



IBM Software Group

Ask the Experts

DataPower Topics on Networking, MQFTE, Regular Expressions, DataPower Timeouts and ODBC Technologies

16 April 2013



WebSphere® Support Technical Exchange



Agenda

- Introduce the panel of experts
- Introduce DataPower Topics
- Answer questions provided by the panel (5 questions)
- Answer questions submitted by email (5 questions)
- Open telephone lines for questions
- Summarize highlights

Panel of Experts

| Panelist | Role at IBM |
|----------------------|---|
| Alfred Williamson | Level-2 SOA DataPower Appliance Software Engineer |
| Daniel Dickerson | Level-2 SOA DataPower Appliance Software Engineer |
| Chin Sahoo | Level-2 SOA DataPower Appliance Software Engineer |
| Moses Allotey-pappoe | Level-2 SOA DataPower Appliance Software Engineer |
| Paul Megani | Level-2 SOA DataPower Appliance Software Engineer |



Introduction

- We will be covering a number of questions that cover various DataPower Topics :
 - DataPower SQL/ODBC.
 - DataPower Networking.
 - DataPower Time-Outs.
 - DataPower Integration with MQFTE.
 - DataPower Regular Expressions.
- Platforms covered will include 3.8.x.x, 4.x.x.x, 5.x.x.x.

Question 1

- Are there any new features or enhancements for Database integration in the 5.0 Firmware?



Answer to Question 1

- Supports configurable time out settings for database integration.
- Configuration on the Advanced tab of the SQL Data Source object
 - ▶ Connection Timeout
 - ▶ Query Timeout
 - ▶ Idle Connection Timeout

Answer to Question 1

- Connection Timeout (in seconds)
 - ▶ Wait time to establish a new connection.
 - ▶ 0 disables timeout. Default value is 15.
 - ▶ Should be less than the query timeout.
- Query Timeout (in seconds)
 - ▶ Wait time for an SQL request to complete.
 - ▶ Default value of 0 switches to User Agent timeout.
- Idle Connection Timeout (in seconds)
 - ▶ Wait time before releasing idle connection from connection pool.
 - ▶ 0 disables timeout. Default value is 180.

Question 2

- How to debug integration problems related to DataPower with MQFTE?
 - Use case 1: Message-to-File Transfer
 - Use case 2: Message-to-Message Transfer
 - Use case 3: Large Message Transfer
- Considerations

Answer to Question 2: DataPower Integration pattern with WebSphere MQ FTE



Answer to Question 2 Continued..

- **Use MQFTE URL Opener mandatory parameters:**
 - DestAgent : destination agent in MQFTE network that will ultimately receive the file
 - DestQM : destination queue manager whose source agent should send the message to the destination
 - DestFile : filename for destination agent to store the received message into the named file
- **Use MQFTE URL Opener optional parameter if needed**
 - SenderID : business ID of sender (external partner)
 - ReceiverID : business ID of receiver (internal partner)
 - ContentType : content type of the payload
- **Example of MQFTE URL:**
 - dpmqfte://LINUX-MQ/?RequestQueue=QUEUE1&DestAgent=AGENT2&DestQM=QM_LINUX&DestFile=/opt/fte/file2/test2.xml&Transactional=true

Answer to Question 2 continued..

MQFTE Agent should use the "Transfer Definition File" to transfer message from the queue to file system

