Collector for ArcGIS
Pre-Conference
Collector for ArcGIS

Web Maps

Work Offline

High Accuracy GPS
Collector for ArcGIS: How is it being used?

- Collect and Maintain Data
- Capture Observations
- Perform Rapid Assessments
Deploying Mobile Solutions | Collector uses Web Maps

- **Collector uses maps that include:**
  - Layers from 1+ feature services (editable)
  - Location Tracking layer (optional)
  - Basemap
  - Application settings
  - Offline Mode advanced settings

- **Share Maps to field workers using Groups:**
  - Create Named Users for each field worker
  - Invite field workers to groups
  - Share maps into groups
Collector for ArcGIS | Edit Using Feature Layers

- **Supported Types:**
  - ArcGIS Online (Hosted)
  - ArcGIS Server (On Premise)

- **Supported Operations:**
  - Editing options
  - Sync capabilities

- **Popups and fields:**
  - Define the form experience in Collector
  - Take advantage of Geodatabase capabilities
    - Domains and Subtypes
    - Related Tables
    - Feature Templates
    - Field validation
    - Editor tracking
Collector | User-defined Offline Maps Data Workflow
Collector for ArcGIS | Jump Start With Templates

- Templates for creating new feature layers
- Use directly or fine tune them with the map viewer

Examples:
- AEDs Inventory
- Boom Placement
- Bridge, guardrail inventory
- Water quality assessment
- Environmental Impact

Over 60 Collector-based Solution Templates!
Collector | New Feature Highlights

High Accuracy Data Collection
- Set a location provider
- Define a location profile
- Attach accuracy information to your data
- Receive alerts and notifications
- GPS averaging

Additional Enhancements
- SD card support for basemaps (Android)
- Renaming media

App Integration
- Workforce, Navigator

Collector HA Python Scripts
Collector URL Scheme
Collector | 10.4.x Highlights

High Accuracy Data Collection:
• Set a location provider
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• Receive alerts and notifications

App Integration
• Workforce, Navigator

Collector HA Python Scripts
Collector URL Scheme
Collector | Location Provider

- Located in App Settings
- Support for:
  - Integrated Receivers
  - Bluetooth receivers (or serial on Windows)
- Connect to named receiver
- Specify Antenna Height
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

- **Name**: Provide a memorable name for the profile

*Note*: Custom and Grid-based Transformations are not supported!
Collector | GNSS Metadata

- Auto-populate accuracy information to point features
- Based on well-known fields added to your Feature Layer
- Scripts available to help automate attribute creation and popup configuration.

Doc:

Scripts
https://github.com/Esri/collector-tools
Using Real-time Differential Corrections

- Improve accuracy from receiver
- Requires a subscription and connection*
- Optionally use 3rd party app to configure
- No post-processing support
- Need to understand your map’s coordinate system and apply a location profile accordingly!
Collector What’s Coming This Year

May 2017 (Released!)
- GPS averaging
- SD card support for basemaps (Android)
- Renaming media

Early Q3
- Trimble Catalyst (Android)
- 95% confidence interval
- Coordinate unit display
**Collector – The Big New Thing**

- Better maps
  - Labels, Advanced symbology
  - Vector basemaps
- High Accuracy
  - Support Z values
- New user experience
  - Collect experience
  - Map/Form experience
- Offline
  - Pre-planned workflows
- Smarter forms
  - More input types (Barcodes, QR codes)
  - Arcade expressions
  - Grouping, conditional visibility*
- Simpler deployments
  - Pre-configured settings
  - Restrictions
Collector Timeline

Beta 1 - Early Q3
• Collect Workflow

Beta 2 - Q3
• Offline Workflow

Beta 3 - Early Q4
• Related Tables
• Pre-planned Offline

Beta 4 - Q4
• High accuracy

Release Q1 2018
Survey123 for ArcGIS

James Tedrick
Forms
a printed or typed document with blank spaces for insertion of required information

Many Industries
- Forestry
- Public Safety
- Government
- Utilities
- Transportation
- Health
- Emergency Management

