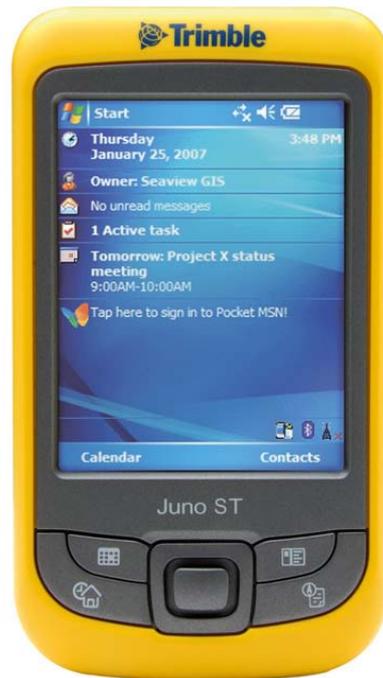


# Mobilizing the Enterprise GIS

A new approach to AMLIS using  
Trimble Juno SB data collectors



# My Roles:

- Implement and support an enterprise GIS
- Implement and support a mobile GIS
- Manage GIS and AMLIS data
- Increase use / awareness of GIS-based methods for planning and analysis

# What is Enterprise GIS?

- GIS for large organizations
- Allows multiple users to simultaneously manage the same datasets
- Ensures we're all looking at the same data
- SDE is a type of RDBMS, but is fundamentally different from a standard MS Access RDBMS because data are managed in versions

# ODNR's Unique Obstacles

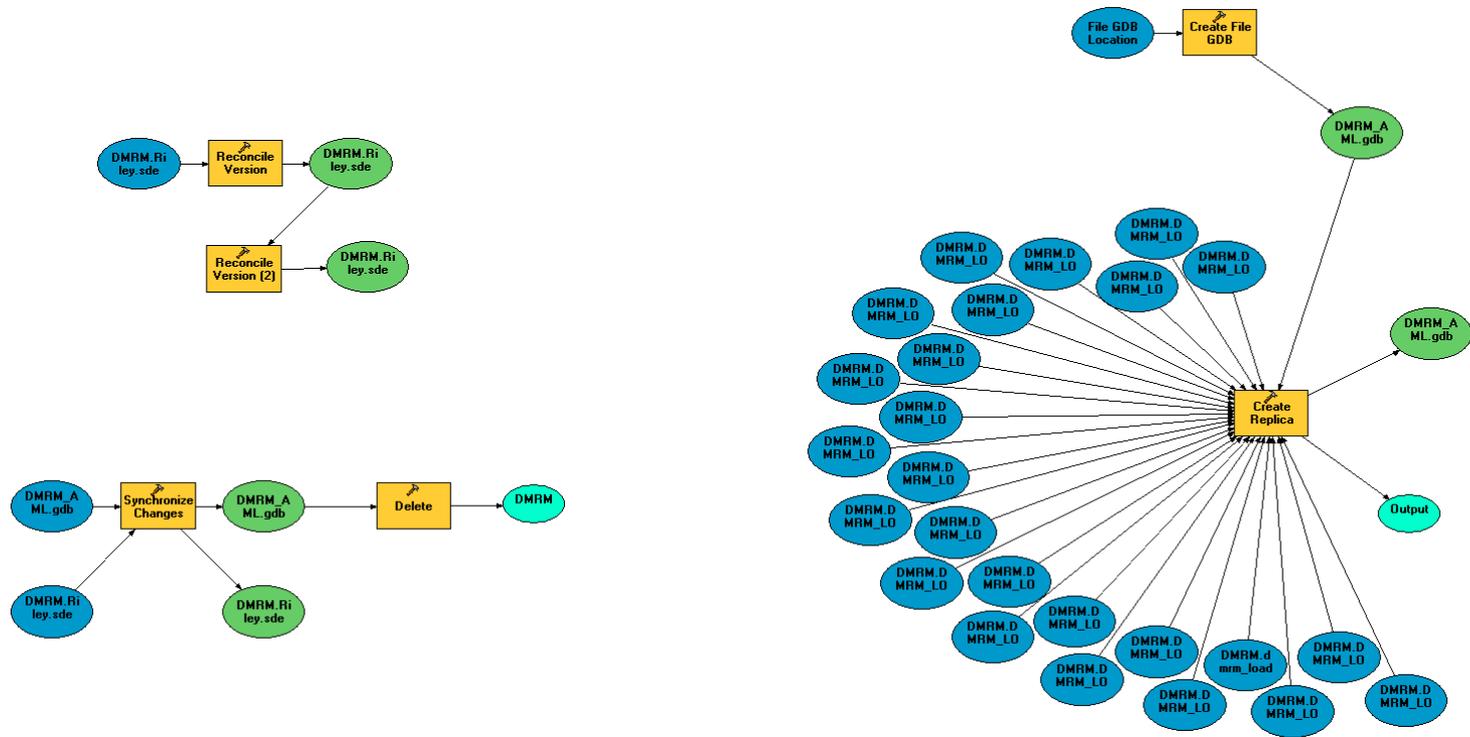
- Central SDE server in Columbus
- More users in field offices
- Inadequate data stream infrastructure  
= database replication at the local level
- Managing mobile edits by multiple ES staff  
= mobile GIS workflow customization and support, ArcPad software

