

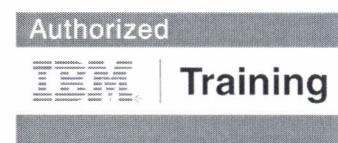


*IBM WebSphere MQ V7
System Administration (using
AIX for labs)*

(Course code WM202 / VM202)

Student Notebook

ERC 2.1



WebSphere Education

Contents

Trademarks	ix
Course description	xi
Agenda	xxiii
Unit 1. A review of WebSphere MQ	1-1
Unit objectives	1-2
WebSphere MQ functional overview	1-3
Additional information	1-4
Message and queue	1-5
Queue manager	1-6
Message descriptor	1-7
Triggering	1-8
Parallel processing	1-9
Requesting and responding applications	1-10
Transmission queues and channels	1-11
Transmission queue header	1-12
Asynchronous model	1-13
Basic MQI calls	1-14
Separate processes as units of work	1-16
Multiple, asynchronous units of work	1-17
Message persistence	1-18
WebSphere MQ queue manager platforms	1-19
WebSphere MQ client	1-21
WebSphere MQ platforms	1-22
Checkpoint questions	1-23
Unit summary	1-24
Unit 2. Installation and configuration of WebSphere MQ on Windows and UNIX..	2-1
Unit objectives	2-2
2.1. Plan a WebSphere MQ implementation	2-3
Plan na WebSphere MQ implementation topic objectives	2-4
Naming WebSphere MQ objects	2-5
Queue manager	2-6
Queues	2-8
Special local queues	2-9
Message channel	2-11
Administration interfaces	2-13
Plan a WebSphere MQ implementation topic summary	2-14
2.2. Installation procedures	2-15
Installation procedures topic objectives	2-16
Before the installation	2-17
WebSphere MQ installation	2-18

Eclipse V3.3 prerequisite	2-20
Installing WebSphere MQ (1 of 6)	2-21
Installing WebSphere MQ (2 of 6)	2-23
Installing WebSphere MQ (3 of 6)	2-24
Installing WebSphere MQ (4 of 6)	2-25
Installing WebSphere MQ (5 of 6)	2-26
Installing WebSphere MQ (6 of 6)	2-27
Silent install - Unattended installation	2-28
Uninstalling WebSphere MQ	2-29
Supported server and client platforms (1 of 2)	2-30
Supported server and client platforms (2 of 2)	2-31
IBM WebSphere for MQ Quick Beginnings books	2-32
Installation procedures topic summary	2-33
2.3. Creating, starting, stopping a queue manager.	2-35
Creating, starting, stopping a queue manager topic objectives	2-36
Creating and deleting queue managers	2-37
Starting a queue manager	2-39
WebSphere MQ MQSC command scripts	2-40
Run WebSphere MQ commands	2-41
Creating a local queue	2-43
Displaying attributes	2-44
Defining other queue types	2-46
More WebSphere MQ commands	2-48
End queue manager	2-49
Creating, starting, stopping a queue manager topic summary	2-50
2.4. Sample programs.	2-51
Sample programs topic objectives	2-52
Sample programs	2-53
Checkpoint questions (1 of 2)	2-54
Checkpoint questions (2 of 2)	2-55
Unit summary	2-56
Unit 3. Using MQSC commands to administer WebSphere MQ.	3-1
Unit objectives	3-2
MQSC command overview	3-3
RUNMQSC invocation syntax	3-4
Administration interfaces	3-5
WebSphere MQ command modes	3-6
Script command rules	3-7
Object naming rules	3-9
Object type naming restrictions	3-10
Checkpoint questions	3-11
Unit summary	3-12
Unit 4. Using the WebSphere MQ Explorer	4-1
Unit objectives	4-2
4.1. Introduction to WebSphere MQ Explorer.	4-3
Introduction to WebSphere MQ Explorer topic objectives	4-4

