



- Who we are (Joe/Stephen)
- Using “OR” and “VR” in the URL to map to objects (Joe)
- How to navigate the Windchill tables using SQL (Stephen)
- Using the Windchill Monitoring Tools to size caches and spot performance problems (Stephen)
- Recovering deleted vault content (Joe)
- Using the SMJConsole for monitoring and killing long running operations (Joe)
- Questions



- Example URL:
<https://site.company.com/Windchill/app/#ptc1/tcomp/infoPage?ContainerOid=OR%3Awt.projmgmt.admin.Project2%3A91260796&oid=VR%3Awt.doc.WTDocument%3A112902767&u8=1>
- Definitions
 - OR = Object Reference (IDA2A2 column)
 - wt.projmgmt.admin.Project2 = reference to the Project2 table
 - VR = Version Reference (BRANCHIDITERATIONINFO column)
 - wt.doc.WTDocument = reference to the WTDocument table
- `select UNIQUE b.NAME, b.WTDOCUMENTNUMBER from WTDOCUMENT a, WTDOCUMENTMASTER b where a.IDA3MASTERREFERENCE=b.IDA2A2 and a.BRANCHIDITERATIONINFO=112902767;`

NAME	WTDOCUMENTNUMBER
FR Removal Tool	0000016414
- `select NAMECONTAINERINFO as "Project Name" from PROJECT2 where IDA2A2=91260796;`

Project Name
1 Novelty Flying Disc
- **WTDOCUMENT.IDA3MASTERREFERENCE = WTDOCUMENTMASTER.IDA2A2**
 - IDA2A2 is always the primary key in a given table
 - IDA3MASTERREFERENCE always references the master in a non-master table

Tip: use SQLDeveloper - available free from Oracle to view data and write SQL

- Windchill database table names are in the CLASSNAMExxxxxx columns and the adjacent column to the right/below is the ida2a2 record being pointed to
- For example, in the image below, the EPMDocument table contains the column CLASSKEYNAMEB2ITERATIONINFO having references to the table WtUser and these records point at the ida2a2 value of 11.

i.e. `select * from EPMDocument, EPMDocumentMaster where EPMDocument.ida3masterreference=EPMDocumentMaster.ida2a2`

DA3A2LOCK	NOTELOCK	CLASSNAMEKEYB2ITERATIONINFO	IDA3B2ITERATIONINFO	CLASSNAMEKEYMASTERREFERENCE	IDA3MASTERREFERENCE
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	38838
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	39044
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	39138
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	39328
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	40001
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	40038
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	40060
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	40082
0	(null)	wt.org.WtUser	11	wt.epm.EPMDocumentMaster	40278

IDA2A2	CLASSNAMEA2A2	IDA2A2
	wt.epm.EPMDocumentMaster	38981
	wt.epm.EPMDocumentMaster	39011
	wt.epm.EPMDocumentMaster	39044
	wt.epm.EPMDocumentMaster	39075
	wt.epm.EPMDocumentMaster	39106
	wt.epm.EPMDocumentMaster	39138
	wt.epm.EPMDocumentMaster	39167
	wt.epm.EPMDocumentMaster	39202
	wt.epm.EPMDocumentMaster	39233

Table Name

IDA2A2

Hidden gems having a lot of power

- **Main uses:**
 - Administration & performance tuning
- **Lots of options, focus on 4**
 - Caches, searching all log files (includes clusters), errors & long running SQL

Server Status

Current Active Users: [41](#) Server Managers: [1174@hqpdsprdap01](#), [12312@hqpdsprdap02*](#), [19709@hqpdsprdap04](#), [5542@hqpdsprdap03](#) (master) [System Configuration Collector](#)

Windchill Directory Server: [Available](#) File Servers: [Available](#)

Server Manager: [1174@hqpdsprdap01](#) Uptime: 1 days, 11:27:32.271
Deadlocked: No

