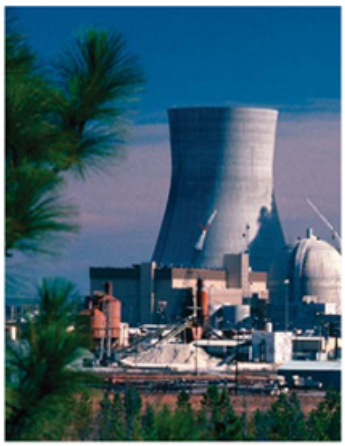
Software Technical Notes

Some Workshare Practices

Process, Power & Marine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Intergraph Corporation
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Software Technical Note

Title: **Some Workshare Practices**

Abstract: This document describes some workshare practices recommended by Intergraph.

Document Information:

Number:	SPPID_02080701
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Version:	V3.0 and later versions
Platform:	
Discipline:	SPPID Administrators
Level/Type:	Advanced/Informational
Prepared By:	Carven Lee
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Technical Information:

Oracle.

Disaster Recovery.

Running Oracle in archive log mode is the only full proof solution for disaster recovery of Host and Satellite sites. That means if any site fails, Oracle can recover to the point when it crashed. However at present we know of no customers doing this.

Database Tuning.

OPTIMIZER_MODE=CHOOSE
OPTIMIZER_INDEX_CACHING = 90
OPTIMIZER_INDEX_COST_ADJ = 35
(Encourages CBO to use indexes instead of full table scans)

For the above settings in Oracle to have any affect on the performance you must run database analyze scripts on a regular basis - SPEM > Tools > Generate Oracle Scripts).
This needs to be done for the site and each Plant. These scripts can then be run periodically weekly, daily etc.

This must be done for all Oracle databases involved in the workshare environment.

The following are two methods to analyze the database:

1. Currently you can run Smartplant Engineering Manager to create an analyzer script by running SPEM-> Tools -> Generate Oracle Analyze Scripts. The scripts generated this way is not the latest method Oracle doing analyzing the database. A TR has been filed to require SPEM to provide the latest method to analyze the database. The script generated this way looks like:

Connect AGD_II_PID/AGD_II_PID@wempid42

ANALYZE TABLE MAX_ID COMPUTE STATISTICS;
ANALYZE TABLE PLAN_TABLE COMPUTE STATISTICS;
ANALYZE TABLE SPIDCACHE COMPUTE STATISTICS;

2. You can also run Oracle Enterprise Manager. Select the database of your plant. Select Tools->Database Tools->Analyze, select “Compute Statistics” Option and check “Use latest 8i analyze method(dbms_stats package)” , Select the PID and Plant schema to compute statistics. There are two SQL scripts show up as follow:

```
        begin
dbms_stats.gather_schema_stats(ownname=> 'SPKHURAIS_PLANT' , cascade=> TRUE);
end;

        begin
dbms_stats.gather_schema_stats(ownname=> 'SPKHURAIS_PLANTPID' , cascade=> TRUE);
end;
```

The option 2 should be used to analyze your database. You need to get your Oracle DBA person to create package for the script, then you can schedule to run it daily.

Report Performance.

If a report is running slow, you can check is there an index created corresponding to the table T_INLISTIDS. This table is created by software for caching purpose. If the index is not created for this table, it will cause the software to do extra scans and hence slow down the performance. To create the index, you may run sqlplus and login as the PID schema user.

```
Sql> CREATE  INDEX INLISTIDSINDEX ON T_INLISTIDS(SP_ID)
```

Data Security Using DB Link & Oracle Proxy Users.

When a satellite slot is created, select the different users option. This prohibits the satellite site from accessing the Host for a number of reasons; first, the satellite sites don’t know the usernames/passwords for the plant and pid schemas at the host site and therefore the users can not access the pid schema

through the proxy user or db link using sqlplus. Second, they don't have any access to the site schema where the plant and pid usernames and encrypted passwords are stored.

Ensure the System password is not given to Satellite if needed change the system password at the SPEM properties page for site and plant.

The passwords of other schema users cannot be changed after workshare collaboration.