-20	Administration interfaces	4-5
-21	WebSphere MQ	4-6
-23	WebSphere MQ desktop	4-7
-24	Introduction to WebSphere MQ Explorer topic summary	4-8
25	4.2. Queue display features	4-9
26	Queue display features topic objectives	4-10
27	WebSphere MQ queue display	4-11
28	Queue content view	4-12
29	Queue status information	4-13
30	Queue connection information	4-14
31	Viewing filters	4-15
32	Advanced filters (1 of 4)	4-16
33	Advanced filters (2 of 4)	4-17
35	Advanced filters (3 of 4)	4-18
36	Advanced filters (4 of 4)	4-19
37	Queue compare functionality (1 of 3)	4-20
39	Queue compare functionality (2 of 3)	4-21
40	Queue compare functionality (3 or 3)	4-22
41	Queue display features topic summary	4-23
13	4.3. Eclipse features	4-25
14	Eclipse features topic objectives	4-26
16	WebSphere MQ Eclipse icons	4-27
18	Workbench mode	4-28
19	Standalone mode	4-29
50	Eclipse features topic summary	4-30
51	4.4. Queue manager administration	4-31
52	Queue manager administration topic objectives	4-32
53	Creating a queue manager (1 of 5)	4-33
54	Creating a queue manager (2 of 5)	4-34
55	Creating a queue manager (3 of 5)	4-35
56	Creating a queue manager (4 of 5)	4-36
1	Creating a queue manager (5 of 5)	4-37
2	Add remote queue manager (1 of 3)	4-38
3	Add remote queue manager (2 of 3)	4-40
4	Add remote queue manager (3 of 3)	4-41
5	Hover help	4-42
6	Queue manager administration topic summary	4-43
7	4.5. New facilities in WebSphere MQ V7	4-45
9	New facilities in WebSphere MQ V7 topic objectives	4-46
0	New features in V7	4-47
1	Publish/subscribe administration	4-48
2	New queue manager properties	4-49
1	Topic objects (1 of 2)	4-50
2	Topic objects (2 of 2)	4-51
1	Topic objects – other panes	4-52
2	Topic status (1 of 2)	4-53
3	Topic status (2 of 2)	4-54
4	Subscription administration	4-55

Create a subscription	4-56
Subscription administration – attribute panels	4-57
Subscription status (1 of 3)	4-58
Subscription status (2 of 3)	4-59
Subscription status (3 of 3)	4-60
New queue alias properties	4-61
Test publish and test subscribe	4-62
Browsing message properties (1 of 3)	4-63
Browsing message properties (2 of 3)	4-64
Browsing message properties (3 of 3)	4-65
Welcome page	4-66
Welcome page - Get started	4-67
Welcome page - Tutorials	4-68
Welcome page - Returning users	4-69
Welcome page - Web resources	4-70
Grouping of queue managers	4-71
Grouping of queue managers – Sets (1 of 3)	4-72
Grouping of queue managers – Sets (2 of 3)	4-73
Grouping of queue managers – Sets (3 of 3)	4-74
Grouping of queue managers - Filtering	4-75
Security configuration (1 of 2)	4-76
Security configuration (2 of 2)	4-77
Tighter JMS integration	4-78
New facilities in WebSphere MQ V7 topic summary	4-79
Checkpoint questions	4-80
Unit summary	4-81
Unit 5. Introduction to the Message Queue Interface (MQI)	5-1
Unit objectives	5-2
Notation	5-3
Parameters common to all MQI calls	5-4
Object descriptor	5-5
Connecting and disconnecting	5-6
Opening and closing an object	5-7
Dynamic queue	5-8
Put message	5-9
Priority	5-10
Get message	5-11
Reply-to queue	5-12
More fields in the message descriptor	5-13
Message and correlation identifiers	5-14
Retrieving messages	5-15
Order of retrieving messages	5-16
Message group	5-17
Message segmentation	5-19
Distribution list	5-21
Message properties	5-23
Message handles	5-24

