

Appendix F. Steps for Developing a Unified Land Records Management System for the BLM

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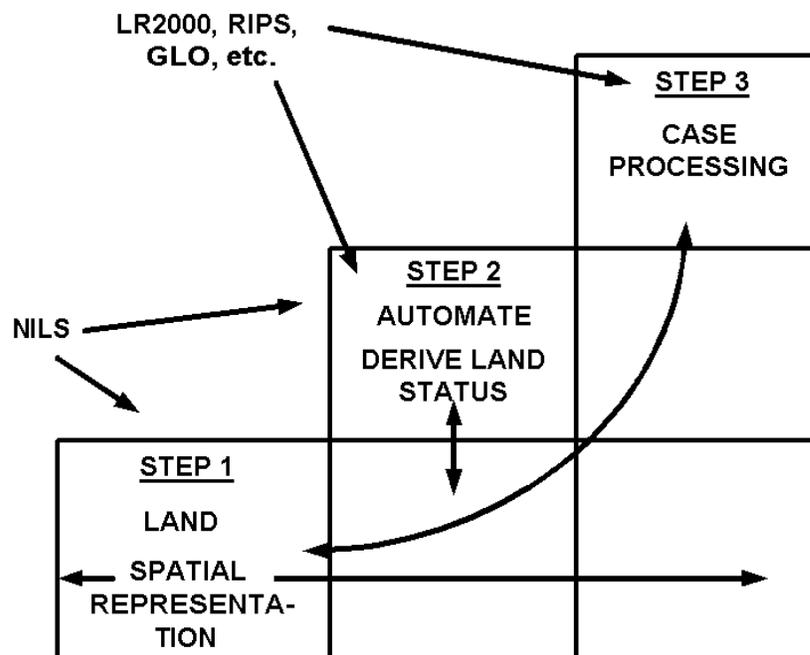
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Introduction

NILS will develop capabilities and functions in an orderly progression. Each step is an achievable, usable segment of capabilities and functions. NILS is currently in the analysis and design phase of the initial (LAND) step. Each level is a building block or a list of prerequisites for the development of the successive level. BLM data is both the strength and the weakness in this proposed effort. LR2000 is identified in the explanations below as an example of a land recordation database, but parallels can and should be made for other Federal, State, and County recordation systems. At the end of this paper is a list of concerns that highlight BLM data cleanup requirements and modeling enhancements necessary to complete these steps.

Figure F.1. Steps for Developing a Unified Land Records Management System for the BLM



Step 1

The LR2000 land module is based on an alphanumeric model that was created in the late 1970's. The LAND design is based upon a *nominal* classification model, which means that each legal description is identified as part of a survey hierarchy that identifies specific meridian, township, section, and named (thus nominal) locations within a section (i.e. to the 16th level or 40 acres). Creating a spatial representation of land based on the nominal model requires the use of parcel generator software. As long as descriptions are collected within the limitations of the software (i.e. rectangular in nature and above the 40 acre limitation) the software can accurately represent the boundary on a map display. Unfortunately a substantial percentage of legal descriptions do not fit within these limitations. Mineral surveys, homestead entry surveys, and metes and bounds descriptions are non-rectangular in nature. Rights-of-way descriptions are commonly linear based descriptions. Many case descriptions are texturally based (e.g. "north 60 acres of tract 37"). None of the these latter examples of land descriptions can be accurately described using parcel generator software unless the user further edits the boundary to accurately reflect the geographic extent.

These limitations within LR2000 will be resolved in NILS by providing a spatial representation of land based on geo-coordinate locations (not dependent upon nominal location). The case land descriptions currently located within the LR2000 database will need to be converted into the NILS spatial land model. As example, the user will be able to select atomic level land descriptions from the legal description fabric to create a parcel legal description. Two possible scenarios to help describe this functionality are:

- User selects land in a spatial display and the software writes the aggregated textual description with the associated parcel ID(s) back to transaction database.
- User enters a textural legal description and NILS provides the spatial representation of the alphanumeric description and writes the aggregated textural description and parcel ID(s) to the transaction database.

Step 2

One of the initial steps within the processing of any case is to verify whether the lands in the application are available for the use being requested (i.e. derive land status). As an example, the government can not lease lands for oil and gas if the minerals were conveyed in a patent with the surface estate for the lands in question. Today this step is completed manually by interpreting the notations on a master title plat (MTP). Sometimes the MTP does not have enough detail (e.g. it identifies a withdrawal line but does not provide the segregative extent of the withdrawal), so additional research of original documents is required to determine the availability of land. Requirements for this program have been written that provide a cumulative value on a parcel of land for the following categories of information:

- retained US rights, including surface and mineral estate,
- Ownership/Surface Management Agency, and
- surface/subsurface restrictions, often described as segregation on the land).

Implementing these requirements on top of the alphanumeric land within LR 2000 will inherit all of the limitations of this model described in Step 1. Incorporating the elements necessary to derive land status in the NILS land model and including automated status derivation tools within a Geographic Information System (GIS) will resolve these problems. Since NILS will use object-oriented technology, business rules may be modeled as relationship classes to manage land status derivation. Using objects and GIS functions opens many possibilities, including real time derivation.

Step 3:

The third step would be to transition to a true automated case processing system. LR2000 is a case recordation system. Case activities include approving or rejecting proposed authorizations on the land, monitoring existing authorizations for compliance with regulations, and closing out a file based on termination or expiration of activities within expressed terms and conditions associated to the case. At various steps in case processing, the user is required to update LR2000 so that the automated record will stay 'in sync' with the manual record.

Closing the gap between the manual and automated record notation could be as simplistic as adding word processing 'macros' which allow for single entry of the core data elements such as land and customer information that is unique to the individual case. Automatic filling of forms, letters, mailing labels, etc. could be included in case processing. Automation of the land status derivation (as described in Step 2) is a critical aspect of case processing.

At a minimum, the data model in NILS could also be enhanced to support ties to existing third party document imaging, management, and workflow management programs. Vital steps in the workflow of a case which earmark data (i.e. documents/maps/plats which move from the out box of one individual/office to the in box of another) can be identified and supported in an automated environment. The integration of numerous activities, some of which are identified above, completes the vision and transition a passive land recordation system into an active case processing system.

Concerns Within This Approach

1. Our current legacy data sets need to be integrated. LR2000 has comparable (duplicate) data within Case Recordation, Status, and Mining Claims Recordation Systems. There are unique characteristics within the various databases, including the structure of land (for example, some data sets use an 'X' pattern to delineate aliquot parts or nominal locations, some use textual based descriptions [e.g. NENE]). The databases do not always use the same data elements. There are duplicate cases within the various databases that need to be merged into one case without loss of data content. For example, the Withdrawal data collection in Status was expanded to include the full case history. Each document within the Withdrawal Case was abstracted as a separate case part which, in layman's terms, means the current boundary of the withdrawal (boundary on the MTP) is the net effect of the various case parts rather than a single case description. To transition data successfully into NILS and allow enhanced reporting capabilities (including deriving land status), we need to have one fully integrated database for all case types.

2. Derivation of land status and development of an active case processing system requires enhancement to the existing transaction model within the cadastral data content standard.

Note: The concerns referenced above are part of the “gap analysis” between ESRI custom off-the-shelf software (COTS) and required functionality within NILS.