

Announce MQ version 9.0.4



Guide MQ 28/11/2017

IBM MQ version 9.0.4 CD

Luc-Michel Demey
Demey Consulting
LMD@Demey-Consulting.fr

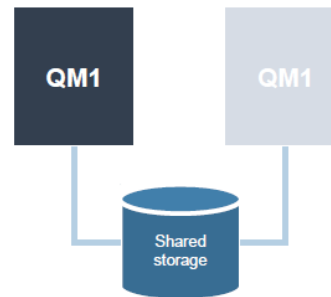
Version 1.01 – Novembre 2017

Contenu

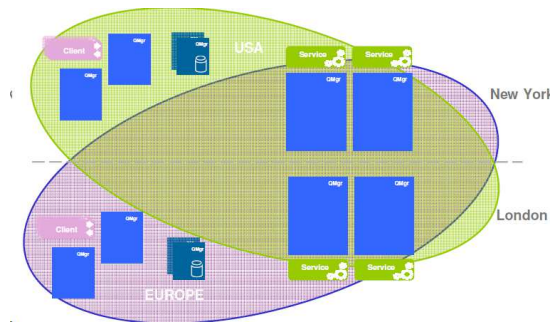
- MQ 9 CD disponible sur AIX à partir de MQ 904
- Nouvelle solution de HA : Replicated Data Queue Managers
- « Nouvelle » API MQ : REST Messaging
- Blockchain Bridge
- Salesforce Bridge
- Améliorations REST Admin
- Gateway REST Admin
- Nouveautés errors logs
- Nouveautés recovery logs
- SAN support pour MQ Appliance
- Améliorations CHLAUTH/CONNAUTH