-56	Using message properties – Example Part 1	5-25
-57	Using message properties – Example Part 2	5-26
-58	Asynchronous message reception - CallBack	5-27
-59	Selectors	5-28
-60	Checkpoint questions	5-30
-61	Unit summary	5-31
-62		
-63	Unit 6. Triggering concepts	6-1
-64	Unit objectives	6-2
-65	Components of triggering	6-3
-66	Queue attributes controlling triggering	6-4
-67	Process attributes	6-6
-68	Triggering conditions	6-7
-69	Fields in the trigger message	6-8
-70	Trigger monitor	6-9
-71	Trigger monitor messages	6-11
-72	Checkpoint questions	6-12
-73	Unit summary	6-13
-74		
-75	Unit 7. WebSphere MQ internals	7-1
-76	Unit objectives	7-2
-77	Topic outline	7-3
-78	7.1. Components and structures	7-5
-79	Components and structure topic objectives	7-6
-80	What is distributed MQ?	7-7
-81	Functional view	7-9
-1	Physical view	7-11
-2	Queue manager process tree – V6	7-12
-3	Queue manager process tree – V7	7-14
-4	Queue manager process model	7-15
-5	Isolated bindings	7-17
-6	MQCONN processing	7-18
-7	MQOPEN of a queue	7-20
-8	MQPUT processing	7-22
-9	MQGET processing	7-24
-10	MQCMIT	7-26
-11	Channels assure delivery	7-27
-12	Components and structure topic summary	7-29
-13	7.2. Directory structures	7-31
-14	Directory structures topic objectives	7-32
-15	Directory structure	7-33
-16	Directory structure for Windows	7-34
-17	Directory structure of QMGR on Windows	7-36
-18	Directory structure for UNIX (1 of 3)	7-38
-19	Directory structure for UNIX (2 of 3)	7-40
-20	Directory structure for UNIX (3 of 3)	7-41
-21	Directory structures topic summary	7-42
-22	7.3. Configuration files	7-43

Configuration files topic objectives	7-44
Configuration (.ini) files	7-45
WebSphere MQ configuration file - mqs.ini	7-46
WebSphere MQ configuration file example	7-47
Queue manager configuration file – qm.ini	7-48
Queue manager configuration file example	7-49
Configuration files topic summary	7-50
7.4. Stopping and removing a QMGR manually	7-51
Stopping and removing a QMGR manually topic objectives	7-52
Stopping a queue manager manually	7-53
Removing a queue manager manually	7-55
Stopping and removing a QMGR manually topic summary	7-56
Checkpoint questions	7-57
Unit summary	7-58
Unit 8. Message integrity	8-1
Unit objectives	8-2
8.1. Linear and circular logging.....	8-3
Linear and circular logging topic objectives	8-4
Types of logs	8-5
Circular logging	8-6
Linear logging	8-7
Linear and circular logging topic summary	8-8
8.2. Object recovery	8-9
Object recovery topic objectives	8-10
Recovering persistent messages	8-11
Damaged objects and media recovery	8-12
Dumping the log	8-13
Object recovery topic summary	8-14
8.3. Sync point processing	8-15
Syncpoint processing topic objectives	8-16
Syncpoint control	8-17
Compensating transactions	8-18
Coordinating local units of work	8-19
Internal coordination of global units of work	8-20
Database coordination	8-21
External coordination of global units of work	8-22
Syncpoint processing topic summary	8-23
Checkpoint questions	8-24
Unit summary	8-25
Unit 9. Distributed queuing	9-1
Unit objectives	9-2
Topics covered	9-3
9.1. Distributed configuration overview.....	9-5
Distributed configuration overview topic objectives	9-6
Overview of the components	9-7
The big picture of distributed queuing	9-9

-44	Distributed queuing components	9-10
-45	Message channel combinations	9-12
-46	Sender-receiver channels	9-14
-47	Requester-server channels	9-15
-48	Requester-sender channels	9-16
-49	Choosing a transmission queue	9-17
-50	Example of using a default transmission queue	9-18
-51	Channel initiators and listeners	9-19
-52	Channel-exit programs	9-20
-53	Configuration file stanzas for distributed queuing	9-21
-55	qm.ini stanza for distributed queuing	9-22
-56	Distributed configuration overview topic summary	9-23
-57	9.2. Channel definition	9-25
-58	Channel definition topic objectives	9-26
-1	Basic channel types	9-27
3-2	Minimum definition	9-28
3-3	Define channel command	9-30
3-4	Defining channels example	9-31
3-5	Channel definition topic summary	9-32
3-6	9.3. Channel management	9-33
3-7	Channel management topic objectives	9-34
3-8	Configuring TCP/IP for WebSphere MQ	9-35
3-9	Listener object	9-37
10	Starting a message channel	9-38
11	Channel initiator	9-40
12	Channel initiator triggering	9-42
13	Channel states – DISPLAY CHSTATUS command (1 of 3)	9-43
14	Channel states – DISPLAY CHSTATUS command (2 of 3)	9-44
15	Channel states – DISPLAY CHSTATUS command (3 of 3)	9-45
16	Channel management topic summary	9-46
17	9.4. Remote queues	9-47
18	Remote queues topic objectives	9-48
19	Queue definitions for distributed queuing	9-49
20	Define QREMOTE	9-50
21	How to get to a remote queue	9-51
22	Multi-hopping	9-53
23	Channel sharing	9-54
24	Using different channels	9-55
25	Using a queue manager alias	9-56
1	Separating message flows	9-57
2	When a message arrives at a queue manager	9-58
3	Remote queues topic summary	9-59
4	9.5. Data conversion considerations	9-61
5	Data conversion considerations topic objectives	9-62
6	Data conversion	9-63
7	Data representation	9-64
8	Three fields in the message descriptor	9-65
9	Requesting application data conversion	9-66

