Using and Creating an ArcView GIS Interface for Viewing a LIS Data Module

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City of Fountains
Heart of the Nation

City Planning and Development Department
Kansas City Missouri

ArcView GIS for Viewing LIS

Brief Overview of Kansas City, Missouri's GIS use

- City Planning and Development
- Public Works Engineering
- Water Services
- Information Technology
- Aviation
- Health Department
- Community Housing and Development
- Action Center
- Others (Fire, Police, EDC)

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Kansas City, Missouri's GIS Applications

A double / triple Enterprise-wide environment

- CAD Creation: Microstation.
- GIS Creation: ArcInfo, MGE.
- GIS Analysis: ArcView, MapInfo.
- GIS Viewing: ArcView, MapObjects, MO IMS, GeoMedia Web Map, Map Guide.
- GIS Programming: AML, Avenue, Visual Basic MapObjects.
- GIS Database: Oracle, Access.

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City Planning and Development's GIS Files

- CAD= Microstation (.dgn)
- GIS= ArcView (.shp)
  ARC/INFO (coverage)
  MapInfo (.map)

- Land base COGO.
- Land base heads up digitizing.

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KIVA/LIS System

- Oracle Based.
- Primary engine is Land Base LIS.
- Tracks all permits, licenses, and parcel information.
- ROW is parceled for Permit tracking.

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Driving Forces of an Automated GIS Viewer

- All Land, Planimetric, Water Lines, Contours, Orthophotography is tiled as 402 sections.
- Needed to see over 170,000 parcels.
- Only hardcore CAD users could view these files. Microstation is very expensive software.
- ArcView 3.0: The CAD Reader Update! All Departments whom acquire ArcView have GIS file access.

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What is BaseInfo?

- ArcView project file.
  Can not be saved, view only.
- Over 50 Users:
  Non-Double Clickers to the Experienced GIS user.
- Originally dbf table based.
  Now ODBC based.
- Over 3.5 years in production.
- Automatic:
  - Map Layout.
  - Excel dump through DDE. (Dynamic Data Exchange)
  - Buffer and address labels through Access.

