

Legend Performance Recommendations

This document is intended to provide some basic information and recommendations on Legend performance tuning and how to predict migration times. There are many factors that determine actual performance and results may vary due to a combination of those factors. For example, if the Legend client is accessing files across a network rather than from a local disk, network traffic and overall network health affect file processing times.

Process Recommendations

Limit file loads to small batches of 3,000 – 5,000 files maximum. Typically loading by folder is recommended because by default it generally limits the number of files and provides a “logical organization” of data that already exists:

- Typically affects a smaller number of users.
- Allows you to easily monitor progress.
- Allows you to monitor other factors such as disk space.
- If something happens to go wrong, there is not as much re-work to be done (i.e. dropped networks, or server errors such as Tomcat going down).
- Monitor server logs and server “health”.

It is recommended that files to be migrated are stored local to the *client* machine. The Reader needs access to the files to capture the attribute information. During the load process, objects are checked-in through the client workspace.

Server Configuration/Tuning

It is recommended that there be one Method Server running for every two Legend clients and one background server. See PTC’s *Windchill Performance Tuning Guide* for how to set up multiple method servers. Loader constraints are typically server-related. The “PTC Tuning References” section below lists just a few of the PTC documents available that provide tuning information. The Windchill server should be tuned prior to using Legend for production runs and highly recommended before testing. Tuning prior to testing will provide more accurate time estimates when running the sample data sets.

Method Server Tuning

It is recommended that there be one method server for every two clients when running multiple Legend clients. There is a number of considerations that should be taken into account in regards to Windchill and Oracle performance for a bulk load. Some of these include:

- Queue processing
- Content vaulting
- Replication servers
- Oracle statistics
- WVS CAD workers
- Windchill properties

PTC Tuning References

PTC has several reference resources available. Windchill tuning per PTC guidelines should be completed prior to a Legend production run to ensure the best performance possible. A few are listed below:

“Windchill Performance Tuning Guide”

TPI 132477 *“Performance Tuning Recommendations For Client Systems And Windchill Servers That Manage CAD Models”* at http://www.ptc.com/cs/cs_26/howto/wmp11663/wmp11663.htm

“Windchill PDMLink Performance Best Practices for Pro/ENGINEER Data Management”

Refer to [ptc.com](http://www.ptc.com) for other Windchill-related documents.

Contact PTC Technical Support or PTC Global Services for further assistance and tuning recommendations.

Miscellaneous Processes

Automatic Backups/Processes/Method Server restarts – Automated backups of the method server or any process that causes the Method Server to shutdown and restart, or interruption in network communications with the server may cause unpredictable results while Legend is running. If Legend is attempting communication with the Windchill Method Server, Legend may be completely shut down and left in an unstable state. Program modules may still be in memory due to the abnormal termination. It is suggested that the Method Server and any Legend clients that were running at the time be restarted.

Client Configuration

It is recommended that multiple Legend clients be used to increase throughput of the loading process. Reader constraints are typically client-related. See the *Legend Best Practices Guide* for information on running multiple Legend clients. It is recommended that the client hardware configuration used for the client be consistent with the CAD application requirements for any CAD Adapters in use with Legend, i.e. if you will be processing AutoCAD files then the client hardware configuration should match the configuration for AutoCAD that has been determined to be most efficient in your user environment. If Autodesk recommends 1Gb of memory but it has been determined that your systems operate more efficiently with 2Gb, then the Legend client that processes AutoCAD files should have 2Gb of memory.

Increase the Java Heap Size

Increase the Java heap size for Legend from 512Mb to 1024Mb. Edit the legend.bat file and look for the VMPARMS line. Change `-Xmx512M` to `-Xmx1024M`. The line should then look as follows:

```
set VMPARAMS=-Xmx1024M %JAVA_DEBUG% -classpath "%LEGENDJARS%"
```

Virus Software

Virus checking software significantly impacts overall performance of the Legend process due to its interaction with every file and should therefore be disabled when running Legend.

Log Files

Log Files – If the debug option for Legend is set to “true” in the wtcad.ini file, very large debug files may be generated. It is recommended that this option be set to “false” unless you are trying to troubleshoot a problem. Likewise, monitor the Windchill Method Server log as it may get very large due to the number of transactions being recorded. Certain Legend log files are cumulative and should be monitored and cleaned out on a regular basis as well.

How to Estimate Migration Times

There are many factors that affect how long it takes to migrate a data set. The make-up of files (assemblies, generics, parts, etc.), network performance, hardware configurations, etc. are all interrelated. In order to get a sense of how long a migration takes with any specific data set, it is suggested that the following method be used. It is important that the sample data set be run on a client and with a Windchill server, in a network environment, and with a representative sample data set that are all consistent with your production environment.

Evaluate the make-up of your files. What percentage of your files are small, medium, or large assemblies? What percentage of files is parts, drawings, etc.? When you choose the test set of files, use these percentages to choose a sampling of each type so you have a representative mix that resembles your environment.

It is suggested that library family tables and formats be loaded first so they will be available when assemblies and parts are loaded. Otherwise, objects that would normally load may fail because of missing dependencies. Family tables can potentially take a while to load depending on their complexity. The more instances there are in a generic, the longer the process takes to build the dependency map and load the objects.

For a sample data set it is suggested that you select a sample of approximately 3000 files. Run the sample data set and note the times required for the various stages with Legend. If you have broken up the sample run into datasets for large assemblies, small assemblies, etc. this will give you an approximation of the times to use for estimating the time required for migration.

WTProperty Recommendations

These following properties may be considered for bulk loading performance. Recommendations listed here have been used by some customers using the Legend loader. The values you should use depend upon your specific server and migration needs.

Property	Default	Description	Comments/Recommendations	Scalability or Performance
wt.cache.size.AclCache=4000	200	Number of access control lists that can be cached in the servers.	Should be set larger than the result of the query: select count (*) from policyacl;	Both
wt.cache.size.ReferenceCache=1000	200	Number of object references that can be cached in the serves	set to 1000	Both
wt.cache.size.AdminDomainCache=1000 wt.admin.cache.maxDomains=2000 (for R7)	100	The number of Administrative domains that can be cached in the servers.	Should be set larger than the result of the query: select count(*) from administrativedomain;	Both
wt.pom.statementCacheSize=100	50	db.properties setting - Number of cached SQL statements (and result sets) per MethodServer	100	Performance
wt.pom.cachedStatementRSLimit=1000	50	db.properties setting - Result Set size Limit on cached SQL statements	1000	Performance
wt.pom.cachedStatementReuseLimit=10000	50	db.properties setting - Number of times a cached SQL statement can be reused prior to being re parsed	10000	Performance
wt.pom.queryLimit=10000	unlimited	db.property setting - Defines the maximum number of records that can be retrieved by a query	10000 if possible	Scalability
wt.method.loadbalance.activeContext=3	not set	Synopsis: Defines a threshold for load balancing multiple method servers on a single host. Description: This threshold pertains to the number of active method contexts within the method server.	setting this to 1 may improve	Scalability
wt.method.loadbalance.maxRedirects= 5	not set	Synopsis: Maximum number of times a client call will be redirected to another server.	# of method servers + 1	Scalability