What application data conversion can be done	9-67
What applications should do	9-68
Data conversion considerations summary	9-70
Checkpoint questions	9-71
Unit summary	9-72
Unit 10. Dead letter queues	10-1
Unit objectives	10-2
Dead-letter queue (1 of 2)	10-3
Dead-letter queue (2 of 2)	10-4
Dead-letter queue handler	10-5
Using dead-letter queues	10-6
Checkpoint questions	10-7
Unit summary	10-8
Unit 11. Queue manager clustering.....	11-1
Unit objectives	11-2
Topics covered	11-3
11.1. Cluster overview	11-5
Cluster overview topic objectives	11-6
What a cluster is	11-7
The purpose of clustering	11-8
Goals of clustering	11-9
Overview of cluster components	11-10
Cluster channels	11-12
The SYSTEM.CLUSTER queues	11-13
Cluster support objects	11-14
More about repositories	11-16
Simplified administration example (1 of 3)	11-17
Simplified administration example (2 of 3)	11-18
Simplified administration example (3 of 3)	11-19
Publish/subscribe clusters (1 of 2)	11-21
Publish/subscribe clusters (2 of 2)	11-22
Cluster overview topic summary	11-23
11.2. Cluster setup	11-25
Cluster setup topic objectives	11-26
Steps to set up a cluster	11-27
Considerations for a full repository	11-28
Add repository definition to QMGR	11-29
Cluster related queue manager attributes	11-30
Define CLUSRCVR channels	11-31
Define CLUSSDR channel	11-32
Define local queues to the cluster	11-33
Verify and test the cluster	11-34
Display channel status	11-35
Cluster setup topic summary	11-36
11.3. Cluster administration	11-37
Cluster administration topic objectives	11-38

67	MQ commands for controlling clusters	11-39
68	Displaying information about cluster channels	11-41
70	Format of the cluster commands	11-42
71	Cluster commands	11-44
72	Cluster administration considerations	11-45
-1	Implementation recommendations	11-47
-2	Cluster administration topic summary	11-48
-3	11.4. Workload management	11-49
-4	Workload management topic objectives	11-50
-5	Workload balancing	11-51
-6	Workload balancing attributes	11-52
-7	Cluster workload algorithm	11-54
-8	Workload balancing BIND options	11-55
-1	Continuous operation DEFBIND attribute	11-56
-2	Workload management topic summary	11-58
-3	Checkpoint questions	11-59
-4	Unit summary	11-60
-5	Unit 12. WebSphere MQ security with OAM	12-1
-6	Unit objectives	12-2
-7	12.1. Security overview	12-3
-8	Security overview topic objectives	12-4
-9	WebSphere MQ security implementations	12-5
0	WebSphere MQ access control overview	12-6
2	OAM - Installable service	12-8
3	OAM - Installable service	12-9
4	OAM access control lists	12-10
6	Security overview topic summary	12-11
7	12.2. OAM utilities	12-13
8	OAM utilities topic objectives	12-14
9	Security management - setmqaut	12-15
21	Security management - dspmqaaut	12-17
22	Security management - dmppmqaut	12-18
23	Access control for WebSphere MQ control programs	12-19
25	Authority checking in the MQI	12-20
26	Security and distributed queuing	12-21
27	OAM utilities topic summary	12-22
28	12.3. Message context	12-23
29	Message context topic objectives	12-24
30	Message context fields	12-25
31	No context	12-27
32	Passing context	12-28
33	Alternate user authority	12-29
34	Setting context	12-30
35	WebSphere MQ channel exit programs	12-31
36	Channel exit programs on MQI channels	12-33
37	Message context topic summary	12-34
38	12.4. WebSphere MQ SSL support	12-35

