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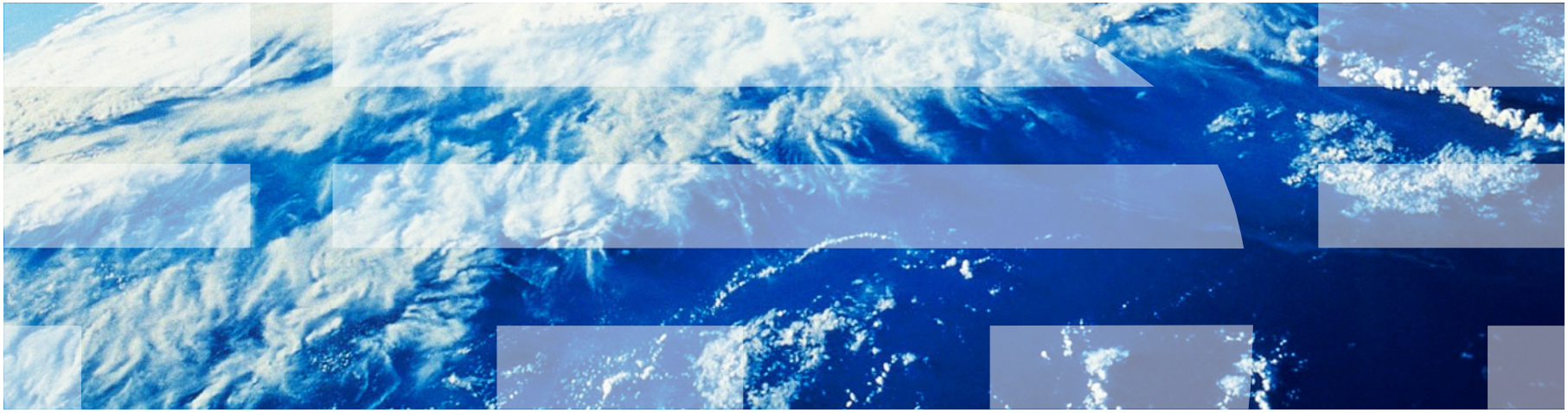
Collecting diagnostic information in IBM Sterling B2B Integrator



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Agenda

For Database Issue:

- Data points to be collected from B2B Integrator.
- Data points to be collected from Database Server.

Data points from B2B Integrator for Database issue

- Dump_info – Verify B2B Integrator version, Database version, JDBC Driver version.
- DBStats Report.
- Database Usage – Pool Usage, JDBC Tracking report.
- Latest successful runs of AssociateBPsToDocs, Index, BackupService, Purge, and DataSweeper.
- Current settings from ArchiveManager, Current locks in Lock Manager.
- Business Process Detail screenshot for any long running process.
- customer_overrides.properties, jdbc.properties, archivethread.properties.
- Complete set of logs during the issue timeframe.

Information to be collected from DB2 Database.

- Snapshots for Database and BufferPools during the issue timeframe.
- Blocking Queries, Deadlock Queries, Deadlock trace for couple minutes during issue(if required)
- Verify database configuration and database manager configuration parameters(per B2B Install requirements).
- Current long running query and its explain plan.

Information to be collected from Oracle Database

- Two hour snapshot of AWR Report during the issue. Baseline two hour snapshot of AWR Report during NO issue.
- Blocking Queries, Deadlock Queries, Deadlock trace for couple minutes during issue(if required).
- Verify database configuration parameters(per B2B Install requirements).
- Current long running query and its explain plan.

Information to be collected from SQL Server Database

- Blocking Queries/SPID, Head Block Query, Deadlock Queries.
- SQL Profiler trace for couple minutes during the issue.
- Current long running query and its execution plan.
- Verify database configuration parameters(per B2B Install requirements).

Verify Database Maintenance Schedule.

- Gather Statistics.
- Rebuild Indexes.

Summary

- Data points to be collected from B2B Integrator
  - Dump_info, Dbstats Report, Pool Usage
  - Last successful run of System Bps, Archive Manager Settings
  - Lock Manager detail, BP Detail, Long running Queries
  - Properties, Complete Log set
- Data points to be collected from Database Server
  - Database snapshots/AWR Reports
  - Long running query, Explain plan
  - Locking queries, deadlock queries, Trace file
  - Database configuration parameters

