



Software Group

# Guide Share France Groupe de Travail MQ juin 2012

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# Moi... demain



# Agenda

- Evènements
- RFEs
- Evolutions de nos produits favoris... IMPACT
- Injecteurs MQ : JMSHarness
- SMFez-vous ?





# WebSphere Tech Convention, 15-18 oct, Berlin

<http://www.ibm.com/jct03001c/services/learning/ites.wss/zz/en?pageType=page&c=O757056Y17644M69>

IBM WebSphere Technical Convention 2012 - Tracks and Session Highlights

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IBM WebSphere Technical Convention 2012

15 - 18 October 2012 | Berlin, Germany

Overview

- Agenda and Directory
- Hotel Reservation
- Week at a Glance
- Venue and Location
- Registration

Tracks and Session Highlights

- Application Development
- Application Infrastructure
- Messaging, Connectivity, SOA and Integration
- BPM and Decision Management
- CICS

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IBM WebSphere Technical Convention 2012

Expand your knowledge of SOA, CICS, Messaging, WebSphere Application Servers and Infrastructure, including a focus on BPM and Cloud Computing.

Register today

Application Development

# TechSoftware, IBM BoisColombes, 29-31 août

<http://www.ibm.com/software/fr/techsoftware-2012/index.html>

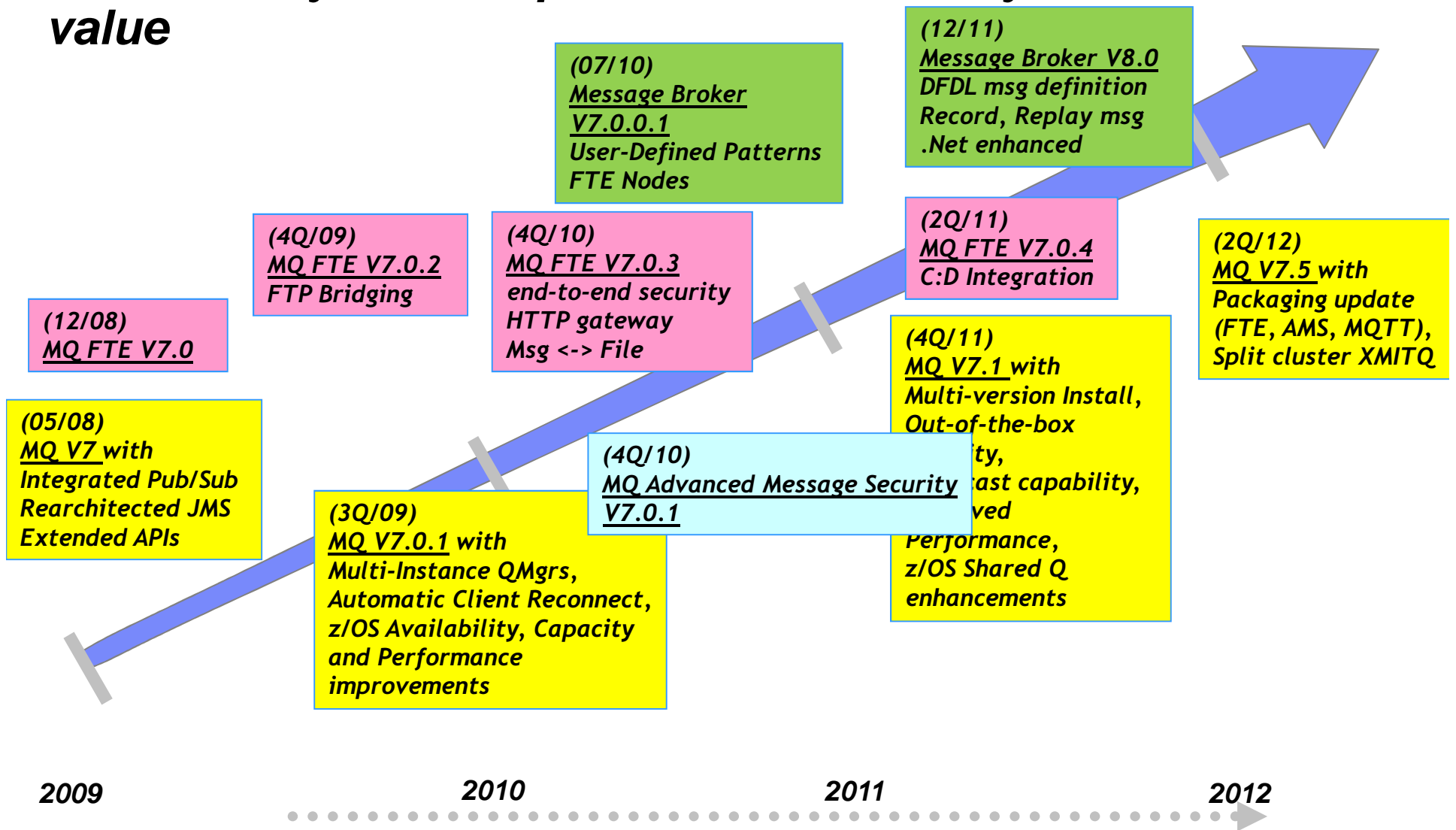
The screenshot shows a web browser window with the URL <http://www.ibm.com/software/fr/techsoftware-2012/index.html>. The page features the IBM logo at the top left and the main heading "IBM TechSoftware 2012". Below the heading, it states "Du 29 au 31 août 2012. IBM Forum Paris, Bois Colombes". A navigation bar includes links for "Edito", "Les temps forts", "Agenda", "Inscription", "Sponsor", and "En savoir plus". The main content area is titled "L'évènement logiciel de tous les superlatifs" and describes the event as a 4th edition where attendees can benefit from 3 days of exchanges with experts. It lists "7 bonnes raisons de participer" with a bulleted list of speakers including Gerry Cuomo, Naguy Halim, Martin Nally, Feri Clayton, Dominique Delhummeau, and Hubert Lalanne. On the right side, there is a section for "IBM TECHSOFTWARE 2012: 4ème EDITION" with a "JE M'INSCRIS" button and links for a plan d'accès, Twitter, and social media profiles. A decorative graphic of colorful interlocking loops is on the right side of the page.

