



IBM Software Group

WebSphere MQ z/OS a-z

z/OS MQ Administration

An IBM Educational Approach



WebSphere MQ z/OS Administration

Overview

System Administrator

Administration responsibilities include

- creating, starting, altering, viewing, stopping, deleting clusters, processes and WebSphere MQ objects (queue managers, queues, namelists, process definitions, channels, client connection channels, listeners, services, and authentication information objects).
- infrastructure sizing
- System Architecture
- Best Practices

WebSphere MQ z/OS Administration

WebSphere MQ administration basics

Administrators typical daily duties

- Creating Objects
- Defining channels
- RACF/ACF2 Security
- Typical problem determination
- Application Architecture and requirements validation
- Governance

WebSphere MQ z/OS Administration

WebSphere MQ administration basics

Object configuration

- Many methods
- Two supplied
 - MQExplorer
 - Operations and Control Panels

WebSphere MQ z/OS Administration

MQExplorer

IBM WebSphere MQ Explorer (Installation1)

File Edit Window Help

MQ Explorer - Navigator

- IBM WebSphere MQ
 - Queue Managers
 - BOBBEE
 - COORDQM
 - Queues** (selected)
 - Topics
 - Subscriptions
 - Channels
 - Telemetry
 - Listeners
 - Services
 - Process Definitions
 - Namelists
 - Authentication Information
 - Communication Information
 - Security Policies
 - ENTDQM04
 - MB8QMGR
 - Queue Manager Clusters
 - JMS Administered Objects
 - Managed File Transfer
 - Service Definition Repositories

MQ Explorer - Content

Filter: Standard for Queues

Queue name	Queue type	Open input count	Open output count	Current queue depth	Put messages	Get messages	Remote queue	Remote queue r
SYSTEM.ADMIN.ACCOUNTING.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.ACTIVITY.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.CHANNEL.EVENT	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.COMMAND.EVENT	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.COMMAND.QUEUE	Local	1	1	0	Allowed	Allowed		
SYSTEM.ADMIN.CONFIG.EVENT	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.GGGER.EVENT	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.PERFM.EVENT	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.PUBSUB.EVENT	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.QMGR.EVENT	Local	0	0	1	Allowed	Allowed		
SYSTEM.ADMIN.STATISTICS.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.TRAC.ACT.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.ADMIN.TRAC.SUB.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.AUTORECOVER.QUEUE	Local	1	1	113	Allowed	Allowed		
SYSTEM.BROKER.ADMIN.STREAM	Local	1	1	0	Allowed	Allowed		
SYSTEM.BROKER.CONTROL.QUEUE	Local	4	0	0	Allowed	Allowed		
SYSTEM.BROKER.DEFAULT.STREAM	Local	1	0	0	Allowed	Allowed		
SYSTEM.BROKER.MODEL.QUEUE	Local	1	0	0	Allowed	Allowed		
SYSTEM.BROKER.COMMUNICATIONS	Local	1	0	0	Allowed	Allowed		
SYSTEM.CHANNEL.SYNQ	Local	1	0	0	Allowed	Allowed		
SYSTEM.CHLAUTH.DATA.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.CICS.INITIATION.QUEUE	Local	0	0	3	Allowed	Allowed		
SYSTEM.CICS.INITIATION.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.CLUSTER.COMMAND.QUEUE	Local	1	0	0	Allowed	Allowed		
SYSTEM.CLUSTER.HISTORY.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.CLUSTER.REPOSITORY.QUEUE	Local	1	1	2	Allowed	Allowed		
SYSTEM.CLUSTER.TRANSMIT.MODEL.QUEUE	Model				Allowed	Allowed		
SYSTEM.CLUSTER.TRANSMIT.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.DEAD.LETTER.QUEUE	Local	0	0	0	Allowed	Allowed		
SYSTEM.DEFAULT.QUEUE	Alias				Allowed	Allowed		

Scheme: Standard for Queues - Distributed

Last updated: 09:45:39 (67 items)

WebSphere MQ z/OS Administration

Operations and Control Panel

IBM WebSphere MQ for z/OS - Main Menu

Complete fields. Then press Enter.