Solutions HA actuelles

- QM MI / HA clusters



- MQ Clusters

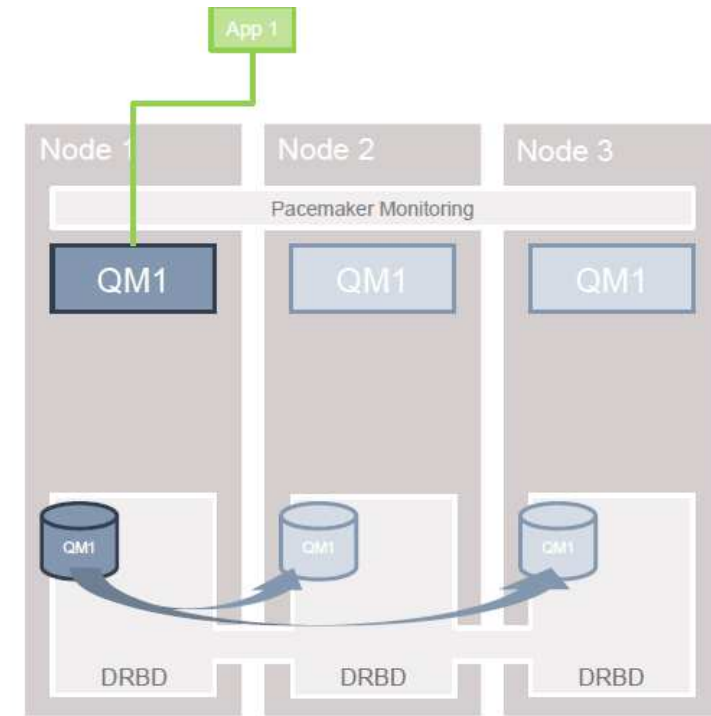


- MQ Appliance



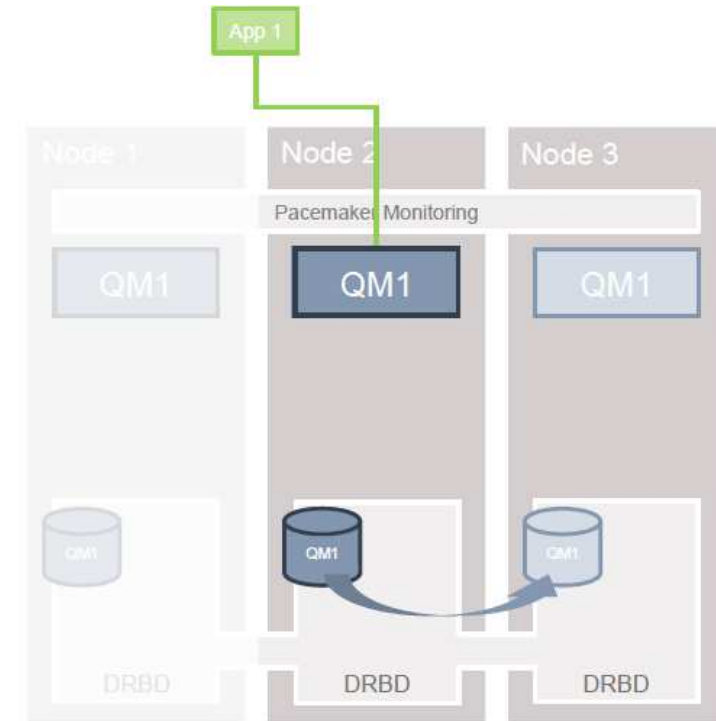
Replicated Data Queue Managers

- Linux RHEL V7.3 x86-64 en MQ 904 Advanced
- Stockage dans DRBD, gestion par Pacemaker
- Configuré par MQ
- Réplication synchrone des données
- 3 nodes nécessaires pour le quorum
- Bascule actif / passif automatique
- IP flottante pour chaque QM



Replicated Data Queue Managers

- Linux RHEL V7.3 x86-64 en MQ 904 Advanced
- Stockage dans DRDB, gestion par Pacemaker
- Configuré par MQ
- Réplication synchrone des données
- 3 nodes nécessaires pour le quorum
- Bascule actif / passif automatique
- IP flottante pour chaque QM



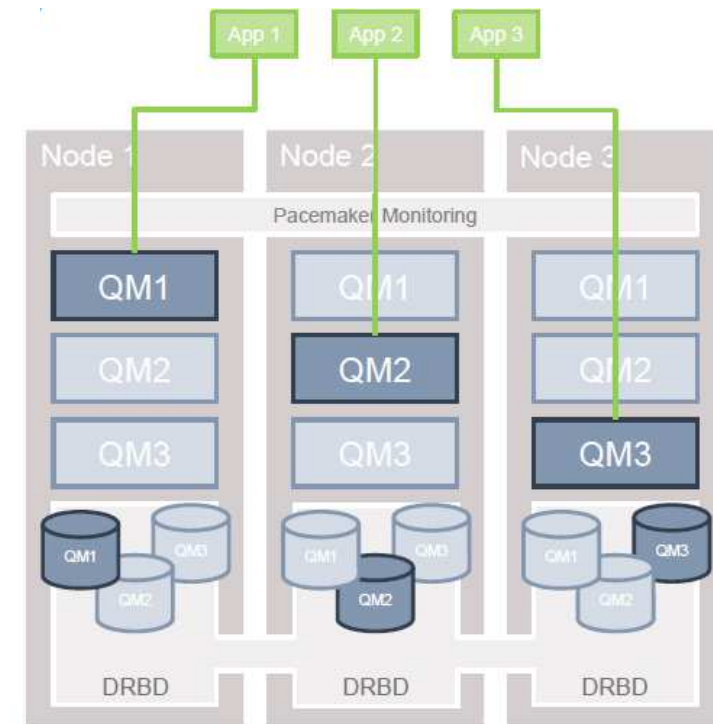
Replicated Data Queue Managers

Configuration recommandée :

- Répartition de la charge sur les 3 nœuds
- Capacité disponible sur les nœuds pour permettre le failover

Licencing :

- 1 licence MQ Advanced
- 2 licences High Availability Replica
 - (anciennement Idle Standby)



Multiple APIs and Protocols

APIs: **MQI, JMS, MQ Light, REST ...**

Protocols: **MQ, AMQP, MQTT, HTTP**

MQI

Exposes the full set of MQ capabilities
Uses the MQ protocol

JMS 2.0

Supports the full JMS API for use in many JSE or JEE environments
Uses the MQ protocol

MQ Light

A simple pub/sub messaging API
Uses the AMQP 1.0 protocol

REST

A very simple but secure messaging API over REST
...