## RFEs

- Préparez votre demande avec nous pour la raffiner
  - Faites impliquer qqn qui écrit bien anglais dans la préparation.....
  - N’oubliez pas de lui offrir un verre....
- C’est la saison pour voter : signaler à notre communauté quand la RFE est saisie afin qu’un maximum parmi nous le soutient (Voter Yes!)
  - Profitez d’un Président GSF MQ très proactif....
- Ne soyez pas trop déçu si la demande n’aboutit pas... le labo ne peut pas tout faire. Ils doivent constamment équilibrer...
  - Intérêt parmi les utilisateurs (votes)
  - Intérêt “architectural” (stratégie, direction du produit long-terme)
  - Complexité (coût) pour la modification
  - Besoins tactiques (pour influencer des ventes courtes-termes)
  - .....

# MQ v7.5 from Impact

# WMQ Family Roadmap – continual delivery of customer value



Early Access Programs





# WebSphere MQ V7.5: Content Summary

For Windows, Unix and Linux

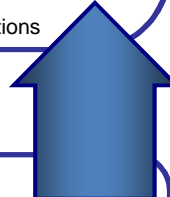
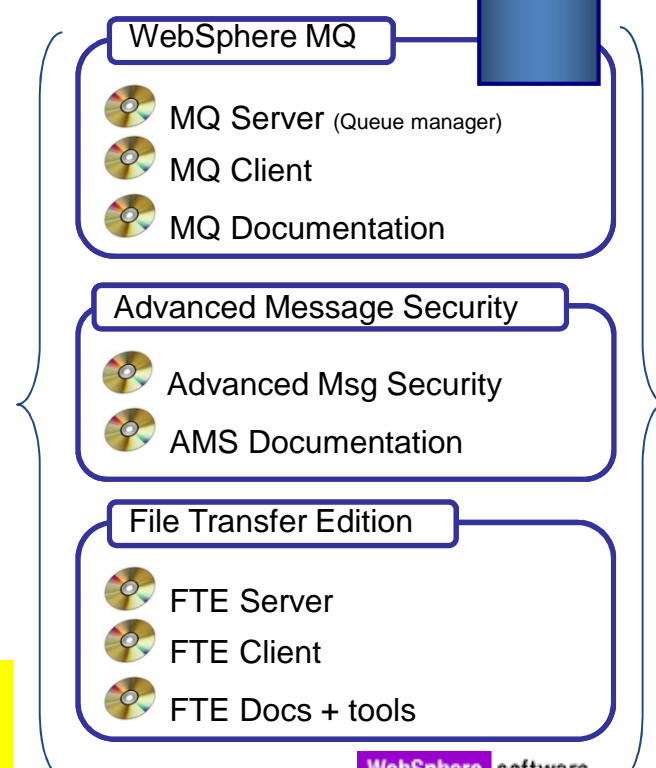
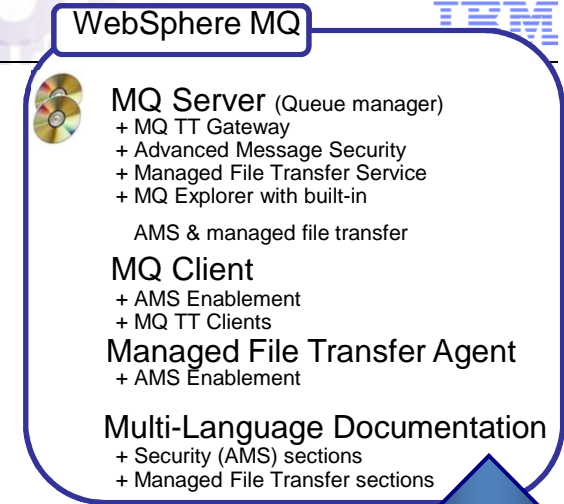
**WebSphere MQ V7.5**  
 Announced: 24 April 2012  
 Availability: 20 June 2012

**Simplification**

<b>New Feature</b>	<b>Benefits</b>	<b>Details</b>
<b>Integrated Installation</b>	Makes it easier to deploy systems Simpler licensing	Combines several products into a single package Common experience
<b>Enhanced Clustering</b>	Improves ease-of-use Improves application isolation	Split Cluster Transmission Queue
<b>Java Application Identification</b>	Makes it easier to distinguish applications	Applications no longer to all have the same name
<b>AMS channel interception</b>	Provides a level of message protection even when application environment cannot run AMS	Interception in the SVRCONN still protects messages before hitting queues
<b>FTE Logger Options</b>	Can write FTE audit records to flat file	No longer a requirement for an enterprise database Easier to read data immediately

## WebSphere MQ V7.5

- **Integrated Messaging Offering**
  - Single install, packaging & tooling for all Messaging options
  - Reduce time to value, simplify usage
- **What's being delivered?**
  - Integration of MQ with MQ FTE, MQ AMS and MQ Telemetry
  - Single install, common integrated tooling and management, simplified licensing and entitlements
  - Updated MQ Explorer tooling for all platforms
  - More complete, easy to use messaging infrastructure, enabling you to gain full range of messaging, swiftly & easily
- **All messaging functions & capabilities available to all customers, new and existing with rich choice of qualities of service**
  - Removal of charge for MQ XA client
  - Reduced pricing metric for standard MQ Telemetry client
    - Lower cost for larger numbers of clients