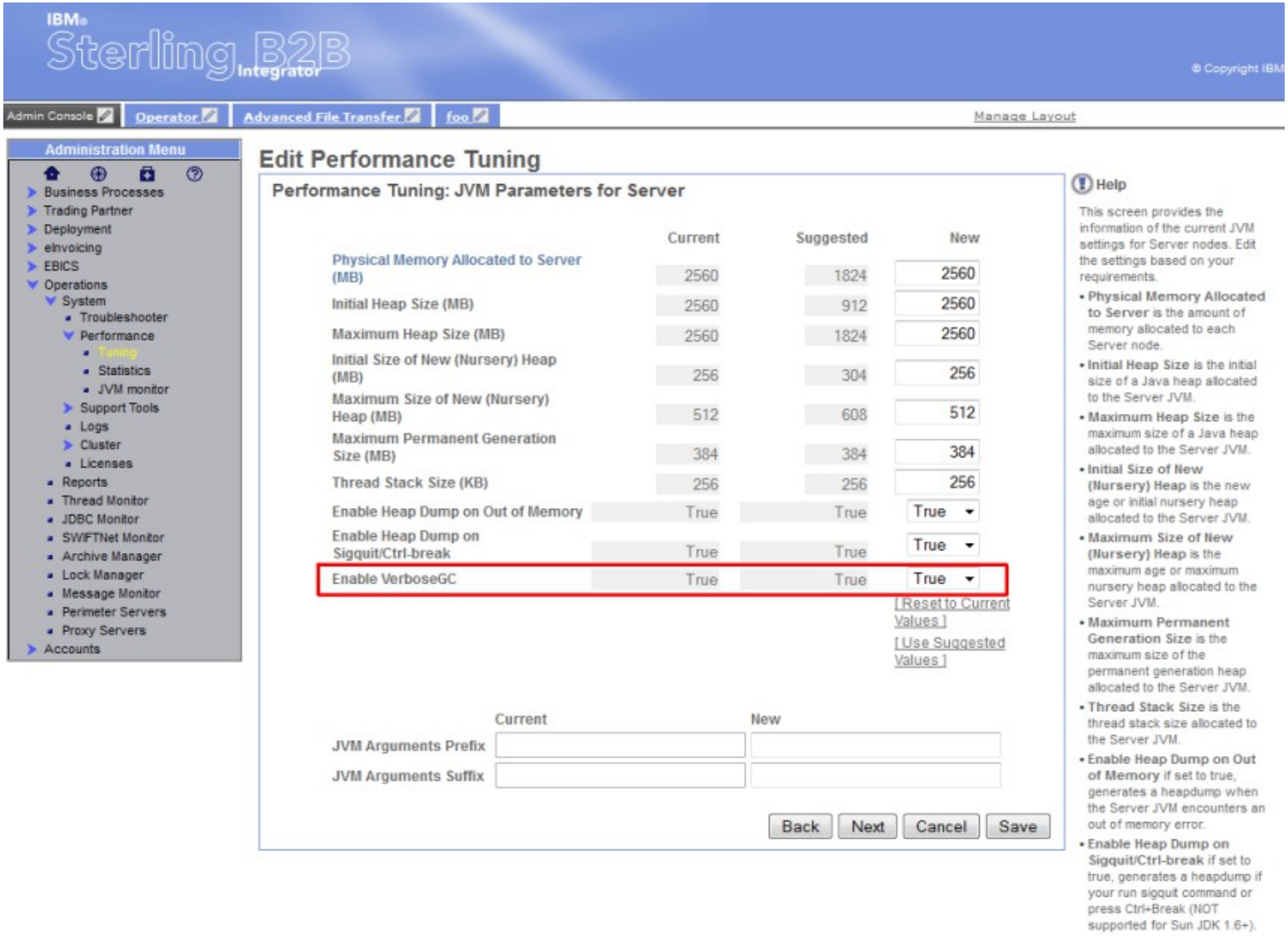
Agenda - Performance Diagnostics

- Verbose Garbage Collection (GC)
- Heap Dump
- Thread Dump (javacore)
- Queue Watcher screenshot(s)
- Full set of logs
- Dump Info Output

Verbose Garbage Collection

- All Java applications, including Sterling B2B Integrator (SBI), run the garbage collector. Enabling verbose garbage collection (GC) simply means that we are recording JVM's **memory footprint** into a log file. Verbose garbage collection provides JVM memory statistics **over time**. This type of logging is helpful when diagnosing issues relating to **OutOfMemory** errors (OOM), **high CPU utilization**, unexpected application **crashes** and general **slowdowns**.
- Verbose GC should always be enabled in production (PROD) environments
  - http://pic.dhe.ibm.com/infocenter/sb2bi/v5r2/topic/com.ibm.help.performance_mgmt.doc/SIPM_JVMVerboseGC.html
- Verbose GC can be enabled in the Performance Tuning Wizard (screenshot on next slide):
  - Operations > System > Performance > Tuning > Edit
- Verbose GC output is typically written out either to **verbosegc.log** or on some platforms directly into **noapp.log**

