



IBM Software Group

# Ask the Experts

DataPower Topics on Networking, MQSeries, ODBC,  
and other Technologies

19 July 2012



WebSphere® Support Technical Exchange



# Agenda

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

# Panel of Experts

Panelist	Role at IBM
Carol Miller	DataPower L2 Software Engineer
Alfred (Trey) Williamson	DataPower L2 Software Engineer
Daniel Dickerson	DataPower L2 Software Engineer
Chin Sahoo	DataPower L2 Software Engineer
Paul Megani	DataPower L2 Software Engineer

# Introduction

- We will be covering a number of questions that cover various DataPower Topics :
  - DataPower SQL/ODBC
  - DataPower Networking
  - DataPower MQSeries
- Platforms covered will include firmwares 3.8.x.x and 4.0.x.x

# Question 1

- What are keys in troubleshooting DataPower ODBC Issues?

# Answer to Question 1

- DataSource Connectivity issues
- SQL/ODBC processing issues
- SQL endpoint Fundamentals
- MustGather documents
- Exhausted troubleshooting resources. Now what next?

# Answer to Question 1 (continued)

- There is a new MustGather document for 3.8.1 and above:
  - ▶ <http://www-01.ibm.com/support/docview.wss?rs=2362&uid=swg21447477>
  - ▶ Debug logging is much more detailed
  - ▶ It also has a much bigger impact on performance
  - ▶ Tracing can be added on the "Data Source Configuration Parameters" tab:
    - Set Name field to "TraceFile" (required name)
    - Set Value field to a file URL such as logtemp://MyFile.trace



# Answer to Question 1 (continued)

- Older versions have a simpler MustGather technote but can provide less data:
  - ▶ <http://www-01.ibm.com/support/docview.wss?rs=2362&uid=swg21419675>
- In both cases, be aware that we may need data from DataPower, from the DB server, or from the network to get a complete picture.
- Packet captures are often needed.





# Answer to Question 1 (continued)

- Time to contact Support!
  - ▶ (Send us the MustGather output)
- Sometimes the above troubleshooting methods do not yield a clear result
- If needed, we can collaborate with Engineering; it may be appropriate to create a special, instrumented (debug) build
- Debug builds can generate info files which capture additional data, if you can recreate the error while it's running



## Question 2

- What are the best ways for me to get information about DataPower configuration and troubleshooting?

## Answer to Question 2

- For basic how-to-configure questions, use DataPower documentation:

5.0:

<http://pic.dhe.ibm.com/infocenter/wsdatap/v5r0m0/index.jsp>

4.0.2:

<http://publib.boulder.ibm.com/infocenter/wsdatap/v4r0m2/index.jsp>

4.0.1:

<http://publib.boulder.ibm.com/infocenter/wsdatap/4mt/index.jsp>

3.8.2:

<http://publib.boulder.ibm.com/infocenter/wsdatap/v3r8m2/index.jsp>

- After searching in Info Center, use “Show in Table of Contents” icon to locate the found page in context

## Answer to Question 2 (continued)

- Other Info Center uses:
  - ▶ Click on Learning tab to search for DataPower Redbooks / Red papers
  - ▶ Click on Community and Support tab for link to DP user forum:  
<http://www.ibm.com/developerworks/forums/forum.jspa?forumID=1198>
- For troubleshooting: search Technotes here: [http://www-947.ibm.com/support/entry/portal/Overview/Software/WebSphere/WebSphere\\_DataPower\\_SOA\\_Appliances](http://www-947.ibm.com/support/entry/portal/Overview/Software/WebSphere/WebSphere_DataPower_SOA_Appliances)
- You can also use Google!



## Question 3

- How does IP routing work on the DataPower SOA appliance?
- How will the device handle multiple equal routes?
- Why would this concern you?
- Have you experienced intermittent connection failures, DNS lookup, or LDAP Bind failures?
- Do you use more than one network interface on the appliance?

# Answer to Question 3

The routing table on the device reads from the bottom to the top, most specific route first.  
 xi52(config-flash)# show route

Destination	Device Interface Type	Device Interface Name	Gateway
0.0.0.0/0	Ethernet	mgt0	10.2.2.1
0.0.0.0/0	Ethernet	eth20	10.10.10.1
10.10.10.0/24	Ethernet	eth20	0.0.0.0
10.2.2.0/24	Ethernet	mgt0	0.0.0.0
10.10.10.23/32	Ethernet	eth20	0.0.0.0

IF you wanted to connect to the destination 10.10.10.23 you would connect over the eth20 interface.

IF you wanted to connect to a destination of say 7.8.9.10 then you would have a random chance of using either eth20 or mgt0 to try and reach that destination because the two 0.0.0.0/0 “catch all” or “default” route destinations would both have a equal viable weight.

IF you wanted to connect to a destination server of 10.2.2.123 then you would use mgt0 because that /24 subnet mask would include the .123 host.

## Answer to Question 3 (continued)

- This technote will help

<http://www-01.ibm.com/support/docview.wss?uid=swg21249208>

## Question 4

- What methods are available for routing MQ traffic in DataPower?