WebSphere MQ SSL support topic objectives	12-36
Secure sockets layer (SSL)	12-37
SSL	12-38
WebSphere MQ SSL support	12-39
QMGR attributes for SSL	12-40
QMGR authentication object	12-41
Channel attributes for SSL	12-42
Access control for a WebSphere MQ client	12-43
Remote queuing and clients	12-44
WebSphere MQ SSL support summary	12-45
12.5. Publish/subscribe security	12-47
Publish/subscribe security topic objectives	12-48
Publish/subscribe security	12-49
Controlling security using WebSphere MQ Explorer (1 of 4)	12-50
Controlling security using WebSphere MQ Explorer (2 of 4)	12-51
Controlling security using WebSphere MQ Explorer (3 of 4)	12-52
Controlling security using WebSphere MQ Explorer (4 of 4)	12-53
Controlling security using setmqaut	12-54
Basic MQ security on publish/subscribe queues	12-55
Publish/subscribe security topic summary	12-56
Checkpoint questions	12-57
Unit summary	12-58
Unit 13. WebSphere MQ clients	13-1
Unit objectives	13-2
13.1. Client overview and installation	13-3
Client overview and installation topic objectives	13-4
WebSphere MQ client	13-5
WebSphere MQ clients explained	13-6
Syncpoint control on a base client	13-7
Extended transactional client	13-8
Client installation	13-10
Checkpoint questions	13-11
Client overview and installation topic summary	13-12
13.2. Client definition methodologies	13-13
Client definition methodologies topic objectives	13-14
Defining a MQI channel	13-15
Method 1 - Using MQSERVER	13-16
Method 2 - Using a client channel definition table	13-17
Accessing a client channel definition table	13-19
Weighted selection on CLNTCONN channels	13-20
Channel instances	13-21
Instance limits on SVRCONN channels	13-22
Auto-definition of channels	13-24
Checkpoint questions	13-25
Client definition methodologies topic summary	13-26
13.3. Application development implications	13-27
Application development implications topic objectives	13-28

2-36	WebSphere MQ client applications	13-29
2-37	WebSphere MQ client limitations	13-30
2-38	MQSERVER enhancements	13-31
2-39	Compatibility	13-32
2-40	Application development implications topic summary	13-33
2-41	13.4. WebSphere MQ client security considerations	13-35
2-42	WebSphere MQ client security considerations topic objectives	13-36
2-43	Access control for a WebSphere MQ client	13-37
2-44	WebSphere MQ client security	13-38
2-45	WebSphere MQ client security considerations topic summary	13-39
2-47	Unit summary	13-40
2-48		
2-49	Unit 14. SupportPacs, interfaces, and bridges	14-1
2-50	Unit objectives	14-2
2-51	14.1. SupportPacs	14-3
2-52	SupportPacs topic objectives	14-4
2-53	Overview of SupportPacs	14-5
2-54	MS03 example	14-8
2-55	MS0P example	14-9
2-56	MH03 example	14-10
2-57	Example - Clients	14-12
2-58	Example of MPnn performance reports	14-13
3-1	IH03 example	14-14
3-2	SupportPacs topic summary	14-16
3-3	14.2. Interfaces and bridges to other software products	14-17
3-4	Interfaces and bridges to other software products topic objectives	14-18
3-5	WebSphere MQ transport for SOAP (1 of 2)	14-19
3-6	WebSphere MQ transport for SOAP (2 of 2)	14-20
3-7	WebSphere MQ Bridge for HTTP	14-22
3-8	Example one	14-24
3-9	Example two	14-25
3-10	WebSphere MQ bridge for HTTP verbs	14-26
3-11	Checkpoint questions	14-27
3-12	Interfaces and bridges to other software products topic summary	14-28
3-13	Unit summary	14-29
3-14		
15	Unit 15. WebSphere MQ high availability	15-1
16	Unit objectives	15-2
17	15.1. High availability overview	15-3
18	High availability overview topic objective	15-4
19	Objectives and terminology	15-5
20	Potential outage types	15-6
21	Some terms	15-7
22	High availability overview topic summary	15-8
23	15.2. WebSphere MQ HA strategies	15-9
24	WebSphere MQ HA strategies topic objectives	15-10
25	WebSphere MQ clusters as a HA strategy	15-11
26	WebSphere MQ clustering HA considerations	15-13
27		
28		