Many Needs
- Incident Reports
- Inspections
- Damage Assessments
- Asset Inventories
- Interviews
Smart Forms for ArcGIS
Easily convert paper forms into Digital Smart ArcGIS Forms
Apps Are the New Workflows
Gulfport Energy Saves Time and Money with ArcGIS® Apps for Field Data Collection

Gulfport Energy is an independent oil and natural gas exploration and production company headquartered in Oklahoma City, Oklahoma. To best serve its shareholders, the company is using technology to reduce costs while the market is tight and prepare for the inevitable rebound. Gulfport puts geographic information system (GIS) technology at the core of many of its critical activities and operations conducted in the office and the field.

Recently, Gulfport Energy deployed ArcGIS® apps for the field. The company’s existing ArcGIS implementation included access to Collector for ArcGIS and Survey123 for ArcGIS at no additional cost, and use of the apps required minimal staff training. Previously, Gulfport had relied on third-party data collection services and applications, which were costly. Also, these came in paper form, which made them difficult to share and led to inaccuracies.

Gulfport Energy used the Collector for ArcGIS app to identify suitable pad site locations as well as locating rights-of-way for above-ground water pipelines. Collector—chosen for its map-centric workflow and ease of use for assisting field crews—enables Gulfport to view and select possible pad site locations, then select the most suitable location. Collector helped to eliminate costly return trips to verify field data. Collector was also used in the waterline route planning to help secure rights-of-way while in the field. They now have more accurate data, have gained efficiencies in field workflows, and are providing up-to-date pad site and rights-of-way maps that can be easily viewed and shared across departments.

Access to pipelines requires accurate rights-of-way data collection in the field.
Disaster Assessment – As Easy As 1-2-3

It will cut in half the time it takes us to complete the assessment.

Red Cross Disaster Assessment teams are part of the first step. They visit neighborhoods and homes immediately after a disaster to assess the level of damage incurred. The Red Cross and its partners—like the Louisiana Way—use this information to provide financial aid and other resources. Assessment teams spend two weeks to visit to every home, gather and enter the information, and then alert everyone who needs it to begin providing aid. It’s vital that this process is efficient, so families get the help they need and that donor and taxpayer dollars are utilized effectively.

After the record flooding that occurred in Louisiana, Disaster Assessment teams came up with a new way—a way that will make it faster and easier. Disaster Assess application and Red Cross teams are using it to get help to clients in fewer weeks. Survey123 allows the teams to enter information on the spot so it can then have to be entered into a system. And, in conjunction with the Red Cross Disaster Event Management System, real time mapping of areas impacted and delivery to begin with days.

Sarah Perkins is a veteran Red Cross Disaster Assessment volunteer.
Inspections Saves $40,000

Field Technologies

Automation has reduced inspection reporting processing from 30 minutes down to 5 for a

g. complex city that is getting bigger by the day — a challenging prospect for public
have to juggle new construction projects and maintenance of aging infrastructure.
Public Utilities Commission (SFPUC) is the third-largest municipal utility in the state
Drinking water and wastewater services to San Francisco, wholesale water to three
and green hydroelectric and solar power to San Francisco’s municipal departments,
PowerSF, cleaner energy to residents and businesses in San Francisco.

The SFPUC’s Wastewater Enterprise (WWE) operates and
maintains the city’s 1,000-mile-long combined sewer system
and 17 pump stations that collect sewage from homes and
businesses and stormwater in the same network of pipes,
moving the wastewater to the three treatment plants for
treatment and discharge to San Francisco Bay and the Pacific
Ocean. With the city’s steeply pitched streets and proximity to
the ocean, maintaining the combined sewer system is critical,
particularly during heavy rains.

Sewer construction, inspectors from the SFPUC’s Collection System Division are
acting and documenting exactly what is underground and how it was built.