MQ

MQ's highly reliable and performant messaging protocol

MQTT

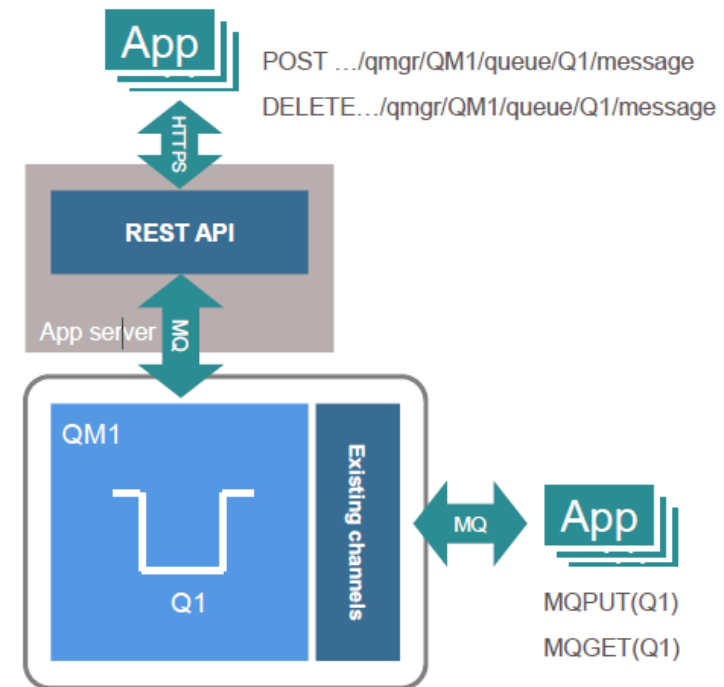
Supports the open standard MQTT API and protocol
Open source Eclipse Paho clients

AMQP

Support for AMQP 1.0 enables support for open source clients such as Qpid Proton

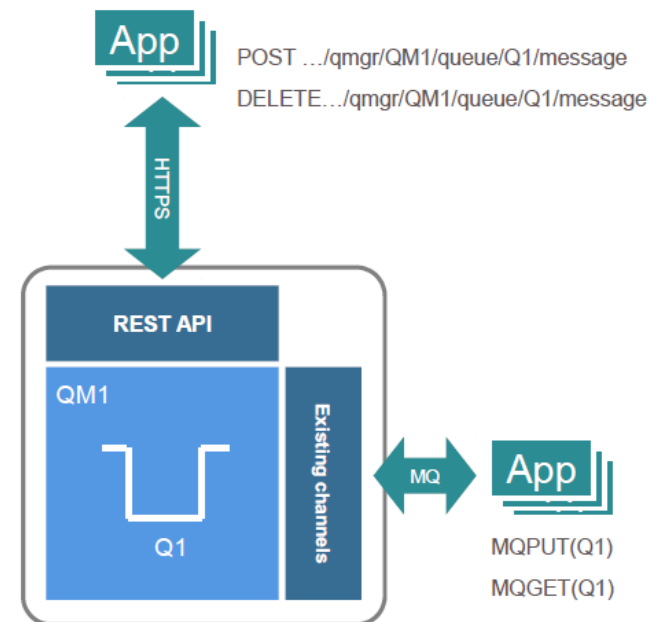
REST Messaging MQ v 7.5+

- REST Messaging disponible version 7.5 avec IBM MQ bridge for HTTP
- Nécessite un App Server externe (Liberty, ...)
- Deprecated en MQ v8.0



REST Messaging MQ v 9.0.4+

- Utilise le *mqweb server* fournit avec MQ
- Messaging point à point en 9.0.4
- Support https
- « MQPut » via HTTP POST
- « MQGet » via HTTP DELETE
- URL :
/ibmmq/rest/v1/messaging/qmgr/{qmgrName}/queue/{qName}/message