**Je n'ai pas parlé des prix !**

## Clustering – Split Transmit Queue Requirements

- Separation of Message Traffic
  - With a single transmission queue there is potential for pending messages for cluster channel 'A' to interfere with messages pending for cluster channel 'B'
  
- Management of messages
  - Use of queue concepts such as MAXDEPTH not useful when using a single transmission queue for more than one channel
  
- Monitoring
  - Tracking the number of messages processed by a cluster channel currently difficult
  - Some information available via Channel Status

## Clustering – Split Transmit Queue

- With V7.5 a queue manager can automatically define a PERMANENT-DYNAMIC queue for each CLUSSDR channel.
  - Dynamic queues based upon new model queue “SYSTEM.CLUSTER.TRANSMIT.MODEL”
  - Well known queue names: “SYSTEM.CLUSTER.TRANSMIT.<CHANNEL-NAME>”
- Controlled via attribute affecting all cluster-sdr channels on the queue manager

```
ALTER QMGR DEFCLXQ( SCTQ | CHANNEL )
```

- Also have manual definitions
  - Multiple queues can be defined to cover all, or a subset of the cluster channels.

```
DEFINE QLOCAL(APPQMGR.CLUSTER1.XMITQ)  
CHLNAME(CLUSTER1.TO.APPQMGR) USAGE(XMITQ)
```

- Automatic and Manual are not mutually exclusive
  - They could be used together





## Java Application Identification

- Java client applications now fill in APPLTAG field
- No longer appear as “WebSphere MQ Client for Java”
- Application-provided property
- Or the Main class



V7 Explorer →

V7.5 Explorer →

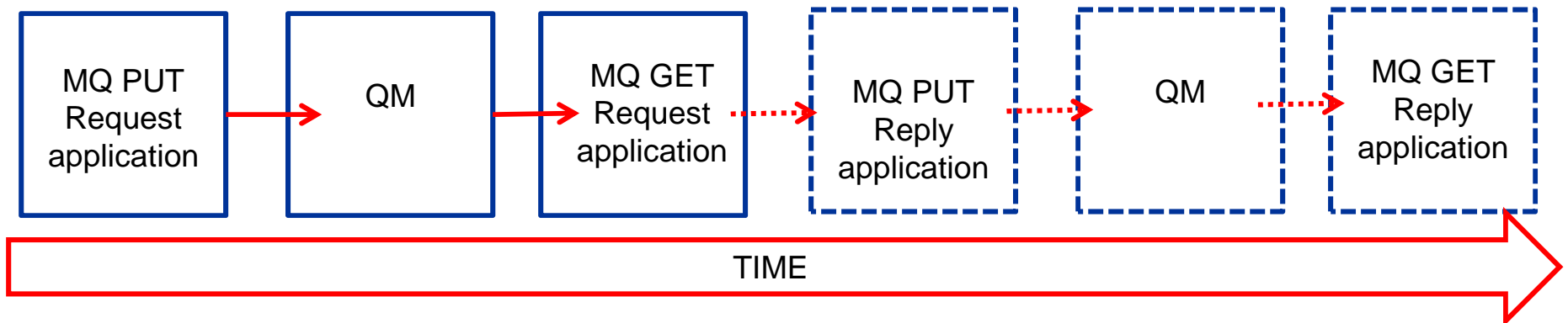
V7 - Application Connections		
Applications connected to "V7 on 'rockall(2414)'":		
App name	App type	App description
WebSphere MQ Client for Java	Queue manager	WebSphere MQ Channel
MQ Explorer 7.5.0	Queue manager	WebSphere MQ Channel
runmqchi	Channel initiator	WebSphere MQ Channel Initiator
amqrrmfa	Queue manager	WebSphere MQ Cluster Resource

## MQ 7.5: Enhancements to newly-integrated components

- Managed File Transfer
  - Logger can now write to a file
  
- AMS
  - V7.0.1.2 enhancements
    - Supports SHA-2 Digest algorithms
    - Command and Configuration Events for Policy changes
    - Audit trail of who has changed configuration
  