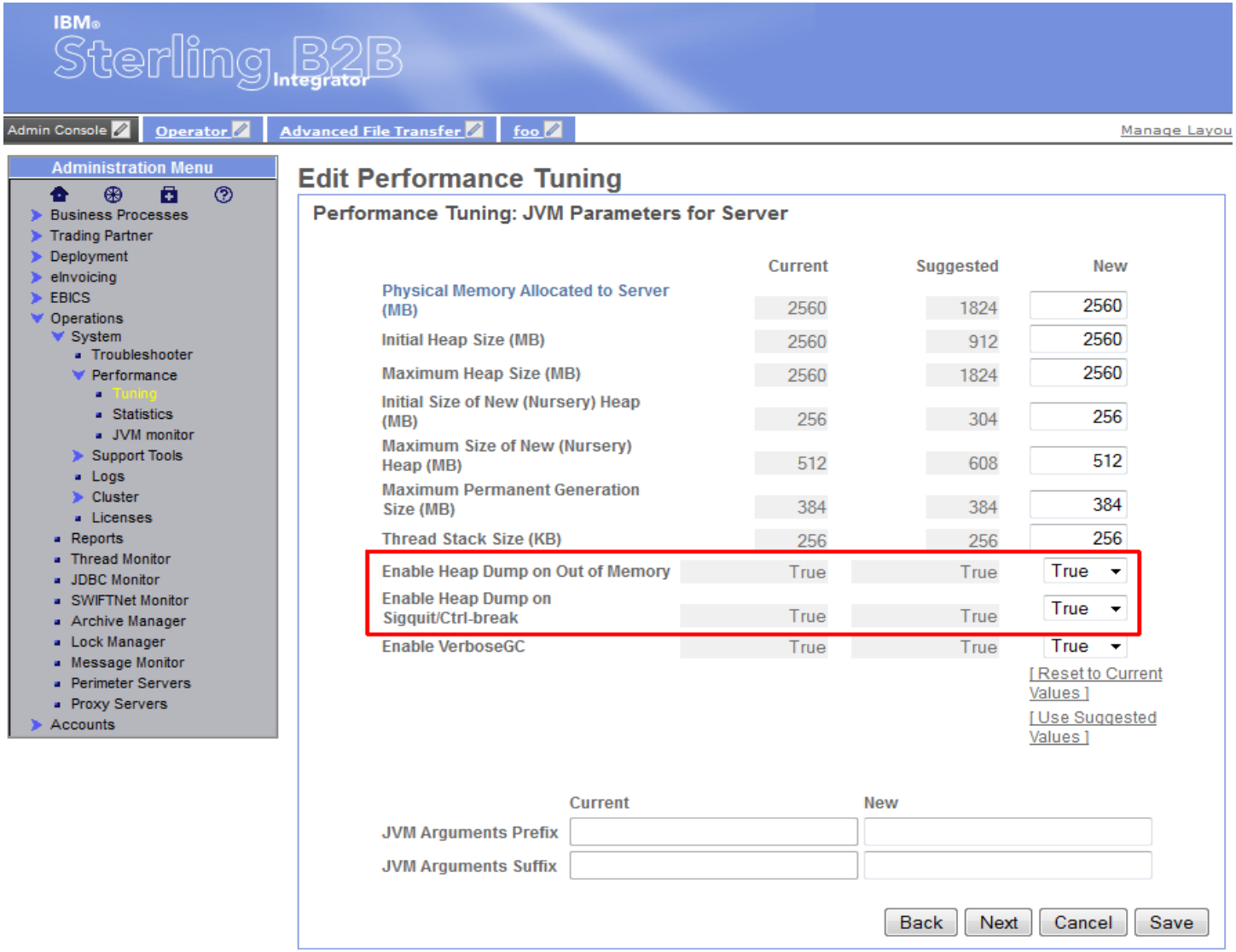
Verbose Garbage Collection (continued)



Heap Dump

- A heap dump is a snapshot of the memory of a Java process (noapp).
- The snapshot contains information about the Java objects and classes in the heap at the moment the snapshot is triggered
- This information is helpful in troubleshooting **OutOfMemory** situations
- Support typically requires only the very **first heap dump** that was generated
  - Heapdump<date+time> files are usually very large (500MB+)
  - First heap dump contains all the objects that contributed to the OutOfMemory condition
- Heap dumps can be enabled on the same screen as verbose GC (next slide)

Heap Dumps (continued)