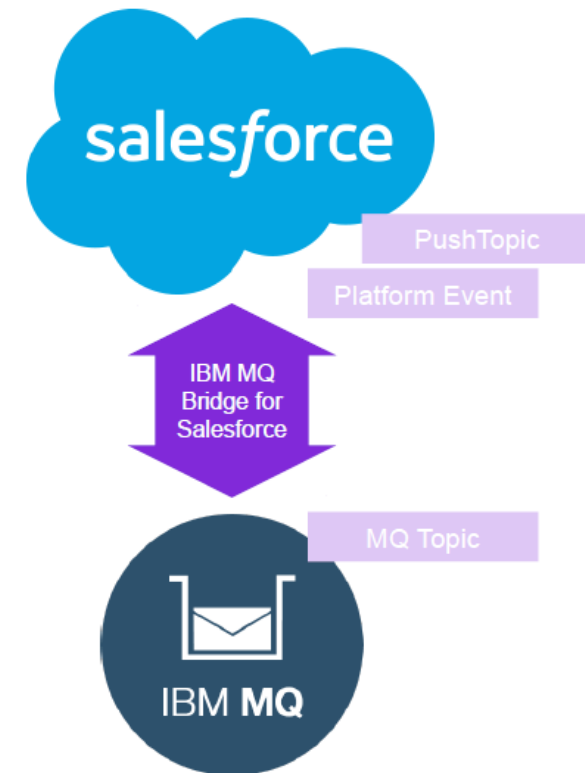
Blockchain Bridge

- MQ 9.0.3
 - MQ Advanced for z/OS VUE V9.0.3
 - Lien vers Bluemix Hyperledger Fabric networks
 - Ledger en lecture seule
- MQ 9.0.4
 - Linux client et serveur en MQ Advanced
 - Lien vers Bluemix Hyperledger Fabric networks
 - Ledger en lecture / écriture



Salesforce Bridge

- Actuellement
 - Events Salesforce publiés dans MQ en mode publish/subscribe
- MQ 9.0.4
 - Events MQ publish/subscribe publiés vers Salesforce

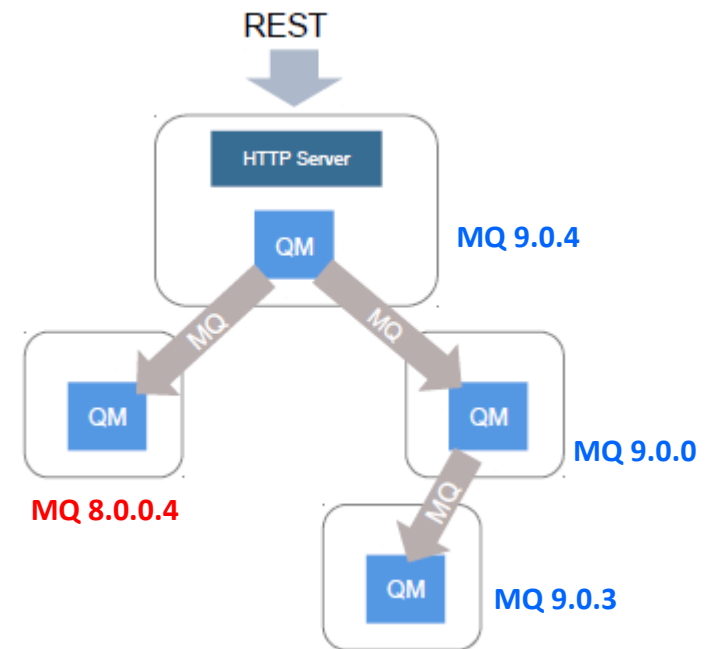


Améliorations REST Admin

- Support des canaux et des souscriptions
- MQSC catchall pour le reste
- Sécurité : ajout « local OS » pour l'authentification des utilisateurs (dont PAM)
- Nouvelles commandes setmqweb

Passerelle REST Admin

- Administration centralisée depuis un QM passerelle
- Les autres QM peuvent être en version 9.0.4, 9.0.3 ou **8.0**
- Nécessite une configuration DQM spécifique



Modifications errors logs (amqerr0x.log)

- MQ 9.0.3
 - Universal timestamps
 - ISO 8601 format
 - Message severity (option)
- MQ 9.0.4
 - Taille log : 2 Mo → 32 Mo
 - Message severity (par défaut)
 - Variables d'insertion listées à part
 - Format JSON optionnel

errors logs : message severity

Exemples :

Type of message	Character
Informational (0)	I
Warning (10)	W
Error (20 or 30)	E
Severe (40)	S
Termination (50)	T

AMQ8118E: IBM MQ queue manager does not exist
AMQ9542W: Queue manager is ending.
AMQ5051I: The queue manager task 'LOGGER-IO' has started.
AMQ9510E: Messages cannot be retrieved from a queue.
AMQ8506S: Command server MQGET failed with reason code 2009.
AMQ8301T: IBM MQ storage monitor job could not be started.