	Recent	Baseline	Memory In Use	Available System Memory	Other System Info
Time In Garbage Collection	0.004%	0.001%	Heap 13.337%	Physical 8758.883MB (13.591%)	Load Average 0.61
CPU Used by Process	0.027%	0.012%	Perm Gen 45.631%	Swap 16386.133MB (99.997%)	

Method Server Data

	MethodServer.1216	MethodServer.1540	MethodServer.1800	MethodServer.2119
Uptime	1 days, 11:27:24.905	1 days, 11:21:56.870	1 days, 11:19:21.971	1 days, 11:16:31.754
Deadlocked	No	No	No	No
Memory In Use				
Heap	15.801%	19.883%	15.322%	22.004%
Perm Gen	43.301%	43.453%	41.859%	41.63%

Monitoring Tools →

System Health Monitoring Tools

- [Server Status Page](#)
- [Windchill Cache Statistics](#)
- [Performance Feedback Settings](#)
- [Log Levels](#)
- [Log Comment](#)
- [Log File Viewer](#)
- [Persisted Log Events](#)
- [Log Event Histogram](#)
- [Method Context and Servlet Request Samples](#)
- [Cluster-wide Stack Traces](#)
- [Top SQL Sample Intervals](#)
- [Java Process Information](#)
- [Client User-Agent Usage](#)
- [Export System Health/Performance Tables to Client](#)
- [Export System Health/Performance Tables to Support](#)

[Help](#)

Searches across all log files in a cluster

- Possible things to look for: 'ORA-', 'QueryLimit', usernames, object names- anything that might appear in a log file
- Returns hyper links to matching lines

Log Directories:
 wt.logs.dir
 wt.websserver.logs.dir

Content Search String:
 Match Case Whole Words Regular Expression Highlight Matches

Filename Pattern:

Contains
 Starts With
 Ends With
 Regular Expression

Log Age In Days:
Min: Max:

[Monitoring Tools](#) [Help](#)

Server Manager: 1174@hqpdspdap01

Log Directory: wt.logs.dir

[MethodServer-1503301814-9591-log4j.log.2015-05-15_01:](#)

3744: 2015-05-15 09:47:05.706 INFO [ajp-bio-8010-exec-425] wt.system.err eball - Nested exception is: java.sql.SQLException: ORA-00060: deadlock detected while waiting for resource
3814: Nested exception is: java.sql.SQLException: ORA-00060: deadlock detected while waiting for resource
3884: Nested exception is: java.sql.SQLException: ORA-00060: deadlock detected while waiting for resource
4022: 2015-05-15 09:47:10.937 INFO [ajp-bio-8010-exec-409] wt.system.err eball - Nested exception is: java.sql.SQLException: ORA-00060: deadlock detected while waiting for resource
4092: Nested exception is: java.sql.SQLException: ORA-00060: deadlock detected while waiting for resource
4162: Nested exception is: java.sql.SQLException: ORA-00060: deadlock detected while waiting for resource

View errors (and warnings) recorded by the system for up to the last 14 days

- Maybe don't look here 😊
- All systems will have thousands of errors – scan for familiar problems and drill down
- We are working on a tool to help identify known problems from this list to the knowledge base

Minimum Age:
Maximum Age:
Age Units:
Minimum Severity Level:
 [Monitoring Tools](#)