Previously documented these sewer inspections using handwritten notes and digital
lining journal notes onto a digital map created by using Esri’s ArcGIS platform and a
GeoCortex Essentials viewer. The digital photos had to be uploaded to the SFPUC’s
of the documents were printed and assembled for a report that had to be scanned
the process took up to 30 minutes for each inspection.
Why Smart Forms in ArcGIS?

• **Reduce Errors**
  • During Data Capture
  • Transcribing data from paper to digital

• **Boost Field Data Capture productivity**
  • Precompute responses
  • Associate photos with alphanumeric data

• **Data: From the field to the office in Real Time**
• **All data captured is georeferenced**
1- Ask Questions
(Design & Publish)

2- Get Answers
(Capture Data)

3- Make Decisions
(View & Analyze)
1: Ask Questions  (Tools for authoring your surveys)

- **Survey123 Web Designer:**
  - Build smart forms graphically right from your web browser
  - Very easy to get started.
  - Ideal for simple forms

- **Survey123 Connect:**
  - A downloadable desktop tool. Works in combination with Microsoft Excel.
  - Requires learning and familiarity with XLSForms specification
  - Complete smart form capabilities
1: Ask Questions (Publishing and Sharing)

- **Publishing**
  - Survey123 Smart Forms are published into ArcGIS
  - Forms are a new type of item
  - Feature layers (new or existing) store captured data
  - ArcGIS Online and ArcGIS Enterprise support

- **Sharing**
  - Survey123 leverages the ArcGIS security model: Named Users and Groups
  - You can define distinct security rules to:
    - Field Users: Submit data to your survey
    - Stakeholders: View the results of your survey
1: Ask Questions (Considerations for survey authors)

- **What data must be captured?**
  - Decide what questions will be included in your survey instrument

- **User Input Validation rules**
  - Add data constraints, calculations and smart defaults

- **Optimized user experience**
  - Decide what user input controls to use (Question Types and Appearances)
  - Logically organize your survey (Groups, Relevancy rules)
  - Web and/or Native
  - Branding
  - Style questions and survey
Create & Publish a Survey
1- Ask Questions
(Design & Publish)

2- Get Answers
(Capture Data)

3- Make Decisions
(View & Analyze)
2: Get Answers

- **Survey123 WebForms**
  - Capture data from a web browser. Can be embedded within a web site.
  - Nothing to install.
  - Online only. Add new data only.

- **Survey123 Field App**
  - Available for download (Google Play, iOS, Windows, Mac)
  - Leverage device sensors (external GPS, camera etc)
  - Can work Online and Offline
  - Can add new data and update existing features.
2: Get Answers

- **Private Surveys**
  - Shared with a well-known group of users (secured access).
  - Requires use of one ArcGIS accounts per every field user.
  - Enables Editor Tracking capabilities.
  - Ideal for sensitive data or when you want to understand who is doing what.

- **Public Surveys**
  - Shared with everyone.
  - No need for ArcGIS accounts. Anyone can submit data.
  - Ideal for crowd-sourcing initiatives.
1- Ask Questions
(Design & Publish)

2- Get Answers
(Capture Data)

3- Make Decisions
(View & Analyze)
3: Make Decisions

- Ready to use Reporting tools
  - Understand data submission patterns
  - Create detailed survey reports
  - Aggregate survey data
  - Selectively download data
3: Make Decisions

- **Real-Time data collection**
  - Survey123 submitted data is immediately available for visualization and analysis
- **All data stored in ArcGIS Feature Services**
- **Multiple Uses of data**
1- Ask Questions
   (Design & Publish)

2- Get Answers
   (Capture Data)

3- Make Decisions
   (View & Analyze)
Let’s Create a Form!
Workforce for ArcGIS

PRESENTER NAMES
Coordinate your Field Workforce

Field Operations
Workforce for ArcGIS | Coordinating field to office workflows

- Field workforce optimization
- Efficiently plan and assign work
- Receive assignments and report status from the field
• View and complete work assignments
• Organize your work list
• Receive notifications
• Set your working status
• Add and edit notes
• View referenced attachments
Workforce for ArcGIS | Plan