Action	0. List with filter	4. Manage
	1. List or Display	5. Perform
	2. Define like	6. Start
	3. Alter	7. Stop
	8. Command	

Object type +

Name

Disposition Q=Qmgr, C=Copy, P=Private, G=Group, S=Shared, A=All

Connect name - local queue manager or group

Target queue manager - connected or remote queue manager for command input

Action queue manager - command scope in group

Response wait time 30 5 - 999 seconds

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Command ==>

F1=Help F2=Split F3=Exit F4=Prompt F9=SwapNext F10=Messages

F12=Cancel

MA A 05/030

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Operations and Control Panel – Option 0

```

Filter Queues

Type ONE field value, then press Enter to choose a test.

Queue name . . . . . : *
Disposition . . . . . : PRIVATE WMQA
Description . . . . . : *
_____

Put enabled . . . . . _ Y=Yes, N=No
Default persistence . . . . . _ Y=Yes, N=No
Default priority . . . . . _ 0 - 9
Get enabled . . . . . _ Y=Yes, N=No

Cluster name . . . . . _____
Cluster namelist name . . . . . _____
Default bind . . . . . _ 0=Open, N=Notfixed

Last alteration date . . . . . _____

Command ==> _____
F1=Help      F2=Split      F3=Exit      F9=SwapNext F10=Messages F12=Cancel
  
```

WebSphere MQ z/OS Administration

Operations and Control Panel – Option 1, 2, 3, 4

Filter Queues

Type ONE field value, then press Enter to choose. Select one of the following, or press F8 to

Queue name	:	*	
Disposition	:	PRIVATE WMQA	
Description	:	*	
Put enabled	:	Y=Yes, N=No	
Default persistence	:	Y=Yes, N=No	
Default priority	:	0 - 9	
Get enabled	:	Y=Yes, N=No	
Cluster name	:		
Cluster namelist name	:		
Default bind	:	0=Open, N=Not f	
Last alteration date	:		

1. QUEUE . . . (Q) . . . Any queue

2. QLOCAL . . . (QL) . . . Local queue

3. QREMOTE . . . (QR) . . . Remote queue

4. QALIAS . . . (QA) . . . Alias queue

5. QMODEL . . . (QM) . . . Model queue

6. CLUSQ . . . (QC) . . . Cluster queue

7. QSTATUS . . . (QSTA) . . . Queue status

Command ==> _____

F1=Help F2=Split F3=Exit F9=SwapNext F10=Messages F12=Cancel

List Queues - WMQA Row 1 of 1035

Type action codes, then press Enter. Press F11 to display queue status.

1=Display 2=Define like 3=Alter 4=Manage

	Name	Type	Disposition
<>	*	QUEUE	PRIVATE WMQA
=	dds0650.sendrecv.dsnc	QLOCAL	QMGR WMQA
-	dem1lnx.queue.manager	QLOCAL	QMGR WMQA
-	dnet187.test.queue	QLOCAL	QMGR WMQA
-	enigma.queue.manager	QLOCAL	QMGR WMQA
-	ktest	QLOCAL	QMGR WMQA
-	mscd	QLOCAL	QMGR WMQA



WebSphere MQ z/OS Administration

Operations and Control Panel – Option 5

```

Perform a Channel Function

Select function type, complete fields, then press Enter.

Function type . . . . . =      1. Reset      3. Resolve with commit
                                2. Ping        4. Resolve with backout

Channel name . . . . . : demomvs.to.dem1lnx
Channel type . . . . . : SENDER
Description . . . . . : MDM channel

Disposition . . . . . P      P=Private on WMQA
                                S=Shared on WMQA
                                A=Shared on any queue manager

Sequence number for reset . . 1_____ 1 - 999999999
Data length for ping . . . . 16_____ 16 - 32768

Command ==> _____
F1=Help      F2=Split      F3=Exit      F9=SwapNext F10=Messages F12=Cancel
  
```

WebSphere MQ z/OS Administration

Operations and Control Panel – Option 6, 7

```
Type action codes, then press Enter. Press F11 to display conn
1=Display  2=Define like  3=Alter  4=Manage  5=Perform
6=Start    7=Stop
```

Name	Type	Disposition	Status
<> *	CHANNEL	PRIVATE WMQA	
= demomvs.to.dem1lnx	SENDER	QMGR WMQA	INACTIVE
— demomvs.to.enigma	SENDER	QMGR WMQA	STOP
— dem1lnx.to.demomvs	RECEIVER	QMGR WMQA	INACTIVE
— enigma.to.demomvs	RECEIVER	QMGR WMQA	INACTIVE
— second.channel	RECEIVER	QMGR WMQA	INACTIVE
— test	SENDER	QMGR WMQA	INACTIVE
— AGENTHOST1.TO.WMQA	RECEIVER	QMGR WMQA	INACTIVE
— ARGO.WMQA	RECEIVER	QMGR WMQA	INACTIVE
— BKQM1.CLYDE	RECEIVER	QMGR WMQA	INACTIVE
— BKQM1.WMQA	RECEIVER	QMGR WMQA	INACTIVE
— BPEQM.WMQA	RECEIVER	QMGR WMQA	INACTIVE
— CARNES.SSL.WMQA	RECEIVER	QMGR WMQA	INACTIVE