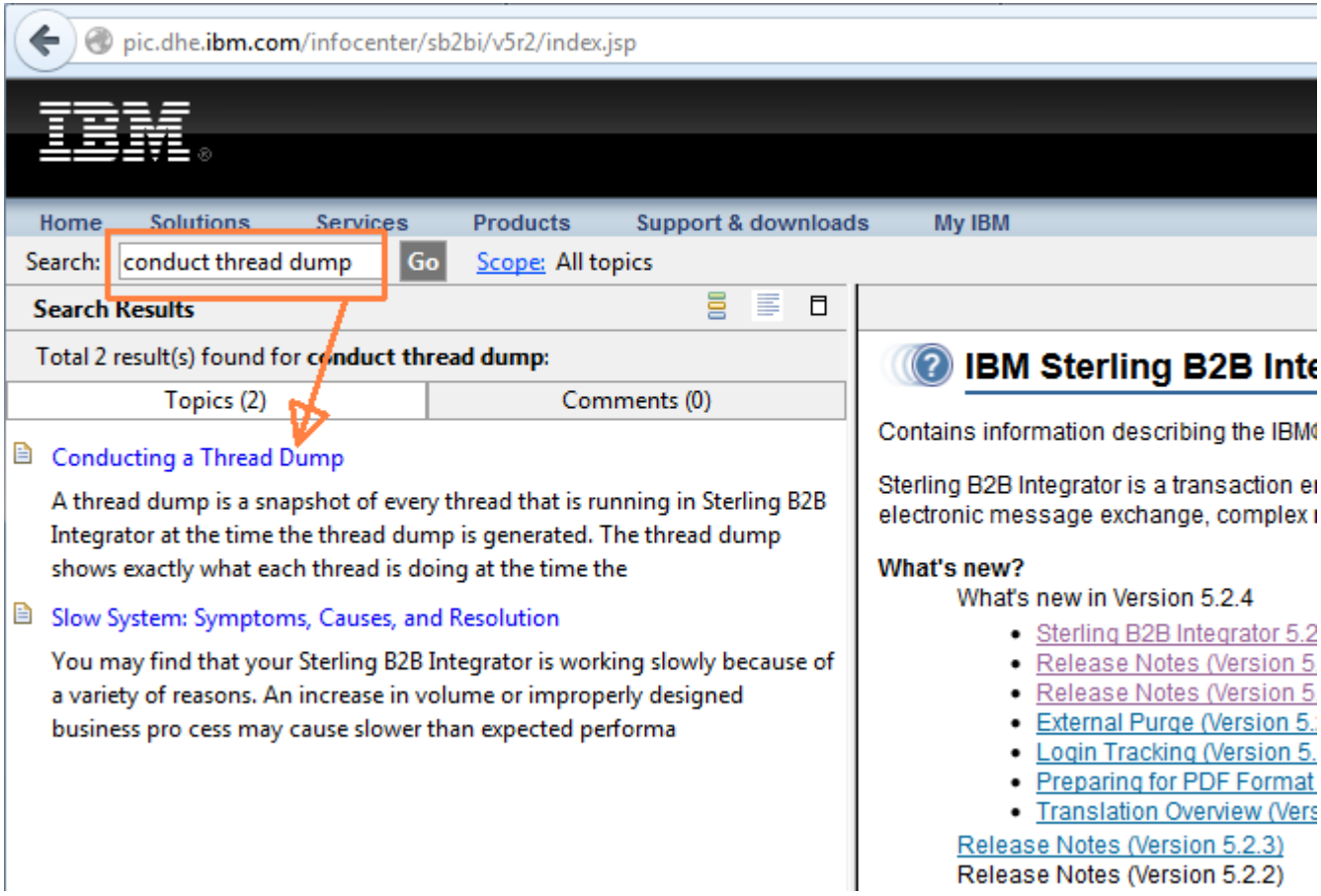


Thread Dump

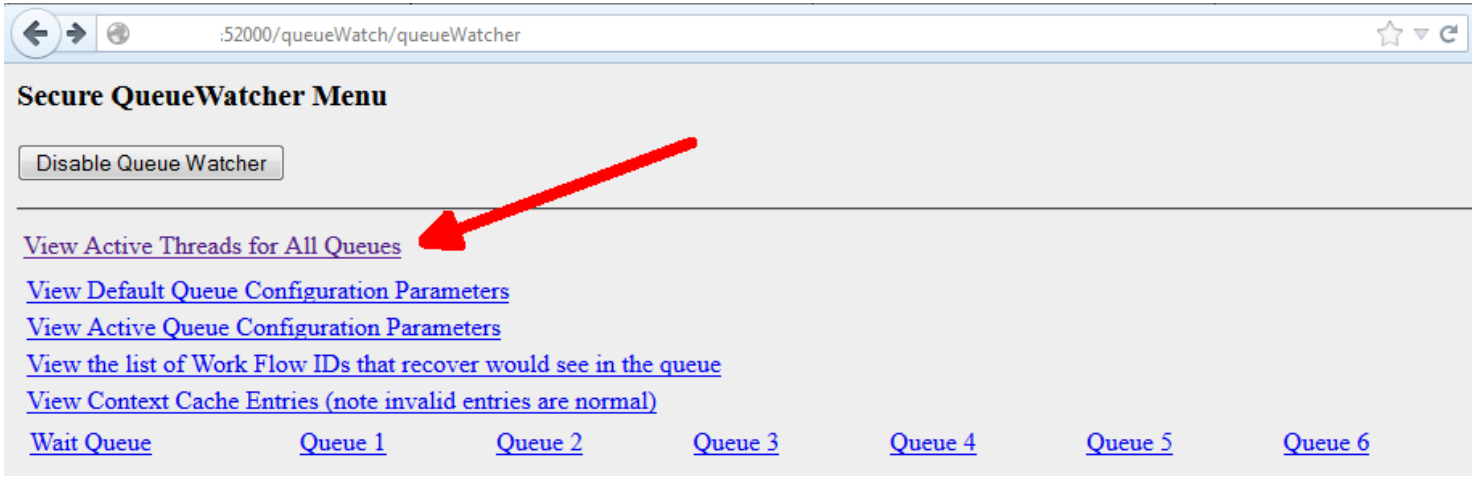
- A thread dump is a snapshot of every thread that is running in Sterling B2B Integrator at the time the thread dump is generated. The thread dump shows exactly what each of those threads is doing.
- This information is most helpful when troubleshooting **hanging** Bps
  - take 3-5 thread dumps 30 seconds apart
  - each thread dump should be accompanied by a screenshot of queueWatcher (if possible)
- Unlike heap dumps, thread dumps are small in size
- All thread dumps from the requested timeframe should be uploaded

