Collector for ArcGIS: Working with High Accuracy Data

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Agenda

- Introduction
- Getting started
- Collector setup for high accuracy data collection
- Field data collection process
- Tools and resources
- The Aurora project
- Q&A
Collector for ArcGIS
Map centric data collection

- Web Maps
- Works offline
- High accuracy GPS
Collector | How is it being used?

Collect and Maintain Asset Data

Capture Observations

Perform Field Assessments
Collector | High Accuracy GPS

- Easy to use
- Efficient with processing on the fly
- Confident with GPS metadata fields for individual asset

Le-Ax Water District
Hydrant Collections

City of Centennial and CH2M
Public Works Asset Collections

Project RockTheAlps (RTA)
Rockfall location collections
Getting Started
Considerations for high accuracy data collection
Data Collection Considerations

- Project accuracy requirements
- Supported receivers
- Correction services for receivers
- Datum transformations
- Desired basemap for collection
Collector | Using Real-time Differential Corrections

- Improve accuracy from receiver
- Requires a subscription*
- Connection: cellular/satellites/radio
- Optionally use 3rd party app to configure
- Need to understand your map’s projection and apply a location profile accordingly
Datum Transformations
Minimize when possible to maintain accuracy

DT1 – Defined in location profile
DT2 – Determined by basemap
DT3 – Determined by storage coordinate system

Geographic Transformation Table
Datum Transformations
Spatial Reference Choice for Web Layer

- Null datum transformation for DT2
  - Web Layer same as basemap

- Set datum transformation for DT2
  - Set DT2 during publishing web layer
Collector Setup
New High Accuracy Capabilities
Collector | Location Provider

- Located in App Settings
- Support for
  - Integrated receivers
  - Bluetooth receivers
  - Serial receivers, like Trimble Catalyst
- Connect to named receiver
- Specify antenna height

iOS White Listed Providers:
- Trimble R1/R2
- Eos Positioning
- Geneq iSxBlue
- CHC
- Bad-Elf
- Aman NMEA-BT Adapter
- DualGPS
- Garmin GLO
- Leica GG04 Plus*
Collector | Location Profile

- Define the transformation used from receiver to map
  - Integrated location sensor or external GNSS receiver

**Input:** Coordinate System used by GNSS receiver correction service
  - Always GCS (example: NAD_1983_2011)

**Output:** Coordinate System used by Web Map's BaseMap
  - GCS or PCS

**Method:** Datum transformation selection
  - Choices by map extent
  - Custom and grid-based transformations not supported

**Name:** Provide a memorable name for the profile
• Default Profile (assuming WGS84) vs. ~WGS_1984_(IT08)_To_NAD83_2011
Collector | Location Accuracy

- User-defined accuracy value
  - Match project accuracy requirements

- Specify in imperial or metric units
  - Based on measurement units

- 95% Confidence Interval
Collector | Setting Required Accuracy

- 7 inch accuracy vs. 0.3 inch accuracy
Field Data Collection
New High Accuracy Capabilities and Use Cases
Demo Recap

• GPS badge
  - Useful for troubleshooting
• Basemap overzoom
  - Zoom in beyond minimum scale range (resampled)
• GPS Metadata fields
  - Auto-populate accuracy information to point features
  - Based on well-known fields added to your Feature Layer (points only)
• GPS Averaging
  - Supports different set of metadata fields, such as Standard Deviation
Tools and Resources
Tools and Resources

- Hosted feature layer option for collecting high accuracy metadata
  - ArcGIS Online
  - ArcGIS Enterprise
- Scripts available to help automate attribute creation and popup configuration
  - System Tool in ArcGIS Pro 2.2
- Record metadata fields
Collector | ProjectZ Geoprocessing Tool

- Z-value capture workaround
  - Altitude Stored as an attribute value
  - Capture height above the ellipsoid (HAE)
  - Subtracts antenna height
  - Converted into orthometric height if needed
- Use Scenarios
  - Ground control point for Drone use
  - Water utility asset collection

Note: Editing Z-enabled geometry is not yet supported
Collector Aurora
What is new in Aurora

- **Z value geometry support**
  - Vertical transformations (planned)
- **Grid based transformation support**
  - Sideload grid file
  - Download directly from ArcGIS Online
- **Compass mode**
Other Resources

Datum Transformation Sessions
- Geographic (datum) and Vertical Transformations: A Deep Dive
- Coordinate Systems and Datum Transformation in ArcGIS

Collector sessions

Other resources
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