WebSphere MQ z/OS Administration

Operations and Control Panel – Option 8

```
EDIT      ROBERTB.CSQUITIL.COMMANDS          Columns 00001 00  
***** Top of Data *****  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .
```

Enter/edit MQSC commands. LineEdit (F4) to edit long lines, END (F3) to process commands, CANCEL (F12) to exit without processing commands, HELP (F1) for more help.



WebSphere MQ z/OS Administration

Creating Queues

Complete fields, then press F8 for further fields, or Enter to define queue.

More: +

```
Queue name . . . . . BOBBEE
Disposition . . . . . Q  G=Group, S=Shared, Q=Qmgr on WMQA
Description . . . . . _____
Put enabled . . . . . Y  Y=Yes, N=No
Get enabled . . . . . Y  Y=Yes, N=No
Usage . . . . . N    N=Normal, X=XmitQ
Storage class . . . . . DEFAULT
CF structure name . . . . . _____
```

WebSphere MQ z/OS Administration

Triggering

Press F7 or F8 to see other fields, or Enter to define queue.

More: - +

Queue name : BOBBEE
Disposition : QMGR WMQA

Trigger Definition

Trigger type F F=First, E=Every, D=Depth, N=None
Trigger set N Y=Yes, N=No

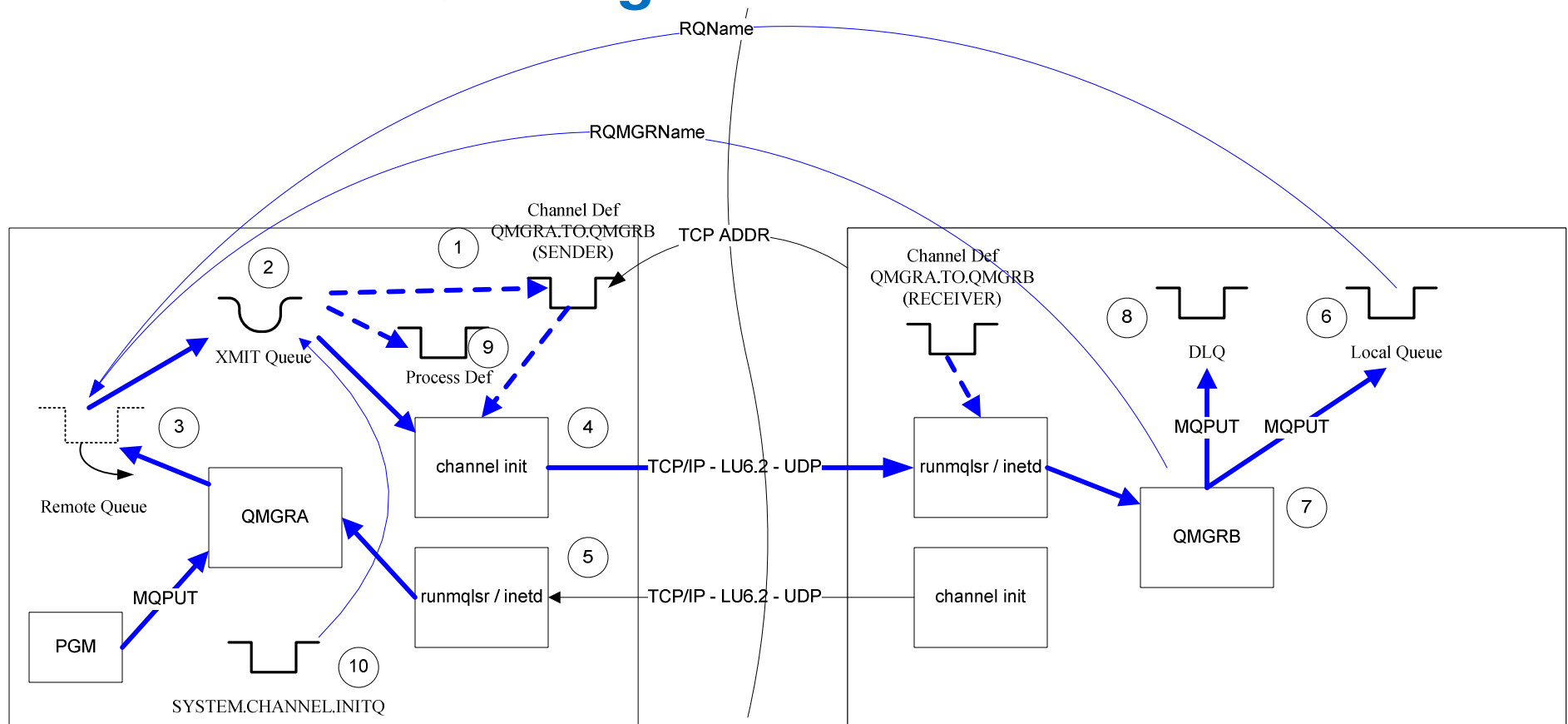
Trigger message priority 0 0 - 9
Trigger depth 1 1 - 999999999