Thread Dump Documentation

- Conducting a Thread Dump (varies by platform)
  - http://pic.dhe.ibm.com/infocenter/sb2bi/v5r2/topic/com.ibm.help.performance_mgmt.doc/SIPM_ThreadDump.html



QueueWatcher Screenshot



. 2000/queueWatch/queueWatcher?qname=threads

Back to Secure Queue Watcher Menu

ThreadPool Data for all queues

QueueName	min	used	calc	pool	max	QueueDepth
1	0	0	1	0	1	0
2	0	0	1	0	3	0
3	0	0	1	0	5	0
4	1	1	8	1	8	0
5	0	0	1	0	16	0
6	0	0	1	0	8	0
7	0	0	2	0	16	0
8	0	0	2	0	16	0
9	0	0	1	0	4	0

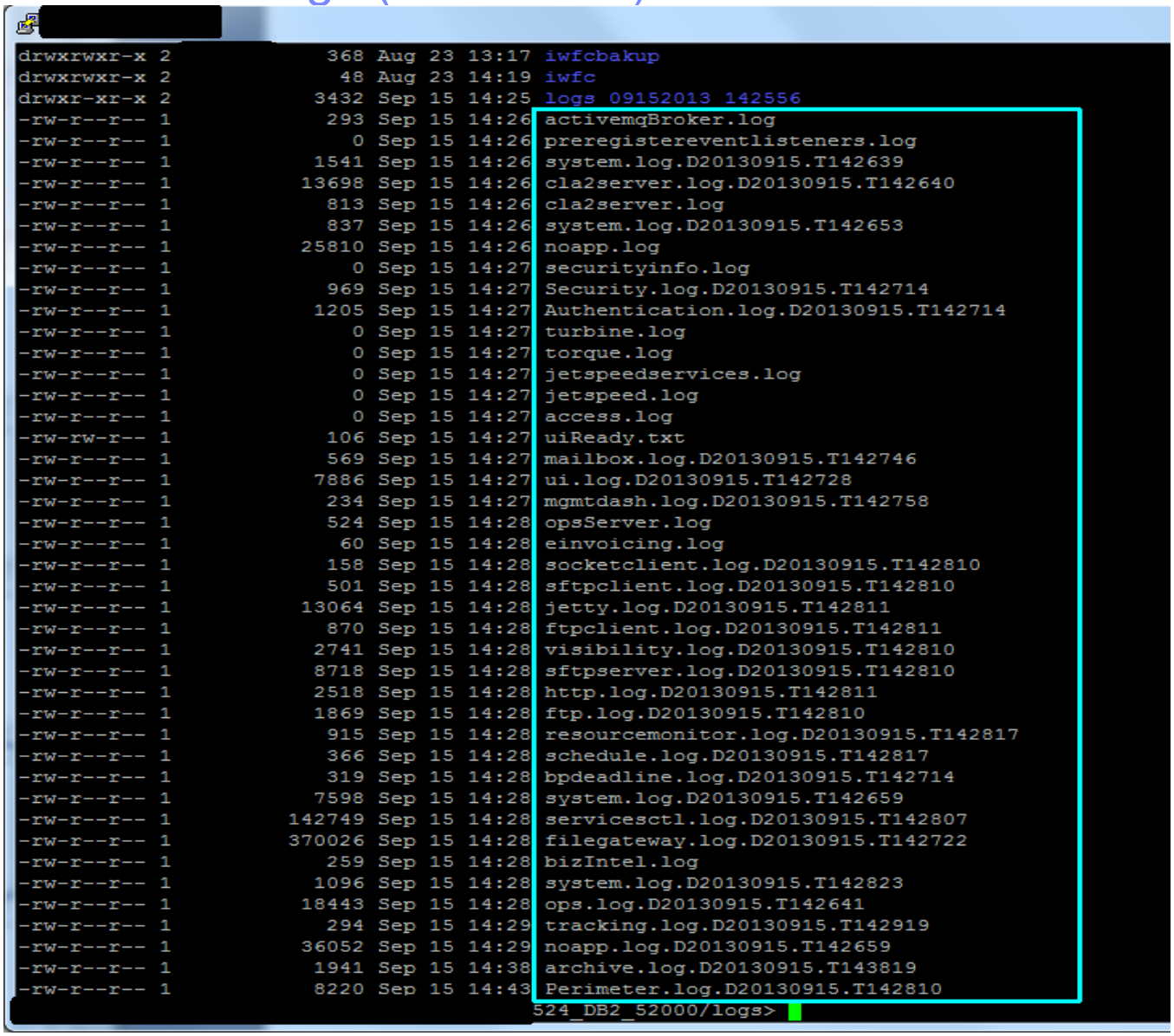
List of Working Threads

QueueName	insID	WFID	StepId	expedite	Priority	msec on thread	wfdname		
4	71	57010	58	false	-1	31055	MailboxEvaluateAllAutomaticRulesSubMin	wfTransporter Status:	LOCK

