

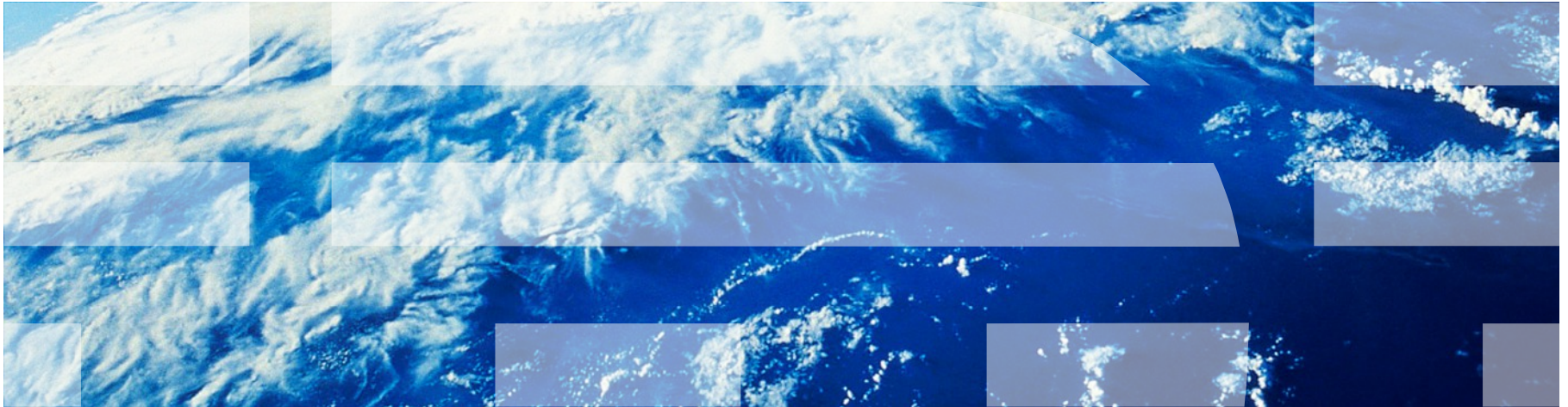
Deepa Narayanan – Software Engineer

Andrey Furuikin – Software Engineer

23 September 2013



Collecting diagnostic information in IBM Sterling B2B Integrator



This session will be recorded and a replay will be available on IBM.COM sites and possibly social media sites such as YouTube. When speaking, do not state any confidential information, your name, company name or any information that you do not want shared publicly in the replay. By speaking during this presentation, you assume liability for your comments.

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)

IBM Sterling B2B Integrator
© Copyright IBM

Admin Console | Operator | Advanced File Transfer | foo | Manage Layout

Administration Menu

- ▶ Business Processes
- ▶ Trading Partner
- ▶ Deployment
- ▶ eInvoicing
- ▶ EBICS
- ▼ Operations
 - ▼ System
 - Troubleshooter
 - ▼ Performance
 - **Tuning**
 - Statistics
 - JVM monitor
 - ▶ Support Tools
 - Logs
 - ▶ Cluster
 - Licenses
 - Reports
 - Thread Monitor
 - JDBC Monitor
 - SWFTNet Monitor
 - Archive Manager
 - Lock Manager
 - Message Monitor
 - Perimeter Servers
 - Proxy Servers
 - ▶ Accounts

Edit Performance Tuning

Performance Tuning: JVM Parameters for Server

	Current	Suggested	New
Physical Memory Allocated to Server (MB)	2560	1824	2560
Initial Heap Size (MB)	2560	912	2560
Maximum Heap Size (MB)	2560	1824	2560
Initial Size of New (Nursery) Heap (MB)	256	304	256
Maximum Size of New (Nursery) Heap (MB)	512	608	512
Maximum Permanent Generation Size (MB)	384	384	384
Thread Stack Size (KB)	256	256	256
Enable Heap Dump on Out of Memory	True	True	True ▾
Enable Heap Dump on Sigquit/Ctrl-break	True	True	True ▾
Enable VerboseGC	True	True	True ▾

[\[Reset to Current Values\]](#)
[\[Use Suggested Values\]](#)

JVM Arguments Prefix

JVM Arguments Suffix

Current

New

Help

This screen provides the information of the current JVM settings for Server nodes. Edit the settings based on your requirements.

