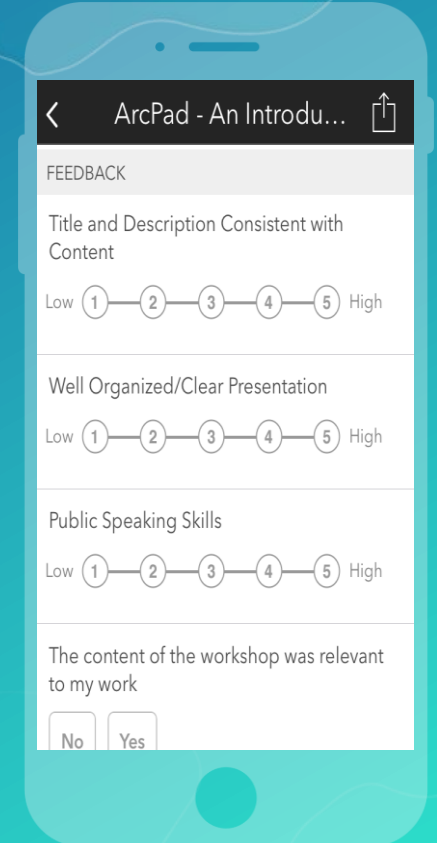
**Select the session you attended**



**Scroll down to find the survey**



**Complete Answers and Select "Submit"**





esri

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SCIENCE  
OF  
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