Logger	Level	Exception	Count
com.ptc.core.htmlcomp.components.TableViewBean	ERROR		34004
wt.access.evaluation.report	ERROR		6652
wt.cache.server	ERROR	java.rmi.RemoteException	2648
wt.servlet.ServletRequestMonitor.requestMBean.finish	ERROR		2539
wt.method.client.httpgw	ERROR	java.lang.IllegalStateException	1444
wt.cache.server	ERROR		1326
com.ptc.mvc.controllers.ExceptionController	ERROR	java.lang.ClassCastException	880
wt.servlet.ServletRequestMonitor.requestMBean.finish	ERROR	java.lang.IllegalStateException	724
org.apache.catalina.core.ContainerBase.[Catalina].[localhost].[/Windchill].[WindchillGW]	ERROR	java.lang.IllegalStateException	723
wt.method.MethodContext.contextMBean.finish	ERROR	java.lang.IllegalStateException	722
org.apache.catalina.core.ContainerBase.[Catalina].[localhost]	ERROR	java.lang.IllegalStateException	645
org.apache.catalina.core.ContainerBase.[Catalina].[localhost].[/Windchill].[jsp]	ERROR	java.lang.IllegalStateException	645
wt.method.MethodContext.contextMBean.finish	ERROR	javax.servlet.ServletException	610
wt.fv.master	ERROR	org.apache.catalina.connector.ClientAbortException	593
wt.fv.master	ERROR	java.lang.IllegalStateException	591
com.ptc.mvc.controllers.ExceptionController	ERROR	wt.util.WTRuntimeException	565

- Change “**Start Time**” to several days earlier i.e.
 - 2015-05-20 07:37:23.682 -0400
 - To
 - 2015-05-13 07:37:23.682 -0400
- Sort by “**Max elapsed Seconds**”
- Review multiple statements to look for patterns. It’s likely there will be 3-6 SQL statements which appear repeatedly
- Use “from” & “where” clause to search the knowledge base for known solutions
- Open a TS case for further assistance (for SQL or anything of concern found in monitoring tools)

Start Time:

End Time:

JVM:

Min Elapsed Seconds:

Use 'yyyy-MM-dd HH:mm:ss.SSS Z' format for times

[Monitoring Tools](#)

Time Range	JVM	Max Elapsed Seconds	Service Name
2015-05-15 14:03:19.319 -0400 - 2015-05-15 14:08:21.486 -0400	1800@hqpsrdap03	2829.503516	MethodServer
2015-05-15 14:34:50.027 -0400 - 2015-05-15 14:39:50.031 -0400	646@hqpsrdap03	1244.816651	MethodServer
2015-05-15 02:29:39.364 -0400 - 2015-05-15 02:34:39.369 -0400	10634@hqpsrdap01	192.207307	MethodServer
2015-05-14 10:07:43.837 -0400 - 2015-05-14 10:12:43.841 -0400	12438@hqpsrdap04	163.794538	MethodServer
2015-05-16 09:39:23.324 -0400 - 2015-05-16 09:44:23.329 -0400	12439@hqpsrdap04	162.74025	BackgroundMethodServer
2015-05-15 02:34:39.369 -0400 - 2015-05-15 02:39:43.464 -0400	10634@hqpsrdap01	153.672226	MethodServer
2015-05-13 23:56:12.834 -0400 - 2015-05-14 00:01:14.233 -0400	12439@hqpsrdap04	148.653955	BackgroundMethodServer
2015-05-15 09:36:09.501 -0400 - 2015-05-15 09:41:09.505 -0400	12439@hqpsrdap04	147.406217	BackgroundMethodServer
2015-05-15 23:58:08.500 -0400 - 2015-05-16 00:03:08.505 -0400	12439@hqpsrdap04	142.580351	BackgroundMethodServer
2015-05-14 23:54:45.167 -0400 - 2015-05-14 23:59:45.171 -0400	12439@hqpsrdap04	138.810877	BackgroundMethodServer
2015-05-14 09:37:38.561 -0400 - 2015-05-14 09:42:40.083 -0400	12439@hqpsrdap04	129.366197	BackgroundMethodServer
2015-05-17 10:43:16.808 -0400 - 2015-05-17 10:48:18.624 -0400	19755@hqpsrdap04	127.048716	BackgroundMethodServer
2015-05-16 19:00:28.818 -0400 - 2015-05-16 19:05:28.820 -0400	12356@hqpsrdap02	117.699184	MethodServer
2015-05-15 07:44:45.849 -0400 - 2015-05-15 07:49:45.854 -0400	32096@hqpsrdap03	102.078217	MethodServer

```

Rank: 1
Total Seconds: 147.216523
Total Calls: 2
Execution Seconds: 147.216523
Execution Calls: 2
Preparation Seconds: 0.0
Preparation Calls: 0
SQL Statement: SELECT DISTINCT A0.idA3A2A5 FROM AccessPolicyRule A0, WTAclEntry A1 WHERE ((A0.idA2A2 = A1.idA3B3) AND (A1.idA3A3 = ?))
Bind Parameters: [827713454]
Servlet Request Id: 10wed92:i9r5w5h4:5589:jw3hoh:198922
Method Context Id: 10wed92:i9r5w5h4:5589:jw3hoh:198923
JDBC Session Id: 487
Stack Trace: "ajp-bio-8010-exec-29" Id=41911 daemon prio=5 RUNNABLE
  Blocked (cnt): 330; Waited (cnt): 364
  at wt.fc.jmx.TopSQLTraceTimingLogger.processEntry(TopSQLTraceTimingLogger.java:90)
  at wt.fc.jmx.AbstractTraceTimingLogger.addEndEntry(AbstractTraceTimingLogger.java:135)
  at wt.util.TraceTimingCompositeLogger.addEndEntry(TraceTimingCompositeLogger.java:44)
  at wt.util.TraceTimingResource.close(TraceTimingResource.java:65)
  at wt.pds.AbstractResultCursor.executeQuery(AbstractResultCursor.java:626)
  at wt.pds.AbstractResultCursor.executeQuery(AbstractResultCursor.java:523)
  at wt.pds.BasicResultCursor.getNextResultSet(BasicResultCursor.java:282)
  at wt.pds.BasicResultCursor.advance(BasicResultCursor.java:234)
  at wt.pds.BasicResultCursor.next(BasicResultCursor.java:82)
    
```