  - SVRCONN interception



## MQ Performance testing



- Send a message, measure the time (elapsed, CPU...)
  - Conceptually simple, but how do you do it? And when you look at the details... not that simple at all!
  - Measure under max load? Fill the queue? Multi-thread? Measure Q/R? etc...
- Typically: use a “message injector”
  - AMQSBLST (“sample” delivered with several MQ Distributed platforms)
  - JMSHarness (or XMSHarness)
  - MA0T MsgText
  - IH03 “MQSI” msg utility (RFHUTIL, MQCAPONE, MQPUTS....)
  - MA01 Q
  - Loadrunner
  - Others? See [http://www.capitalware.biz/mq\\_tools\\_comm.html#mqdebug](http://www.capitalware.biz/mq_tools_comm.html#mqdebug) or <http://www-304.ibm.com/support/docview.wss?rs=977&uid=swg27007205>
- Some include reports, some suppose that you have other complementary tools for reporting

## JMSHarness, what is it?

- “a flexible and modular Java package for performance testing of JMS scenarios and providers.”
- A rich tool for driving MQ (or HTTP) loads (not limited to JMS!)
- Available free of charge:  
<https://www.ibm.com/developerworks/community/groups/service/html/communityview?communityUuid=1c020fe8-4efb-4d70-afb7-0f561120c2aa>  
or  
[http://www.alphaworks.ibm.com/tech/perfharness?open&S\\_TACT=105AGX21&S\\_CMP=AWRSS](http://www.alphaworks.ibm.com/tech/perfharness?open&S_TACT=105AGX21&S_CMP=AWRSS)
- After downloading, you get:
  - **Perfharness.jar**
  - **Manual.pdf**That's it!
- This is THE tool used by IBM Hursley labs to drive their MQ tests (referred to in the MQ performance reviews). Now you, too, can be a MQ performance pro!
- An XMS Performance Harness Tool is also available, announced and supported with MQ v7, and for testing MQ performance with .Net. See SupportPac IA9H or <https://www.ibm.com/developerworks/mydeveloperworks/files/app/collection/5bd0fa23-4704-44dc-a5d5-ffe7cd205bf3?lang=en>



# JMSHarness, how do I get it going?

- Friendly advice: first do your standard setup and IVP for MQ Java on your platform, eg.
  - Setup your Environment variables as per [http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/topic/com.ibm.mq.csqzaw.doc/jm10330\\_.htm](http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/topic/com.ibm.mq.csqzaw.doc/jm10330_.htm)
  - Setup PATH, CLASSPATH, MQ\_JAVA\_DATA\_PATH, MQ\_JAVA\_INSTALL\_PATH, MQ\_JAVA\_LIB\_PATH
  - Test using `IVTRun -nojndi` at a minimum
  - If you want to use JMS & JNDI, use `IVTSetup`, and test `JMSAdmin` and `IVTRun`
- Setup the JMSHarness specific environment, eg. For Windoze....  
`set CLASSPATH=perfharness.jar;%CLASSPATH%`
- That's it!
- Running JMSHarness:

```
E:\perfh> java JMSPerfHarness -tc mqjava.PutGet -nt 5 -d Test -jb QM_carl510
ControlThread1: START
PutGet1: START
PutGet1: Opening Test
PutGet2: START
PutGet2: Opening Test
:
PutGet5: STOP
totalIterations=455740,avgDuration=62.60,maxrateR=7353.97
ControlThread1: STOP
```

## JMSharness, some of Carl's favorite parameters

Parm	Description
-tc	Test Class, eg. jmsSender, PutGet, Responder, Publisher, etc.
-nt	Number of (parallel) Threads to run the class
-d	Name of target Queue
-jb	Name of Queue Manager
-mf	Specify input file to be used for sending message
-pp	Persistent messages
-tx	Send messages under transaction
-nl	Time to run test
-rt	Iterations rate (iterations per second). Default is "as fast as you can".
-mg	Total number of iterations
-ms	Message size in bytes
etc.	About 100 other parameters! Very flexible!

