The National Integrated Land System (NILS)

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Topics

• Purpose/Goal
• Functional Components
• Design
• Data
• Question
BLM’s Responsibilities (OMB A-16)

• Public Land Records
  – Public land conveyance data

• Federal Land Ownership Status
  – Real and mineral property

• Cadastral
  – Public Land Survey System
NILS Facts and Figures

• BLM manages:
  – 262 million surface acres
  – 700 Million subsurface acres

• 130 million parcels/ 28,000 PLSS Townships

• ~ 250 survey and measurement users

• ~ 900 parcel management users

• USDA Forest Service manages 8.5 percent of U.S. land
Problem to Solve

- Poor spatial accuracy of base GIS features is a problem compounded by the fact that many other layers are constructed from these base features
- Multiple programs in the PLSS Maintenance process
Goal

- A simple system to create and manage survey geometry in ArcGIS
- The system must be extensible, follow survey methods, improve existing datasets, and maintain spatial relationships between the survey networks and associated GIS data
1990’s Vision
Geodata.gov

• Part of the Geospatial One-Stop E-Gov initiative providing access to Federal, State, and Local geospatial data and information.
NILS Functional Components

- Survey Management
- Measurement Management
- Parcel Management
- GeoCommunicator
Survey Management

This will support the capture of measurement features and metadata directly into a GIS database format.

The goal is to minimize the need for data conversion and reconstruction as measured features are incorporated into the land records management system.
Integrated maintenance of cadastral data is made much more efficient when **geometry** can be **shared**.

Interpretation of (1) the **reliability** of each point position and (2) where data editing is needed.

New **data** can be **added**, and data elements that do not contribute to the optimal solution can be **removed**.

Any **area** can be selected and **readjusted**, e.g. to update point positions affected by newly-added data.

Provides the foundation for the legal description and parcel fabric tiers.
Parcel Management

Provides a process for managing land records and cadastral feature data stored in the database model.

Provides custom feature classes, tools, and procedures for editing land records in a transactional, history-tracking environment.

Support will be provided to allow users to construct and edit legal description fabrics and to create required parcel fabrics from them. Parcel fabrics may include ownership, land use rights, tax assessment, and others.
GeoCommunicator
www.geocommunicator.gov

Internet Site
• Land Survey Information System
• Federal Land Stewardship
• Land & Mineral Use Records
• Reference Data


Land & Mineral Use Records
Search, locate, and map the BLM's land and mineral use records including: Oil & Gas Agreements, unpatented Mining Claims, and cases that affect the status of the land. Quick access to BLM's LR2000 serial register reports.

Federal Land Stewardship
Search, locate, and map the federal surface management agency for a parcel of land.

Land Survey Information
Search, view and download the Public Land Survey System (PLSS) and other survey-based data.

Reference
Links to reference documents on cadastral survey and land records.

News Flash!
Land & Mineral Use Records has a new mapping layer called "cases that affect land status". BLM cases such as grants, land disposal, withdrawals, etc. can now be displayed showing lands that went in and out of federal ownership. Additionally mining claim and Oil & Gas records has been updated. More Details...

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NILS

- NILS comprises transactional and publication components:
  - The ArcGIS implementation for creating and maintaining Survey, LD, and Parcel data is the *transactional* component
  - The ArcIMS implementation for viewing, querying, and downloading data is the *publication* component
Higher Level BLM Business Processes

Business Process Components

Provide Customer Service
Collect And Manage Information
Perform Assessment / Analysis
Perform Planning
Manage Land Use Activity
Manage Work

Spatial Query and Display
NILS

Spatial Query and Display
SM, MM, PM Data Processes
• Primary components:
  Arc SDE 9.0, Arc GIS 9.0, Arc IMS 4.0
  Informix 9.4
  Apache Tomcat 4.1
  IIS
  Java SDK/JRE 1.4
  FME/Spatial Direct
  BASS2
  Citrix XPe
  Storage over 1 Terabyte
  2 Large database tables over 20 million records each
Data Management
Change In Paradigm

Data as an:

Moving from an EXPENSE to an ASSET
Change In Paradigm

Shared Costs
Shared Functionality
Greater Efficiency
Less Redundancy
Greater Share-ability of Data

USFS Centric Application Development

BLM Centric Application Development

COTS

Partnership
The Use of Standards

- Federal Geographic Data Committee (FGDC) Cadastral Data Content Standard
- American Land Titles Association (ALTA)
- Manual of Instructions for the Survey of the Public Lands of the United States, 1973

Geodatabase designed to reflect existing standards and to work in an object oriented technology environment.
Meta Data Must Be Associated With All Data Sets

Full FGDC Standard

ArcCatalog

View/Edit as Forms

Stored in XML (Structured Document)
GIS Data (Before Survey Analyst)

**Vector** Data Layers

- Land Ownership
- Transportation
- Surface Waters
- Boundaries
- Geodetic Control

**Raster** Data Layers

- Elevation
- Imagery
- Land cover
- Soils
- Vegetation
- Slope
- Others …
GIS Data (After Survey Analyst)

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- Others ...

**Survey** Data Layers (Projects)
- School Topo
- Buildings 02.18.02
- Total Station Survey 1
Data is delivered 3 ways...
1

- Viewable from the web interface
• Downloadable as Shapefiles
3

- Accessible as a streaming ArcIMS layer
Integrate with other data layers through Desktop or Mobile GIS

- Add data from the internet with the URL: [http://lsi.blm.gov](http://lsi.blm.gov)
Future Streaming Services...

• BLM National Conservation Areas
  – National Wild and Scenic Rivers
  – National Scenic Trails
  – National Historic Trails
• BLM Wilderness Areas
• BLM Wilderness Study Areas
• BLM Areas of Environmental Concern
**Quick Start**

For detailed instructions, view [Help](#). Get information on site updates at our [What's New Page](#).

**Browsing**

1. Zoom in to view Townships by using the navigation buttons.

2. Use Layer TreeView to toggle various base maps.
   - Base Maps
     - Base Map layers create a very useful maps.
     - No Base Map
     - Data Download Available
     - USFS Data Download Available
     - USGS Topos

3. Use Navigation tools to refine map display: Zoom Back, Full Extent, Pan...

**Selecting Townships**

1a. Use one of the Query Tools to Select and Zoom to desired...
QUESTIONS
For additional Information

www.blm.gov/nils

www.geocommunicator.gov

www.geocommunicator.gov/lsi

Streaming Service:

Map Service: http://www.lsi.blm.gov

Map Service: BLM_LSIS