Identifying impactful Windchill SQL statements using a diagnostic script

- Run SQL file from SQL*Plus as the Windchill Schema owner i.e. wt.pom.dbUser in db.properties, a *perfTablesSQLReport.html* file will be generated



SQL_for_JMX.sql

CALLS	ELAPSEDSECONDS	ELAP_PER_CALL	SQL STATEMENT
2331670	17319.9	4995.5	***compressed string***
204	14549.2	3089.8	SELECT 'wt.workflow.work.WfAssignedActivity',A0.adSQEN,A0.administrativeLockIsNu ll,A0.typeadministrativeLock,A0.alertTime,A0.blob\$context,A0.changeStateTime,A0. classnamekeycontainerReferen,A0.idA3containerReference,A0.context,A0.dSQEN,TO_CH AR(A0.deadline,'dd mm yyyy hh24:mi:ss'),A0.deadlineDuration,A0.description,A0.cl assnamekeydomainRef,A0.idA3domainRef,TO_CHAR(A0.endTime,'dd mm yyyy hh24:mi:ss') A0.eventConfiguration,A0.eventSet,A0.inheritedDomain,A0.inputVariableMap,A0.ins tructions,A0.wtkey,A0.name,A0.outputVariableMap,A0.parentProcessRefIsNull,A0.cla ssnamekeyparentProcessRef,A0.idA3parentProcessRef,A0.pdSQEN,A0.priority,A0.route rType,A0.securityLabels,TO_CHAR(A0.startTime,'dd mm yyyy hh24:mi:ss'),A0.state,A0.suspendTime,A0.templatelsNull,A0.classnamekeyA5,A0.idA3A5,TO_CHAR(A0.createSta mpA2,'dd mm yyyy hh24:mi:ss'),A0.markForDeleteA2,TO_CHAR(A0.modifyStampA2,'dd mm yyyy hh24:mi:ss'),A0.idA2A2,A0.updateCountA2,TO_CHAR(A0.updateStampA2,'dd mm yy yy hh24:mi:ss'),TO_CHAR(A0.timeToStart,'dd mm yyyy hh24:mi:ss'),A0.tripCount,A0.userEventList FROM WfAssignedActivity A0 WHERE ((A0.idA2A2 = ?)) FOR UPDATE
1	942.9	942.9	SELECT COUNT(A0.idA2A2) FROM WTPart A0,WTPartMaster A1 WHERE ((A0.markForDeleteA 2 = ?) AND (A0.branchIditerationInfo IS NOT NULL) AND (A0.latestiterationInfo = ?) AND (A0.idA3masterReference = A1.idA2A2) AND (EXISTS (SELECT B0.indexedObjec t FROM IndexStatus B0 WHERE ((B0.indexedObject IS NOT NULL) AND (B0.coreName = ?) AND (A0.idA2A2 = B0.indexedObject) AND ((A0.modifyStampA2 > B0.modifyStampA2) OR (A1.modifyStampA2 > B0.modifyStampA2)))) OR NOT (EXISTS (SELECT B0.indexedOb ject FROM IndexStatus B0 WHERE (B0.indexedObject IS NOT NULL) AND (B0.coreName = ?) AND (A0.idA2A2 = B0.indexedObject))))))
1	408.4	408.4	SELECT A1.status,COUNT(A0.idA2A2) FROM EPMDocument A0,IndexStatus A1,EPMDocument Master A2 WHERE ((A0.idA2A2 = A1.indexedObject) AND (A0.branchIditerationInfo IS NOT NULL) AND (A0.latestiterationInfo = ?) AND (A1.coreName = ?) AND (A0.idA3m asterReference = A2.idA2A2) AND (A0.modifyStampA2 <= A1.modifyStampA2) AND (A2.m odifyStampA2 <= A1.modifyStampA2)) GROUP BY A1.status