- `AMQ_DIAGNOSTIC_MSG_SEVERITY = 0` pour suppression
- Impact pour les applications qui parsent les logs

errors logs : variables d'insertion

MQ 8.0

```
16/11/2017 00:21:26 - Process(7000.1) User(MUSR_MQADMIN) Program(amqzma0.exe)
Host(GRIM) Installation(Installation1)
VRMF(8.0.0.6) QMgr(LMD01)
AMQ8003: Le gestionnaire de files d'attente WebSphere MQ 'LMD01' a été démarré à
l'aide de V8.0.0.6.
EXPLICATION :
Le gestionnaire de files d'attente WebSphere MQ 'LMD01' a été démarré à l'aide de
V8.0.0.6.
ACTION :
Aucun(e).
```

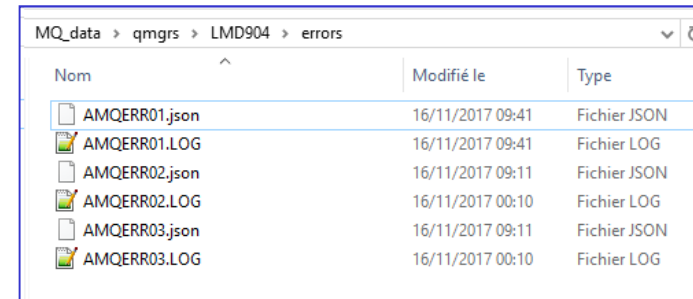
MQ 9.0.4

```
16/11/2017 00:10:10 - Process(7964.1) User(lmd) Program(amqzma0.exe)
Host(GRIM) Installation(Installation6)
VRMF(9.0.4.0) QMgr(LMD904)
Time(2017-11-15T23:10:10.547Z)
ArithInsert1(0) ArithInsert2(0)
CommentInsert1(9.0.4.0)
CommentInsert3(LMD904)
```

```
AMQ8003I: Le gestionnaire de files d'attente IBM MQ 'LMD904' a été démarré à l'aide de
V9.0.4.0.
EXPLICATION :
Le gestionnaire de files d'attente IBM MQ 'LMD904' a été démarré à l'aide de V9.0.4.0.
ACTION :
Aucun(e).
```


errors logs : format JSON

En option, en exportant : AMQ_ADDITIONAL_JSON_LOG = 1
(expérimental)



Nom	Modifié le	Type
AMQERR01.json	16/11/2017 09:41	Fichier JSON
AMQERR01.LOG	16/11/2017 09:41	Fichier LOG
AMQERR02.json	16/11/2017 09:11	Fichier JSON
AMQERR02.LOG	16/11/2017 00:10	Fichier LOG
AMQERR03.json	16/11/2017 09:11	Fichier JSON
AMQERR03.LOG	16/11/2017 00:10	Fichier LOG

```
{"ibm_messageId":"AMQ7467I","arith_insert_1":0,"arith_insert_2":0,"comment_insert_1":"LMD904","comment_insert_2":"S0000000.LOG","ibm_datetime":"2017-11-16T08:41:51.346Z","ibm_serverName":"LMD904","type":"mq_log","host":"GRIM","loglevel":"INFO","module":"amqalp0.c:573","ibm_sequence":"1510821711346989_160496243168","ibm_qmgrId":"LMD904_2017-11-16_00.10.03","ibm_processId":8144,"ibm_threadId":9,"ibm_version":"9.0.4.0","ibm_processName":"amqzmuc0.exe","ibm_userName":"MUSR_MQADMIN4","ibm_installationName":"Installation6","ibm_installationDir":"J:\\MQ904","message":"AMQ7467I: Le plus ancien fichier journal nécessaire au lancement du gestionnaire de files d'attente LMD904 est S0000000.LOG."}
```

Extensions MQRC : mqrc -h

MQRC Usage:

Interpret a retcode or a number of retcodes in a range

```
mqrc [-a] <retcode>
```

```
mqrc -r <retcode> [-a]
```

```
mqrc -R [-f <first> -l <last>] [-a]
```

Interpret a message or a number of messages in a range

```
mqrc [-a] AMQ<number>
```

```
mqrc -m [AMQ]<number> [-a]
```

```
mqrc -M -f <first> -l <last> [-a]
```

Interpret a retcode symbol

```
mqrc <symbol>
```

```
mqrc -s <symbol>
```

```
mqrc -v    Display the version number
```

1. Numeric arguments are interpreted as decimal if they start with a digit 1 to 9, or hex if prefixed with "0x"
2. If no range is given when interpreting a range of retcodes, then all the retcodes are listed.