Initiation queue _____
Process name _____
Trigger data _____



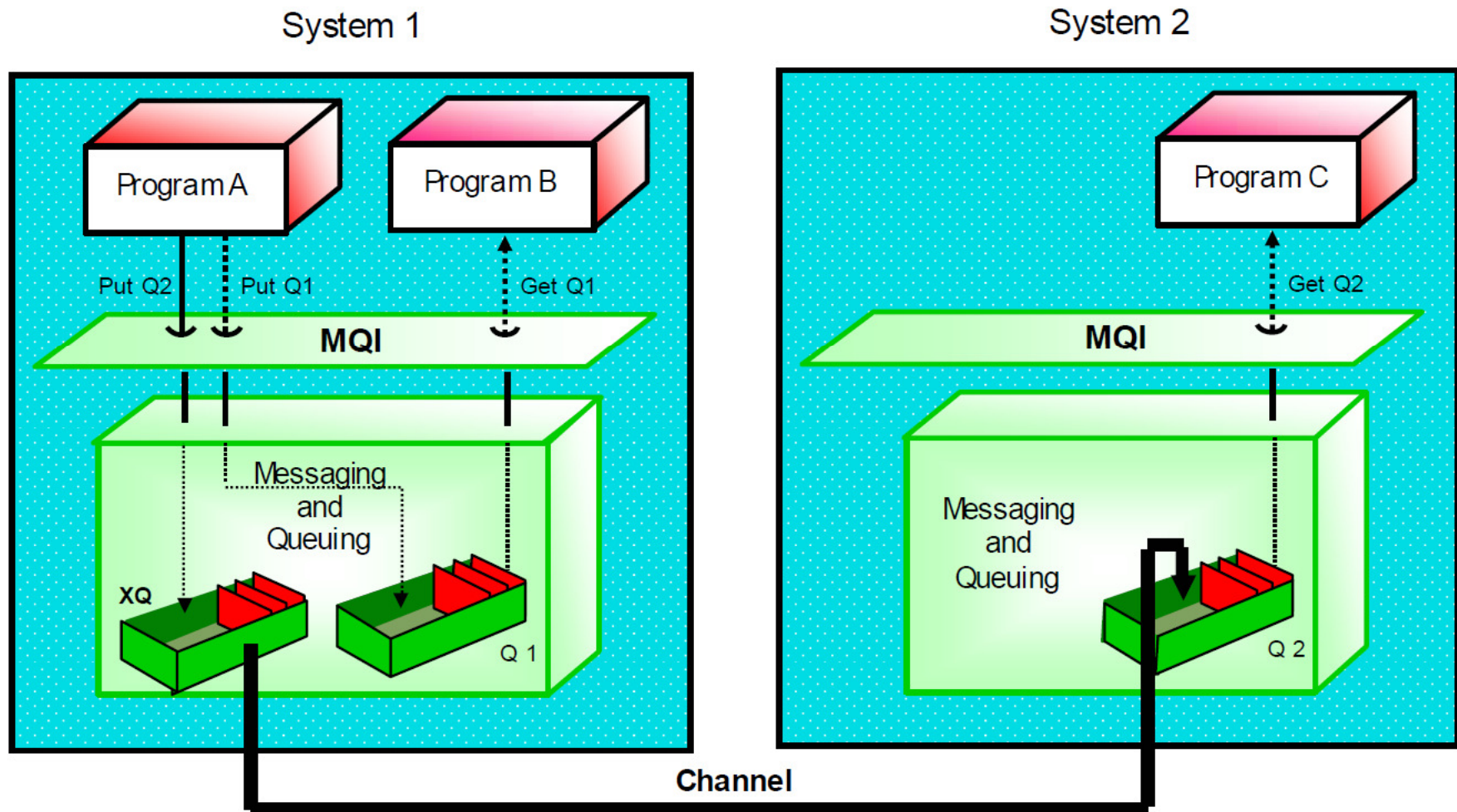
WebSphere MQ z/OS Administration

Distributed Queuing



WebSphere MQ z/OS Administration

Creating Channels



WebSphere MQ z/OS Administration

Creating Channels

Basic Requirements

QMGRA

- Channel Initiator
- Transmission Queue
- Sender Channel
- Remote Queue

QMGRB

- Listener
- Receiver Channel
- Local Queue

WebSphere MQ z/OS Administration

Creating Channels

Create Transmission Queue

```

IBM WebSphere MQ for z/OS - Main Menu

Complete fields. Then press Enter.

Action . . . . . 1      0. List with filter      4. Manage
                          1. List or Display      5. Perform
                          2. Define like        6. Start
                          3. Alter              7. Stop
                          8. Command

Object type . . . . . QUEUE +
Name . . . . . SYSTEM.DEFAULT.*
Disposition . . . . . -  Q=Qmgr, C=Copy, P=Private, G=Group,