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="4.00" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>cs-lnx1.rtp.raleigh.ibm.com</hostName>
      <userID>${DPMQFTEReceiverId}</userID>
    </originator>
    <sourceAgent QMgr="QM_LINUX" agent="AGENT1"/>
    <destinationAgent QMgr="${DPMQFTEDestinationQM}" agent="${DPMQFTEDestinationAgent}"/>
    <transferSet>
      <!-- <item checksumMethod="MD5" mode="binary"> -->
        <item checksumMethod="MD5" mode="text">
          <source disposition="delete" recursive="false" type="queue">
            <queue groupId="${GROUPID}" useGroups="true">QUEUE1</queue>
          </source>
          <destination exist="error" type="file">
            <file>${DPMQFTEDestinationFile}</file>
          </destination>
        </item>
      </transferSet>
    </managedTransfer>
  </request>
```

Answer to Question 2 : Collection of References for Trouble Shooting MQFTE Integration with DataPower issues

- <http://www-01.ibm.com/support/docview.wss?uid=swg21370256> (Collect troubleshooting data for a WebSphere MQ File Transfer Edition problem in WebSphere MQ for UNIX or Linux on x86)
- <http://www-01.ibm.com/support/docview.wss?uid=swg21370257> (Collect troubleshooting data for a File Transfer Edition problem in WebSphere MQ for Windows)
- <http://www-01.ibm.com/support/docview.wss?uid=swg27023344> (Webcast replay: Troubleshooting File Transfers using WebSphere MQ File Transfer Edition (FTE))
- <http://www-01.ibm.com/support/docview.wss?uid=swg21608405> (Configuring DataPower Multi-Protocol Gateway (MPGW) and WebSphere MQ File Transfer Edition for successful message-to-file transfer)
- http://www.ibm.com/developerworks/websphere/library/techarticles/1208_zampieri/1208_zampieri.html (Using WebSphere DataPower and WebSphere MQ File Transfer Edition to manage file transfers)

Question 3

- What are some networking best practices and troubleshooting steps to consider when using the appliance?



Question 3: Network Best Practices

- Avoid using 0.0.0.0 as a listener
- Multiple default gateways will create multiple default routes
- Separating management traffic
- Management interface and default route
- Configure network settings to be portable

Question 3: Network Troubleshooting

1. Check error log

- ☐ Change to debug loglevel if an error is found associated
- ☐ Isolate where the problem is (front, back, side-call?)

2. Check configuration

- ☐ Do IP Addresses “Match Up” as expected?
- ☐ Do Routes “Match Up” and point to proper Gateway?

3. Check status providers or monitoring over time

4. Get packet capture

- ☐ May be best to get unfiltered capture across all interfaces (including loopback).
Use filter expression if issue is narrowed down to specific IP, port, or interface
- ☐ Use timestamps, IP address, ports, service names to correlate

Question 4

- How are timeouts handled in DataPower, and what should be considered?

Question 4: Understand the timeout

- It may not be obvious but understanding if the timeout was due to waiting on DNS to resolve, while trying to connect, while waiting on a response, or simply an idle persistent connection being closed is key and often the most difficult step.
- Once you know the source of the timeout tuning for proper handling can be done.

Question 4: Capture the timeout

- Packet tracing is obvious choice.
- If you are not able to run a continuous packet trace consider using the log target event trigger to stop a packet trace.
- Use a network port sniffer for additional capturing capacity
- Never forget that you may need to filter DNS or the TCP port to properly see all of the needed information.

Question 5

- What precautions should be taken when employing DataPower regular expressions?

Answer to Question 5

- Regular expressions can be constructed such that a very large number of branches are created (for example, when using unlimited repetition of groups). When such expressions are faced with long strings provided as input, a stack overflow could occur.
- Once a stack overflow happens, the memory required for processing can severely impact the appliance capacity and stability.

Answer to Question 5 (Continued)

There are mitigation strategies against this type of event and are noted as the following:

- ▶ Increase the stack size on the compile options policy field of the XML Manager that is associated to the DataPower service.
- ▶ Limit the incoming URL string length in bytes on the HTTP(s) front-side protocol handler (if the incoming URL is used in a regular expression).
- ▶ Craft a string length check into the applicable stylesheet(s).

Answer to Question 5 (Continued)

- In the determination of the stack needs, the recommendation would be to utilize pcretest as a "guiding tool" that allows compiling regular expressions and running regular expression [matches](#) and displaying various information about the compilation and match process.
- IBM has implemented APAR IC86959.
- DataPower Regular expressions technote:

<http://www-01.ibm.com/support/docview.wss?uid=swg21613314>

- Lastly, for those interested in understanding regular expressions more in depth here is the detail for a recommended book.

<http://shop.oreilly.com/product/9780596528126.do>

Title: Mastering Regular Expressions, 3rd Edition

By: Jeffrey E.F. Friedl

Publisher: O'Reilly Media

Formats:

Print

Ebook

Safari Books Online

Questions Sent in by Email



Question 6

- How can I filter out IPs from my log target (I'm talking about IP suppression)?

Answer to Question 6

- The IP filter function does not work in the method you are asking, the ip filter is only inclusive.



Question 7

- Will there be a support for mqmd version 2 on the XI52 appliances?

Answer to Question 7

- Is there a specific field or element of the mqmd v2 header that you are looking to handle?
- MQMD v2 is supported via the MQ FTE Front side handler

Question 8

- How do I make a recursive LDAP query that will return the third descendant of a group (My Enterprise uses A.D which support a recursive query :
(member:1.2.840.113556.1.4.1941:=cn=somegroup,cn=users,dc=somedc,dc=com). As for now, we are using an ldap-search procedure but we're open to changes.

Answer to Question 8

- You would you need to write custom XSLT to perform this via multiple steps? This may be a task for IBM services.

Question 9

- Is it possible to upload several files from a browser by marking them all at once? (We have about 40 Xsds in one gateway, and uploading all of them is a drudgery).



Answer to Question 9

- You can use the "add" button on the file upload menu to build a queue. You could simply use an exec script to copy the files such as:
exec uploadXsds.txt
(within the uploadXsds.txt)
copy <source> <local:///where/ever/1.xsd>
copy <source> <local:///where/ever/2.xsd>
copy <source> <local:///where/ever/3.xsd>

Then simply upload and run this on any device you need to perform the batch upload on.

Question 10

- Is there any way to config multiple domain via one browser on a single computer?



Answer to Question 10

- Unfortunately not. Multiple browser pids are required to prevent any session affinity conflicts.

Open Lines for Questions



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Summary



References and Useful Links (Optional)

- Reference 1:
<http://www.ibm.com/developerworks/websphere/community/>
- Reference 2:
http://www.ibm.com/software/websphere/events_1.html
- Reference 3:
<http://www.websphere.org>
- Reference 4:
<http://www.ibm.com/software/info/education/assistant>
- Reference 5:
<http://www.ibm.com/software/websphere/support/d2w.html>
- Reference 6:
<http://www.ibm.com/software/support/einfo.html>

Additional WebSphere Product Resources

- Learn about upcoming WebSphere Support Technical Exchange webcasts, and access previously recorded presentations at:
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<http://www.ibm.com/software/websphere/support/d2w.html>
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