Tables, VTabs, and FTabs

- Introducing Tables, Virtual Tables, and Feature Tables
- Object models
- Data in tables
- Features in tables
- Queries
Introduction to Tables

• A Table is a viewer for tabular data contained in a VTab. It uses a spreadsheet-like grid with related values aligned horizontally and similar data aligned vertically. The fields, items, or attributes, are the columns of the Table and the records are the rows.
Table Object Model

- Note that the VTab is the underlying data container for both Table Documents and Themes.
Table Attributes

- ActiveField – Which field is active for sorting and joining
- Vtab – The actual data is held in the Vtab
VTabs and Ftabs

• A virtual table (VTab) manages a tabular view of multiple tabular data sources.
• A VTab underlies three of ArcView's documents - the Table document is a viewer for a VTab in the form of a grid, the Chart document is a viewer for the numeric values in a VTab in the form of a graph, and the View document's feature themes show the shape values in a VTab (FTab) with legends generated from non-shape values in the form of a map.
VTab and FTab Object Models

- FTab is a type of VTab that has geographic features
Fields

• A Field is the definition of a column of data in a VTab or FTab. Fields are sometimes referred to as attributes, items, or columns. A field defines what kind of values can be stored in this column, such as numbers, strings, dates, or points. A field may also define the width or precision of the values.
Modifying the Active Field

`'* Get the table from the application
myTable = av.GetActiveDoc
'* Get the Vtab from the table
myVTab = myTable.GetVTab
'* Get a field called Id in the VTab
myField = myVTab.FindField("Id")
'* Make Id the active field in the table
myTable.SetActiveField(myField)`
Bitmaps

- A BitMap is an ordered, fixed size collection of boolean values. Each boolean value is called a bit.
- BitMaps are used to keep track of which records in a table are selected
Selecting Records With Bitmaps

'* This script applies a BitMap from'
'* one theme to another Theme

myThemes = av.GetActiveDoc.GetThemes
vTab1 = myThemes.Get(0).GetFTab
vTab2 = myThemes.Get(1).GetFTab
myBitMap = vTab1.GetSelection
vTab2.SetSelection(myBitMap)
Modifying the Ftab Script (slide 1 of 2)

myView = av.GetActiveDoc
mapTheme = MsgBox.List(myView.GetThemes, "Select a Theme","")

mapFTab = mapTheme.GetFTab
mapShapeField = mapFTab.FindField("Shape")

newFileName = "a:\cartogram.shp".AsFileName
newFTab = FTab.MakeNew(newFileName, Polygon)

if (newFTab.HasError) then
  if (newFTab.HasLockError) then
    MsgBox.Error("Unable to acquire Write Lock for file " + newFileName.GetBaseName, "")
  else
    MsgBox.Error("Unable to create " + newFileName.GetBaseName, "")
  end
end

return nil

idFld = Field.Make("ID", #FIELD_DECIMAL, 8, 0)
idFld.SetVisible( TRUE )
newFTab.AddFields({idFld})
newFTab.SetEditable(False)
cgTheme = FTheme.Make(newFTab)
myView.AddTheme(cgTheme)
cgTheme.SetActive(TRUE)
cgTheme.SetVisible(TRUE)
myView.SetEditableTheme(cgTheme)
cgShapeField = newFTab.FindField("Shape")

radiusField = MsgBox.List(mapFTab.GetFields, "Select a field to build your cartogram from","")
theMin = 0
theMax = 0
for each mapRec in mapFTab
  theVal = mapFTab.ReturnValue(radiusField,mapRec)
  theMin = theMin.Min(theVal)
  theMax = theMax.Max(theVal)
end
for each mapRec in mapFTab
  newRec = newFTab.AddRecord
  centerPoint = mapFTab.ReturnValue(mapShapeField,mapRec).ReturnCenter
  theVal = mapFTab.ReturnValue(radiusField,mapRec)
  myRadius = (theVal-theMin)/(theMax-theMin)
  newShape = Circle.Make(centerPoint,myRadius).AsPolygon
  newFTab.SetValue(cgShapeField, newRec, newShape)
  newFTab.SetValue(idFld, newRec, mapRec)
end
newFTab.SetEditable(false)
myView.Invalidate