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BaseInfo

Populate Excel

Land Use Colors

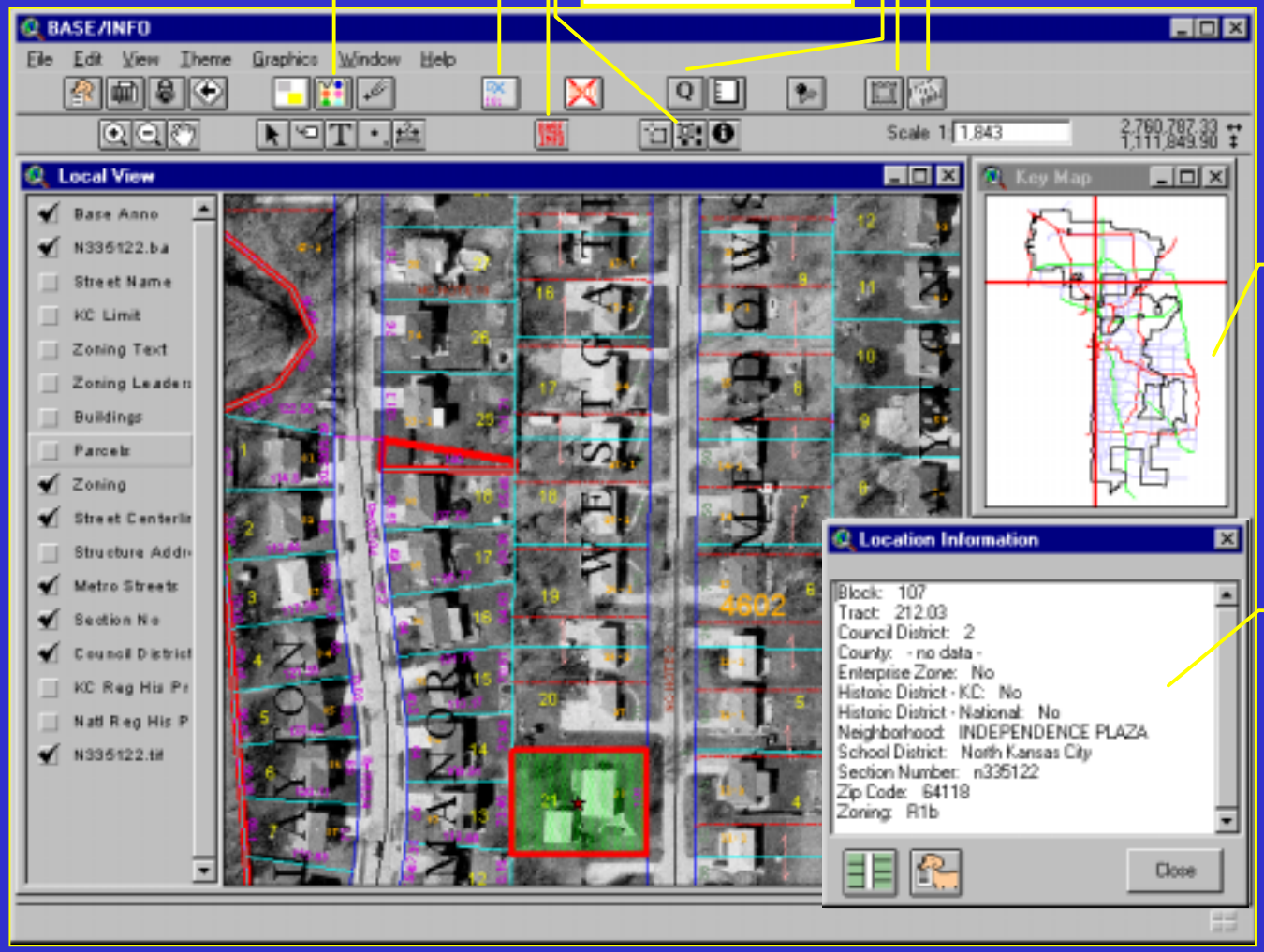
Add Tiled Themes:
- Orthophotography
- Land Records
- Planimetrics
- Contours

Automatic Buffers

Automatic Queries

Automatic Layout

Address Labels through Access



Key Map Locator

Dynamic Point and Poly Information

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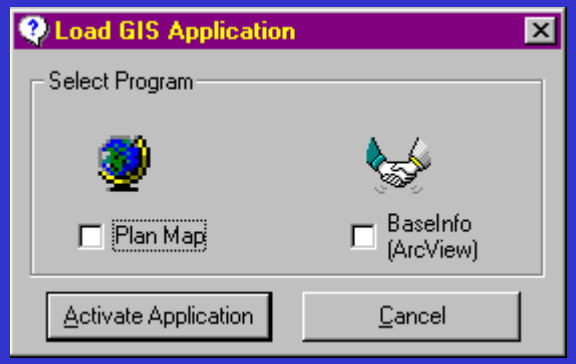
KIVA/ GIS Interface



- Visual Basic Application.
- KIVA parameters are passed on a command line.
- VB executes using DDE to Applications.
- Opens MapObjects and/or ArcView customized map viewers.
- Checks if application is already open, if so passes script to execute and PIN.