Relative Path

If you intend to use linked documents rather than embedded documents in your workshare environments then you need to store them under your plant\reference data structure. This will allow the software to search a relative path for these documents. Both the host and the satellite site need to be set up in a similar fashion, which the relative path will be recognized.

Note: If the user wants to use linked border instead of embedded one, user needs to move the template.pid file to plant structure location and link to template.igr file under template file folder. This way it builds the correct relative path. Now copy the template.pid file back to the template file folder location.

For example:

Host drawing location:

\\passat\KBRHost\host\A1AU\BJ-20-20-P-XB-5050.pid

Linked document location:

\\passat\ KBRHost \host\Reference Data\Template Files\ Border.igr

Satellite drawing location:

\\jetta\KBRMexicoSat\sat\A1AU\BJ-20-20-P-XB-5050.pid

Linked document location:

\\jetta\KBRMexicoSat\sat\Reference Data\Template Files\ Border.igr

At the host site the relative path established between the drawing and linked document is:

BJ-20-20-P-XB-5050.pid **->** A1AU **->** host **->** Reference Data **->** Template Files

(go up two levels and go down two levels)

At the satellite site, when opening the P&ID the software can't find the original linked document, so it now looks for the alternate one at the relative path location.

BJ-20-20-P-XB-5050.pid **->** A1AU **->** sat **->** Reference Data **->** Template Files

(go up two levels and go down two levels)

The relative paths of the plants are the same which allows the software to find the linked document. If this is not the case drawings will take much longer to open initially while the software tries to find the document.

Note: Certain company is using the combination of relative path and running the global update link utility to re-appoint the paths of the linked documents such as border file, excel file and word document once the drawings are sent from one site to the other.

Reference Data and Data Dictionary

Good planning before any workshare project starts is vital to save as much time & rework as possible. Define additional attributes, code lists, symbols & template files at the beginning of the project prior to creating the satellites, this will provide a good starting point.

After the initial setup & configuration anyone requiring changes in the data dictionary, e.g. new attributes, or code list values, or new symbols has to notify the project administrator at the host site. They then carry out the necessary changes to the data dictionary and reference data. Once complete the administrator at the host will notify all satellite administrators to synchronize reference data.

In the connected workshare environment the system will notify to synchronize reference data if the data dictionary has changed when any workshare command is issued, any new symbols will need to be zipped up and sent via ftp.

In a disconnected workshare, after the necessary changes have been made, the host administrator needs to use “Publish Standalone Package”, zip up the reference data and issue both to the standalone workshare site.

When cloning symbols the AABBCC code does not change. This in will not cause any problems in SmartPlant P&ID and will not affect Piping Spec lookup. However if SmartPlant P&ID to PDS3D is used, a unique AABBCC code is required else the data transfer will not work as it uses the AABBCC codes to map the symbols – see sppidtopds.pdf document.

Handling OPC's.

Since not all companies implement worksahre with the same reason, there is no exact way to handle OPC's across sites. Here are a couple of recommendations for handling OPC's with different purposes.

1. Outsourcing purpose: The host company send drawings out to the satellite sites to do the work and get the drawings back to review. Usually a set of drawings involved just goes back and forth in a group. In this environment if a user place an OPC in a drawing and do not know where the partner OPC should go, the user needs to either place the partner OPC in the drawing stockpile, which will travel with the drawing or place it into a drawing called "Undecided". This drawing "Undecided" travels with the group of drawing. The administrator can release these partner OPC's to the plant stockpile as needed. Currently the user leaves the partner OPC in plant stockpile, which associated with the current site, and it will not be available for the other site to access it.

2. Collaboration of EPC's on a big project:

Workshare setup allows all to work independently and usually there's a requirement to share OPC's. To enable an efficient use of OPC data transfer the mating OPC's are to be placed in a Drawing Stockpile. If the drawing does not exist or the destination drawing not known it is suggested to place the mating OPC in an 'OPC dump file'.
Each site would have an OPC In Drawing & an OPC Out Drawing.

e.g.