# Old vs. New

- Paper maps
- Recreational GPS
- Handwritten field notes
- GPS data collectors
- Custom data entry forms
- Constrained, validated data entry
- Automation of data synchronization
- No paper!

# Making it work..

## Creating models in ArcGIS ModelBuilder





# Making it work..

## Writing and Editing XML code in ArcPad Studio

```
Line.apl - Notepad
File Edit Format View Help
|<ArcPad>
<LAYER name="Line">
  <SYMBOLLOGY>
    <SIMPLELABELRENDERER visible="false" field="Prepared_By" rotationfield="" expression="" language="">
      <TEXTSYMBOL font="Arial" charset="" fontsize="8.2" fontstyle="regular" fontcolor="Black"/>
    </SIMPLELABELRENDERER>
    <VALUEMAPRENDERER lookupfield="Problem_Type">
      <EXACT value="1" label="CS">
        <SIMPLELINESYMBOL color="0,161,19" width="1"/>
      </EXACT>
      <EXACT value="2" label="DH">
        <SIMPLELINESYMBOL color="26,158,0" width="1"/>
      </EXACT>
      <EXACT value="3" label="H">
        <SIMPLELINESYMBOL color="0,158,16" width="1"/>
      </EXACT>
      <OTHER label="&lt;Other&gt;">
        <SIMPLELINESYMBOL color="0,64,138" width="1"/>
      </OTHER>
    </VALUEMAPRENDERER>
  </SYMBOLLOGY>
  <FORMS>
    <EDITFORM caption="Line" width="130" height="130" attributespagevisible="false" name="">
      <PAGE onetactive="Call Autobate" name="page1" caption="Page 1">
        <LABEL name="lblProblem_Type" x="2" y="33" width="60" height="12" caption="Problem Type" tooltip="" border="false"/>
        <EDIT name="probsubtype" x="2" y="108" width="12" height="12" defaultvalue="" tooltip="" tabstop="true" border="true" readonly="true" sip="false" field="PROBLEM_TYPE"/>
        <EDIT name="amlsptab" x="64" y="32" width="60" height="12" defaultvalue="" tooltip="" tabstop="true" border="true" readonly="true" sip="false" field="">
        <LABEL name="lblPriority" x="2" y="48" width="60" height="12" caption="Priority" tooltip="" border="false"/>
        <EDIT name="autoprriority" x="64" y="48" width="60" height="12" defaultvalue="" tooltip="" tabstop="true" border="true" readonly="true" sip="false" field="PRIORITY"/>
        <LABEL name="lblEdit_Date" x="2" y="18" width="60" height="12" caption="Edit Date" tooltip="" border="false"/>
        <EDIT name="dtpeedit_Date" x="64" y="17" width="60" height="12" defaultvalue="" tooltip="" tabstop="true" border="true" readonly="true" field="EDIT_DATE"/>
        <LABEL name="lblPrepared_By" x="2" y="3" width="47" height="12" caption="Prepared By" tooltip="" border="false"/>
        <EDIT name="prep_auto" x="64" y="2" width="60" height="12" defaultvalue="" tooltip="" tabstop="true" border="true" readonly="true" sip="false" field="PREPARED_BY"/>
        <LABEL name="lblCOMMENT" x="2" y="78" width="40" height="12" caption="Comments" tooltip="" border="false"/>
        <EDIT name="txtCOMMENT" x="43" y="77" width="80" height="16" defaultvalue="" tooltip="" tabstop="true" border="true" field="COMMENT"/>
      </PAGE>
    </EDITFORM>
  </FORMS>
</LAYER>
<SCRIPT src="Line.vbs"/>
</ArcPad>
```

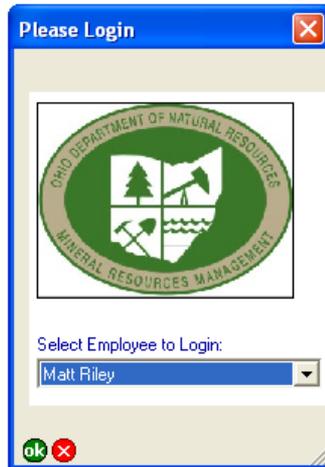
# Making it work..

