WebSphere MQ V7 Administration for LUW

Course Summary

Description

The course takes the students through the concepts, basic administration and some advanced administration topics for WebSphere MQ V7 (WMQ) on the distributed platforms (Windows, AIX, UNIX, Sun Solaris, Linux, AS/400). Most of the course contents also apply to other platforms such as z/OS, Tandem and VSE. The students learn how to install WebSphere MQ, setup Queue Managers, define and manage Queues, Message Channels, Distributed Queuing, Clusters as well as advanced channel handling topics and performance monitoring and tuning topics. The course also helps to prepare for the IBM WMQ Certification tests. It is using machine exercises specific to the selected distributed platform:

- Windows
- Linux
- AIX (pSeries)
- Sun Solaris
- AS/400 (iSeries)

Topics

- Messaging Concepts
- WebSphere MQ Planning and Installation
- WebSphere MQ Basic Administration
- WebSphere MQ Application Programming
- WebSphere MQ Logging and Recovery
- WebSphere MQ Clients
- WebSphere MQ Clusters
- WebSphere MQ Security
- WMQ JMS Support
- Miscellaneous Administration Topics

Audience

This course is designed for system administrators responsible for the setup and maintenance of WebSphere MQ systems on Windows, AIX, Linux, UNIX, Sun Solaris or AS/400 platforms.

Prerequisites

Students should have system administration experience on distributed platforms.

Duration

Five days
I. Messaging Concepts
   A. What is WebSphere MQ (WMQ)?
   B. Messaging Middleware or Messaging Subsystem
   C. What is WMQ Message
   D. Message Queues
   E. Topics
   F. Queue Manager
   G. Point – To – Point Model
   H. Publish /Subscribe Model
   I. Application MQI Calls
   J. WMQ Message Format
   K. Message Persistence
   L. WMQ Objects
   M. WMQ Queue Types
   N. WMQ Triggering
   O. WMQ Client
   P. WMQ Client/Server Implementations
   Q. Local/Remote Message Delivery
   R. Local and Remote Queues
   S. Distributed Logical Unit of Work
   T. WMQ Supported Platforms

II. WebSphere MQ Planning and Installation
   A. WMQ Administration tasks
   B. Platform Dependent requirements
   C. Set up the required user IDs and Groups (on Unix only)
   D. Preparing for WMQ Install – AIX
   E. Preparing for WMQ Install – Windows
   F. Preparing for WMQ Install – Sun Solaris
   G. Preparing for WMQ Install – Linux
   H. Verify WMQ Installation

III. WebSphere MQ Basic Administration
   A. Administrative Interfaces
      1. WMQ System Commands
      2. MQSeries Command interface – MQSC
      3. Programmable Command Format (PCF) interface
      4. WMQ Explorer for WMQ on Windows and Linux
      5. WMQ for iSeries (AS/400) Interfaces
      6. WMQ for z/OS Interfaces
   B. WMQ Objects
      1. Queue Manager (QMGR)

IV. WebSphere MQ Application Programming
   A. Preparing WMQ Application Programs
      1. WMQ MQI -Supported Languages
      2. WMQ Client / Server Implementation
      3. WMQ Program - Structure
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Course Outline (cont’d)

4. WMQ Data Structures and Constants
5. WMQ Program - Sample Logic Flow

B. MQI CALLS
1. MQI CALLS - MQCONN
2. MQI CALLS - MQOPEN
3. MQOPEN - Create a Dynamic Queue
4. MQI Calls - MQPUT
5. MQI Calls - MQPUT1
6. MQI Calls - MQGET

A. MESSAGE PROPERTIES
1. Priority / Persistence
2. Message ID / Correlation ID

B. MESSAGE TYPES
1. Datagrams
2. Request messages
3. Reply messages
4. Report messages

C. MESSAGE DATA CONVERSION

D. Coordination of units of work

E. MINOR MQI CALLS
1. MQINQ
2. MQSET

V. WebSphere MQ Single System
Administration Topics

A. WMQ Server Structure
1. WMQ Server - Processes
2. Stopping a Queue Manager Manually
3. WMQ Directory Structure
4. WMQ Configuration Files
   a. mqs.ini / qm.ini
   b. Windows Registry
   c. Installable Services

B. WMQ Problem Determination
1. Error log files
2. FFST reports
3. WMQ Trace

C. WMQ Remote Administration
1. Via Programmable Command Format (PCF) messages
2. WMQ Command Server
3. Indirect Mode

VI. WebSphere MQ Logging and Recovery

A. Logging and Recovery Concepts
1. Logging
2. Archiving
3. Back up / Restore
4. Restart Recovery
5. Media Recovery
6. Message Persistence

B. Types of Logging
1. CIRCULAR / LINEAR

C. WMQ Log Files
1. Managing Linear Log Files

D. Types of Data Recovery
1. Recovering Persistent Messages
2. Recovering Media/Damaged Objects
3. Backing Up QMGR Files/Objects
4. Backing Up QMGR Files/Objects

E. WMQ SupportPacs/Red Books for Logging and Recovery

VII. Distributed Queue Management (DQM)

A. DQM - Using Local and Remote Queues
B. DQM Objects
C. Queue Definitions for DQM
1. Local definition of a remote queue
2. Transmit queue
3. Queue Manager Alias

D. DQM – Channels
1. Attributes of a Message Channel
2. Starting a Message Channel

E. DQM – Listeners and Channel Initiators
1. Configuring TCP/IP Listeners
2. Starting a Listener
3. Stopping a Listener
4. Configuring inetd Listener
5. Using Channel Initiator (CHINIT)

F. Channel States

G. MCA Retry Intervals

H. Auto-Definition of Channels (CHAD)

I. DQM – Message Routing Considerations
1. Single Router – QR1
2. Multiple Routers - using aliases, default transmission queues...