                          S=Shared, A=All

Connect name . . . . . WMQA - local queue manager or group
  
```

Name	Type	Disposition
<> SYSTEM.DEFAULT.*	QUEUE	PRIVATE WMQA
- SYSTEM.DEFAULT.ALIAS.QUEUE	QALIAS	QMGR WMQA
- SYSTEM.DEFAULT.INITIATION.QUEUE	QLOCAL	QMGR WMQA
<u>2</u> - SYSTEM.DEFAULT.LOCAL.QUEUE	QLOCAL	QMGR WMQA
- SYSTEM.DEFAULT.MODEL.QUEUE	QMODEL	QMGR WMQA
- SYSTEM.DEFAULT.REMOTE.QUEUE	QREMOTE	QMGR WMQA

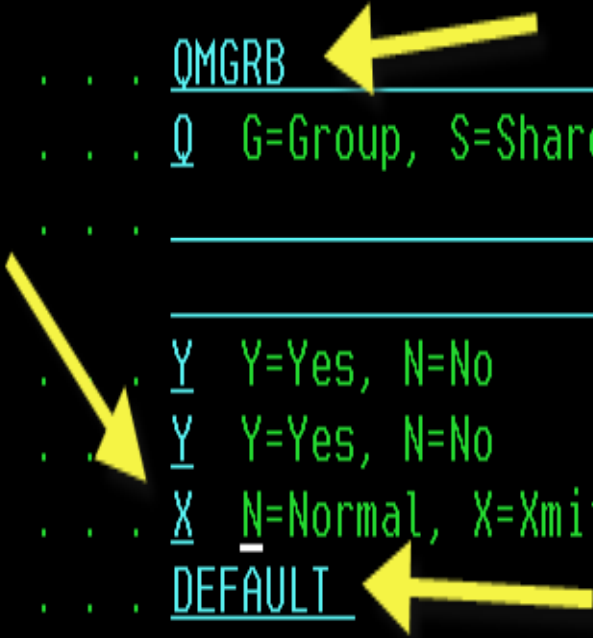
WebSphere MQ z/OS Administration

Creating Channels

Create Transmission Queue (cont)

```
Queue name . . . . . QMGRB
Disposition . . . . . Q  G=Group, S=Shared, Q=Qmgr on WMOQ
Description . . . . .
Put enabled . . . . . Y  Y=Yes, N=No
Get enabled . . . . . Y  Y=Yes, N=No
Usage . . . . . X  N=Normal, X=XmitQ
Storage class . . . . . DEFAULT
CF structure name . . . . .
```

More: +



WebSphere MQ z/OS Administration

Creating Channels

Create Transmission Queue (cont)

