Pipeline Referencing Overview

Information Model

- Routes
- Events
- Intersections
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ArcGIS Pro
- LRS network editing
- LRS management
- Geoprocessing
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  - LRS web services
  - Developer API samples
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**Web**
- Event editing
- Event query
- Event QC
Information Model
Location Model
Schema for route centerline management

Routes (Network)
M-enabled Route polyline features

Centerline Sequence
Key table for M-N relationship between Centerline and Route

Calibration Points
Point feature class that stores route measures

Centerline
Line feature class that stores route geometry

Separate feature class for each LRS Network
Location Model
Schema for route centerline management

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Event Location Methods

- Route and measure
- Stationing
- Referent and offset
  - Intersections
  - Events
  - Features
- Coordinates and offset

Calibration Point: 1 mile
Event: 1.27 miles
Station Event: 100+00.00
Event: 456+25.00
Intersection Features: US Highway 10 crossing
Event: 300 feet from US Highway 10
Event: 45 feet from cell tower
Cell tower location: 34.0547, 117.1825
When the LRS routes are edited, measure behavior rules can be applied to events.
Time Aware Model

Before

Realignment

After
Industry Data Models

or any schema that implements the location model.
Platform Components
ArcGIS Pro Ribbon Toolbar

Route, calibration point, and centerline editing.
Geoprocessing Tools

- Modeling
- Loading
- Transformations
  - Event Measure Behaviors
  - Dynamic Segmentation
  - Measure Translation
Quality Control with Data Reviewer

- **Detect measure based errors**
  Event measure gaps, overlaps, invalid measures, Non-monotonic or routes that aren’t calibrated…

- **Detect spatial errors**
  Dangles and overshoots (connectivity), self intersection…

- **Detect mismatches** (SQL checks)
  Invalid combinations of construction materials and operation pressures, event orphans…
Linear Referencing for ArcGIS Enterprise

- **GIS Server**
  - Mapping, Query, Geoprocessing, ...

- **Pipeline Referencing Server**
  - Event editing
  - Coordinate to measures
  - Measure to coordinate
  - Query attribute sets
  - Check events *(gaps, overlaps, invalid measures)*
  - Measure translation
Event Editor

- **Editing**
  - Lines and Points events
  - Tabular selection results
  - Attribute set results

- **Selection**
  - Select by route, attribute, geometry, proximity
  - Single layer results or attribute sets

- **Error Checking**
  - Gaps, overlaps, invalid measures
  - Data Reviewer batch checks
Enough slides…
Let's see some demos
Pipeline Referencing Roadmap

Future release themes subject to change
Pipeline Referencing Roadmap

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- REST-based Network Editing
- Utility Network Integration
- Conflict Prevention
- Modeling Enhancements to ArcGIS Pro
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