Agenda

- What is mobile GIS?
  - Benefits
  - Components
  - Considerations
- Overview of ESRI Mobile Solutions
- ArcGIS Mobile
- ArcGIS Mobile out-of-the-box application
  - Demonstration
- ArcGIS Mobile SDK
  - Demonstration
What is mobile GIS?

- Mobile GIS extends your GIS into the field
  - Mobile workers can capture, store, and update data
  - Enterprises can ensure the accuracy and currency of business information
What are the benefits of mobile GIS?

- Increased data accuracy
- Better information currency
- More accurate decisions
- Improved productivity

*Increases value of your enterprise GIS*
Key Components to mobile GIS

- Open mobile devices
- Local maps and data
- Accurate location
- GIS editing tools
- Spatial analysis
- Wireless connectivity

Many considerations
Considerations

- What functionality do you want in the mobile app?
  - Editing, Query, Print, Tracing, Routing, Mark up
- What form factor do you want to use?
- Are you using a GPS to record data or locate assets, if so, what level of accuracy are you looking for?
- Do you have cell or wifi based internet in your area?
- Do you have any in house developers?

One size does not fit all
Mobile devices
### Mobile Device Determining Factor

<table>
<thead>
<tr>
<th>Application Needs</th>
<th>Weight</th>
<th>Size</th>
<th>Battery Life</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Handheld</strong></td>
<td>Lighter</td>
<td>Smaller</td>
<td>Longer</td>
<td>WM/CE</td>
</tr>
<tr>
<td><strong>Laptop</strong></td>
<td>Heavier</td>
<td>Larger</td>
<td>Shorter</td>
<td>XP</td>
</tr>
<tr>
<td>Means of Transport</td>
<td>Screen Size</td>
<td>Weight</td>
<td>Size</td>
<td>Battery Life</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------</td>
<td>--------</td>
<td>------</td>
<td>--------------</td>
</tr>
<tr>
<td>Vehicle based</td>
<td>Larger</td>
<td>Less Important</td>
<td>Less Important</td>
<td>Less Important</td>
</tr>
<tr>
<td>Foot based</td>
<td>Smaller</td>
<td>Lighter</td>
<td>Smaller</td>
<td>All day</td>
</tr>
</tbody>
</table>
Deployment Types

- There are two main ways mobile GIS technology is deployed within an enterprise:
  - **Geocentric deployment** – where end user operates entirely with their maps and GIS capabilities
  - **Geo-enabled deployment** – where end users leverages maps and GIS capabilities to support their other business tasks
Deployment Opportunities

GIS professionals
GIS users
Casual GIS users
Location-aware users
Other users

More Users
More Value

Making GIS knowledge relevant across organizations
What are the ESRI mobile GIS products?

- **Out-of-the-box Applications**
  - **ArcGIS Mobile**
    - Task-based Windows Mobile application provides easy to use mobile mapping and GIS capabilities ideal for managed work within medium to large enterprise organizations
  - **ArcPad**
    - Map-based Windows application provides toolbox of mobile GIS capabilities ideal for ad-hoc work within workgroup organizations

- **Software Development Kits**
  - **ArcGIS Mobile**
    - Lightweight mobile GIS SDK for embeddable applications with tight server integration through web services for wired and wireless access
  - **ArcGIS Engine**
    - Full GIS SDK for standalone embeddable applications deployed to Win32 devices (Laptops and Tablet PCs)

*Suite of products for any mobile GIS needs*
## ESRI Mobile GIS Products Matrix

<table>
<thead>
<tr>
<th></th>
<th>Out of the Box</th>
<th>SDK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geo-Centric</strong></td>
<td>ArcPad &amp; ArcGIS Desktop</td>
<td>ArcGIS Engine</td>
</tr>
<tr>
<td><strong>Geo-Enabled</strong></td>
<td>ArcGIS Mobile (WM devices only)</td>
<td>ArcGIS Mobile (WM and XP/Vista)</td>
</tr>
</tbody>
</table>
ArcPad

- Out-of-the-box mobile GIS application for field mapping
- Extensive GIS and GPS tools
- Integrates with GPS receivers, rangefinders, digital cameras and other devices
- Designed for broad range of mobile systems
- Extensive customization capabilities
How ArcPad is used

- GIS is managed by a GIS department
- Thousands of assets
- Need to record and manage assets to a sub meter accuracy
- Application needs to be accurate over easy to use
- Need a small light weight form factor
  - All in one or Tablet with external receiver
ArcPad Workflow

- Design and create geodatabase schema
- Use ArcGIS Desktop to extract data from the geodatabase
  - Template schemas or data to be edited
  - Background reference data
- Edit the data in the field with ArcPad
  - Attribute rules are validated
- Check in and validate ArcPad edits to enterprise geodatabase
ArcGIS Desktop / ArcGIS Engine

- ArcView, ArcEditor, ArcInfo capabilities
- High-end editing and mapping
- Full GIS data model
- NMEA GPS for map navigation
- Advanced editing tools
- ArcGIS cartography
- Laptops and Tablet PCs
- Tablet support
  - Digital pen input
  - Ink support
How ArcGIS Engine is used

- GIS is managed by GIS group
- Non GIS field users
  - Replacing a paper Field Map book
- Need to view detailed maps
  - Complex data
- Larger form factor, usually tied to a vehicle
- Advance Analysis
  - Tracing
  - Geocoding
  - Routing
ArcGIS Engine applications