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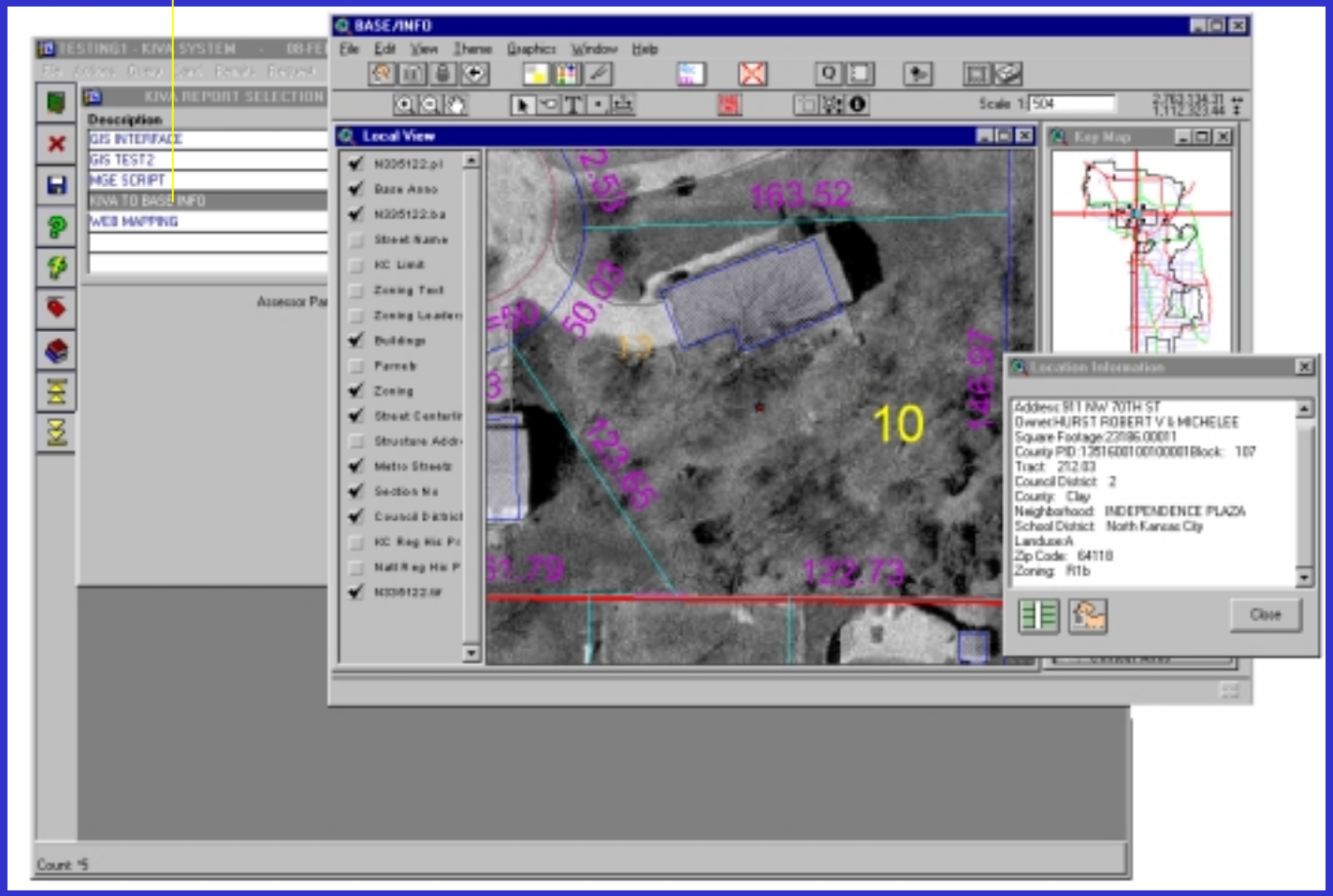
KIVA to BaseInfo

- KIVA calls Visual Basic Application.
- KIVA Passes unique id through DOS to VB.
- VB application starts BaseInfo and passes unique ID.
- ArcView zooms to location.

KIVA data viewed with Oracle Reports



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LIS information inside of ArcView

- Use Avenue's SQL Connect.
  - Calls ODBC driver (Open Database Connectivity).
  - Hardcode SQL statements.
    These statements will contain all join information.
  - Return a SQLVTab that is overwritten.
  - Query the SQLVTab for values.

- Dialog Designer for value display.
  - Each field value can then be displayed as text by looping.

Data Retrieving Tips

- Watch for difference between SQL database statements.
- Two VTabs can be merged into one.
- Must set up an ODBC driver DSN for each database connection.
- From the parcel file, only store PIN to link to LIS.
- Make sure all graphic and attribute fields are indexed, as well as SQL tables.

ArcView/Avenue Tips

- Tool tips: the control's help property as... your tip//
- Replaced geocoded index files must load fresh.
- Save out legends and templates for easy to use coding.
- BMP's create icons.
- Users may not understand active themes, use a theme choice through a dialog.

