

Selecting Features

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Application – Displays toxic waste sites for selected U.S. states.

Map – Two data frames:

1. overview map of the U.S. states
2. detail map of the U.S. states showing counties and toxic waste sites

When a state is clicked in the dropdown list from a combo box, the selected state will be highlighted in red in the overview map.

The detail map will show EPA toxic waste sites and counties for the selected state.

Tasks:

- Create a definition query for the detail map
- Select a feature for the overview map

Some of the First Interfaces and Properties Needed

SelectionChange event code runs when a user clicks a name in the dropdown list

- IMxDocument interface has the Maps property that lets you get two maps instead of only one with the FocusMap property
- Returns the IMaps interface of a map collection object, ie, a list of objects.
- IMaps interface has the properties and methods to work with each map in the collection.

Declare and set a variable for the map document

- Dim pMxDoc As IMxDocument
- Set pMxDoc = ThisDocument

The IMxDocument interface has the Maps property which returns the IMaps interface of the collection of maps.

Declare and set a variable to get the map collection from IMxDocument

- Dim pMaps As IMaps
- Set pMaps = pMxDoc.Maps

The IMaps interface has the Item property to get a map using its index position. The Item property returns IMap, which has the Layers property and the IActiveView interface.

Declare and set two IMap variables for EPA and USA maps

- Dim pEPAMap As IMap
- Set pEPAMap = pMaps.Item(0)
- Dim pUSAMap As IMap
- Set pUSAMap = pMaps.Item(1)

The Layer property of IMap uses the index position and returns the layer's ILayer interface.

No usable properties or methods for this task.

Use QueryInterface to declare variables directly to IFeatureLayerDefinition for its DefinitionExpression property.

Declare toxic site and county layer variables using the IFeatureLayerDefinition interface and set them to the EPA map.

- Dim pToxicLayerDef As _
IFeatureLayerDefinition
- Set pToxicLayerDef = pEPAMap.Layer(0)
- Dim pCountyLayerDef As _
IFeatureLayerDefinition
- Set pCountyLayerDef = pEPAMap.Layer(1)

Declare and set a string to hold the query.

- Dim strQuery As String
- strQuery = "State_Name = ' " & cboStateNames.EditText & " ' "

To refresh the EPA map, declare a variable to EPA map's IActiveView and use QueryInterface from the pEPAMap variable that is declared to IMap.

- Dim pEPAActiveView As IActiveView
- Set pEPAActiveView = pEPAMap

Part of code to highlight the selected state in the USA map in red

Declare a variable using the IFeatureSelection interface and set it to the states layer in the USA map.

- Dim pUSALayer As IFeatureSelection
- Set pUSALayer = pUSAMap.Layer(0)

DefinitionExpression

Determine if user clicked <Show All>

- If cboStateNames.EditText = "<Show All>" Then
Runs when user clicks <Show All> and removes definition queries from both layers
 - pToxicLayerDef.DefinitionExpression = ""
 - pCountyLayerDef.DefinitionExpression = ""
- Clears the selection in the USA map when user clicks <Show All>
- pUSALayer.Clear
- Else
Runs when user clicks a state and sets definition query to those states and counties
 - pCountyLayerDef.DefinitionExpression = strQuery
 - pToxicLayerDef.DefinitionExpression = strQuery

Part of code to highlight the selected state in the USA map in red.

To select features, use the SelectFeatures method on the IFeatureSelection interface. All features will draw but the selected features will draw in a different color.

The SelectFeatures method has three arguments:

- a query filter
- a selection method
- the justOne argument

Query filter is an object that builds and stores query statements.

- Dim pFilter as IQueryFilter
- Set pFilter = New QueryFilter

It stores the query statements in its WhereClause property.

- pFilter.WhereClause = strQuery

Selection method argument has five settings:

esriSelectionResultNew

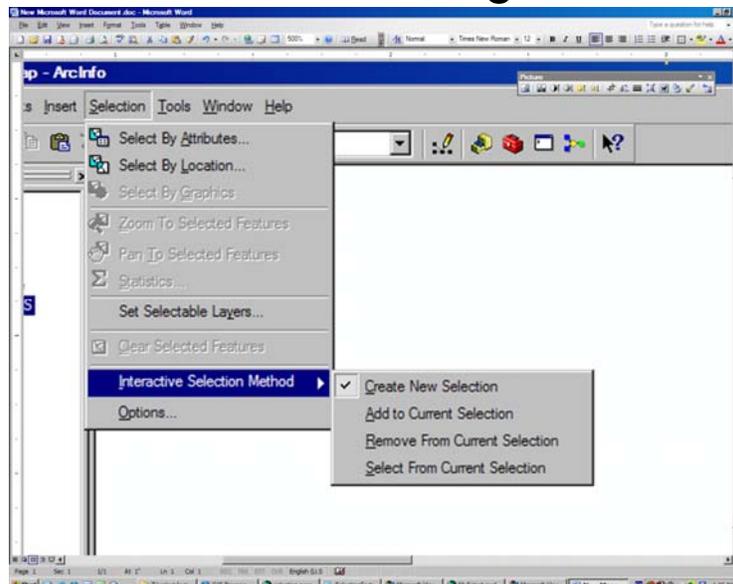
esriSelectionResultAdd

esriSelectionResultSubtract

esriSelectionResultAnd

esriSelectionResultXOR (reverses the current selection status)

Five settings of the second SelectFeatures argument



The justOne argument is a true/false Boolean argument where:

False = all features are processed to see if they satisfy the query (the usual value)

True = processing stops after the first feature that meets the query is found (when you know in advance that only one feature satisfies the query, to save searching time)

- `pUSALayer.SelectFeatures pFilter, esriSelectionResultNew, True`

To change the color of the selected feature, create an RGB color and set its Red property to 200:

```
Dim pRedColor As IRgbColor
```

```
Set pRedColor = New RgbColor
```

```
pRedColor.Red = 200
```

Set the states layer's SelectionColor property = the RgbColor object:

```
Set pUSALayer.SelectionColor = pRedColor
```

QueryInterface to get pUSAMap's IActiveView interface and run its Refresh method on the USA map.

- Dim pUSAActiveView As _ IActiveView
- Set pUSAActiveView = pUSAMap
- pUSAActiveView.Refresh

References

- Burke, Robert. Getting to Know ArcObjects. Redlands: ESRI Press 2003
- ESRI. ArcScripts, ESRI Developer Network, Online Help. www.esri.com.