Scientific File Repository Example

The SFRepos example shows how easy it is to create a SFRepos object that provides access to data in a set of files. The example object can be loaded from the 'repos.mat' file in the 'SFRexample' folder of this Toolbox.

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You can load the 'repos' object from the file or follow the instructions below to create the object yourself.

The SFRepos object in the 'repos.mat' file was created as follows:

```
>> sfrsetlocation('Work', 'Path\To\XML\File.xml');
>>
>> files = {'Channel1.dat' 'Channel2.dat' 'Channel3.dat'};
>> rootID = 'SFRroot';
>> typeID = 'BinaryByChannel';
>> subPath = 'SFRExample/data';
>> typeAttr = {'Format' 'double' 'SwapBytes' false};
>> repos = SFRepos(typeID, rootID, subPath, files, typeAttr)

repos =

  SFRepos:

      typeId: BinaryByChannel
      rootId: 'SFRroot'
     subPath: 'SFRExample/data'
       files: {'Channel1.dat'  'Channel2.dat'  'Channel3.dat'}
    typeAttr: [1x1 struct]
        data: [100000x3 double]
        attr: [1x1 struct]

  Methods, Location

>>
```

The typeID indicates the file-format of the associated files. This determines which getMethod and infoMethod is used for this object. The RootID is an identifier that point to a specific path in the userLocation.xml file for a given location. The subPath is the relative path from the rootPath to the location of the files. The files is a cell-array of strings with the filenames that are associated with this object and the typeAttr are the required and optional attributes that will be passed to the getMethod. Which typeAttr attributes are required is set in the infoMethod.

Data can be accessed using the 'data' property:

```
>> aux = repos.data(1:5,:)

aux =

   0.000999999833333   0.865524970855107   1.000000000000000
   0.001999998666667   0.865023672400875   1.000000000000000
   0.002999995500002   0.864521508923044   1.000000000000000
   0.003999989333342   0.864018480923776   1.000000000000000
   0.004999979166693   0.863514588906098   1.000000000000000

>>
```

Attributes can be accessed using the 'attr' property:

```
>> repos.attr

ans =

         size: [100000 3]
       format: 'double'
    SwapBytes: 0

>>
```

Attributes returns a structures with the merged attributes from 1) the 'typeAttr' property, 2) attributes added with ADDATTR (see below), and 3) the attributes that are returned by the infoMethod.

Additional attributes can be added to the object using ADDATTR:

```
>> addattr(repos,'ExpName','Experiment1','SessionName', ...
'Session1','sampleFreq',2713)

ans =

  SFRepos:

         typeId: BinaryByChannel
         rootId: 'SFRroot'
        subPath: 'SFRExample/data'
          files: {'Channel1.dat'  'Channel2.dat'  'Channel3.dat'}
       typeAttr: [1x1 struct]
           data: [100000x3 double]
           attr: [1x1 struct]
     sampleFreq: 2713
    SessionName: 'Session1'
        ExpName: 'Experiment1'

  Methods, Location

>>
```

The added attributes can contain information that is not available within the associated files. In other words, information that is not returned by the infoMethod. Examples are 'channel Names', 'Session Name', ect.