ArcView/Avenue Tips

- Keep all access to menus, and hide/disable other controls.
- Search ESRI scripts! Find a lot of programs.
  Ex: Zoom in function and locator.
- Batch network drive connections.
- Tiled GIS files can either be hotlinked, or use display extent.
- Keep default directory on user drive, especially if you have email.

Future Avenue Programming

or

What would I do better...

- Create project as an extension.
- Use display extent to create seamless tiles.
- Comment all code.
- Naming convention of all scripts.
- INI file.
- Use SQL statements to populate Access.
- Keep user documentation current.
- Universal naming within a network…

  \\computer\drive\directory
- MapObjects Vs ArcView.

ArcView GIS for Viewing LIS

GIS Hardware

Two Servers:

- Dual Pentium Zeon 100 MHz
  - 256 Meg RAM
  - 2 Disk Drives for GIS
  - 1 Disk Drive for Office applications
- Quadruple Pentium Pro 200MHz
  - 256 Meg RAM
  - 2 Disk Drives for GIS
  - 6 Others--IT Department's

An ArcView Interface for Viewing a LIS Data Module

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ArcView GIS for Viewing LIS

```
'***************Creates an SQL connection, passes an SQL statement,
'***************then returns a SQLVTab.  This script is actually called
'***************by another, passing it a PIN as self.

'***************Find the ODBC DSN, create a database connection
1.  theCon = SQLCon.Find("OracleDSN")

'***************Pass logon info to the database
2.  theCon.Login("UID=db_id;PWD=db_pswd")

'***************The SQL statement as a string, self is the passed PIN
3.  astring="Select kiva.ADDRESS.ADDR,kiva.ADDRESS.PREFIX,kiva.ADDRESS.STREET,kiva.ADDRESS.STREET_TYPE,”+nl+
                “kiva.ADDRESS.ORIGIN,kiva.PARCEL.APN,kiva.PARCEL.PIN,kiva.PARCEL.APN_ALT,"+nl+
                "kiva.OWNER.OWN_NAME,kiva.OWNER.OWN_ADDR,kiva.OWNER.OWN_ADDR2,”+nl+
                “kiva.OWNER.OWN_CITY,kiva.OWNER.OWN_STATE,kiva.OWNER.OWN_ZIP,"+nl+
                 "kiva.KCMO_REAL_ESTATE.CV_ASSESSED_LAND_VALUE,”+nl+
                “kiva.KCMO_REAL_ESTATE.CV_ASSESSED_IMPROVEMENT_VALUE,"+nl+
                "gisdba.PARCELS.MSLINK"+nl+
                "from kiva.OWNER,kiva.PARCEL,kiva.KCMO_REAL_ESTATE,gisdba.PARCELS,kiva.ADDRESS"+nl+
                "where kiva.OWNER.PIN = kiva.PARCEL.PIN and kiva.PARCEL.PIN = gisdba.PARCELS.KIVA_PIN and "+nl+
                "kiva.ADDRESS.PIN (+) = kiva.PARCEL.PIN and kiva.PARCEL.PIN = kiva.KCMO_REAL_ESTATE.KIVA_PIN"+nl+
                "and kiva.PARCEL.PIN = "+"'"+self.asstring+"'"

'***************Create the SQLVTab and return to calling script
4.  theVTab=VTab.MakeSQL(theCon, astring)
5.  return theVTab

'***************If you want to see the SQLVTab, uncomment the following:
6.  'myTable=Table.Make(theVtab)
7.  'av.GetProject.AddDoc(mytable)
8.  'mytable.SetName("ParcelCheck")
9.  'mytable.GetWin.Open
```