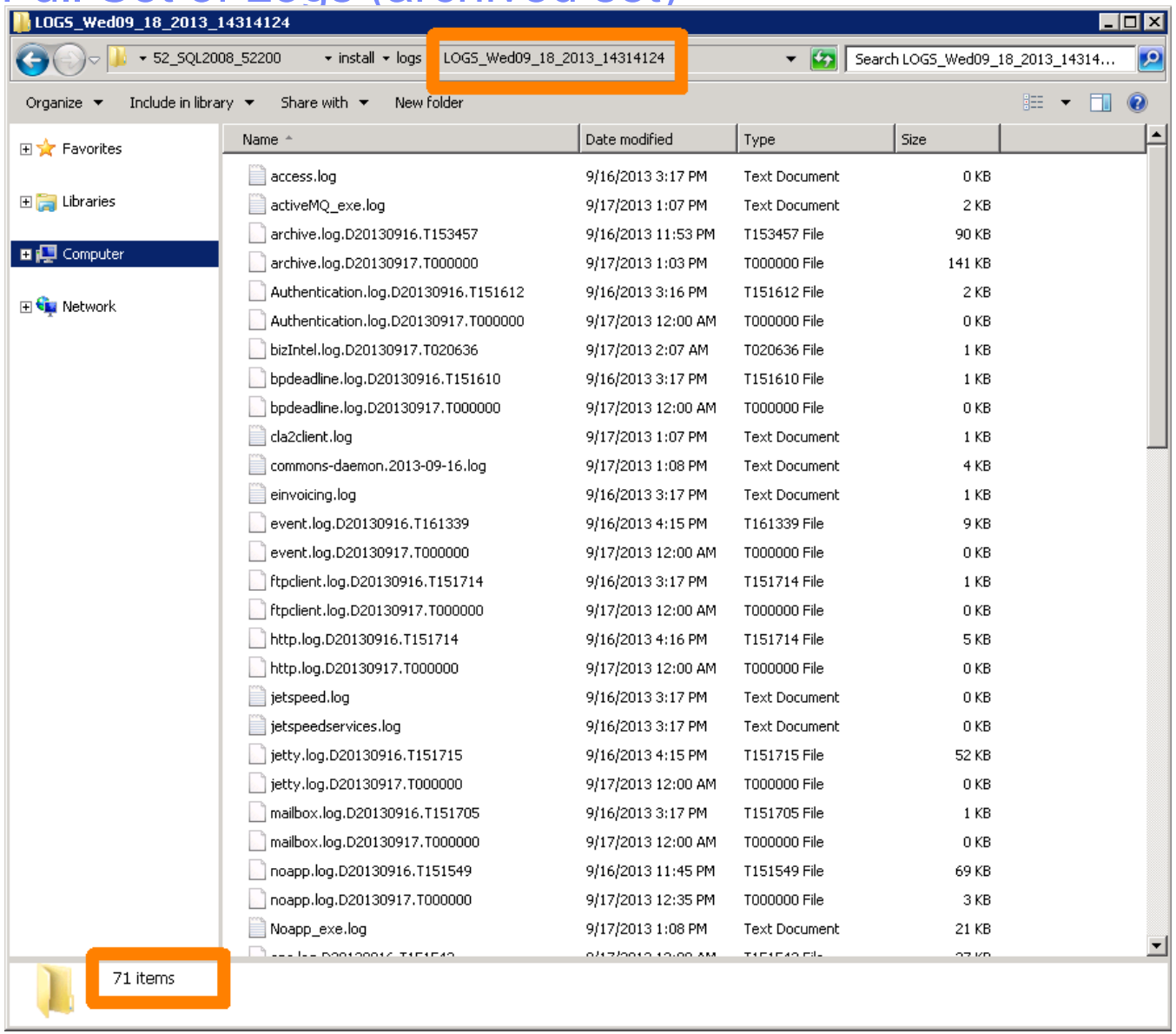
Full Set of Logs

- Full set of logs is every log **file** in the 'logs' directory not including folders / directories.
- In situations where the application was restarted, it is the contents of the sub-folder with the date & time of the restart.
- Examples on next slide

Full Set of Logs (current set)