## JMSHarness, example Send

```
E:\Junk\All\perfharness_v120\perfharness>java JMSPerfHarness -tc mqjava.Sender
-d Test -jb QM_car1510 -rl 20 -sr 10 -ss 5 -ms 2000 -rt 1
ControlThread1: START
Sender1: START
rateR=1.00,threads=1
rateR=1.00,threads=1
rateR=1.00,threads=1
rateR=1.00,threads=1
Sender1: STOP
totalIterations=21,avgDuration=21.17,maxrateR=1.00
ControlThread1: STOP
```

- Send 1 msg/sec (-rt) of 2000 bytes (-ms) during 20 seconds (-rl) with reports every 5 seconds (-ss) and sampling ever 10 seconds (-sr)

## JMSHarness, example Request/Reply

- Using 5 threads (-nt), send as many persistent (-pp) requests as possible to MyRequest queue, and get replies back on MyReply queue, for 20 seconds (-rl)

```
E:\perfharness>java JMSPerfHarness -tc mqjava.Requestor -iq MyRequest -oq MyReply -jb
QM_carl510 -rl 20 -sr 10 -ss 5 -ms 2000 -nt 5 -pp
ControlThread1: START
Requestor1: START
Requestor2: START
Requestor5: STOP
Requestor2: STOP
totalIterations=5155,avgDuration=22.61,maxrateR=315.30
ControlThread1: STOP
```

- Using 5 threads (-nt), receive requests on MyRequests queue (-iq) and send them back on MyReply queue (-oq)

```
e:\Junk\All\perfharness_v120\perfharness>java JMSPerfHarness -tc mqjava.Responder -iq
MyRequest -oq MyReply -jb QM_carl510 -to 30 -nt 5
ControlThread1: START
Responder1: START
Responder2: START
:
rateR=43.90,threads=5
MQJE001: Completion Code '2', Reason '2033'.
Responder3: Uncaught exception.
: (ugly Java tracebacks here for each thread!)
Responder5: STOP
totalIterations=5155,avgDuration=55.07,maxrateR=171.83
ControlThread1: STOP
```



## MA0T MsgTest utility (slides de Guide mai 2005)

- **Outil de test pour des messages MQ**
- **MQPUT et/ou MQGET des messages**
- **Construire des entêtes (MD, RFH) dans un « langage » XML**
- **Support des boucles, variables, etc.**
- **Comparaisons (tests de regression)**
- **SupportPac MA0T depuis...**  
<http://www.ibm.com/software/integration/support/supportpacs/product.html#wmq>
- **SupportPac category 4 (3rd party, AS-IS)**

## MsgTest – fichier de contrôle

Id QMGR,  
journalisation,  
etc.

Définition des  
données du  
msg

Valeurs du  
MQMD

Boucle avec  
données  
variable

Valeur du  
MQMD  
variable

Identification  
de la file.

```
<MsgTest>
<Control>
  <QMGr>QM_WBIMB</QMGr>
  <Channel>SYSTEM.DEF.SVRCONN</Channel><Host>localhost</Host><Port>1418</Port>
  <TestLog>
    <File>NONE</File>
    <Dir>E:\Junk\MsgTest</Dir>
  </TestLog>
</Control>
<Test Name="PutIt">
  <!-- GetFile><File>FileIn1.txt</File><Dir>%Dir%DataIn</Dir></GetFile -->
  <InlineData>
    <!-- Buffer>MyBuff</Buffer -->
    <Data>Data?? </Data>
  </InlineData>
  <MQMD Name="MD01">
    <CorrelId>REQREP1</CorrelId> <MsgType>1</MsgType> <Format>MQSTR</Format>
    <ReplyToQ>TestOut</ReplyToQ> <Persistence>1</Persistence>
  </MQMD>
  <For Name="Knt" From="1" To="10" Incr="1" Format="%02d">
    <Overlay Pos="5" Len="2">
      <Data>%Knt%</Data>
    </Overlay>
    <PutMsg MQMD="MD01">
      <MsgId>CountIs%Knt%</MsgId>
    <Q>TestOut</Q>
  </PutMsg>
  </For>
</Test>
</MsgTest>
```