- **Physical Memory Allocated to Server** is the amount of memory allocated to each Server node.
- **Initial Heap Size** is the initial size of a Java heap allocated to the Server JVM.
- **Maximum Heap Size** is the maximum size of a Java heap allocated to the Server JVM.
- **Initial Size of New (Nursery) Heap** is the new age or initial nursery heap allocated to the Server JVM.
- **Maximum Size of New (Nursery) Heap** is the maximum age or maximum nursery heap allocated to the Server JVM.
- **Maximum Permanent Generation Size** is the maximum size of the permanent generation heap allocated to the Server JVM.
- **Thread Stack Size** is the thread stack size allocated to the Server JVM.
- **Enable Heap Dump on Out of Memory** if set to true, generates a heapdump when the Server JVM encounters an out of memory error.
- **Enable Heap Dump on Sigquit/Ctrl-break** if set to true, generates a heapdump if your run sigquit command or press Ctrl-Break (NOT supported for Sun JDK 1.6+).

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)

Administration Menu

- Home
- Business Processes
- Trading Partner
- Deployment
- eInvoicing
- EBICS
- Operations
 - System
 - Troubleshooter
 - Performance
 - Tuning
 - Statistics
 - JVM monitor
 - Support Tools
 - Logs
 - Cluster
 - Licenses
 - Reports
 - Thread Monitor
 - JDBC Monitor
 - SWIFTNet Monitor
 - Archive Manager
 - Lock Manager
 - Message Monitor
 - Perimeter Servers
 - Proxy Servers
 - Accounts

Edit Performance Tuning

Performance Tuning: JVM Parameters for Server

	Current	Suggested	New
Physical Memory Allocated to Server (MB)	2560	1824	<input type="text" value="2560"/>
Initial Heap Size (MB)	2560	912	<input type="text" value="2560"/>
Maximum Heap Size (MB)	2560	1824	<input type="text" value="2560"/>
Initial Size of New (Nursery) Heap (MB)	256	304	<input type="text" value="256"/>
Maximum Size of New (Nursery) Heap (MB)	512	608	<input type="text" value="512"/>
Maximum Permanent Generation Size (MB)	384	384	<input type="text" value="384"/>
Thread Stack Size (KB)	256	256	<input type="text" value="256"/>
Enable Heap Dump on Out of Memory	True	True	<input type="text" value="True"/>
Enable Heap Dump on Sigquit/Ctrl-break	True	True	<input type="text" value="True"/>
Enable VerboseGC	True	True	<input type="text" value="True"/>

[\[Reset to Current Values\]](#)

[\[Use Suggested Values\]](#)

JVM Arguments Prefix	<input type="text"/>	<input type="text"/>
JVM Arguments Suffix	<input type="text"/>	<input type="text"/>

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

The screenshot shows a web browser window with the URL `pic.dhe.ibm.com/infocenter/sb2bi/v5r2/index.jsp`. The IBM logo is at the top left. A navigation bar contains links for Home, Solutions, Services, Products, Support & downloads, and My IBM. A search bar contains the text "conduct thread dump" and a "Go" button. Below the search bar, the "Search Results" section shows "Total 2 result(s) found for conduct thread dump:". A table lists two results: "Conducting a Thread Dump" and "Slow System: Symptoms, Causes, and Resolution". An orange box highlights the search input field, and an orange arrow points from it to the first search result. To the right of the search results, there is a sidebar with a question mark icon and the heading "IBM Sterling B2B Inte". Below this heading, there is a paragraph of text and a "What's new?" section with a list of links for various versions of Sterling B2B Integrator.

QueueWatcher Screenshot

Browser address bar: .52000/queueWatch/queueWatcher

Secure QueueWatcher Menu

[View Active Threads for All Queues](#)

[View Default Queue Configuration Parameters](#)

[View Active Queue Configuration Parameters](#)

[View the list of Work Flow IDs that recover would see in the queue](#)

[View Context Cache Entries \(note invalid entries are normal\)](#)

[Wait Queue](#)
 [Queue 1](#)
 [Queue 2](#)
 [Queue 3](#)
 [Queue 4](#)
 [Queue 5](#)
 [Queue 6](#)

