Getting the Most Out of ArcView GIS

Sorting Things Out Using a New Avenue Class

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This article highlights VTabSort, a new class that was added to ArcView GIS with the release of version 3.2. Objects in the VTabSort class allow Avenue programmers to access VTab records in sorted order or export an existing VTab to a new sorted VTab.

A VTab, or virtual table, manages a tabular view of multiple tabular data sources. A VTab underlies the display of three ArcView GIS documents—the Table, Chart, and View documents. The Table document is a viewer for a VTab in grid form. The Chart document is a viewer for numeric values in a VTab in graph form. The attribute and shape information for features in a View document are stored in an FTab, which is a type of VTab. The VTab provides support for join and link, add and export, query, summarize, theme definition queries, and other features found in the interfaces of these three documents.

VTabSort Class

The VTabSort class contains a single class request, VTabSort.Make. This class request requires five arguments—aVTab, Fields, SortOptions, IsSelectOnly, IsCaseSensitive. A description of each argument is given below.

aVTab

The input VTab to access the sorted records or to export to a new sorted VTab.

Fields

A list of fields used for sorting aVTab. Note that multiple fields can be used to perform the sort, but the Shape field is not supported.

SortOptions

A list of Boolean values used to control the sort order of Fields values. Each Boolean value in the SortOptions list corresponds to one of the fields in Fields. A value of TRUE means to sort the Fields values in ascending order; a value of FALSE means to sort the Fields values in descending order.

IsSelectOnly

This is a Boolean value used to indicate that only the selected records from aVTab will be sorted. A value of TRUE indicates that only the selected records will be sorted. A FALSE value indicates all records will be sorted.

IsCaseSensitive

Also a Boolean value, this is used to indicate if the sort is case sensitive. A TRUE value means that the sort should consider case. A FALSE value indicates that the sort should not consider case.

The example in Figure 1, also found in the Help file for ArcView GIS 3.2 as a sample for VTabSort script, illustrates how to create a VTabSort object.

Figure 1

```
' This example shows how to use the VTabSort class to step through the
' records in a VTAB in a sort order that is based on 3 fields. In this
' case we are sorting on the zip code, business type and customer name in
' the customrs.dbf table from the qstart data set. When this is done,
it will
' be easier to find the customers that live close together.
theTable = av.FindDoc("customrs.dbf")
theTable.GetWin.Open
theVTab = theTable.GetVTab

' Create a VTabSort object specifying the sort criteria:

' fidList - Sort by zip code first and then type then name
```

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```
' directionList - TRUE means sort zip code in ascending order
'                 TRUE means sort type in ascending order
'                  TRUE means sort name in ascending order
' SelOnly - FALSE means use the whole shapefile not just the selected
features
' CaseSensitive - FALSE means ignore case when sorting
zipField = theVTab.FindField("zip")
typField = theVTab.FindField("type")
nameField = theVTab.FindField("name")

fldList = {zipField, typField, nameField}
directionList = {TRUE,TRUE,TRUE}
SelOnly = FALSE
CaseSensitive = FALSE
vSort = VTabSort.Make(theVTab, fldList, directionList, SelOnly, CaseSensitive)
```

Accessing the Sorted Records

Once the VTabSort object is created, it can be used for accessing the VTab records and data in sorted order. Note that the programmer does not have to create a new disk file to access the sorted VTab. Internally, the VTabSort object maintains a sorted index to the VTab. The index, which is built using the sort fields and references the VTab's record numbers, is held in memory for the life of the VTabSort object. The aVTabSort.GetRec request is used to access the sorted record numbers.

Use the request aVTabSort.GetRec(aRecordNumber) when aRecordNumber is a record number in the VTabSort index that is used to access the sorted record numbers. This request returns the record number of the record in the VTab that corresponds to the record located at aRecordNumber in aVTabSort. The example shown in Figure 2 cycles through the VTabSort index and displays the sorted record numbers.

Figure 2

```
' The following displays the VTabSort index record numbers.

theTable = av.FindDoc("customrs.dbf")
theVTab = theTable.GetVTab

for each rec in theVTab
  srtRec = aVTabSort.GetRec(rec)
  MsgBox.Info("Record"++srtRec.AsString++"is sorted into
record"++rec.AsString,
              "Results")
end
```

Creating a New Sorted Disk File

The programmer can also create a new sorted disk file by using the aVTabSort.Export request. In the statement aVTabSort.Export(aFileName, aClass) the argument aFileName is the name of the output disk file. The output file should **not** already exist. The argument aClass controls the type of disk file to create. The file created using aClass can be dBASE, INFO, Dtext, or Shape. If Shape is used, a new sorted shapefile is created. The Shape can **only** be used if an FTab was used to create the VTabSort object, and that VTabSort cannot sort on the actual Shape field. In addition to using the class Shape, the actual shape type (Point, PolyLine, Polygon, or MultiPoint) can be used to specify the type of shapefile that should be created.

If successful, the request returns a new VTab. If an FTab is being exported, the request returns a new FTab.

```
' Export to a new shapefile

newFileName = FileDialog.Put("C:\temp\newcnty.shp".AsFileName, "*.shp",
                             "Create new counties shapefile")
newVTab = aVTabSort.Export(newFileName, shape)
```

For more information on VTabSort and other requests, search the ArcView GIS online Help index by request name. The entry for each request will provide a description of the request, its syntax, and the type of object returned by the request.