## Exécution du MsgTest

```
E:\Junk>msgtest c:\Tools\MsgTestTest.xml
**** MsgTest V1.2.1 Started. **** Compiled on Feb 17 2005 at 06:00:12 ****
I012 Successfully loaded File="c:\Tools\MsgTestTest.xml". Size=1629/1204 bytes.
I019 Successfully parsed ScriptFile="c:\Tools\MsgTestTest.xml".
I027 Logging suppressed TestLog.File=NONE specified.
I034 Test Num=001 Test=PutIt. Initialised.
I035 Test Num=001 Test=PutIt. Assigned to the active list.
I075 Test load phase completed. Test execution phase started..
I168 Test Num=001 TotalPutMsg=10 SuccessfulPutMsg=10 FailedPutMsg=0.
I036 Test Num=001 Test=PutIt. Completed successfully.
I093 Interval statistics.
I108      No intervals were defined
I107 I062 Test results Total=1 Successful=1 Failed=0 Incomplete=0.
**** MsgTest V1.2.1 Finished. ****
```

# SupportPac MP1B - MQ SMF usage analysis

The screenshot displays three overlapping windows from a Windows operating system. The top window is an Adobe Reader showing a PDF document titled "CustomerX - Mini MQ healthcheck - MQ 1.1.pdf". The middle window is a text editor displaying a table of SMF data. The bottom window is partially visible, showing a list of rows.

QMGR	0.142	0.015
Q2ME	0.139	0.018
Q2MF	0.007	0.000
All	0.152	0.009

A QMGR is generally considered to have "low usage" if it logs under 5.0 MB per second. As can be seen in the figures above, these QMGRs show a maximum of 0.152 MB per second, a full order of magnitude below. Logging is extremely light, at least during the recorded period. Given the amount of logging, it's likely that the majority of MQ messages are non-persistent, which clearly minimizes DASD rates as well as CPU usage.

### 5.2.2 Buffer pool analysis

Good buffer pool utilization is critical to provide excellent MQ performance. A quick analysis of the buffer pool statistics recorded in SMF show no problem whatsoever with the buffer pools. Buffer pool availability never dropped below 98%, and indeed very rarely drops below 99%. Given these figures, it might be reasonable to reduce the buffer pool sizes to economize overall system memory.

### 5.2.3 MQ application activity

Using the MQ Accounting data, the remarkable aspect of the data collected is the relatively small number of Jobs and Queues that account for virtually all of the usage. Removing the instances of data where there was very little usage leaves the following data summary for the breakdown by **Queue usage**:

Sum of Number	Column Labels					Grand Total
Row Labels	Close	Get	Inq	Open	Put	Grand Total
PP.D0100AALAPR	1272	636	318	1272	318	3816
PP.D0100BALAPR	19567	13044	6523	19567		58701
PP.DGI00AALAPR	126821	63146	31767	126821	31908	380463
PP.DGR00AALAPR	123580	82365	41215	123580		370740
PP.DR100AALAPR	163531	81735	40895	163531	40898	490590
<b>Grand Total</b>	<b>434771</b>	<b>240926</b>	<b>120718</b>	<b>434771</b>	<b>73124</b>	<b>1304310</b>

And the breakdown for **Jobs** follows, showing cpu usage per MQI verbs:

# IAM9: Message Broker – ILog JRules Decision Management Node

# MQ 7.1 Activity reports and SupportPac MS0P