J. Using Dead Letter Queue
1. Dead Letter Queue Handler
2. Managing Dead Letter Queues

K. Automating WMQ Startup Tasks

L. Automating Startup – Service Definitions

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Course Outline (cont’d)

M. WMQ Channel Exits - Overview
   1. Channel Exits – Flow of Control
   2. Specifying Channel Exit Programs
   3. Channel Exits on MQI Channels
   4. Writing a Channel Exit Program

VIII. WebSphere MQ Clients
   A. WMQ Client – Logical View
   B. MQ Client Support
   C. Installing the Client Software
   D. Configuring the Client Channel
   E. Defining an MQI Channel
      1. DEFINE CHANNEL
         CHLTYPE(SVRCONN)
      2. DEFINE CHANNEL
         CHLTYPE(CLNTCONN)
   F. Configuring MQ Client
      1. Method 1 – using MQ variables
      2. Method 2 – using MQ Client Channel
         Definition Table (CCDT):
      3. Method 3 – Client application specifies
         connection parms
   G. Defining MQI Channels
      1. Sample SVRCONN Definitions
      2. Sample CLNTCONN Definitions –
         coded on any Queue Manager
      3. Using Client Channel Definitions
      4. CCDT Load balancing by V7 Client
   H. Controlling the Client Configuration - V7
      1. Sample mqclient.ini
   I. Client Read Ahead Feature - V7
   J. Client Read Ahead Configuration - V7
   K. SRVCONN Connection Control - V7
      1. Limit the number of concurrent
         connections:
      2. Using shared conversation on a single
         instance of a SRVCONN
   L. WebSphere MQ Clients Summary

IX. WebSphere MQ Clusters
   A. WebSphere MQ Clusters - Concepts
      1. WMQ Clusters – Simple Cluster
      2. WMQ Clusters – Client/Server View
      3. WMQ Clusters – Peer to Peer View
      4. WMQ Clusters – Multiple Repositories
      5. WMQ Clusters – Workload Balancing
      6. WMQ Clusters – Workload Re-routing
   B. Clusters – System Objects
      1. Cluster command queue
      2. Cluster-sender channel
      3. Cluster-receiver channel
   C. Clusters - Sample Definitions
   D. Clusters – Workload Balancing V6
      1. Workload balancing parameters:
      2. CLWLUSEQ / CLWLMRUC / CLWLPRTY / CLWLRRANK /
         CLWLWGT(1-99)
   E. Controlling Clusters – MQSC Commands
   F. WMQ Clusters - Benefits

X. WebSphere MQ Security
   A. WMQ Access Control
      1. Authority checking in the MQI via OAM
      2. WMQ Access Control – OAM
      3. MQSeries access control at user and/ or
         group level
      4. Support for Alternate UserIDs at
         application level
   B. Access Control Lists
      1. Access control for MQSeries objects
      2. Access Control Commands
         a. setmqaut
         b. dspmqaut
         c. dmpmqaut
      3. Access Control for Control Programs
      4. Access Control for MQI
   C. Audit: MQSeries Security Events
   D. Access Control – UNIX Considerations
   E. Access Control – Windows Considerations
   F. Message Context
      1. MQMD Context Fields
      2. Setting Context by Application
   G. Using Alternate User Authority
   H. Remote Queues and Channel Security
      1. Channel Exits – Flow of Control
      2. Channel Exits on MQI Channels
      3. Access Control for MQSeries Client
   I. Secure Sockets Layer – SSL Concepts
      1. Use of SSL in WMQ
      2. QMGR Attributes for SSL
      3. QMGR Authentication Object
      4. Channel Attributes for SSL
      5. SSL Definitions for MQ Client

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Course Outline (cont’d)

XI. WMQ JMS Support
   A. JMS Concepts
   B. JMS Messaging Models
      1. Point-to-point
      2. Publish-subscribe
   C. JMS Objects
   D. Accessing WMQ From JMS Applications
   E. WMQ JMS Setup
      1. JMSAdmin tool
      2. JMS Levels of Control
      3. Sample JMSAdmin / WMQ definitions
      4. Using WMQ Explorer for JMS administration

XII. Miscellaneous Administration Topics
   A. Introduction to WMQ Monitoring
   B. WMQ monitoring types
      1. Event Monitoring
      2. Real Time Monitoring
      3. Accounting and Statistics
   C. Controlling WMQ Monitoring
      1. Controlling Event Monitoring
      2. Controlling Real Time Monitoring
      3. Controlling Accounting and Statistics
   D. WMQ Monitoring - Sample Data
   E. WMQ SupportPacs
   F. SupportPac types
   G. SupportPac descriptions – sample listings