Backup queue managers	15-15
Creating a backup queue manager	15-17
Updating a backup queue manager	15-19
Activating the backup queue manager	15-21
WebSphere MQ HA strategies topic summary	15-23
15.3. Platform technologies	15-25
Platform technologies topics objectives	15-26
Single points of failure	15-27
Standby configuration	15-28
Standby fail-over	15-29
Standby fail-over complete	15-30
Active-active configuration	15-31
Active-active takeover	15-32
Fail-over considerations	15-34
WebSphere MQ in HA clusters	15-35
Microsoft Cluster Service (MSCS)	15-36
Putting a queue manager under MSCS control (1 of 2)	15-37
Putting a queue manager under MSCS control (2 of 2)	15-38
WebSphere MQ support for UNIX HA	15-39
Putting a queue manager under HA on UNIX	15-40
Comparison of technologies	15-42
Checkpoint questions	15-43
Platform technologies topic summary	15-44
Unit summary	15-45
Unit 16. Backup and restore of WebSphere MQ object definitions	16-1
Unit objectives	16-2
16.1. File system backup and restore	16-3
File system backup and restore topic objectives	16-4
Overview of the WebSphere MQ file system structure	16-5
The need to backup	16-6
When to backup	16-7
How to backup	16-8
File system backup and restore topic summary	16-9
16.2. Object definition backup and restore	16-11
Object definition backup and restore topic objectives	16-12
Overview of WebSphere MQ objects	16-13
Why back up WebSphere MQ object definitions	16-14
Overview of facilities available	16-15
Backing up resource definitions with runmqsc	16-16
MS03 Save queue manager object definitions	16-17
MS03 Saveqmgr example	16-18
Object definition backup and restore topic summary	16-19
16.3. Security definition backup and restore	16-21
Security definition backup and restore topic objectives	16-22
Overview of security definitions	16-23
Need to back up security definitions	16-24
How to back up security definitions (1 of 2)	16-25

5-15	How to back up security definitions (2 of 2)	16-26
5-17	Security definition backup and restore topic summary	16-27
5-19	Checkpoint questions	16-28
5-21	Unit summary	16-29
5-23		
5-25	Unit 17. Message tracking	17-1
5-26	Unit objectives	17-2
5-27	17.1. Lost messages	17-3
5-28	Lost messages topic objectives	17-4
5-29	Where is the message?	17-5
5-30	Missing message checklist	17-6
5-31	Step one - Checking return codes	17-7
5-32	Step two – WebSphere MQ network reasons	17-8
5-34	Step three - Message persistence	17-10
5-35	Step four - Message expired	17-11
5-36	Step five - Uncommitted messages	17-12
5-37	Checkpoint questions	17-13
5-38	Lost messages topic summary	17-14
5-39	17.2. Activity tracing	17-15
5-40	Activity tracing topic objectives	17-16
5-42	Activity reports	17-17
5-43	Using activity reports	17-19
5-44	Trace route utility	17-20
5-45	DSPMQRTE	17-22
6-1	Dspmqrte sample output (1 of 2)	17-23
6-2	Dspmqrte sample output (2 of 2)	17-24
6-3	Example using MSOP	17-25
6-4	Comparing activity recording and trace-route	17-26
6-5	Hints and tips for trace route	17-27
6-6	Checkpoint questions	17-28
6-7	Activity tracing topic summary	17-29
6-8	Unit summary	17-30
6-9		
11	Unit 18. Using traces, error logs, and failure data capture files	18-1
12	Unit objectives	18-2
13	Configuration files and problem determination	18-3
14	Error log	18-4
15	First failure support technology (FFST)	18-5
16	FFST report example	18-7
17	Using trace	18-8
18	Trace commands	18-9
19	Example trace on WebSphere MQ for Solaris	18-11
21	Tips for channel problems	18-12
22	Dead-letter queue	18-13
23	Java and JMS tips	18-14
24	Remote administration failures	18-15
25	Channel triggering problems	18-17
	Triggering program problems	18-18

