1843189 - SAP Sybase IQ Troubleshooting and diagnostics collection checklist

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Component	BC-SYB-IQ (Sybase IQ)	**Released On**	19.10.2018

Please find the original document at **https://launchpad.support.sap.com/#/notes/1843189**

Symptom

How to create a SAP Sybase IQ Troubleshooting and diagnostics collection checklist when you run into any of the following problem scenarios :

- IQ server hang, stacktrace or crash
- Performance issues
- Backup/restore issues
- Licensing issues

Environment

- SAP IQ 15.4
- SAP IQ 16.0
- SAP IQ 16.1

Resolution

Information that should be collected for ALL problems

1. Is this problem currently occurring on Production server or not
2. Clear problem description and/or exact error message
    a. Simplex or Multiplex ?
    b. If multiplex, which node coordinator, reader or writer ?
    c. Time of the problem ?
    d. Can the problem be reproduced ?
    e. Is it a non-fatal stacktrace, a hung server or a server crash situation ?
3. IQ logs files (Please collect log files from last clean boot sequence)
    a. .iqmsg
    b. .srvlog
    c. .stderr
    d. –zo output file after setting "–zr all" or "-zr sql"
4. Has anything changed recently on IQ or OS side that might have caused this problem ?
5. Operating System information – version, patch level, memory , number of cpus/COREs.
6. OS error logs. For example /var/adm/messages or errpt output based on the operating system where IQ is installed on.
7. Complete IQ version output. Execute "start_iq –v2"
8. Version of any other tool involved in the problem, for e.g dbisql, OCS, JDBC, Sybase Central Plugin, Sybase Control Center, ODBC, jConnect etc. Any logs pertaining to these tools.

Additional Diagnostics that should be collected for some specific problems

Performance

Slow Server Performance

1. Diagnostic info from IQ
   a. cfg file used to start server
   b. exact command used to start server
   c. output when executing the following using dbisql or iqisql
      i. sp_iqstatus
      ii. select * from sysfile
      iii. select * from sysiqdbfile or select * from sysiqfile
      iv. select * from sysoptions order by 2,1
      v. Monitoring output
         create table iqmontable (c1 int)
         go
         iq utilities main into iqmontable start monitor '-debug -interval 20'
         go
         // run the above for a minute
         iq utilities main into iqmontable stop monitor
         go
         iq utilities private into iqmontable start monitor '-debug -interval 20'
         go
         // run the above for a minute
         iq utilities private into iqmontable stop monitor
         go
         drop table iqmontable
         go

         IQ will create two output files with "iqmon" in the filename, they will be located in the same directory where the .db file resides.
2. Diagnostics from the Operating System
   a. One can either collect OS diagnostics individually as mentioned in steps 'b - j' or you can download "collect_OS_diagnostics.zip" (Unix only) which is attached to this KBA extract the shell script, readme and execute the script for atleast 5-10min duration (duration given in second as 300-600).
   b. netstat –s
   c. netstat –m
   d. pstack <PID>
      For simplex server or coordinator and/or secondary node(s) showing problem. Gather at least 2-3 pstack outputs at least 3-5 minutes apart. pstack utility may differ based on the operating system that IQ is running on. For example On AIX the tool is 'procstack', on Solaris/Linux/HP_UX it is 'pstack'
   e. DumpAllThreads - this IQ utility allows manual stacktrace collection with IQ connection id displayed for IQ threads. Gather 2-3 stacktrace outputs about 3-5 minutes apart. Follow KBA # 2408572 - "How to generate stacktrace manually - SAP IQ" on steps to collect the output
   f. pmap <PID>
      For IQ server(s) showing the problem. On AIX the comparative command is 'svmon –rP'
   g. iostat –cdDex 10
   h. vmstat –S 5
   i. mpstat 180 10
   j. Tracing output (NOTE: Use these tools with caution and ONLY as a last resort as they are could severely impact performance)

truss (AIX, Solaris etc) = dtrace (Solaris 10+) = strace (Linux) = tusc (HP-UX)
truss –afv all –Dd –o <output_file_name> -p <PID>
Execute the truss command for at least 40 seconds. Use this ONLY as a last resort as it might further slow down the server and in some situations might not provide good results.
strace –f –tt –o <output_file_name> -p <PID>
tusc -o <output_file_name> -c -f -l –p <PID>
tusc -o <output_file_name -ccc -f -l -n -p -v -T "%H:%M:%S" –p <PID>

k. Sometimes 'sar' output might be required.

