

## VisIt - Bug # 1272: Indexing bug for Pick with file format readers that set cell numbers

<b>Status:</b>	Pending	<b>Priority:</b>	Normal
<b>Author:</b>	Hank Childs	<b>Category:</b>	
<b>Created:</b>	12/11/2012	<b>Assigned to:</b>	
<b>Updated:</b>	12/18/2012	<b>Due date:</b>	
<b>Likelihood:</b>	2 - Rare		
<b>Severity:</b>	4 - Crash / Wrong Results		
<b>Found in Version:</b>	2.6.0		
<b>OS:</b>	All		
<b>Support Group:</b>	Any		
<b>Subject:</b>	Indexing bug for Pick with file format readers that set cell numbers		
<b>Description:</b>	<p>The code in <code>avtLocateCellQuery</code> has an incorrect assumption. It assumes that the value of "avtOriginalCellNumbers" for a given cell is the index of that cell in the original data set. So, if zone Z has "avtOriginalCellNumbers" value C, then it is assuming that zone Z was C'th entry in the <code>vtkDataSet</code> returned by the file format reader. This property is true when we auto-generate the <code>avtOriginalCellNumbers</code> array, which is what happens 99% of the time.</p> <p>The 1% comes because we allow file format readers to populate their own "avtOriginalCellNumbers". For example, a reader may decide that the user wants the cell number for the first entry in the <code>vtkDataSet</code> to be reported as "10", not "0". It doesn't happen often, but it could.</p> <p>This becomes a problem with the logic in <code>avtLocateCellQuery</code>. It overwrites the cell index with the <code>avtOriginalCellNumber</code> value:</p> <pre>if (canUseCells &amp;&amp; origCells) {     int comp = origCells-&gt;GetNumberOfComponents() -1;     foundElement = (int) origCells-&gt;GetComponent(foundCell, comp); }</pre> <p>It later uses <code>foundElement</code> as an index into the <code>vtkDataSet</code>, because it sets <code>pickAtts.SetElementNumber</code> with <code>foundElement</code> and then later sets "pickedZone" as <code>pickAtts.GetElementNumber</code>.</p> <pre>GetZoneCoords(ds, pickedZone); success = RetrieveNodes(ds, pickedZone);</pre> <p>When we are retrieving values for secondary variable, this could lead to reading past the end of an array or reading the wrong data.</p> <p>Again, the issue is with file format readers that set up their own array, since their values may not correspond to the index of the cell in the original <code>vtkDataSet</code>.</p>		

### History

#### 12/18/2012 01:45 pm - Kathleen Biagas

I don't think the problem lies in Pick's use of `avtOriginalCellNumbers`. The origination of this array was exactly so that Pick would know how to index into the `vtkDataset` served up by the reader. Especially after such things as `Slice`, where the cell numbers pick first looks at do not correspond to the original data.

#### 12/18/2012 07:03 pm - Eric Brugger

- Status changed from New to Pending