More: - +

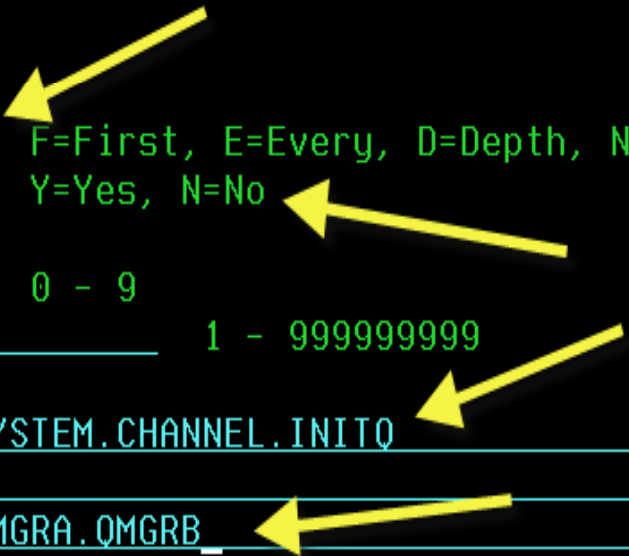
Queue name : QMGRB
Disposition : QMGR WMQA

Trigger Definition

Trigger type E F=First, E=Every, D=Depth, N=None
Trigger set Y Y=Yes, N=No

Trigger message priority 0 0 - 9
Trigger depth 1 1 - 999999999

Initiation queue SYSTEM.CHANNEL.INITQ
Process name _____
Trigger data QMGRB.QMGRB



WebSphere MQ z/OS Administration

Creating Channels

Create Sender Channel

```

Action . . . . . 1      0. List with filter      4. Manage
                        1. List or Display      5. Perform
                        2. Define like        6. Start
                        3. Alter              7. Stop
                        8. Command

Object type . . . . . CHANNEL +
Name . . . . . SYSTEM.DEF.*
Disposition . . . . . _ Q=Qmgr, C=Copy, P=Private, G=Group,
                        S=Shared, A=All
  
```

	Name	Type	Disposition	Status
<>	SYSTEM.DEF.*	CHANNEL	PRIVATE WMQA	
_	SYSTEM.DEF.CLNTCONN	CLNTCONN	QMGR WMQA	
_	SYSTEM.DEF.CLUSRCVR	CLUSRCVR	QMGR WMQA	INACTIVE
_	SYSTEM.DEF.CLUSSDR	CLUSSDR	QMGR WMQA	INACTIVE
_	SYSTEM.DEF.RECEIVER	RECEIVER	QMGR WMQA	INACTIVE
_	SYSTEM.DEF.REQUESTER	REQUESTER	QMGR WMQA	INACTIVE
<u>2</u> _	SYSTEM.DEF.SENDER	SENDER	QMGR WMQA	INACTIVE
_	SYSTEM.DEF.SERVER	SERVER	QMGR WMQA	INACTIVE
_	SYSTEM.DEF.SVRCONN	SVRCONN	QMGR WMQA	INACTIVE

WebSphere MQ z/OS Administration

Creating Channels

Create Sender Channel (cont)

```
Channel name . . . . . QMGRA.QMGRB
Disposition . . . . . Q  G=Group, Q=Qmgr on WMQA
Description . . . . . Sender Channel to QMGRB

Transport type . . . . . I  L=LU6.2, T=TCP/IP
Connection name . . . . . SYSBDEV(1421)
Local address . . . . .
LU6.2 mode name . . . . .
LU6.2 TP name . . . . .

Transmission queue . . . . . QMGRB
Default channel disposition P  P=Private, F=Fix shared, S=Shared
Property Control . . . . . C  C=Compatibility, N=None, A=All
```

WebSphere MQ z/OS Administration


Creating Channels

Create Sender Channel (cont)

```
Channel name . . . . . : QMGRA.QMGRB
Disposition . . . . . : QMGR    WMQA

Disconnect interval . . . . . 6000
Batch interval . . . . . 0
Batch heartbeat interval . . . 0
Short retry interval . . . . . 60
Short retry count . . . . . 10
Long retry interval . . . . . 1200
Long retry count . . . . . 999999999

Conversion by sender . . . . . N Y=Yes, N=No
```