Browser address bar: .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)

```

drwxrwxr-x 2      368 Aug 23 13:17 iwfcbackup
drwxrwxr-x 2       48 Aug 23 14:19 iwfc
drwxr-xr-x 2     3432 Sep 15 14:25 logs_09152013_142556
-rw-r--r-- 1      293 Sep 15 14:26 activemqBroker.log
-rw-r--r-- 1       0 Sep 15 14:26 preregistereventlisteners.log
-rw-r--r-- 1     1541 Sep 15 14:26 system.log.D20130915.T142639
-rw-r--r-- 1    13698 Sep 15 14:26 cla2server.log.D20130915.T142640
-rw-r--r-- 1      813 Sep 15 14:26 cla2server.log
-rw-r--r-- 1      837 Sep 15 14:26 system.log.D20130915.T142653
-rw-r--r-- 1    25810 Sep 15 14:26 noapp.log
-rw-r--r-- 1       0 Sep 15 14:27 securityinfo.log
-rw-r--r-- 1      969 Sep 15 14:27 Security.log.D20130915.T142714
-rw-r--r-- 1     1205 Sep 15 14:27 Authentication.log.D20130915.T142714
-rw-r--r-- 1       0 Sep 15 14:27 turbine.log
-rw-r--r-- 1       0 Sep 15 14:27 torque.log
-rw-r--r-- 1       0 Sep 15 14:27 jetspeedservices.log
-rw-r--r-- 1       0 Sep 15 14:27 jetspeed.log
-rw-r--r-- 1       0 Sep 15 14:27 access.log
-rw-rw-r-- 1      106 Sep 15 14:27 uiReady.txt
-rw-r--r-- 1      569 Sep 15 14:27 mailbox.log.D20130915.T142746
-rw-r--r-- 1     7886 Sep 15 14:27 ui.log.D20130915.T142728
-rw-r--r-- 1      234 Sep 15 14:27 mgmtdash.log.D20130915.T142758
-rw-r--r-- 1      524 Sep 15 14:28 opsServer.log
-rw-r--r-- 1       60 Sep 15 14:28 invoicing.log
-rw-r--r-- 1      158 Sep 15 14:28 socketclient.log.D20130915.T142810
-rw-r--r-- 1      501 Sep 15 14:28 sftpclient.log.D20130915.T142810
-rw-r--r-- 1    13064 Sep 15 14:28 jetty.log.D20130915.T142811
-rw-r--r-- 1      870 Sep 15 14:28 ftpclient.log.D20130915.T142811
-rw-r--r-- 1     2741 Sep 15 14:28 visibility.log.D20130915.T142810
-rw-r--r-- 1     8718 Sep 15 14:28 sftpserver.log.D20130915.T142810
-rw-r--r-- 1     2518 Sep 15 14:28 http.log.D20130915.T142811
-rw-r--r-- 1     1869 Sep 15 14:28 ftp.log.D20130915.T142810
-rw-r--r-- 1      915 Sep 15 14:28 resourcemonitor.log.D20130915.T142817
-rw-r--r-- 1      366 Sep 15 14:28 schedule.log.D20130915.T142817
-rw-r--r-- 1      319 Sep 15 14:28 bpdeadline.log.D20130915.T142714
-rw-r--r-- 1     7598 Sep 15 14:28 system.log.D20130915.T142659
-rw-r--r-- 1    142749 Sep 15 14:28 servicesctl.log.D20130915.T142807
-rw-r--r-- 1    370026 Sep 15 14:28 filegateway.log.D20130915.T142722
-rw-r--r-- 1      259 Sep 15 14:28 bizIntel.log
-rw-r--r-- 1     1096 Sep 15 14:28 system.log.D20130915.T142823
-rw-r--r-- 1    18443 Sep 15 14:28 ops.log.D20130915.T142641
-rw-r--r-- 1      294 Sep 15 14:29 tracking.log.D20130915.T142919
-rw-r--r-- 1    36052 Sep 15 14:29 noapp.log.D20130915.T142659
-rw-r--r-- 1     1941 Sep 15 14:38 archive.log.D20130915.T143819
-rw-r--r-- 1     8220 Sep 15 14:43 Perimeter.log.D20130915.T142810
524_DB2_52000/logs>

```

Full Set of Logs (archived set)