Where the options are:

```
-a      Try all severities to find message text
```

```
-b      Display just the message text
```

```
-d <language>  The output language for messages
```

```
-f <number>    First number in range
```

```
-i <type>      The input type for messages (json or text) from stdin
```

```
-l <number>    Last number in range
```

```
-o <type>      The output type for messages (json, mqrc or text)
```

```
-p      Display just the message explanation
```

```
-u      Display just the message action
```

```
-x      Display extended message information
```

```
-n      Specify an arithmetic insert for the message
```

```
-c      Specify a comment insert for the message
```

```
- (last option)
```

3. When printing retcodes or messages in a range, if there is a problem with message, an indication is printed just before the message text, as follows:

```
'?' There are no matching retcodes for this message
```

```
'!' The message severity is different to the retcode severity
```

Messages will now be read from stdin

Modifications recovery logs (S0000xx.LOG)

- MQ 9.0.2
 - Ajout gestion auto des logs linéaires
- MQ 9.0.4
 - Migration logs QM circulaires \leftrightarrow linéaires
 - `migmqlog -m QM01 -ll`
 - Déplacement des recovery logs
 - `migmqlog -m QM01 -ld /var/mqm2`
 - Migration taille bloc 512 \rightarrow 4096 (Advanced Format disk)

Exemple migmqlog

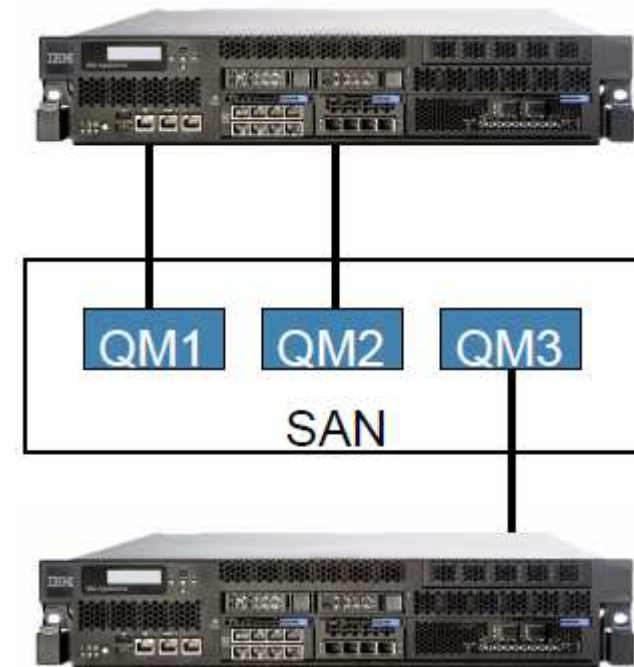
- Arrêt du QM
 - endmqm LMD904
- Conversion en logs linéaires :
 - migmqlog -m LMD904 -ll

```
AMQ7701I: La commande migmqlog est en cours de démarrage.  
AMQ7735I: MIGMQLLOG a converti le type de journal du gestionnaire de files d'attente LMD904 de CIRCULAR en LINEAR.  
AMQ7736I: MIGMQLLOG a lu 8564 octets de données de journal et écrit 1148 octets de données de journal. 0 extensions de  
journaux ont été migrées et 0 extensions de journaux ont été supprimées. L'alignement des journaux est de 4096 octets.  
AMQ7702I: La commande migmqlog a abouti.
```

- Démarrage du QM
 - strmqm LMD904

MQ Appliance Version 904

- SAN support
 - Stockage des datas MQ possible sur un SAN
 - Un volume SAN par QM
- Resize queue managers
 - Augmentation de la taille du file system pour un QM



