IBM MQ Administration for Multi-platform (LUW) Environments Training

Duration: **3 Day**

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This newly restructured and upgraded three-day course is suitable for organisations using all IBM MQ versions up to and including IBM MQ Version 9.
The course covers the operation, administration and support of IBM MQ systems in distributed environments (Linux, Windows and/or Windows). The course teaches the skills required to install, configure and manage an IBM MQ messaging system. It is a 'hands-on' course with several challenging practical exercises.

This course is also available for one-company, on-site presentations and for live presentation over the Internet, via the Virtual Classroom Environment service.

When delivered on-site, the course can be presented using the platform of your choice (i.e. Windows or UNIX or Linux).

Prerequisites

Attendees must be familiar with IBM MQ at a conceptual and terminological level. This can be achieved by attending the course **Technical Introduction to IBM MQ**, or through prior practical experience. Attendees must also have a working knowledge of their Linux, UNIX or Windows environments.

What You Will Learn

- define and manage MQ objects such as queues and channels using MQ script commands and the MQ Explorer
- set up triggered queues
- establish distributed queuing channels both directly to an adjacent Queue Manager and indirectly through one or more intermediate Queue Managers
- inspect and process messages on the Queue Manager's dead letter queue
- troubleshoot distributed queuing problem
- implement a basic MQ cluster
- create connections between an MQ client and an MQ Queue Manager using both an environment variable and a client channel connection table
- navigate the MQ file system and identify running MQ processes
- outline the principles of MQ logging and units of work
- rebuild a damaged queue
- review the security mechanisms available to the distributed implementations of IBM MQ
- monitor an MQ system using a range of monitoring tools
- describe how publish/subscribe differs from traditional point-to-point queuing
- test a simple publish/subscribe implementation
- compare the z/OS implementation of IBM MQ with the distributed implementations of IBM MQ.

Training Outline

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Basic Messaging Concepts

Islands of information and IBM MQ; What's in a name?; Software layers; IBM MQ features; Wide platform coverage; The MQI - a common application programming interface; Time independent or asynchronous processing; Assured message delivery; Support of different application styles; MQ - some comparisons; Queues; Messages; MQPUT; MQGET; Queue Managers and database managers; A significant difference between queues and database tables...; Messages and queues; Shared queues; The Queue Manager; Basic message structure; Asynchronous messaging; Synchronous messaging; Multiple requesters, one responder; Parallel messaging; Re-using MQ application processes as business objects; Meshed business objects; Remote messaging (distributed queuing); MQ clients.

Configuration - Overview

Overview; Command interfaces; Creating Queue Managers; Starting Queue Managers; Stopping Queue Managers; Deleting Queue Managers; Command interfaces; RUNMQSC; STRMQMADM; PCF commands; Practical session 1 - creating a new default queue manager; IBM MQ object definition; Types of object; The Queue Manager object; The QLOCAL object: MQSGDLVSEQ, sharing, DEFPSIST, DISTL, sample commands; The QMODEL object: usage, sample commands; The QALIAS object: usage, sample commands; The NAMELIST object: usage, sample commands; DISPLAY names or information on queues; The AUTHINFO object; AMQSGET - sample session; Practical session 2 - managing IBM MQ objects.

Configuration - Triggering

Using MQ Explorer; Triggering; Why trigger?; What the Queue Manager does; Objects required for triggering; The initiation queue; The trigger monitor; The process object; Triggering the application queue; triggering: simplified walkthrough, detailed walkthrough; Triggered sample programs; Using the sample programs; Sample session; Practical session 3 IBM MQ triggering.