LOGS_Wed09_18_2013_14314124

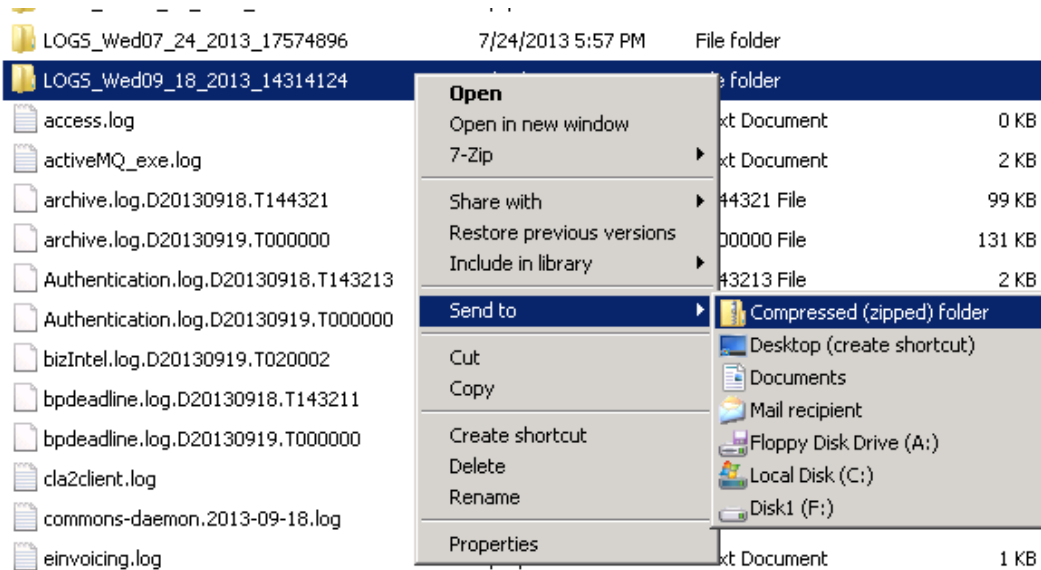
52_SQL2008_52200 install logs LOGS_Wed09_18_2013_14314124 Search LOGS_Wed09_18_2013_14314...

Name	Date modified	Type	Size
access.log	9/16/2013 3:17 PM	Text Document	0 KB
activeMQ_exe.log	9/17/2013 1:07 PM	Text Document	2 KB
archive.log.D20130916.T153457	9/16/2013 11:53 PM	T153457 File	90 KB
archive.log.D20130917.T000000	9/17/2013 1:03 PM	T000000 File	141 KB
Authentication.log.D20130916.T151612	9/16/2013 3:16 PM	T151612 File	2 KB
Authentication.log.D20130917.T000000	9/17/2013 12:00 AM	T000000 File	0 KB
bizIntel.log.D20130917.T020636	9/17/2013 2:07 AM	T020636 File	1 KB
bpdeadline.log.D20130916.T151610	9/16/2013 3:17 PM	T151610 File	1 KB
bpdeadline.log.D20130917.T000000	9/17/2013 12:00 AM	T000000 File	0 KB
cla2client.log	9/17/2013 1:07 PM	Text Document	1 KB
commons-daemon.2013-09-16.log	9/17/2013 1:08 PM	Text Document	4 KB
invoicing.log	9/16/2013 3:17 PM	Text Document	1 KB
event.log.D20130916.T161339	9/16/2013 4:15 PM	T161339 File	9 KB
event.log.D20130917.T000000	9/17/2013 12:00 AM	T000000 File	0 KB
ftpclient.log.D20130916.T151714	9/16/2013 3:17 PM	T151714 File	1 KB
ftpclient.log.D20130917.T000000	9/17/2013 12:00 AM	T000000 File	0 KB
http.log.D20130916.T151714	9/16/2013 4:16 PM	T151714 File	5 KB
http.log.D20130917.T000000	9/17/2013 12:00 AM	T000000 File	0 KB
jetspeed.log	9/16/2013 3:17 PM	Text Document	0 KB
jetspeedservices.log	9/16/2013 3:17 PM	Text Document	0 KB
jetty.log.D20130916.T151715	9/16/2013 4:15 PM	T151715 File	52 KB
jetty.log.D20130917.T000000	9/17/2013 12:00 AM	T000000 File	0 KB
mailbox.log.D20130916.T151705	9/16/2013 3:17 PM	T151705 File	1 KB
mailbox.log.D20130917.T000000	9/17/2013 12:00 AM	T000000 File	0 KB
noapp.log.D20130916.T151549	9/16/2013 11:45 PM	T151549 File	69 KB
noapp.log.D20130917.T000000	9/17/2013 12:35 PM	T000000 File	3 KB
Noapp_exe.log	9/17/2013 1:08 PM	Text Document	21 KB