Script contains:

- Top 20 SQL - Ordered by Cumulative Total Elapsed Seconds
 - Statements that in aggregate are having the biggest impact on users
- Top 20 SQL – Ordered by Longest Elapsed Seconds for one Statement
 - Longest single per execution time statements
- Top 20 SQL – Cumulative Calls
 - High Counts indicate possible software scalability problem

Note: *****compressed string***** in the output indicates long SQL statement(s) alternative ways of identifying the statement will be necessary. Other ways include using procedure from previous slide, running the gather info script, Oracle enterprise manager or opening a case with technical support for assistance

Generate an Mbean Dump from the 'Server Status' page

- Search for “**CacheMisses**” greater than 1000
 - And CacheEntryCount = CacheSize (i.e. cache is full)

Server Status

Current Active Users: [37](#) Server Managers: [1174@hqpdsprdap01*](#)
[12312@hqpdsprdap02](#)
[19709@hqpdsprdap04](#)
[5542@hqpdsprdap03](#) (master)

Windchill Directory Server: [Available](#) File Servers: [Available](#)

Server Manager: [1174@hqpdsprdap01*](#) Uptime: 10 days, 12:21:34.377
 Deadlocked: No

	Recent	Baseline	Memory In Use	Available System Memory	Other System Info
Time In Garbage Collection	0%	0.002%	Heap 72.494%	Physical 2862.25MB (4.441%)	Load Average 0.48
CPU Used by Process	0.028%	0.018%	Perm Gen 49.896%	Swap 16386.133MB (99.997%)	

Method Server Data

	MethodServer.1216*	MethodServer.1540	MethodServer.1800	MethodServer.2119				
Uptime	10 days, 12:21:27.77	10 days, 12:15:59.41	10 days, 12:13:24.143	10 days, 12:10:33.927				
Deadlocked	No	No	No	No				
Memory In Use								
Heap	21.4%	30.436%	23.469%	20.568%				
Perm Gen	66.839%	65.365%	66.377%	66.36%				
Other Statistics	Recent	Baseline	Recent	Baseline	Recent	Baseline	Recent	Baseline

MBean: name=wt.fc.cache.ReferenceCache.ContainerCache
 [com.ptc:wt.subsystem=Monitors,wt.monitorType=Cac