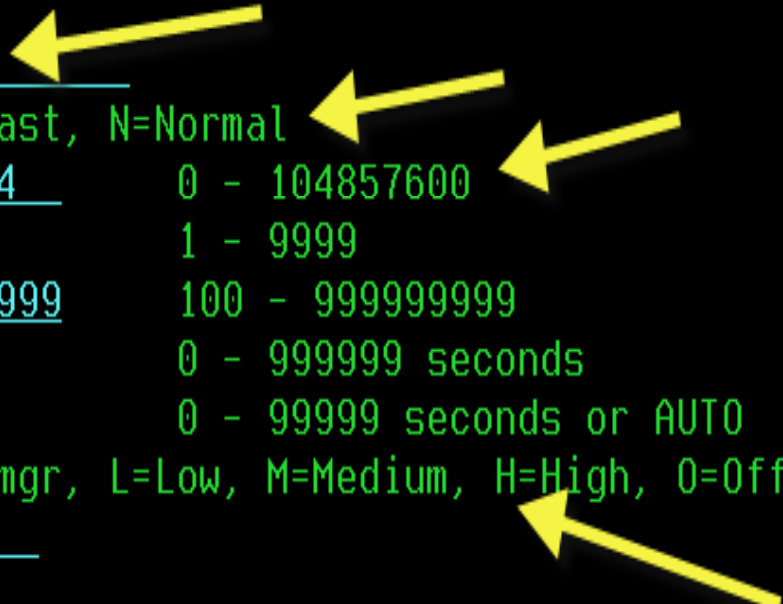
WebSphere MQ z/OS Administration

Creating Channels

Create Sender Channel (cont)

```
Channel name . . . . . : QMGRA.QMGRB
Disposition . . . . . : QMGR    WMQA

MCA user ID . . . . . :           
Nonpersistent messages . . . : E F=Fast, N=Normal
Maximum message length . . . : 4194304      0 - 104857600
Batch size . . . . . : 50                  1 - 9999
Sequence number wrap . . . . : 999999999    100 - 999999999
Heartbeat interval . . . . . : 300          0 - 999999 seconds
Keep alive interval . . . . . : AUTO        0 - 99999 seconds or AUTO
Monitoring . . . . . : Q Q=Qmgr, L=Low, M=Medium, H=High, 0=Off
Security exit name . . . . . :           
User data . . . . . :                           
Use dead-letter queue . . . . : Y Y=Yes, N=No
```



WebSphere MQ z/OS Administration

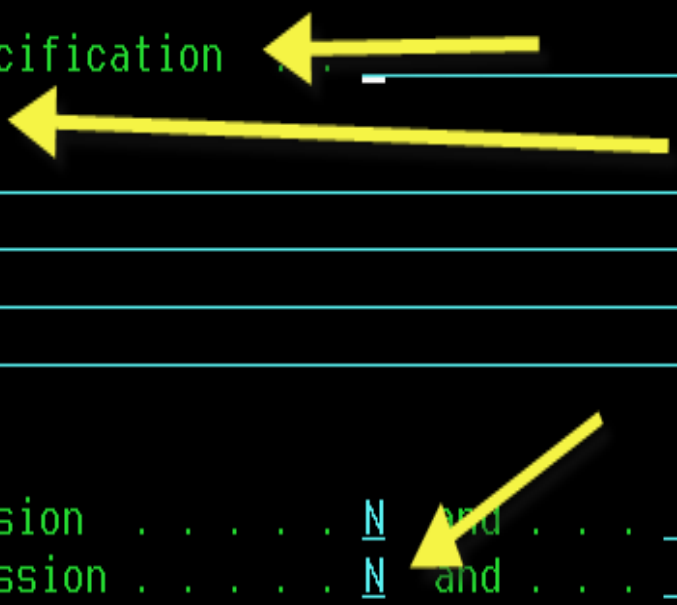
Creating Channels

Create Sender Channel (cont)

```
Channel name . . . . . : QMGRA.QMGRB
Disposition . . . . . : QMGR    WMQA

SSL cipher specification . . . . .
SSL peer name . . . . .
. . . . .

Header compression . . . . . N and . . . . . _ N=None, S=System
Message compression . . . . . N and . . . . . _ N=None, R=RLE,
                        and . . . . . _ and . . . . . _ F=ZlibFast, H=ZlibHigh
```



WebSphere MQ z/OS Administration

Testing the channels

Channels

Filter: Standard for Channels

Channel name	Channel type	Overall channel status	Conn name	Transmission queue
BOBBEE.COORDQM	Sender	Running	localhost(1414)	COORDQM
COORDQM.BOBSEE	Receiver	Running		