Changements CHLAUTH/CONNAUTH

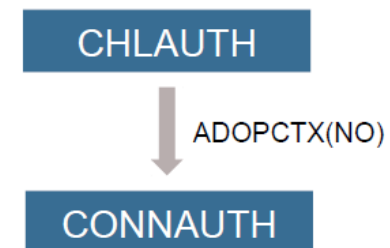
Avant MQ 9.0.4

- CHLAUTH puis CONNAUTH

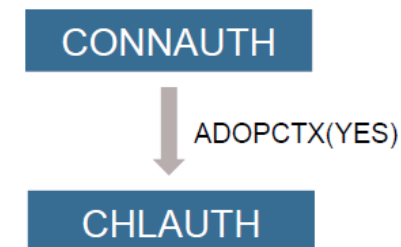
Pour les QM créés en 9.0.4

- CONNAUTH puis CHLAUTH









Avant 9.0.4



9.0.4 +



IBM developerWorks IBM Messaging for admins and developers

<p> Adding resource statistics to your applications by Mark E Taylor · on 22 November 2017 · in MQ Admin, MQ Dev, MQ on z/OS Admin MQ V9 added resource monitoring statistics that you can subscribe to. In this post I'm going to show you how to get these statistics from... Continue reading</p> <p> Advanced Format disk support and converting between linear and circular log by Mark Whitlock · on 21 November 2017 · in MQ Admin, MQ Dev Migmqlog is new in IBM MQ v9.0.4 and it migrates your queue manager's recovery log. On Windows, you can convert the log manager's... Continue reading</p> <p> Persistent Messaging Performance in Distributed MQ by Paul Harris · on 20 November 2017 · in MQ Admin Understanding the Performance Considerations for Persistent Messaging in distributed MQ is a fundamental capability of MQ, delivering the capabilities that are essential... Continue reading</p> <p> Simplified configuration of the mqweb server by Esther Roeger · on 19 November 2017 · in MQ Admin, MQ Appliance Admin, MQ on z/OS Admin New commands have been added to IBM MQ in version 9.0.4 to make configuring the mqweb server that... Continue reading</p>	<p> Doing useful things with the REST API by Colin Paice · on 15 November 2017 · in MQ Admin, MQ Appliance Admin, MQ Dev, MQ on z/OS Admin, MQ on z/OS Dev I have written three blog posts on using the MQ REST API. Setting up to use MQ REST API and CURL to get to MQ... Continue reading</p> <p> Node.js and IBM MQ by Mark E Taylor · on 10 November 2017 · in MQ Dev A new way to develop MQ programs running in Node.js has always supported a wide range of API styles, languages and environments to enable... Continue reading</p> <p> IBM MQ Bridge to blockchain Part 1: Setting up a local Hyperledger Fabric network by Laurence Bonney · on 7 November 2017 · in MQ Dev IBM MQ Bridge to blockchain At IBM MQ version 9.0.4, the IBM MQ Bridge to blockchain is available on Linux for connecting to advanced queue... Continue reading</p> <p> IBM MQ and IBM MQ Appliance 9.0.4 Continuous Delivery Releases are available by Ian Harwood · on 6 November 2017 · in MQ Admin, MQ Appliance Admin, MQ Appliance Dev, MQ Dev, MQ on z/OS Admin, MQ on z/OS Dev IBM MQ 9.0.4 is the next continuous delivery update for MQ, with IBM MQ 9.0 being the current Long Term Support option. The continuous delivery... Continue reading</p>
---	---

IBM MQ on developerWorks

- Adding resource statistics to your applications
- Advanced Format disk support and converting between linear and circular logging using migmqllog
- All you wanted to know about how logging works – and more
- Persistent Messaging Performance in Distributed MQ
- Simplified configuration of the mqweb server
- View your subscriptions with the MQ REST API
- Running MQSC commands with the MQ REST API
- Displaying MQ channels with the REST API
- MQ Log Disk Tester for Linux (MQLDT)
- Doing useful things with the REST API
- The REST API Gateway – now you can manage all your queue managers with REST!
- Node.js and IBM MQ
- IBM MQ Appliance: Support for external storage
- Introduction of severity characters to MQ messages
- IBM MQ Bridge to blockchain Part 1: Setting up a local Hyperledger Fabric network
- RDQM in MQ Advanced 9.0.4
- How long will it take to (re)start my queue manager?
- All you wanted to know about how logging works – and more

Questions ?