AverageEntryAgeInSeconds	1306.21598
CacheEntryCount	100
CacheHits	2044381
CacheMisses	30853
CacheSize	100

MBean: name=wt.access.AclCache
 [com.ptc:wt.subsystem=Monitors,wt.monitorType=Caches,name=wt.a

AgeOutThreshold	0
AveOverflowAgeThresholdSec	30.0
CacheEntryCount	5519
CacheHits	13775897
CacheMisses	36439
CacheSize	5586
CacheSizeProperty	wt.cache.size.AclCache
CheckAgeOut	false
CheckOversized	true
CheckThrashing	true
LoggerLevel	
LoggerName	iCache.wt.access.AclCache
MinMinutesBetweenNotifications	60
NumEntriesAgedOut	0
OversizedHitRatioThreshold	10
OversizedTimeThreshold	3600
PercentCacheTooOldLimit	0.25
ThrashingCheckInterval	60
ThrashingHitRatioThreshold	10
ThrashingTimeThreshold	30

Non-Zero values for '**Overflows**' indicate a Cache Needs to be resized

- Two ways to detect that Caches need to be resized
 - Monitoring Tools & SQL

System Health Monitoring Tools

- [Server Status Page](#)
- [Windchill Cache Statistics](#)
- [Performance Feedback Settings](#)
- [Log Levels](#)
- [Log Comment](#)
- [Log File Viewer](#)
- [Persisted Log Events](#)
- [Log Event Histogram](#)
- [Method Context and Servlet Request Samples](#)
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Cache	Entries	Capacity	Hits	Overflows	Misses	Misses Per Minute Uptime
wt.fc.cache.ReferenceCache.SubFolderCache	500	500	191451	224701	841826	55.668
wt.org.WTPrincipalCache	40309	100000	8363618	0	454452	30.053
wt.preference.PreferenceInstanceCache	19998	20000	1225326	345555	366774	24.254
wt.access.AclCache	18848	300992	3873967	0	59766	3.952
wt.fc.cache.ReferenceCache.ContainerCache	100	100	1156826	20019	39527	2.614
com.ptc.netmarkets.roleAccess.RoleAccessCache	367	1370	2123	0	1082	2.173
wt.folder.DefaultFolderCache.parentsToSubFolders	97	100	1167	10800	7455	0.493

SQL for identifying Caches to be resized

```
select name,cachesize, sum(CACHEMISSES), sum(cachehits),sum(CACHEOVERFLOWS) ,
round(sum(CACHEOVERFLOWS)/nvl(nullif(sum(cachesize),0),1),2) Weighting
from CACHESTATISTICS
group by name, cachesize
having (sum(Cachemisses)+ sum(CACHEOVERFLOWS) >0) and
round(sum(CACHEOVERFLOWS)/nvl(nullif(sum(cachesize),0),1),2) >0.05
order by round(sum(CACHEOVERFLOWS)/nvl(nullif(sum(cachesize),0),1),2) desc;
```

Use Sizing Knowledge Base Article if one Exists (see spreadsheet) otherwise use Sizing Guidelines (below)

Cache Re-Sizing Guidelines (if there is no sizing article)

Cache size <= 100 → 200
Cache size >100 & Cache size <=5000 → double current cache size
Cache size >=5000 → current cache size multiplied by 1.5
Current Cache size >=50000 → Please contact Technical Support for assistance

Excel Spreadsheet (cache names/ related article/ property to adjust)