Slow Query Performance

1. What client tool is being used to execute the query. For example dbisql, isql, BO etc) ?
2. What operating system is the client tool running on ?
3. What protocol is being used ?
4. Was the query scripted, generated or ad-hoc query ?
5. What is the SQL for the query ?
6. What is the schema definition for all the objects involved in the query
   a. Tables
   b. Views
   c. Indexes
   d. User defined data types
7. Generate HTML Query plans in good and slow performance scenarios by setting the following option just prior to executing the query
   set temporary option Query_Plan = 'ON';
   set temporary option Query_Plan_After_Run = 'ON';
   set temporary option Query_Detail = 'ON';
   set temporary option Query_Timing = 'ON';
   set temporary option Query_Plan_As_HTML = 'ON';
   set temporary option Index_Advisor = 'ON';
   set temporary option Query_Name = '<Query_name>';
   set temporary option Query_Plan_As_HTML_Directory = '<html_plans_directory>';
   If you do not set Query_Plan_As_HTML_Directory, then by default the html plans will get generated in the same location where iqmsg is created.

Non-Fatal Stacktrace

1. The sql or program that caused the stacktrace
2. Did the sql or program work fine before ?
3. Can it be reproduced on other servers ?
4. Can it be reproduced consistently ?
5. Anything unique on time when it happens ?
6. Any particular sequence that needs to be followed to repro ?

Crash or Fatal Stacktrace

1. Can it be reproduced in a simpler repro ?
2. Can the server be started normally after the crash ?
3. Collect stktrc*.iq
4. Does it appear to be a corruption issue ?
5. If corruption issue, execute sp_iqcheckdb on the objects involved sp_iqcheckdb 'verify database/table/index'

Hung Server

1. Check to see if hung server is due to out of space in some dbspace ?
2. Collect atleast 2-3 pstack output(s) against the IQ server at least 3-5 minutes apart
   pstack <PID>
   pstack utility may differ based on the operating system that IQ is running on. For example On AIX the
   tool is 'procstack', on Solaris/Linux/HP_UX it is 'pstack'

Connection Issues

1. Are problems specific to a particular client tool ?
2. Can you ping the server using dbping or tcpip's ping utility?
3. Collect client application logs.
   a. ODBC client - turn on odbc trace
   b. Open Client – try pinging via dsedit. Setup RIBO and trace
4. Try setting up network trace like "tcpdump"

Backup/Restore Issues

1. Execute Restore with Verify option to be sure the backup is valid.
   See SAP IQ 15.4 documentation
   http://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.infocenter.dc00801.1540/doc/html/san128156
   SAP IQ 16 documentation
   https://help.sap.com/viewer/a898a5b484f21015a377cd1ccb6ee9b5/16.0.11/en-US/a610d67484f21015a8d6cb5579802e56.html
   SAP IQ 16.1 - https://help.sap.com/viewer/a893f37e84f210158511c41edb6a6367/16.1.3.0/en-US/a881170784f21015aef7c9c65d3e56ac.html

SySam Issues

1. Output of sp_iqlmconfig
2. .lic file if it is unserved license. Make sure .iqmsg indicates the directory of this .lic file in its search
   path. For example
   I. 04/12 12:30:18. 0000000000 Using licenses from: C:\IQ\SYSAM-2_0\licenses\SybaseIQ.lic;C:\Documents and Settings\All Users\SybaseIQ\demo*.lic
3. SySam server log if it is served license. Check SySam documentation on troubleshooting tips
   https://help.sap.com/viewer/a1062dd5326f43528bbee3a94cf36d28/2.4.0.0/en-US/3a07c08e28b64b5397b064127e6999ab.html
4. Contents of <IQ dbname>.lmp file (this is located in the same directory where the .db files resides)

Products

SAP IQ 16.0
SAP IQ 16.1
SAP Sybase IQ 15.4

This document refers to

SAP Note/KBA	Title

2408572	How to generate a stacktrace manually - SAP IQ
	SAP IQ 16 Hardware Sizing Guide
	SAP IQ 16: Best Practices Guide

Attachments

File Name	File Size	Mime Type
collect_OS_Diagnostics.zip	3	application/x-zip-compressed