Proposal for addition of Regions in the SIDS –
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It is proposed to modify the current Elements_t data structure to include optional subsets "regions" of the elements of a mesh. The ability to define regions allows description of subsets of the domain which contain hardware affecting fluid mechanics and/or thermochemistry (tube banks, packed beds, etc.). We propose to add a new data array which contains a list of element indices contained in the regions;

The Region_t data structure will be defined as follows in the SIDS:

Region_t :=
{
int NumberElements;
List(int Element1 … ElementN);
}

SIDS definition of the proposed modified Elements_t data structure

```
 Elements_t :=
   {
   List( Descriptor_t Descriptor1 ... DescriptorN ) ;          (o)
   IndexRange_t ElementRange ;                                 (r)
   int ElementSizeBoundary ;                                   (o/d)
   ElementType_t ElementType ;                                 (r)
   DataArray_t<int, 1, ElementDataSize> ElementConnectivity ;  (r)
   DataArray_t<int, 2, [ElementSize, 4]> ParentData;           (o)
   List( UserDefinedData_t UserDefinedData1 ... UserDefinedDataN );(o)
   int NumberRegions;                                          (o)
   List( Region_t Region1 …RegionNR);                          (o)

   } ;
```