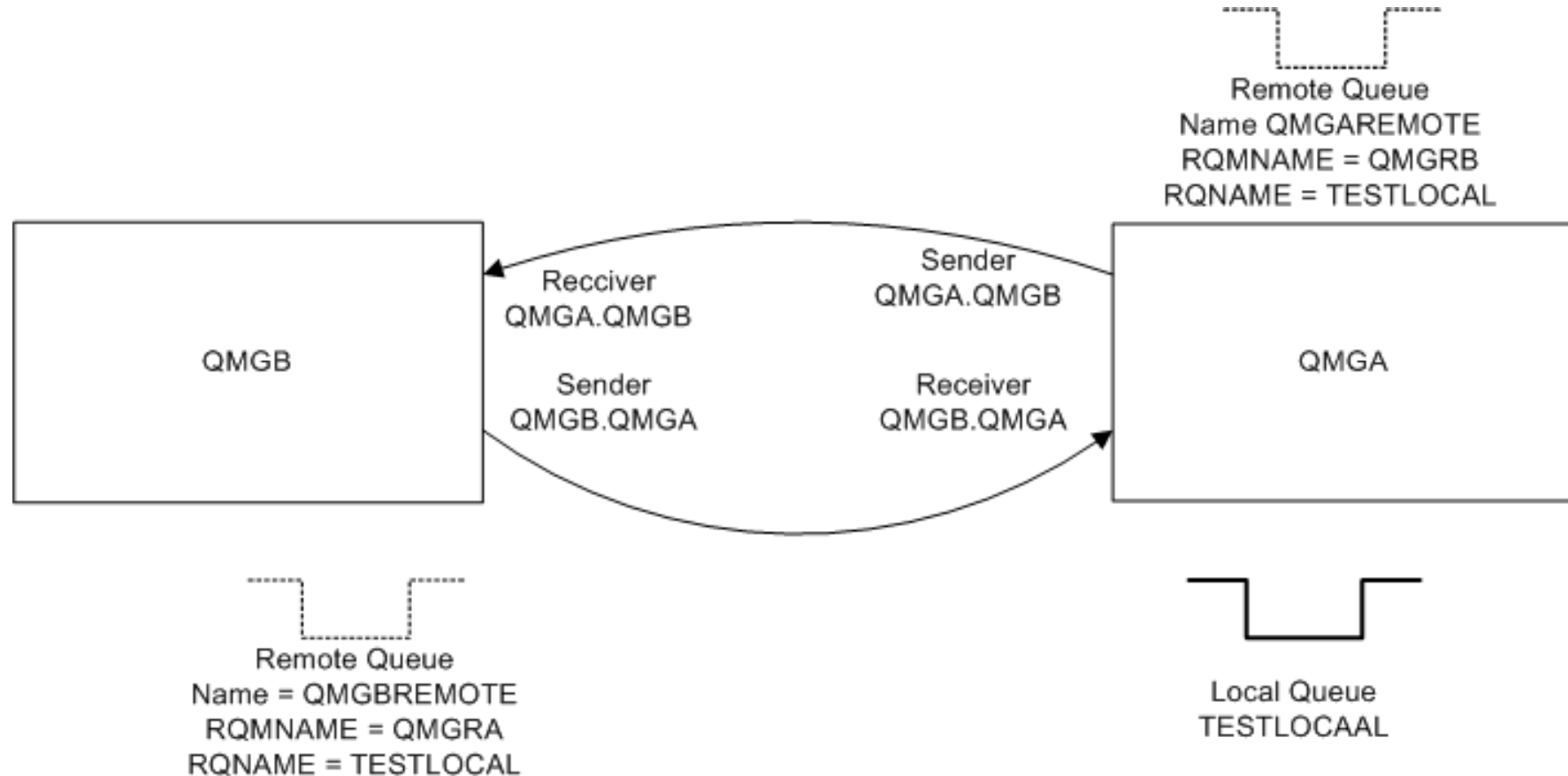
Administrator: C:\Windows\system32\cmd.exe

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\IBM_ADMIN>telnet localhost 1416
```

WebSphere MQ z/OS Administration

Creating Remote & Local Test Queues



WebSphere MQ z/OS Administration

z/OS Utilities

- [WebSphere MQ utility program \(CSQUTIL\)](#)
- [The change log inventory utility \(CSQJU003\)](#)
- [The print log map utility \(CSQJU004\)](#)
- [The log print utility \(CSQ1LOGP\)](#)
- [The queue-sharing group utility \(CSQ5PQSG\)](#)
- [The active log preformat utility \(CSQJUFMT\)](#)
- [The dead-letter queue handler utility \(CSQUDLQH\)](#)
- [The migrate publish/subscribe configuration utility \(CSQUMGMB\)](#)



Thank you for your attention
Any questions?