## Writing and Editing VBScript in ArcPad Studio

```
Line.vbs
Option Explicit

1
2
3 Sub AutoDate 'autopopulate the date, staff member, problem type, and priority
4   Dim probtype, pCtrl, curdatetime, staff, priority
5   probtype = Application.UserProperties("globamlisPTA")
6   priority = Application.UserProperties("globpriority")
7   Set pCtrl = ThisEvent.Object.Controls
8   staff = Application.UserProperties("LoggedInEmployee")
9   If pCtrl("dtpEdit_Date").Value = "" Then
10    curdatetime = now()
11    pCtrl("dtpEdit_Date").Value = curdatetime
12  End If
13  pCtrl("autopriority").Value = priority
14  pCtrl("prep_auto").Value = staff
15  pCtrl("amlisptab").Value = Application.UserProperties("globamlisPTA")
16  If probtype = "CS" Or probtype = "DI" Or probtype = "CSL" Then
17    pCtrl("probsubtype").Value = 1
18  ElseIf probtype = "DH" Or probtype = "GHE" Or probtype = "DPE" Then
19    pCtrl("probsubtype").Value = 2
20  ElseIf probtype = "H" Or probtype = "HEF" Or probtype = "DS" Then
21    pCtrl("probsubtype").Value = 3
22  ElseIf probtype = "HWB" Or probtype = "IRW" Then
23    pCtrl("probsubtype").Value = 4
24  ElseIf probtype = "P" Or probtype = "S" Then
25    pCtrl("probsubtype").Value = 5
26  ElseIf probtype = "PWAI" Or probtype = "SB" Then
27    pCtrl("probsubtype").Value = 6
28  ElseIf probtype = "PWHC" Or probtype = "UMF" Then
29    pCtrl("probsubtype").Value = 7
30  ElseIf probtype = "VO" Or probtype = "BE" Then
31    pCtrl("probsubtype").Value = 8
32  ElseIf probtype = "EF" Or probtype = "DP" Then
33    pCtrl("probsubtype").Value = 9
34  ElseIf probtype = "MO" Or probtype = "GO" Then
35    pCtrl("probsubtype").Value = 10
36  ElseIf probtype = "WA" Or probtype = "HR" Then
37    pCtrl("probsubtype").Value = 11
38  ElseIf probtype = "O" Or probtype = "PI" Then
39    pCtrl("probsubtype").Value = 12
40  ElseIf probtype = "SA" Then
41    pCtrl("probsubtype").Value = 13
42  ElseIf probtype = "SL" Then
43    pCtrl("probsubtype").Value = 14
44  ElseIf probtype = "SP" Then
45    pCtrl("probsubtype").Value = 15
46  ElseIf probtype = "" Then
47    MsgBox "There is an issue with problem type auto-population", vbExclamation, "Subroutine Failure!"
48  End If
49  Set pCtrl = Nothing
50  Set probtype = Nothing
51  Set priority = Nothing
52 End Sub
```

# Making it work..



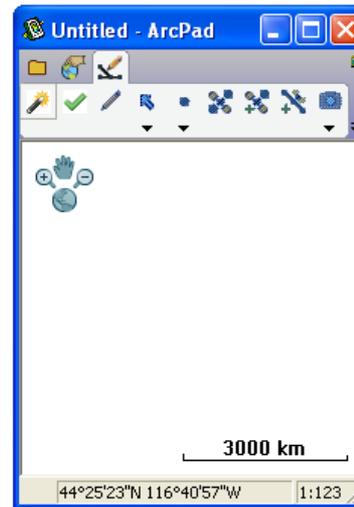
Please Login



Select Employee to Login:

Matt Riley

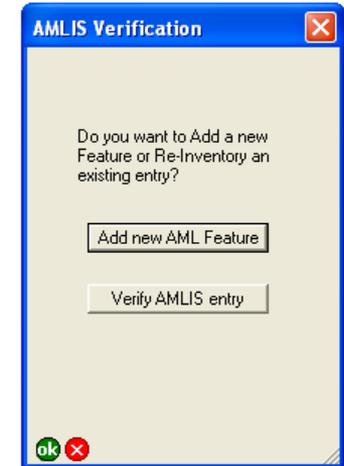
ok x



Untitled - ArcPad

3000 km

44°25'23"N 116°40'57"W 1:123



AMLIS Verification

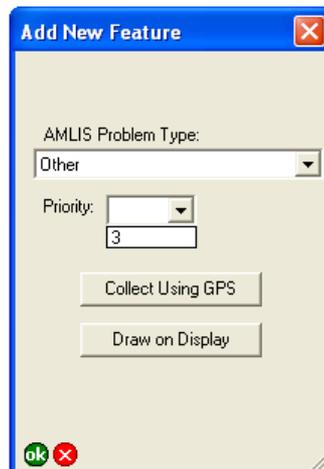
Do you want to Add a new Feature or Re-Inventor an existing entry?

Add new AML Feature

Verify AMLIS entry

ok x

Custom Form design, creation, coding, debugging, and testing in ArcPad Studio



Add New Feature

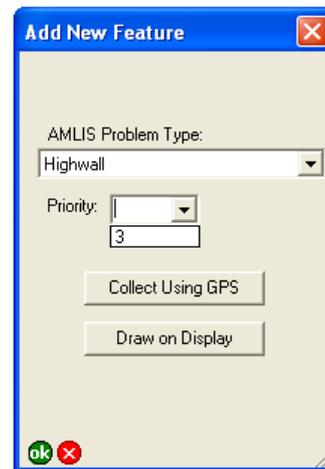
AMLIS Problem Type:  
Other

Priority:  
3

Collect Using GPS

Draw on Display

ok x



Add New Feature

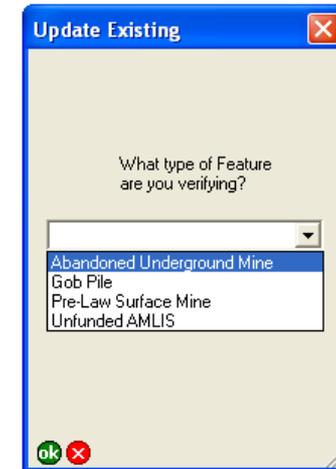
AMLIS Problem Type:  
Highwall

Priority:  
3

Collect Using GPS

Draw on Display

ok x



Update Existing

What type of Feature are you verifying?

Abandoned Underground Mine  
Gob Pile  
Pre-Law Surface Mine  
Unfunded AMLIS

ok x

# Influences

- iWater for Mobile Enterprise GIS workflow
- US Census for ArcPad customization

## ArcPad Eases Address Canvassing in 2010 U.S. Census

The 2010 U.S. Census is less than one year away, and preparations are in full swing. In April of this year, the Census Bureau launched the address canvassing operation, where approximately 140,000 census workers verified the nation's residential addresses and captured GPS locations for each of these addresses using a PDA equipped with ArcPad software. The address canvassing operation helps ensure that everyone residing in the United States receives a 2010 Census questionnaire and helps simplify future census enumeration operations by providing a specific coordinate, or "map spot," of each household in case a revisit is necessary. The result will be the most comprehensive U.S. address list.



According to Timothy Trainor, U.S. Census Bureau's Geography Division chief, "The goal of address canvassing is to go out and check the address list that we have and GPS capture each of the individual housing unit locations." (Watch Trainor's [video](#) from the 2009 Esri User Conference Plenary) The results of this effort will be used for the distribution of 2010 Census questionnaires to U.S. households. However, the U.S. Census Bureau expects that 35 percent of all households will not return their census questionnaires on time, and follow-up will be necessary. Says Trainor, "We not only use the address information [captured in address canvassing] for mailing questionnaires, but we also use the coordinates to help untangle some of those difficult-to-observe or difficult-to-read situations. Now the enumerator can actually go to the right unit based on a precise set of coordinates and record the information directly into a handheld computer. We believe that having a mobile infrastructure in place will head off many of the problems with census nonresponse."

ArcPad is also helping the U.S. Census Bureau reduce costs and produce fewer paper forms. "We produced a lot of paper in the last census," says Trainor. "And it wasn't just the use of the paper; it was all the things that go with the paper. We had to procure it, store it, and ship it. It was just all over the place. One of the goals of the 2010 Census is to simplify operations, and we're currently achieving that with the mobile data collection system."

The U.S. Census Bureau is not a new user of ArcPad software. Andrea Johnson, the Census Bureau's Geographic Products Branch chief, says that the Census Bureau has been

Questions?