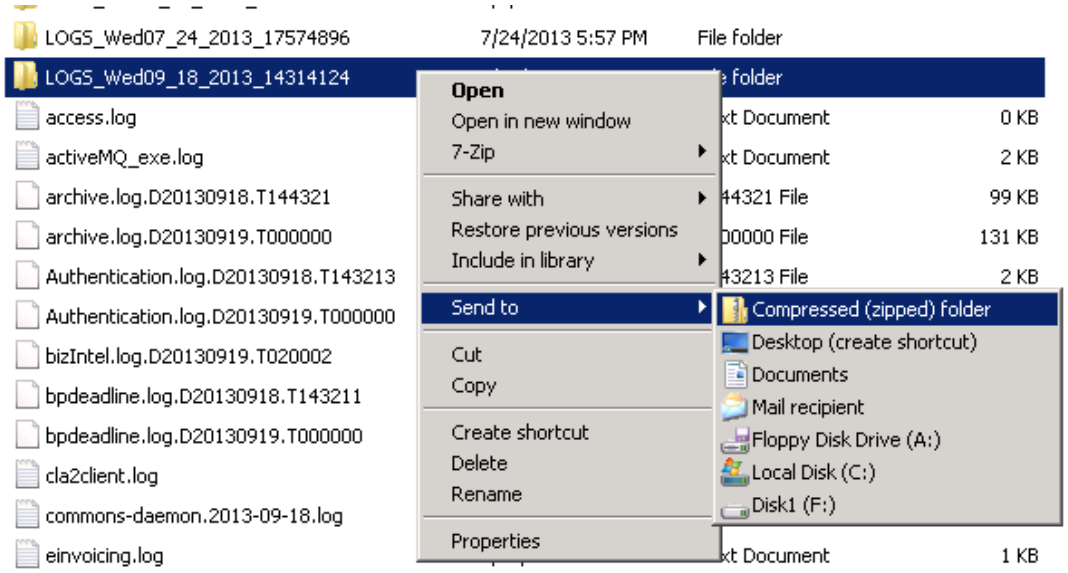


Full Set of Logs (archived set)



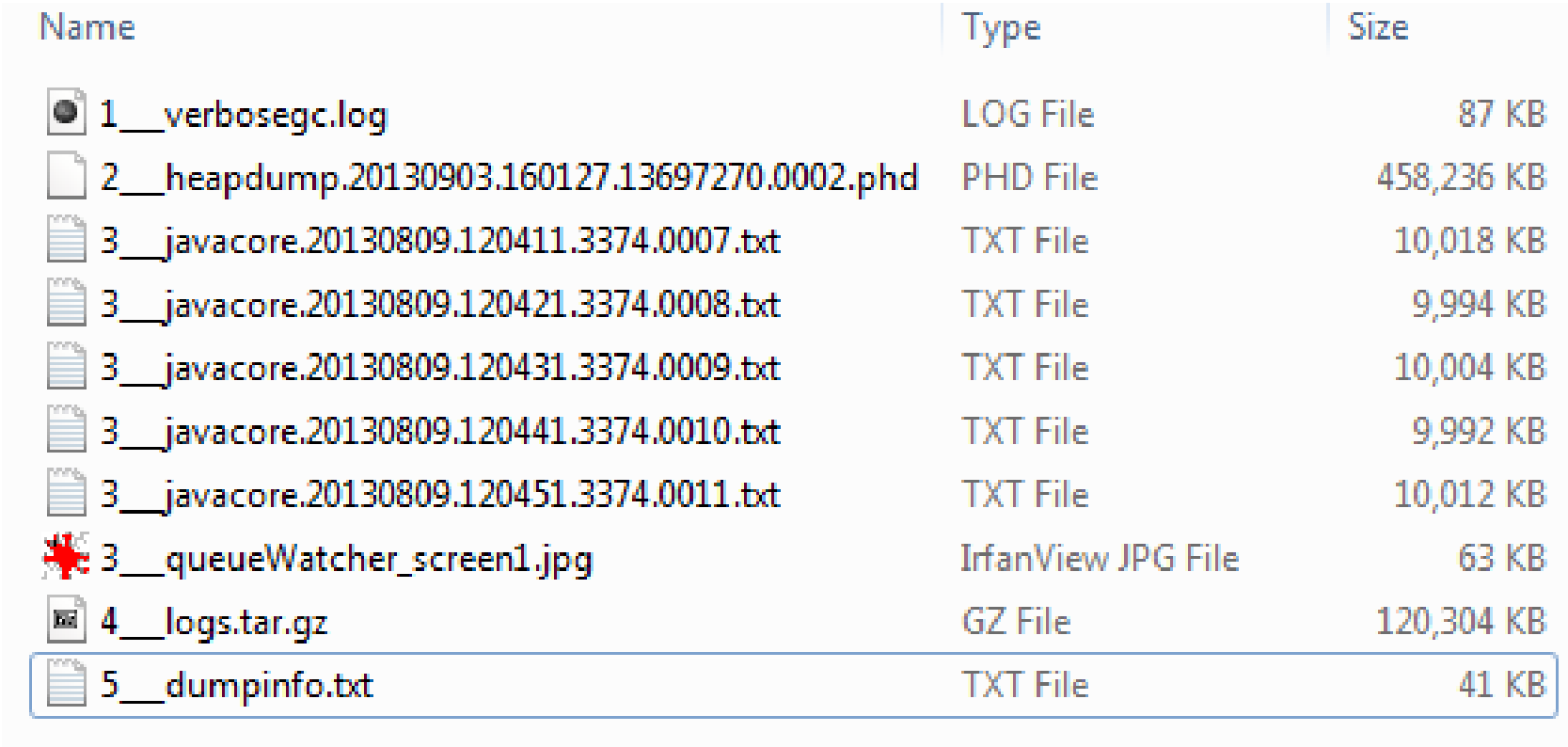
Full Set of Logs (continued)