Cache Name	Sizing Article	Controlling Property
wt.folder.DefaultFolderCache.namesToCabinets		wt.folder.cache.namesToCabinetsSize
wt.folder.DefaultFolderCache.containersToCabinets		wt.folder.cache.containersToCabinetsSize
wt.folder.DefaultFolderCache.maxFindSubFolders		wt.folder.cache.maxFindSubFolders
wt.fc.cache.ReferenceCache.WfProcessCache		adjust or add WfProcessCache.Size in Windchill_Home\codebase\service.properties.xconf
wt.fc.cache.ReferenceCache.SubFolderCache	CS165573	adjust setting in Windchill_Home\codebase\service.properties.xconf
wt.fc.cache.ReferenceCache.DomainCache		adjust setting in Windchill_Home\codebase\service.properties.xconf
wt.fc.cache.ReferenceCache.ContainerTeamCache		adjust setting in Windchill_Home\codebase\service.properties.xconf
wt.fc.cache.ReferenceCache.ContainerCache		adjust setting in Windchill_Home\codebase\service.properties.xconf
wt.fc.cache.ReferenceCache.CabinetCache	CS179494	adjust setting in Windchill_Home\codebase\service.properties.xconf
wt.dataops.replication.RulesCacheManager		wt.cache.size.RulesCacheManager
wt.calendar.WTCalendarCache		wt.cache.size.WTCalendarCache
wt.cache.CacheManager		wt.cache.size.CacheManager
wt.admin.cache.DomainHierarchy.parents		wt.admin.cache.DomainHierarchy.parents
wt.admin.cache.DomainHierarchy.domainsByPath		wt.admin.cache.DomainHierarchy.domainsByPath
wt.admin.cache.DomainHierarchy.domainPaths		wt.admin.cache.DomainHierarchy.domainPaths
wt.admin.cache.DomainHierarchy.domainNames		wt.admin.cache.DomainHierarchy.domainNames
wt.admin.cache.DomainHierarchy.descendants		wt.admin.cache.DomainHierarchy.descendants
wt.admin.cache.DomainHierarchy.children		wt.admin.cache.DomainHierarchy.children
wt.admin.cache.DomainHierarchy.cachedDomains		wt.admin.cache.DomainHierarchy.cachedDomains
wt.admin.cache.DomainHierarchy.ancestors		wt.admin.cache.DomainHierarchy.ancestors
wt.access.AclCache	CS77589	wt.cache.size.AclCache



Microsoft Excel Worksheet

How do we recover content from the vault once deleted from Windchill?

- *All Object Report* once available in Pro/INTRALINK 3.x – No such report in Windchill (Regression)
- PTC Tech Support helped to develop Oracle query as a replacement.
- Created Materialized View that runs nightly right before backups under a separate schema user in Windchill database.
- **Benefits**
 - Immediate content recovery – if unreferenced files are still in the vaults, the deleted content can be recovered. Else, coordinate with IT for backup tapes.
 - Allows us to give users deletion capability for objects that are only at In Work. Other ACLs prevent deletion if objects are at all other states.
- **Limitations**
 - Object created and deleted in the same day isn't captured.
 - Materialized View is overwritten daily. Might need to coordinate with DBA to get Materialized View tables restored from earlier date.
 - Metadata cannot be recovered.