71 items

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 *
```

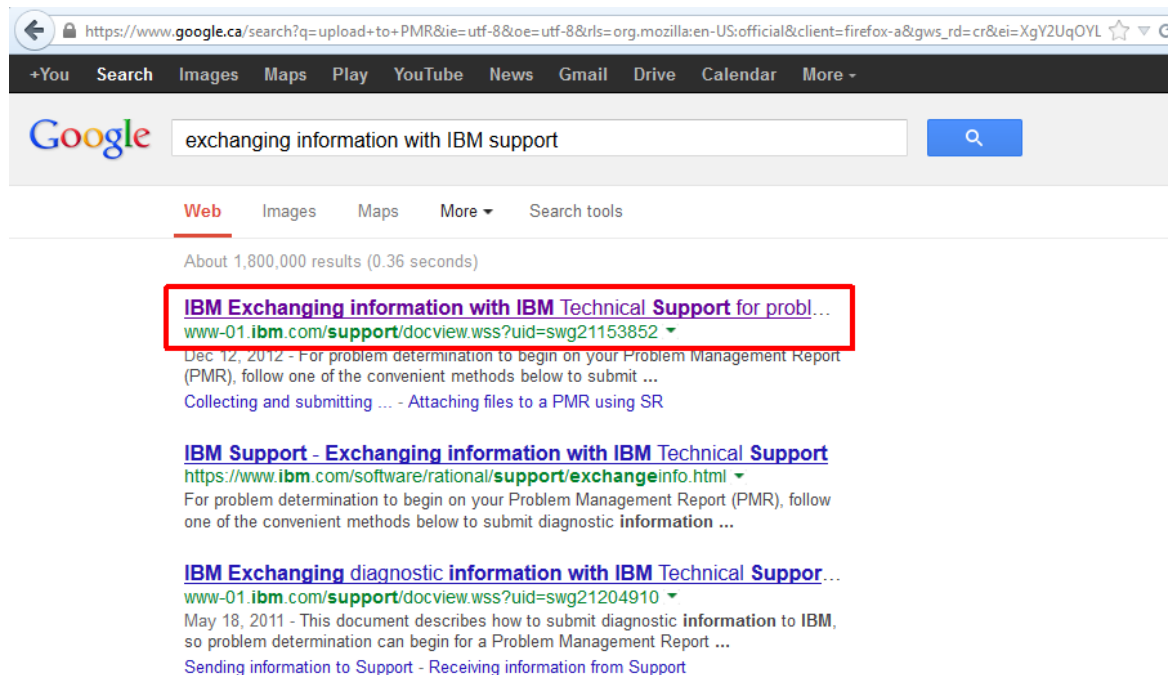
– Upload *logs.tar.gz* to the PMR

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”



The screenshot shows a Google search interface. The search bar contains the text "exchanging information with IBM support". Below the search bar, the results are displayed. The first result is highlighted with a red box and contains the following text:

IBM Exchanging information with IBM Technical Support for probl...
www-01.ibm.com/support/docview.wss?uid=swg21153852 ▾
Dec 12, 2012 - For problem determination to begin on your Problem Management Report (PMR), follow one of the convenient methods below to submit ...
Collecting and submitting ... - Attaching files to a PMR using SR

The second result is:

IBM Support - Exchanging information with IBM Technical Support
<https://www.ibm.com/software/rational/support/exchangeinfo.html> ▾
For problem determination to begin on your Problem Management Report (PMR), follow one of the convenient methods below to submit diagnostic information ...

The third result is:

IBM Exchanging diagnostic information with IBM Technical Support...
www-01.ibm.com/support/docview.wss?uid=swg21204910 ▾
May 18, 2011 - This document describes how to submit diagnostic information to IBM, so problem determination can begin for a Problem Management Report ...
Sending information to Support - Receiving information from 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?communityUid=d58>
- IBM Electronic Support Introduction
<http://www.ibm.com/support/electronicssupport/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

This Support Technical Exchange session will be recorded and a replay will be available on IBM.COM sites and possibly social media sites such as YouTube. When speaking, do not state any confidential information, your name, company name or any information you do not want shared publicly in the replay. By speaking in during this presentation, you assume liability for your comments.

THE INFORMATION CONTAINED IN THIS PRESENTATION IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. WHILE EFFORTS WERE MADE TO VERIFY THE COMPLETENESS AND ACCURACY OF THE INFORMATION CONTAINED IN THIS PRESENTATION, IT IS PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. IN ADDITION, THIS INFORMATION IS BASED ON IBM’S CURRENT PLANS AND STRATEGY, WHICH ARE SUBJECT TO CHANGE BY IBM WITHOUT NOTICE. IBM SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES ARISING OUT OF THE USE OF, OR OTHERWISE RELATED TO, THIS PRESENTATION OR ANY OTHER DOCUMENTATION, NOTHING CONTAINED IN THIS PRESENTATION IS INTENDED TO NOR SHALL HAVE THE EFFECT OF CREATING ANY WARRANTIES OR REPRESENTATIONS FROM IBM (OR ITS SUPPLIERS OR LICENSORS), OR ALTERING THE TERMS AND CONDITIONS OF ANY AGREEMENT OR LICENSE GOVERNING THE USE OF IBM PRODUCT OR SOFTWARE.

Copyright and Trademark Information

IBM, The IBM Logo and IBM.COM are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks and others are available on the web under “Copyright and Trademark Information” located at www.ibm.com/legal/copytrade.shtml.