- On Windows, we ask that you create a zipped archive with all the logs



- On Unix/Linux, a compressed tarball is requested
  - `$ cd <install>/logs`
  - `$ tar zcvf logs.tar.gz *`
  - Upload *`logs.tar.gz`* to the PMR

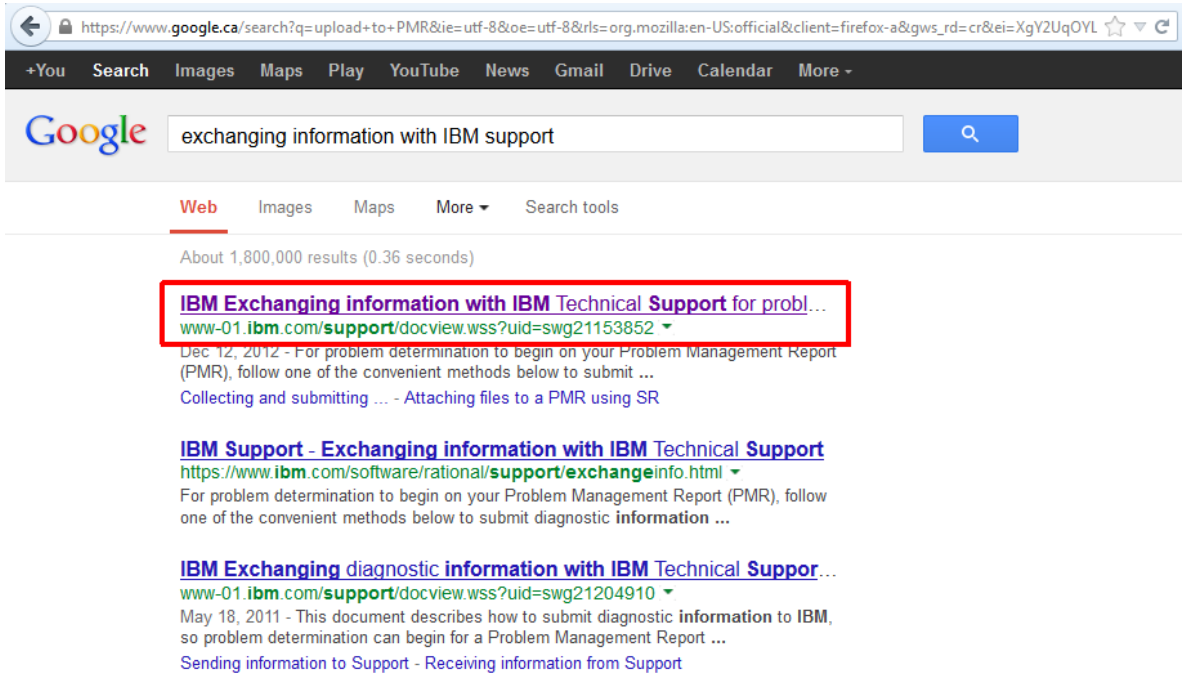
Summary



Name	Type	Size
1__verbosegc.log	LOG File	87 KB
2__heapdump.20130903.160127.13697270.0002.phd	PHD File	458,236 KB
3__javacore.20130809.120411.3374.0007.txt	TXT File	10,018 KB
3__javacore.20130809.120421.3374.0008.txt	TXT File	9,994 KB
3__javacore.20130809.120431.3374.0009.txt	TXT File	10,004 KB
3__javacore.20130809.120441.3374.0010.txt	TXT File	9,992 KB
3__javacore.20130809.120451.3374.0011.txt	TXT File	10,012 KB
3__queueWatcher_screen1.jpg	IrfanView JPG File	63 KB
4__logs.tar.gz	GZ File	120,304 KB
5__dumpinfo.txt	TXT File	41 KB

Upload to PMR

- Comprehensive article describing various options to upload data to a PMR
  - http://www-01.ibm.com/support/docview.wss?uid=swg21153852
- Google search: “exchanging information with IBM Support”



Additional References

- Learn about upcoming Support Technical Exchange webcasts, and access previously recorded presentations at:
  https://
  www-304.ibm.com/connections/communities/service/html/communityview?communityUuid=d58
- IBM Electronic Support Introduction
  http://www.ibm.com/support/electronicsupport/about.html
- Sign up to receive weekly technical My Notifications emails:
  http://www.ibm.com/software/support/einfo.html
- developerWorks Forums, Communities and Technical Topics
  http://www.ibm.com/developerworks/
- Quick Reference Guide for Using Service Request Tool
  http://www.ibm.com/support/docview.wss?uid=swg21207945
- IBM Support Assistant
  http://www.ibm.com/software/support/isa/
- Access product show-me demos and tutorials by visiting IBM Education Assistant:
  http://www.ibm.com/software/info/education/assistant

Questions and Answers

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