## Answer to Question 4

- Following Methods are available for MQ routing
  - Static MQ URL (dpmq:// protocol)
  - Dynamic MQ URL (mq:// protocol)
  - Distribution list for local qmgr
  - Distribution list for remote qmgr
  - Using MQOD structure
  - Using node-set with multiple MQ URLs
  - Using MQ Traffic with Transactionality

## Answer to Question 4 (continued)

- Examples of static mq-qm URL: `dpmq://DP1/?RequestQueue=QUEUQ1`  
`dpmq://DP1/?RequestQueue=QUEUQ1;Transactional=true`
  - Examples of static mq-qm URL:  
`mq://192.168.2.240:1550/?Channel=CHANNEL1;QueueManager=DP4;UserName=mqm;ChannelLimit=1024;ChannelTimeout=30;RequestQueue=QUEUE1`
- MQ Distribution Lists for local qmgr
  - Inject MQOD request header with multiple destinations

```
<MQOD>
  <MQOR><ObjectName>Queue1</ObjectName></MQOR>
  <MQOR><ObjectName>Queue2</ObjectName></MQOR>
  <MQOR><ObjectName>Queue3</ObjectName></MQOR>
  <MQOR><ObjectName>Queue4</ObjectName></MQOR>
</MQOD>
```

# Answer to Question 4 (continued)

- MQ Distribution Lists for remote qmgrs
  - Inject MQOD request header with multiple ObjectName and ObjectQMgrNames

```
<MQOD>
```

```
  <Version>2</Version>
```

```
  <MQOR><ObjectName>VQ1</ObjectName>
```

```
  <ObjectQMgrName>DP2</ObjectQMgrName></MQOR>
```

```
  <MQOR><ObjectName>VQ2</ObjectName>
```

```
  <ObjectQMgrName>DP2</ObjectQMgrName></MQOR>
```

```
  <MQOR><ObjectName>VQ1</ObjectName>
```

```
  <ObjectQMgrName>DP3</ObjectQMgrName></MQOR>
```

```
  <MQOR><ObjectName>VQ1</ObjectName>
```

```
  <ObjectQMgrName>DP1</ObjectQMgrName></MQOR>
```

```
  <RecsPresent>4</RecsPresent>
```

```
</MQOD>
```

# Answer to Question 4 (continued)

- Example of MQOD headers for Distributed MQ Queue Manager

```
<xsl:variable name="newMQODStr">
  <MQOD>
    <Version>2</Version>
    <ObjectName>CLIENT.REPLY.QUEUE</ObjectName>
    <ObjectQMgrName>CLIENTQM</ObjectQMgrName >
  </MQOD>
</xsl:variable>

<xsl:variable name="mqodStr">
  <dp:serialize select="$newMQODStr"
    omit-xml-decl="yes"/>
</xsl:variable>

<dp:set-request-header name="'MQOD'"
  value="$mqodStr"/>
```

**Note: The ObjectQMgrName is not included in MQOD for cluster MQ environment**

## Question 5

- What is the difference in implementation between the new default Standby Control in 4.0.2 versus the mac-takeover implementation and what does this mean for the network?

## Answer to Question 5

- Prior to 4.0.2 Firmware, a standby control takeover is performed by moving the virtual MAC address to the newly active appliance
- Starting at 4.0.2 Firmware, by default, the appliance uses an IP layer takeover using gratuitous ARP.



## Answer to Question 5 (continued)

- Both methods are available in 4.0.2 Firmware
- Click **Network** → **Interface** → **Network Settings**  
“**Standby Control MAC Takeover**” radio button
- Network considerations:
  - “Default ARP Takeover”
  - “Legacy MAC Takeover”

## Question 6

- What is the CLI command to turn ON/OFF a Load Balancer Health Check?
- Is there a full CLI command reference doc for XI50.3.8.2.6 ?



# Answer to Question 6

- The Health Check for a Load Balancer Group can be enabled/disabled by setting the proper configuration setting
- The Health Check for a Load Balancer Group can be enabled/disabled by setting the proper configuration setting:
  - `xi50(config)# loadbalancer-group test`  
`xi50(config loadbalancer-group test)# show`
  - `health-check on / 80 Standard on store:///healthcheck.xml 10 180 / store:///healthcheck.xml ""`
  - `xi50(config loadbalancer-group test)# health-check off / 80 Standard on store:///healthcheck.xml`  
`10 180 / store:///healthcheck.xml`
  - `xi50(config loadbalancer-group test)# show`
  - `health-check off / 80 Standard on store:///healthcheck.xml 10 180 / store:///healthcheck.xml ""`
  - `xi50(config loadbalancer-group test)# exit`

# Answer to Question 6 (continued)

- Load Balancer Group Health Check CLI Reference:

[http://publib.boulder.ibm.com/infocenter/wsdatap/v3r8m2/index.jsp?topic=%2Fxi50%2Fhealth-check\\_loadbalancergroup.htm&path=1\\_2\\_0\\_45\\_4](http://publib.boulder.ibm.com/infocenter/wsdatap/v3r8m2/index.jsp?topic=%2Fxi50%2Fhealth-check_loadbalancergroup.htm&path=1_2_0_45_4)

- Load Balancer Group CLI Reference

[http://publib.boulder.ibm.com/infocenter/wsdatap/v3r8m2/index.jsp?topic=%2Fxi50%2Floadbalancergroupcommands.htm&path=1\\_2\\_0\\_45](http://publib.boulder.ibm.com/infocenter/wsdatap/v3r8m2/index.jsp?topic=%2Fxi50%2Floadbalancergroupcommands.htm&path=1_2_0_45)

- General CLI Command Reference:

<http://publib.boulder.ibm.com/infocenter/wsdatap/v3r8m2/index.jsp?topic=%2Fxi50%2Fcommandreference.xi50.htm>



# 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](http://www.ibm.com/software/websphere/events_1.html)
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