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```
'********Take a passed vtab, and write values to Excel
'Requires a vtab
'***************************System Excel Script
' Create the ArcView DDEClient.  This initiates the Excel conversation.
' Verify that there are no errors.  If error, then open Excel.exe
1.  systemClient = DDEClient.Make( "Excel", "System")
2.  if (systemClient.HasError) then
3.   system.Execute("c:\program files\microsoft office\office\excel.exe")
4.    systemClient = DDEClient.Make( "Excel", "System")
5.  end
'**********Create the new Excel worksheet
6.  systemClient.Execute( "[NEW(1,0,FALSE)]")
'***********Get the name of the new worksheet.
'***********Selection is an Excel item supported
'***********for the System topic.
7.  selection = systemClient.Request( "Selection" )
8.  spreadsheet = selection.Left( selection.IndexOf("!"))
'**********Ensure R1C1 format
9.  systemClient.Execute( "[Workspace(,,TRUE)]" )
10.  systemClient.Close
11.  ssClient = ddeClient.Make( "Excel", spreadsheet )
'**********Set the VTab, fields, row and column variables
12.  theVTab=self
13.  theFields = theVTab.GetFields
14.  row=1
15.  column=1
'***********List out all fields on first row of spread sheet
16.  for each f in theFields
17.     ssClient.Poke("R"+row.AsString+"C"+column.AsString, f.AsString)
18.     column=column+1
19.  end
'***********Write the values for selected features to spreadsheet
20.  for each rec in theVTab
21.    row    = row + 1
22.    column = 0
23.    for each f in theFields
24.      column = column + 1
25.      if (f.IsTypeShape) then
26.        dataString = "Shape"
27.      else
28.        dataString = theVTab.ReturnValueString( f, rec)
29.      end
30.      ssClient.Poke( "R"+row.AsString+"C"+column.AsString, dataString)
31.    end
32.  end
'**********Close the Converstation
33.  ssClient.Close
```

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```
Option Explicit
Const NONE = 0, MANUAL = 2
Private CmdLine As String
Private AVexe As String
Private AVPath As String
Private AVProject As String
Private AVScript As String
Private KivaTxt As String

1.  Private Sub Form_Load()
  'Set form level variables
  'This tells VB what project to open and what script to use
  'Project Name is a search so it will not re-open
  KivaTxt = "c:\temp\kivaapn.txt"
  AVexe = "c:\Esri\Av_gis30\Arcview\Bin32\arcview.exe"
  AVPath = "o:\arcvinfo\projects\kclocate\baseinfo.apr"
  AVProject = "BASE/INFO 2.0"
  AVScript = "BaseInfo.KIVA.DDE"

  'Run Sub Procedures
  txtCMD.Text = frmSelection.KivaPin
  Call DDE_Link
  Call AVRequest
 'txtDDE contains a hardcoded ArcView project name
 If txtDDE.Text <> AVProject Then
  Call OpenAVProj
 End If
  Call AVRequest
  txtProj.Text = txtDDE.Text
  Call DDE_Pass
End Sub

2.   Private Sub DDE_Pass()
  'Pass cmdline params to ArcView
  'Run  Called Script in AV
  'Text in txtbox is passed to script
  txtDDE.Text = txtCMD.Text
  txtDDE.LinkItem = "String " & AVScript
  txtDDE.LinkPoke

End Sub
```

```
3.  Private Sub DDE_Link()
  'Start AV conversation
  'If no conv, start AV
  Const DDE_NO_APP = 282

  On Error GoTo FireUp
  txtDDE.LinkMode = NONE
  txtDDE.LinkTopic = "ArcView|System"
  txtDDE.LinkMode = MANUAL
  txtDDE.LinkTimeout = 600
Exit Sub

FireUp:
  'Start AV app
  If Err = DDE_NO_APP Then
    Dim t
    t = Shell(AVexe, 1)
    t = DoEvents()
    Resume
  End If
End Sub

4.  Private Sub Form_Unload(Cancel As Integer)
  txtDDE.LinkMode = NONE
End Sub

5.  Private Sub OpenAVProj()
  'Pass Avenue to AV--Close new Project, Open a Project
  Dim cmd As String

  cmd = "av.GetProject.Close Project.Open("" & AVPath & """.AsFilename)"
  txtDDE.LinkExecute cmd
End Sub

6.  Private Sub AVRequest()
  'Pass an Avenue statement to ArcView, Return AV Project Name
  txtDDE.LinkItem = "av.GetProject.GetName"
  txtDDE.LinkRequest
End Sub
```

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