Checkpoint questions	18-19
Unit summary	18-20
Unit 19. Introduction to WebSphere MQ publish/subscribe	19-1
Unit objectives	19-2
What is publish/subscribe?	19-3
The classic example	19-4
Loose-coupling with publish/subscribe	19-5
Publications and subscriptions	19-6
Publish/subscribe in WebSphere MQ	19-7
Topic strings and topic tree	19-8
Topic objects	19-9
Base topic object	19-10
Defining a topic object (1 of 2)	19-11
Defining a topic object (2 of 2)	19-12
DEFINE TOPIC command	19-13
Defining a topic using WebSphere MQ Explorer (1 of 11)	19-14
Defining a topic using WebSphere MQ Explorer (2 of 11)	19-15
Defining a topic using WebSphere MQ Explorer (3 of 11)	19-16
Defining a topic using WebSphere MQ Explorer (4 of 11)	19-17
Defining a topic using WebSphere MQ Explorer (5 of 11)	19-18
Defining a topic using WebSphere MQ Explorer (6 of 11)	19-19
Defining a topic using WebSphere MQ Explorer (7 of 11)	19-20
Defining a topic using WebSphere MQ Explorer (8 of 11)	19-21
Defining a topic using WebSphere MQ Explorer (9 of 11)	19-22
Defining a topic using WebSphere MQ Explorer (10 of 11)	19-23
Defining a topic using WebSphere MQ Explorer (11 of 11)	19-24
Resolving ASPLAIN	19-25
Using MQ Explorer for topic status (1 of 5)	19-26
Using MQ Explorer for topic status (2 of 5)	19-27
Using MQ Explorer for topic status (3 of 5)	19-28
Using MQ Explorer for topic status (4 of 5)	19-29
Using MQ Explorer for topic status (5 of 5)	19-30
Administration for publishers (1 of 2)	19-31
Administration for publishers (2 of 2)	19-32
Topic status display for publishers	19-33
Displaying publisher topic status using MQ Explorer (1 of 3)	19-34
Displaying publisher topic status using MQ Explorer (2 of 3)	19-35
Displaying publisher topic status using MQ Explorer (3 of 3)	19-36
Creating administrative subscriptions	19-37
Monitoring application subscriptions (1 of 2)	19-38
Monitoring application subscriptions (2 of 2)	19-39
Display subscriber topic status (1 of 3)	19-40
Display subscriber topic status (2 of 3)	19-41
Display subscriber topic status (3 of 3)	19-42
Subscription information using MQ Explorer (1 of 3)	19-43
Subscription information using MQ Explorer (2 of 3)	19-44
Subscription information using MQ Explorer (3 of 3)	19-45

8-19	Checkpoint questions	19-46
8-20	Unit summary	19-47
19-1	Unit 20. JMS administration	20-1
19-2	Unit objectives	20-2
19-3	20.1. JMS overview	20-3
19-4	JMS overview topic objectives	20-4
19-5	What JMS is	20-5
19-6	Why use the JMS API	20-6
19-7	WebSphere MQ classes for Java or JMS	20-7
19-8	JMS providers	20-8
19-9	JMS support in WebSphere MQ V7	20-9
19-10	JMS overview topic summary	20-10
19-11	20.2. JMS administration facilities	20-11
19-12	JMS administration facilities topic objectives	20-12
19-13	JMS administered objects	20-13
19-14	JNDI namespace	20-14
19-15	JMSAdmin utility	20-15
19-16	JMSAdmin configuration	20-16
19-17	JMSAdmin example (1 of 2)	20-17
19-18	JMSAdmin example (2 of 2)	20-18
19-19	JMSAdmin - Managing administered objects	20-19
19-20	JMSAdmin - Available object types	20-20
19-21	WebSphere MQ Explorer facilities for JMS	20-21
19-22	JMS object creation wizards	20-22
19-23	Checkpoint questions	20-23
19-24	JMS administration facilities topic summary	20-24
19-25	Unit summary	20-25
-26	Appendix A. Checkpoint solutions	A-1
-27	Appendix B. List of abbreviations	B-1
-28	Glossary	C-1
-29	Bibliography	D-1
-30		
-31		
-32		
-33		
-34		
-35		
-36		
-37		
-38		
-39		
-40		
-41		
-42		
-43		
-44		
-45		