- Fuse work management into the ArcGIS platform
- Create, Prioritize and Assign Work
- Manage planned work assignments
- React and respond to unplanned work
Workforce for ArcGIS | Administer Workforce Projects

- Create new Workforce Projects
- Configure assignment types
- Add Dispatchers and Mobile Workers
  - Contact Number, Job Title, Notes
- Configure maps and layers
- Configure apps
Workforce for ArcGIS | Dispatch work

- Create new work assignments
  - By Geocode
  - Using the Map
  - From features
  - Automatically
- Assign, re-assign and cancel work
  - Individually
  - In bulk
- Filter and sort assignments
- View all mobile workers
- Search the map
Workforce for ArcGIS | Work Assignments

- Properties of a Work Assignment
  - Status, Due Date, Priority, Assignee, Type
- States
  - Unassigned, Assigned, In Progress, Paused, Completed, Declined
  - Date/Time stamps
- Priorities
  - None, Low, Medium, High, Critical*
- Attachments
  - Documents, Pictures
Workforce for ArcGIS | Workers

- Dispatchers and Mobile Workers
- Worker Details
  - Contact Number, Title, Notes
- Worker Status
  - Working, On Break, Not Working
- Worker Location
  - Current Location, Location Tracks
Workforce for ArcGIS | Get to assigned work

- Integrated with ArcGIS Apps so you can:
  - Get to the location of work assignments using Navigator for ArcGIS

Open Navigator and create a route

Return to Workforce at destination
Workforce for ArcGIS | Collect at location

- Integrated with ArcGIS Apps so you can:
  - Get to the location of work assignments using Navigator for ArcGIS
  - Complete your work using:
    - Collector for ArcGIS

Open Collector and go to location

Return to Workforce when finished
Workforce for ArcGIS | Survey at location

- Integrated with ArcGIS Apps so you can:
  - Get to the location of work assignments using Navigator for ArcGIS
  - Complete your work using:
    - Collector for ArcGIS
    - Survey123
DEMO
Workforce for ArcGIS | Workforce Project

- Workforce Project Item
- Maps
  - Dispatcher Web Map
  - Mobile Web Map
- Layers
  - Dispatchers
  - Workers
  - Assignments
  - Location Tracking
- Project Group
- Project Folder
**Workforce Opportunities**

- **Small organizations**
  - A location solution to replace paper-based workflows
  - Works seamlessly with ArcGIS apps for the field

- **Mid-to-large size organizations**
  - Complement work management systems
  - Partner opportunities
    - System Integrators
    - Customized solutions
Workforce | Release Details

Release 17.0.1 - End of July 2017

Attach Photos

App Integration (pass Work Order ID and Location)
Hands On

SUBHEAD INFORMATION
Operations Dashboard for ArcGIS

Derek Law
@GIS_Bandit
July 8th, 2017
Agenda

• Product overview
• Workflow
  - Creating operation views
• Next beta release
• Summary
Operations Dashboard for ArcGIS - Customer Examples

Boston Marathon

Independence Day Event security

City of Boston
Operations Dashboard for ArcGIS - Customer Examples

Flood Monitoring
US Army Corps of Engineers
Texas

Race Monitoring
Ironman World Championship
Hawaii
Operations Dashboard for ArcGIS

- Configurable App that provides a common operating picture of systems and resources in your organization
- Enables monitoring, tracking, and reporting on assets
  - Support for real-time data
  - Includes key performance indicators (KPIs)
- Designed to support full spectrum of device platforms
- Cross platform extensibility and framework
Key Usage Patterns

- **Monitor and manage operations/assets**
  - Consume real-time data feeds
  - Provide common operational picture

- **Emergency Management**
  - Manage planned and unplanned events
  - Situational awareness

- **Executive summaries and reporting**
  - Visualize key performance indicators (KPIs)
2 Options to Work with Operations Dashboard

1. **Windows Desktop app**
   - Separate download, stand-alone application
   - Authoring and viewing app
   - Supports single display and multidisplay view
   - Requires ArcGIS account