- Geofields Gas Pipeline Maintenance
- Land Records/Mapping
- Public Works Management
- Fleet Management MDSI
- Mapping/ Sketching
- Utility Work Orders
- Sears Service Technician Routing
- Water/Waste Water DCSE
- ArcGIS Engine applications

- Land Records/Mapping
- Public Works Management
- Utility Work Orders
ArcGIS Server

- Publish geospatial services and tasks
- Frameworks for creating Web and Mobile applications
- Out-of-the-box applications for using GIS services
- Online basemaps and geospatial services
- Includes enterprise geodatabase support, transaction management, and geodata services
ArcGIS Server Manager

- Use ArcGIS Server Manager to:
  - Create and serve Mobile Maps
  - Create and deploy mobile projects

- Mobile projects consist of:
  - ArcGIS Mobile Application
  - Mobile Service
  - Tasks
  - Basemap data
ArcGIS Mobile

- Compliments ArcGIS Server
- Requires ArcGIS Server Advanced
- Allows deployment of maps and GIS to mobile field workers

ArcGIS Mobile Application for Windows Mobile
ArcGIS Mobile .NET Software Development Kit (SDK)
ArcGIS Mobile Application

- Easy to use
  - Simple GIS Feature Editing
  - Map Viewing with GPS
  - Task-driven user experience

- Easy to deploy
  - Data access via ArcGIS Server
  - Project configuration via Server Manager
  - Data extraction via GP tools

- Target mobile devices
  - Windows Mobile 5 Pocket PC
  - Windows Mobile 6 Professional
DEMO

ArcGIS Mobile
out-of-the-box application
ArcGIS Mobile Workflow – Demo Review

- **Build Mobile Geodatabase**
  - Information and Transaction Model considerations
- **Author Mobile Map**
  - Design for environment and form factor
- **Publish Map Service**
  - With Mobile Data Access Capabilities
- **Design Mobile Application**
  - For Form Factor and Environment
- **Build Data Deployment Packages**
  - Operational and base map dataset
- **Deploy Mobile Solution**
  - Application and Data
- **Synchronize Mobile GIS solution**
  - Consider bandwidth and battery life
Authoring Mobile Maps

- **Design for purpose**
  - Remove unnecessary layers of information
  - Set scale dependency (walk, drive, etc)
  - Render editable layers to define feature types

- **Design for the environment**
  - Establish contrast, choose meaningful symbology

- **Design for device form factor**
  - Set scale dependency based on device resolution
  - Set symbol width based upon device resolution

- **Architect Map Data**
  - Compress Base Map Data using Create Mobile Base Map GP Tool
  - Build Operational Mobile Cache using Generate Mobile Service Cache
ArcGIS Mobile Geoprocessing tools

- New Mobile Toolset inside of Desktop ArcToolbox
  - Create Mobile Base Map Tool
    - Creates a Base Map Data Set to be provisioned on mobile devices as base map layers
    - Support large base map datasets
  - Generate Mobile Service Cache Tool
    - Creates a mobile service cache for all operational layers
    - Uses published mobile web service as input and extracts layers
Deploy Mobile Solution

- Use Standard Deployment Technology
  - ActiveSync/Windows Mobile Device Center
  - Microsoft Mobile Device Manager
  - SOTI MobiControl

- Secure server and client data
ArcGIS Mobile SDK

- Suite of .NET Mobile components
- Build mobile GIS application for ArcGIS Server
- SDK part of ArcGIS Server and EDN
- Integrated into VS 2005 and 2008 IDE
- Runtime deploys to
  - Windows CE, 5, or 6
  - Windows Mobile 5 or 6
  - Windows XP or Vista
Recap of ArcGIS Mobile benefits

- Quick and easy to deployment through integration with ArcGIS Server for managing data, maps, apps, and projects
- Highly productive task-based user experience for simple data collection and inspection
- Current data with direct posting of GIS data to ArcGIS Server using wired or wireless networks
- Local caching of data ensures field workers are always productive even when disconnected from wireless networks

Accurate, current, and productive
## Resources Center

### Build Rich Internet Applications

The new ArcGIS API for Flex allows you to create Rich Internet Applications with the power of ArcGIS Server.

[Learn More](resources.esri.com)

<table>
<thead>
<tr>
<th>Products</th>
<th>Functions</th>
<th>Industries</th>
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<tbody>
<tr>
<td>ArcGIS Desktop</td>
<td>ArcGIS Online</td>
<td>Water Utilities</td>
</tr>
<tr>
<td>ArcGIS Server</td>
<td>Geoprocessing</td>
<td></td>
</tr>
<tr>
<td>ArcGIS Engine</td>
<td>Geodatabase &amp; ArcSDE</td>
<td></td>
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<tr>
<td>ArcGIS Explorer</td>
<td>Image Management</td>
<td></td>
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<tr>
<td>ArcGIS Mobile</td>
<td>Mapping &amp; Visualization</td>
<td></td>
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<tr>
<td>ArcIMS</td>
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[resources.esri.com](resources.esri.com)
ArcGIS Mobile Resource Center

- Quickly locate:
  - Application help topics
  - Server, Desktop, Engine, Mobile help topics
  - Developer help
  - Code Exchange
  - Knowledge base, forums, blogs

resources.esri.com/arcgismobile
ESRI Support Center

support.esri.com
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training.esri.com
Questions?
Thank you!