HOST - OPC IN Drawing, OPC Out Drawing
EPC A - OPC IN Drawing, OPC Out Drawing

Suggested Workflow:

The user at the Host places an OPC in a drawing and then decides where the partner OPC should be placed.

If the user knows the drawing the partner OPC should go to and the drawing exists, in the "Move partner OPC dialog" he selects the drawing at the other satellite site, which will have a red-lock. This partner OPC will be sent to the drawing stockpile of the specified drawing after running "Synchronize shared items" at both sending and receiving sites.

If the user knows the satellite site the partner OPC should go to, but not the drawing, then in the "Move partner OPC dialog" he would select the OPC IN Drawing of that satellite site. After running synchronizing shared items at both sites, the partner OPC will show up in the OPC IN Drawing of that satellite site.

If the user does not know which site the partner OPC should go to, then in the "Move partner OPC dialog" he should select the OPC Out Drawing of his current site.

3. Standalone workshare environment.

In this environment there is not much software control. The user may either leave the partner OPC in plant or drawing stockpile. Once the drawing is subscribed to the satellite site. The partner OPC is available to the subscribing site. The better practice is also using a "Undecided" drawing to hold these undecided partner OPC's.

Some Common Errors Encountered for OPC

1. Error in SPDataPile::ISPBufferedData_Flush ORA-02091: transaction rolled back

   ORA-02290: check constraint (OGDIII_PID.OPC_OPC_NOTNULL) violated

   - described as: SPDataPile::ISPBufferedData_Flush ORA-02091:transaction rolled
   - back

   Solution: run DelOrpModItems.dll/cleandb.

2. Error in log

   01/13/2005 10:06:48 - INGRPPO\cklee on LEEXP performed a Drawing Subscribe.

   Operation: Subscribe
   Drawing : a23

   Status : Failed. Error:
   ERROR!! Item (ItemTag: <101>; ID: <DA48DD426BD445BD8EC7B15C48F02921>)
   has been moved from drawing <a22>.
   Publish and subscribe the drawing that the OPC was moved from.
   Error in SmartPlantPID - described as: ::ISPDrawing_WSGetLatest()

   Solution: The OPC with tag 101 was moved from drawing a22 to a23. The current subscribing site may still have a read-only version of a22 which contains the OPC with tag 101. To resolve this you need to publish a22 from the site where the OPC is moved and subscribe it at the destination site or delete the read-only copy of a22 at the destination site.

Some NOTES for Workshare.

1. Do not overlap any workshare tasks because some tasks may access\write to the same table such as T_INTERSITEOPC table. For example, while running “Synchronize shared items”, do not run publishing or subscribing task.

2. Set up the scheduled tasks for your publishing, subscribing, synchronize reference data after hours.

3. Do not change OPC tags until you have both drawings involved at the same site or the person changes the tag need to notify the owner of the drawing with the partner OPC at the other site, so that person can change it accordingly.

4. If you place an OPC in a drawing, but do not know where the partner OPC will go yet, leave the partner OPC in the drawing stockpile instead of plant stockpile. If you leave it in the plant stockpile and assign ownership of the drawing to another site the partner OPC still belongs to the original site, hence it will be locked and cannot be placed at the new site. If it is in the drawing stockpile, it will be assigned to the new site along with the drawing.

Comment: Item 4, 5 become obsolete after we provide the workflow. You may add a new item that do not place an OPC with blank tag.

5. Run macro DelOrpModItems.dll before publishing drawings at the publishing site. This action will reduce the number of drawings with constraint errors at the subscription site.

Piping Spec Look Up.

If the project needs to integrate into SmartPlant foundation, the pipe spec and some other attributes will be needed. If the plant will eventually merge into TEF/SPF and a need for SmartPlant Instrumentation integration the Plant structure requires 3 levels for example Plant, Area and Unit.

Network Bandwidth

There is no minimum requirement for DBLINK. The performance of workshare commands such as publish/subscribe depends on the network bandwidth. To get a reasonable performance I think they need at least a T1 line. Right now the bandwidth is getting cheaper. A VPN link of 4 mbps between the host and satellite site is very normal. But some country still may have bottleneck at their local infrastructure.