2. **Web-browser based app**
   - Access within ArcGIS Online and Portal for ArcGIS
   - Viewing app
   - Supports single display view only
   - Supports anonymous access
Operations Dashboard for ArcGIS

• Works with Operation View
  - Consists of web map + widgets (info panels)
  - Widget → component that provides a specific type of functionality in the view

• When authoring operation view
  - Only in Windows Desktop app*
  - Single display or multidisplay view
  - Configuration user experience
    - No programming/development needed

*Authoring will be possible in Web browser app in future release
Operations Dashboard for ArcGIS – Workflow

1. Author web map
2. Create operation view
   - Decide single display vs. multidisplay
   - Configure data sources, widgets, map tools, feature actions
   - Position widgets in view layout
3. Share operation view with others
   - ‘Operation view’ is an item in ArcGIS organization
Types of Operation Views

• **Single display view**
  - Required for web browser app
  - Supports single map widget
  - Widgets are organized into panels

• **Multidisplay view**
  - Supports multiple map widgets
  - Widgets can be organized across multiple displays
  - Widgets can be sized, positioned, and docked anywhere in display

• Unattended display vs. interactive display
Configure Operation View

• 4 properties to configure
  1. Data sources
  2. Widgets
  3. Map tools
  4. Feature actions
Configure Operation view - Data Sources

• **Data sources** → input data for widgets

• 2 options:
  1. From the web map
     - Select data layers in the web map
     - Determine if feature content(s) are selectable
  2. External source
     - Can add data from your ArcGIS organization and ArcGIS Servers

• Optional: define queries on data source(s)

• Works with real-time data
  - Input feature services
Configure Operation view – Widgets

- **Widgets** → component that provides a specific type of functionality in the view
  - Add to view (set position in UI), then configure its properties
  - Are dynamic and interactive
  - Optional: set feature action
    - Depends on the widget type
Available Widgets

- Map widget
Configure Operation view - Map Tools

- **Map tools**: → action(s) that lets you do something on the map
  - “Functionality” in map widget
  - When enabled, a toolbar displays in the map widget
Configure Operation view - Feature Actions

- **Feature actions** → action that you can apply to feature(s), see result in the map
  - Enable in widget configuration
  - Example
    - List widget > Follow a feature, highlight a feature, select a feature, ...
Configure Operation View - User Interface

• Position widgets in operation view UI
  - Depends on single display vs. multidisplay
    - Single display has layout and panels
    - Multidisplay provides more flexibility

• Set text size

• Set theme
  - Light, medium, or dark
Next Update: Operations Dashboard for ArcGIS

FYI: All content in this section is NOT final and may change

- Next generation web-browser based app
- Key enhancements
  - Authoring Dashboards in browser
  - New dashboard item type supports both unattended and interactive displays
  - Many productivity and configuration improvements
    - Modernized filtering and charting capabilities
  - New home page to help manage views
- Schedule release:
  - ArcGIS Online Q3 – 2017
  - ArcGIS Enterprise 10.6

FYI: All content in this section is NOT final and may change
Dashboard - New Item Type

- Facilitates ‘at-a-glance’ decisions
- Works with new Operations Dashboard app
- Different from Operation View item
- Workflow
  - Web map → Dashboard → Share
- Operation Views are still supported in ArcGIS Platform
Operations Dashboard Home Page

- Entry point for new UE around dashboards
- Part of every ArcGIS Online organization
  - `<AGOL_URL>/apps/opsdashboard`
- Manage and share your dashboards
Hands-On Exercise

- Create an operation view of the precon data

- Use Windows desktop App
  - Open existing web map
  - Configure the operation view
Resources

• Operations Dashboard for ArcGIS help documentation
• Operations Dashboard for ArcGIS: Monitor Your Operations video
• Live training seminars
  - Monitoring Data Using Operations Dashboard for ArcGIS
  - Power Decision Making with Operations Dashboard for ArcGIS
• GeoNet space
  - https://geonet.esri.com/community/gis/applications/operations-dashboard-for-arcgis