Distributed Queuing

Basic distributed messaging; Distributed queuing components; Transmission queues; Transmission queue headers; Remote queues; Specifying a transmission queue for a qremote; Message Channel Agents; Configuring channels; Types of channel; Sample MCA definition; Starting channels; The listener; Triggering channels; Channel batches; The Dead Letter Queue; Multi-hopping; Using a default transmission queue; The Queue Manager alias; Multi-hopping using a Queue Manager alias; How a receiving MCA processes incoming messages; Channel exits - security; Secure Sockets Layer (SSL) - 'Handshake'; Queue Manager Secure Sockets Layer (SSL) attributes; Channel attributes Secure Sockets Layer (SSL); Channel exits - message, send and receive; The Message exit; The Send exit; Resolving channel problems; Practical session 4 - configuring distributed queuing; Clustering Queue Managers; Why cluster?; What is a cluster?; Cluster objects; Cluster Queue Manager roles; Defining full repositories; Defining partial repositories; Cluster workload balancing; Overlapping clusters; Practical session 5 - implementing a cluster; The MQ client; Client structure; Client code installation; Client configuration; Queue Manager grouping; Practical session 6 - implementing clients.

Introduction to Clustering

What is an MQ cluster?; What an MQ cluster is not; Cloned application services; Continuous putting; Scalability; Cluster components; Reduced administration; Joining a Queue Manager to a cluster;

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Definition through use; Disseminating cluster information; Cluster information message contents; Retention of information in repositories; Dynamically created reply to queues; Basic cluster configuration; Cluster administration commands.

SSL

Public key encryption - principle; Public key encryption - capabilities; Digital certificates; Secure Sockets Layer; Authentication and Authorisation; Authentication; Authorisation; The MCAUSER parameter and channel authentication records; Configuring IBM MQ for SSL; IBM Key Management; Key repository location - Queue Managers; Key repository location - Clients; Channel definition parameters for SSL; SSLSIPH; SSLPEER; SSLCAUTH; Secret key reset; Access to Certificate Revocation Lists.

IBM MQ System Management

IBM MQ Architecture; Functional architecture; MQ processes; MQ components; Queue manager manual stop; Manual Queue Manager deletion; MQ directory structure; The MQS.INI file; The QM.INI file; Logging and recovery; Message persistence; Logs; Circular logging; Linear logging; Message recovery; Dumping the log; Transaction support; Syncpoint control; Recovery co-ordination: with manager, without manager; MQ Recovery co-ordination of XA compliant resource manager(s); Accounting: Accounting Messages, Statistics Messages, Display accounting information; Practical session - logging and recovery; Practical session 8 - Statistics and Accounting.

Monitoring MQ

Montioring MQ; Instrumentation events; Types of instumentation event; Accounting and statistics; Application activity trace; mqat.ini example; Real-time monitoring; Real-time monitoring attributes; Displaying real-time monitoring information; Queue and channel monitoring examples; Display route information (dspmqrte); dspmqrte examples.

MQ Security Overview

Introduction to MQ security; Security concepts; Authentication and authorisation; Channel authentication records; Channel access blocking points; Channel authentication examples; Connection authentication; Setting up connection authentication; Channel exits - security; Channel exits - message, send & receive; Access control: the OAM (Object Authority Manager); OAM authorisations; Setmqaut examples; SET AUTHREC examples; Explorer examples; Distributed queuing, user IDs, authorisation and MCAUSER; Advanced Message Security (AMS).

Publish and Subscribe

A classic example; Types of publications; State publications; Event publications; Adding business processes as subscribers; Topic strings and the topic tree; The topic tree and topic objects; The topic tree and authorisation; Defining topics; Displaying topic status; Types of subscription; MQI Extensions; Testing publish/subscribe; Distributed publish/subscribe; Hierarchies and clusters; Proxy subscriptions in clusters.

MQ Versions

WebSphere MQ V7.0.1 Enhancements; WebSphere MQ V7.1 Enhancements; WebSphere MQ V7.5

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Enhancements; IBM MQ V8.0 Enhancements; IBM MQ V 9.0 Enhancements.

Comparing Distributed & z/OS

Implementations; Installation; Storage (Distributed); Storage (z/OS); Shared Queues (z/OS); Extra Features; Application Programming; Object definition; Object attributes - Queue Manager; Object Attributes - Queues and Channels; Queue Manager operations; Intercommunication and clusters; Security; Commands; Monitoring; Problem Determination; Backup; High Availability.