**Issue 1**:

Read time out error

**Cause:**

The error is cause of caTissue hibernate settings where the query fire through caCORE API is taking lots of to execute and not able to complete the execution before caGrid times out

**Our observation:**

* caGrid always fire a HQL query converted from CQL. The queries that can be fire through caGrid are: Basic CQL i.e. get domain object, Count query, Modifier Query like select distinct attribute
* For basic CQL caGrid converts CQL to HQL in a specified format like if Query is select all TissueSpecimen the HQL generated is ‘from edu.wustl.catissuecore.domain.TissueSpecimen xxTargetaliasxx ’. For queries which contain where clause on association and/or attribute caGrid go on appending the appropriate condition to the first ‘from…’ string. Below table shows some example queries formed by caGrid.
* The cause queries slow in caTissue is because querying on one object alos eagerly fetches associated object.
* Whatever associated objects caTissue fetches caGrid only concerned about target objhect for which it is queried for. And convert onky the target object into a XML and not any of associated object.

Solution for Basic CQL: From our observation we found that the query like ‘from TissueSpecimen’ is much slower than query like ‘select attributes from TissueSpecimen’. So we modified caGrid HQL generator to just prepend select all attributes of target domain object in caGrid generated query. Also the literal ‘caGridQuery:’ is prefixed in the query. In this way now the flow from caGrid query will be:

1. Query : ‘caGridQuery:select id,lable,barcode…from TissueSpecimen where …..’
2. This query gets delegated to caCORE
3. At caCORE the check is added to see if the query is from caGrid by checking if caGridQuery: literal is prefix of HQL
4. If caGrid query the remove the caGrid literal and execute the query.
5. From this query the list of Object[] will be returned
6. Iterate over the result list and create a instance of target domain object and set the attributes appropriately.
7. After creating target object add it in new list and return the new list.