Materialized View Creation (Oracle)

```
CREATE MATERIALIZED VIEW APPSUPPORT.WINDCHILL_EPM_BACKUP_RPT
NOCACHE
USING NO INDEX
REFRESH
START WITH TO_DATE('04-Apr-2014 21:10:00','DD-MON-YYYY HH24:MI:SS') NEXT SYSDATE + 1
FORCE
USING DEFAULT ROLLBACK SEGMENT
DISABLE QUERY REWRITE AS
SELECT DISTINCT ad.filename,
    em.cadname AS Name,
    em.documentnumber AS ObjNumber,
    e.VERSIONIDA2VERSIONINFO
    || '.'
    || e.ITERATIONIDA2ITERATIONINFO AS WindchillVersion,
    fvm.path
    || '\'
    || TO_CHAR(fvi.uniquesequencenumber, '0000000000000x') AS VaultName
FROM fvfolder fvf,
    fvitem fvi,
    applicationdata ad,
    fvmount fvm,
    holdertocontent h,
    EPMDocument e,
    EPMDocumentMaster em
WHERE ad.streamId          = fvi.streamId
AND fvi.ida3a4             = fvf.ida2a2
AND fvm.ida3a5             = fvf.ida2a2
AND h.IDA3B5               = ad.IDA2A2
AND h.IDA3A5               = e.IDA2A2
AND e.IDA3MASTERREFERENCE = em.ida2a2;
```

```
CREATE MATERIALIZED VIEW APPSUPPORT.WINDCHILL_WTDOC_BACKUP_RPT
NOCACHE
USING NO INDEX
REFRESH
START WITH TO_DATE('04-Apr-2014 21:00:00','DD-MON-YYYY HH24:MI:SS') NEXT SYSDATE + 1
FORCE
USING DEFAULT ROLLBACK SEGMENT
DISABLE QUERY REWRITE AS
SELECT DISTINCT ad.filename,
    wtm.name,
    wtm.wtdocumentnumber as ObjNumber,
    wd.VERSIONIDA2VERSIONINFO || '.' || wd.ITERATIONIDA2ITERATIONINFO AS
WindchillVersion,
    fvm.path || '\' || to_char(fvi.uniquesequencenumber, '0000000000000x') AS
VaultName
FROM fvfolder fvf,
    fvitem fvi,
    applicationdata ad,
    fvmount fvm,
    holdertocontent h,
    wtdocument wd,
    wtdocumentmaster wtm
WHERE ad.ida3a5=fvi.ida2a2
AND fvi.ida3a4=fvf.ida2a2
AND fvm.ida3a5=fvf.ida2a2
AND h.IDA3B5=ad.IDA2A2
AND h.IDA3A5=wd.IDA2A2
AND wd.IDA3MASTERREFERENCE=wtm.ida2a2;
```

FILENAME	NAME	OBJNUMBER	WIND...	VAULTNAME
1		0000003635	A.1	C:\vaults\plmvault\plmrootfolder_Folder_1\ 000000000000973
2		0000003042	A.2	C:\vaults\plmvault\plmrootfolder_Folder_1\ 000000000000973
3		0000064539	A.1	C:\vaults\plmvault\plmrootfolder_Folder_1\ 000000000000976
4		0000007040	A.1	C:\vaults\plmvault\plmrootfolder_Folder_1\ 000000000000979

- Use Case: System / cluster node hung or having performance problems. Garbage collection goes into overdrive ending in Method Server spiraling down the drain with reckless abandon.
 - Option 1: Restart Windchill
 - Option 2: Restart problem cluster node
 - Option 3: Kill hung Method Server
 - **Option 4: Terminate long running or hung thread within problem Method Server**

- `windchill wt.util.jmx.SMJconsole`

- Other SMJConsole benefits

- Windchill tab
- Monitor who is doing what for how long

- JConsole benefits

- MBeans to manipulate Windchill processes
- Memory trending

The screenshot displays the SMJConsole interface with the 'Windchill' tab selected. The 'Servlet Requests' table shows a request with a 'StartTime' of '2015-05-19 22:54:35.788 -0400'. The 'Method Contexts' table shows two contexts, with the second one having a 'StartTime' of '2015-05-19 22:54:35.788 -0400'. A context menu is open over the 'Servlet Requests' table, and the 'Interrupt' option is highlighted. A red arrow points to the 'Windchill' tab in the top navigation bar.

Method ...	Context...	StartTime	Id	ThreadId	ThreadN...	Remote...	Remote...	Request...	QuerySt...	Method
MethodS...	/Windchill	2015-05-19 22:54:35.788 -0400	2tiza8;i9t	45275	ajp-bio-8...	priestj	...	/Windchill...	_dc=143...	GET

Method ...	StartTime	Id	ParentId	ServletR...	ThreadId	ThreadN...	UserNa...	Remote...	Currentj...	Blocking...
MethodS..	2015-05-19 22:54:25.366 -0400	2tiza8;i9t...			47400	DataSou...	priestj		503	
MethodS..	2015-05-19 22:54:35.788 -0400	2tiza8;i9t...		2tiza8;i9t...	45275	ajp-bio-8...	priestj	...		

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